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4

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A Few Words About Safety

Service Information

The service and repair information contained in this manual is intended for use by qualified, professional technicians. Attempting service or repairs without the proper training, tools, and equipment could cause injury to you or others. It could also damage the vehicle or create an unsafe condition.

This manual describes the proper methods and procedures for performing service, maintenance, and repairs. Some procedures require the use of specially designed tools and dedicated equipment. Any person who intends to use a replacement part, service procedure, or a tool that is not recommended by Honda, must determine the risks to their personal safety and the safe operation of the vehicle.

If you need to replace a part, use Honda parts with the correct part number or an equivalent part. We strongly recommend that you do not use replacement parts of inferior quality.

FOR YOUR CUSTOMER'S SAFETY

Proper service and maintenance are essential to the customer's safety and the reliability of the vehicle. Any error or oversight while servicing a vehicle can result in faulty operation, damage to the vehicle, or injury to others.

⚠ WARNING

Improper service or repairs can create an unsafe condition that can cause your customer or others to be seriously hurt or killed.
Follow the procedures and precautions in this manual and other service materials carefully.

FOR YOUR SAFETY

Because this manual is intended for the professional service technician, we do not provide warnings about many basic shop safety practices (e.g., Hot parts—wear gloves). If you have not received shop safety training or do not feel confident about your knowledge of safe servicing practices, we recommend that you do not attempt to perform the procedures described in this manual.

⚠ WARNING

Failure to properly follow instructions and precautions can cause you to be seriously hurt or killed.
Follow the procedures and precautions in this manual carefully.

Some of the most important general service safety precautions are given below. However, we cannot warn you of every conceivable hazard that can arise in performing service and repair procedures. Only you can decide whether or not you should perform a given task.

IMPORTANT SAFETY PRECAUTIONS

- Make sure you have a clear understanding of all basic shop safety practices and that you are wearing appropriate clothing and using safety equipment. When performing any service task, be especially careful of the following:
  - Read all of the instructions before you begin, and make sure you have the tools, the replacement or repair parts, and the skills required to perform the tasks safely and completely.
  - Protect your eyes by using proper safety glasses, goggles, or face shields anytime you hammer, drill, grind, or work around pressurized air or liquids and springs, or other stored-energy components. If there is any doubt, put on eye protection.
  - Use other protective wear when necessary, for example, gloves or safety shoes. Handling hot or sharp parts can cause severe burns or cuts. Before you grab something that looks like it can hurt you, stop and put on gloves.
  - Protect yourself and others whenever you have the vehicle up in the air. Anytime you lift the vehicle, either with a hoist or a jack, make sure that it is always securely supported. Use jack stands.
  - Protect yourself by wearing an approved welding helmet, gloves, and safety shoes anytime you are welding. You can receive burns from hot parts, allow the parts to cool before working in that area.
  - Protect yourself from paints and harmful chemicals by wearing an approved respirator, eye protection, and gloves whenever you are painting. Spray paint only in an approved paint booth that is well ventilated.

- Make sure the engine is off before you begin any servicing procedures, unless the instruction tells you to do otherwise. This will help eliminate several potential hazards:
  - Carbon monoxide poisoning from engine exhaust. Be sure there is adequate ventilation whenever you run the engine.
  - Burns from hot parts or coolant. Let the engine and exhaust system cool before working in those areas.
  - Injury from moving parts. If the instruction tells you to run the engine, be sure your hands, fingers, and clothing are out of the way.

- Gasoline vapors and hydrogen gases from batteries are explosive. To reduce the possibility of a fire or explosion, be careful when working around gasoline or batteries.
  - Use only a nonflammable solvent, not gasoline to clean parts.
  - Never drain or store gasoline in an open container.
  - Keep all cigarettes, sparks and flames away from the battery and all fuel-related parts.

INTRODUCTION

How to Use This Manual

This manual is divided into 23 sections. The first page of each section is marked with a black tab that lines up with its corresponding thumb index tab on this page and the back cover. You can quickly find the first page of each section without looking through a full table of contents. The symbols printed at the top corner of each page can also be used as a quick reference system.
Each section includes:

1. A table of contents, or an exploded view index showing:
   - Parts disassembly sequence.
   - Bolt torques and thread sizes.
   - Page references to descriptions in text.
2. Disassembly/assembly procedures and tools.
3. Inspection.
4. Testing/troubleshooting.
5. Repair.
6. Adjustments.

Safety Messages

Your safety, and the safety of others, is very important. To help you make informed decisions, we have provided safety messages, and other safety information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle. You must use your own good judgment.
You will find important safety information in a variety of forms including:

- **Safety Labels** — on the vehicle.
- **Safety Messages** — preceded by a safety alert symbol ⚠ and one of three signal words, DANGER, WARNING, or CAUTION. These signal words mean:

⚠ DANGER You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.
⚠ WARNING You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.
⚠ CAUTION You CAN be HURT if you don't follow instructions.

- **Instructions** — how to service this vehicle correctly and safely.

All information contained in this manual is based on the latest product information available at the time of printing. We reserve the right to make changes at any time without notice. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher. This includes text, figures, and tables.

As you read this manual, you will find information that is preceded by a NOTICE symbol. The purpose of this message is to help prevent damage to your vehicle, other property, or the environment.

First Edition 08/2003 2,464 pages
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Specifications apply to U.S.A. and Canada

HONDA MOTOR CO.,LTD.
Service Publication Office

As sections with * include SRS components; special precautions are required when servicing.

General Info
Specifications
Maintenance
Engine Electrical
Engine
Cooling
Fuel and Emissions
* Transaxle
Steering
Suspension
Brakes (Including ABS)
* Body
* Heating, Ventilation and Air Conditioning
* Body Electrical
* Restraints

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

The Odyssey SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done only by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work must be performed by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump the SRS unit. Otherwise, the system may fail in a collision, or airbags may deploy if the ignition switch is ON (II).
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, and around the floor. Do not use electrical test equipment on these circuits.

General Information

Chassis and Paint Codes - 1999 Model 1-2

Chassis and Paint Codes - 2000 Model 1-3

Chassis and Paint Codes - 2001 Model 1-4

Chassis and Paint Codes - 2002 Model 1-5

Chassis and Paint Codes - 2003 Model 1-6

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General Information

Chassis and Paint Codes

1999 Model

Vehicle Identification Number

0 1

2HK RL1 8 4 * X H 500001

a b c d e f g h

a. Manufacturer, Make, and Type of Vehicle
2HJ: HONDA OF CANADA MFG.,
HONDA CANADA INC.
HONDA Light duty truck
2HK: HONDA OF CANADA MFG.,
HONDA CANADA INC.
HONDA Multipurpose passenger vehicle

b. Line, Body, and Engine Type
RL1: ODYSSEY/J35A1

c. Body Type and Transmission Type
8: 5-door/4-speed Automatic

d. Vehicle Grade (Series)
U.S. model
1: VAN
4: LX
5: LX
6: EX
Canada model
4: LX with bench seat
5: LX with captain's seat
6: EX

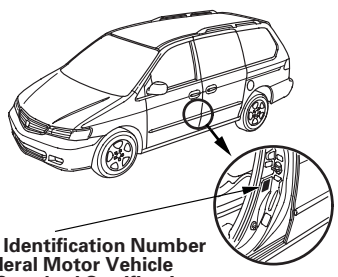
e. Check Digit

f. Model Year
X: 1999

g. Factory Code
H: Ontario Factory in Canada

h. Serial Number
500001—: U.S. model
000001—: Canada model

0 2



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification.

Engine Number

0 2

J35A1 - 1000001

a b

a. Engine Type
J35A1: 3.5 ℓ SOHC VTEC Sequential Multiport Fuel-injected engine

b. Serial Number

Transmission Number

0 3

B7TA - 6700001

a b

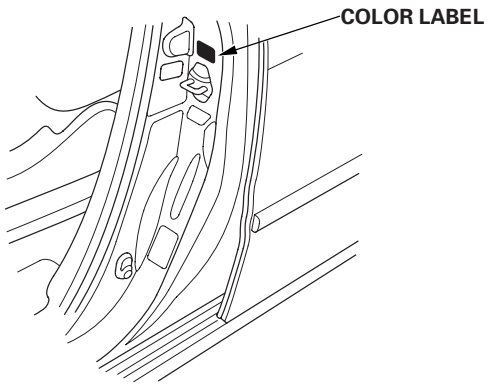
a. Transmission Type
B7TA: 4-speed Automatic

b. Serial Number

Paint Code

Code	Color	U.S.	Canada
B-89P	Deep Velvet Blue Pearl	○	○
G-87P	Dark Emerald Pearl	○	○
G-501M	Granite Green Metallic	○	○
NH-615M	Canyon Stone Silver Metallic	○	○
YR-520M	Mesa Beige Metallic	○	○

0 5



2000 Model

Vehicle Identification Number

2HK RL1 8 6 * Y H 500001

a b c d e f g h

a. Manufacturer, Make, and Type of Vehicle
2HJ: HONDA OF CANADA MFG.,
HONDA CANADA INC.
HONDA Light duty truck
2HK: HONDA OF CANADA MFG.,
HONDA CANADA INC.
HONDA Multipurpose passenger vehicle

b. Line, Body, and Engine Type
RL1: ODYSSEY/J35A1

c. Body Type and Transmission Type
8: 5-door/4-speed Automatic

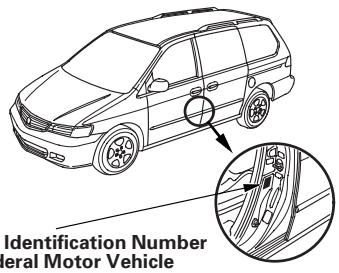
d. Vehicle Grade (Series)
U.S. model
1: VAN without captain's seat
5: LX
6: EX
7: EX with Navigation System
Canada model
3: DX
5: LX
6: EX

e. Check Digit

f. Model Year
Y: 2000

g. Factory Code
H: Ontario Factory in Canada

h. Serial Number
500001—: U.S. model
g. 000001—: Canada model



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification.

Engine Number

J35A1 - 2000001

a b

a. Engine Type
J35A1: 3.5 ℓ SOHC VTEC Sequential Multiport Fuel-injected engine

b. Serial Number

Transmission Number

B7TA - 7000001

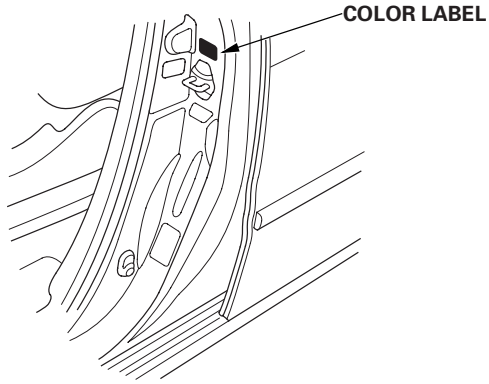
a b

a. Transmission Type
B7TA: 4-speed Automatic

b. Serial Number

Paint Code

Code	Color	U.S.	Canada
B-89P	Deep Velvet Blue Pearl	○	○
G-87P	Dark Emerald Pearl	○	○
G-501M	Granite Green Metallic	○	○
NH-578	Taffeta White	○	
NH-615M	Canyon Stone Silver Metallic	○	○
YR-520M	Mesa Beige Metallic	○	○



Chassis and Paint Codes (cont'd)

2001 Model

Vehicle Identification Number

2HK RL1 8 3 * 1 H 500001

a b c d e f g h

a. Manufacturer, Make, and Type of Vehicle
2HJ: HONDA OF CANADA MFG.,
HONDA CANADA INC.
HONDA Light duty truck
2HK: HONDA OF CANADA MFG.,
HONDA CANADA INC.
HONDA Multipurpose passenger vehicle

b. Line, Body, and Engine Type
RL1: ODYSSEY/J35A1

c. Body Type and Transmission Type
8: 5-door/4-speed Automatic

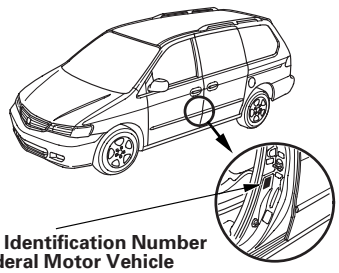
d. Vehicle Grade (Series)
U.S. model
1: VAN without captain's seat
5: LX
6: EX
7: EX with Navigation System
Canada model
3: DX
5: LX
6: EX

e. Check Digit

f. Model Year
1: 2001

g. Factory Code
H: Ontario Factory in Canada

h. Serial Number
500001—: U.S. model
000001—: Canada model



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification.

Engine Number

J35A1 - 3000001

a b

a. Engine Type
J35A1: 3.5 ℓ SOHC VTEC Sequential Multiport Fuel-injected engine

b. Serial Number

Transmission Number

B7TA - 8000001

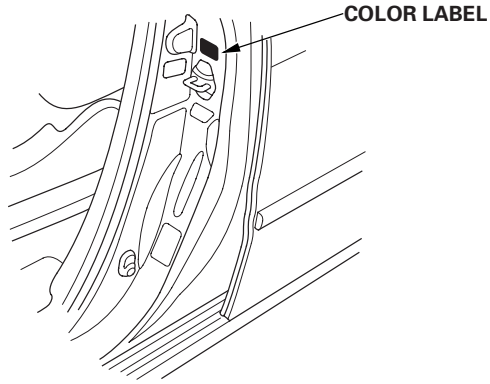
a b

a. Transmission Type
B7TA: 4-speed Automatic

b. Serial Number

Paint Code

Code	Color	U.S.	Canada
G-87P	Dark Emerald Pearl	○	○
G-501M	Granite Green Metallic	○	○
NH-578	Taffeta White	○	
NH-615M	Canyon Stone Silver Metallic		○
NH-638M	Starlight Silver Metallic	○	○
YR-520M	Mesa Beige Metallic	○	○



2002 Model

Vehicle Identification Number

2HK RL1 8 5 * 2 H 500001

a b c d e f g h

a. Manufacturer, Make, and Type of Vehicle
2HJ: HONDA OF CANADA MFG.,
HONDA CANADA INC.
HONDA Light duty truck
2HK: HONDA OF CANADA MFG.,
HONDA CANADA INC.
HONDA Multipurpose passenger vehicle
5FN: HONDA MGF .,
OF ALABAMA LLC.
HONDA Multipurpose passenger vehicle

b. Line, Body, and Engine Type
RL1: ODYSSEY/J35A4

c. Body Type and Transmission Type
8: 5-door/5-speed Automatic

d. Vehicle Grade (Series)
U.S. model
0: EXL with Rear Entertainment System
1: VAN without captain's seat
5: LX
6: EX
7: EXL with Navigation System
9: EXL
Canada model
5: LX
6: EX
9: EXL

e. Check Digit

f. Model Year
2: 2002

g. Factory Code
H: Ontario Factory in Canada
B: Lincoln Factory in Alabama

h. Serial Number
500001—: U.S. model (produced in Canada)
000001—: Canada model (produced in Canada)
000001—: U.S. model (produced in Alabama)

Engine Number

J35A4 - 1500001

a b

a. Engine Type
J35A4: 3.5 ℓ SOHC VTEC Sequential Multiport Fuel-injected engine

b. Serial Number
1500001—: Produced in Canada
1000001—: Produced in Alabama

Transmission Number

BYBA - 9000001

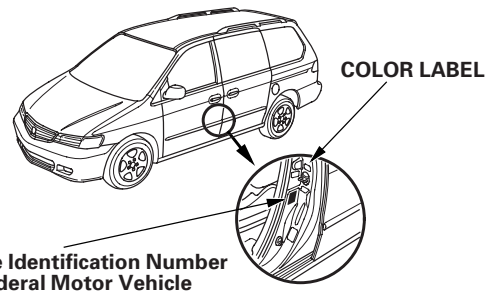
a b

a. Transmission Type
BYBA: 5-speed Automatic

b. Serial Number

Paint Code

Code	Color	U.S.	Canada
BG-50M	Havasu Blue Metallic	○	○
G-501M	Granite Green Metallic	○	○
G-510P	Evergreen Pearl	○	○
NH-578	Taffeta White	○	○
NH-638M	Starlight Silver Metallic	○	○
R-519P	Redrock Pearl	○	○
YR-520M	Mesa Beige Metallic	○	○



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification.

Chassis and Paint Codes (cont'd)

2003 Model

Vehicle Identification Number

2HK RL1 8 5 * 3 H 500001

a b c d e f g h

a. Manufacturer, Make, and Type of Vehicle
2HJ: HONDA OF CANADA MFG.,
HONDA CANADA INC.
HONDA Light duty truck
2HK: HONDA OF CANADA MFG.,
HONDA CANADA INC.
HONDA Multipurpose passenger vehicle
5FN: HONDA MGF .,
OF ALABAMA LLC.
HONDA Multipurpose passenger vehicle
5FP: HONDA MGF .,
OF ALABAMA LLC.
HONDA Light duty truck

b. Line, Body, and Engine Type
RL1: ODYSSEY/J35A4

c. Body Type and Transmission Type
8: 5-door/5-speed Automatic

d. Vehicle Grade (Series)
U.S. model
0: EXL with Rear Entertainment System
1: VAN without captain's seat
5: LX
6: EX
7: EXL with Navigation System
9: EXL
Canada model
0: EXL with Rear Entertainment System
5: LX
6: EX
9: EXL

e. Check Digit

f. Model Year
3: 2003

g. Factory Code
H: Ontario Factory in Canada
B: Lincoln Factory in Alabama

h. Serial Number
500001—: U.S. model (produced in Canada)
500001—: Canada model (produced in Alabama)
000001—: U.S. model (produced in Alabama)
000001—: Canada model (produced in Canada)

Engine Number

J35A4 - 2800001

a b

a. Engine Type
J35A4: 3.5 ℓ SOHC VTEC Sequential Multiport Fuel-injected engine

b. Serial Number
2800001—: Produced in Canada
2000001—: Produced in Alabama

Transmission Number

BYBA - 5000001

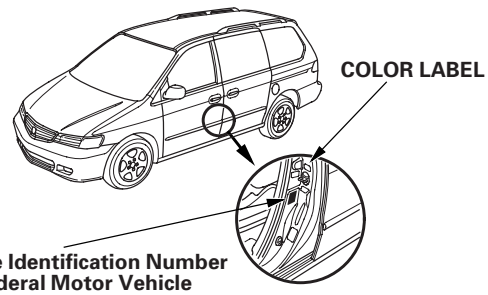
a b

a. Transmission Type
BYBA: 5-speed Automatic

b. Serial Number

Paint Code

Code	Color	U.S.	Canada
B-92P	Nighthawk Black Pearl	○	○
B-518P	Midnight Blue Pearl	○	○
BG-50M	Havasu Blue Metallic	○	○
G-510P	Evergreen Pearl	○	○
NH-578	Taffeta White	○	○
NH-638M	Starlight Silver Metallic	○	○
NH-662P	Sage Brush Pearl	○	○
R-519P	Redrock Pearl	○	○
YR-542M	Sandstone Metallic	○	○



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification.

2004 Model

Vehicle Identification Number

2HK RL1 8 5 * 4 H 500001

a b c d e f g h

a. Manufacturer, Make, and Type of Vehicle
2HK: HONDA OF CANADA MFG.,
HONDA CANADA INC.
HONDA Multipurpose passenger vehicle
5FN: HONDA MGF.,
OF ALABAMA LLC.
HONDA Multipurpose passenger vehicle
HONDA Light duty truck

b. Line, Body, and Engine Type
RL1: ODYSSEY/J35A4

c. Body Type and Transmission Type
8: 5-door/5-speed Automatic

d. Vehicle Grade (Series)
U.S. model
0: EXL with Rear Entertainment System
5: LX
6: EX
7: EXL with Navigation System
9: EXL
Canada model
0: EXL with Rear Entertainment System
5: LX
6: EX
9: EXL

e. Check Digit

f. Model Year
4: 2004

g. Factory Code
H: Ontario Factory in Canada
B: Lincoln Factory in Alabama

h. Serial Number
500001—: U.S. model (produced in Canada)
500001—: Canada model (produced in Alabama)
000001—: U.S. model (produced in Alabama)
000001—: Canada model (produced in Canada)

Engine Number

J35A4 - 3800001

a b

a. Engine Type
J35A4: 3.5 ℓ SOHC VTEC Sequential Multiport Fuel-injected engine

b. Serial Number
3800001—: Produced in Canada
3000001—: Produced in Alabama

Transmission Number

BYBA - 6000001

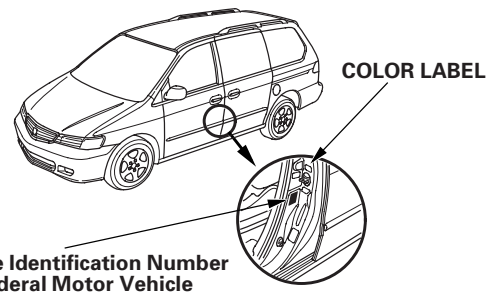
a b

a. Transmission Type
BYBA: 5-speed Automatic

b. Serial Number

Paint Code

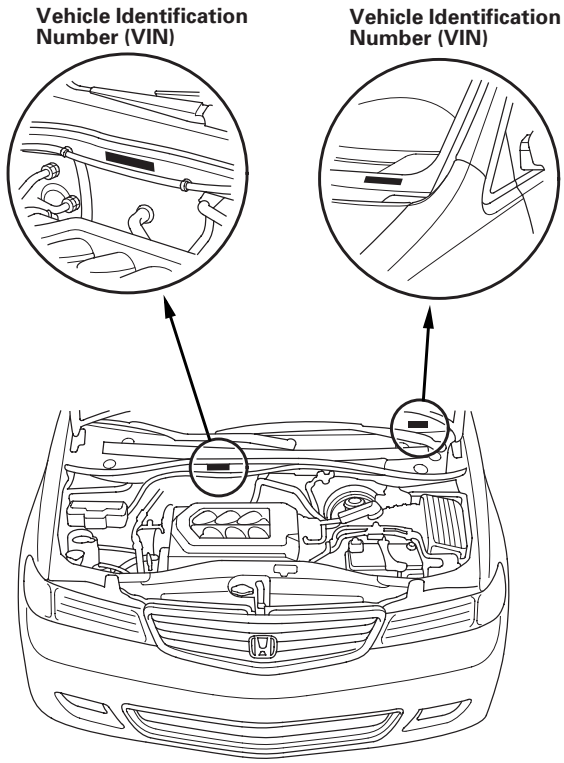
Code	Color	U.S.	Canada
B-92P	Nighthawk Black Pearl	○	○
B-518P	Midnight Blue Pearl	○	○
BG-50M	Havasu Blue Metallic	○	
NH-578	Taffeta White	○	
NH-638M	Starlight Silver Metallic	○	○
NH-662P	Sage Brush Pearl	○	○
R-519P	Redrock Pearl	○	○
YR-542M	Sandstone Metallic	○	○

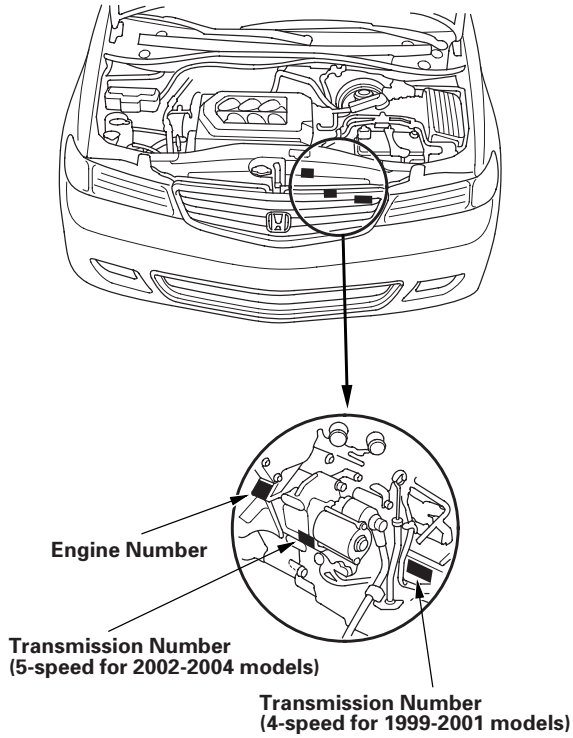


Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification.

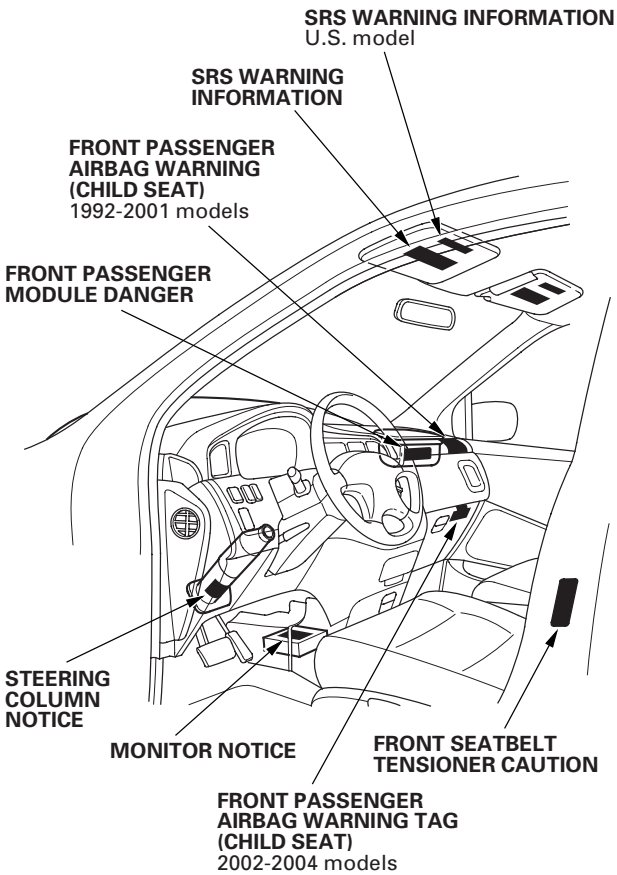
Identification Number Locations



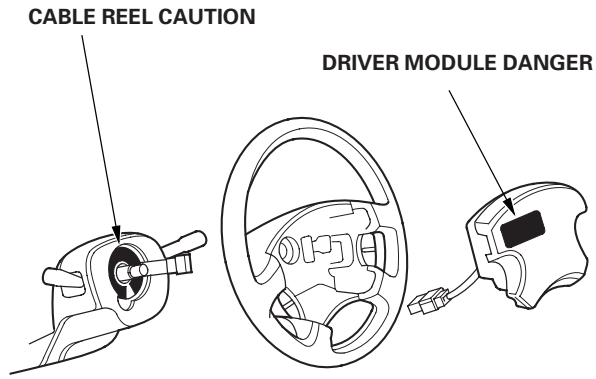


Warning/Caution Label Locations

Cabin:

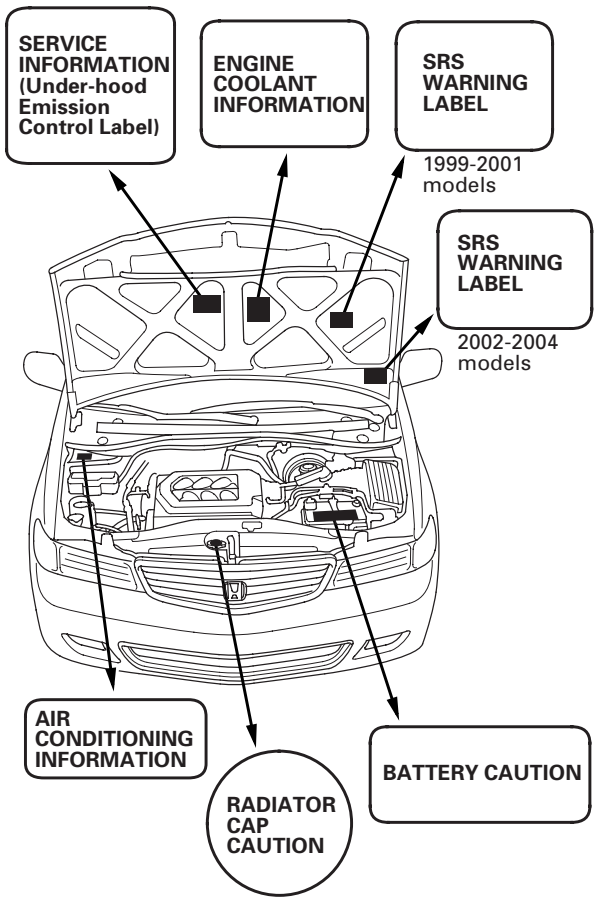


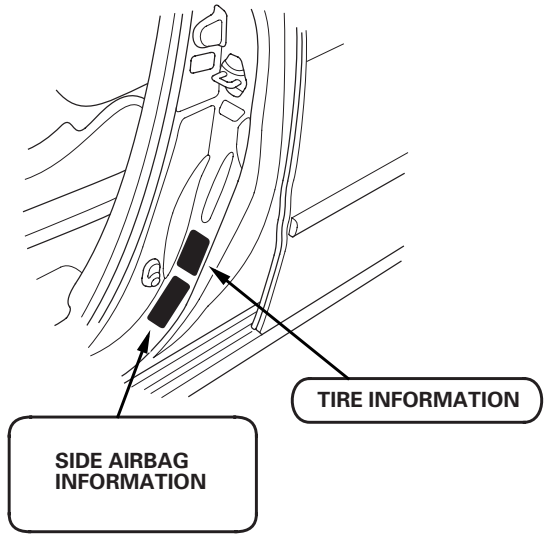
Steering Wheel:



(cont'd)

Warning/Caution Label Locations (cont'd)





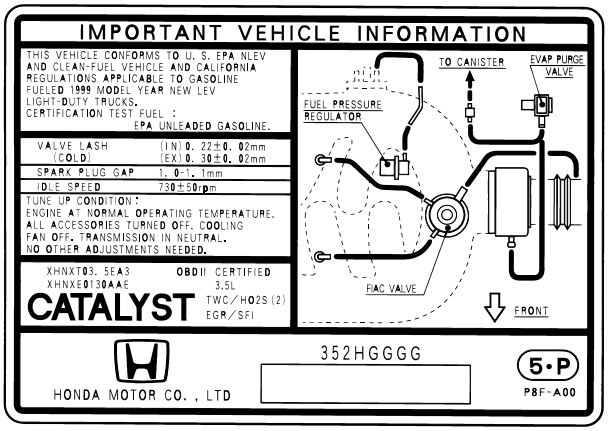
Located on driver's and passenger's doorjamb.

Under-hood Emission Control Label

1999 Model

Emission Group Identification

Example:



50 States LEV+CFV+NLEV

THIS VEHICLE CONFORMS TO U.S. EPA NLEV AND CLEAN-FUEL VEHICLE AND CALIFORNIA REGULATIONS APPLICABLE TO GASOLINE FUELED 1999 MODEL YEAR NEW LEV LIGHT-DUTY TRUCKS.

Engine and Evaporative Families

Engine Family:

X HNX T 03.5 EA3

a b c d e

- **a. Model Year**
  X: 1999
- **b. Manufacturer Subcode**
  HNX: HONDA
- **c. Family Type**
  T: LDT
- **d. Displacement**
- **e. Sequence Characters**

Evaporative Family:

X HNX E 0130 AAE

a b c d e

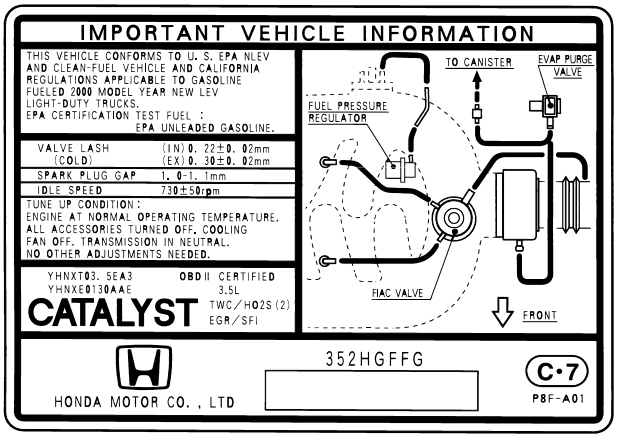
- **a. Model Year**
  X: 1999
- **b. Manufacturer Subcode**
  HNX: HONDA
- **c. Family Type**
  E: EVAP
- **d. Canister Work Capacity**
- **e. Sequence Characters**

Under-hood Emission Control Label (cont'd)

2000 Model

Emission Group Identification

Example:



50 States LEV + CFV + NLEV

THIS VEHICLE CONFORMS TO U.S. EPA NLEV AND CLEAN-FUEL VEHICLE AND CALIFORNIA REGULATIONS APPLICABLE TO GASOLINE FUELED 2000 MODEL YEAR NEW LEV LIGHT-DUTY TRUCKS.

Engine and Evaporative Families

Engine Family:

Y HNX T 03.5 EA3

a b c d e

- **a. Model Year**
  Y: 2000
- **b. Manufacturer Subcode**
  HNX: HONDA
- **c. Family Type**
  T: LDT
- **d. Displacement**
- **e. Sequence Characters**

Evaporative Family:

Y HNX E 0130 AAE

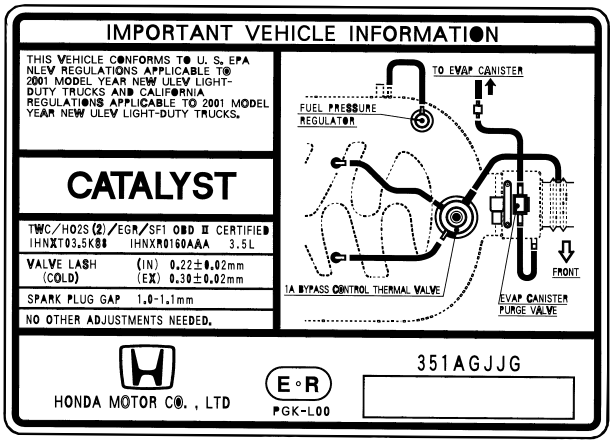
a b c d e

- **a. Model Year**
  Y: 2000
- **b. Manufacturer Subcode**
  HNX: HONDA
- **c. Family Type**
  E: EVAP
- **d. Canister Work Capacity**
- **e. Sequence Characters**

2001 Model

Emission Group Identification

Example:



50 States LEV+CFV+NLEV

THIS VEHICLE CONFORMS TO U.S. EPA NLEV REGULATIONS APPLICABLE TO 2001 MODEL YEAR NEW ULEV LIGHT-DUTY TRUCKS AND CALIFORNIA REGULATIONS APPLICABLE TO 2001 MODEL YEAR NEW ULEV LIGHT-DUTY TRUCKS.

CANADIAN TIER 1

THIS VEHICLE CONFORMS TO CANADIAN TIER 1 STANDARDS FOR 2001 MODEL YEAR NEW LIGHT-DUTY TRUCKS.

Engine and Evaporative Families

Engine Family:

1 HNX T 03.5 DH2

a b c d e

- **a. Model Year**
  1: 2001
- **b. Manufacturer Subcode**
  HNX: HONDA
- **c. Family Type**
  T: LDT
- **d. Displacement**
- **e. Sequence Characters**

Evaporative Family:

1 HNX R 0160 AAA

a b c d e

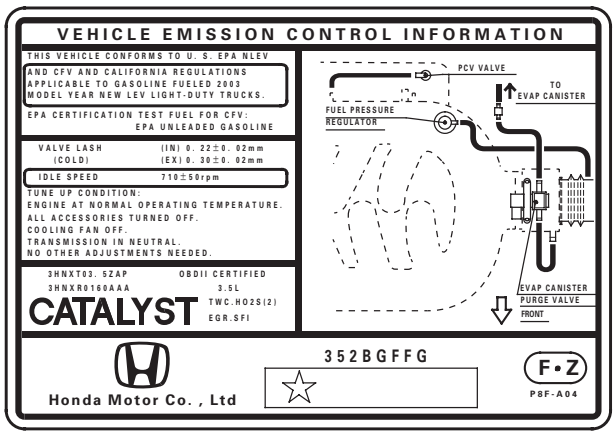
- **a. Model Year**
  1: 2001
- **b. Manufacturer Subcode**
  HNX: HONDA
- **c. Family Type**
  R: EVAP/ORVR
- **d. Canister Work Capacity**
- **e. Sequence Characters**

Under-hood Emission Control Label (cont'd)

2002-2004 Models

Emission Group Identification

Example:



FEDERAL and CANADIAN TIER 1

2002 Model:

THIS VEHICLE CONFORMS TO U.S. EPA NLEV AND CLEAN-FUEL VEHICLE AND CALIFORNIA REGULATIONS APPLICABLE TO GASOLINE FUELED 2002 MODEL YEAR NEW LEV LIGHT-DUTY TRUCKS.

2003 Model:

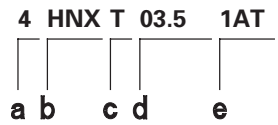
THIS VEHICLE CONFORMS TO U.S. EPA NLEV AND CLEAN-FUEL VEHICLE AND CALIFORNIA REGULATIONS APPLICABLE TO GASOLINE FUELED 2003 MODEL YEAR NEW LEV LIGHT-DUTY TRUCKS.

2004 Model:

THIS VEHICLE CONFORMS TO U.S. EPA INTERIM NON-TIER 2 BIN 9 AND CFV LEV REGULATIONS APPLICABLE TO 2004 MODEL YEAR NEW LIGHT-DUTY TRUCKS AND CALIFORNIA REGULATIONS APPLICABLE TO 2004 MODEL YEAR NEW LEV I LEV LIGHT-DUTY TRUCKS.

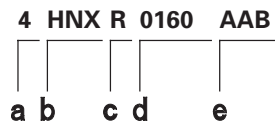
Engine and Evaporative Families

Engine Family:



a. **Model Year**
   2: 2002
   3: 2003
   4: 2004
b. **Manufacturer Subcode**
   HNX: HONDA
c. **Family Type**
   T: LDT
d. **Displacement**
e. **Sequence Characters**
   1AP: 2002 model
   ZAP: 2003 model
   1AT: 2004 model

Evaporative Family:



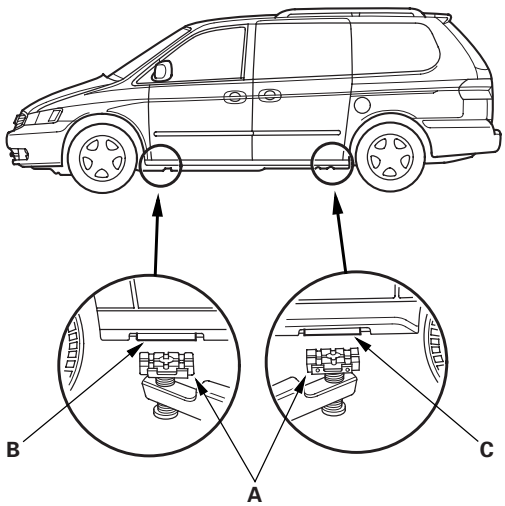
a. **Model Year**
   2: 2002
   3: 2003
   4: 2004
b. **Manufacturer Subcode**
   HNX: HONDA
c. **Family Type**
   R: EVAP/ORVR
d. **Canister Work Capacity**
e. **Sequence Characters**
   AAA: 2002, 2003 models
   AAB: 2004 model

Lift and Support Points

NOTE: If you are going to remove heavy components such as suspension or the fuel tank from the rear of the vehicle, first support the front of the vehicle with tall safety stands. When substantial weight is removed from the rear of the vehicle, the center of gravity can change and cause the vehicle to tip forward on the hoist.

Frame Hoist

1. Position the hoist lift blocks (A), or safety stands, under the vehicle's front support points (B) and rear support points (C).



2. Raise the hoist a few inches, and rock the vehicle gently to be sure it is firmly supported.

3. Raise the hoist to full height, and inspect the lift points for solid contact with the lift blocks.

Safety Stands

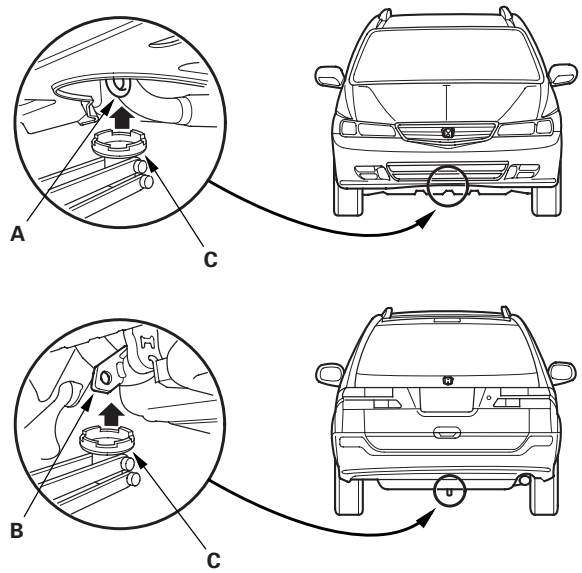
To support the vehicle on safety stands, use the same support points (B and C) as for a frame hoist. Always use safety stands when working on or under any vehicle that is supported only by a jack.

Floor Jack

1. When lifting the front of the vehicle, set the parking brake. When lifting the rear of the vehicle, put the shift lever in the P position.

2. Block the wheels that are not being lifted.

3. Position the floor jack under the front jacking bracket (A) or rear jacking bracket (B), center the jack lift platform (C), on the jacking bracket and jack up the vehicle high enough to fit the safety stands under it.



4. Position the safety stands under the support points and adjust them so the vehicle will be level.

5. Lower the vehicle onto the stands.

Towing

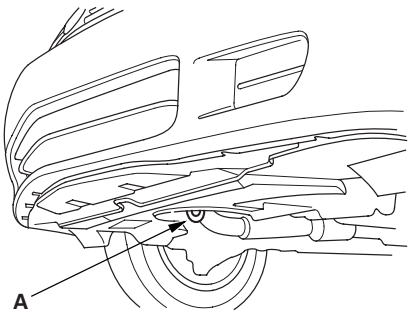
If the vehicle needs to be towed, call a professional towing service. Never tow the vehicle behind another vehicle with just a rope or chain. It is very dangerous.

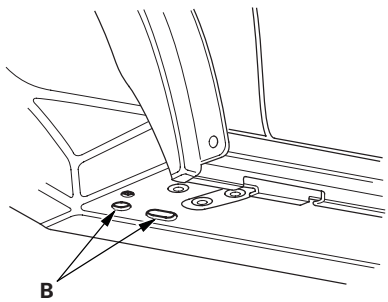
Emergency Towing
There are three popular methods of towing a vehicle.

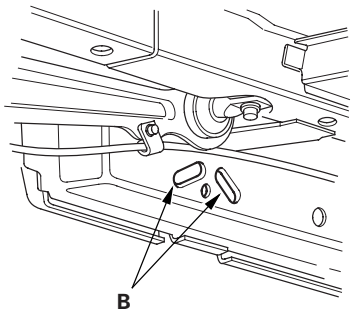
Flat-bed Equipment — The operator loads the vehicle on the back of a truck. This is the best way of transporting the vehicle.

To accommodate flat-bed equipment, the vehicle is equipped with a towing hook (A) and tie down hook hooking slots (B).

The towing hook can be used with a winch to pull the vehicle onto the truck, and the tie down hook hooking slots can be used to secure the vehicle to the truck.







Wheel Lift Equipment — The tow truck uses two pivoting arms that go under the tires (front or rear) and lift them off the ground. The other two wheels remain on the ground.

Sling-type Equipment — The tow truck uses metal cables with hooks on the ends. These hooks go around parts of the frame or suspension and the cables lift that end of the vehicle off the ground. The vehicle's suspension and body can be seriously damaged if this method of towing is attempted.

If the vehicle cannot be transported by flat-bed, it should be towed with the front wheels off the ground. If due to damage, the vehicle must be towed with the front wheels on the ground, do the following:
- Release the parking brake.
- Start the engine.
- Shift to D4 position or D position, then N position.
- Turn off the engine.

It is best to tow the vehicle no farther than 50 miles (80 km), and keep the speed below 35 mph (55 km/h).

NOTICE
- Improper towing preparation will damage the transmission. Follow the above procedure exactly. If you cannot shift the transmission or start the engine, the vehicle must be transported on a flat-bed.
- Trying to lift or tow the vehicle by the bumpers will cause serious damage. The bumpers are not designed to support the vehicle's weight.

Parts Marking

To deter vehicle theft, certain major components are marked with the vehicle identification number (VIN). Original parts have self-adhesive labels. Replacement body parts have generic self-adhesive labels. The original engine or transmission VIN plate is transferred to a replacement engine or transmission and attached with break-off bolts.

NOTE: Be careful not to damage the parts marking labels during body repair. Mask the labels before repairing the part.

Revised Component Terms

Beginning with 2001 models, the following component terms have been changed to conform with the standards in SAE document J1930. If you find a term or abbreviation in a 2001 or later manual that is unfamiliar to you, check this list. If a term is not listed below, it did not change.

2000 and Earlier Models		2001 or Later Models	
Description	**HONDA Abbreviations**	**Description**	**New Abbreviations SAE recommendation**
Brake Switch		Brake Pedal Position Switch	BPP Switch
Clutch Switch		Clutch Pedal Position Switch	
Distributor Ignition Rotor	DI Rotor	Distributor Rotor	
Function Sensor		Engine Speed Fluctuation Sensor	RPM Fluctuation Sensor
Evaporative Emission Control Canister	EVAP Control Canister	Evaporative Emission Canister	EVAP Canister
Evaporative Emission Control Canister Vent Shut Valve	EVAP Control Canister Vent Shut Valve	Evaporative Emission Canister Vent Shut Valve	EVAP Canister Vent Shut Valve
Evaporative Emission Purge Control Solenoid Valve	EVAP Purge Control Solenoid Valve	Evaporative Emission Canister Purge Valve	EVAP Canister Purge Valve
Exhaust Gas Recirculation Valve Lift Sensor	EGR Valve Lift Sensor	Exhaust Gas Recirculation Valve Position	EGR Valve Position Sensor
Exhaust Gas Recirculation Control Solenoid Valve	EGR Control Solenoid Valve	Exhaust Gas Recirculation Valve Vacuum Control Solenoid Valve	EGR Valve Vacuum Control Solenoid Valve
Exhaust Gas Recirculation Vacuum Control Valve	EGR Vacuum Control Valve	Exhaust Gas Recirculation Valve Vacuum Control Solenoid Valve	EGR Valve Vacuum Control Solenoid Valve
Radiator Fan Control Module		Fan Control Module	
Fuel Tank Evaporative Emission Valve		Fuel Tank Vapor/Liquid Separation Valve	
ORVR Vent Shut Valve		Fuel Tank Vapor Control Valve	
ORVR Vapor Recirculation Tube		Fuel Tank Vapor Recirculation Tube	
First Idle Thermal Valve		Idle Air Control Thermal Valve	IAC Thermal Valve
Fuel Injector		Injector	
Fuel Injection Air Control Valve	FIA Control Valve	Intake Air Bypass Control Valve	
Fuel Injection Air Control Solenoid Valve	FIA Control Solenoid Valve	Intake Air Bypass Control Thermal Valve	
Intake Air Bypass Check Valve	IAB Check Valve	Intake Manifold Runner Control Vacuum Check Valve	IMRC Vacuum Check Valve
		Intake Manifold Runner Control Actuator	IMRC Actuator
		Intake Manifold Runner Control Actuator Wire	IMRC Actuator Wire
Intake Air Bypass Control Diaphragm	IAB Control Diaphragm	Intake Manifold Runner Control Actuator Diaphragm	IMRC Diaphragm
		Intake Manifold Runner Control Module	IMRC Module

2000 and Earlier Models		2001 or Later Models	
Description	**HONDA Abbreviations**	**Description**	**New Abbreviations SAE recommendation**
Intake Air Bypass Control Solenoid Valve	IAB Control Solenoid Valve	Intake Manifold Runner Control Solenoid Valve	IMRC Solenoid Valve
Intake Air Bypass Vacuum Tank	IAB Vacuum Tank	Intake Manifold Runner Control Vacuum	IMRC Vacuum Reservoir
Intake Air Bypass Valve Body Assembly	IAB Valve Body Assembly	Intake Manifold Runner Control Valve	IMRC Valve
Breather Chamber		Oil/Air Separator	
Fuel Pressure Regulator Control Solenoid Valve		Pressure Regulator Vacuum Control Solenoid Valve	
Air Control Valve Check Valve		Secondary Air Injection Control Vacuum Check Valve	Air Control Vacuum Check Valve
Air Control Valve Vacuum Tank		Secondary Air Injection Control Vacuum Reservoir	Air Control Vacuum Reservoir
Air Control Solenoid Valve		Secondary Air Injection Control Vacuum Control Solenoid Valve	Air Control Valve Vacuum Control Solenoid Valve
Air Pump		Secondary Air Injection Pump	Air Pump
Air Control Valve		Secondary Air Injection Pump Control Valve	Air Control Valve
Air Pump Electric Current Sensor		Secondary Air Injection Pump Electric Current Sensor	Air Pump Electric Current Sensor
Shift/Clutch Pressure Control Solenoid Valve Set		Shift Solenoid and Automatic Transaxle Clutch Pressure Control Solenoid Valve Set	SS and A/T Clutch Pressure Control Solenoid Valve Set
Shift Control Solenoid Valve Set		Shift Solenoid and Torque Converter Clutch Solenoid Valve Set	SS and TCC Solenoid Valve Set
Shift/Lock-up Clutch Control Solenoid Valve Assy		Shift Solenoid and Torque Converter Clutch Solenoid Valve	SS and TCC Solenoid Valve
Shift Control Solenoid Valve A		Shift Solenoid Valve A	SS Valve A
Shift Control Solenoid Valve B		Shift Solenoid Valve B	SS Valve B
Throttle Valve Control Module		Throttle Actuator	
Lock-up Clutch Control Solenoid Valve Set		Torque Converter Clutch Solenoid and Automatic Transaxle Clutch Pressure Control Solenoid Valve Set	TCC Solenoid and A/T Clutch Pressure Control Solenoid Valve Set
Lock-up Clutch Control Solenoid Valve		Torque Converter Clutch Solenoid Valve	TCC Solenoid Valve
Automatic Transaxle Position Switch	A/T Gear Position Switch	Transmission Range Switch	TR Switch
Variable Valve Timing and Valve Lift Electronic Control Pressure Switch	VTEC Pressure Switch	Variable Valve Timing and Valve lift Electronic Control Pressure Switch	VTEC Oil Pressure Switch

specs

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Standards and Service Limits

Engine Electrical

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition coil	Rated voltage		12 V	
	Firing order		1－4－2－5－3－6	
Spark plug	Type		NGK: PZFR5F-11 DENSO: PKJ16CR-L11	
	Gap		1.0－1.1 mm (0.039－0.043 in.)	1.3 mm (0.051 in.)
Ignition timing		At idle (check the *red* mark)	A/T (in N or P): 10±2°BTDC at 730 ±50 rpm	
Alternator compressor belt	Tension adjustment		Auto adjuster type	
Alternator (1999-2001 models)	Output	At 13.5 V and normal engine temperature	130 A	
	Coil (rotor) resistance	At 68°F (20°C)	2.9 k Ω	
	Slip ring O.D.		14.4 mm (0.57 in.)	14.0 mm (0.55 in.)
	Brush length		10.5 mm (0.41 in.)	1.5 mm (0.06 in.)
	Brush spring tension		3.2 N (0.33 kgf, 0.73 lbf)	
Alternator (2002-2004 models)	Output	At 13.5 V and normal engine temperature	130 A	
	Coil (rotor) resistance	At 68°F (20°C)	2.3 －2.7 k Ω	
	Slip ring O.D.		14.2－14.4 mm (0.56－0.57 in.)	13.8 mm (0.54 in.)
	Brush length		10.5 mm (0.41 in.)	1.5 mm (0.06 in.)
	Brush spring tension		2.94－3.53 N (0.30－0.36 kgf, 0.66－0.80 lbf)	
Starter	Output		1.6 kW	
	Commutator mica depth		0.4－0.5 mm (0.016－0.020 in.)	0.15 mm (0.006 in.)
	Commutator runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)
	Commutator O.D.		28.0－28.1 mm (1.102－1.106 in.)	27.5 mm (1.083 in.)
	Brush length		15.8－16.2 mm (0.62－0.64 in.)	11.0 mm (0.43 in.)
	Brush spring tension (new)		15.7－17.7 N (1.60－1.80 kgf, 3.53－3.97 lbf)	

Engine Assembly

Item	Measurement	Qualification	Standard or New	Service Limit
Compression	Pressure Check the engine with the starter cranking. (See Design Specs for ratio.)	Minimum	930 kPa (9.5 kgf/cm^2, 135 psi)	———
		Maximum variation	200 kPa (2.0 kgf/cm^2, 28 psi)	———

Cylinder Head

Item	Measurement	Qualification	Standard or New	Service Limit
Head	Warpage		———	0.05 mm (0.002 in.)
	Height		120.95—121.05 mm (4.762—4.766 in.)	———
Camshaft	End play		0.05—0.20 mm (0.002—0.008 in.)	0.20 mm (0.008 in.)
	Camshaft-to-holder oil clearance		0.050—0.089 mm (0.0020—0.0035 in.)	0.15 mm (0.006 in.)
	Total runout		0.03 mm (0.001 in.) max.	0.04 mm (0.002 in.)
	Cam lobe height (1999-2001 models)	Intake, primary	35.832 mm (1.4107 in.)	———
		Intake, secondary	31.066 mm (1.2231 in.)	———
		Exhaust	35.763 mm (1.4080 in.)	———
	Cam lobe height (2002-2004 models)	Intake, primary	34.737 mm (1.3676 in.)	———
		Intake, mid	36.445 mm (1.4348 in.)	———
		Intake, secondary	34.919 mm (1.3748 in.)	———
		Exhaust	36.326 mm (1.4302 in.)	———
Valve	Clearance (cold)	Intake	0.20—0.24 mm (0.008—0.009 in.)	———
		Exhaust	0.28—0.32 mm (0.011—0.013 in.)	———
	Stem O.D.	Intake	5.485—5.495 mm (0.2159—0.2163 in.)	5.455 mm (0.2148 in.)
		Exhaust	5.450—5.460 mm (0.2146—0.2150 in.)	5.420 mm (0.2134 in.)
	Stem-to-guide clearance	Intake	0.020—0.045 mm (0.0008—0.0018 in.)	0.08 mm (0.003 in.)
		Exhaust	0.055—0.080 mm (0.0022—0.0031 in.)	0.12 mm (0.005 in.)
Valve seat	Width	Intake	1.25—1.55 mm (0.049—0.061 in.)	2.00 mm (0.079 in.)
		Exhaust	1.25—1.55 mm (0.049—0.061 in.)	2.00 mm (0.079 in.)
	Stem installed height	Intake	46.75—47.55 mm (1.841—1.872 in.)	47.80 mm (1.882 in.)
		Exhaust	46.68—47.48 mm (1.838—1.869 in.)	47.73 mm (1.879 in.)
Valve spring	Free length (1999-2001 models)	Intake	50.07 mm (1.9713 in.)	———
		Exhaust	53.48 mm (2.106 in.)	———
	Free length (2002-2004 models)	Intake	51.54 mm (2.029 in.)	———
		Exhaust	51.06 mm (2.010 in.)	———
Valve guide	I.D.	Intake	5.515—5.530 mm (0.2171—0.2177 in.)	5.55 mm (0.219 in.)
		Exhaust	5.515—5.530 mm (0.2171—0.2177 in.)	5.55 mm (0.219 in.)
	Installed height	Intake	21.20—22.20 mm (0.835—0.874 in.)	———
		Exhaust	20.63—21.63 mm (0.812—0.852 in.)	———
Rocker arm	Arm-to-shaft clearance	Intake	0.026—0.067 mm (0.0010—0.0026 in.)	0.067 mm (0.0026 in.)
		Exhaust	0.026—0.077 mm (0.0010—0.0030 in.)	0.077 mm (0.0030 in.)

Standards and Service Limits

Engine Block

Item	Measurement	Qualification	Standard or New	Service Limit
Block	Warpage of deck		0.07 mm (0.003 in.) max.	0.10 mm (0.004 in.)
	Bore diameter		89.000－89.015 mm (3.5039－3.5045 in.)	89.065 mm (3.5065 in.)
	Bore taper		———	0.05 mm (0.002 in.)
	Reboring limit		———	0.5 mm (0.02 in.)
Piston	Skirt O.D. at 16.0 mm (0.63 in.) from bottom of skirt		88.975－88.985 mm (3.5029－3.5033 in.)	88.965 mm (3.5026 in.)
	Clearance in cylinder		0.015－0.040 mm (0.0006－0.0016 in.)	0.08 mm (0.003 in.)
	Ring groove width	Top (1999-2001 models)	1.220－1.230 mm (0.0480－0.0484 in.)	1.25 mm (0.049 in.)
		Top (2002-2004 models)	1.240－1.250 mm (0.0488－0.0492 in.)	1.27 mm (0.050 in.)
		Second	1.220－1.230 mm (0.0480－0.0484 in.)	1.25 mm (0.049 in.)
		Oil	2.805－2.825 mm (0.1104－0.1112 in.)	2.85 mm (0.112 in.)
Piston ring	Ring-to-groove clearance	Top (1999-2001 models)	0.035－0.060 mm (0.0014－0.024 in.)	0.13 mm (0.005 in.)
		Top (2002-2004 models)	0.055－0.080 mm (0.0022－0.0031 in.)	0.13 mm (0.005 in.)
		Second	0.030－0.055 mm (0.0012－0.0022 in.)	0.13 mm (0.005 in.)
	Ring end gap	Top	0.20－0.35 mm (0.008－0.014 in.)	0.60 mm (0.024 in.)
		Second	0.40－0.55 mm (0.016－0.022 in.)	0.70 mm (0.028 in.)
		Oil	0.20－0.70 mm (0.008－0.028 in.)	0.80 mm (0.031 in.)
Piston pin	O.D.		21.962－21.965 mm (0.8646－0.8648 in.)	21.954 mm (0.8643 in.)
	Pin-to-piston clearance		－0.0050－＋0.0010 mm (－0.00020－＋0.00004 in.)	0.004 mm (0.0002 in.)
Connecting rod	Pin-to-rod clearance		0.005－0.014 mm (0.0002－0.0006 in.)	0.019 mm (0.0007 in.)
	Small-end bore diameter		21.970－21.976 mm (0.8650－0.8652 in.)	———
	Large-end bore diameter	Normal	58.0 mm (2.28 in.)	———
	End play installed on crankshaft		0.15－0.35 mm (0.006－0.014 in.)	0.45 mm (0.018 in.)
Crankshaft	Main journal diameter		71.976－72.000 mm (2.8337－2.8346 in.)	———
	Rod journal diameter		54.976－55.000 mm (2.1644－2.1654 in.)	———
	Rod/main journal taper		0.005 mm (0.0002 in.) max.	0.010 mm (0.0004 in.)
	Rod/main journal out-of-round		0.005 mm (0.0002 in.) max.	0.010 mm (0.0004 in.)
	End play		0.10－0.35 mm (0.004－0.014 in.)	0.45 mm (0.018 in.)
	Runout		0.020 mm (0.0008 in.) max.	0.030 mm (0.0012 in.)
Crankshaft bearing	Main bearing-to-journal oil clearance		0.020－0.044 mm (0.0008－0.0017 in.)	0.050 mm (0.0020 in.)
	Rod bearing clearance		0.020－0.044 mm (0.0008－0.0017 in.)	0.050 mm (0.0020 in.)

Engine Lubrication

Item	Measurement	Qualification	Standard or New	Service Limit
Engine oil	Capacity	Engine overhaul	5.0 ℓ (5.3 US qt)	
		Oil change, including filter	4.4 ℓ (4.6 US qt)	
		Oil change, without filter	4.0 ℓ (4.2 US qt)	
Oil pump	Inner-to-outer rotor clearance		0.04—0.16 mm (0.002—0.006 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor clearance		0.14—0.19 mm (0.006—0.007 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor axial clearance		0.02—0.07 mm (0.001—0.003 in.)	0.12 mm (0.005 in.)
	Oil pressure with oil temperature at 176℉ (80℃)	At idle	70 kPa (0.7 kgf/cm^2, 10 psi) min.	
		At 3,000 rpm	490 kPa (5.0 kgf/cm^2, 71 psi) min.	

Cooling

Item	Measurement	Qualification	Standard or New
Radiator	Coolant capacity (includes engine, heater, hoses and reservoir)	Engine overhaul	
		with rear A/C	9.4 ℓ (9.9 US qt)
		without rear A/C	7.4 ℓ (7.8 US qt)
		Coolant change	
		with rear A/C	7.5 ℓ (7.9 US qt)
		without rear A/C	5.5 ℓ (5.8 US qt)
Reservoir	Coolant capacity		0.6 ℓ (0.6 US qt)
Radiator cap	Opening pressure		93—123 kPa (0.95—1.25 kgf/cm^2, 14—18 psi)
Thermostat	Opening temperature	Begins to open (1999-2001 models)	163—171℉ (73—77℃)
		Begins to open (2002-2004 models)	169—176℉ (76—80℃)
		Fully open	194℉ (90℃)
	Valve lift at fully open		10.0 mm (0.39 in.) min.
Radiator fan switch	Thermoswitch ''ON'' temperature		196—203℉ (91—95℃)
	Thermoswitch ''OFF'' temperature		Subtract 5—15℉ (3—8℃) from actual ''ON'' temperature
	Fan timer ''ON'' temperature		205—216℉ (96—102℃)
	Fan timer ''OFF'' temperature		Subtract 5—18℉ (3—10℃) from actual ''ON'' temperature

Fuel and Emissions - 1999-2001 Models

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure with regulator vacuum hose disconnected		300—340 kPa (3.0—3.5 kgf/cm^2, 43—49 psi)
Fuel tank	Capacity		75.7 ℓ (20.0 US gal)
Engine idle	Idle speed without a load	In N or P position	730±50 rpm
	Idle speed with high electric load (with HVAC on)	In N or P position	730±50 rpm

Fuel and Emissions - 2002-2004 Models

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure with regulator vacuum hose disconnected		290—330 kPa (2.9—3.4 kgf/cm^2, 42—48 psi)
Fuel tank	Capacity		75.7 ℓ (20.0 US gal)
Engine idle	Idle speed without a load	In N or P position	710±50 rpm
	Idle speed with high electric load (with HVAC on)	In N or P position	710±50 rpm

4-speed Automatic Transmission and Differential - 1999-2001 Models

Item	Measurement	Qualification	Standard or New	Service Limit
ATF (Automatic Transmission Fluid)	Capacity Use Honda ATF-Z1 (ATF)	Fluid change	2.9 ℓ (3.1 US qt)	
		Overhaul	7.2 ℓ (7.6 US qt)	
ATF pressure	Line pressure	At 2,000 rpm in N or P position	850－910 kPa (8.7－9.3 kgf/cm², 120－130 psi)	800 kPa (8.2 kgf/cm², 120 psi)
	4th clutch pressure	At 2,000 rpm in D4 position	840－920 kPa (8.6－9.4 kgf/cm², 120－130 psi)	790 kPa (8.1 kgf/cm², 120 psi)
	3rd clutch pressure	At 2,000 rpm in D4 position	840－920 kPa (8.6－9.4 kgf/cm², 120－130 psi)	790 kPa (8.1 kgf/cm², 120 psi)
	2nd clutch pressure	At 2,000 rpm in 2 position	840－920 kPa (8.6－9.4 kgf/cm², 120－130 psi)	790 kPa (8.1 kgf/cm², 120 psi)
	1st clutch pressure	At 2,000 rpm in 1 position	840－920 kPa (8.6－9.4 kgf/cm², 120－130 psi)	790 kPa (8.1 kgf/cm², 120 psi)
Torque converter	Stall speed Check with vehicle on level ground		2,400 rpm	2,250－2,550 rpm
Clutch	Clutch end plate-to-top disc clearance	1st		1.2－1.4 mm (0.047－0.055 in.)
		2nd		0.85－1.05 mm (0.033－0.041 in.)
		3rd		0.55－0.75 mm (0.022－0.030 in.)
		4th		0.55－0.75 mm (0.022－0.030 in.)
	Clutch return spring free length	1st	45.7 mm (1.80 in.)	43.7 mm (1.72 in.)
		2nd	63.0 mm (2.48 in.)	61.0 mm (2.40 in.)
		3rd, 4th	33.5 mm (1.32 in.)	31.5 mm (1.24 in.)
	Clutch disc thickness		1.94 mm (0.076 in.)	———
	Clutch plate thickness	1st	2.0 mm (0.079 in.)	When discolored
		2nd	2.0 mm (0.079 in.)	When discolored
		3rd	2.3 mm (0.091 in.)	When discolored
		4th	2.0 mm (0.079 in.)	When discolored
	1st and 2nd clutch end plate thickness	Mark 1	3.10 mm (0.122 in.)	When discolored
		Mark 2	3.20 mm (0.126 in.)	When discolored
		Mark 3	3.30 mm (0.130 in.)	When discolored
		Mark 4	3.40 mm (0.134 in.)	When discolored
		Mark 6	2.60 mm (0.102 in.)	When discolored
		Mark 7	2.70 mm (0.106 in.)	When discolored
		Mark 8	2.80 mm (0.110 in.)	When discolored
		Mark 9	2.90 mm (0.114 in.)	When discolored
		Mark 0	3.00 mm (0.118 in.)	When discolored
	3rd and 4th clutch end plate thickness	Mark 1	2.10 mm (0.083 in.)	When discolored
		Mark 2	2.20 mm (0.087 in.)	When discolored
		Mark 3	2.30 mm (0.091 in.)	When discolored
		Mark 4	2.40 mm (0.094 in.)	When discolored
		Mark 5	2.50 mm (0.098 in.)	When discolored
		Mark 6	2.60 mm (0.102 in.)	When discolored
		Mark 7	2.70 mm (0.106 in.)	When discolored
		Mark 8	2.80 mm (0.110 in.)	When discolored
		Mark 9	2.90 mm (0.114 in.)	When discolored

Item	Measurement	Qualification	Standard or New	Service Limit
Valve body	Stator shaft needle bearing contact I.D.	Torque converter side	27.000－27.021 mm (1.0630－1.0638 in.)	When worn or damaged
		ATF pump side	29.000－29.021 mm (1.1417－1.1426 in.)	When worn or damaged
	ATF pump gear thrust clearance		0.03－0.06 mm (0.001－0.002 in.)	0.07 mm (0.003 in.)
	ATF pump gear-to-body clearance	Drive gear	0.210－0.265 mm (0.0083－0.0104 in.)	———
		Driven gear	0.070－0.125 mm (0.0028－0.0049 in.)	———
	ATF pump driven gear I.D.		14.016－14.034 mm (0.5518－0.5525 in.)	When worn or damaged
	ATF pump driven gear shaft O.D.		13.980－13.990 mm (0.5504－0.5508 in.)	When worn or damaged
Reverse shift fork	Fork finger thickness		5.90－6.00 mm (0.232－0.236 in.)	5.40 mm (0.213 in.)
Park gear and pawl			———	When worn or damaged
Servo body	Shift fork shaft bore I.D.		14.000－14.010 mm (0.5512－0.5516 in.)	———
	Shift fork shaft valve bore I.D.		37.000－37.039 mm (1.4567－1.4582 in.)	37.045 mm (1.4585 in.)
Regulator valve body	Sealing ring contact I.D.		32.000－32.025 mm (1.2598－1.2608 in.)	32.050 mm (1.2618 in.)
Accumulator body	Sealing ring contact I.D.		35.000－35.025 mm (1.3780－1.3789 in.)	35.05 mm (1.3799 in.)
Stator shaft	Sealing ring contact I.D.		29.000－29.013 mm (1.1417－1.1422 in.)	29.050 mm (1.1437 in.)

Standards and Service Limits

4-speed Automatic Transmission and A/T Differential - 1999-2001 Models (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft	Diameter of needle bearing contact area	At stator shaft	22.984—23.000 mm (0.9049—0.9055 in.)	When worn or damaged
		At 3rd gear	52.975—52.991 mm (2.0856—2.0863 in.)	When worn or damaged
		At 4th gear collar	33.975—33.991 mm (1.3376—1.3382 in.)	When worn or damaged
	I.D. of 3rd gear		59.000—59.019 mm (2.3228—2.3236 in.)	When worn or damaged
	I.D. of 4th gear		40.000—40.016 mm (1.5748—1.5754 in.)	When worn or damaged
	End play of 3rd gear		0.03—0.11 mm (0.001—0.004 in.)	———
	End play of 4th gear		0.10—0.22 mm (0.004—0.009 in.)	———
	41 x 73 mm thrust shim thickness	No. 1	7.85 mm (0.309 in.)	When worn or damaged
		No. 2	7.90 mm (0.311 in.)	When worn or damaged
		No. 3	7.95 mm (0.313 in.)	When worn or damaged
		No. 4	8.00 mm (0.315 in.)	When worn or damaged
		No. 5	8.05 mm (0.317 in.)	When worn or damaged
		No. 6	8.10 mm (0.319 in.)	When worn or damaged
	Thrust washer thickness	27 x 47 x 5 mm	5.00 mm (0.197 in.)	When worn or damaged
	Length of 4th gear collar		58.5—58.6 mm (2.303—2.307 in.)	———
	4th gear collar flange thickness		4.45—4.60 mm (0.175—0.181 in.)	When worn or damaged
	Sealing ring thickness	32 mm sealing ring	1.85—1.95 mm (0.073—0.077 in.)	1.800 mm (0.071 in.)
		29 mm sealing ring	1.85—1.95 mm (0.073—0.077 in.)	1.800 mm (0.071 in.)
	Width of sealing ring groove		2.025—2.060 mm (0.080 — 0.081 in.)	2.080 mm (0.082 in.)
	Clutch feed pipe O.D.	3rd clutch	5.97—5.98 mm (0.2350 — 0.2354 in.)	5.95 mm (0.2343 in.)
		4th clutch	11.47—11.48 mm (0.4516—0.4520 in.)	11.45 mm (0.4508 in.)
	Clutch feed pipe bushing I.D.	3rd clutch	6.018—6.030 mm (0.2369—0.2374 in.)	6.045 mm (0.2380 in.)
		4th clutch	11.500—11.518 mm (0.4528—0.4535 in.)	11.530 mm (0.4539 in.)

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter of needle bearing contact area	At 4th gear	34.975－34.991 mm (1.3770－1.3776 in.)	When worn or damaged
		At 2nd gear	39.979－40.000 mm (1.574－1.575 in.)	When worn or damaged
		At park gear	41.964－41.980 mm (1.6521－1.6528 in.)	When worn or damaged
		At right end	38.505－38.515 mm (1.5159－1.5163 in.)	When worn or damaged
	I.D. of 4th gear		41.000－41.016 mm (1.6142－1.6148 in.)	When worn or damaged
	I.D. of idler gear		50.000－50.016 mm (1.9685－1.9691 in.)	When worn or damaged
	I.D. of reverse gear		46.000－46.016 mm (1.8110－1.8116 in.)	When worn or damaged
	End play of 1st gear		0.00－0.33 mm (0.000－0.013 in.)	———
	End play of 4th gear		0.04－0.27 mm (0.002－0.011 in.)	———
	End play of idler gear		0.015－0.045 mm (0.0006－0.0018 in.)	———
	End play of reverse gear		0.10－0.25 mm (0.004－0.010 in.)	———
	Length of distance collar		53.92－53.96 mm (2.123－2.124 in.)	———
	Cotter thickness		1.99－2.02 mm (0.078－0.080 in.)	———
	Reverse selector hub O.D.		55.87－55.90 mm (2.1996－2.2008 in.)	When worn or damaged

4-speed Automatic Transmission and A/T Differential - 1999-2001 Models (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft	Diameter of needle bearing contact area	At 1st gear	37.978—37.993 mm (1.4952—1.4958 in.)	When worn or damaged
		At 2nd gear	33.986—33.999 mm (1.3380—1.3385 in.)	When worn or damaged
	I.D. of 1st gear		44.000—44.016 mm (1.7323—1.7329 in.)	When worn or damaged
	I.D. of 2nd gear		40.000—40.016 mm (1.5748—1.5754 in.)	When worn or damaged
	End play of 1st gear		0.07—0.15 mm (0.003—0.006 in.)	———
	End play of 2nd gear		0.04—0.12 mm (0.002—0.005 in.)	———
	38 x 56.5 mm splined washer thickness	No. 1	6.85 mm (0.270 in.)	When worn or damaged
		No. 2	6.90 mm (0.272 in.)	When worn or damaged
		No. 3	6.95 mm (0.274 in.)	When worn or damaged
		No. 4	7.00 mm (0.276 in.)	When worn or damaged
		No. 5	7.05 mm (0.278 in.)	When worn or damaged
		No. 6	7.10 mm (0.280 in.)	When worn or damaged
	37 x 55 mm thrust shim thickness	No. 1	4.90 mm (0.193 in.)	When worn or damaged
		No. 2	4.95 mm (0.195 in.)	When worn or damaged
		No. 3	5.00 mm (0.197 in.)	When worn or damaged
		No. 4	5.05 mm (0.199 in.)	When worn or damaged
		No. 5	5.10 mm (0.201 in.)	When worn or damaged
		No. 6	5.15 mm (0.203 in.)	When worn or damaged
		No. 7	5.20 mm (0.205 in.)	When worn or damaged
	Cotter thickness		1.99—2.02 mm (0.078—0.080 in.)	———
	Sealing ring thickness		1.890—1.950 mm (0.074—0.077 in.)	1.800 mm (0.071 in.)
	Width of sealing ring groove		2.025—2.060 mm (0.080—0.081 in.)	2.080 mm (0.082 in.)
	Clutch feed pipe O.D.		7.97—7.98 mm (0.3138—0.3142 in.)	7.95 mm (0.3130 in.)
	Clutch feed pipe bushing I.D.		8.000—8.015 mm (0.3150—0.3156 in.)	8.030 mm (0.3161 in.)
Reverse idler gear	Diameter of needle bearing contact area	At reverse idler gear shaft	13.990—14.000 mm (0.5508—0.5512 in.)	When worn or damaged
	End play		0.03—0.36 mm (0.001—0.014 in.)	———
	I.D.		18.007—18.020 mm (0.7089—0.7094 in.)	When worn or damaged
	Thrust washer thickness	Transmission housing side	0.97—1.03 mm (0.038—0.041 in.)	———
		Reverse idler gear shaft holder side	0.97—1.03 mm (0.038—0.041 in.)	———
	I.D. of reverse idler gear shaft holder		14.006—14.024 mm (0.5514—0.5521 in.)	When worn or damaged
	I.D. of transmission housing, reverse idler gear shaft contact area		14.006—14.024 mm (0.5514—0.5521 in.)	———

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Main valve body spring (see page 14-198).	Modulator valve spring		1.6 mm (0.063 in.)	10.4 mm (0.409 in.)	33.5 mm (1.319 in.)	9.8
	Shift valve C spring		0.8 mm (0.031 in.)	6.6 mm (0.260 in.)	49.1 mm (1.933 in.)	21.7
	Shift valve D spring		0.7 mm (0.028 in.)	6.6 mm (0.260 in.)	35.7 mm (1.406 in.)	17.2
	Shift valve E spring		0.7 mm (0.028 in.)	6.6 mm (0.260 in.)	32.2 mm (1.268 in.)	13.4
	Relief valve spring		1.1 mm (0.043 in.)	8.6 mm (0.339 in.)	30.1 mm (1.185 in.)	10.7
	Lock-up shift valve spring		0.9 mm (0.035 in.)	7.6 mm (0.299 in.)	63.0 mm (2.480 in.)	22.4
	Cooler check valve spring		0.6 mm (0.024 in.)	5.8 mm (0.228 in.)	14.5 mm (0.571 in.)	6.8
	Torque converter check valve spring		1.2 mm (0.047 in.)	8.6 mm (0.339 in.)	34.4 mm (1.354 in.)	11.7
	Servo control valve spring		0.7 mm (0.028 in.)	6.6 mm (0.260 in.)	35.7 mm (1.406 in.)	17.2
	Reverse CPC valve spring		0.7 mm (0.028 in.)	6.1 mm (0.240 in.)	17.8 mm (0.701 in.)	7.9
Regulator valve body spring (see page 14-201).	Stator reaction spring		5.5 mm (0.217 in.)	37.4 mm (1.472 in.)	30.3 mm (1.193 in.)	2.12
	Regulator valve spring A		1.9 mm (0.075 in.)	14.7 mm (0.579 in.)	77.4 mm (3.047 in.)	15.2
	Regulator valve spring B		1.6 mm (0.063 in.)	9.2 mm (0.362 in.)	44.0 mm (1.732 in.)	12.5
	Lock-up control valve spring		0.8 mm (0.031 in.)	6.6 mm (0.260 in.)	44.3 mm (1.744 in.)	25.5
	Lock-up timing valve spring		0.65 mm (0.026 in.)	6.6 mm (0.260 in.)	34.8 mm (1.370 in.)	15.6
Servo body spring (see page 14-202).	Shift valve B spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	40.4 mm (1.591 in.)	16.9
	Shift valve A spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	40.4 mm (1.591 in.)	16.9
	CPC valve A spring		0.7 mm (0.028 in.)	6.1 mm (0.240 in.)	17.8 mm (0.701 in.)	7.9
	CPC valve B spring		0.7 mm (0.028 in.)	6.1 mm (0.240 in.)	17.8 mm (0.701 in.)	7.9
	4th accumulator spring A		2.6 mm (0.102 in.)	19.6 mm (0.772 in.)	66.4 mm (2.614 in.)	9.7
	4th accumulator spring B		2.4 mm (0.094 in.)	12.8 mm (0.504 in.)	51.5 mm (2.028 in.)	11.5
	3rd accumulator spring A		2.6 mm (0.102 in.)	19.6 mm (0.772 in.)	66.4 mm (2.614 in.)	9.7
	3rd accumulator spring B		2.4 mm (0.094 in.)	12.8 mm (0.504 in.)	51.5 mm (2.028 in.)	11.5
Accumulator body spring (see page 14-203).	1st accumulator spring B		2.7 mm (0.106 in.)	14.8 mm (0.583 in.)	52.5 mm (2.067 in.)	11.3
	1st accumulator spring A		2.6 mm (0.102 in.)	21.6 mm (0.850 in.)	80.5 mm (3.169 in.)	11.2
	2nd accumulator spring B		2.4 mm (0.094 in.)	12.6 mm (0.496 in.)	53.5 mm (2.106 in.)	12.9
	2nd accumulator spring A		2.7 mm (0.106 in.)	19.6 mm (0.772 in.)	66.3 mm (2.610 in.)	9.9

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4-speed Automatic Transmission and A/T Differential - 1999-2001 Models (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential carrier	Pinion shaft contact area I.D.		18.010－18.028 mm (0.7091－0.7098 in.)	———
	Carrier-to-pinion shaft clearance		0.023－0.057 mm (0.001－0.002 in.)	0.1 mm (0.004 in.)
	Driveshaft contact area I.D.		30.025－30.045 mm (1.182－1.183 in.)	———
	Carrier-to-driveshaft clearance		0.045－0.086 mm (0.002－0.003 in.)	0.12 mm (0.005 in.)
	Carrier-to-intermediate shaft clearance		0.080－0.116 mm (0.003－0.005 in.)	———
	Tapered roller bearing starting torque (preload)	For new bearing	2.7－3.9 N·m (28－40 kgf·cm, 24－35 lbf·in.)	Adjust
		For used bearing	2.5－3.6 N·m (25－37 kgf·cm, 22－32 lbf·in.)	Adjust
A/T differential pinion gear	Backlash		0.175－0.275 mm (0.007－0.011 in.)	———
	I.D.		18.042－18.066 mm (0.7103－0.7113 in.)	———
	Pinion gear-to-pinion shaft clearance		0.055－0.095 mm (0.0022－0.0037 in.)	0.12 mm (0.005 in.)

5-speed Automatic Transmission and A/T Differential - 2002-2004 Models

Item	Measurement	Qualification	Standard or New	Service Limit
ATF (Automatic Transmission Fluid)	Capacity Use Honda ATF-Z1 (ATF)	Fluid change	3.3 ℓ (3.5 US qt)	
		Overhaul	7.9 ℓ (8.3 US qt)	
ATF pressure	Line pressure	At 2,000 rpm in N or P position	900－960 kPa (9.2－9.8 kgf/cm², 130－140 psi)	850 kPa (8.7 kgf/cm², 120 psi)
	5th clutch pressure	At 2,000 rpm in D position	890－970 kPa (9.1－9.9 kgf/cm², 130－140 psi)	840 kPa (8.6 kgf/cm², 120 psi)
	4th clutch pressure	At 2,000 rpm in D position	890－970 kPa (9.1－9.9 kgf/cm², 130－140 psi)	840 kPa (8.6 kgf/cm², 120 psi)
	3rd clutch pressure	At 2,000 rpm in D3 position	890－970 kPa (9.1－9.9 kgf/cm², 130－140 psi)	840 kPa (8.6 kgf/cm², 120 psi)
	2nd clutch pressure	At 2,000 rpm in 2 position	890－970 kPa (9.1－9.9 kgf/cm², 130－140 psi)	840 kPa (8.6 kgf/cm², 120 psi)
	1st clutch pressure	At 2,000 rpm in 1 position	890－970 kPa (9.1－9.9 kgf/cm², 130－140 psi)	840 kPa (8.6 kgf/cm², 120 psi)
	1st-hold clutch pressure	At 2,000 rpm in 1 position	760－830 kPa (7.7－8.5 kgf/cm², 110－120 psi)	710 kPa (7.2 kgf/cm², 100 psi)
Torque converter	Stall speed Check with vehicle on level ground		2,250 rpm	2,100－2,400 rpm
Clutch	Clutch end plate-to-top disc clearance	1st		1.1－1.3 mm (0.043－0.051 in.)
		2nd		0.85－1.05 mm (0.033－0.041 in.)
		3rd		0.7－0.9 mm (0.028－0.035 in.)
		4th, 5th		0.55－0.75 mm (0.022－0.030 in.)
		1st-hold		0.5－0.9 mm (0.020－0.035 in.)
	Clutch return spring free length	1st	68.3 mm (2.69 in.)	66.3 mm (2.61 in.)
		2nd	53.4 mm (2.10 in.)	51.4 mm (2.02 in.)
		3rd	52.0 mm (2.05 in.)	50.0 mm (1.97 in.)
		4th	33.5 mm (1.32 in.)	31.5 mm (1.24 in.)
		5th	33.5 mm (1.32 in.)	31.5 mm (1.24 in.)
	Clutch disc thickness		1.94 mm (0.076 in.)	———
	Clutch plate thickness	1st, 2nd	1.6 mm (0.063 in.)	When discolored
		3rd, 4th	2.3 mm (0.091 in.)	When discolored
		5th	2.0 mm (0.079 in.)	When discolored
		1st-hold	1.8 mm (0.071 in.)	When discolored

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5-speed Automatic Transmission and A/T Differential - 1999-2001 Models (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch	1st clutch end plate thickness	Mark 1	3.10 mm (0.122 in.)	When discolored
		Mark 2	3.20 mm (0.126 in.)	When discolored
		Mark 3	3.30 mm (0.130 in.)	When discolored
		Mark 4	3.40 mm (0.134 in.)	When discolored
		Mark 5	3.50 mm (0.138 in.)	When discolored
		Mark 6	3.60 mm (0.142 in.)	When discolored
		Mark 7	3.70 mm (0.146 in.)	When discolored
		Mark 8	3.80 mm (0.150 in.)	When discolored
		Mark 9	3.90 mm (0.154 in.)	When discolored
	1st-hold clutch end plate thickness		5.00 mm (0.197 in.)	When discolored
	2nd, 4th and 5th clutch end plate thickness	Mark 1	2.10 mm (0.083 in.)	When discolored
		Mark 2	2.20 mm (0.087 in.)	When discolored
		Mark 3	2.30 mm (0.091 in.)	When discolored
		Mark 4	2.40 mm (0.094 in.)	When discolored
		Mark 5	2.50 mm (0.098 in.)	When discolored
		Mark 6	2.60 mm (0.102 in.)	When discolored
		Mark 7	2.70 mm (0.106 in.)	When discolored
		Mark 8	2.80 mm (0.110 in.)	When discolored
		Mark 9	2.90 mm (0.114 in.)	When discolored
	3rd clutch end plate thickness	Mark 1	3.10 mm (0.122 in.)	When discolored
		Mark 2	3.20 mm (0.126 in.)	When discolored
		Mark 3	3.30 mm (0.130 in.)	When discolored
		Mark 4	3.40 mm (0.134 in.)	When discolored
		Mark 6	2.60 mm (0.102 in.)	When discolored
		Mark 7	2.70 mm (0.106 in.)	When discolored
		Mark 8	2.80 mm (0.110 in.)	When discolored
		Mark 9	2.90 mm (0.114 in.)	When discolored
		Mark 0	3.00 mm (0.118 in.)	When discolored
Valve body	Stator shaft needle bearing contact I.D.	Torque converter side	27.000－27.021 mm (1.0630－1.0638 in.)	When worn or damaged
		ATF pump side	29.000－29.021 mm (1.1417－1.1426 in.)	When worn or damaged
	ATF pump gear thrust clearance		0.03－0.06 mm (0.001－0.002 in.)	0.07 mm (0.003 in.)
	ATF pump gear-to-body clearance	Drive gear	0.210－0.265 mm (0.0083－0.0104 in.)	———
		Driven gear	0.070－0.125 mm (0.0028－0.0049 in.)	———
	ATF pump driven gear I.D.		14.016－14.034 mm (0.5518－0.5525 in.)	When worn or damaged
	ATF pump driven gear shaft O.D.		13.980－13.990 mm (0.5504－0.5508 in.)	When worn or damaged
Reverse shift fork	Fork finger thickness		5.90－6.00 mm (0.232－0.236 in.)	5.40 mm (0.213 in.)
Park gear and pawl			———	When worn or damaged
Servo body	Shift fork shaft bore I.D.		14.000－14.010 mm (0.5512－0.5516 in.)	———
	Shift fork shaft valve bore I.D.		37.000－37.039 mm (1.4567－1.4582 in.)	37.045 mm (1.4585 in.)
Regulator valve body	Sealing ring contact I.D.		32.000－32.025 mm (1.2598－1.2608 in.)	32.050 mm (1.2618 in.)
Accumulator body	Sealing ring contact I.D.		35.000－35.025 mm (1.3780－1.3789 in.)	35.05 mm (1.3799 in.)
Stator shaft	Sealing ring contact I.D.		29.000－29.021 mm (1.1417－1.1423 in.)	29.050 mm (1.1437 in.)

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft	Diameter of needle bearing contact area	At stator shaft	22.984－23.000 mm (0.9049－0.9055 in.)	When worn or damaged
		At 4th gear	52.975－52.991 mm (2.0856－2.0863 in.)	When worn or damaged
		At 5th gear collar	33.975－33.991 mm (1.3376－1.3382 in.)	When worn or damaged
	I.D. of 4th gear		59.000－59.019 mm (2.3228－2.3236 in.)	When worn or damaged
	I.D. of 5th gear		40.000－40.016 mm (1.5748－1.5754 in.)	When worn or damaged
	End play of 4th gear		0.03－0.31 mm (0.001－0.012 in.)	———
	End play of 5th gear		0.10－0.22 mm (0.004－0.009 in.)	———
	41 x 73 mm thrust shim thickness	No. 1	7.85 mm (0.309 in.)	When worn or damaged
		No. 2	7.90 mm (0.311 in.)	When worn or damaged
		No. 3	7.95 mm (0.313 in.)	When worn or damaged
		No. 4	8.00 mm (0.315 in.)	When worn or damaged
		No. 5	8.05 mm (0.317 in.)	When worn or damaged
		No. 6	8.10 mm (0.319 in.)	When worn or damaged
	Thrust washer thickness	27 x 47 x 5 mm	5.00 mm (0.197 in.)	When worn or damaged
	Length of 5th gear collar		58.5－58.6 mm (2.303－2.307 in.)	———
	5th gear collar flange thickness		4.45－4.60 mm (0.175－0.181 in.)	When worn or damaged
	Sealing ring thickness	32 mm sealing ring	1.87－1.97 mm (0.074－0.078 in.)	1.800 mm (0.071 in.)
		29 mm sealing ring	1.87－1.97 mm (0.074－0.078 in.)	1.800 mm (0.071 in.)
	Width of sealing ring groove		2.025－2.060 mm (0.080－0.081 in.)	2.080 mm (0.082 in.)
	Clutch feed pipe O.D.	4th clutch	5.97－5.98 mm (0.2350－0.2354 in.)	5.95 mm (0.2343 in.)
		5th clutch	11.47－11.48 mm (0.4516－0.4520 in.)	11.45 mm (0.4508 in.)
	Clutch feed pipe bushing I.D.	4th clutch	6.018－6.030 mm (0.2369－0.2374 in.)	6.045 mm (0.2380 in.)
		5th clutch	11.500－11.518 mm (0.4528－0.4535 in.)	11.530 mm (0.4539 in.)

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5-speed Automatic Transmission and A/T Differential - 2002-2004 Models (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter of needle bearing contact area	At 5th gear	34.975－34.991 mm (1.3770－1.3776 in.)	When worn or damaged
		At 2nd gear	39.979－40.000 mm (1.574－1.575 in.)	When worn or damaged
		At park gear	41.964－41.980 mm (1.6521－1.6528 in.)	When worn or damaged
		At right end	38.505－38.515 mm (1.5159－1.5163 in.)	When worn or damaged
	I.D. of 5th gear		41.000－41.016 mm (1.6142－1.6148 in.)	When worn or damaged
	I.D. of 3rd gear		50.000－50.016 mm (1.9685－1.9691 in.)	When worn or damaged
	I.D. of reverse gear		46.000－46.016 mm (1.8110－1.8116 in.)	When worn or damaged
	End play of 1st gear		0.00－0.33 mm (0.000－0.013 in.)	———
	End play of 5th gear		0.04－0.27 mm (0.002－0.011 in.)	———
	End play of 3rd gear		0.015－0.045 mm (0.0006－0.0018 in.)	———
	End play of reverse gear		0.10－0.25 mm (0.004－0.010 in.)	———
	31 x 63.5 x 8.5 mm splined washer	A	3.503－3.515 mm (0.1379－0.1384 in.)	When worn or damaged
		B	3.490－3.502 mm (0.1374－0.1379 in.)	When worn or damaged
		C	3.477－3.489 mm (0.1369－0.1374 in.)	When worn or damaged
		D	3.464－3.476 mm (0.1364－0.1369 in.)	When worn or damaged
	Length of distance collar	35 x 47 x 45.6 mm	45.56－45.60 mm (1.794－1.795 in.)	———
		35 x 47 x 7.8 mm	5.92－5.96 mm (0.233－0.235 in.)	———
	Cotter thickness		1.99－2.02 mm (0.078－0.080 in.)	———
	Reverse selector hub O.D.		55.87－55.90 mm (2.1996－2.2008 in.)	When worn or damaged
	Clutch feed pipe O.D.		8.97－8.98 mm (0.353－0.354 in.)	8.95 mm (0.352 in.)
	Clutch feed pipe bushing I.D.		9.000－9.015 mm (0.354－0.355 in.)	9.030 mm (0.356 in.)

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft	Diameter of needle bearing contact area	At 1st gear	37.978－37.993 mm (1.4951－1.4958 in.)	When worn or damaged
		At 2nd gear	33.986－33.999 mm (1.3380－1.3385 in.)	When worn or damaged
	I.D. of 1st gear		44.000－44.016 mm (1.7323－1.7329 in.)	When worn or damaged
	I.D. of 2nd gear		40.000－40.016 mm (1.5748－1.5754 in.)	When worn or damaged
	End play of 1st gear		0.07－0.15 mm (0.003－0.006 in.)	———
	End play of 2nd gear		0.04－0.12 mm (0.002－0.005 in.)	———
	38 x 56.5 mm splined washer thickness	No. 1	6.85 mm (0.270 in.)	When worn or damaged
		No. 2	6.90 mm (0.272 in.)	When worn or damaged
		No. 3	6.95 mm (0.274 in.)	When worn or damaged
		No. 4	7.00 mm (0.276 in.)	When worn or damaged
		No. 5	7.05 mm (0.278 in.)	When worn or damaged
		No. 6	7.10 mm (0.280 in.)	When worn or damaged
	37 x 55 mm thrust shim thickness	No. 1	4.90 mm (0.193 in.)	When worn or damaged
		No. 2	4.95 mm (0.195 in.)	When worn or damaged
		No. 3	5.00 mm (0.197 in.)	When worn or damaged
		No. 4	5.05 mm (0.199 in.)	When worn or damaged
		No. 5	5.10 mm (0.201 in.)	When worn or damaged
		No. 6	5.15 mm (0.203 in.)	When worn or damaged
		No. 7	5.20 mm (0.205 in.)	When worn or damaged
	Cotter thickness		1.99－2.02 mm (0.078－0.080 in.)	———
	Sealing ring thickness		1.890－1.950 mm (0.074－0.077 in.)	1.800 mm (0.071 in.)
	Width of sealing ring groove		2.025－2.060 mm (0.080－0.081 in.)	2.080 mm (0.082 in.)
	Clutch feed pipe O.D.		7.97－7.98 mm (0.3138－0.3142 in.)	7.95 mm (0.3130 in.)
	Clutch feed pipe bushing I.D.		8.000－8.015 mm (0.3150－0.3156 in.)	8.030 mm (0.3161 in.)
Reverse idler gear	Diameter of needle bearing contact area	At reverse idler gear shaft	13.990－14.000 mm (0.5508－0.5512 in.)	When worn or damaged
	End play		0.06－0.38 mm (0.002－0.015 in.)	———
	I.D.		18.007－18.020 mm (0.7089－0.7094 in.)	When worn or damaged
	Thrust washer thickness	Transmission housing side	0.96－1.04 mm (0.038－0.041 in.)	———
		Reverse idler gear shaft holder side	0.97－1.05 mm (0.038－0.041 in.)	———
	I.D. of reverse idler gear shaft holder		14.006－14.024 mm (0.5514－0.5521 in.)	When worn or damaged
	I.D. of transmission housing of reverse idler gear shaft contact area		14.006－14.024 mm (0.5514－0.5521 in.)	———

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5-speed Automatic Transmission and A/T Differential - 2002-2004 Models (cont'd)

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Main valve body spring (see page 14-430).	Shift valve D spring		0.7 mm (0.028 in.)	6.6 mm (0.260 in.)	33.7 mm (1.327 in.)	11.6
	Shift valve C spring		0.8 mm (0.031 in.)	6.6 mm (0.260 in.)	49.1 mm (1.933 in.)	21.7
	Kick-down valve spring		0.8 mm (0.031 in.)	6.6 mm (0.260 in.)	49.1 mm (1.933 in.)	21.7
	Modulator valve spring		1.6 mm (0.063 in.)	10.4 mm (0.409 in.)	33.5 mm (1.319 in.)	9.8
	Relief valve spring		1.2 mm (0.047 in.)	11.1 mm (0.437 in.)	39.0 mm (1.535 in.)	9.9
	Lock-up shift valve spring		0.9 mm (0.035 in.)	7.6 mm (0.299 in.)	63.0 mm (2.480 in.)	22.4
	Cooler check valve spring		0.6 mm (0.024 in.)	5.8 mm (0.228 in.)	14.5 mm (0.571 in.)	6.8
	Torque converter check valve spring		1.2 mm (0.047 in.)	8.6 mm (0.339 in.)	34.4 mm (1.354 in.)	11.7
	Servo control valve spring		0.9 mm (0.035 in.)	6.4 mm (0.252 in.)	32.5 mm (1.280 in.)	17.5
	Reverse CPC valve spring		0.7 mm (0.028 in.)	6.1 mm (0.240 in.)	17.8 mm (0.701 in.)	7.9
Regulator valve body spring (see page 14-433).	Stator reaction spring		5.5 mm (0.217 in.)	37.4 mm (1.472 in.)	30.3 mm (1.193 in.)	2.1
	Regulator valve spring A		1.9 mm (0.075 in.)	14.7 mm (0.579 in.)	80.6 mm (3.173 in.)	16.1
	Regulator valve spring B		1.6 mm (0.063 in.)	9.2 mm (0.362 in.)	44.0 mm (1.732 in.)	12.5
	Lock-up control valve spring		0.7 mm (0.028 in.)	6.6 mm (0.260 in.)	42.9 mm (1.689 in.)	14.2
	Lock-up timing valve spring		0.65 mm (0.026 in.)	6.6 mm (0.260 in.)	34.8 mm (1.370 in.)	15.6
Servo body spring (see page 14-434).	CPC valve B		0.7 mm (0.028 in.)	6.1 mm (0.240 in.)	17.8 mm (0.701 in.)	7.9
	CPC valve A		0.7 mm (0.028 in.)	6.1 mm (0.240 in.)	17.8 mm (0.701 in.)	7.9
	Shift valve B		0.8 mm (0.031 in.)	6.6 mm (0.260 in.)	49.1 mm (1.933 in.)	21.7
	Shift valve A		0.8 mm (0.031 in.)	6.6 mm (0.260 in.)	49.1 mm (1.933 in.)	21.7
Top accumulator body spring (see page 14-435).	Shift valve E		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	49.0 mm (1.929 in.)	17.2
	CPC valve C		0.7 mm (0.028 in.)	6.1 mm (0.240 in.)	17.8 mm (0.701 in.)	7.9
	5th accumulator spring A		2.2 mm (0.087 in.)	16.4 mm (0.646 in.)	75.7 mm (2.980 in.)	14.2
	5th accumulator spring B		2.0 mm (0.079 in.)	10.0 mm (0.394 in.)	45.5 mm (1.791 in.)	11.6
	4th/1st-hold accumulator spring		3.4 mm (0.134 in.)	19.6 mm (0.772 in.)	57.4 mm (2.260 in.)	8.4

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Accumulator body spring (see page 14-436).	1st accumulator spring B		2.3 mm (0.091 in.)	12.6 mm (0.496 in.)	42.0 mm (1.654 in.)	9.9
	1st accumulator spring A		2.4 mm (0.094 in.)	19.5 mm (0.768 in.)	67.7 mm (2.665 in.)	10.2
	2nd accumulator spring B		2.6 mm (0.102 in.)	13.0 mm (0.512 in.)	44.0 mm (1.732 in.)	9.0
	2nd accumulator spring A		2.5 mm (0.098 in.)	19.6 mm (0.772 in.)	57.7 mm (2.272 in.)	9.5
3rd accumulator spring (see page 14-437).	3rd accumulator spring		3.1 mm (0.122 in.)	19.6 mm (0.772 in.)	39.4 mm (1.551 in.)	5.5

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential carrier	Pinion shaft contact area I.D.		18.000－18.025 mm (0.7087－0.7096 in.)	———
	Carrier-to-pinion shaft clearance		0.013－0.054 mm (0.001－0.002 in.)	0.1 mm (0.004 in.)
	Driveshaft contact area I.D.		30.025－30.055 mm (1.182－1.183 in.)	———
	Carrier-to-driveshaft clearance		0.045－0.096 mm (0.002－0.004 in.)	0.13 mm (0.005 in.)
	Carrier-to-intermediate shaft clearance		0.080－0.126 mm (0.003－0.005 in.)	———
	Tapered roller bearing starting torque (preload)	For new bearing	2.7－3.9 N·m (28－40 kgf·cm, 24－35 lbf·in.)	Adjust
		For used bearing	2.5－3.6 N·m (25－37 kgf·cm, 22－32 lbf·in.)	Adjust
A/T differential pinion gear	Backlash		0.175－0.275 mm (0.007－0.011 in.)	———
	I.D.		15.05－15.077 mm (0.593－0.594 in.)	———
	Pinion gear-to-pinion shaft clearance		0.066－0.111 mm (0.0026－0.0044 in.)	0.12 mm (0.005 in.)

Standards and Service Limits

Steering

Item	Measurement	Qualification	Standard or New	Service Limit
Steering wheel	Rotational play measured at outside edge	With engine running	0－10 mm (0－0.39 in.)	———
	Starting load measured at outside edge	With engine running	30 N (3.1 kgf, 6.8 lbf)	———
Gearbox	Angle of rack guide screw loosened from locked position		20° Max	
Pump	Output pressure with shut-off valve closed		8,300－8,800 kPa (85－90 kgf/cm², 1,210－1,280 psi)	
Power steering fluid	Capacity Use Honda Power Steering Fluid	For fluid change	0.4 ℓ (0.42 US qt)	
		For system overhaul	1.1 ℓ (1.16 US qt)	
Power steering pump belt NOTE: Adjust a *new* belt to the new belt spec, run the engine for 5 minutes, then readjust it to the *used* belt spec.	Deflection with 98 N (10 kgf, 22 lbf) applied mid-way between pulleys		Used belt: 13.0－16.5 mm (0.51－0.65 in.)	
			New belt: 8.5－11.0 mm (0.33－0.43 in.)	
	Tension (measured with belt tension gauge)		Used belt: 390－540 N (40－55 kgf, 88－120 lbf)	
			New belt: 740－880 N (75－90 kgf, 170－200 lbf)	

Suspension

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel alignment	Camber	Front	0°00′ ±1°	
		Rear	－0°30′ ±45′	
	Caster	Front	2°07′ ±1°	
	Total Toe	Front	0±2 mm (0±1/16 in.)	
		Rear	0±2 mm (0±1/16 in.)	
	Front wheel turning angle	Inside wheel	41°46′ ±2°	
		Outside wheel	33°28′ (Reference)	
Aluminum wheel	Runout	Axial	0－0.7 mm (0－0.03 in.)	2.0 mm (0.08 in.)
		Radial	0－0.7 mm (0－0.03 in.)	1.5 mm (0.06 in.)
Steel wheel	Runout	Axial	0－1.0 mm (0－0.04 in.)	2.0 mm (0.08 in.)
		Radial	0－1.0 mm (0－0.04 in.)	1.5 mm (0.06 in.)
Wheel bearing	End play	Front	0－0.05 mm (0－0.002 in.)	
		Rear	0－0.05 mm (0－0.002 in.)	

Brakes - 1999-2001 Models

Item	Measurement	Qualification	Standard or New	Service Limit
Parking brake pedal	Distance traveled when pressed with 294 N (30 kgf, 66 lbf) of force		3－5 clicks	
Brake pedal	Pedal height (carpet removed)		164 mm (6 7/16 in.)	
	Free play		1－5 mm (1/16－3/16 in.)	
Brake disc	Thickness	Front	27.9－28.1 mm (1.10－1.11 in.)	26.0 mm (1.02 in.)
	Runout	Front	———	0.10 mm (0.004 in.)
	Parallelism	Front	———	0.015 mm (0.0006 in.)
Brake pad	Thickness	Front	10.5－11.5 mm (0.41－0.45 in.)	1.6 mm (0.06 in.)
Brake drum	I.D.		253.9－254.0 mm (9.996－10.000 in.)	255.0 mm (10.04 in.)
Brake shoe	Lining thickness		4.5 mm (0.18 in.)	2.0 mm (0.08 in.)

Brakes - 2002-2004 Models

Item	Measurement	Qualification	Standard or New	Service Limit
Parking brake pedal	Distance traveled when pressed with 294 N (30 kgf, 66 lbf) of force		4－6 clicks	
Brake pedal	Pedal height (carpet removed)		164 mm (6 7/16 in.)	
	Free play		1－5 mm (1/16－3/16 in.)	
Brake disc	Disc thickness	Front	27.9－28.1 mm (1.10－1.11 in.)	26.0 mm (1.02 in.)
		Rear	10.9－11.1 mm (0.43－0.44 in.)	9.0 mm (0.35 in.)
	Disc runout	Front and rear	———	0.10 mm (0.004 in.)
	Disc Parallelism	Front and rear	———	0.015 mm (0.0006 in.)
Brake pad	Thickness	Front	10.5－11.5 mm (0.41－0.45 in.)	1.6 mm (0.06 in.)
		Rear	9.5－10.5 mm (0.37－0.41 in.)	1.6 mm (0.06 in.)
Brake drum	I.D.		210.0－210.1 mm (8.268－8.272 in.)	211 mm (8.307 in.)
Brake shoe	Lining thickness		4.0 mm (0.16 in.)	1.0 mm (0.04 in.)

Air Conditioning

Item	Measurement	Qualification	Standard or New
Refrigerant	Type		HFC-134a (R-134a)
	Capacity of system	Dual	850－900 g (29－32 oz)
		Single	600－650 g (21－23 oz)
Refrigerant oil	Type		DENSO: ND-OIL 8 (P/N 38897-PR7-A01AH or 38899-PR7-A01)
	Capacity of components	Condenser	35 mℓ (1 1/6 fl oz)
		Evaporator	40 mℓ (1 1/3 fl oz)
		Each line and hose	10 mℓ (1/3 fl oz)
		Compressor	210 mℓ (6 fl oz)
Compressor (DENSO)	Starter coil resistance	At 68℉ (20℃)	3.4 －3.8 Ω
	Pulley-to-pressure plate clearance		0.5±0.15 mm (0.02±0.006 in.)

Design Specifications

Item	Measurement	Qualification	Specification
DIMENSIONS	Overall length		5,110 mm (201.2 in.)
	Overall width		1,920 mm (75.6 in.)
	Overall height	VAN, LX	1,740 mm (68.5 in.)
		EX, EXL	1,770 mm (69.7 in.)
	Wheelbase		3,000 mm (118.1 in.)
	Track	Front	1,680 mm (66.1 in.)
		Rear	1,680 mm (66.1 in.)
	Ground clearance		163 mm (6.4 in.)
	Seating capacity		Seven (7)
WEIGHT (U.S.A.)	Gross Vehicle Weight Rating (GVWR)	1999-2001 models	5,567 lbs
		2002-2004 models	5,665 lbs
WEIGHT (CANADA)	Gross Vehicle Weight Rating (GVWR)	1999-2001 models	2,525 kg
		2002-2004 models	2,570 kg
ENGINE	Type		Water-cooled, 4-stroke SOHC VTEC V6 gasoline engine
	Cylinder arrangement		60° V6-cylinder, transverse
	Bore and stroke		89.0 x 93.0 mm (3.50 x 3.66 in.)
	Displacement		3,471 cm^3 (mℓ) (222 cu in.)
	Compression ratio	1999-2001 models	9.4
		2002-2004 models	10.0
	Valve train		Belt driven, SOHC VTEC 4 valves per cylinder
	Lubrication system		Forced, wet sump, with trochoid pump
	Oil pump displacement	At 6,000 rpm	58.4 ℓ (61.7 US qt)/minute
	Water pump displacement	At 6,000 rpm	172 ℓ (182 US qt)/minute
	Fuel required		UNLEADED gasoline with Pump Octane Number of 86 or higher
STARTER	Type		Gear reduction
	Normal output		1.6 kW
	Normal voltage		12 V
	Hour rating		30 seconds
	Direction of rotation		Clockwise as viewed from gear end
4-speed AUTOMATIC TRANSMISSION (1999-2001 models)	Type		Electronically controlled automatic, 4-speed forward, 1 reverse
	Primary reduction		Direct 1:1
	Gear ratio	1st	2.534
		2nd	1.502
		3rd	0.947
		4th	0.608
		Reverse	1.846
	Final reduction	Type	Single helical gear
		Gear ratio	3.941
5-speed AUTOMATIC TRANSMISSION (2002-2004 models)	Type		Electronically controlled automatic, 5-speed forward, 1 reverse
	Primary reduction		Direct 1:1
	Gear ratio	1st	2.563
		2nd	1.552
		3rd	1.021
		4th	0.727
		5th	0.520
		Reverse	1.846
	Final reduction	Type	Single helical gear
		Gear ratio	4.200

Item	Measurement	Qualification	Specification
STEERING	Type		Power-assisted rack and pinion
	Overall ratio		16.57
	Turns, lock-to-lock		3.44
	Steering wheel diameter		380 mm (15.0 in.)
SUSPENSION	Type	Front	Strut
		Rear	Double wishbone
	Shock absorber	Front and rear	Telescopic, hydraulic, nitrogen gas-filled
WHEEL ALIGNMENT	Camber	Front	0°
		Rear	−0°30′
	Caster	Front	2°07′
	Total toe	Front	0 mm (0 in.)
		Rear	0 mm (0 in.)
BRAKES	Type of service brake	Front	Power-assisted self-adjusting ventilated disc
		Rear (1999-2001 models)	Power-assisted self-adjusting drum
		Rear (2002-2004 models)	Power-assisted self-adjusting solid disc
	Type of parking brake		Mechanical actuating, rear wheels
	Pad friction surface area	Front (1999-2001 models)	55 cm^2 x 4 (8.5 sq in. x 4)
		Front (2002-2004 models)	51 cm^2 x 4 (7.9 sq in. x 4)
		Rear (2002-2004 models)	22 cm^2 x 4 (3.4 sq in. x 4)
	Shoe friction surface area	Rear (1999-2001 models)	109 cm^2 x 4 (16.9 sq in. x 4)
		Rear (2002-2004 models)	58 cm^2 x 4 (9.0 sq in. x 4)
TIRES	Size of front and rear tires	1999-2001 models	P215/65R16 96T
		2002-2004 models	P225/60R16 98T
	Size of spare tires		T135/80D16 101M
AIR CONDITIONING	Cooling capacity	Front	4,375 Kcal/h (17,300 BTU/h)
		Rear	3,565 Kcal/h (14,100 BTU/h)
	Compressor	Type/Manufacturer	Swash plate/DENSO
		Number of cylinders	10
		Capacity	210 mℓ/rev. (12.81 cu in./rev.)
		Maximum speed	7,600 rpm
		Lubricant capacity	210 mℓ (6 fl oz)
		Lubricant type	ND-OIL 8
	Condenser	Type	Corrugated fin
	Evaporator	Type	Corrugated fin
	Blower	Type	Sirocco fan
		Motor input (Front)	225 W/12 V
		Motor input (Rear)	180 W/12 V
		Speed control (Front)	Manual A/C: 4-speed, Auto A/C: Infinite variable
		Speed control (Rear)	3-speed
		Maximum capacity (Front)	490 m^3/h (17,300 cu ft/h)
		Maximum capacity (Rear)	375 m^3/h (13,200 cu ft/h)
	Temperature control		Air-mix type
	Compressor clutch	Type	Dry, single plate, Poly-V belt drive
		Electrical power consumption at 68°F (20°C)	40 W maximum at 12 V
	Refrigerant	Type	HFC-134a (R-134a)
		Quantity (Dual)	850−900 g (29−32 fl oz)
		Quantity (Single)	600−650 g (21−23 fl oz)

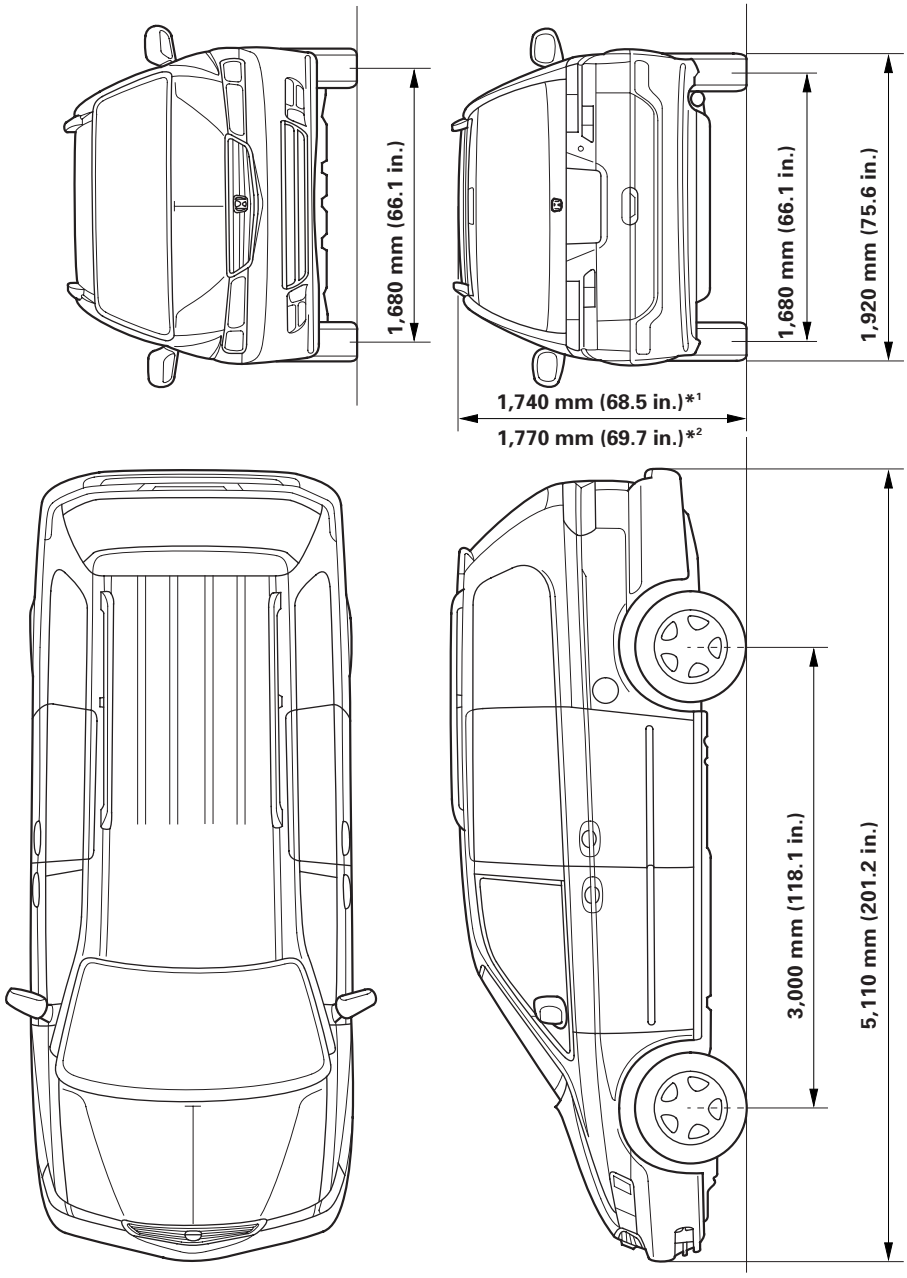
(cont'd)

Design Specifications

(cont'd)

Item	Measurement	Qualification	Specification
ELECTRICAL RATINGS	Battery		12 V—20/5 HR 65A
	Starter		12 V—1.6 kW
	Alternator		12 V—130A
	Fuses	Under-hood fuse/relay box	120A, 50A, 40A, 30A, 20A, 15A, 7.5A
		Under-dash driver's fuse/relay box	30A, 15A, 10A, 7.5A
		Under-dash passenger's fuse/relay box	20A, 15A, 10A, 7.5A
		Multi-fuse/relay box (1999-2002 models)	40A, 30A, 20A
		Under-hood subfuse box (2003-2004 models)	40A, 30A, 20A
	Light bulbs	Headlights high/low	12 V—60/55 W
		Front turn signal/Front side marker lights	12 V—21 W/5 W (two filaments)
		Rear turn signal lights	12 V—21 W
		Brake/Taillights	12 V—21/5 W
		Inner Taillights	12 V—5 W
		High mount brake light	12 V—18 W
		Back-up lights	12 V—21 W
		License plate light	12 V—5 W
		Cargo area light	12 V—8 W
		Vanity mirror lights	12 V—1.8 W
		Center pocket light	12 V—3.4 W
		Front individual map lights	12 V—4 cp
		Rear individual map lights	12 V—10 W
		Gauge lights	12 V—3.0 W, 3.4 W, 1.4 W
		Indicator lights	12 V—LED, 14 V—0.84 W, 1.4 W
		Panel and pilot lights	14 V—0.7 W
		Front heater control panel lights	8 V—1.2 W, 14 V—1.12 W, 1.4 W
		Rear heater control panel lights	14 V—1.4 W

Body Specifications



*1: VAN, LX
*2: EX, EXL

Maintenance

Lubricants and Fluids 3-2

Maintenance Schedule
Listed by Distance/Time for Nomal Conditions
1999-2000 Models 3-4
Listed by Distance/Time for Severe Conditions
1999-2000 Models 3-7

Listed by Distance/Time for Nomal Conditions
2001 Model 3-10
Listed by Distance/Time for Severe Conditions
2001 Model 3-13

Listed by Distance/Time for Nomal Conditions
2002-2003 Models 3-16
Listed by Distance/Time for Severe Conditions
2002-2003 Models 3-19

Listed by Distance/Time for Nomal Conditions
2004 Model 3-22
Listed by Distance/Time for Severe Conditions
2004 Model 3-25

Lubricants and Fluids

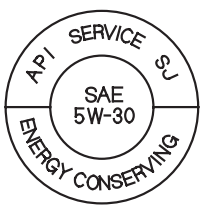
For the details of lubrication points and type of lubricants to be applied, refer to the illustrated index and various work procedures (such as Assembly/Reassembly, Replacement, Overhaul, Installation, etc.) contained in each section.

NO.	LUBRICATION POINTS	LUBRICANT
1	Engine	Honda Motor Oil (P/N 08798-9023). Look for the API Certification seal on the oil container as shown below. Make sure it says ''For Gasoline Engines.'' SAE Viscosity 5W-20 (for 2002-2004 models), 5W-30 (for 1999-2001 models).
2	Transmission	Honda ATF-Z1 (ATF) *1 P/N 08200-9001
3	Brake system (includes ABS)	Honda DOT 3 Brake Fluid *2 P/N 08798-9008
4	Power steering gearbox	Steering grease P/N 08733-B070E
5	Throttle cable end (Dashboard lower panel hole)	Silicone grease
6	Throttle cable end (Throttle link)	Super High Temp Urea Grease P/N 08798-9002
7 8 9 10 11 12 13 14	Brake booster clevis Pedal linkage Battery terminals Fuel fill door Hood hinges and hood latch Tailgate hinges Door hinges, upper and lower Door rail, roller moving portion and rail spring	Multipurpose grease
15	Rear brake shoe linkage	Molykote Grease 44MA
16	Caliper piston boot, caliper pins and boots piston	Honda Caliper Grease P/N 08C30-B0234M
17	Power steering system	Honda Power Steering Fluid *3
18	Air conditioning compressor	Compressor oil: DENSO ND-OIL 8 (P/N 38897-PR7-A01AH or 38899-PR7-A01) For Refrigerant: HFC-134a (R-134a)

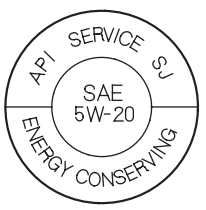
* 1: Always use Honda ATF-Z1 (ATF). Using a non-Honda ATF can affect shift quality.
* 2: Always use Honda DOT 3 Brake Fluid. Using a non-Honda brake fluid can cause corrosion and decrease the life of the system.
* 3: Always use Honda Power Steering Fluid. Using any other type of power steering fluid or automatic transmission fluid can cause increased wear and poor steering in cold weather.

*10

API CERTIFICATION LABEL



1999-2001 models

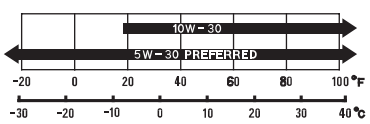


2002-2004 models

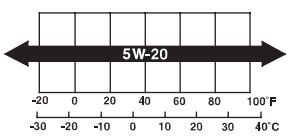
API CERTIFICATION SEAL

Recommended Engine Oil
Engine oil viscosity for ambient temperature ranges

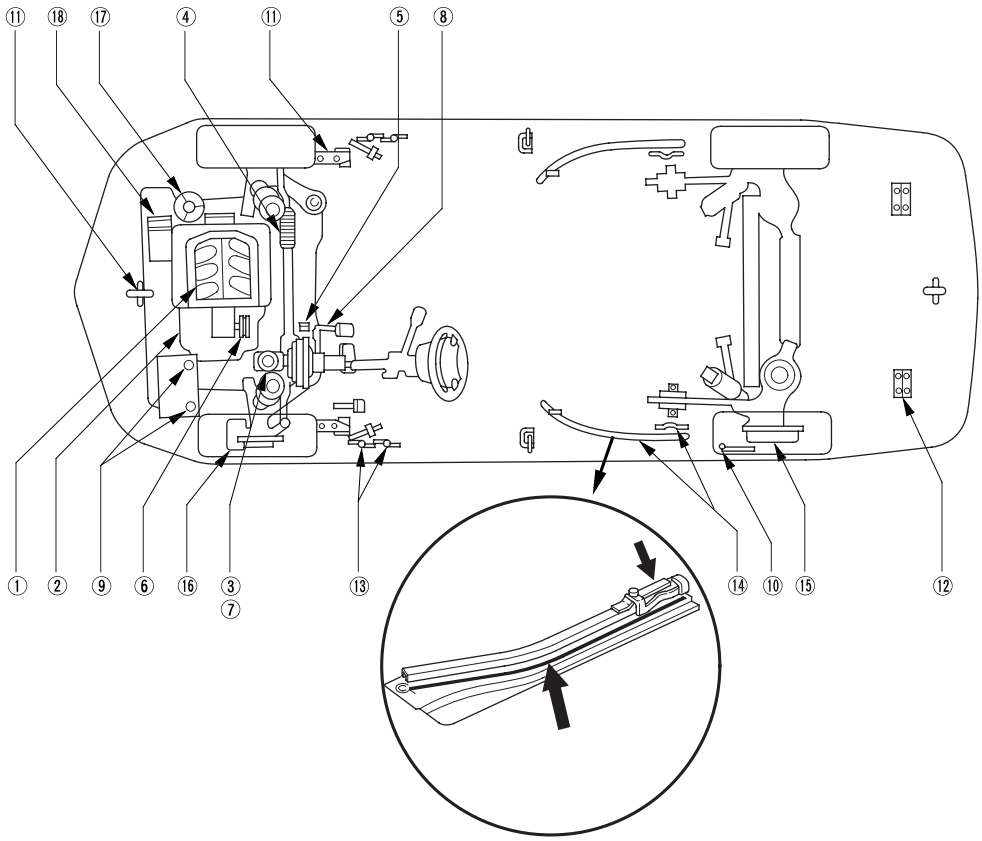
For 1999-2001 models



For 2002-2004 models



NOTE:
- Lubricate all hinges, latches, and locks once a year.
- In corrosive areas, more frequent lubrication is necessary.
- We recommend Honda White Lithium Grease.



Maintenance Schedule

Listed by Distance/Time for Normal Conditions

1999-2000 Models

This two-page Maintenance Schedule outlines the minimum required maintenance. Service at the indicated distance or time, whichever comes first. Use the Maintenance Schedule for Severe Conditions if the vehicle meets any of the qualifiers in the Severe Conditions schedule or if the vehicle is normally driven in Canada.

Distance		Time	Maintenance Items
7,500 miles	12,000 km	———	Do items in A.
15,000 miles	24,000 km	1 year	Do items in A and B.
22,500 miles	36,000 km	———	Do items in A.
30,000 miles	48,000 km	2 years	Do items in A, B, and C.
37,500 miles	60,000 km	———	Do items in A.
45,000 miles	72,000 km	3 years	Do items in A, B, and D.
———	———	3 years	Replace brake fluid.
52,500 miles	84,000 km	———	Do items in A.
60,000 miles	96,000 km	4 years	Do items in A, B, and C.
67,500 miles	108,000 km	———	Do items in A.
75,000 miles	120,000 km	5 years	Do items in A, B, and D.
82,500 miles	132,000 km	———	Do items in A.
90,000 miles	144,000 km	6 years	Do items in A, B, and C.
———	———	6 years	Replace brake fluid (see page 19-9).
97,500 miles	156,000 km	———	Do items in A.
105,000 miles	168,000 km	7 years	Do items in A, B, D, and E.
			Inspect idle speed (see page 11-201). • Idle speed: 730±50 rpm in N or P position.
112,500 miles	180,000 km	———	Do items in A.
120,000 miles	192,000 km	8 years	Do items in A, B, and C.
———	———	9 years	Replace brake fluid (see page 19-9).

Do the items in parts A, B, C, D, and E as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-5). • Capacity: without oil filter 4.0 ℓ (4.2 US qt), every 7,500 miles (12,000 km) or 1 year.
	Rotate tires, and check tire inflation and condition, every 7,500 miles (12,000 km). • Follow the pattern shown in the Owner's Manual.
B	Replace engine oil filter (see page 8-5). • Capacity: with oil filter 4.4 ℓ (4.6 US qt), every 15,000 miles (24,000 km) or 1 year.
	Check front and rear brakes (see page 19-2), every 15,000 miles (24,000 km) or 1 year. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mount bolts. • Check wheel cylinders for leaks. • Check brake linings for cracking, glazing, wear, or contamination.
	Check parking brake adjustment (see page 19-7), every 15,000 miles (24,000 km) or 1 year. • Number of clicks (3 to 5) when parking brake pedal is pressed with 294 N (30 kgf, 66 lbf) of force.
	Inspect tie rod ends, steering gearbox, and gearbox boot (see page 17-3), every 15,000 miles (24,000 km) or 1 year. • Check rack grease and steering linkage. • Check boots for damage and leaking grease. • Check fluid lines for damage and leaks.
	Inspect suspension components (see page 18-3), every 15,000 miles (24,000 km) or 1 year. • Check bolts for tightness.
	Inspect driveshaft boots (see page 16-3), every 15,000 miles (24,000 km) or 1 year. • Check boots for cracks and boot bands for tightness.
	Inspect brake hoses and lines including ABS (see page 19-35), every 15,000 miles (24,000 km) or 1 year. • Check the master cylinder and ABS modulator for damage and leakage.
	Inspect all fluid levels and condition of fluids, every 15,000 miles (24,000 km) or 1 year. • Automatic transmission fluid (ATF-Z1) (see page 14-136). • Power steering fluid (see page 17-14). • Brake fluid (see page 19-9). • Windshield washer fluid. • Engine coolant (see page 10-13).
	Inspect cooling system hoses and connections (see page 10-2), every 15,000 miles (24,000 km) or 1 year. • Check for damage, leaks, and deterioration. • Check for proper fan operation.
	Inspect exhaust system (see page 9-10)*, every 15,000 miles (24,000 km) or 1 year. • Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines and connections (see page 11-219)*, every 15,000 miles (24,000 km) or 1 year. • Check for loose connections, cracks, and deterioration; retighten loose connections, and replace damaged parts.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

(cont'd)

Listed by Distance/Time for Normal Conditions (cont'd)

1999-2000 Models

This two-page Maintenance Schedule outlines the minimum required maintenance. Service at the indicated distance or time, whichever comes first. Use the Maintenance Schedule for Severe Conditions if the vehicle meets any of the qualifiers in the Severe Conditions schedule or if the vehicle is normally driven in Canada.

Do the items in parts A, B, C, D, and E as required for the mileage/time interval listed.

Part	Maintenance Items
C	Replace air cleaner element (see page 11-240), every 30,000 miles (48,000 km).
	Inspect and adjust drive belts, every 30,000 miles (48,000 km) or 2 years. • Look for cracks and damage, then check belt deflection by pushing on the belt about 98 N (10 kgf, 22 lbf) midway between the pulleys. • P/S pump belt: 13.0—16.5 mm (1/2—5/8 in.) (see page 17-13).
	Replace dust and pollen filter (see page 21-44), every 30,000 miles (48,000 km) or 2 years. • Replace the filter as often (at 15,000 miles/24,000 km intervals) if the vehicle is driven mostly in urban areas that have high concentrations of soot in the air from industry and diesel-powered vehicles. • Replace the filter whenever airflow from the heating and cooling/climate control system is less than normal.
D	Replace engine coolant (see page 10-13), at 45,000 miles (72,000 km) or 3 years, then every 30,000 miles (48,000 km) or 2 years. • Use Honda All Season Antifreeze/coolant Type 2.
	Replace transmission fluid (see page 14-137), at 45,000 miles (72,000 km) or 3 years, then every 30,000 miles (48,000 km) or 2 years. • Capacity: 2.9 ℓ (3.1 US qt), use Honda ATF-Z1.
E	Inspect the valve clearance, otherwise adjust only if noisy (see page 6-15), every 105,000 miles (168,000 km) or 7 years. • Intake: 0.20—0.24 mm (0.008—0.009 in.), Exhaust: 0.28—0.32 mm (0.011—0.013 in.).
	Replace spark plugs (see page 4-18), every 105,000 miles (168,000 km) or 7 years. • GAP: 1.0—1.1 mm (0.039—0.043 in.), use PZFR5F11 (NGK) or PKJ16CR-L11 (DENSO).
	Replace timing belt (see page 6-20), and inspect water pump (see page 10-12), every 105,000 miles (168,000 km) or 7 years.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

Listed by Distance/Time for Severe Conditions

1999-2000 Models

Use the Severe Conditions schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions; if only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions
- Driving less than 5 miles (8 km) per trip or, in freezing temperatures, driving less than 10 miles (16 km) per trip.
- Driving in extremely hot over 90°F (32°C) conditions.
- Extensive idling, or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle.
- Trailer towing, driving with a roof rack, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

Distance		Time	Maintenance Items
3,750 miles	6,000 km	———	Do items in A.
7,500 miles	12,000 km	———	Do items in A and B.
11,250 miles	18,000 km	———	Do items in A.
15,000 miles	24,000 km	1 year	Do items in A, B, C, and D.
18,750 miles	30,000 km	———	Do items in A.
22,500 miles	36,000 km	———	Do items in A and B.
26,250 miles	42,000 km	———	Do items in A.
30,000 miles	48,000 km	2 years	Do items in A, B, C, and E.
33,750 miles	54,000 km	———	Do items in A.
37,500 miles	60,000 km	———	Do items in A and B.
41,250 miles	66,000 km	———	Do items in A.
45,000 miles	72,000 km	3 years	Do items in A, B, C, D, and F.
———	———	3 years	Replace brake fluid (see page 19-9).
48,750 miles	78,000 km	———	Do items in A.
52,500 miles	84,000 km	———	Do items in A and B.
56,250 miles	90,000 km	———	Do items in A.
60,000 miles	96,000 km	4 years	Do items in A, B, C, E, and G.
63,750 miles	102,000 km	———	Do items in A.
67,500 miles	108,000 km	———	Do items in A and B.
71,250 miles	114,000 km	———	Do items in A.
75,000 miles	120,000 km	5 years	Do items in A, B, C, D, and F.
78,750 miles	126,000 km	———	Do items in A.
82,500 miles	132,000 km	———	Do items in A and B.
86,250 miles	138,000 km	———	Do items in A.
90,000 miles	144,000 km	6 years	Do items in A, B, C, and E.
———	———	6 years	Replace brake fluid (see page 19-9).
93,750 miles	150,000 km	———	Do items in A.
97,500 miles	156,000 km	———	Do items in A and B.
101,250 miles	162,000 km	———	Do items in A.
105,000 miles	168,000 km	7 years	Do items in A, B, C, D, E, F, G, and H.
			Inspect idle speed (see page 11-201). • Idle speed: 730±50 rpm in N or P position.
108,750 miles	174,000 km	———	Do items in A.
112,500 miles	180,000 km	———	Do items in A and B.
116,250 miles	186,000 km	———	Do items in A.
120,000 miles	192,000 km	8 years	Do items in A, B, C, E, and G.
———	———	9 years	Replace brake fluid (see page 19-9).

(cont'd)

Listed by Distance/Time for Severe Conditions (cont'd)

1999-2000 Models

Use the Severe Conditions schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions; if only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions
- Driving less than 5 miles (8 km) per trip or, in freezing temperatures, driving less than 10 miles (16 km) per trip.
- Driving in extremely hot over 90°F (32°C) conditions.
- Extensive idling, or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle.
- Trailer towing, driving with a roof rack, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

Do the items in parts A, B, C, D, E, F, G, and H as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-5). • Capacity: without oil filter 4.0 ℓ (4.2 US qt), every 3,750 miles (6,000 km) or 6 months.
	Replace engine oil filter (see page 8-5). • Capacity: with oil filter 4.4 ℓ (4.6 US qt), every 3,750 miles (6,000 km) or 6 months.
B	Check front and rear brakes (see page 19-2), every 7,500 miles (12,000 km) or 6 months. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mount bolts. • Check wheel cylinders for leaks. • Check brake linings for cracking, glazing, wear, or contamination.
	Rotate tires, and check tire inflation and condition, every 7,500 miles (12,000 km). • Follow the pattern shown in the Owner's Manual.
	Inspect tie rod ends, steering gearbox, and gearbox boot (see page 17-3), every 7,500 miles (12,000 km) or 6 months. • Check rack grease and steering linkage. • Check boots for damage and leaking grease. • Check fluid lines for damage and leaks.
	Inspect suspension components (see page 18-3), every 7,500 miles (12,000 km) or 6 months. • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-3), every 7,500 miles (12,000 km) or 6 months.
C	Check parking brake adjustment (see page 19-7), every 15,000 miles (24,000 km) or 1 year. • Number of clicks (3 to 5) when parking brake pedal is pressed with 294 N (30 kgf, 66 lbf) of force.
	Lubricate all hinges, locks, and latches, every 15,000 miles (24,000 km) or 1 year. • With Honda White Lithum grease.
	Inspect brake hoses and lines including ABS (see page 19-35), every 15,000 miles (24,000 km) or 1 year. • Check the master cylinder, proportioning contorol valve, and ABS modulator for damage and leakage (see page 19-35).
	Inspect all fluid levels and condition of fluids, every 15,000 miles (24,000 km) or 1 year. • Automatic transmission fluid (ATF-Z1) (see page 14-136). • Power steering fluid (see page 17-14). • Brake fluid (see page 19-9). • Windshield washer fluid. • Engine coolant (see page 10-13).
	Inspect cooling system hoses and connections (see page 10-2), every 15,000 miles (24,000 km) or 1 year. • Check for damage, leaks, and deterioration. • Check for proper fan operation.
	Inspect exhaust system (see page 9-10)*, every 15,000 miles (24,000 km) or 1 year. • Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines and connections (see page 11-219)*, every 15,000 miles (24,000 km) or 1 year. • Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.
	Check lights and controls, every 15,000 miles (24,000 km) or 1 year. • Check function of interior and exterior lights and position of the headlights (see page 22-130).
	Inspect vehicle underbody, every 15,000 miles (24,000 km) or 1 year. • Check the paint for damage, scratches, stone chipping, and dents.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

Do the items in parts A, B, C, D, E, F, G, and H as required for the mileage/time interval listed.

Part	Maintenance Items
D	Clean air cleaner element with low pressure air (see page 11-240), every 15,000 miles (24,000 km).
E	Replace air cleaner element (see page 11-240), every 30,000 miles (48,000 km) or 2 years.
	Inspect and adjust drive belts, every 30,000 miles (48,000 km) or 2 years. • Look for cracks and damage, then check belt deflection by pushing on the belt about 98 N (10 kgf, 22 lbf) midway between the pulleys. • P/S pump belt: 13.0－16.5 mm (1/2－5/8 in.) (see page 17-13).
	Replace dust and pollen filter (see page 21-44), every 30,000 miles (48,000 km) or 2 years. • Replace the filter as often (at 15,000 miles/24,000 km intervals) if the vehicle is driven mostly in urban areas that have high concentrations of soot in the air from industry and diesel-powered vehicles. • Replace the filter whenever airflow from the heating and cooling/climate control system is less than normal.
	Replace transmission fluid (see page 14-137), every 30,000 miles (48,000 km) or 2 years. • Capacity: 2.9 ℓ (3.1 US qt), use Honda ATF-Z1.
F	Replace engine coolant (see page 10-13), at 45,000 miles (72,000 km) or 3 years, then every 30,000 miles (48,000 km) or 2 years. • Use Honda All Season Antifreeze/coolant Type 2.
G	Replace timing belt (see page 6-20), and inspect water pump (see page 10-12), every 60,000 miles (96,000 km) or 4 years.
H	Inspect the valve clearance, otherwise adjust only if noisy (see page 6-15), every 105,000 miles (168,000 km) or 7 years. • Intake: 0.20－0.24 mm (0.008－0.009 in.), Exhaust: 0.28－0.32 mm (0.011－0.013 in.).
	Replace spark plugs (see page 4-18), every 105,000 miles (168,000 km) or 7 years. • GAP: 1.0－1.1 mm (0.039－0.043 in.), use PZFR5F11 (NGK) or PKJ16CR-L11 (DENSO).

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

Maintenance Schedule

Listed by Distance/Time for Normal Conditions

2001 Model

This two-page Maintenance Schedule outlines the minimum required maintenance. Service at the indicated distance or time, whichever comes first. Use the Maintenance Schedule for Severe Conditions if the vehicle meets any of the qualifiers in the Severe Conditions schedule or if the vehicle is normally driven in Canada.

Distance		Time	Maintenance Items
7,500 miles	12,000 km	———	Do items in A.
15,000 miles	24,000 km	1 year	Do items in A and B.
22,500 miles	36,000 km	———	Do items in A.
30,000 miles	48,000 km	2 years	Do items in A, B, and C.
37,500 miles	60,000 km	———	Do items in A.
45,000 miles	72,000 km	3 years	Do items in A, B, and D.
———	———	3 years	Replace brake fluid (see page 19-9).
52,500 miles	84,000 km	———	Do items in A.
60,000 miles	96,000 km	4 years	Do items in A, B, and C.
67,500 miles	108,000 km	———	Do items in A.
75,000 miles	120,000 km	5 years	Do items in A, B, and D.
82,500 miles	132,000 km	———	Do items in A.
90,000 miles	144,000 km	6 years	Do items in A, B, and C.
———	———	6 years	Replace brake fluid (see page 19-9).
97,500 miles	156,000 km	———	Do items in A.
105,000 miles	168,000 km	7 years	Do items in A, B, D, and E.
			Inspect idle speed (see page 11-201). • Idle speed: 730±50 rpm in N or P position.
112,500 miles	180,000 km	———	Do items in A.
120,000 miles	192,000 km	8 years	Do items in A, B, and C.
———	———	9 years	Replace brake fluid (see page 19-9).
120,000 miles	192,000 km	10 years	Do item in F.

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-5). • Capacity: without oil filter 4.0 ℓ (4.2 US qt), every 7,500 miles (12,000 km) or 1 year.
	Rotate tires, and check tire inflation and condition, every 7,500 miles (12,000 km). • Follow the pattern shown in the Owner's Manual.
B	Replace engine oil filter (see page 8-5). • Capacity: with oil filter 4.4 ℓ (4.6 US qt), every 15,000 miles (24,000 km) or 1 year.
	Check front and rear brakes (see page 19-2), every 15,000 miles (24,000 km) or 1 year. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mount bolts. • Check wheel cylinders for leaks. • Check brake linings for cracking, glazing, wear, or contamination.
	Check parking brake adjustment (see page 19-7), every 15,000 miles (24,000 km) or 1 year. • Number of clicks (3 to 5) when parking brake pedal is pressed with 294 N (30 kgf, 66 lbf) of force.
	Inspect tie rod ends, steering gearbox, and gearbox boot (see page 17-3), every 15,000 miles (24,000 km) or 1 year. • Check rack grease and steering linkage. • Check boots for damage and leaking grease. • Check fluid lines for damage and leaks.
	Inspect suspension components (see page 18-3), every 15,000 miles (24,000 km) or 1 year. • Check bolts for tightness.
	Inspect driveshaft boots (see page 16-3), every 15,000 miles (24,000 km) or 1 year. • Check boots for cracks and boot bands for tightness.
	Inspect brake hoses and lines including ABS (see page 19-35), every 15,000 miles (24,000 km) or 1 year. • Check the master cylinder and ABS modulator for damage and leakage.
	Inspect all fluid levels and condition of fluids, every 15,000 miles (24,000 km) or 1 year. • Automatic transmission fluid (ATF-Z1) (see page 14-136). • Power steering fluid (see page 17-14). • Brake fluid (see page 19-9). • Windshield washer fluid. • Engine coolant (see page 10-13).
	Inspect cooling system hoses and connections (see page 10-2), every 15,000 miles (24,000 km) or 1 year. • Check for damage, leaks, and deterioration. • Check for proper fan operation.
	Inspect exhaust system (see page 9-10)*, every 15,000 miles (24,000 km) or 1 year. • Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines and connections (see page 11-219)*, every 15,000 miles (24,000 km) or 1 year. • Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

(cont'd)

Listed by Distance/Time for Normal Conditions (cont'd)

2001 Model

This two-page Maintenance Schedule outlines the minimum required maintenance. Service at the indicated distance or time, whichever comes first. Use the Maintenance Schedule for Severe Conditions if the vehicle meets any of the qualifiers in the Severe Conditions schedule or if the vehicle is normally driven in Canada.

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
C	Replace air cleaner element (see page 11-240), every 30,000 miles (48,000 km).
	Inspect and adjust drive belts, every 30,000 miles (48,000 km) or 2 years. • Look for cracks and damage, then check belt deflection by pushing on the belt about 98 N (10 kgf, 22 lbf) midway between the pulleys. • P/S pump belt: 13.0—16.5 mm (1/2—5/8 in.) (see page 17-13).
	Replace dust and pollen filter (see page 21-44), every 30,000 miles (48,000 km) or 2 years. • Replace the filter as often (at 15,000 miles/24,000 km intervals) if the vehicle is driven mostly in urban areas that have high concentrations of soot in the air from industry and diesel-powered vehicles. • Replace the filter whenever airflow from the heating and cooling/climate control system is less than normal.
D	Replace transmission fluid (see page 14-137), at 45,000 miles (72,000 km) or 3 years, then every 30,000 miles (48,000 km) or 2 years. • Capacity: 2.9 ℓ (3.1 US qt), use Honda ATF-Z1.
E	Inspect the valve clearance, otherwise adjust only if noisy (see page 6-15), every 105,000 miles (168,000 km) or 7 years. • Intake: 0.20—0.24 mm (0.008—0.009 in.), Exhaust: 0.28—0.32 mm (0.011—0.013 in.).
	Replace spark plugs (see page 4-18), every 105,000 miles (168,000 km) or 7 years. • GAP: 1.0—1.1 mm (0.039—0.043 in.), use PZFR5F11 (NGK) or PKJ16CR-L11 (DENSO).
	Replace timing belt (see page 6-20), and inspect water pump (see page 10-12), every 105,000 miles (168,000 km) or 7 years.
F	Replace engine coolant (see page 10-13), at 120,000 miles (192,000 km) or 10 years, then every 60,000 miles (96,000 km) or 5 years. • Use Honda All Season Antifreeze/coolant Type 2.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

Listed by Distance/Time for Severe Conditions

2001 Model

Use the Severe Conditions schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions; if only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions
- Driving less than 5 miles (8 km) per trip or, in freezing temperatures, driving less than 10 miles (16 km) per trip.
- Driving in extremely hot over 90°F (32°C) conditions.
- Extensive idling, or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle.
- Trailer towing, driving with a roof rack, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

Distance		Time	Maintenance Items
3,750 miles	6,000 km	———	Do items in A.
7,500 miles	12,000 km	———	Do items in A and B.
11,250 miles	18,000 km	———	Do items in A.
15,000 miles	24,000 km	1 year	Do items in A, B, C, and D.
18,750 miles	30,000 km	———	Do items in A.
22,500 miles	36,000 km	———	Do items in A and B.
26,250 miles	42,000 km	———	Do items in A.
30,000 miles	48,000 km	2 years	Do items in A, B, C, and E.
33,750 miles	54,000 km	———	Do items in A.
37,500 miles	60,000 km	———	Do items in A and B.
41,250 miles	66,000 km	———	Do items in A.
45,000 miles	72,000 km	3 years	Do items in A, B, C, and D.
———	———	3 years	Replace brake fluid (see page 19-9).
48,750 miles	78,000 km	———	Do items in A.
52,500 miles	84,000 km	———	Do items in A and B.
56,250 miles	90,000 km	———	Do items in A.
60,000 miles	96,000 km	4 years	Do items in A, B, C, E, and F.
63,750 miles	102,000 km	———	Do items in A.
67,500 miles	108,000 km	———	Do items in A and B.
71,250 miles	114,000 km	———	Do items in A.
75,000 miles	120,000 km	5 years	Do items in A, B, C, and D.
78,750 miles	126,000 km	———	Do items in A.
82,500 miles	132,000 km	———	Do items in A and B.
86,250 miles	138,000 km	———	Do items in A.
90,000 miles	144,000 km	6 years	Do items in A, B, C, and E.
———	———	6 years	Replace brake fluid (see page 19-9).
93,750 miles	150,000 km	———	Do items in A.
97,500 miles	156,000 km	———	Do items in A and B.
101,250 miles	162,000 km	———	Do items in A.
105,000 miles	168,000 km	7 years	Do items in A, B, C, D, F, and G.
			Inspect idle speed (see page 11-201). • Idle speed: 730±50 rpm in N or P position.
108,750 miles	174,000 km	———	Do items in A.
112,500 miles	180,000 km	———	Do items in A and B.
116,250 miles	186,000 km	———	Do items in A.
120,000 miles	192,000 km	8 years	Do items in A, B, C, E, and F.
———	———	9 years	Replace brake fluid (see page 19-9).
120,000 miles	192,000 km	10 years	Do item in H.

(cont'd)

Listed by Distance/Time for Severe Conditions (cont'd)

2001 Model

Use the Severe Conditions schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions; if only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions
- Driving less than 5 miles (8 km) per trip or, in freezing temperatures, driving less than 10 miles (16 km) per trip.
- Driving in extremely hot over 90°F (32°C) conditions.
- Extensive idling, or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle.
- Trailer towing, driving with a roof rack, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

Do the items in parts A, B, C, D, E, F, G, and H as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-5). • Capacity: without oil filter 4.0 ℓ (4.2 US qt), every 3,750 miles (6,000 km) or 6 months.
	Replace engine oil filter (see page 8-5). • Capacity: with oil filter 4.4 ℓ (4.6 US qt), every 3,750 miles (6,000 km) or 6 months.
B	Check front and rear brakes (see page 19-12), every 7,500 miles (12,000 km) or 6 months. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mount bolts. • Check wheel cylinders for leaks. • Check brake linings for cracking, glazing, wear, or contamination.
	Rotate tires, and check tire inflation and condition, every 7,500 miles (12,000 km). • Follow the pattern shown in the Owner's Manual.
	Inspect tie rod ends, steering gearbox, and gearbox boot (see page 17-3), every 7,500 miles (12,000 km) or 6 months. • Check rack grease and steering linkage. • Check boots for damage and leaking grease. • Check fluid lines for damage and leaks.
	Inspect suspension components (see page 18-3), every 7,500 miles (12,000 km) or 6 months. • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-3), every 7,500 miles (12,000 km) or 6 months.
C	Check parking brake adjustment (see page 19-7), every 15,000 miles (24,000 km) or 1 year. • Number of clicks (3 to 5) when parking brake pedal is pressed with 294 N (30 kgf, 66 lbf) of force.
	Lubricate all hinges, locks, and latches, every 15,000 miles (24,000 km) or 1 year. • With Honda White Lithum grease.
	Inspect brake hoses and lines including ABS (see page 19-35), every 15,000 miles (24,000 km) or 1 year. • Check the master cylinder, proportioning contorol valve, and ABS modulator for damage and leakage (see page 19-35).
	Inspect all fluid levels and condition of fluids, every 15,000 miles (24,000 km) or 1 year. • Automatic transmission fluid (ATF-Z1) (see page 14-136). • Power steering fluid (see page 17-14). • Brake fluid (see page 19-9). • Windshield washer fluid. • Engine coolant (see page 10-13).
	Inspect cooling system hoses and connections (see page 10-2), every 15,000 miles (24,000 km) or 1 year. • Check for damage, leaks, and deterioration. • Check for proper fan operation.
	Inspect exhaust system (see page 9-10)*, every 15,000 miles (24,000 km) or 1 year. • Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines and connections (see page 11-219)*, every 15,000 miles (24,000 km) or 1 year. • Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.
	Check lights and controls, every 15,000 miles (24,000 km) or 1 year. • Check function of interior and exterior lights and position of the headlights (see page 22-130).
	Inspect vehicle underbody, every 15,000 miles (24,000 km) or 1 year. • Check the paint for damage, scratches, stone chipping, and dents.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

Do the items in parts A, B, C, D, E, F, G, and H as required for the mileage/time interval listed.

Part	Maintenance Items
D	Clean air cleaner element with low pressure air (see page 11-240), every 15,000 miles (24,000 km).
E	Replace air cleaner element (see page 11-240), every 30,000 miles (48,000 km).
	Inspect and adjust drive belts, every 30,000 miles (48,000 km) or 2 years. • Look for cracks and damage, then check belt deflection by pushing on the belt about 98 N (10 kgf, 22 lbf) midway between the pulleys. • P/S pump belt: 13.0－16.5 mm (1/2－5/8 in.) (see page 17-13).
	Replace dust and pollen filter (see page 21-44), every 30,000 miles (48,000 km) or 2 years. • Replace the filter as often (at 15,000 miles/24,000 km intervals) if the vehicle is driven mostly in urban areas that have high concentrations of soot in the air from industry and diesel-powered vehicles. • Replace the filter whenever airflow from the heating and cooling/climate control system is less than normal.
	Replace transmission fluid (see page 14-137), every 30,000 miles (48,000 km) or 2 years. • Capacity: 2.9 ℓ (3.1 US qt), use Honda ATF-Z1.
F	Replace timing belt (see page 6-20), and inspect water pump (see page 10-12), every 105,000 miles (168,000 km) or 7 years.
G	Inspect the valve clearance, otherwise adjust only if noisy (see page 6-15), every 105,000 miles (168,000 km). • Intake: 0.20－0.24 mm (0.008－0.009 in.), Exhaust: 0.28－0.32 mm (0.011－0.013 in.).
	Replace spark plugs (see page 4-18), every 105,000 miles (168,000 km). • GAP: 1.0－1.1 mm (0.039－0.043 in.), use PZFR5F11 (NGK) or PKJ16CR-L11 (DENSO).
H	Replace engine coolant (see page 10-13), at 45,000 miles (72,000 km) or 3 years, then every 30,000 miles (48,000 km) or 2 years. • Use Honda All Season Antifreeze/coolant Type 2.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

Maintenance Schedule

Listed by Distance/Time for Normal Conditions

2002-2003 Models

This two-page Maintenance Schedule outlines the minimum required maintenance. Service at the indicated distance or time, whichever comes first. Use the Maintenance Schedule for Severe Conditions if the vehicle meets any of the qualifiers in the Severe Conditions schedule or if the vehicle is normally driven in Canada.

Distance		Time	Maintenance Items
7,500 miles	12,000 km	———	Do items in A.
15,000 miles	24,000 km	1 year	Do items in A and B.
22,500 miles	36,000 km	———	Do items in A.
30,000 miles	48,000 km	2 years	Do items in A, B, and C.
37,500 miles	60,000 km	———	Do items in A.
45,000 miles	72,000 km	3 years	Do items in A, B, and D.
———	———	3 years	Replace brake fluid (see page 19-9).
52,500 miles	84,000 km	———	Do items in A.
60,000 miles	96,000 km	4 years	Do items in A, B, and C.
67,500 miles	108,000 km	———	Do items in A.
75,000 miles	120,000 km	5 years	Do items in A, B, and D.
82,500 miles	132,000 km	———	Do items in A.
90,000 miles	144,000 km	6 years	Do items in A, B, and C.
———	———	6 years	Replace brake fluid (see page 19-9).
97,500 miles	156,000 km	———	Do items in A.
105,000 miles	168,000 km	7 years	Do items in A, B, D, and E.
			Inspect idle speed (see page 11-201). • Idle speed: 730±50 rpm in N or P position.
112,500 miles	180,000 km	———	Do items in A.
120,000 miles	192,000 km	8 years	Do items in A, B, and C.
———	———	9 years	Replace brake fluid (see page 19-9).
120,000 miles	192,000 km	10 years	Do item in F.

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-5). • Capacity: without oil filter 4.0 ℓ (4.2 US qt), every 7,500 miles (12,000 km) or 1 year.
	Rotate tires, and check tire inflation and condition, every 7,500 miles (12,000 km). • Follow the pattern shown in the Owner's Manual.
B	Replace engine oil filter (see page 8-5). • Capacity: with oil filter 4.4 ℓ (4.6 US qt), every 15,000 miles (24,000 km) or 1 year.
	Check front and rear brakes (see page 19-3), every 15,000 miles (24,000 km) or 1 year. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mount bolts. • Check brake linings for cracking, glazing, wear, or contamination.
	Check parking brake adjustment (see page 19-7), every 15,000 miles (24,000 km) or 1 year. • Number of clicks (4 to 6) when parking brake pedal is pressed with 294 N (30 kgf, 66 lbf) of force.
	Inspect tie rod ends, steering gearbox, and gearbox boot (see page 17-3), every 15,000 miles (24,000 km) or 1 year. • Check rack grease and steering linkage. • Check boots for damage and leaking grease. • Check fluid lines for damage and leaks.
	Inspect suspension components (see page 18-3), every 15,000 miles (24,000 km) or 1 year. • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-3), every 15,000 miles (24,000 km) or 1 year. • Check boots for cracks and boot bands for tightness.
	Inspect brake hoses and lines including ABS (see page 19-35), every 15,000 miles (24,000 km) or 1 year. • Check the master cylinder and ABS modulator for damage and leakage.
	Inspect all fluid levels and condition of fluids, every 15,000 miles (24,000 km) or 1 year. • Automatic transmission fluid (ATF-Z1) (see page 14-367). • Power steering fluid (see page 17-14). • Brake fluid (see page 19-9). • Windshield washer fluid. • Engine coolant (see page 10-13).
	Inspect cooling system hoses and connections (see page 10-2), every 15,000 miles (24,000 km) or 1 year. • Check for damage, leaks, and deterioration. • Check for proper fan operation.
	Inspect exhaust system (see page 9-10)*, every 15,000 miles (24,000 km) or 1 year. • Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines and connections (see page 11-219)*, every 15,000 miles (24,000 km) or 1 year. • Check for loose connections, cracks, and deterioration; retighten loose connections, and replace damaged parts.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

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Listed by Distance/Time for Normal Conditions (cont'd)

2002-2003 Models

This two-page Maintenance Schedule outlines the minimum required maintenance. Service at the indicated distance or time, whichever comes first. Use the Maintenance Schedule for Severe Conditions if the vehicle meets any of the qualifiers in the Severe Conditions schedule or if the vehicle is normally driven in Canada.

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
C	Replace air cleaner element (see page 11-240), every 30,000 miles (48,000 km).
	Inspect and adjust drive belts, every 30,000 miles (48,000 km) or 2 years. • Look for cracks and damage, then check belt deflection by pushing on the belt about 98 N (10 kgf, 22 lbf) midway between the pulleys. • P/S pump belt: 13.0—16.5 mm (1/2— 5/8 in.) (see page 17-13).
	Replace dust and pollen filter (see page 21-44), every 30,000 miles (48,000 km) or 2 years. • Replace the filter as often (at 15,000 miles/24,000 km intervals) if the vehicle is driven mostly in urban areas that have high concentrations of soot in the air from industry and diesel-powered vehicles. • Replace the filter whenever airflow from the heating and cooling/climate control system is less than normal.
D	Replace transmission fluid (see page 14-368), at 45,000 miles (72,000 km) or 3 years, then every 30,000 miles (48,000 km) or 2 years. • Capacity: 3.3 ℓ (3.5 US qt), use Honda ATF-Z1.
E	Inspect the valve clearance, otherwise adjust only if noisy (see page 6-15), every 105,000 miles (168,000 km). • Intake: 0.20—0.24 mm (0.008—0.009 in.), Exhaust: 0.28—0.32 mm (0.011—0.013 in.).
	Replace spark plugs (see page 4-18), every 105,000 miles (168,000 km). • GAP: 1.0—1.1 mm (0.039—0.043 in.), use PZFR5F11 (NGK) or PKJ16CR-L11 (DENSO).
	Replace timing belt (see page 6-20), and inspect water pump (see page 10-12), every 105,000 miles (168,000 km) or 7 years.
F	Replace engine coolant (see page 10-13), at 120,000 miles (192,000 km) or 10 years, then every 60,000 miles (96,000 km) or 5 years. • Use Honda All Season Antifreeze/coolant Type 2.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

Listed by Distance/Time for Severe Conditions

2002-2003 Models

Use the Severe Conditions schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions; if only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions
- Driving less than 5 miles (8 km) per trip or, in freezing temperatures, driving less than 10 miles (16 km) per trip.
- Driving in extremely hot over 90°F (32°C) conditions.
- Extensive idling, or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle.
- Trailer towing, driving with a roof rack, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

Distance		Time	Maintenance Items
3,750 miles	6,000 km	———	Do items in A.
7,500 miles	12,000 km	———	Do items in A and B.
11,250 miles	18,000 km	———	Do items in A.
15,000 miles	24,000 km	1 year	Do items in A, B, and C.
18,750 miles	30,000 km	———	Do items in A.
22,500 miles	36,000 km	———	Do items in A and B.
26,250 miles	42,000 km	———	Do items in A.
30,000 miles	48,000 km	2 years	Do items in A, B, C, and D.
33,750 miles	54,000 km	———	Do items in A.
37,500 miles	60,000 km	———	Do items in A and B.
41,250 miles	66,000 km	———	Do items in A.
45,000 miles	72,000 km	3 years	Do items in A, B, and C.
———	———	3 years	Replace brake fluid (see page 19-9).
48,750 miles	78,000 km	———	Do items in A.
52,500 miles	84,000 km	———	Do items in A and B.
56,250 miles	90,000 km	———	Do items in A.
60,000 miles	96,000 km	4 years	Do items in A, B, C, D, and E.
63,750 miles	102,000 km	———	Do items in A.
67,500 miles	108,000 km	———	Do items in A and B.
71,250 miles	114,000 km	———	Do items in A.
75,000 miles	120,000 km	5 years	Do items in A, B, and C.
78,750 miles	126,000 km	———	Do items in A.
82,500 miles	132,000 km	———	Do items in A and B.
86,250 miles	138,000 km	———	Do items in A.
90,000 miles	144,000 km	6 years	Do items in A, B, C, and D.
———	———	6 years	Replace brake fluid (see page 19-9).
93,750 miles	150,000 km	———	Do items in A.
97,500 miles	156,000 km	———	Do items in A and B.
101,250 miles	162,000 km	———	Do items in A.
105,000 miles	168,000 km	7 years	Do items in A, B, C, E, and F. Inspect idle speed (see page 11-201). • Idle speed: 730±50 rpm in N or P position.
108,750 miles	174,000 km	———	Do items in A.
112,500 miles	180,000 km	———	Do items in A and B.
116,250 miles	186,000 km	———	Do items in A.
120,000 miles	192,000 km	8 years	Do items in A, B, C, D, and E.
———	———	9 years	Replace brake fluid (see page 19-9).
120,000 miles	192,000 km	10 years	Do item in G.

(cont'd)

Listed by Distance/Time for Severe Conditions (cont'd)

2002-2003 Models

Use the Severe Conditions schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions; if only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions
- Driving less than 5 miles (8 km) per trip or, in freezing temperatures, driving less than 10 miles (16 km) per trip.
- Driving in extremely hot over 90°F (32°C) conditions.
- Extensive idling, or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle.
- Trailer towing, driving with a roof rack, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

Do the items in parts A, B, C, D, E, F, and G as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-5). • Capacity: without oil filter 4.0 ℓ (4.2 US qt), every 3,750 miles (6,000 km) or 6 months.
	Replace engine oil filter (see page 8-5). • Capacity: with oil filter 4.4 ℓ (4.6 US qt), every 3,750 miles (6,000 km) or 6 months.
B	Check front and rear brakes (see page 19-3), every 7,500 miles (12,000 km) or 6 months. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mount bolts. • Check brake linings for cracking, glazing, wear, or contamination.
	Rotate tires, and check tire inflation and condition, every 7,500 miles (12,000 km). • Follow the pattern shown in the Owner's Manual.
	Inspect tie rod ends, steering gearbox, and gearbox boot (see page 17-3), every 7,500 miles (12,000 km) or 6 months. • Check rack grease and steering linkage. • Check boots for damage and leaking grease. • Check fluid lines for damage and leaks.
	Inspect suspension components (see page 18-3), every 7,500 miles (12,000 km) or 6 months. • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-3), every 7,500 miles (12,000 km) or 6 months.
C	Replace air cleaner element (see page 11-240), every 15,000 miles (24,000 km) or 1 year. • Only in dusty conditions, if not use the Nomal Conditions schedule.
	Check parking brake adjustment (see page 19-7), every 15,000 miles (24,000 km) or 1 year. • Number of clicks (4 to 6) when parking brake pedal is pressed with 294 N (30 kgf, 66 lbf) of force.
	Lubricate all hinges, locks, and latches, every 15,000 miles (24,000 km) or 1 year. • With Honda White Lithum grease.
	Inspect brake hoses and lines including ABS (see page 19-35), every 15,000 miles (24,000 km) or 1 year. • Check the master cylinder, proportioning contorol valve, and ABS modulator for damage, and leakage (see page 19-35).
	Inspect all fluid levels and condition of fluids, every 15,000 miles (24,000 km) or 1 year. • Automatic transmission fluid (ATF-Z1) (see page 14-367). • Power steering fluid (see page 17-14). • Brake fluid (see page 19-9). • Windshield washer fluid. • Engine coolant (see page 10-13).
	Inspect cooling system hoses and connections (see page 10-2), every 15,000 miles (24,000 km) or 1 year. • Check for damage, leaks, and deterioration. • Check for proper fan operation.
	Inspect exhaust system (see page 9-10)*, every 15,000 miles (24,000 km) or 1 year. • Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines and connections (see page 11-219)*, every 15,000 miles (24,000 km) or 1 year. • Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.
	Check lights and controls, every 15,000 miles (24,000 km) or 1 year. • Check function of interior and exterior lights and position of the headlights (see page 22-130).
	Inspect vehicle underbody, every 15,000 miles (24,000 km) or 1 year. • Check the paint for damage, scratches, stone chipping, and dents.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

Do the items in parts A, B, C, D, E, F, and G as required for the mileage/time interval listed.

Part	Maintenance Items
D	Inspect and adjust drive belts, every 30,000 miles (48,000 km) or 2 years. • Look for cracks and damage, then check belt deflection by pushing on the belt about 98 N (10 kgf, 22 lbf) midway between the pulleys. • P/S pump belt: 13.0—16.5 mm (1/2—5/8 in.) (see page 17-13).
	Replace dust and pollen filter (see page 21-44), every 30,000 miles (48,000 km) or 2 years. • Replace the filter as often (at 15,000 miles/24,000 km intervals) if the vehicle is driven mostly in urban areas that have high concentrations of soot in the air from industry and diesel-powered vehicles. • Replace the filter whenever airflow from the heating and cooling/climate control system is less than normal.
	Replace transmission fluid (see page 14-368), every 30,000 miles (48,000 km) or 2 years. • Capacity: 3.3 ℓ (3.5 US qt), use Honda ATF-Z1.
E	Replace timing belt (see page 6-20), and inspect water pump (see page 10-12), every 105,000 miles (168,000 km) or 7 years.
F	Inspect the valve clearance, otherwise adjust only if noisy (see page 6-15), every 105,000 miles (168,000 km). • Intake: 0.20—0.24 mm (0.008—0.009 in.), Exhaust: 0.28—0.32 mm (0.011—0.013 in.).
	Replace spark plugs (see page 4-18), every 105,000 miles (168,000 km). • GAP: 1.0—1.1 mm (0.039—0.043 in.), use PZFR5F11 (NGK) or PKJ16CR-L11 (DENSO).
G	Replace engine coolant (see page 10-13), at 45,000 miles (72,000 km) or 3 years, then every 30,000 miles (48,000 km) or 2 years. • Use Honda All Season Antifreeze/coolant Type 2.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

Maintenance Schedule

Listed by Distance/Time for Normal Conditions

2004 Model

This two-page Maintenance Schedule outlines the minimum required maintenance. Service at the indicated distance or time, whichever comes first. Use the Maintenance Schedule for Severe Conditions if the vehicle meets any of the qualifiers in the Severe Conditions schedule or if the vehicle is normally driven in Canada.

Distance		Time	Maintenance Items
7,500 miles	12,000 km	———	Do items in A.
15,000 miles	24,000 km	1 year	Do items in A and B.
22,500 miles	36,000 km	———	Do items in A.
30,000 miles	48,000 km	2 years	Do items in A, B, and C.
37,500 miles	60,000 km	———	Do items in A.
45,000 miles	72,000 km	3 years	Do items in A, B, and D.
———	———	3 years	Replace brake fluid (see page 19-9).
52,500 miles	84,000 km	———	Do items in A.
60,000 miles	96,000 km	4 years	Do items in A, B, and C.
67,500 miles	108,000 km	———	Do items in A.
75,000 miles	120,000 km	5 years	Do items in A, B, and D.
82,500 miles	132,000 km	———	Do items in A.
90,000 miles	144,000 km	6 years	Do items in A, B, and C.
———	———	6 years	Replace brake fluid (see page 19-9).
97,500 miles	156,000 km	———	Do items in A.
105,000 miles	168,000 km	———	Inspect idle speed (see page 11-201). • Idle speed: 730±50 rpm in N or P position.
105,000 miles	168,000 km	7 years	Do items in A, B, D, and E.
112,500 miles	180,000 km	———	Do items in A.
120,000 miles	192,000 km	8 years	Do items in A, B, and C.
———	———	9 years	Repalce brake fluid (see page 19-9).
120,000 miles	192,000 km	10 years	Do item in F.
127,500 miles	204,000 km	———	Do items in A.
135,000 miles	216,000 km	11 years	Do items in A, B, and D.
142,500 miles	228,000 km	———	Do items in A.
150,000 miles	240,000 km	12 years	Do items in A, B, and C.
———	———	12 years	Replace brake fluid (see page 19-9).

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-5). • Capacity: without oil filter 4.0 ℓ (4.2 US qt), every 7,500 miles (12,000 km) or 1 year.
	Rotate tires, and check tire inflation and condition, every 7,500 miles (12,000 km). • Follow the pattern shown in the Owner's Manual.
B	Replace engine oil filter (see page 8-5). • Capacity: with oil filter 4.4 ℓ (4.6 US qt), every 15,000 miles (24,000 km) or 1 year.
	Check front and rear brakes (see page 19-3), every 15,000 miles (24,000 km) or 1 year. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mount bolts. • Check brake linings for cracking, glazing, wear, or contamination.
	Check parking brake adjustment (see page 19-7), every 15,000 miles (24,000 km) or 1 year. • Number of clicks (4 to 6) when parking brake pedal is pressed with 294 N (30 kgf, 66 lbf) of force.
	Inspect tie rod ends, steering gearbox, and gearbox boot (see page 17-3), every 15,000 miles (24,000 km) or 1 year. • Check rack grease and steering linkage. • Check boots for damage and leaking grease. • Check fluid lines for damage and leaks.
	Inspect suspension components (see page 18-3), every 15,000 miles (24,000 km) or 1 year. • Check bolts for tightness.
	Inspect driveshaft boots (see page 16-3), every 15,000 miles (24,000 km) or 1 year. • Check boots for cracks and boot bands for tightness.
	Inspect brake hoses and lines including ABS (see page 19-35), every 15,000 miles (24,000 km) or 1 year. • Check the master cylinder and ABS modulator for damage and leakage.
	Inspect all fluid levels and condition of fluids, every 15,000 miles (24,000 km) or 1 year. • Automatic transmission fluid (ATF-Z1) (see page 14-367). • Power steering fluid (see page 17-14). • Brake fluid (see page 19-9). • Windshield washer fluid. • Engine coolant (see page 10-13).
	Inspect exhaust system (see page 9-10)*, every 15,000 miles (24,000 km) or 1 year. • Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines and connections (see page 11-219)*, every 15,000 miles (24,000 km) or 1 year. • Check for loose connections, cracks, and deterioration; retighten loose connections, and replace damaged parts.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

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Listed by Distance/Time for Normal Conditions (cont'd)

2004 Model

This two-page Maintenance Schedule outlines the minimum required maintenance. Service at the indicated distance or time, whichever comes first. Use the Maintenance Schedule for Severe Conditions if the vehicle meets any of the qualifiers in the Severe Conditions schedule or if the vehicle is normally driven in Canada.

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
C	Replace air cleaner element (see page 11-240), every 30,000 miles (48,000 km).
	Inspect and adjust drive belts, every 30,000 miles (48,000 km) or 2 years. • Look for cracks and damage, then check belt deflection by pushing on the belt about 98 N (10 kgf, 22 lbf) midway between the pulleys. • P/S pump belt: 13.0—16.5 mm (1/2—5/8 in.) (see page 17-13).
	Replace dust and pollen filter (see page 21-44), every 30,000 miles (48,000 km) or 2 years. • Replace the filter as often (at 15,000 miles/24,000 km intervals) if the vehicle is driven mostly in urban areas that have high concentrations of soot in the air from industry and diesel-powered vehicles. • Replace the filter whenever airflow from the heating and cooling/climate control system is less than normal.
D	Replace transmission fluid (see page 14-368), at 45,000 miles (72,000 km) or 3 years, then every 30,000 miles (48,000 km) or 2 years. • Capacity: 3.3 ℓ (3.5 US qt), use Honda ATF-Z1.
E	Inspect the valve clearance, otherwise adjust only if noisy (see page 6-15), every 105,000 miles (168,000 km). • Intake: 0.20—0.24 mm (0.008—0.009 in.), Exhaust: 0.28—0.32 mm (0.011—0.013 in.).
	Replace spark plugs (see page 4-18), every 105,000 miles (168,000 km). • GAP: 1.0—1.1 mm (0.039—0.043 in.), use PZFR5F11 (NGK) or PKJ16CR-L11 (DENSO).
	Replace timing belt (see page 6-20), and inspect water pump (see page 10-12), every 105,000 miles (168,000 km) or 7 years.
F	Replace engine coolant (see page 10-13), at 120,000 miles (192,000 km) or 10 years, then every 60,000 miles (96,000 km) or 5 years. • Use Honda All Season Antifreeze/coolant Type 2.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

Listed by Distance/Time for Severe Conditions

2004 Model

Use the Severe Conditions schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions; if only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions

- Driving less than 5 miles (8 km) per trip or, in freezing temperatures, driving less than 10 miles (16 km) per trip.
- Driving in extremely hot over 90°F (32°C) conditions.
- Extensive idling, or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle.
- Trailer towing, driving with a roof rack, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

Distance		Time	Maintenance Items
3,750 miles	6,000 km	———	Do items in A.
7,500 miles	12,000 km	———	Do items in A and B.
11,250 miles	18,000 km	———	Do items in A.
15,000 miles	24,000 km	1 year	Do items in A, B, and C.
18,750 miles	30,000 km	———	Do items in A.
22,500 miles	36,000 km	———	Do items in A and B.
26,250 miles	42,000 km	———	Do items in A.
30,000 miles	48,000 km	2 years	Do items in A, B, C, and D.
33,750 miles	54,000 km	———	Do items in A.
37,500 miles	60,000 km	———	Do items in A and B.
41,250 miles	66,000 km	———	Do items in A.
45,000 miles	72,000 km	3 years	Do items in A, B, and C.
———	———	3 years	Replace brake fluid.
48,750 miles	78,000 km	———	Do items in A.
52,500 miles	84,000 km	———	Do items in A and B.
56,250 miles	90,000 km	———	Do items in A.
60,000 miles	96,000 km	4 years	Do items in A, B, C, D, and E.
63,750 miles	102,000 km	———	Do items in A.
67,500 miles	108,000 km	———	Do items in A and B.
71,250 miles	114,000 km	———	Do items in A.
75,000 miles	120,000 km	5 years	Do items in A, B, and C.
78,750 miles	126,000 km	———	Do items in A.
82,500 miles	132,000 km	———	Do items in A and B.
86,250 miles	138,000 km	———	Do items in A.
90,000 miles	144,000 km	6 years	Do items in A, B, C, and D.
———	———	6 years	Replace brake fluid (see page 19-9).
93,750 miles	150,000 km	———	Do items in A.
97,500 miles	156,000 km	———	Do items in A and B.

(cont'd)

Listed by Distance/Time for Severe Conditions (cont'd)

2004 Model

Use the Severe Conditions schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions; if only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions
- Driving less than 5 miles (8 km) per trip or, in freezing temperatures, driving less than 10 miles (16 km) per trip.
- Driving in extremely hot over 90°F (32°C) conditions.
- Extensive idling, or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle.
- Trailer towing, driving with a roof rack, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

Distance		Time	Maintenance Items
101,250 miles	162,000 km	———	Do items in A.
105,000 miles	168,000 km	———	Inspect idle speed (see page 11-201). • Idle speed: 730±50 rpm in N or P position.
105,000 miles	168,000 km	7 years	Do items in A, B, C, E, and F.
108,750 miles	174,000 km	———	Do items in A.
112,500 miles	180,000 km	———	Do items in A and B.
116,250 miles	186,000 km	———	Do items in A.
120,000 miles	192,000 km	8 years	Do items in A, B, C, D, and E.
———	———	9 years	Replace brake fluid (see page 19-9).
120,000 miles	192,000 km	10 years	Do item in G.
123,750 miles	198,000 km	———	Do items in A.
127,500 miles	204,000 km	———	Do items in A and B.
131,250 miles	210,000 km	———	Do items in A.
135,000 miles	216,000 km	11 years	Do items in A, B, and C.
138,750 miles	222,000 km	———	Do items in A.
142,500 miles	228,000 km	———	Do items in A and B.
146,250 miles	234,000 km	———	Do items in A.
150,000 miles	240,000 km	12 years	Do items in A, B, C, and D.
———	———	12 years	Replace brake fluid (see page 19-9).

Do the items in parts A, B, C, D, E, F, and G as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-5). • Capacity: without oil filter 4.0 ℓ (4.2 US qt), every 3,750 miles (6,000 km) or 6 months.
	Replace engine oil filter (see page 8-5). • Capacity: with oil filter 4.4 ℓ (4.6 US qt), every 3,750 miles (6,000 km) or 6 months.
B	Check front and rear brakes (see page 19-3), every 7,500 miles (12,000 km) or 6 months. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mount bolts. • Check brake linings for cracking, glazing, wear, or contamination.
	Rotate tires, and check tire inflation and condition, every 7,500 miles (12,000 km). • Follow the pattern shown in the Owner's Manual.
	Inspect tie rod ends, steering gearbox, and gearbox boot (see page 17-3), every 7,500 miles (12,000 km) or 6 months. • Check rack grease and steering linkage. • Check boots for damage and leaking grease. • Check fluid lines for damage and leaks.
	Inspect suspension components (see page 18-3), every 7,500 miles (12,000 km) or 6 months. • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-3), every 7,500 miles (12,000 km) or 6 months.
C	Replace air cleaner element (see page 11-240), every 15,000 miles (24,000 km). • Only in dusty conditions, if not use the Nomal Conditions schedule.
	Check parking brake adjustment (see page 19-7), every 15,000 miles (24,000 km) or 1 year. • Number of clicks (4 to 6) when parking brake pedal is pressed with 294 N (30 kgf, 66 lbf) of force.
	Lubricate all hinges, locks, and latches, every 15,000 miles (24,000 km) or 1 year. • With Honda White Lithum grease.
	Inspect brake hoses and lines including ABS (see page 19-35), every 15,000 miles (24,000 km) or 1 year. • Check the master cylinder, proportioning contorol valve, and ABS modulator for damage and leakage (see page 19-35).
	Inspect all fluid levels and condition of fluids, every 15,000 miles (24,000 km) or 1 year. • Automatic transmission fluid (ATF-Z1) (see page 14-367). • Power steering fluid (see page 17-14). • Brake fluid (see page 19-9). • Windshield washer fluid. • Engine coolant (see page 10-13).
	Inspect exhaust system (see page 9-10)*, every 15,000 miles (24,000 km) or 1 year. • Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines and connections (see page 11-219)*, every 15,000 miles (24,000 km) or 1 year. • Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.
	Check lights and controls, every 15,000 miles (24,000 km) or 1 year. • Check function of interior and exterior lights and position of the headlights (see page 22-130).
	Inspect vehicle underbody, every 15,000 miles (24,000 km) or 1 year. • Check the paint for damage, scratches, stone chipping, and dents.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

(cont'd)

Listed by Distance/Time for Severe Conditions (cont'd)

2004 Model

Use the Severe Conditions schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions; if only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions
- Driving less than 5 miles (8 km) per trip or, in freezing temperatures, driving less than 10 miles (16 km) per trip.
- Driving in extremely hot over 90°F (32°C) conditions.
- Extensive idling, or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle.
- Trailer towing, driving with a roof rack, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

Do the items in parts A, B, C, D, E, F, and G as required for the mileage/time interval listed.

Part	Maintenance Items
D	Inspect and adjust drive belts, every 30,000 miles (48,000 km) or 2 years. • Look for cracks and damage, then check belt deflection by pushing on the belt about 98 N (10 kgf, 22 lbf) midway between the pulleys. • P/S pump belt: 13.0—16.5 mm (1/2—5/8 in.) (see page 17-13).
	Replace dust and pollen filter (see page 21-44), every 30,000 miles (48,000 km) or 2 years. • Replace the filter as often (at 15,000 miles/24,000 km intervals) if the vehicle is driven mostly in urban areas that have high concentrations of soot in the air from industry and diesel-powered vehicles. • Replace the filter whenever airflow from the heating and cooling/climate control system is less than normal.
	Replace transmission fluid (see page 14-368), every 30,000 miles (48,000 km) or 2 years. • Capacity: 3.3 ℓ (3.5 US qt), use Honda ATF-Z1.
E	Replace timing belt (see page 6-20), and inspect water pump (see page 10-12), every 105,000 miles (168,000 km) or 7 years.
F	Inspect valve clearance, otherwise adjust only if noisy (see page 6-15), every 105,000 miles (168,000 km). • Intake: 0.20—0.24 mm (0.008—0.009 in.), Exhaust: 0.28—0.32 mm (0.011—0.013 in.).
	Replace spark plugs (see page 4-18), every 105,000 miles (168,000 km). • GAP: 1.0—1.1 mm (0.039—0.043 in.), use PZFR5F11 (NGK) or PKJ16CR-L11 (DENSO).
G	Replace engine coolant (see page 10-13), at 120,000 miles (192,000 km) or 10 years, then every 60,000 miles (96,000 km) or 5 years. • Use Honda All Season Antifreeze/coolant Type 2.

NOTE: According state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended intervals to ensure long-term reliability.

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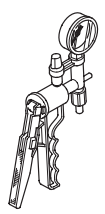
Engine Electrical

Special Tools

Ref. No.	Tool Number	Description	Qty
①	A973X-041-XXXXX	Vacuum Pump/Gauge, 0－30 in.Hg	1
②	07746-0010300	Attachment, 42 x 47 mm	1
③	07749-0010000	Driver	1



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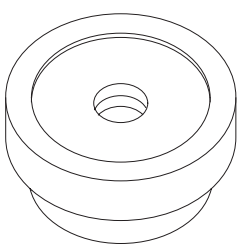

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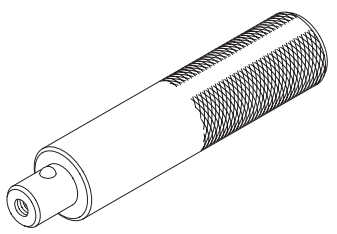

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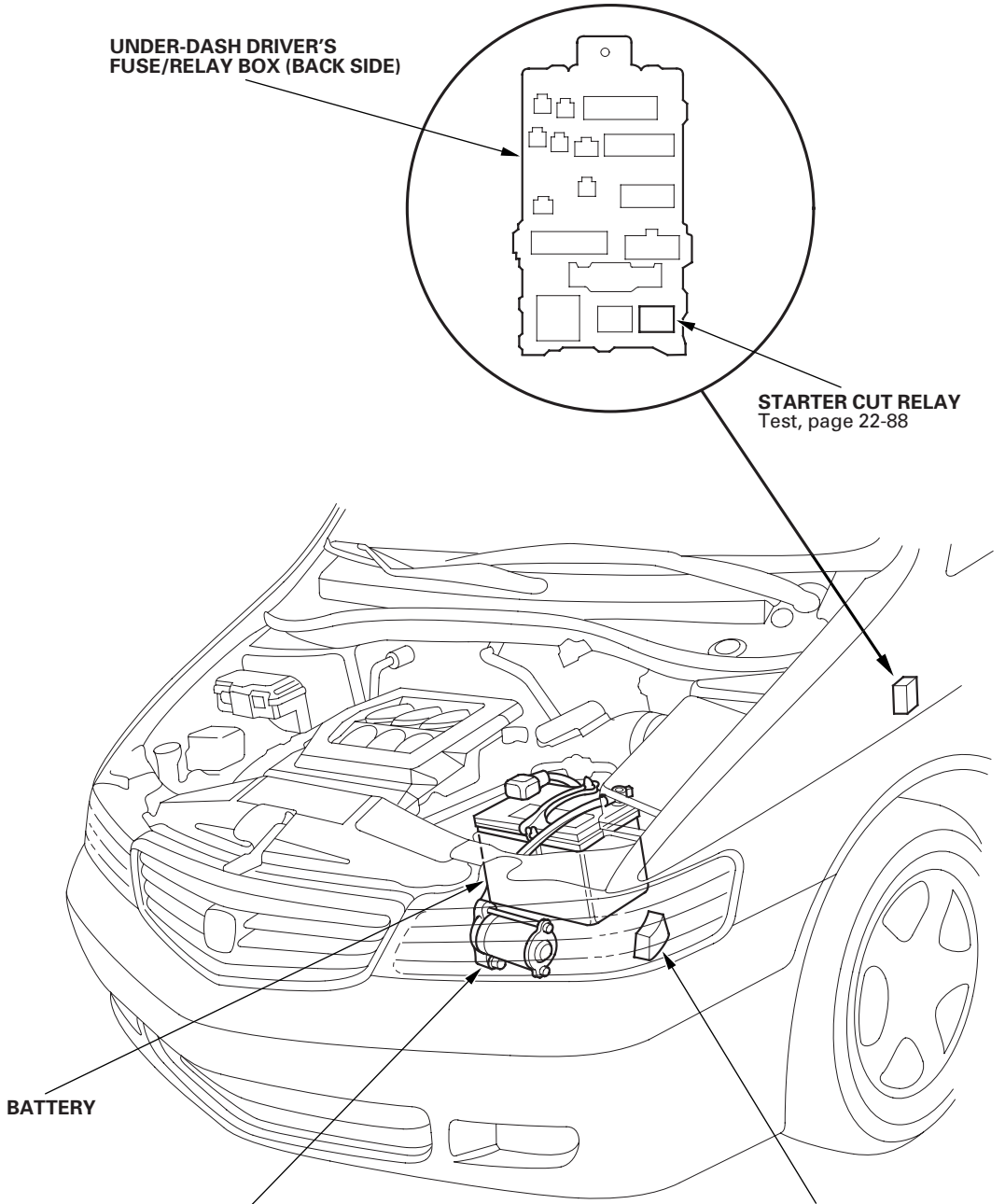
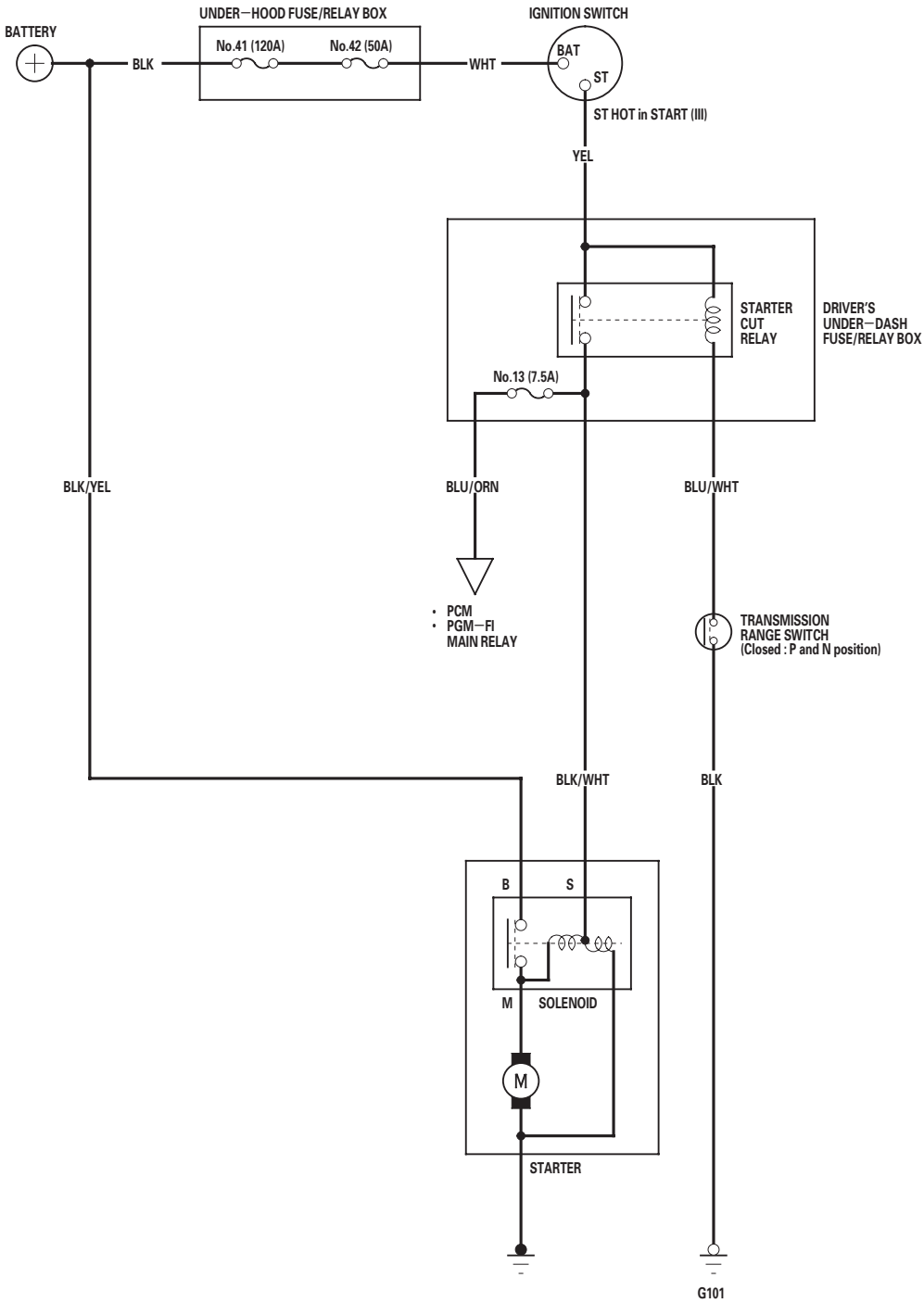
Component Location Index



Circuit Diagram



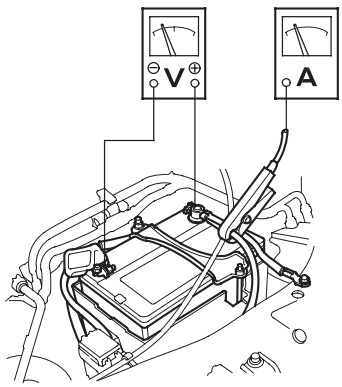
Starter Circuit Troubleshooting

NOTE:
- Air temperature must be between 59° and 100°F (15° and 38°C) during this procedure.
- After this test, or any subsequent repair, reset the powertrain control module (PCM) to clear any diagnostic trouble codes (DTCs) (see page 11-4).
- The battery must be in good condition and fully charged.
- If you disconnect the battery, do the PCM idle learn procedure (see page 11-202).

Recommended Procedure:
- Use a starter system tester.
- Connect and operate the equipment in accordance with the manufacturer's instructions.

Alternate Procedure

1. Hook up the following equipment:
   - Ammeter, 0—400A around both negative battery cables
   - Voltmeter, 0—20 V (accurate within 0.1 volt)
   - Tachometer, 0—1,200 rpm



2. Remove the No. 1 (15A) fuse from the under-hood fuse/relay box.

3. With the shift lever in P or N, turn the ignition switch to start (III).

   Did the starter crank the engine normally?

   YES—The starting system is OK. ■

   NO—Go to step 4.

4. Check the battery condition. Check electrical connections at the battery, the negative battery cable to the body, engine ground cables, and the starter for looseness and corrosion. Then try starting the engine again.

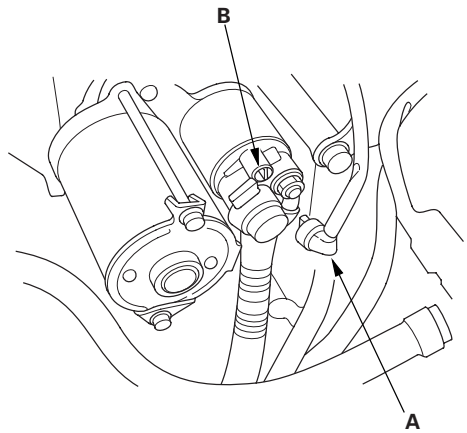
   Did the starter crank the engine normally?

   YES—Repairing the loose connection fixed the problem. The starting system is now OK. ■

   NO—If the starter will not crank the engine at all, go to step 5. If it cranks the engine erratically or too slowly, go to step 7. If it won't disengage from the torque converter ring gear when you release the key, check for the following until you find the cause.

   - Solenoid plunger and switch malfunction
   - Dirty drive gear or damaged overrunning clutch.

5. Make sure the transmission is in P or N, then disconnect the BLK/WHT wire (A) from the starter solenoid (B). Connect a jumper wire from the battery positive terminal to the solenoid terminal.



   Did the starter crank the engine?

   YES—Go to step 6.

   NO—Remove the starter, repair or replace as necessary. ■

(cont'd)

Starter Circuit Troubleshooting (cont'd)

6. Check the following items in the order listed until you find the open circuit.

   - Check the BLK/WHT wire and connectors between the driver's under-dash fuse/relay box and the ignition switch, and between the driver's under-dash fuse/relay box and the starter.
   - Check the ignition switch (see page 22-145).
   - Check the transmission range switch and connector.
   - Check the BLU/WHT wire between the starter cut relay and transmission range switch.
   - Substitute a known-good starter cut relay.

7. Check the cranking voltage and current draw.

   Is cranking voltage greater than or equal to 8.5 V and current draw less than or equal to 380A?

   YES—Go to step 8.

   NO—Replace the starter, or remove and disassemble it, and check for the following until you find the cause. ■

   - Open circuit in starter armature commutator segments
   - Starter armature dragging
   - Shorted armature winding
   - Excessive drag in engine

8. Check engine speed during cranking.

   Is engine speed above 100 rpm?

   YES—Go to step 9.

   NO—Remove and disassemble the starter, and check for the following until you find the cause. ■

   - Excessively worn starter brushes
   - Open circuit in commutator brushes
   - Dirty or damaged helical spline or drive gear
   - Faulty drive gear clutch

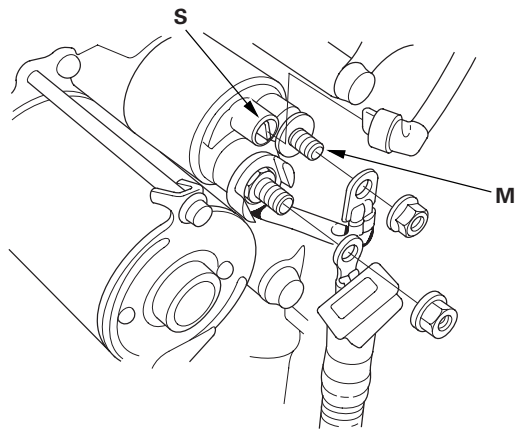
9. Remove the starter and inspect its drive gear and the torque converter ring gear for damage. Replace any damaged parts.

Starter Solenoid Test

1. Disconnect the starter cable, BLK/WHT wire and starter motor wire.

2. Check the hold-in coil for continuity between the S terminal and the armature housing (ground). There should be continuity.

   - If there is continuity, go to step 3.
   - If there is no continuity, replace the solenoid.



3. Check the pull-in coil for continuity between the S terminal and M terminal. There should be continuity.

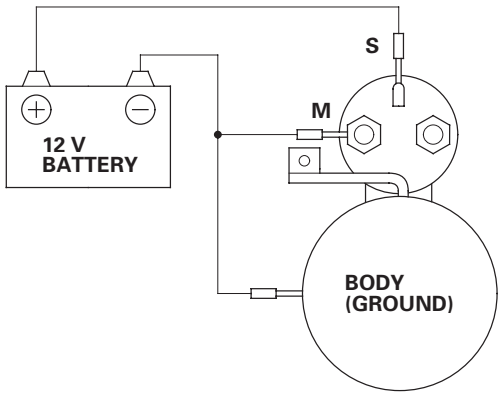
   - If there is continuity, the solenoid is OK.
   - If there is no continuity, replace the solenoid.

Starter Performance Test

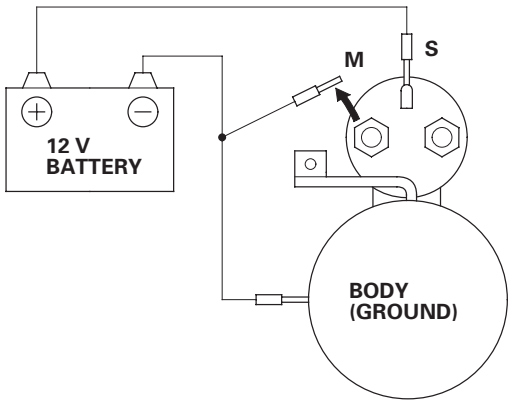
1. Disconnect the wires from the S terminal and the M terminal.

2. Make the connections as shown using as heavy a wire as possible (preferably equivalent to the wire used for the vehicle). To avoid damaging the starter, never leave the battery connected for more than 10 seconds.

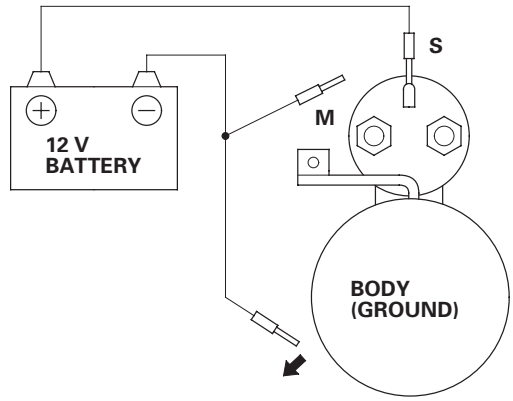
3. Connect the battery as shown. Be sure to disconnect the starter motor wire from the solenoid. If the starter pinion pops out, it is working properly.



4. Disconnect the battery from the M terminal. If the pinion does not retract, the hold-in coil of the solenoid is working properly.

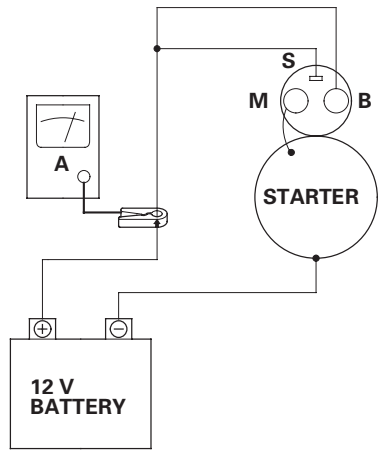


5. Disconnect the battery also from the starter body. If the pinion retracts immediately, it is working properly.



6. Clamp the starter firmly in a vise.

7. Connect the starter to the battery as shown in the diagram, and confirm that the motor starts and keeps rotating.



8. If the electric current and motor speed meet the specifications when the battery voltage is at 11.5 V, the starter is working properly.

Specifications:

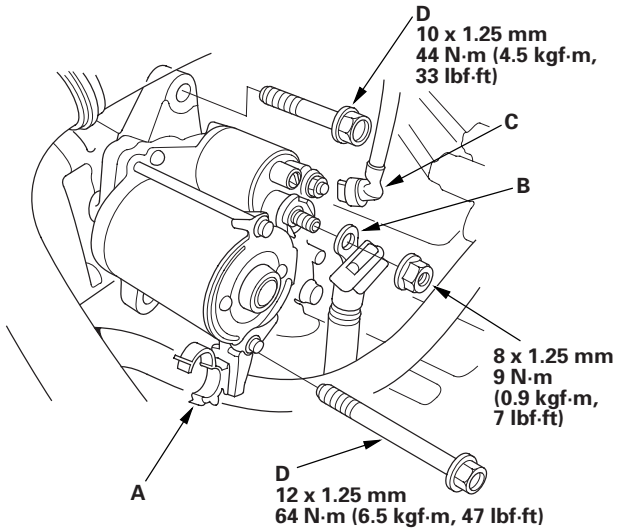
1.6 kW	**80A or less (Electric current), 2,600 rpm or more (Motor-speed)**

Starter Replacement

1. Make sure you have the anti-theft code for the radio and the navigation system, then write down the frequencies for the radio's preset buttons.

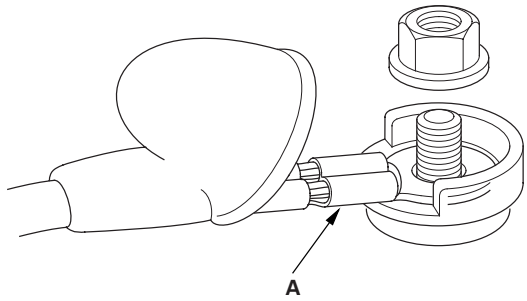
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.

3. Unlatch the automatic transmission fluid (ATF) cooler hose clamp (A), then disconnect the starter cable (B) from the B terminal on the solenoid, then disconnect the BLK/WHT wire (C) from the S terminal.



4. Remove the two bolts (D) holding the starter, then remove the starter.

5. Install in the reverse order of removal. Make sure the crimped side of the ring terminal (A) is facing out.



6. Connect the battery positive cable and negative cable to the battery.

7. Start the engine to make sure the starter works properly.

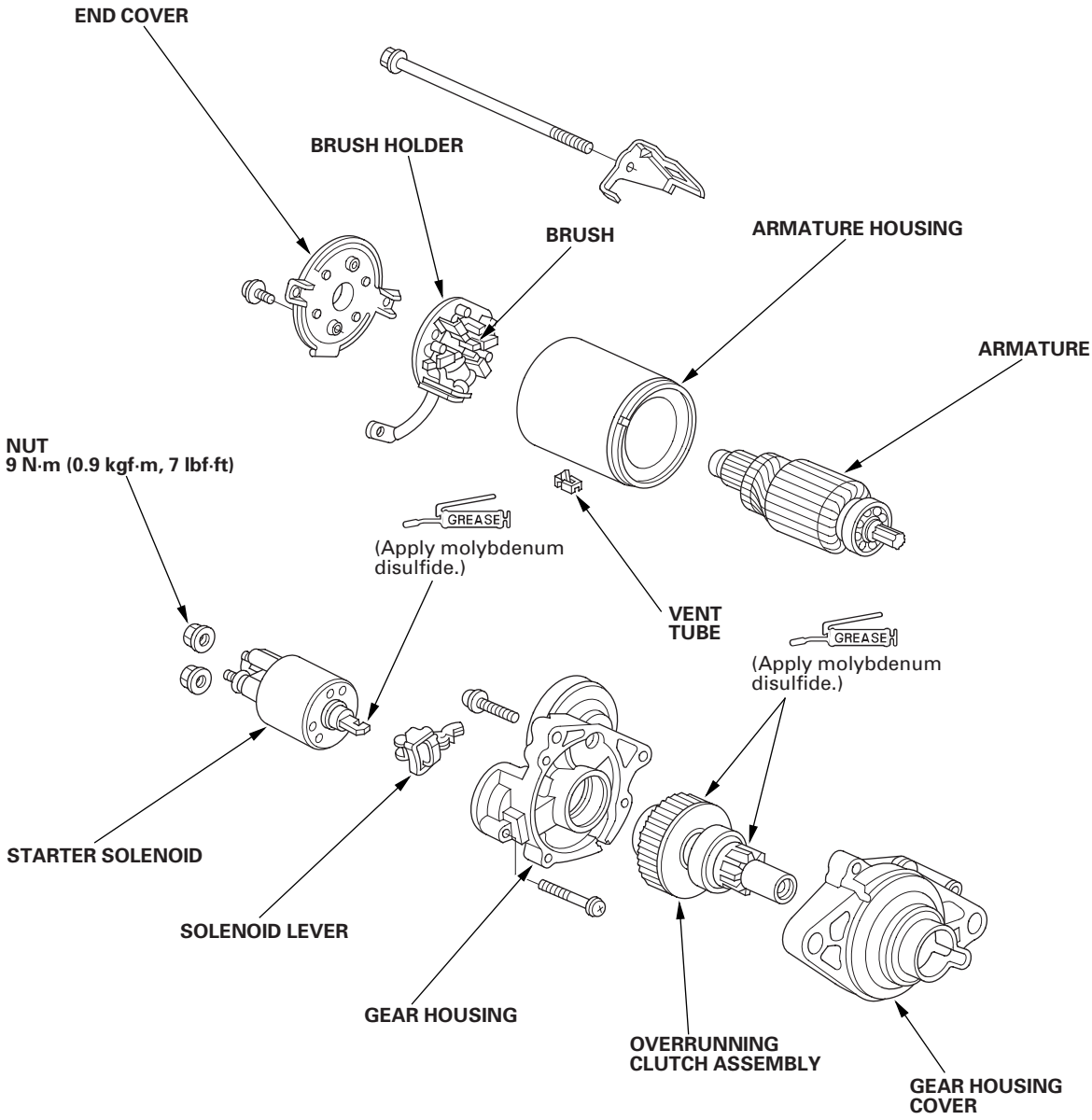
8. Enter the anti-theft code for the radio and the navigation system, then enter the customer's radio station presets.

9. Perform the powertrain control module (PCM) idle learn procedure (see page 11-202), and power window control unit reset procedure (2003-2004 models) (see page 22-200).

10. Set the clock.

Starter Overhaul

Disassembly/Reassembly



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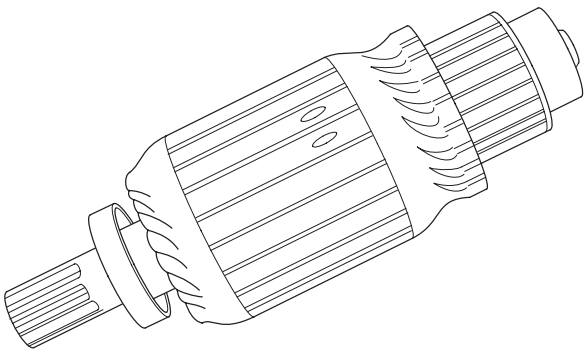
Starter Overhaul (cont'd)

1. Remove the starter (see page 4-8).

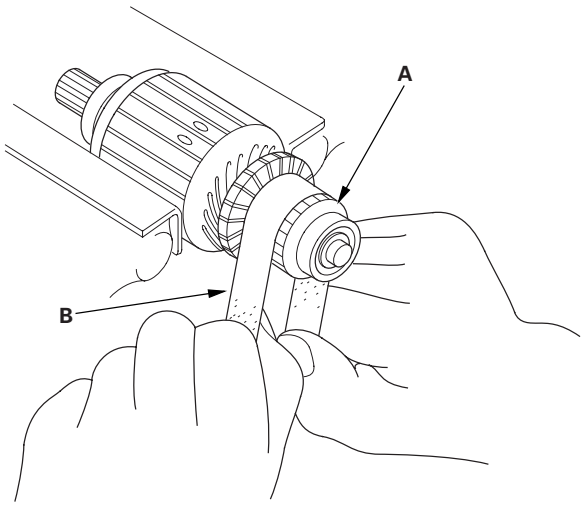
2. Disassemble the starter as shown at the beginning of this procedure.

Armature Inspection and Test

3. Inspect the armature for wear or damage from contact with the permanent magnet. If there is wear or damage, replace the armature.

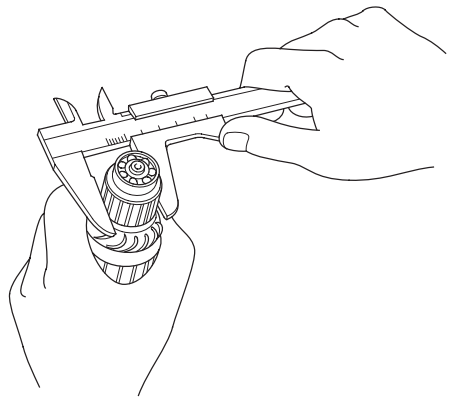


4. Check the commutator (A) surface. If the surface is dirty or burnt, resurface with emery cloth or a lathe within the following specifications, or recondition with # 500 or # 600 sandpaper (B).



5. Check the commutator diameter. If the diameter is below the service limit, replace the armature.

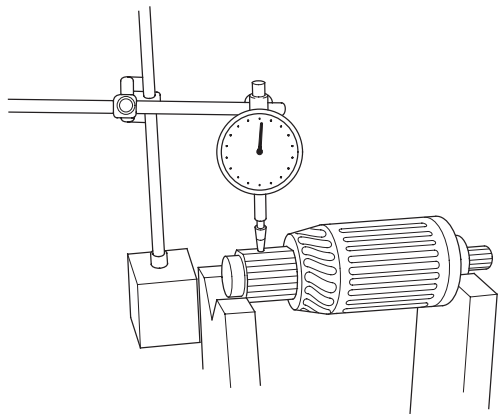
Commutator Diameter
Standard (New): 28.0—28.1 mm (1.102—1.106 in.)
Service Limit: 27.5 mm (1.083 in.)



6. Measure the commutator runout.

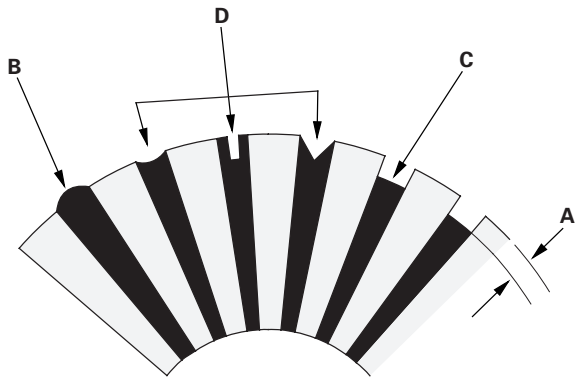
- If the commutator runout is within the service limit, check the commutator for carbon dust or brass chips between the segments.
- If the commutator runout is not within the service limit, replace the armature.

Commutator Runout
Standard (New): 0.02 mm (0.001 in.) max.
Service Limit: 0.05 mm (0.002 in.)

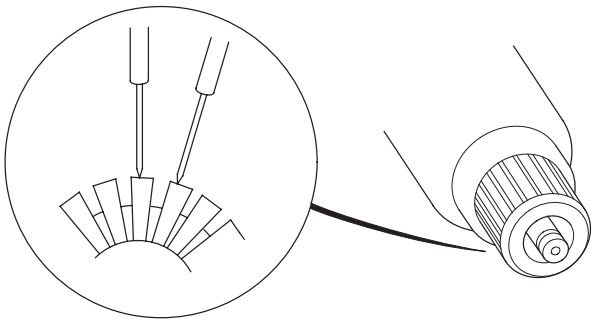


7. Check the mica depth (A). If the mica is too high (B), undercut the mica with a hacksaw blade to the proper depth. Cut away all the mica (C) between the commutator segments. The undercut should not be too shallow, too narrow, or V-shaped (D).

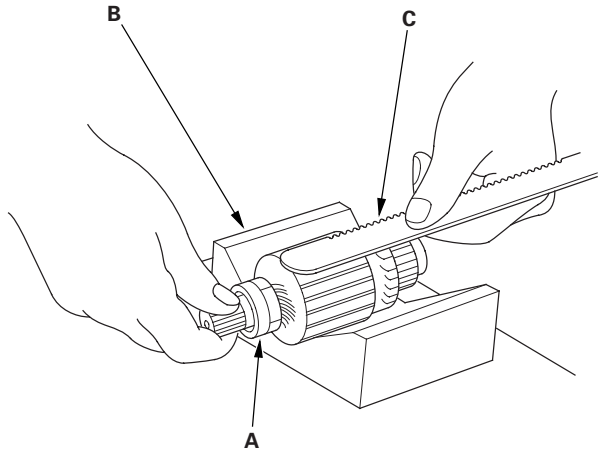
   Commutator Mica Depth
   Standard (New): 0.4—0.5 mm (0.016—0.020 in.)
   Service Limit: 0.15 mm (0.006 in.)



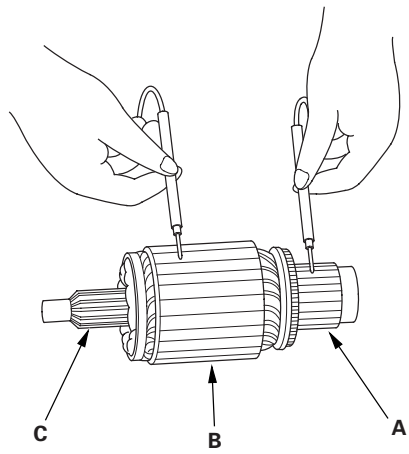
8. Check for continuity between the segments of the commutator. If an open circuit exists between any segments, replace the armature.



9. Place the armature (A) on an armature tester (B). Hold a hacksaw blade (C) on the armature core. If the blade is attracted to the core or vibrates while the core is turned, the armature is shorted. Replace the armature.



10. Check with an ohmmeter that no continuity exists between the commutator (A) and armature coil core (B), and between the commutator and armature shaft (C). If continuity exists, replace the armature.



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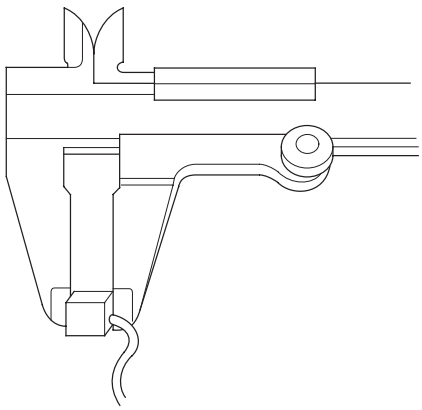
Starter Overhaul (cont'd)

Starter Brush Inspection

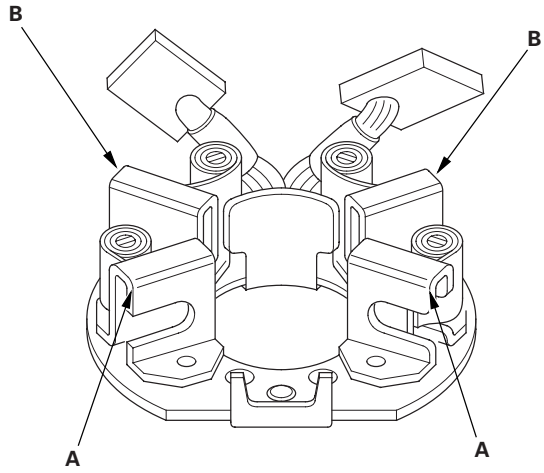
11. Measure the brush length. If it is not within the service limit, replace the brush holder assembly.

    Brush Length
    Standard (New): 15.8—16.2 mm (0.62—0.64 in.)
    Service Limit: 11.0 mm (0.43 in.)



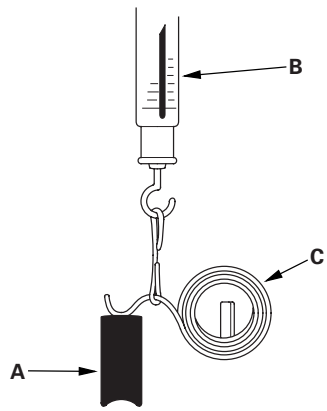
Starter Brush Holder Test

12. Check that there is no continuity between the (+) brush holder (A) and (—) brush holder (B). If there is continuity, replace the brush holder assembly.

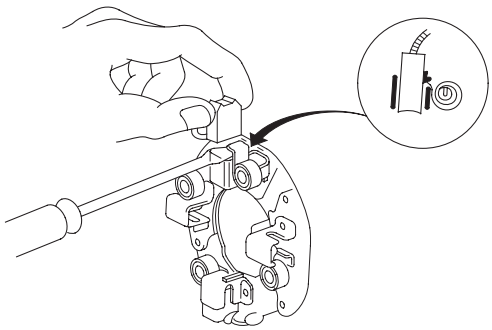


13. Insert the brush (A) into the brush holder, and bring the brush into contact with the commutator, then attach a spring scale (B) to the spring (C). Measure the spring tension at the moment the spring lifts off the brush.

    Spring Tension:
    15.7—17.7 N (1.6—1.8 kgf, 3.53—3.97 lbf)

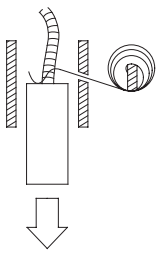


14. Pry back each brush spring with a screwdriver, then position the brush about halfway out of its holder, and release the spring to hold it there.

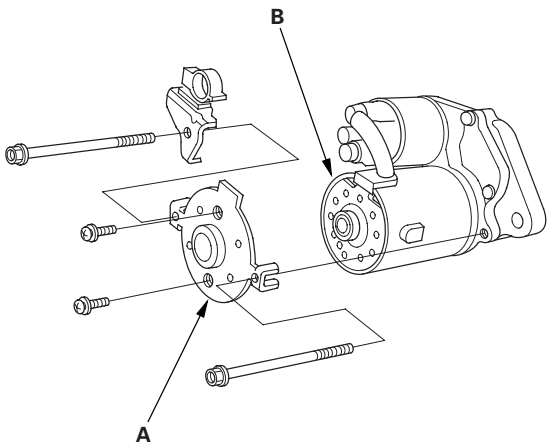


15. Install the armature in the housing. Next, pry back each brush spring again, and push the brush down until it seats against the commutator, then release the spring against the end of the brush.

    NOTE: To seat new brushes, slip a strip of # 500 or # 600 sandpaper, with the grit side up, between the commutator and each brush, and smoothly rotate the armature. The contact surface of the brushes will be sanded to the same contour as the commutator.



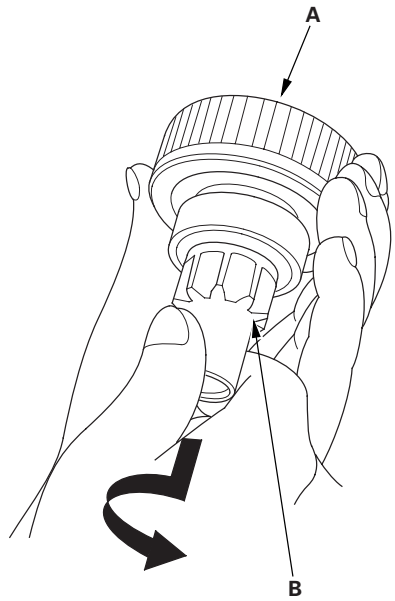
16. Install the starter end cover (A) to retain the brush holder (B).



Overrunning Clutch Inspection

17. Slide the overrunning clutch along the shaft. Replace it if it does not slide smoothly.

18. Rotate the overrunning clutch (A) both ways. If it does not lock in either direction or it locks in both directions, replace it.

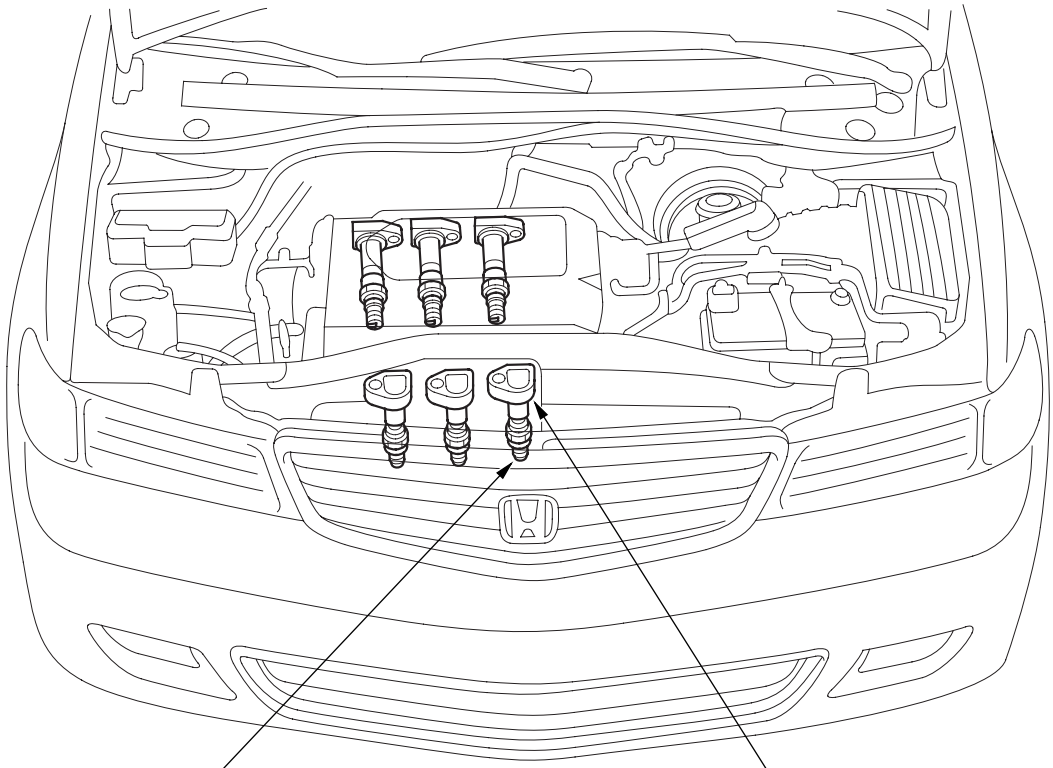


19. If the starter drive gear (B) is worn or damaged, replace the overrunning clutch assembly; the gear is not available separately.

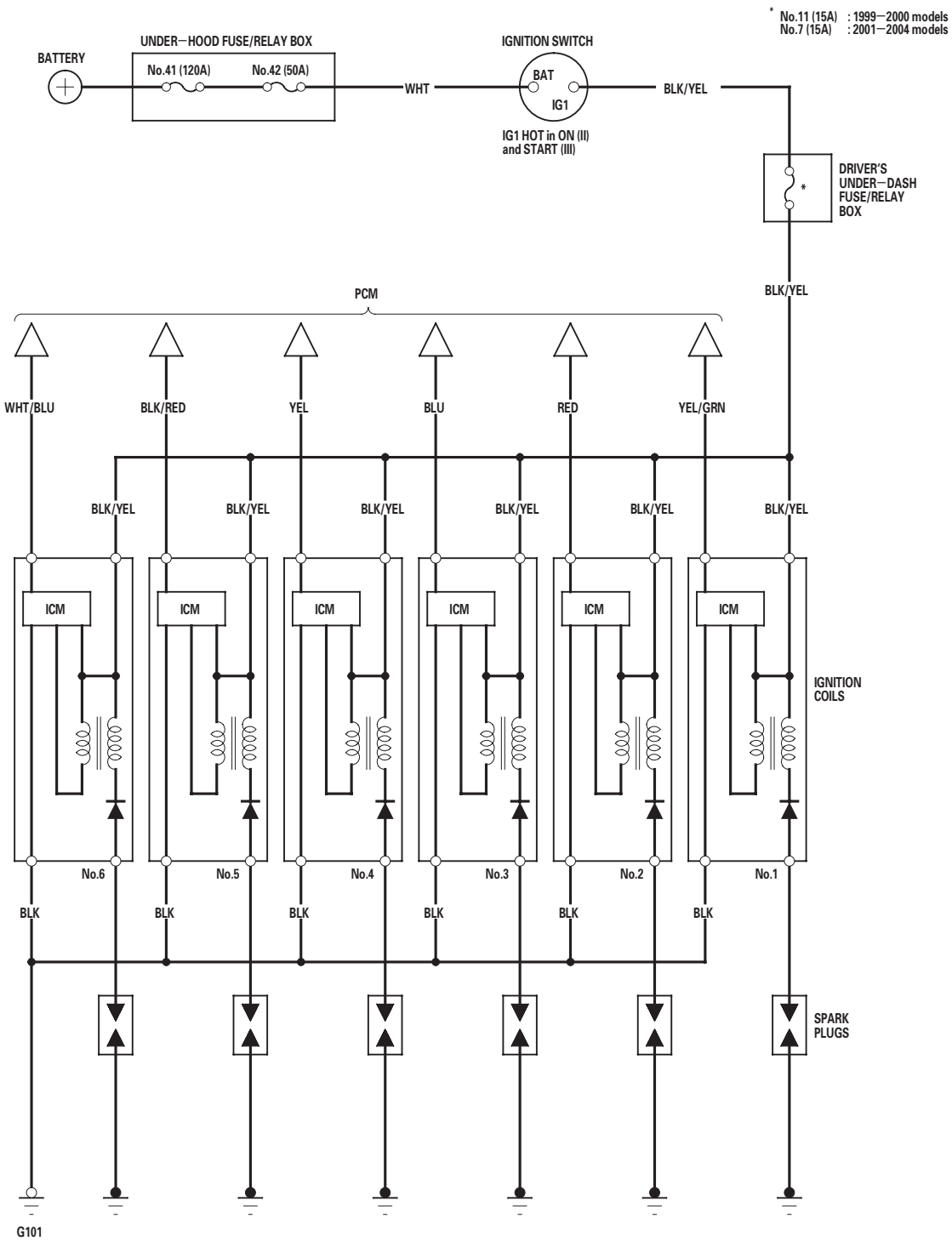
    Check the condition of the torque converter ring gear if the starter drive gear teeth are damaged.

20. Reassemble the starter in reverse order of disassembly.

Component Location Index



Circuit Diagram



ICM : Ignition Control Module

Ignition Timing Inspection

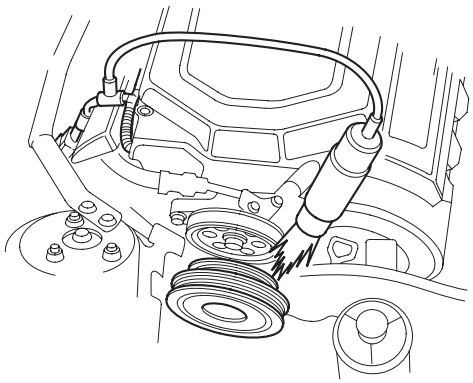
1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3), and check for DTC's. If a DTC is present, diagnose and repair the cause before inspecting the ignition timing.

2. Start the engine. Hold the engine at 3,000 rpm with no load shift lever in Park or Neutral, until the radiator fan comes on, then let it idle.

3. Check the idle speed, and adjust it if necessary (see page 11-201).

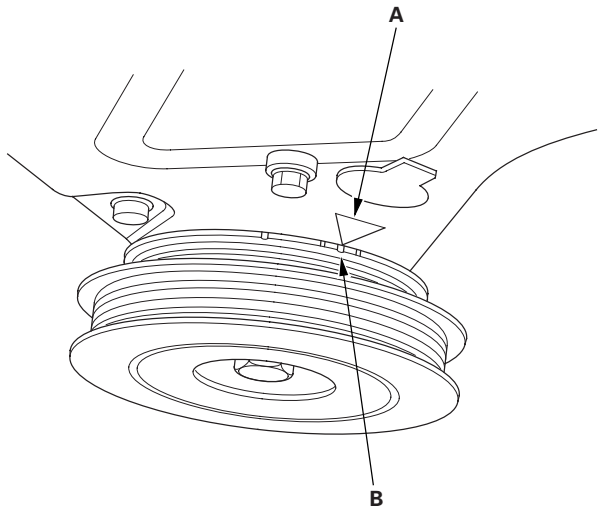
4. Follow the tester's prompts to get the tester in the ''SCS'' mode (see the tester operator's manual).

5. Connect the timing light to the No. 1 ignition coil wire.



6. Aim the light toward the pointer (A) on the timing belt cover. Check the ignition timing under a no load conditions: headlights, blower fan, rear window defogger, and air conditioner are not operating.

   Ignition Timing:
   10° ±2° BTDC (RED mark (B)) during idling in Park or Neutral



7. If the ignition timing differs from the specification, check the cam timing, and the top dead center (TDC) and crankshaft position (CKP) sensors. If necessary, substitute a known-good powertrain control module (PCM) and recheck (see page 11-5).

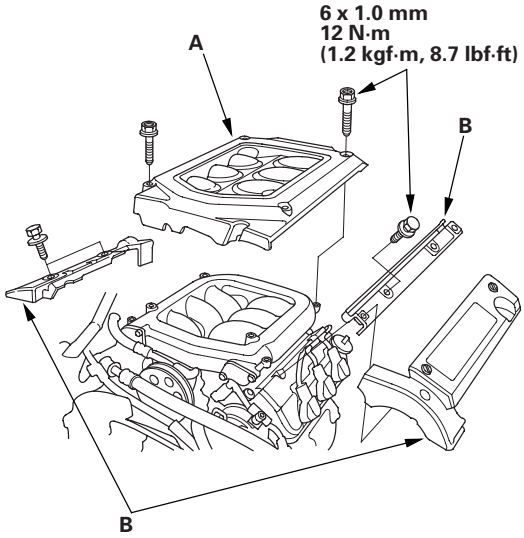
8. Turn the ignition switch OFF.

9. Disconnect the HDS and the timing light.

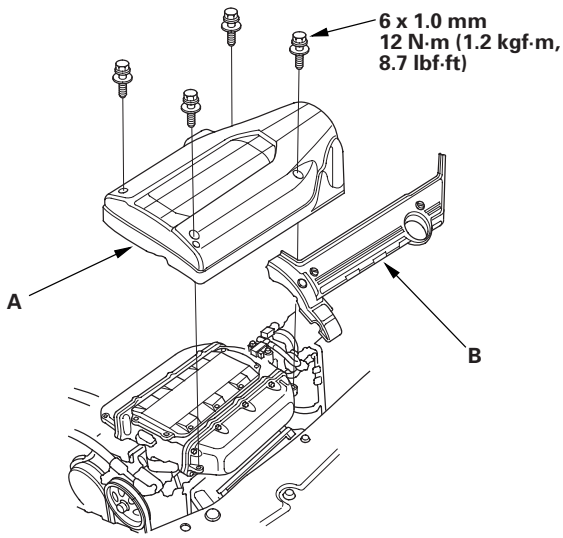
Ignition Coil Removal/Installation

1. Remove the intake manifold cover (A) and ignition coil cover(s) (B).

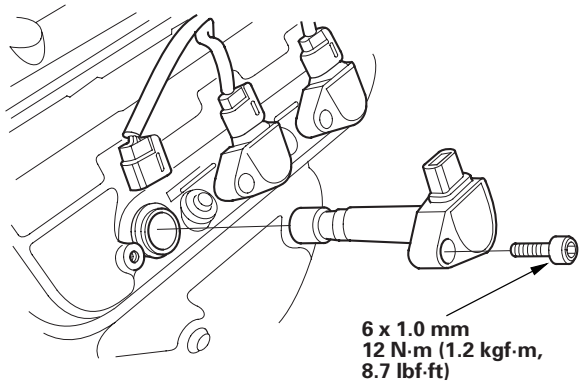
1999-2001 models:



2002-2004 models:



2. Disconnect the ignition coil connectors, then remove the ignition coils.



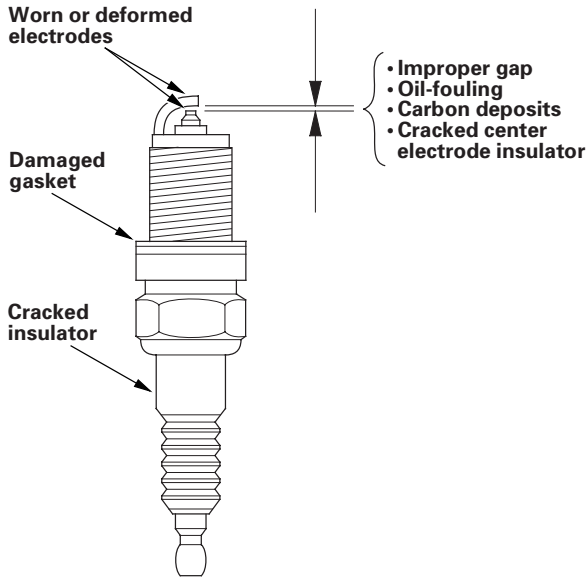
3. Install the ignition coil in the reverse order of removal.

Spark Plug Inspection

1. Inspect the electrodes and ceramic insulator.

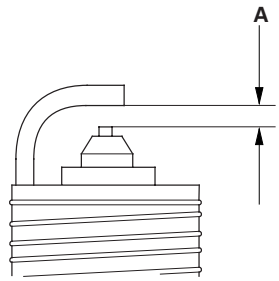
   • Burned or worn electrodes may be caused by:
   – Advanced ignition timing
   – Loose spark plug
   – Plug heat range too hot
   – Insufficient cooling

   • Fouled plug may be caused by:
   – Retarded ignition timing
   – Oil in combustion chamber
   – Incorrect spark plug gap
   – Plug heat range too cold
   – Excessive idling/low speed running
   – Clogged air cleaner element
   – Deteriorated ignition coil



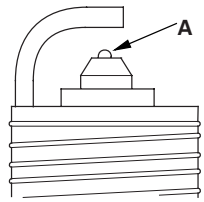
2. Do not adjust the gap of platinum tip plugs (A); replace the spark plug if the gap is out of specification.

   Electrode Gap:
   Standard (New): 1.0—1.1 mm (0.039—0.043 in.)
   Service Limit: 1.3 mm (0.05 in.)



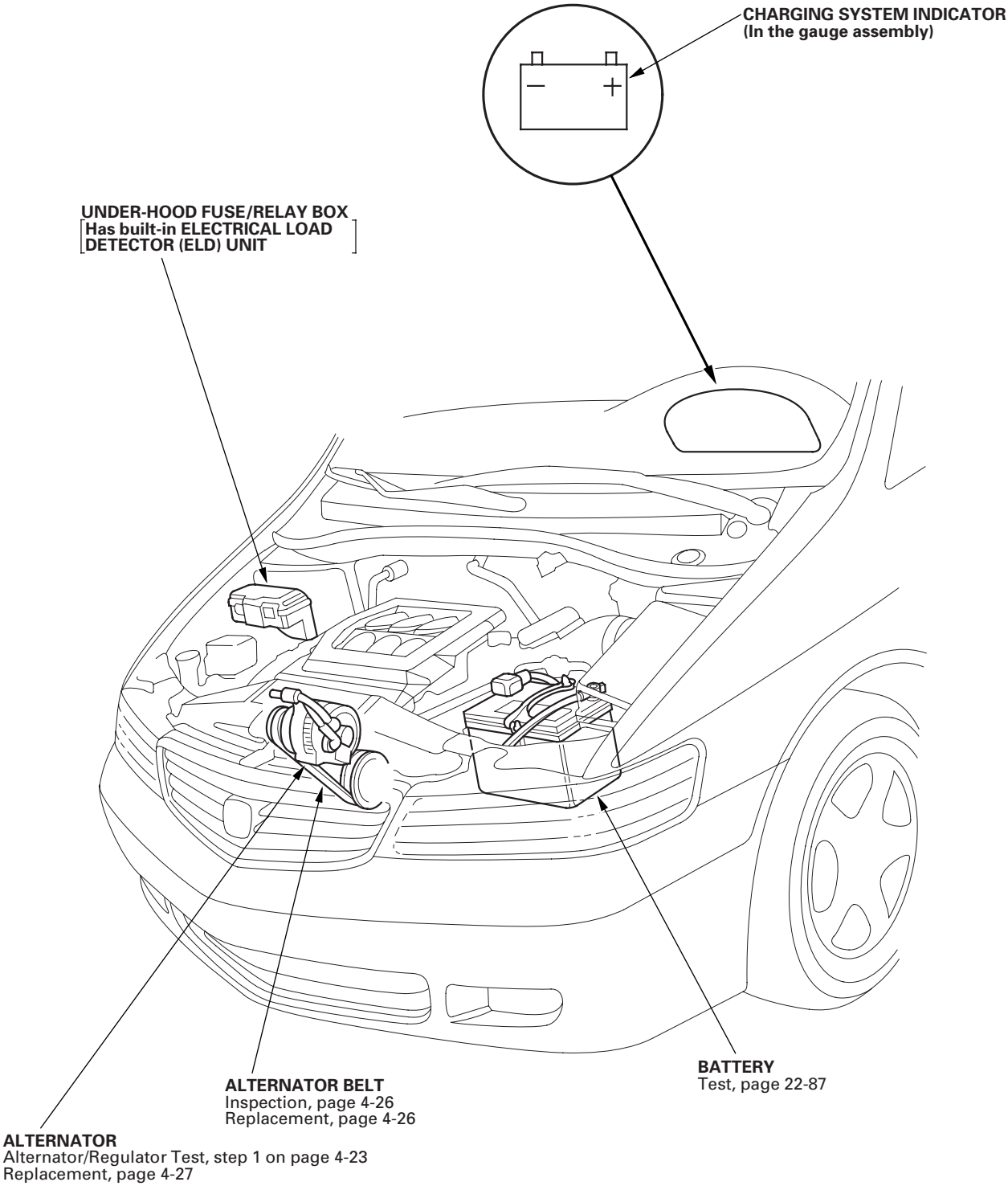
3. Replace the plug at the specified interval, or if the center electrode is rounded (A). Use only the spark plugs listed.

   Spark Plugs:
   NGK: PZFR5F-11
   DENSO: PKJ16CR-L11



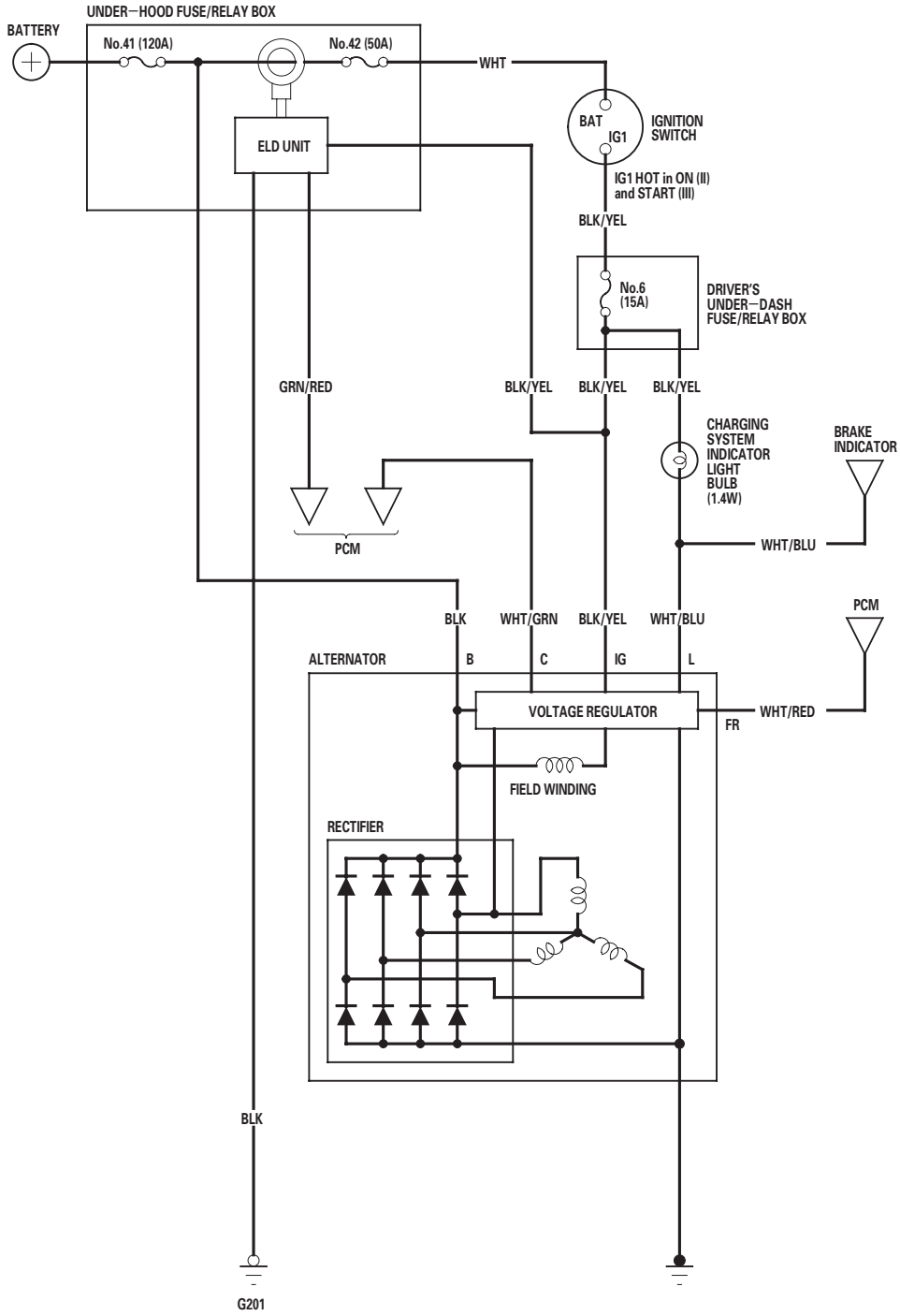
4. Apply a small quantity of anti-seize compound to the plug threads, and screw the plugs into the cylinder head finger-tight. Then torque them to 18 N·m (1.8 kgf·m, 13 lbf·ft).

Component Location Index

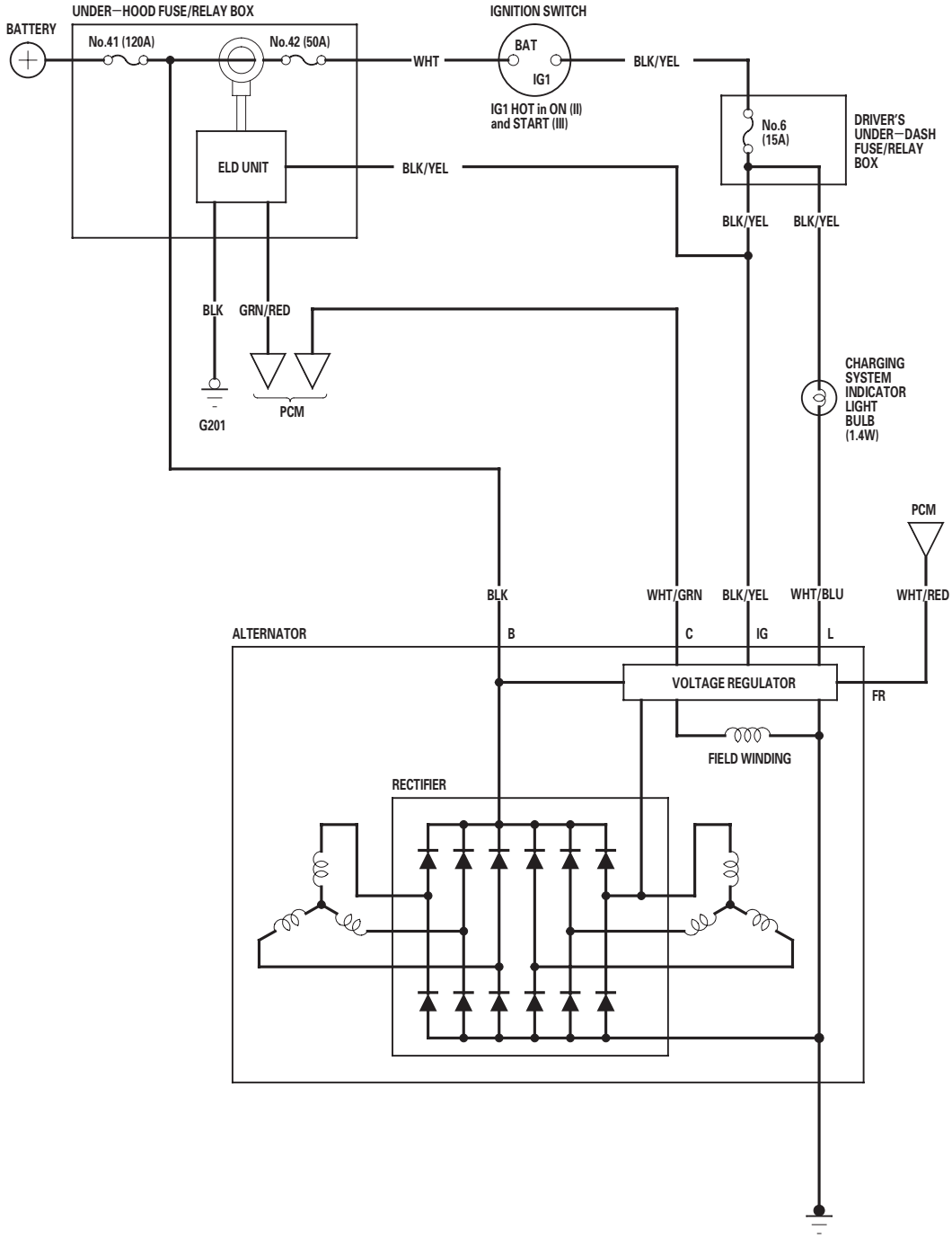


Circuit Diagram

1999-2001 models



2002-2004 models



Charging Circuit Troubleshooting

If the charging system indicator does not come on or does not go off, or the battery is dead or low, test the following items in the order listed:

Battery (see page 22-87)
Charging system indicator
Alternator/regulator circuit
Alternator control system

Charging System Indicator Test

1. Turn the ignition switch ON (II).

   Does the charging system indicator come on?

   YES—Go to step 2.

   NO—Go to step 6.

2. Start the engine.

   Does the charging system indicator go off?

   YES—Charging system indicator circuit is OK. Go to Alternator and Regulator Circuit Test.

   NO—Go to step 3.

3. Turn the ignition switch OFF.

4. Disconnect the alternator 4P connector from the alternator.

5. Turn the ignition switch ON (II).

   Does the charging system indicator come on?

   YES—Turn the ignition switch OFF, and repair the short in the WHT/BLU wire. If the WHT/BLU wire is shorted to ground, the voltage regulator in the alternator may be damaged. ■

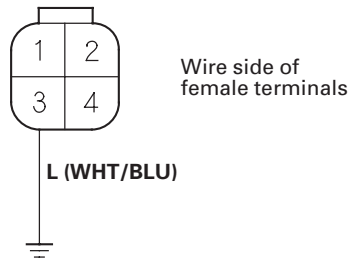
   NO—Go to step 9.

6. Turn the ignition switch OFF.

7. Disconnect the alternator 4P connector from the alternator.

8. Connect the alternator 4P connector terminal No. 3 to body ground with jumper wire. Turn the ignition switch ON (II).

ALTERNATOR 4P CONNECTOR



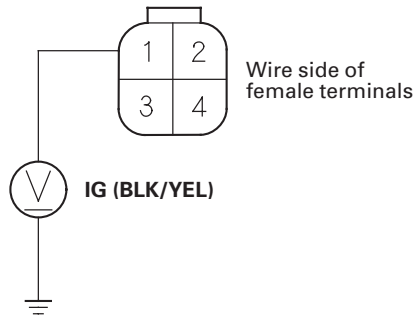
   Does the charging system indicator come on?

   YES—Go to step 9.

   NO—Turn the ignition switch OFF. Check for a blown No. 6 (15A) fuse and a blown charging system light bulb. If the fuse and bulb are OK, repair the open in the BLK/YEL or WHT/BLU wire to the indicator bulb. ■

9. Measure the voltage at the No. 1 terminal of the alternator 4P connector with the ignition switch ON (II).

ALTERNATOR 4P CONNECTOR



   Is there battery voltage?

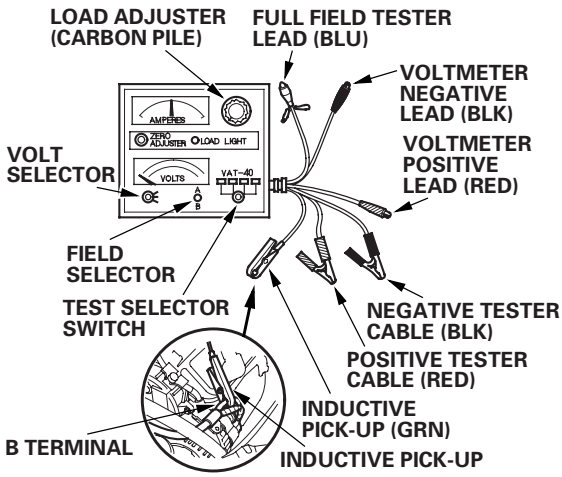
   YES—Go to Alternator and Regulator Circuit Test. ■

   NO—Repair an open in the BLK/YEL wire between the alternator and the under-dash driver's fuse relay box. ■

Alternator and Regulator Circuit Test

1. Be sure the battery connections are good, and that the battery is sufficiently charged. (see page 22-87).

2. Connect a VAT-40 (or equivalent tester), and turn the test selector switch to position 1 (starting).



3. Shift to Park or Neutral, and start the engine. Hold the engine at 3,000 rpm, with no load until the radiator fan comes on, then let it idle.

4. Raise the engine speed to 2,000 rpm, and hold it there.

   Is the voltage over 15.1 V?

   YES—Replace the voltage regulator. ■

   NO—Go to step 5.

5. Release the accelerator pedal, and let the engine idle.

6. Make sure all accessories are turned off. Turn the test selector switch to position 2 (charging).

7. Remove the inductive pick-up, and zero the ammeter.

8. Place the inductive pick-up over the B terminal wire of the alternator so that the arrow points away from the alternator.

9. Raise the engine speed to 2,000 rpm, and hold it there.

   Is the voltage less than 13.5 V?

   YES—Go to alternator control system test.

   NO—Go to step 10.

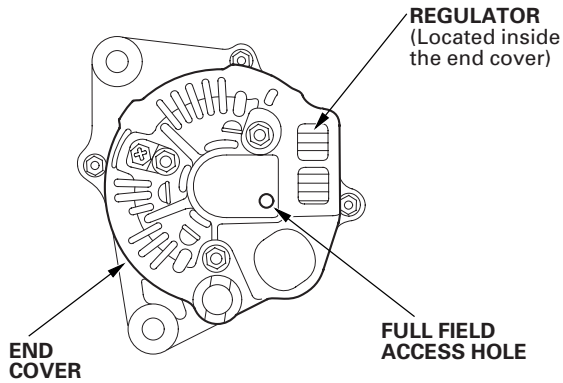
10. Apply a load with the VAT-40 until the battery voltage drops to between 12—13.5 V.

    Is the amperage 75A (87.5A for 2002-2004 models) or more?

    YES—The charging system is OK. ■

    NO—
    1999-2001 models: Go to step 11.
    2002-2004 models: Go to Alternator Control System Test.

11. With the engine speed still at 2,000 rpm, full-field the alternator. Attach the probe to the VAT-40 full-field test lead, and insert the probe into the full field access hole at the back of the alternator. Switch the field selector to the ''A (Ground)'' position momentarily, and check the amperage reading. Because voltage will rise quickly when the alternator is full-fielded, do not allow the voltage to exceed 18 V: it may damage the electrical system.



    Is the alternator output 75A or more?

    YES—Replace the voltage regulator. ■

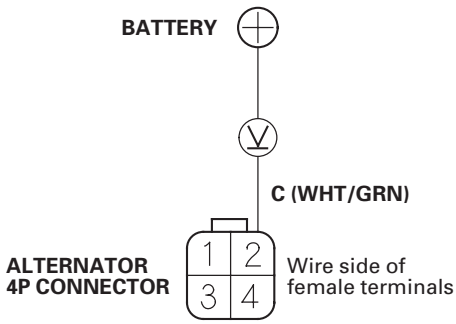
    NO—Go to Alternator Control System Test. ■

(cont'd)

Charging Circuit Troubleshooting (cont'd)

Alternator Control System Test

1. Check for proper operation of the electrical load detector (ELD) by checking the malfunction indicator lamp (MIL) (see page 11-3). If a DTC is present, diagnose and repair the cause before continuing with this test.
2. Disconnect the alternator 4P connector from the alternator.
3. Start the engine, and turn the headlights (high beam) ON.
4. Measure voltage between the alternator 4P connector terminal No. 2 and the positive terminal of the battery.



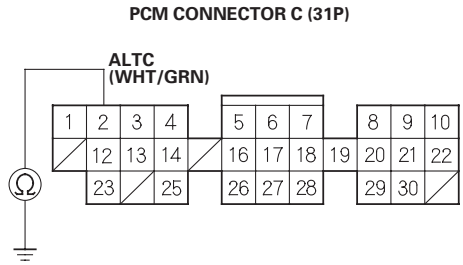
Is there 1 V or less?

YES — Go to step 8.

NO — Go to step 5.

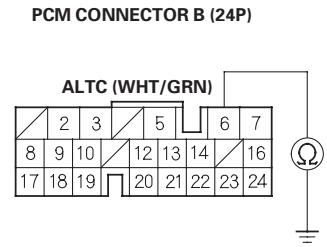
5. Turn the headlight and ignition switch OFF.
6. Disconnect the powertrain control module (PCM) connector C (31P) (1999-2000, 2002-2004 models) or PCM connector B (24P) (2001 model).
7. Check for continuity between the PCM connector terminal C2 (1999-2000, 2002-2004 models) or B6 (2001 model) and body ground.

1999-2000 models:



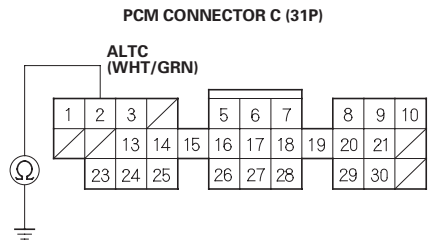
Wire side of female terminals

2001 model:



Wire side of female terminals

2002-2004 models:



Wire side of female terminals

Is there continuity?

YES — Repair a short in the wire between the alternator and PCM. ■

NO — Substitute a known-good PCM, and recheck (see page 11-5). If prescribed voltage is now available, replace the original PCM (see page 11-4). ■

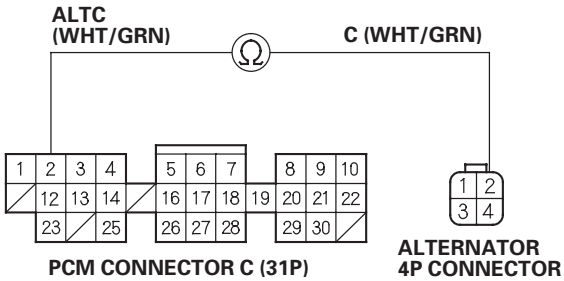
8. Turn the headlight and ignition switch OFF.

9. Disconnect the negative cable from the battery.

10. Disconnect the PCM connector C (31P) (1999-2000, 2002-2004 models) or PCM connector B (24P) (2001 model) from the PCM.

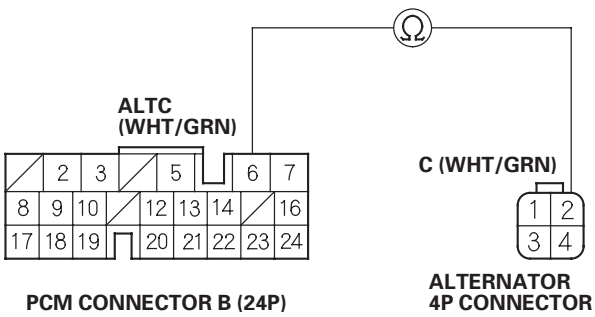
11. Check for continuity between the PCM connector terminal C2 (1999-2000, 2002-2004 models) or B6 (2001 model) and alternator 4P connector terminal No. 2.

1999-2000 models:



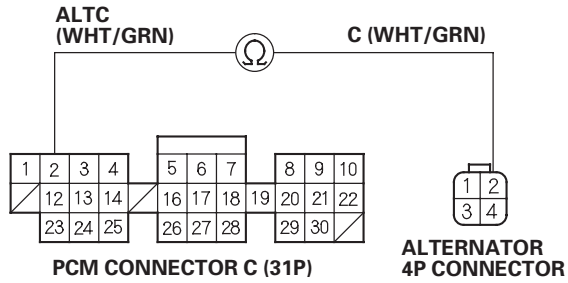
Wire side of female terminals

2001 model:



Wire side of female terminals

2002-2004 models:



Wire side of female terminals

Is there continuity?

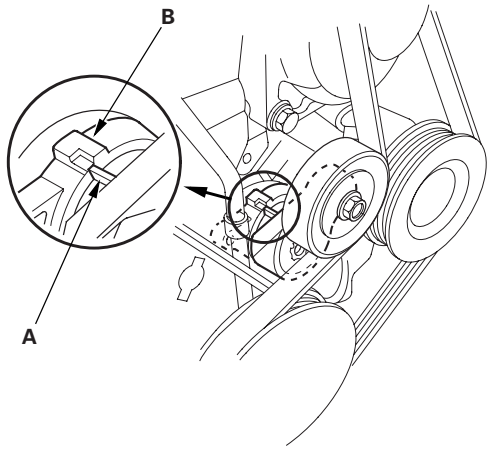
YES—Repair the alternator components:
1999-2001 models (see page 4-32). ■
2002-2004 models (see page 4-38). ■

NO—Repair an open in the wire between the alternator and PCM. ■

Alternator-compressor Belt Inspection

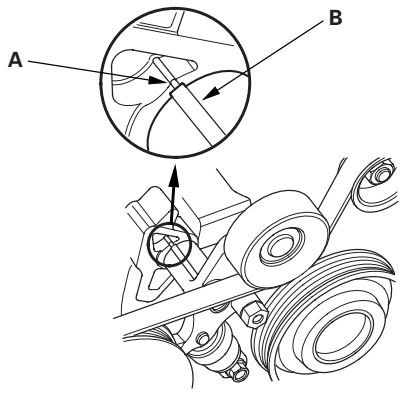
1999-2001 models

1. Inspect the belt for cracks and damage. If the belt is cracked or damaged, replace it.
2. Check that the pointer (A) on auto-tensioner housing is not beyond the edge of the indicator rib (B) on the tensioner base. If pointer is beyond the indicator rib, replace the alternator-compressor belt.



2002-2004 models

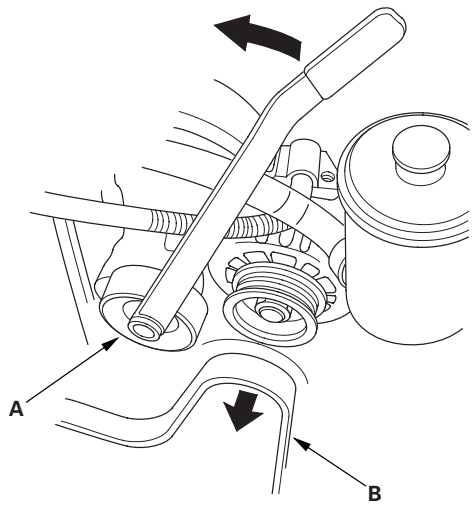
1. Inspect the belt for cracks and damage. If the belt is cracked or damaged, replace it.
2. Check that the pointer (A) on the oil pump is not beyond the edge of the indicator rib (B) on the auto-tensioner. If pointer is beyond the indicator rib, replace the alternator-compressor belt.



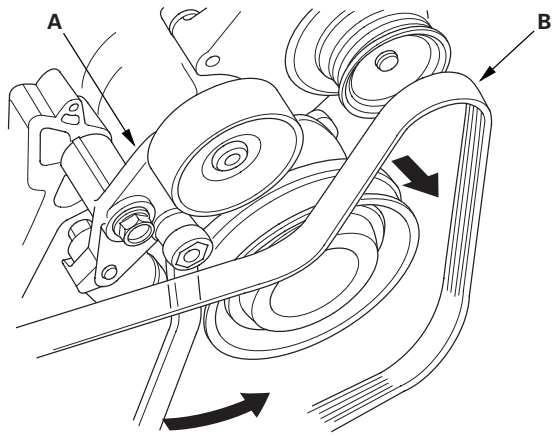
Alternator-compressor Belt Replacement

1. Remove the splash shield (2002-2004 models) (see step 28 on page 5-6).
2. Move the auto-tensioner (A) to relive tension from the alternator-compressor belt (B), and remove the belt.

1999-2001 models:



2002-2004 models:



3. Install the new belt in the reverse order of removal.

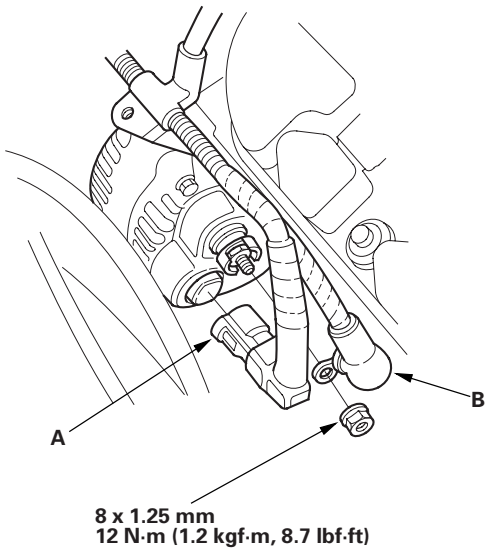
Alternator Replacement

1. Make sure you have the anti-theft code for the radio and the navigation system, then write down the frequencies for the radio's preset buttons.

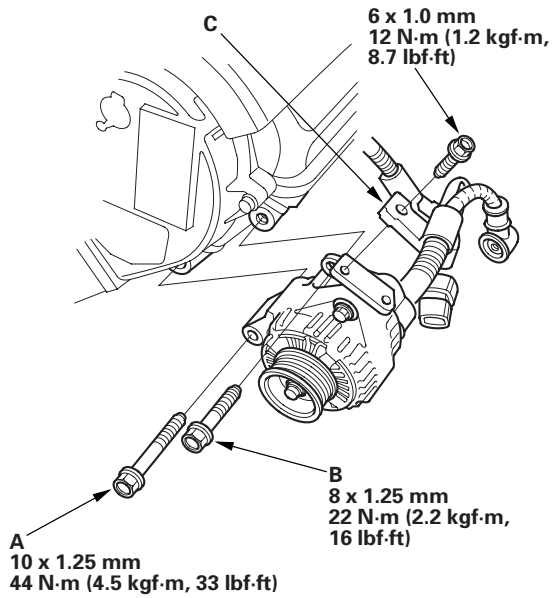
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.

3. Remove the alternator-compressor belt (see page 4-26).

4. Disconnect the alternator 4P connector (A) and BLK wire (B) from the alternator.



5. Remove the mounting bolt (A) and alternator bracket mounting bolt (B), then remove the harness clamp (C) from the alternator bracket.



6. Install in the reverse order of removal.

7. Enter the anti-theft code for the radio and the navigation system, then enter the customer's radio station presets.

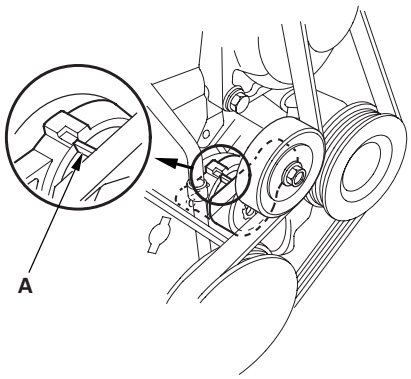
8. Perform the powertrain control module (PCM) idle learn procedure (see page 11-202), and the power window control unit reset procedure (2003-2004 models) (see page 22-200).

9. Set the clock.

Auto-tensioner Inspection

1999-2001 models

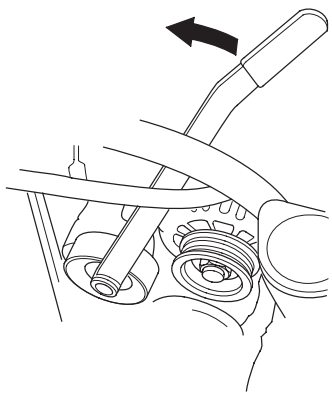
1. Check the position of the auto-tensioner indicator's pointer (A) with the engine not running. Start the engine, then check the position of the pointer again. If the position changes, replace the auto-tensioner.



2. Check for abnormal noise from the tensioner pulley. If you hear abnormal noise, replace the auto-tensioner pully (see page 4-31).

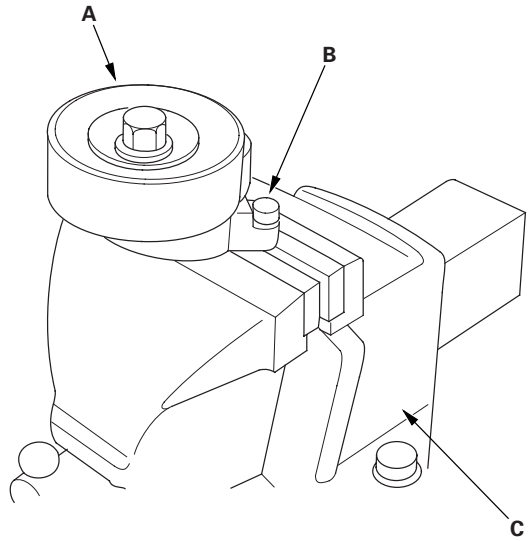
3. Remove the alternator-compressor belt (see page 4-26).

4. Move the auto-tensioner back and forth within its limit with the wrench in the direction shown. Check that the tensioner moves smoothly and without any abnormal noise. If the tensioner does not move smoothly or there is abnormal noise, replace the auto-tensioner.



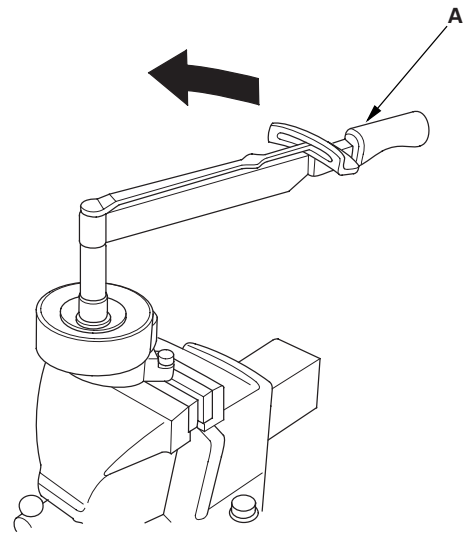
5. Remove the auto-tensioner (see page 4-29).

6. Clamp the auto-tensioner (A) by using two bolts (6 mm diameter) (B) and vise (C) as shown. Do not clamp the auto-tensioner itself.



7. Attach a torque wrench (A) to the pulley bolt. Measure the torque when the tensioner is turned counterclockwise. If the torque is less than specified value, replace the auto tensioner.

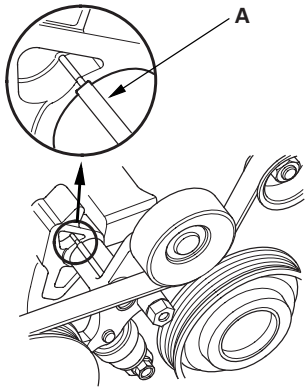
23 N·m (2.3 kgf·m, 17 lbf·ft)



Auto-tensioner Replacement

2002-2004 models

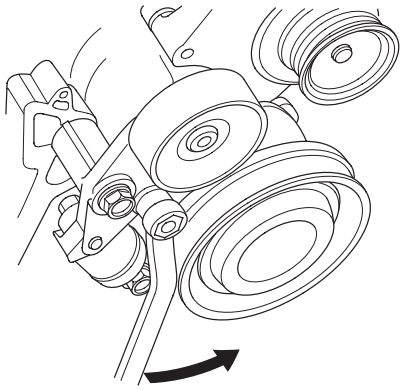
1. Check the position of the auto-tensioner indicator's pointer (A) with the engine not running. Start the engine, then check the position of the pointer again. If the position changes, replace the auto-tensioner.



2. Check for abnormal noise from the tensioner pulley. If you hear abnormal noise, replace the auto-tensioner.

3. Remove the alternator-compressor belt (see page 4-26).

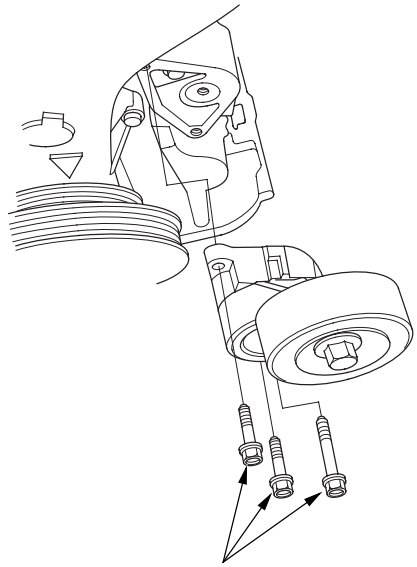
4. Move the auto-tensioner back and forth within its limit with the wrench in the direction shown. Check that the tensioner moves smoothly and without any abnormal noise. If the tensioner does not move smoothly or there is abnormal noise, replace the auto-tensioner.



1999-2001 models

1. Remove the alternator-compressor belt (see page 4-26).

2. Remove the auto-tensioner.



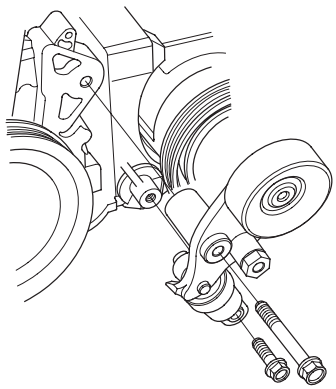
3. Install the auto-tensioner in the reverse order of removal.

Auto-tensioner Replacement (cont'd)

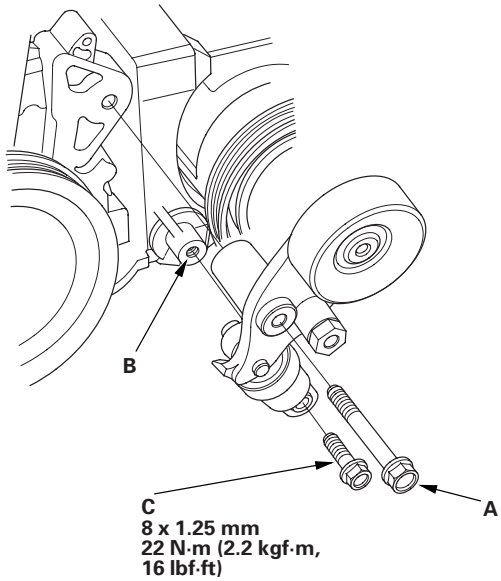
2002-2004 models

1. Remove the alternator-compressor belt (see page 4-26).

2. Remove the auto-tensioner.



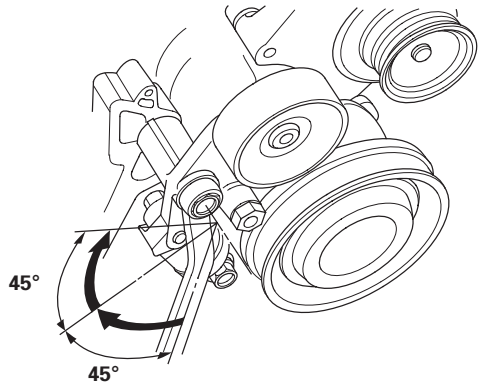
3. Clean the tensioner and pivot bolt (A), and clean the threads of the pivot bolt hole (B) with a tap.



4. Install the auto-tensioner and tighten the mounting bolt (C), then screw the pivot bolt in by hand until it is finger-tight.

5. After tightening, tighten the pivot bolt in two steps (45° per step).

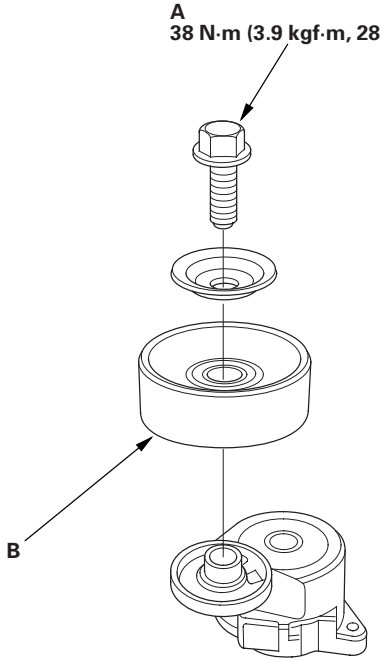
Specified Torque:
64 N·m (6.5 kgf·m, 47 lbf·ft)



Tensioner Pulley Replacement

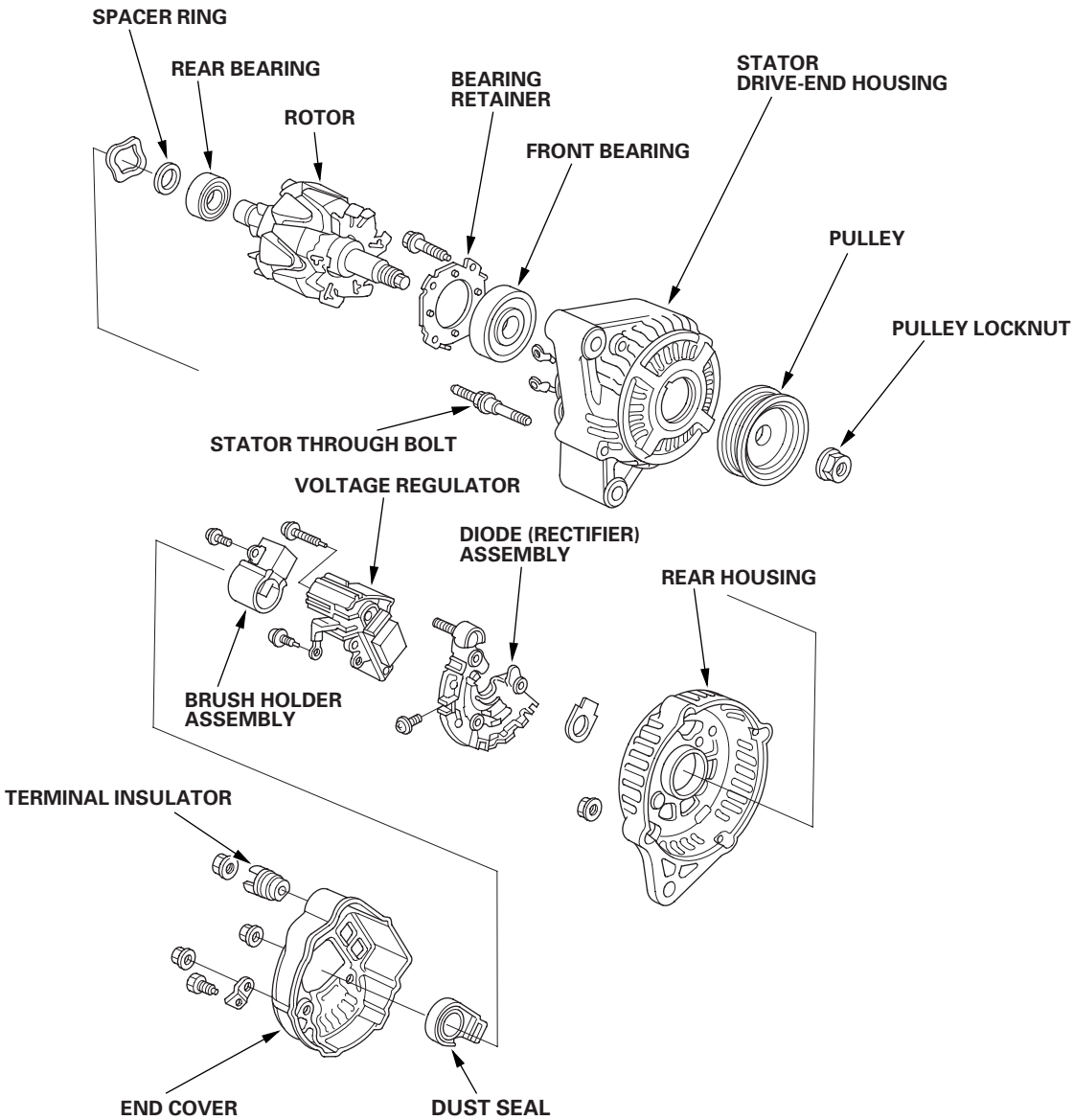
1999-2001 models

Remove the pulley bolt (A) (left-hand threads), and replace the tensioner pulley (B).



Alternator Overhaul

Exploded View - 1999-2001 models



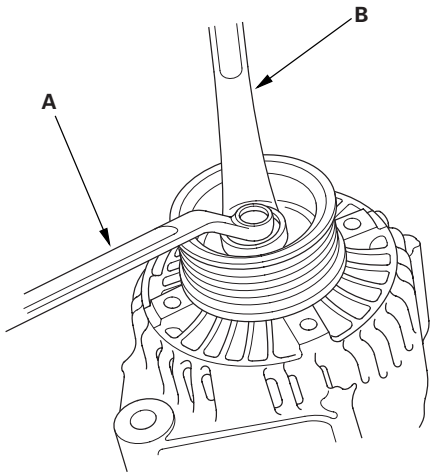
Special Tools Required
• Driver 07749-0010000
• Attachment, 42 x 47 mm 07746-0010300

NOTE: Refer to the Exploded View as needed during this procedure.

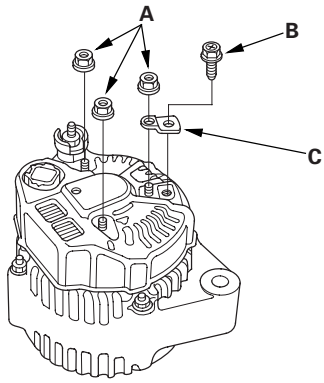
1. Test the alternator and regulator before you remove them (see step 1 on page 4-22).

2. Remove the alternator (see page 4-27).

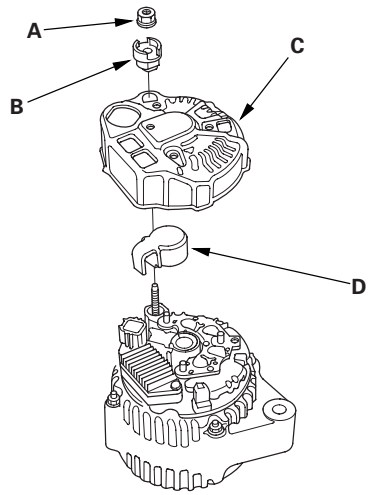
3. If the front bearing needs replacing, remove the pulley locknut with a 10 mm wrench (A) and a 22 mm wrench (B). If necessary, use an impact wrench.



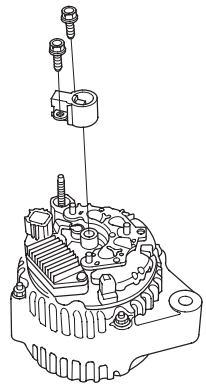
4. Remove the three flange nuts (A) and the screw (B) from the alternator, then remove the plate terminal (C).



5. Remove the washer nut (A) and insulator (B) from the ''B'' terminal, then remove the end cover (C) and dust seal (D).



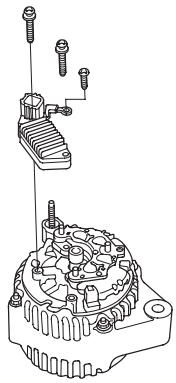
6. Remove the brush holder.



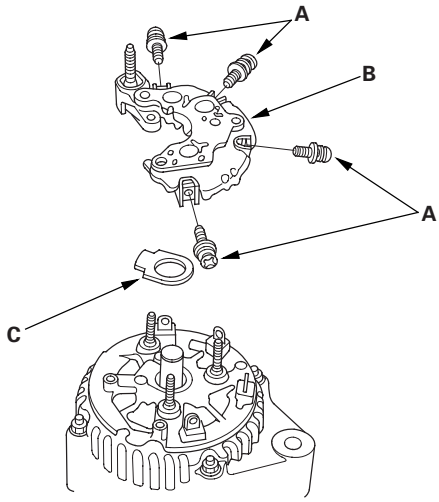
(cont'd)

Alternator Overhaul (cont'd)

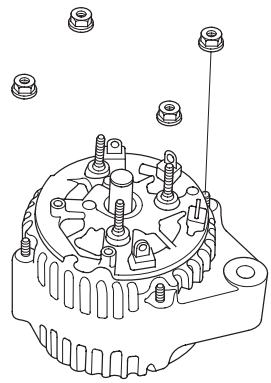
7. Remove the voltage regulator.



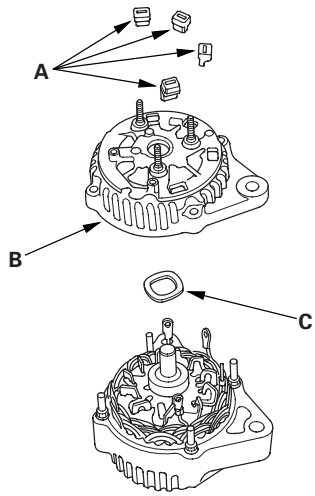
8. Remove the four screws (A), then remove the rectifier (B) and rubber seal (C).



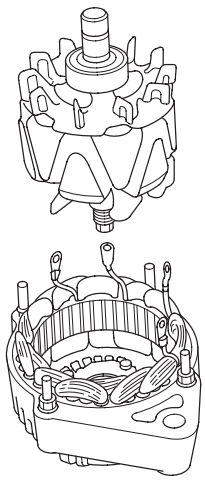
9. Remove the four flange nuts.



10. Remove the four insulators (A), rear housing (B) and washer (C).



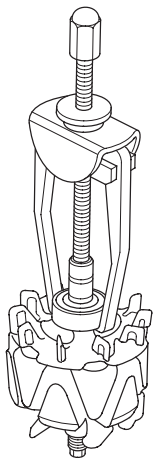
11. If you are not replacing the front bearing and/or rear bearing, go to step 18. Otherwise, remove the rotor from the stator drive end housing.



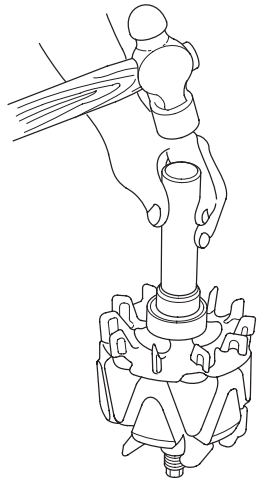
12. Inspect the rotor shaft for galling, and inspect the bearing journal surface in the stator housing for seizure marks.

    - If either the rotor or stator housing is damaged, replace the alternator.
    - If both the rotor and the stator housing are OK, go to step 13.

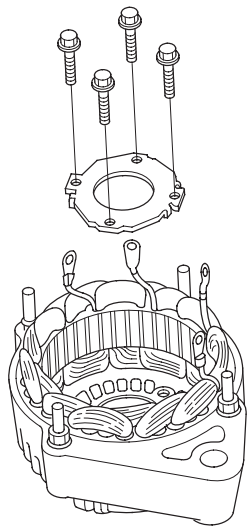
13. Remove the rear bearing using a puller as shown.



14. With a hammer and commercially available tools shown, install a new rear bearing in the rotor shaft.



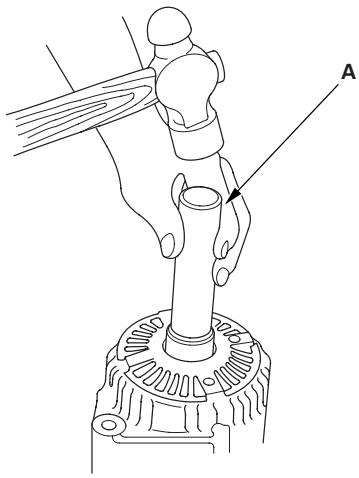
15. Remove the front bearing retainer plate.



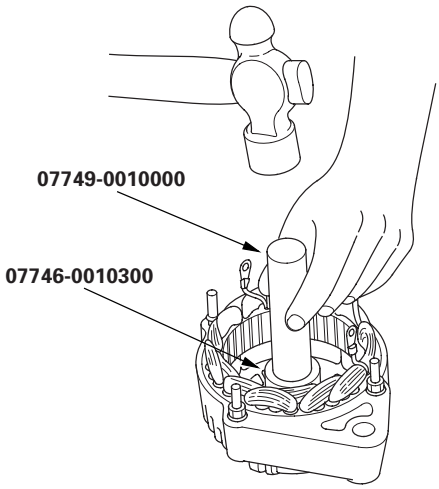
(cont'd)

Alternator Overhaul (cont'd)

16. Support the stator housing in a vise, and drive out the front bearing with a brass drift (A) and hammer.



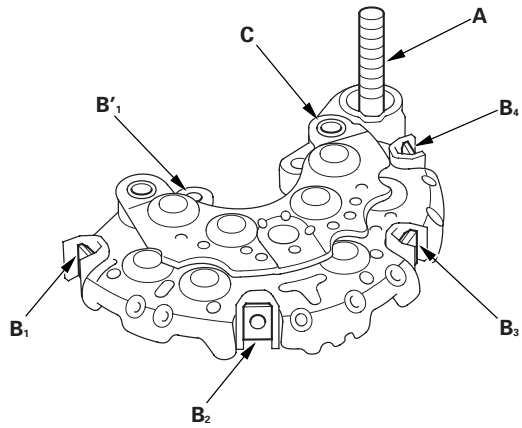
17. With a hammer and the special tools, install a new front bearing in the stator housing.

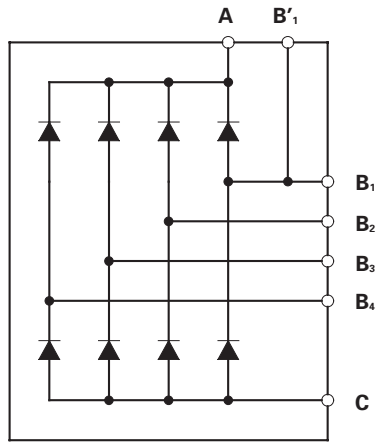


Rectifier Test

18. Check for continuity in each direction, between the B terminal (A) and P terminals (B), and between the E terminal (C) and P terminals (B) of each diode pair. All diodes should have continuity in only one direction. Because the rectifier diodes are designed to allow current to pass in one direction, and the rectifier is made up of eight diodes (four pairs), you must test each diode in both directions for continuity with an ohmmeter that has diode checking capability: a total of 16 checks.

    - If any diode failed, replace the rectifier assembly. (Diodes are not available separately.)
    - If all the diodes are OK, go to step 19.



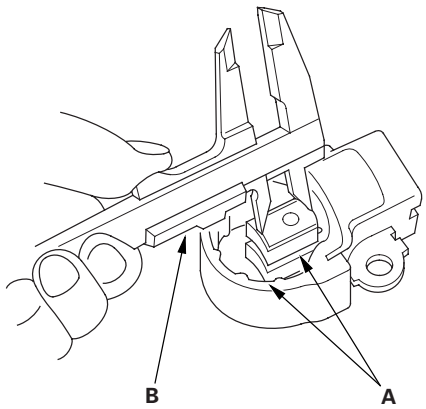


Alternator Brush Inspection

19. Measure the length of both brushes (A) with a vernier caliper (B).

    • If either brush is shorter than the service limit, replace the brush assembly.
    • If the brush length is OK, go to step 20.

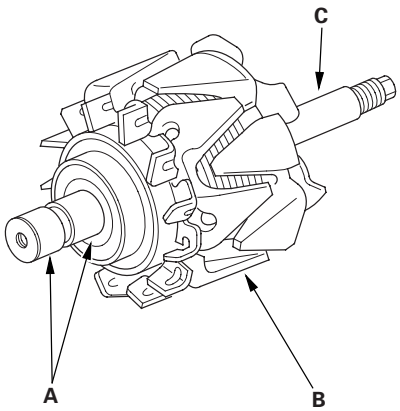
    Alternator Brush Length
    Standard (New): 10.5 mm (0.41 in.)
    Service Limit: 1.5 mm (0.06 in.)



Rotor Slip Ring test

20. Check that there is continuity between the slip rings (A).

    • If there is continuity, go to step 21.
    • If there is no continuity, replace the alternator.



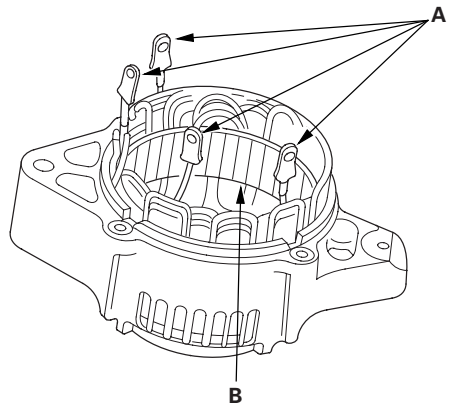
21. Check that there is no continuity between each slip ring (A) and the rotor (B) and the rotor shaft (C).

    • If there is no continuity, go to step 22.
    • If there is continuity, replace the alternator.

Stator Test

22. Check that there is continuity between each pair of leads (A).

    • If there is continuity, go to step 23.
    • If there is no continuity, replace the alternator.



23. Check for no continuity between each lead and the coil core (B).

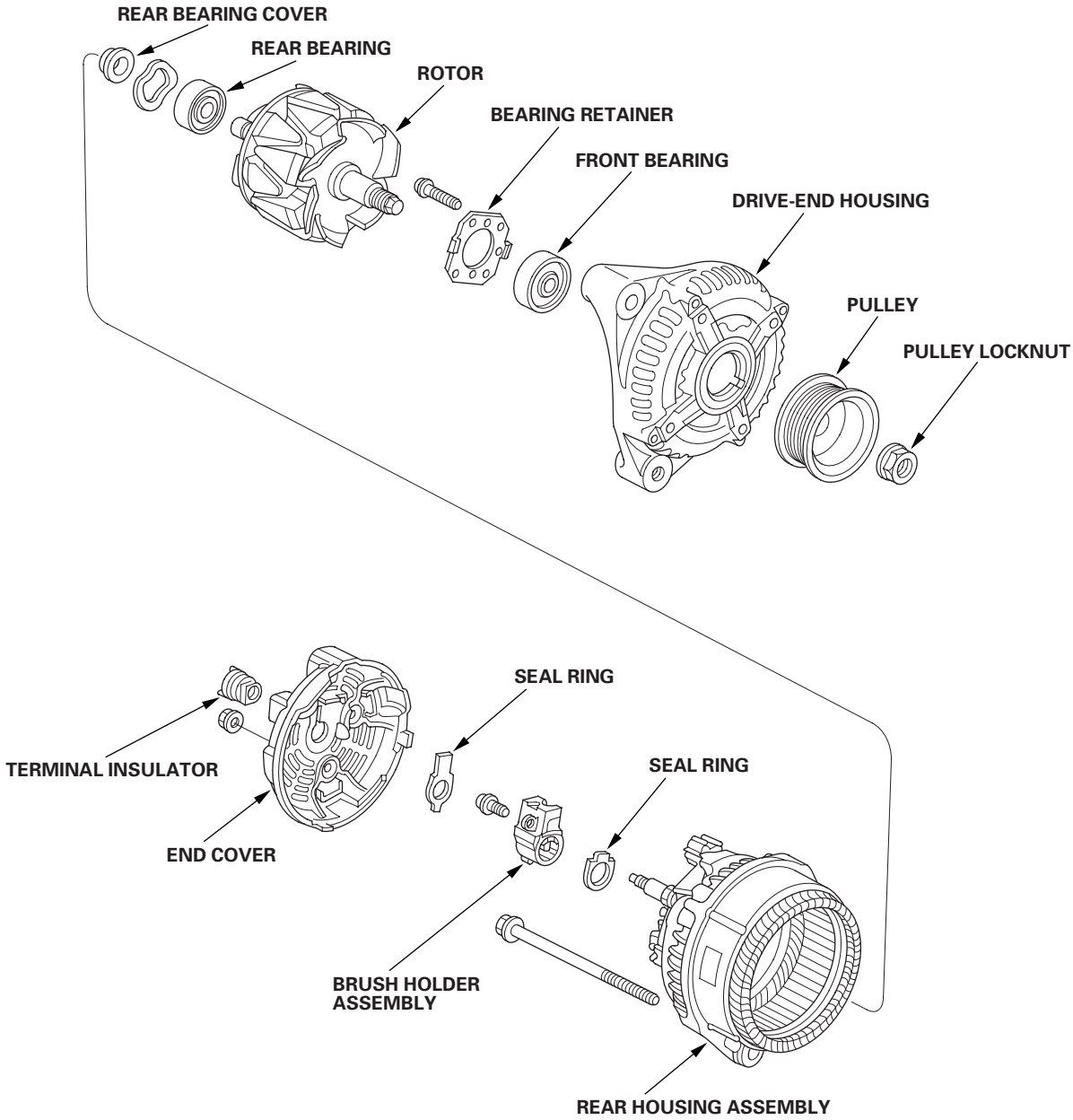
    • If there is no continuity, go to step 24.
    • If there is continuity, replace the alternator.

24. Reassemble the alternator in reverse order of disassembly, and note these items:

    • Be careful not to get any grease or oil on the slip rings.
    • If you removed the pulley, tighten its locknut to 111 N·m (11.3 kgf·m, 81.7 lbf·ft) when you reinstall it.

Alternator Overhaul (cont'd)

Exploded View - 2002-2004 models



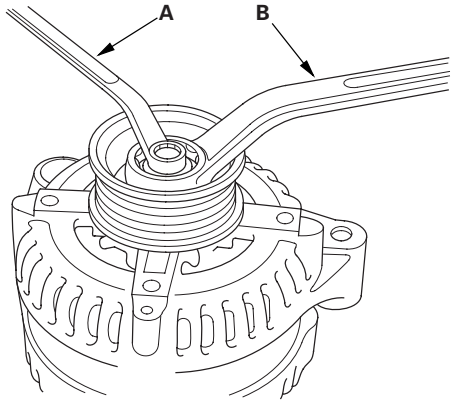
Special Tools Required
- Driver 07749-0010000
- Attachment, 42 x 47 mm 07746-0010300

NOTE: Refer to the Exploded View as needed during this procedure.

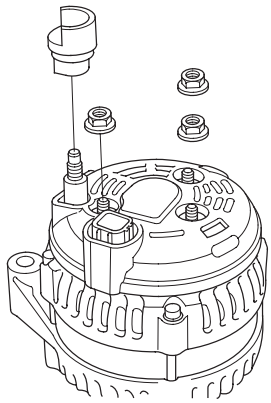
1. Test the alternator and regulator before you remove them (see page 4-22).

2. Remove the alternator (see page 4-27).

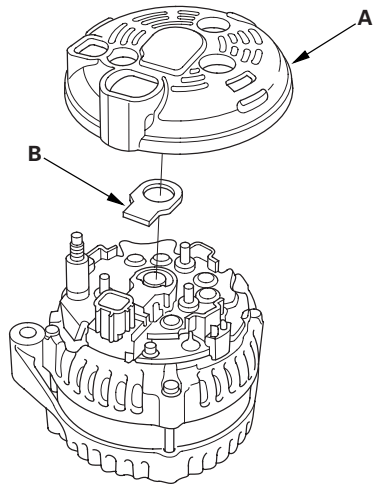
3. If the front bearing needs replacing, remove the pulley locknut with a 10 mm wrench (A) and a 22 mm wrench (B). If necessary, use an impact wrench.



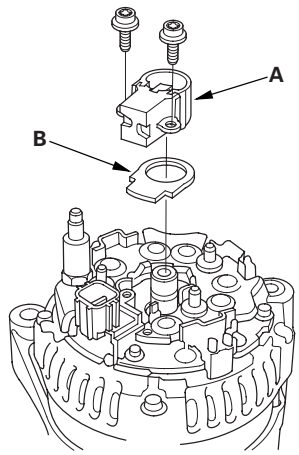
4. Remove the three flange nuts and the insulator from the alternator.



5. Remove the end cover (A) and seal ring (B).



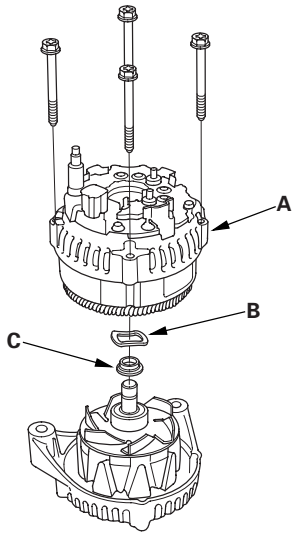
6. Remove the brush holder (A) and seal ring (B).



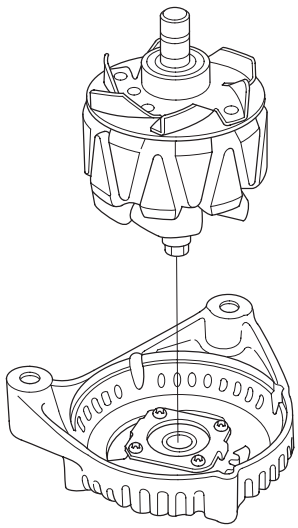
(cont'd)

Alternator Overhaul (cont'd)

7. Remove the four bolts, then remove the rear housing assembly (A), washer (B), and rear bearing cover (C).



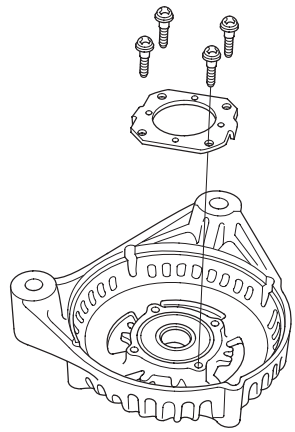
8. If you are not replacing the front bearing and/or rear bearing, go to step 15. Otherwise, remove the rotor from the drive end housing.



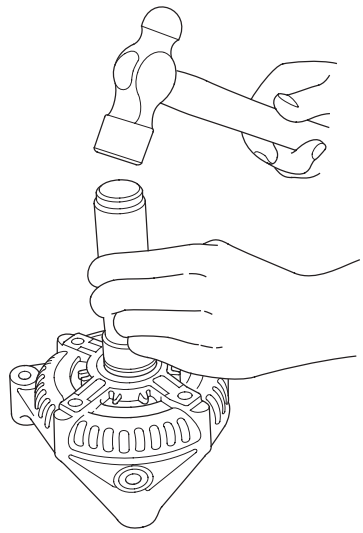
9. Inspect the rotor shaft for galling, and inspect the bearing journal surface in the drive end housing for seizure marks.

   - If the rotor is damaged, replace the rotor assembly.
   - If the rotor is OK, go to step 10.

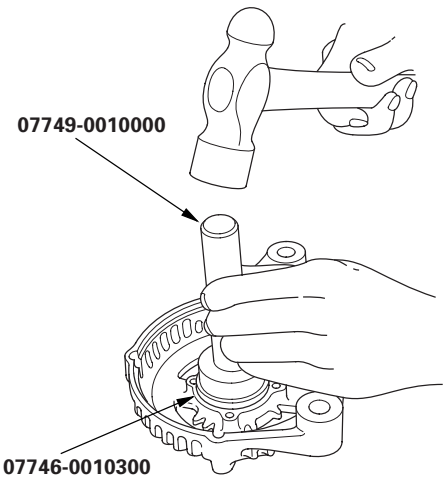
10. Remove the front bearing retainer plate.



11. Drive out the front bearing with a brass drift and hammer.



12. With a hammer and special tools, install a new front bearing in the drive end housing.

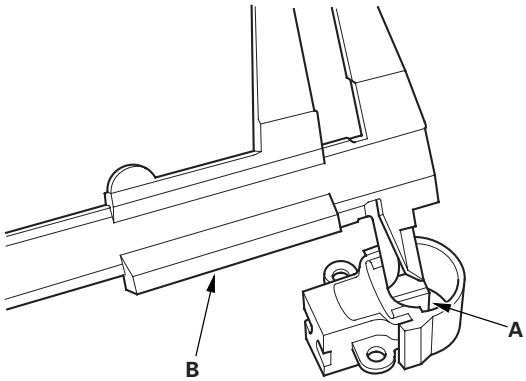


Alternator Brush Inspection

13. Measure the length of both brushes (A) with vernier calipers (B).

    - If either brush is shorter than the service limit, replace the brush holder assembly.
    - If the brush length is OK, go to step 14.

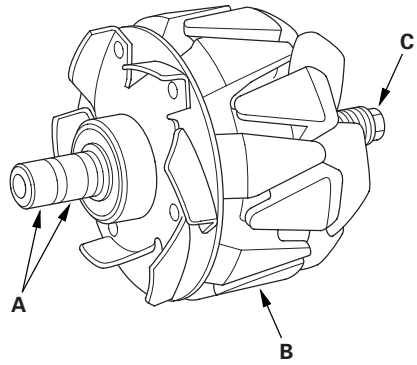
    Alternator Brush Length
    Standard (New): 10.5 mm (0.41 in.)
    Service Limit: 1.5 mm (0.06 in.)



Rotor Slip Ring Test

14. Check that there is continuity between the slip rings (A).

    - If there is continuity, go to step 15.
    - If there is no continuity, replace the rotor assembly.



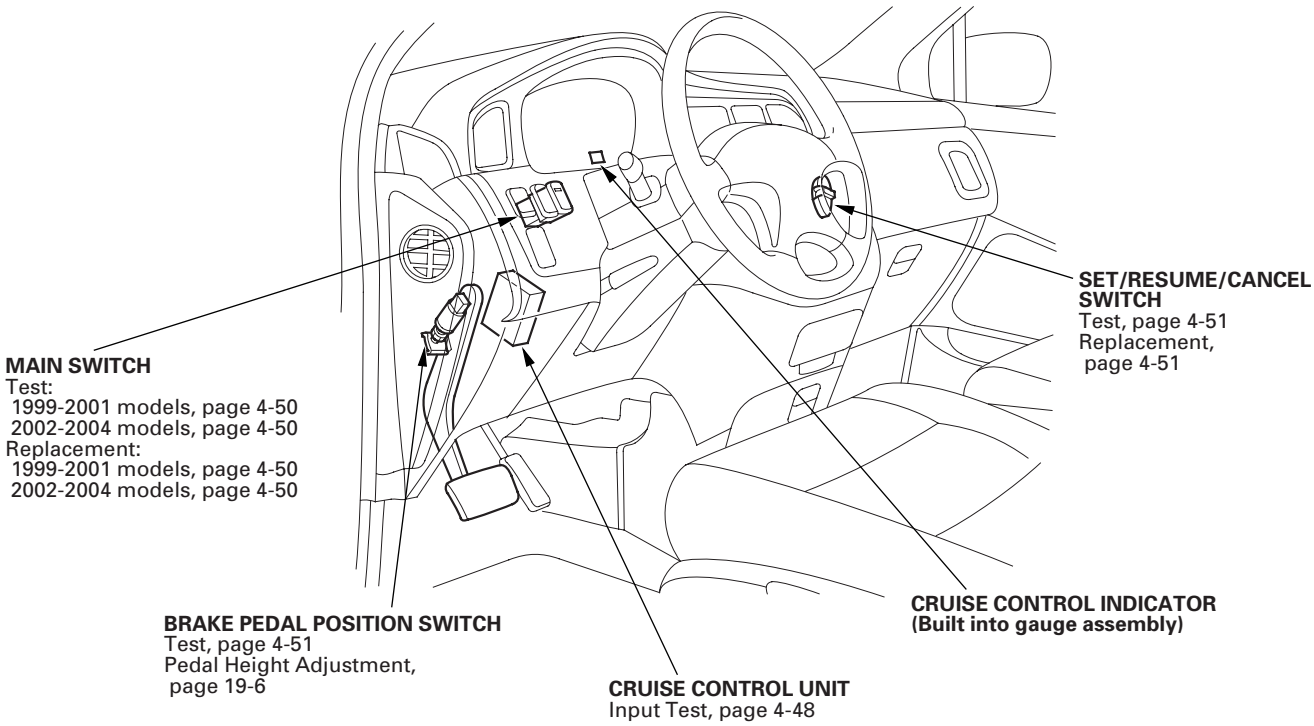
15. Check that there is no continuity between each slip ring and the rotor (B) and the rotor shaft (C).

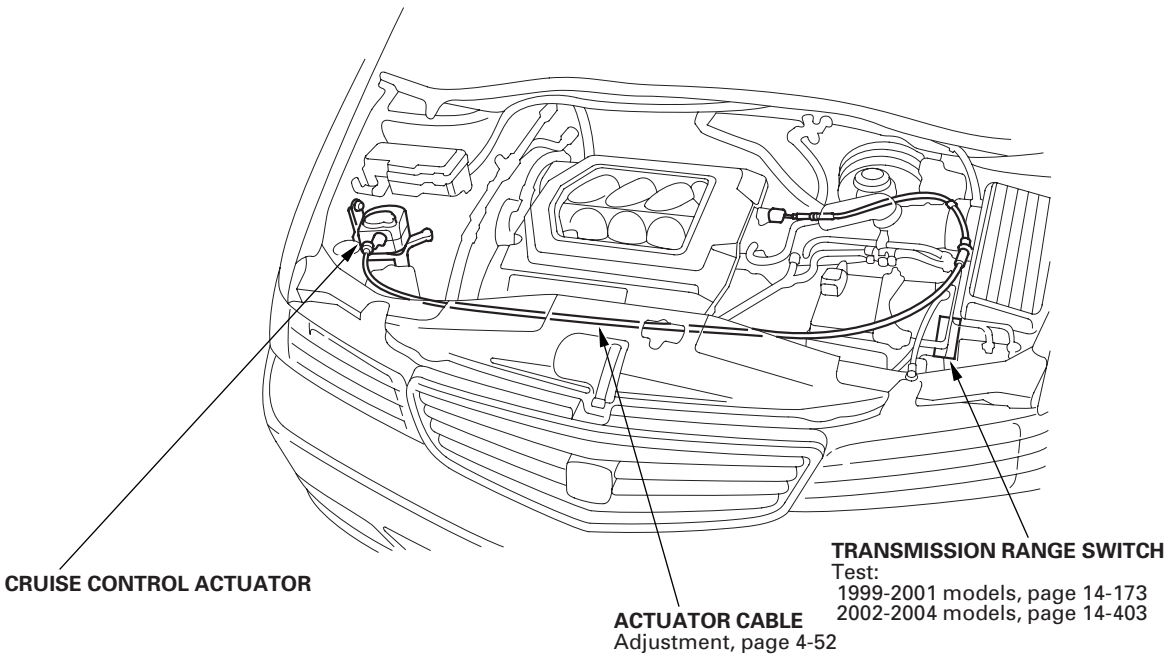
    - If there is no continuity, replace the rear housing assembly, and go to step 16.
    - If there is continuity, replace the rotor assembly.

16. Reassemble the alternator in reverse order of disassembly, and note these items:

    - Be careful not to get any grease or oil on the slip rings.
    - If you removed the pulley, tighten its locknut to 111 N·m (11.3 kgf·m, 81.7 lbf·ft) when you reinstall it.

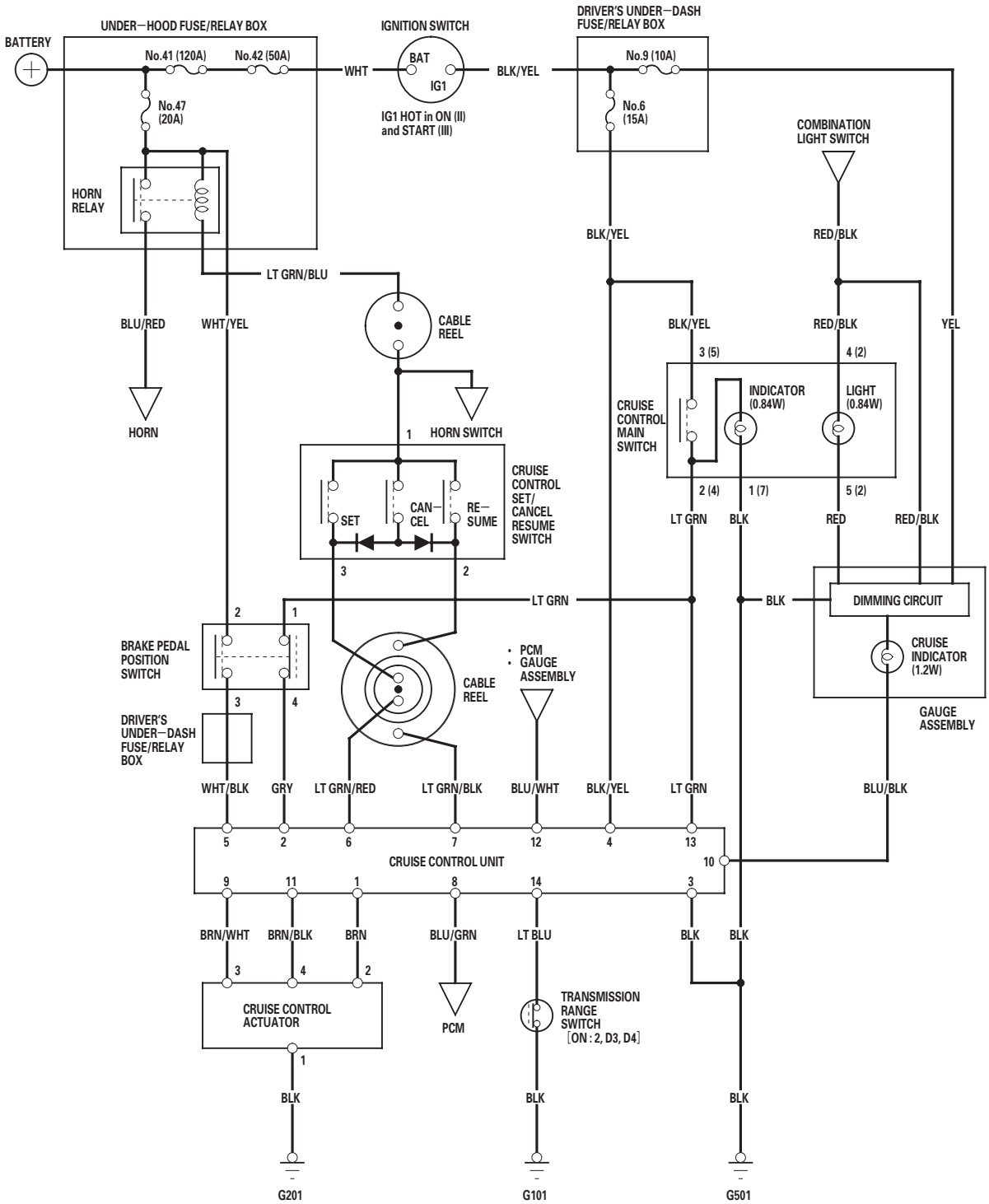
Component Location Index





Circuit Diagram

( ) : 2002—2004models



Symptom Troubleshooting Index

NOTE:
- The numbers in the table show the troubleshooting sequence.
- Before troubleshooting.
  – check that the speedometer works properly.
  – check the No. 9 (10A) and No. 6 (15A) fuses in the driver's under-dash fuse/relay box, and No. 47 (20A) fuse in the under-hood fuse/relay box.
  – check that the horn sounds.

Symptom	Diagnostic procedure	Also check for
Cruise control cannot be set	1. Check main switch • 1999-2001 models (see page 4-50) • 2002-2004 models (see page 4-50) 2. Check SET/RESUME/CANCEL switch (see page 4-51) 3. Check brake pedal position switch and mounting (see page 4-51) 4. Check transmission range switch: • 1999-2001 models (see page 14-173) • 2002-2004 models (see page 14-403) 5. Check cruise control unit inputs (see page 4-48) 6. Check cruise control actuator	• Poor ground: G101, G501 • Open circuit, loose or disconnected terminals: BLK/YEL LT GRN, LT GRN/RED, GRY, LT BLU, BLU/WHT, BLK, Cable reel
Cruise control can be set, but cruise control indicator does not come on	1. Blown cruise control indicator bulb 2. Check dimming circuit in gauge (see page 22-96) 3. Check cruise control unit inputs (see page 4-48)	• Poor ground: G501 • Open circuit, loose or disconnected terminals: YEL, BLU/BLK
Cruise speed is noticeably higher or lower than what was set	Check cruise control unit inputs (see page 4-48)	
Excessive overshooting or undershooting when trying to set speed	1. Check cruise control unit inputs (see page 4-48) 2. Check cable for free operation	
Speed fluctuates on a flat road with cruise control set	Check cruise control unit inputs (see page 4-48)	
Vehicle does not decelerate or accelerate accordingly when SET/RESUME/CANCEL button is pressed	1. Check SET/RESUME/CANCEL switch (see page 4-51) 2. Check cruise control unit inputs (see page 4-48) 3. Check cable for free operation 4. Check cruise control actuator	Open circuit, loose or disconnected terminals: LT GRN/RED, LT GRN/BLK
Set speed does not cancel (engine rpm stays high) when shift lever is moved to neutral position	1. Check transmission range switch: • 1999-2001 models (see page 14-173) • 2002-2004 models (see page 14-403) 2. Check cruise control unit inputs (see page 4-48)	Open circuit, loose or disconnected terminals, short to ground: LT BLU
Set speed does not cancel when brake pedal is pressed	1. Check brake pedal position switch and mounting (see page 4-51) 2. Check cruise control unit inputs (see page 4-48)	Open circuit, loose or disconnected terminals: WHT/BLK

Symptom	Diagnostic procedure	Also check for
Set speed does not cancel when main switch is pushed OFF	1. Check main switch • 1999-2001 models (see page 4-50) • 2002-2004 models (see page 4-50) 2. Check cruise control unit inputs (see page 4-48)	Short to power: LT GRN
Set speed does not cancel when CANCEL button is pressed	1. Check SET/RESUME/CANCEL switch (see page 4-51) 2. Check cruise control unit inputs (see page 4-48) 3. Check cable for free operation 4. Check cruise control actuator	Open circuit, loose or disconnected terminals: LT GRN/RED, LT GRN/BLK
Set speed will not resume when RESUME button is pressed (with main switch on, set speed is temporarily cancelled by pressing the brake pedal)	1. Check SET/RESUME/CANCEL switch (see page 4-51) 2. Check cruise control unit inputs (see page 4-48)	Open circuit, loose or disconnected terminals: LT GRN/BLK
The transmission shifts down slower than normal when going up a hill with the cruise control on	Troubleshoot the cruise control communication circuit (see page 4-46)	Open circuit, loose or disconnected terminals: BLU/GRN

Cruise Control Communication Circuit Troubleshooting

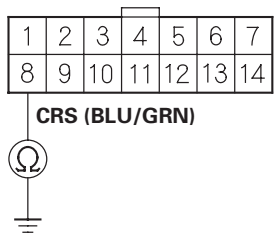
1. Start the engine.
2. Turn on the cruise control main switch, then drive the vehicle to speeds over 25 mph (40 km/h) with the cruise control.

   Does the cruise control operate?

   YES—Go to step 3.

   NO—Check the cruise control unit or cruise control actuator. ■
3. Turn the ignition switch OFF.
4. Disconnect cruise control unit 14P connector and powertrain control module (PCM) connector A (32P) (1999-2000, 2002-2004 models) or PCM connector E (31P) (2001 model).
5. Check for continuity between the No. 8 terminal of the cruise control unit 14P connector and body ground.

CRUISE CONTROL UNIT 14P CONNECTOR



Wire side of female terminals

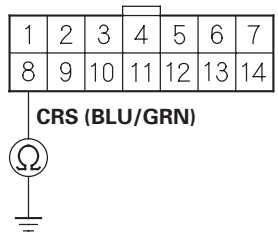
Is there continuity?

YES—Repair a short in the wire between the PCM connector terminal A5 (1999-2000, 2002-2004 models) or E17 (2001 model) and cruise control unit 14P connector terminal No. 8. ■

NO—Go to step 6.

6. Reconnect the cruise control unit 14P connector and PCM connector A (32P) (1999-2000, 2002-2004 models) or PCM connector E (31P) (2001 model).
7. Turn the ignition switch ON (II).
8. Connect a voltmeter between the No. 8 terminal of the cruise control unit 14P connector and body ground. Drive the vehicle at speeds over 25 mph (40 km/h) with the cruise control set, and watch the voltmeter.

CRUISE CONTROL UNIT 14P CONNECTOR



Wire side of female terminals

Is there about 1 V?

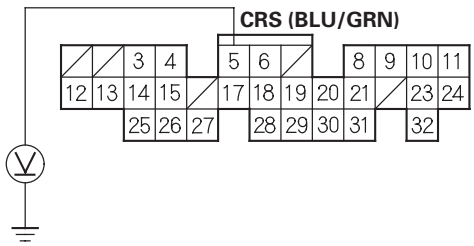
YES—Go to step 9.

NO—Replace the cruise control unit. ■

9. Connect a voltmeter between PCM connector terminal A5 (1999-2000, 2002-2004 models) or E17 (2001 model) and body ground. Drive the vehicle at speeds over 25 mph (40 km/h) with the cruise control set, and watch the voltmeter.

1999-2000 models:

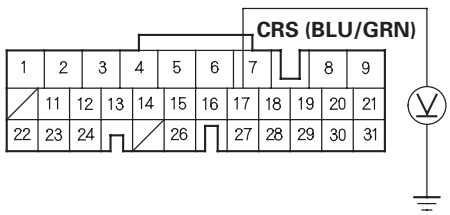
PCM CONNECTOR A (32P)



Wire side of female terminals

2001 model:

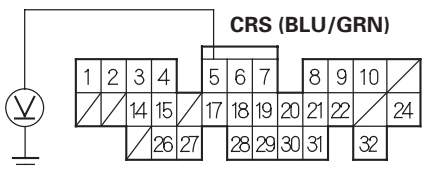
PCM CONNECTOR E (31P)



Wire side of female terminals

2002-2004 models:

PCM CONNECTOR A (32P)



Wire side of female terminals

Is there about 1 V?

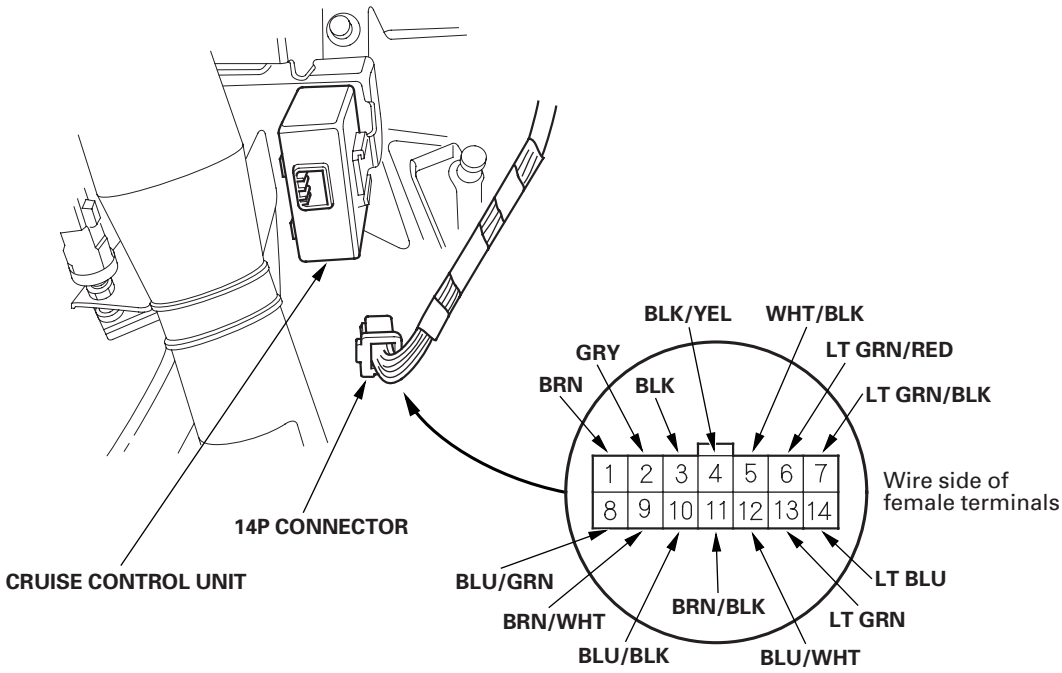
YES—Check for loose connection of the BLU/GRN wire between the cruise control unit and the PCM. If necessary replace the PCM and recheck (see page 11-4).■

NO—Repair an open in the wire between the PCM connector terminal A5 (1999-2000, 2002-2004 models) or E17 (2001 model) and the cruise control unit 14P connector terminal No. 8.■

Cruise Control Unit Input Test

SRS components are located in this area. Review the SRS component locations, 1999-2001 models (see page 23-18), 2002 model (see page 23-19), 2003-2004 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the driver's dashboard lower cover (see page 20-69).
2. Disconnect the 14P connector from the cruise control unit.
3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.



4. With the 14P connector disconnected, make these input tests.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
1	BRN	Connect battery power	Check the operation of the magnetic clutch: Clutch should click and output link should be locked.	• Faulty actuator • Poor ground (G201) • An open in the wire • Short to ground
9	BRN/ WHT	Connect battery power to the BRN/WHT terminal and ground to the BRN/BLK terminal	Check the operation of the actuator motor: You should be able to hear the motor	• Faulty actuator • An open in the wire
11	BRN/ BLK			

5. Reconnect the 14P connector, and make these input test:

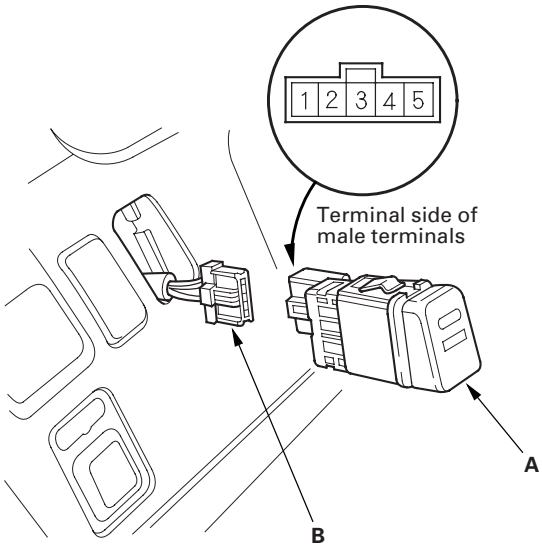
Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
4	BLK/YEL	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 6 (15A) fuse in the under-dash driver's fuse/relay box • An open in the wire
13	LT GRN	Ignition switch ON (II) and main switch ON	Check for voltage to ground: There should be battery voltage.	• Blown No. 6 (15A) fuse in the under-dash driver's fuse/relay box • Faulty main switch • An open in the wire
3	BLK	Ignition switch ON (II) and main switch ON	Check for voltage to ground: There should be continuity less than 1 V.	• Poor ground (G501) • An open in the wire
2	GRY	Ignition switch ON (II), main switch ON and brake pedal depressed, then released	Check for voltage to ground: There should be 0 V with the pedal pressed and battery voltage with the pedal released.	• Misadjusted brake pedal position switch • Faulty brake pedal position switch • An open in the wire • Open in cruise control main switch • Blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box
5	WHT/BLK	Brake pedal pressed, then released	Check for voltage to ground: There should be battery voltage with the pedal pressed, and 0 V with the pedal released.	• Blown No. 47 (20A) fuse in the under-hood fuse/relay box • Misadjusted brake pedal position switch • Faulty brake pedal position switch • An open in the wire
6	LT GRN/RED	Set button pressed	Check for voltage to ground: There should be battery voltage. When testing terminal No. 6, there should be no voltage on terminal No. 7.	• Blown No. 47 (20A) fuse in the under-hood fuse/relay box • Faulty horn relay • Faulty set/resume/cancel switch • Faulty cable reel • An open in the wire
7	LT GRN/BLK	Resume button pressed	Check for voltage to ground: There should be battery voltage. When testing terminal No. 7, there should be no voltage on terminal No. 6.	
8	BLU/GRN	Reconnect the cruise control unit 14P connector, start the engine, main switch ON and drive the vehicle to speeds over 25 mph (40 km/h) with the cruise control set	Check for voltage to ground: There should be about 1 V.	• Loose connection at the PCM • Faulty cruise control unit • Short to ground • An open in the wire • Faulty PCM
10	BLU/BLK	Ignition switch ON (II)	Attach to ground: Cruise indicator light in the gauge assembly should come on.	• Blown bulb • Blown No. 9 (10A) fuse in the under-dash driver's fuse/relay box • Faulty dimming circuit in the gauge assembly • An open in the wire
12	BLU/WHT	Ignition switch ON (II) and main switch ON; raise the front of the vehicle, and rotate one wheel slowly while holding the other wheel	Check for voltage between the BLU/WHT (+) and BLK (−) terminals: There should be 0−5 V or more, or 0−5 V or more repeatedly.	• An open in the wire • Short to ground • Faulty PCM
14	LT BLU	Shift lever in 2, D3 or D4	Check for voltage to ground: There should be less than 1 V.	• Faulty transmission range switch • Poor ground (G101) • An open in the wire

6. If any test indicates a problem, find and correct the cause, then recheck the system. If all the input tests prove OK, the cruise control unit may be faulty. Substitute a known-good cruise control unit and retest. If the system works properly, replace the cruise control unit.

Cruise Control Main Switch Test/Replacement

1999-2001 models

1. Carefully pry the switch (A) out of the instrument panel.

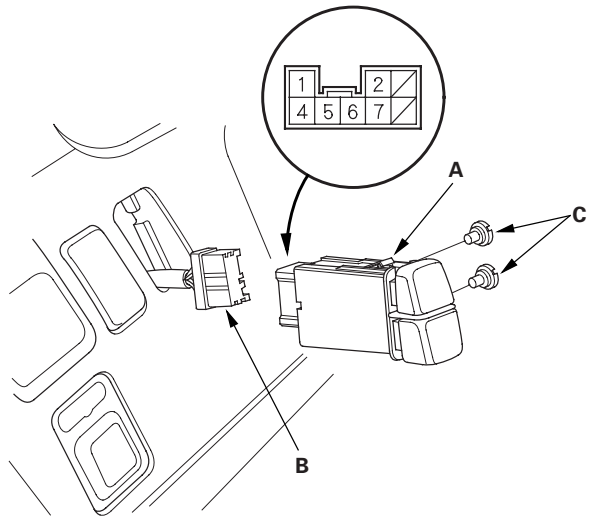


2. Disconnect the 5P connector (B) from the switch.
3. Check for continuity between the terminals in each switch position according to the table.
   - If the continuity is not specified, replace the illumination bulbs or the switch.
   - If OK, install the switch

Position \ Terminal	1		2	3	4		5
OFF	○	⌀	○		○	⌀	○
ON	○	⌀	○	○	○	⌀	○

2002-2004 models

1. Carefully pry the switch (A) out of the instrument panel.

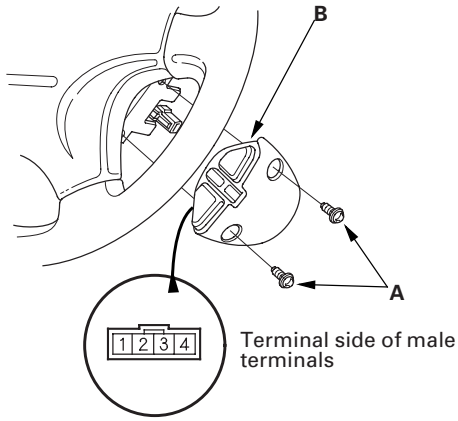


2. Disconnect the 8P connector (B) from the switch.
3. Check for continuity between the terminals in each switch position according to the table. If there is no continuity, replace the illumination bulbs (C) or the switch.

Position \ Terminal	4		7	5	1		2
OFF	○	⌀	○		○	⌀	○
ON	○	⌀	○	○	○	⌀	○

Cruise Control Set/Resume/Cancel Switch Test/Replacement

1. Remove the two screws (A), then remove the switch (B).



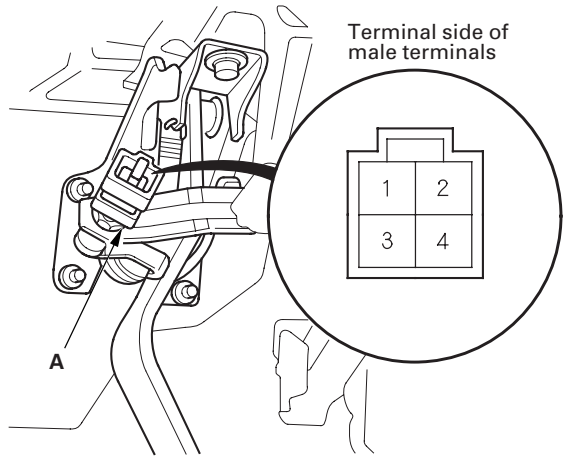
2. Check for continuity between the terminals in switch position according to the table.

   - If there is continuity, and it matches the table, but switch failure was indicated by the cruise control unit input test, check and repair the wire harness on the switch circuit.
   - If there is no continuity in one or both positions, replace the switch.

Terminal / Position	1		2	3
SET (ON)	○			○
RESUME (OFF)	○		○	
CANCEL (ON)	○			○
			○	

Brake Pedal Position Switch Test

1. Disconnect the 4P connector from the switch (A).



2. Remove the brake pedal position switch.

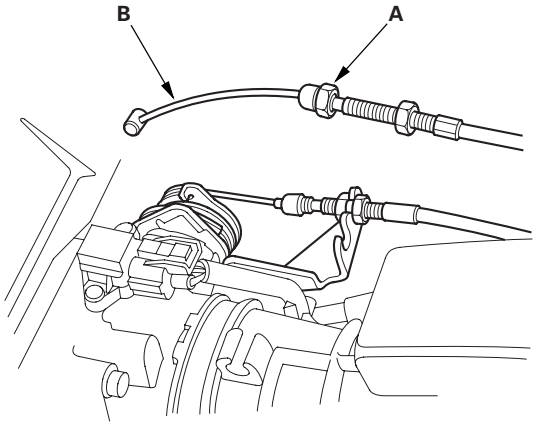
3. Check for continuity between the terminals according to the table.

   - If the continuity is not as specified, adjust or replace the switch or adjust the pedal height (see page 19-6).

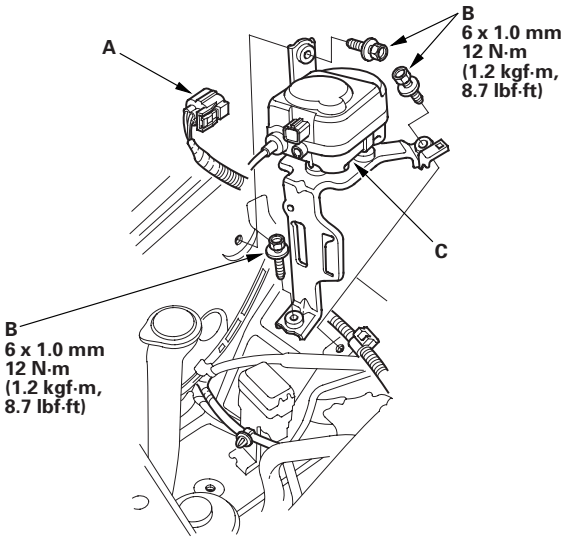
Terminal / Brake Switch	1	2	3	4
PRESSED		○	○	
RELEASED	○			○

Cruise Control Actuator/Cable Replacement

1. Loosen the locknut (A), then disconnect the actuator cable (B) from the throttle linkage.



2. Disconnect the 4P connector (A) from the cruise control actuator.

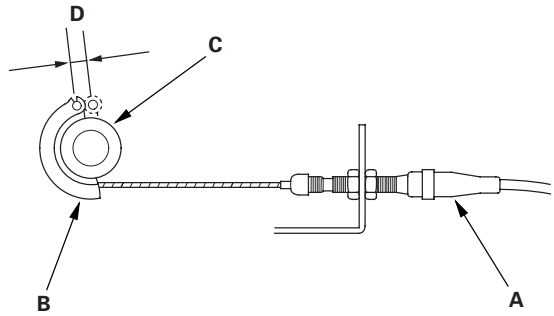


3. Remove the three mounting bolts (B), and remove the cruise control actuator assembly (C).

4. Install actuator/cable in the reverse order of removal, and adjust the free play at the throttle linkage (see page 4-52) after connecting the actuator cable.

Cruise Control Actuator Cable Adjustment

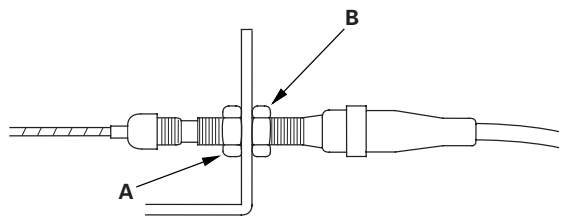
1. Check that the actuator cable (A) moves smoothly with no binding or sticking.



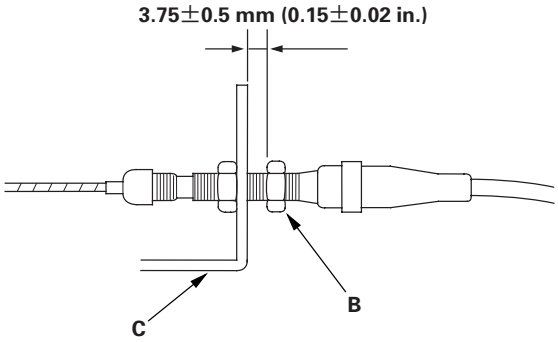
2. Start the engine, and turn the main switch ON. Hold the engine at 3,000 rpm with no load in Park or Neutral until the radiator fan comes on, then let it idle.

3. Measure the amount of movement of the output linkage (B) until the engine speed starts to increase. At first, the output linkage should be located at the fully closed position (C). The free play (D) should be 3.75±0.5 mm (0.15±0.02 in.).

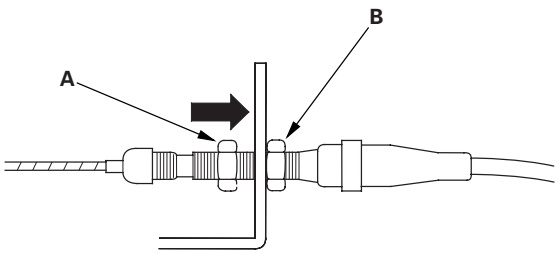
4. If the free play is not within specification, move the cable to the point where the engine speed starts to increase, and tighten the locknut (A) and adjusting nut (B).



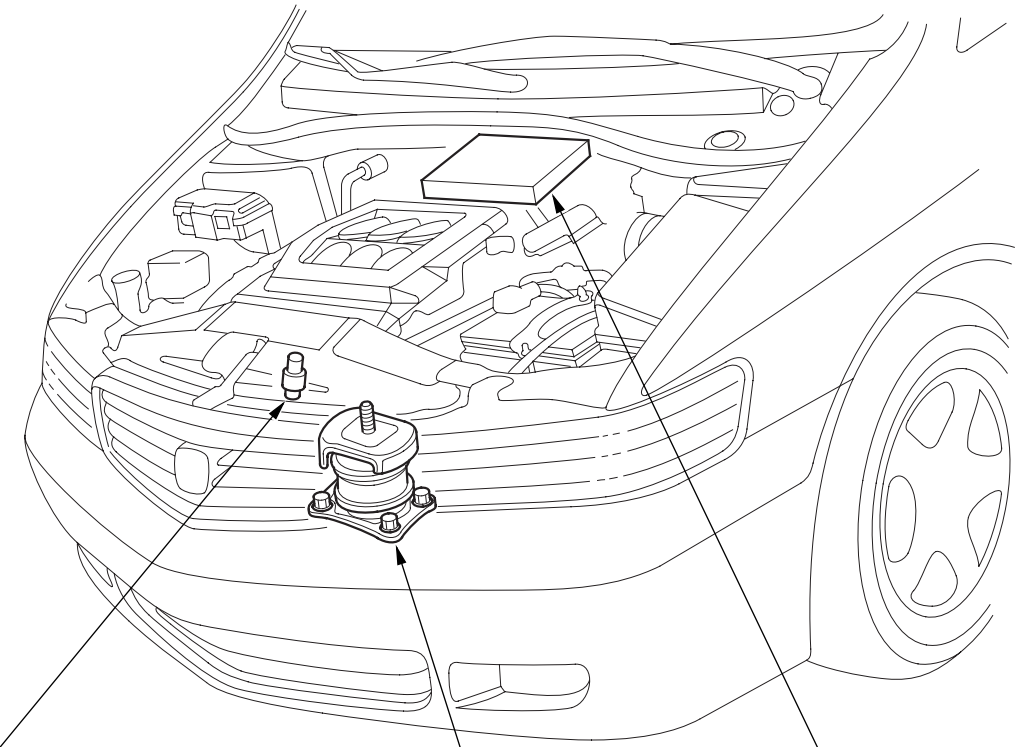
5. Turn the adjusting nut (B) until it is 3.75±0.5 mm (0.15±0.02 in.) away from the bracket (C).



6. Pull the cable so that the adjusting nut (B) touches the bracket, and tighten the locknut (A).



Component Location Index

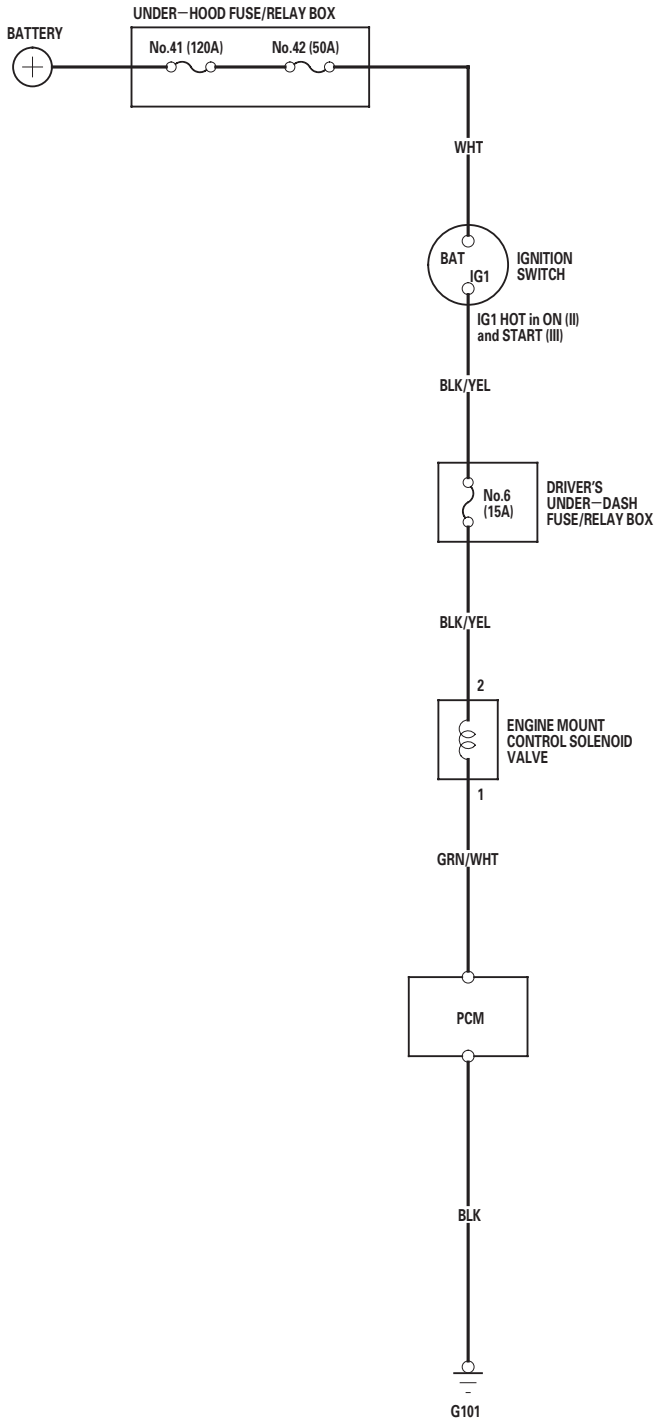


ENGINE MOUNT CONTROL SOLENOID VALVE
Troubleshooting, page 4-56

POWERTRAIN CONTROL MODULE (PCM)

FRONT MOUNT

Circuit Diagram



Troubleshooting

Special Tools Required
Vacuum pump/gauge, 0—30 in.Hg
A973X-041-XXXXX

NOTE:
- Check the vacuum hoses and lines for damage and proper connections before troubleshooting.
- Before performing engine mount control system troubleshooting, check for damage to the suspension, subframe, body, or exhaust.

Follow this procedure if the engine vibrates excessively when idling.

1. Warm up the engine to normal operating temperature (the cooling fan comes on two times).

   Is the idle speed less than 730 rpm?

   YES—Go to step 2.

   NO—Adjust the idle speed (see page 11-201). ■

2. Fully press the brake pedal.

3. With the transmission in gear, have an assistant disconnect and reconnect the 2P connector at the engine mount control solenoid valve.

   Is there a noticeable change in idle smoothness when the engine mount control solenoid valve 2P connector is disconnected?

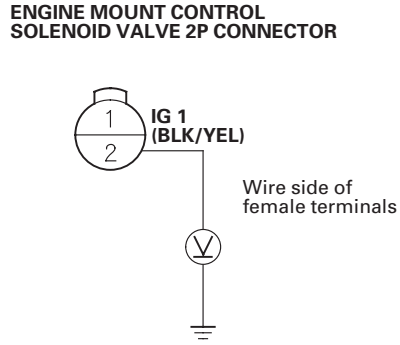
   YES—Reconnect the engine mount control solenoid valve 2P connector to the solenoid valve. The engine mount control system is OK. ■

   NO—Go to step 4.

4. Shift the transmission to P or N.

5. Disconnect the engine mount control solenoid valve 2P connector from the engine mount control solenoid valve.

6. Measure voltage between the No. 2 terminal and body ground.

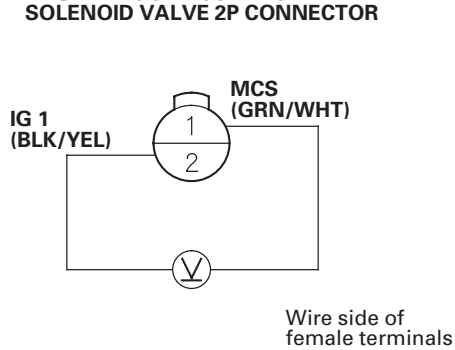


   Is there battery voltage?

   YES—Go to step 7.

   NO—Repair an open in the wire between the engine mount control solenoid valve connector and No. 6 (15A) fuse in the under-dash driver's fuse/relay box. ■

7. Measure voltage between the engine mount control solenoid valve 2P connector No. 1 terminal and No. 2 terminal.



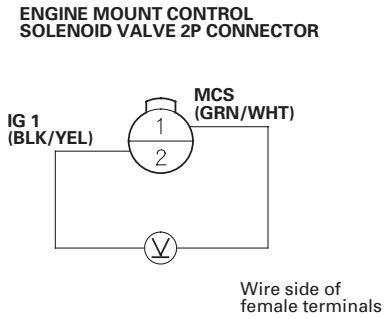
   Is there battery voltage?

   YES—Go to step 8.

   NO—Repair an open in the wire between powertain control module (PCM) connector terminal A2 (1999-2000, 2002-2004 models) or E24 (2001 model) and the engine mount control solenoid valve connector. If the wire is OK, substitute a known-good PCM and recheck (see page 11-5). ■

8. Raise the engine speed above 1,000 rpm.

9. Measure voltage between the engine mount control solenoid valve 2P connector No. 1 terminal and No. 2 terminal.



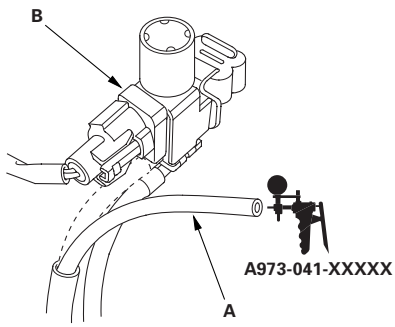
Is there battery voltage?

YES—Repair a short to body ground in the wire between PCM connector terminal A2 (1999-2000, 2002-2004 models) or E24 (2001 model) and the engine mount control solenoid valve connector. If the wire is OK, substitute a known-good PCM and recheck (see page 11-5). ■

NO—Go to step 10.

10. Connect the engine mount control solenoid valve 2P connector.

11. Disconnect the upper vacuum hose (A) from the engine mount control solenoid valve (B), and connect a vacuum pump/gauge to the hose. Apply vacuum for 20 seconds.



Does the engine mount hold vacuum?

YES—Go to step 12.

NO—Either the vacuum hose or front engine mount has a vacuum leak. Repair as needed. ■

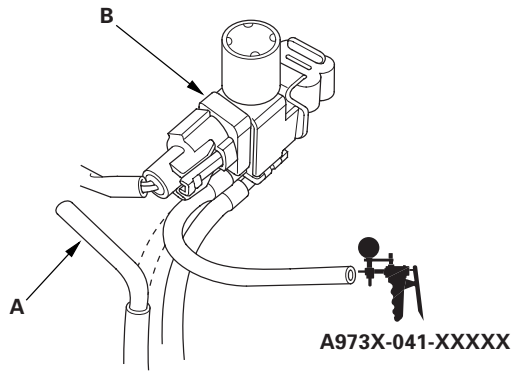
12. Release the vacuum, then apply vacuum again.

Is there a noticeable change in idle smoothness with and without vacuum applied ?

YES—Go to step 13.

NO—Replace the front engine mount. ■

13. Disconnect the upper vacuum hose (A) from the engine mount control solenoid valve (B) and connect a vacuum pump/gauge to a hose connected to the engine mount control valve.



Is there manifold vacuum at idle, and a decrease in manifold vacuum when you raise the engine speed above 1,000 rpm?

YES—Replace the engine mount control solenoid valve. ■

NO—A hose is restricted or the intake manifold part is plugged.

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Engine Mechanical

Engine Assembly
Engine Removal 5-2
Engine Installation 5-12

Cylinder Head 6-1

Engine Block 7-1

Engine Lubrication 8-1

Intake Manifold and Exhaust System 9-1

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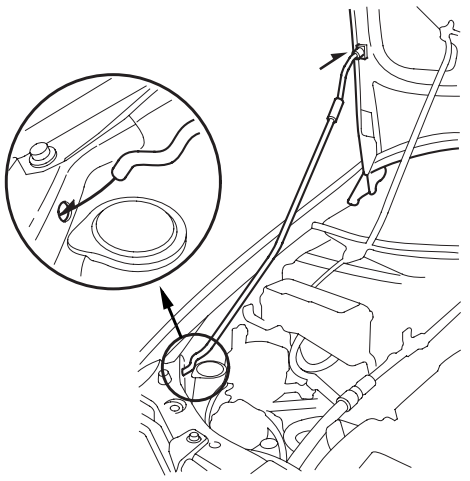
Engine Assembly

Engine Removal

NOTE:
- Use fender covers to avoid damaging painted surfaces.
- To avoid damage, unplug the wiring connectors carefully while holding the connector portion.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.

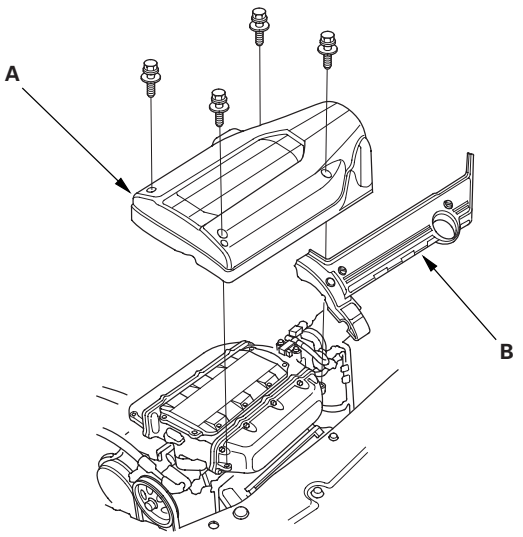
1. Fix the engine hood in a vertical position by using a support rod as shown.



2. Make sure you have the anti-theft code for the radio and the navigation system, then write down the frequencies for the radio's preset buttons.

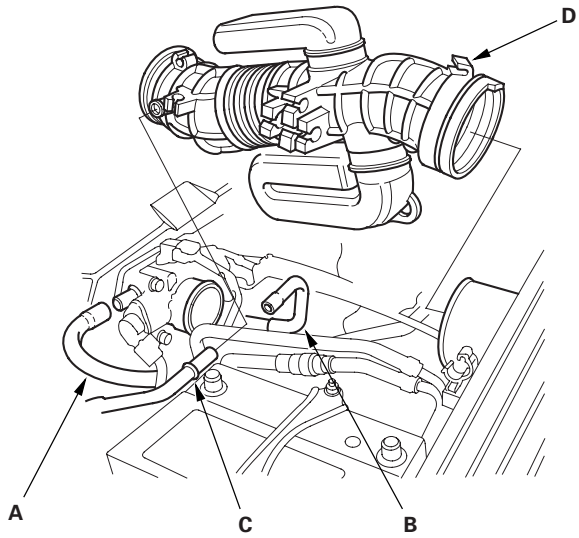
3. Disconnect the negative cable from the battery first, then disconnect the positive cable.

4. Remove the intake manifold cover (A) and ignition coil cover (B) (2002-2004 models).

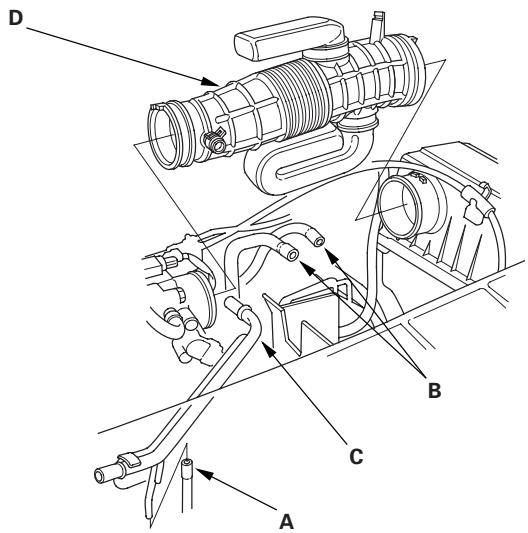


5. Remove the evaporative emission (EVAP) canister hose (A) (1999-2001 models) or vacuum hose (A) (2002-2004 models).

1999-2001 models:



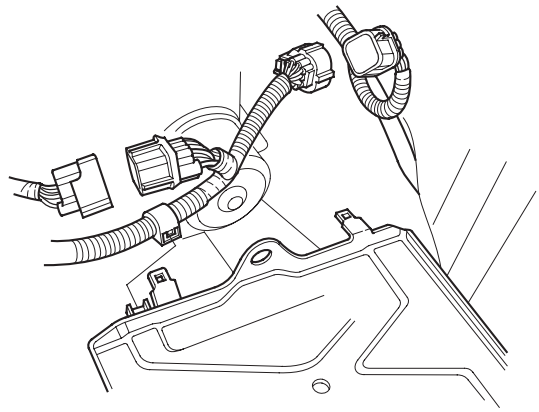
2002-2004 models:



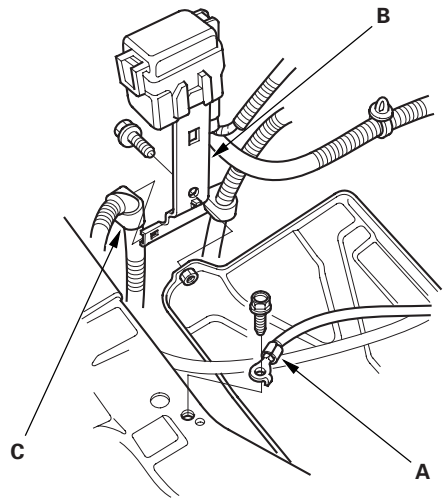
6. Remove the vacuum hose(s) (B) and breather pipe (C), then remove the intake air duct (D).

7. Remove the battery.

8. Disconnect the engine wire harness connectors on the left side of the engine compartment.



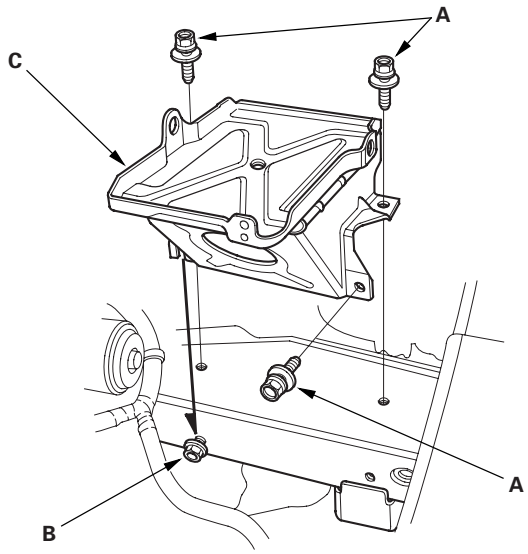
9. Remove the ground cable (A), relay bracket (B) and harness clamp (C).



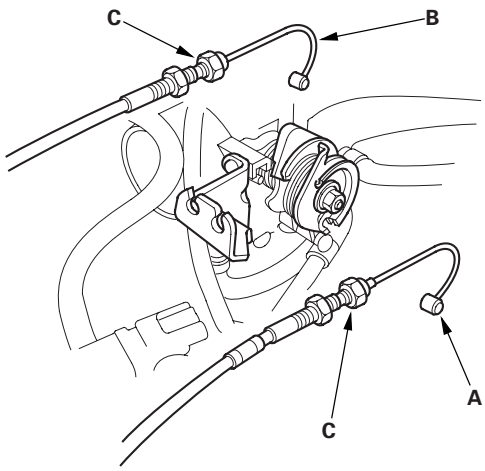
(cont'd)

Engine Removal (cont'd)

10. Remove the three mounting bolts (A) and loosen the mounting bolt (B), then remove the battery base (C).



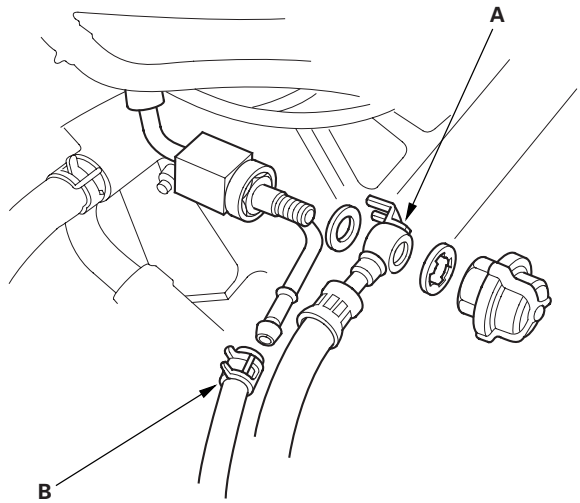
11. Remove the throttle cable (A) and cruise control actuator cable (B) by loosening the locknuts (C), then slip the cable ends out of the accelerator linkage. Take care not to bend the cables when removing them. Always replace any kinked cable with a new one.



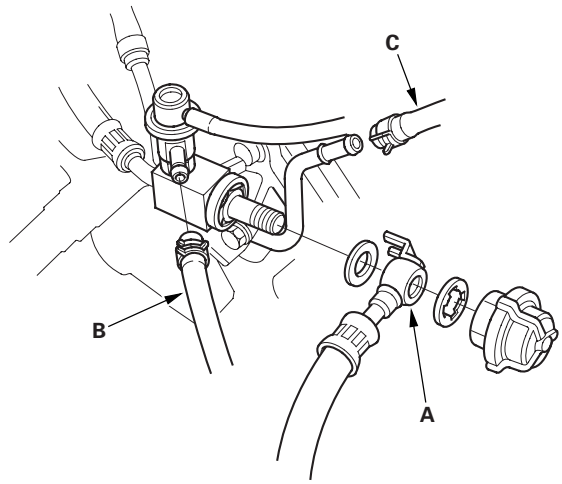
12. Relieve fuel pressure (see page 11-215).

13. Remove the fuel feed hose (A) and fuel return hose (B).

1999-2001 models:



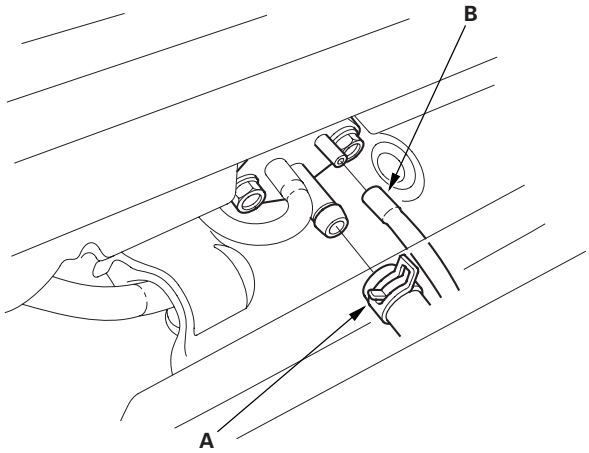
2002-2004 models:



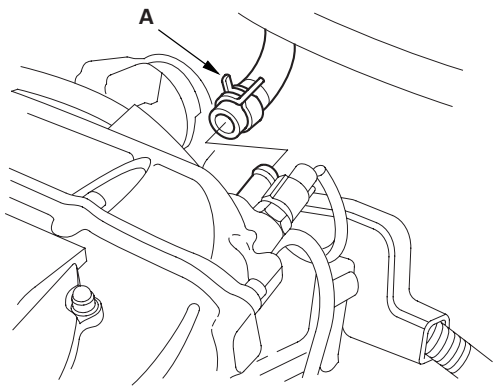
14. Remove the EVAP canister hose (C) (2002-2004 models).

15. Remove the brake booster vacuum hose (A).

1999-2001 models:

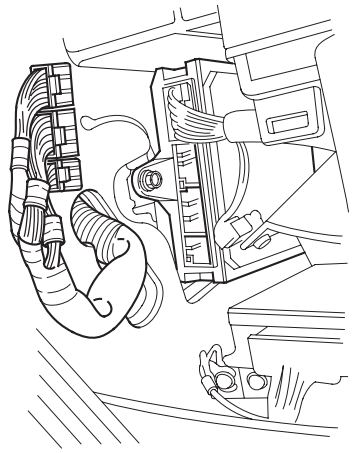


2002-2004 models:

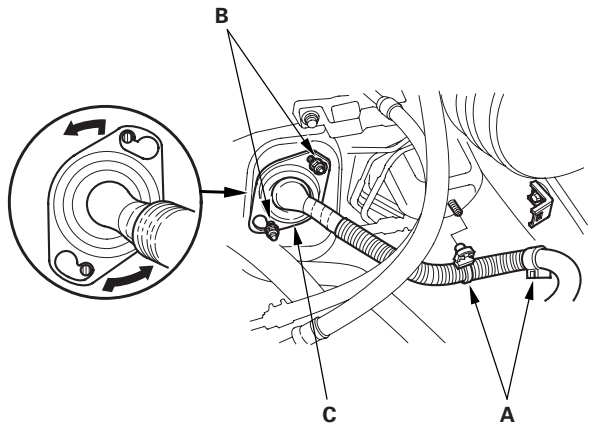


16. Remove the vacuum hose (B) (1999-2001 models).

17. Disconnect the powertrain control module (PCM) connectors from the PCM.



18. Remove the engine wire harness clamps (A).

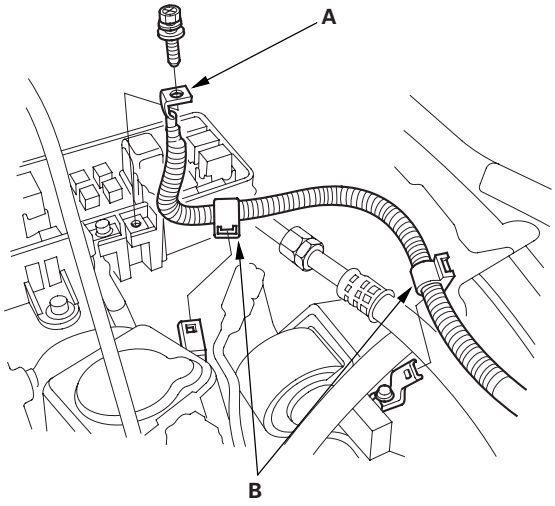


19. Loosen the grommet mounting nuts (B), and turn the grommet (C) counterclockwise, then pull out the PCM connectors.

(cont'd)

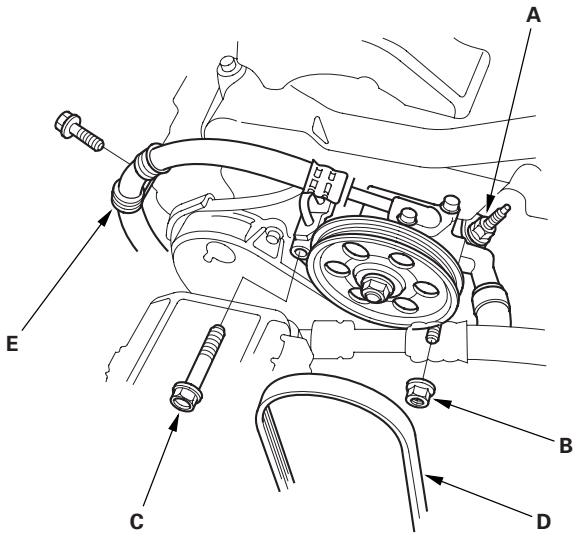
Engine Removal (cont'd)

20. Remove the battery cable (A) from the under-hood fuse/relay box, and remove the harness clamps (B).



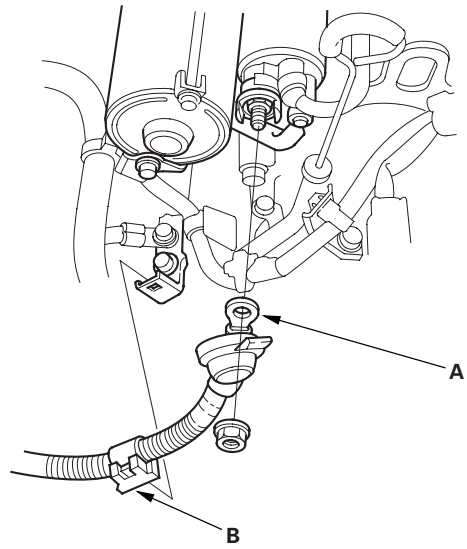
21. Remove the alternator-compressor belt (see page 4-26).

22. Loosen the adjusting nut (A), and remove the locknut (B) and mounting bolt (C), then remove the power steering (P/S) pump belt (D) and pump without disconnecting the P/S hoses.



23. Remove the P/S hose clamp (E).

24. Remove the starter cable (A) and harness clamp (B).

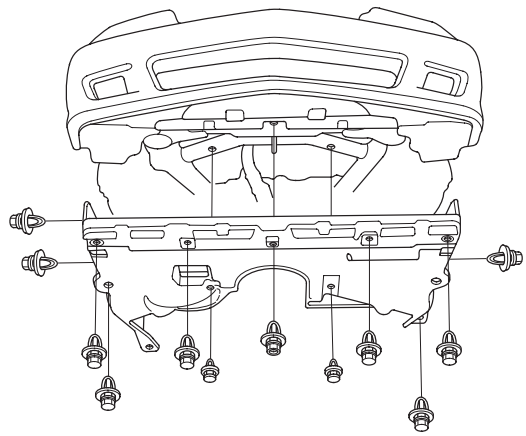


25. Remove the radiator cap.

26. Raise the vehicle on the hoist to full height.

27. Remove the front tires/wheels.

28. Remove the splash shield.

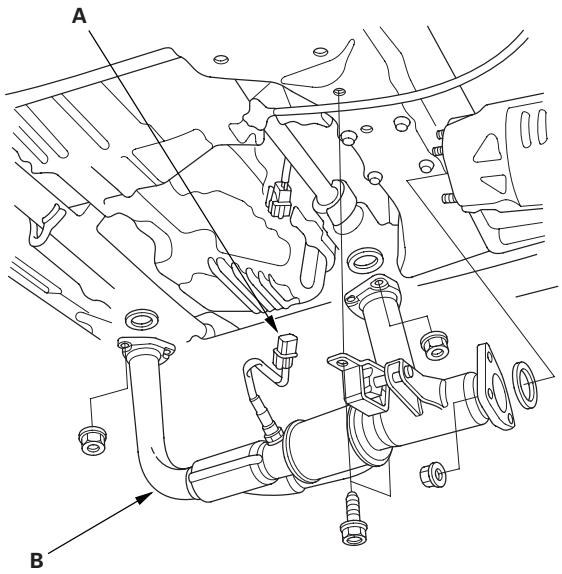


29. Drain the engine coolant (see page 10-13).

30. Drain the automatic transmission fluid (ATF). Reinstall the drain plug using a new washer for 1999-2001 models (see page 14-137) or 2002-2004 models (see page 14-368).

31. Drain the engine oil. Reinstall the drain bolt using a new washer (see page 8-5).

32. Disconnect the primary heated oxygen sensor (primary HO2S) connector (A), then remove exhaust pipe A (B).

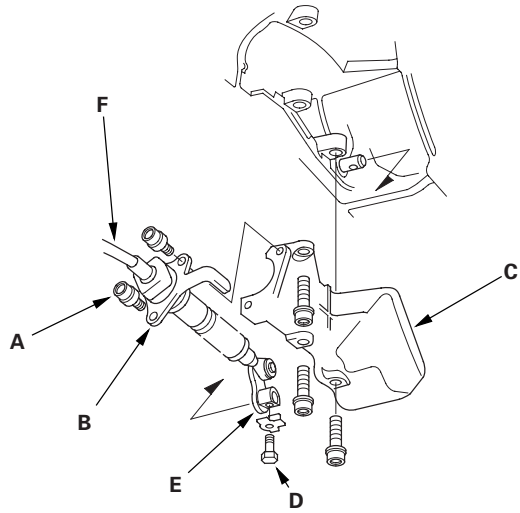


33. Disconnect the stabilizer links (see page 18-19).

34. Disconnect the suspension lower arm ball joints (see step 15 on page 18-13).

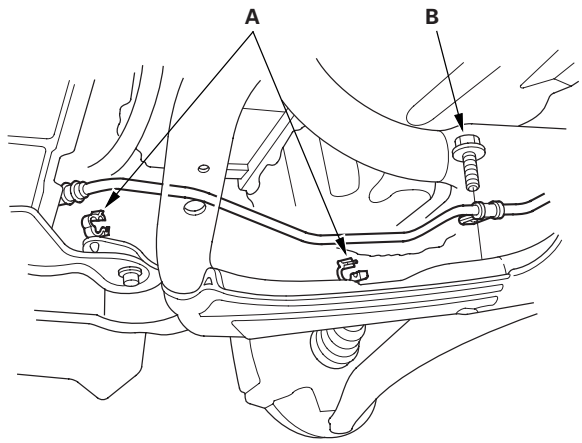
35. Remove the driveshafts (see page 16-3). Coat all precision-finished surfaces with clean engine oil. Tie plastic bags over the driveshaft ends.

36. Remove the bolts (A) securing the shift cable holder (B), then remove the shift cable cover (C). To prevent damage to the control lever joint, be sure to remove the bolts securing the shift cable holder before removing the bolts securing the shift cable cover.



37. Remove the lock bolt (D) securing the control lever (E), then remove the shift cable (F) with the control lever. Take care not to bend the shift cable while removing it.

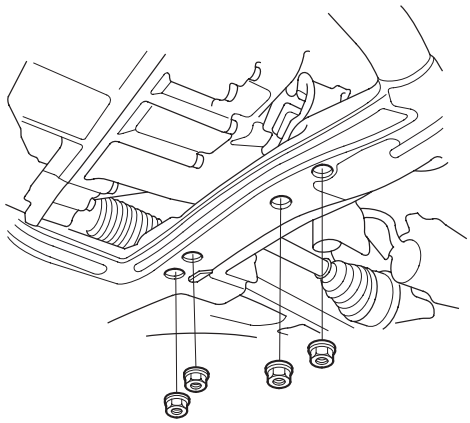
38. Unplug the P/S hose clamps (A), and remove the P/S hose clamp mounting bolt (B).



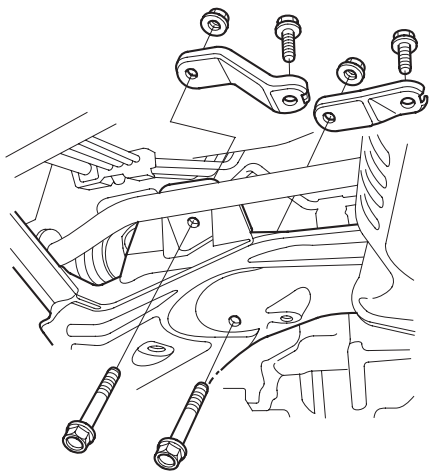
(cont'd)

Engine Removal (cont'd)

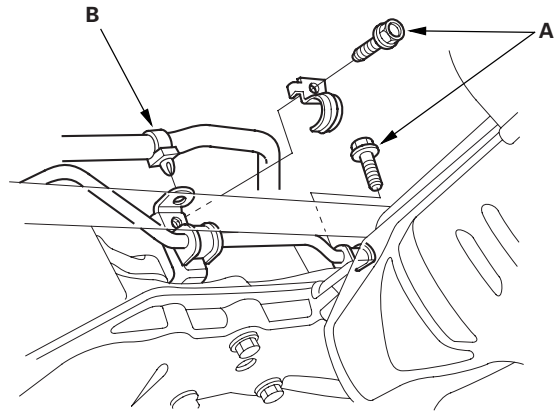
39. Remove the nuts securing the transmission lower front mount and transmission lower rear mount.



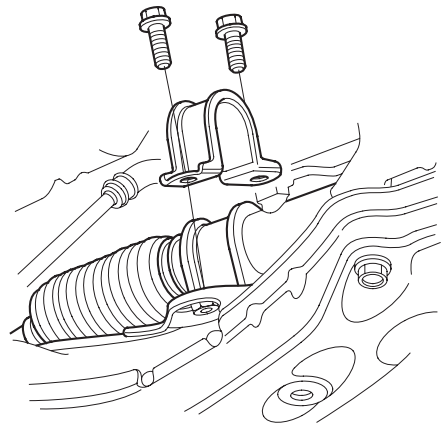
40. Remove the stiffeners.



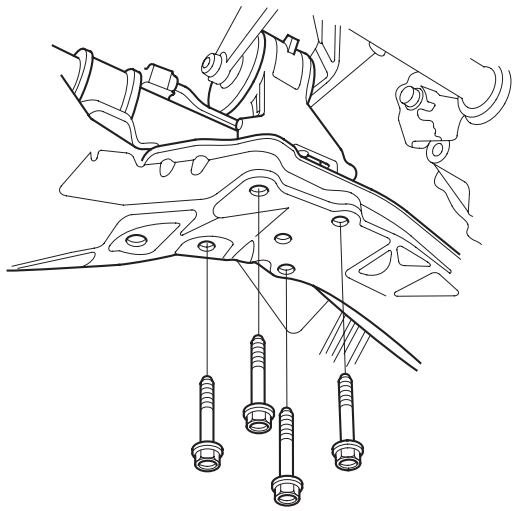
41. Remove the P/S hose clamp mounting bolts (A) and harness clamp (B).



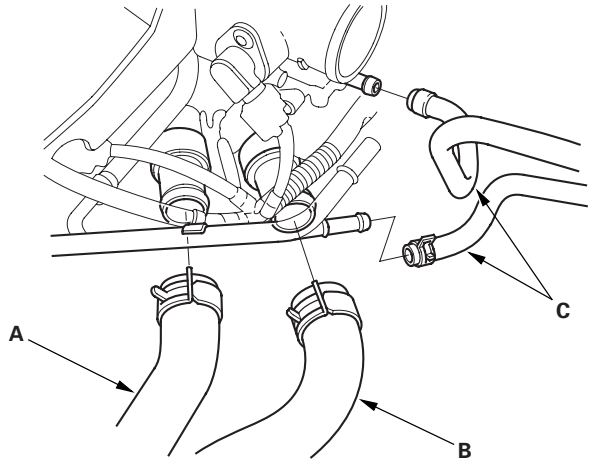
42. Remove the steering gearbox mount from the front subframe.



43. Remove the bolts securing the rear mount.

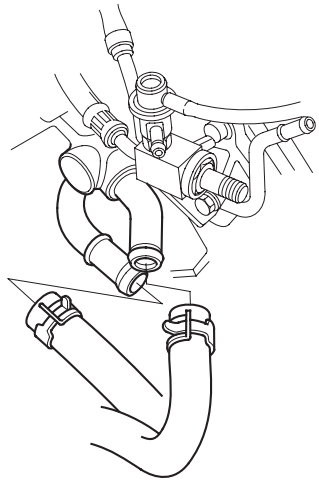


44. Lower the hoist, then remove the upper radiator hose (A) and lower radiator hose (B).

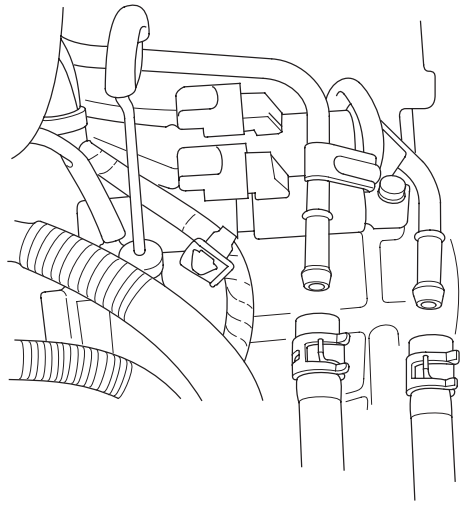


45. Remove the water bypass hoses (C) ('99-01 models).

46. Remove the heater hoses.



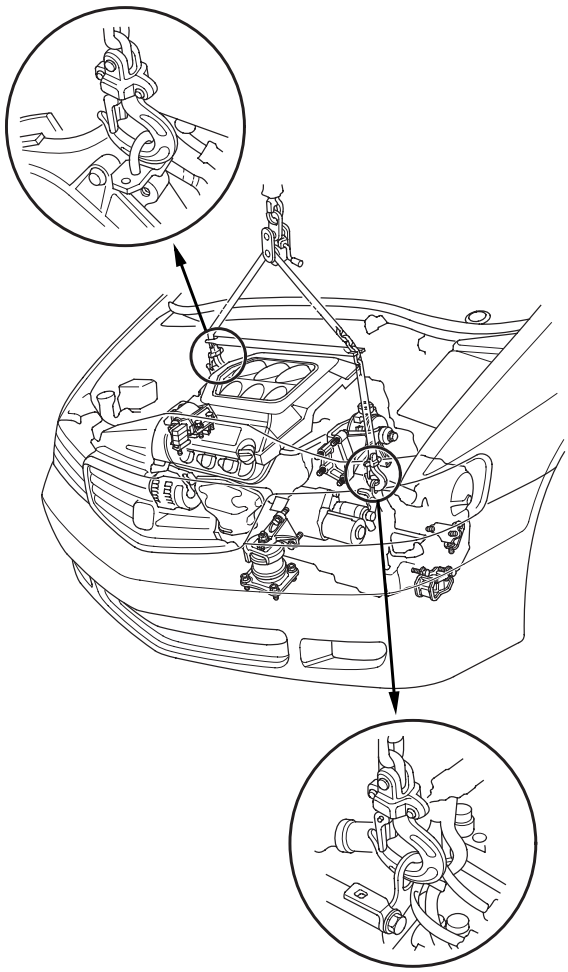
47. Remove the ATF cooler hoses, then plug the ATF cooler hoses and lines.



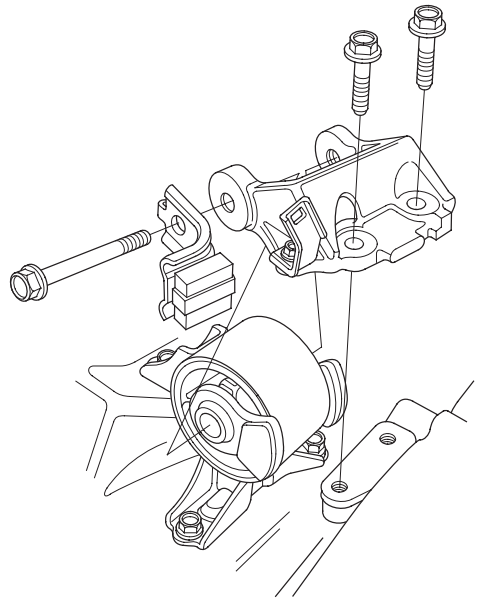
(cont'd)

Engine Removal (cont'd)

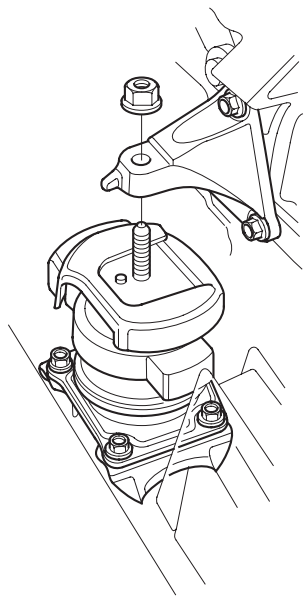
48. Attach the chain hoist to the engine as shown.



49. Remove the side engine mount bracket.

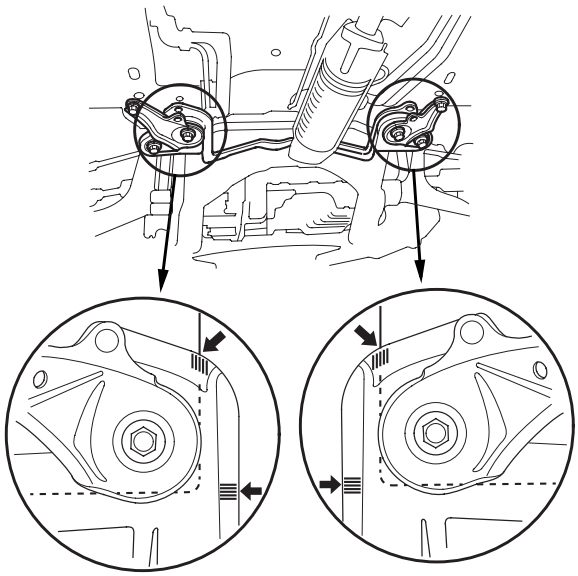


50. Remove the front mount bracket support nut.

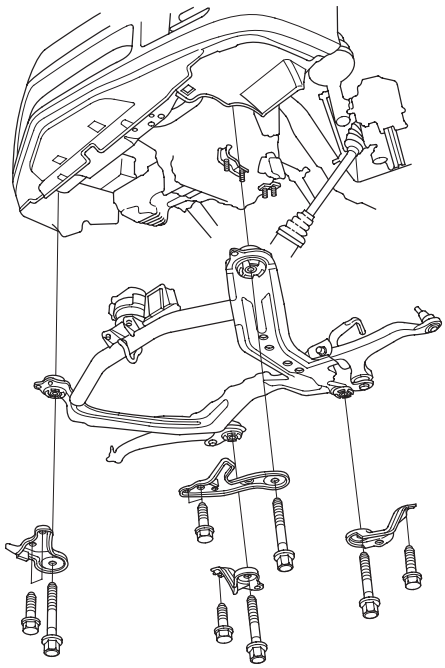


51. Raise the hoist to full height.

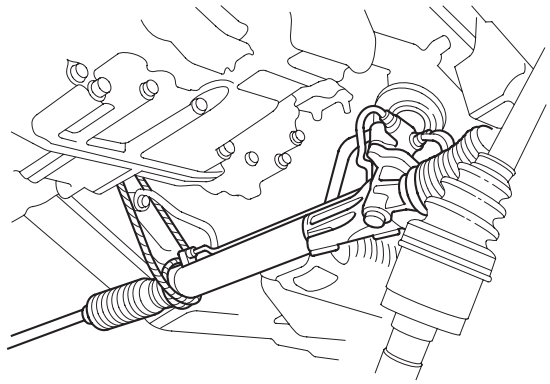
52. Draw alignment marks on the front subframe.



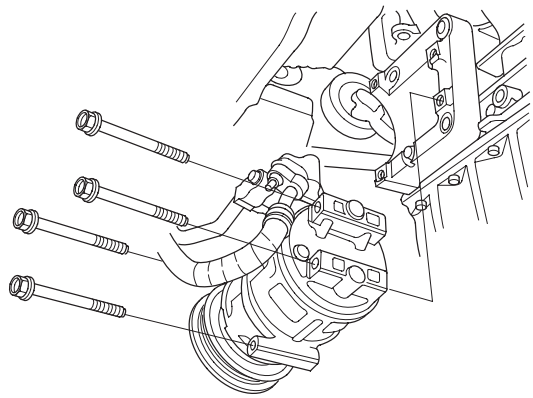
53. Remove the front subframe.



54. Hang the steering gearbox with a rope to the frame.



55. Remove the A/C compressor without disconnecting the A/C hoses.



56. Check that the engine/transmission is completely free of vacuum hoses, fuel and coolant hoses, and electrical wiring.

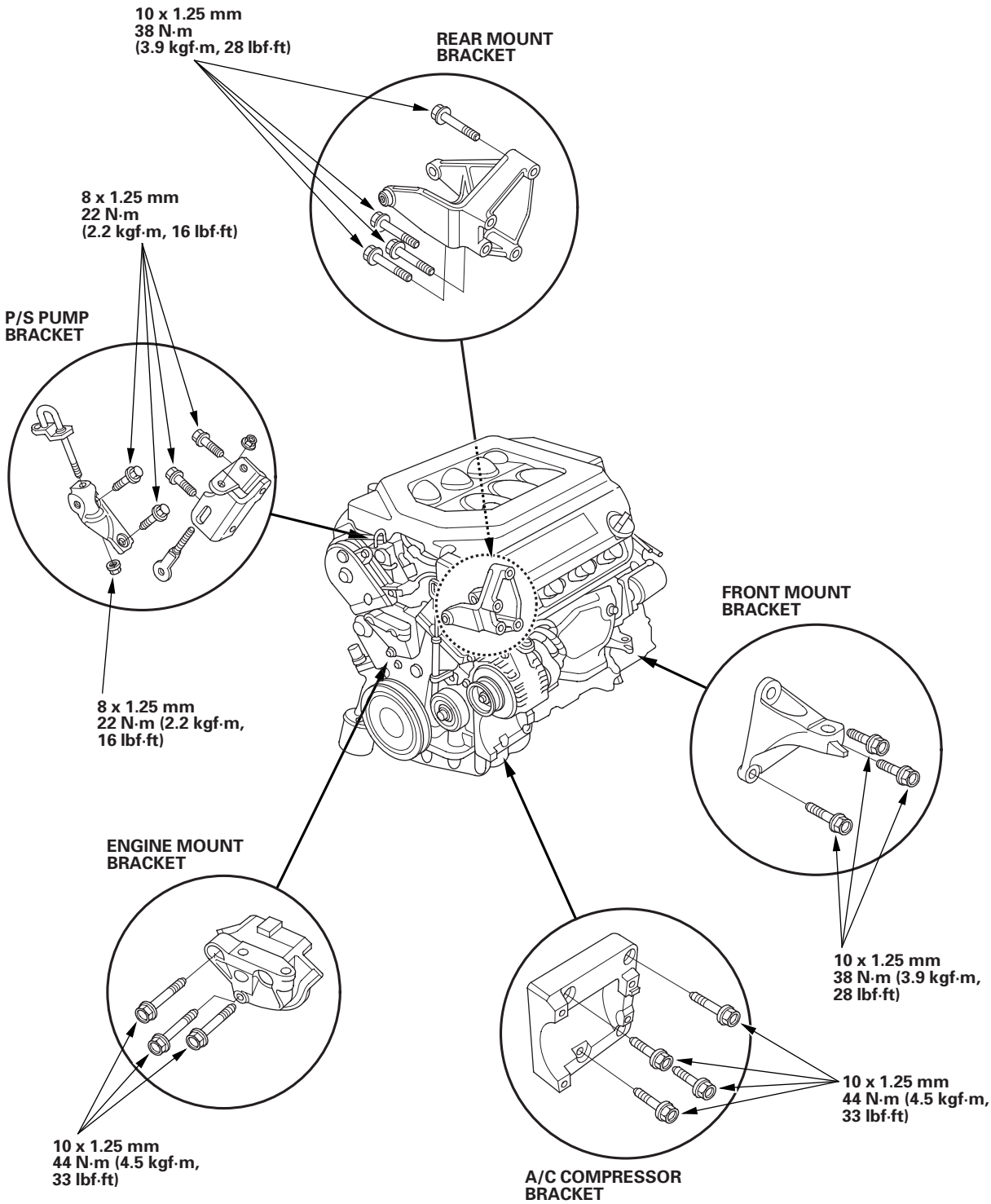
57. Slowly lower the engine about 150 mm (6 in.). Check once again that all hoses and wires are disconnected from the engine/transmission.

58. Lower the engine/transmission assembly all the way. Remove the chain hoist from the engine.

59. Remove the engine/transmission assembly from under the vehicle.

Engine Installation

1. Install the accessory brackets. Tighten their bolts and nuts to the specified torques.

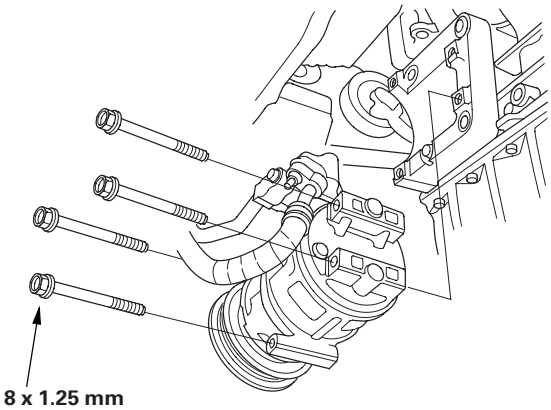


2. Position the engine/transmission assembly under the vehicle. Attach the chain hoist to the engine, then lift the engine into position in the vehicle.

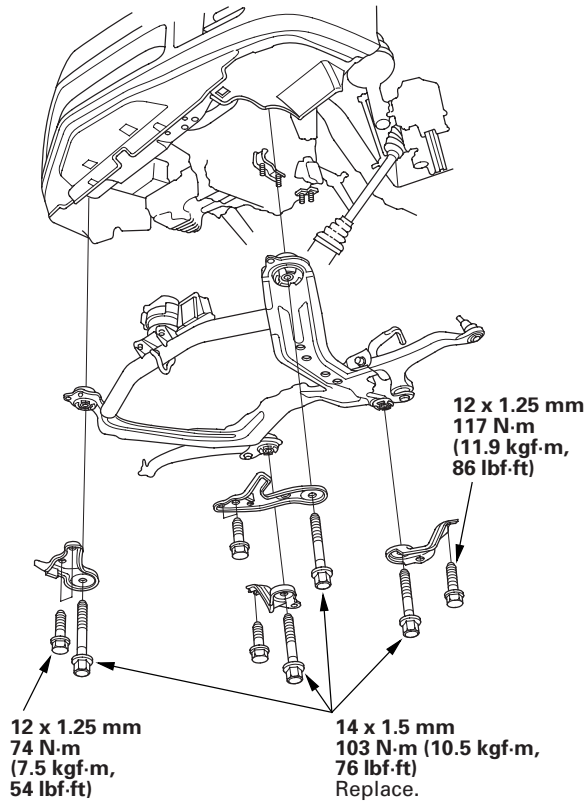
NOTICE

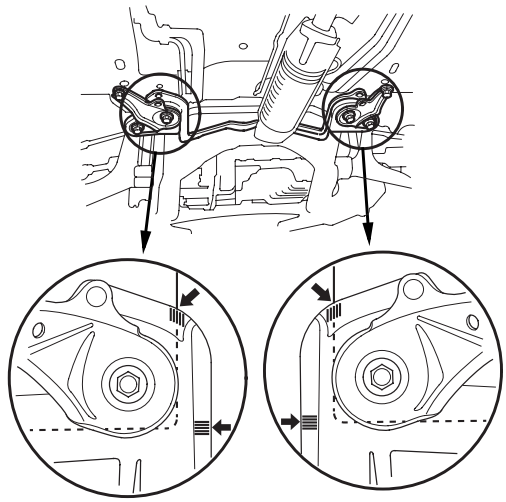
Reinstall the mounting bolts/nuts in the sequence given. Failure to follow this sequence may cause excessive noise and vibration, and reduce bushing life.

3. Install the A/C compressor.



4. Install the front subframe. Align the reference marks on the front subframe, then tighten the bolts.

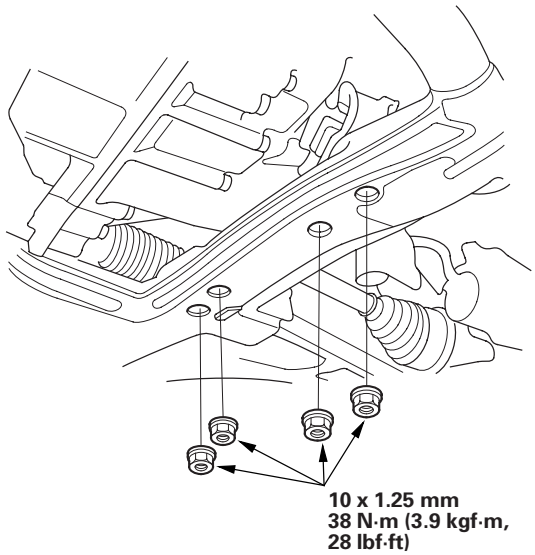




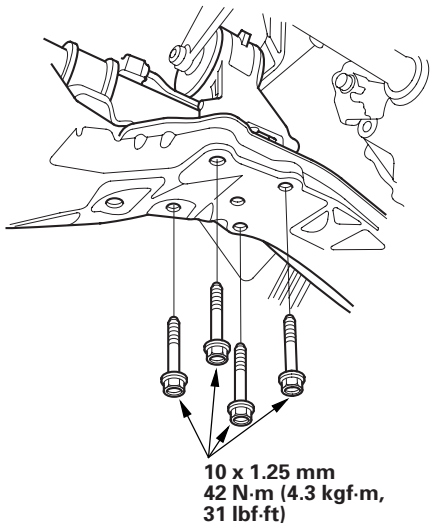
(cont'd)

Engine Installation (cont'd)

5. Install the transmission lower front mount and transmission lower rear mount on the front subframe.

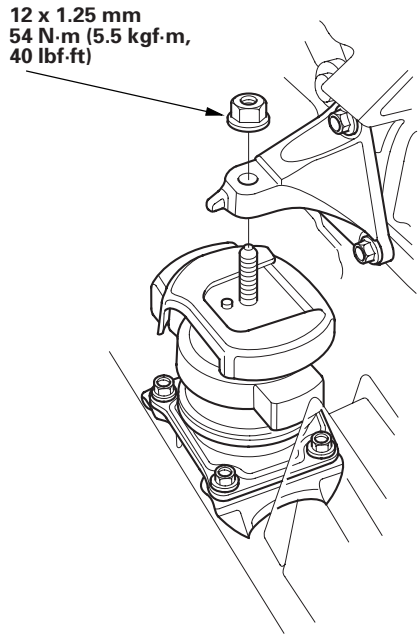


6. Install the rear mount on the front subframe.

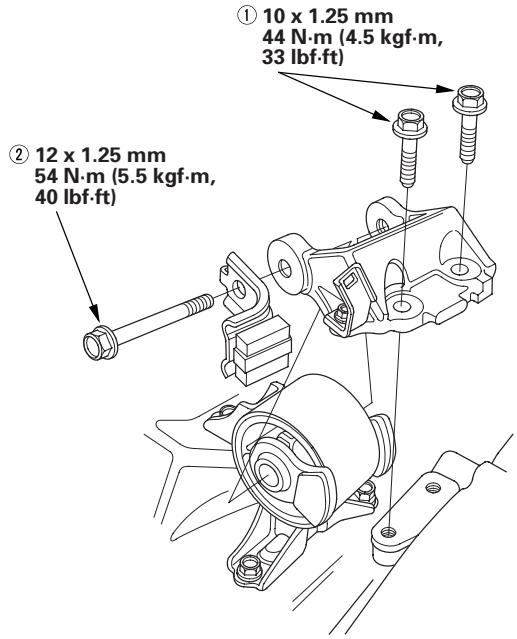


7. Lower the hoist.

8. Tighten the front mount bracket support nut.



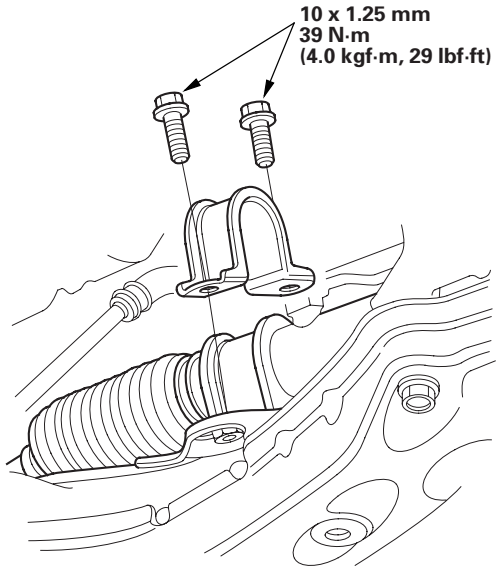
9. Install the side engine mount bracket, then tighten the mounting bolts in the numbered sequence shown.



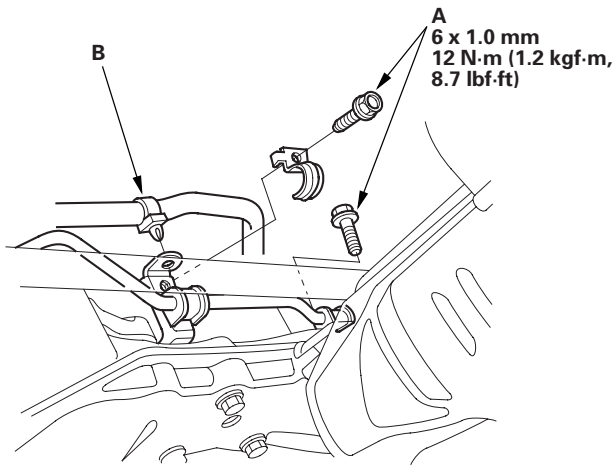
10. Remove the chain hoist from the engine.

11. Raise the vehicle on the hoist to full height.

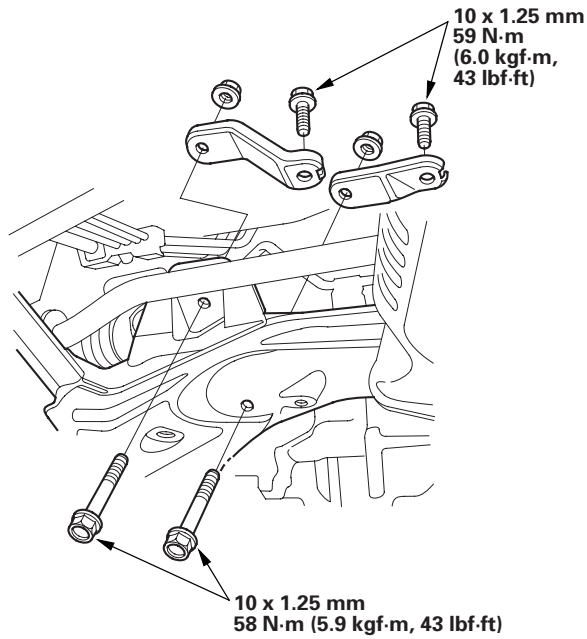
12. Remove the rope from the steering gearbox, and install it on the subframe.



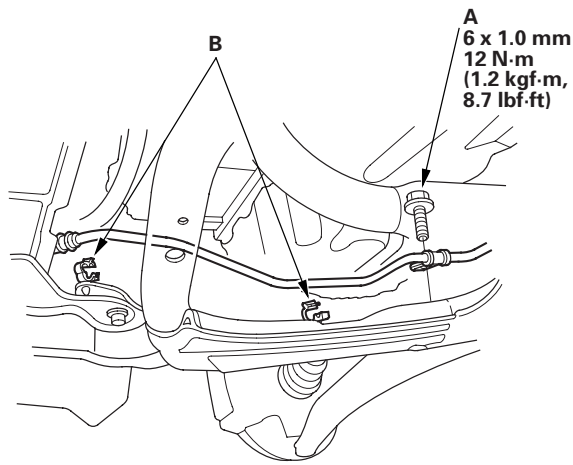
13. Tighten the power steering (P/S) hose clamp mounting bolts (A), and install the harness clamp (B).



14. Install the stiffeners.



15. Tighten the P/S hose clamp mounting bolt (A), and install the P/S hose in the clamps (B).



(cont'd)

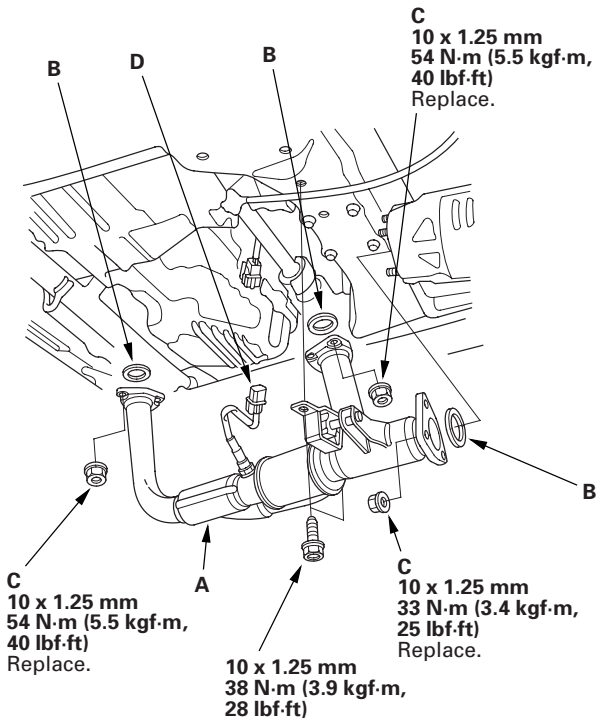
Engine Installation (cont'd)

16. Install a new set ring on the end of each driveshaft, then install the driveshafts. Make sure each ring ''clicks'' into place in the differential and intermediate shaft.

17. Connect the suspension lower arm ball joints (see page 18-17).

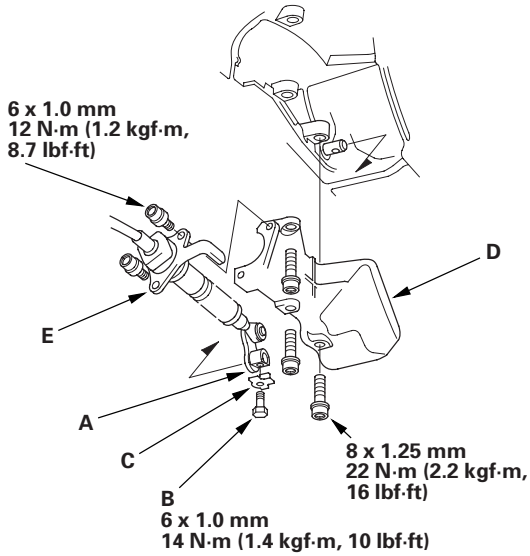
18. Connect the stabilizer links (see page 18-20).

19. Install exhaust pipe A (A); use new gaskets (B) and new self locking nuts (C).



20. Connect the primary heated oxygen sensor (primary HO2S) connector (D).

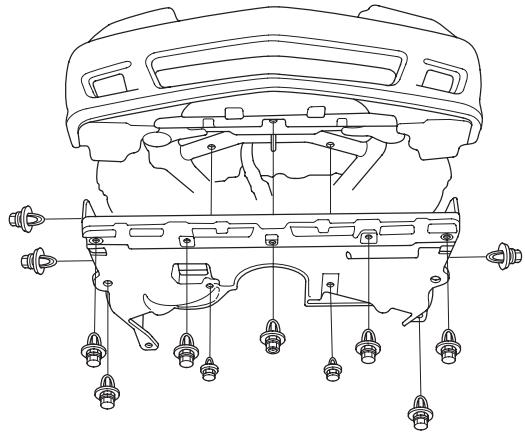
21. Install the control lever (A) with the shift cable on the control shaft. Do not bend the shift cable any more than is necessary to install the control lever.



22. Install the lock bolt (B) with a new lock washer (C), then bend the lock tab of the lock washer.

23. Install the shift cable cover (D), then install the shift cable holder (E) on the shift cable cover.

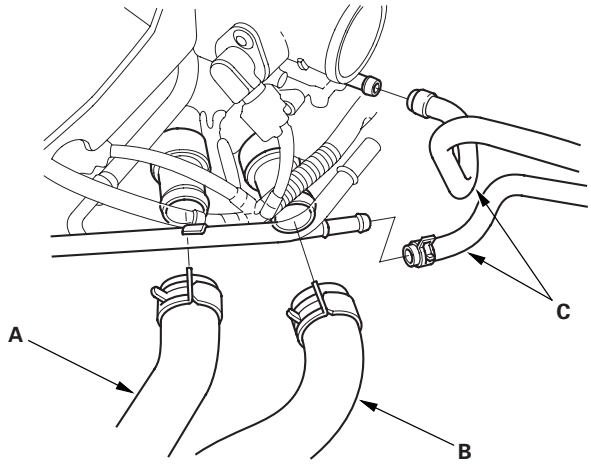
24. Install the splash shield.



25. Install the front tires/wheels.

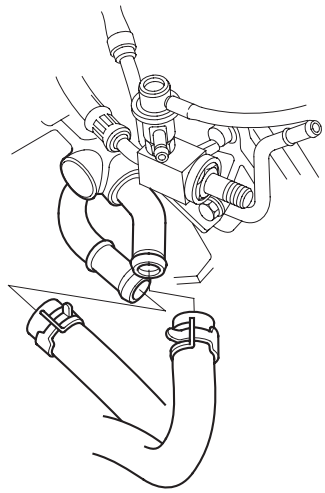
26. Lower the vehicle on the hoist.

27. Install the upper radiator hose (A) and lower radiator hose (B).

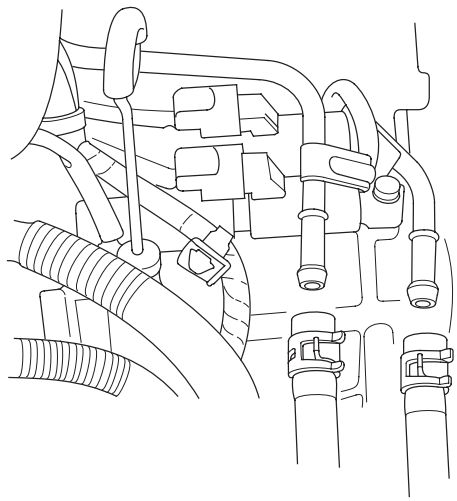


28. Install the water bypass hoses (C) (1999-2001 models).

29. Install the heater hoses.



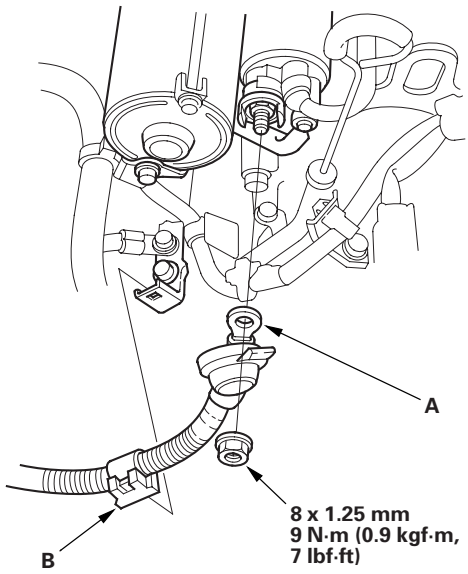
30. Install the automatic transmission fluid (ATF) cooler hoses for 1999-2001 models (see page 14-156) or 2002-2004 models (see page 14-389).



(cont'd)

Engine Installation (cont'd)

31. Install the starter cable (A) and harness clamp (B).

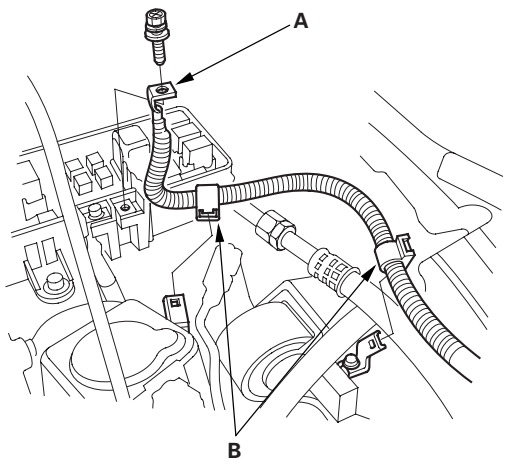


32. Install the alternator-compressor belt.

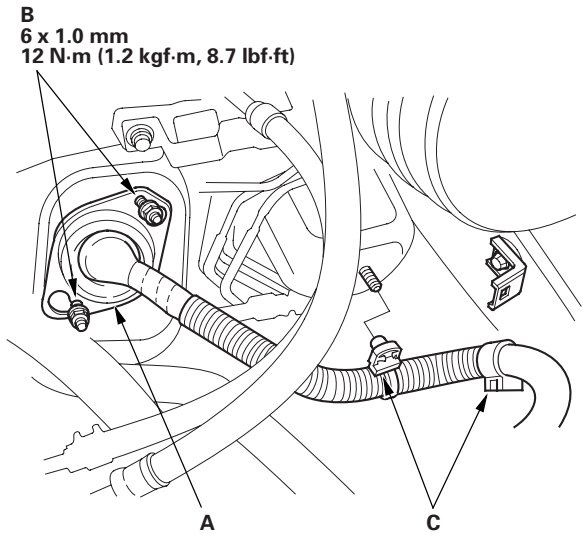
33. Loosely install the P/S pump and P/S pump belt.

34. Adjust the P/S pump belt (see step 3 on page 17-12).

35. Install the battery cable (A) on the under-hood fuse/relay box, then install the harness clamps (B).

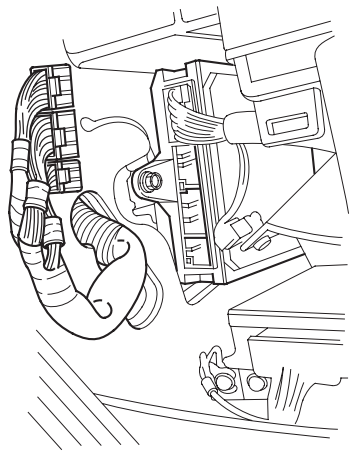


36. Push in the powertrain control module (PCM) connectors. Install the grommet (A), then tighten the grommet mounting nuts (B).



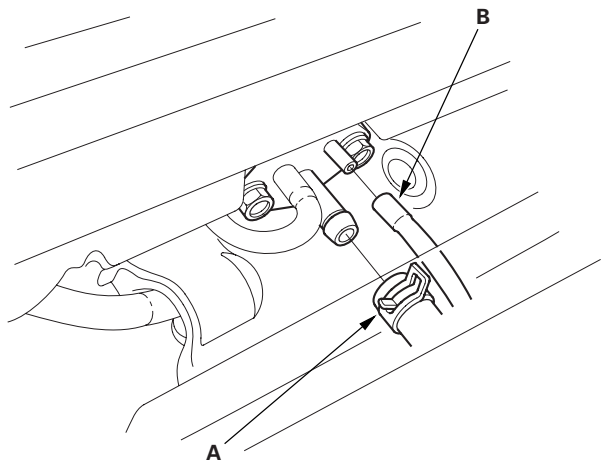
37. Install the harness clamps (C).

38. Connect the PCM connectors.

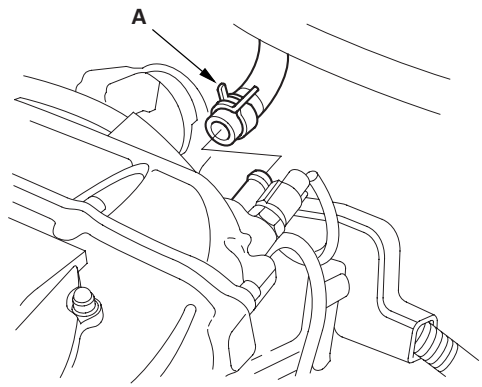


39. Install the brake booster vacuum hose (A).

1999-2001 models:



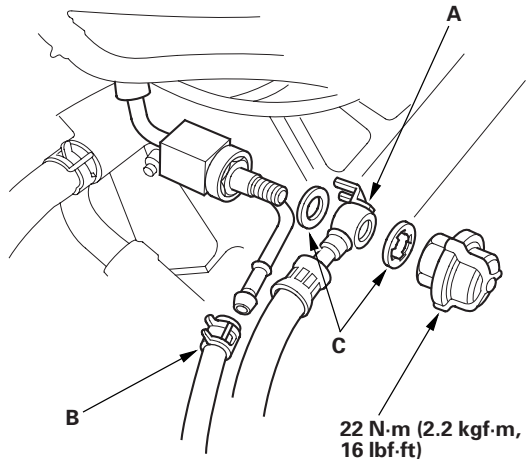
2002-2004 models:



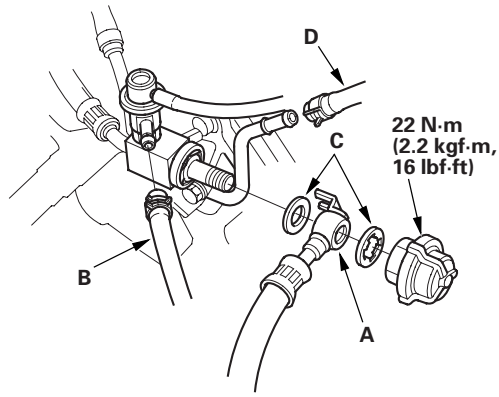
40. Install the vacuum hose (B) (1999-2001 models).

41. Install the fuel feed hose (A) and fuel return hose (B), using new washers (C).

1999-2001 models:



2002-2004 models:



42. Install the evaporative emission (EVAP) canister hose (D) (2002-2004 models).

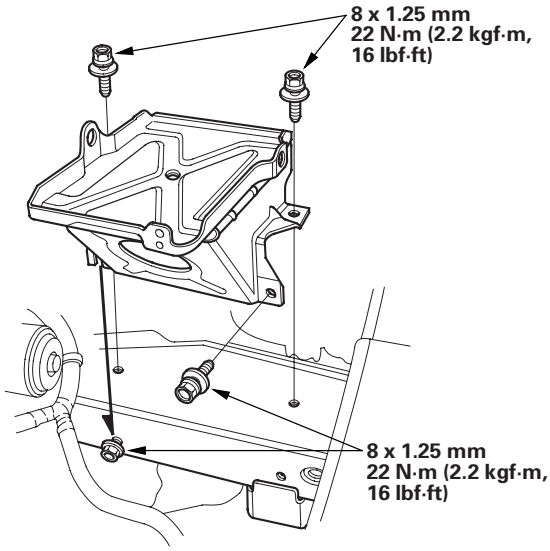
(cont'd)

Engine Installation (cont'd)

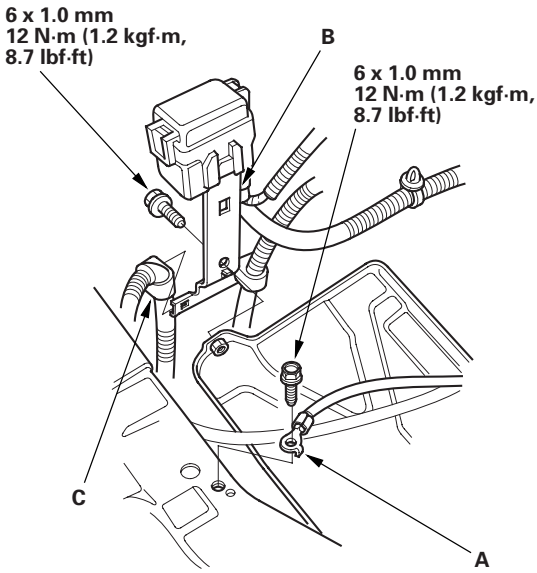
43. Install the cruise control actuator cable, then adjust it (see page 4-52).

44. Install the throttle cable, then adjust it (see page 11-242).

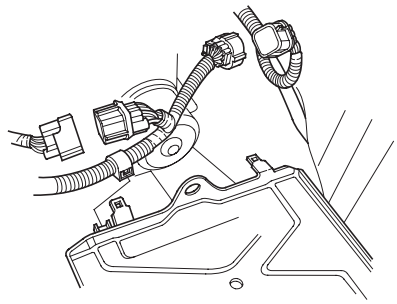
45. Install the battery base.



46. Install the ground cable (A), relay box bracket (B) and attach the harness clamp (C).

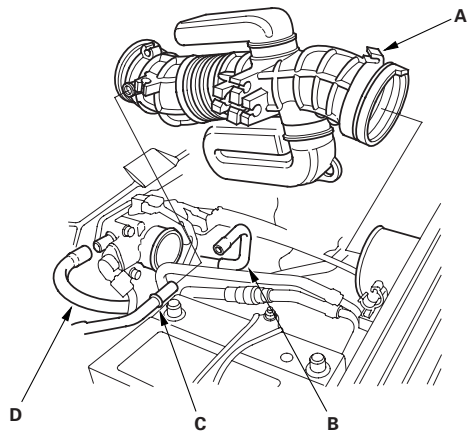


47. Connect the engine wire harness connectors on the left side of the engine compartment.

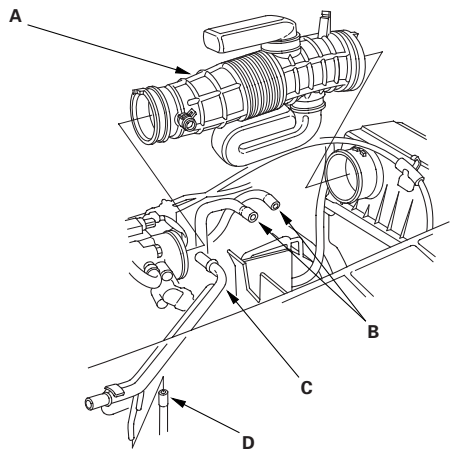


48. Install the intake air duct (A), then install the vacuum hose(s) (B) and breather pipe (C).

1999-2001 models:

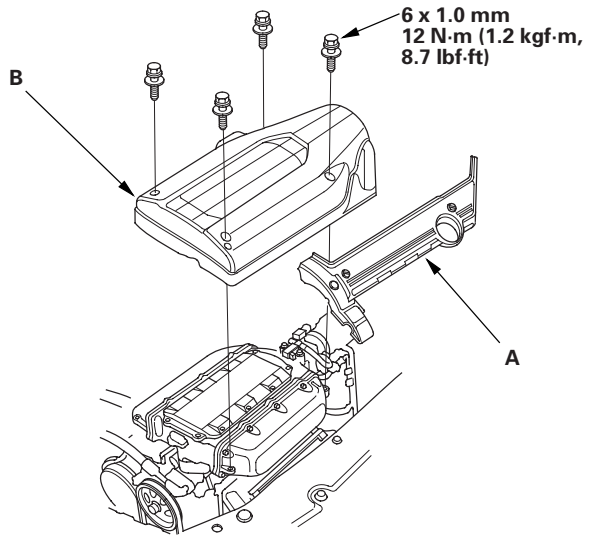


2002-2004 models:



49. Install the EVAP canister hose (D) (1999-2001 models) or vacuum hose (D) (2002-2004 models).

50. Install the ignition coil cover (A) and intake manifold cover (B) (2002-2004 models).



51. Install the battery. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.

52. Refill the engine with engine oil (see page 8-5).

53. Refill the automatic transmission with ATF for 1999-2001 models (see page 14-137) or 2002-2004 models (see page 14-368).

54. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see page 10-13).

55. Move the shift lever to each gear, and verify that the A/T gear position indicator follows the transmission range switch.

56. Inspect for fuel leaks. Turn the ignition switch ON (II) (do not operate the starter) so the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation two or three times, then check for fuel leakage at any point in the fuel line.

57. Enter the anti-theft code for the radio and the navigation system, then enter the customer's radio station presets.

58. Perform the PCM idle learn procedure (see page 11-202), and power window control unit reset procedure (2003-2004 models) (see page 22-200).

59. Inspect the idle speed (see page 11-201).

60. Inspect the ignition timing (see page 4-16).

61. Check the wheel alignment (see page 18-5).

62. Set the clock.

Engine Mechanical

Cylinder Head

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Cylinder Head

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07AAJ-PNAA100	Air Regulator	1
②	07HAH-PJ7A100	Valve Guide Reamer, 5.5 mm	1
③	07JAA-001020A	Socket, 19 mm	1
④	07JAB-001020A	Holder Handle	1
⑤	07MAB-PY3010A	Holder Attachment, 50 mm Offset	1
⑥	07NAJ-P07010A	Pressure Gauge Adapter	1
⑦	07PAD-0010000	Stem Seal Driver	1
⑧	07VAJ-P8A010A	VTEC Air Adapter	1
⑨	070AJ-0030100	VTEC Air Stopper	1
⑩-1	07406-0070300	A/T Low Pressure Gauge W/Panel	1
⑩-2	07MAJ-PY4011A	A/T Pressure Hose, 2,210 mm	1
⑩-3	07MAJ-PY40120	A/T Pressure Hose Adapter	1
⑪	07742-0010100	Valve Guide Driver, 5.5 mm	1
⑫	07757-PJ1010A	Valve Spring Compressor Attachment	1

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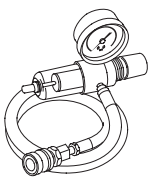

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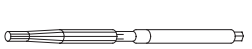

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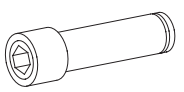

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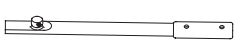

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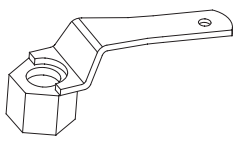

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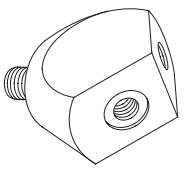

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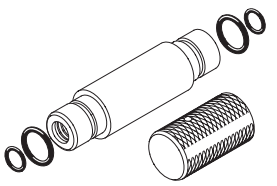

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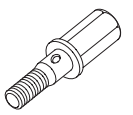

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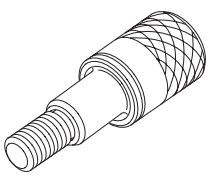

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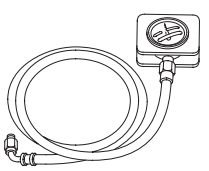
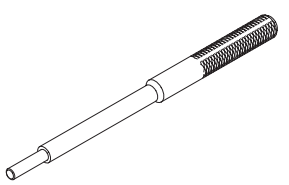
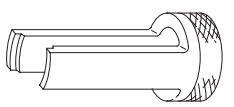


⑩-1, ⑩-2, ⑩-3

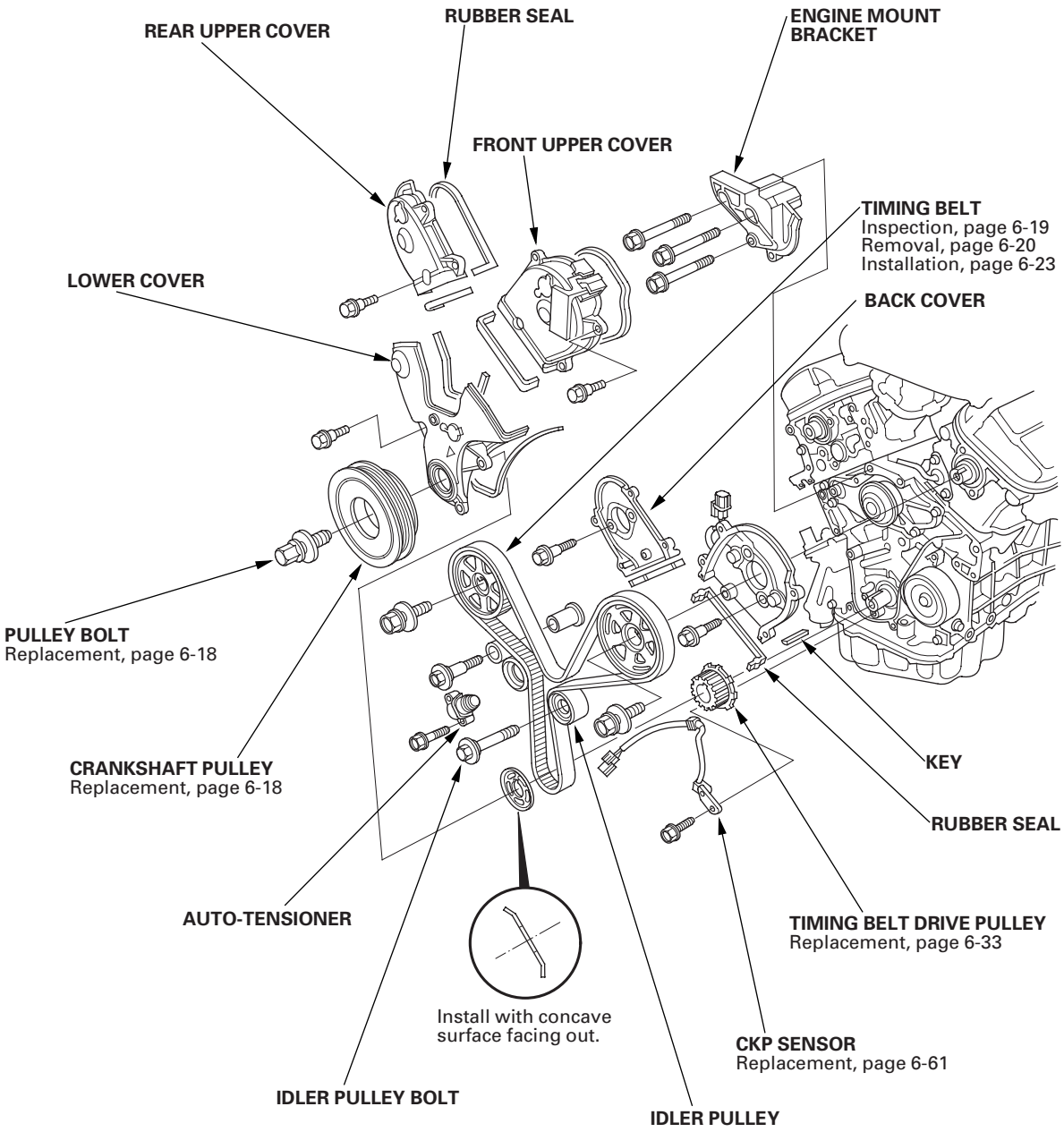


⑪



⑫

Component Location Index



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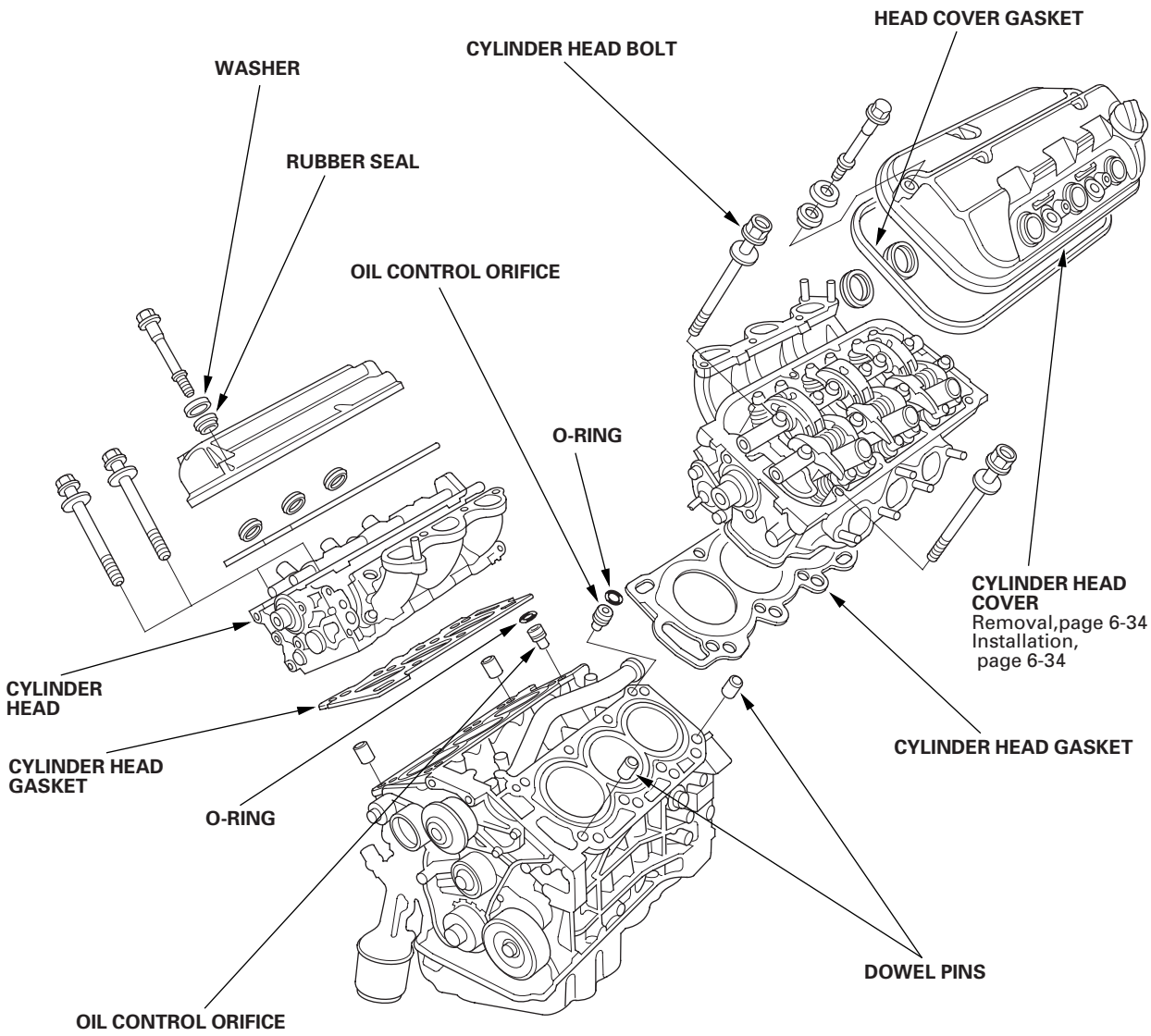
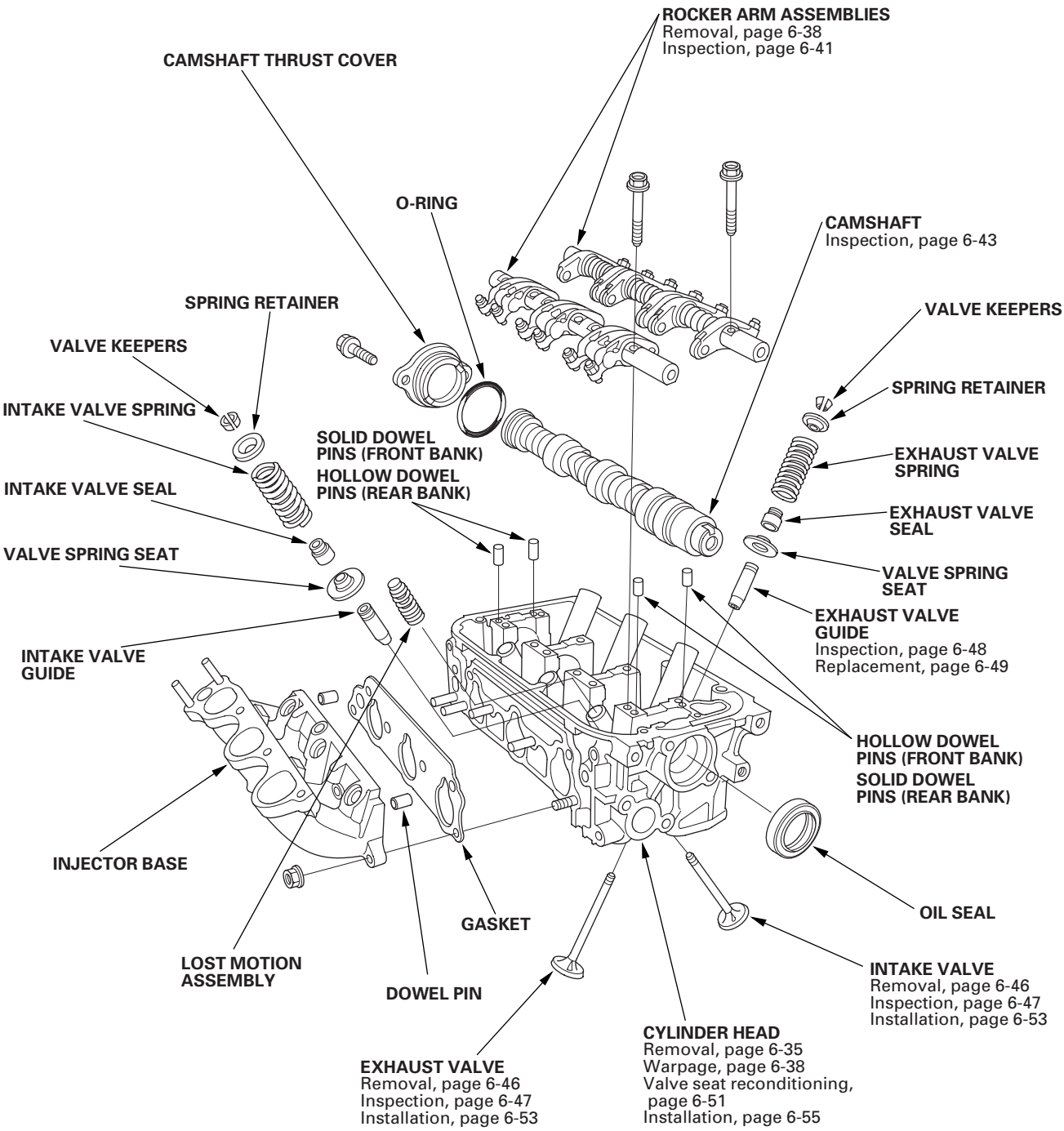
Component Location Index (cont'd)

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DTC Troubleshooting

DTC P1259: A problem in the VTEC Oil Pressure Switch circuit or VTEC Solenoid Valve circuit

Special Tools Required
- Pressure gauge adapter 07NAJ-P07010A
- A/T low pressure gauge w/panel 07406-0070300
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure adapter 07MAJ-PY40120

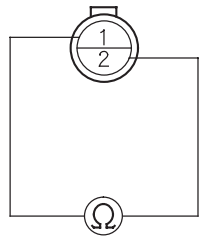
1. Do the powertrain control module (PCM) reset procedure (see page 11-4).
2. Start the engine.
3. Warm up the engine to normal operating temperature (cooling fan comes on).
4. Road test the vehicle:
   Accelerate in 1st gear to an engine speed over 4,000 rpm. Hold that engine speed for at least 2 seconds. If DTC P1259 is not repeated during the first road test, repeat this test two more times.

   Is DTC P1259 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose wires at the VTEC solenoid valve and PCM. ■
5. Turn the ignition switch OFF.
6. Disconnect the VTEC oil pressure switch 2P connector.
7. Check for continuity on the VTEC oil pressure switch between the pressure switch 2P connector terminals No. 1 and No. 2.

   VTEC OIL PRESSURE SWITCH 2P CONNECTOR

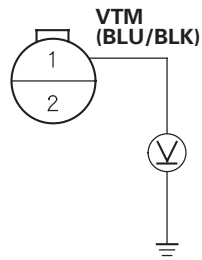
   Terminal side of male terminals

   Is there continuity?

   YES—Go to step 8.

   NO—Replace the VTEC oil pressure switch. ■
8. Turn the ignition switch ON (II).
9. Measure the voltage between the VTEC oil pressure switch harness 2P connector No. 1 terminal and body ground.

   VTEC OIL PRESSURE SWITCH HARNESS 2P CONNECTOR

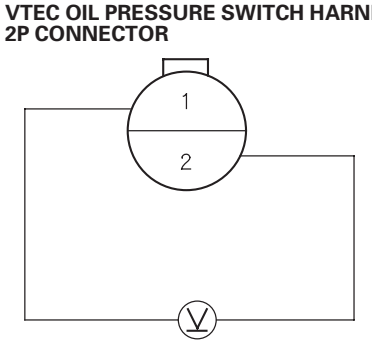
   Wire side of female terminals

   Is there battery voltage?

   YES—Go to step 10.

   NO—Inspect for an open or short to ground in the wire between the VTEC oil pressure switch and the PCM connector terminal C10 (1999-2000, 2002-2004 models) or A20 (2001 model). If the wire is OK, substitute a known-good PCM and recheck (see page 11-5). ■

10. Measure voltage across the VTEC oil pressure switch harness 2P connector.



Wire side of female terminals

Is there battery voltage?

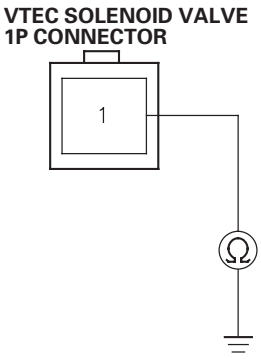
YES — Go to step 11.

NO — Repair open in the wire between the VTEC oil pressure switch and G101. ■

11. Turn the ignition switch OFF.

12. Disconnect the VTEC solenoid valve 1P connector.

13. Check for continuity on the VTEC solenoid valve between the solenoid valve 1P connector terminal and body ground.



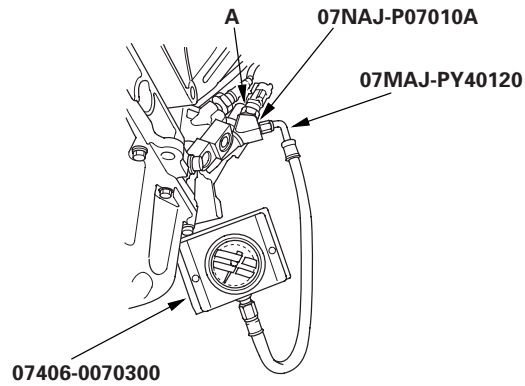
Terminal side of male terminal

Is there 14 — 30 Ω ?

YES — Go to step 14.

NO — Replace the VTEC solenoid valve. ■

14. Remove the VTEC oil pressure switch (A). Install the special tools as shown, then reinstall the VTEC oil pressure switch.



15. Reconnect the VTEC solenoid valve 1P connector and VTEC oil pressure switch 2P connector.

16. Connect a tachometer.

17. Warm up the engine to normal operating temperature (cooling fan comes on).

18. Check oil pressure at engine speeds of 1,000, 2,000 and 3,000 rpm. Keep measuring time as short as possible because the engine is running with no load (less than 1 minute).

Is pressure below 49 kPa (0.5 kgf/cm^2 , 7 psi)?

YES — Go to step 19.

NO — Inspect the VTEC solenoid valve (see page 6-10). ■

19. Turn the ignition switch OFF.

20. Disconnect the VTEC solenoid valve 1P connector.

21. Attach the battery positive terminal to the VTEC solenoid valve terminal.

22. Start the engine and check oil pressure at an engine speed of 3,000 rpm.

Is pressure above 390 kPa (4.0 kgf/cm^2, 57 psi)?

YES — Go to step 23.

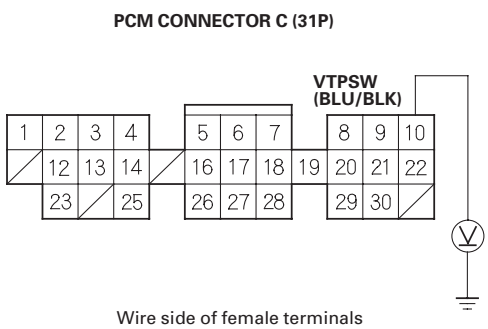
NO — Inspect the VTEC solenoid valve (see page 6-10). ■

(cont'd)

DTC Troubleshooting (cont'd)

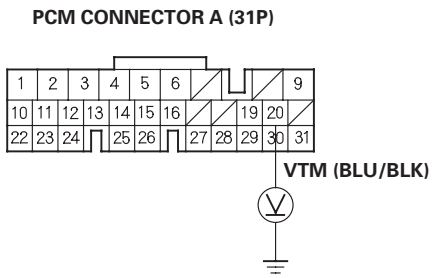
23. With the battery positive terminal still connected to the VTEC solenoid valve, measure voltage between PCM connector terminal C10 (1999-2000, 2002-2004 models) or A20 (2001 model) and body ground.

1999-2000 models:



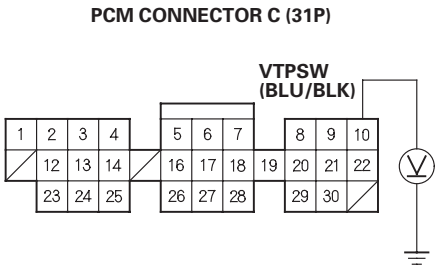
Wire side of female terminals

2001 model:



Wire side of female terminals

2002-2004 models:



Wire side of female terminals

Is there battery voltage above 4,000 rpm?

YES — Go to step 24.

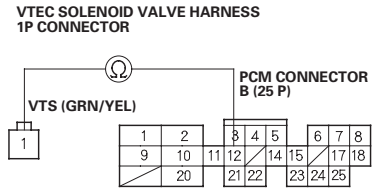
NO — Replace the VTEC oil pressure switch. ■

24. Turn the ignition switch OFF.

25. Disconnect the battery positive terminal from the VTEC solenoid valve terminal.

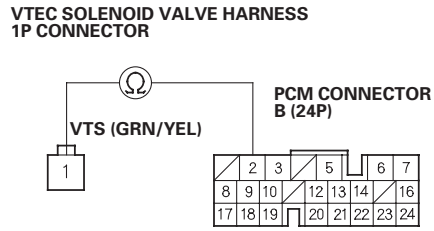
26. Check for continuity between the VTEC solenoid valve harness 1P connector terminal and PCM connector terminal B12 (1999-2000, 2002-2004 models) or B2 (2001 model).

1999-2000 models:



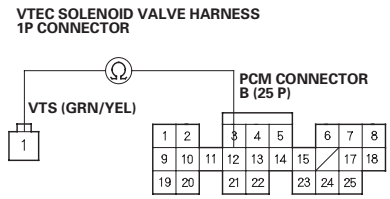
Wire side of female terminals

2001 model:



Wire side of female terminals

2002-2004 models:



Wire side of female terminals

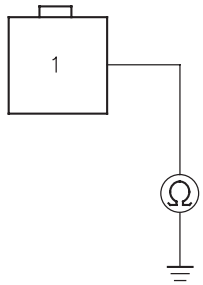
Is there continuity?

YES — Go to step 27.

NO — Repair an open in the wire between the PCM connector terminal B12 (1999-2000, 2002-2004 models) orB2 (2001 model) and VTEC solenoid valve connector. ■

27. Check for continuity between the VTEC solenoid valve 1P connector terminal and body ground.

VTEC SOLENOID VALVE HARNESS 1P CONNECTOR



Wire side of female terminal

Is there continuity?

YES—Repair a short in the wire between the PCM connector terminal B12 (1999-2000, 2002-2004 models) or B2 (2001 model) and VTEC solenoid valve connector. ■

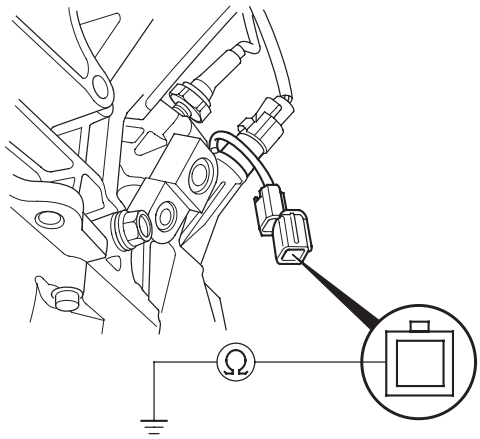
NO—Substitute a known-good PCM and recheck (see page 11-5). If symptom/indication goes away, replace the original PCM (see page 11-4). ■

VTEC Solenoid Valve Test

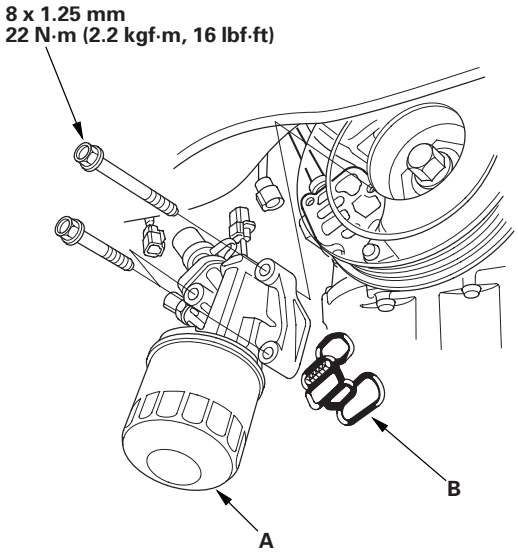
1. Disconnect the 1P connector from the VTEC solenoid valve.

2. Measure resistance between the terminal and body ground.

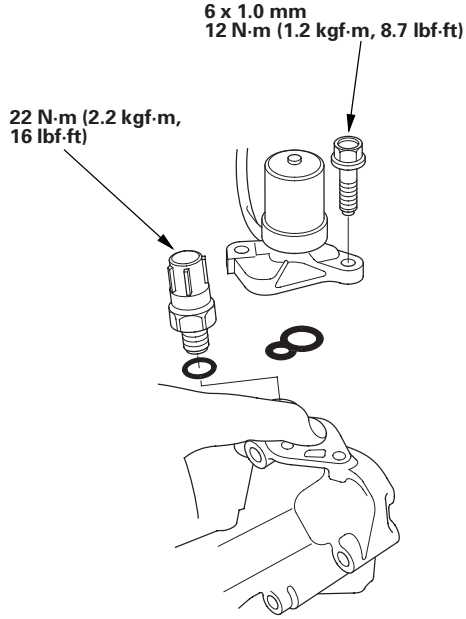
   Resistance: 14—30 Ω



3. If the resistance is within specifications, remove the VTEC solenoid valve/oil filter assembly (A) from the oil pump, and check the VTEC solenoid valve filter (B) for clogging. If there is clogging, replace the engine oil filter and the engine oil.

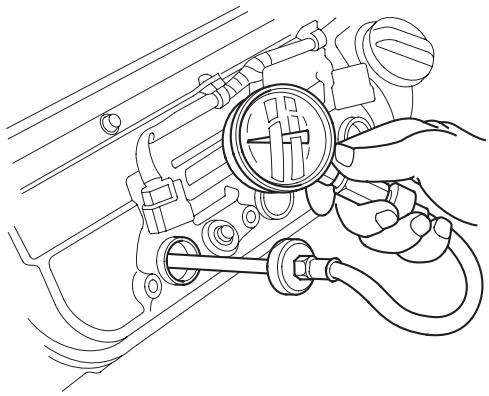


4. If the filter is not clogged, push the VTEC solenoid valve with your finger and check its movement. If the VTEC solenoid valve is OK, check the engine oil pressure.



Engine Compression Inspection

1. Warm up the engine to normal operating temperature (cooling fan comes on).
2. Turn the ignition switch OFF.
3. Remove the ACGS (15A) fuse from the under-hood fuse/relay box.
4. Start the engine and let it run until it stalls.
5. Remove the six ignition coils (see page 4-17).
6. Remove the six spark plugs.
7. Attach the compression gauge to a spark plug hole.



8. Connect a tachometer.
9. Open the throttle fully, then crank the engine with the starter motor and measure the compression.

   Compression Pressure
   Above 930 kPa (9.5 kgf/cm^2, 135 psi)

10. Perform the same measurement on the remaining cylinders.

    Maximum Variation:
    Within 200 kPa (2.0 kgf/cm^2, 28 psi)

11. If the compression is not within specifications, check the following items, then re-measure the compression.

    - Damaged or worn valves and seats
    - Damaged cylinder head gasket
    - Damaged or worn piston rings
    - Damaged or worn piston and cylinder bore

VTEC Rocker Arm Test

Special Tools Required
- VTEC air adapter 07VAJ-P8A010A
- VTEC air stopper 070AJ-0030100
- Air regulator 07AAJ-PNAA100

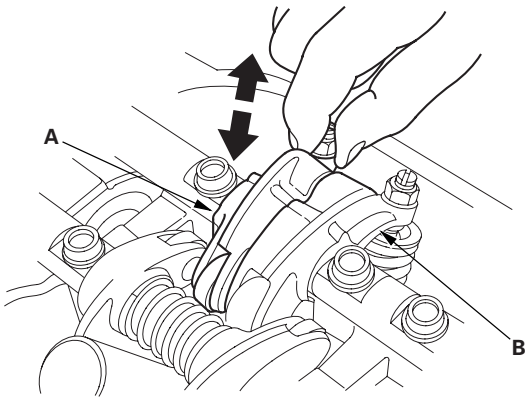
1999-2001 models

1. Remove the cylinder head covers (see page 6-34).

2. Set the No. 1 piston at top dead center (TDC) (see step 2 on page 6-15).

3. Move the intake secondary rocker arm (A) for the No. 1 cylinder. The secondary rocker arm should move independently of the primary rocker arm (B).

   - If the intake secondary rocker arm does not move, remove the primary and secondary intake rocker arms as an assembly, and check that the piston in the primary rocker arm moves smoothly. If any rocker arm needs replacing, replace the primary and secondary rocker arms as an assembly, and retest.
   - If the secondary rocker arm moves freely, go to step 4.



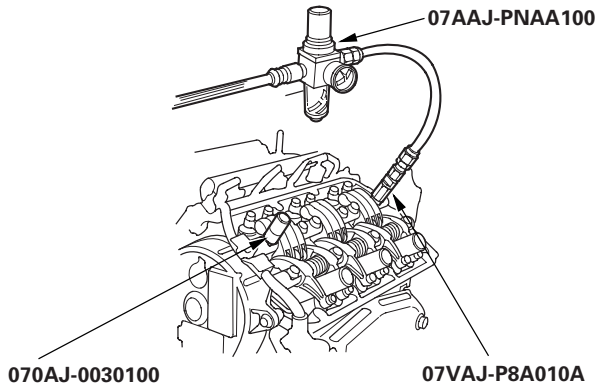
4. Repeat step 3 on the remaining intake secondary rocker arms with each piston at TDC. When all the secondary rocker arms pass the test, go to step 5.

5. Check that the air pressure on the shop air compressor gauge indicates over 690 kPa (7.0 kgf/cm^2, 100 psi).

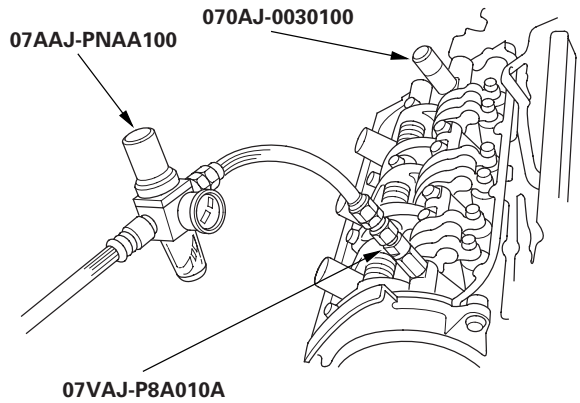
6. Inspect the valve clearance (see page 6-15).

7. Remove the two end intake rocker shaft mounting bolts, then install and connect the special tools as shown.

   FRONT:



   REAR:



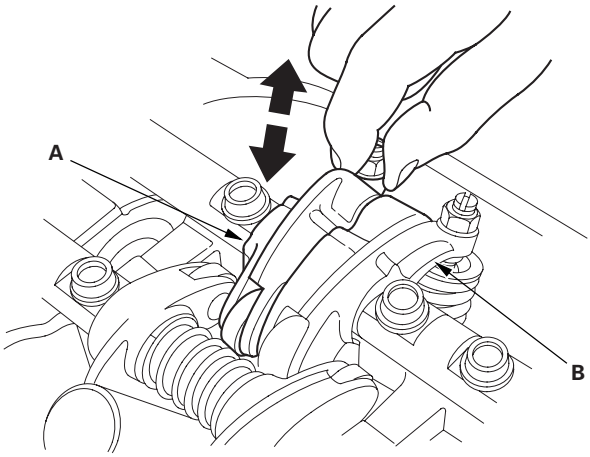
8. Loosen the valve on the regulator and apply the specified air pressure.

   Specified Air Pressure:
   390 kPa (4.0 kgf/cm^2, 57 psi)

   NOTE: If the synchronizing piston does not move after applying air pressure; move the primary or secondary rocker arm up and down manually by rotating the crankshaft clockwise.

9. Move the intake secondary rocker arm (A) for the No. 1 cylinder. The primary rocker arm (B) and secondary rocker arm should move together.

   If the intake primary rocker arm does not move, remove the primary and secondary intake rocker arms as an assembly, and check that the piston in the primary rocker arm moves smoothly.



10. Remove the tools.

11. Tighten the rocker shaft bolts to 24 N·m (2.4 kgf·m, 17 lbf·ft).

12. Install the cylinder head covers (see page 6-34).

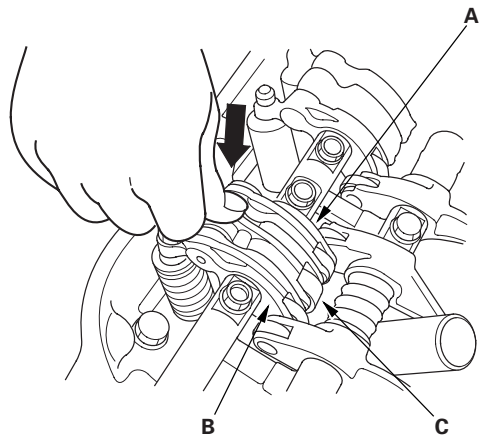
2002-2004 models

1. Remove the cylinder head cover (see page 6-34).

2. Set the No. 1 piston at TDC (see step 2 on page 6-15).

3. Push on the intake mid rocker arm (A) for the No. 1 cylinder. The mid rocker arm should move independently of the primary rocker arm (B) and secondary rocker arm (C).

   - If the intake mid rocker arm does not move, remove the mid, primary, and secondary intake rocker arms as an assembly, and check that the pistons in the mid and primary rocker arms move smoothly.
     If any rocker arm needs replacing, replace the primary, mid and secondary rocker arms as an assembly, and retest.
   - If the mid rocker arm moves freely, go to step 4.



4. Repeat step 3 on the remaining intake mid rocker arms with each piston at TDC. When all the mid rocker arms pass the test, go to step 5.

5. Check that the air pressure on the shop air compressor gauge indicates over 690 kPa (7.0 kgf/cm^2, 100 psi).

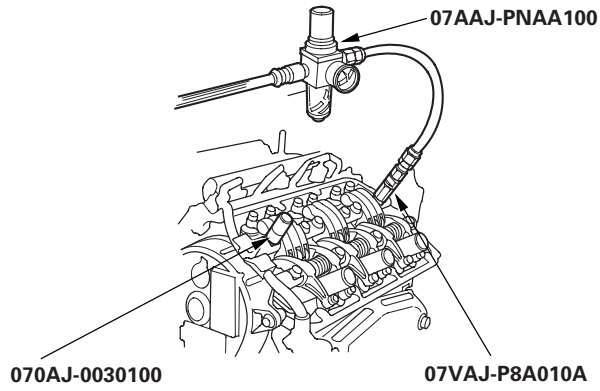
6. Inspect the valve clearance (see page 6-15).

(cont'd)

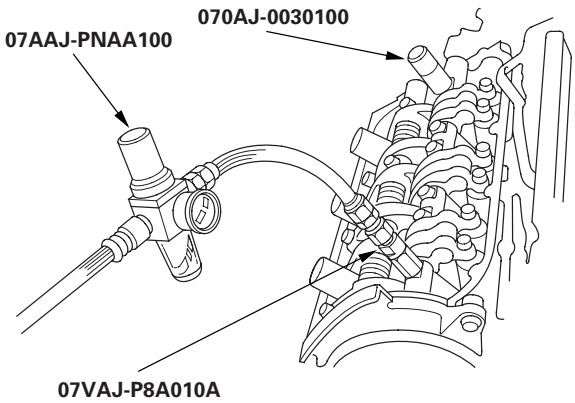
VTEC Rocker Arm Test (cont'd)

7. Remove the two end intake rocker shaft mounting bolts, then install and connect the special tools as shown.

   FRONT:



   REAR:

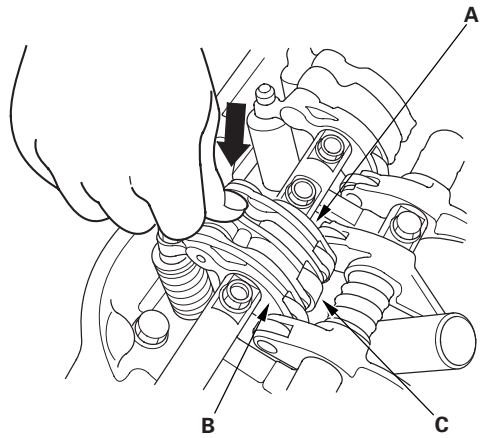


8. Loosen the valve on the regulator, and apply the specified air pressure.

   Specified Air Pressure:
   390 kPa (4.0 kgf/cm², 57 psi)

   NOTE: If the synchronizing pistons A and B do not move after applying air pressure, move the primary or secondary rocker arm up and down manually.

9. Make sure that the intake primary rocker arm (A) and intake secondary rocker arm (B) are mechanically connected by the piston and that the mid rocker arm (C) does not move when pushed manually. If any intake mid rocker arm moves independently of the primary and secondary rocker arms, replace the rocker arms as a set.



10. Remove the tools.

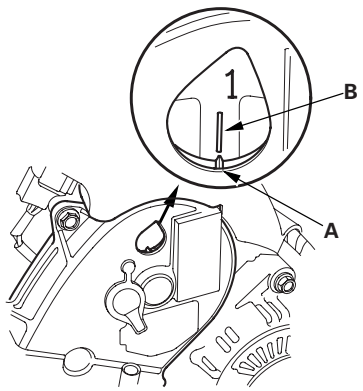
11. Tighten the rocker shaft bolts to 24 N·m (2.4 kgf·m, 17 lbf·ft)

12. Install the cylinder head covers (see page 6-34).

Valve Clearance Adjustment

1. Remove the cylinder head covers (see page 6-34).

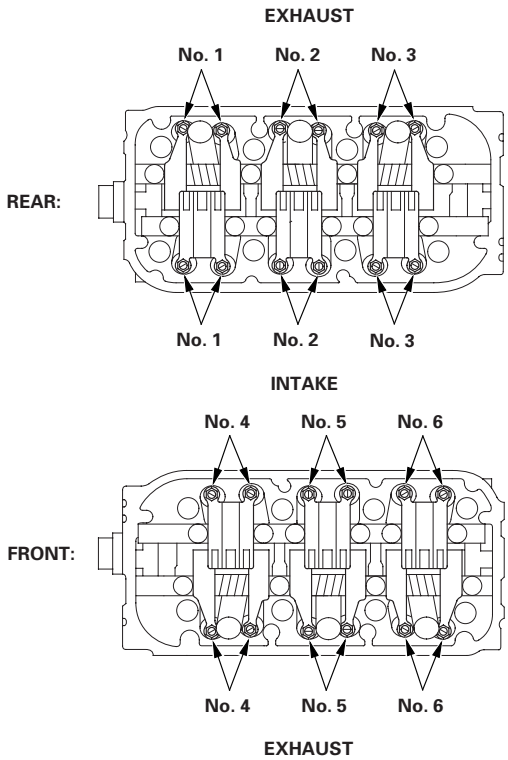
2. Set the No. 1 piston at top dead center (TDC). Align the pointer (A) on the front upper cover with the No. 1 piston TDC mark (B) on the front camshaft pulley.



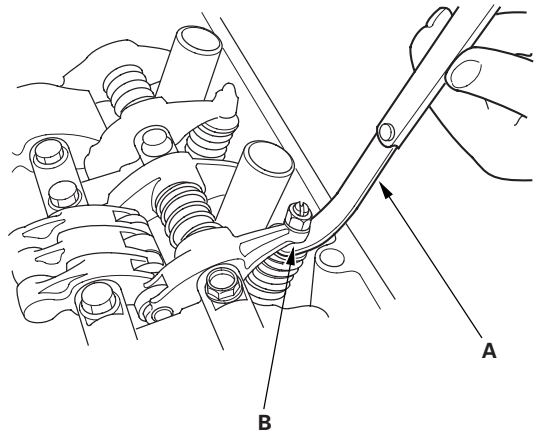
3. Select the correct thickness feeler gauge for the valves you're going to check.

Intake: **0.20—0.24 mm (0.008—0.009 in.)**
Exhaust: **0.28—0.32 mm (0.011—0.013 in.)**

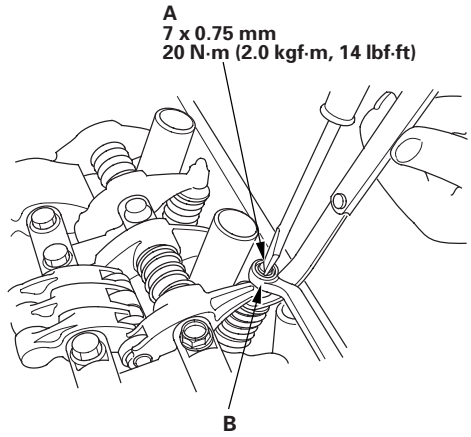
Adjusting screw locations:



4. Insert the feeler gauge (A) between the adjusting screw (B) and the end of the valve stem and slide it back and forth; you should feel a slight amount of drag.



5. If you feel too much or too little drag, loosen the locknut (A), and turn the adjusting screw (B) until the drag on the feeler gauge is correct.

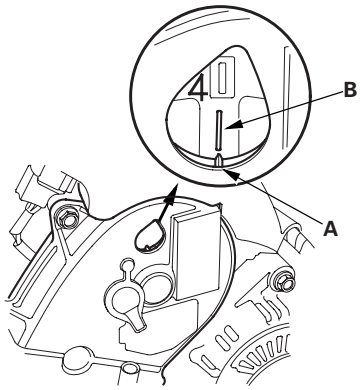


6. Tighten the locknut and recheck the clearance. Repeat the adjustment, if necessary.

(cont'd)

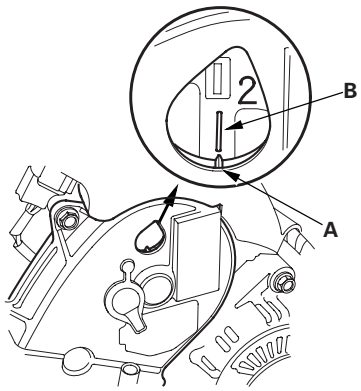
Valve Clearance Adjustment (cont'd)

7. Rotate the crankshaft clockwise. Align the pointer (A) on the front upper cover with the No. 4 piston TDC mark (B) on the front camshaft pulley.



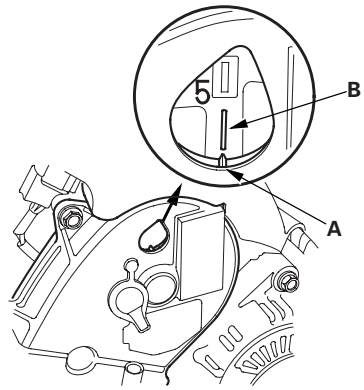
8. Check and, if necessary, adjust the valve clearance on No. 4 cylinder.

9. Rotate the crankshaft clockwise. Align the pointer (A) on the front upper cover with the No. 2 piston TDC mark (B) on the front camshaft pulley.



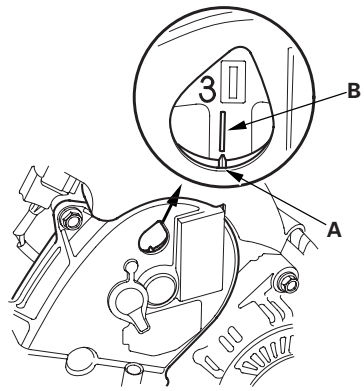
10. Check and, if necessary, adjust the valve clearance on No. 2 cylinder.

11. Rotate the crankshaft clockwise. Align the pointer (A) on the front upper cover with the No. 5 piston TDC mark (B) on the front camshaft pulley.



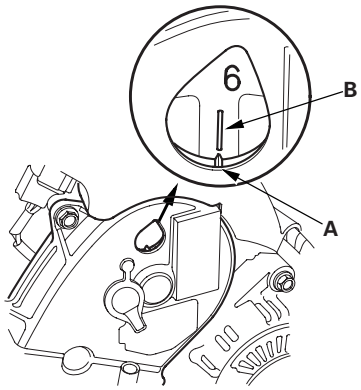
12. Check and, if necessary, adjust the valve clearance on No. 5 cylinder.

13. Rotate the crankshaft clockwise. Align the pointer (A) on the front upper cover with the No. 3 piston TDC mark (B) on the front camshaft pulley.



14. Check and, if necessary, adjust the valve clearance on No. 3 cylinder.

15. Rotate the crankshaft clockwise. Align the pointer (A) on the front upper cover with the No. 6 piston TDC mark (B) on the front camshaft pulley.



16. Check and, if necessary, adjust the valve clearance on No. 6 cylinder.

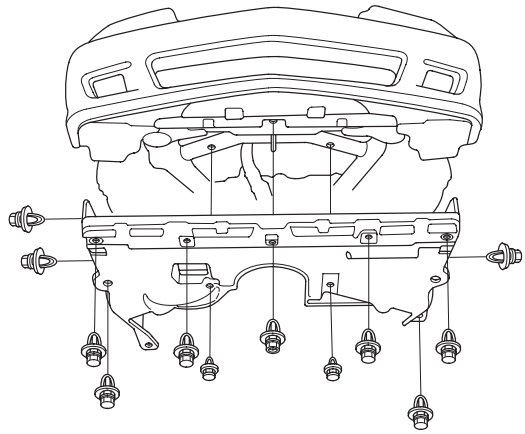
17. Install the cylinder head covers (see page 6-34).

Crankshaft Pulley Removal and Installation

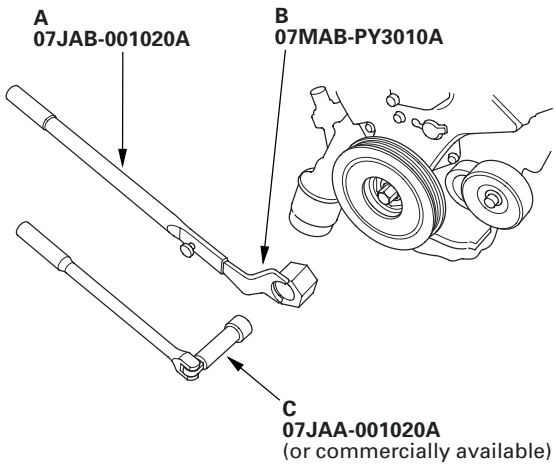
Special Tools Required
- Holder handle 07JAB-001020A
- Holder attachment, 50 mm, offset 07MAB-PY3010A
- Socket, 19 mm 07JAA-001020A
  or a commercially available 19 mm socket

Removal

1. Remove the right front tire/wheel.
2. Remove the splash shield.



3. Hold the pulley with holder handle (A) and holder attachment (B).

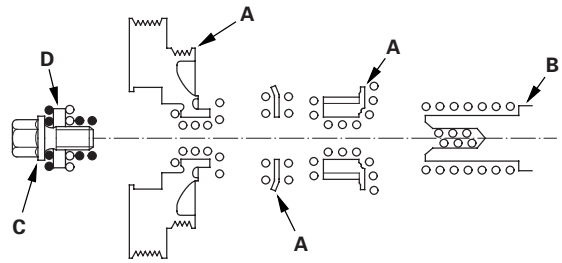


4. Remove the bolt with a heavy duty 19 mm socket (C) and breaker bar.

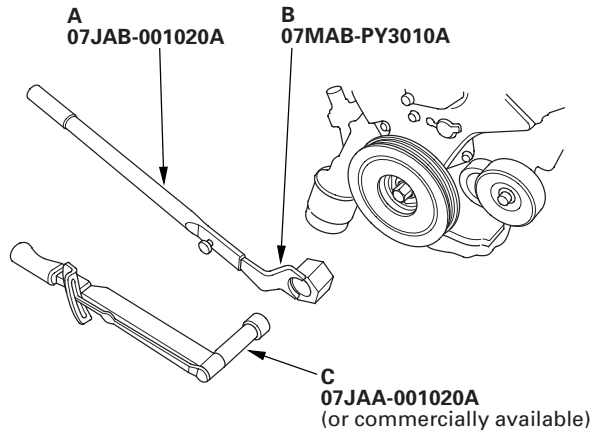
Installation

1. Clean the pulleys (A), crankshaft (B), bolt (C) and washer (D). Lubricate with new engine oil as shown.

○ : **Clean**
● : **Lubricate with new engine oil**



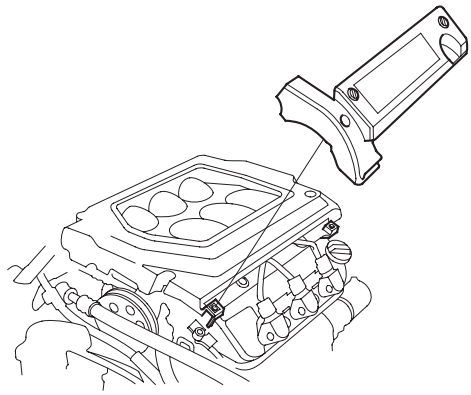
2. Install the crankshaft pulley, and tighten the bolt to 245 N·m (25.0 kgf·m, 181 lbf·ft). Do not use an impact wrench.
   1. Hold the pulley with holder handle (A) and holder attachment (B).
   2. Tighten the bolt with a torque wrench and 19 mm socket (C).



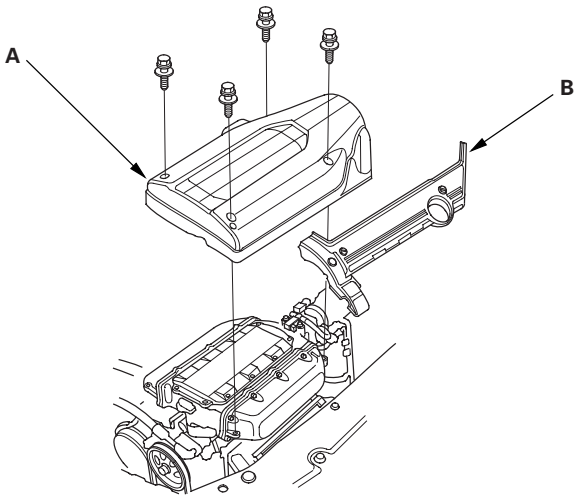
3. Install the splash shield.
4. Install the right front tire/wheel.

Timing Belt Inspection

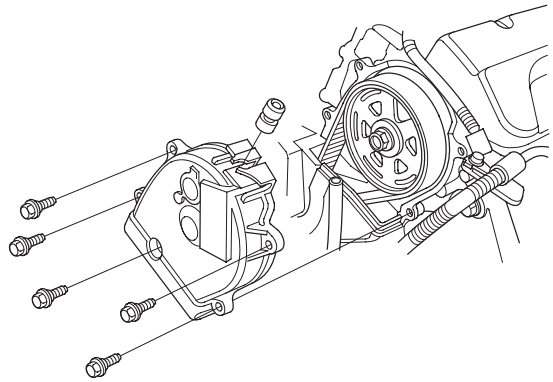
1. Remove the ignition coil cover ('99-01 models).



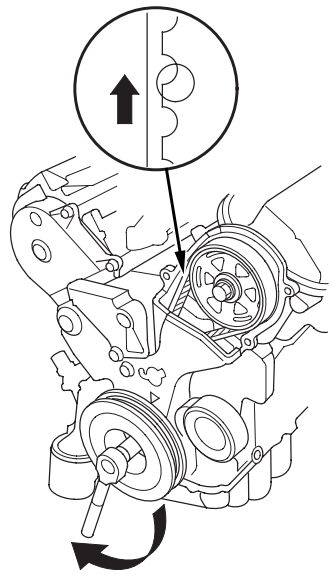
2. Remove the intake manifold cover (A) and ignition coil cover (B) (2002-2004 models).



3. Remove the front upper cover.

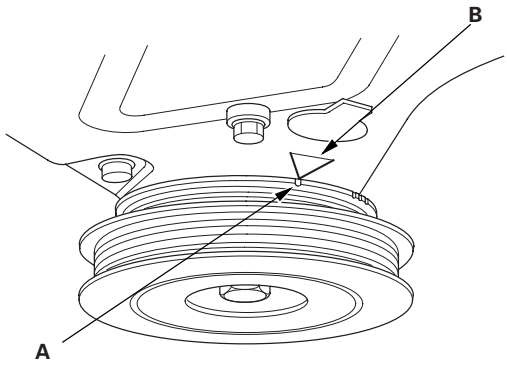


4. Inspect the timing belt for cracks and oil or coolant soaking. Replace the belt if it is oil or coolant soaked or cracked. Remove any oil or solvent that gets on the belt.

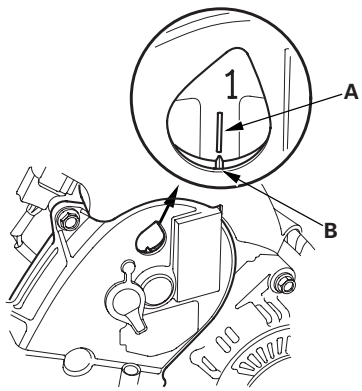


Timing Belt Removal

1. Turn the crankshaft so its white mark (A) lines up with the pointer (B).

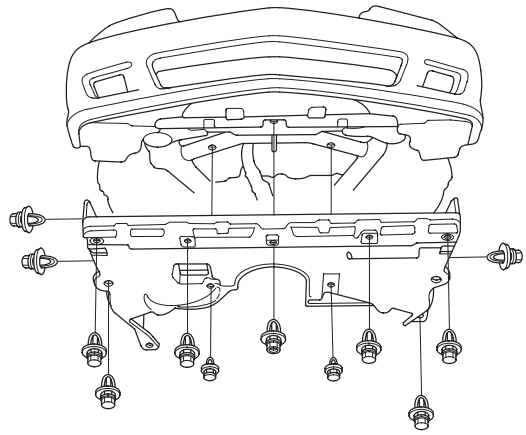


2. Check that the No.1 piston top dead center (TDC) mark (A) on the front camshaft pulley and the pointer (B) on the front upper cover are aligned.



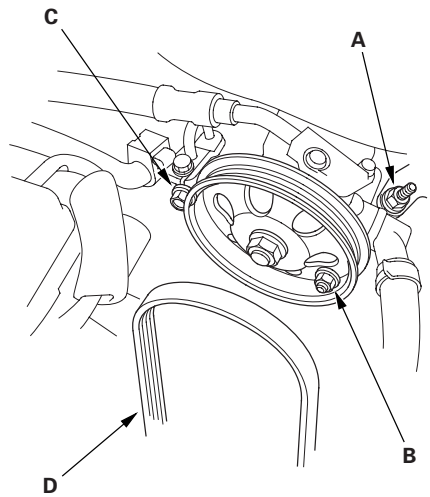
3. Remove the right front tire/wheel.

4. Remove the splash shield.



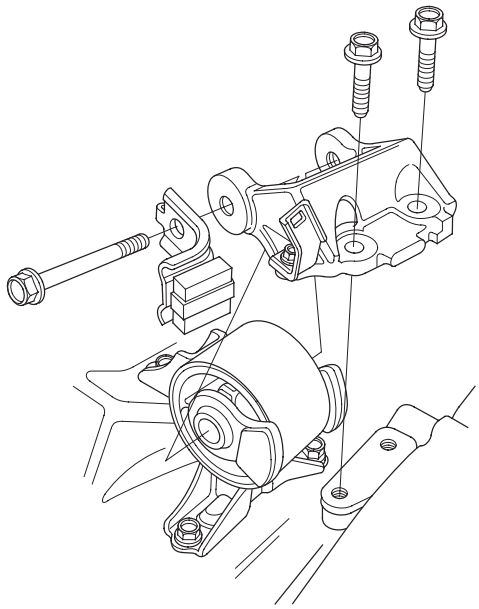
5. Remove the alternator-compressor belt (see page 4-26).

6. Loosen the adjusting nut (A), locknut (B) and mounting bolt (C), then remove the power steering (P/S) pump belt (D).

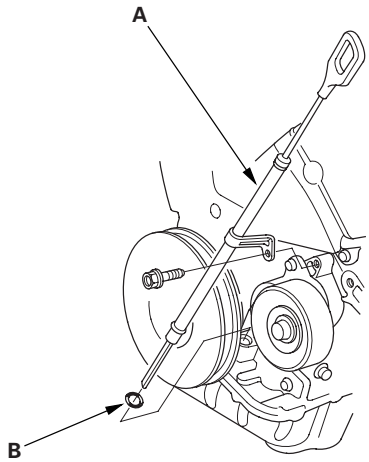


7. Support the engine with a jack and wood block under the oil pan.

8. Remove the side engine mount bracket.

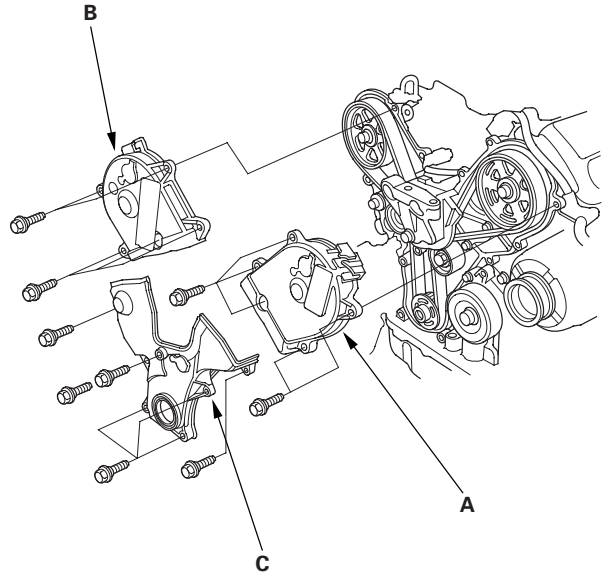


9. Remove the dipstick and tube (A); discard the O-ring (B).

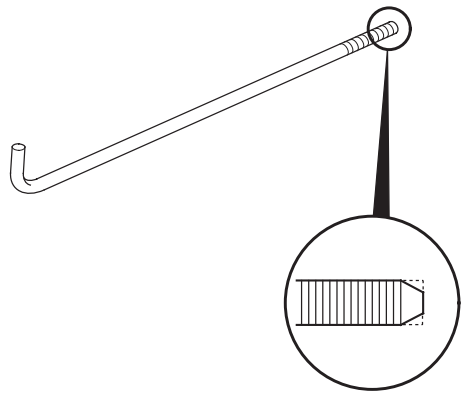


10. Remove the crankshaft pulley (see page 6-18), and the timing belt guide plate.

11. Remove the front upper cover (A), rear upper cover (B) and lower cover (C).



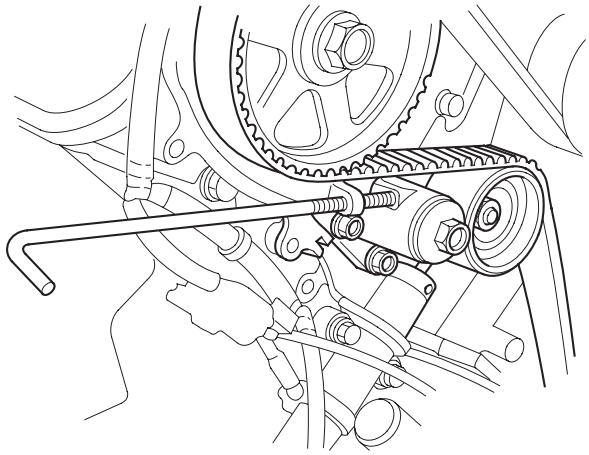
12. Remove one of the battery clamp bolts from the battery tray, and grind the end of it as shown.



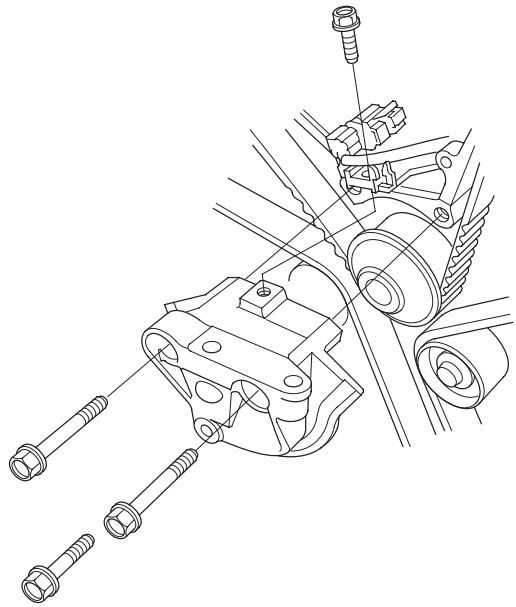
(cont'd)

Timing Belt Removal (cont'd)

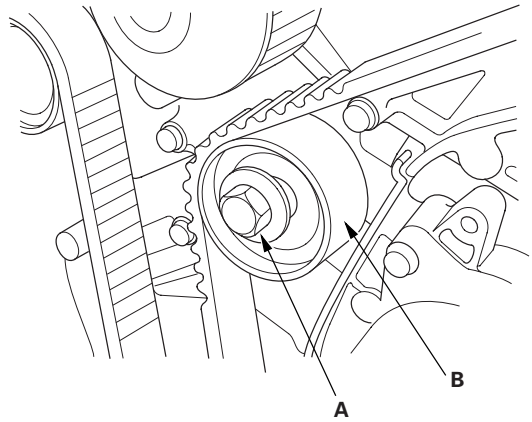
13. Screw in the battery clamp bolt as shown, to hold the timing belt adjuster in its current position. Tighten it by hand, do not use a wrench.



14. Remove the engine mount bracket.



15. Remove the idler pulley bolt (A) and idler pulley (B), then remove the timing belt.



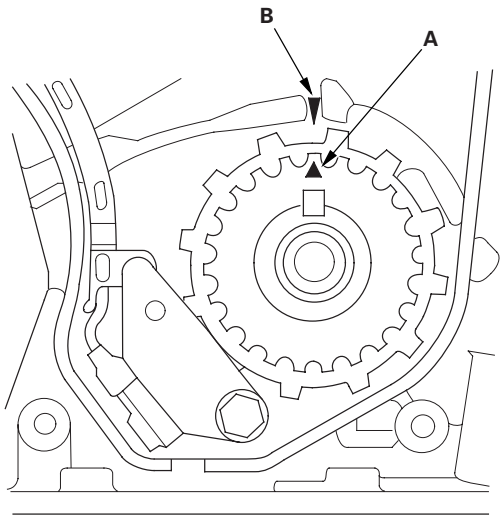
Timing Belt Installation

NOTE: The following procedure is for installing a new timing belt. If you are installing a used timing belt, refer to the next procedure (see page 6-29).

New Belt

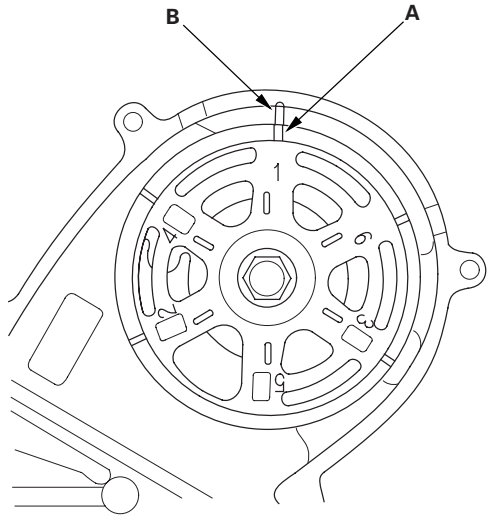
1. Clean the timing belt pulleys, timing belt guide plate, and the upper and lower covers.

2. Set the timing belt drive pulley to top dead center (TDC) by aligning the TDC mark (A) on the tooth of the timing belt drive pulley with the pointer (B) on the oil pump.

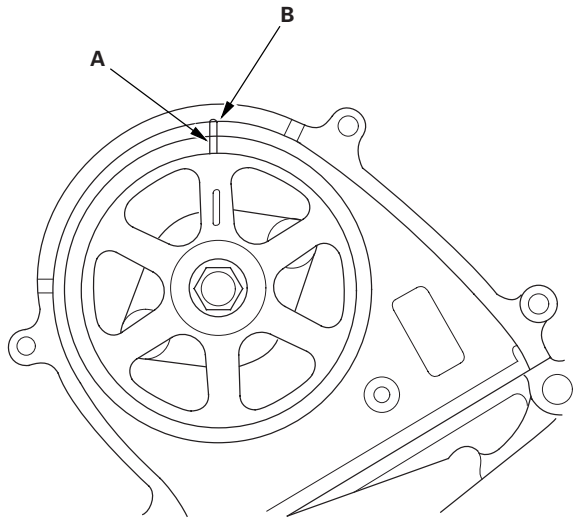


3. Set the camshaft pulleys to TDC by aligning the TDC marks (A) on the camshaft pulleys with the pointers (B) on the back covers.

FRONT:



REAR:



4. Remove the battery clamp bolt from the back cover.

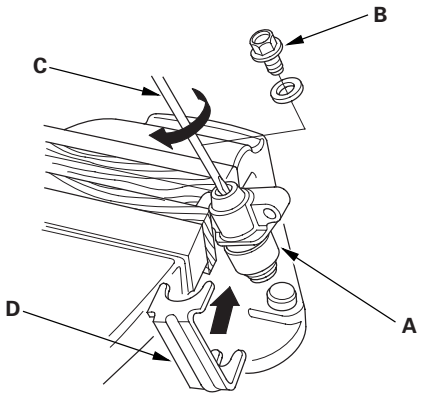
5. Remove the auto-tensioner.

(cont'd)

Timing Belt Installation (cont'd)

6. Hold the auto-tensioner (A) with the maintenance bolt pointing up. Loosen and remove the maintenance bolt (B) (1999 model).

   NOTE: Handle the auto-tensioner carefully so the oil inside does not spill or leak. If any of the oil has spilled or leaked out of the auto-tensioner, refill it with 5W-30 motor oil. The total capacity is 6.5 mℓ (0.22 fl oz).

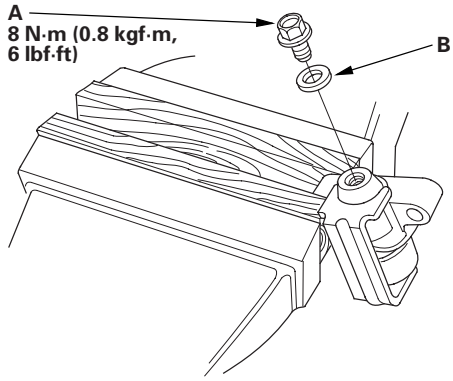


7. Clamp the boss of the auto-tensioner in a soft-jawed vise. Do not grip the housing of the auto-tensioner (1999 model).

8. Insert a flat blade screwdriver (C) into the maintenance hole. Place the holder (D) (P/N 14540-P8A-A01) on the auto-tensioner while turning the screwdriver clockwise to compress the bottom (1999 model).

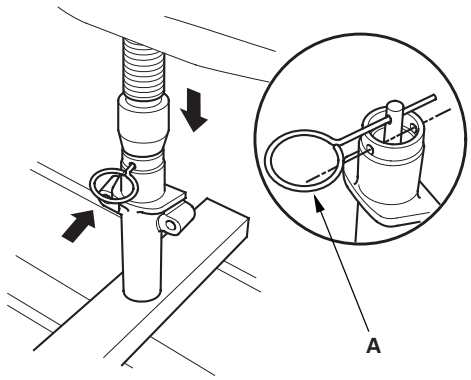
   NOTE: Take care not to damage the threads or the gasket contact surface with the screwdriver.

9. Reinstall the maintenance bolt (A). Always use a new gasket (B) (1999 model).



10. Make sure no oil is leaking around the maintenance bolt.

11. Align the holes on the rod and housing of the auto-tensioner with a pin of 1.5 mm (0.06 in.) diameter (A) (2000-2004 models).



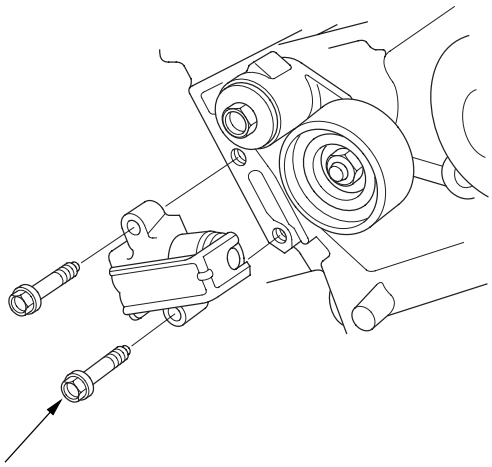
12. Set the auto-tensioner on the hydraulic press, then slowly compress the auto-tensioner to insert the pin through the housing and the rod (2000-2004 models).

    NOTE: The compression pressure should not exceed 9,800 N (1,000 kgf, 2,200 lb).

13. Install the auto-tensioner.

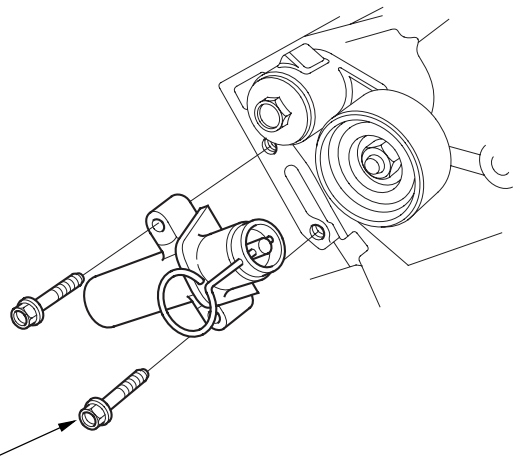
    NOTE: Make sure the holder (pin for '00-04 models) stays in place.

    1999 model:



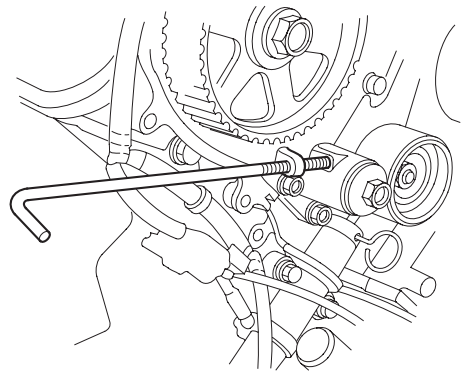
6 x 1.0 mm
12 N·m (1.2 kgf·m, 8.7 lbf·ft)

    2000-2004 models:



6 x 1.0 mm
12 N·m (1.2 kgf·m, 8.7 lbf·ft)

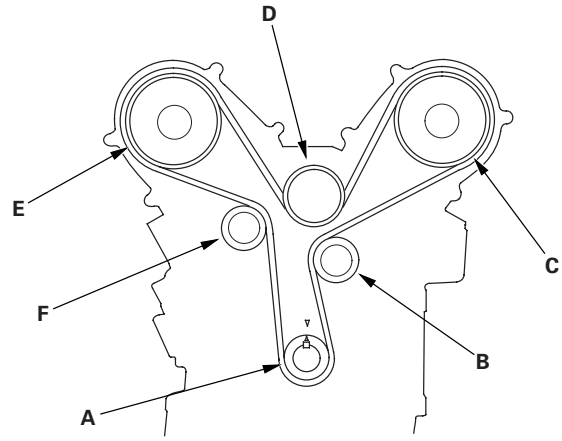
14. Screw the battery clamp bolt in as shown to hold the timing belt adjuster in its current position. Tighten it by hand, do not use a wrench.



15. Apply liquid thread lock to the idle pulley bolt, then loosley install the idler pulley.

16. Install the timing belt in a counter clockwise sequence starting with the drive pulley.

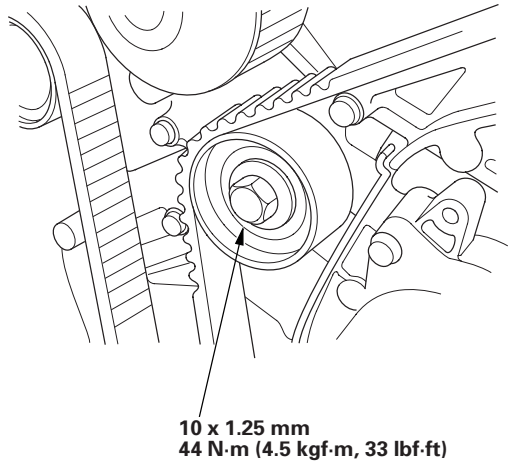
    1. Drive pulley (A).
    2. Idler pulley (B).
    3. Front camshaft pulley (C).
    4. Water pump pulley (D).
    5. Rear camshaft pulley (E).
    6. Adjusting pulley (F).



(cont'd)

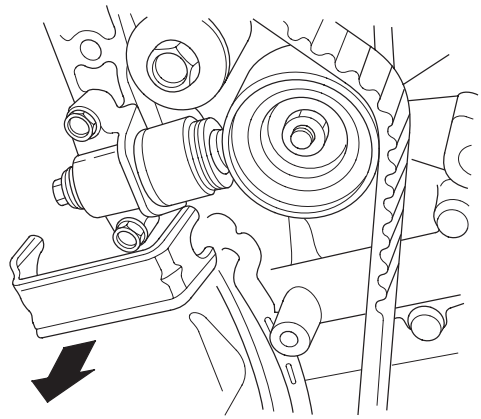
Timing Belt Installation (cont'd)

17. Tighten the idler pulley bolt.

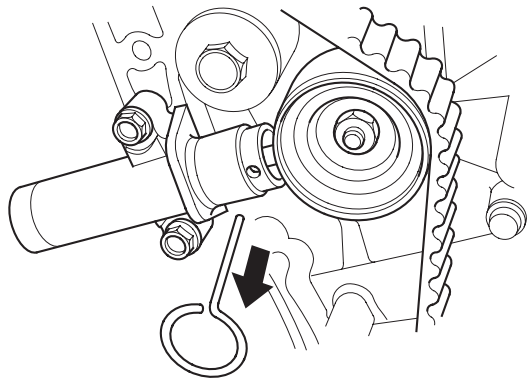


18. Remove the holder (pin for 2000-2004 models) from the auto-tensioner.

1999 model:

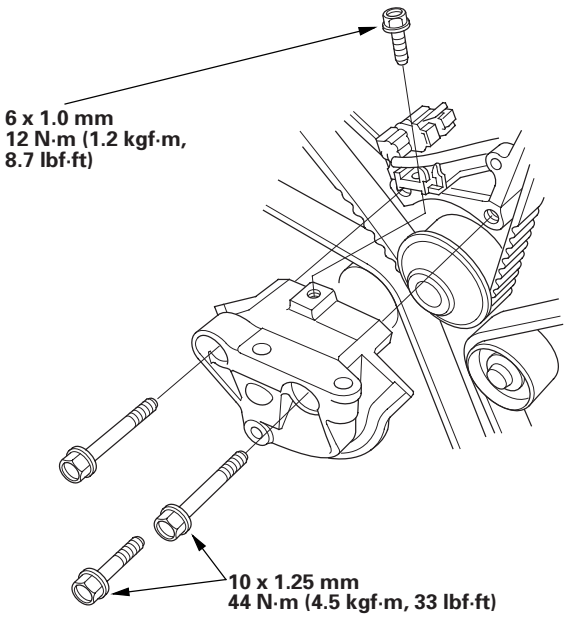


2000-2004 models:

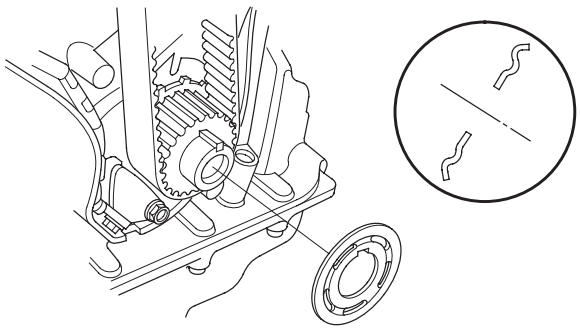


19. Remove the battery clamp bolt from the back cover.

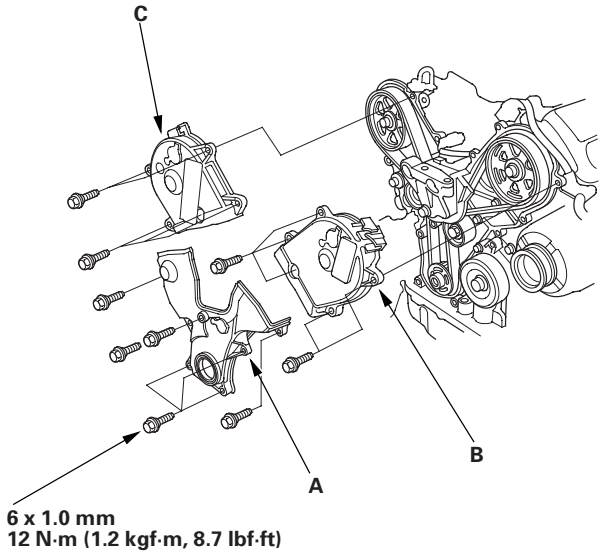
20. Install the engine mount bracket.



21. Install the timing belt guide plate as shown.



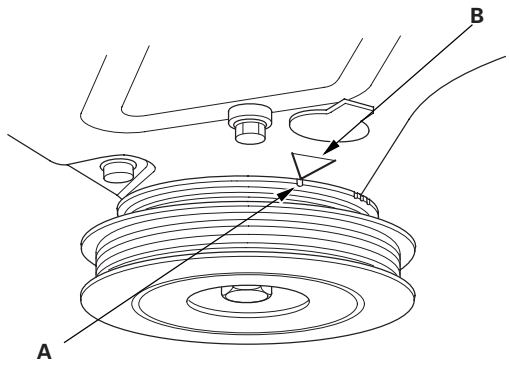
22. Install the lower cover (A), front upper cover (B) and rear upper cover (C).



23. Install the crankshaft pulley (see page 6-18).

24. Rotate the crankshaft pulley about five or six turns clockwise so the timing belt positions on the pulleys.

25. Turn the crankshaft pulley so its white mark (A) lines up with the pointer (B).



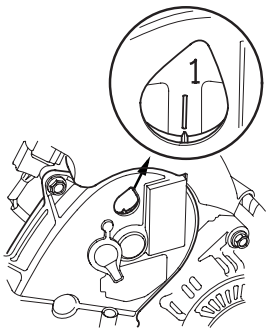
(cont'd)

Timing Belt Installation (cont'd)

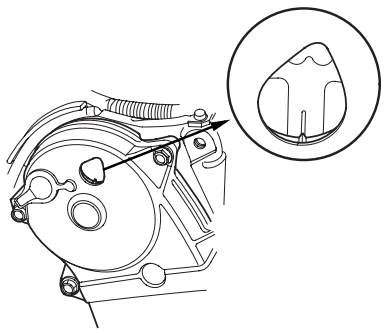
26. Check the camshaft pulley marks.

    - If the camshaft pulley marks are at TDC, go to step 27.
    - If the camshaft pulley marks are not at TDC, remove the timing belt and repeat steps 2 through 26.

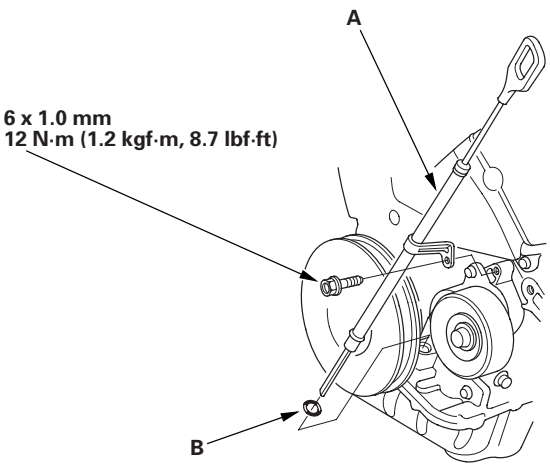
FRONT CAMSHAFT PULLEY:



REAR CAMSHAFT PULLEY:



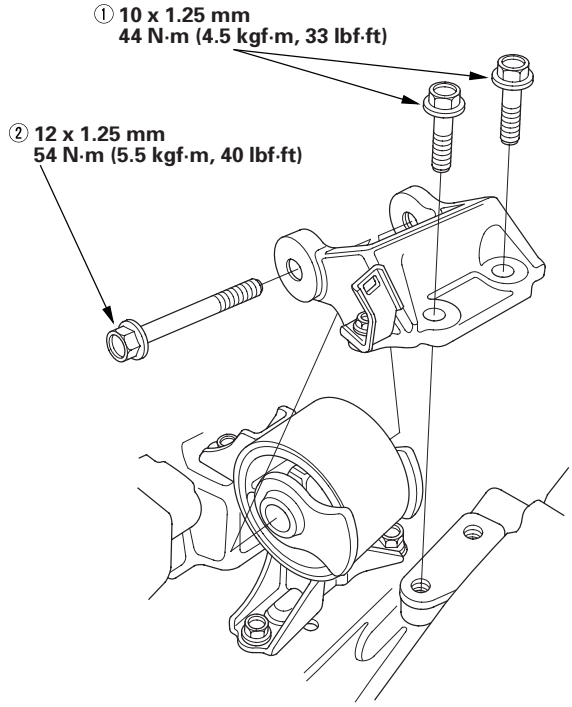
27. Install the dipstick and tube (A) with a new O-ring (B).



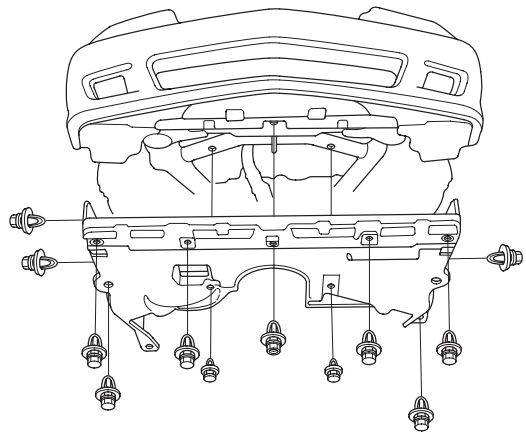
28. Install and adjust the power steering (P/S) pump belt (see page 17-12).

29. Install the alternator-compressor belt (see page 4-26).

30. Install the side engine mount bracket, then tighten the mounting bolts in the numbered sequence shown.



31. Install the splash sield.



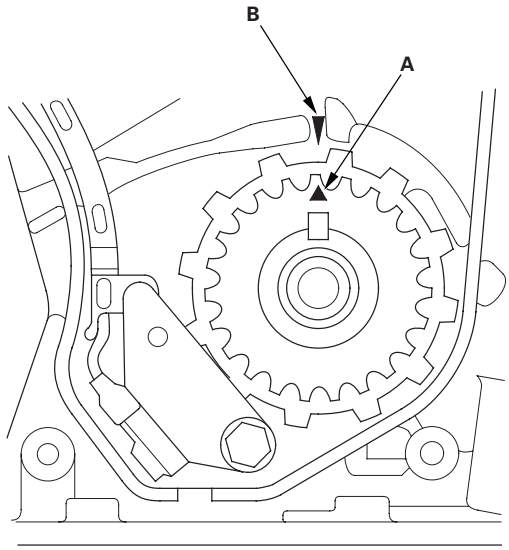
32. Install the front tires/wheels.

Used Belt

Follow this procedure when installing a used timing belt.

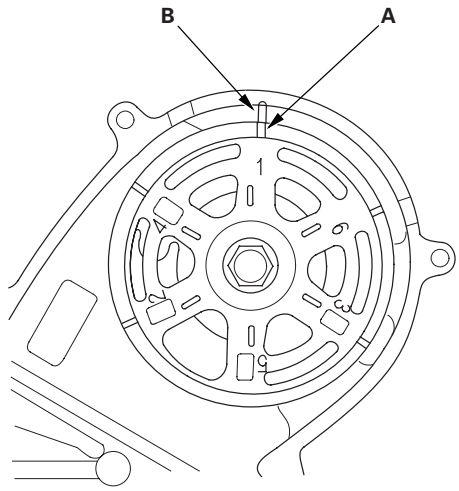
1. Clean the timing belt drive pulleys, crankshaft, camshaft pulleys, timing belt guide plate, and the upper and lower covers.

2. Set the timing belt drive pulley to TDC by aligning the TDC mark (A) on the tooth of the timing belt drive pulley with the pointer (B) on the oil pump.

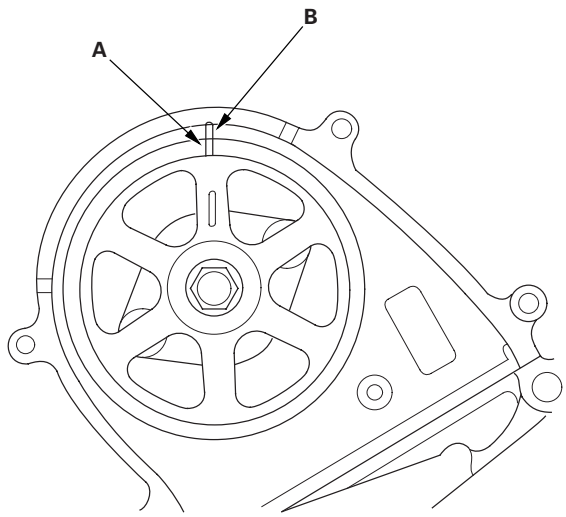


3. Clean the camshaft pulleys. Set the camshaft pulleys to TDC by aligning the TDC marks (A) on the camshaft pulleys with the pointers (B) on the back covers.

FRONT:



REAR:



(cont'd)

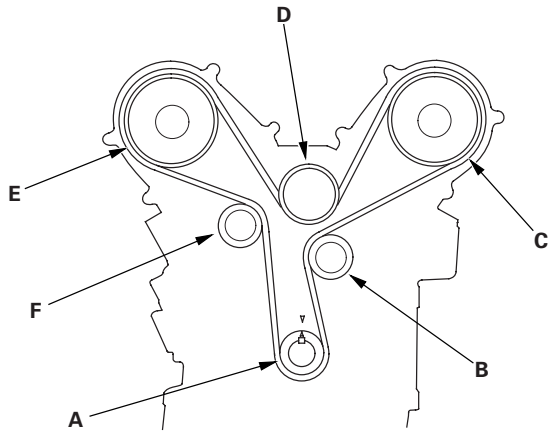
Timing Belt Installation (cont'd)

4. If the auto-tensioner has extended and the timing belt cannot be installed, perform the new belt installation procedure.

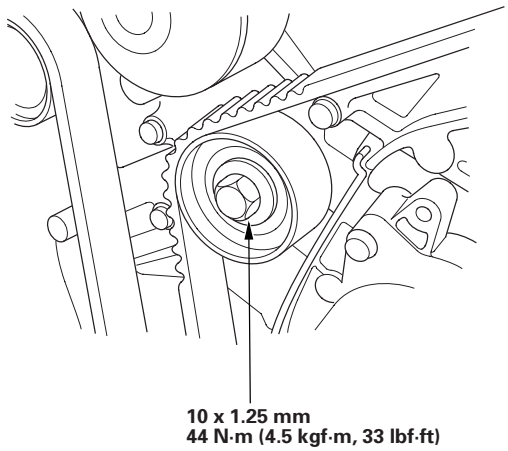
5. Apply liquid thread lock to the idler pulley bolt, then loosely install the idler pulley.

6. Install the timing belt in a counterclockwise sequence starting with the drive pulley. Take care not to damage the timing belt when installing it.

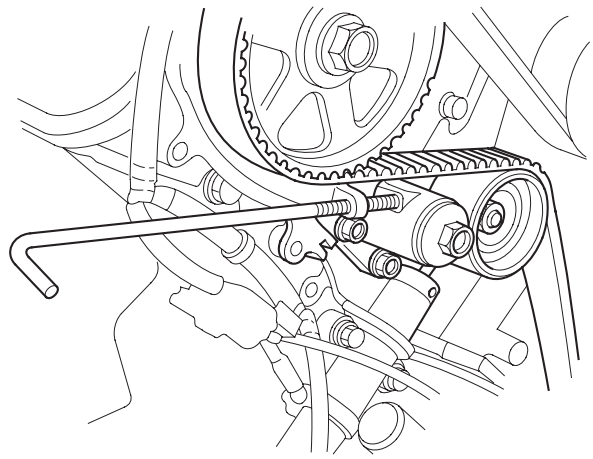
   1. Drive pulley (A).
   2. Idler pulley (B).
   3. Front camshaft pulley (C).
   4. Water pump pulley (D).
   5. Rear camshaft pulley (E).
   6. Adjusting pulley (F).



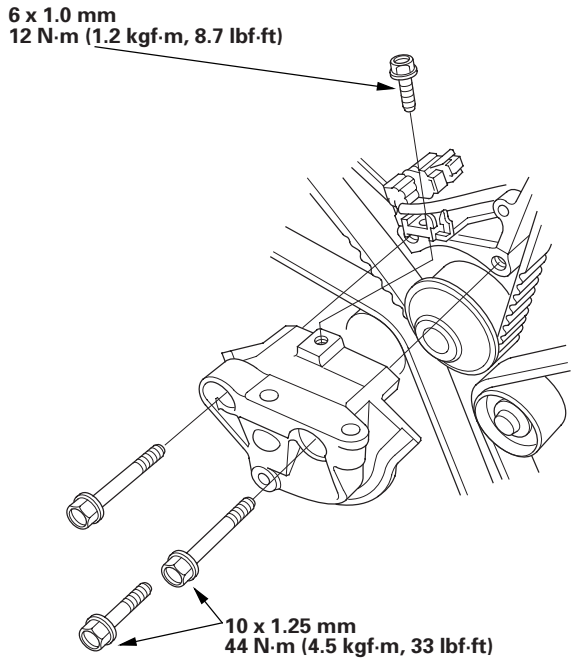
7. Tighten the idler pulley bolt.



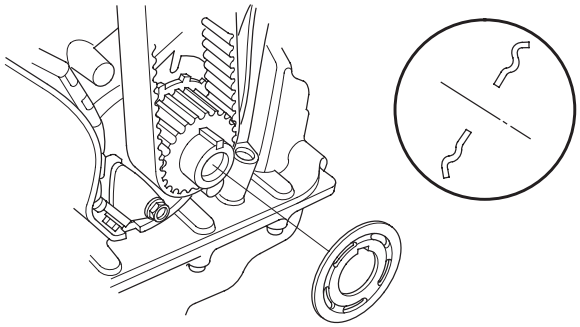
8. Remove the battery clamp bolt from the back cover.



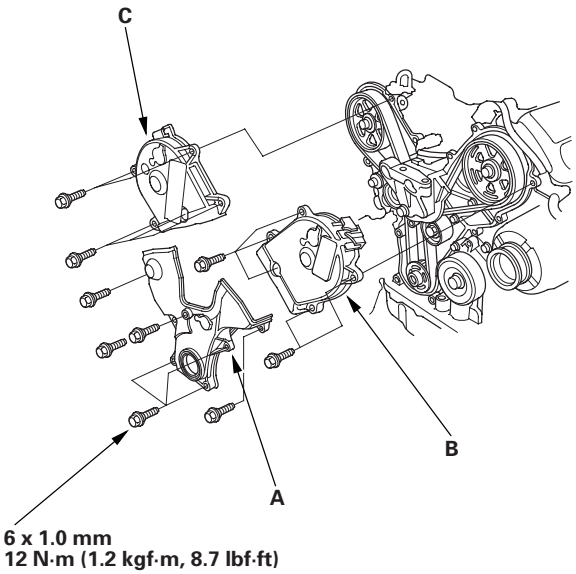
9. Install the engine mount bracket.



10. Install the timing belt guide plate as shown.



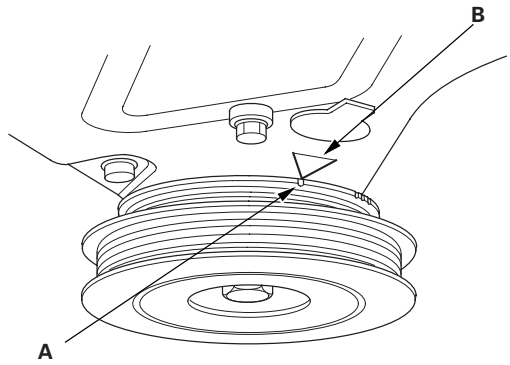
11. Install the lower cover (A), front upper cover (B) and rear upper cover (C).



12. Install the crankshaft pulley (see page 6-18).

13. Rotate the crankshaft pulley about five or six turns clockwise so the timing belt positions on the pulleys.

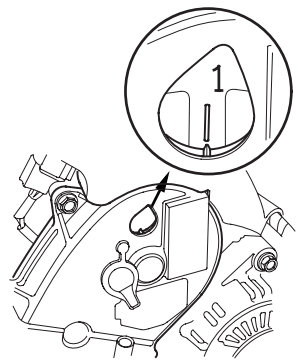
14. Turn the crankshaft pulley so its white mark (A) lines up with the pointer (B).



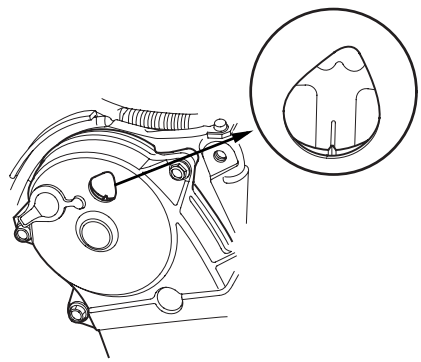
15. Check the camshaft pulley marks.

- If the camshaft pulley marks are at TDC, go to step 16.
- If the camshaft pulley marks are not at TDC, remove the timing belt and repeat steps 2 through 14.

FRONT CAMSHAFT PULLEY:



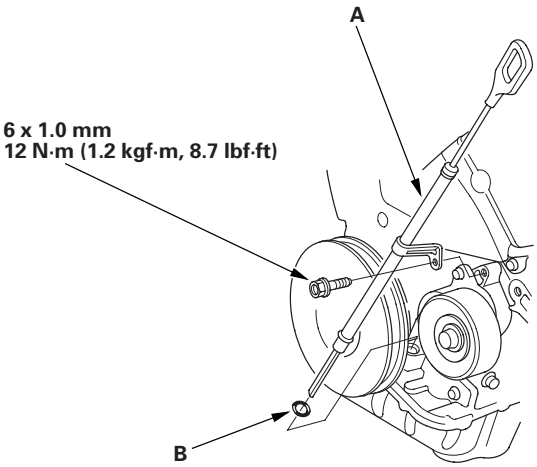
REAR CAMSHAFT PULLEY:



(cont'd)

Timing Belt Installation (cont'd)

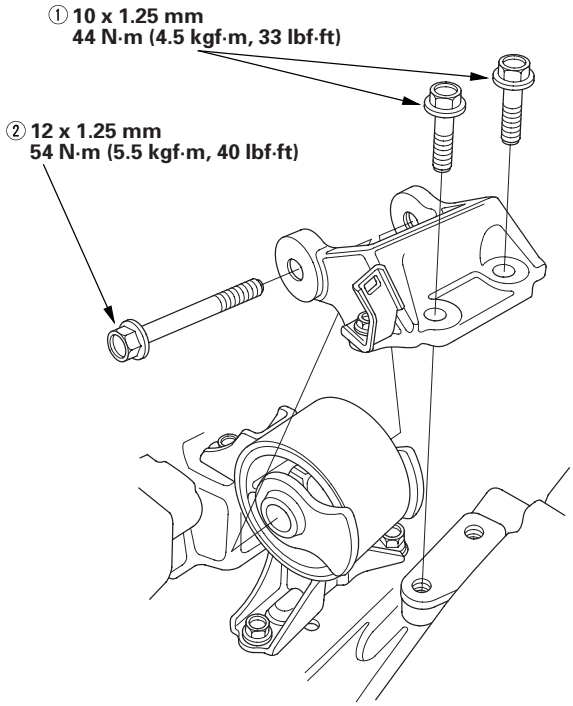
16. Install the dipstick and tube (A) with a new O-ring (B).



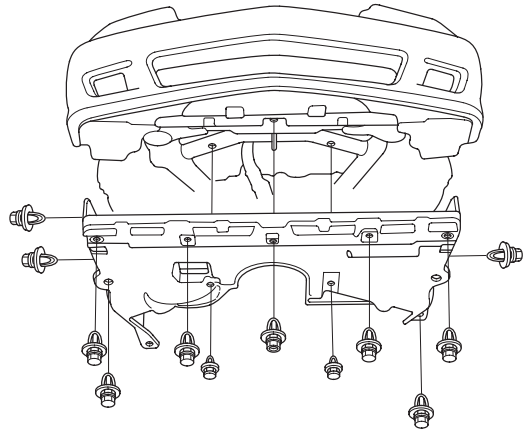
17. Install and adjust the P/S pump belt (see page 17-12).

18. Install the alternator-compressor belt (see page 4-26).

19. Install the side engine mount bracket, then tighten the mounting bolts in the numbered sequence shown.



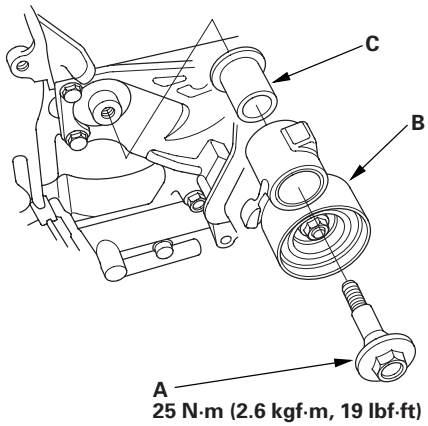
20. Install the splash shield.



21. Install the right front tire/wheel.

Timing Belt Adjuster Replacement

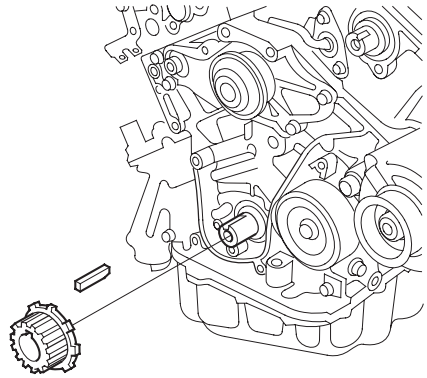
1. Remove the timing belt (see page 6-20).
2. Remove the auto-tensioner.
3. Remove the bolt (A), then remove the timing belt adjuster (B) and collar (C).



4. Install in the auto-tensioner.
5. Install the timing belt (see page 6-23).

Timing Belt Drive Pulley Replacement

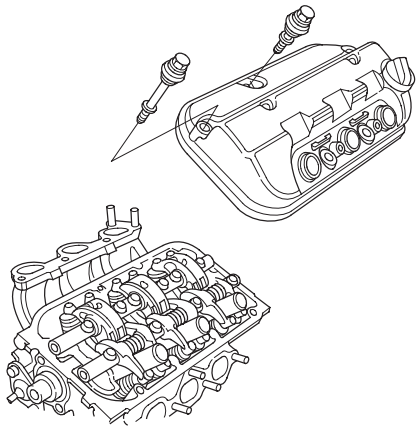
1. Remove the timing belt (see page 6-20).
2. Remove the crankshaft position (CKP) sensor (see page 6-61).
3. Remove the timing belt drive pulley.



4. Check the timing belt drive pulley for damage. If the timing belt drive pulley is damaged, replace the timing belt drive pulley.
5. Install the new timing belt drive pulley.
6. Install the CKP sensor (see page 6-61).
7. Install the timing belt (see page 6-23).

Cylinder Head Cover Removal

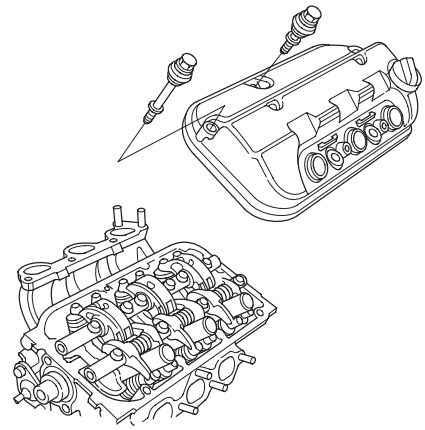
1. Remove the intake manifold (see page 9-4).
2. Remove the six ignition coils (see page 4-17).
3. Remove the cylinder head cover.



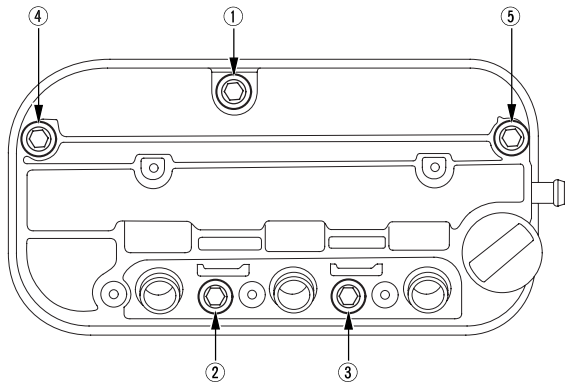
Cylinder Head Cover Installation

1. Install the cylinder head covers.

   NOTE:
   - Before installing the cylinder head cover, clean the cylinder head contacting surfaces with a shop towel.
   - Take care not to damage the spark plug seal when installing the cylinder head cover.
   - Visually check the spark plug seals for damage.
   - Replace the washer if it is damaged or deteriorated.



2. Tighten the nuts in two or three steps. In the final step, tighten all nuts, in sequence, to 12 N·m (1.2 kgf·m, 8.7 lbf·ft).



3. Install the six ignition coils (see page 4-17).
4. Install the intake manifold (see page 9-7).

Cylinder Head Removal

NOTE:
- Use fender covers to avoid damaging painted surfaces.
- To avoid damage, unplug the wiring connectors carefully while holding the connector portion.
- To avoid damaging the cylinder head, wait until the engine coolant temperature drops below 100°F (38°C) before loosening the cylinder head bolts.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.

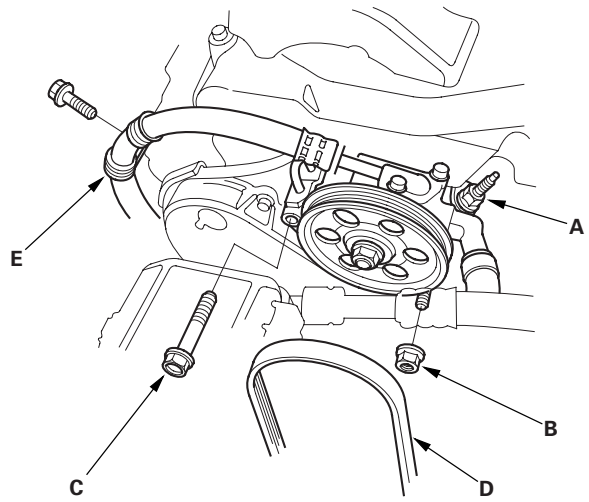
1. Make sure you have the anti-theft code for the radio, then write down the frequencies for the radio's preset buttons.

2. Disconnect the battery negative terminal.

3. Drain the engine coolant (see page 10-13).

4. Remove the alternator-compressor belt (see page 4-26).

5. Loosen the adjusting nut (A), and remove the locknut (B) and mounting bolt (C), then remove the power steering (P/S) pump belt (D) and pump without disconnecting the P/S hoses.



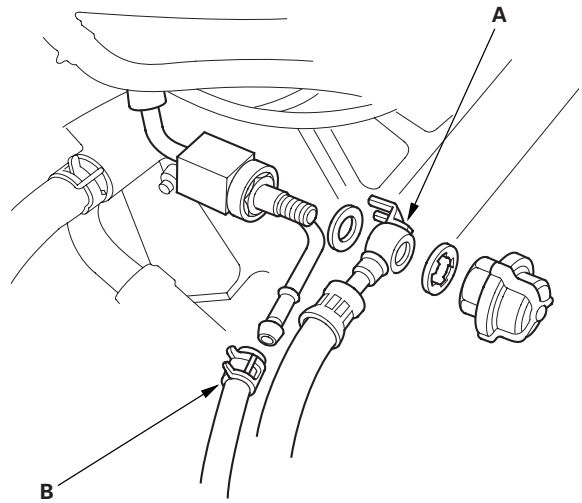
6. Remove the P/S hose clamp (E).

7. Remove the alternator (see page 4-27).

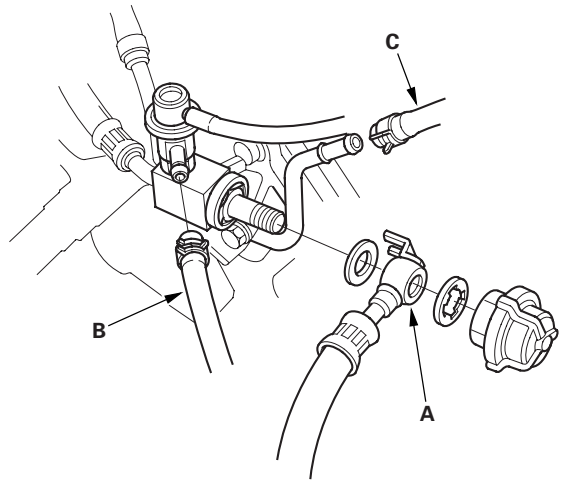
8. Relieve fuel pressure (see page 11-215).

9. Remove the fuel feed hose (A) and fuel return hose (B).

1999-2001 models:



2002-2004 models:



10. Remove the evaporative emission (EVAP) canister hose (C) (2002-2004 models).

(cont'd)

Cylinder Head Removal (cont'd)

11. Remove the intake manifold (see page 9-4).

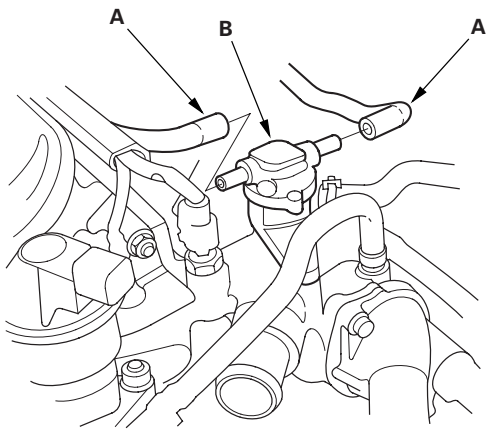
12. Remove the six ignition coils (see page 4-17).

13. Remove the timing belt (see page 6-20).

14. Remove the engine wire harness connectors and wire harness clamps from the cylinder head.

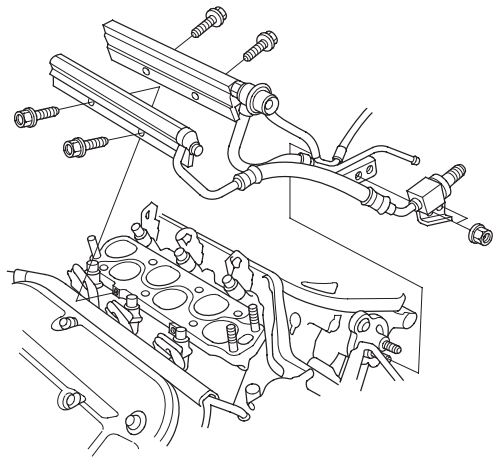
    - Six injector connectors
    - Engine coolant temperature (ECT) sensor connector
    - Radiator fan switch A connector
    - Radiator fan switch B connector
    - Coolant temperature gauge sending unit connector (1999-2000 models)
    - Crankshaft position (CKP) sensor connector
    - Camshaft position (CMP) (top dead center (TDC)) sensor connector
    - Exhaust gas recirculation (EGR) valve connector
    - VTEC solenoid valve connector
    - VTEC oil pressure switch connector
    - Oil pressure switch connector

15. Remove the vacuum hoses (A) from the intake air bypass control thermal valve (B).

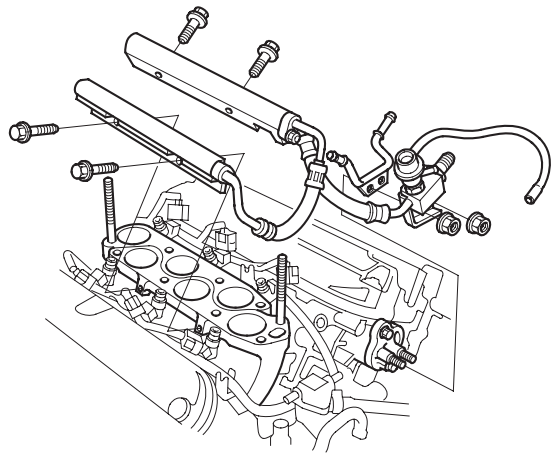


16. Remove the fuel rails.

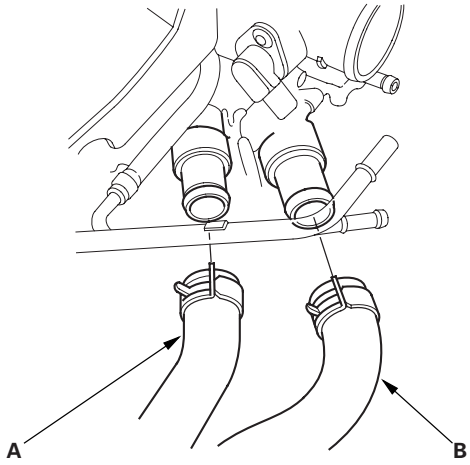
1999-2001 models:



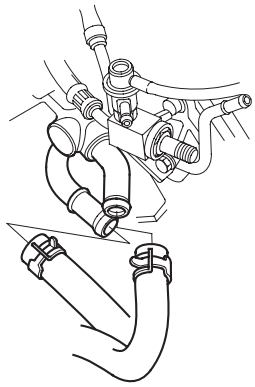
2002-2004 models:



17. Remove the upper radiator hose (A) and lower radiator hose (B).

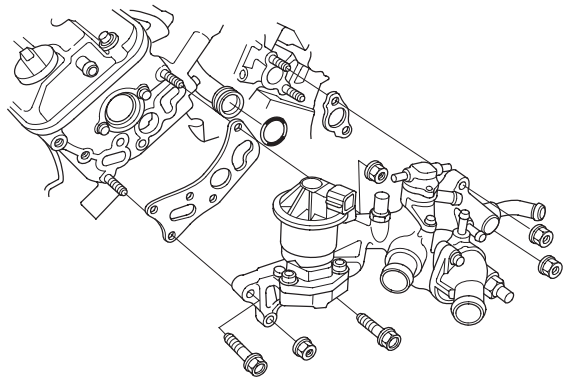


18. Remove the heater hoses.

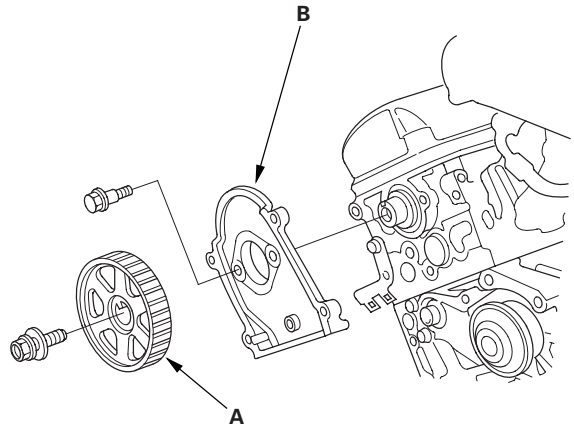


19. Remove the front and rear exhaust manifolds (see page 9-10).

20. Remove the water passage.



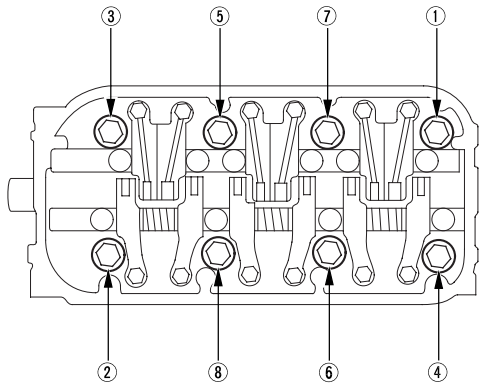
21. Remove the camshaft pulleys (A) and back cover (B).



22. Remove the cylinder head covers.

23. Remove the cylinder head bolts. To prevent warpage, unscrew the bolts, in sequence, 1/3 turn at a time. Repeat the sequence until all bolts are loosened.

Cylinder Head Bolt Loosening Sequence

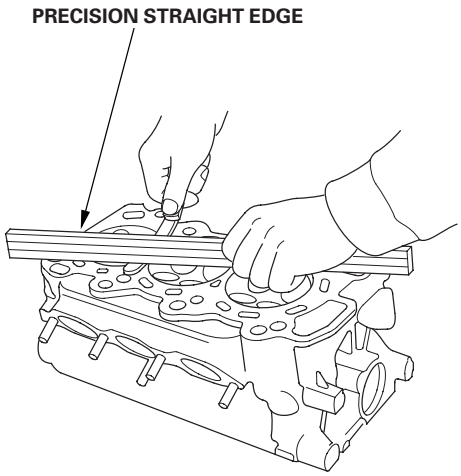


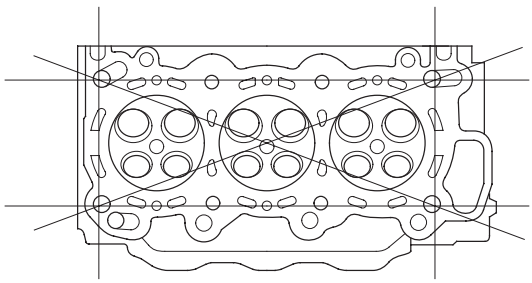
24. Remove the cylinder heads.

Cylinder Head Inspection for Warpage

1. Remove the cylinder head (see page 6-35).
2. Inspect the camshaft (see page 6-43).
3. Check the cylinder head for warpage. Measure along the edges, and three ways across the center.
   - If warpage is less than 0.05 mm (0.002 in.), cylinder head resurfacing is not required.
   - If warpage is between 0.05 mm (0.002 in.) and 0.2 mm (0.008 in.), resurface the cylinder head.
   - Maximum resurface limit is 0.2 mm (0.008 in.) based on a height of 121 mm (4.76 in.).

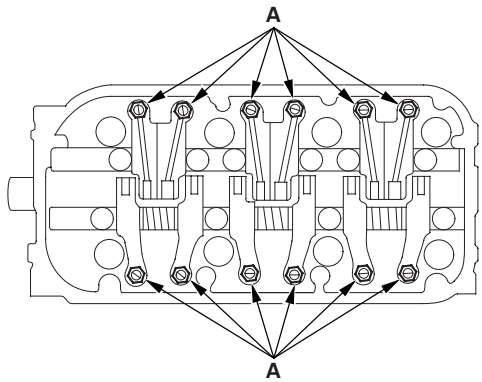
Cylinder Head Height
Standard (New): 120.95—121.05 mm (4.762—4.766 in.)





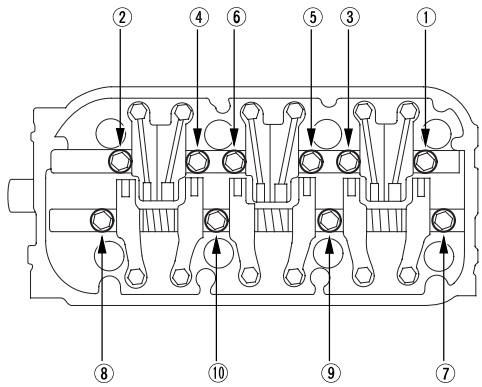
Rocker Arm Assembly Removal

1. Remove the cylinder head cover (see page 6-34).
2. Loosen the adjusting screws (A).



3. Remove the bolts and the rocker arm assembly.
   - 1 Unscrew the rocker shaft mounting bolts two turns at a time, in a crisscross pattern, to prevent damaging the valves or rocker arm assembly.
   - 2 When removing the rocker arm assembly, do not remove the rocker shaft mounting bolts. The bolts will keep the springs and the rocker arms on the shafts.

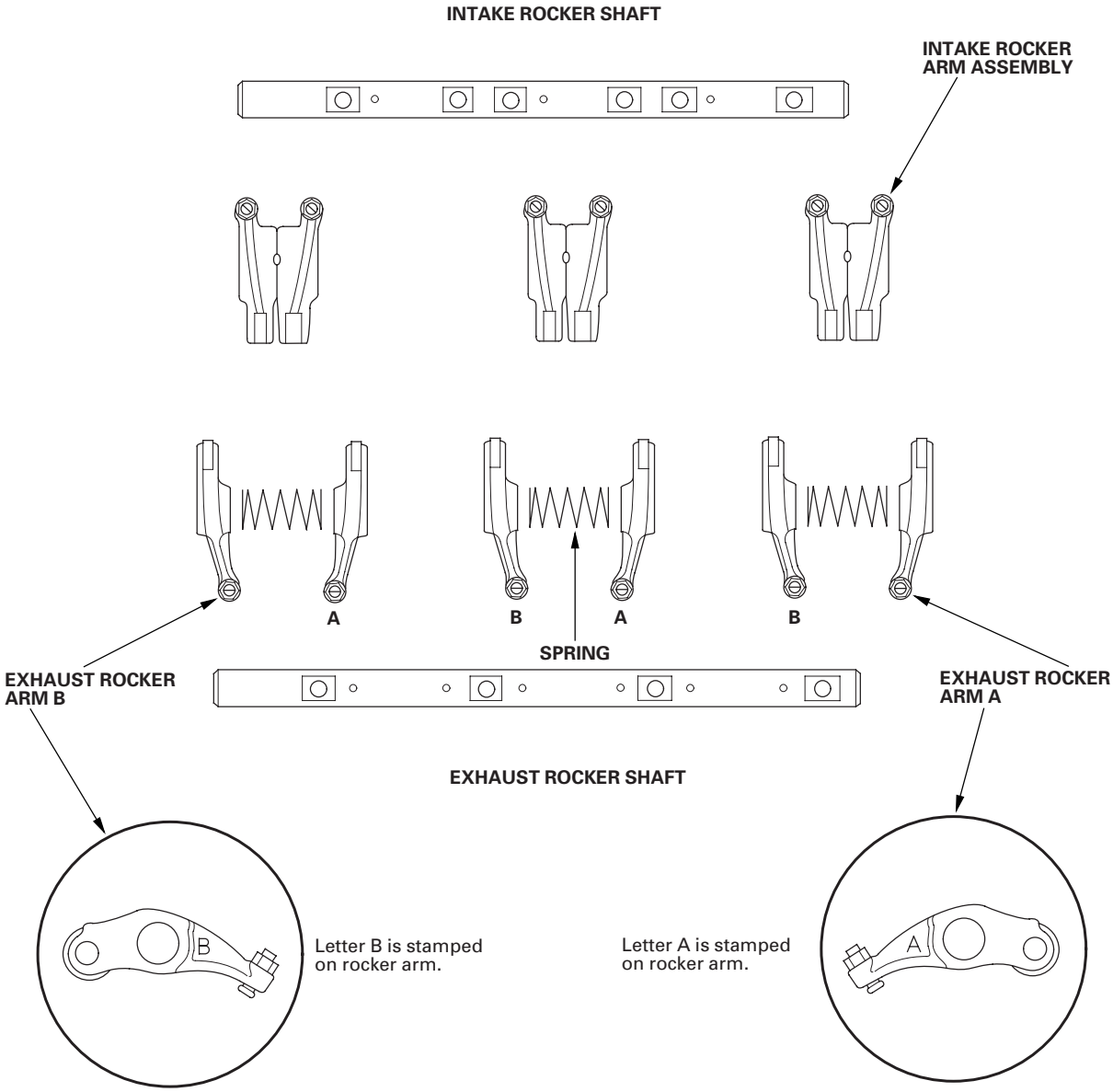
Camshaft Holder Bolt Loosening Sequence



Rocker Arm and Shaft Disassembly/Reassembly

NOTE:
- Identify parts as they are removed so they can be reinstalled in their original locations.
- Inspect the rocker shafts and rocker arms (see page 6-41).
- Rocker arms must be installed in the same positions if reused.
- When removing or installing the rocker arm assembly, do not remove the rocker shaft mounting bolts. The bolts will keep the springs and rocker arms on the shaft.
- Bundle the rocker arms with rubber bands to keep them together as a set.
- Prior to reassembling, clean all the parts in solvent, dry them and apply new engine oil to any contact points.

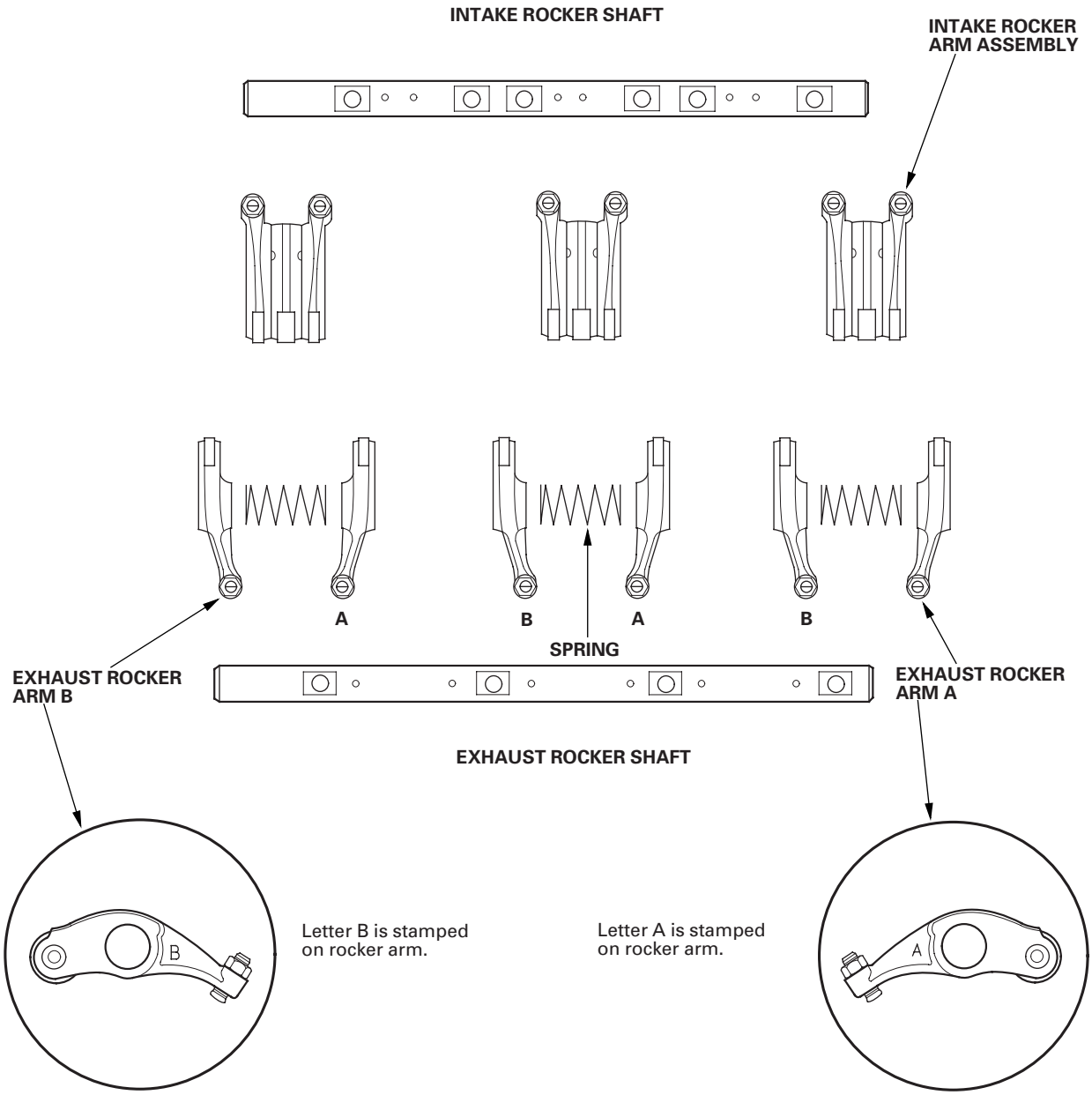
1999-2001 models:



(cont'd)

Rocker Arm and Shaft Disassembly/Reassembly (cont'd)

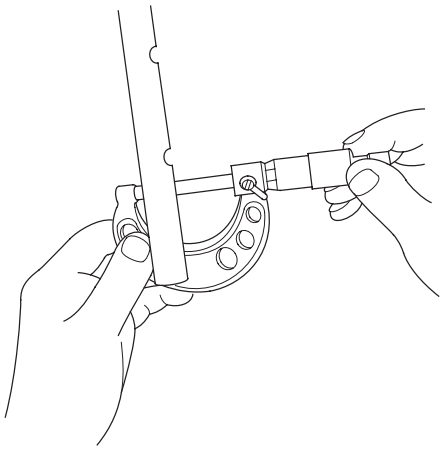
2002-2004 models:



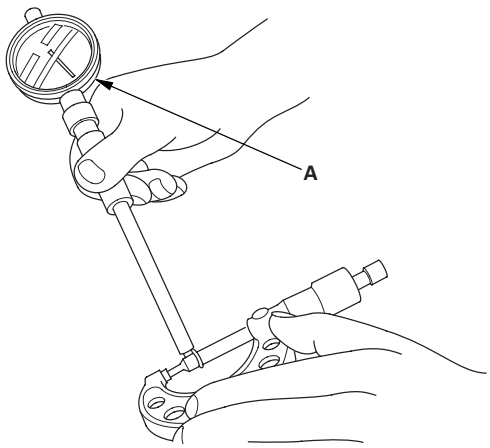
Rocker Arm and Shaft Inspection

1. Remove the rocker arm assembly (see page 6-38).

2. Measure the diameter of the shaft at the first rocker location.

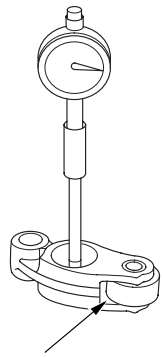


3. Zero the gauge (A) to the shaft diameter.



4. Measure the inside diameter of the rocker arm, and check it for an out-of-round condition.

Rocker Arm-to-Shaft Clearance
Standard (New):
Intake: 0.026–0.067 mm (0.0010–0.0026 in.)
Service Limit: 0.067 mm (0.0026 in.)
Exhaust: 0.026–0.077 mm (0.0010–0.0030 in.)
Service Limit: 0.077 mm (0.0030 in.)



5. Repeat for all rockers and both shafts. If the clearance is over the limit, replace the rocker shaft and all overtolerance rocker arms. If any intake rocker arm needs replacement, replace both rocker arms (primary and secondary, or primary, mid and secondary) as a set.

(cont'd)

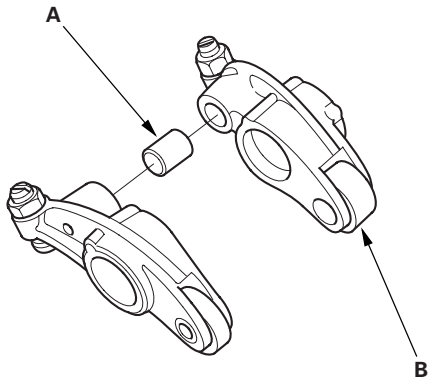
Rocker Arm and Shaft Inspection (cont'd)

VTEC Rocker Arms

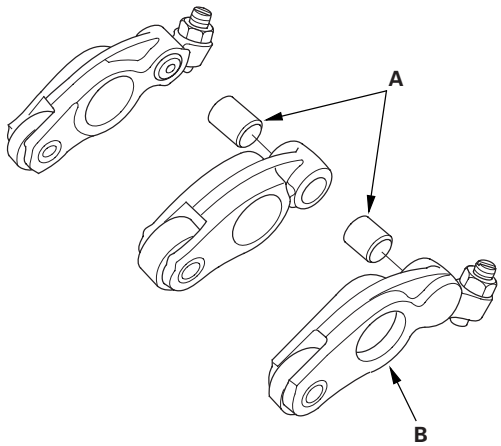
6. Inspect the rocker arm piston (A). Push them manually. If they do not move smoothly, replace the rocker arm assembly.

   NOTE:
   - Apply new engine oil to the pistons when reassembling.
   - When reassembling the primary rocker arm (B), carefully apply air pressure to the oil passage of the rocker arm.

1999-2001 models:



2002-2004 models:



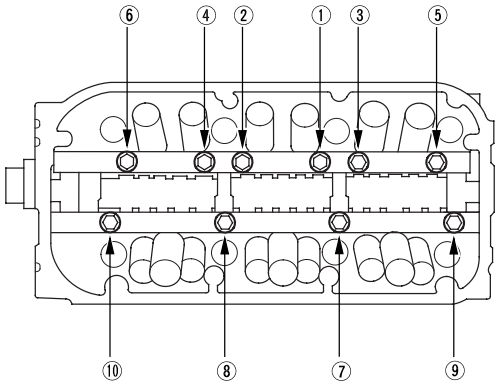
Camshaft Inspection

1. Remove the timing belt (see page 6-20).

2. Remove the rocker arms (see page 6-38).

3. Put the rocker shafts on the cylinder head, then tighten the bolts to the specified torque.

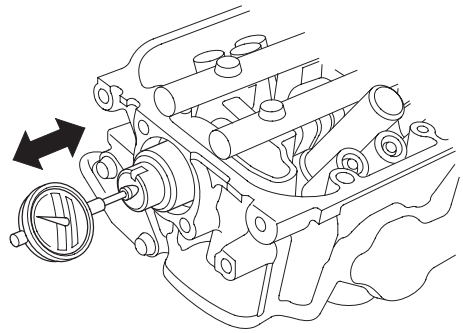
   Specified torque
   8 x 1.25 mm
   24 N·m (2.4 kgf·m, 17 lbf·ft)
   Apply new engine oil to the bolt threads and flange



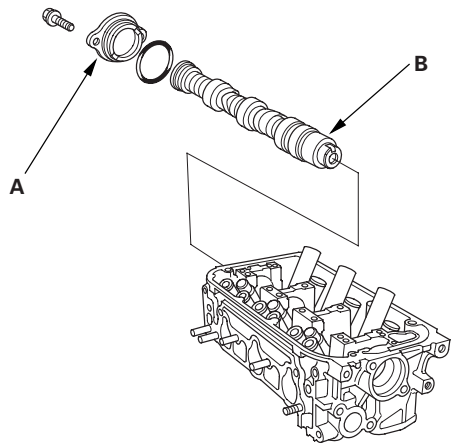
4. Seat the camshaft by pushing it toward the rear of the cylinder head.

5. Zero the dial indicator against the end of the camshaft. Push the camshaft back and forth and read the end play. If the end play is beyond the service limit, replace the thrust cover and recheck. If it is still beyond the service limit, replace the camshaft.

   Camshaft End Play
   Standard (New): 0.05—0.20 mm (0.002—0.008 in.)
   Service Limit: 0.20 mm (0.008 in.)



6. Remove the camshaft thrust cover (A), then pull out the camshaft (B).

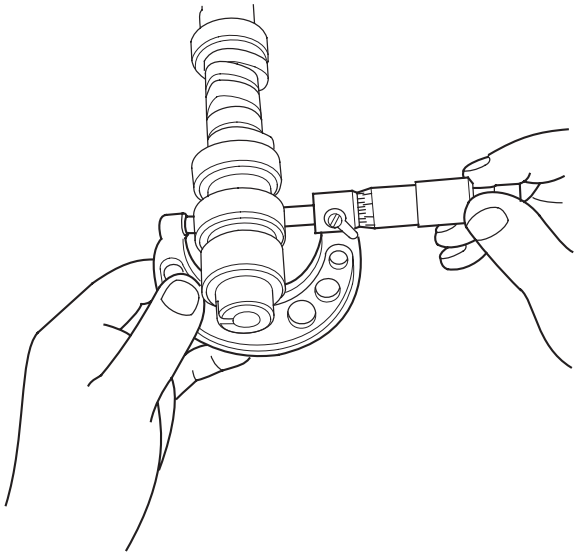


(cont'd)

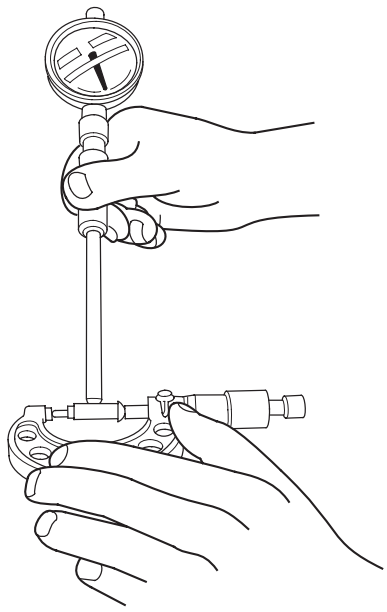
Camshaft Inspection (cont'd)

7. Wipe the camshaft clean, then inspect the lift ramps. Replace the camshaft if any lobes are pitted, scored, or excessively worn.

8. Measure the diameter of each camshaft journal.



9. Zero the gauge to the journal diameter.

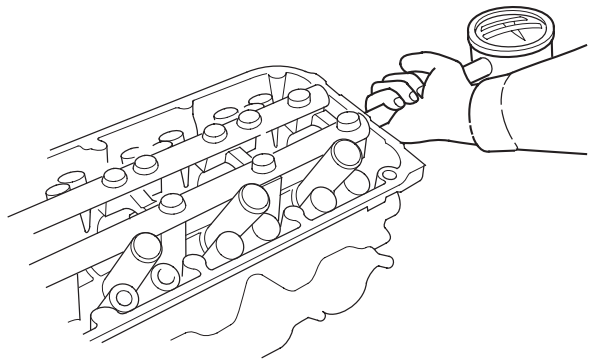


10. Clean the camshaft bearing surfaces in the cylinder head. Measure the inside diameter of each camshaft bearing surface, and check for an out-of-round condition.

- If the camshaft-to-holder clearance is within limits, go to step 12.
- If the camshaft-to-holder clearance is beyond the service limit and the camshaft has been replaced, replace the cylinder head.
- If the camshaft-to-holder clearance is beyond the service limit and the camshaft has not been replaced, go to step 11.

Camshaft-to-Holder Oil Clearance

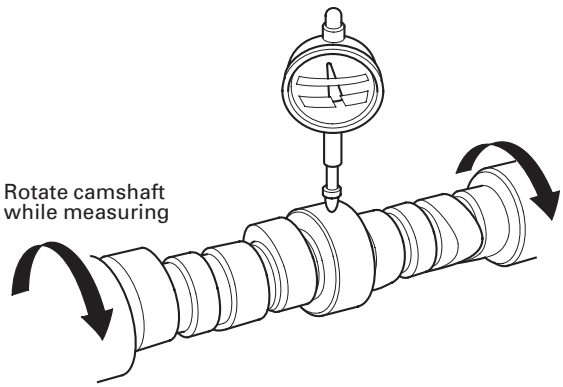
Standard (New):	**0.050—0.089 mm (0.0020—0.0035 in.)**
Service Limit:	**0.15 mm (0.006 in.)**



11. Check total runout with the camshaft supported on V-blocks.

    - If the total runout of the camshaft is within the service limit, replace the cylinder head.
    - If the total runout is beyond the service limit, replace the camshaft and recheck the oil clearance. If the oil clearance is still out of tolerance, replace the cylinder head.

    Camshaft Total Runout
    Standard (New): 0.03 mm (0.001 in.) max.
    Service Limit: 0.04 mm (0.002 in.)



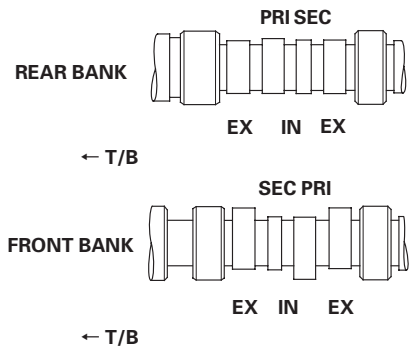
12. Measure cam lobe height.

    Cam Lobe Height Standard (New):

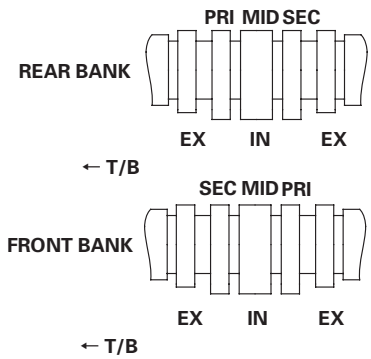
		INTAKE	EXHAUST
1999-2001 models:	PRI	35.832 mm (1.4107 in.)	35.763 mm (1.4080 in.)
	SEC	31.066 mm (1.2231 in.)	
2002-2004 models:	PRI	34.737 mm (1.3676 in.)	36.326 mm (1.4302 in.)
	MID	36.445 mm (1.4348 in.)	
	SEC	34.919 mm (1.3748 in.)	

PRI : Primary MID : Mid SEC : Secondary
T/B : Timing Belt

1999-2001 models:



2002-2004 models:



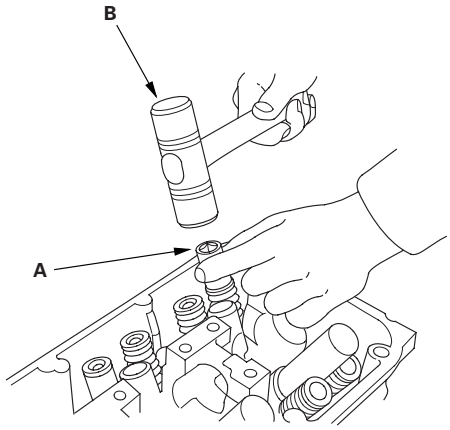
Valve, Spring, and Valve Seal Removal

Special Tools Required
- Valve spring compressor attachment 07757-PJ1010A
- Valve spring compressor KD383 with No. 32 jaws, or CF811, commercially available
- Valve guide seal remover KD3350, commercially available

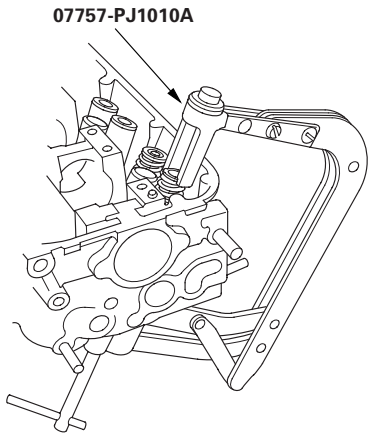
Identify the valves and valve springs as they are removed so that each item can be reinstalled in its original position.

1. Remove the cylinder head (see page 6-34).

2. Using an appropriate-sized socket (A) and plastic mallet (B), lightly tap the valve retainer to loosen the valve keepers.

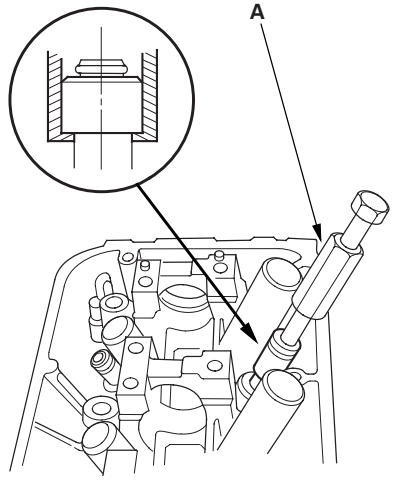


3. Install the valve spring compressor. Compress the spring and remove the valve keepers.

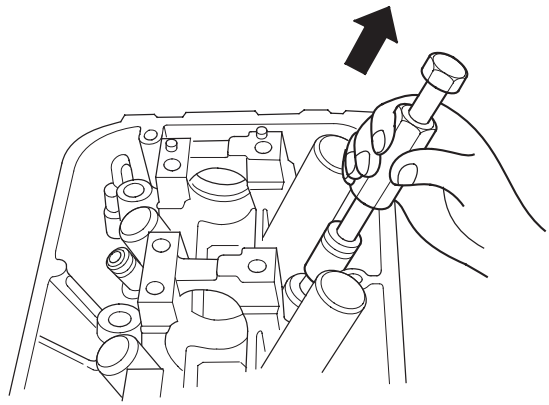


4. Remove the valve and valve spring.

5. Install the valve guide seal remover (A).



6. Remove the valve seal.



Valve Inspection

1999-2001 models

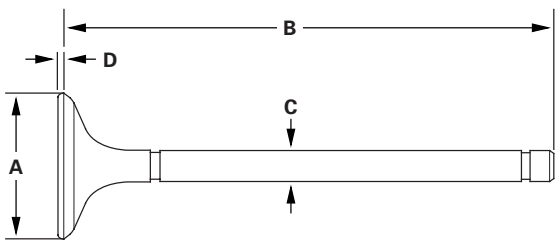
1. Remove the valves (see page 6-46).
2. Measure the valve in these areas.

Intake Valve Dimensions

A Standard (New):	**33.90—34.10 mm (1.335—1.343 in.)**
B Standard (New):	**114.85—115.15 mm (4.522—4.533 in.)**
C Standard (New):	**5.485—5.495 mm (0.2159—0.2163 in.)**
C Service Limit:	**5.455 mm (0.2148 in.)**
D Standard (New):	**0.85—1.15 mm (0.033—0.045 in.)**
D Service Limit:	**0.65 mm (0.026 in.)**

Exhaust Valve Dimensions

A Standard (New):	**28.90—29.10 mm (1.138—1.146 in.)**
B Standard (New):	**112.85—113.15 mm (4.443—4.455 in.)**
C Standard (New):	**5.450—5.460 mm (0.2146—0.2150 in.)**
C Service Limit:	**5.420 mm (0.2134 in.)**
D Standard (New):	**1.05—1.35 mm (0.041—0.053 in.)**
D Service Limit:	**0.95 mm (0.037 in.)**



2002-2004 models

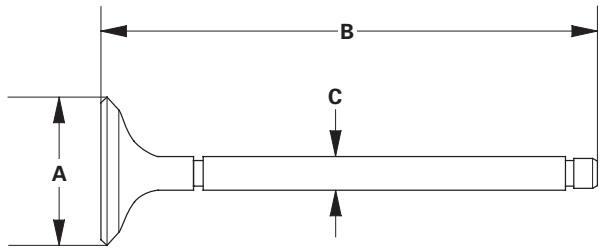
1. Remove the valves (see page 6-46).
2. Measure the valve in these areas.

Intake Valve Dimensions

A Standard (New):	**34.90—35.10 mm (1.374—1.382 in.)**
B Standard (New):	**115.70—116.30 mm (4.555—4.579 in.)**
C Standard (New):	**5.485—5.495 mm (0.2159—0.2163 in.)**
C Service Limit:	**5.455 mm (0.2148 in.)**

Exhaust Valve Dimensions

A Standard (New):	**29.90—30.10 mm (1.177—1.185 in.)**
B Standard (New):	**113.90—114.50 mm (4.484—4.508 in.)**
C Standard (New):	**5.450—5.460 mm (0.2146—0.2150 in.)**
C Service Limit:	**5.420 mm (0.2134 in.)**



Valve Stem-to-Guide Clearance Inspection

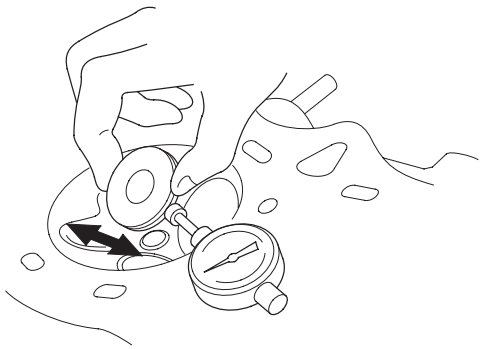
1. Remove the valves (see page 6-46).

2. Slide the valve out of its guide about 10 mm (0.39 in.), then measure the guide-to-stem clearance with a dial indicator while rocking the stem in the direction of normal thrust (wobble method).

   - If the measurement exceeds the service limit, recheck it using a new valve.
   - If the measurement is now within the service limit, reassemble using a new valve.
   - If the measurement with a new valve still exceeds the service limit, go to step 3.

   Intake Valve Stem-to-Guide Clearance
   Standard (New): 0.04—0.09 mm (0.002—0.004 in.)
   Service Limit: 0.16 mm (0.006 in.)

   Exhaust Valve Stem-to-Guide Clearance
   Standard (New): 0.11—0.16 mm (0.004—0.006 in.)
   Service Limit: 0.24 mm (0.009 in.)



3. Subtract the O.D. of the valve stem, measured with a micrometer, from the I.D. of the valve guide, measured with an inside micrometer or ball gauge. Take the measurements in three places along the valve stem and three places inside the valve guide. The difference between the largest guide measurement and the smallest stem measurement should not exceed the service limit.

   Intake Valve Stem-to-Guide Clearance
   Standard (New): 0.020—0.045 mm (0.0008—0.0018 in.)
   Service Limit: 0.08 mm (0.003 in.)

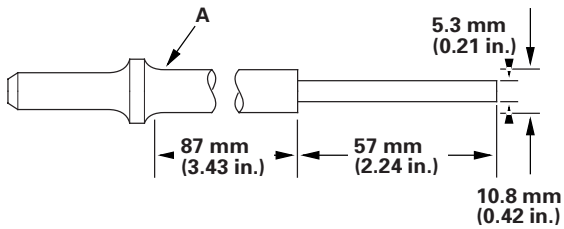
   Exhaust Valve Stem-to-Guide Clearance
   Standard (New): 0.055—0.080 mm (0.0022—0.0031 in.)
   Service Limit: 0.12 mm (0.005 in.)

Valve Guide Replacement

Special Tools Required
- Valve guide driver, 5.5 mm 07742-0010100
- Valve guide reamer, 5.5 mm 07HAH-PJ7A100

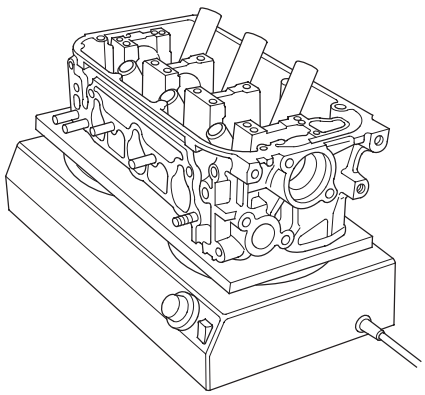
1. Inspect valve stem-to-guide clearance (see page 6-48).

2. As illustrated, use a commercially available air-impact valve guide driver (A) modified to fit the diameter of the valve guides. In most cases, the same procedure can be done using the special tool and a conventional hammer.



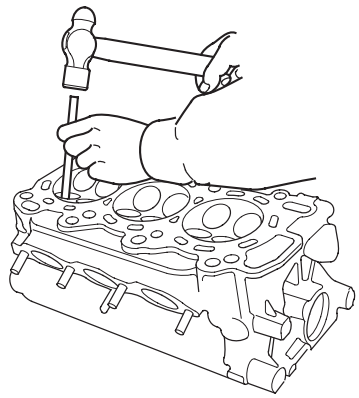
3. Select the proper replacement guides and chill them in the freezer section of a refrigerator for about an hour.

4. Use a hot plate or oven to evenly heat the cylinder head to 300°F (150°C). Monitor the temperature with a cooking thermometer. Do not get the head hotter than 300°F (150°C); excessive heat may loosen the valve seats.



5. Working from the camshaft side, use the driver and an air hammer to drive the guide about 2 mm (0.1 in.) towards the combustion chamber. This will knock off some of the carbon and make removal easier. Hold the air hammer directly in line with the valve guide to prevent damaging the driver. Wear safety goggles or a face shield.

6. Turn the head over and drive the guide out toward the camshaft side of the head.



7. If a valve guide won't move, drill it out with a 8 mm (5/16 in.) bit, then try again. Drill out the guides only in extreme cases; you could damage the cylinder head if the guide breaks.

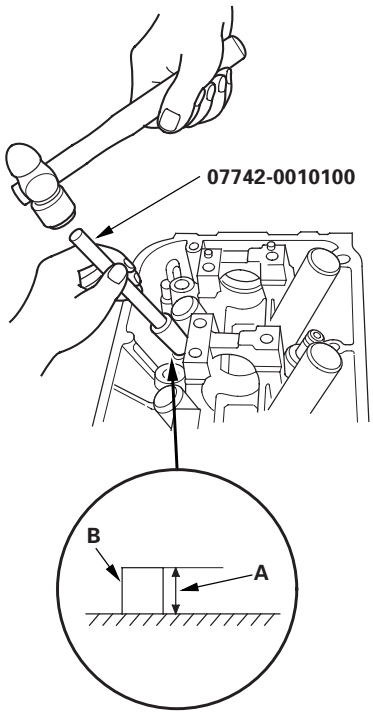
8. Remove the new guide(s) from the freezer, one at a time, as you need them.

(cont'd)

Valve Guide Replacement (cont'd)

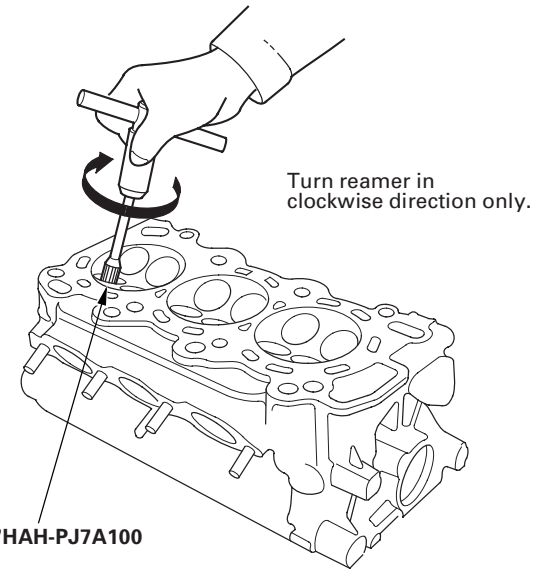
9. Apply a thin coat of clean engine oil to the outside of the new valve guide. Install the guide from the camshaft side of the head; use the special tool to drive the guide into the specified installed height (A) of the guide (B). If you have all 12 guides to do, you may have to reheat the head.

Valve Guide Installed Height
Intake: 21.20—22.20 mm (0.835—0.874 in.)
Exhaust: 20.63—21.63 mm (0.812—0.852 in.)



10. Coat both the reamer and the valve guide with cutting oil.

11. Rotate the reamer clockwise the full length of the valve guide bore.



12. Continue to rotate the reamer clockwise while removing it from the bore.

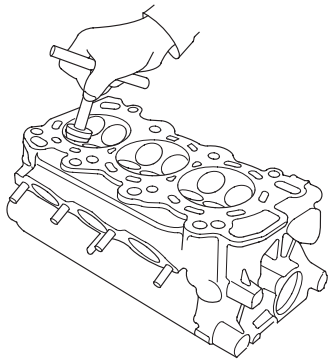
13. Thoroughly wash the guide with detergent and water to remove any cutting residue.

14. Check the clearance with a valve (see page 6-48). Verify that the valve slides in the intake and exhaust valve guides without exerting pressure.

Valve Seat Reconditioning

1. Inspect valve stem-to-guide clearance (see page 6-48). If the valve guides are worn, replace them (see page 6-49) before cutting the valve seats.

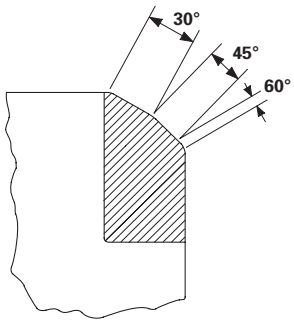
2. Renew the valve seats in the cylinder head using a valve seat cutter.



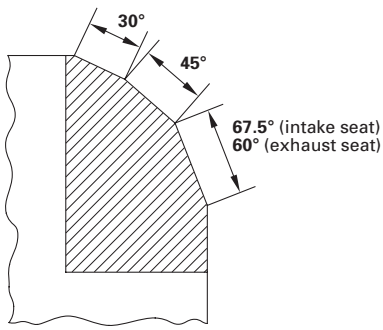
3. Carefully cut a 45° seat, removing only enough material to ensure a smooth and concentric seat.

4. Bevel the upper and lower edges at the angles shown in the illustration.
   Check the width of the seat and adjust accordingly.

   1999-2001 models:



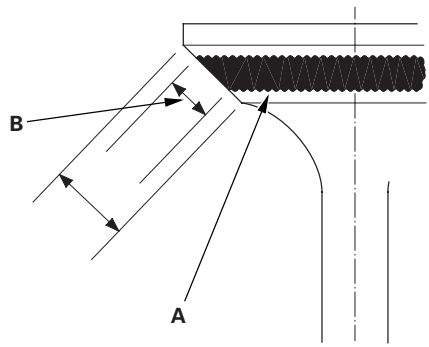
   2002-2004 models:



5. Make one more very light pass with the 45° cutter to remove any possible burrs caused by the other cutters.

   Valve Seat Width
   Standard (New): 1.25—1.55 mm (0.049—0.061 in.)
   Service Limit: 2.00 mm (0.079 in.)

6. After resurfacing the seat, inspect for even valve seating. Apply Prussian Blue compound (A) to the valve face. Insert the valve in its original location in the head, then lift it and snap it closed against the seat several times.



7. The actual valve seating surface (B), as shown by the blue compound, should be centered on the seat.

   - If it is too high (closer to the valve stem), you must make a second cut with the 60° cutter (1999-2001 models and 2002-2004 models exhaust side) or the 67.5° cutter (2002-2004 models intake side) to move it down, then one more cut with the 45° cutter to restore seat width.
   - If it is too low (close to the valve edge), you must make a second cut with the 30° cutter to move it up, then make one more cut with the 45° cutter to restore seat width.

   NOTE: The final cut should always be made with the 45° cutter.

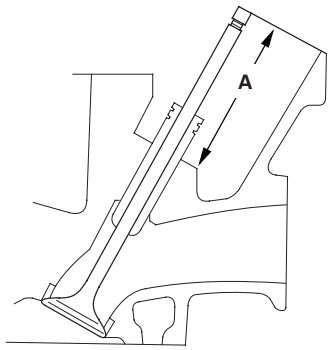
(cont'd)

Valve Seat Reconditioning (cont'd)

8. Insert the intake and exhaust valves in the head and measure the valve stem installed height (A).

Intake Valve Stem Installed Height
Standard (New): 46.75—47.55 mm (1.841—1.872 in.)
Service Limit: 47.80 mm (1.882 in.)

Exhaust Valve Stem Installed Height
Standard (New): 46.68—47.48 mm (1.838—1.869 in.)
Service Limit: 47.73 mm (1.879 in.)



9. If the valve stem installed height is over the service limit, replace the valve and recheck. If it is still over the service limit, replace the cylinder head; the valve seat in the head is too deep.

Valve, Spring, and Valve Seal Installation

Special Tools Required
- Stem seal driver 07PAD-0010000
- Valve spring compressor attachment 07757-PJ1010A
- Valve spring compressor, KD383 with No. 32 jaws, or CF811, commercially available
- Valve guide seal installer, KD3372, commercially available

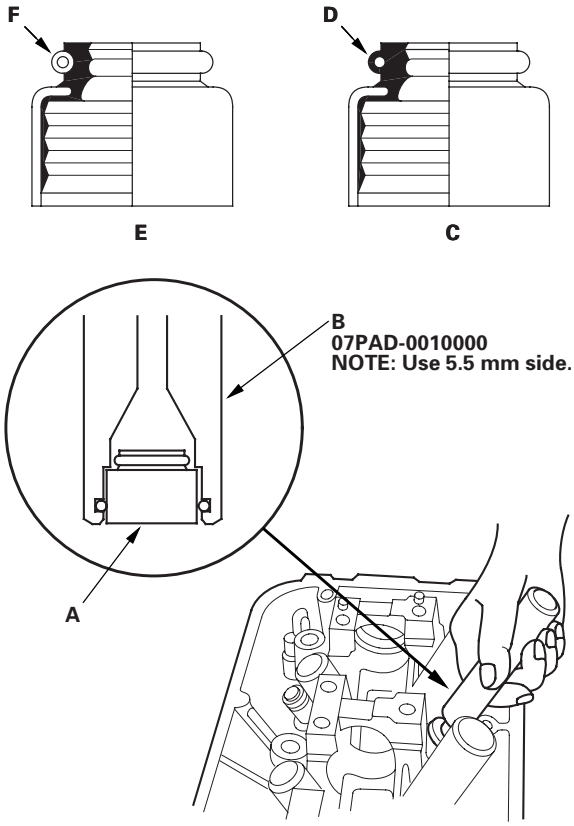
1. Coat the valve stems with new engine oil. Install the valves in the valve guides.

2. Check that the valves move up and down smoothly.

3. Install the spring seats on the cylinder head.

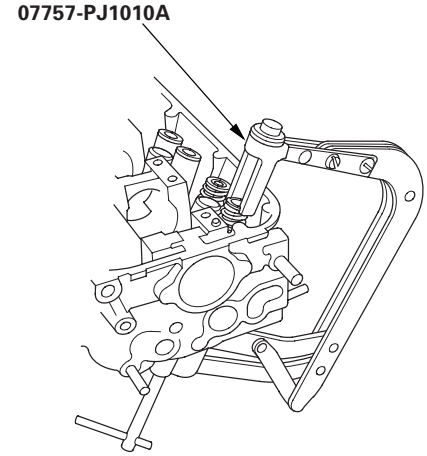
4. Install the new valve seals (A) using the valve guide seal installer (B).

   NOTE: Exhaust valve seals (C) have a black spring (D) and intake valve seals (E) have a white spring (F); they are not interchangeable.

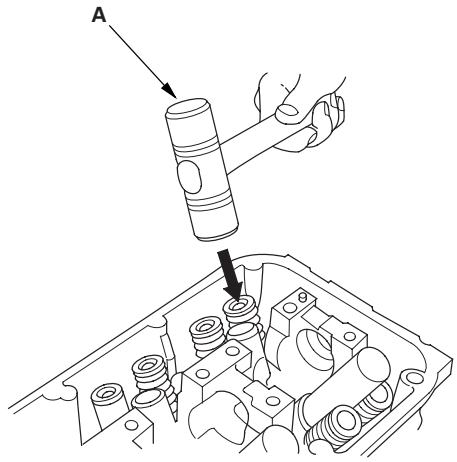


5. Install the valve spring and valve retainer. Place the end of the valve spring with closely wound coils toward the cylinder head.

6. Install the valve spring compressor. Compress the spring and install the valve keepers.



7. Lightly tap the end of each valve stem two or three times with a plastic mallet (A) to ensure proper seating of the valve and valve keepers. Tap the valve stem only along its axis so you do not bend the stem.

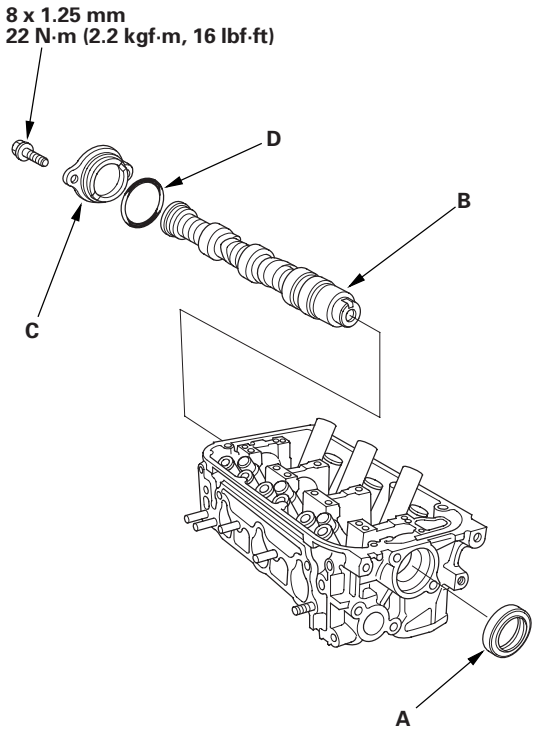


Camshaft, Rocker Arm, Camshaft Seal, and Pulley Installation

1. Apply a light coat of new engine oil around the camshaft oil seal.

2. Gently tap the new camshaft oil seal (A) into the cylinder head.

   – 1 Tap the new camshaft oil seal in squarely.
   – 2 Tap the oil seal in the cylinder head about 0.5 – 1.5 mm (0.02 – 0.06 in.) from the surface of the cylinder head.



3. Insert the camshaft (B) into the cylinder head, then install the camshaft thrust cover (C). Always use a new O-ring (D).

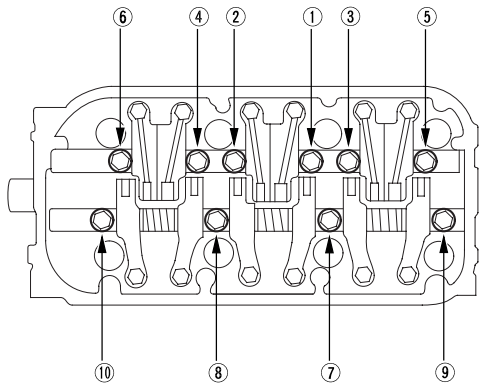
4. Check that the oil seal lips are not distorted.

5. Loosen the valve adjusting screws.

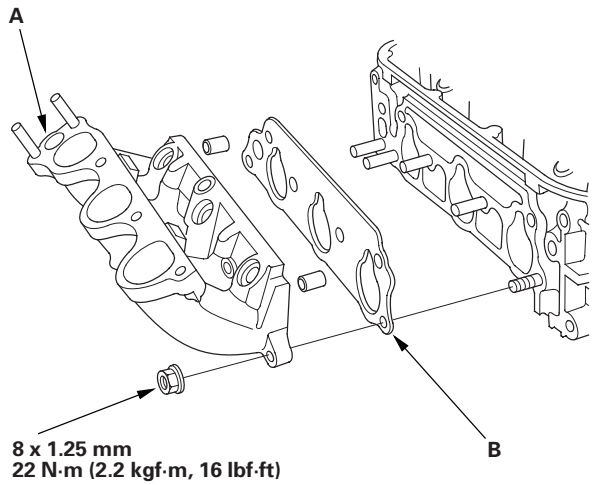
6. Set the rocker arm assembly in place and loosely install the bolts. Make sure that the rocker arms are properly positioned on the valve stems.

7. Tighten each bolt two turns at a time in the sequence shown to ensure that the rockers do not bind on the valves.

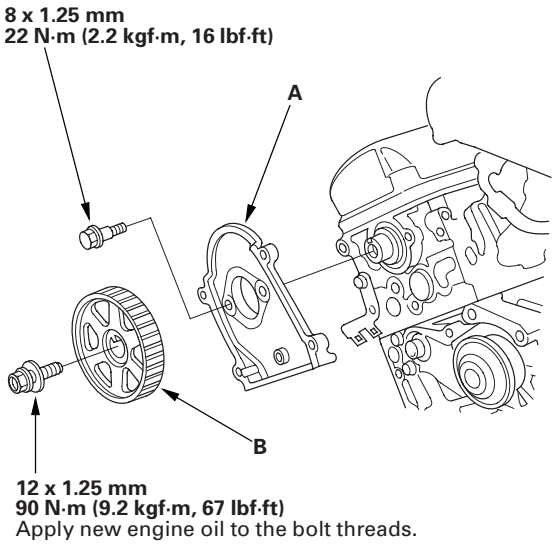
   Specified torque:
   8 x 1.25 mm
   24 N·m (2.4 kgf·m, 17 lbf·ft)
   Apply new engine oil to the bolt threads and flange



8. Install the injector base (A). Always use a new gasket (B).



9. Install the back cover (A), then install the camshaft pulley (B).

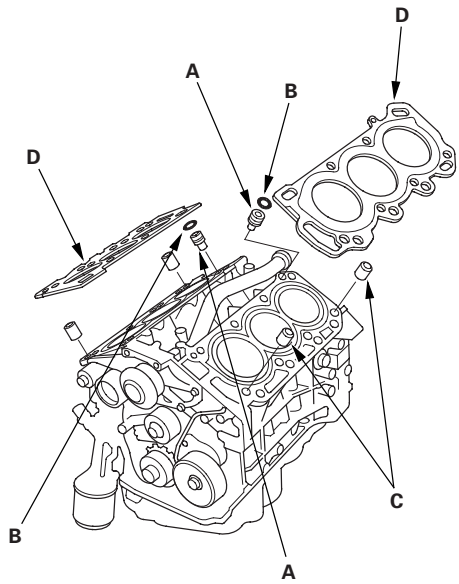


Cylinder Head Installation

Install the cylinder heads in the reverse order of removal:

1. Clean the cylinder head and block surfaces.

2. Clean and install the oil control orifices (A) with new O-rings (B).



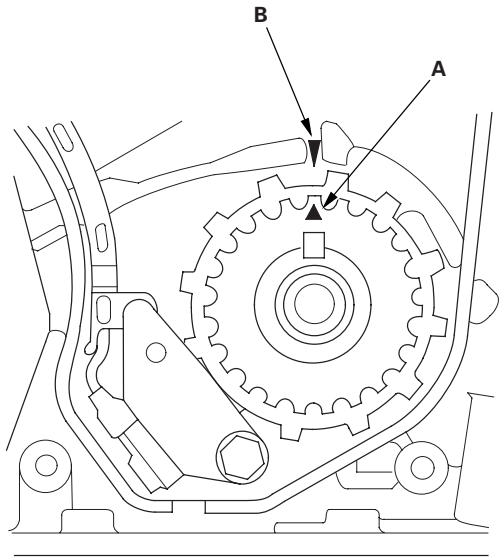
3. Install the dowel pins (C) and new cylinder head gaskets (D).

(cont'd)

Cylinder Head Installation (cont'd)

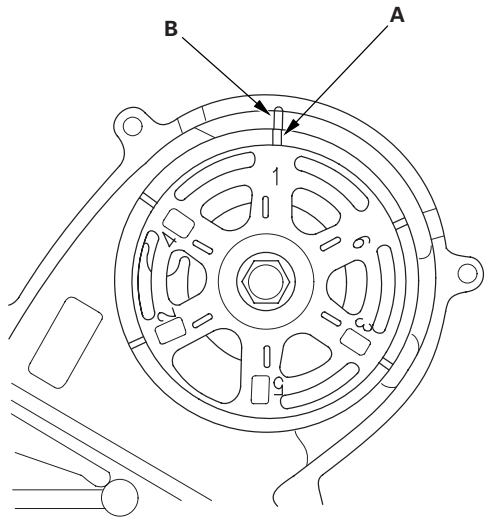
4. Clean the timing belt drive pulley.

5. Set the timing belt drive pulley to top dead center (TDC) by aligning the TDC mark (A) on the tooth of the timing belt drive pulley with the pointer (B) on the oil pump.

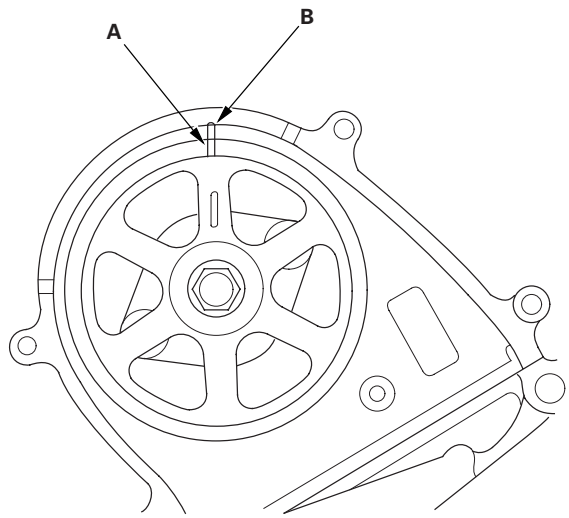


6. Clean the camshaft pulleys. Set the camshaft pulleys to TDC by aligning the TDC marks (A) on the camshaft pulleys with the pointers (B) on the back covers.

FRONT:



REAR:



7. Apply new engine oil to the threads and flanges of the cylinder head bolts.

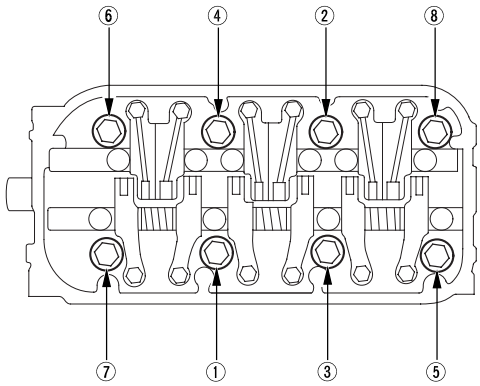
8. Tighten the cylinder head bolts sequentially in three steps.

   NOTE: Perform each step twice.

   1st step torque: 39 N·m (4.0 kgf·m, 29 lbf·ft)
   2nd step torque: 69 N·m (7.0 kgf·m, 51 lbf·ft)
   3rd step torque: 98.1 N·m (10.0 kgf·m, 72.3 lbf·ft)

   Use a beam-type torque wrench. When using a preset-type torque wrench, be sure to tighten slowly and not to overtighten.
   If a bolt makes any noise while you are torquing it, loosen the bolt, and retighten it from the first step.

Cylinder Head Bolts Torque Sequence



9. Install the timing belt (see page 6-23).

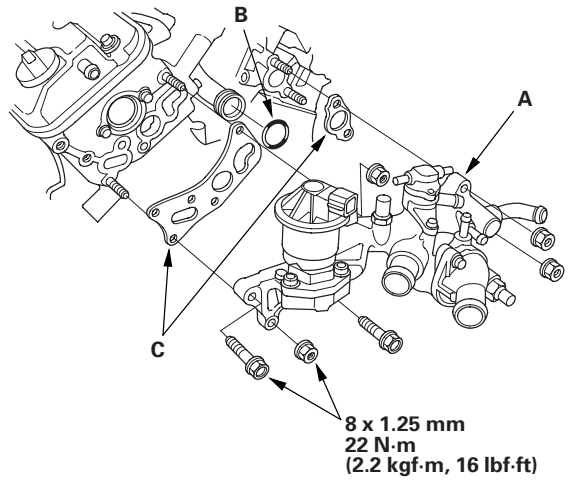
10. Adjust the valve clearance (see page 6-15).

11. Install the cylinder head cover (see page 6-34).

12. Install the exhaust manifold and tighten the nuts in a crisscross pattern in two or three steps, beginning with the inner nut (see page 9-10). Always use a new exhaust manifold gasket.

13. Install the nuts securing the exhaust pipe A and exhaust manifold, then install the cover on the exhaust manifold.

14. Install the water passage (A). Always use a new O-ring (B) and new gaskets (C).



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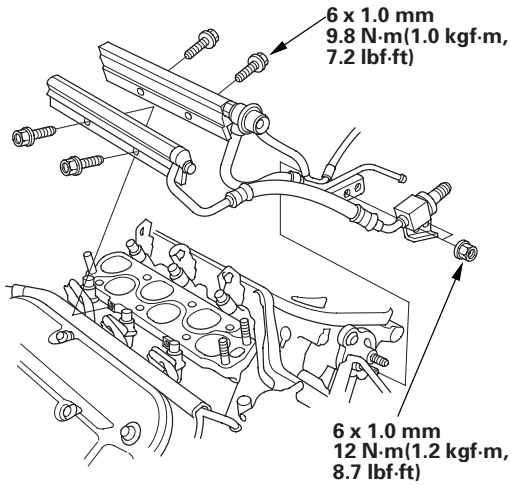
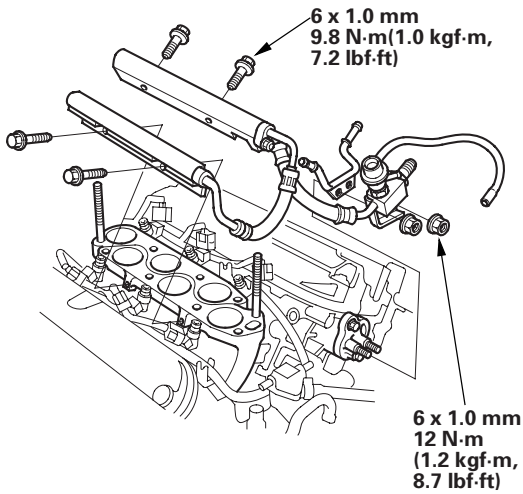
Cylinder Head Installation (cont'd)

15. Install the fuel rails.

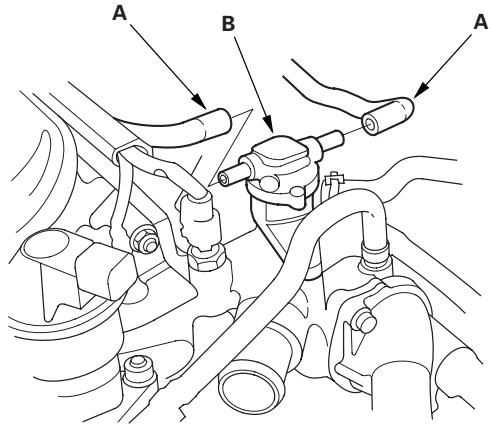
1999-2001 models:



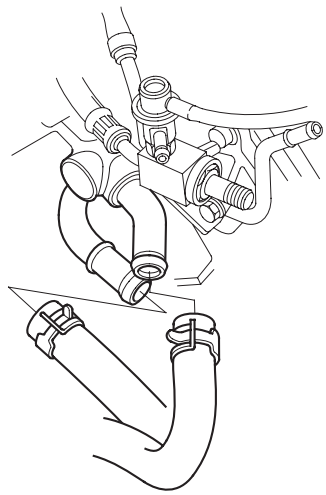
2002-2004 models:



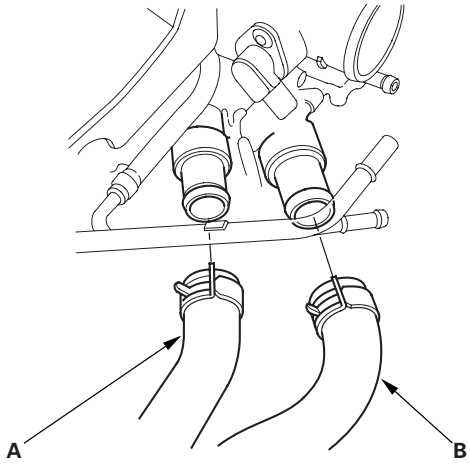
16. Install the vacuum hoses (A) on the intake air bypass control thermal valve (B).



17. Install the heater hoses.



18. Install the upper radiator hose (A) and lower radiator hose (B).



19. Install the intake manifold (see page 9-7).

20. Loosely install the power steering (P/S) pump and P/S pump belt.

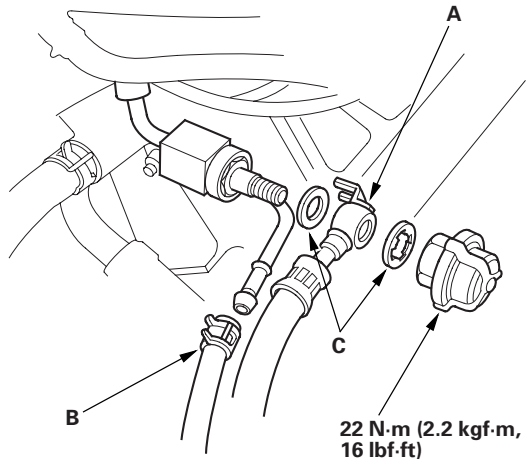
21. Adjust the P/S pump belt (see step 3 on page 17-12).

22. Install the alternator (see page 4-27).

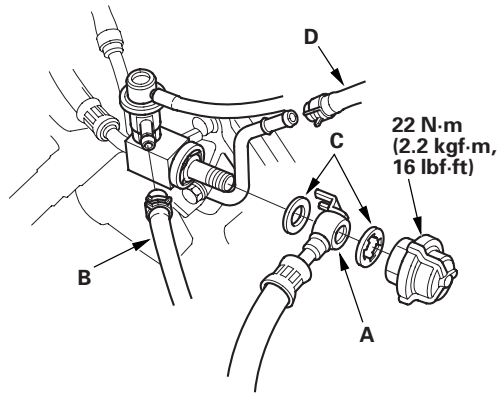
23. Install the alternator-compressor belt (see page 4-26).

24. Install the fuel feed hose (A) and fuel return hose (B), using new washers (C).

1999-2001 models:



2002-2004 models:



25. Install the evaporative emission (EVAP) canister hose (D) (2002-2004 models).

(cont'd)

Cylinder Head Installation (cont'd)

26. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.

27. After installation, check that all tubes, hoses and connectors are installed correctly.

28. Inspect for fuel leaks. Turn the ignition switch ON (II) (do not operate the starter) so that the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation two or three times, then check for fuel leakage at any point in the fuel line.

29. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 8 on page 10-13).

30. Inspect the idle speed (see page 11-201).

31. Inspect the ignition timing (see page 4-16).

CMP (TDC) Sensor Replacement

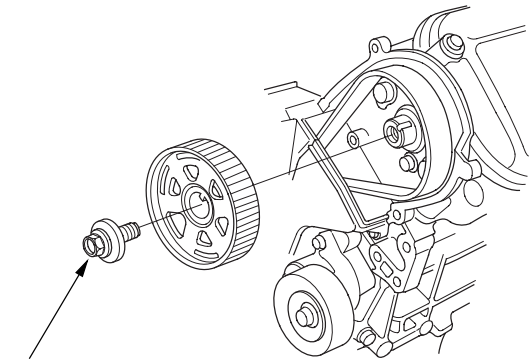
1. Set the No.1 piston at top dead center (TDC) (see page 6-20).

2. Remove the upper covers.

3. To hold the timing belt adjuster in its current position, thread in the battery clamp bolt hand-tight (see step 13 on page 6-22).

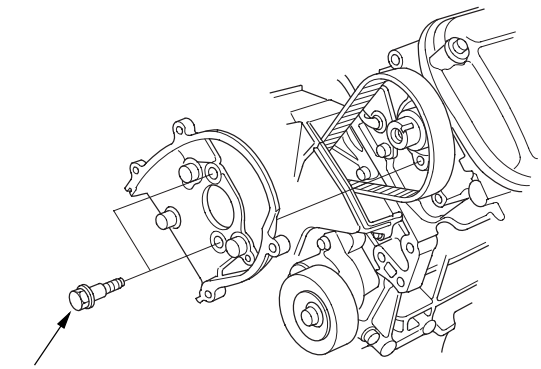
4. Remove the idler pulley bolt and idler pulley, then remove the timing belt from the front camshaft pulley (see step 15 on page 6-22).

5. Remove the front camshaft pulley.



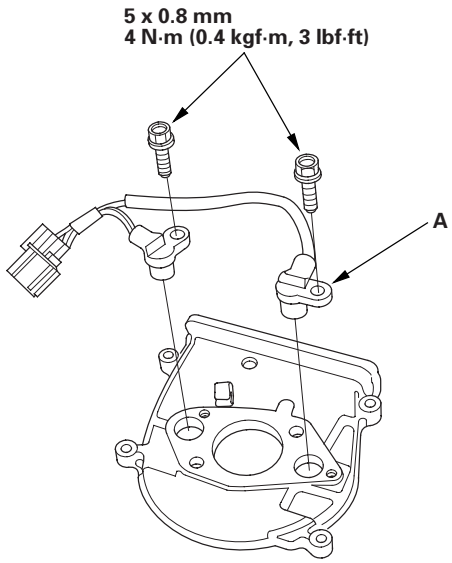
12 x 1.25 mm
90 N·m (9.2 kgf·m, 67 lbf·ft)
Apply engine oil to
the bolt threads.

6. Disconnect the camshaft position (CMP) (top dead center (TDC)) sensor connector, then remove the back cover.



8 x 1.25 mm
22 N·m (2.2 kgf·m, 16 lbf·ft)

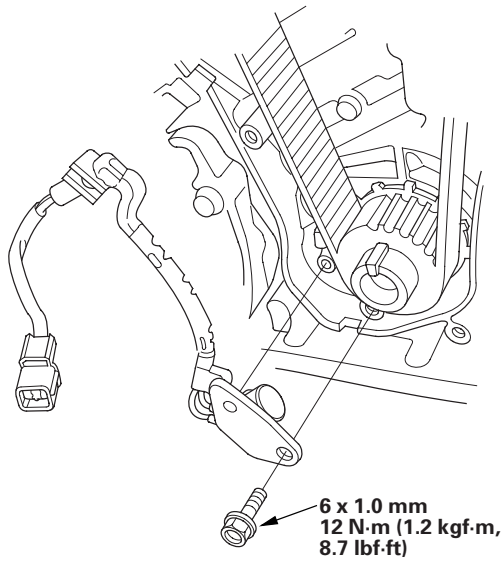
7. Remove the CMP (TDC) sensor (A) from the back cover.



8. Install the CMP (TDC) sensor in reverse order of removal. Reinstall the timing belt and other removed components (see page 6-23).

CKP Sensor Replacement

1. Remove the altenator-compressor belt (see page 4-26).
2. Loosen the adjusting nut, locknut and mounting bolt, then remove the power steering (P/S) pump belt (see step 6 on page 6-20).
3. Remove the dipstick and tube (see step 9 on page 6-21).
4. Remove the crankshaft pulley (see page 6-18).
5. Remove the upper and lower covers (see step 11 on page 6-21).
6. Remove the crankshaft position (CKP) sensor from the oil pump.



7. Install the CKP sensor in the reverse order of removal.

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Engine Block

Special Tools

Ref. No.	Tool Number	Description	Qty
①	070AD-RCA0100	Oil Seal Driver, 64 mm	1
②	070AD-RCA0200	Driver Attachment, 106 mm	1
③	07749-0010000	Driver	1

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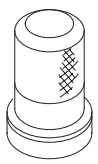
0 1
0 1



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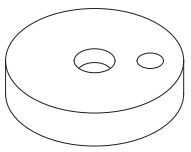

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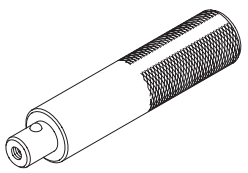

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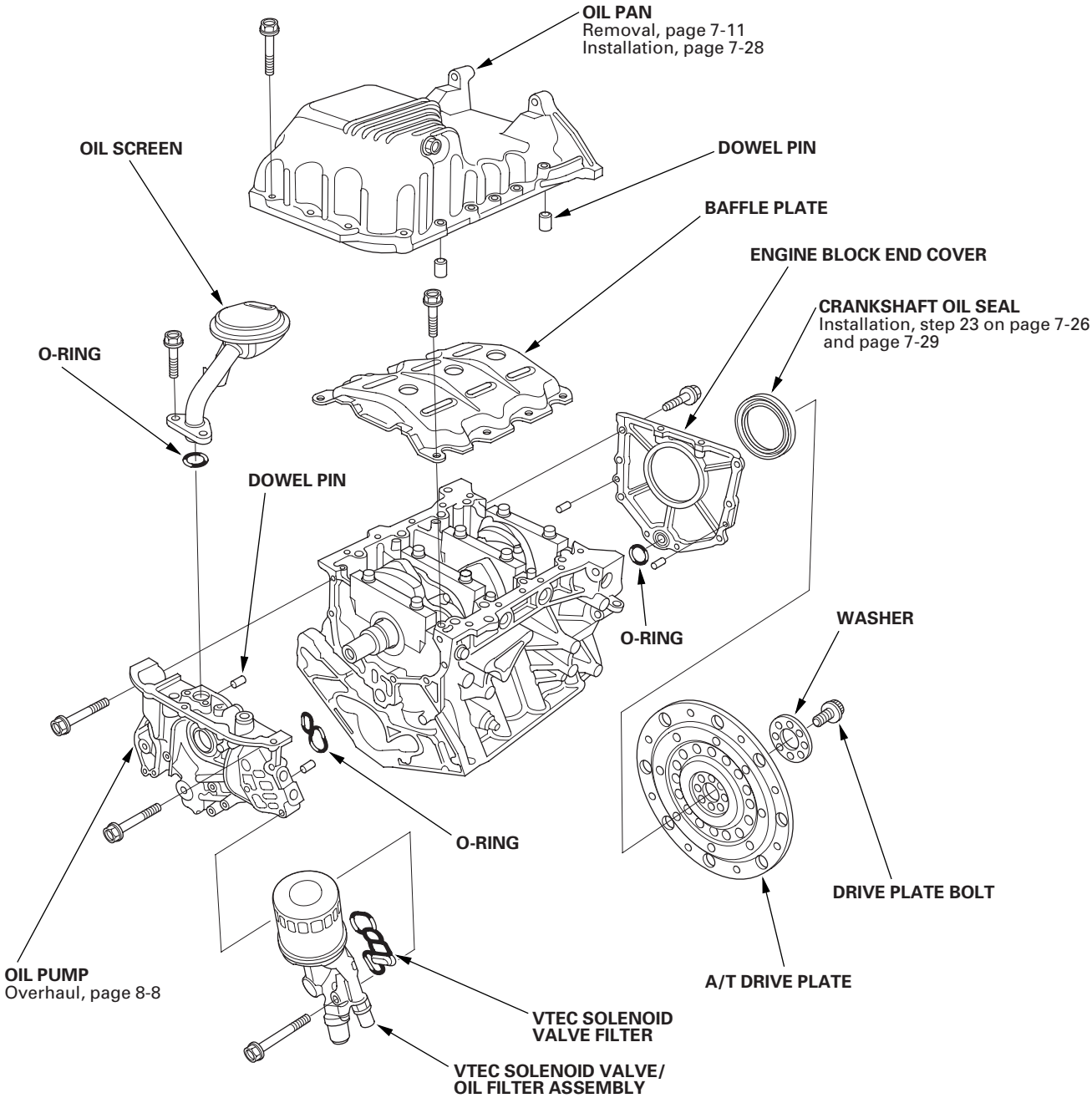
Component Location Index



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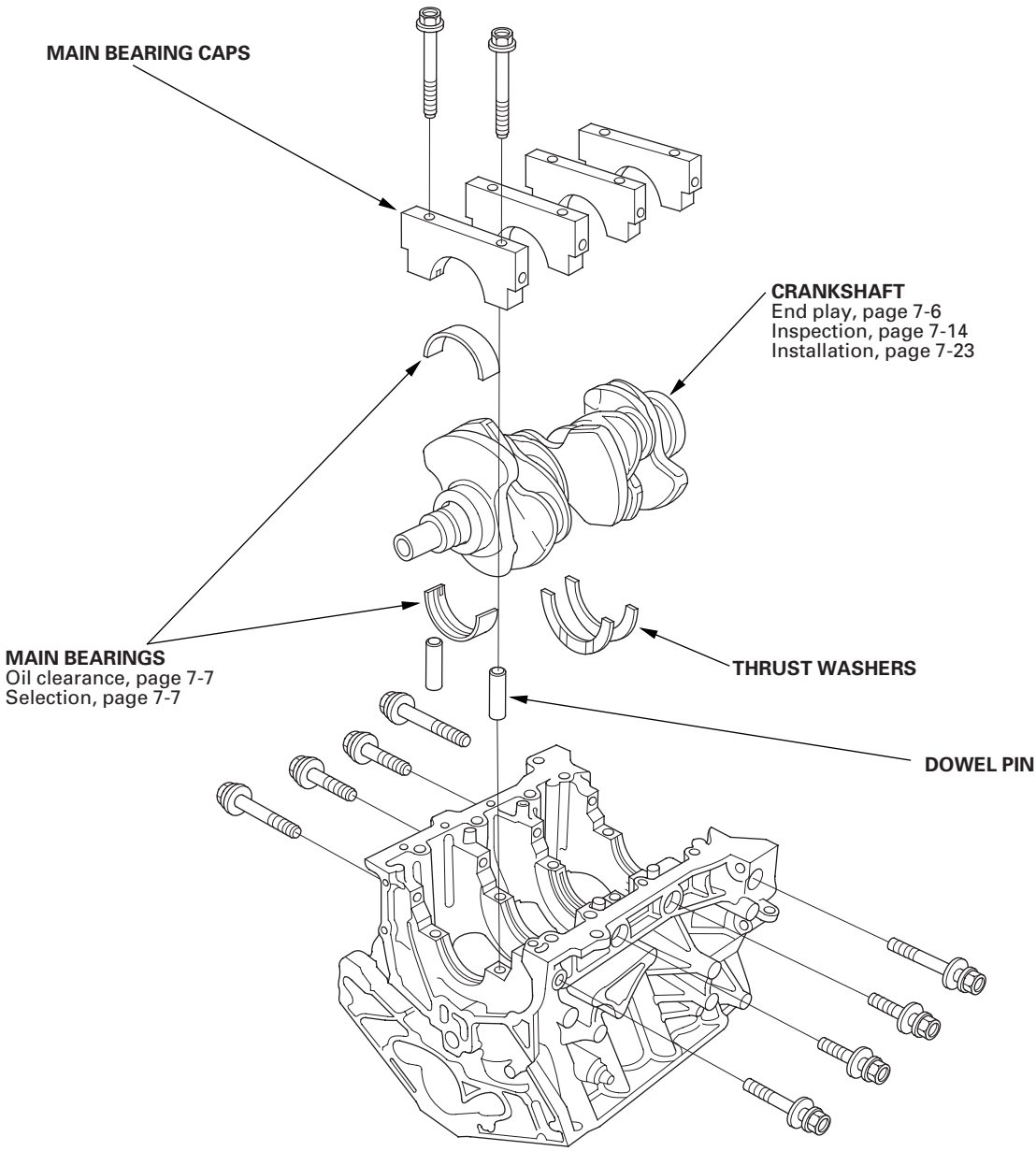
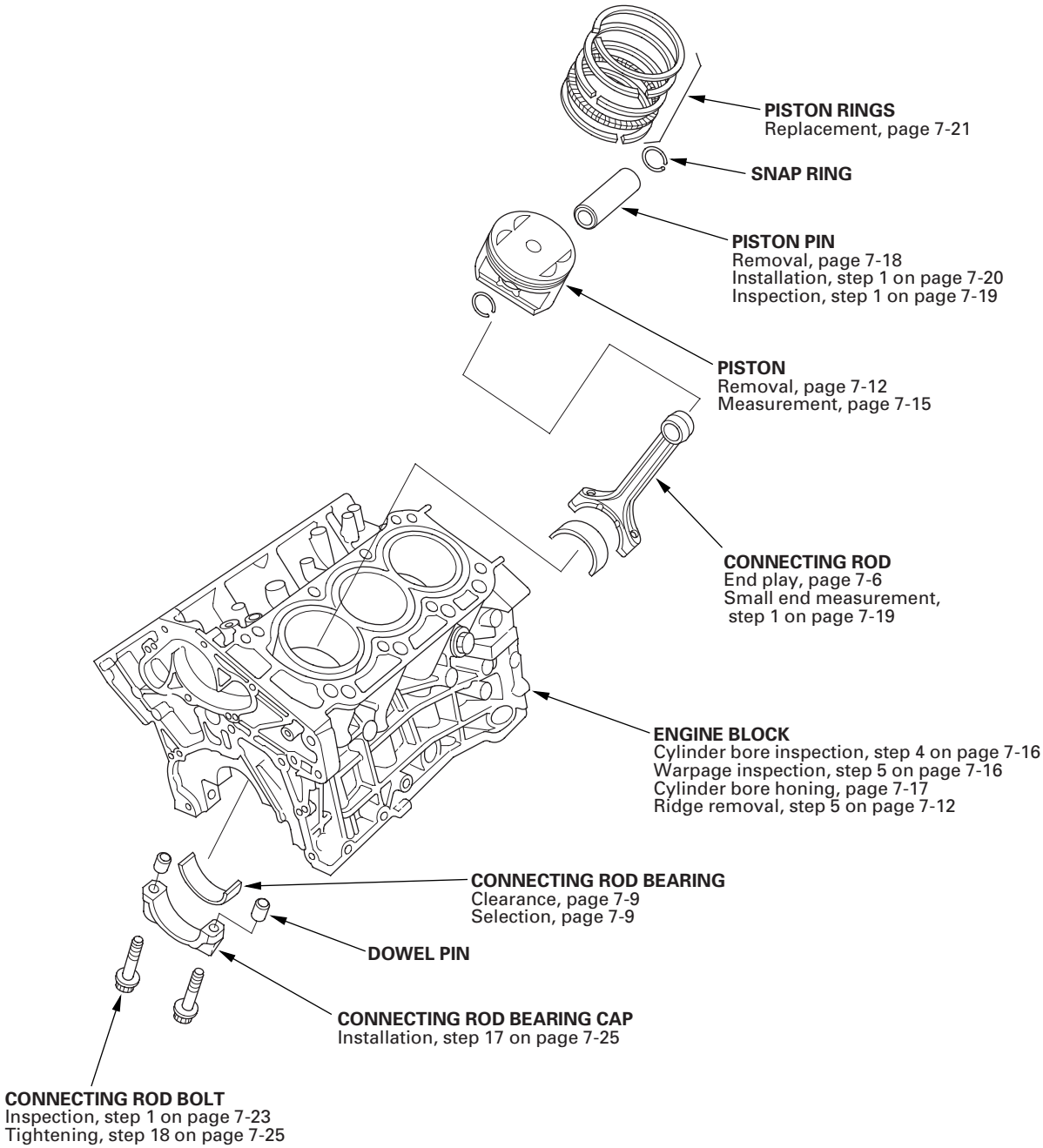
Component Location Index (cont'd)

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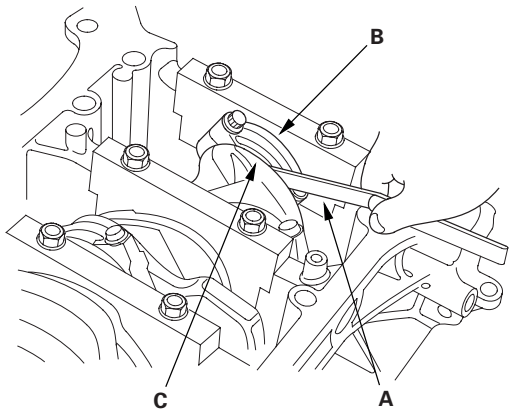
Connecting Rod and Crankshaft End Play Inspection

1. Remove the oil pump (see page 8-8).

2. Remove the baffle plate (see step 7 on page 7-12).

3. Measure the connecting rod end play with a feeler gauge (A) between the connecting rod (B) and crankshaft (C).

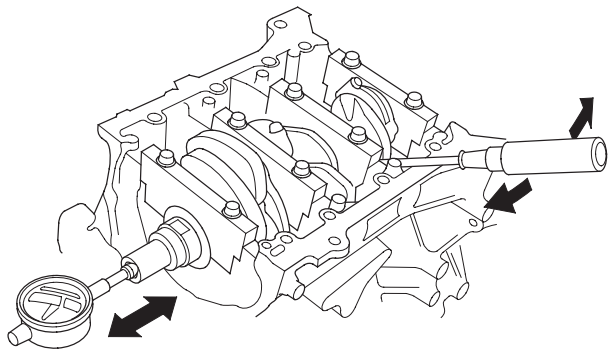
   Connecting Rod End Play
   Standard (New): 0.15—0.35 mm (0.006—0.014 in.)
   Service Limit: 0.45 mm (0.018 in.)



4. If the connecting rod end play is out-of-tolerance, install a new connecting rod and recheck. If it is still out-of-tolerance, replace the crankshaft (see page 7-12).

5. Push the crankshaft firmly away from the dial indicator, and zero the dial against the end of the crankshaft. Then pull the crankshaft firmly back toward the indicator; dial reading should not exceed the service limit.

   Crankshaft End Play
   Standard (New): 0.10—0.35 mm (0.004—0.014 in.)
   Service Limit: 0.45 mm (0.018 in.)



6. If the end play is out-of-tolerance, replace the thrust washers and recheck. If it is still out-of-tolerance, replace the crankshaft (see page 7-12).

Crankshaft Main Bearing Replacement

Main Bearing Clearance Inspection

1. Remove the main caps and bearing halves (see page 7-12).

2. Clean each main journal and bearing half with a clean shop towel.

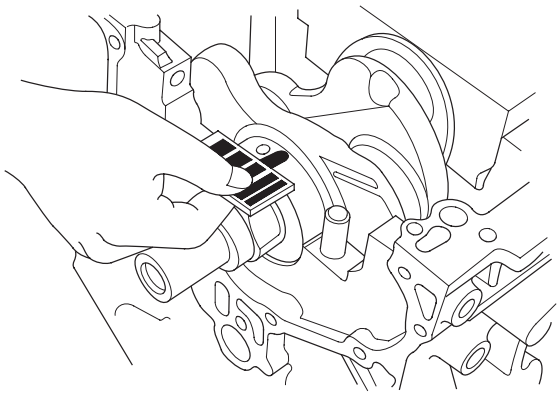
3. Place one strip of plastigage across each main journal.

   NOTE: If the engine is still in the car when you bolt the main cap down to check the clearance, the weight of the crankshaft and drive plate will flatten the plastigage further than just the torque on the cap bolt and give you an incorrect reading. For an accurate reading, support the crank with a jack under the counterweights, and check only one bearing at a time.

4. Reinstall the bearings and caps, then torque the bolts (see step 21 on page 7-25). Do not rotate the crankshaft.

5. Remove the caps and bearing half, and measure the widest part of the plastigage.

   Main Bearing-to-Journal Oil Clearance
   Standard (New): 0.020—0.044 mm
   (0.0008—0.0017 in.)
   Service Limit: 0.050 mm (0.0020 in.)



6. If the plastigage measures too wide or too narrow, (remove the engine if it's still in the car), remove the crankshaft, and remove the upper half of the bearing. Install a new, complete bearing with the same color code, and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.

7. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below that one), and check again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearings, replace the crankshaft and start over.

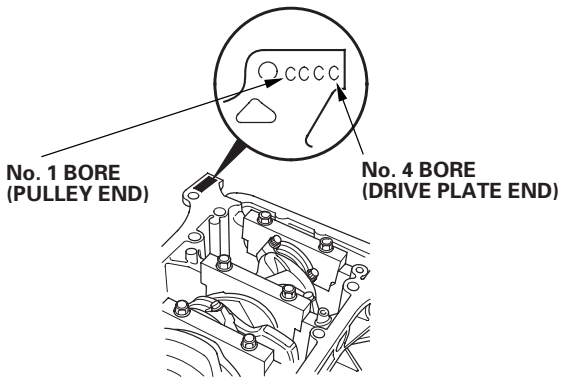
(cont'd)

Crankshaft Main Bearing Replacement (cont'd)

Main Bearing Selection

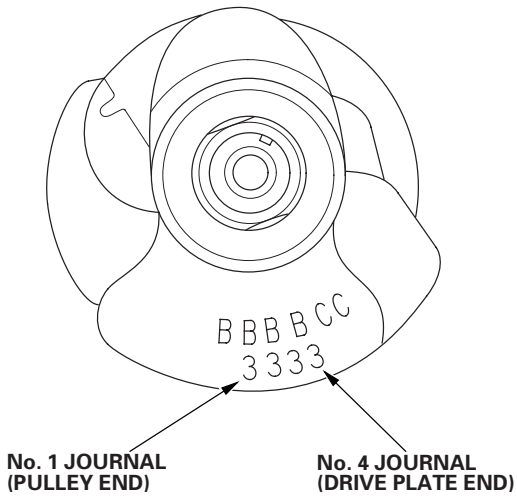
Crankshaft Bore Code Location

1. Letters or bars have been stamped on the end of the block as a code for the size of each of the four main journal bores.
   If you can not read the codes because of an accumulation of dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.



Main Journal Code Locations (Numbers or Bars)

2. Numbers or bars have been stamped on the crankshaft No. 1 web as a code for the main journal sizes.



3. Use the crankshaft bore codes and journal codes to select the appropriate main bearings from the table.

Larger crank bore →

Smaller main Journal	A or I	B or II	C or III	D or IIII
	Smaller bearing (Thicker) →			
1 or I	Red/ Pink	Pink	Pink/ Yellow	Yellow
2 or II	Pink	Pink/ Yellow	Yellow	Yellow/ Green
3 or III	Pink/ Yellow	Yellow	Yellow/ Green	Green
4 or IIII	Yellow	Yellow/ Green	Green	Green/ Brown
5 or IIIII	Yellow/ Green	Green	Green/ Brown	Brown
6 or IIIIII	Green	Green/ Brown	Brown	Brown/ Black

↓ Smaller main Journal

↓ Smaller bearing (Thicker)

NOTE:
- **When using bearing halves of different colors, it does not matter which color is used in the top or bottom.**
- **Color code is on the edge of the bearing.**

Connecting Rod Bearing Replacement

Rod Bearing Clearance Inspection

1. Remove the connecting rod cap and bearing half (see page 7-12).

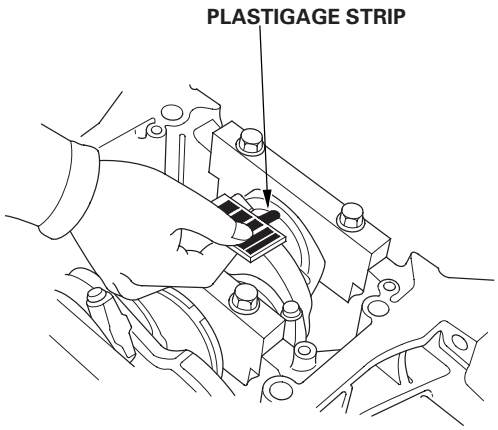
2. Clean the crankshaft rod journal and bearing half with a clean shop towel.

3. Place a strip of plastigage across the rod journal.

4. Reinstall the bearing half and cap, and torque the bolts (see step 18 on page 7-25). Do not rotate the crankshaft.

5. Remove the rod cap and bearing half and measure the widest part of the plastigage.

   Connecting Rod Bearing-to-Journal Oil Clearance
   Standard (New): 0.020—0.044 mm
   (0.0008—0.0017 in.)
   Service Limit: 0.050 mm (0.0020 in.)



6. If the plastigage measures too wide or too narrow, remove the upper half of the bearing, install a new, complete bearing with the same color code, and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.

7. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below that one), and check clearance again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearings, replace the crankshaft and start over.

(cont'd)

Connecting Rod Bearing Replacement (cont'd)

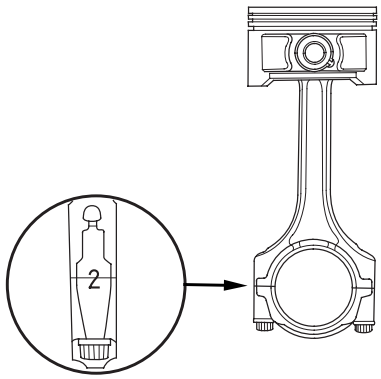
Rod Bearing Selection

Connecting Rod Bore Code Locations

1. Inspect the connecting rod for cracks and heat damage.

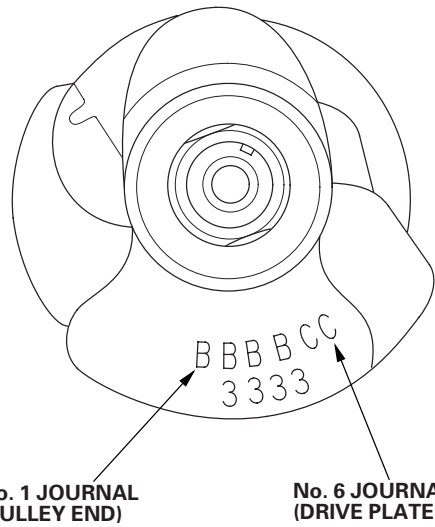
2. Each rod has a tolerance range (from 0 to 0.024 mm (0.0009 in.), in 0.006 mm (0.0002 in.) increments) depending on the size of its big end bore.
   It's then stamped with a code (1, 2, 3, or 4/I, II, III, or IIII) indicating the range.
   You may find any combination of 1, 2, 3, or 4/I, II, III, or IIII in any engine.
   If you cannot read the codes because of an accumulation of dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.
   Half of the number or bar is stamped on the bearing cap and the other half is stamped on the rod.

   Normal Bore Size: 58.0 mm (2.28 in.)



Connecting Rod Journal Code Locations (Letters or Bars)

3. Letters or bars have been stamped on the crankshaft No. 1 web as a code for the rod journal sizes.



4. Use the connecting rod bore codes and journal codes to select the appropriate rod bearings from the table.

Smaller rod Journal	Larger big end bore: 1 or I	2 or II	3 or III	4 or IIII
	Smaller bearing (Thicker)			
A or I	Pink	Pink/ Yellow	Yellow	Yellow/ Green
B or II	Pink/ Yellow	Yellow	Yellow/ Green	Green
C or III	Yellow	Yellow/ Green	Green	Green/ Brown
D or IIII	Yellow/ Green	Green	Green/ Brown	Brown
E or IIIII	Green	Green/ Brown	Brown	Brown/ Black
F or IIIIII	Green/ Brown	Brown	Brown/ Black	Black

Smaller bearing (Thicker)

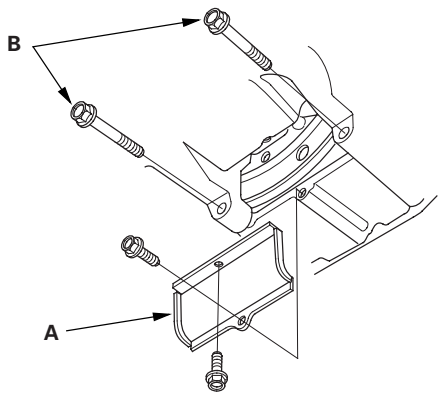
NOTE:
- **When using bearing halves of different colors, it does not matter which color is used in the top or bottom.**
- **Color code is on the edge of the bearing.**

Oil Pan Removal

1. If the engine is still in the vehicle, drain the engine oil (see page 8-5).

2. Remove the exhaust pipe A (see step 32 on page 5-7).

3. Remove the torque converter cover (A) and the two bolts (B) securing the transmission.

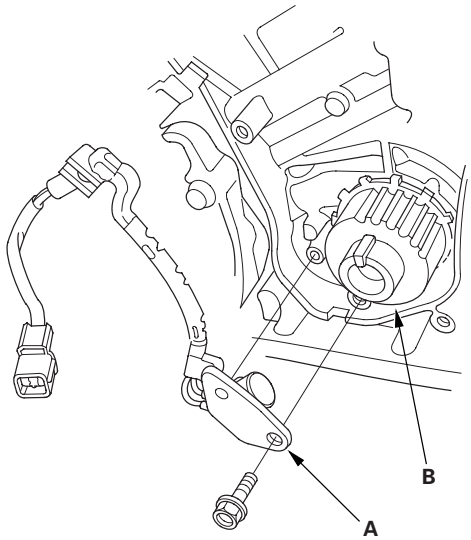


4. Remove the bolts securing the oil pan.

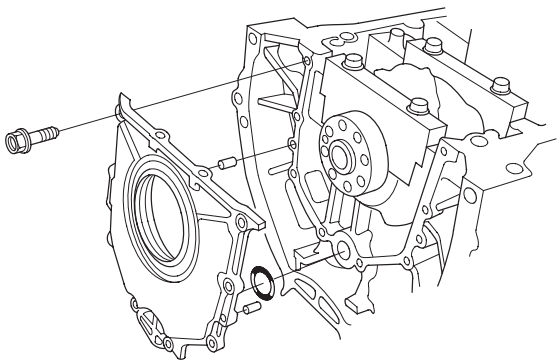
5. Remove the oil pan.

Crankshaft and Piston Removal

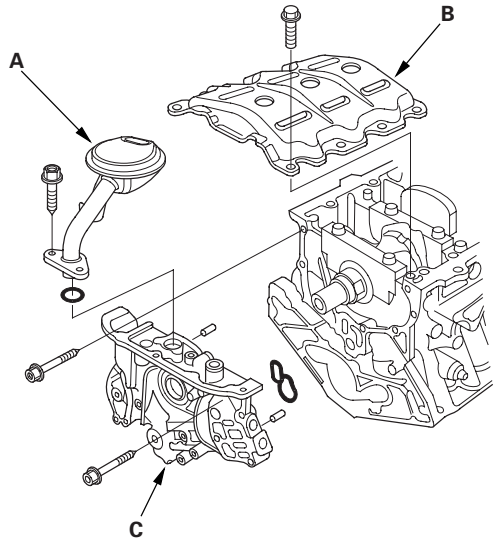
1. Remove the engine assembly (see page 5-2).
2. Remove the transmission:
   - 1999-2001 models (see page 14-138).
   - 2002-2004 models (see page 14-369).
3. Remove the cylinder heads (see page 6-35).
4. Remove the crankshaft position (CKP) sensor (A) from the oil pump, then remove the timing belt drive pulley (B).



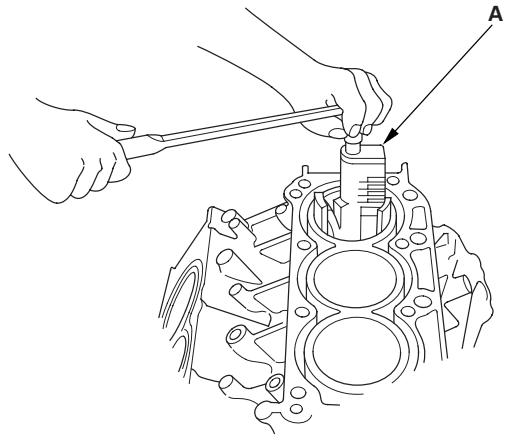
5. Remove the oil pan (see page 7-11).
6. Remove the engine block end cover.



7. Remove the oil screen (A), baffle plate (B), and oil pump (C).

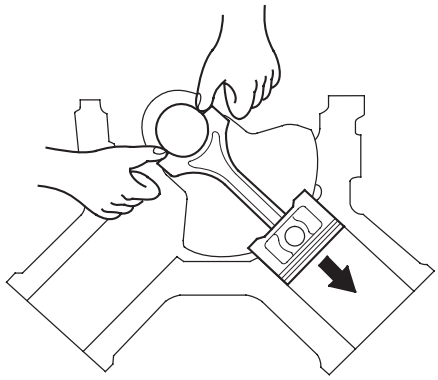


8. If you can feel a ridge of metal or hard carbon around the top of any cylinder, remove it with a ridge reamer (A). Follow the reamer manufacturer's instructions. If the ridge is not removed, it may damage the piston as it's pushed out.

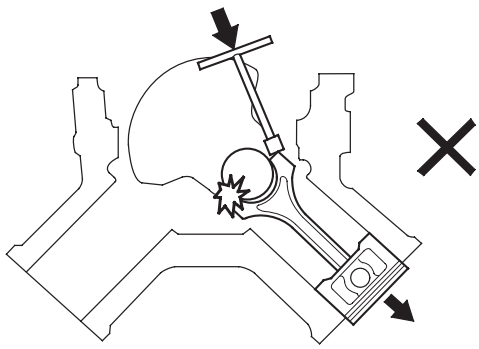


9. Remove the connecting rod caps after setting the crank pin at bottom dead center (BDC) for each cylinder. Remove the piston assembly by pushing on the connecting rod. Take care not to damage the crank pin or cylinder with the connecting rod.

CORRECT



INCORRECT



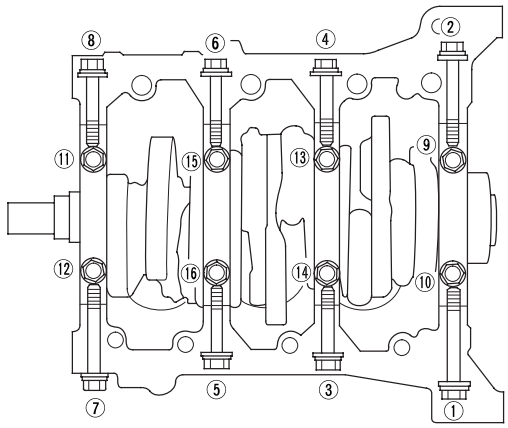
10. Remove the bearing from the cap. Keep all caps/bearings in order.

11. Remove the upper bearing halves from the connecting rods, and set them aside with their respective caps.

12. After removing a piston/connecting rod assembly, reinstall the cap on the rod.

13. To avoid mixup during reassembly, mark each piston/connecting rod assembly with its cylinder number.

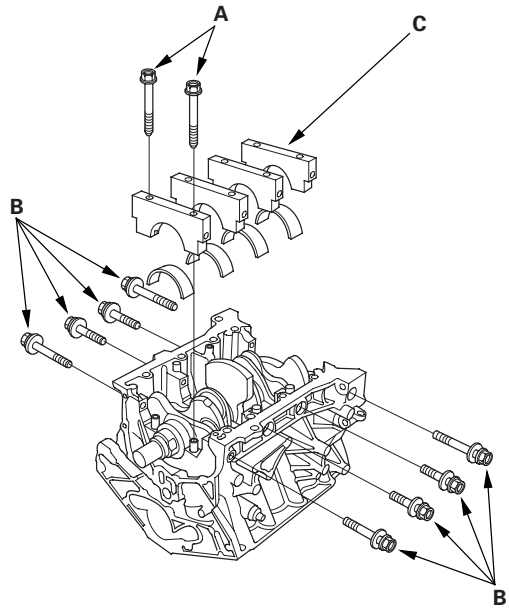
14. Unscrew the bearing cap bolts and bearing cap side bolts in sequence 1/3 turn at a time; repeat the sequence until all bolts are loosened.



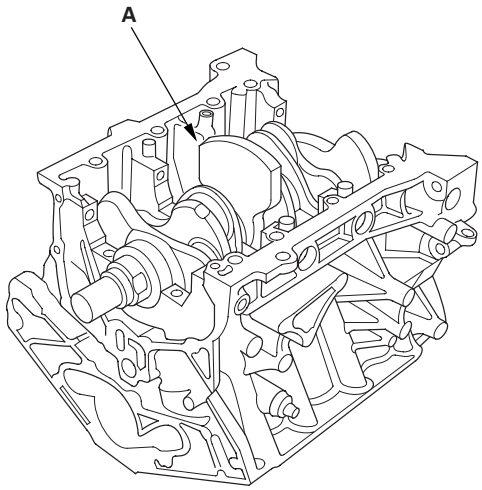
(cont'd)

Crankshaft and Piston Removal (cont'd)

15. Remove the bearing cap bolts (A) and bearing cap side bolts (B), then remove the bearing cap (C).



16. Lift the crankshaft (A) out of the cylinder block, being careful not to damage the journals.



17. Reinstall the main caps and bearings on the cylinder block in the proper order.

Crankshaft Inspection

Out-of-Round and Taper

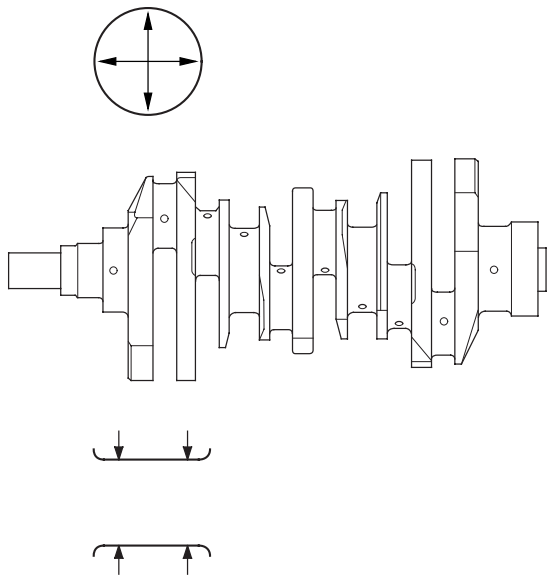
1. Remove the crankshaft from the cylinder block (see page 7-12).

2. Clean the crankshaft oil passages with pipe cleaners or a suitable brush.

3. Check the keyway and threads.

4. Measure out-of-round at the middle of each rod and main journal in two places. The difference between measurements on each journal must not be more than the service limit.

Journal Out-of-Round
Standard (New): 0.005 mm (0.0002 in.) max.
Service Limit: 0.010 mm (0.0004 in.)



5. Measure taper at the edges of each rod and main journal. The difference between measurements on each journal must not be more than the service limit.

Journal Taper
Standard (New): 0.005 mm (0.0002 in.) max.
Service Limit: 0.010 mm (0.0004 in.)

Block and Piston Inspection

Straightness

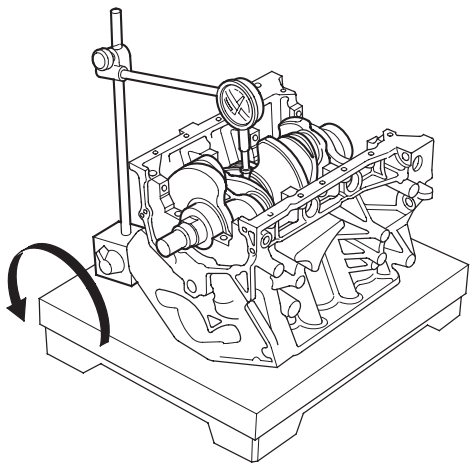
6. Place the cylinder block on the surface plate.

7. Clean and install the bearings on the No. 1 and No. 4 journal of the cylinder block.

8. Lower the crankshaft into the block.

9. Measure the runout on all of the main journals. Rotate the crankshaft two complete revolutions. The difference between measurements on each journal must not be more than the service limit.

Crankshaft Total Runout
Standard (New): 0.020 mm (0.0008 in.) max.
Service Limit: 0.030 mm (0.0012 in.)



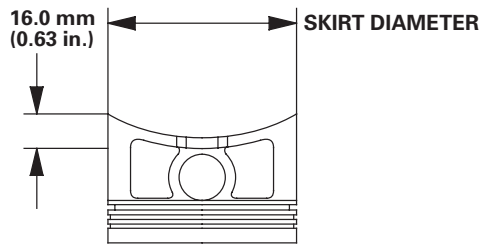
1. Remove the piston from the cylinder block (see page 7-12).

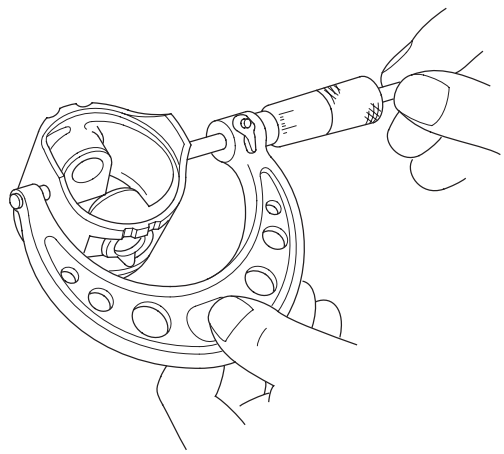
2. Check the piston for distortion or cracks.

3. Measure the piston diameter at a point 16.0 mm (0.63 in.) from the bottom of the skirt.

Piston Diameter
Standard (New): 88.975—88.985 mm (3.5029—3.5033 in.)
Service Limit: 88.965 mm (3.5026 in.)

Oversize Piston Diameter
0.25: 89.225—89.235 mm (3.5128—3.5132 in.)
0.50: 89.475—89.485 mm (3.5226—3.5230 in.)



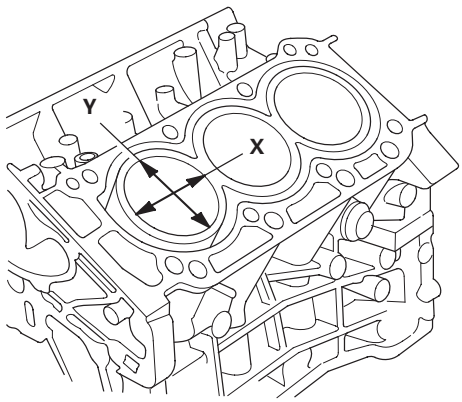


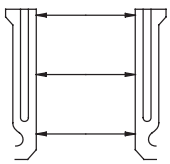
(cont'd)

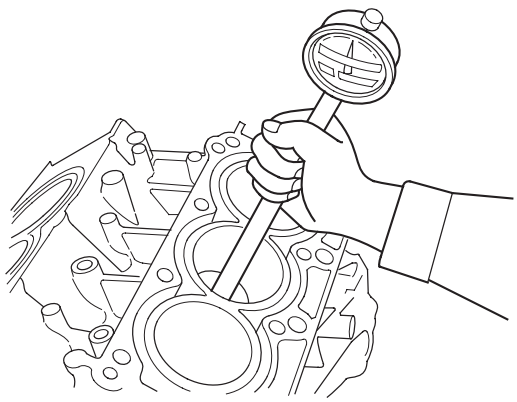
Block and Piston Inspection (cont'd)

4. Measure wear and taper in directions X and Y at three levels in each cylinder as shown.

   - If the measurements in any cylinder are beyond the oversize bore service limit, replace the cylinder block.
   - If the block is to be rebored, refer to step 6 after reboring.







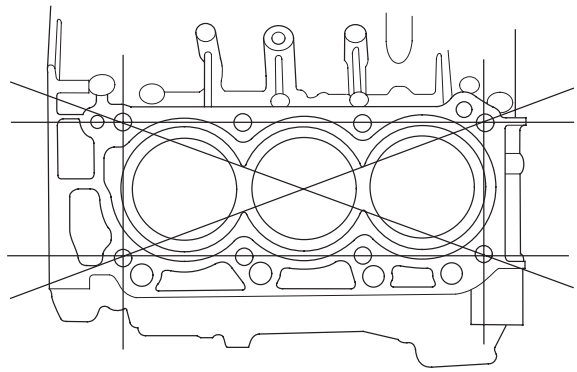
Cylinder Bore Size
Standard (New): 89.000—89.015 mm (3.5039—3.5045 in.)
Service Limit: 89.065 mm (3.5065 in.)

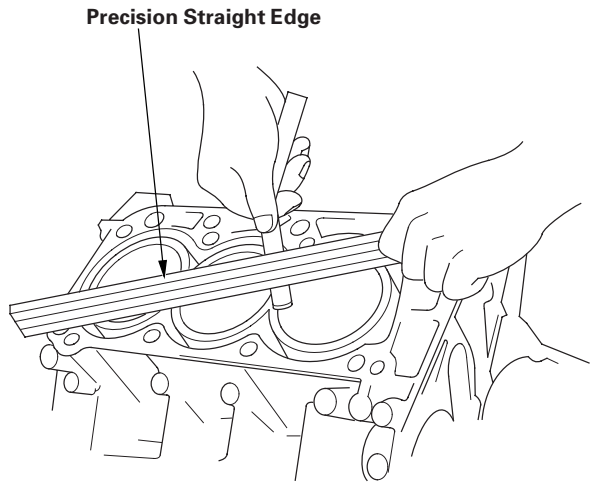
Oversize
0.25: 89.250—89.265 mm (3.5138—3.5144 in.)
0.50: 89.500—89.515 mm (3.5236—3.5242 in.)

Bore Taper
Limit: (Difference between first and third measurement) 0.05 mm (0.002 in.)
Reboring Limit: 0.5 mm (0.02 in.)

5. Check the top of the cylinder block for warpage. Measure along the edges and across the center as shown.

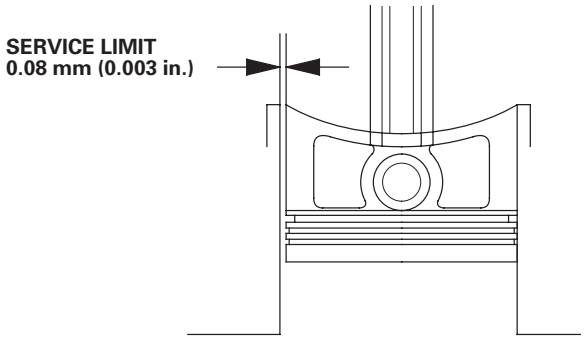
Cylinder Block Warpage
Standard (New): 0.07 mm (0.003 in.) max.
Service Limit: 0.10 mm (0.004 in.)





6. Calculate the difference between the cylinder bore diameter and piston diameter.

Piston-to-Block Clearance
Standard (New): 0.015—0.040 mm (0.0006—0.0016 in.)
Service Limit: 0.08 mm (0.003 in.)



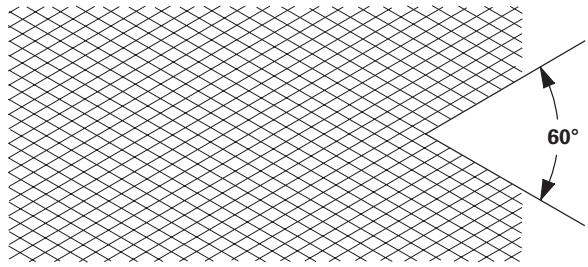
Oversize Piston Diameter
0.25: 89.225—89.235 mm (3.5128—3.5132 in.)
0.50: 89.475—89.485 mm (3.5226—3.5230 in.)

Cylinder Bore Honing

1. Measure the cylinder bores (see step 4 on page 7-16). If the cylinder block is to be reused, hone the cylinders and remeasure the bores. Scored or scratched cylinder bores must be honed.

2. Hone the cylinder bores with honing oil and a fine (400 grit) stone in a 60 degree crosshatch pattern.

   NOTE:
   - Use only a rigid hone with 400 grit or finer stone, such as Sunnen, Ammco, or equivalent.
   - Do not use stones that are worn or broken.



3. When honing is complete, thoroughly clean the cylinder block of all metal particles. Wash the cylinder bores with hot soapy water, then dry and oil them immediately to prevent rusting. Never use solvent, it will only redistribute the grit on the cylinder walls.

4. If scoring or scratches are still present in the cylinder bores after honing to the service limit, rebore the cylinder block. Some light vertical scoring and scratching is acceptable if it is not deep enough to catch your fingernail and does not run the full length of the bore.

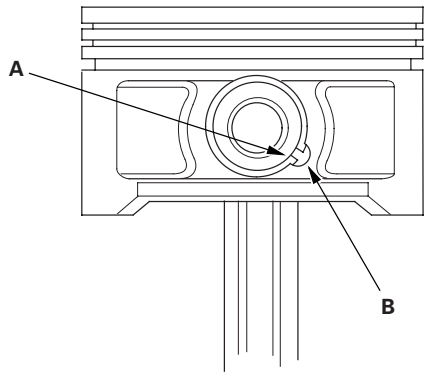
Piston, Pin, and Connecting Rod Replacement

Disassembly

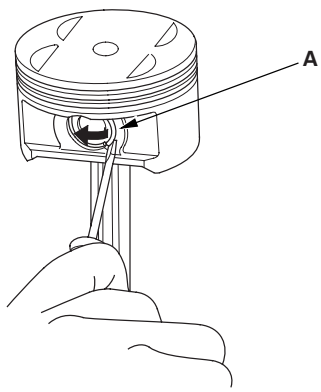
1. Remove the piston from the cylinder block (see page 7-12).

2. Apply new engine oil to the piston pin snap rings (A) and turn them in the ring grooves until the end gaps are lined up with the cutouts in the piston pin bores (B).

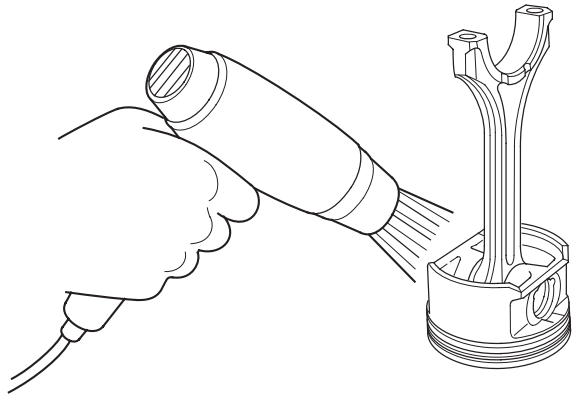
   NOTE: Take care not to damage the ring grooves.



3. Remove both snap rings (A). Start at the cutout in the piston pin bore. Remove the snap rings carefully so they do not go flying or get lost. Wear eye protection.



4. Heat the piston and connecting rod assembly to approximately 158°F (70°C), then remove the piston pin.

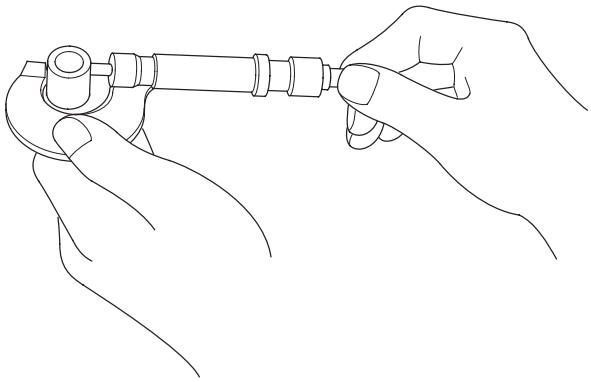


Inspection

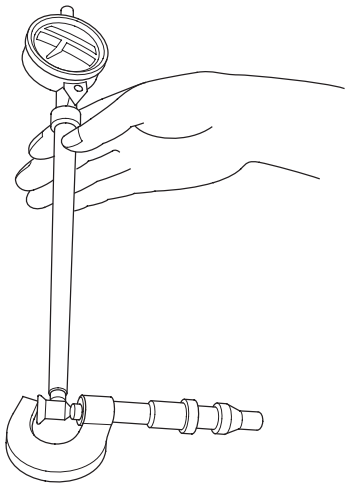
NOTE: Inspect the piston, piston pin and connecting rod when they are at room temperature.

1. Measure the diameter of the piston pin.

   Piston Pin Diameter
   Standard (New): 21.962－21.965 mm (0.8646－0.8648 in.)
   Service Limit: 21.954 mm (0.8643 in.)

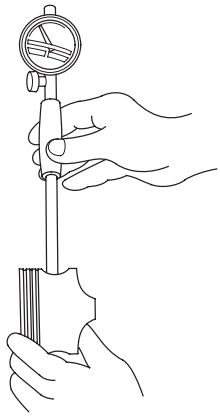


2. Zero the dial indicator to the piston pin diameter.



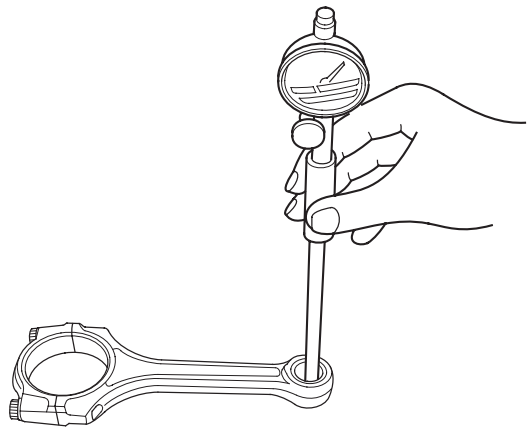
3. Check the difference between the piston pin diameter and piston pin hole diameter on the piston.

   Piston Pin-to-Piston Clearance
   Standard (New): －0.0050 to ＋0.0010 mm (－0.00020 to ＋0.00004 in.)
   Service Limit: 0.004 mm (0.0002 in.)



4. Measure the piston pin-to-connecting rod clearance.

   Piston Pin-to-Connecting Rod Clearance
   Standard (New): 0.005－0.014 mm (0.0002－0.0006 in.)
   Service Limit: 0.019 mm (0.0007 in.)

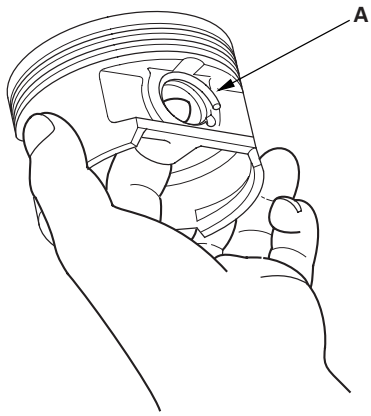


(cont'd)

Piston, Pin, and Connecting Rod Replacement (cont'd)

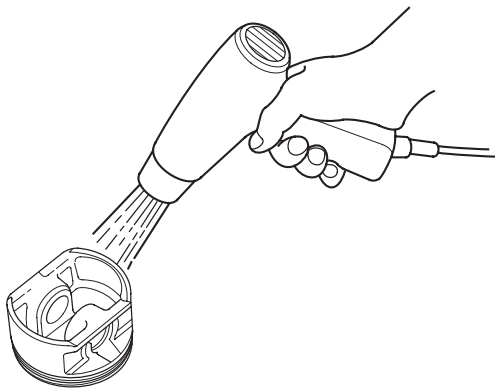
Reassembly

1. Install a piston pin snap ring (A).

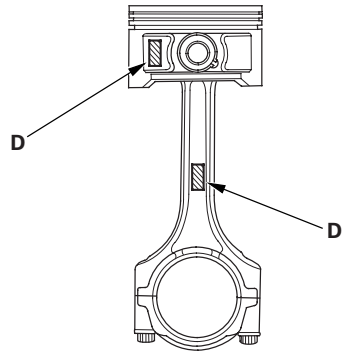


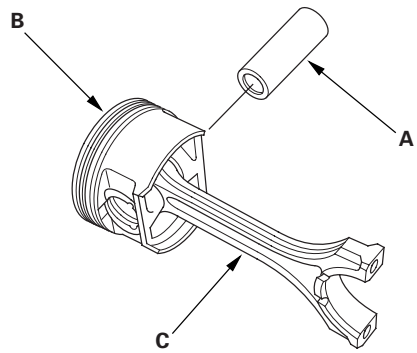
2. Coat the piston pin bore in the piston, the bore in the connecting rod, and the piston pin with new engine oil.

3. Heat the piston to about 158°F (70°C).



4. Install the piston pin (A). Assemble the piston (B) and connecting rod (C) with the embossed marks (D) on the same side.



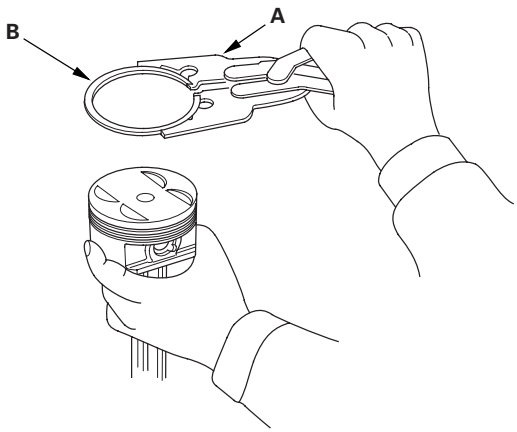


5. Install the remaining snap ring.

Piston Ring Replacement

1. Remove the piston from the cylinder block (see page 7-12).

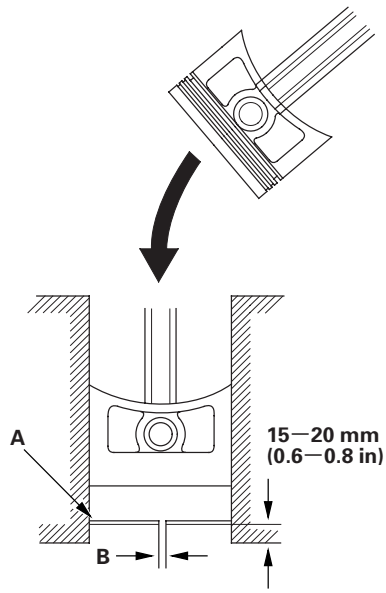
2. Using a ring expander (A), remove the old piston rings (B).



3. Clean all the ring grooves throughly with a squared-off broken ring or ring groove cleaner with a blade to fit the piston grooves. File down the blade if necessary. Top ring and second ring grooves are 1.2 mm (0.05 in.) wide, and the oil ring groove is 2.8 mm (0.11 in.) wide. Do not use a wire brush to clean the ring grooves, or cut the ring grooves deeper with the cleaning tool.

   NOTE: If the piston is to be separated from the connecting rod, do not install new rings yet.

4. Using a piston, push a new ring (A) into the cylinder bore 15—20 mm (0.6—0.8 in.) from the bottom.



5. Measure the piston ring end-gap (B) with a feeler gauge:

   - If the gap is too small, check to see if you have the proper rings for your engine.
   - If the gap is too large, recheck the cylinder bore diameter against the wear limits (see step 4 on page 7-16).
   - If the bore is over the service limit, the cylinder block must be rebored.

   Piston Ring End-Gap

   Top Ring
   Standard (New): 0.20—0.35 mm (0.008—0.014 in.)
   Service Limit: 0.60 mm (0.024 in.)

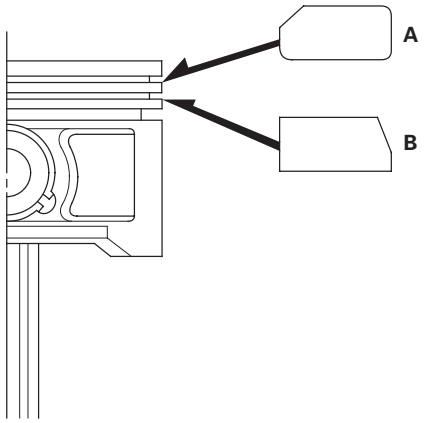
   Second Ring
   Standard (New): 0.40—0.55 mm (0.016—0.022 in.)
   Service Limit: 0.70 mm (0.028 in.)

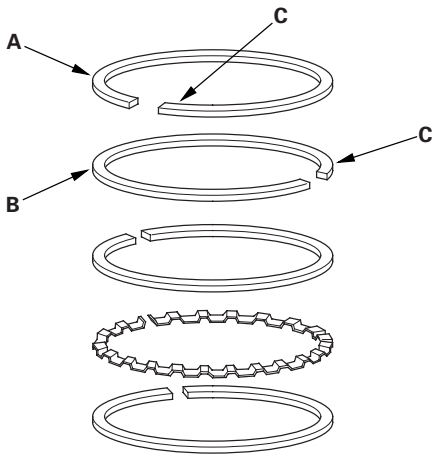
   Oil Ring
   Standard (New): 0.20—0.70 mm (0.008—0.028 in.)
   Service Limit: 0.80 mm (0.031 in.)

(cont'd)

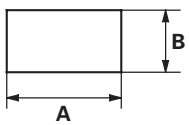
Piston Ring Replacement (cont'd)

6. Install the rings as shown. The top ring (A) has a 1D mark and the second ring (B) has a 2C mark. The manufacturing marks (C) must be facing upward.





Piston Ring Dimensions:



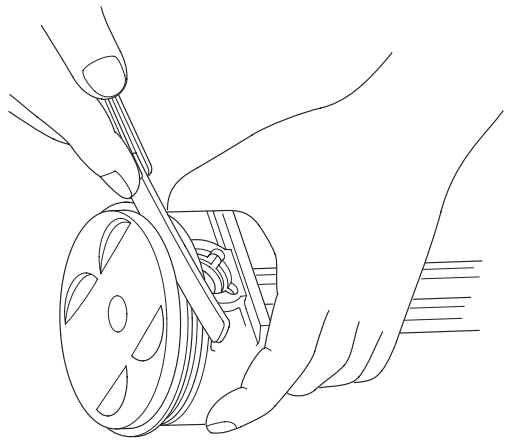
Top Ring (Standard)
A: 3.1 mm (0.12 in.)
B: 1.2 mm (0.05 in.)

Second Ring (Standard)
A: 3.4 mm (0.13 in.)
B: 1.2 mm (0.05 in.)

7. After installing a new set of rings, measure the ring-to-groove clearance.

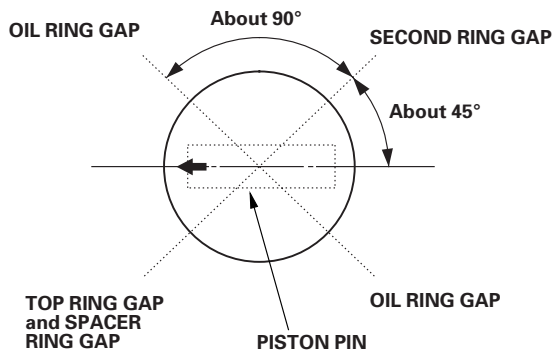
Top Ring Clearance
Standard (New):
1999-2001 models: 0.035—0.060 mm (0.0014—0.024 in.)
2002-2004 models: 0.055—0.080 mm (0.0022—0.0031 in.)
Service Limit: 0.13 mm (0.005 in.)

Second Ring Clearance
Standard (New): 0.030—0.055 mm (0.0012—0.0022 in.)
Service Limit: 0.13 mm (0.005 in.)



8. Rotate the rings in their grooves to make sure they do not bind.

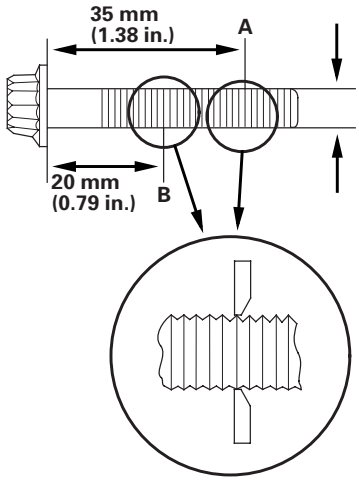
9. Position the ring end gaps as shown:



Crankshaft and Piston Installation

Special Tools Required
- Driver 07749-0010000
- Driver attachment 106 070AD-RCA0200

1. Measure the diameter of each connecting rod bolt at point A and point B.



2. Calculate the difference in diameter between point A and point B.

   Point A − Point B = Difference in Diameter

   Difference in Diameter Specification:
   0 − 0.1 mm (0 − 0.004 in.)

3. If the difference in diameter is out of tolerance, replace the connecting rod bolt.

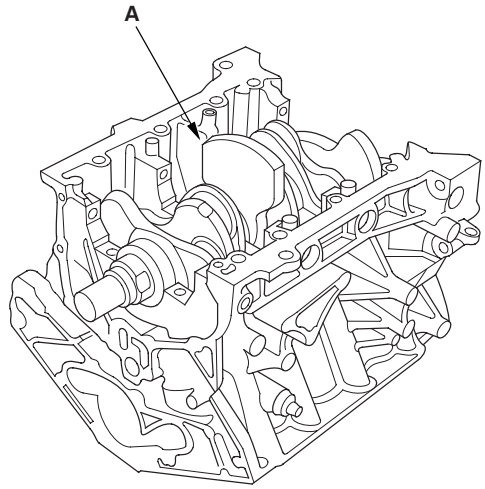
4. Check the connecting rod bearing clearance with plastigage (see page 7-9).

5. Check the main bearing clearance with plastigage (see page 7-7).

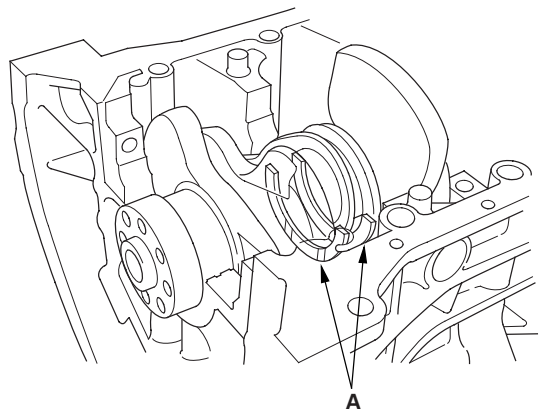
6. Install the bearing halves in the cylinder block and connecting rods.

7. Apply new engine oil to the main bearings and rod bearings.

8. Lower the crankshaft (A) into the block.



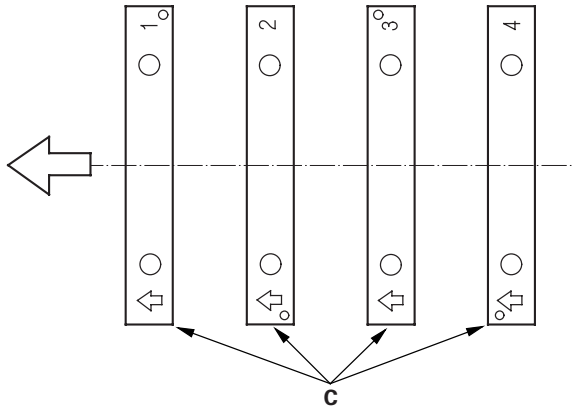
9. Apply new engine oil to the thrust washer surfaces. Install the thrust washers (A) in the No. 3 journal.

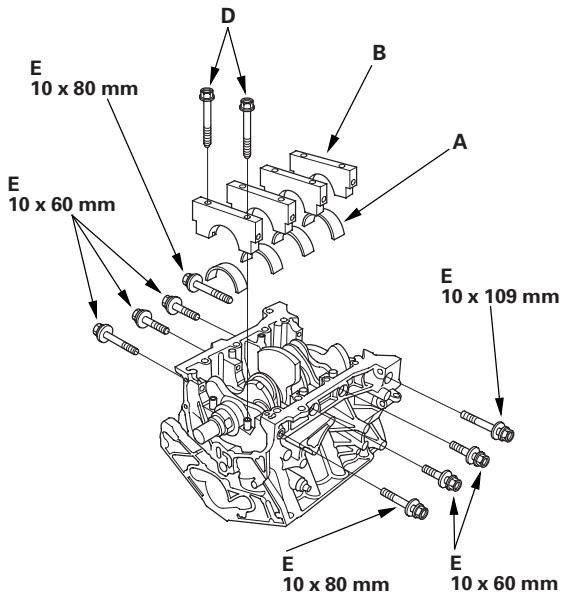


(cont'd)

Crankshaft and Piston Installation (cont'd)

10. Install the bearings (A) and bearing caps (B) with the arrow (C) facing the timing belt end of the engine.



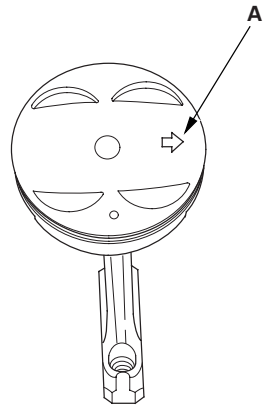


11. Apply new engine oil to the bolt threads and flange, then install the bearing cap bolts (D) and bearing cap side bolts (E).

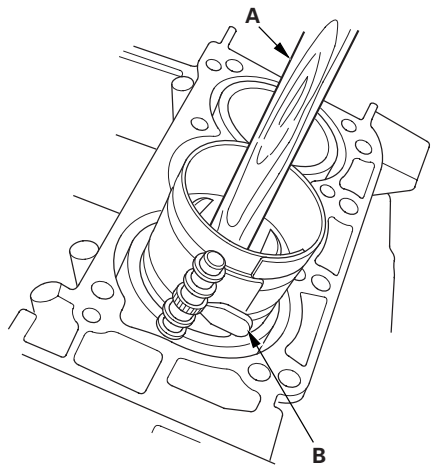
12. Set the crankshaft to Bottom Dead Center (BDC) for the cylinder you are working on.

13. Remove the connecting rod caps. Install the ring compressor, and check that the bearing is securely in place.

14. Install the piston with the arrow (A) facing the timing belt side of the engine.



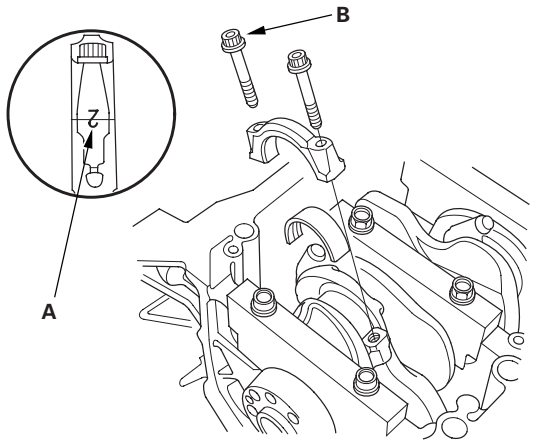
15. Position the piston in the cylinder, and tap it in using the wooden handle of a hammer (A). Maintain downward force on the ring compressor (B) to prevent the rings from expanding before entering the cylinder bore.



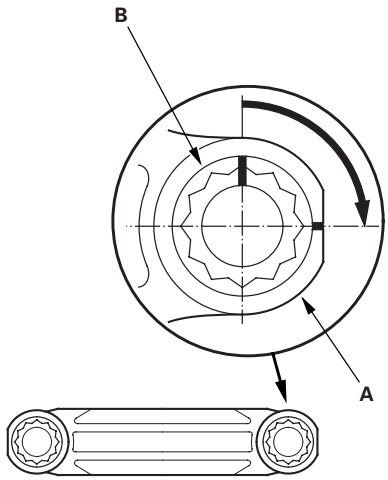
16. Stop after the ring compressor pops free, and check the connecting rod-to-crank journal alignment before pushing the piston into place.

17. Line up the mark (A) on the connecting rod and cap, then install the cap.

18. Apply new engine oil to the bolt threads. Torque the bolts (B) to 20 N·m (2.0 kgf·m, 14 lbf·ft).



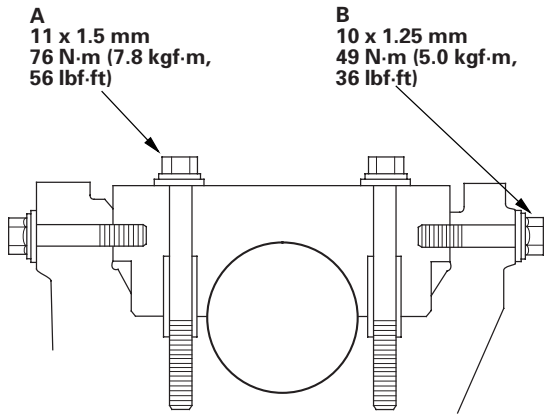
19. Mark the connecting rod (A) and bolt head (B) as shown.

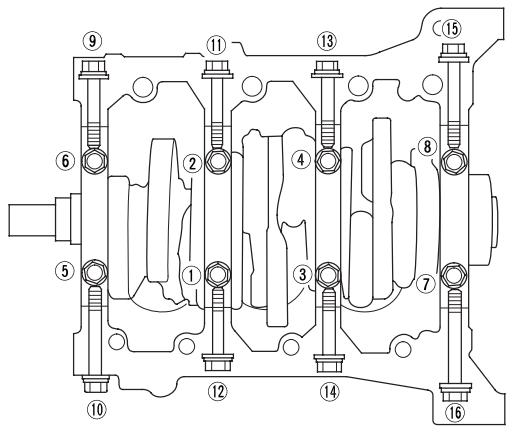


20. Tighten the bolt until the mark on the bolt head lines up with the mark on the connecting rod (turn the bolt 90°).

21. Torque the bearing cap bolts (A), then torque the bearing cap side bolts (B). Follow the numbered sequence shown.

NOTE: Whenever any crankshaft or connecting rod bearing is replaced, it is necessary after reassembly to run the engine at idling speed until it reaches normal operating temperature, then continue to run it for about 15 minutes.



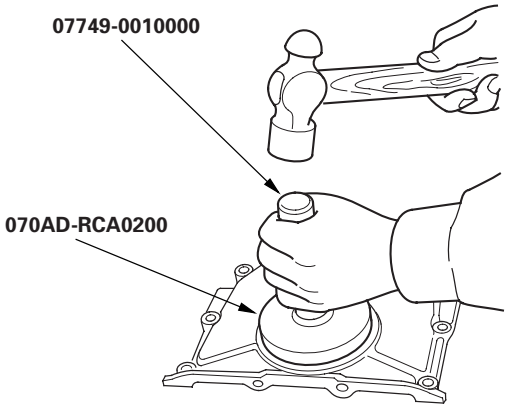


(cont'd)

Crankshaft and Piston Installation (cont'd)

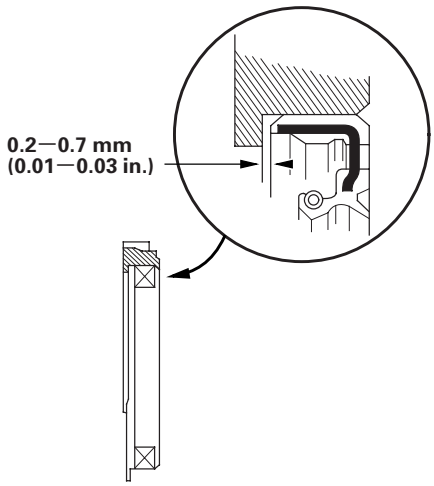
22. The seal mating surface on the engine block end cover should be dry. Apply a light coat of multi-purpose grease to the crankshaft and to the lip of the seal.

23. Drive the crankshaft oil seal squarely into the engine block end cover.



24. Confirm that the clearance is equal all the way around with a feeler gauge.

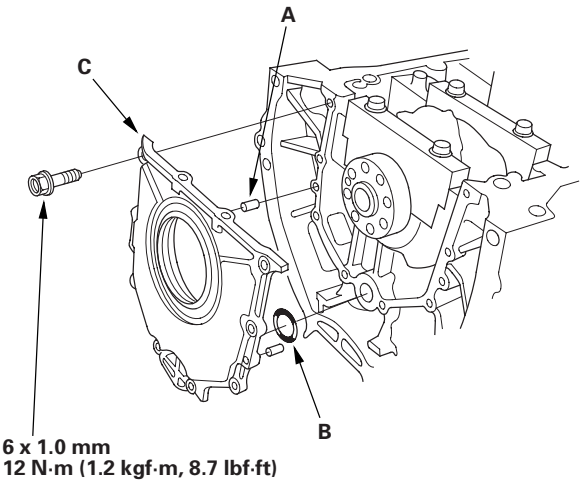
Clearance: 0.2—0.7 mm (0.01—0.03 in.)



25. Clean and dry the engine block end cover mating surfaces.

26. Apply liquid gasket, P/N 08718-0001 or 08718-0003, evenly to the block mating surface of the engine block end cover and to the inner threads of the bolt holes. Install the dowel pins (A), new O-ring (B) and the left side cover (C) on the cylinder block.

NOTE: Do not install the parts if 4 minutes or more have elapsed since applying the liquid gasket. Instead, reapply liquid gasket after removing the old residue.



27. After assembly, wait at least 30 minutes before filling the engine with oil.

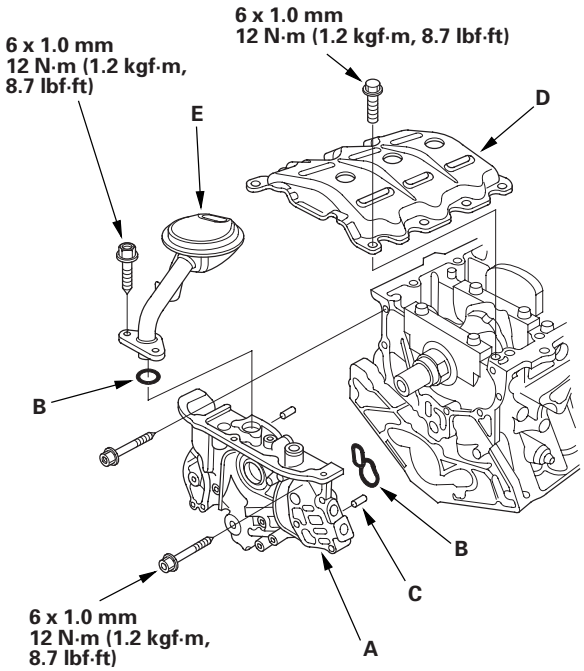
28. Clean and dry the oil pump mating surfaces.

29. Install the oil pump (A).

    -1 Install a new crankshaft oil seal in the oil pump (see page 8-10).
    -2 Apply liquid gasket, P/N 08718-0001 or 08718-0003, evenly to the block mating surface of the oil pump and to the inner threads of the bolt holes.

    NOTE: Do not install the parts if 4 minutes or more have elapsed since applying the liquid gasket. Instead, reapply liquid gasket after removing the old residue.

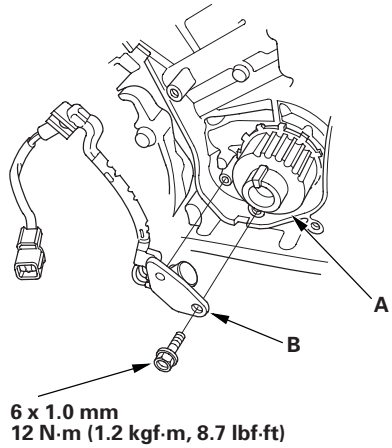
    -3 Apply a light coat of multipurpose grease to the lip of the oil seal and apply new engine oil to the new O-ring (B).
    -4 Install the dowel pins (C), then align the inner rotor with the crankshaft and install the oil pump.
    -5 Clean the excess grease off the crankshaft and check the seal for distortion.



30. Install the baffle plate (D), then install the oil screen (E).

31. Install the oil pan (see page 7-28).

32. Install the timing belt drive pulley (A), then install the crankshaft position (CKP) sensor (B).



33. Install the cylinder heads (see page 6-55).

34. Install the transmission:

    • 1999-2001 models (see page 14-147).
    • 2002-2004 models (see page 14-379).

35. Install the engine assembly (see page 5-12).

    NOTE: Whenever any crankshaft or connecting rod bearing is replaced, it is necessary after reassembly to run the engine at idling speed until it reaches normal operating temperature, then continue to run it for about 15 minutes.

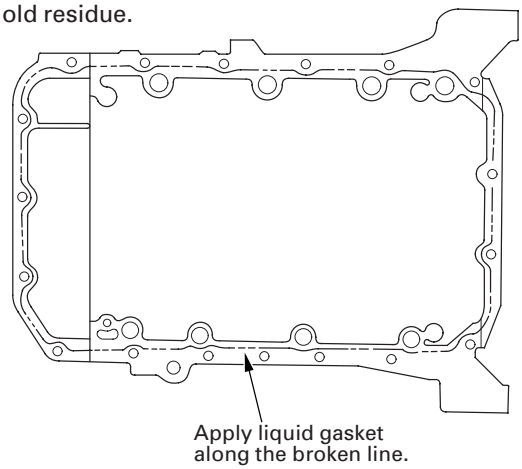
Oil Pan Installation

1. Remove any old liquid gasket from the oil pan mating surfaces, bolts and bolt holes.

2. Clean and dry the oil pan mating surfaces.

3. Apply liquid gasket, P/N 08718-0001 or 08718-003, evenly to the oil pan mating surface of the cylinder block and to the inner threads of the bolt holes.

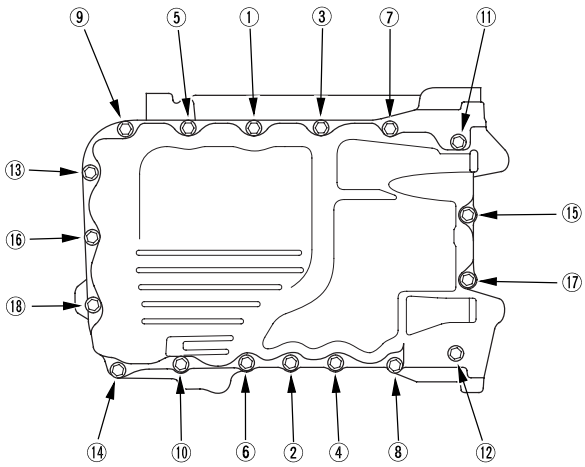
   NOTE: Do not install the parts if 4 minutes or more have elapsed since applying liquid gasket. Instead, reapply liquid gasket after removing the old residue.



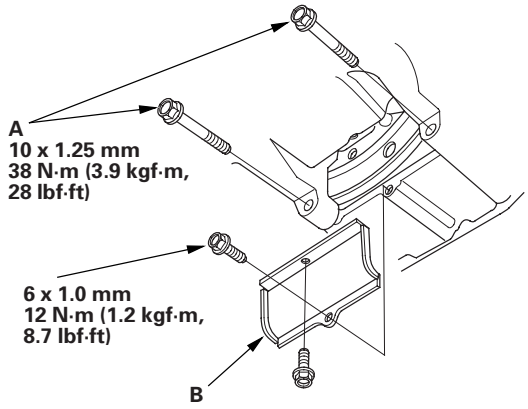
4. Install the oil pan on the cylinder block.

5. Tighten the bolts in two or three steps. In the final step, tighten all bolts in sequence to 12 N·m (1.2 kgf·m, 8.7 lbf·ft).

   NOTE: After assembly, wait at least 30 minutes before filling the engine with oil.



6. Tighten the two bolts (A) securing the transmission, then install the torque converter cover (B).



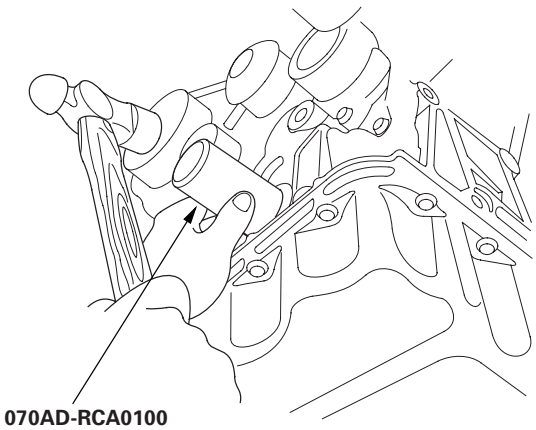
7. Install the exhaust pipe A (see step 19 on page 5-16).

8. Refill the engine with oil (see page 8-5).

Pulley End Crankshaft Seal Installation - In Car

Special Tools Required
Oil seal driver 64 070AD-RCA0100

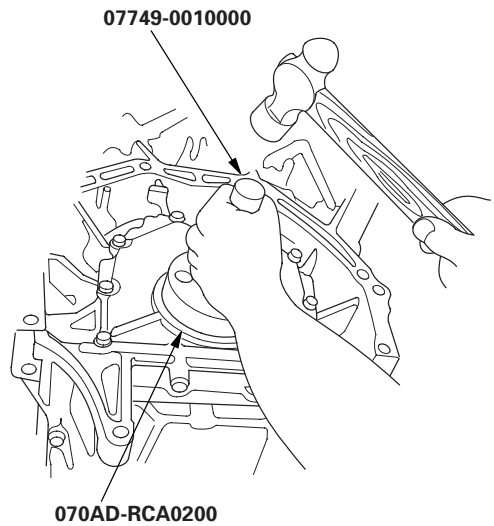
1. Clean and dry the crankshaft oil seal housing.
2. Apply a light coat of multipurpose grease to the crankshaft and to the lip of the seal.
3. Using the seal driver, drive in the crankshaft oil seal until the driver bottoms against the oil pump. When the seal is in place, clean any excess grease off the crankshaft, and check that the oil seal lip is not distorted.



Transmission End Crankshaft Seal Installation - In Car

Special Tools Required
- Driver 07749-0010000
- Driver attachment 106 070AD-RCA0200

1. Clean and dry the crankshaft oil seal housing.
2. Apply a light coat of multipurpose grease to the crankshaft and to the lip of the seal.
3. Using the special tools, drive the crankshaft oil seal into the engine block end cover until the driver attachment bottoms against the crankshaft. Align the hole in the driver attachment with the pin on the crankshaft.



4. Clean any excess grease off the crankshaft, and check that the oil seal lip is not distorted.

Engine Mechanical

Engine Lubrication

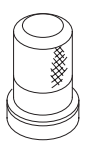
Special Tools 8-2
Component Location Index 8-3
Oil Pressure Switch Test 8-4
Oil Pressure Test 8-4
Engine Oil Replacement 8-5
Engine Oil Filter Replacement 8-5
Oil Filter Feed Pipe Replacement 8-7
Oil Pump Overhaul 8-8
Oil Pressure Switch Replacement 8-11

Engine Lubrication

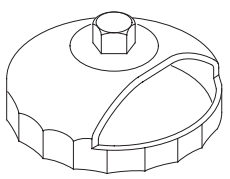
Special Tools

Ref. No.	Tool Number	Description	Qty
①	070AD-RCA0100	Oil Seal Driver, 64 mm	1
②	07912-6110001	Oil Filter Wrench	1

0 1
0 1

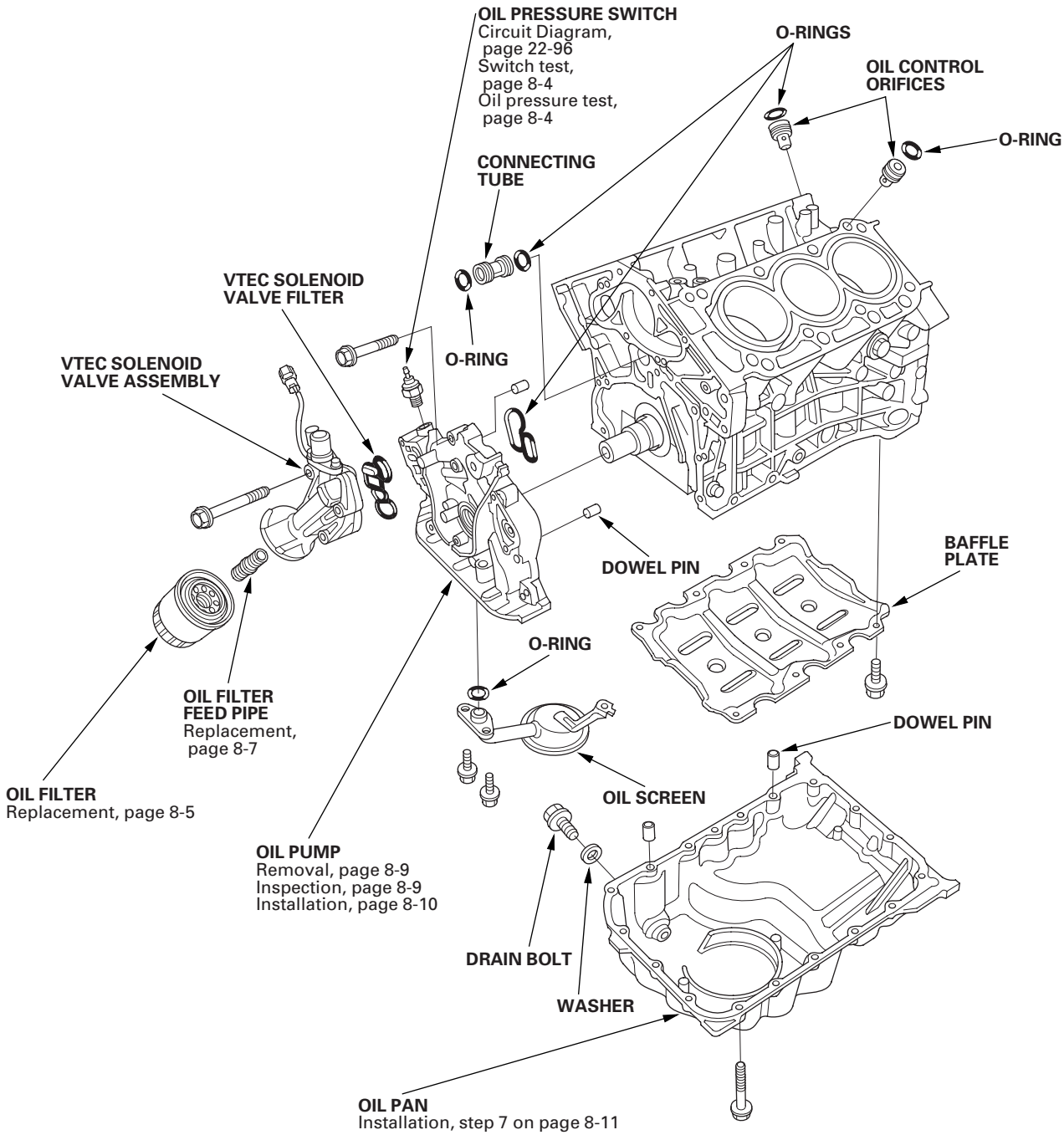


①



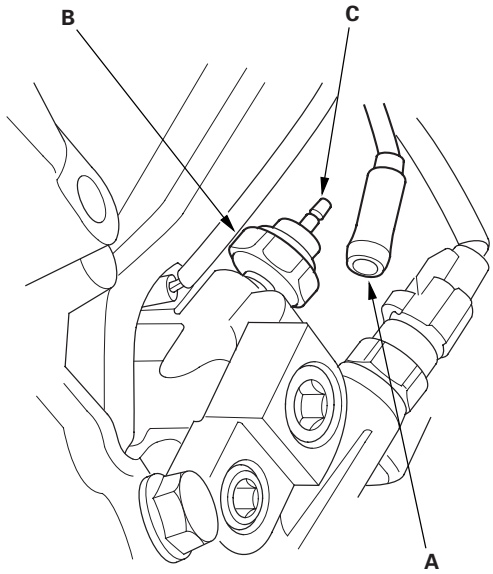
②

Component Location Index



Oil Pressure Switch Test

1. Remove the YEL/RED wire (A) from the engine oil pressure switch (B).



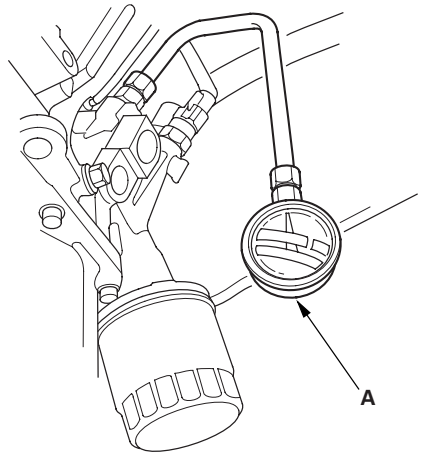
2. Check for continuity between the positive terminal (C) and the engine (ground). There should be continuity with the engine stopped. There should be no continuity with the engine running.

3. If the switch fails to operate, check the engine oil level. If the engine oil level is OK, check the engine oil pressure.

Oil Pressure Test

If the oil pressure warning light stays on with the engine running, check the engine oil level. If the oil level is correct:

1. Remove the engine oil pressure switch and install an oil pressure gauge (A).



2. Start the engine. Shut it off immediately if the gauge registers no oil pressure. Repair the problem before continuing.

3. Allow the engine to reach operating temperature (fan comes on at least twice). The pressure should be:

Engine Oil Temperature 176°F (80°C)
Engine Oil Pressure
At Idle: 70 kPa (0.7 kgf/cm^2, 10 psi) minimum
At 3,000 rpm: 490 kPa (5.0 kgf/cm^2, 71 psi) minimum

4. If oil pressure is NOT within specifications, inspect these items:

   - Check the oil screen for clogging.
   - Inspect the oil pump (see page 8-9).

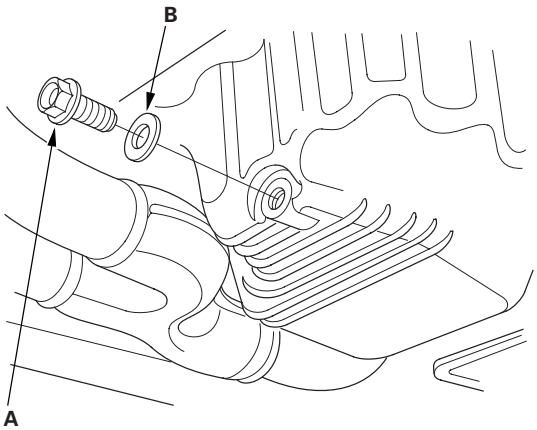
Engine Oil Replacement

NOTE: Under normal conditions, the oil filter should be replaced at every other oil change. Under severe conditions, the oil filter should be replaced at each oil change.

Change interval

Every 7,500 miles (12,000 km) or 12 months (Normal conditions)
Every 3,750 miles (6,000 km) or 6 months (Severe conditions).

1. Warm up the engine.
2. Remove the drain bolt (A), and drain the engine oil.



39 N·m (4.0 kgf·m, 29 lbf·ft)
Do not overtighten.

3. Reinstall the drain bolt with a new washer (B).
4. Refill with the recommended oil (see page 3-2).

Capacity

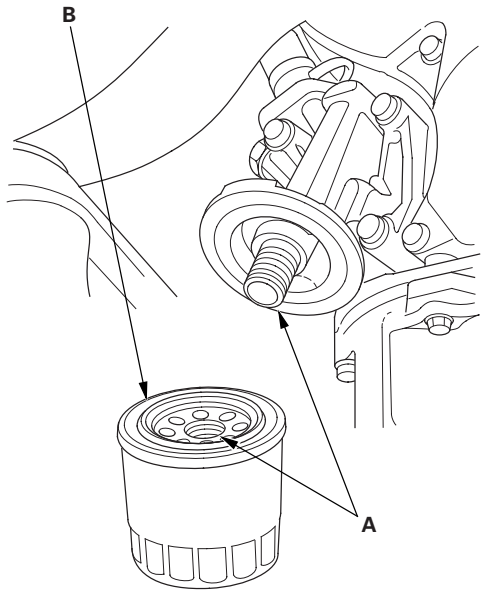
4.0 ℓ (4.2 US qt) at oil change.
4.4 ℓ (4.6 US qt) at oil change including filter.
5.0 ℓ (5.3 US qt) after engine overhaul.

5. Run the engine for more than 3 minutes, then check for oil leakage.

Engine Oil Filter Replacement

Special Tools Required
Oil filter wrench 07912-6110001

1. Remove the oil filter with the special tool.
2. Inspect the threads (A) and rubber seal (B) on the new filter. Wipe off the seat on the engine block, then apply a light coat of new engine oil to the filter rubber seal. Use only filters with a built-in bypass system.



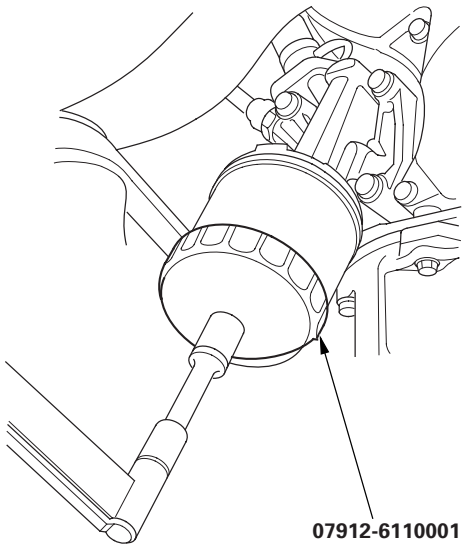
(cont'd)

Engine Oil Filter Replacement (cont'd)

3. Install the oil filter by hand.

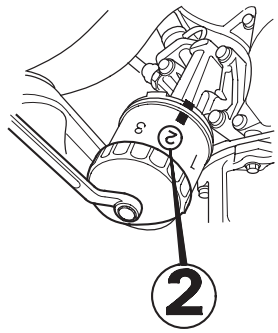
4. After the rubber seal seats, tighten the oil filter clockwise with the special tool.

   Tighten: 7/8 turn clockwise.
   Tightening torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

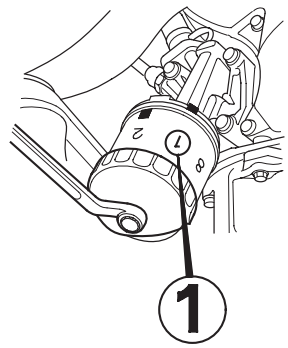


5. If eight numbers (1 to 8) are printed around the outside of the filter, use the following procedure to tighten the filter.

   - Spin the filter on until its seal lightly seats against the block, and note which number is at the bottom.
   - Tighten the filter by turning it clockwise seven numbers from the one you noted. For example, if number 2 is at the bottom when the seal is lightly seated, tighten the filter until the number 1 comes around to the bottom.



Number when rubber seal is seated.



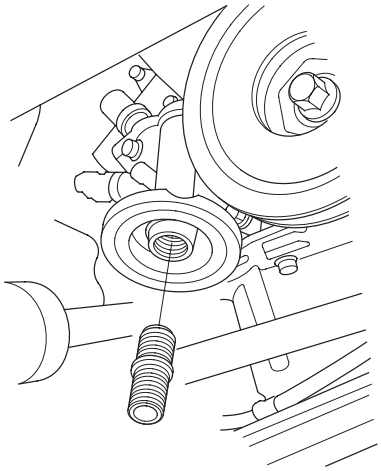
Number after tightening.

Number when rubber seal is seated	1	2	3	4	5	6	7	8
Number after tightening	8	1	2	3	4	5	6	7

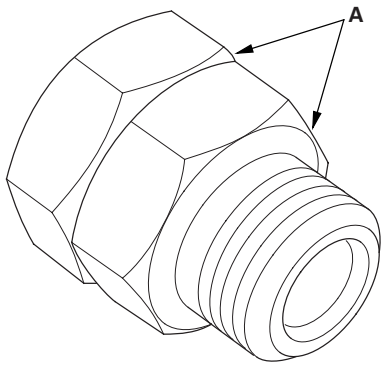
6. After installation, fill the engine with oil up to the specified level, run the engine for more than 3 minutes, then check for oil leakage.

Oil Filter Feed Pipe Replacement

1. Remove the oil filter (see page 8-5).
2. Remove the oil filter feed pipe.



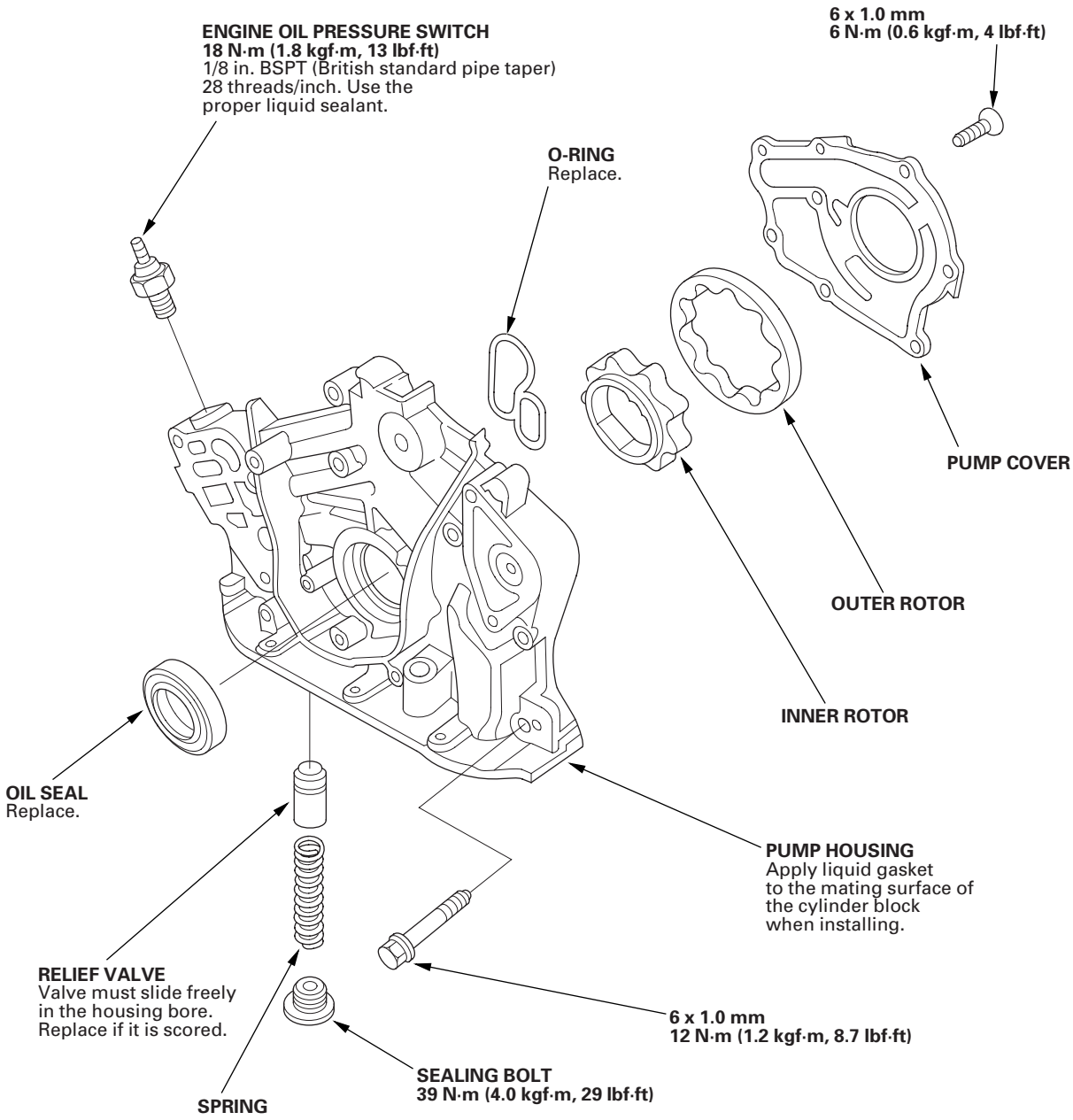
3. Install the two 20 x 1.5 mm nuts (A) onto the new oil filter feed pipe. Hold the nut with a wrench, then tighten the other nut.



4. Tighten the oil filter feed pipe to the block to 49 N·m (5.0 kgf·m, 36 lbf·ft), then remove the nuts from the oil filter feed pipe.
5. Install the oil filter (see page 8-5).

Oil Pump Overhaul

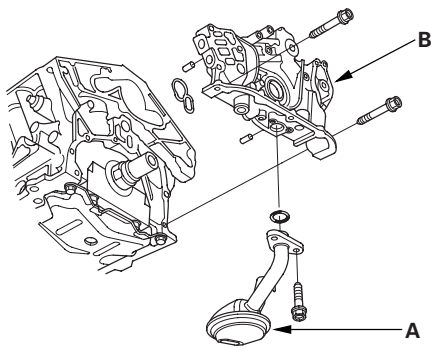
Exploded View



Special Tools Required
Oil seal driver 64 070AD-RCA0100

Removal

1. Drain the engine oil.
2. Turn the crankshaft so that the No. 1 piston is at top dead center (see page 6-20).
3. Remove the timing belt (see page 6-20).
4. Remove the crankshaft position (CKP) sensor, then remove the timing belt drive pulley (see step 4 on page 7-12).
5. Attach the chain hoist to the engine hanger on the power steering (P/S) pump bracket (see step 48 on page 5-10).
6. Remove the jack from under the oil pan.
7. Remove the VTEC solenoid valve and oil filter assembly (see page 6-10).
8. Remove the oil pan (see page 7-11).
9. Remove the oil screen (A).

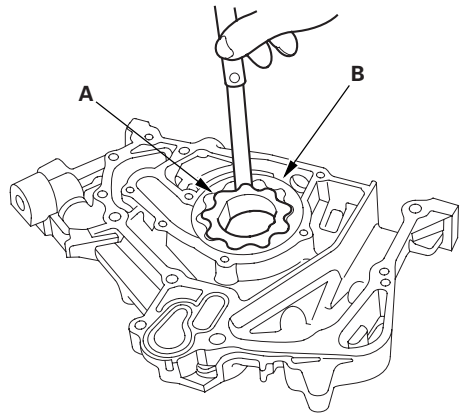


10. Remove the mounting bolts and the oil pump assembly (B).

Inspection

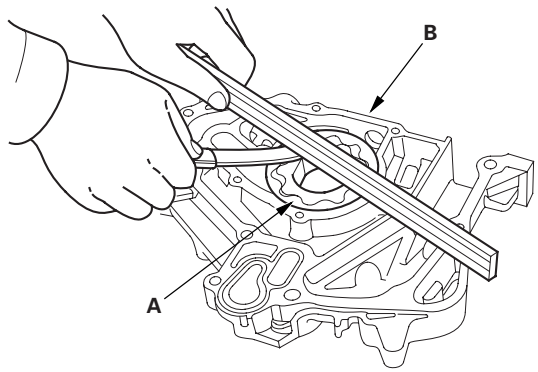
1. Remove the screws from the pump housing, then separate the housing and cover.
2. Check the inner-to-outer rotor radial clearance between the inner rotor (A) and outer rotor (B). If the inner-to-outer rotor clearance exceeds the service limit, replace the oil pump assembly.

Inner Rotor-to-Outer Rotor Radial Clearance
Standard (New): 0.04—0.16 mm (0.002—0.006 in.)
Service Limit: 0.20 mm (0.008 in.)



3. Check the housing-to-rotor axial clearance between the rotors (A) and pump housing (B). If the housing-to-rotor axial clearance exceeds the service limit, replace the oil pump assembly.

Housing-to-Rotor Axial Clearance
Standard (New): 0.02—0.07 mm (0.001—0.003 in.)
Service Limit: 0.12 mm (0.005 in.)

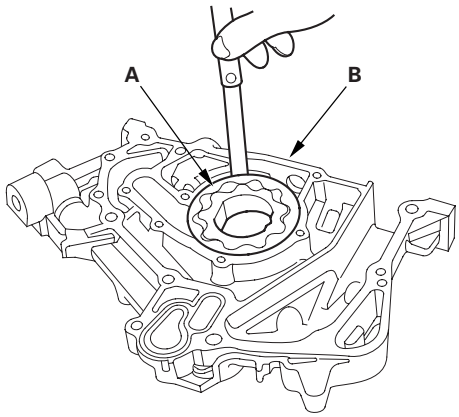


(cont'd)

Oil Pump Overhaul (cont'd)

4. Check the housing-to-outer rotor radial clearance between the outer rotor (A) and pump housing (B). If the housing-to-outer rotor radial clearance exceeds the service limit, replace the oil pump assembly.

   Housing-to-Outer Rotor Radial Clearance
   Standard (New): 0.14—0.19 mm (0.006—0.007 in.)
   Service Limit: 0.20 mm (0.008 in.)



5. Inspect both rotors and pump housing for scoring or other damage. Replace parts if necessary.

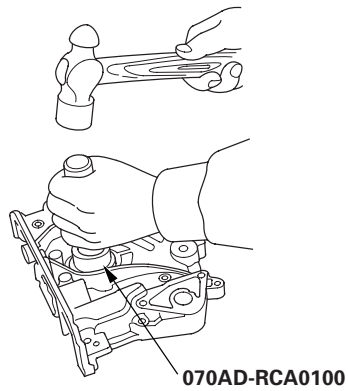
6. Apply liquid thread lock to the pump housing screws, then install the oil pump cover. Torque the bolts to 12 N·m (1.2 kgf·m, 8.7 lbf·ft).

7. Check that the oil pump turns freely.

Installation

1. Remove the old oil seal from the oil pump.

2. Gently tap in the new oil seal until the special tool bottoms on the pump.



3. Remove old liquid gasket from the oil pump mating surfaces, bolts and bolt holes.

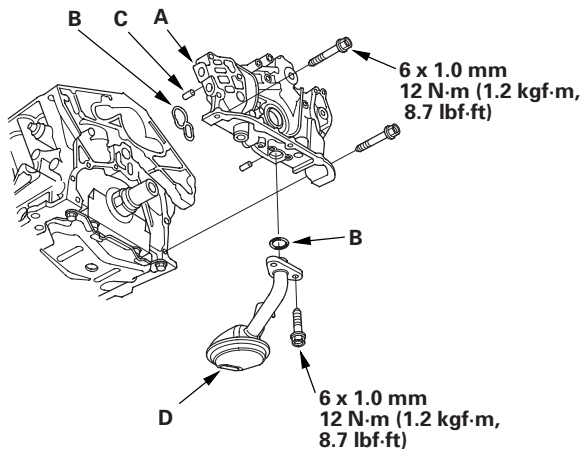
4. Clean and dry the oil pump mating surfaces.

5. Install the oil pump (A).

   –1 Apply liquid gasket, P/N 08718-0001 or 08718-0003, evenly to the block mating surface of the oil pump and to the inner threads of the bolt holes.

   NOTE: Do not install the parts if 4 minutes or more have elapsed since applying liquid gasket. Instead, reapply liquid gasket after removing old residue.

   –2 Grease the lip of the oil seal, and apply oil to the new O-rings (B).
   –3 Install the dowel pins (C), then align the inner rotor with the crankshaft and install the oil pump.
   –4 Clean the excess grease off the crankshaft, and check the seal for distortion.



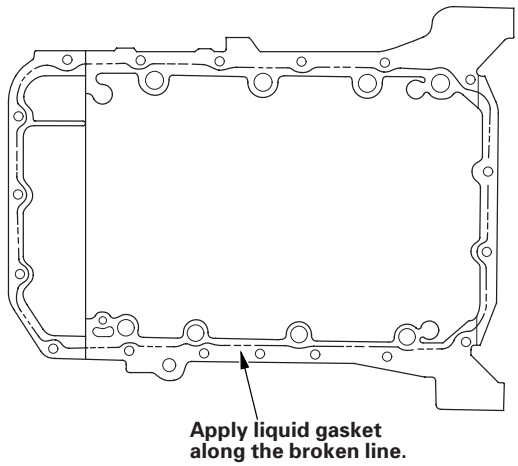
6. Install the oil screen (D).

7. Clean and dry the oil pan mating surfaces.

8. Apply liquid gasket, part No. 08718-0001 or 08718-0003, evenly to the oil pan mating surface of the block and to the inner threads of the bolt holes.

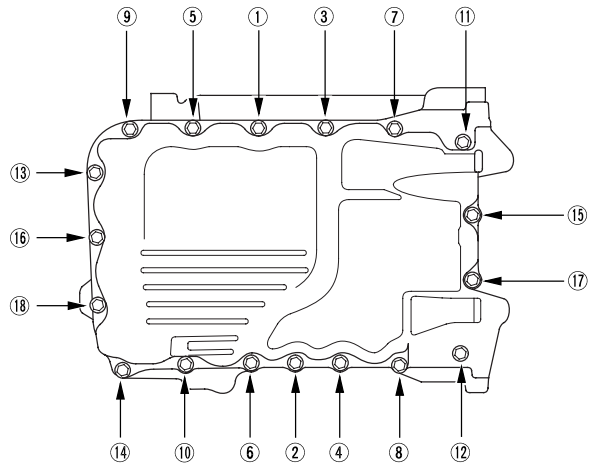
   NOTE: Do not install the parts if 4 minutes or more have elapsed since applying liquid gasket. Instead, reapply liquid gasket after removing the old residue.

9. Install the oil pan on the cylinder block.



10. Tighten the bolts in two or three steps. In the final step, tighten all bolts, in sequence, to 12 N·m (1.2 kgf·m, 8.7 lbf·ft).

    NOTE: After assembly, wait at least 30 minuites before filling the engine with oil.



11. Install the VTEC solenoid valve and oil filter assembly (see page 6-10).

12. Install the timing belt drive pulley, then install the CKP sensor (see step 32 on page 7-27).

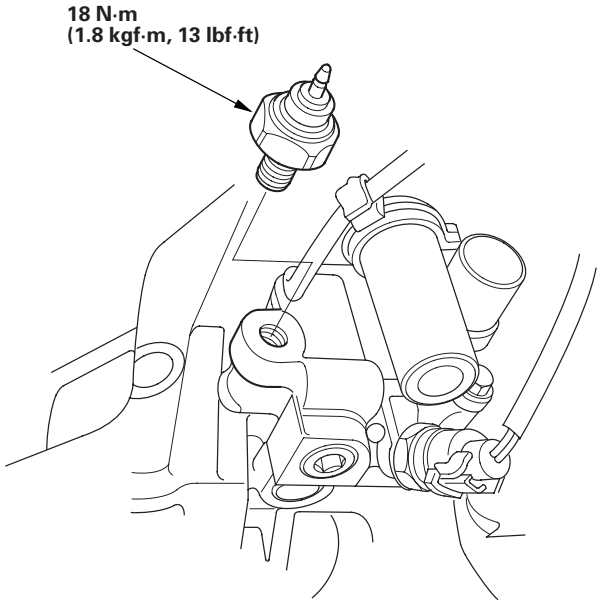
13. Install the idler pulley.

14. Install the timing belt (see page 6-23).

15. Remove the chain hoist.

Oil Pressure Switch Replacement

1. Disconnect the oil pressure switch connector, then remove the oil pressure switch.



2. Apply liquid gasket to the oil pressure switch, then install the oil pressure switch.

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Engine Mechanical

Intake Manifold and Exhaust System
Intake Manifold Removal and Installation 9-2
Exhaust Manifold Removal and Installation 9-10
Exhaust Pipe and Muffler Replacement 9-11

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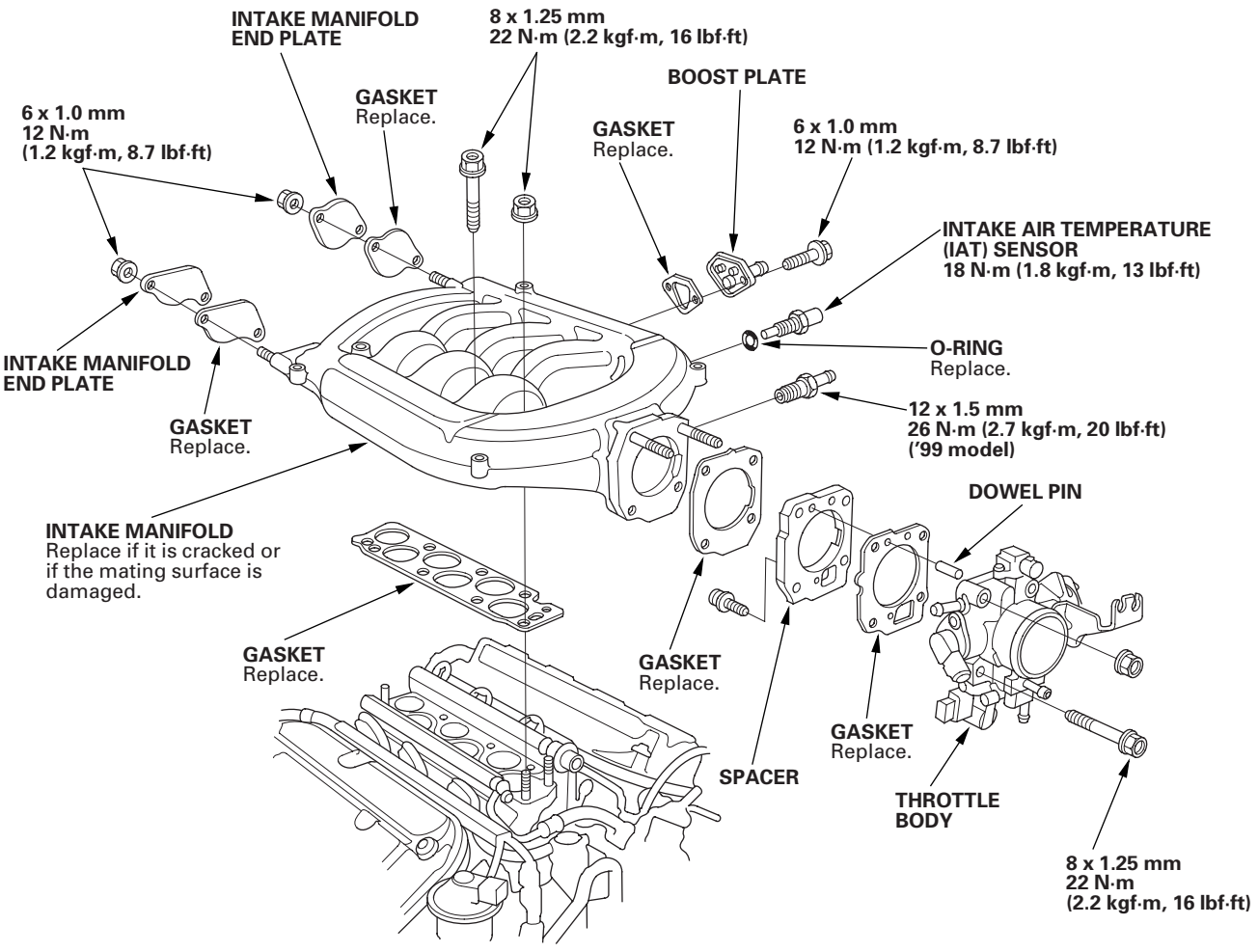
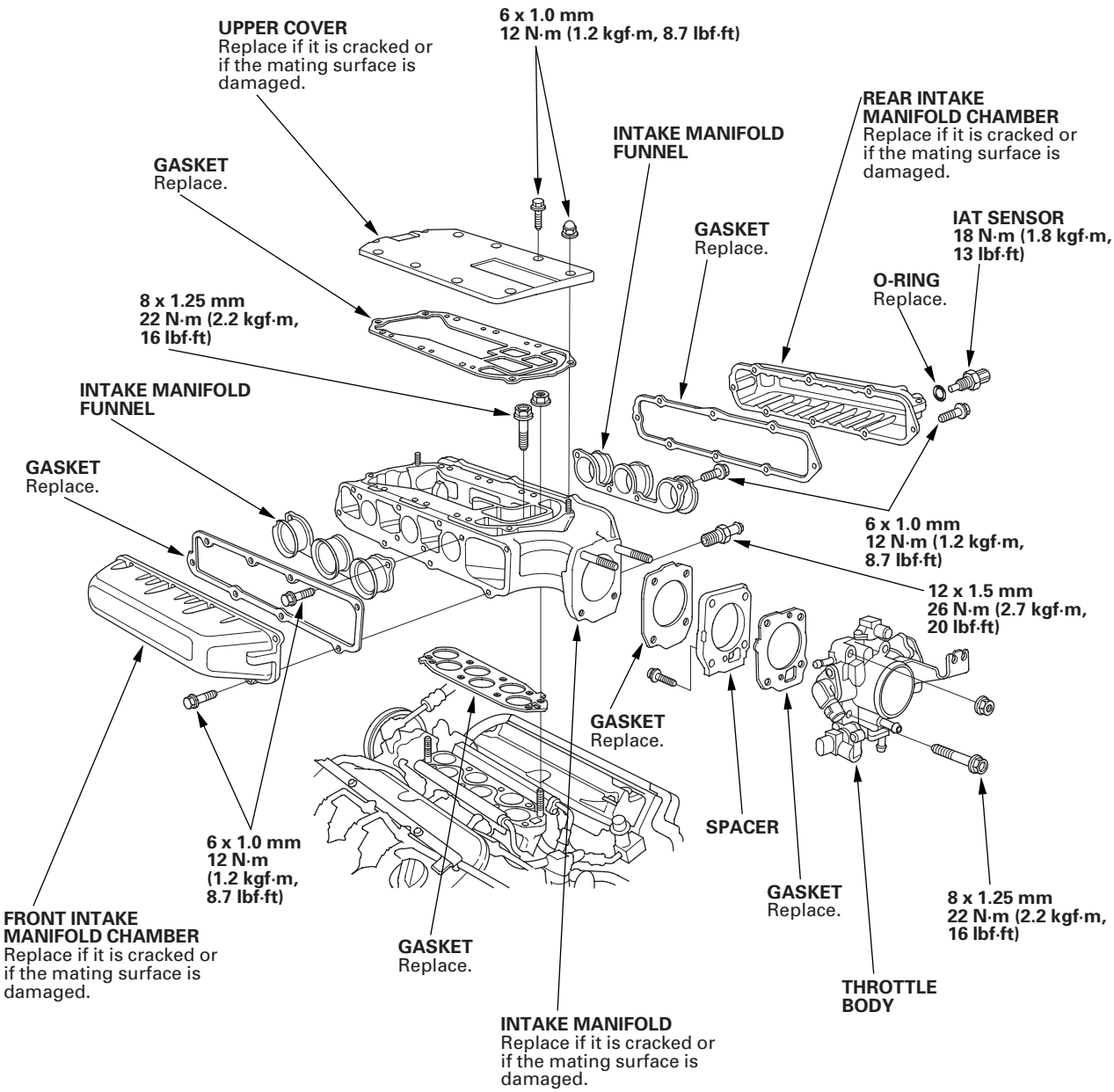
Intake Manifold and Exhaust System

Intake Manifold Removal and Installation

Exploded View-1999-2001 models



Exploded View-2002-2004 models



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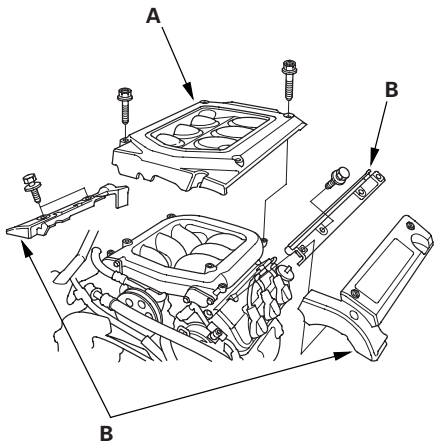
Intake Manifold Removal and Installation (cont'd)

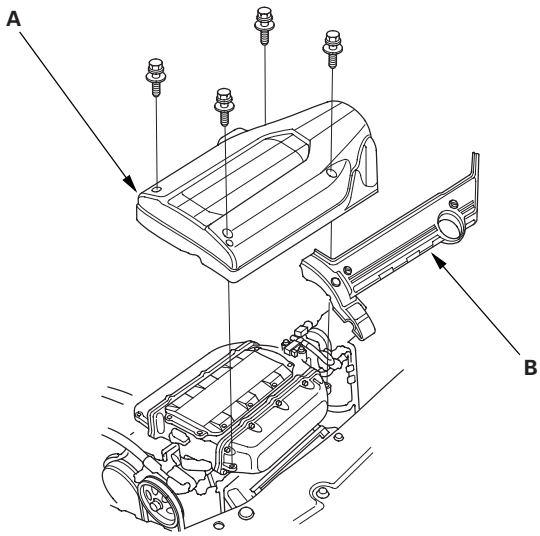
Removal

1. Remove the intake manifold cover (A) and ignition coil cover(s) (B).

1999-2001 models:

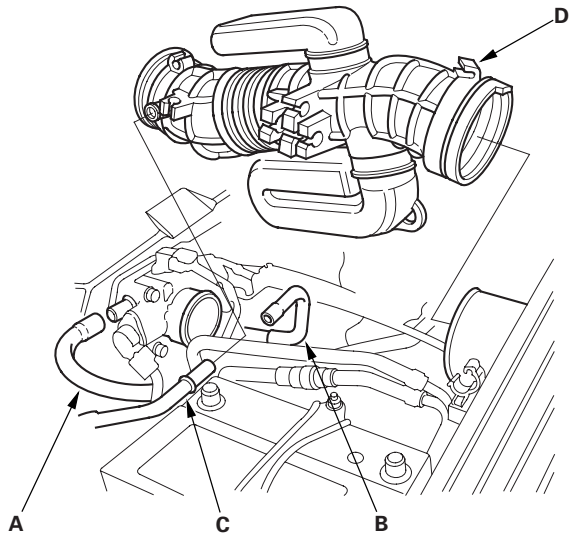


2002-2004 models:

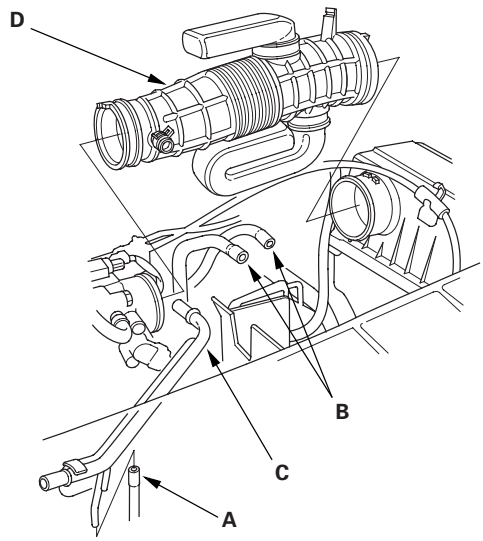


2. Remove the evaporative emission (EVAP) canister hose (A) (1999-2001 models) or vacuum hose (A) (2002-2004 models).

1999-2001 models:

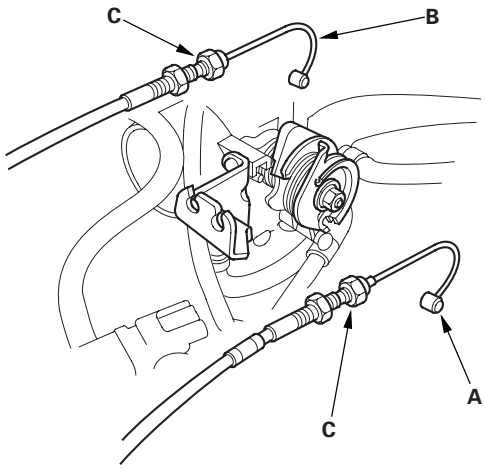


2002-2004 models:



3. Remove the vacuum hose(s) (B) and breather pipe (C), then remove the intake air duct (D).

4. Remove the throttle cable (A) and cruise control cable (B) by loosening the locknuts (C), then slip the cable ends out of the accelerator linkage. Take care not to bend the cables when removing them. Always replace any kinked cable with a new one.

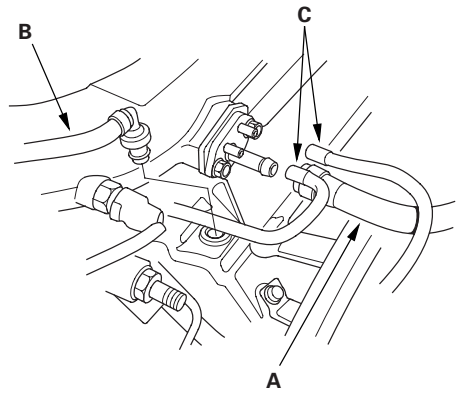


5. Remove the engine wire harness connectors and wire harness clamps from the intake manifold.

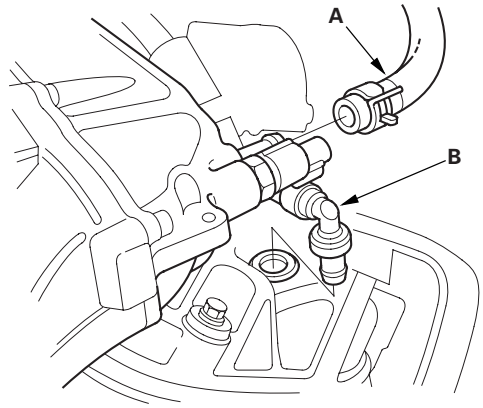
   - Intake air temperature (IAT) sensor connector
   - Idle air control (IAC) valve connector
   - Throttle position (TP) sensor connector
   - Manifold absolute pressure (MAP) sensor connector
   - Evaporative emission (EVAP) canister purge valve connector (2002-2004 models)

6. Remove the brake booster vacuum hose (A) and positive crankcase ventilation (PCV) hose (B).

1999-2001 models:



2002-2004 models:



7. Remove the vacuum hoses (C) (1999-2001 models).

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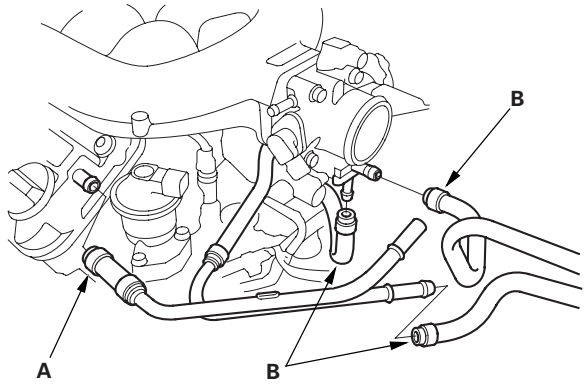
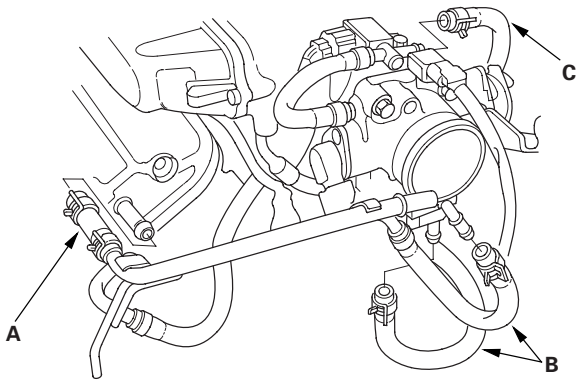
Intake Manifold Removal and Installation (cont'd)

8. Remove the breather hose (A) and water bypass hoses (B), then plug the water bypass hoses.

1999-2001 models:

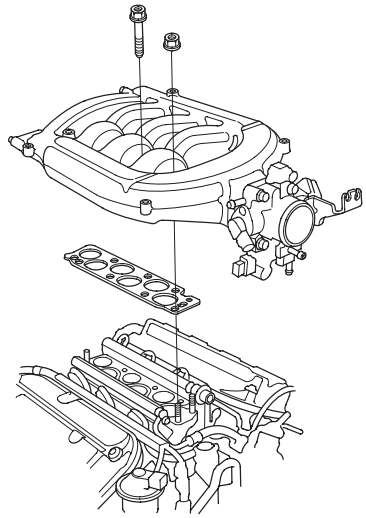


2002-2004 models:

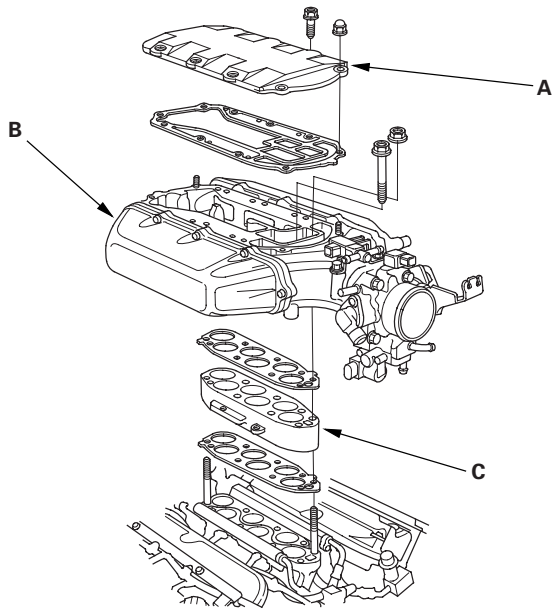


9. Remove the EVAP canister hose (C) (2002-2004 models).

10. Remove the intake manifold (1999-2001 models).



11. Remove the upper cover (A), then remove the intake manifold (B) and spacer (C) (2002-2004 models).



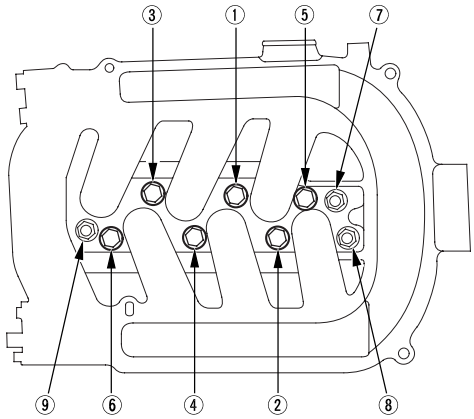
Installation

1. Put the gasket and spacer on the injector base (2002-2004 models).

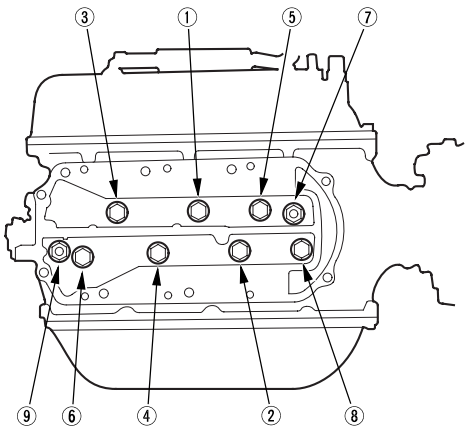
2. Install the intake manifold. Tighten the bolts and nuts sequentially in two or three steps. Always use a new intake manifold gasket.

   Specified torque:
   8 x 1.25 mm
   22 N·m (2.2 kgf·m, 16 lbf·ft)

   1999-2001 models:

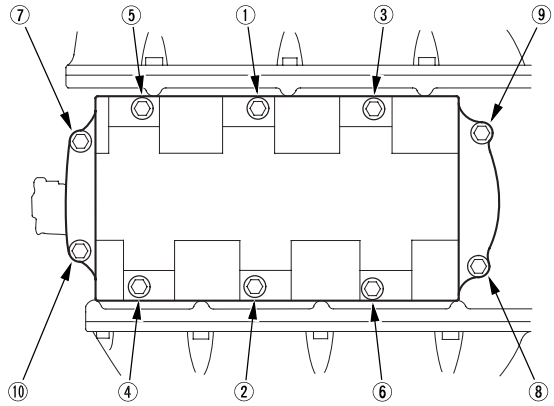


   2002-2004 models:



3. Install the upper cover. Tighten the bolts and nuts sequentially in two or three steps. Always use a new intake manifold gasket (2002-2004 Models).

   Specified torque:
   6 x 1.0 mm
   12 N·m (1.2 kgf·m, 8.7 lbf·ft)

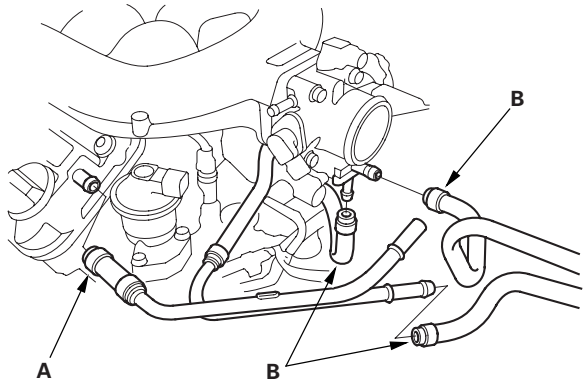


(cont'd)

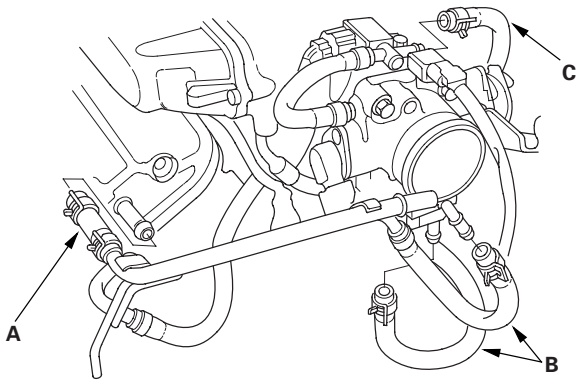
Intake Manifold Removal and Installation (cont'd)

4. Install the breather hose (A) and water bypass hoses (B).

1999-2001 models:



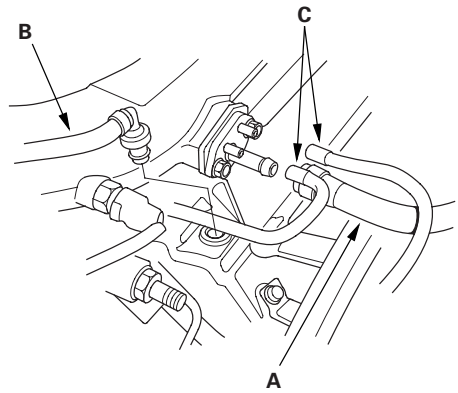
2002-2004 models:



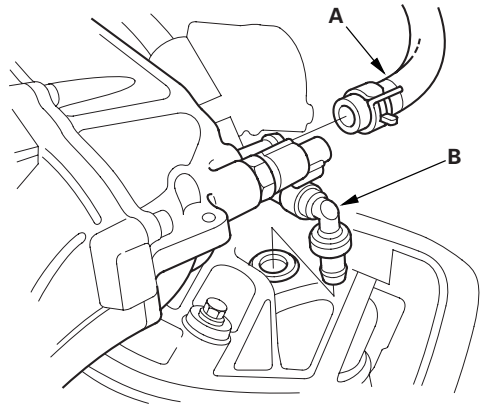
5. Install the EVAP canister hose (C) (2002-2004 models).

6. Install the brake booster vacuum hose (A) and PCV hose (B).

1999-2001 models:



2002-2004 models:



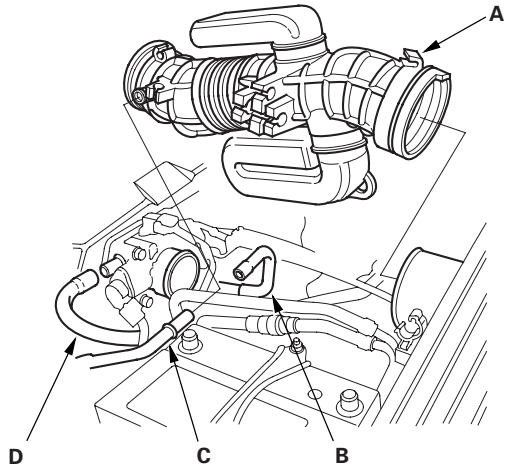
7. Install the vacuum hoses (C) (1999-2001 models).

8. Install the throttle cable, then adjust the cable (see page 11-242).

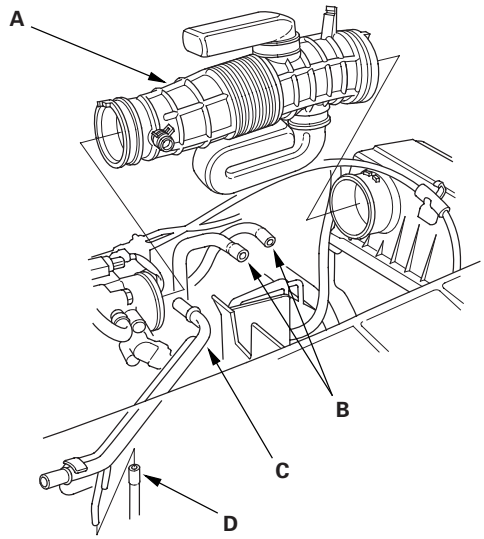
9. Install the cruise control actuator cable, then adjust the cable (see page 4-52).

10. Install the intake air duct (A), then install the vacuum hose(s) (B) and breather pipe (C).

1999-2001 models:



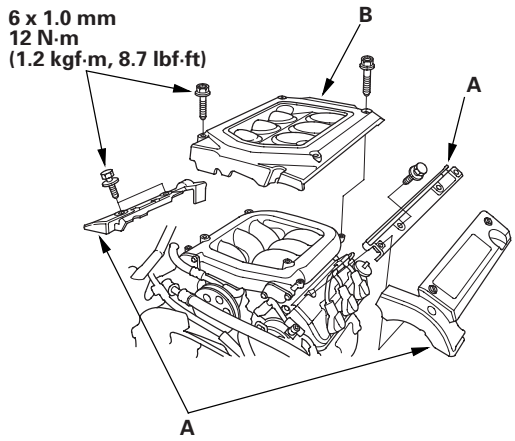
2002-2004 models:



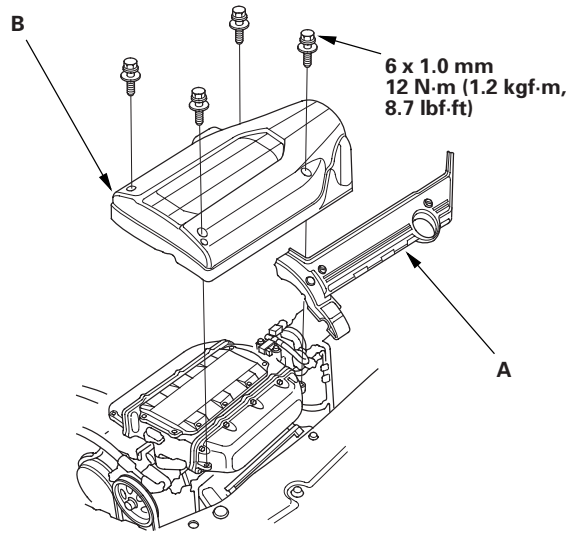
11. Install the EVAP canister hose (D) (1999-2001 models) or vacuum hose (D) (2002-2004 models).

12. Install the ignition coil cover(s) (A) and intake manifold cover (B).

1999-2001 models:



2002-2004 models:



13. Clean up any spilled engine coolant.

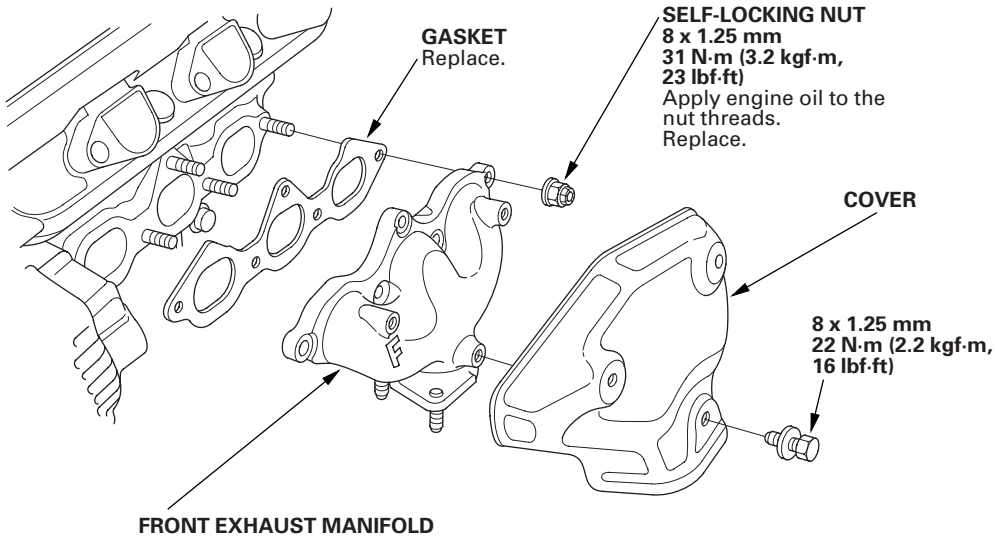
14. After installation, check that all tubes, hoses and connectors are installed correctly.

15. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 8 on page 10-13).

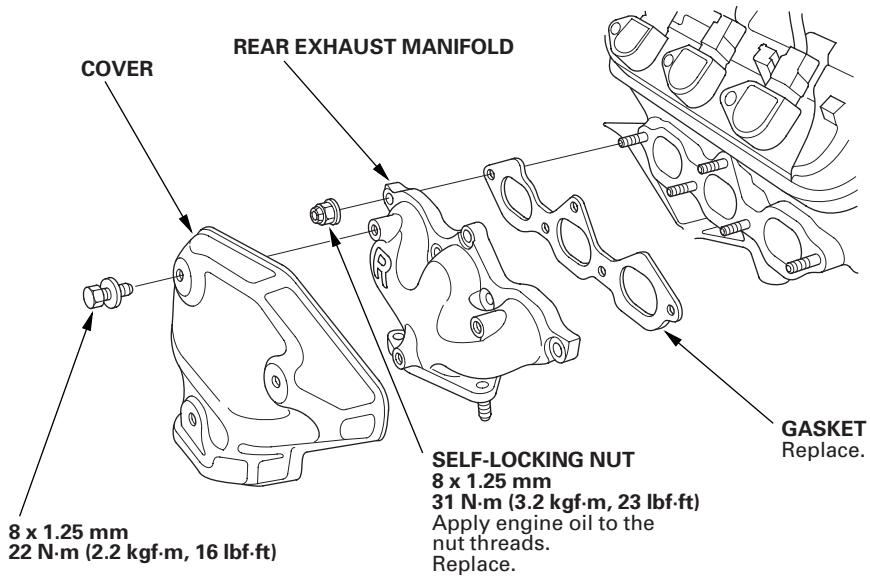
Exhaust Manifold Removal and Installation

NOTE:
- Use new gaskets and self-locking nuts when reassembling.
- Check for folds or scratches on the surfaces of the gaskets.

FRONT:

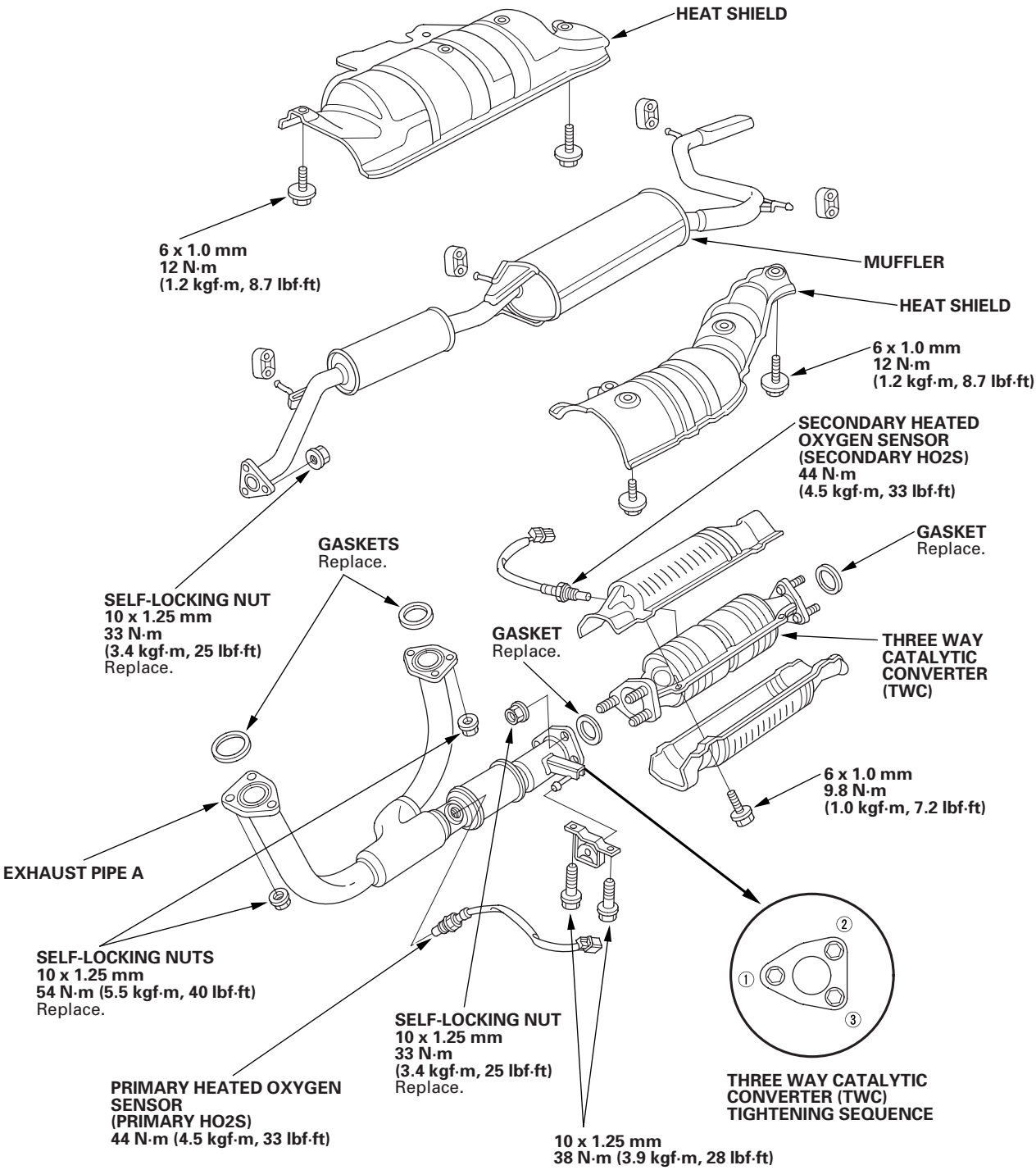


REAR:



Exhaust Pipe and Muffler Replacement

NOTE: Use new gaskets and self-locking nuts when reassembling.



Engine Cooling

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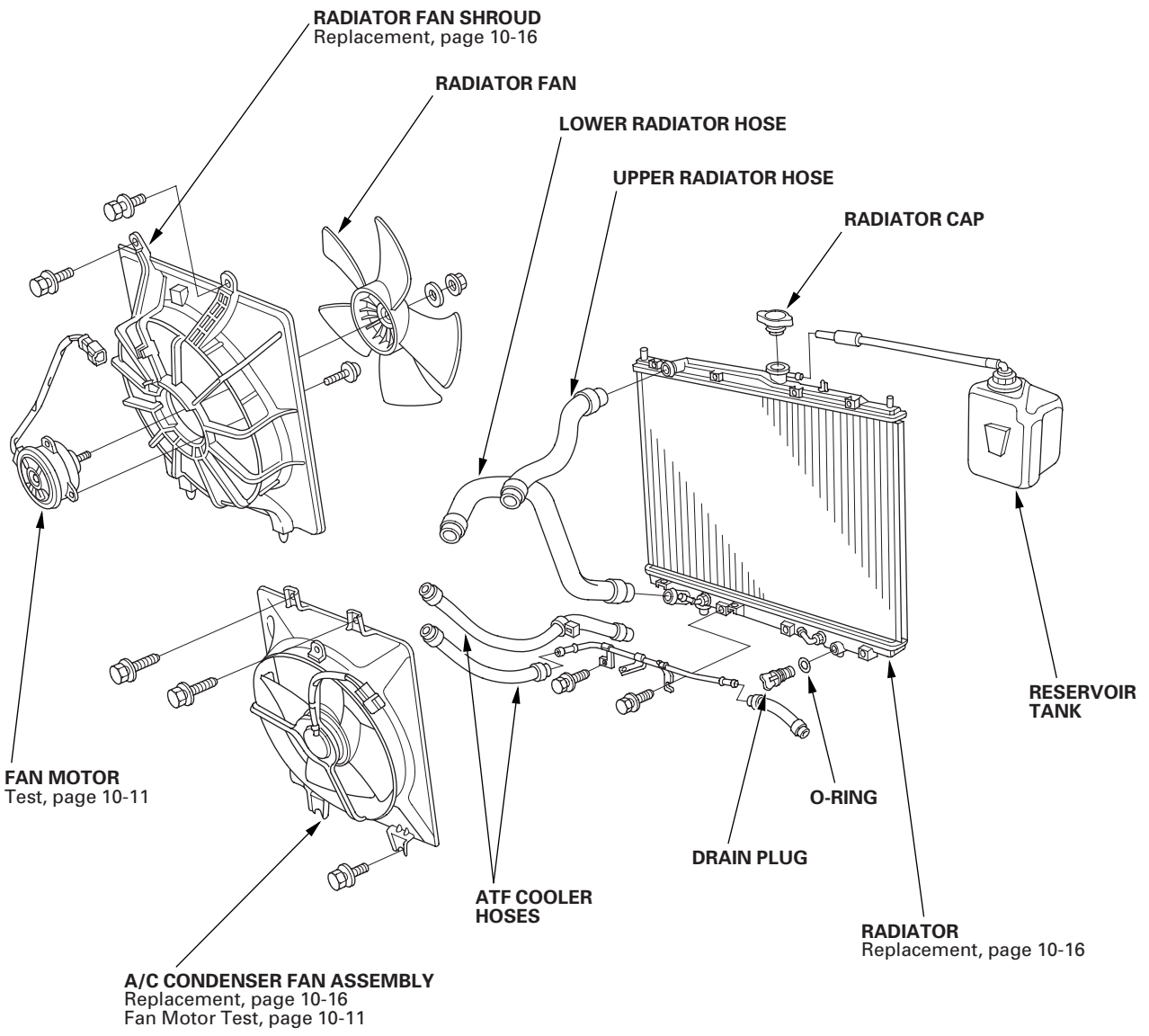
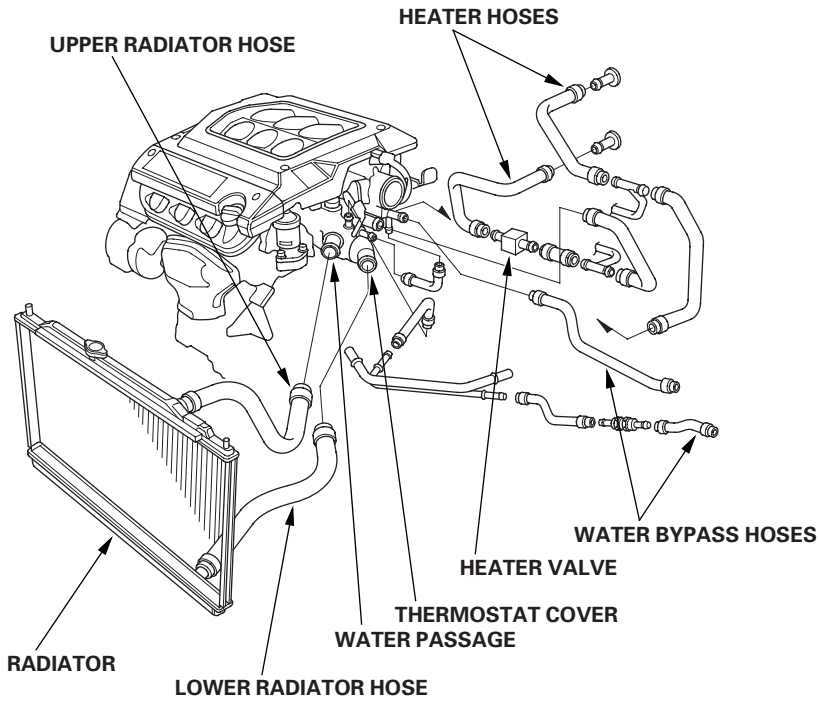
Cooling System

Component Location Index

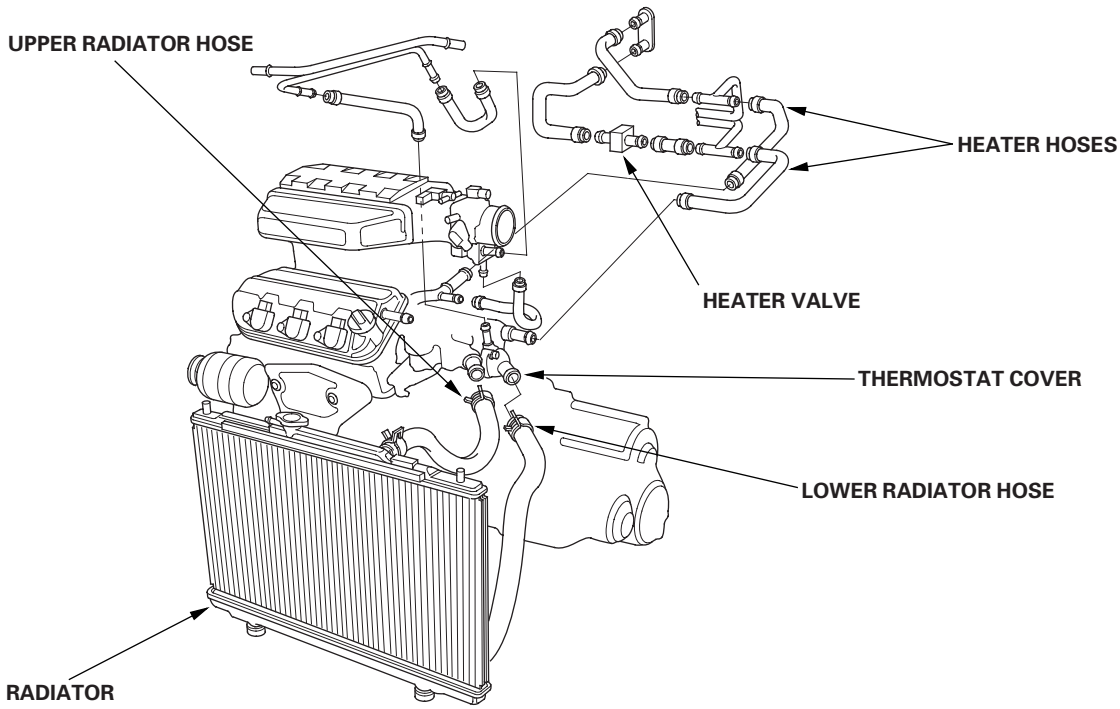
0 1



1999-2001 models:

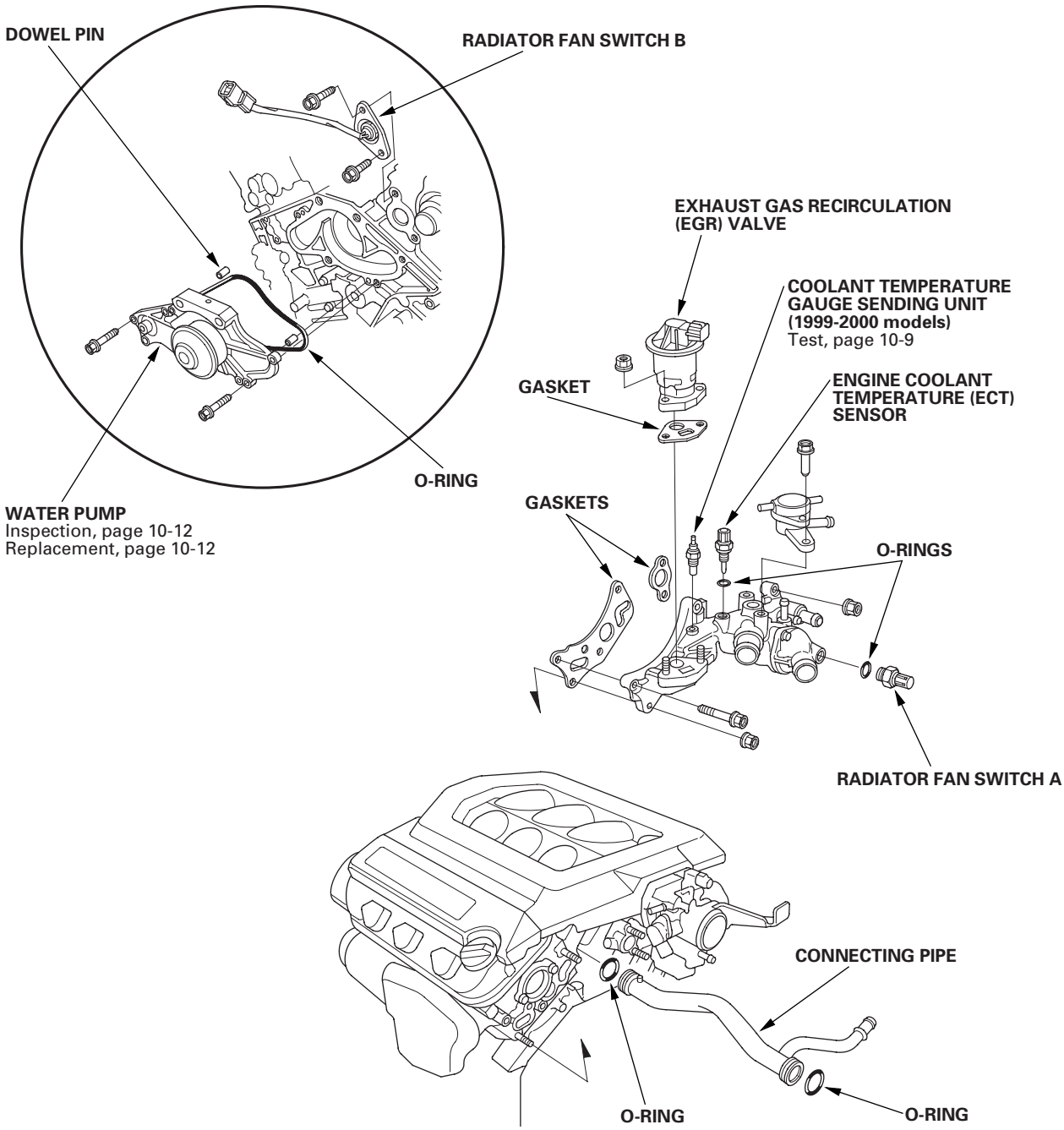


2002-2004 models:



(cont'd)

Component Location Index (cont'd)

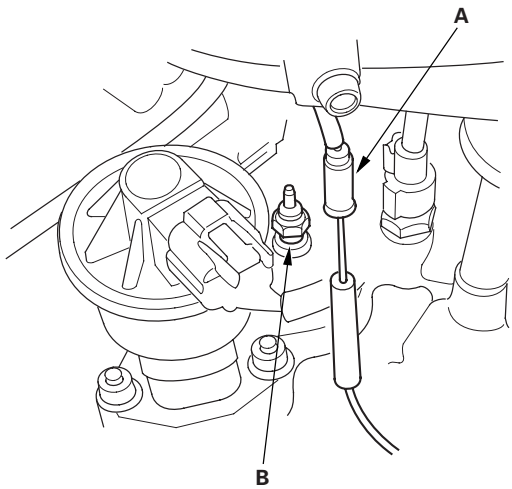


Coolant Temperature Gauge Test

1999-2000 models

1. Check the No. 9 (7.5A) fuse in the under-dash fuse/relay box before testing.

2. Make sure the ignition switch is OFF, then disconnect the YEL/GRN wire (A) from the coolant temperature gauge sending unit (B), and ground it with a jumper wire.



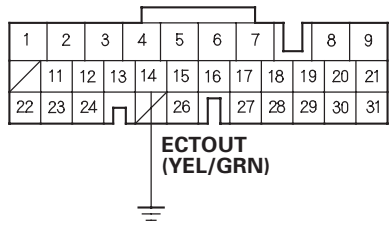
3. Turn the ignition switch ON (II). Check that the pointer of the coolant temperature gauge starts moving toward the ''H'' mark. Turn the ignition switch OFF before the pointer reaches ''H'' on the gauge dial. Failure to do so may damage the gauge.

   - If the pointer of the gauge does not move at all, check for an open in the YEL/GRN wire. If the wires are OK, replace the coolant temperature gauge.
   - If the coolant temperature gauge works, test the coolant temperature gauge sending unit.

Coolant Temperature Gauge Needle Does Not Move at All - 2001 model

1. Turn the ignition switch OFF, and connect powertrain control module (PCM) connector terminal E14 to body ground with a jumper wire.

PCM CONNECTOR E (31P)



Wire side of female terminals

2. Turn the ignition switch ON (II).

   After 30 seconds or more, does the temperature gauge needle move to the hot side?

   YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM (see page 11-4). ■

   NO—Go to step 3.

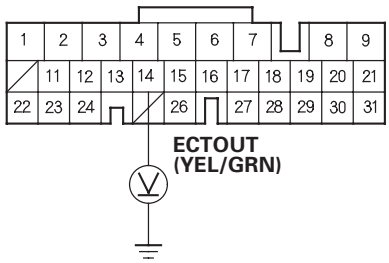
3. Turn the ignition switch OFF, and disconnect the negative cable from the battery. Then disconnect PCM connector E (31P).

(cont'd)

Coolant Temperature Gauge Test (cont'd)

4. Connect the negative cable to the battery. Turn the ignition switch ON (II), and measure voltage between PCM connector terminal E14 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals

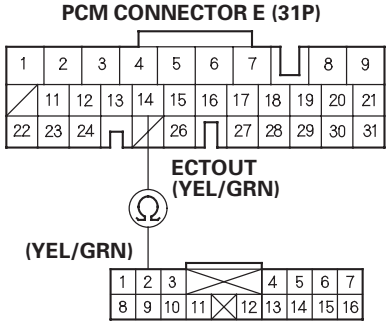
Is there about 5 V?

YES—Replace the fuel and temperature gauge assembly. ■

NO—Go to step 5.

5. Turn the ignition switch OFF, and check for continuity between PCM connector terminal E14 and gauge assembly connector terminal C2.

PCM CONNECTOR E (31P)



GAUGE ASSEMBLY CONNECTOR C (16P)
Wire side of female terminals

Is there continuity?

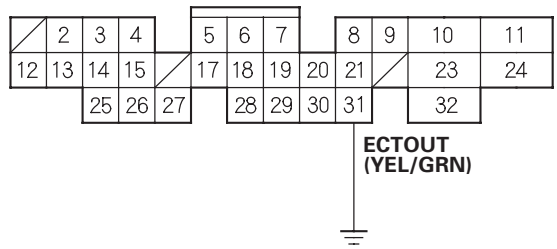
YES—Replace the fuel and temperature gauge assembly. ■

NO—Repair an open in the wire between PCM connector terminal E14 and gauge connector terminal C2. ■

Coolant Temperature Gauge Needle Does Not Move at All - 2002-2004 models

1. Turn the ignition switch OFF, and connect powertrain Control Module (PCM) connector terminal A31 to body ground with a jumper wire.

PCM CONNECTOR A (32P)



Wire side of female terminals

2. Turn the ignition switch ON (II).

After 30 seconds or more, does the temperature gauge needle move to the hot side?

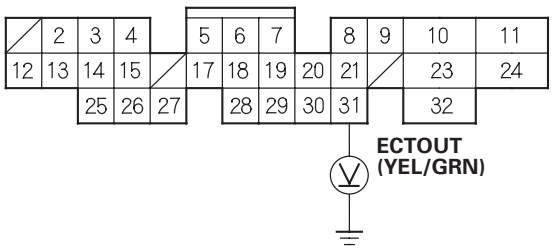
YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM (see page 11-4). ■

NO—Go to step 3.

3. Turn the ignition switch OFF, and disconnect the negative cable from the battery. Then disconnect PCM connector A (32P).

4. Connect the negative cable to the battery. Turn the ignition switch ON (II), and measure voltage between PCM connector terminal A31 and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals

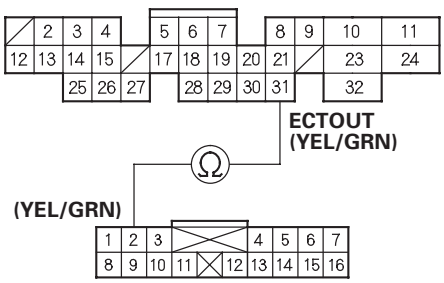
Is there about 5 V?

YES—Replace the fuel and temperature gauge assembly. ■

NO—Go to step 5.

5. Turn the ignition switch OFF, and check for continuity between PCM connector terminal A31 and gauge assembly connector terminal C2.

PCM CONNECTOR A (32P)



GAUGE ASSEMBLY CONNECTOR C (16P)
Wire side of female terminals

Is there continuity?

YES—Replace the fuel and temperature gauge assembly. ■

NO—Repair an open in the wire between PCM connector terminal A31 and gauge connector terminal C2. ■

Coolant Temperature Gauge Needle Goes Past the Hot Mark - 2001 model

1. Turn the ignition switch OFF, and disconnect the negative cable from the battery. Then disconnect PCM connector E (31P).

2. Connect the negative cable to the battery. Turn the ignition switch ON (II) and watch the coolant temperature gauge.

   Does the temperature gauge needle move at all? (you may have to watch it for about 30 seconds.)

   YES—Go to step 3.

   NO—Substitute a known-good PCM and recheck, (see page 11-5). If the symptom/indication goes away, replace the original PCM (see page 11-4). ■

3. Turn the ignition switch OFF, then turn it ON (II) again, and watch the coolant temperature gauge.

   Does the temperature gauge needle immediately go past the Hot mark?

   YES—Replace the fuel and temperature gauge assembly. ■

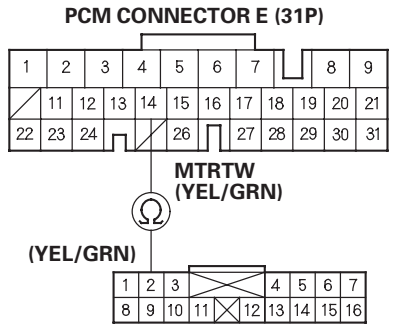
   NO—The temperature gauge needle went past the Hot mark after about 30 seconds or more. Go to step 4.

4. Turn the ignition switch OFF, and disconnect the gauge assembly connector C (16P).

(cont'd)

Coolant Temperature Gauge Test (cont'd)

5. Check for continuity between PCM connector terminal E14 and gauge assembly connector terminal C2.



Is there continuity?

YES—Repair a short in the wire between PCM connector E14 terminal and gauge connector terminal C2. ■

NO—Replace the fuel and temperature gauge assembly. ■

Coolant Temperature Gauge Needle Goes Past the Hot Mark - 2002-2004 models

1. Turn the ignition switch OFF, and disconnect the negative cable from the battery. Then disconnect PCM connector A (32P).

2. Connect the negative cable to the battery. Turn the ignition switch ON (II) and watch the coolant temperature gauge.

   Does the temperature gauge needle move at all? (you may have to watch it for about 30 seconds.)

   YES—Go to step 3.

   NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM (see page 11-4). ■

3. Turn the ignition switch OFF, then turn it ON (II) again, and watch the coolant temperature gauge.

   Does the temperature gauge needle immediately go past the Hot mark?

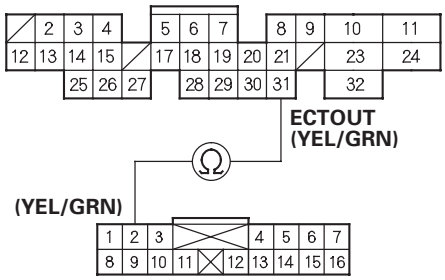
   YES—Replace the fuel and temperature gauge assembly. ■

   NO—The temperature gauge needle went past the Hot mark after about 30 seconds or more. Go to step 4.

4. Turn the ignition switch OFF, and disconnect the gauge assembly connector C (16P).

5. Check for continuity between PCM connector terminal A31 and gauge assembly connector terminal C2.

PCM CONNECTOR A (32P)



GAUGE ASSEMBLY CONNECTOR C (16P)
Wire side of female terminals

Is there continuity?

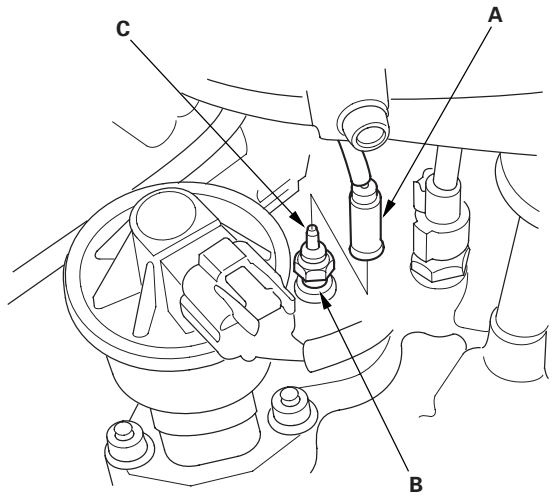
YES—Repair a short in the wire between PCM connector A31 and gauge connector terminal C2. ■

NO—Replace the fuel and temperature gauge assembly. ■

Sending Unit Test

1999-2000 models

1. Disconnect the YEL/GRN wire (A) from the coolant temperature gauge sending unit (B).



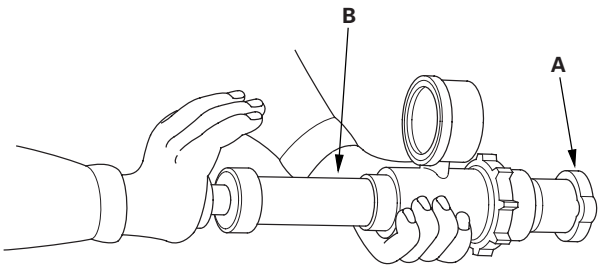
2. Using an ohmmeter, measure the change in resistance between the positive terminal (C) and the engine (ground) with the engine cold and with the engine at operating temperature.

Temperature	133°F (56°C)	185°F (85°C) — 212°F (100°C)
Resistance (Ω)	137	46—30

3. If the obtained readings are substantially different from the specifications above, replace the sending unit.

Radiator Cap Test

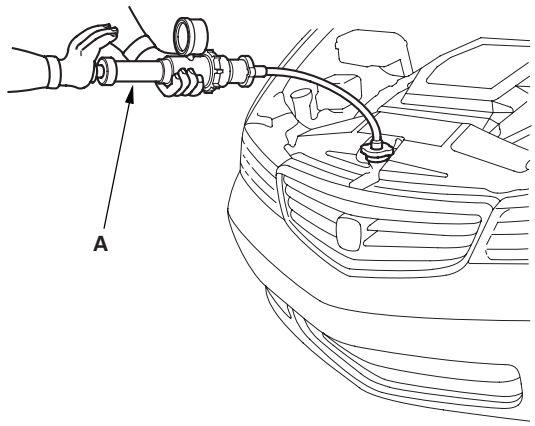
1. Remove the radiator cap (A), wet its seal with engine coolant, then install it on the pressure tester (B) (commercially available).



2. Apply a pressure of 93—123 kPa (0.95—1.25 kgf/cm^2, 14—18 psi).
3. Check for a drop in pressure.
4. If the pressure drops, replace the cap.

Radiator Test

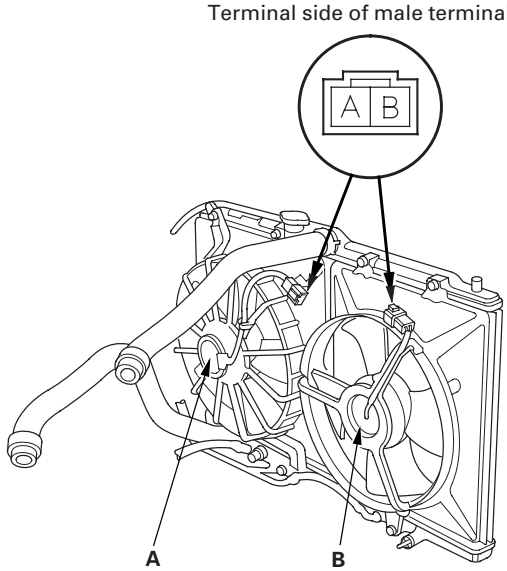
1. Wait until the engine is cool, then carefully remove the radiator cap and fill the radiator with engine coolant to the top of the filler neck.
2. Attach the pressure tester (A) (commercially available) to the radiator and apply a pressure of 93—123 kPa (0.95—1.25 kgf/cm^2, 14—18 psi).



3. Inspect for engine coolant leaks and a drop in pressure.
4. Remove the tester and reinstall the radiator cap.

Fan Motor Test

1. Disconnect the 2P connectors from the radiator fan motor (A) and condenser fan motor (B).



2. Test the motor by connecting battery power to the B terminal and, the ground to the A terminal.

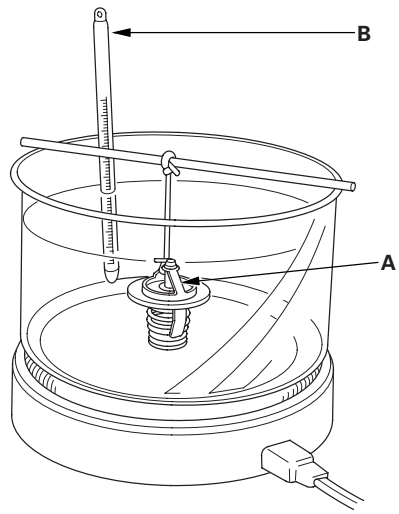
3. If the motor fails to run or does not run smoothly, replace it.

Thermostat Test

Replace the thermostat if it is open at room temperature.

To test a closed thermostat:

1. Suspend the thermostat (A) in a container of water. Do not let the thermometer (B) touch the bottom of the hot container.



2. Heat the water and check the temperature with a thermometer. Check the temperature at which the thermostat first opens, and at which it is fully open.

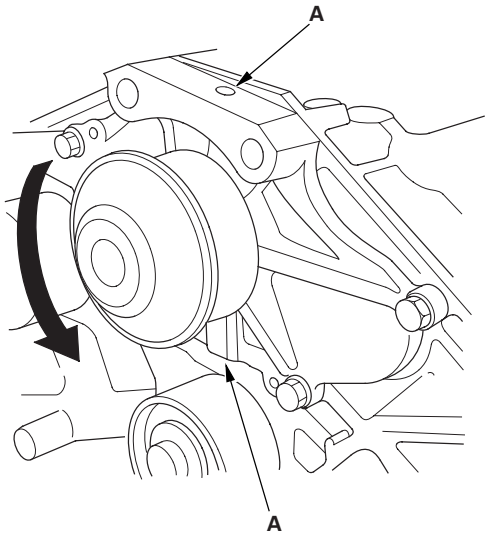
3. Measure the lift height of the thermostat when it is fully open.

Standard Thermostat

Lift height:	**above 10.0 mm (0.39 in.)**
Starts opening:	
'99-01 models:	**163 — 171°F (73 — 77°C)**
'02-04 models:	**169 — 176°F (76 — 80°C)**
Fully open:	**194°F (90°C)**

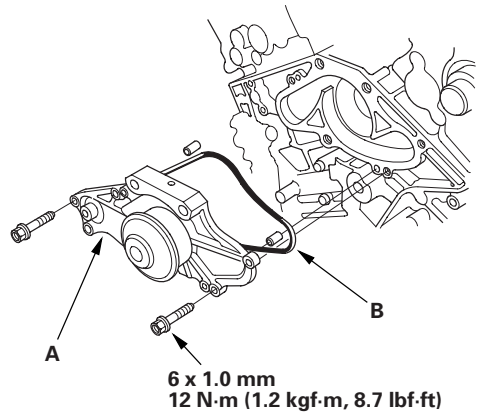
Water Pump Inspection

1. Remove the timing belt (see page 6-20).
2. Turn the water pump pulley counterclockwise. Check that it turns freely.
3. Check for signs of seal leakage. A small amount of ''weeping'' from the bleed holes (A) is normal.



Water Pump Replacement

1. Drain the engine coolant (see page 10-13).
2. Remove the timing belt (see page 6-20).
3. Remove the timing belt tensioner.
4. Remove the water pump (A) by removing five bolts.



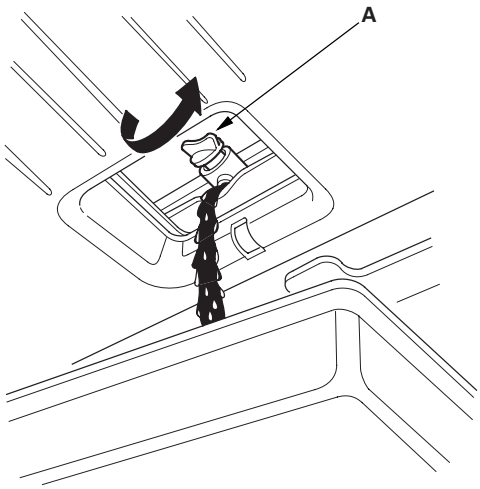
5. Inspect, repair and clean the O-ring groove and mating surface on the cylinder block.
6. Install the water pump with a new O-ring (B) in the reverse order of removal.
7. Refill the radiator with engine coolant, and bleed the air from the cooling system (see step 8 on page 10-13).
8. Clean up any spilled engine coolant.

Coolant Replacement

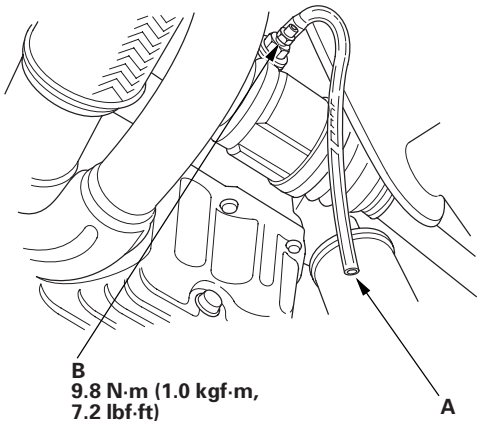
1. Set the heater temperature control dial to maximum heat. Make sure the engine and radiator are cool to the touch.

2. Remove the radiator cap.

3. Loosen the drain plug (A), and drain the engine coolant.



4. Install a rubber hose (A) on the drain bolt (B) located at the rear of the cylinder block, then loosen the drain bolt.



5. When the coolant stops draining, tighten the drain bolt.

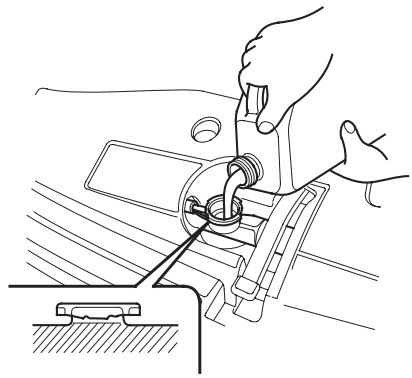
6. Tighten the radiator drain plug securely.

7. Remove, drain, and reinstall the reservoir.

8. Pour Honda All Season Antifreeze/Coolant Type 2 (P/N OL999-9001) into the radiator up to the base of the filler neck.

   NOTE:
   - Always use Honda All Season Antifreeze/Coolant Type 2. Using a non-Honda coolant can result in corrosion, causing the cooling system to malfunction or fail.
   - Honda All Season Antifreeze/Coolant Type 2 is a mixture of 50 % antifreeze and 50 % water. Pre-mixing is not required.

   Engine Coolant Refill Capacity (including the reservoir capacity of 0.6 ℓ (0.6 US qt))
   Without rear A/C: 5.5 ℓ (5.8 US qt)
   With rear A/C: 7.5 ℓ (7.9 US qt)



(cont'd)

Coolant Replacement (cont'd)

9. Start the engine. Hold the engine speed at 1,500 rpm until it warms up (the radiator fan comes on at least twice). Make sure the thermostat is open.

10. Turn off the engine. Check the level in the radiator, and add Honda All Season Antifreeze/Coolant Type 2, if needed.

11. Set the temperature control dial to minimum. Start the engine. Hold the engine speed at 1,500 rpm for 5 minutes, then turn off the engine.

12. Check the level in the radiator, and add Honda All Season Antifreeze/Coolant Type 2, if needed.

13. Set the temperature control dial to maximum. Start the engine. Hold the engine speed at 1,500 rpm for 5 minutes, then turn off the engine.

14. Check the level in the radiator, and add Honda All Season Antifreeze/Coolant Type 2, if needed.

15. Set the temperature control dial to minimum. Start the engine. Hold the engine speed at 1,500 rpm for 3 minutes, then turn off the engine.

16. Check the level in the radiator, and add Honda All Season Antifreeze/Coolant Type 2, if needed.

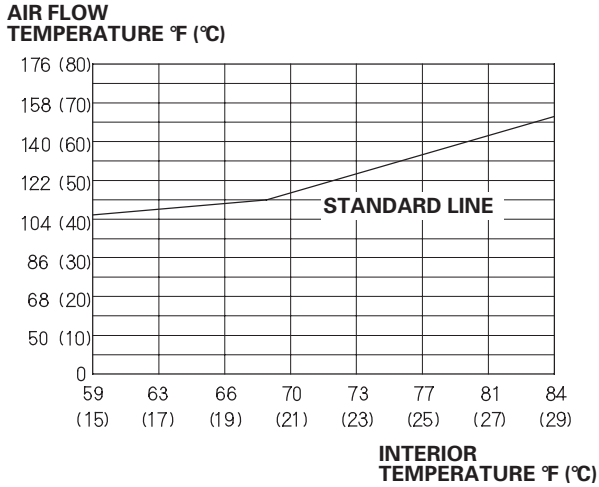
17. Set the temperature control dial to maximum. Start the engine. Hold the engine speed at 1,500 rpm for 3 minutes, then turn off the engine.

18. Check the level in the radiator, and add Honda All Season Antifreeze/Coolant Type 2, if needed.

19. Repeat steps 15 through 18 until the coolant level dose not change in the radiator, then install the radiator cap loosely.

20. Set the temperature control dial to minimum. Start the engine. Hold the engine speed at 2,500 rpm for 1 minute.

21. Set the temperature control dial on the front heating/cooling control panel to maximum, and select (Hot) mode on the rear control panel. Measure the temperature of the air from the rear floor vent for 2 or 3 minutes.
    Make sure the temperature is above the standard line of the graph shown below. If the temperature is below the standard line, repeat steps 15 through 18 several more times. Then loosely install the radiator cap and recheck.

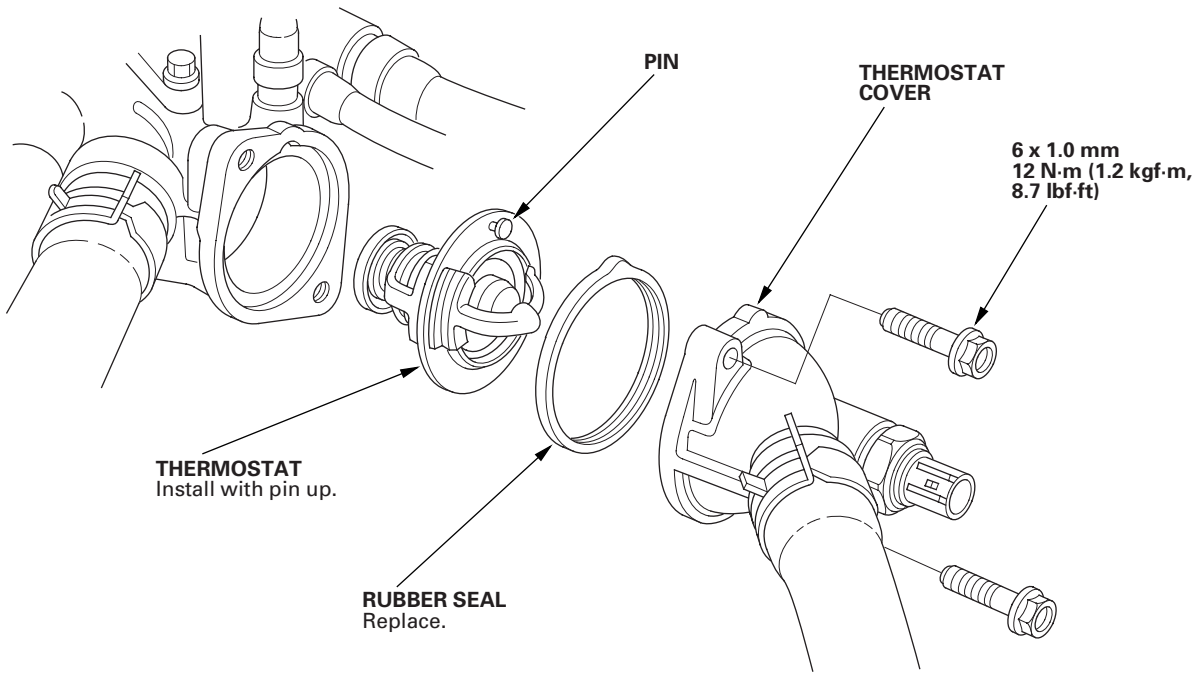


22. Make sure you do not hear the sound of water flowing near the rear heater unit. If you hear water flowing, repeat steps 15 through 18 several more times. Then loosely install the radiator cap and recheck.

23. Fill the reserve tank with Honda All Season Antifreeze/coolant Type 2 up to the MAX mark on the tank, then add an extra 0.4 ℓ (0.4 US qt) coolant.

Thermostat Replacement

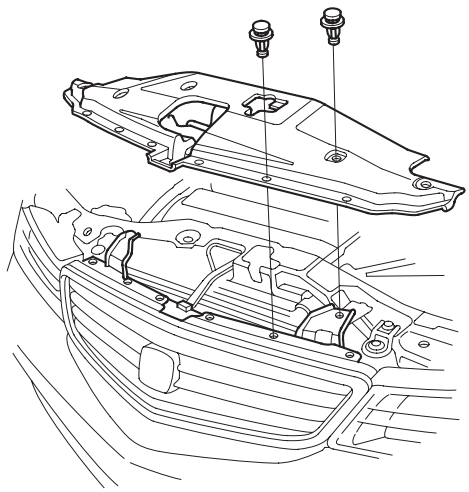
1. Make sure you have the anti-theft codes for the radio and navigation system, then write down the frequencies for the radio's preset buttons.
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
3. Remove the battery.
4. Drain the engine coolant (see page 10-13).
5. Remove the thermostat cover, then remove the thermostat.



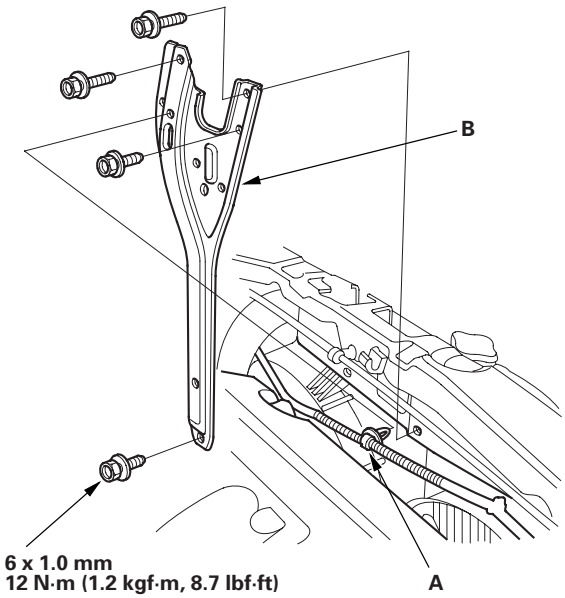
6. Install the thermostat with new rubber seal.
7. Install the battery. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.
8. Refill the radiator with engine coolant, and bleed the air from the cooling system (see step 8 on page 10-13).
9. Clean up any spilled engine coolant.
10. Perform the powertrain control module (PCM) idle learn procedure (see page 11-202).
11. Enter the anti-theft codes for the radio and the navigation system, then enter the customer's radio station presets.
12. Set the clock.

Radiator and Fan Replacement

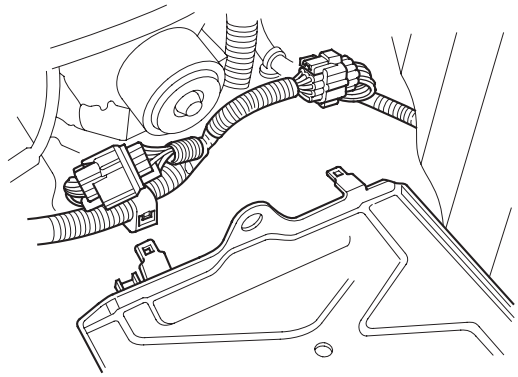
1. Make sure you have the anti-theft code for the radio and the navigation system, then write down the frequencies for the radio's preset buttons.
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
3. Drain the engine coolant (see page 10-13).
4. Remove the radiator cover.



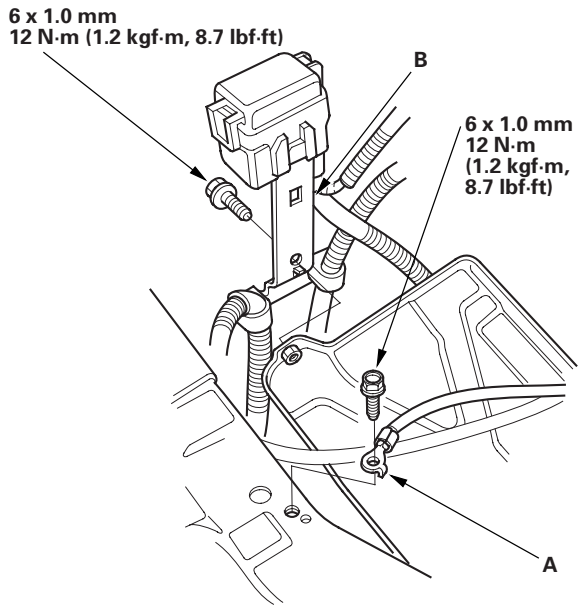
5. Remove the harness clamp (A), then remove the bulkhead bracket (B).



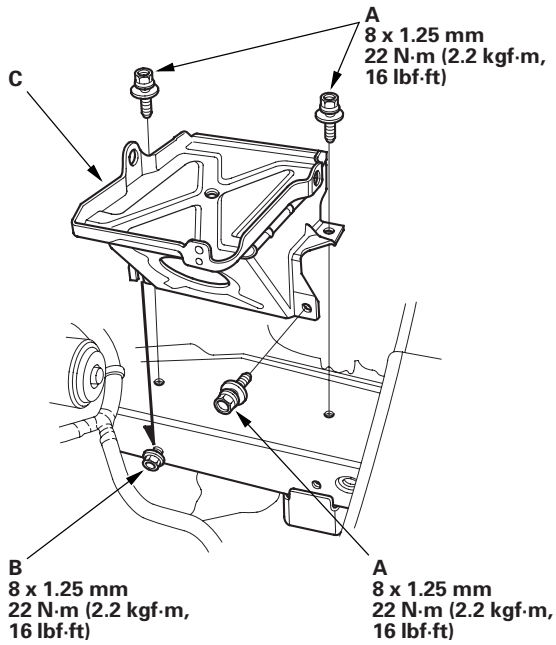
6. Remove the battery.
7. Remove the engine wire harness connectors from the battery base.



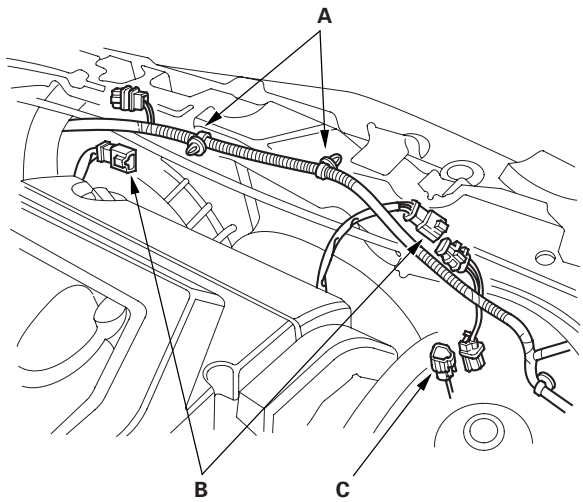
8. Remove the ground cable (A) and relay box bracket (B).



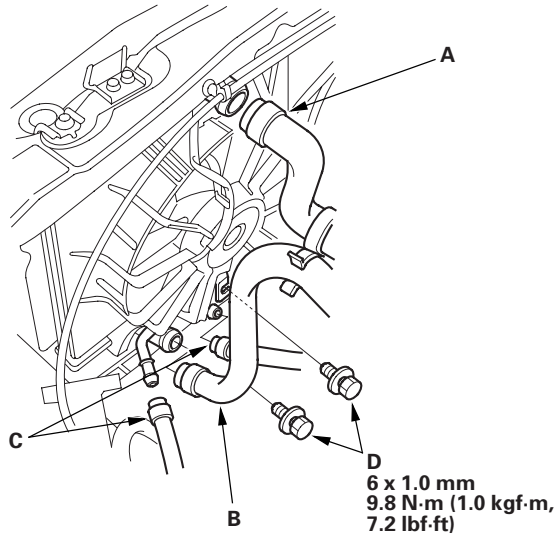
9. Remove the three mounting bolts (A) and loosen mounting bolt (B), then remove the battery base (C).



10. Remove the harness clamps (A), then remove the fan motor connectors (B) and A/C compressor clutch connector (C).

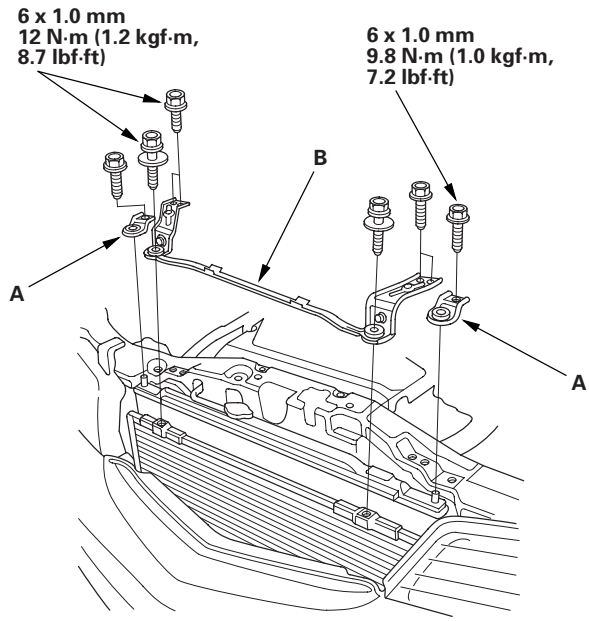


11. Remove the upper radiator hose (A), lower radiator hose (B) and automatic transmission fluid (ATF) cooler hoses (C). Plug the ATF cooler hoses and lines.



12. Remove the two bolts (D) securing the ATF cooler line.

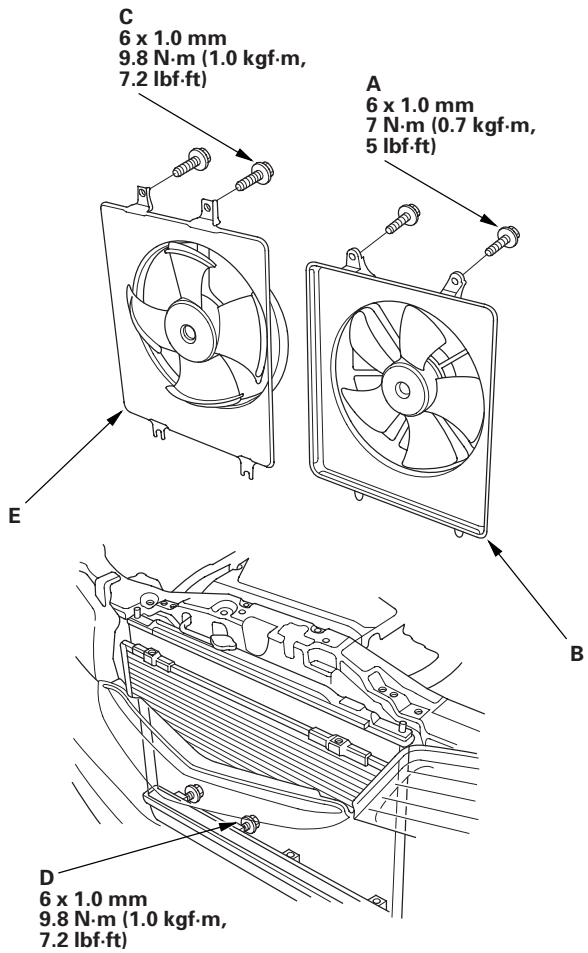
13. Remove the radiator upper brackets/cushions (A) and condenser bracket (B).



(cont'd)

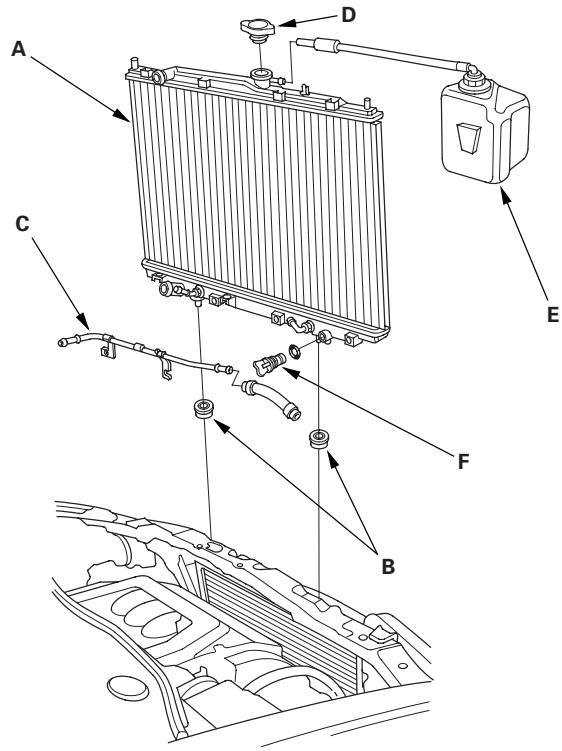
Radiator and Fan Replacement (cont'd)

14. Remove the two bolts (A) securing the radiator fan shroud, then remove the radiator fan shroud assembly (B) from the battery side.



15. Remove the two condenser fan shroud upper mounting bolts (C) securing the condenser fan shroud, and loosen the two lower mounting bolts (D) securing the condenser fan shroud, then remove the condenser fan shroud assembly (E) from the battery side.

16. Pull up the radiator (A), then remove the lower cushions (B), ATF cooler line (C), radiator cap (D), reservoir tank (E) and drain plug (F).



17. Install the radiator in the reverse order of removal.

18. Set the upper and lower cushions securely.

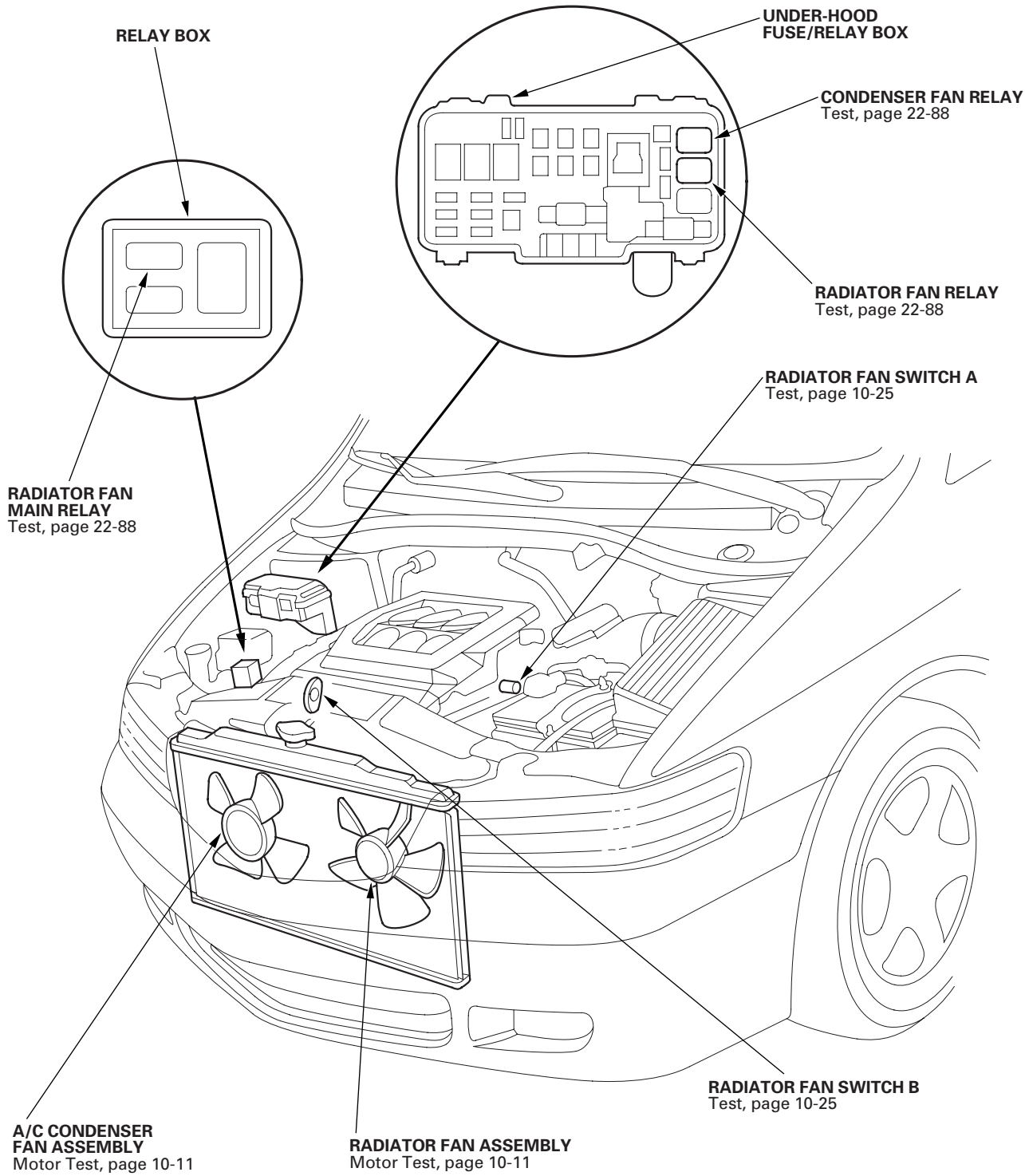
19. Fill the radiator with engine coolant and bleed the air (see step 8 on page 10-13).

20. Enter the anti-theft code for the radio and the navigation system, then enter the customer's radio station presets.

21. Perform the power window control unit reset procedure (2003-2004 models) (see page 22-200).

22. Set the clock.

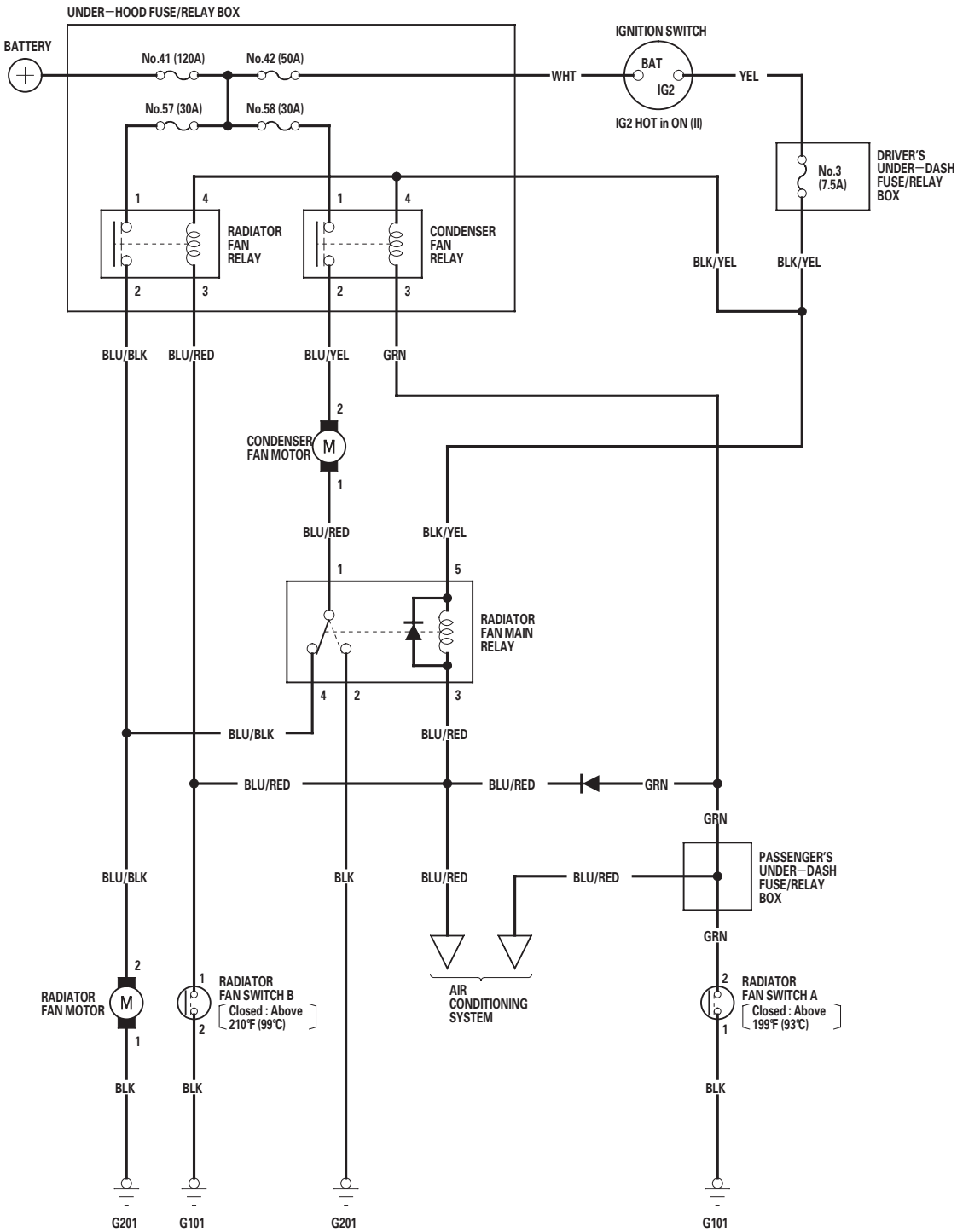
Component Location Index



Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Radiator fan does not run at all, but condenser fan runs with A/C ON	Radiator and condenser fan circuit troubleshooting A (see page 10-22).	
Both radiator fan and condenser fan do not run on low or high speed with the A/C ON or when the engine coolant temperature is above 210°F (99°C)	Check the No. 3 (15A) fuse in the driver's under-dash fuse/relay box. • If the fuse is faulty, replace it. • If the fuse is OK, repair the open in the wire between the No. 3 (15A) fuse in the driver's under-dash fuse/relay box and the radiator and condenser fan relays.	
Condenser fan runs but radiator fan does not run when the engine coolant temperature is above 199°F (93°C), but both fans run with the A/C ON	Replace the radiator fan control relay.	
Both the radiator fan and condenser fan do not run at low speed when the engine coolant temperature is above 199°F (93°C), but both fans run with A/C ON and when the engine coolant temperature is above 210°F (99°C)	Radiator and condenser fan circuit troubleshooting B (see page 10-23).	
Both radiator and condenser fans do not run when the engine coolant temperature is above 199°F (93°C), but radiator fan runs with A/C ON	Radiator and condenser fan low speed circuit troubleshooting (see page 21-27).	
Both radiator fan and condenser fan run with ignition switch ON (II), with A/C OFF, and when the engine coolant temperature is below 199°F (93°C)	Radiator and condenser fan circuit troubleshooting C (see page 10-24).	
Both radiator fan and condenser fan do not run at high speed with the A/C ON	Radiator and condenser fan high speed circuit troubleshooting (see page 21-31).	
Both radiator fan speed and condenser fan speed do not change from low to high when the engine coolant temperature is above 210°F (99°C), but both fans speed change with A/C ON	Radiator and condenser fan high speed circuit troubleshooting (see page 10-24).	
Condenser fan speed does not change from low to high with A/C ON or the when engine coolant temperature is above 210°F (99°C)	Condenser fan high speed circuit troubleshooting (see page 21-31).	

Circuit Diagram



Radiator and Condenser Fan Circuit Troubleshooting A

NOTE: Refer to the symptom troubleshooting index before troubleshooting.

1. Check the No. 57 (30A) fuse in the under-hood fuse/relay box.

   Is the fuse OK?

   YES—Go to step 2.

   NO—Check for a short in the wire between the radiator fan relay, radiator fan motor and fan control relay, condenser fan motor or a faulty fan motor. ■

2. Remove the radiator fan relay from the under-hood fuse/relay box and test it (see page 22-88).

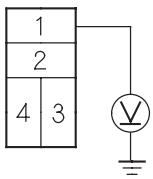
   Is the relay OK?

   YES—Go to step 3.

   NO—Replace radiator fan relay. ■

3. Measure the voltage between radiator fan relay 4P socket terminal No. 1 and body ground.

   RADIATOR FAN RELAY 4P SOCKET



   Terminal side of female terminals

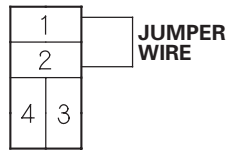
   Is there battery voltage?

   YES—Go to step 4.

   NO—Replace the under-hood fuse/relay box. ■

4. Connect a jumper wire between radiator fan relay 4P socket terminals No. 1 and No. 2.

   RADIATOR FAN RELAY 4P SOCKET



   Terminal side of female terminals

   Does the radiator fan run?

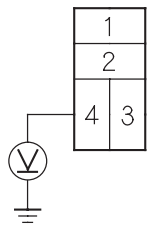
   YES—Go to step 5.

   NO—Go to step 7.

5. Disconnect the jumper wire, and turn the ignition switch ON (II).

6. Measure the voltage between radiator fan relay 4P socket terminal No. 4 and body ground.

   RADIATOR FAN RELAY 4P SOCKET



   Terminal side of female terminals

   Is there battery voltage?

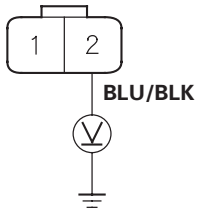
   YES—Repair an open in the wire between the radiator fan relay and the A/C pressure switch. ■

   NO—Replace the under-hood fuse/relay box. ■

7. Disconnect the radiator fan motor 2P connector.

8. Measure the voltage between fan motor 2P connector terminal No. 2 and body ground.

RADIATOR FAN MOTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 9.

NO—Repair an open in the wire between radiator fan relay 4P socket terminal No. 2 and radiator 2P connector terminal No. 2.■

9. Disconnect the jumper wire.

10. Test the radiator fan motor (see page 10-11).

Is the fan motor OK?

YES—Repair an open in the wire between radiator fan motor 2P connector terminal No. 1 and body ground G201.■

NO—Replace the radiator fan motor.■

Radiator and Condenser Fan Circuit Troubleshooting B

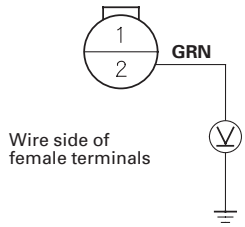
NOTE: Refer to the symptom troubleshooting index before troubleshooting.

1. Disconnect the radiator fan switch A 2P connector.

2. Turn the ignition switch ON (II).

3. Measure the voltage between the radiator fan switch A 2P connector terminal No. 2 and body ground.

RADIATOR FAN SWITCH A 2P CONNECTOR

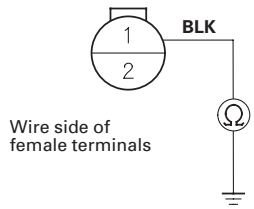


Is there battery voltage?

YES—Go to step 4.
NO—Repair an open in the wire between the radiator fan switch A connector and under-hood fuse/relay box.■

4. Turn the ignition switch OFF, and check for continuity between the radiator fan switch A 2P connector terminal No. 1 and body ground.

RADIATOR FAN SWITCH A 2P CONNECTOR



Is there continuity?

YES—Replace radiator fan switch A.■
NO—Check for an open in the wire between the radiator fan switch A connector and body ground. If the wire is OK, check for poor ground at G101.■

Radiator and Condenser Fan Circuit Troubleshooting C

NOTE: Refer to the symptom troubleshooting index before troubleshooting.

1. Remove the condenser fan relay, and test it (see page 22-88).

   Is the relay OK?

   YES—Go to step 2.
   NO—Replace the relay. ■

2. Disconnect radiator fan switch B 2P connector and turn the ignition switch ON (II).

   Does the radiator fan stop?

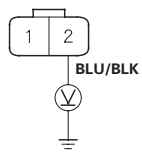
   YES—Replace radiator fan switch B and recheck. ■
   NO—Go to step 3.

3. Turn the ignition switch OFF.

4. Remove the radiator fan relay from the under-hood fuse/relay box.

5. Check for continuity between radiator fan switch B 2P connector terminal No. 1 and body ground.

RADIATOR FAN MOTOR 2P CONNECTOR



Wire side of female terminals

   Is there continuity?

   YES—Repair a short in the wire between radiator fan relay 4P socket terminal No. 3, radiator fan switch B 2P connector terminal No. 1 and A/C pressure switch. ■
   NO—Go to step 6.

6. Disconnect the radiator fan switch A 2P connector and turn the ignition switch ON (II).

   Does the radiator fan stop?

   YES—Replace radiator fan switch A. ■
   NO—Repair a short in the wire between radiator fan relay 4P socket terminal No. 3, condenser fan relay 4P socket terminal No. 3. ■

Radiator and Condenser Fan High Speed Circuit Troubleshooting

NOTE: Refer to the symptom troubleshooting index before troubleshooting.

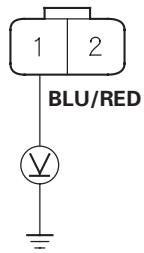
1. Remove the radiator fan relay and condenser fan relay from the under-hood fuse/relay box.

2. Disconnect the radiator fan switch B 2P connector.

3. Turn the ignition switch ON (II).

4. Measure the voltage between radiator fan switch B 2P connector terminal No. 1 and body ground.

RADIATOR FAN SWITCH B 2P CONNECTOR



Wire side of female terminals

   Is there the battery voltage?

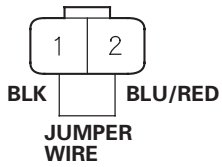
   YES—Go to step 5.

   NO—Repair an open in the wire between fan control relay 5P socket terminal No. 3 and radiator fan switch B terminal No. 1. ■

5. Install the radiator fan relay and condenser fan relay.

6. Connect a jumper wire between radiator fan switch B 2P connector terminals No. 1 and No. 2.

RADIATOR FAN SWITCH B 2P CONNECTOR



Wire side of female terminals

7. Turn the ignition switch ON (II).

Do the radiator and condenser fans run?

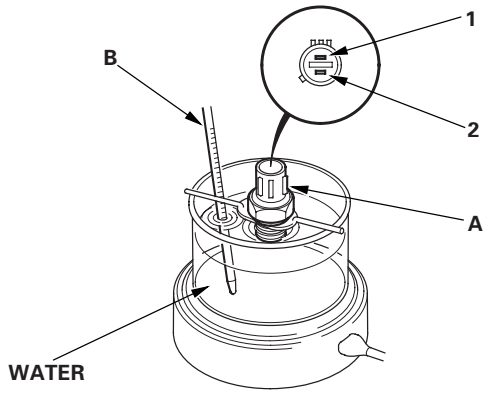
YES—Replace radiator fan switch B. ■

NO—Repair an open in the wire between radiator fan switch B 2P connector terminal No. 2 and ground G101. ■

Radiator Fan Switch Test

1. Remove radiator fan switch A from the water passage and radiator fan switch B from the cylinder head (see page 10-4).

2. Suspend each radiator fan switch (A) in a container of coolant as shown.



3. Heat the coolant and check the temperature with a thermometer (B). Do not let the thermometer touch the bottom of the hot container.

4. Measure the continuity between terminal (No. 1) and terminal (No. 2) according to the table.

Operation		Temperature	Terminal A	Terminal B
SWITCH A	ON	196—203°F (91—95°C)	○—○	
	OFF	5—15°F (3—8°C) lower than the temperature when it goes on		
SWITCH B	ON	205—216°F (96—102°C)	○—○	
	OFF	5—18° (3—10°) lower than the temperature when it goes on		

5. Replace, if necessary, and install the radiator fan switches.

Fuel and Emissions

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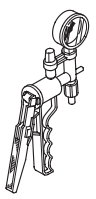
Fuel and Emissions Systems

Special Tools

Ref. No.	Tool Number	Description	Qty
①	A973X-041-XXXXX	Vacuum Pump/Gauge, 0－30 in.Hg	1
②	07JAZ-001000B	Vacuum/Pressure Gauge, 0－4 in.Hg	1
③	07SAZ-001000A	Backprobe Set	2
④	07VAJ-0040100	Fuel Pressure Gauge Attachment	1
⑤	07XAA-001010A	Fuel Sender wrench	1
⑥	07406-004000A	Fuel Pressure Gauge	1



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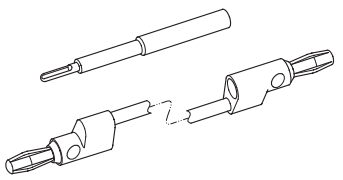

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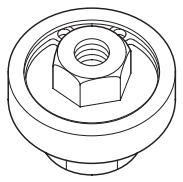

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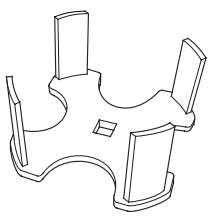

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General Troubleshooting Information

Intermittent Failures

The term ''intermittent failure'' means a system may have had a failure, but it checks OK now. If the Malfunction Indicator Lamp (MIL) on the dash does not come on, check for poor connections or loose wires at all connectors related to the circuit that you are troubleshooting.

Opens and Shorts

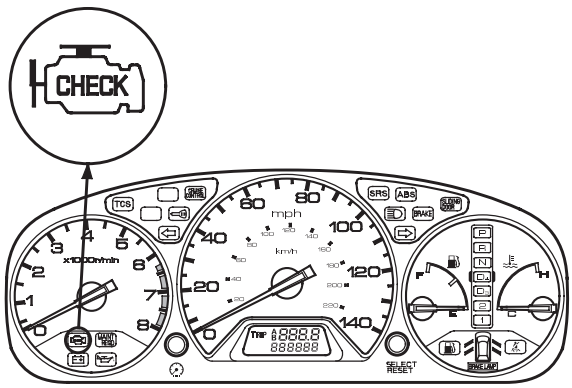
''Open'' and ''Short'' are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something won't work at all. With complex electronics (such as PCM's) this can sometimes mean something works, but not the way it's supposed to.

How to Use the HDS or a Scan Tool

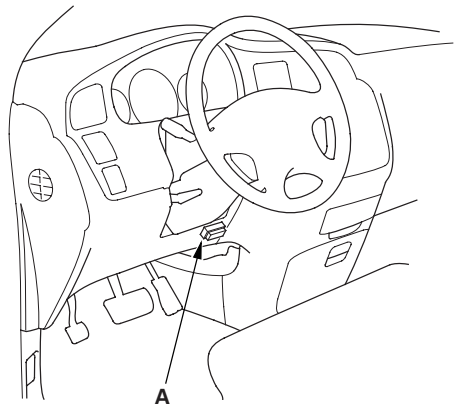
If the MIL (Malfunction Indicator Lamp) has come on

1. Start the engine, and check the MIL.

   '01-04 Models
   NOTE: If the ignition switch is turned ON (II), and the engine is not started, the MIL will stay on for 15—20 seconds (see page 11-89).



2. If the MIL stays on, connect the HDS or an OBD II scan tool to the Data Link Connector (DLC) (A) located under the driver's side of the dashboard.



3. Turn the ignition switch ON (II).

4. Check the Diagnostic Trouble Code (DTC) and note it. Also check the freeze data. Refer to the DTC Troubleshooting Index and begin the appropriate troubleshooting procedure.

NOTE:
- Freeze data indicates the engine conditions when the first malfunction, misfire or fuel trim malfunction was detected.
- The HDS can read the DTC, freeze data, current data, and other powertrain control module (PCM) data.
- For specific operations, refer to the user's manual that came with the HDS.

If the MIL did not stay on
If the MIL did not stay on but there is a driveability problem, do the symptom troubleshooting.

If you can't duplicate the DTC
Some of the troubleshooting requires you to reset the PCM and try to duplicate the DTC. If the problem is intermittent and you can't duplicate the DTC, do not continue through the procedure. To do so will only result in confusion and, possibly, a needlessly replaced PCM.

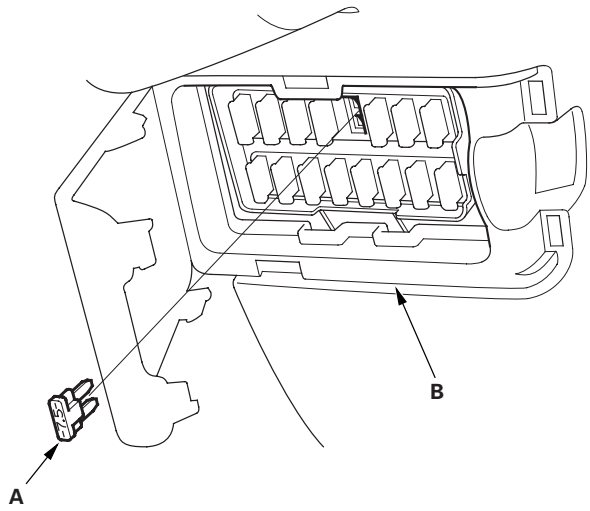
(cont'd)

General Troubleshooting Information (cont'd)

How to Reset the PCM

You can reset the PCM in either of 2 ways:

- Use the OBD II scan tool or HDS to clear the PCM's memory.
  See the OBD II scan tool or HDS user's manuals for specific instructions.
- Turn the ignition switch OFF, and remove the No. 13 CLOCK BACKUP fuse (7.5A) (A) from the passenger's under-dash fuse/relay box (B) for 10 seconds.



How to End a Troubleshooting Session (required after any troubleshooting)

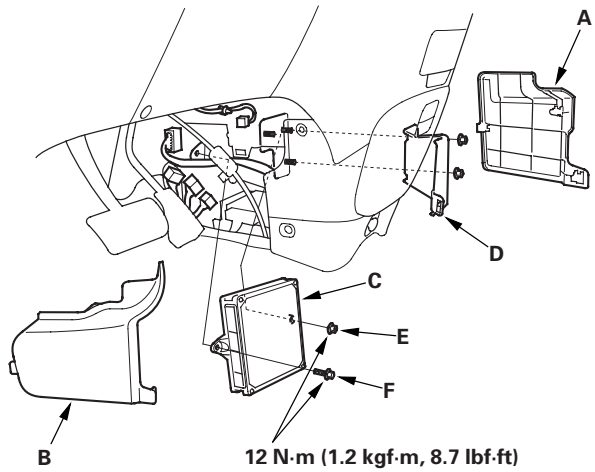
1. Reset the PCM as described above.
2. Turn the ignition switch OFF.
3. Disconnect the OBD II scan tool or HDS from the DLC.
4. Do the idle learn procedure (see page 11-202).

NOTE: The PCM is part of the immobilizer system. If you replace the PCM, it will have a different immobilizer code. In order for the engine to start, you must rewrite the immobilizer code with the HDS.

How to Remove the PCM for Testing

If the inspection for a trouble code requires voltage or resistance checks at the PCM connectors, remove the PCM and test it:

1. Pull back the carpet and remove the passenger's and driver's side center lower console covers (A and B) to expose the PCM (C).



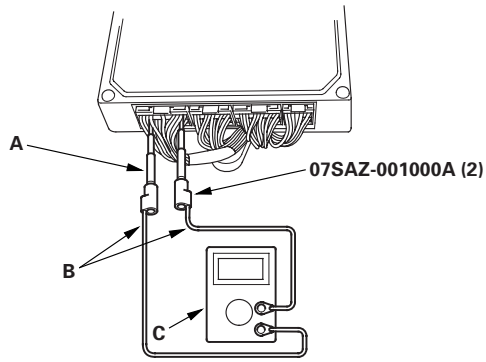
2. Remove the PCM cover (D) from the passenger's side under-dash to access the PCM mounting nut (E).
3. Remove the PCM mounting bolt (F) and remove the PCM.

How to Troubleshoot Circuits at the PCM

Special Tools Required

- Digital Multimeter KS-AHM-32-003 (1) or a commercially available digital multimeter
- Backprobe Set 07SAZ-001000A (2)

1. Connect the backprobe adapters (A) to the stacking patch cords (B), and connect the cords to a digital multimeter (C).

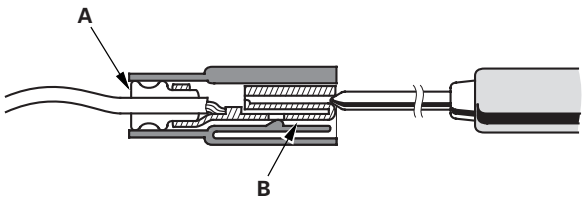


2. Using the wire insulation as a guide for the contoured tip of the backprobe adapter, gently slide the tip into the connector from the wire side until it touches the end of the wire terminal.

3. If you cannot get to the wire side of the connector or the wire side is sealed (A), disconnect the connector and use the backprobe set to probe the terminals (B) from the terminal side. Do not force the probe into the connector.

NOTICE

Do not puncture the insulation on a wire. Punctures can cause poor or intermittent electrical connections.



How to Substitute the PCM for Testing Purposes

Use this procedure if you need a known-good PCM to test a vehicle. It allows you to swap a PCM from a ''donor'' vehicle without having to program it to the test vehicle's ignition key.

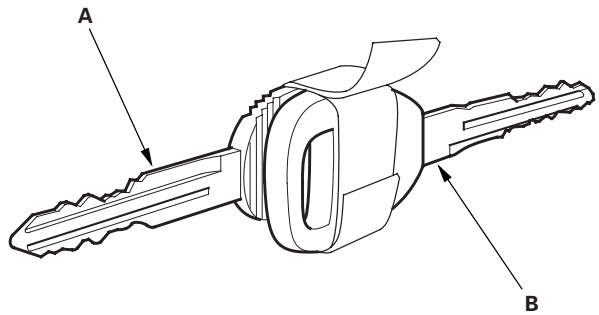
1. Cut a temporary ignition key for the test vehicle with a non-immobilizer key blank.

2. Remove the PCM from the test vehicle.

3. Write the test vehicle's VIN on the PCM you just removed to avoid confusing it with the donor vehicle's PCM.

4. Remove the known-good PCM from the donor vehicle, and install it in the test vehicle.

5. Tape the donor vehicle's ignition key head-to-head to the test vehicle's temporary key (A). The PCM will recognize the code from the donor vehicle's key (B) and allow you to start the engine with the temporary key.



6. After completing your tests, reinstall both PCMs, and destroy the temporary key.

DTC Troubleshooting Index

DTC (MIL indication*1)	Temporary DTC	Detection Item	MIL	Page
P0107 (3)	———	Manifold Absolute Pressure (MAP) Sensor Circuit Low Voltage	ON	(see page 11-95)
P0108 (3)	———	Manifold Absolute Pressure (MAP) Sensor Circuit High Voltage	ON	(see page 11-98)
P0112 (10)	———	Intake Air Temperature (IAT) Sensor Circuit Low Voltage	ON	(see page 11-102)
P0113 (10)	———	Intake Air Temperature (IAT) Sensor Circuit High Voltage	ON	(see page 11-104)
P0116 (86)	P0116	Engine Coolant Temperature (ECT) Sensor Range/ Performance Problem	ON	(see page 11-106)
P0117 (6)	———	Engine Coolant Temperature (ECT) Sensor Circuit Low Voltage	ON	(see page 11-106)
P0118 (6)	———	Engine Coolant Temperature (ECT) Sensor Circuit High Voltage	ON	(see page 11-108)
P0122 (7)	———	Throttle Position (TP) Sensor Circuit Low Voltage	ON	(see page 11-110)
P0123 (7)	———	Throttle Position (TP) Sensor Circuit High Voltage	ON	(see page 11-114)
P0128 (87)	P0128	Cooling System Malfunction	ON	(see page 11-117)
P0131 (1)	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Circuit Low Voltage	ON	(see page 11-118)
P0132 (1)	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Circuit High Voltage	ON	(see page 11-120)
P0133 (61)	P0133	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Circuit Slow Response	ON	(see page 11-122)
P0135 (41)	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Heater Circuit Malfunction	ON	(see page 11-128)
P0137 (63)	P0136	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Circuit Low Voltage	ON	(see page 11-123)
P0138 (63)	P0136	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Circuit High Voltage	ON	(see page 11-125)
P0139 (63)	P0136	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Circuit Slow Response	ON	(see page 11-127)
P0141 (65)	———	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Heater Circuit Malfunction	ON	(see page 11-128)
P0171 (45)	P0170	Fuel System Too Lean	ON	(see page 11-132)
P0172 (45)	P0170	Fuel System Too Rich	ON	(see page 11-132)
P0300 and any of P0301 (71) P0302 (72) P0303 (73) P0304 (74) P0305 (75) P0306 (76)	P1399	Random Misfire Detected	ON	(see page 11-133)

* 1: These DTCs are indicated by a blinking malfunction indicator lamp (MIL) when the SCS service signal line is jumped with the HDS.
* 2: The D4 ('02-03 models: D) indicator and the MIL may come on simultaneously. If using the HDS, you must select the A/T mode to read these DTCs.
* 3: With ABS/TCS
* 4: '99-02 models
* 5: '03-04 models
* 6: '01 model
* 7: If using the HDS, you must select the A/T mode to read these DTCs.

DTC (MIL indication*1)	Temporary DTC	Detection Item	MIL	Page
P0301 (71)	P1399	No. 1 Cylinder Misfire Detected	ON	(see page 11-133) (see page 11-134)
P0302 (72)	P1399	No. 2 Cylinder Misfire Detected	ON	(see page 11-133) (see page 11-134)
P0303 (73)	P1399	No. 3 Cylinder Misfire Detected	ON	(see page 11-133) (see page 11-134)
P0304 (74)	P1399	No. 4 Cylinder Misfire Detected	ON	(see page 11-133) (see page 11-134)
P0305 (75)	P1399	No. 5 Cylinder Misfire Detected	ON	(see page 11-133) (see page 11-134)
P0306 (76)	P1399	No. 6 Cylinder Misfire Detected	ON	(see page 11-133) (see page 11-134)
P0325 (23)	———	Knock Sensor Circuit Malfunction	ON	(see page 11-145)
P0335 (4)	———	Crankshaft Position (CKP) Sensor Circuit No Signal	ON	(see page 11-147)
P0336 (4)	———	Crankshaft Position (CKP) Sensor Intermittent Interruption	ON	(see page 11-147)
P0340 (8)*5	———	Camshaft Position (CMP) Sensor A No Signal	ON	(see page 11-150)
P0341 (8)*5	———	Camshaft Position (CMP) Sensor A Intermittent Interruption	ON	(see page 11-150)
P0365 (58)*5	———	Camshaft Position (CMP) Sensor B No Signal	ON	(see page 11-150)
P0366 (58)*5	———	Camshaft Position (CMP) Sensor B Intermittent Interruption	ON	(see page 11-150)
P0401 (80)	P0401	Exhaust Gas Recirculation (EGR) Insufficient Flow	ON	(see page 11-247)
P0420 (67)	P0420	Catalyst System Efficiency Below Threshold	ON	(see page 11-246)
P0451 (91)	P0451	Fuel Tank Pressure (FTP) Sensor Range/Performance Problem	ON	(see page 11-261)
P0452 (91)	P0450	Fuel Tank Pressure (FTP) Sensor Circuit Low Voltage	ON	(see page 11-263)
P0453 (91)	P0450	Fuel Tank Pressure (FTP) Sensor Circuit High Voltage	ON	(see page 11-266)
P0461 (121)*5	———	Fuel Level Sensor (Fuel Gauge Sending Unit) Range/ Performance Problem	OFF	(see page 11-205)
P0462 (121)*5	———	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Low Voltage	OFF	(see page 11-206)
P0463 (121)*5	———	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit High Voltage	OFF	(see page 11-208)
P0505 (14)	P0505	Idle Control System Malfunction	ON	(see page 11-183)
P0560 (34)*6	———	Powertrain Control Module (PCM) Back Up Circuit Low Voltage	ON	(see page 11-151)
P0607 (—)	———	PCM Back Up Circuit Malfunction	ON	(see page 11-165)
P07xx (70)*2	———	Automatic Transaxle System Malfunction	ON	Refer to the Automatic Transmission DTC Troubleshooting Index
P07xx (—)*7	———	Automatic Transaxle System Malfunction	OFF	Refer to the Automatic Transmission DTC Troubleshooting Index

* 1: These DTCs are indicated by a blinking MIL when the SCS service signal line is jumped with the HDS.
* 2: The D4 ('02-04 models: D) indicator and the MIL may come on simultaneously. If using the HDS, you must select the A/T mode to read these DTCs.
* 3: With ABS/TCS
* 4: '99-02 models
* 5: '03-04 models
* 6: '01 model
* 7: If using the HDS, you must select the A/T mode to read these DTCs.

(cont'd)

DTC Troubleshooting Index (cont'd)

DTC (MIL indication *1)	Temporary DTC	Detection Item	MIL	Page
P1106 (13)	P1106	Barometric Pressure (BARO) Sensor Circuit Range/ Performance Problem	ON	(see page 11-152)
P1107 (13)	———	Barometric Pressure (BARO) Sensor Circuit Low Voltage	ON	(see page 11-153)
P1108 (13)	———	Barometric Pressure (BARO) Circuit High Voltage	ON	(see page 11-153)
P1121 (7)	P1121	Throttle Position (TP) Sensor Signal Lower Than Expected	ON	(see page 11-116)
P1122 (7)	P1122	Throttle Position (TP) Sensor Signal Higher Than Expected	ON	(see page 11-116)
P1128 (5)	P1128	Manifold Absolute Pressure (MAP) Sensor Signal Lower Than Expected	ON	(see page 11-101)
P1129 (5)	P1129	Manifold Absolute Pressure (MAP) Sensor Signal Higer Than Expected	ON	(see page 11-101)
P1259 (22)	———	VTEC System Malfunction	ON	(see page 6-6)
P1297 (20)	———	Electrical Load Detector (ELD) Circuit Low Voltage	OFF	(see page 11-153)
P1298 (20)	———	Electrical Load Detector (ELD) Circuit High Voltage	OFF	(see page 11-155)
P1361 (8) *4	———	Top Dead Center (TDC) Sensor 1 Circuit Intermittent Interruption	ON	(see page 11-158)
P1362 (8) *4	———	Top Dead Center (TDC) Sensor 1 Circuit No Signal	ON	(see page 11-158)
P1366 (58) *4	———	Top Dead Center (TDC) Sensor 2 Circuit Intermittent Interruption	ON	(see page 11-158)
P1367 (58) *4	———	Top Dead Center (TDC) Sensor 2 Circuit No Signal	ON	(see page 11-158)
P1456 (90)	P1456	Evaporative Emission (EVAP) Control System Leakage (Fuel Tank System)	ON	(see page 11-269)
P1457 (90)	P1457	Evaporative Emission (EVAP) Control System Leakage (EVAP Canister System)	ON	(see page 11-282)
P1491 (12)	P1491	Exhaust Gas Recirculation (EGR) Valve Insufficient Lift	ON	(see page 11-247)
P1498 (12)	———	Exhaust Gas Recirculation (EGR) Valve Position Sensor Circuit High Voltage	ON	(see page 11-255)
P1519 (14)	———	Idle Air Control (IAC) Valve Circuit Malfunction	ON	(see page 11-184)
P1607 (—)	———	Powertrain Control Module (PCM) Internal Circuit Malfunction	ON	(see page 11-165)
P1676 (35) *3	———	FPTDR Signal Line Failure	ON	(see page 11-161)
P1678 (35) *3	———	FPTDR Signal Line Failure	ON	(see page 11-164)
P17xx *2 (70)	(P17xx)	Automatic Transaxle System Malfunction	OFF	Refer to the Automatic Transmission DTC Troubleshooting Index

* 1: These DTCs are indicated by a blinking MIL when the SCS service signal line is jumped with the HDS.
* 2: The D4 ('02-04 models: D) indicator and the MIL may come on simultaneously. If using the HDS, you must select the A/T mode to read these DTCs.
* 3: With ABS/TCS
* 4: '99-02 models
* 5: '03-04 models
* 6: '01 model
* 7: If using the HDS, you must select the A/T mode to read these DTCs.

Symptom Troubleshooting Index

These symptoms DO NOT trigger diagnostic trouble codes (DTCs) or cause the malfunction indicator lamp (MIL) to come on. If the MIL is reported on, check for DTCs. If the vehicle has one of these symptoms, do the diagnostic procedure for it, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure	Also check for
Engine will not start (MIL works OK, no DTCs set)	1. Test the battery (see page 22-87). 2. Test the starter (see page 4-5). 3. Test the fuel pump (see page 11-218). 4. Test the ignition coil.	• Low compression • Intake air leaks • No ignition spark • Locked up engine • Jumped/ broken timing belt • Contaminated fuel
Engine will not start (MIL comes on and stays on, or never comes on at all, no DTCs set)	Troubleshooting the MIL circuit (see page 11-166).	
Engine will not start (immobilizer indicator stays on or flashes)	Troubleshoot the immobilizer system (see page 22-239).	
Hard starting (MIL works OK, no DTCs set)	1. Test the battery (see page 22-87). 2. Check the fuel pressure (see page 11-216). 3. Test the ignition coil.	• Low compression • Intake air leaks • Contaminated fuel • Weak ignition spark
Cold fast idle too low (MIL works OK, no DTCs set)	1. Do the idle learn procedure (see page 11-202). 2. Check/adjust the idle speed (see page 11-201).	
Cold fast idle too high (MIL works OK, no DTCs set)	1. Do the idle learn procedure (see page 11-202). 2. Check the idle speed (see page 11-201). 3. Inspect/adjust the throttle cable (see page 11-242). 4. Inspect and test the throttle body (see page 11-237).	
Idle speed fluctuates (MIL works OK, no DTCs set)	1. Do the idle learn procedure (see page 11-202). 2. Check the idle speed (see page 11-201). 3. Inspect/adjust the throttle cable (see page 11-242). 4. Inspect and test the throttle body (see page 11-237).	Intake air leaks
Low power (MIL works OK, no DTCs set)	1. Check the fuel pressure (see page 11-216). 2. Inspect and test the throttle body (see page 11-237). 3. Inspect/adjust the throttle cable (see page 11-242).	• Low compression • Engine oil level
Engine stalls (MIL works OK, no DTCs set)	1. Do the idle learn procedure (see page 11-202). 2. Check the fuel pressure (see page 11-216). 3. Check/adjust the idle speed (see page 11-201). 4. Troubleshoot the brake pedal position switch signal circuit (see page 11-199).	• Intake air leaks • Faulty harness or sensor connections
Difficult to refuel (MIL works OK, no DTCs set) ('01-04 models)	1. Test the fuel tank vapor control valve (see page 11-298). 2. Inspect the fuel tank vapor signal tube between the fuel pipe and the fuel tank vapor control valve. 3. Inspect the fuel tank vapor vent tube between the EVAP canister and the fuel tank vapor control valve. 4. Check the EVAP canister.	Malfunction gas station filling nozzle.
Fuel overflows during refueling (No DTCs set) ('01-04 models)	Replace the fuel tank vapor control valve (see page 11-301).	Malfunction gas station filling nozzle.

System Descriptions

Electronic Control System

The functions of the fuel and emission control systems are managed by the powertrain control module (PCM).

Fail-safe Function
When an abnormality occurs in the signal from a sensor, the PCM ignores that signal and assumes a pre-programmed value for that sensor that allows the engine to continue to run.

Back-up Function
When an abnormality occurs in the PCM, the injectors are controlled by an independent back-up circuit to permit minimal driving.

Self-diagnosis
When an abnormality occurs in the signal from a sensor, the PCM supplies ground for the malfunction indicator lamp (MIL) and stores the diagnostic trouble code (DTC) in erasable memory. When the ignition is first turned on, the PCM supplies ground to the MIL for 2 seconds ('99-01 models) or for 15 to 20 seconds ('02-04 models) to check the MIL bulb condition.

Two Driving Cycle Detection Method
To prevent false indications, the ''two driving cycle detection method'' is used for some self-diagnostic functions. When an abnormality occurs, the PCM stores it in its memory. When the same abnormality recurs after the ignition switch is turned OFF and ON (II) again, the PCM turns on the MIL.

PCM Data

You can retrieve data from the PCM by connecting the OBD II scan tool or HDS to the data link connector (DLC). The items listed in the table below conform to SAE recommended practice. The HDS also reads data beyond that recommended by SAE to this data may help you find the causes of intermittent problems.

NOTE:
- The ''operating values'' listed are approximate and may vary depending on the environment and the individual vehicle.
- Unless noted otherwise, ''at idle speed'' means idling with the engine completely warmed up, the transmission in park or neutral, and the A/C and all accessories turned off.

Data	Description	Operating Value	Freeze Data
Diagnostic Trouble Code (DTC)	If the PCM detects a problem, it will store it as a code consisting of one letter and 4 numbers. Depending on the problem, as SAE-defined code (P0xxx) or a Honda-defined code (P1xxx) will be output to the tester.	If no problem is detected, there is no output.	YES
Engine Speed	The PCM computes engine speed from the signals sent from the Crankshaft Position (CKP) sensor. This data is used for determining the time and amount of fuel injection.	Nearly the same as tachometer indication At idle speed: 730 ± 50 rpm	YES
Vehicle Speed	The PCM converts pulse signals from the output shaft (countershaft) speed sensor into speed data.	Nearly the same as speedometer indication	YES
Manifold Absolute Pressure (MAP)	The absolute pressure caused in the intake manifold by engine load and speed.	With engine stopped: Nearly the same as atmospheric pressure. At idle speed: about 20 – 34 kPa (150 – 260 mmHg, 6 – 10 in.Hg), 0.9 – 1.1 V	YES
Engine Coolant Temperature (ECT)	The ECT sensor converts coolant temperature into voltage and signals the PCM. The sensor is a thermistor with internal resistance that changes with coolant temperature. The PCM uses the voltage signals from the ECT sensor to determine the amount of injected fuel.	With cold engine: Same as ambient temperature and IAT With engine warmed up: about 176 – 212°F (80 – 100°C), 0.5 – 0.7 V	YES
Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1), Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2)	The HO2S detects the oxygen content in the exhaust gas and sends voltage signals to the PCM. Based on these signals, the PCM controls the air fuel ratio. When the oxygen content is high (that is, when the ratio is leaner than the stoichiometric ratio), the voltage signal is lower. When the oxygen content is low (that is, when the ratio is richer than the stoichiometric ratio), the voltage signal is higher.	0.0 – 1.25 V At idle speed: about 0.1 – 0.9 V	

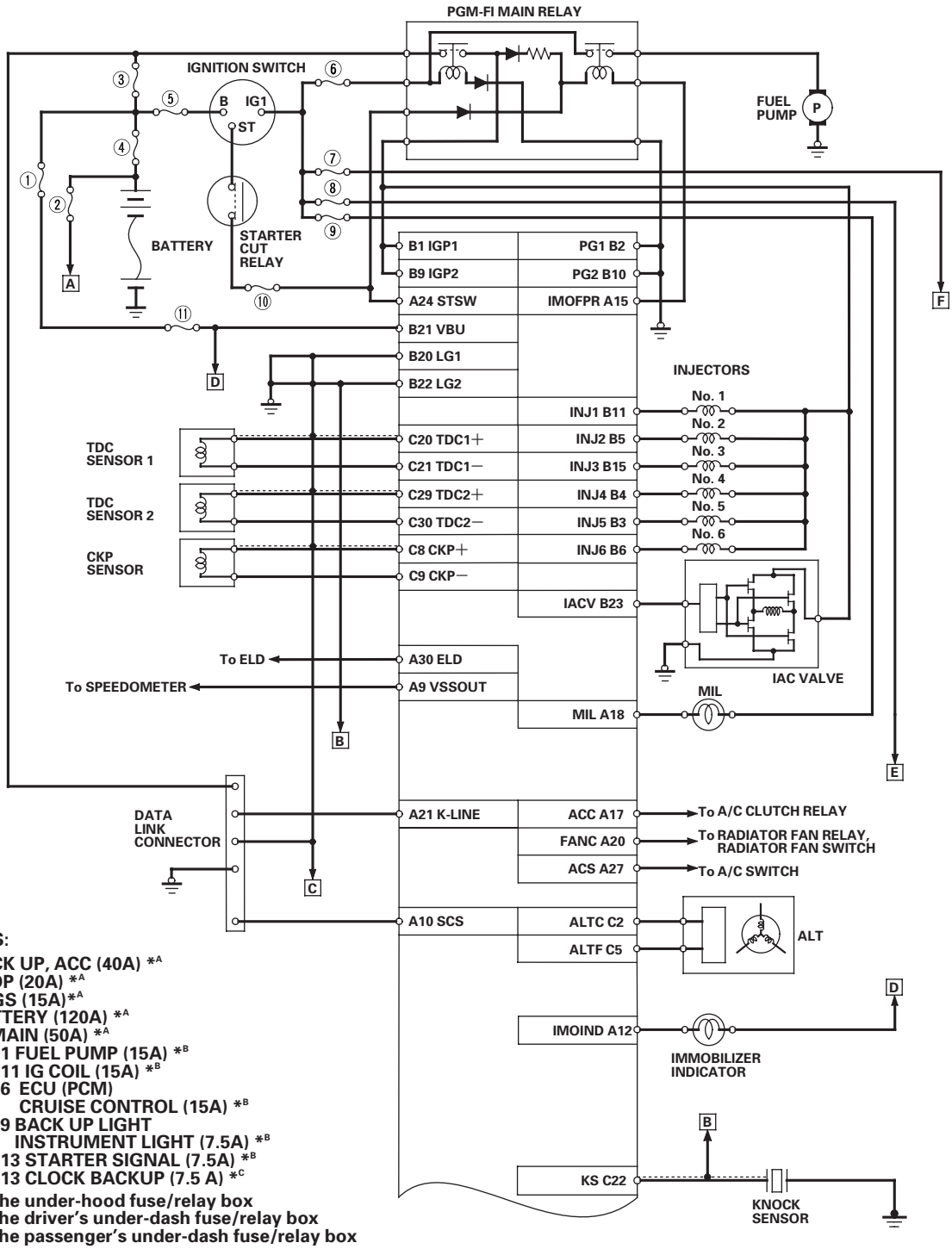
(cont'd)

System Descriptions (cont'd)

PCM Data (cont'd)

Data	Description	Operating Value	Freeze Data
Fuel System Status	Fuel system status is indicated as ''open'' or ''closed''. Closed: Based on the HO2S output, the PCM determines the air/fuel ratio and controls the amount of injected fuel. Open: Ignoring HO2S output, the PCM refers to signals from the Throttle Position (TP), Manifold Absolute Pressure (MAP), Intake Air Temperature (IAT), Barometric Pressure (BARO) and Engine Coolant Temperature (ECT) sensors to control the amount of injected fuel.	At idle speed: closed	YES
Short Term Fuel Trim	The air/fuel ratio correction coefficient for correcting the amount of injected fuel when the fuel system status is ''closed''. When the ratio is leaner than the stoichiometric ratio, the PCM increase short term fuel trim gradually, and the amount of injected fuel increases. The air/fuel ratio gradually gets richer, causing a lower oxygen content in the exhaust gas. Consequently, the short term fuel trim is lowered, and the PCM reduces the amount of injected fuel. This cycle keeps the air/fuel ratio close to the stoichiometric ratio when in closed loop status.	0.6－1.5	YES
Long Term Fuel Trim	Long term fuel trim is computed from short term fuel trim and indicates changes occurring in the fuel supply system over a long period. If long term fuel trim is higher than 1.00, the amount of injected fuel must be increased. If it is lower than 1.00, the amount of injected fuel must be reduced.	0.8－1.2	YES
Intake Air Temperature (IAT)	The IAT sensor converts intake air temperature into voltage and signals the PCM. When intake air temperature is low, the internal resistance of the sensor increases, and the voltage signal is higher.	With cold engine: Same as ambient temperature and ECT	YES
Throttle Position	Based on the accelerator pedal position, the opening angle of the throttle valve is indicated.	At idle speed: about 10 %, 0.5 V	YES
Ignition Timing	Ignition timing is the ignition advance angle set by the PCM. The PCM matches ignition timing to the driving conditions.	At idle speed: 10°±2° BTDC when the SCS service signal line is jumped with the HDS	NO
Calculated Load Value (CLV)	CLV is the engine load calculated from the MAP data.	At idle speed: 16－33 % At 2,500 rpm with no load: 18－26 %	YES

PCM Electrical Connections — '99-00 Models



FUSES:

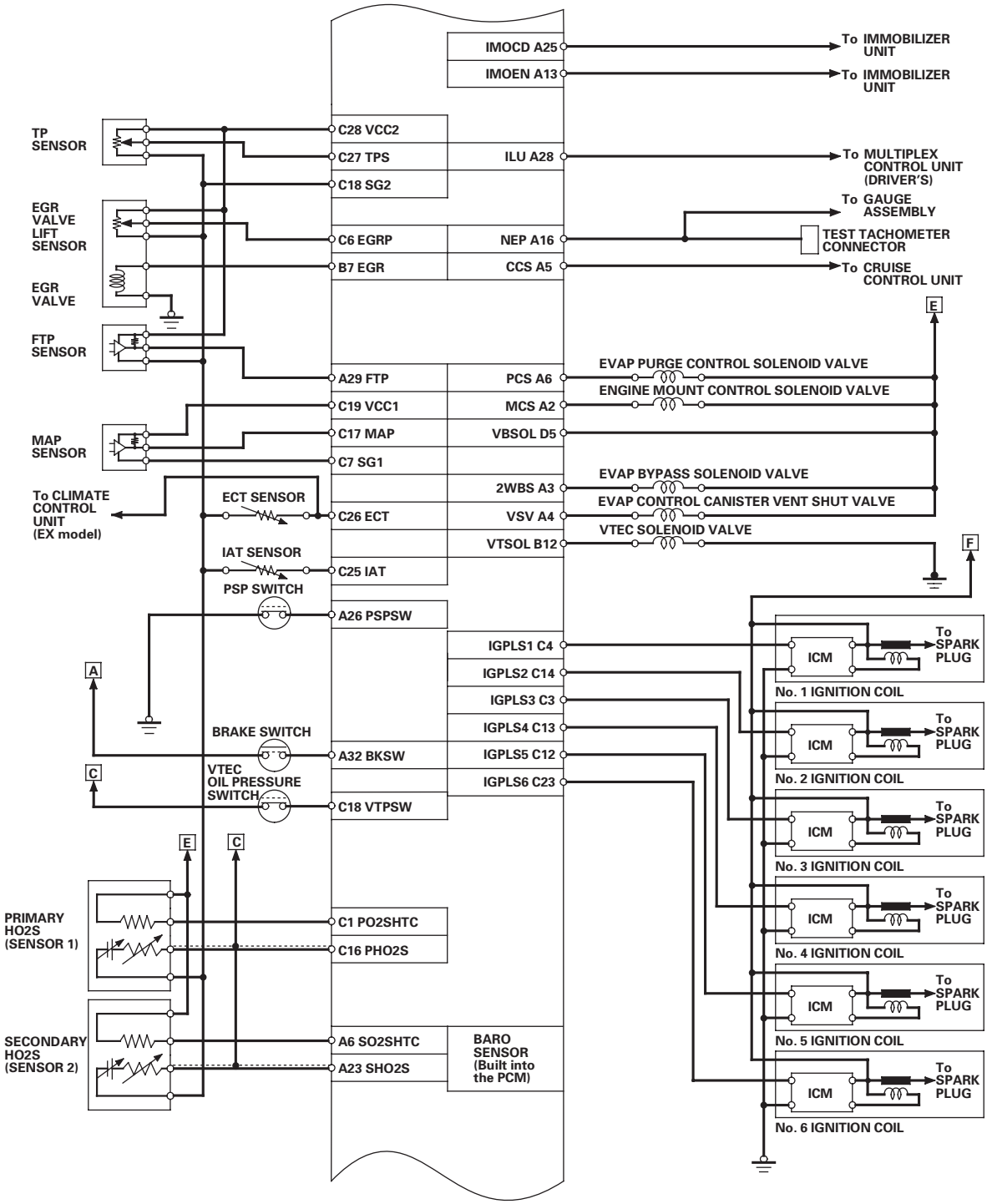
① BACK UP, ACC (40A) *A
② STOP (20A) *A
③ ACGS (15A)*A
④ BATTERY (120A) *A
⑤ IG MAIN (50A) *A
⑥ No. 1 FUEL PUMP (15A) *B
⑦ No. 11 IG COIL (15A) *B
⑧ No. 6 ECU (PCM)
CRUISE CONTROL (15A) *B
⑨ No. 9 BACK UP LIGHT
INSTRUMENT LIGHT (7.5A) *B
⑩ No. 13 STARTER SIGNAL (7.5A) *B
⑪ No. 13 CLOCK BACKUP (7.5 A) *C

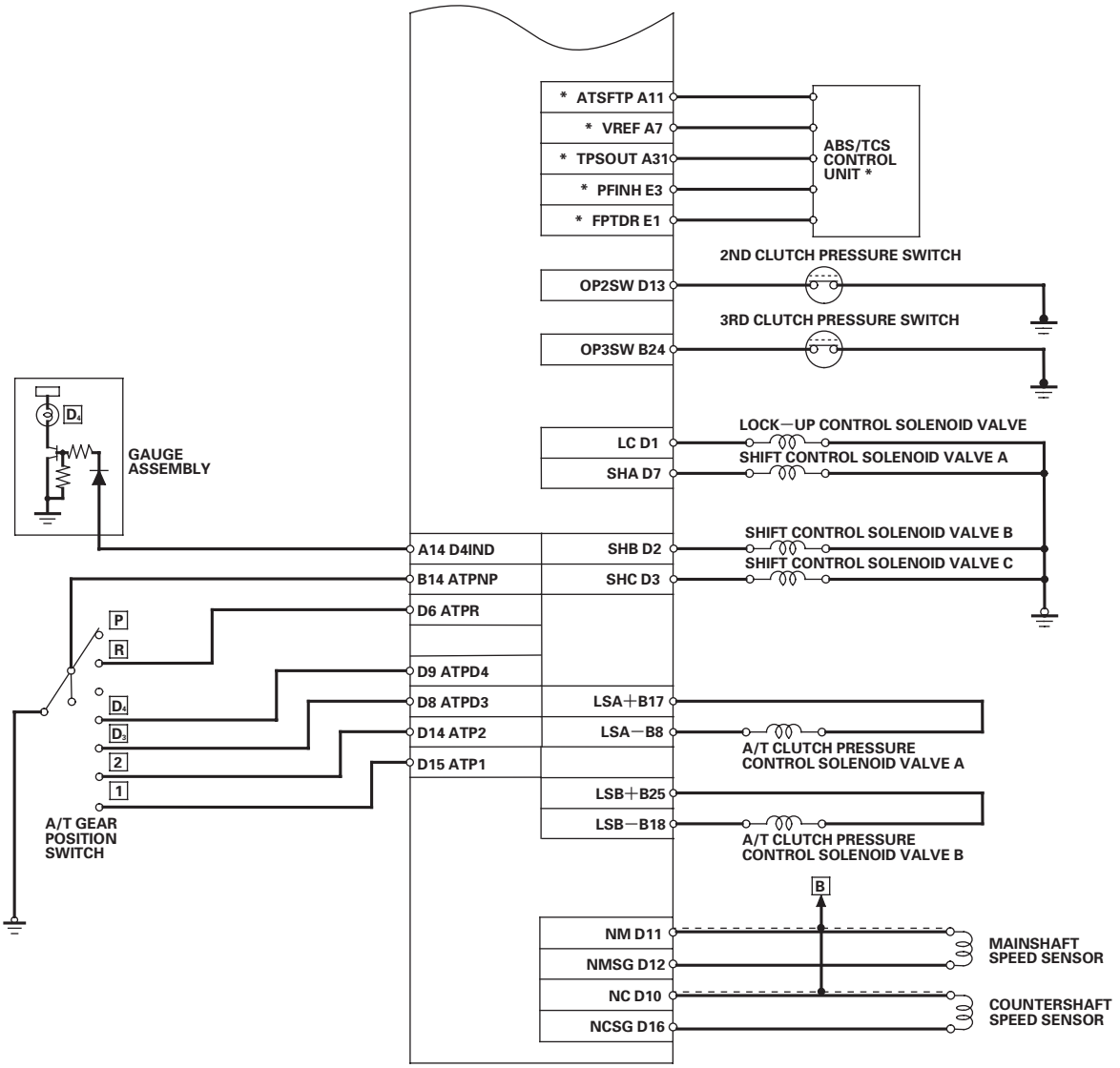
*A: in the under-hood fuse/relay box
*B: in the driver's under-dash fuse/relay box
*C: in the passenger's under-dash fuse/relay box

(cont'd)

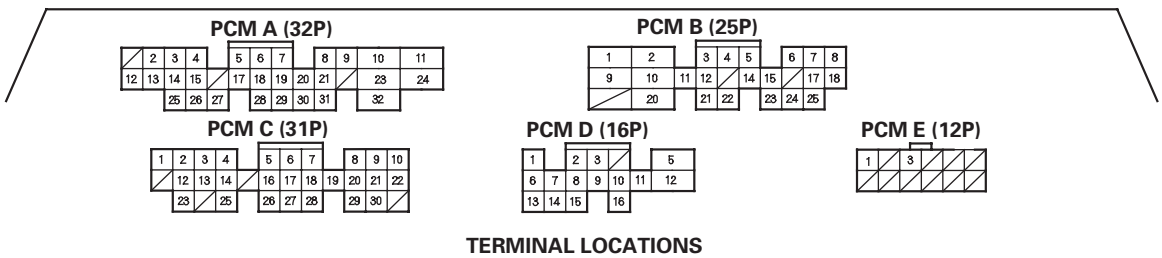
System Descriptions (cont'd)

PCM Electrical Connections — '99-00 Models (cont'd)





*** : with ABS/TCS**

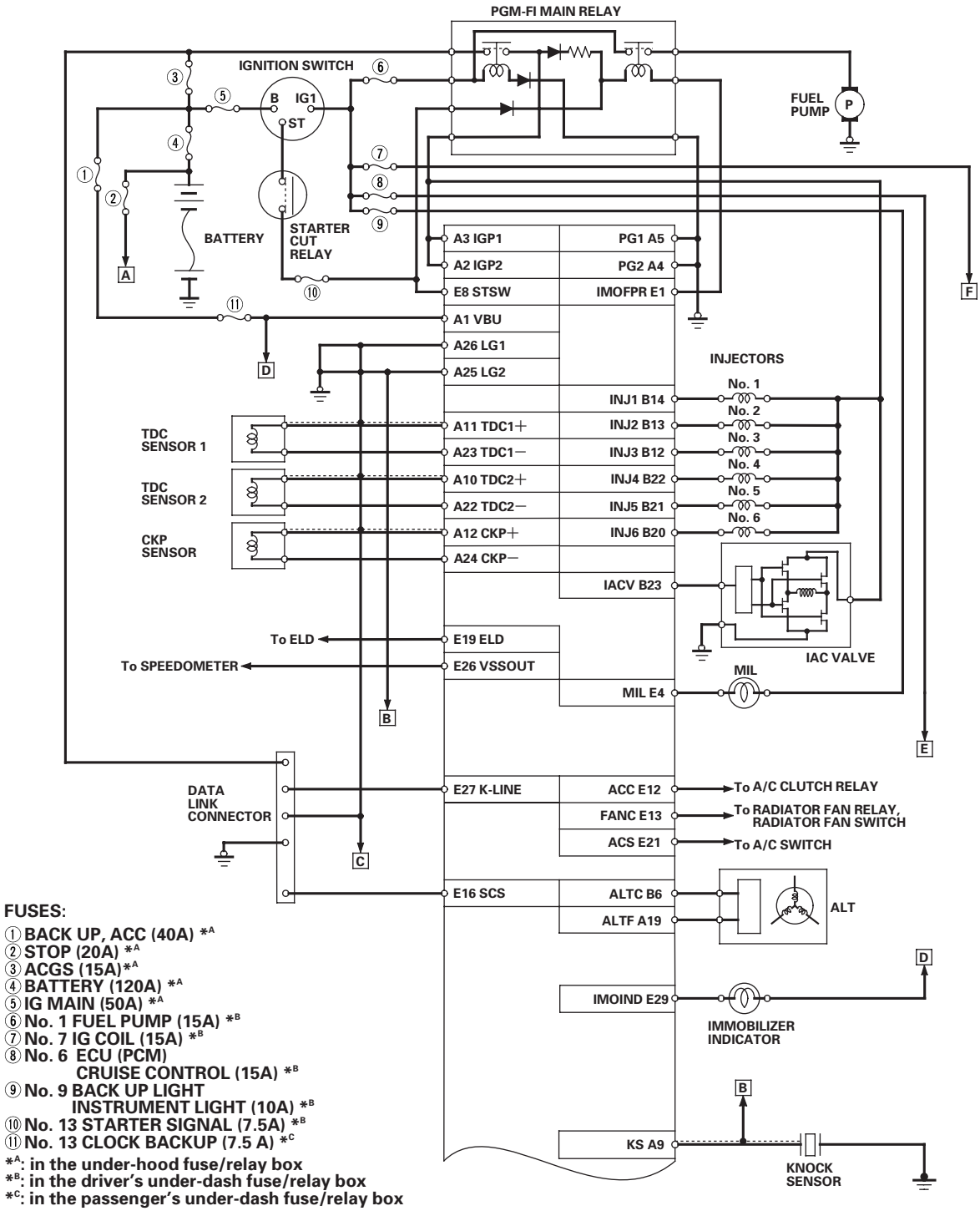


TERMINAL LOCATIONS

(cont'd)

System Descriptions (cont'd)

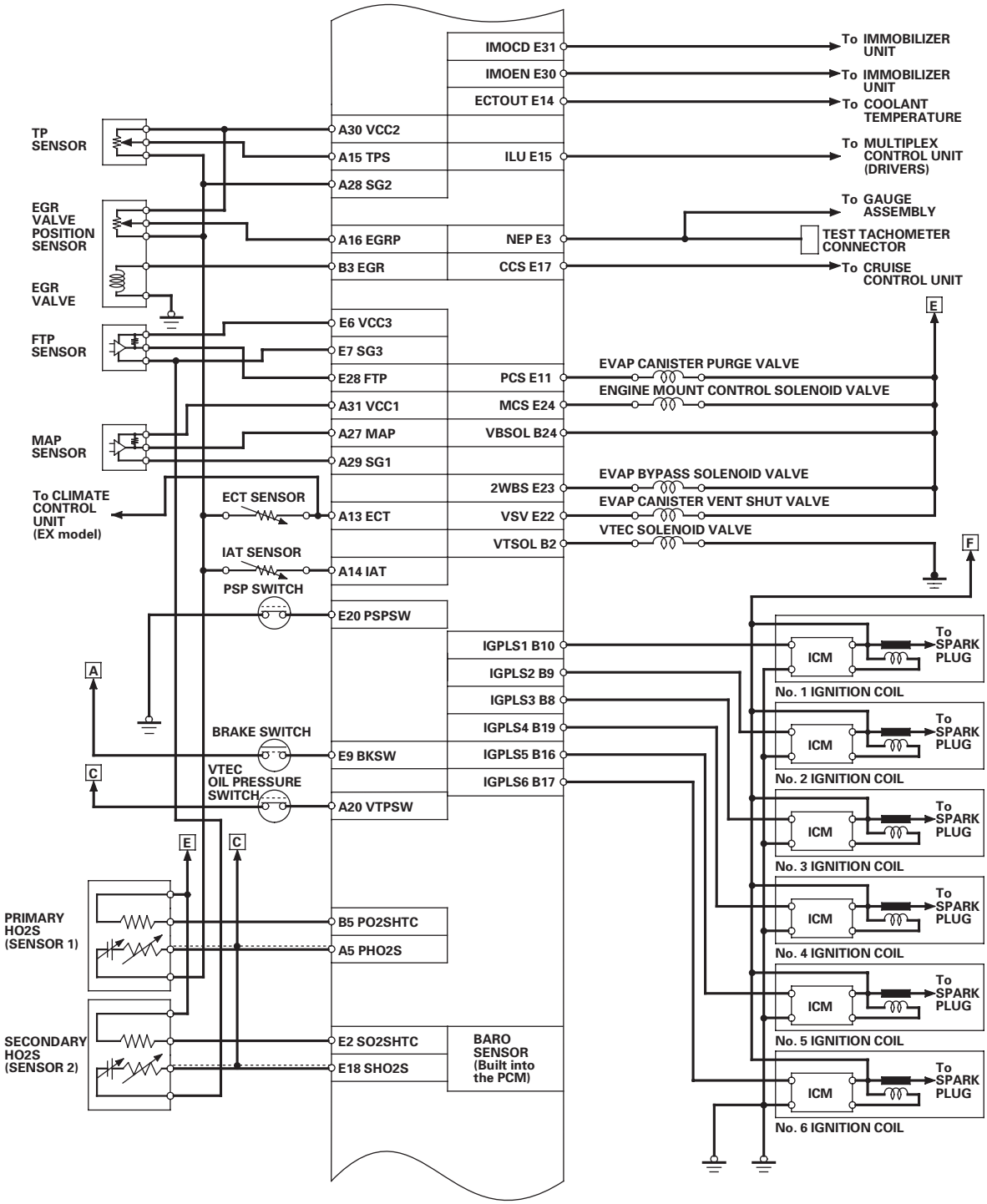
PCM Electrical Connections — '01 Model



FUSES:

① BACK UP, ACC (40A) *A
② STOP (20A) *A
③ ACGS (15A)*A
④ BATTERY (120A) *A
⑤ IG MAIN (50A) *A
⑥ No. 1 FUEL PUMP (15A) *B
⑦ No. 7 IG COIL (15A) *B
⑧ No. 6 ECU (PCM)
CRUISE CONTROL (15A) *B
⑨ No. 9 BACK UP LIGHT
INSTRUMENT LIGHT (10A) *B
⑩ No. 13 STARTER SIGNAL (7.5A) *B
⑪ No. 13 CLOCK BACKUP (7.5 A) *C

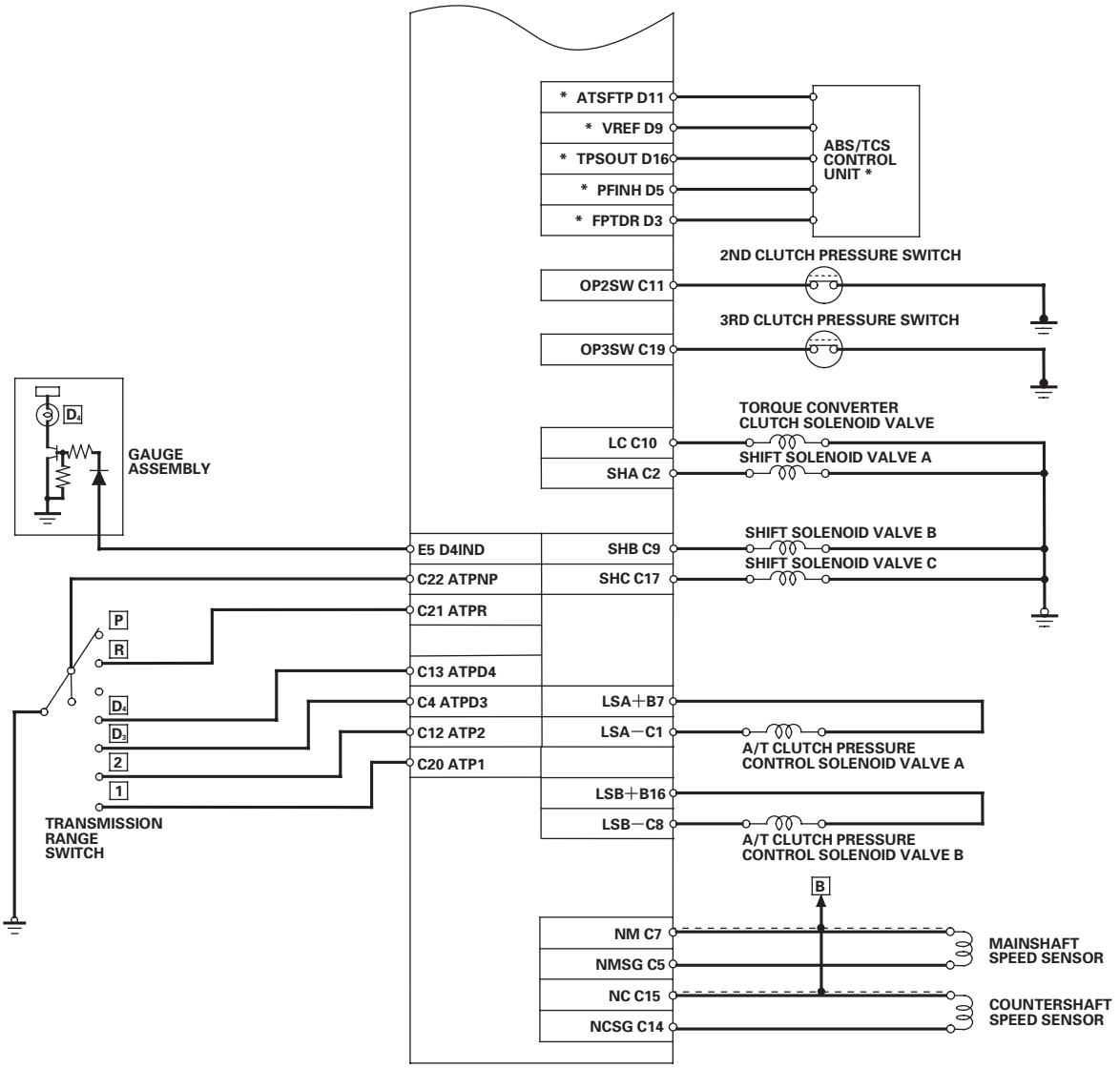
*A: in the under-hood fuse/relay box
*B: in the driver's under-dash fuse/relay box
*C: in the passenger's under-dash fuse/relay box


IMOCD E31
IMOEN E30
ECTOUT E14
To IMMOBILIZER UNIT
To IMMOBILIZER UNIT
To COOLANT TEMPERATURE
TP SENSOR
A30 VCC2
A15 TPS
A28 SG2
ILU E15
To MULTIPLEX CONTROL UNIT (DRIVERS)
To GAUGE ASSEMBLY
EGR VALVE POSITION SENSOR
A16 EGRP
NEP E3
TEST TACHOMETER CONNECTOR
EGR VALVE
B3 EGR
CCS E17
To CRUISE CONTROL UNIT
E
FTP SENSOR
E6 VCC3
E7 SG3
E28 FTP
PCS E11
EVAP CANISTER PURGE VALVE
A31 VCC1
MCS E24
ENGINE MOUNT CONTROL SOLENOID VALVE
MAP SENSOR
A27 MAP
VBSOL B24
A29 SG1
EVAP BYPASS SOLENOID VALVE
2WBS E23
To CLIMATE CONTROL UNIT (EX model)
ECT SENSOR
EVAP CANISTER VENT SHUT VALVE
A13 ECT
VSV E22
VTEC SOLENOID VALVE
VTSOL B2
F
IAT SENSOR
A14 IAT
PSP SWITCH
E20 PSPSW
IGPLS1 B10
IGPLS2 B9
IGPLS3 B8
IGPLS4 B19
IGPLS5 B16
IGPLS6 B17
ICM
To SPARK PLUG
No. 1 IGNITION COIL
No. 2 IGNITION COIL
No. 3 IGNITION COIL
No. 4 IGNITION COIL
No. 5 IGNITION COIL
No. 6 IGNITION COIL
A
BRAKE SWITCH
E9 BKSW
C
VTEC OIL PRESSURE SWITCH
A20 VTPSW
E
C
PRIMARY HO2S (SENSOR 1)
B5 PO2SHTC
A5 PHO2S
SECONDARY HO2S (SENSOR 2)
E2 SO2SHTC
E18 SHO2S
BARO SENSOR (Built into the PCM)

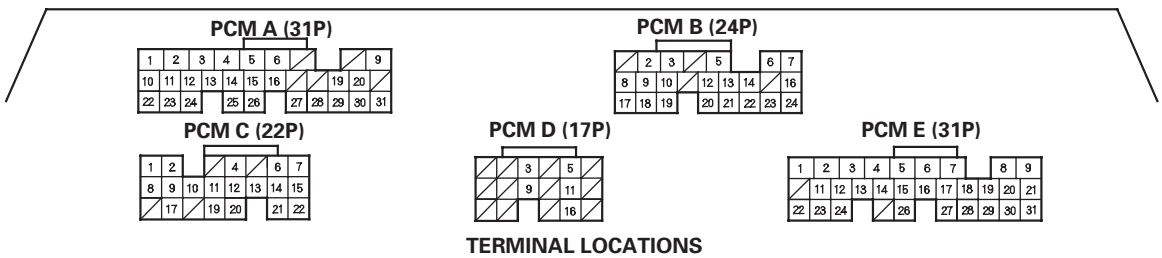
(cont'd)

System Descriptions (cont'd)

PCM Electrical Connections — '01 Model (cont'd)

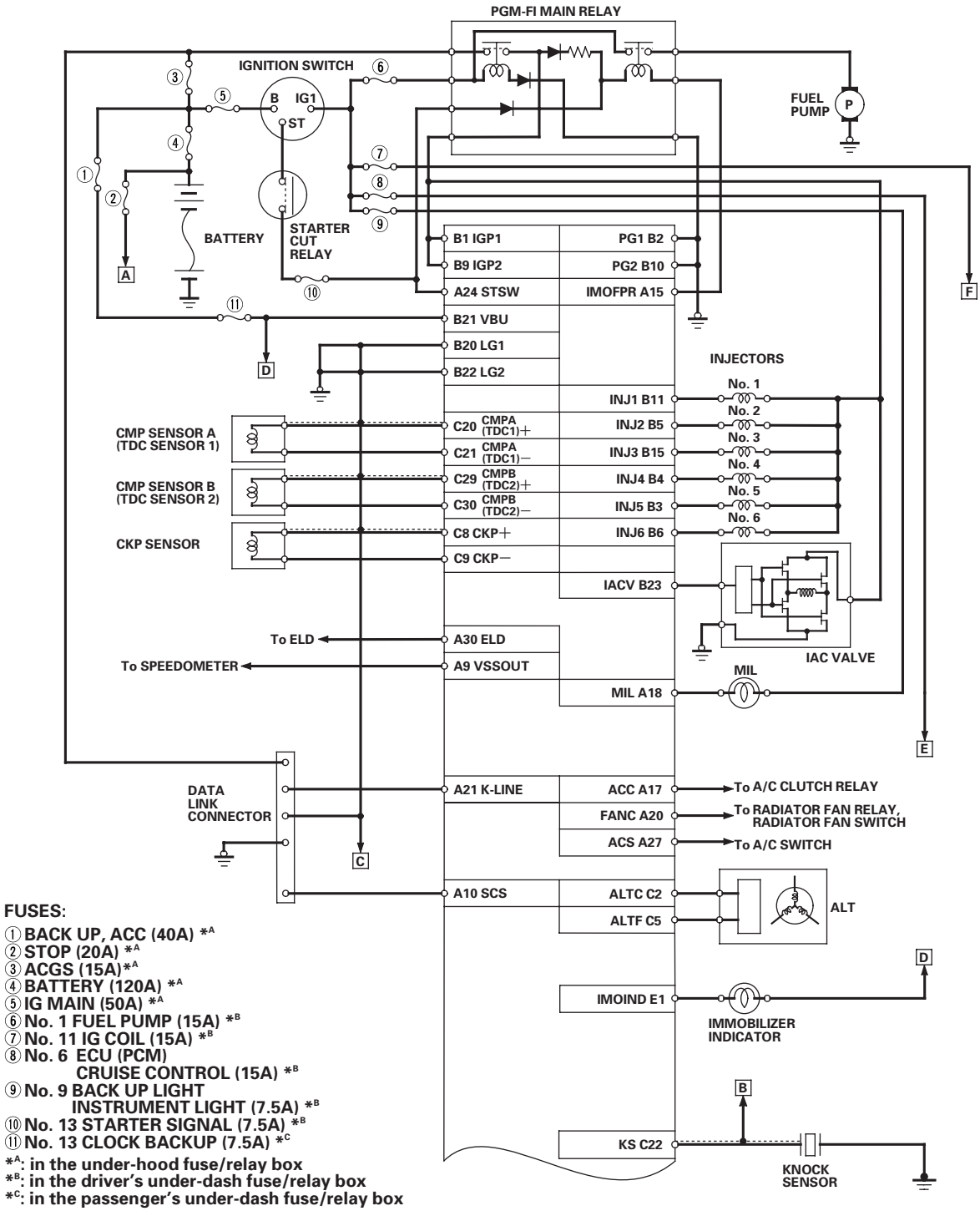


* : with ABS/TCS



TERMINAL LOCATIONS

PCM Electrical Connections — '02-04 Models



FUSES:

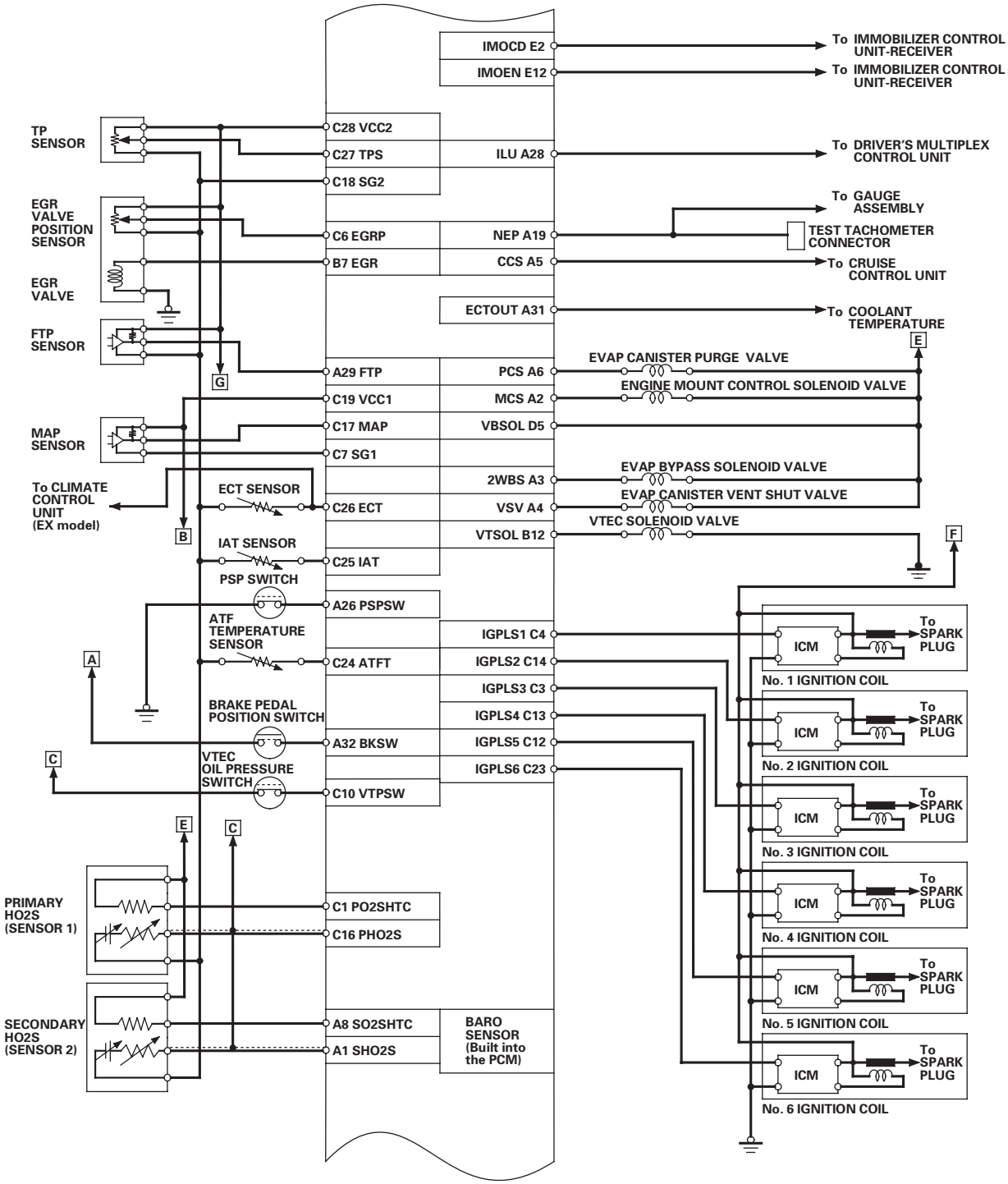
① BACK UP, ACC (40A) *A
② STOP (20A) *A
③ ACGS (15A)*A
④ BATTERY (120A) *A
⑤ IG MAIN (50A) *A
⑥ No. 1 FUEL PUMP (15A) *B
⑦ No. 11 IG COIL (15A) *B
⑧ No. 6 ECU (PCM)
CRUISE CONTROL (15A) *B
⑨ No. 9 BACK UP LIGHT
INSTRUMENT LIGHT (7.5A) *B
⑩ No. 13 STARTER SIGNAL (7.5A) *B
⑪ No. 13 CLOCK BACKUP (7.5A) *C

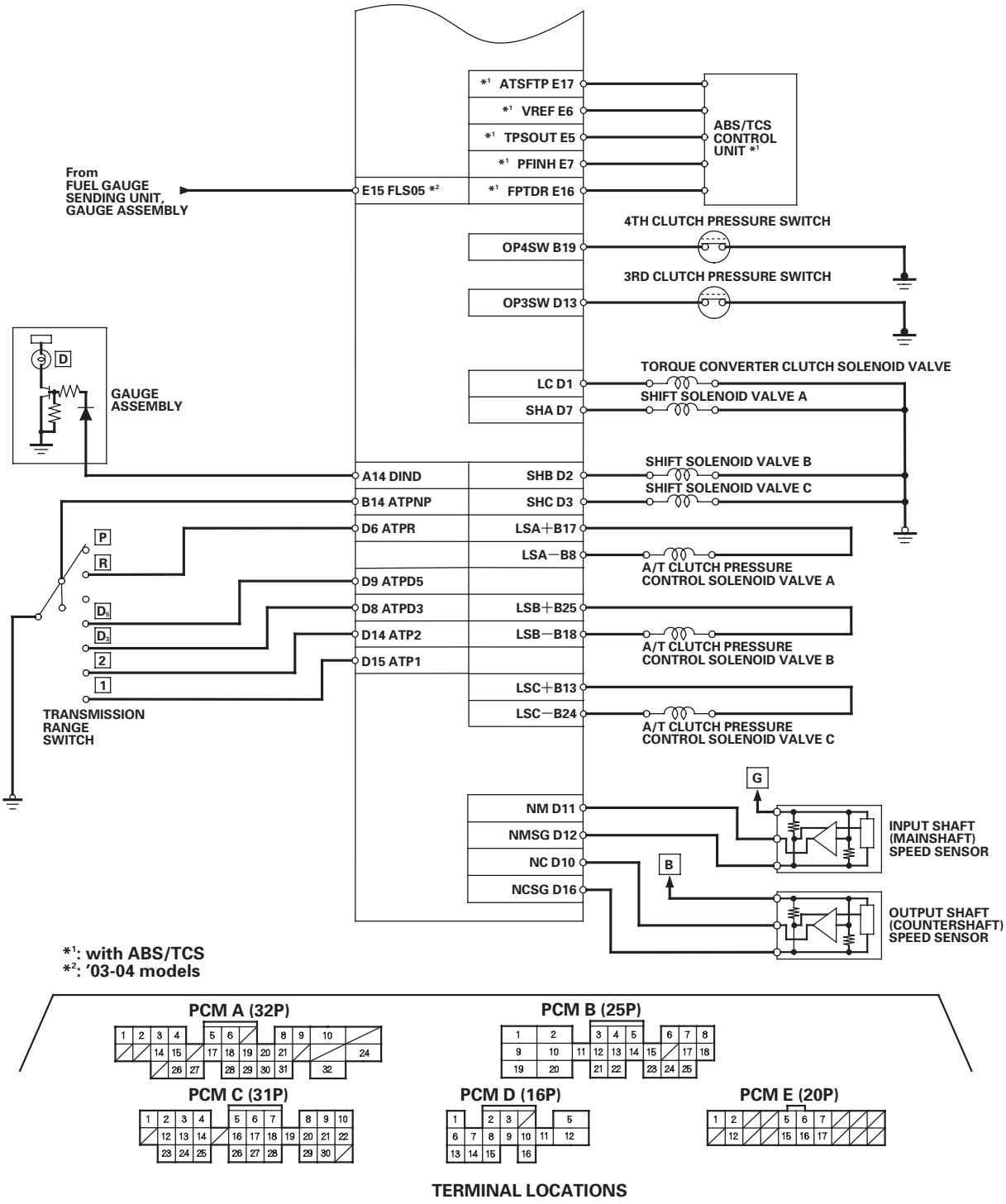
*A: in the under-hood fuse/relay box
*B: in the driver's under-dash fuse/relay box
*C: in the passenger's under-dash fuse/relay box

(cont'd)

System Descriptions (cont'd)

PCM Electrical Connections — '02-04 Models (cont'd)



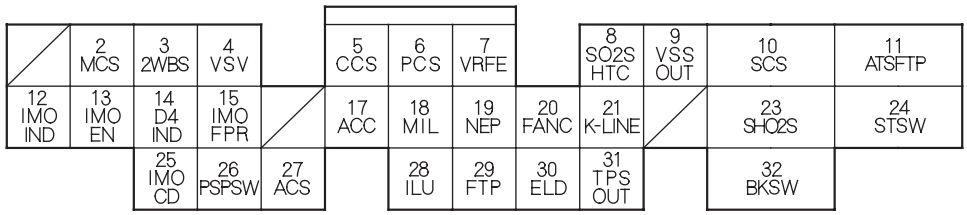


TERMINAL LOCATIONS

(cont'd)

System Descriptions (cont'd)

PCM Inputs and Outputs at Connector A (32P) — '99-00 Models



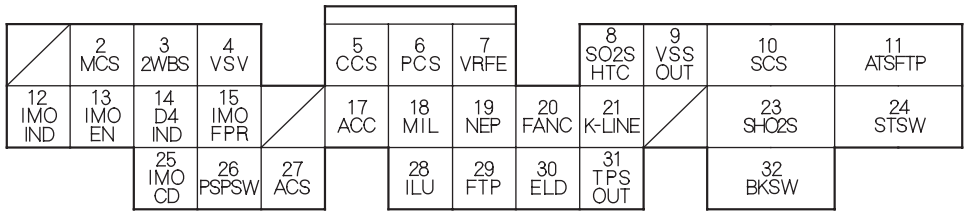
Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
2	GRN/WHT	MCS (ENGINE MOUNT CONTROL SOLENOID VALVE)	Drives engine mount control solenoid valve	At idle, not in P or N position: about 0 V Above idle: battery voltage
3	BLU	2WBS (EVAP BYPASS SOLENOID VALVE)	Drives EVAP bypass solenoid valve	With ignition switch ON (II): battery voltage
4	LT GRN/WHT	VSV (EVAP CANISTER VENT SHUT VALVE)	Drives EVAP canister vent shut valve	With ignition switch ON (II): battery voltage
5	BLU/GRN	CCS (CRUISE CONTROL SIGNAL)	Detects cruise control signal	With ignition switch ON (II): pulses
6	RED/YEL	PCS (EVAP PURGE CONTROL SOLENOID VALVE)	Drives EVAP purge control solenoid valve	With engine running, engine coolant, below 147°F (64°C): battery voltage With engine running, engine coolant, above 147°F (64°C): duty controlled
7*	WHT/RED	VREF (REFERENCE VOLTAGE)	Provides reference voltage to ABS/TCS control unit	With ignition switch ON (II): about 5 V With ignition switch OFF: 0 V
8	BLK/WHT	SO2SHTC (SECONDARY HEATED OXYGEN SENSOR HEATER CONTROL)	Drives secondary HO2S heater	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
9	BLU/WHT	VSSOUT (VEHICLE SPEED SENSOR OUTPUT SIGNAL)	Sends vehicle speed sensor signal	Depending on vehicle speed: pulses
10	BRN	SCS (SERVICE CHECK SIGNAL)	Detects service check connector signal (the signal causing a DTC indication)	With the terminal connected: 0 V With the terminal disconnected: battery voltage
11*	LT GRN	ATSFTP (A/T GEAR POSITION SWITCH OUTPUT SIGNAL)	Sends A/T gear position switch signal	With engine running in P position: about 4 V
12	PNK	IMOIND (IMMOBILIZER INDICATOR)	Drives immobilizer indicator	With immobilizer indicator light turned ON: 0 V With immobilizer indicator light turned OFF: battery voltage
13	BLU	IMOEN (IMMOBILIZER ENABLE SIGNAL)	Sends immobilizer enable signal	
14	GRN/BLK	D4IND (D4 INDICATOR)	Drives D4 indicator light	With D4 indicator light turned ON: 0 V With D4 indicator light turned OFF: battery voltage
15	GRN/YEL	IMOFPR (IMMOBILIZER FUEL PUMP RELAY)	Drives fuel pump relay	0 V for 2 seconds after turning ignition switch ON (II), then battery voltage
17	RED	ACC (A/C CLUTCH RELAY)	Drives A/C clutch relay	With compressor ON: 0 V With compressor OFF: battery voltage

*: With ABS/TCS

PCM Inputs and Outputs at Connector A (32P) — '99-00 Models



Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

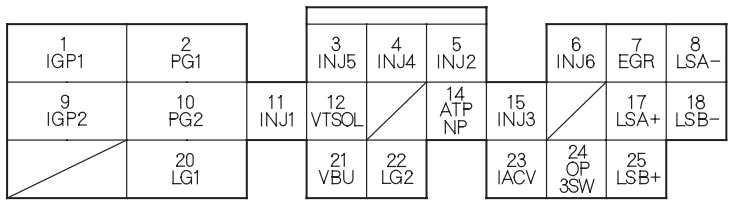
Terminal number	Wire color	Terminal name	Description	Signal
18	GRN/ORN	MIL (MALFUNCTION INDICATOR LAMP)	Drives MIL	With MIL ON: 0 V With MIL OFF: battery voltage
19	BLU	NEP (ENGINE SPEED PULSE)	Outputs engine speed pulse	With engine running: pulses
20	BLU/RED	FANC (RADIATOR FAN CONTROL)	Drive radiator fan relay	With radiator fan running: 0 V With radiator fan stopped: battery voltage
21	GRY	K-LINE	Sends and receives scan tool signal	With ignition switch ON (II): pulses
23	WHT/RED	SHO2S (SECONDARY HEATED OXYGEN SENSOR, SENSOR 2)	Detects secondary HO2S (sensor 2) signal	With throttle fully opened from idle and fully warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V
24	BLU/ORN	STSW (STARTER SWITCH SIGNAL)	Detects starter switch signal	With starter switch START (III): battery voltage With starter switch OFF: 0 V
25	RED	IMOCD (IMMOBILIZER CODE)	Detects immobilizer signal	
26	GRN	PSPSW (P/S PRESSURE SWITCH SIGNAL)	Detects PSP switch signal	At idle with steering wheel in straight ahead position: 0 V At idle with steering wheel at full lock: battery voltage
27	BLU/RED	ACS (A/C SWITCH SIGNAL)	Detects A/C switch signal	With A/C switch ON: 0 V With A/C switch OFF: about 5 V
28	WHT/RED	ILU (INTERLOCK CONTROL UNIT)	Drives interlock control unit	With ignition switch ON (II) and brake pedal pressed: about 0 V
29	LT GRN	FTP (FUEL TANK PRESSURE SENSOR)	Detects FTP sensor signal	With ignition switch ON (II) and fuel fill cap opened: about 2.5 V
30	GRN/RED	ELD (ELD)	Detects ELD signal	With parking lights on at idle: about 2.5—3.5 V With low beam headlights turned on at idle: about 1.5—2.5 V
31*	RED/BLK	TPSOUT (THROTTLE POSITION SENSOR OUTPUT SIGNAL)	Sends TP sensor signal	With throttle fully open: about 4.8 V With throttle fully closed: about 0.5 V
32	WHT/BLK	BKSW (BRAKE SWITCH)	Detects brake switch signal	With brake pedal released: 0 V

*: With ABS/TCS

(cont'd)

System Descriptions (cont'd)

PCM Inputs and Outputs at Connector B (25P) — '99-00 Models

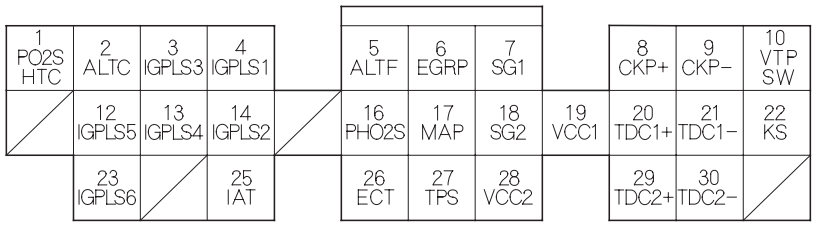


Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	YEL/BLK	IGP1 (POWER SOURCE)	Power source for PCM control circuit	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
2	BLK	PG1 (POWER GROUND)	Ground for PCM control circuit	Less than 1.0 V at all times
3	BLK/RED	INJ5 (No. 5 INJECTOR)	Drives No. 5 injector	With ignition switch ON (II): battery voltage At idle: duty controlled
4	YEL	INJ4 (No. 4 INJECTOR)	Drives No. 4 injector	
5	RED	INJ2 (No. 2 INJECTOR)	Drives No. 2 injector	
6	WHT/BLU	INJ6 (No. 6 INJECTOR)	Drives No. 6 injector	
7	PNK	EGR	Drives EGR valve	With EGR operating: duty controlled With EGR not operating: about 0 V
8	WHT	LSA− (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A −SIDE)	A/T clutch pressure control solenoid valve A power supply negative terminal	With ignition switch ON (II): duty controlled
9	YEL/BLK	IGP2 (POWER SOURCE)	Power source for PCM circuit	With ignition switch ON (II): battery voltage With ignition switch OFF: 0 V
10	BLK	PG2 (POWER GROUND)	Ground for PCM circuit	Less than 1.0 V at all times
11	BRN	INJ1 (No. 1 INJECTOR)	Drives No. 1 injector	With ignition switch ON (II): battery voltage At idle: duty controlled
12	GRN/YEL	VTSOL (VTEC SOLENOID VALVE)	Drives VTEC solenoid valve	With engine at low rpm: 0 V With engine at high rpm: battery voltage
14	BLU/WHT	ATPNP (AT GEAR POSITION SWITCH)	Detects A/T gear position switch signal	In Park or neutral: 0 V In any other position: battery voltage
15	BLU	INJ3 (No. 3 INJECTOR)	Drives No. 3 injector	With ignition switch ON (II): battery voltage At idle: duty controlled
17	RED	LSA+ (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A +SIDE)	A/T clutch pressure control solenoid valve A power supply positive terminal	With the ignition switch ON (II): duty controlled
18	GRN	LSB− (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B −SIDE)	A/T clutch pressure control solenoid valve B power supply negative terminal	With ignition switch ON (II): duty controlled
20	BRN/BLK	LG1 (LOGIC GROUND)	Ground for PCM control circuit	Less than 1.0 V at all times
21	WHT/YEL	VBU (VOLTAGE BACK UP)	Power source for PCM circuit Power source for the DTC memory	Battery voltage at all times
22	BRN/BLK	LG2 (LOGIC GROUND)	Ground for PCM control circuit	Less than 1.0 V at all times
23	BLK/BLU	IACV (IDLE AIR CONTROL VALVE)	Drives IAC valve	At idle: duty controlled
24	WHT/RED	OP3SW (3RD OIL PRESSURE SWITCH)	Detects 3rd oil pressure switch	With ignition switch ON (II): battery voltage
25	ORN	LSB+ (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B +SIDE)	A/T clutch pressure control solenoid valve B power supply positive terminal	With ignition switch ON (II): duty controlled

PCM Inputs and Outputs at Connector C (31P) – '99-00 Models



Wire side of female terminals

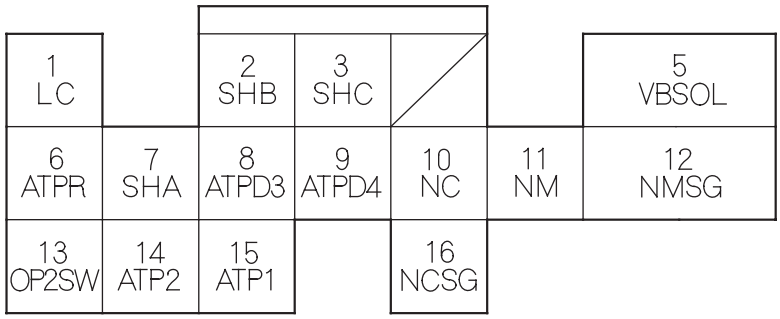
NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	BLK/WHT	PO2SHTC (PRIMARY HEATED OXYGEN SENSOR HEATER CONTROL)	Drives primary heated oxygen sensor heater	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
2	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With fully warmed-up engine running: about 8 V
3	BLU	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	With ignition switch ON (II): 0 V With engine running: pulses
4	YEL/GRN	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	
5	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With fully warmed up engine running: 0 V-battery voltage (depending on electrical load)
6	WHT/BLK	EGRP (EGR VALVE POSITION SENSOR)	Detects EGR valve position sensor signal	At idle: about 1.2 V
7	GRN/WHT	SG1 (SENSOR GROUND)	Ground for MAP sensor	Less than 1.0 V at all times
8	BLU	CKP+ (CKP SENSOR +SIDE)	Detects CKP sensor	With engine running: pulses
9	WHT	CKP– (CKP SENSOR –SIDE)	Ground for CKP sensor	
10	BLU/BLK	VTPSW (VTEC OIL PRESSURE SWITCH SIGNAL)	Detects VTEC oil pressure switch signal	With engine at low rpm: 0 V With engine at high rpm: battery voltage
12	BLK/RED	IGPLS5 (No. 5 IGNITION COIL PULSE)	Drives No. 5 ignition coil	With ignition switch ON (II): 0 V With engine running: pulses
13	YEL	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	
14	RED	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	
16	WHT	PHO2S (PRIMARY HEATED OXYGEN SENSOR, SENSOR 1)	Detects primary heated oxygen sensor (sensor 1) signal	With throttle fully opened from idle, with fully warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V
17	RED/GRN	MAP (MANIFOLD ABSOLUTE PRESSURE SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3 V At idle: about 1.0 V (depending on engine speed)
18	GRN/BLK	SG2 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times.
19	YEL/RED	VCC1 (SENSOR VOLTAGE)	Power source to MAP sensor	With ignition switch ON (II): about 5 V With ignition switch OFF: 0 V
20	GRN	TDC1+ (TDC SENSOR +SIDE)	Detect TDC sensor 1	With engine running: pulses
21	RED	TDC1– (TDC SENSOR –SIDE)	Ground for TDC sensor 1	
22	RED/BLU	KS (KNOCK SENSOR)	Detects knock sensor signal	With engine knocking: pulses
23	WHT/BLU	IGPLS6 (No. 6 IGNITION COIL PULSE)	Drives No. 6 ignition coil	With ignition switch ON (II): 0 V With engine running: pulses
25	RED/YEL	IAT (INTAKE AIR TEMPERATURE SENSOR)	Detects IAT sensor signal	With ignition switch ON (II): about 0.1–4.8 V (depending on intake air temperature)
26	RED/WHT	ECT (ENGINE COOLANT TEMPERATURE SENSOR)	Detects ECT sensor signal	With ignition switch ON (II): about 0.1–4.8 V (depending on engine coolant temperature)
27	RED/BLK	TPS (THROTTLE POSITION SENSOR)	Detects TP sensor signal	With throttle fully open: about 4.8 V With throttle fully closed: about 0.5 V
28	YEL/BLU	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5 V With ignition switch OFF: 0 V
29	YEL	TDC2+ (TDC2 SENSOR +SIDE)	Detects TDC sensor 2	With engine running: pulses
30	BLK	TDC2– (TDC2 SENSOR –SIDE)	Ground for TDC sensor 2	

(cont'd)

System Descriptions (cont'd)

PCM Inputs and Outputs at Connector D (16P) — '99-00 Models

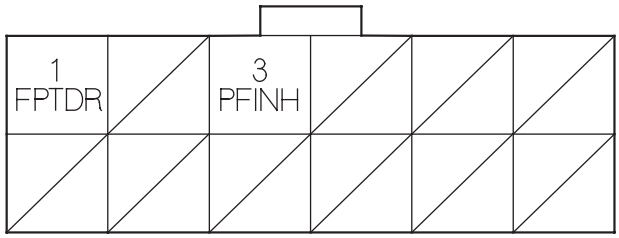


Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	YEL	LC (LOCK-UP CONTROL SOLENOID VALVE)	Drives lock-up control solenoid valve	With lock-up ON: battery voltage With lock-up OFF: 0 V
2	GRN/WHT	SHB (SHIFT CONTROL SOLENOID VALVE B)	Drives shift control solenoid valve B	With engine running in 1st, 2nd gears: battery voltage With engine running in 3rd, 4th gears: about 0 V
3	GRN	SHC (SHIFT CONTROL SOLENOID VALVE C)	Drives shift control solenoid valve C	With engine running in 1st and 3rd gears: battery voltage With the engine running in 2nd and 4th gears: 0 V
5	BLK/YEL	VBSOL (BATTERY VOLTAGE FOR SOLENOID VALVE)	Power source of solenoid valve	With ignition switch ON (II): battery voltage
6	WHT	ATPR (AT GEAR POSITION SWITCH)	Detects A/T gear position switch signal	In R position: 0 V In any other position: battery voltage
7	BLU/YEL	SHA (SHIFT CONTROL SOLENOID VALVE A)	Drives shift control solenoid valve A	With engine running in 2nd, 3rd gears: battery voltage With engine running in 1st, 4th gears: about 0 V
8	PNK	ATPD3 (AT GEAR POSITION SWITCH)	Detects A/T gear position switch signal	In D3 position: 0 V In any other position: battery voltage
9	YEL	ATPD4 (AT GEAR POSITION SWITCH)	Detects A/T gear position switch signal	In D4 position: 0 V In any other position: about 5 V
10	BLU	NC (COUNTERSHAFT SPEED SENSOR)	Detects output shaft (countershaft) speed sensor signals	With ignition switch ON (II), and front wheels rotating: pulses
11	RED	NM (MAINSHAFT SPEED SENSOR)	Detects input shaft (mainshaft) speed sensor signals	With engine running: pulses
12	WHT	NMSG (MAINSHAFT SPEED SENSOR GROUND)	Ground for input shaft (mainshaft) speed sensor	
13	BLU/BLK	OP2SW (2ND OIL PRESSURE SWITCH)	Detects 2nd oil pressure switch	With ignition switch ON (II): battery voltage
14	BLU	ATP2 (AT GEAR POSITION SWITCH)	Detects A/T gear position switch signal	In 2 position: 0 V In any other position: battery voltage
15	BRN	ATP1 (AT GEAR POSITION SWITCH)	Detects A/T gear position switch signal	In 1 position: 0 V In any other position: battery voltage
16	GRN	NCSG (COUNTERSHAFT SPEED SENSOR GROUND)	Ground for output shaft (countershaft) speed sensor	

PCM Inputs and Outputs at Connector E (12P) (With ABS/TCS) — '99-00 Models



Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1*	PNK/BLK	FPTDR (FRAME TO POWERTRAIN TORQUE DOWN REQUEST)	Detects engine retard request signal	With TCS operating: about 5 V With TCS not operating: about 2.5 V
3*	LT GRN/RED	PFINH (POWERTRAIN TO FRAME INHIBITION)	Sends TCS operation permission signal	Permission (normal): about 2.5 V Inhibition (engine coolant temperature below 32°F (0°C)): about 5 V Failure (TCS and/or PCM is failure): 0 V

*: With ABS/TCS

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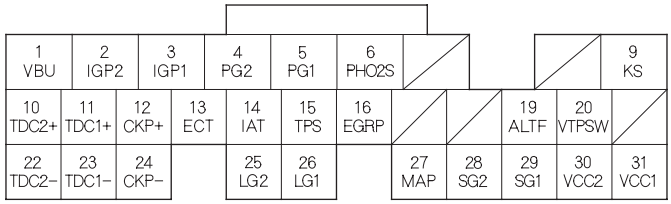
System Descriptions (cont'd)

PCM Inputs and Outputs at Connector A (31P) — '01 Model

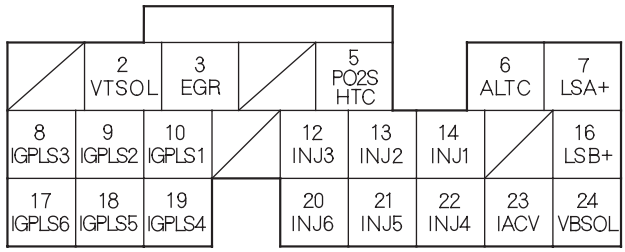


Wire side of female teminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	WHT/YEL	VBU (VOLTAGE BACK UP)	Power source for the PCM circuit. Power source for the DTC memory	Battery voltage at all times
2	YEL/BLK	IGP2 (POWER SOURCE)	Power source for the PCM circuit	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
3	YEL/BLK	IGP1 (POWER SOURCE)	Power source for the PCM circuit	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
4	BLK	PG2 (POWER GROUND)	Ground for the PCM circuit	Less than 1.0 V at all times
5	BLK	PG1 (POWER GROUND)	Ground for the PCM circuit	Less than 1.0 V at all times
6	WHT	PHO2S (PRIMARY HEATED OXYGEN SENSOR (PRIMARY HO2S) SENSOR 1)	Detects primary HO2S (sensor 1) signal	With throttle fully opened from idle and fully warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V
9	RED/BLU	KS (KNOCK SENSOR)	Detects knock sensor signal	With engine knocking: pulses
10	YEL	TDC2+ (TOP DEAD CENTER (TDC) 2 SENSOR +SIDE)	Detects TDC sensor 2	With engine running: pulses
11	GRN	TDC1+ (TOP DEAD CENTER (TDC) 1 SENSOR +SIDE)	Detects TDC sensor 1	With engine running: pulses
12	BLU	CKP+ (CRANKSHAFT POSITION (CKP) SENSOR +SIDE)	Detects CKP sensor	With engine running: pulses
13	RED/WHT	ECT (ENGINE COOLANT TEMPERATURE (ECT) SENSOR)	Detects ECT sensor signal	With ignition switch ON (II): about 0.1−4.8 V (depending on engine coolant temperature)
14	RED/YEL	IAT (INTAKE AIR TEMPERATURE (IAT) SENSOR)	Detects IAT sensor signal	With ignition switch ON (II): about 0.1−4.8 V (depending on intake air temperature)
15	RED/BLK	TPS (THROTTLE POSITION (TP) SENSOR)	Detects TP sensor signal	With throttle fully open: about 4.8 V With throttle fully closed: about 0.5 V
16	WHT/BLK	EGRP (EXHAUST GAS RECIRCULATION (EGR) VALVE POSITION SENSOR)	Detects EGR valve position sensor signal	At idle: about 1.2 V
19	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With fully warmed up engine running: 0 V−battery voltage (depending on electrical load)
20	BLU/BLK	VTPSW (VTEC OIL PRESSURE SWITCH)	Detects VTEC oil pressure switch signal	With engine at low engine speed: 0 V With engine at high speed: battery voltage
22	BLK	TDC2− (TOP DEAD CENTER (TDC) SENSOR 2 −SIDE)	Ground for TDC sensor 2	
23	RED	TDC1− (TOP DEAD CENTER (TDC) SENSOR 1 −SIDE)	Ground for TDC sensor 1	
24	WHT	CKP− (CRANKSHAFT POSITION (CKP) SENSOR −SIDE)	Ground for CKP sensor	
25	BRN/BLK	LG2 (LOGIC GROUND)	Ground for the PCM circuit	Less than 1.0 V at all times
26	BRN/BLK	LG1 (LOGIC GROUND)	Ground for the PCM circuit	Less than 1.0 V at all times
27	RED/GRN	MAP (MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3 V At idle: about 1.0 V
28	GRN/BLK	SG2 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
29	GRN/WHT	SG1 (SENSOR GROUND)	Ground for MAP sensor	Less than 1.0 V at all times
30	YEL/BLU	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5 V With ignition switch OFF: about 0 V
31	YEL/RED	VCC1 (SENSOR VOLTAGE)	Power source to MAP sensor	With ignition switch ON (II): about 5 V With ignition switch OFF: about 0 V

PCM Inputs and Outputs at Connector B (24P) – '01 Model



Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
2	GRN/YEL	VTSOL (VTEC SOLENOID VALVE)	Drives VTEC solenoid valve	With engine at low rpm: about 0 V With engine at high rpm: battery voltage
3	PNK	EGR (EXHAUST GAS RECIRCULATION (EGR))	Drives EGR valve	With EGR operating duty controlled With EGR not operating: about 0 V
5	BLK/WHT	PO2SHTC (PRIMARY HEATED OXYGEN SENSOR (PRIMARY HO2S) HEATER CONTROL)	Drives primary HO2S heater	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
6	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With fully warmed-up engine running: about 8 V
7	RED	LSA+ (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A +SIDE)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): duty controlled
8	BLU	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
9	RED	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	
10	YEL/GRN	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	
12	BLU	INJ3 (No. 3 INJECTOR)	Drives No. 3 injector	With ignition switch ON (II): battery voltage At idle: duty controlled
13	RED	INJ2 (No. 2 INJECTOR)	Drives No. 2 injector	
14	BRN	INJ1 (No. 1 INJECTOR)	Drives No. 1 injector	
16	ORN	LSB+ (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B +SIDE)	Drives A/T clutch pressure control solenoid valve B	With ignition switch ON (II): duty controlled
17	WHT/BLU	IGPLS6 (No. 6 IGNITION COIL PULSE)	Drives No. 6 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
18	BLK/RED	IGPLS5 (No. 5 IGNITION COIL PULSE)	Drives No. 5 ignition coil	
19	YEL	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	
20	WHT/BLU	INJ6 (No. 6 INJECTOR)	Drives No. 6 injector	With ignition switch ON (II): battery voltage At idle: duty controlled
21	BLK/RED	INJ5 (No. 5 INJECTOR)	Drives No. 5 injector	
22	YEL	INJ4 (No. 4 INJECTOR)	Drives No. 4 injector	
23	BLK/BLU	IACV (IDLE AIR CONTROL (IAC) VALVE)	Drives IAC valve	At idle: duty controlled
24	BLK/YEL	VBSOL (POWER SOURCE FOR SOLENOID VALVE)	Power source of solenoid valve	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V

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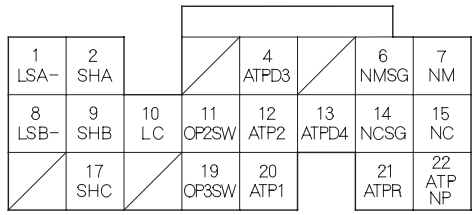
System Descriptions (cont'd)

PCM Inputs and Outputs at Connector C (22P) — '01 Model

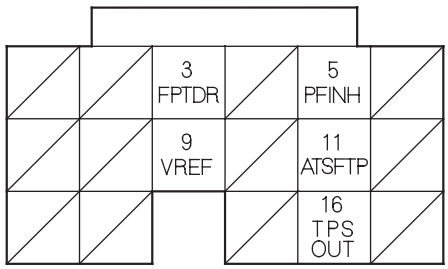


Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	WHT	LSA− (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A −SIDE)	Ground for A/T clutch pressure control solenoid valve A	
2	BLU/YEL	SHA (SHIFT SOLENOID VALVE A)	Drives shift solenoid valve A	With engine running in 2nd, 3rd gears: battery voltage With engine running in 1st, 4th gears: about 0 V
4	PNK	ATPD3 (TRANSMISSION RANGE SWITCH D3 POSITION)	Detects transmission range switch D3 signals	In D3 position: about 0 V In any other position: battery voltage
6	WHT	NMSG (MAINSHAFT SPEED SENSOR GROUND)	Ground for input shaft (mainshaft) speed sensor	
7	RED	NM (MAINSHAFT SPEED SENSOR)	Detects input shaft (mainshaft) speed sensor signals	Depending on vehicle speed: pulses When engine stopped: about 0 V
8	GRN	LSB− (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B −SIDE)	Ground for A/T clutch pressure control solenoid valve B	
9	GRN/WHT	SHB (SHIFT SOLENOID VALVE B)	Drives shift solenoid valve B	With engine running in 1st, 2nd gears: battery voltage With engine running in 3rd, 4th gears: about 0 V
10	YEL	LC (TORQUE CONVERTER CLUTCH SOLENOID VALVE)	Drives torque converter clutch solenoid valve	With lock-up ON: battery voltage With lock-up OFF: about 0 V
11	BLU/BLK	OP2SW (2ND OIL PRESSURE SWITCH)	Detects 2nd oil pressure switch	With the ignition switch ON (II): battery voltage
12	BLU	ATP2 (TRANSMISSION RANGE 2 POSITION SWITCH)	Detects transmission range switch 2 signal	In 2 position: about 0 V In any other position: battery voltage
13	YEL	ATPD4 (TRANSMISSION RANGE D4 POSITION SWITCH)	Detects transmission range switch D4 signal	In D4 position: about 0 V In any other position: battery voltage
14	GRN	NCSG (COUNTERSHAFT SPEED SENSOR GROUND)	Ground for output shaft (countershaft) speed sensor	
15	BLU	NC (COUNTERSHAFT SPEED SENSOR)	Detects output shaft (countershaft) speed sensor signals	Depending on vehicle speed: pulses When engine stopped: about 0 V
17	GRN	SHC (SHIFT SOLENOID VALVE C)	Drives shift solenoid valve C	With engine running in 1st, 3rd gears: battery voltage With engine running in 2nd, 4th gears: about 0 V
19	WHT/RED	OP3SW (3RD OIL PRESSURE SWITCH)	Detects 3rd oil pressure switch	With the ignition switch ON (II): battery voltage
20	BRN	ATP1 (TRANSMISSION RANGE 1 POSITION SWITCH)	Detects transmission range switch 1 position signal	In 1 position: about 0 V In any other position: battery voltage
21	WHT	ATPR (TRANSMISSION RANGE R POSITION SWITCH)	Detects transmission range switch R position signal	In R position: about 0 V In any other position: battery voltage
22	BLU/WHT	ATPNP (NEUTRAL/PARK POSITION SWITCH)	Detects transmission range switch N or P signal	In P or N position: about 0 V In any other position: battery voltage

PCM Inputs and Outputs at Connector D (17P) (With ABS/TCS)—'01 Model



Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
3*	PNK/BLK	FPTDR (FRAME TO POWERTRAIN TORQUE DOWN REQUEST)	Detects engine retard request signal	With TCS operating: about 5 V With TCS not operating: about 2.5 V
5*	LT GRN/RED	PFINH (POWERTRAIN TO FRAME INHIBITION)	Sends TCS operation permission signal	Permission (normal): about 2.5 V Inhibition (engine coolant temperature below 32°F (0°C): about 5 V Failure (TCS and/or PCM is failure): 0 V
9*	WHT/RED	VREF (REFERENCE VOLTAGE)	Provides reference voltage to ABS/TCS control unit	With ignition switch ON (II): about 5 V With ignition switch OFF: 0 V
11*	LT GRN	ATSFTP (A/T GEAR POSITION SWITCH OUTPUT SIGNAL)	Sends transmission range switch signal	With engine running in P position: about 4 V
16*	RED/BLK	TPSOUT (THROTTLE POSITION SENSOR OUTPUT SIGNAL)	Sends TP sensor signal	With throttle fully open: about 4.8 V With throttle fully closed: about 0.5 V

*: With ABS/TCS

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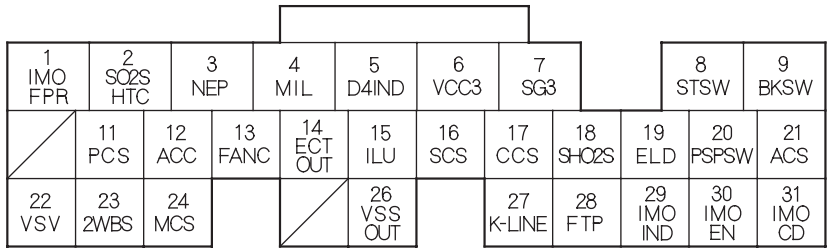
System Descriptions (cont'd)

PCM Inputs and Outputs at Connector E (31P) — '01 Model

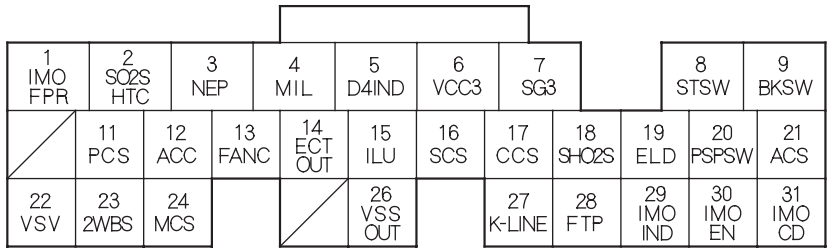


Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	GRN/YEL	IMOFPR (IMMOBILIZER FUEL PUMP RELAY)	Drives fuel pump	0 V for 2 seconds after turning ignition switch ON (II), then battery voltage
2	BLK/WHT	SO2SHTC (SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) HEATER CONTROL)	Drives secondary HO2S heater	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
3	BLU	NEP (ENGINE SPEED PULSE)	Outputs engine speed pulse	With engine running: pulses
4	GRN/ORN	MIL (MALFUNCTION INDICATOR LAMP)	Drives MIL	With MIL turned ON: about 0 V With MIL turned OFF: battery voltage
5	GRN/BLK	D4IND (D4 INDICATOR)	Drives D4 indicator	With D4 indicator ON: about 0 V With D4 indicator OFF: battery voltage
6	YEL/BLU	VCC3 (SENSOR VOLTAGE)	Power source to FTP sensor	With ignition switch ON (II): about 5 V With ignition switch OFF (II): about 0 V
7	GRN/BLK	SG3 (SENSOR GROUND)	Ground for FTP sensor	Less than 1.0 V at all times
8	BLU/ORN	STSW (STARTER SWITCH SIGNAL)	Detects starter switch signal	With starter switch at START (III): battery voltage With starter switch OFF: about 0 V
9	WHT/BLK	BKSW (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: about 0 V
11	RED/YEL	PCS (EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE)	Drives EVAP canister purge valve	With engine running, engine coolant below 147°F (64°C): battery voltage With engine running, engine coolant above 147°F (64°C): duty controlled
12	RED	ACC (A/C CLUTCH RELAY)	Drives A/C clutch relay	With compressor ON: about 0 V With compressor OFF: battery voltage
13	BLU/RED	FANC (RADIATOR FAN CONTROL)	Driver radiator fan relay	With radiator fan running: about 0 V With radiator fan stopped: battery voltage
14	YEL/GRN	ECTOUT (ECT SIGNAL OUTPUT)	Sends engine coolant temperature signal	With ignition switch ON (II): pulses
15	WHT/RED	ILU (INTERLOCK CONTROL UNIT)	Drives interlock control unit	With ignition switch ON (II) and brake pedal pressed: about 0 V
16	BRN	SCS (SERVICE CHECK SIGNAL)	Detects service check connector signal (the signal causing a DTC indication)	With terminal connected: about 0 V With terminal disconnected: about 5 V
17	BLU/GRN	CCS (CRUISE CONTROL SIGNAL)	Detects cruise control signal	With ignition switch ON (II): pulses

PCM Inputs and Outputs at Connector E (31P) — '01 Model



Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
18	WHT/RED	SHO2S (SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S), SENSOR 2)	Detects secondary HO2S (sensor 2) signal	With throttle fully opened from idle with fully warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V
19	GRN/RED	ELD (ELECTRICAL LOAD DETECTOR (ELD))	Detects ELD signal	With parking lights on at idle: about 2.5 — 3.5 V With low beam headlights turned on at idle: about 1.5 — 2.5 V
20	GRN	PSPSW (POWER STEERING PRESSURE SWITCH SIGNAL)	Detects PSP switch signal	At idle with steering wheel in straight ahead position: about 0 V At idle with steering wheel at full lock: battery voltage
21	BLU/RED	ACS (A/C SWITCH SIGNAL)	Detects A/C switch signal	With A/C switch ON: about 0 V With A/C switch OFF: battery voltage
22	LT GRN/ WHT	VSV (EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE	Drives EVAP canister vent shut valve	With ignition switch ON (II): battery voltage
23	BLU	2WBS (EVAPORATIVE EMISSION (EVAP) BYPASS SOLENOID VALVE)	Drives EVAP bypass solenoid valve	With ignition switch ON (II): battery voltage
24	GRN/WHT	MCS (ENGINE MOUNT CONTROL SOLENOID VALVE)	Drives engine mount control solenoid valve	At idle, not in P or N position: about 0 V Above idle: battery voltage
26	BLU/WHT	VSSOUT (VEHICLE SPEED SENSOR OUTPUT SIGNAL)	Sends vehicle speed sensor signal	Depending on vehicle speed: pulses
27	GRY	K-LINE	Sends and receives scan tool signal	With ignition switch ON (II): pulses or battery voltage
28	LT GRN	FTP (FUEL TANK PRESSURE (FTP) SENSOR)	Detects FTP sensor signal	With ignition switch ON (II) and fuel fill cap removed: about 2.5 V
29	PNK	IMOIND (IMMOBILIZER INDICATOR)	Drives immobilizer indicator	With immobilizer indicator ON: about 0 V With immobilizer indicator OFF: battery voltage
30	BLU	IMOEN (IMMOBILIZER ENABLE SIGNAL)	Sends immobilizer enable signal	
31	RED	IMOCD (IMMOBILIZER CODE)	Detects immobilizer signal	

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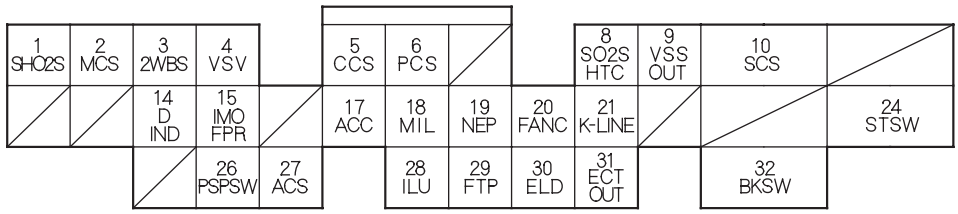
System Descriptions (cont'd)

PCM Inputs and Outputs at Connector A (32P) — '02-04 Models

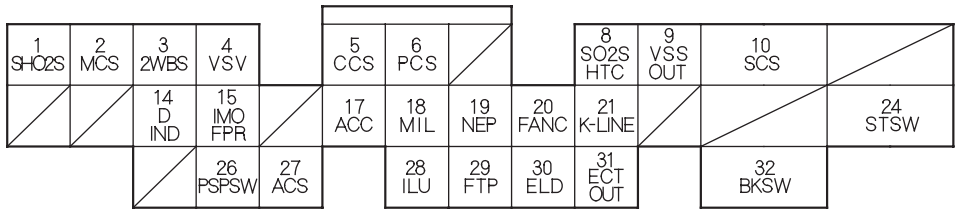


Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	WHT/RED	SHO2S (SECONDARY HEATED OXYGEN SENSOR, SENSOR 2)	Detects secondary HO2S (sensor 2) signal	With throttle fully opened from idle and fully warmed up engine: about 0.6 V With throttle quickly closed: below 0.4 V
2	GRN/WHT	MCS (ENGINE MOUNT CONTROL SOLENOID VALVE)	Drives engine mount control solenoid valve	At idle, not in P or N position: about 0 V Above idle: battery voltage
3	BLU	2WBS (EVAP BYPASS SOLENOID VALVE)	Drives EVAP bypass solenoid valve	With ignition switch ON (II): battery voltage
4	LT GRN/ WHT	VSV (EVAP CANISTER VENT SHUT VALVE)	Drives EVAP canister vent shut valve	With ignition switch ON (II): battery voltage
5	BLU/GRN	CCS (CRUISE CONTROL SIGNAL)	Detects cruise control signal	With ignition switch ON (II): pulses
6	RED/YEL	PCS (EVAP CANISTER PURGE VALVE)	Drives EVAP canister purge valve	With engine running, engine coolant, below 147°F (64°C): battery voltage With engine running, engine coolant, above 147°F (64°C): duty controlled
8	BLK/WHT	SO2SHTC (SECONDARY HEATED OXYGEN SENSOR HEATER CONTROL)	Drives secondary HO2S heater	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
9	BLU/WHT	VSSOUT (VEHICLE SPEED SENSOR OUTPUT SIGNAL)	Sends vehicle speed sensor signal	Depending on vehicle speed: pulses
10	BRN	SCS (SERVICE CHECK SIGNAL)	Detects service check signal	With terminal connected: 0 V With terminal disconnected: battery voltage
14	GRN/BLK	DIND (D INDICATOR)	Drives D indicator light	With D indicator ON: 0 V With D indicator OFF: battery voltage
15	GRN/YEL	IMOFPR (IMMOBILIZER FUEL PUMP RELAY)	Drives fuel pump relay	0 V for 2 seconds after turning ignition switch ON (II), then battery voltage
17	RED	ACC (A/C CLUTCH RELAY)	Drives A/C clutch relay	With compressor ON: 0 V With compressor OFF: battery voltage

PCM Inputs and Outputs at Connector A (32P) — '02-04 Models



Wire side of female terminals

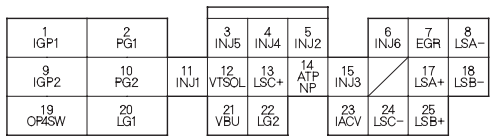
NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
18	GRN/ORN	MIL (MALFUNCTION INDICATOR LAMP)	Drives MIL	With MIL ON: 0 V With MIL OFF: battery voltage
19	BLU	NEP (ENGINE SPEED PULSE)	Outputs engine speed pulse	With engine running: pulses
20	BLU/RED	FANC (RADIATOR FAN CONTROL)	Drive radiator fan relay	With radiator fan running: 0 V With radiator fan stopped: battery voltage
21	GRY	K-LINE	Sends and receives scan tool signal	With ignition switch ON (II): pulses
24	BLU/ORN	STSW (STARTER SWITCH SIGNAL)	Detects starter switch signal	With starter switch at START (III): battery voltage With starter switch OFF: 0 V
26	GRN	PSPSW (P/S PRESSURE SWITCH SIGNAL)	Detects PSP switch signal	At idle with steering wheel in straight ahead position: 0 V At idle with steering wheel at full lock: battery voltage
27	BLU/RED	ACS (A/C SWITCH SIGNAL)	Detects A/C switch signal	With A/C switch ON: 0 V With A/C switch OFF: about 5 V
28	WHT/RED	ILU (INTERLOCK CONTROL UNIT)	Drives interlock control unit	With ignition switch ON (II) and brake pedal pressed: about 0 V
29	LT GRN	FTP (FUEL TANK PRESSURE SENSOR)	Detects FTP sensor signal	With ignition switch ON (II) and fuel fill cap removed: about 2.5 V
30	GRN/RED	ELD (ELD)	Detects ELD signal	With parking lights turned on at idle: about 2.5—3.5 V With low beam headlights turned on at idle: about 1.5—2.5 V
31	YEL/GRN	ECTOUT (ECT SIGNAL OUTPUT)	Sends engine coolant temperature signal	With ignition switch ON (II): pulses
32	WHT/BLK	BKSW (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: 0 V

(cont'd)

System Descriptions (cont'd)

PCM Inputs and Outputs at Connector B (25P) — '02-04 Models

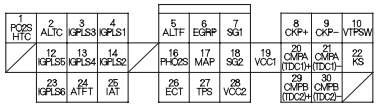


Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	YEL/BLK	IGP1 (POWER SOURCE)	Power source for the PCM control circuit	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
2	BLK	PG1 (POWER GROUND)	Ground for the PCM control circuit	Less than 1.0 V at all times
3	BLK/RED	INJ5 (No. 5 INJECTOR)	Drives No. 5 injector	With ignition switch ON (II): battery voltage At idle: duty controlled
4	YEL	INJ4 (No. 4 INJECTOR)	Drives No. 4 injector	
5	RED	INJ2 (No. 2 INJECTOR)	Drives No. 2 injector	
6	WHT/BLU	INJ6 (No. 6 INJECTOR)	Drives No. 6 injector	
7	BLU/RED	EGR	Drives EGR valve	With EGR operating: duty controlled With EGR not operating: about 0 V
8	WHT	LSA− (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A −SIDE)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): duty controlled
9	YEL/BLK	IGP2 (POWER SOURCE)	Power source for PCM circuit	With ignition switch ON (II): battery voltage With ignition switch OFF: 0 V
10	BLK	PG2 (POWER GROUND)	Ground for PCM circuit	Less than 1.0 V at all times
11	BRN	INJ1 (No. 1 INJECTOR)	Drives No. 1 injector	With ignition switch ON (II): battery voltage At idle: duty controlled
12	GRN/YEL	VTSOL (VTEC SOLENOID VALVE)	Drives VTEC solenoid valve	With engine at low rpm: 0 V With engine at high rpm: battery voltage
13	GRN/RED	LSC+ (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C +SIDE)	Drives A/T clutch pressure control solenoid valve C	With the ignition switch ON (II): duty controlled
14	BLU/WHT	ATPNP (TRANSMISSION RANGE SWITCH N/P POSITION)	Detects transmission range switch N/P signal	In P or N position: 0 V In any other position: battery voltage
15	BLU	INJ3 (No. 3 INJECTOR)	Drives No. 3 injector	With ignition switch ON (II): battery voltage At idle: duty controlled
17	RED	LSA+ (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A +SIDE)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): duty controlled
18	GRN	LSB− (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B −SIDE)	Ground for A/T clutch pressure control solenoid valve B	With ignition switch ON (II): duty controlled
19	BLU/YEL	OP4SW (4TH CLUTCH TRANSMISSION FLUID PRESSURE SWITCH)	Detects 4th clutch transmission fluid pressure switch	With ignition switch ON (II): battery voltage
20	BRN/YEL	LG1 (LOGIC GROUND)	Ground for PCM control circuit	Less than 1.0 V at all times
21	WHT/RED	VBU (VOLTAGE BACK UP)	Power source for PCM circuit Power source for the DTC memory	Battery voltage at all times
22	BRN/YEL	LG2 (LOGIC GROUND)	Ground for PCM control circuit	Less than 1.0 V at all times
23	BLK/RED	IACV (IDLE AIR CONTROL VALVE)	Drives IAC valve	At idle: duty controlled
24	RED/BLU	LSC− (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C −SIDE)	Ground for A/T clutch pressure control solenoid valve C	With ignition switch ON (II): duty controlled
25	BRN/WHT	LSB+ (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B +SIDE)	Drives A/T clutch pressure control solenoid valve B	With ignition switch ON (II): duty controlled

PCM Inputs and Outputs at Connector C (31P) – '02-04 Models



Wire side of female terminals

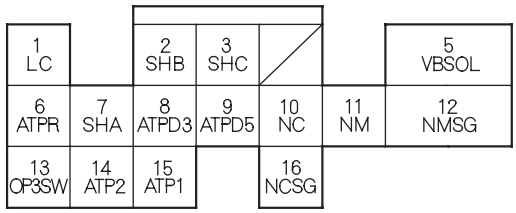
NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	BLK/WHT	PO2SHTC (PRIMARY HEATED OXYGEN SENSOR HEATER CONTROL)	Drives primary heated oxygen sensor heater	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
2	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With fully warmed-up engine running: about 8 V
3	WHT/BLU	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	With ignition switch ON (II): 0 V With engine running: pulses
4	YEL/GRN	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	
5	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With fully warmed up engine running: 0 V-battery voltage (depending on electrical load)
6	WHT/BLK	EGRP (EGR VALVE POSITION SENSOR)	Detects EGR valve position sensor signal	At idle: about 1.2 V
7	GRN/WHT	SG1 (SENSOR GROUND)	Ground for MAP sensor	Less than 1.0 V at all times
8	BLU	CKP+ (CKP SENSOR +SIDE)	Detects CKP sensor	With engine running: pulses
9	WHT	CKP– (CKP SENSOR –SIDE)	Ground for CKP sensor	
10	BLU/BLK	VTPSW (VTEC OIL PRESSURE SWITCH SIGNAL)	Detects VTEC oil pressure switch signal	With engine at low rpm: 0 V With engine at high rpm: battery voltage
12	BLK/RED	IGPLS5 (No. 5 IGNITION COIL PULSE)	Drives No. 5 ignition coil	With ignition switch ON (II): 0 V With engine running: pulses
13	BRN	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	
14	BLU/RED	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	
16	WHT	PHO2S (PRIMARY HEATED OXYGEN SENSOR, SENSOR 1)	Detects primary heated oxygen sensor (sensor 1) signal	With throttle fully opened from idle, with fully warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V
17	GRN/RED	MAP (MANIFOLD ABSOLUTE PRESSURE SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3 V At idle: about 1.0 V (depending on engine speed)
18	GRN/YEL	SG2 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times.
19	YEL/RED	VCC1 (SENSOR VOLTAGE)	Power source to MAP sensor	With ignition switch ON (II): about 5 V With ignition switch OFF: 0 V
20	GRN	CMPA(TDC1)+ (CMP A (TDC 1) SENSOR +SIDE)	Detect CMP A (TDC 1) sensor	With engine running: pulses
21	RED	CMPA(TDC1)– (CMP A (TDC 1) SENSOR – SIDE)	Ground for CMP A (TDC 1) sensor	
22	RED/BLU	KS (KNOCK SENSOR)	Detects knock sensor signal	With engine knocking: pulses
23	BRN/WHT	IGPLS6 (No. 6 IGNITION COIL PULSE)	Drives No. 6 ignition coil	With ignition switch ON (II): 0 V With engine running: pulses
24	BLU/YEL	ATFT (ATF TEMPERATURE SENSOR)	Detects ATF temperature sensor signal	With ignition switch ON (II): about 0.2–4.8 V (depending on ATF temperature)
25	RED/YEL	IAT (INTAKE AIR TEMPERATURE SENSOR)	Detects IAT sensor signal	With ignition switch ON (II): about 0.1–4.8 V (depending on intake air temperature)
26	RED/WHT	ECT (ENGINE COOLANT TEMPERATURE SENSOR)	Detects ECT sensor signal	With ignition switch ON (II): about 0.1–4.8 V (depending on engine coolant temperature)
27	RED/BLK	TPS (THROTTLE POSITION SENSOR)	Detects TP sensor signal	With throttle fully open: about 4.8 V With throttle fully closed: about 0.5 V
28	YEL/BLU	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5 V With ignition switch OFF: 0 V
29	YEL	CMPB(TDC2)+ (CMP B (TDC2) SENSOR +SIDE)	Detects CMP B (TDC 2) sensor	With engine running: pulses
30	BLK	CMPB(TDC2)– (CMP B (TDC2) SENSOR –SIDE)	Ground for CMP B (TDC 2) sensor	

(cont'd)

System Descriptions (cont'd)

PCM Inputs and Outputs at Connector D (16P) — '02-04 Models

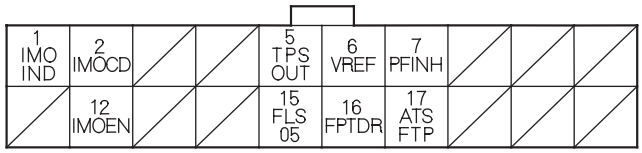


Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	YEL	LC (TORQUE COVERTER CLUTCH SOLENOID VALVE)	Drives torque converter clutch solenoid valve	With lock-up ON: battery voltage With lock-up OFF: 0 V
2	GRN/WHT	SHB (SHIFT SOLENOID VALVE B)	Drives shift solenoid valve B	With engine running in 1st, 2nd and 3rd gears: battery voltage With engine running in 4th and 5th gears: about 0 V
3	GRN	SHC (SHIFT SOLENOID VALVE C)	Drives shift solenoid valve C	With engine running in 1st, 3rd and 5th gears: battery voltage With the engine running in 2nd and 4th gears: 0 V
5	BLK/YEL	VBSOL (BATTERY VOLTAGE FOR SOLENOID VALVE)	Power source of solenoid valve	With ignition switch ON (II): battery voltage
6	WHT	ATPR (TRANSMISSION RANGE SWITCH R)	Detects transmission range switch R signal	In R position: 0 V In any other position: battery voltage
7	BLU/YEL	SHA (SHIFT SOLENOID VALVE A)	Drives shift solenoid valve A	With engine running in 1st, 2nd and 5th gears: battery voltage With engine running in 3rd and 4th gears: about 0 V
8	RED	ATPD3 (TRANSMISSION RANGE SWITCH D3)	Detects transmission range switch D3 signal	In D3 position: 0 V In any other position: battery voltage
9	YEL	ATPD5 (TRANSMISSION RANGE SWITCH D5)	Detects transmission range switch D5 signal	In D5 position: 0 V In any other position: about 5 V
10	BLU	NC (COUNTERSHAFT SPEED SENSOR)	Detects output shaft (countershaft) speed sensor signals	With ignition switch ON (II), and front wheels rotated by hand: pulses
11	RED	NM (MAINSHAFT SPEED SENSOR)	Detects input shaft (mainshaft) speed sensor signals	With engine running: pulses
12	WHT	NMSG (MAINSHAFT SPEED SENSOR GROUND)	Ground for input shaft (mainshaft) speed sensor	
13	BLU/WHT	OP3SW (3RD CLUTCH TRANSMISSION FLUID PRESSURE SWITCH)	Detects 3rd clutch transmission fluid pressure switch	With ignition switch ON (II): battery voltage
14	BLU	ATP2 (TRANSMISSION RANGE SWITCH 2)	Detects transmission range switch 2 signal	In 2 position: 0 V In any other position: battery voltage
15	BRN	ATP1 (TRANSMISSION RANGE SWITCH 1)	Detects transmission range switch 1 signal	In 1 position: 0 V In any other position: battery voltage
16	GRN	NCSG (COUNTERSHAFT SPEED SENSOR GROUND)	Ground for output shaft (countershaft) speed sensor	

PCM Inputs and Outputs at Connector E (20P) — '02-04 Models



Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

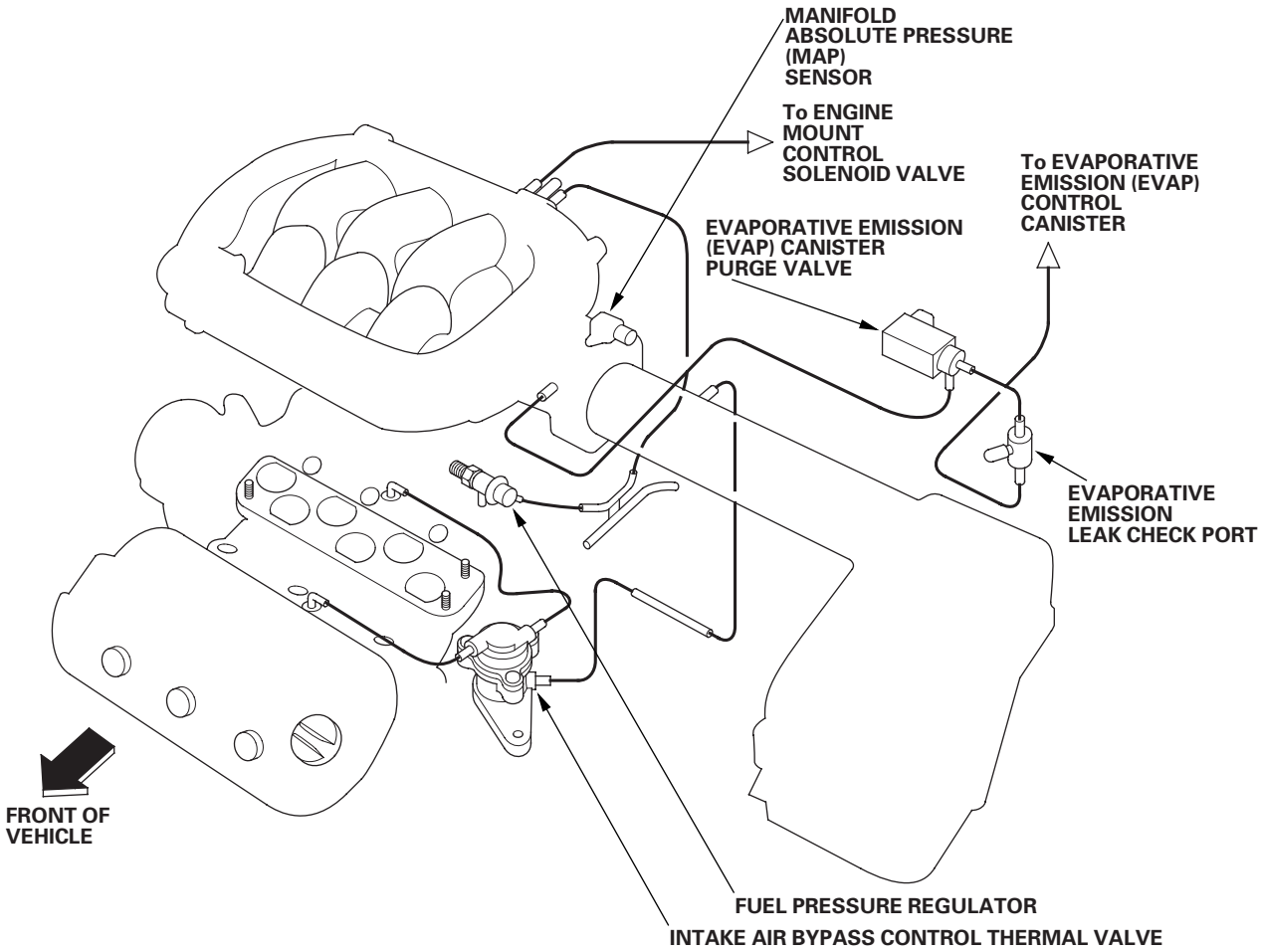
Terminal number	Wire color	Terminal name	Description	Signal
1	PNK	IMOIND (IMMOBILIZER INDICATOR)	Drives immobilizer indicator	With immobilizer indicator ON: 0 V With immobilizer indicator OFF: battery voltage
2	RED	IMOCD (IMMOBILIZER CODE)	Detects immobilizer signal	
5*1	RED/BLK	TPSOUT (THROTTLE POSITION SENSOR OUTPUT SIGNAL)	Sends TP sensor signal	With throttle fully open: about 4.8 V With throttle fully closed: about 0.5 V
6*1	WHT/RED	VREF (REFERENCE VOLTAGE)	Provides reference voltage to ABS/TCS control unit	With ignition switch ON (II): about 5 V With ignition switch OFF: 0 V
7*1	LT GRN/RED	PFINH (POWERTRAIN TO FRAME INHIBITION)	Sends TCS operation permission signal	Permission (normal): about 2.5 V Inhibition (engine coolant temperature below 32°F (0°C)): about 5 V Failure (TCS and/or PCM failure): 0 V
12	BLU	IMOEN (IMMOBILIZER ENABLE SIGNAL)	Sends immobilizer enable signal	
15*2	YEL/BLU	FLS05 (FUEL LEVEL SENSOR)	Detects fuel gauge sending unit signal	With ignition switch ON (II): about 0.5 — 2.6 V
16*1	PNK/BLK	FPTDR (FRAME TO POWERTRAIN TORQUE DOWN REQUEST)	Detects engine retard request signal	With TCS operating: 5 V With TCS not operating: about 2.5 V
17*1	LT GRN	ATSFTP (TRANSMISSION RANGE SWITCH OUTPUT SIGNAL)	Sends transmission range switch signal	With engine running in P position: about 4 V

* 1: With ABS/TCS
* 2: '03-04 models

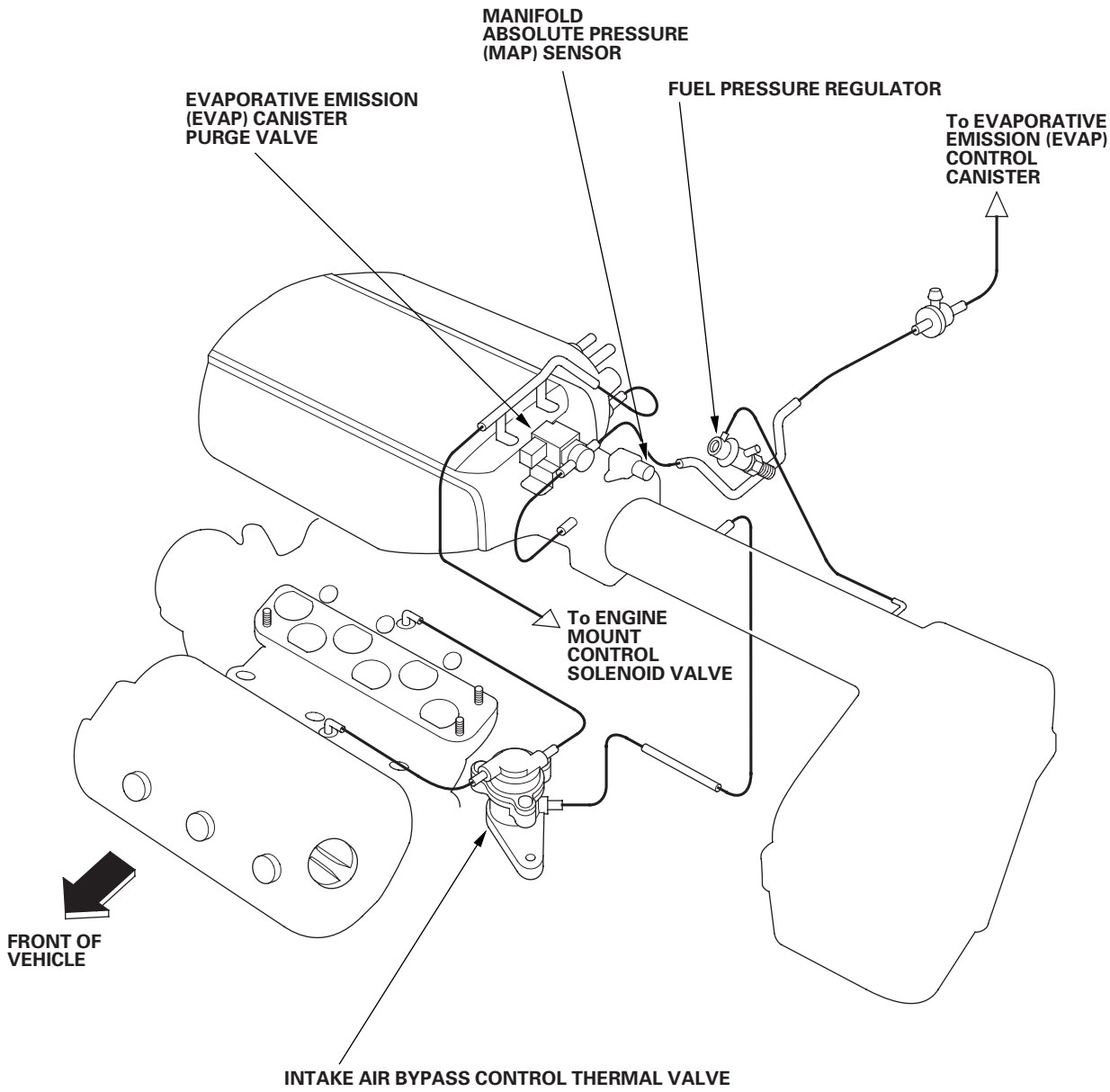
(cont'd)

System Descriptions (cont'd)

Vacuum Hose Routing—'99-01 Models



Vacuum Hose Routing—'02-04 Models



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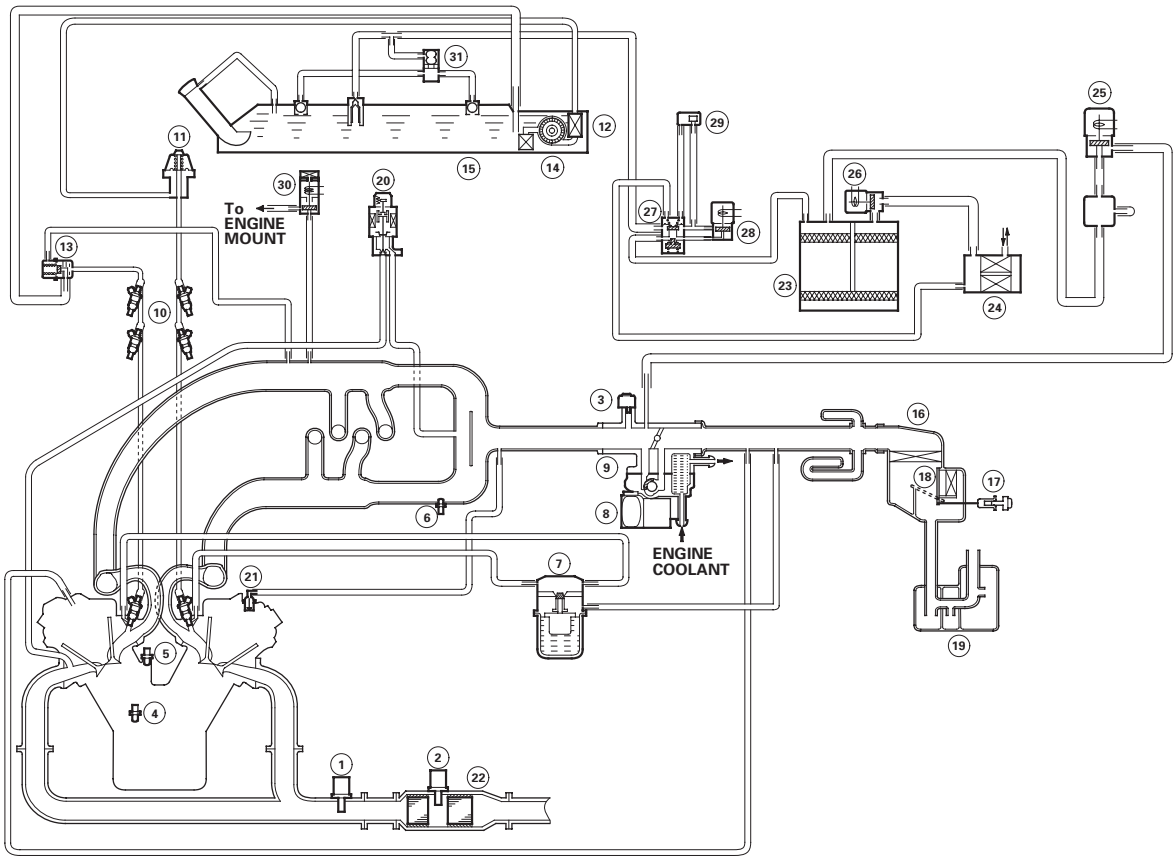
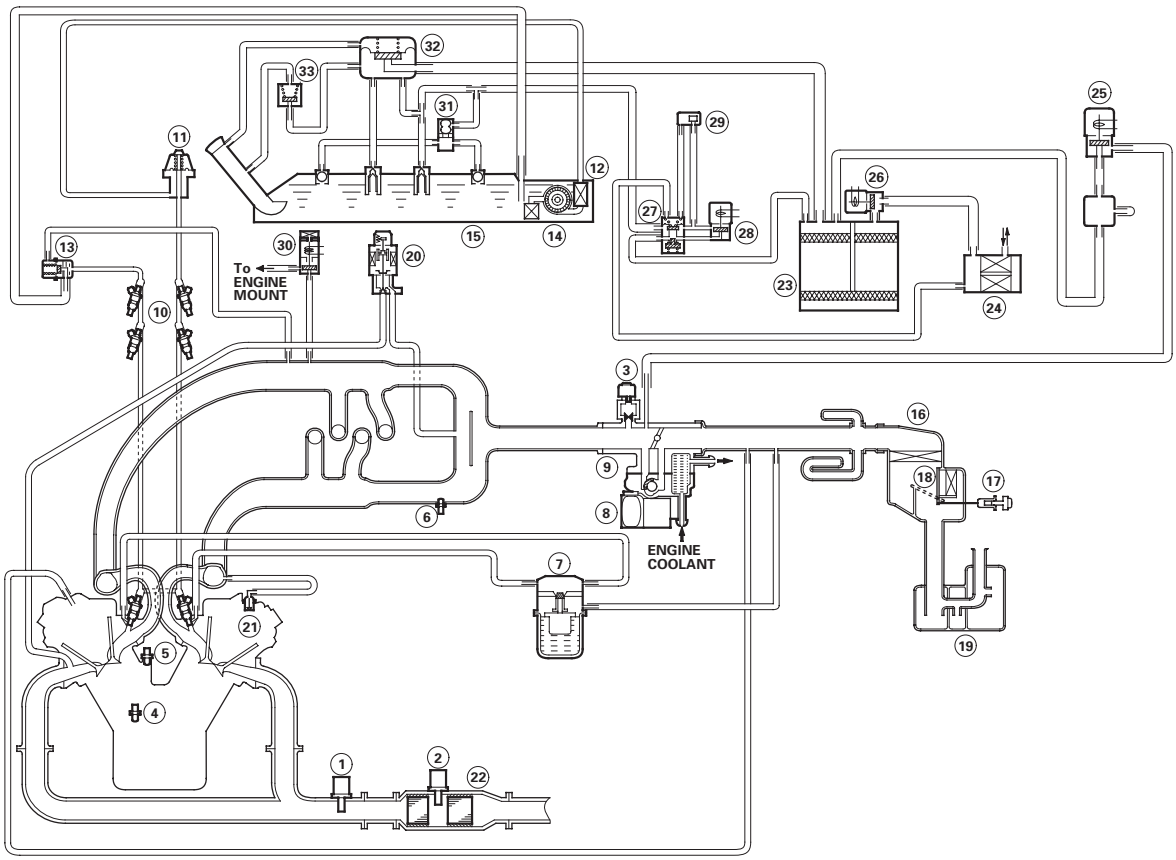
System Descriptions (cont'd)

Vacuum Distribution — '99-00 Models



① PRIMARY HEATED OXYGEN SENSOR (PRIMARY HO2S) (SENSOR 1)
② SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) (SENSOR 2)
③ MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
④ ENGINE COOLANT TEMPERATURE (ECT) SENSOR
⑤ KNOCK SENSOR (KS)
⑥ INTAKE AIR TEMPERATURE (IAT) SENSOR
⑦ FUEL INJECTION AIR (FIA) CONTROL VALVE
⑧ IDLE AIR CONTROL (IAC) VALVE
⑨ THROTTLE BODY (TB)
⑩ INJECTOR
⑪ FUEL PULSATION DAMPER
⑫ FUEL FILTER
⑬ FUEL PRESSURE REGULATOR
⑭ FUEL PUMP (FP)
⑮ FUEL TANK
⑯ AIR CLEANER
⑰ AIR TEMPERATURE CONTROL VALVE
⑱ AIR VALVE
⑲ RESONATOR
⑳ EXHAUST GAS RECIRCULATION (EGR) VALVE and LIFT SENSOR
㉑ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
㉒ THREE WAY CATALYTIC CONVERTER
㉓ EVAPORATIVE EMISSION (EVAP) CANISTER
㉔ EVAPORATIVE EMISSION (EVAP) CONTROL CANISTER FILTER
㉕ EVAPORATIVE EMISSION (EVAP) PURGE CONTROL SOLENOID VALVE
㉖ EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
㉗ EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
㉘ EVAPORATIVE EMISSION (EVAP) BYPASS SOLENOID VALVE
㉙ FUEL TANK PRESSURE (FTP) SENSOR
㉚ ENGINE MOUNT CONTROL SOLENOID VALVE
㉛ FUEL TANK EVAPORATIVE EMISSION (EVAP) VALVE

Vacuum Distribution – '01 Model



① PRIMARY HEATED OXYGEN SENSOR (PRIMARY HO2S) (SENSOR 1)
② SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) (SENSOR 2)
③ MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
④ ENGINE COOLANT TEMPERATURE (ECT) SENSOR
⑤ KNOCK SENSOR (KS)
⑥ INTAKE AIR TEMPERATURE (IAT) SENSOR
⑦ INTAKE AIR BYPASS CONTROL THERMAL VALVE
⑧ IDLE AIR CONTROL (IAC) VALVE
⑨ THROTTLE BODY (TB)
⑩ INJECTOR
⑪ FUEL PULSATION DAMPER
⑫ FUEL FILTER
⑬ FUEL PRESSURE REGULATOR
⑭ FUEL PUMP (FP)
⑮ FUEL TANK
⑯ AIR CLEANER
⑰ AIR TEMPERATURE CONTROL VALVE
⑱ AIR VALVE
⑲ RESONATOR
⑳ EXHAUST GAS RECIRCULATION (EGR) VALVE and POSITION SENSOR
㉑ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
㉒ THREE WAY CATALYTIC CONVERTER
㉓ EVAPORATIVE EMISSION (EVAP) CANISTER
㉔ EVAPORATIVE EMISSION (EVAP) CONTROL CANISTER FILTER
㉕ EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
㉖ EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
㉗ EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
㉘ EVAPORATIVE EMISSION (EVAP) BYPASS SOLENOID VALVE
㉙ FUEL TANK PRESSURE (FTP) SENSOR
㉚ ENGINE MOUNT CONTROL SOLENOID VALVE
㉛ FUEL TANK EVAPORATIVE EMISSION (EVAP) VALVE
㉜ FUEL TANK VAPOR CONTROL VALVE
㉝ FUEL TANK VAPOR RECIRCULATION VALVE

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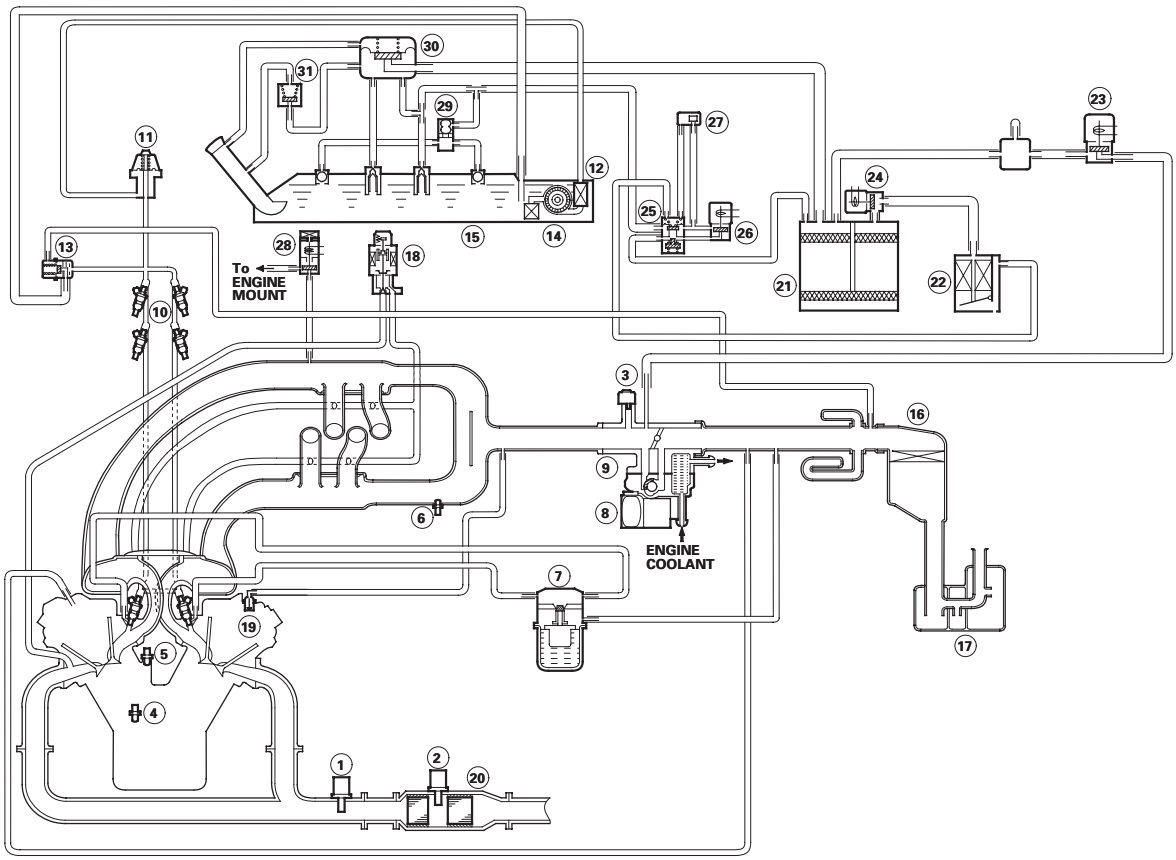
System Descriptions (cont'd)

Vacuum Distribution — '02-04 Models



① PRIMARY HEATED OXYGEN SENSOR (PRIMARY HO2S) (SENSOR 1)
② SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) (SENSOR 2)
③ MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
④ ENGINE COOLANT TEMPERATURE (ECT) SENSOR
⑤ KNOCK SENSOR (KS)
⑥ INTAKE AIR TEMPERATURE (IAT) SENSOR
⑦ INTAKE AIR BYPASS CONTROL THERMAL VALVE
⑧ IDLE AIR CONTROL (IAC) VALVE
⑨ THROTTLE BODY (TB)
⑩ INJECTOR
⑪ FUEL PULSATION DAMPER
⑫ FUEL FILTER
⑬ FUEL PRESSURE REGULATOR
⑭ FUEL PUMP (FP)
⑮ FUEL TANK
⑯ AIR CLEANER
⑰ RESONATOR
⑱ EXHAUST GAS RECIRCULATION (EGR) VALVE and POSITION SENSOR
⑲ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
⑳ THREE WAY CATALYTIC CONVERTER
㉑ EVAPORATIVE EMISSION (EVAP) CANISTER
㉒ EVAPORATIVE EMISSION (EVAP) CONTROL CANISTER FILTER
㉓ EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
㉔ EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
㉕ EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
㉖ EVAPORATIVE EMISSION (EVAP) BYPASS SOLENOID VALVE
㉗ FUEL TANK PRESSURE (FTP) SENSOR
㉘ ENGINE MOUNT CONTROL SOLENOID VALVE
㉙ FUEL TANK EVAPORATIVE EMISSION (EVAP) VALVE
㉚ FUEL TANK VAPOR CONTROL VALVE
㉛ FUEL TANK VAPOR RECIRCULATION VALVE

PGM-FI System

The Programmed Fuel Injection (PGM-FI) system is a sequential multiport fuel injection system.

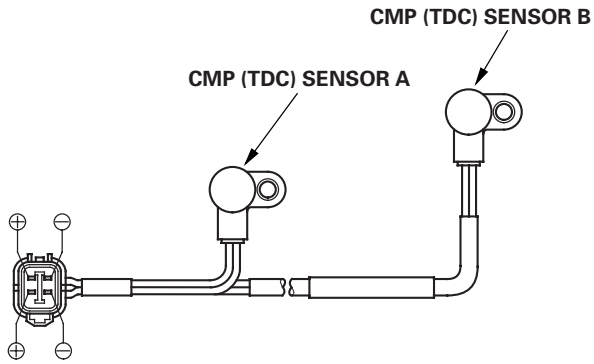
A/C Compressor Clutch Relay
When the PCM receives a demand for cooling from the A/C system, it delays compressor engagement, and enriches the mixture to assure smooth transition to the A/C mode.

A/C Switch
The A/C (air conditioning) switch signals the PCM whenever there is a demand for cooling.

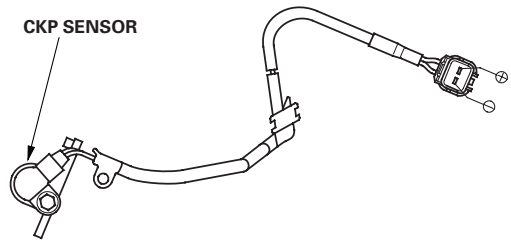
Alternator Control
The alternator signals the PCM during charging. The PCM then controls the voltage generated by the alternator according to the electrical load determined by the Electrical Load Detector (ELD) and driving mode. This reduces engine load to improve fuel economy.

Barometric Pressure (BARO) Sensor
The BARO sensor is inside the PCM. It converts atmospheric pressure into a voltage signal that modifies the basic duration of the fuel injection discharge.

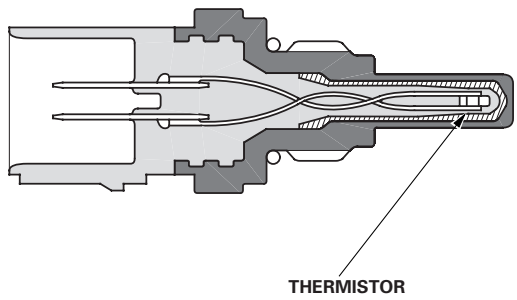
Camshaft Position (CMP) (Top Dead Center (TDC)) Sensor
The CMP (TDC) A/B sensor input is used by the PCM to determine ignition timing at start up (cranking) and when crank angle is abnormal.



Crankshaft Position (CKP) Sensor
The CKP sensor input is used by the PCM determine timing for fuel injection of each cylinder and to detect engine speed.



Engine Coolant Temperature (ECT) Sensor
The ECT sensor is a temperature dependent resistor (thermistor). The resistance of the thermistor decreases as the engine coolant temperature increases.



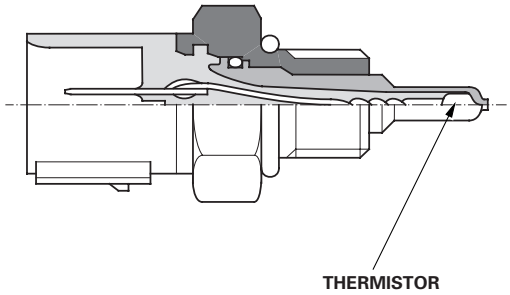
Ignition Timing Control
The PCM contains the memory for basic ignition timing at various engine speeds and manifold absolute pressure. It also adjusts the timing according to engine coolant temperature.

Injector Timing and Duration
The PCM contains the memory for basic discharge duration at various engine speeds and manifold pressures. The basic discharge duration, after being read out from the memory, is further modified by signals sent from various sensors to obtain the final discharge duration.
By monitoring Long Term Fuel Trim, the PCM detects long term malfunctions in the fuel system, and sets a diagnostic trouble code (DTC).

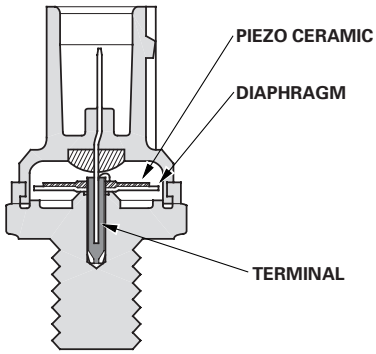
(cont'd)

System Descriptions (cont'd)

Intake Air Temperature (IAT) Sensor
The IAT sensor is a temperature dependent resistor (thermistor). The resistance of the thermistor decreases as the intake air temperature increases.



Knock Sensor
The knock control system adjusts the ignition timing for the octane rating of the gasoline used.

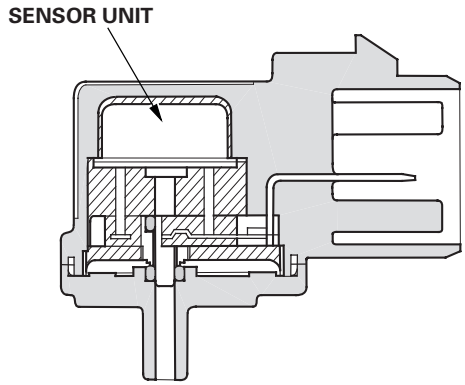


Malfunction Indicator Lamp (MIL) Indication (In relation to Readiness Codes) ('01-04 models)
The vehicle has certain ''readiness codes'' that are part of the on-board diagnostics for the emissions systems. If the vehicle's battery has been disconnected or gone dead, if the DTCs have been cleared, or if the PCM has been reset, these codes are reset. In some states, part of the emissions testing is to make sure these codes are set to complete. If all of them are not set to complete, the vehicle may fail the test, or the test cannot be finished.

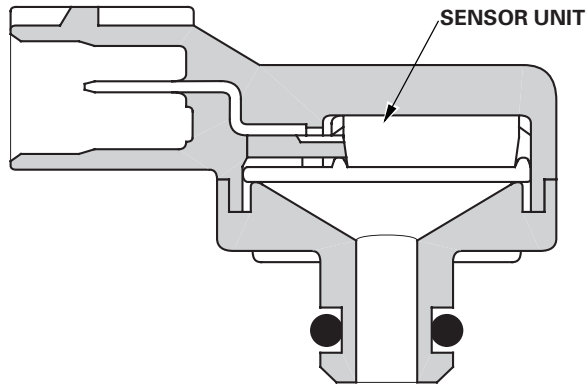
To check if the readiness codes are set to complete, turn the ignition switch ON (II), but do not start the engine. The MIL will come on for 15—20 seconds. If it then goes off, the readiness codes are set to complete. If it blinks several times, the readiness codes are not set to complete. To set each code, drive the vehicle or run the engine as described in the procedures in this section (see page 11-89).

Manifold Absolute Pressure (MAP) Sensor
The MAP sensor converts manifold absolute pressure into electrical signals to the PCM.

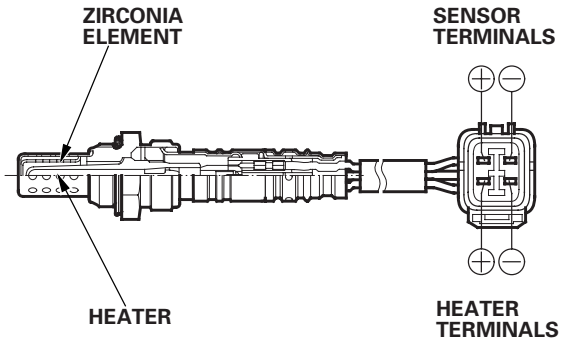
'99-00 Models



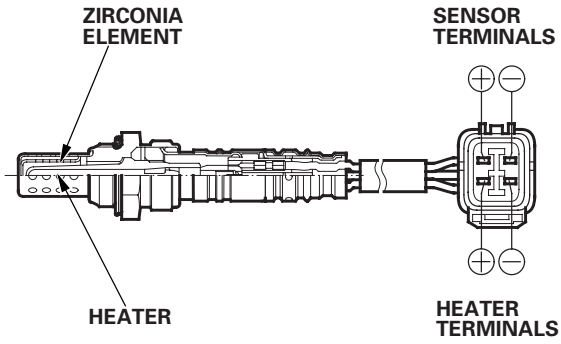
'01-04 Models



Primary Heated Oxygen Sensors (Primary HO2S)
The primary HO2S detects the oxygen content in the exhaust gas and sends signals to the PCM which varies the duration of fuel injection accordingly. To stabilize its output, the sensor has an internal heater. The primary HO2S is installed in the exhaust pipe.
By controlling the air fuel ratio with primary HO2S and secondary HO2S, the deterioration of the primary HO2S can be evaluated by its feedback period. When the feedback period exceeds a certain value during stable driving conditions, the sensor is considered deteriorated and the PCM sets a DTC.

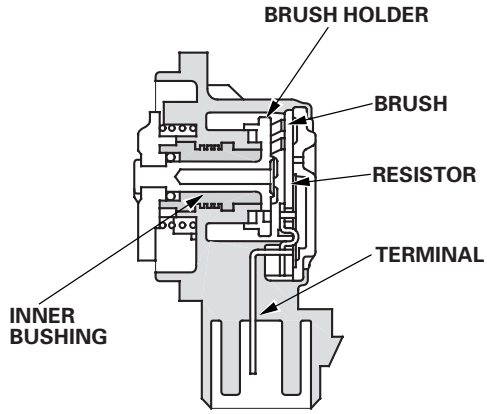


Secondary Heated Oxygen Sensors (Secondary HO2S)
The secondary HO2S detects the oxygen content in the exhaust gas downstream of the three way catalytic converter (TWC) and sends signals to the PCM which varies the duration of fuel injection accordingly. To stabilize its output, the sensor has an internal heater. The secondary HO2S is installed in the TWC.



Starting Control
When the engine is started, the PCM provides a rich mixture by increasing fuel injector duration.

Throttle Position (TP) Sensor
The TP sensor is a potentiometer connected to the throttle valve shaft. As the throttle position changes, the sensor varies the signal voltage to the PCM. The TP sensor is not available separately from the throttle body.

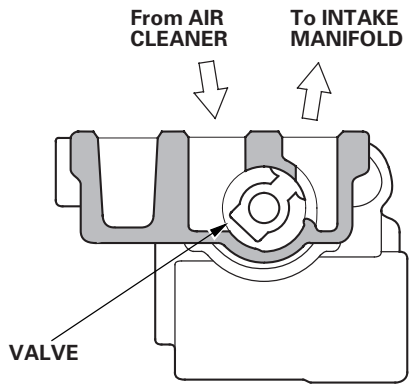


Idle Control System

When the engine is cold, the A/C compressor is on, the transmission is in gear, the brake pedal is pressed, the power steering load is high, or the alternator is charging, the PCM controls current to the IAC valve to maintain the correct idle speed. Refer to the System Diagram to see a functional layout of the system.

Brake Pedal Position Switch
The BPP switch signals the PCM when the brake pedal is pressed.

Idle Air Control (IAC) Valve
To maintain proper idle speed, the IAC valve changes the amount of air bypassing the throttle body in response to an electrical signal from the PCM.



(cont'd)

System Descriptions (cont'd)

Power Steering Pressure (PSP) Switch
The PSP switch signals the PCM when the power steering load is high.

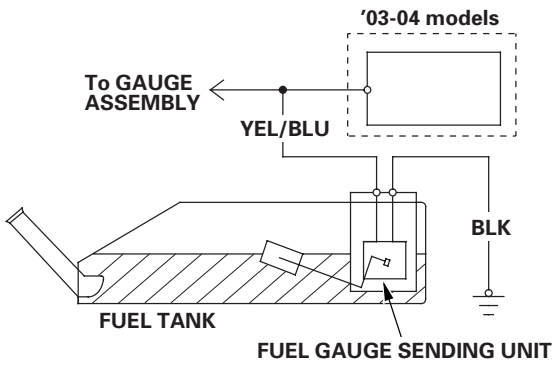
Starter (Ignition) Switch
The starter switch signals the PCM when the engine is cranking.

Fuel Supply System

Fuel Cut-off Control
During deceleration with the throttle valve closed, current to the injectors is cut off to improve fuel economy at engine speeds over 1,100 rpm.
Fuel cut-off action also occurs when engine speed exceeds 6,600 rpm, regardless of the position of the throttle valve, to protect the engine from over-revving.
When the vehicle is stopped, the PCM cuts the fuel at engine speeds over 5,000 rpm.

Fuel Pump Control
When the ignition is turned on, the PCM grounds the PGM-FI main relay which feeds current to the fuel pump for 2 seconds to pressurize the fuel system. With the engine running, the PCM grounds the PGM-FI main relay and feeds current to the fuel pump. When the engine is not running and the ignition is on, the PCM cuts ground to the PGM-FI main relay which cuts current to the fuel pump.

Fuel Gauge Sending Unit
The fuel gauge sending unit measures the fuel level in the fuel tank. The fuel gauge sending unit output changes according to the float position.

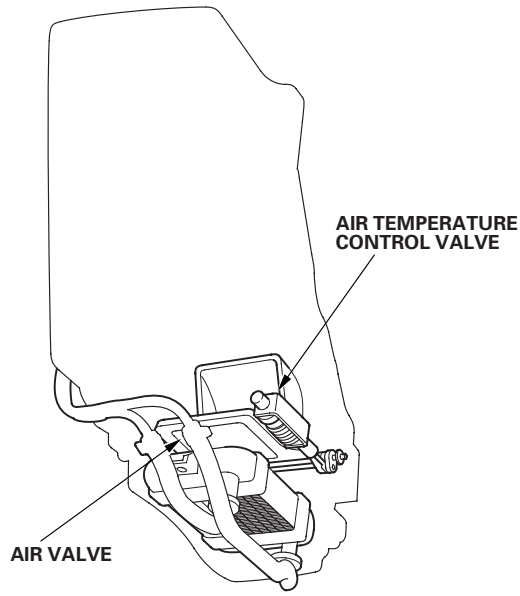


PGM-FI Main Relay
The PGM-FI relay contains 2 separate relays. One is energized whenever the ignition is on which supplies battery voltage to the PCM, power to the fuel injectors, and power for the second relay. The second relay is energized to supply power to the fuel pump for 2 seconds when the ignition is switched ON (II), during engine cranking, and when the engine is running.

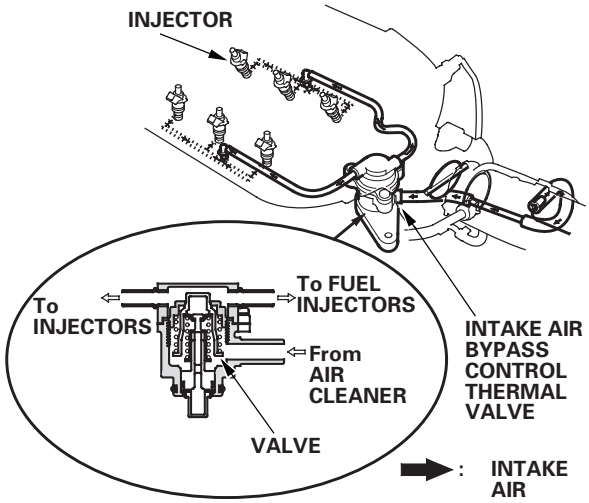
Intake Air System

Refer to the System Diagram to see a functional layout of the system.

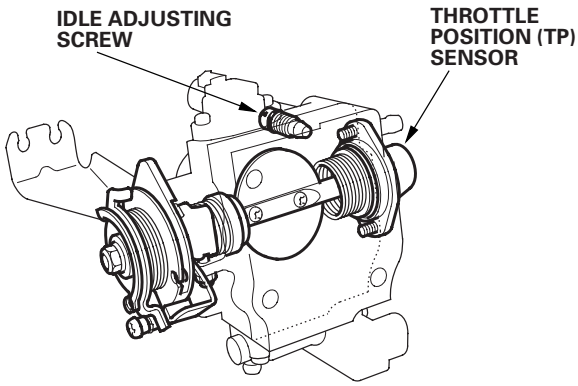
Heated Air Induction System
The heated air induction system improves fuel economy in cold weather conditions and when the engine is cold.
When outside air temperature is low, the air temperature control valve opens the air valve to allow heated air into the engine.



Intake Air Bypass Control Thermal Valve
When the engine is running, the intake air bypass control thermal valve sends air to the injectors.

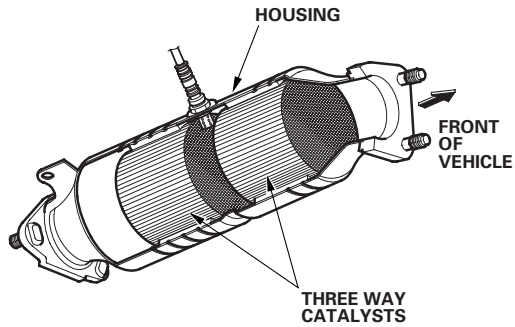


Throttle Body
The throttle body is a single-barrel side draft type. The lower portion of the throttle valve is heated by engine coolant from the cylinder head. The idle adjusting screw, which increases/decreases bypass air, is on top of the throttle body.



Catalytic Converter System

Three Way Catalytic Converter (TWC)
The TWC converts hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) in the exhaust gas to carbon dioxide (CO2), nitrogen (N2), and water vapor.



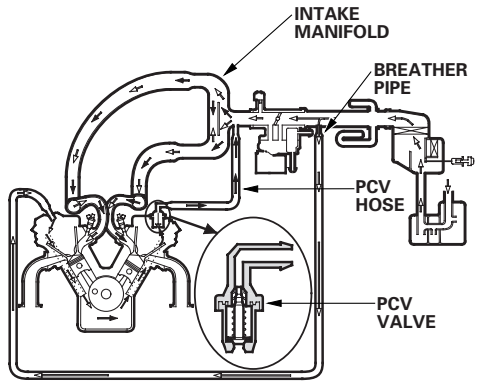
Exhaust Gas Recirculation (EGR) System

Refer to the System Diagram to see a functional layout of the system.

EGR Valve
The EGR valve is designed to lower peak combustion temperatures and reduce oxides of nitrogen emissions (NOx) by recirculating exhaust gas through the intake manifold and into the combustion chambers.

Positive Crankcase Ventilation (PCV) System

The PCV valve prevents blow-by gasses from escaping into the atmosphere by venting them into the intake manifold.



(cont'd)

System Descriptions (cont'd)

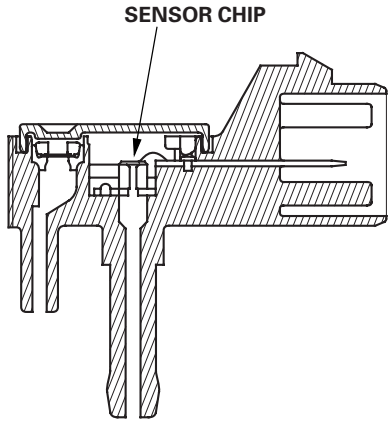
Evaporative Emission (EVAP) Control System

Refer to the System Diagram to see a functional layout of the system.

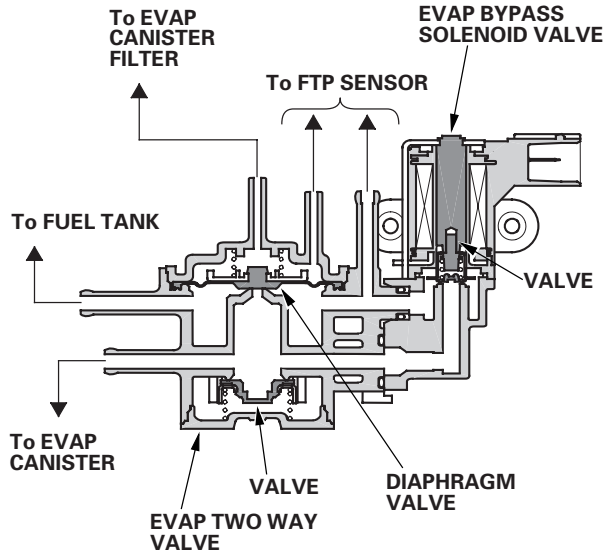
EVAP Canister
The EVAP canister temporarily stores fuel vapor from the fuel tank until it can be purged into the engine and burned.

EVAP Canister Purge Valve
When the engine coolant temperature is below 147°F (64°C), the PCM turns off the EVAP canister purge valve which cuts vacuum to the EVAP canister.

Fuel Tank Pressure (FTP) Sensor
The FTP sensor converts fuel tank absolute pressure into an electrical input to the PCM.



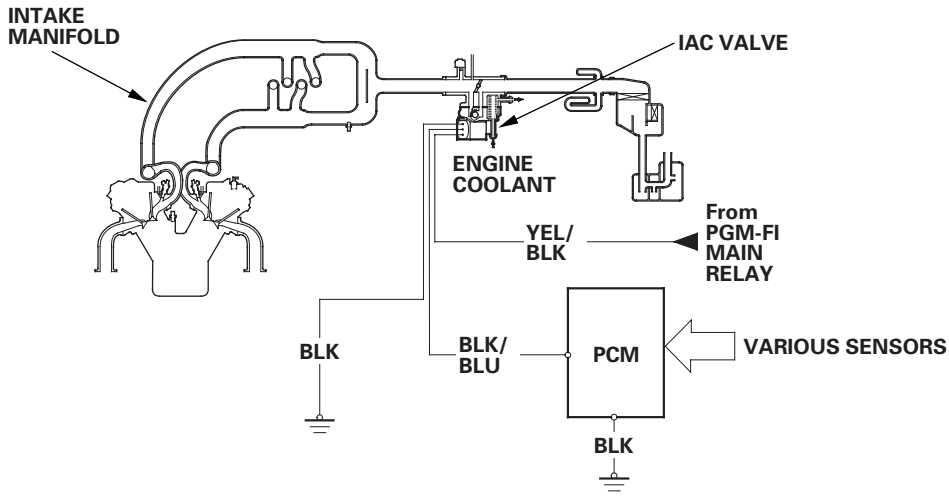
EVAP Two Way Valve and EVAP Bypass Solenoid Valve
The EVAP two way valve is located between the fuel tank and the EVAP canister line.
The EVAP two way valve sends fuel vapor to the EVAP canister corresponding to the pressure inside the fuel tank and prevents excessive vacuum in the fuel tank by drawing in fresh air through the EVAP canister.
The EVAP bypass solenoid valve opens to bypass the two way valve when doing the EVAP leak check.



Idle Control System Diagram

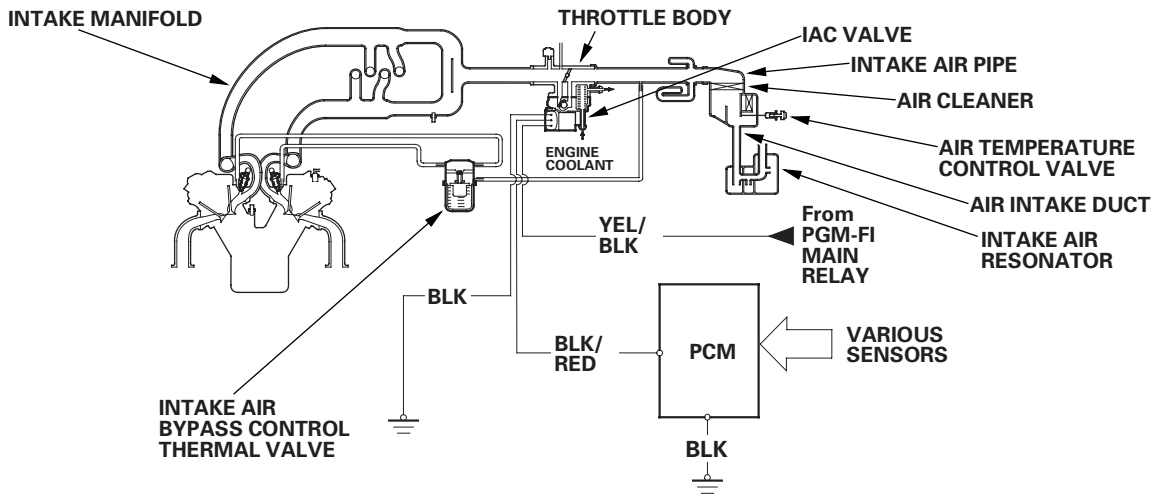
The idle speed of the engine is controlled by the idle air control (IAC) valve:

- After the engine starts, the IAC valve opens for a certain amount of time. The amount of air is increased to raise the idle speed.
- When the engine coolant temperature is low, the IAC valve is opened to obtain the proper fast idle speed. The amount of bypassed air is thus controlled in relation to engine coolant temperature.



Intake Air System Diagram

This system supplies air for engine needs. An intake air resonator in the intake air pipe provides additional silencing as air is drawn into the system.



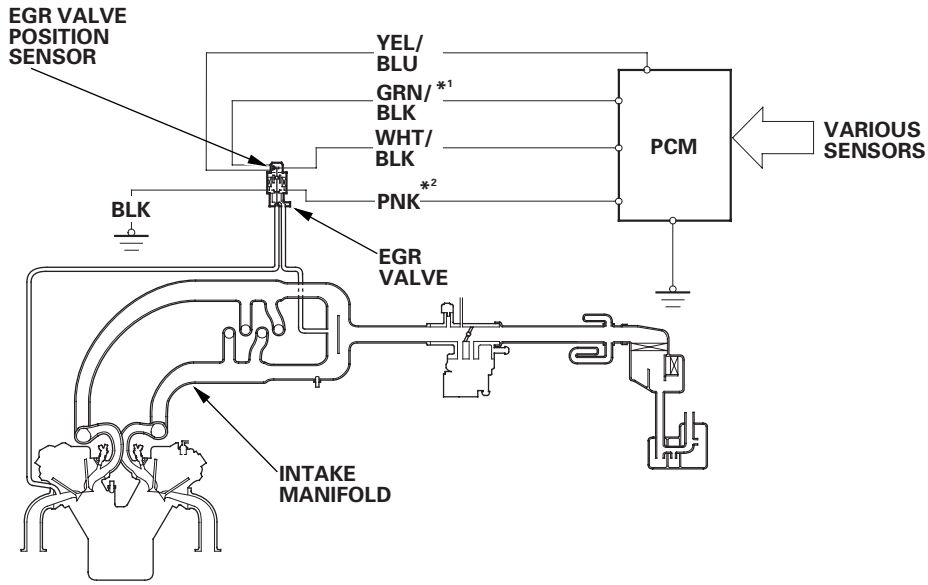
(cont'd)

System Descriptions (cont'd)

Exhaust Gas Recirculation (EGR) System Diagram

The EGR system reduces oxides of nitrogen (NOx) emissions by recirculating exhaust gas through the EGR valve and the intake manifold into the combustion chambers. The PCM memory includes the ideal EGR valve lift for varying operating conditions.

The EGR valve position sensor detects the amount of EGR valve lift and sends it to the PCM. The PCM then compares it with the ideal lift in its memory (based on signals sent from other sensors). If there is any difference between the two, the PCM cuts current to the EGR valve.

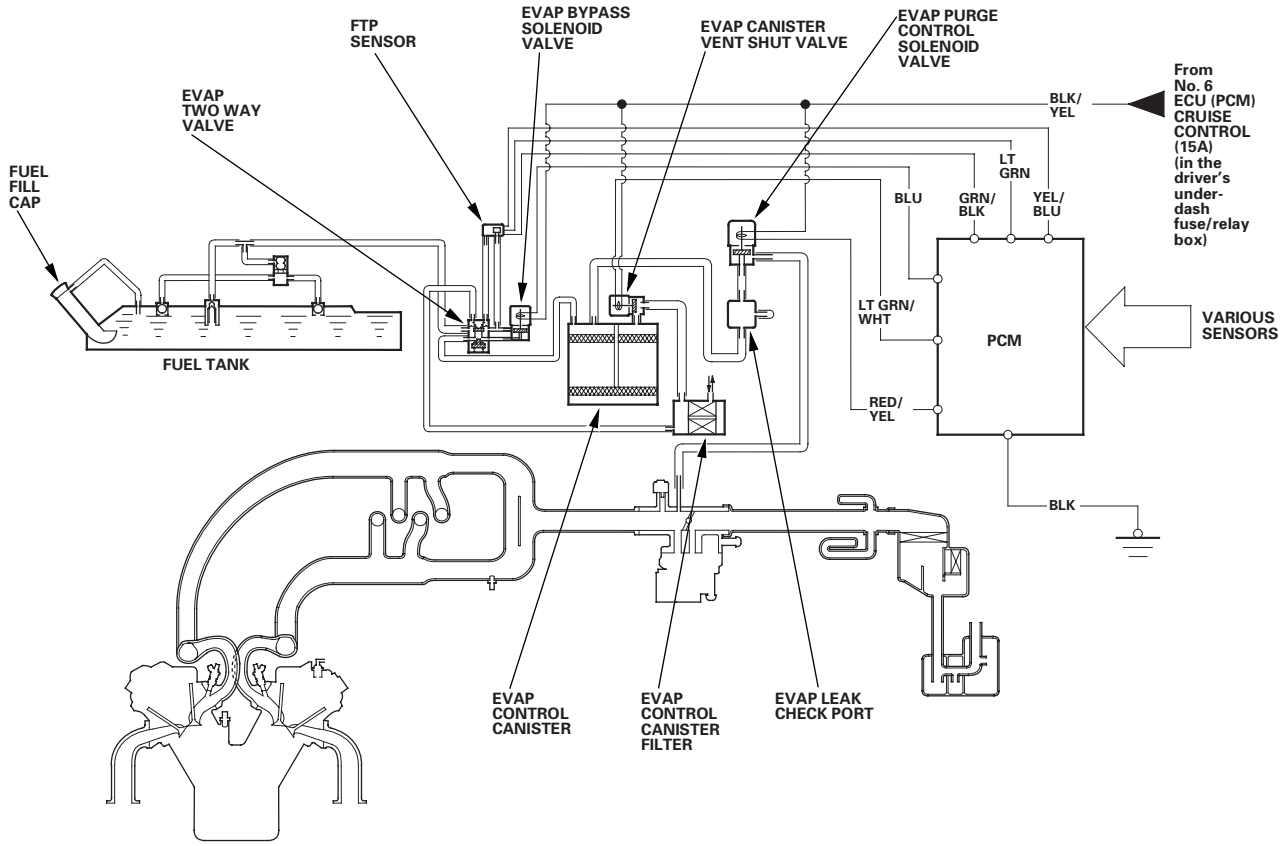


***1: GRN/YEL: '02-04 models**
***2: BLU/RED: '02-04 models**

Evaporative Emission (EVAP) Control Diagram ('99-00 Models)

The EVAP controls minimize the amount of fuel vapor escaping to the atmosphere. Vapor from the fuel tank is temporarily stored in the EVAP control canister until it can be purged from the canister into the engine and burned.

- The EVAP control canister is purged by drawing fresh air through it and into a port on the throttle body. The purging vacuum is controlled by the EVAP purge control solenoid valve, which operates whenever engine coolant temperature is above 147°F (64°C).
- When vapor pressure in the fuel tank is higher than the set value of the EVAP two way valve, the valve opens and regulates the flow of fuel vapor to the EVAP control canister.



(cont'd)

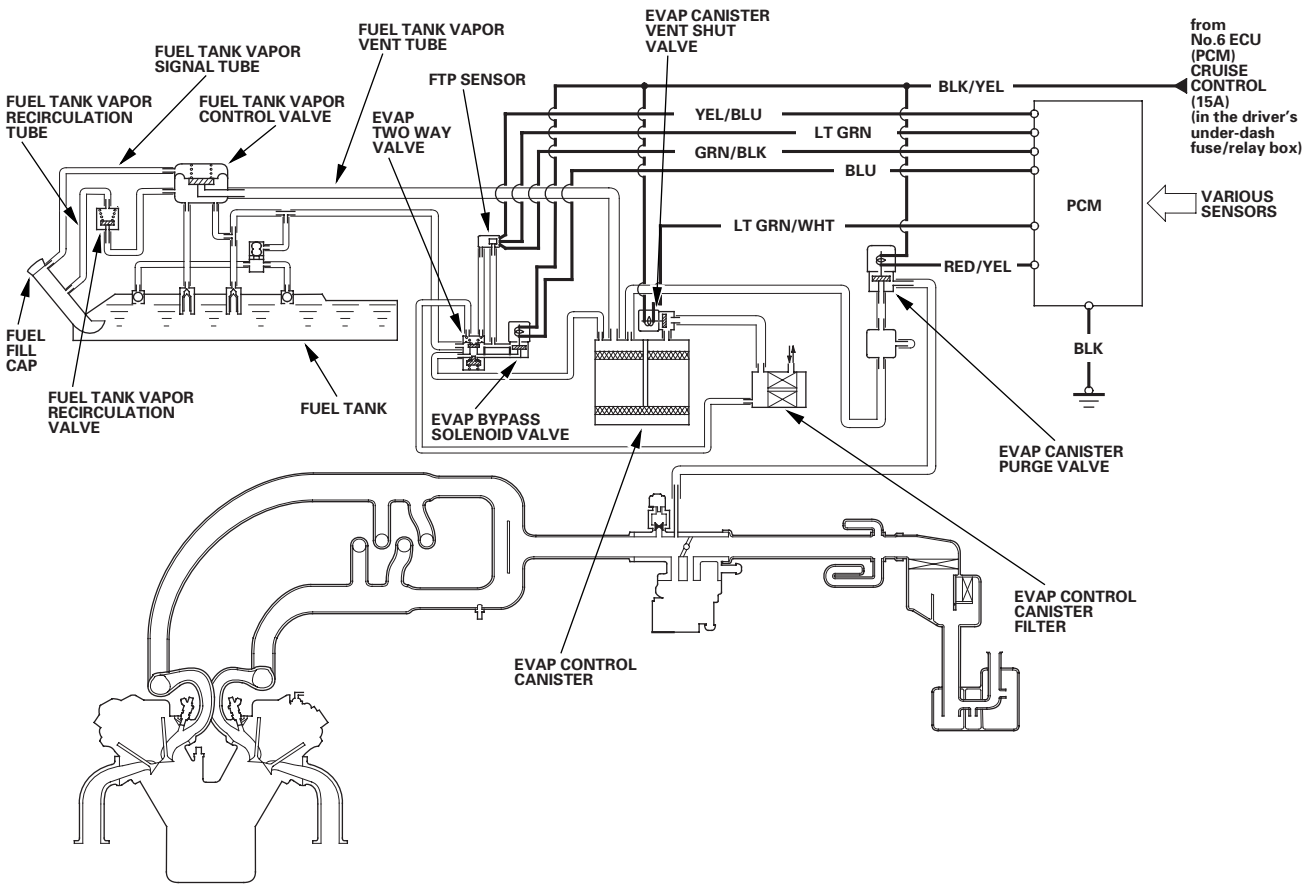
System Descriptions (cont'd)

Evaporative Emission (EVAP) Control Diagram ('01-04 Models)

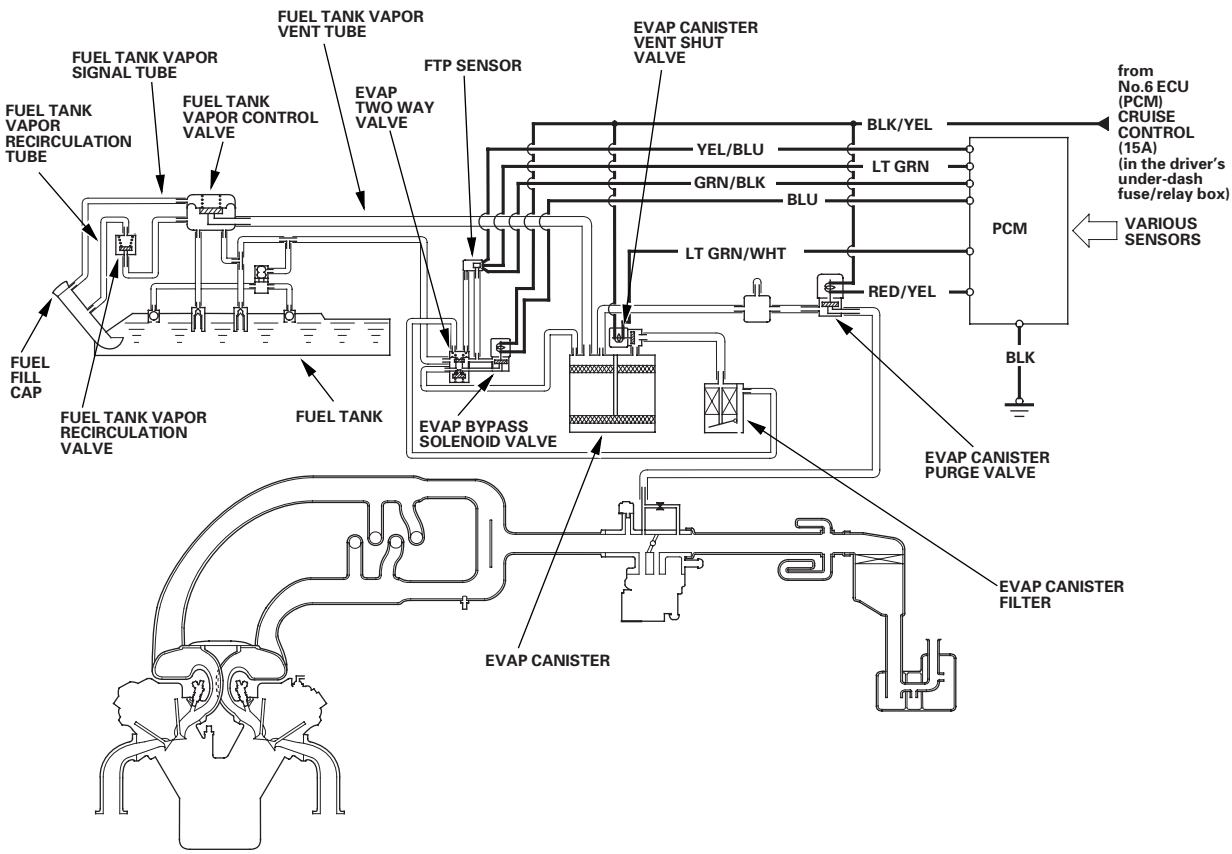
The EVAP controls minimize the amount of fuel vapor escaping to the atmosphere. Vapor from the fuel tank is temporarily stored in the EVAP control canister until it can be purged from the canister into the engine and burned.

- The EVAP canister is purged by drawing fresh air through it and into a port on the intake manifold. The purging vacuum is controlled by the EVAP canister purge valve, which operates whenever engine coolant temperature is above 147°F (64°C).
- When vapor pressure in the fuel tank is higher than the set value of the EVAP two way valve, the valve opens and regulates the flow of fuel vapor to the EVAP control canister.
- During refueling, the fuel tank vapor control valve opens with the pressure in the fuel tank, and feeds the fuel vapor to the EVAP control canister.

'01 model:



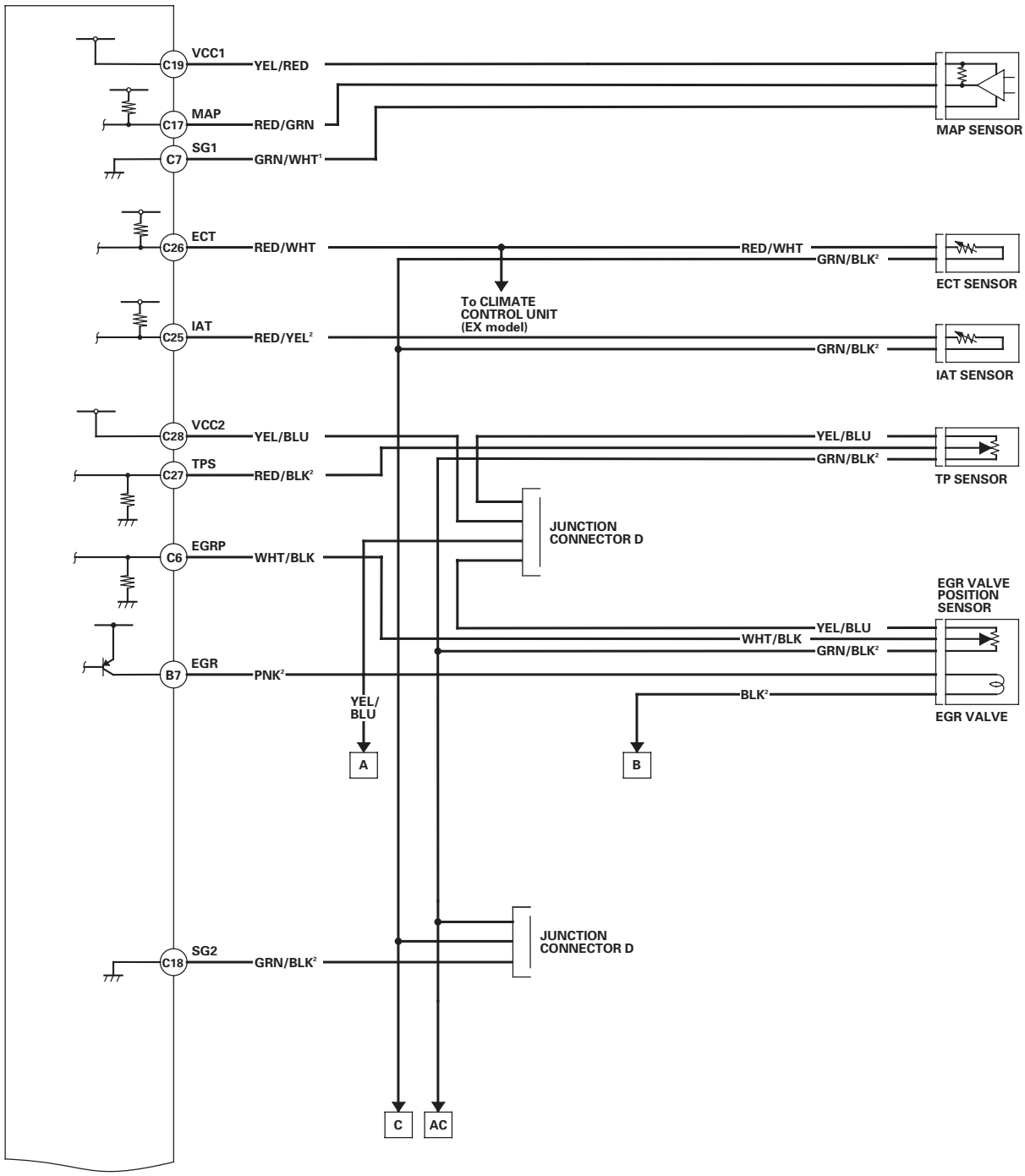
'02-04 models:

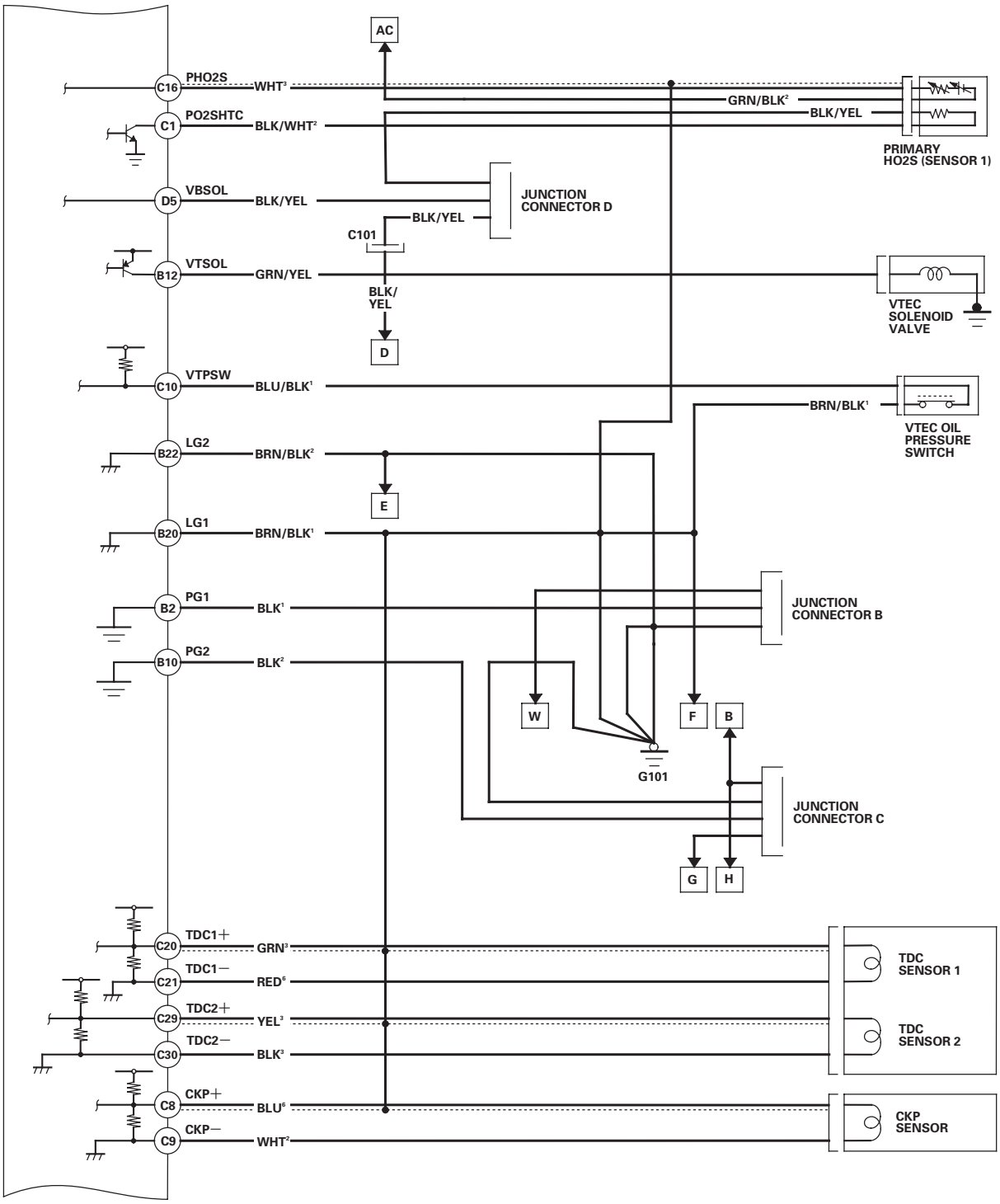


(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '99-00 Models

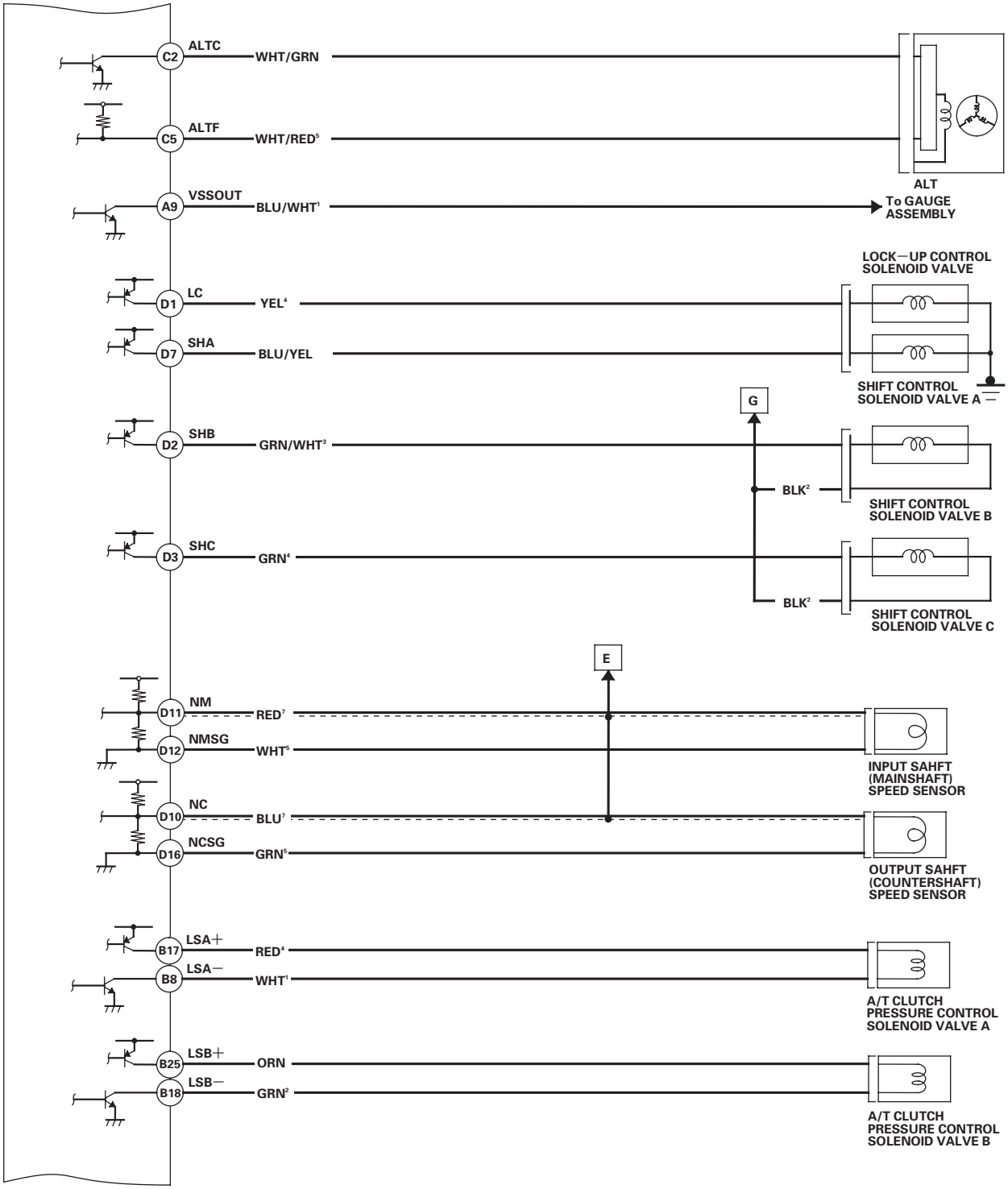


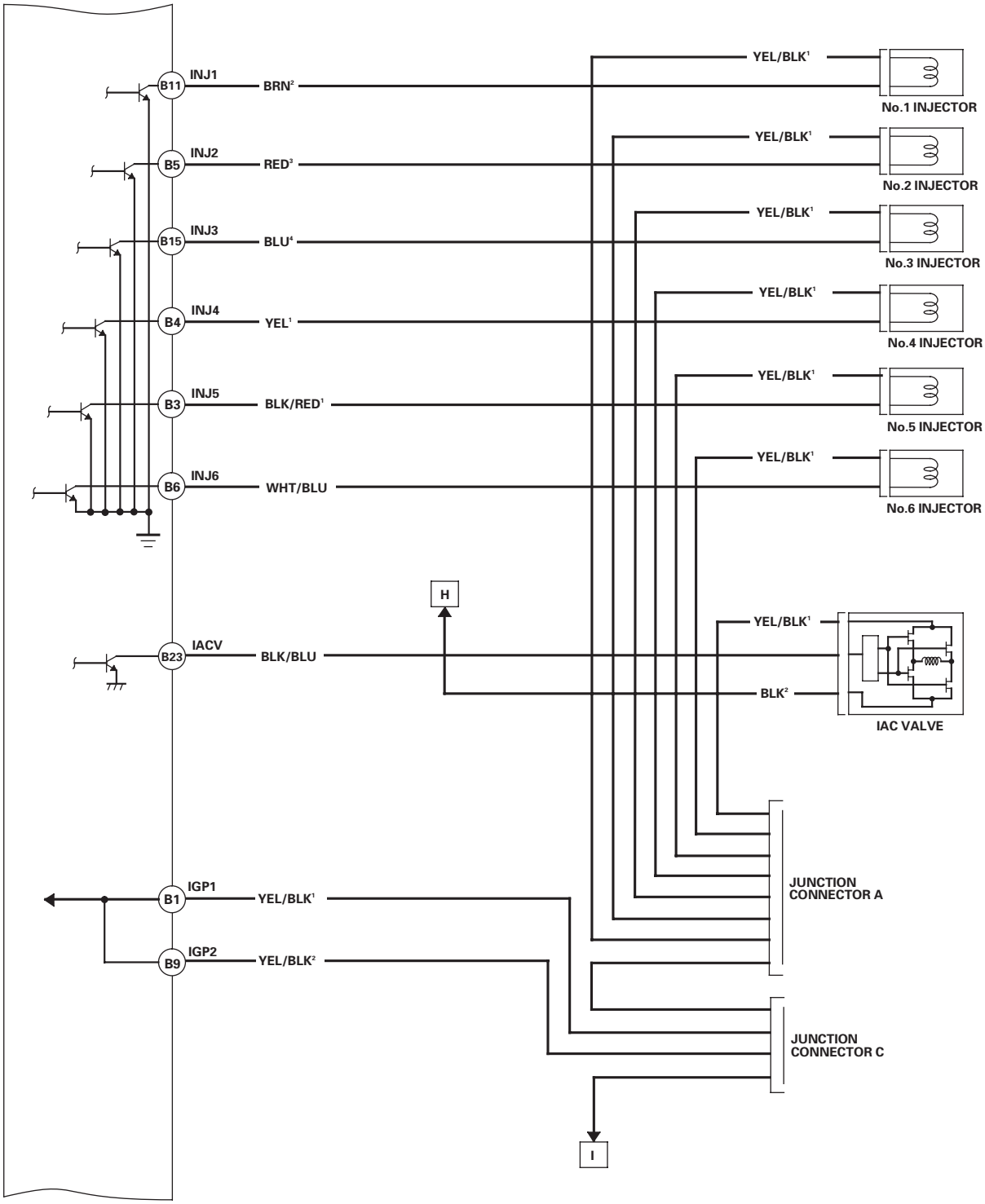

AC
C16
PHO2S
WHT3
GRN/BLK2
BLK/YEL
PRIMARY HO2S (SENSOR 1)
C1
PO2SHTC
BLK/WHT2
D5
VBSOL
BLK/YEL
JUNCTION CONNECTOR D
BLK/YEL
C101
B12
VTSOL
GRN/YEL
BLK/ YEL
VTEC SOLENOID VALVE
D
C10
VTPSW
BLU/BLK1
BRN/BLK1
VTEC OIL PRESSURE SWITCH
B22
LG2
BRN/BLK2
E
B20
LG1
BRN/BLK1
B2
PG1
BLK1
JUNCTION CONNECTOR B
B10
PG2
BLK2
W
F
B
G101
JUNCTION CONNECTOR C
G
H
C20
TDC1+
GRN3
C21
TDC1−
RED6
C29
TDC2+
YEL3
C30
TDC2−
BLK3
TDC SENSOR 1
TDC SENSOR 2
C8
CKP+
BLU6
C9
CKP−
WHT2
CKP SENSOR

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '99-00 Models (cont'd)

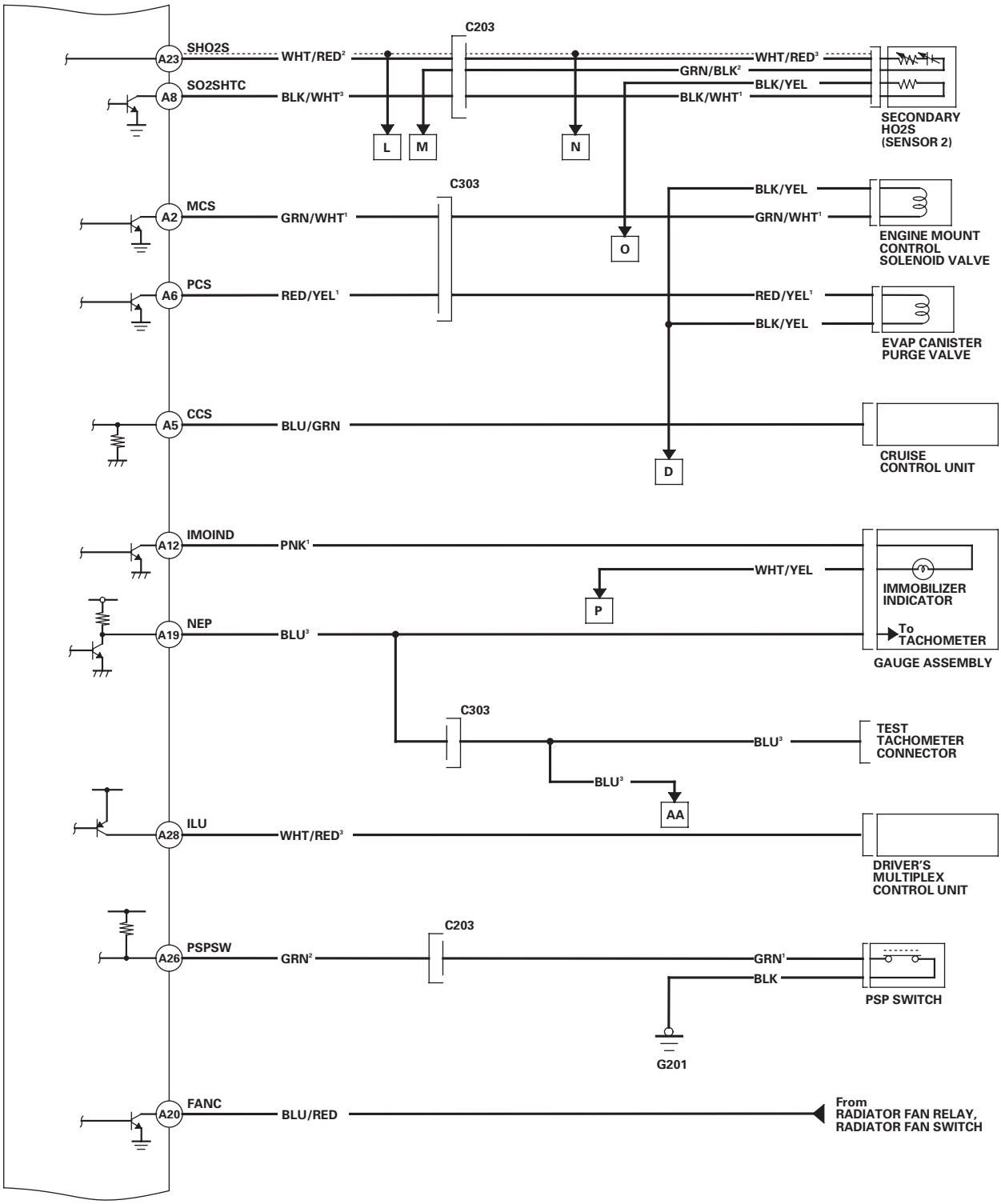


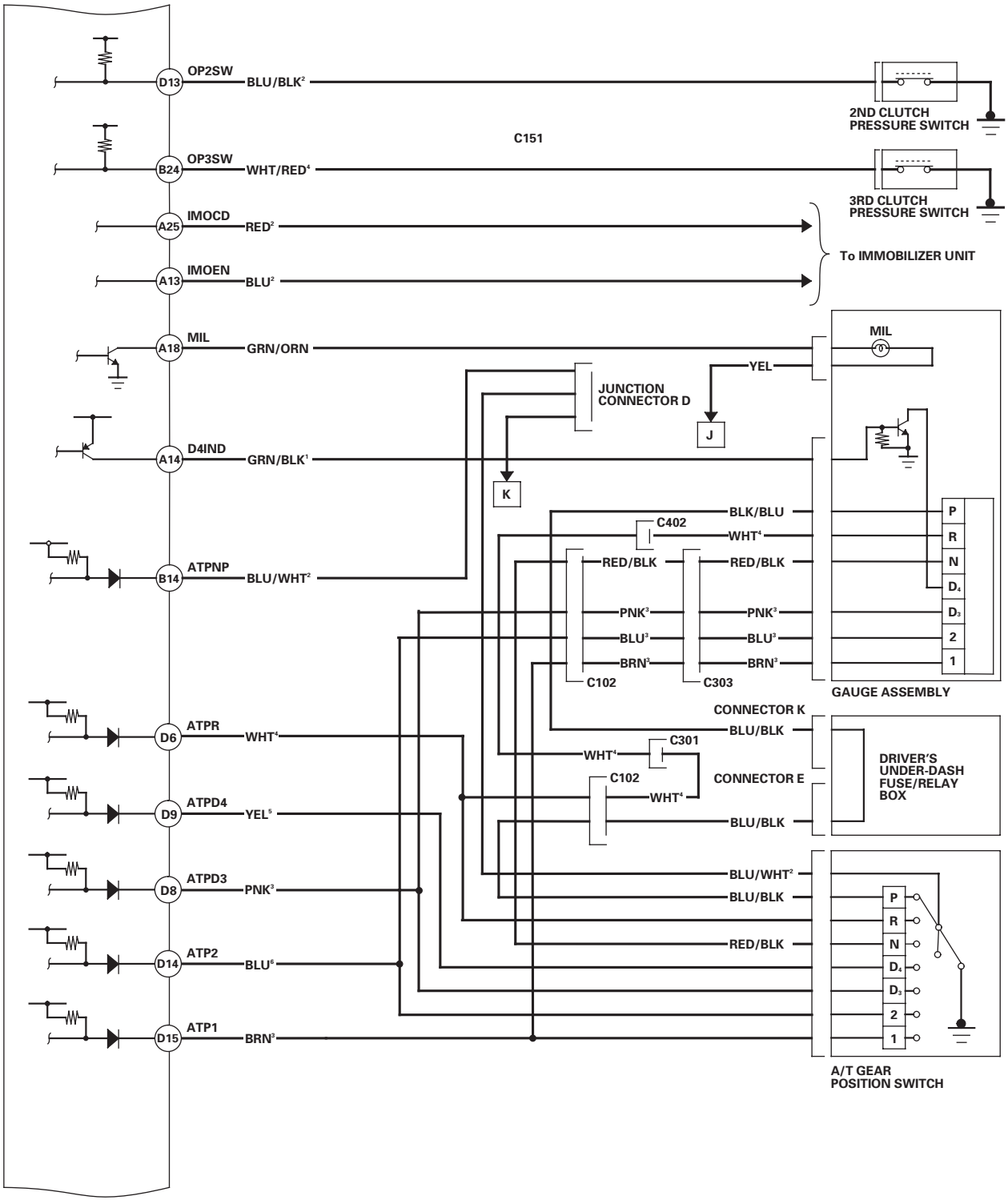

INJ1
B11
BRN²
YEL/BLK¹
No.1 INJECTOR
INJ2
B5
RED³
YEL/BLK¹
No.2 INJECTOR
INJ3
B15
BLU⁴
YEL/BLK¹
No.3 INJECTOR
INJ4
B4
YEL¹
YEL/BLK¹
No.4 INJECTOR
INJ5
B3
BLK/RED¹
YEL/BLK¹
No.5 INJECTOR
INJ6
B6
WHT/BLU
YEL/BLK¹
No.6 INJECTOR
H
IACV
B23
BLK/BLU
YEL/BLK¹
BLK²
IAC VALVE
IGP1
B1
YEL/BLK¹
IGP2
B9
YEL/BLK²
JUNCTION CONNECTOR A
JUNCTION CONNECTOR C
I

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '99-00 Models (cont'd)

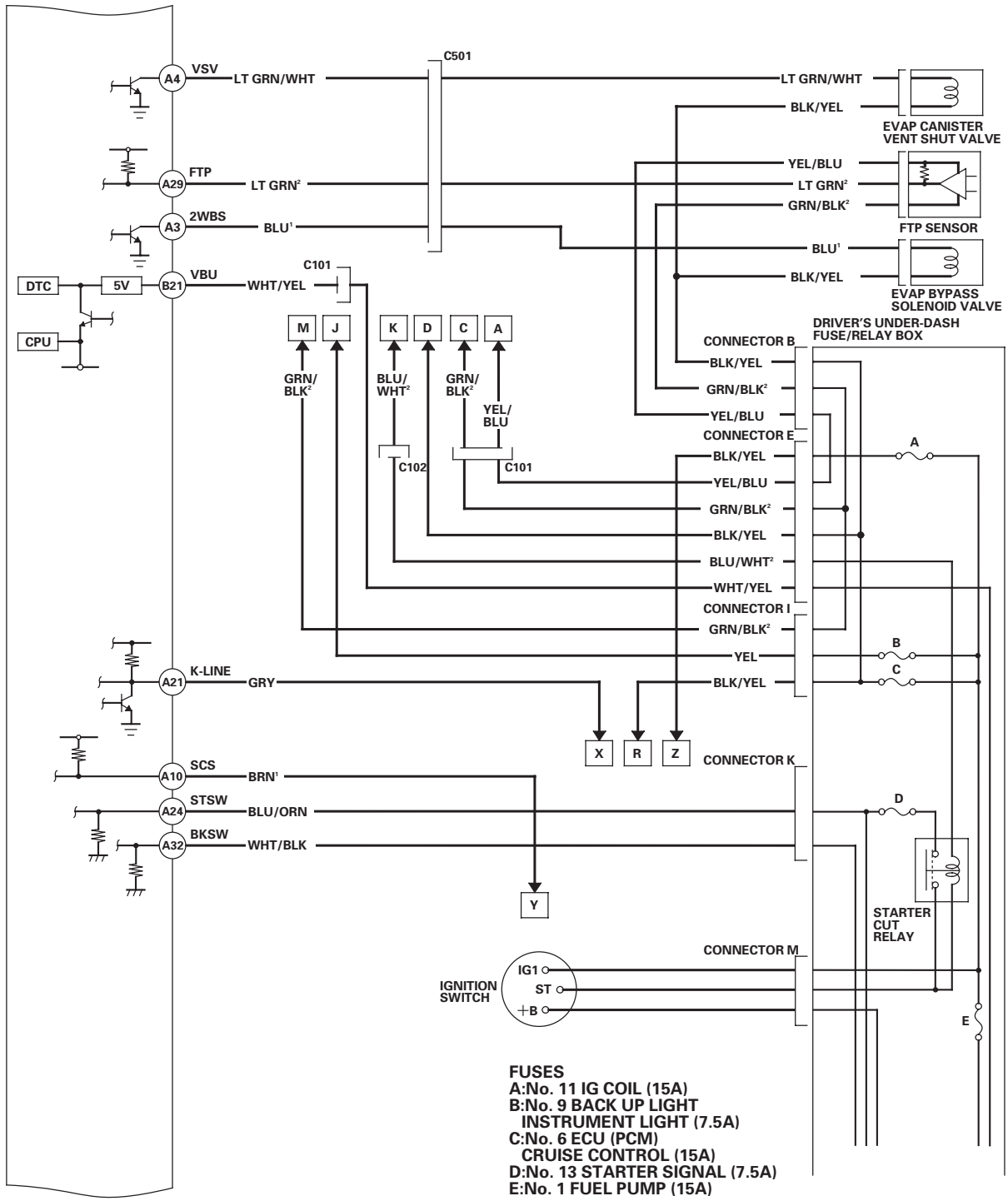


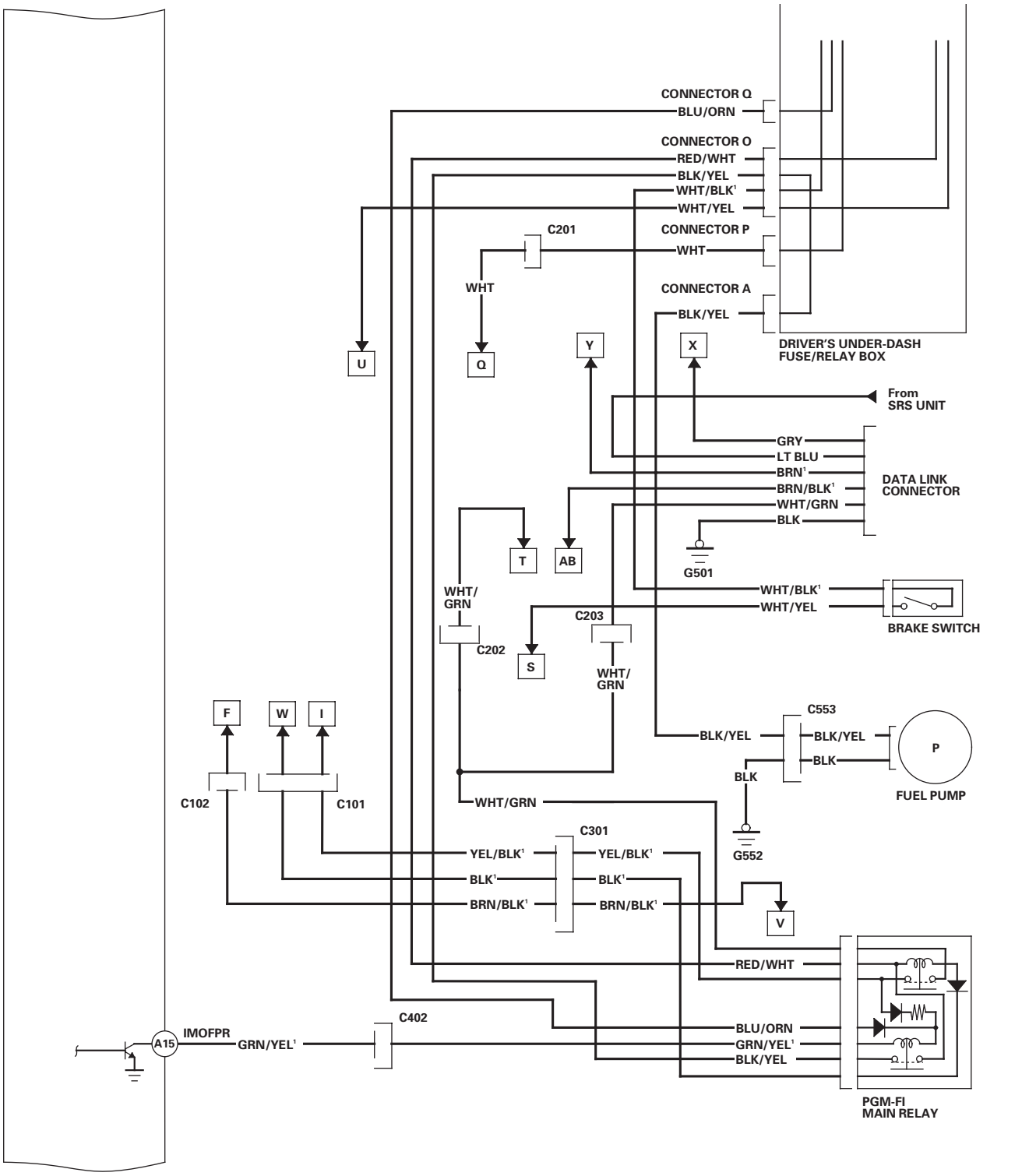

D13
OP2SW
BLU/BLK²
2ND CLUTCH PRESSURE SWITCH
C151
B24
OP3SW
WHT/RED⁴
3RD CLUTCH PRESSURE SWITCH
A25
IMOCD
RED²
A13
IMOEN
BLU²
To IMMOBILIZER UNIT
A18
MIL
GRN/ORN
MIL
YEL
JUNCTION CONNECTOR D
J
K
A14
D4IND
GRN/BLK¹
B14
ATPNP
BLU/WHT²
C402
BLK/BLU
WHT⁴
RED/BLK
RED/BLK
PNK³
PNK³
BLU³
BLU³
BRN³
BRN³
C102
C303
P
R
N
D4
D3
2
1
GAUGE ASSEMBLY
CONNECTOR K
BLU/BLK
C301
WHT⁴
C102
CONNECTOR E
WHT⁴
BLU/BLK
DRIVER'S UNDER-DASH FUSE/RELAY BOX
D6
ATPR
WHT⁴
D9
ATPD4
YEL⁵
D8
ATPD3
PNK³
D14
ATP2
BLU⁶
D15
ATP1
BRN³
BLU/WHT²
BLU/BLK
RED/BLK
P
R
N
D4
D3
2
1
A/T GEAR POSITION SWITCH

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '99-00 Models (cont'd)

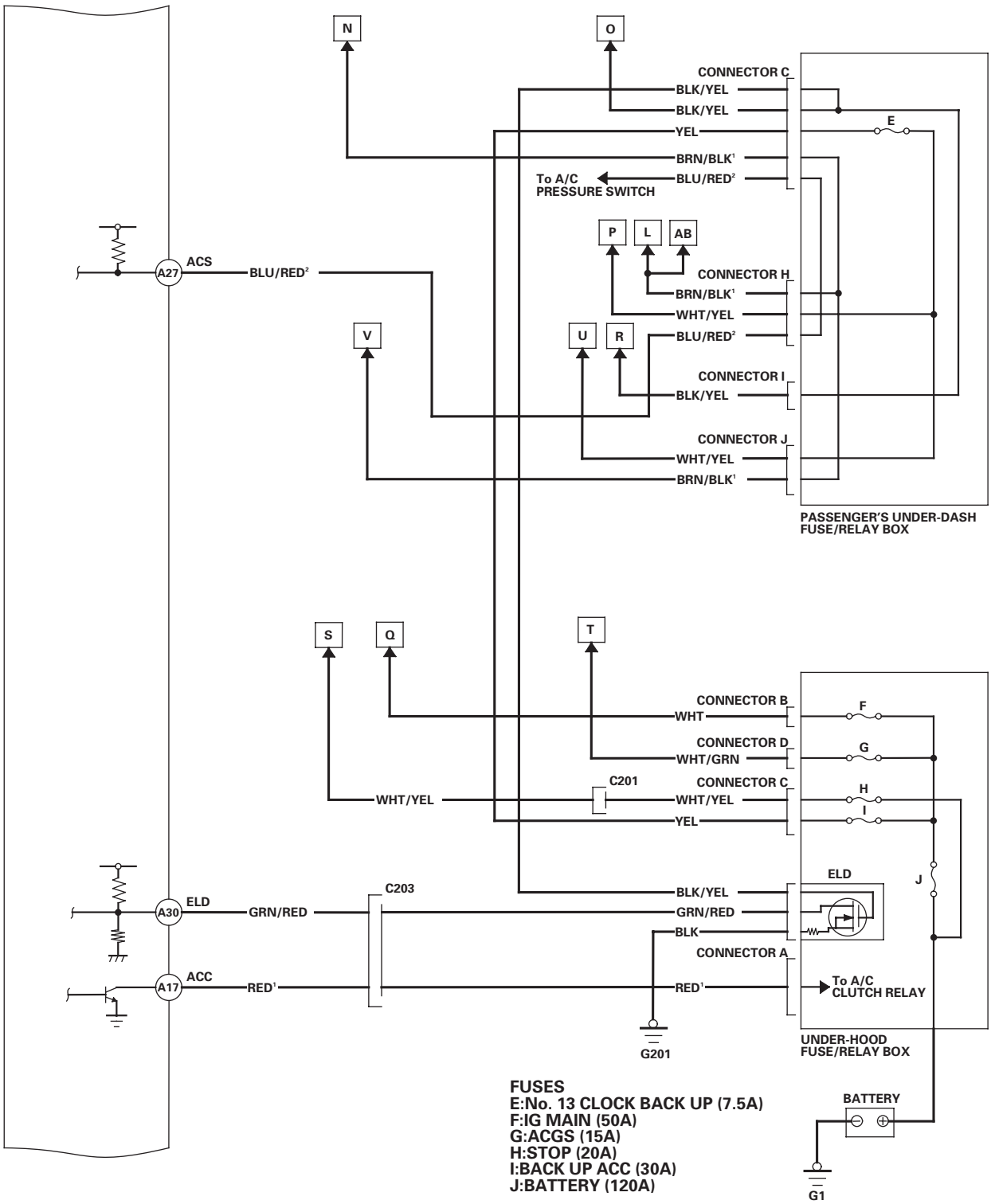


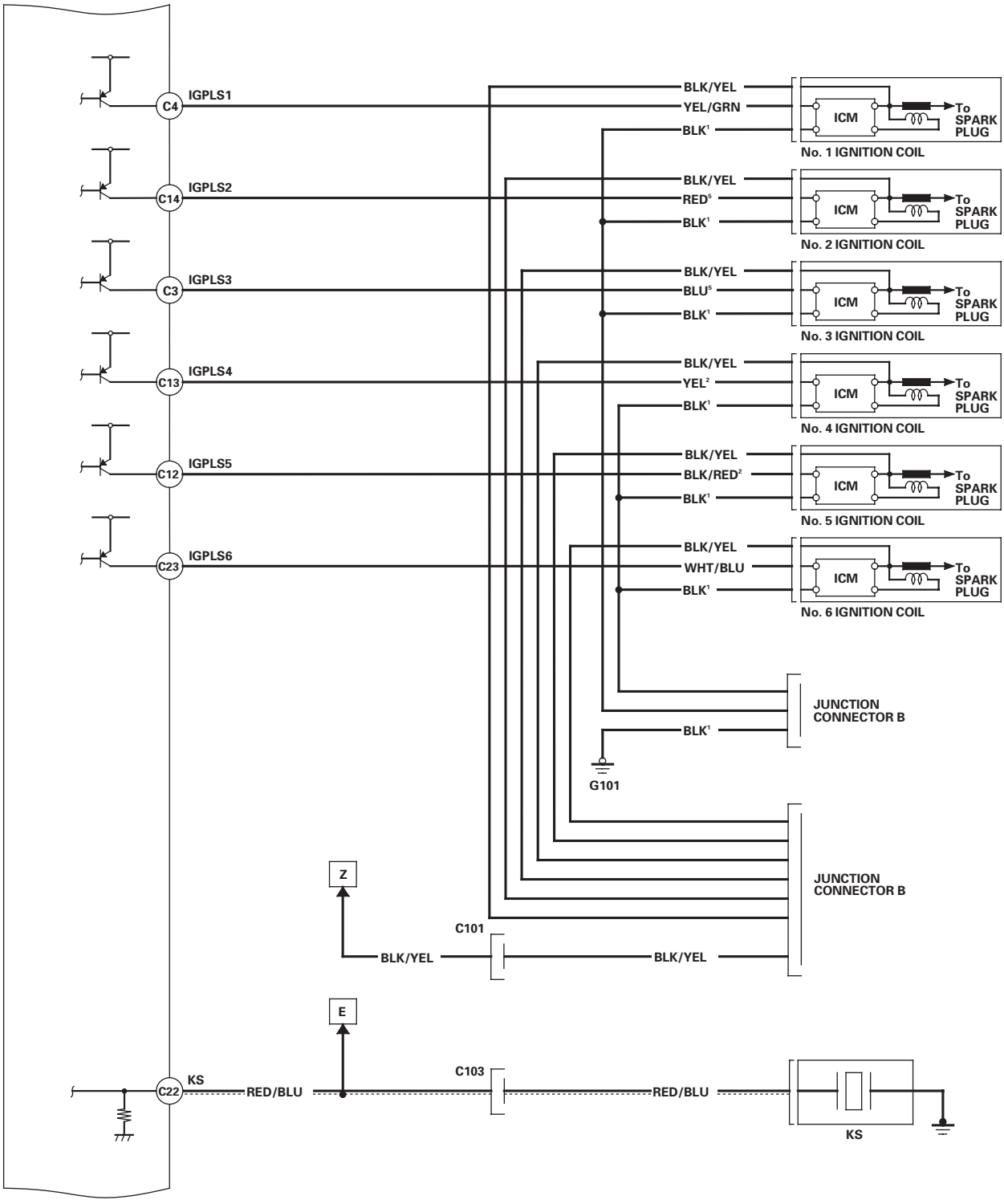

CONNECTOR Q
BLU/ORN
CONNECTOR O
RED/WHT
BLK/YEL
WHT/BLK¹
WHT/YEL
C201
CONNECTOR P
WHT
WHT
CONNECTOR A
BLK/YEL
DRIVER'S UNDER-DASH FUSE/RELAY BOX
U
Q
Y
X
From SRS UNIT
GRY
LT BLU
BRN¹
BRN/BLK¹
WHT/GRN
BLK
DATA LINK CONNECTOR
G501
T
AB
WHT/BLK¹
WHT/YEL
BRAKE SWITCH
WHT/GRN
C202
C203
S
WHT/GRN
F
W
I
C102
C101
BLK/YEL
C553
BLK/YEL
BLK
P
BLK
FUEL PUMP
WHT/GRN
G552
C301
YEL/BLK¹
YEL/BLK¹
BLK¹
BLK¹
BRN/BLK¹
BRN/BLK¹
V
RED/WHT
BLU/ORN
GRN/YEL¹
BLK/YEL
C402
A15
IMOFPR
GRN/YEL¹
PGM-FI MAIN RELAY

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '99-00 Models (cont'd)

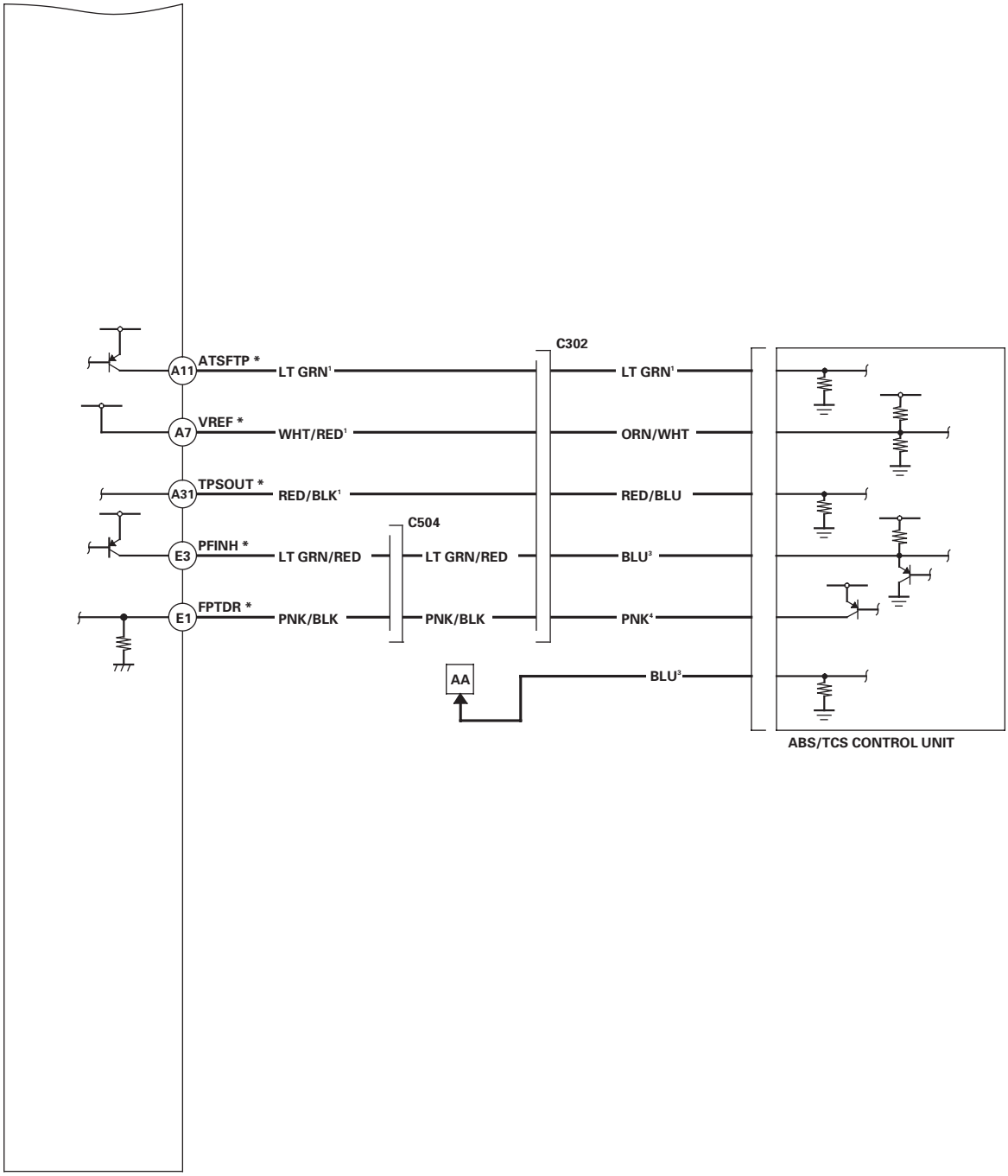



C4
IGPLS1
C14
IGPLS2
C3
IGPLS3
C13
IGPLS4
C12
IGPLS5
C23
IGPLS6
BLK/YEL
YEL/GRN
BLK[1]
ICM
To SPARK PLUG
No. 1 IGNITION COIL
BLK/YEL
RED[5]
BLK[1]
No. 2 IGNITION COIL
BLK/YEL
BLU[5]
BLK[1]
No. 3 IGNITION COIL
BLK/YEL
YEL[2]
BLK[1]
No. 4 IGNITION COIL
BLK/YEL
BLK/RED[2]
BLK[1]
No. 5 IGNITION COIL
BLK/YEL
WHT/BLU
BLK[1]
No. 6 IGNITION COIL
JUNCTION CONNECTOR B
BLK[1]
G101
JUNCTION CONNECTOR B
Z
C101
BLK/YEL
BLK/YEL
E
C22
KS
RED/BLU
C103
RED/BLU
KS

(cont'd)

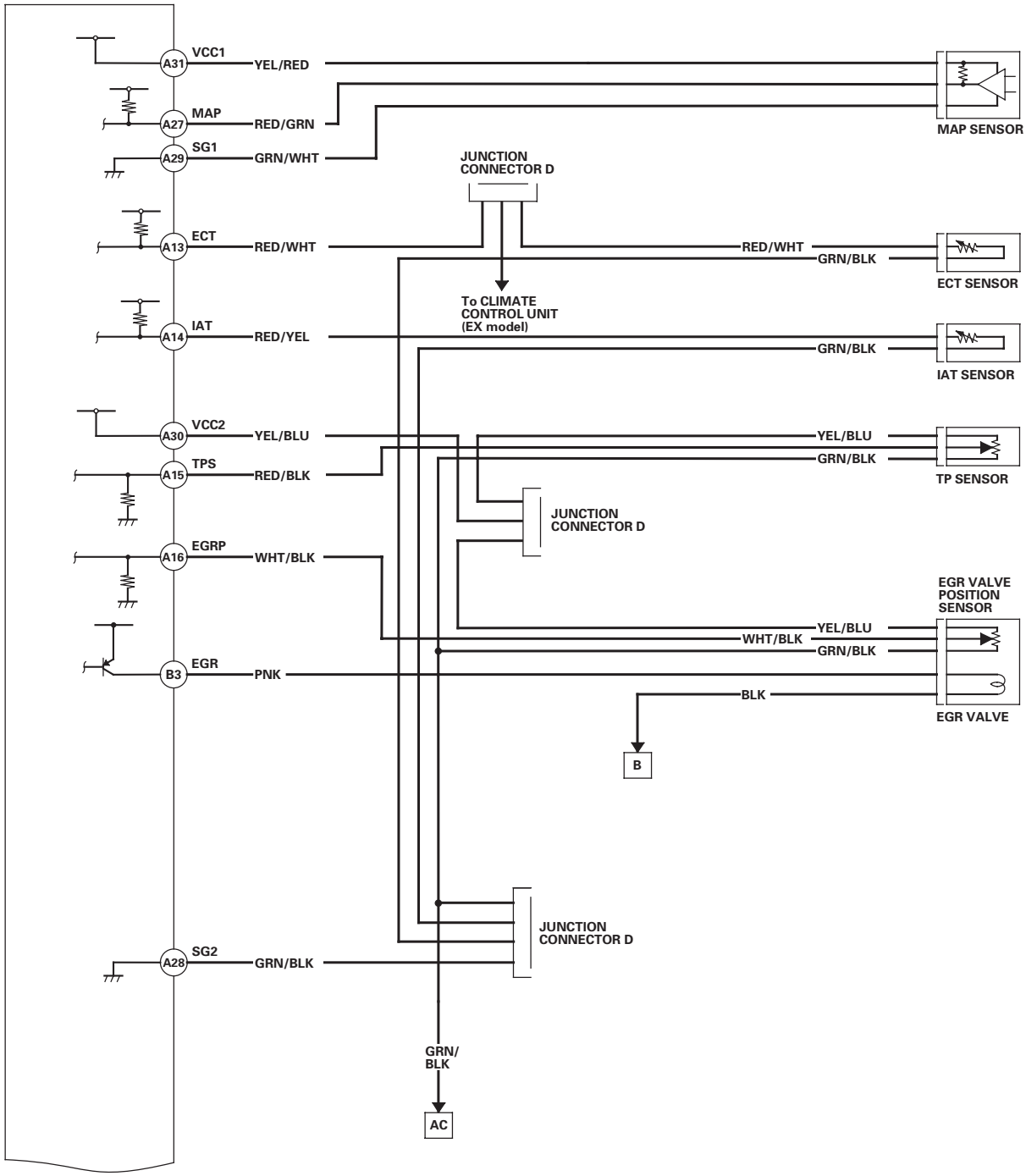
System Descriptions (cont'd)

PCM Circuit Diagram — '99-00 Models (cont'd)



* : with ABS/TCS

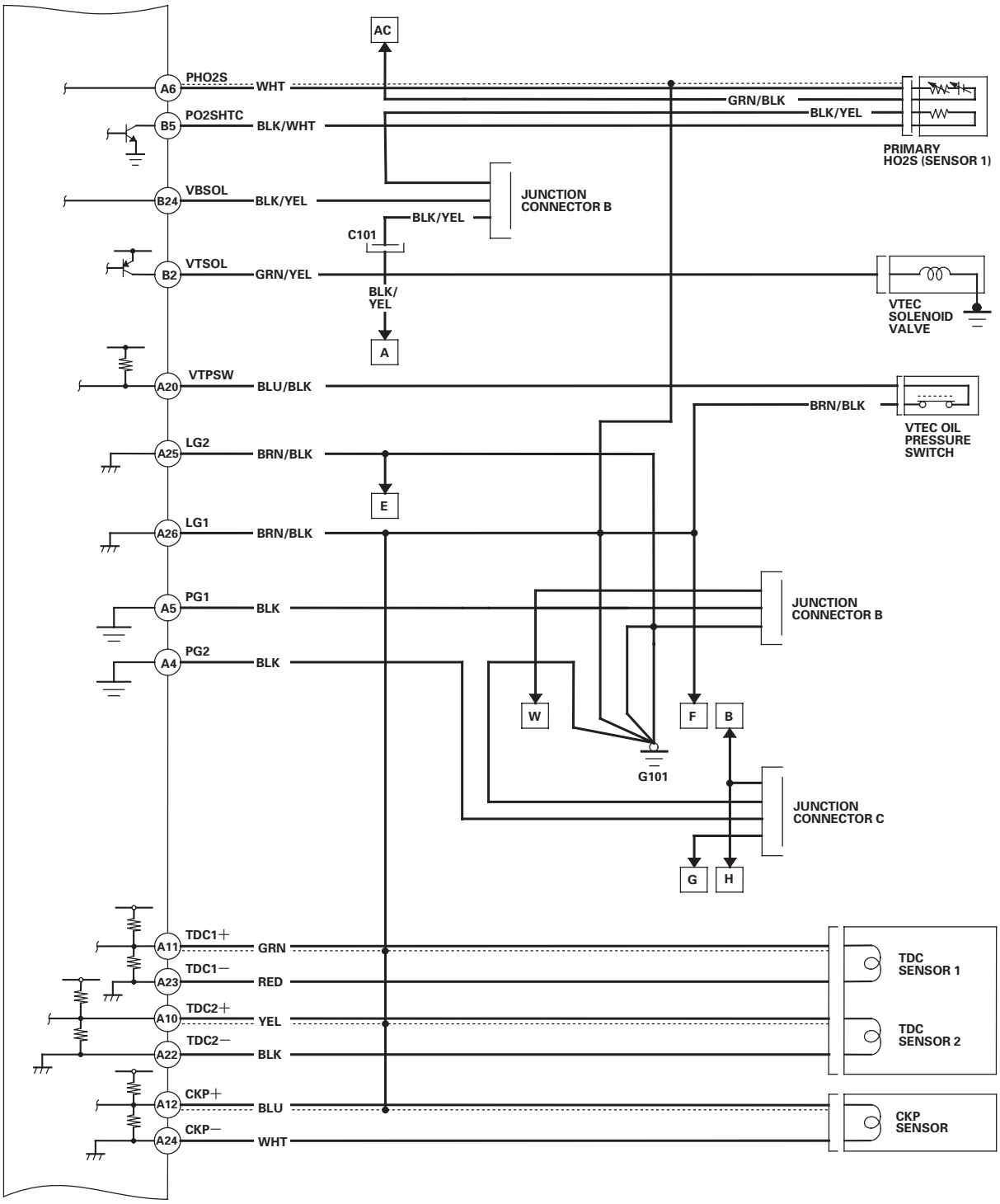
PCM Circuit Diagram — '01 Model

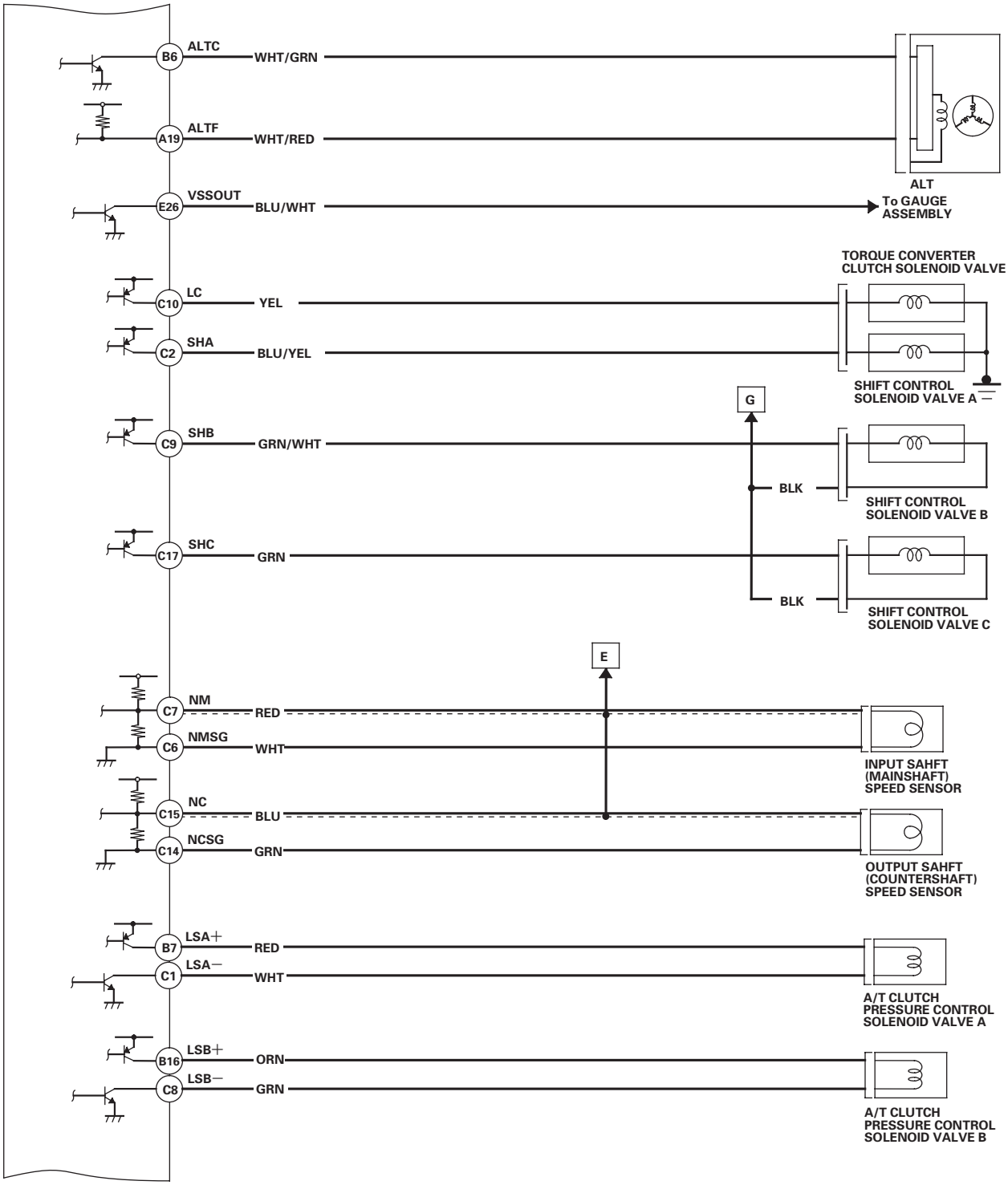


(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '01 Model (cont'd)

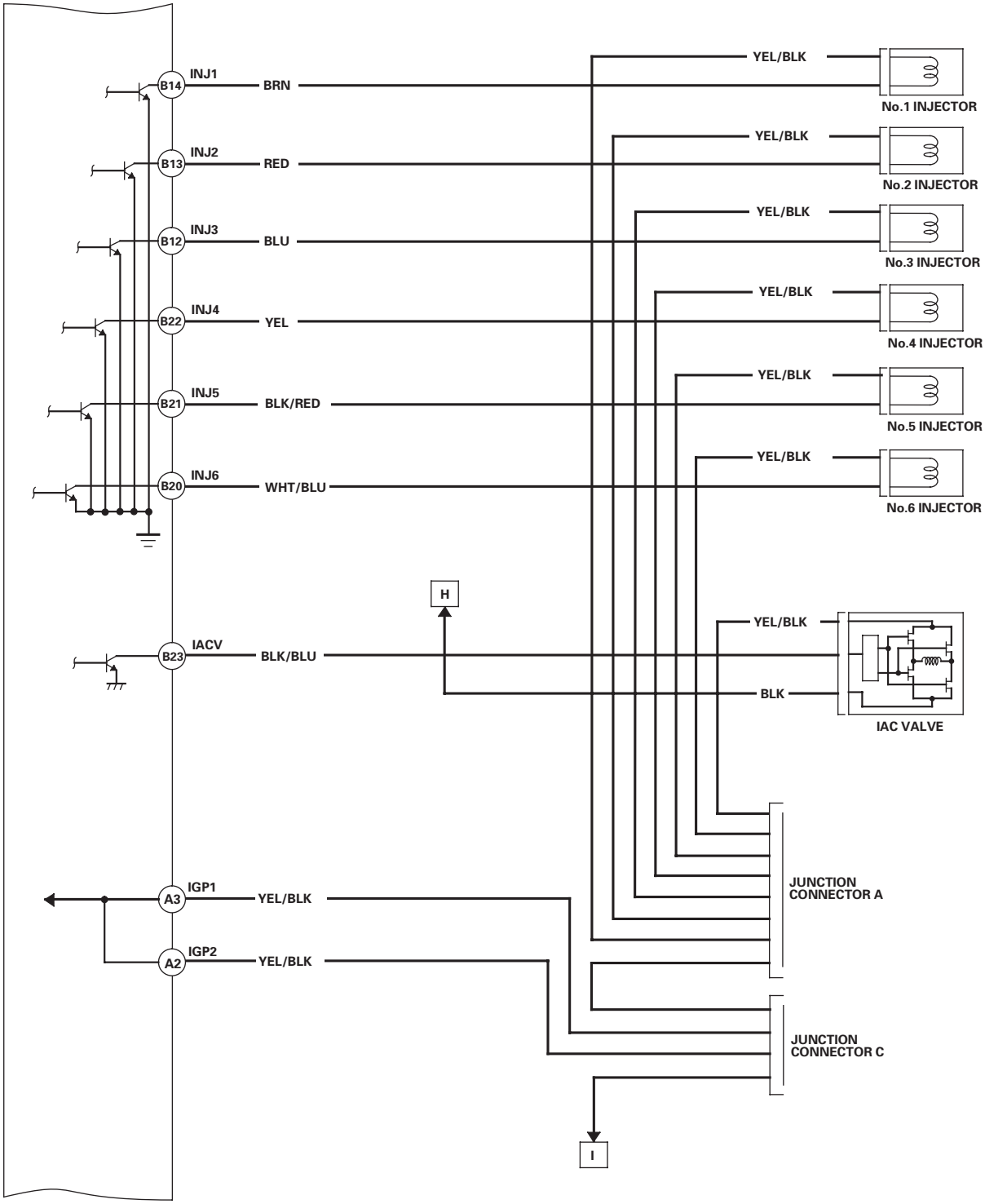


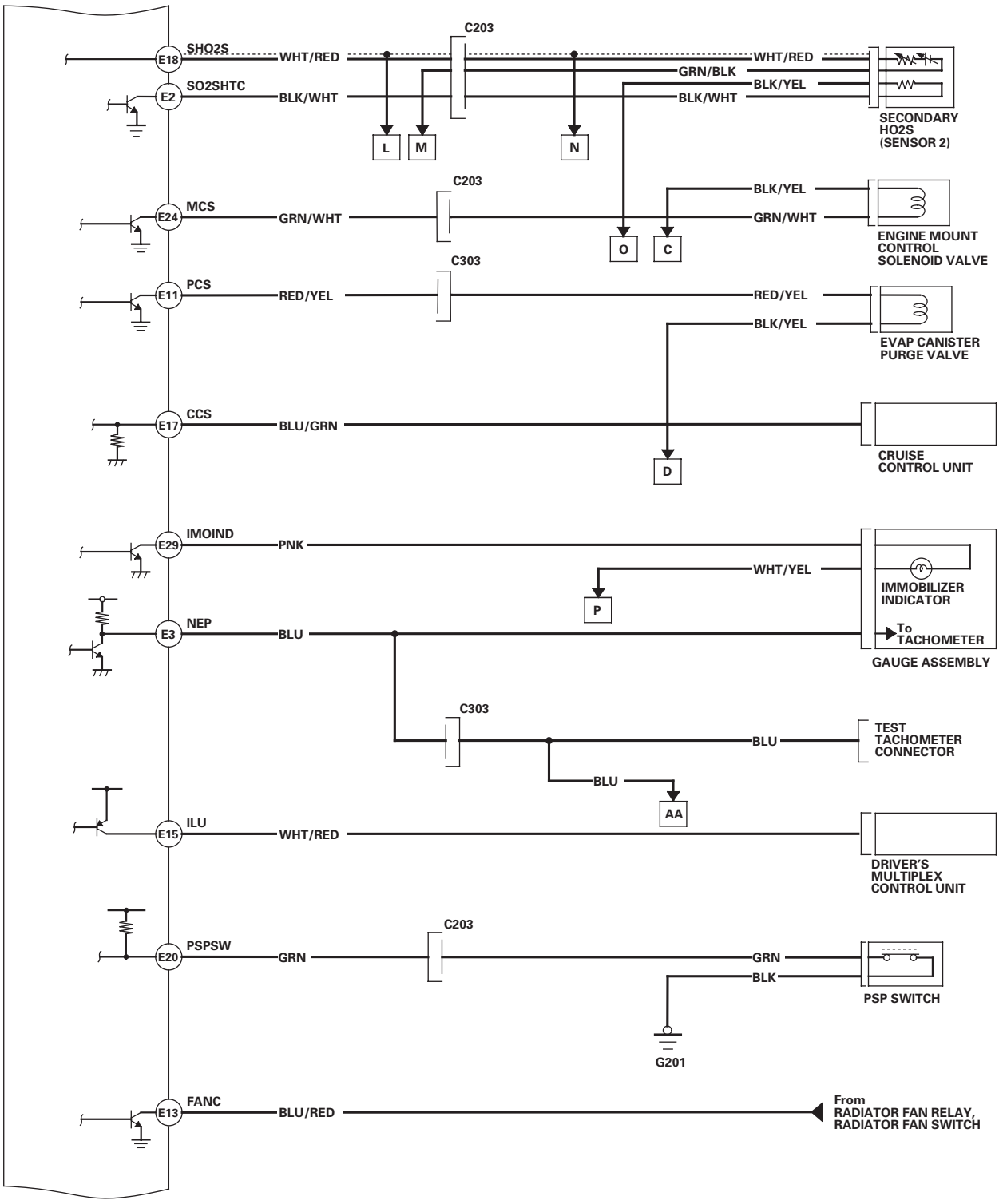

B6
ALTC
WHT/GRN
A19
ALTF
WHT/RED
ALT
E26
VSSOUT
BLU/WHT
To GAUGE ASSEMBLY
TORQUE CONVERTER CLUTCH SOLENOID VALVE
C10
LC
YEL
C2
SHA
BLU/YEL
SHIFT CONTROL SOLENOID VALVE A
G
C9
SHB
GRN/WHT
BLK
SHIFT CONTROL SOLENOID VALVE B
C17
SHC
GRN
BLK
SHIFT CONTROL SOLENOID VALVE C
E
C7
NM
RED
C6
NMSG
WHT
INPUT SAHFT (MAINSHAFT) SPEED SENSOR
C15
NC
BLU
C14
NCSG
GRN
OUTPUT SAHFT (COUNTERSHAFT) SPEED SENSOR
B7
LSA+
RED
C1
LSA−
WHT
A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A
B16
LSB+
ORN
C8
LSB−
GRN
A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '01 Model (cont'd)

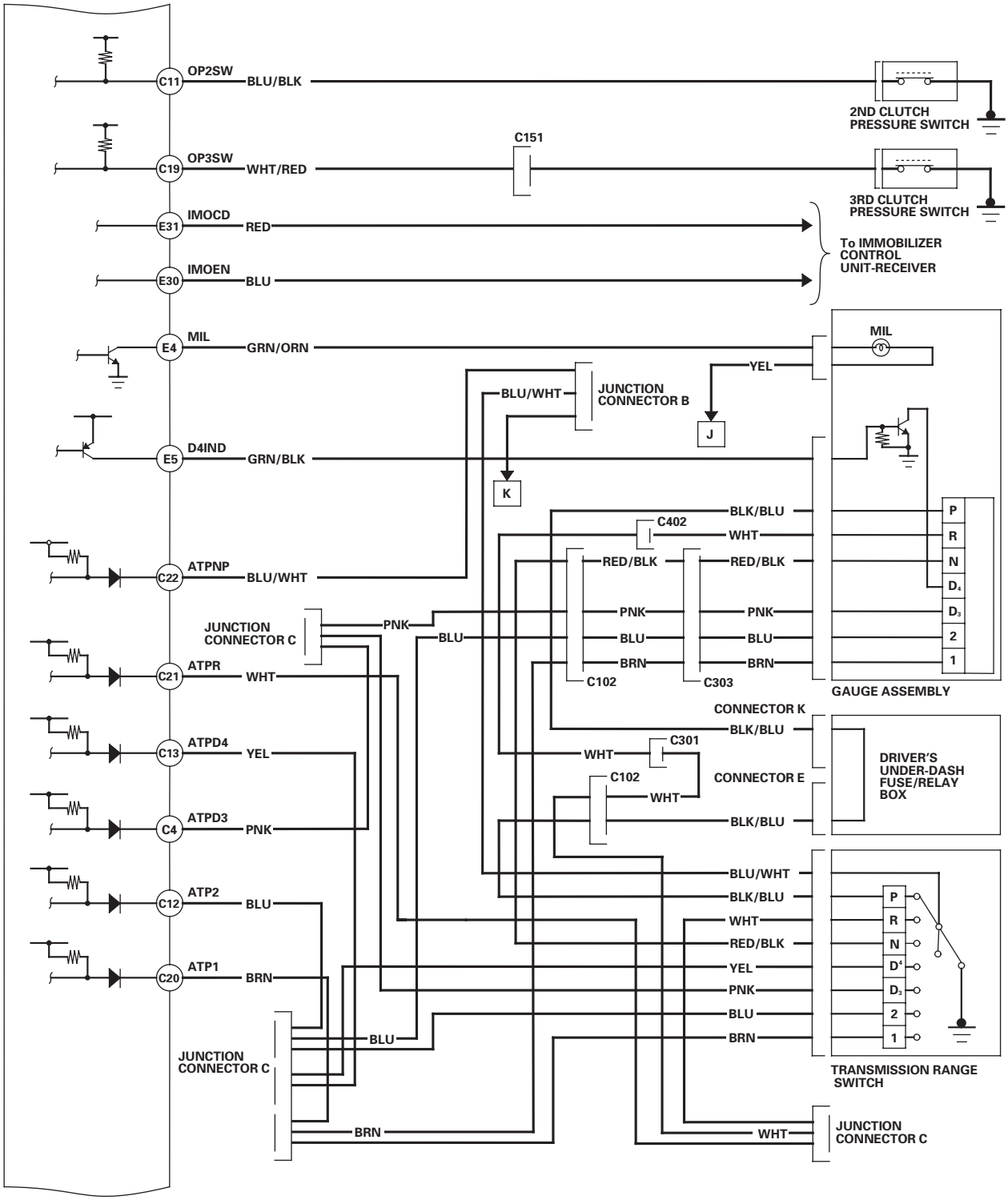


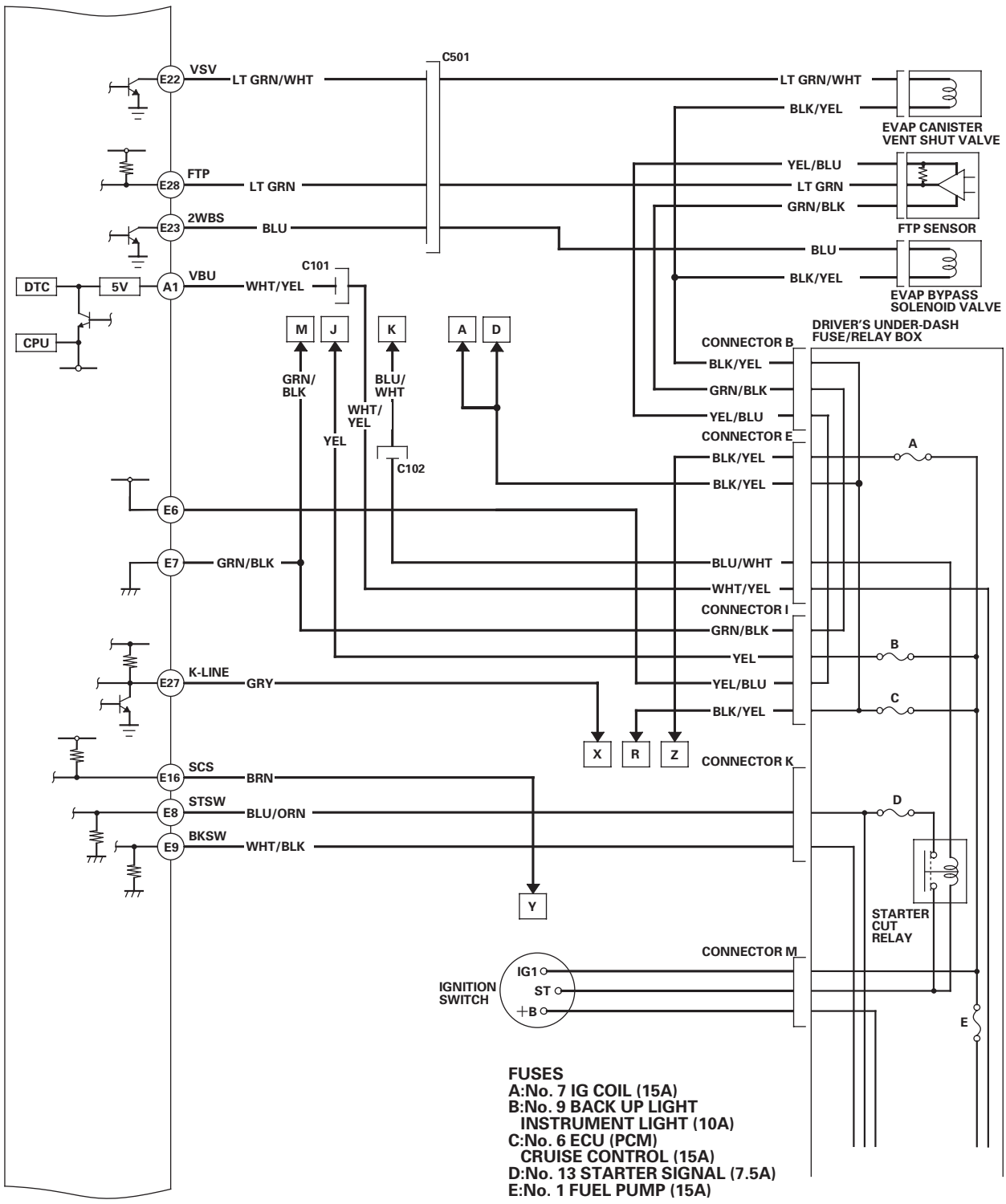

C203
SHO2S
E18
WHT/RED
WHT/RED
GRN/BLK
BLK/YEL
SO2SHTC
E2
BLK/WHT
BLK/WHT
L
M
N
SECONDARY HO2S (SENSOR 2)
C203
MCS
E24
GRN/WHT
BLK/YEL
GRN/WHT
O
C
ENGINE MOUNT CONTROL SOLENOID VALVE
C303
PCS
E11
RED/YEL
RED/YEL
BLK/YEL
EVAP CANISTER PURGE VALVE
CCS
E17
BLU/GRN
D
CRUISE CONTROL UNIT
IMOIND
E29
PNK
WHT/YEL
P
IMMOBILIZER INDICATOR
NEP
E3
BLU
To TACHOMETER
GAUGE ASSEMBLY
C303
BLU
TEST TACHOMETER CONNECTOR
BLU
AA
ILU
E15
WHT/RED
DRIVER'S MULTIPLEX CONTROL UNIT
C203
PSPSW
E20
GRN
GRN
BLK
PSP SWITCH
G201
FANC
E13
BLU/RED
From RADIATOR FAN RELAY, RADIATOR FAN SWITCH

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '01 Model (cont'd)

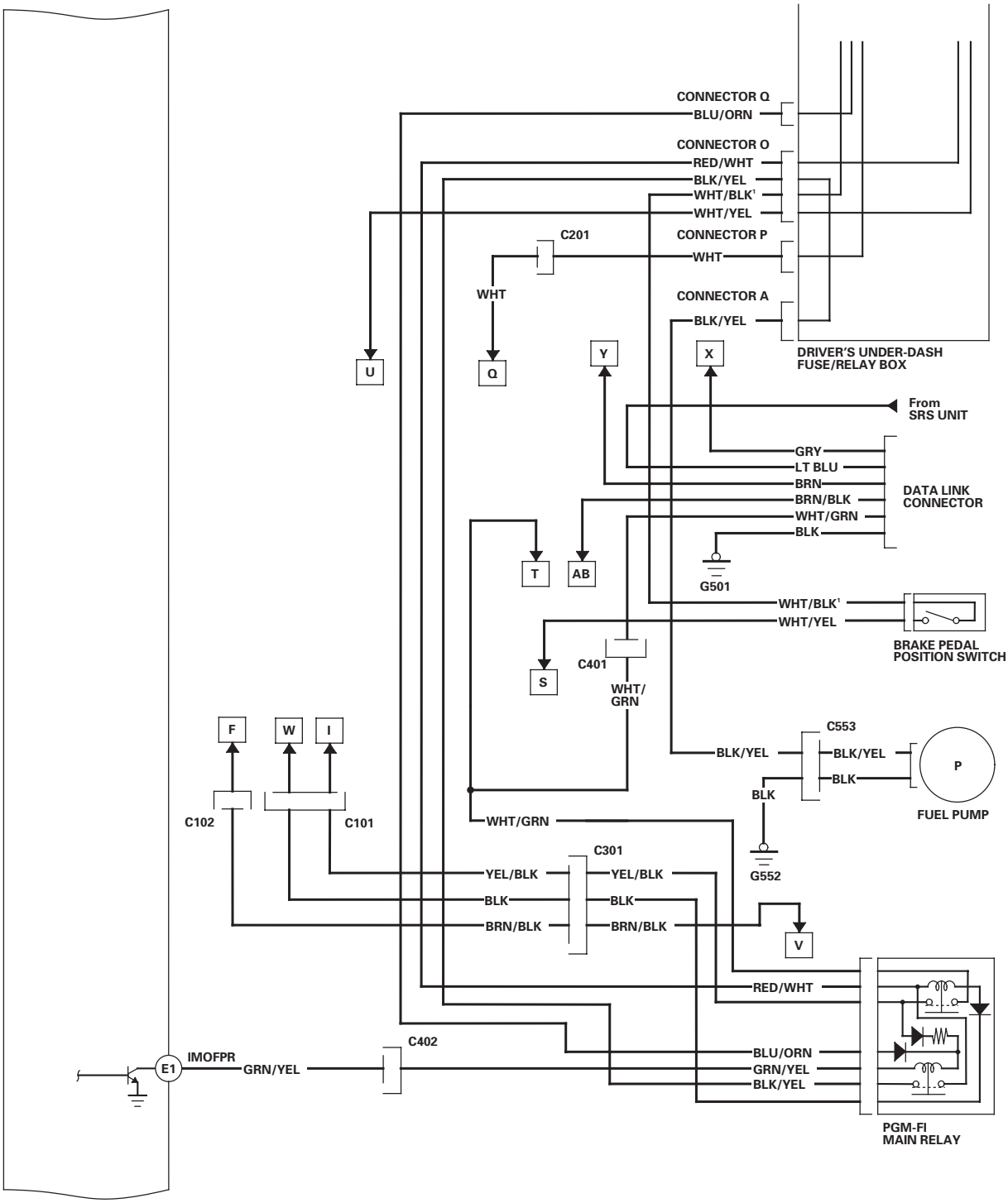


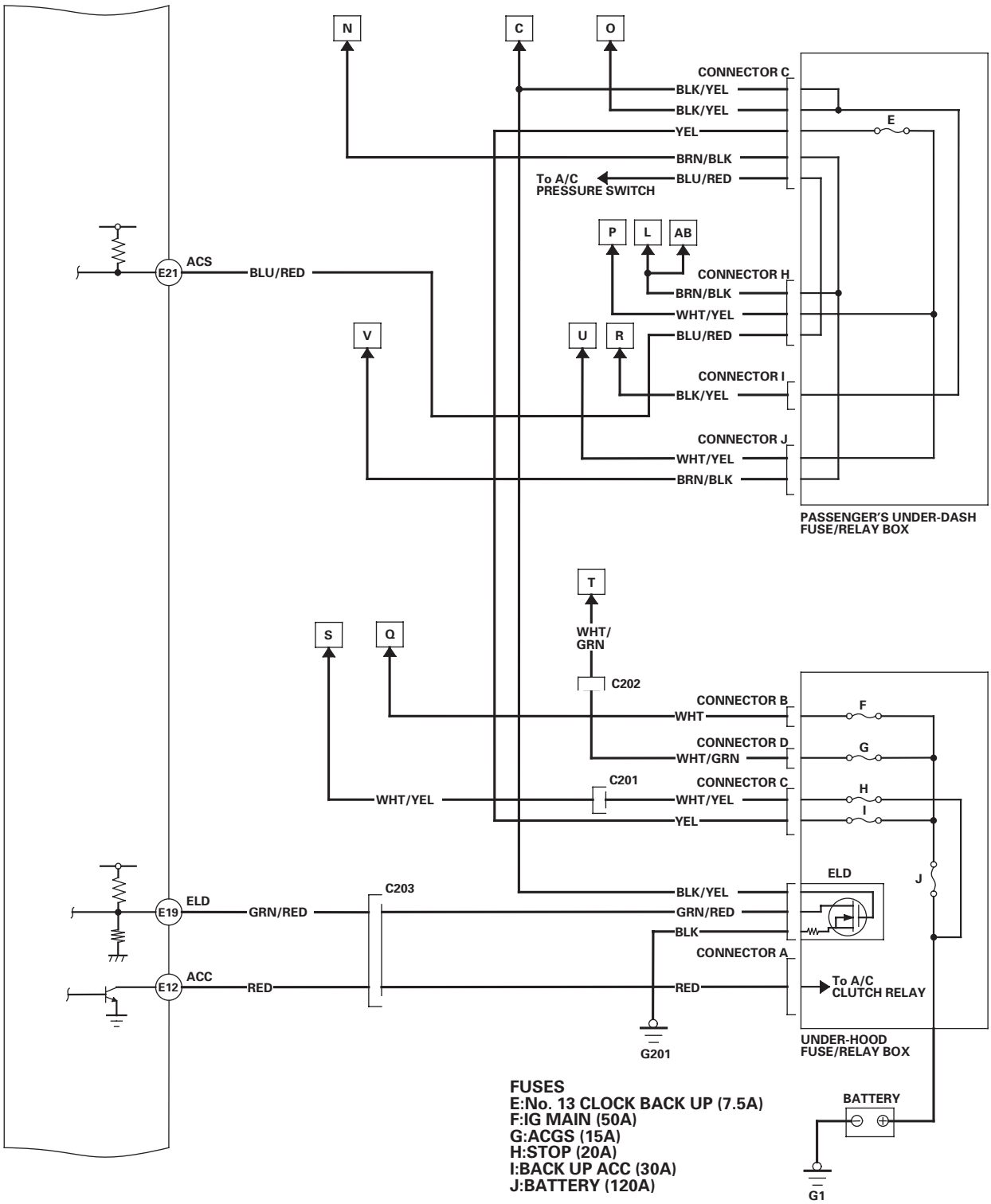

C501
E22
VSV
LT GRN/WHT
LT GRN/WHT
BLK/YEL
EVAP CANISTER VENT SHUT VALVE
E28
FTP
LT GRN
YEL/BLU
LT GRN
GRN/BLK
FTP SENSOR
E23
2WBS
BLU
BLU
BLK/YEL
EVAP BYPASS SOLENOID VALVE
C101
DTC
5V
A1
VBU
WHT/YEL
CPU
M
J
K
A
D
GRN/ BLK
BLU/ WHT
WHT/ YEL
YEL
C102
DRIVER'S UNDER-DASH FUSE/RELAY BOX
CONNECTOR B
BLK/YEL
GRN/BLK
YEL/BLU
CONNECTOR E
BLK/YEL
BLK/YEL
A
E6
E7
GRN/BLK
BLU/WHT
WHT/YEL
CONNECTOR I
GRN/BLK
YEL
B
E27
K-LINE
GRY
YEL/BLU
C
BLK/YEL
X
R
Z
CONNECTOR K
E16
SCS
BRN
E8
STSW
BLU/ORN
D
E9
BKSW
WHT/BLK
STARTER CUT RELAY
Y
CONNECTOR M
IGNITION SWITCH
IG1
ST
+B
E
FUSES
A:No. 7 IG COIL (15A)
B:No. 9 BACK UP LIGHT
INSTRUMENT LIGHT (10A)
C:No. 6 ECU (PCM)
CRUISE CONTROL (15A)
D:No. 13 STARTER SIGNAL (7.5A)
E:No. 1 FUEL PUMP (15A)

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '01 Model (cont'd)

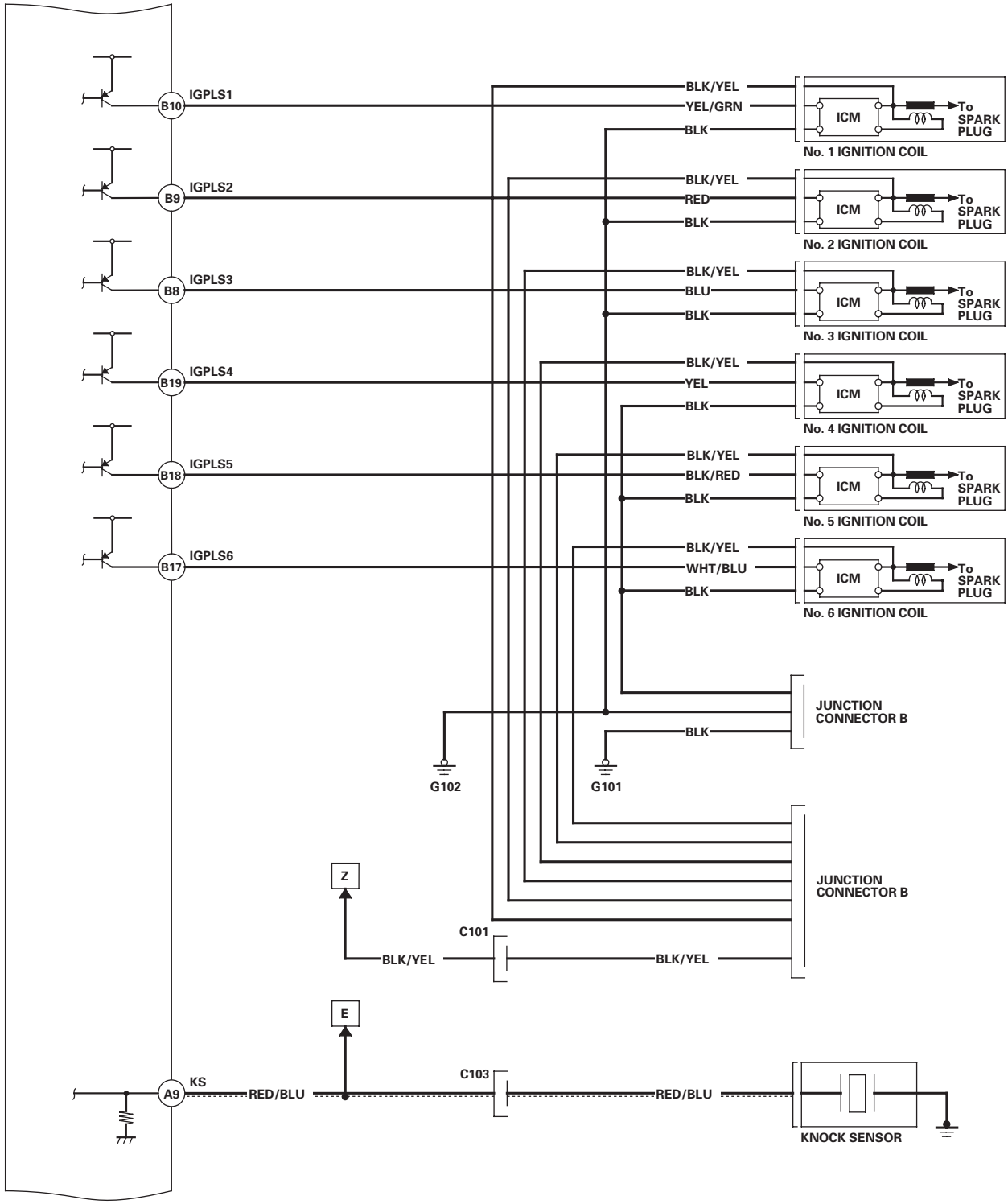


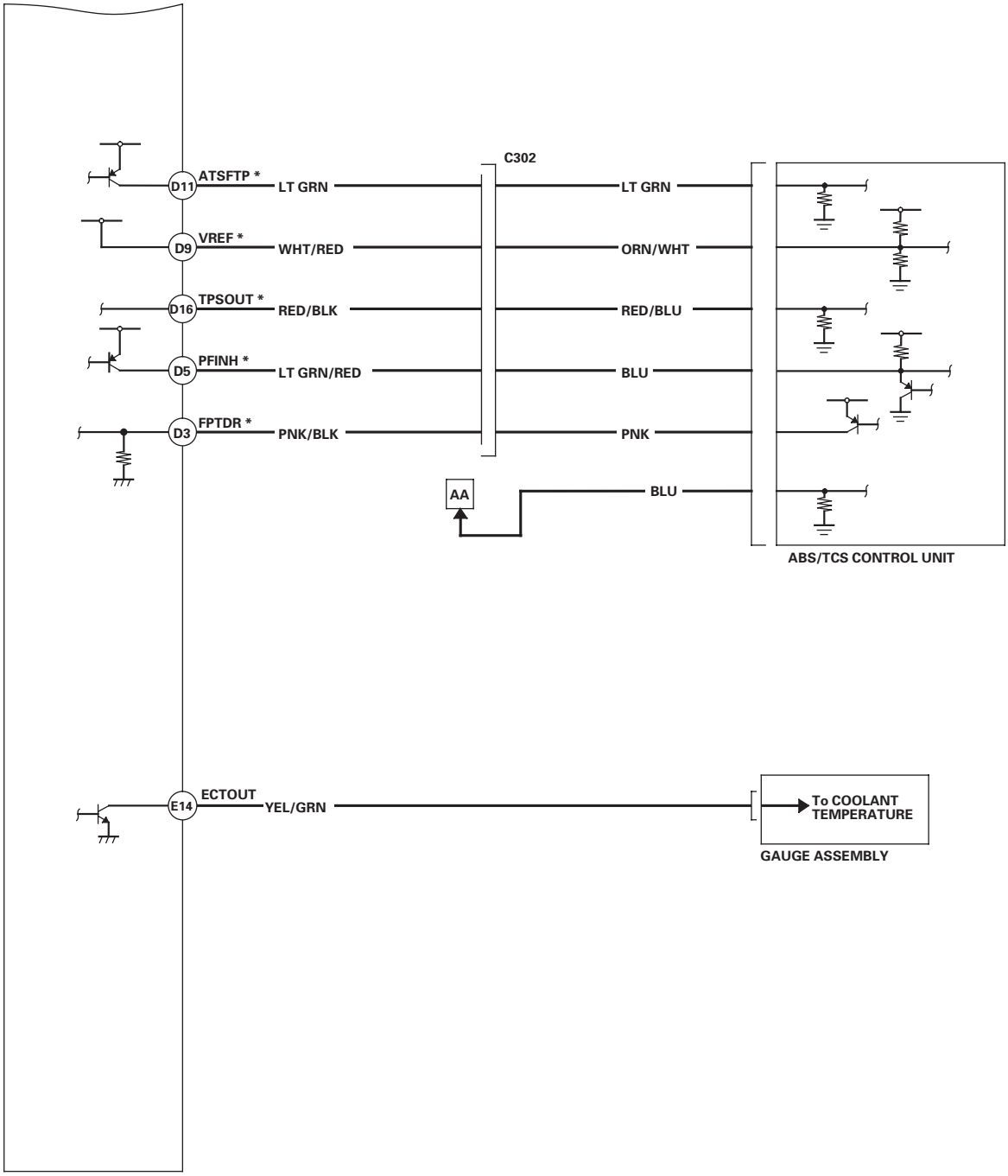

N
C
O
CONNECTOR C
BLK/YEL
BLK/YEL
YEL
BRN/BLK
BLU/RED
To A/C
PRESSURE SWITCH
E
P
L
AB
CONNECTOR H
BRN/BLK
WHT/YEL
BLU/RED
V
U
R
CONNECTOR I
BLK/YEL
CONNECTOR J
WHT/YEL
BRN/BLK
PASSENGER'S UNDER-DASH
FUSE/RELAY BOX
ACS
E21
BLU/RED
T
WHT/
GRN
S
Q
C202
CONNECTOR B
WHT
F
CONNECTOR D
WHT/GRN
G
C201
CONNECTOR C
WHT/YEL
H
I
YEL
WHT/YEL
ELD
J
E19
ELD
GRN/RED
C203
BLK/YEL
GRN/RED
BLK
CONNECTOR A
E12
ACC
RED
RED
To A/C
CLUTCH RELAY
G201
UNDER-HOOD
FUSE/RELAY BOX
FUSES
E:No. 13 CLOCK BACK UP (7.5A)
F:IG MAIN (50A)
G:ACGS (15A)
H:STOP (20A)
I:BACK UP ACC (30A)
J:BATTERY (120A)
BATTERY
G1

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '01 Model (cont'd)



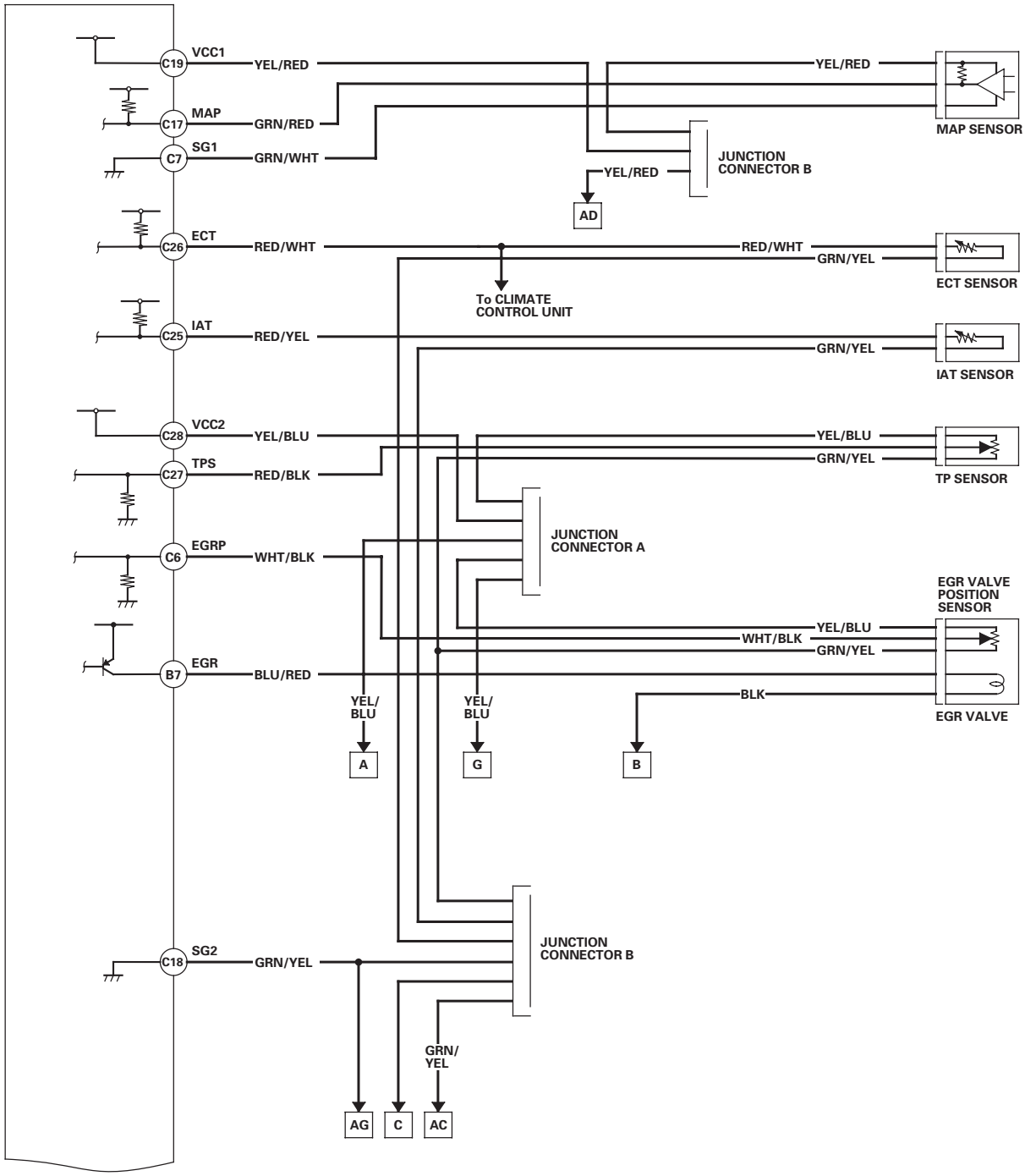


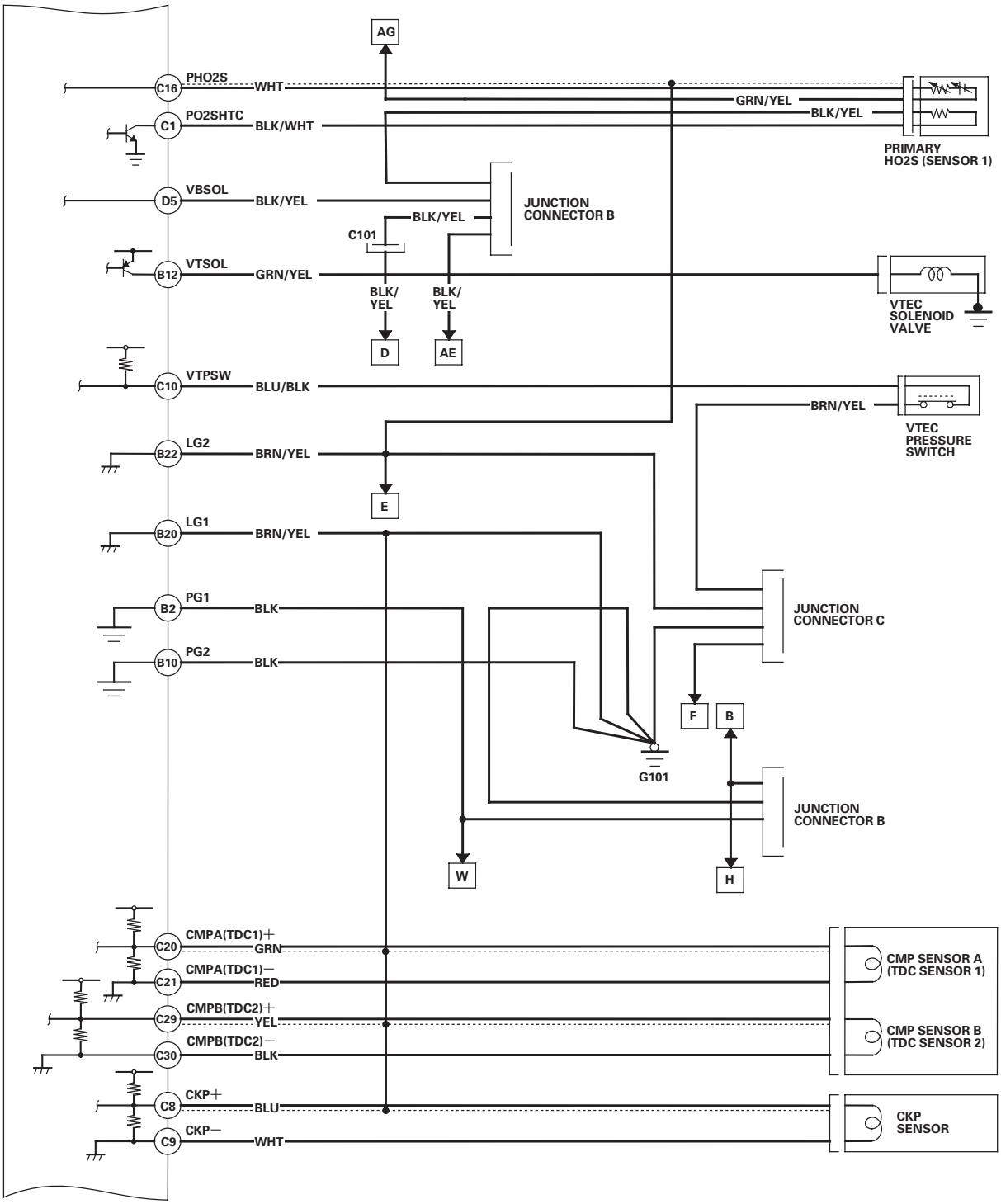
*** : with ABS/TCS**

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '02-04 Models

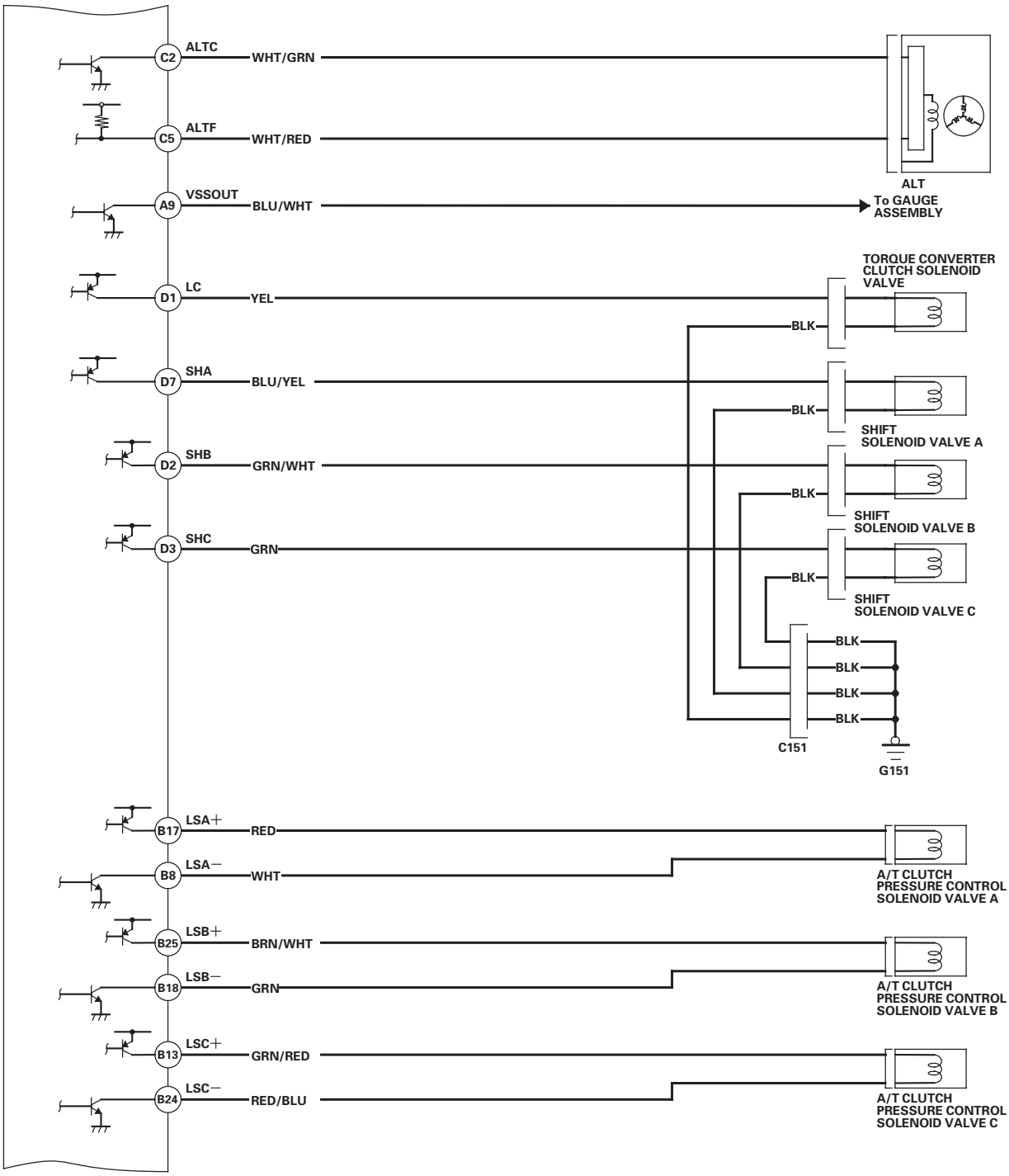


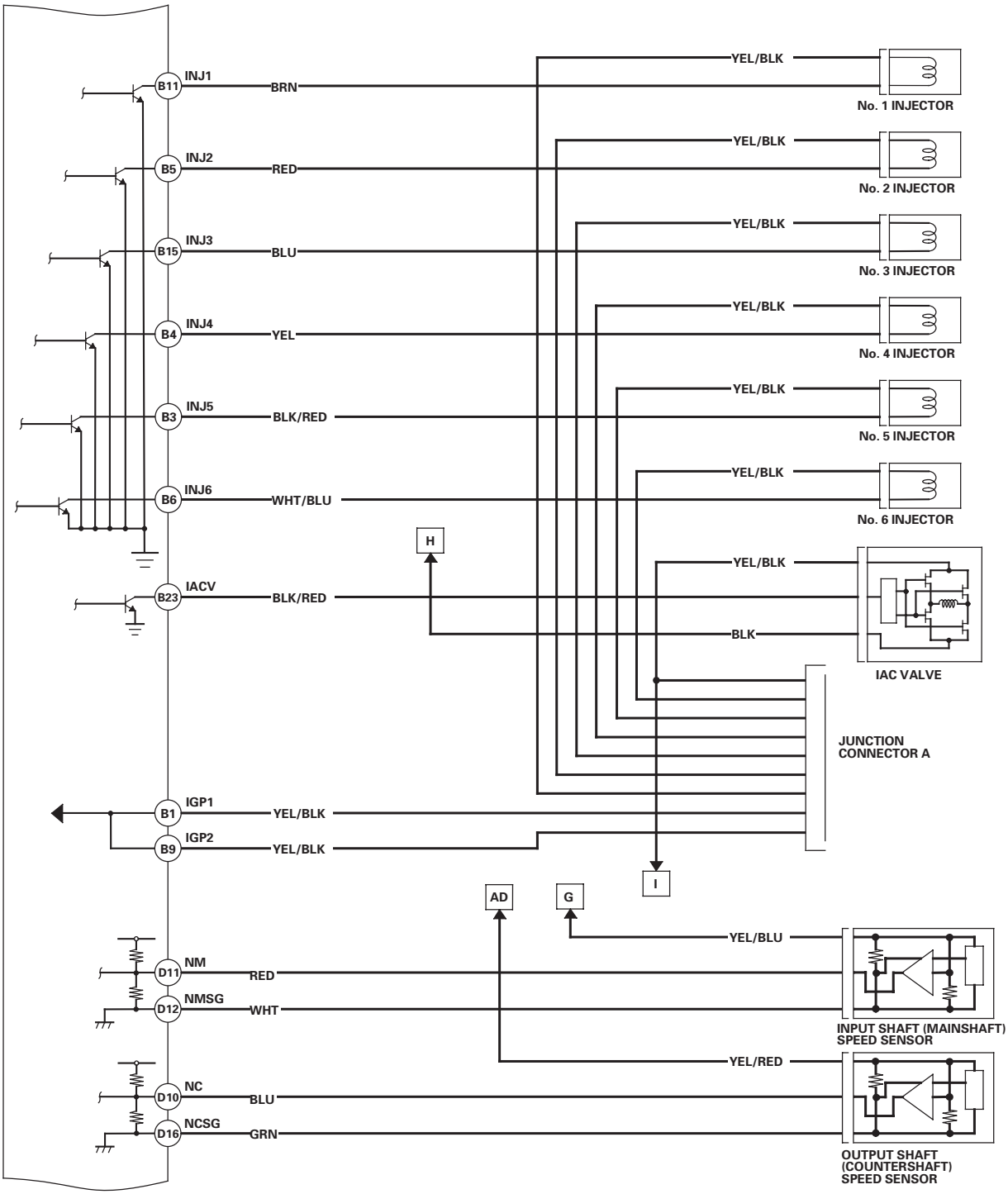

AG
C16
PHO2S
WHT
GRN/YEL
BLK/YEL
C1
PO2SHTC
BLK/WHT
PRIMARY HO2S (SENSOR 1)
D5
VBSOL
BLK/YEL
JUNCTION CONNECTOR B
BLK/YEL
C101
B12
VTSOL
GRN/YEL
BLK/ YEL
BLK/ YEL
VTEC SOLENOID VALVE
D
AE
C10
VTPSW
BLU/BLK
BRN/YEL
VTEC PRESSURE SWITCH
B22
LG2
BRN/YEL
E
B20
LG1
BRN/YEL
B2
PG1
BLK
JUNCTION CONNECTOR C
B10
PG2
BLK
F
B
G101
JUNCTION CONNECTOR B
W
H
C20
CMPA(TDC1)+
GRN
C21
CMPA(TDC1)−
RED
C29
CMPB(TDC2)+
YEL
C30
CMPB(TDC2)−
BLK
CMP SENSOR A (TDC SENSOR 1)
CMP SENSOR B (TDC SENSOR 2)
C8
CKP+
BLU
C9
CKP−
WHT
CKP SENSOR

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '02-04 Models (cont'd)

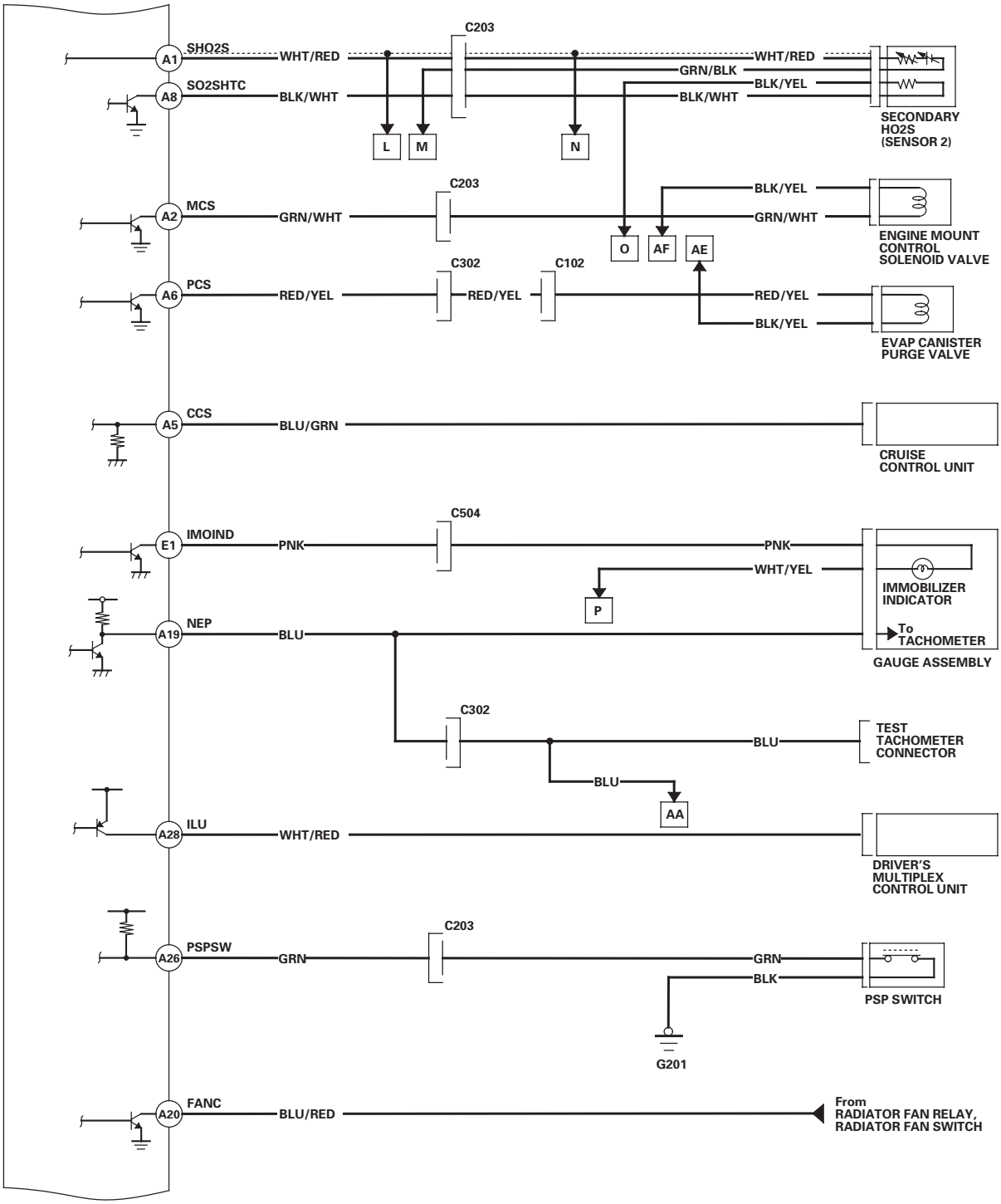


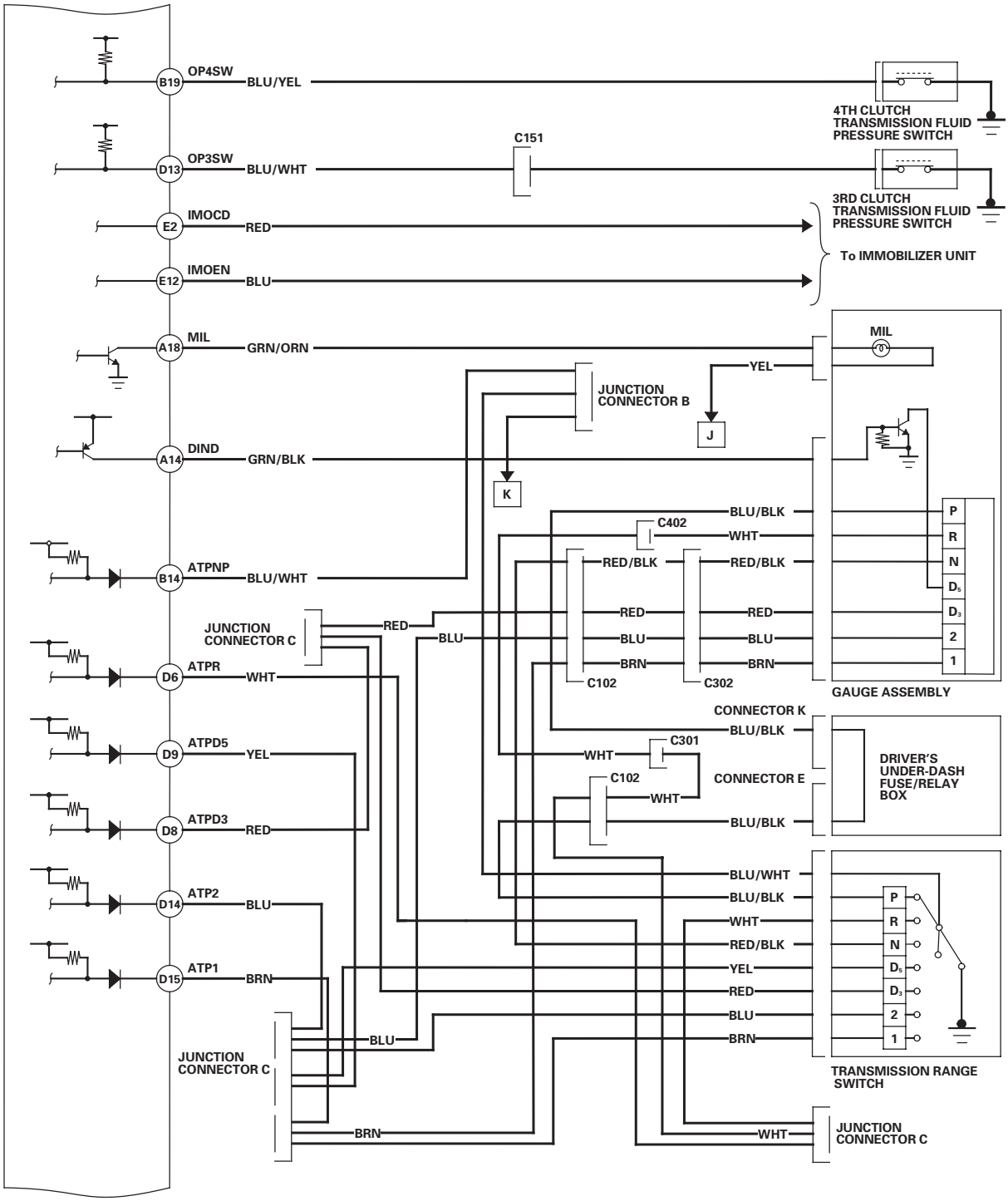

INJ1
B11
BRN
YEL/BLK
No. 1 INJECTOR
INJ2
B5
RED
YEL/BLK
No. 2 INJECTOR
INJ3
B15
BLU
YEL/BLK
No. 3 INJECTOR
INJ4
B4
YEL
YEL/BLK
No. 4 INJECTOR
INJ5
B3
BLK/RED
YEL/BLK
No. 5 INJECTOR
INJ6
B6
WHT/BLU
YEL/BLK
No. 6 INJECTOR
H
IACV
B23
BLK/RED
YEL/BLK
BLK
IAC VALVE
JUNCTION CONNECTOR A
IGP1
B1
YEL/BLK
IGP2
B9
YEL/BLK
I
AD
G
NM
D11
RED
YEL/BLU
NMSG
D12
WHT
INPUT SHAFT (MAINSHAFT) SPEED SENSOR
NC
D10
BLU
YEL/RED
NCSG
D16
GRN
OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '02-04 Models (cont'd)

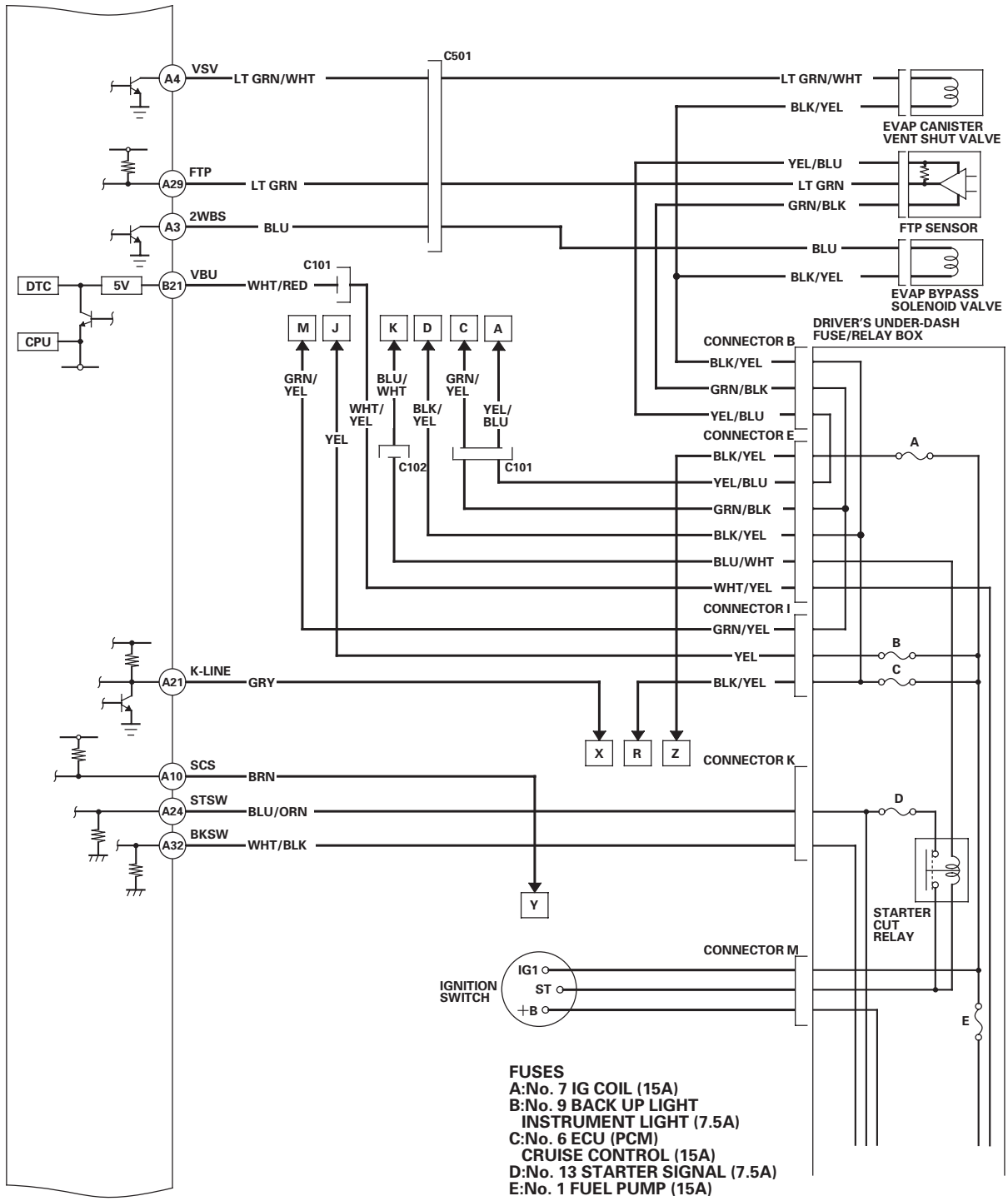


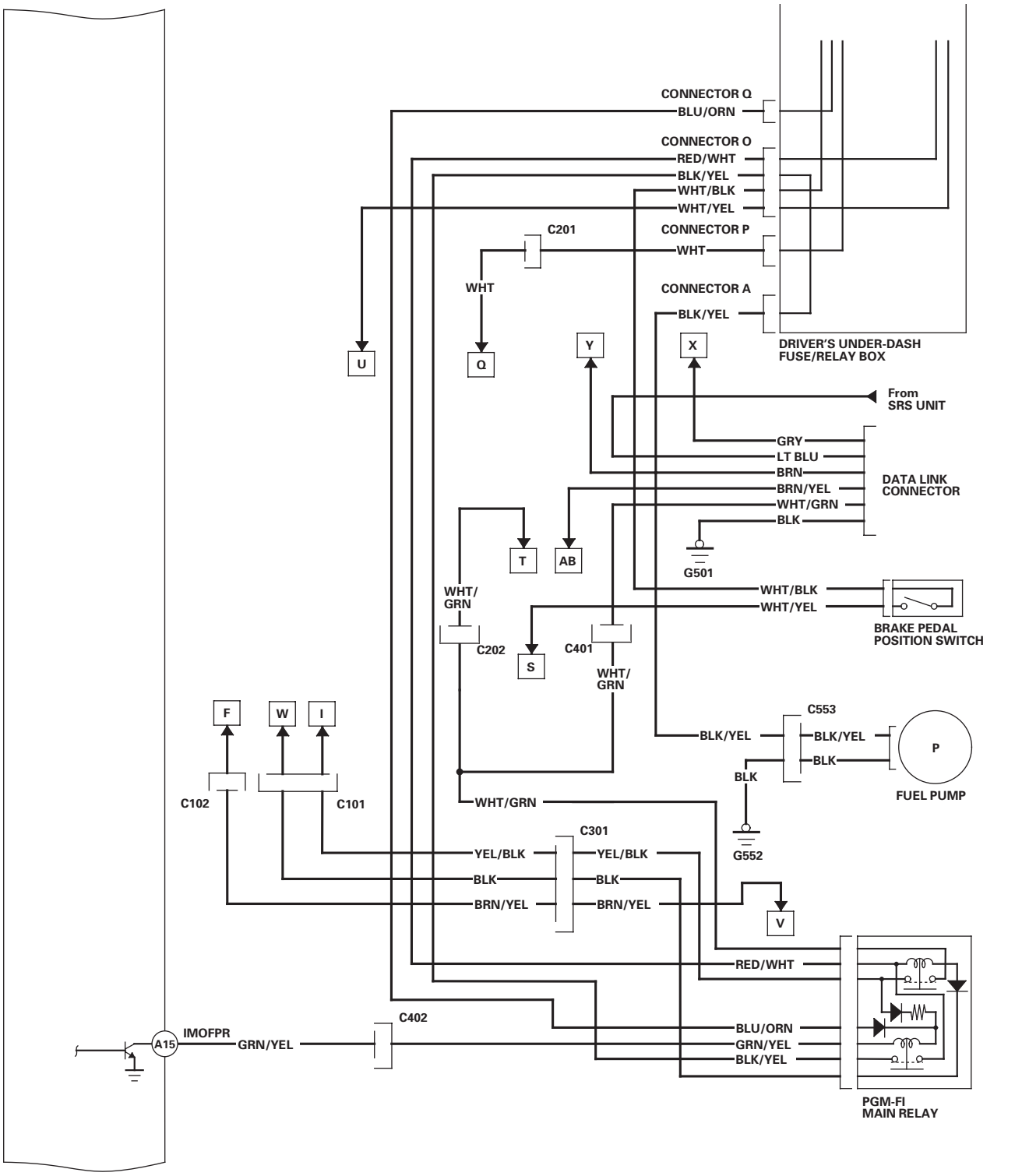

B19
OP4SW
BLU/YEL
4TH CLUTCH TRANSMISSION FLUID PRESSURE SWITCH
C151
D13
OP3SW
BLU/WHT
3RD CLUTCH TRANSMISSION FLUID PRESSURE SWITCH
E2
IMOCD
RED
E12
IMOEN
BLU
To IMMOBILIZER UNIT
A18
MIL
GRN/ORN
MIL
YEL
JUNCTION CONNECTOR B
J
A14
DIND
GRN/BLK
K
BLU/BLK
C402
WHT
P
R
N
D5
D3
2
1
B14
ATPNP
BLU/WHT
RED/BLK
RED/BLK
JUNCTION CONNECTOR C
RED
RED
BLU
BLU
BLU
D6
ATPR
WHT
BRN
BRN
C102
C302
GAUGE ASSEMBLY
CONNECTOR K
BLU/BLK
C301
WHT
D9
ATPD5
YEL
C102
CONNECTOR E
DRIVER'S UNDER-DASH FUSE/RELAY BOX
WHT
D8
ATPD3
RED
BLU/BLK
BLU/WHT
BLU/BLK
WHT
D14
ATP2
BLU
RED/BLK
YEL
RED
D15
ATP1
BRN
BLU
BRN
JUNCTION CONNECTOR C
TRANSMISSION RANGE SWITCH
BRN
WHT
JUNCTION CONNECTOR C

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '02-04 Models (cont'd)

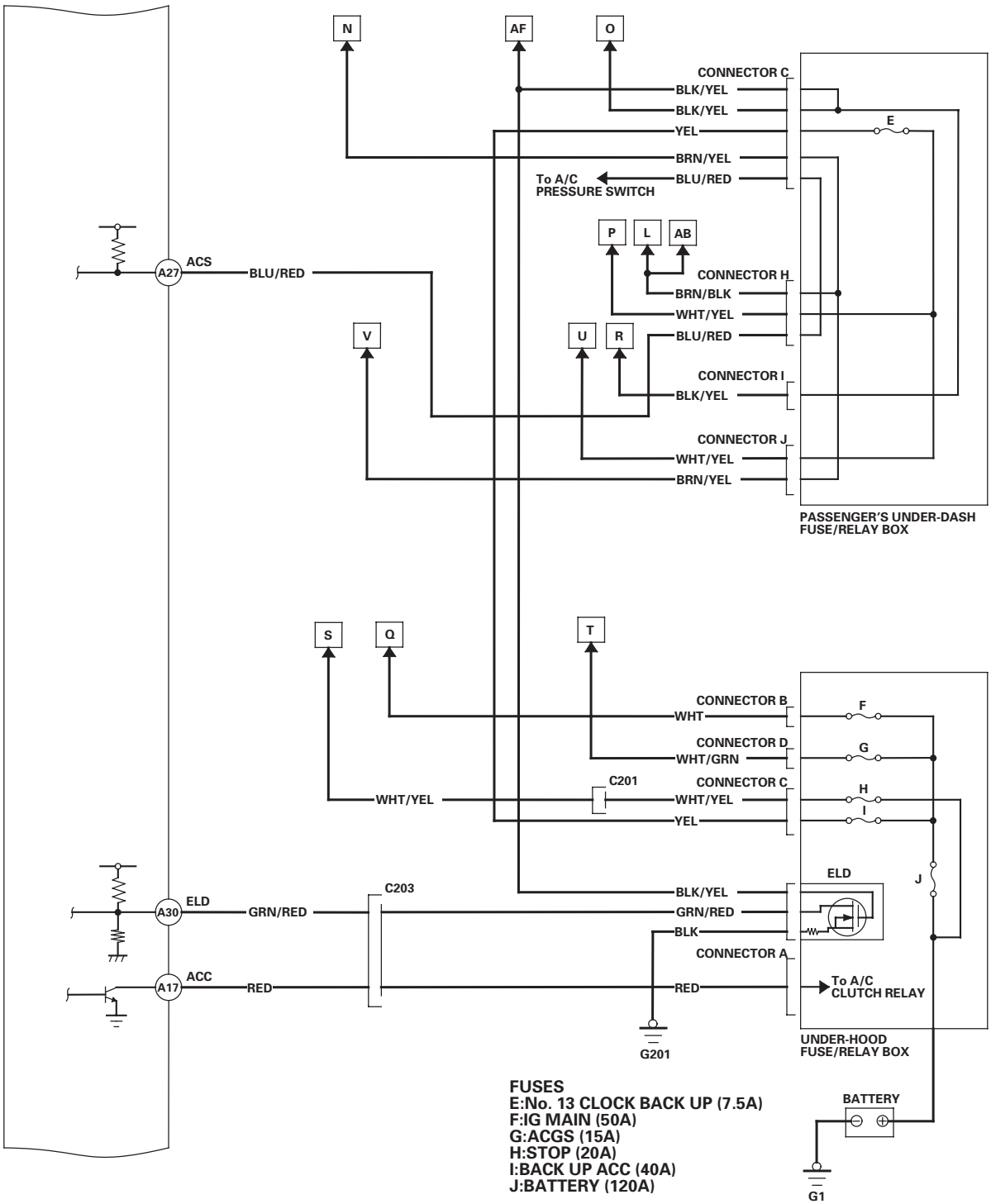


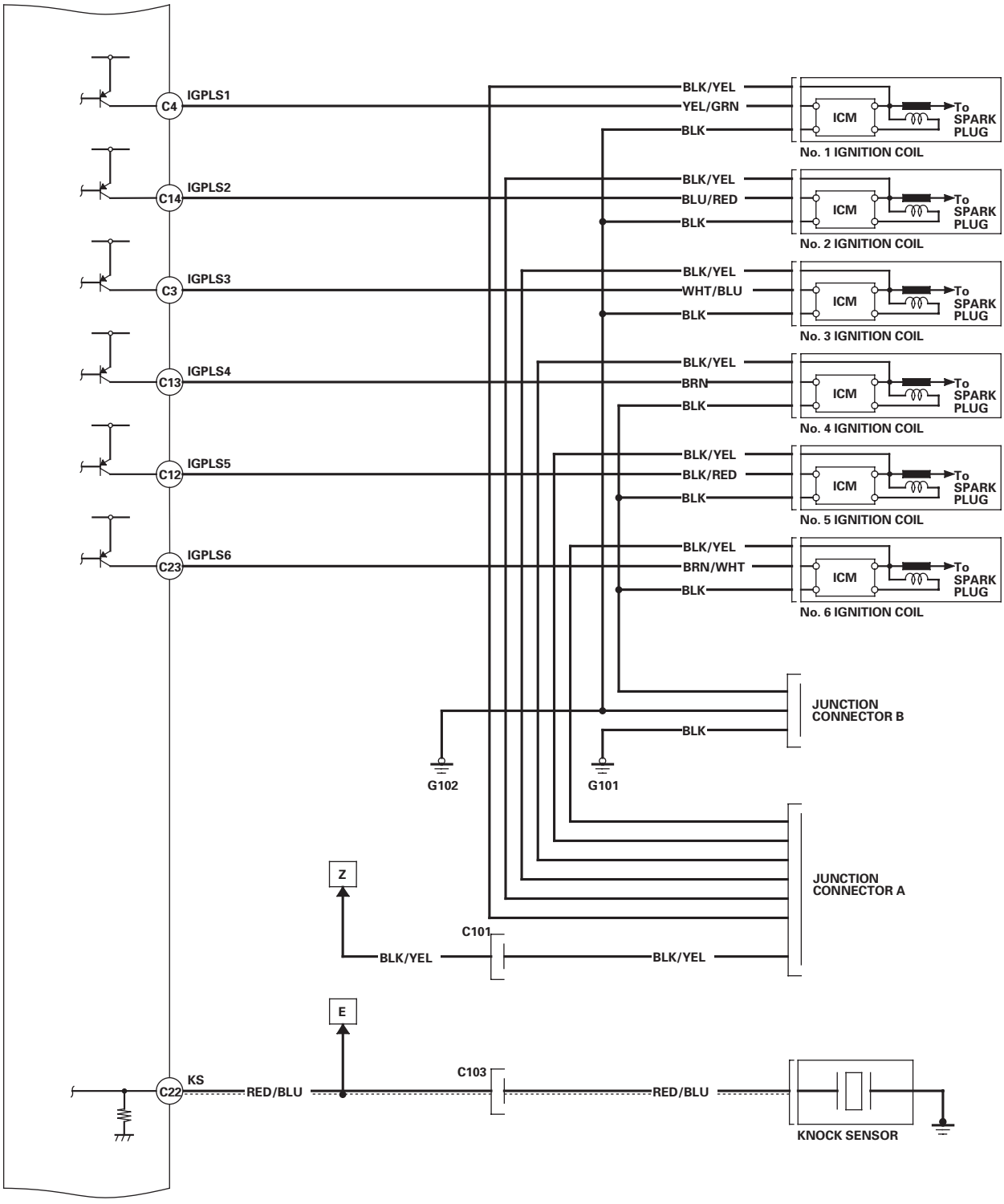

CONNECTOR Q
BLU/ORN
CONNECTOR O
RED/WHT
BLK/YEL
WHT/BLK
WHT/YEL
C201
CONNECTOR P
WHT
WHT
CONNECTOR A
BLK/YEL
DRIVER'S UNDER-DASH FUSE/RELAY BOX
U
Q
Y
X
From SRS UNIT
GRY
LT BLU
BRN
BRN/YEL
WHT/GRN
BLK
DATA LINK CONNECTOR
G501
T
AB
WHT/BLK
WHT/YEL
BRAKE PEDAL POSITION SWITCH
WHT/ GRN
C202
S
C401
WHT/ GRN
C553
BLK/YEL
BLK/YEL
BLK
P
BLK
FUEL PUMP
F
W
I
C102
C101
WHT/GRN
G552
C301
YEL/BLK
YEL/BLK
BLK
BLK
BRN/YEL
BRN/YEL
V
RED/WHT
BLU/ORN
GRN/YEL
BLK/YEL
PGM-FI MAIN RELAY
C402
A15
IMOFPR
GRN/YEL

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '02-04 Models (cont'd)

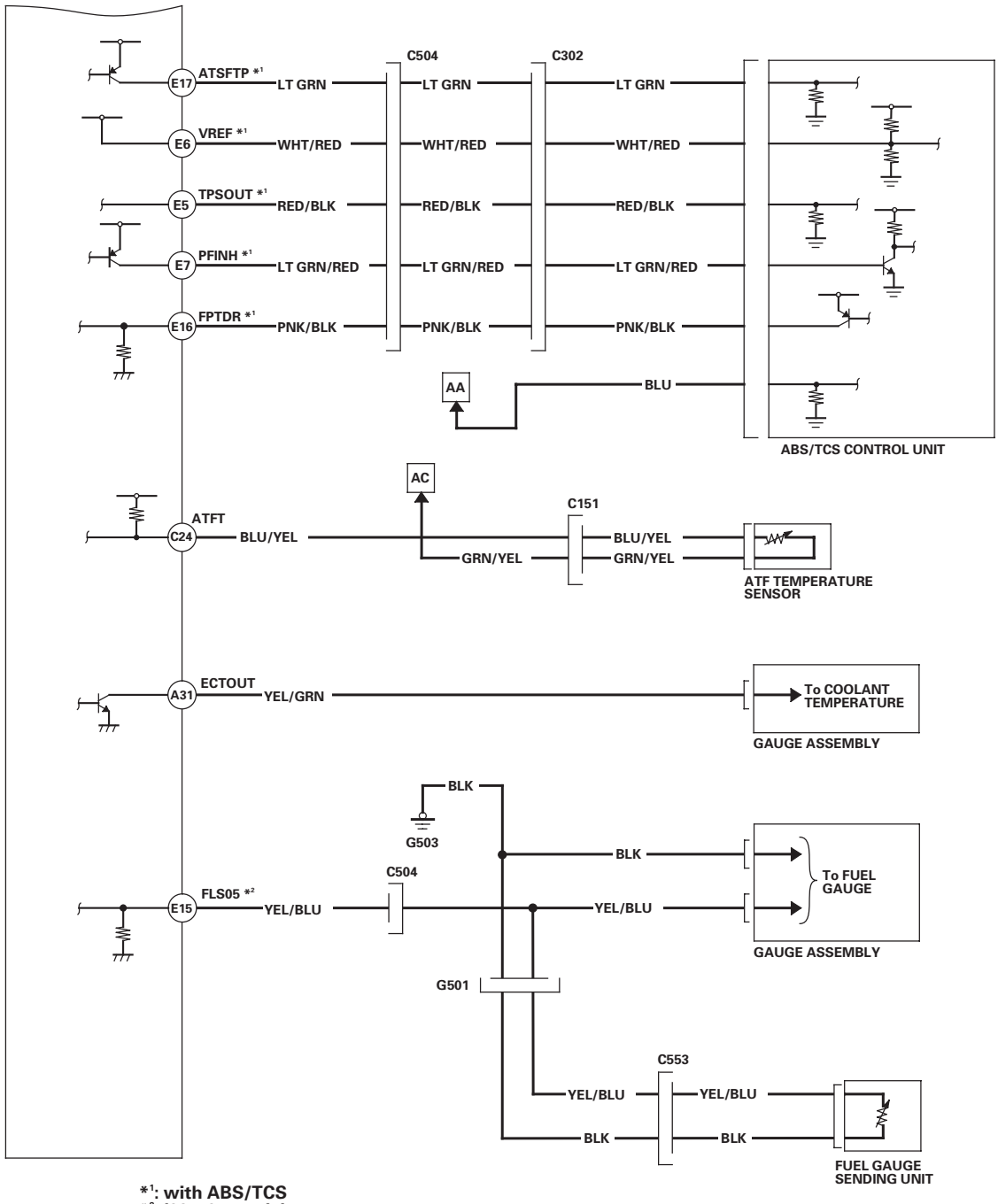



C4
IGPLS1
C14
IGPLS2
C3
IGPLS3
C13
IGPLS4
C12
IGPLS5
C23
IGPLS6
BLK/YEL
YEL/GRN
BLK
ICM
To SPARK PLUG
No. 1 IGNITION COIL
BLK/YEL
BLU/RED
BLK
ICM
To SPARK PLUG
No. 2 IGNITION COIL
BLK/YEL
WHT/BLU
BLK
ICM
To SPARK PLUG
No. 3 IGNITION COIL
BLK/YEL
BRN
BLK
ICM
To SPARK PLUG
No. 4 IGNITION COIL
BLK/YEL
BLK/RED
BLK
ICM
To SPARK PLUG
No. 5 IGNITION COIL
BLK/YEL
BRN/WHT
BLK
ICM
To SPARK PLUG
No. 6 IGNITION COIL
JUNCTION CONNECTOR B
BLK
G102
G101
JUNCTION CONNECTOR A
Z
C101
BLK/YEL
BLK/YEL
E
C103
C22
KS
RED/BLU
RED/BLU
KNOCK SENSOR

(cont'd)

System Descriptions (cont'd)

PCM Circuit Diagram — '02-04 Models (cont'd)



*1: with ABS/TCS
*2: '03—04 models

How to Set Readiness Codes

Malfunction Indicator Lamp (MIL) Indication (In Relation to Readiness Codes)

The vehicle has certain ''readiness codes'' that are part of the on-board diagnostics for the emissions systems. If the vehicle's battery has been disconnected or gone dead, if the DTCs have been cleared, or if the PCM has been reset, these codes are reset. In some states, part of the emissions testing is to make sure these codes are set to complete. If all of them are not set to complete, the vehicle may fail the emission test, or the test cannot be finished.

'99-00 models
To see if the readiness codes are set to complete, connect a scan tool to the vehicle's data link connector (DLC), and check the readiness code list in the generic OBD II mode.

'01-04 models
To see if the readiness codes are set to complete, turn the ignition switch ON (II), but do not start the engine. The MIL will come on for 15—20 seconds. If it then goes off, the readiness codes are set to complete. If it blinks five times, one or more readiness codes are not set to complete. To set readiness codes from incomplete to complete, do the procedure for the appropriate code.

Catalytic Converter Monitor and Readiness Code

NOTE:
- Do not turn the ignition switch OFF during the procedure.
- All readiness codes are cleared when the battery is disconnected or when the PCM is cleared with the OBD II scan tool or HDS.
- Low ambient temperature or excessive stop-and-go traffic may increase the drive time needed to switch the readiness code from incomplete to complete.
- The readiness code will not switch to complete until all the enable criteria are met.
- If a fault in the secondary HO2S system caused the MIL to come on, the readiness code cannot be set to complete until you correct the fault.

Enable Criteria
- ECT at 158°F (70°C) or higher.
- Intake air temperature (IAT) at 20°F (—7°C) or higher.
- Vehicle speed is steady, and vehicle speed sensor (VSS) reads more than 25 mph (13 km/h).

Procedure
1. Connect the scan tool to the vehicle's data link connector (DLC), and bring up the tool's generic OBD II mode.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. After about 5 miles (3 km), the readiness code should switch from incomplete to complete.
4. If the readiness code is still set to incomplete, check for a temporary DTC. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

(cont'd)

How to Set Readiness Codes (cont'd)

Evaporative Emission (EVAP) Control System Monitor and Readiness Codes

NOTE:
- All readiness codes are cleared when the battery is disconnected or when the PCM is cleared with the OBD II scan tool or the HDS.

Enable Criteria
- At engine start up, the ECT and IAT are higher than −7°F (20°C), but lower than 95°F (35°C).
- At engine start up, the ECT and IAT are within 18°F (10°C) of each other.
- At engine startup, the IAT does not drop more than 9°F (5°C) from the IAT.

Procedure
1. Connect the scan tool to the vehicle's data link connector (DLC), and bring up the tool's generic OBD II mode.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. After about 2.5 miles (1.6 km), the readiness code should switch from incomplete to complete.
4. If the readiness code is still set to incomplete, check for a temporary DTC. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

HO2S Monitor and Readiness Code

NOTE:
- Do not turn the ignition switch off during the procedure.
- All readiness codes are cleared when the battery is disconnected or when the PCM is cleared with the OBD II scan tool or the HDS.

Enable Criteria
ECT at 140°F (60°C) or higher.

Procedure
1. Connect the scan tool to the vehicle's data link connector (DLC), and bring up the tool's generic OBD II mode.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. During the drive, decelerate (with the throttle fully closed) for 5 seconds. After about 3.5 miles (2.2 km), the readiness code should switch from incomplete to complete.
4. If the readiness code is still set to incomplete, check for a temporary DTC. If there is no DTC, the enable criteria was probably not met; repeat the procedure.

HO2S Heater Monitor Readiness Code

NOTE: All readiness codes are cleared when the battery is disconnected or when the PCM is cleared with the OBD II scan tool or the HDS.

Procedure
1. Connect the scan tool to the vehicle's data link connector (DLC), and bring up the tool's generic OBD II mode.
2. Start the engine, and let it idle for 1 minute. The readiness code should switch from incomplete to complete.
3. If the readiness code is still set to incomplete, check for a temporary DTC. If there is no DTC, repeat the procedure.

Misfire Monitor and Readiness Code

- This readiness code is always set to available because misfiring is continuously monitored.
- Monitoring pauses, and the misfire counter resets, if the vehicle is driven over a rough road.
- Monitoring also pauses, and the misfire counter holds at its current value, if the throttle position changes more than a predetermined value, or if driving conditions fall outside the range of any related enable criteria.

Fuel System Monitor and Readiness Code

- This readiness code is always set to available because the fuel system is continuously monitored during closed loop operation.
- Monitoring pauses when the catalytic converter, EVAP control system, and HO2S monitors are active.
- Monitoring also pauses when any related enable criteria is not being met. Monitoring resumes when the enable criteria is again being met.

Comprehensive Component Monitor and Readiness Code

This readiness code is always set to available because the comprehensive component monitor is continuously running whenever the engine is cranking or running.

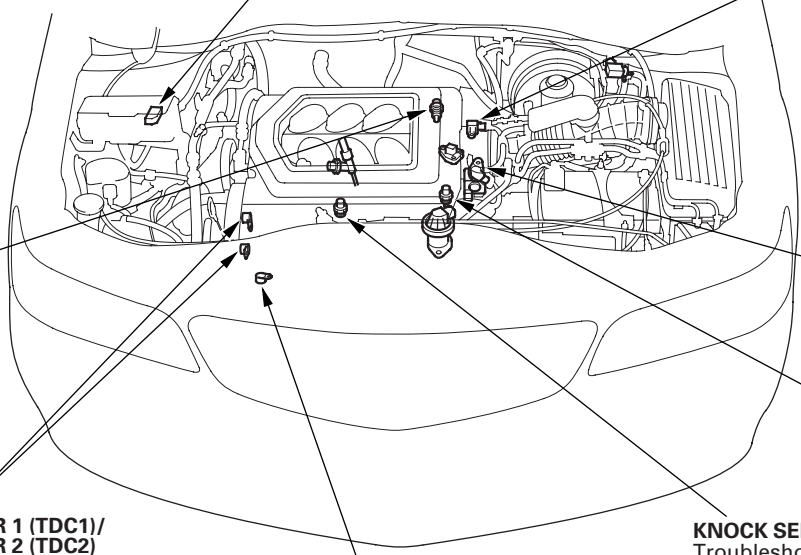
EGR Monitor and Readiness Code

NOTE:
- Do not turn the ignition switch off during the procedure.
- All readiness codes are cleared when the battery is disconnected or when the PCM is cleared with the OBD II scan tool or the HDS.

Enable Criteria
ECT at 176°F (80°C) or higher.

Procedure
1. Connect the scan tool to the vehicle's data link connector (DLC), and bring up the tool's generic OBD II mode.
2. Start the engine.
3. Drive at a steady speed with the transmission in D position, 50—62 mph (80—100 km/h) or above for more than 10 seconds.
4. With the transmission in D position, decelerate from 62 mph (100 km/h) or above by completely releasing the throttle for at least 5 seconds. If the engine is stopped during this procedure, go to step 3 and do the procedure again.
5. If the readiness code is still set to incomplete, check for a temporary DTC. If there is no DTC, the enable criteria was probably not met; repeat the procedure.

Component Location Index



ELECTRICAL LOAD DETECTOR (ELD)
Troubleshooting, page 11-153

MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
Troubleshooting, page 11-95

THROTTLE POSITION (TP) SENSOR
Troubleshooting, page 11-110

ENGINE COOLANT TEMPERATURE (ECT) SENSOR
Troubleshooting, page 11-106

INTAKE AIR TEMPERATURE (IAT) SENSOR
Troubleshooting, page 11-102

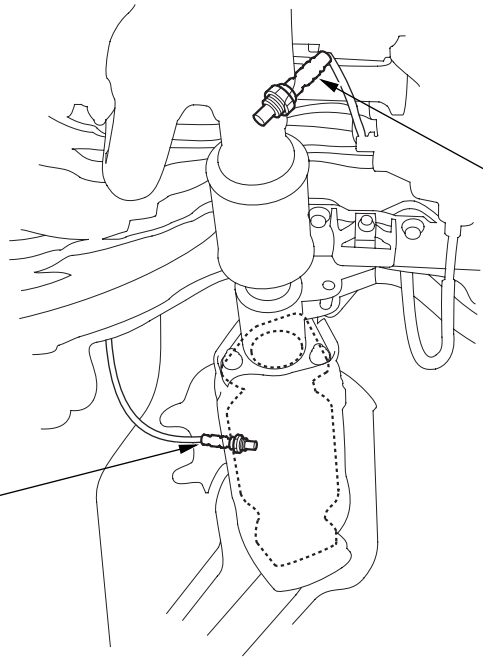
TOP DEAD CENTER 1 (TDC1)/ TOP DEAD CENTER 2 (TDC2) SENSOR
Troubleshooting, page 11-158

CAMSHAFT POSITION (CMP) SENSOR A/B
Troubleshooting, page 11-150

KNOCK SENSOR (KS)
Troubleshooting, page 11-145

CRANKSHAFT POSITION (CKP) SENSOR
Troubleshooting, page 11-147

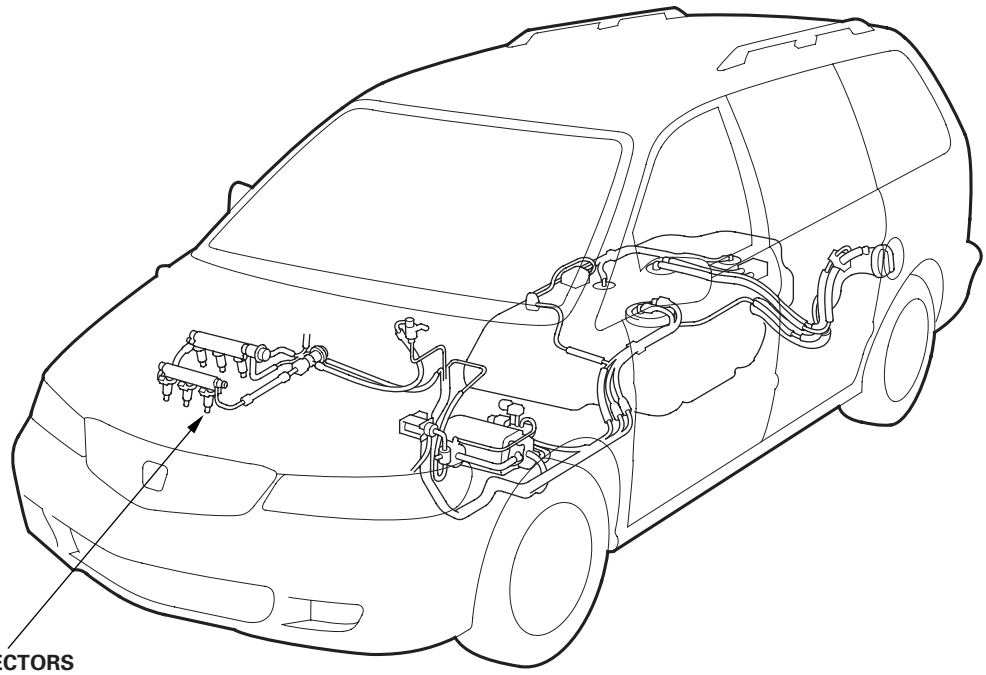
*: The illustration shows '99-01 models.



PRIMARY HEATED OXYGEN SENSOR (PRIMARY HO2S) (SENSOR 1)
Troubleshooting, page 11-118
Replacement, page 11-181

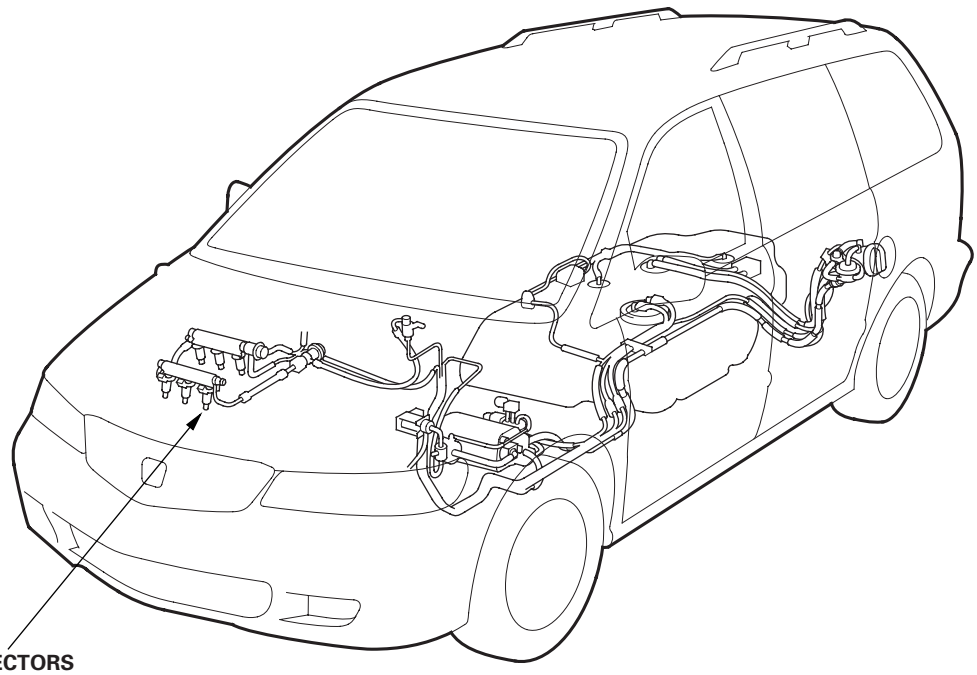
SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) (SENSOR 2)
Troubleshooting, page 11-123
Replacement, page 11-181

’99-00 models



INJECTORS
Replacement, page 11-177

’01 model

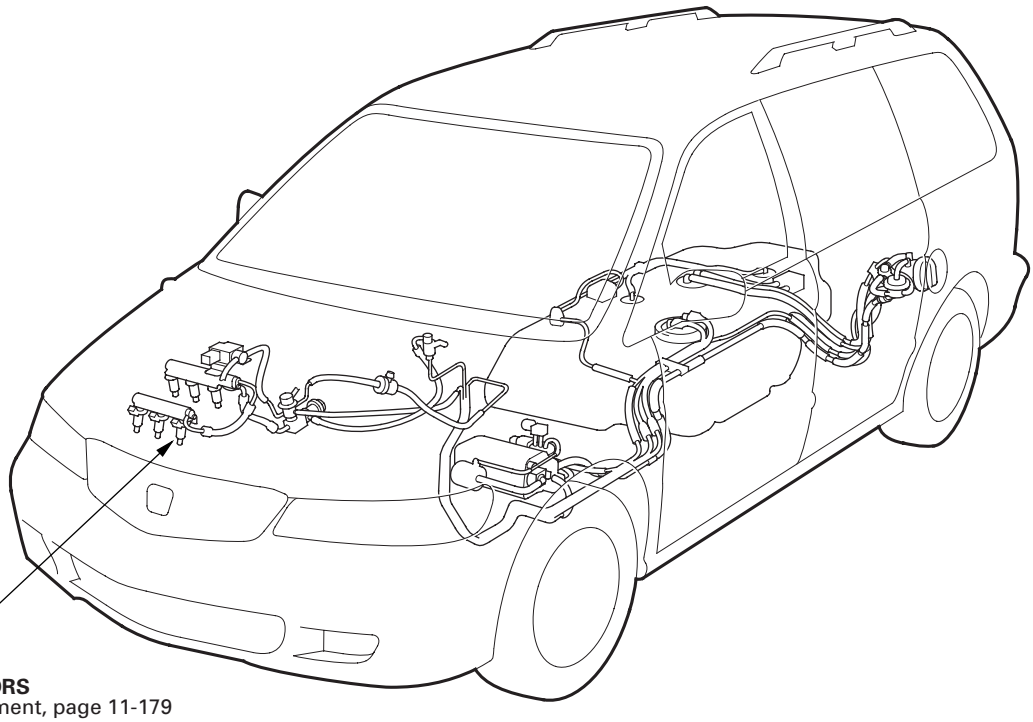


INJECTORS
Replacement, page 11-177

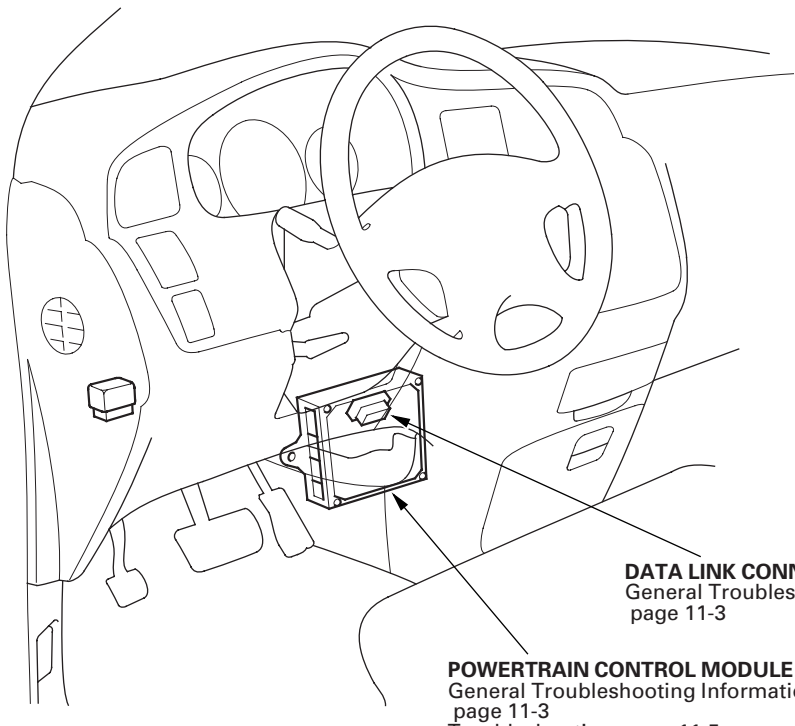
(cont’d)

Component Location Index (cont'd)

'02-04 models



INJECTORS
Replacement, page 11-179



DATA LINK CONNECTOR (DLC)
General Troubleshooting Information, page 11-3

POWERTRAIN CONTROL MODULE (PCM)
General Troubleshooting Information, page 11-3
Troubleshooting, page 11-5

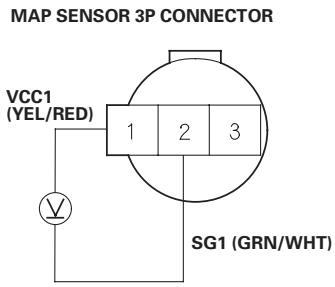
DTC P0107—'99-00 Models: MAP Sensor Circuit Low Voltage

1. Turn the ignition switch ON (II).
2. Check the MAP with the scan tool or the HDS.

   Is about 101 kPa (760 mmHg, 30 in.Hg), or 2.9 V indicated?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. ■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 2.

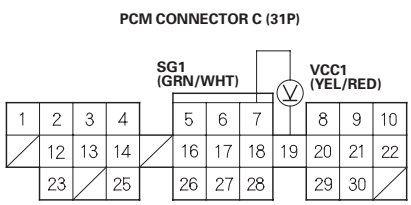


Wire side of female terminals

   Is there about 5 V?

   YES—Go to step 8.

   NO—Go to step 7.
7. Measure voltage between PCM connector terminals C19 and C7.



Wire side of female terminals

   Is there about 5 V?

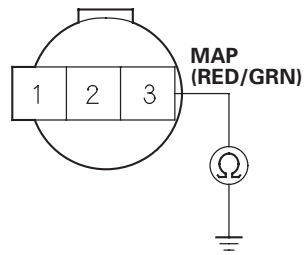
   YES—Repair open in the wire between the PCM (C19) and the MAP sensor. ■

   NO—Substitute a known-good PCM and recheck (see page 11-5). If normal MAP readings are indicated, replace the original PCM. ■
8. Check the MAP with the scan tool or the HDS.

   Is about 2 kPa (15 mmHg, 0.6 in.Hg), 0.5 V or less indicated?

   YES—Go to step 9.

   NO—Replace the MAP sensor. ■
9. Turn the ignition switch OFF.
10. Disconnect PCM connector C (31P).
11. Check for continuity between MAP sensor connector terminal No. 3 and body ground.



Wire side of female terminals

   Is there continuity?

   YES—Repair short in the wire between the PCM (C17) and the MAP sensor. ■

   NO—Substitute a known-good PCM and recheck (see page 11-5). If normal MAP readings are indicated, replace the original PCM. ■

DTC Troubleshooting (cont'd)

DTC P0107—**'01 Model:** MAP Sensor Circuit Low Voltage

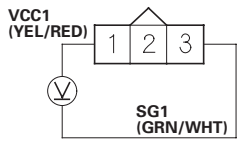
1. Turn the ignition switch ON (II).
2. Check the MAP with the scan tool or the HDS.

   Is about 101 kPa (760 mmHg, 30 in.Hg), or 2.9 V indicated?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. ■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

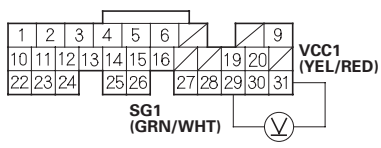
Is there about 5 V?

YES—Go to step 8.

NO—Go to step 7.

7. Measure voltage between PCM connector terminals A29 and A31.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (A31) and the MAP sensor. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If normal MAP readings are indicated, replace the original PCM. ■

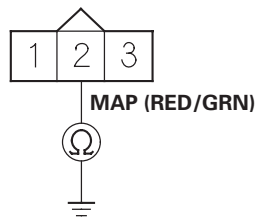
8. Check the MAP with the scan tool or the HDS.

   Is about 2 kPa (15 mmHg, 0.6 in.Hg), 0.5 V or less indicated?

   YES—Go to step 9.

   NO—Replace the MAP sensor. ■
9. Turn the ignition switch OFF.
10. Disconnect PCM connector A (31P).
11. Check for continuity between MAP sensor connector terminal No. 2 and body ground.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (A27) and the MAP sensor. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If normal MAP readings are indicated, replace the original PCM. ■

DTC P0107—'02-04 Models: MAP Sensor Circuit Low Voltage

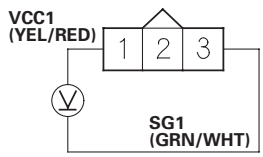
1. Turn the ignition switch ON (II).
2. Check the MAP with the scan tool or the HDS.

   Is about 101 kPa (760 mmHg, 30 in.Hg), or 2.9 V indicated?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. ■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

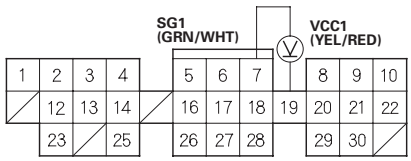
Is there about 5 V?

YES—Go to step 8.

NO—Go to step 7.

7. Measure voltage between PCM connector terminals C19 and C7.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (C19) and the MAP sensor. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If normal MAP readings are indicated, replace the original PCM. ■

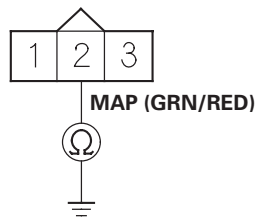
8. Check the MAP with the scan tool or the HDS.

   Is about 2 kPa (15 mmHg, 0.6 in.Hg), 0.5 V or less indicated?

   YES—Go to step 9.

   NO—Replace the MAP sensor. ■
9. Turn the ignition switch OFF.
10. Disconnect PCM connector C (31P).
11. Check for continuity between MAP sensor connector terminal No. 2 and body ground.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (C17) and the MAP sensor. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If normal MAP readings are indicated, replace the original PCM. ■

DTC Troubleshooting (cont'd)

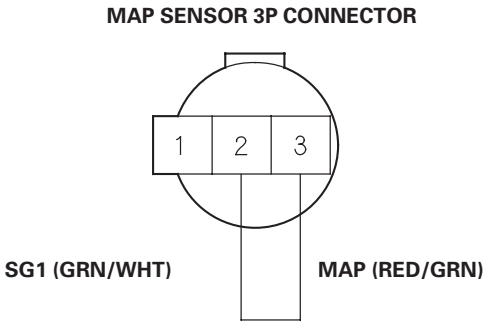
DTC P0108—'99-00 Models: MAP Sensor Circuit High Voltage

1. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.
2. Check the MAP with the scan tool or the HDS.

   Is more than 101 kPa (780 mmHg, 30 in.Hg), or more than 2.9 V indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Install a jumper wire between MAP sensor 3P connector terminals No. 2 and No. 3.



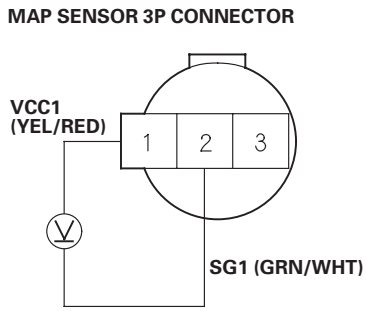
Wire side of female terminals

6. Turn the ignition switch ON (II).
7. Check the MAP with the scan tool or the HDS.

   Is more than 101 kPa (760 mmHg, 30 in.Hg), or more than 2.9 V indicated?

   YES—Go to step 8.

   NO—Replace the MAP sensor. ■
8. Remove the jumper wire.
9. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 2.

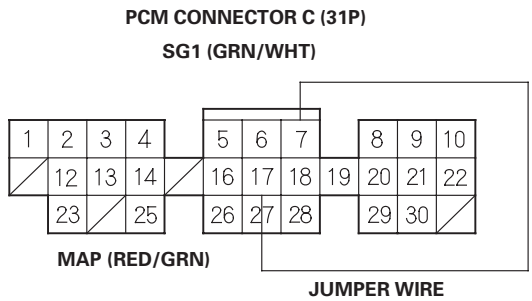


Wire side of female terminals

   Is there about 5 V?

   YES—Go to step 10.

   NO—Repair open in the wire between the PCM (C7) and the MAP sensor. ■
10. Turn the ignition switch OFF.
11. Connect PCM connector terminals C7 and C17 with a jumper wire.



Wire side of female terminals

12. Turn the ignition switch ON (II).
13. Check the MAP with the scan tool or the HDS.

    Is more than 101 kPa (760 mmHg, 30 in.Hg), or more than 2.9 V indicated?

    YES—Substitute a known-good PCM and recheck (see page 11-5). If normal MAP readings are indicated, replace the original PCM. ■

    NO—Repair open in the wire between the PCM (C17) and the MAP sensor. ■

DTC P0108—'01 Model: MAP Sensor Circuit High Voltage

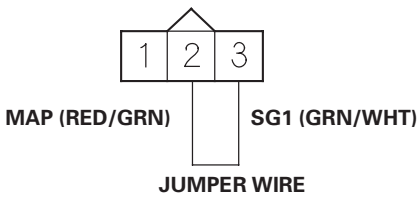
1. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.
2. Check the MAP with the scan tool or the HDS.

   Is more than 101 kPa (780 mmHg, 30 in.Hg), or more than 2.9 V indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Install a jumper wire between MAP sensor 3P connector terminals No. 2 and No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

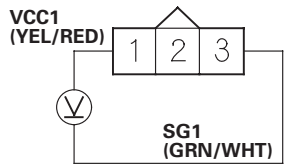
6. Turn the ignition switch ON (II).
7. Check the MAP with the scan tool or the HDS.

   Is more than 101 kPa (760 mmHg, 30 in.Hg), or more than 2.9 V indicated?

   YES—Go to step 8.

   NO—Replace the MAP sensor. ■
8. Remove the jumper wire.
9. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

MAP SENSOR 3P CONNECTOR



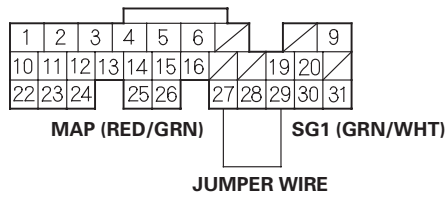
Wire side of female terminals

   Is there about 5 V?

   YES—Go to step 10.

   NO—Repair open in the wire between the PCM (A29) and the MAP sensor. ■
10. Turn the ignition switch OFF.
11. Connect PCM connector terminals A27 and A29 with a jumper wire.

PCM CONNECTOR A (31P)



Wire side of female terminals

12. Turn the ignition switch ON (II).
13. Check the MAP with the scan tool or the HDS.

    Is more than 101 kPa (760 mmHg, 30 in.Hg), or more than 2.9 V indicated?

    YES—Substitute a known-good PCM and recheck (see page 11-5). If normal MAP readings are indicated, replace the original PCM. ■

    NO—Repair open in the wire between the PCM (A27) and the MAP sensor. ■

DTC Troubleshooting (cont'd)

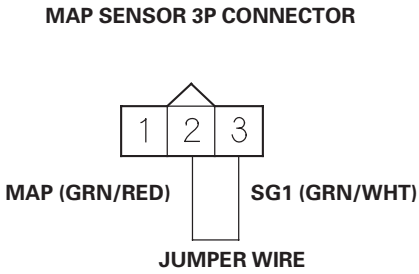
DTC P0108—'02-04 Models: MAP Sensor Circuit High Voltage

1. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.
2. Check the MAP with the scan tool or the HDS.

   Is more than 101 kPa (780 mmHg, 30 in.Hg), or more than 2.9 V indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Install a jumper wire between MAP sensor 3P connector terminals No. 2 and No. 3.



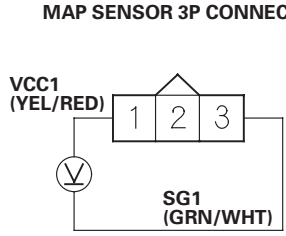
Wire side of female terminals

6. Turn the ignition switch ON (II).
7. Check the MAP with the scan tool or the HDS.

   Is more than 101 kPa (760 mmHg, 30 in.Hg), or more than 2.9 V indicated?

   YES—Go to step 8.

   NO—Replace the MAP sensor. ■
8. Remove the jumper wire.
9. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

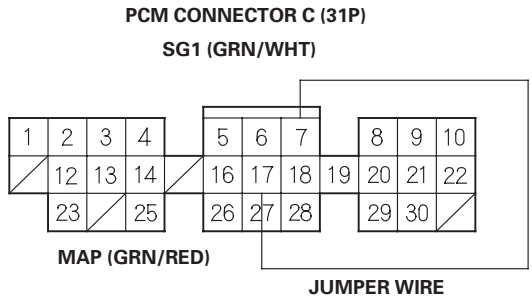


Wire side of female terminals

   Is there about 5 V?

   YES—Go to step 10.

   NO—Repair open in the wire between the PCM (C7) and the MAP sensor. ■
10. Turn the ignition switch OFF.
11. Connect PCM connector terminals C7 and C17 with a jumper wire.



Wire side of female terminals

12. Turn the ignition switch ON (II).
13. Check the MAP with the scan tool or the HDS.

    Is more than 101 kPa (760 mmHg, 30 in.Hg), or more than 2.9 V indicated?

    YES—Substitute a known-good PCM and recheck (see page 11-5). If normal MAP readings are indicated, replace the original PCM. ■

    NO—Repair open in the wire between the PCM (C17) and the MAP sensor. ■

DTC P1128: MAP Sensor Signal Lower Than Expected

1. Turn the ignition switch ON (II).
2. Check the MAP with the scan tool or the HDS.

   Is 54.1 kPa (406 mmHg, 16.0 in.Hg), 1.6 V, or higher indicated?

   YES—Intermittent failure, system is OK at this time. ■

   NO—Replace the MAP sensor. ■

DTC P1129: MAP Sensor Signal Higher Than Expected

1. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.
2. Check the MAP with the scan tool or the HDS.

   Is 43.3 kPa (325 mmHg, 12.8 in.Hg), 1.4 V, or less indicated?

   YES—Intermittent failure, system is OK at this time. ■

   NO—Replace the MAP sensor. ■

DTC Troubleshooting (cont'd)

DTC P0112—'99-00, '02-04 Models: IAT Sensor Circuit Low Voltage

1. Turn the ignition switch ON (II).
2. Check the IAT with the scan tool or the HDS.

   Is 302°F (150°C) or higher (or H-Limit in the HDS), or 0 V indicated?

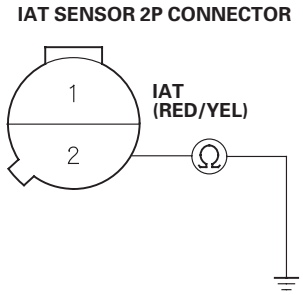
   YES—Go to step 3.

   NO—Go to step 8.
3. Disconnect the IAT sensor 2P connector.
4. Check the IAT with the scan tool or the HDS.

   Is 302°F (150°C) or higher (or H-Limit in the HDS), or 0 V indicated?

   YES—Go to step 5.

   NO—Replace the IAT sensor. ■
5. Turn the ignition switch OFF.
6. Disconnect PCM connector C (31P).
7. Check for continuity between IAT sensor 2P connector terminal No. 2 and body ground.



Wire side of female terminals

   Is there continuity?

   YES—Repair short in the wire between the PCM (C25) and the IAT sensor. ■

   NO—Substitute a known-good PCM and recheck (see page 11-5). If normal IAT readings are indicated, replace the original PCM. ■
8. Check the temperature reading on the scan tool. If the engine is warm, the reading will be higher than ambient temperature. If the engine is cold, the IAT and ECT will have the same value.

   Is the correct ambient temperature indicated?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the PCM. ■

   NO—Replace the IAT sensor. ■

DTC P0112—'01 Model: IAT Sensor Circuit Low Voltage

1. Turn the ignition switch ON (II).
2. Check the IAT with the scan tool or the HDS.

   Is 302°F (150°C) or higher (or H-Limit in the HDS), or 0 V indicated?

   YES—Go to step 3.

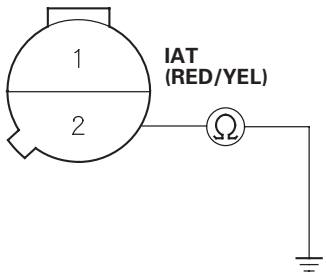
   NO—Go to step 8.
3. Disconnect the IAT sensor 2P connector.
4. Check the IAT with the scan tool or the HDS.

   Is 302°F(150°C) or higher (or H-Limit in the HDS), or 0 V indicated?

   YES—Go to step 5.

   NO—Replace the IAT sensor. ■
5. Turn the ignition switch OFF.
6. Disconnect PCM connector A (31P).
7. Check for continuity between IAT sensor 2P connector terminal No. 2 and body ground.

IAT SENSOR 2P CONNECTOR



Wire side of female terminals

   Is there continuity?

   YES—Repair short in the wire between the PCM (A14) and the IAT sensor. ■

   NO—Substitute a known-good PCM and recheck (see page 11-5). If normal IAT readings are indicated, replace the original PCM. ■
8. Check the temperature reading on the scan tool. If the engine is warm, the reading will be higher than ambient temperature. If the engine is cold, the IAT and ECT will have the same value.

   Is the correct ambient temperature indicated?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the PCM. ■

   NO—Replace the IAT sensor. ■

DTC Troubleshooting (cont'd)

DTC P0113—'99-00, '02-04 Models: IAT Sensor Circuit High Voltage

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

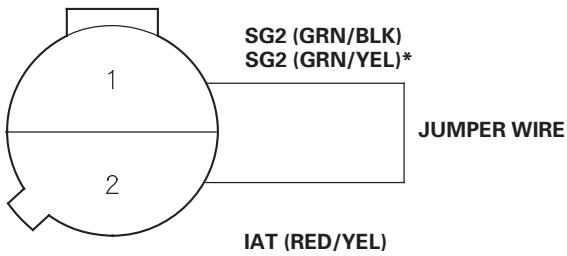
1. Turn the ignition switch ON (II).
2. Check the IAT with the scan tool or the HDS.

   Is −4°F (−20°C) or less (or L-Limit in the HDS), or 5 V indicated?

   YES—Go to step 3.

   NO—Intermitent failure, system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the IAT sensor 2P connector.
5. Connect IAT sensor 2P connector terminals No. 1 and No. 2 with a jumper wire.

IAT SENSOR 2P CONNECTOR



Wire side of female terminals

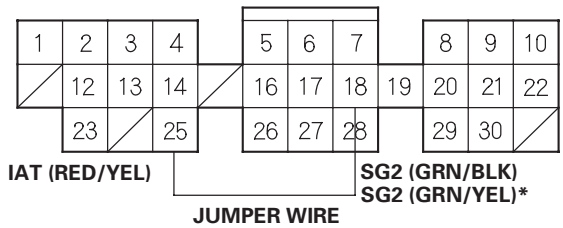
6. Turn the ignition switch ON (II).
7. Check the IAT with the scan tool or the HDS.

   Is −4°F (−20°C) or less (or L-Limit in the HDS), or 5 V indicated?

   YES—Go to step 8.

   NO—Replace the IAT sensor. ■
8. Turn the ignition switch OFF.
9. Remove the jumper wire.
10. Connect PCM connector terminals C18 and C25 with a jumper wire.

PCM CONNECTOR C (31P)



Wire side of female terminals

11. Turn the ignition switch ON (II).
12. Check the IAT with the scan tool or the HDS.

    Is −4°F (−20°C) or less (or L-Limit in the HDS), or 5 V indicated?

    YES—Substitute a known-good PCM and recheck (see page 11-5). If normal IAT readings are indicated, replace the original PCM. ■

    NO—Repair open in the wire between the PCM (C18, C25) and the IAT sensor. ■

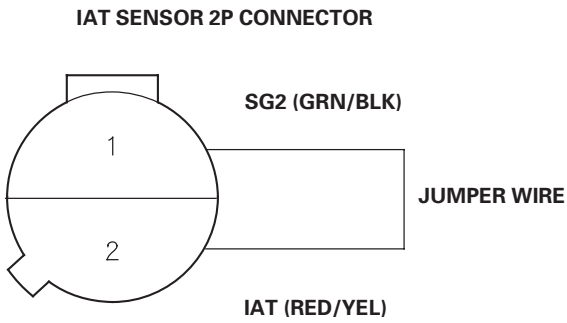
DTC P0113—'01 Model: IAT Sensor Circuit High Voltage

1. Turn the ignition switch ON (II).
2. Check the IAT with the scan tool or the HDS.

   Is −4°F (−20°C) or less (or L-Limit in the HDS), or 5 V indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the IAT sensor 2P connector.
5. Connect IAT sensor 2P connector terminals No. 1 and No. 2 with a jumper wire.



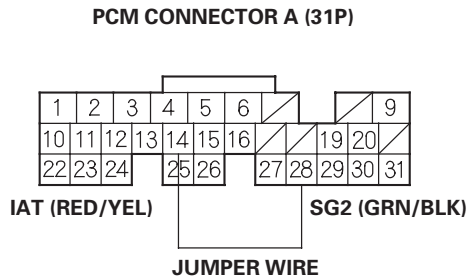
Wire side of female terminals

6. Turn the ignition switch ON (II).
7. Check the IAT with the scan tool or the HDS.

   Is −4°F (−20°C) or less (or L-Limit in the HDS), or 5 V indicated?

   YES—Go to step 8.

   NO—Replace the IAT sensor. ■
8. Turn the ignition switch OFF.
9. Remove the jumper wire.
10. Connect PCM connector terminals A14 and A28 with a jumper wire.



Wire side of female terminals

11. Turn the ignition switch ON (II).
12. Check the IAT with the scan tool or the HDS.

    Is −4°F (−20°C) or less (or L-Limit in the HDS), or 5 V indicated?

    YES—Substitute a known-good PCM and recheck (see page 11-5). If normal IAT readings are indicated, replace the original PCM. ■

    NO—Repair open in the wire between the PCM (A14, A28) and the IAT sensor. ■

DTC Troubleshooting (cont'd)

DTC P0116: ECT Sensor Range/Performance Problem

NOTE: If DTC P0117 and/or P0118 are stored at the same time as DTC P0116, troubleshoot those DTCs first, then recheck for DTC P0116.

1. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.
2. Check the ECT with the scan tool or the HDS.

   Is 176—200°F (80—93°C) or 0.4—0.7 V indicated?

   YES—Go to step 3.

   NO—Check the thermostat and the cooling system. If they are OK, replace the ECT sensor. ■
3. Test drive the vehicle with the scan tool connected, and monitor the thermostat and cooling system for abnormal fluctuations in temperature readings.

   Are there any fluctuations in the temperature readings?

   YES—Check the thermostat and cooling system. ■

   NO—Intermittent failure, system is OK at this time. ■

DTC P0117—'99-00, '02-04 Models: ECT Sensor Circuit Low Voltage

1. Turn the ignition switch ON (II).
2. Check the ECT with the scan tool or the HDS.

   Is 302°F (150°C) or higher (or H-Limit in the HDS), or 0 V indicated?

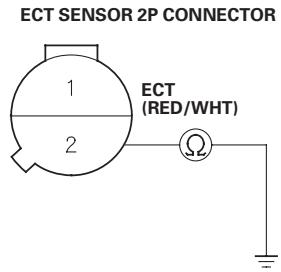
   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ECT sensor and the PCM. ■
3. Disconnect the ECT sensor 2P connector.
4. Check the ECT with the scan tool or the HDS.

   Is 302°F (150°C) or higher (or H-Limit in the HDS), or 0 V indicated?

   YES—Go to step 5.

   NO—Replace the ECT sensor. ■
5. Turn the ignition switch OFF.
6. Disconnect PCM connector C (31P).
7. Check the continuity between ECT sensor 2P connector terminal No. 2 and body ground.



Wire side of female terminals

   Is there continuity?

   YES—Repair short in the wire between the PCM (C26) and the ECT sensor. ■

   NO—Substitute a known-good PCM and recheck (see page 11-5). If normal ECT readings are indicated, replace the original PCM. ■

DTC P0117—'01 Model: ECT Sensor Circuit Low Voltage

1. Turn the ignition switch ON (II).
2. Check the ECT with the scan tool or the HDS.

   Is 302°F (150°C) or higher (or H-Limit in the HDS), or 0 V indicated?

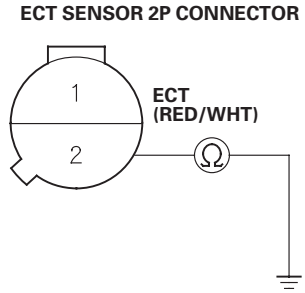
   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ECT sensor and the PCM. ■
3. Disconnect the ECT sensor 2P connector.
4. Check the ECT with the scan tool or the HDS.

   Is 302°F (150°C) or higher (or H-Limit in the HDS), or 0 V indicated?

   YES—Go to step 5.

   NO—Replace the ECT sensor. ■
5. Turn the ignition switch OFF.
6. Disconnect PCM connector A (31P).
7. Check the continuity between ECT sensor 2P connector terminal No. 2 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (A13) and the ECT sensor. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If normal ECT readings are indicated, replace the original PCM. ■

DTC Troubleshooting (cont'd)

DTC P0118—'99-00, '02-04 Models: ECT Sensor Circuit High Voltage

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

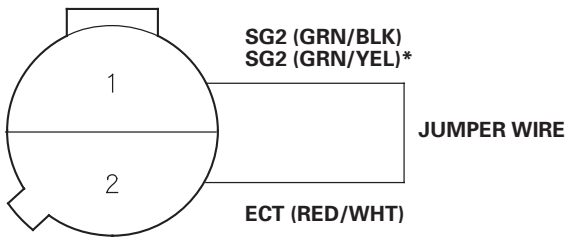
1. Turn the ignition switch ON (II).
2. Check the ECT with the scan tool or the HDS.

   Is −4°F (−20°C) or less (or L-Limit in the HDS), or 5 V indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ECT sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 2P connector.
5. Connect ECT sensor 2P connector terminals No. 1 and No. 2 with a jumper wire.

ECT SENSOR 2P CONNECTOR



Wire side of female terminals

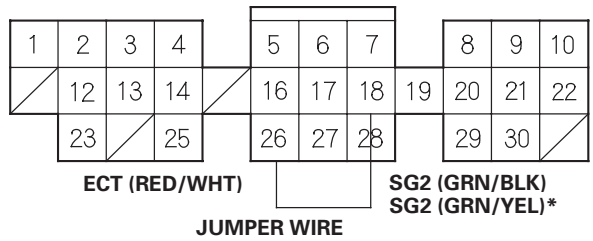
6. Turn the ignition switch ON (II).
7. Check the ECT with the scan tool or the HDS.

   Is −4°F (−20°C) or less (or L-Limit in the HDS), or 5 V indicated?

   YES—Go to step 8.

   NO—Replace the ECT sensor. ■
8. Turn the ignition switch OFF.
9. Remove the jumper wire.
10. Connect PCM connector terminals C18 and C26 with a jumper wire.

PCM CONNECTOR C (31P)



Wire side of female terminals

11. Turn the ignition switch ON (II).
12. Check the ECT with the scan tool or the HDS.

    Is −4°F (−20°C) or less (or L-Limit in the HDS), or 5 V indicated?

    YES—Substitute a known-good PCM and recheck (see page 11-5). If normal ECT readings are indicated, replace the original PCM. ■

    NO—Repair open in the wire between the PCM (C18, C26) and the ECT sensor. ■

DTC P0118—'01 Model: ECT Sensor Circuit High Voltage

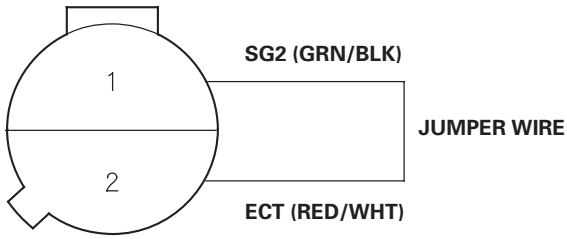
1. Turn the ignition switch ON (II).
2. Check the ECT with the scan tool or the HDS.

   Is −4°F (−20°C) or less (or L-Limit in the HDS), or 5 V indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ECT sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 2P connector.
5. Connect ECT sensor 2P connector terminals No. 1 and No. 2 with a jumper wire.

ECT SENSOR 2P CONNECTOR



Wire side of female terminals

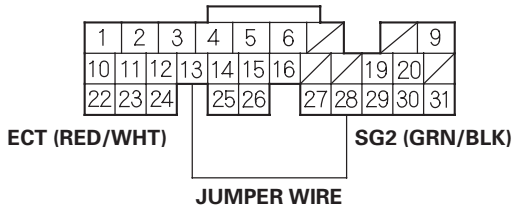
6. Turn the ignition switch ON (II).
7. Check the ECT with the scan tool or the HDS.

   Is −4°F (−20°C) or less (or L-Limit in the HDS), or 5 V indicated?

   YES—Go to step 8.

   NO—Replace the ECT sensor. ■
8. Turn the ignition switch OFF.
9. Remove the jumper wire.
10. Connect PCM connector terminals A13 and A28 with a jumper wire.

PCM CONNECTOR A (31P)



Wire side of female terminals

11. Turn the ignition switch ON (II).
12. Check the ECT with the scan tool or the HDS.

    Is −4°F (−20°C) or less (or L-Limit in the HDS), or 5 V indicated?

    YES—Substitute a known-good PCM and recheck (see page 11-5). If normal ECT readings are indicated, replace the original PCM. ■

    NO—Repair open in the wire between the PCM (A13, A28) and the ECT sensor. ■

DTC Troubleshooting (cont'd)

DTC P0122—'99-00, '02-04 Models: TP Sensor Circuit Low Voltage

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

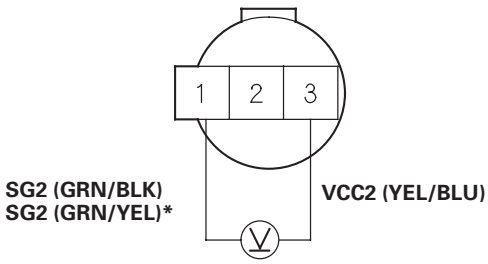
1. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then turn the ignition switch OFF.
2. Turn the ignition switch ON (II).
3. Check the throttle position with the scan tool or the HDS.

   Is there about 10 % or 0.5 V when the throttle is fully closed and about 90 % or 4.5 V when the throttle is fully opened?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the TP sensor and the PCM. ■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Disconnect the TP sensor 3P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between TP sensor 3P connector terminals No. 1 and No. 3.

TP SENSOR 3P CONNECTOR



Wire side of female terminals

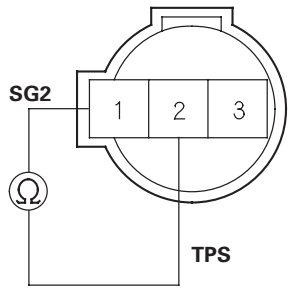
Is there about 5 V?

YES—Go to step 8.

NO—Go to step 15.

8. Turn the ignition switch OFF.
9. At the sensor side, measure resistance between TP sensor 3P connector terminals No. 1 and No. 2 with the throttle fully closed.

TP SENSOR 3P CONNECTOR



Terminal side of male terminals

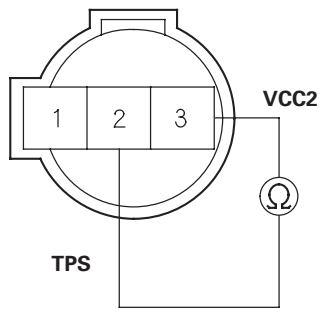
Is there about 0.5—0.9 kΩ?

YES—Go to step 10.

NO—Replace the throttle body. ■

10. Measure resistance between TP sensor 3P connector terminals No. 2 and No. 3 with the throttle fully closed.

TP SENSOR 3P CONNECTOR



Terminal side of male terminals

Is there about 4.5 kΩ?

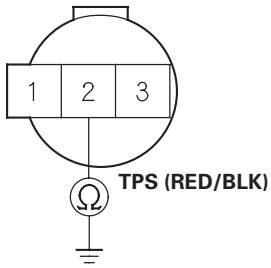
YES—Go to step 11.

NO—Replace the throttle body. ■

11. Disconnect PCM connector C (31P).

12. At the wire harness side, check for continuity between TP sensor 3P connector terminal No. 2 and body ground.

TP SENSOR 3P CONNECTOR



Wire side of female terminals

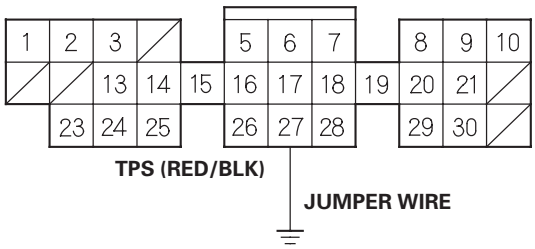
Is there continuity?

YES—Repair short in the wire between the PCM (C27) and the TP sensor. ■

NO—Go to step 13.

13. Connect PCM connector terminal C27 and body ground with a jumper wire.

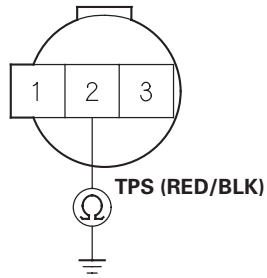
PCM CONNECTOR C (31P)



Wire side of female terminals

14. At the wire harness side, check for continuity between TP sensor 3P connector terminal No. 2 and body ground.

TP SENSOR 3P CONNECTOR



Wire side of female terminals

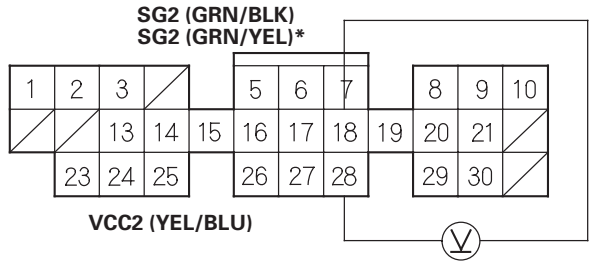
Is there continuity?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the prescribed voltage is now available, replace the original PCM. ■

NO—Repair open in the wire between the PCM (C27) and the TP sensor. ■

15. Measure voltage between PCM connector terminals C18 and C28.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (C28) and the TP sensor. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the prescribed voltage is now available, replace the original PCM. ■

DTC Troubleshooting (cont'd)

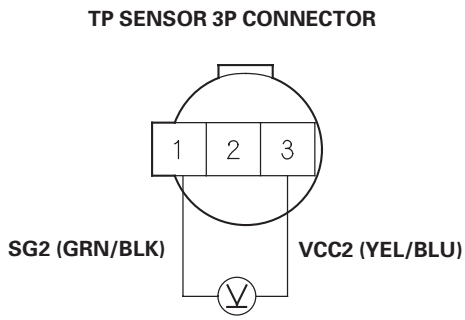
DTC P0122—'01 Model: TP Sensor Circuit Low Voltage

1. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then turn the ignition switch OFF.
2. Turn the ignition switch ON (II).
3. Check the throttle position with the scan tool or the HDS.

   Is there about 10 % or 0.5 V when the throttle is fully closed and about 90 % or 4.5 V when the throttle is fully opened?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the TP sensor and the PCM. ■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Disconnect the TP sensor 3P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between TP sensor 3P connector terminals No. 1 and No. 3.

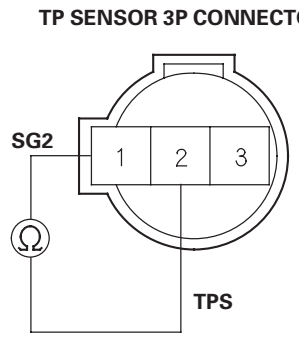


Wire side of female terminals

   Is there about 5 V?

   YES—Go to step 8.

   NO—Go to step 15.
8. Turn the ignition switch OFF.
9. At the sensor side, measure resistance between TP sensor 3P connector terminals No. 1 and No. 2 with the throttle fully closed.

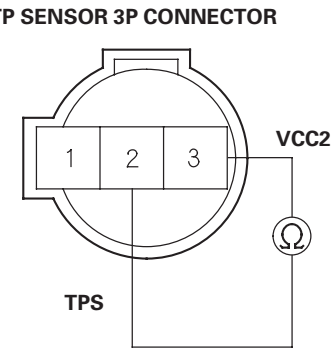


Terminal side of male terminals

   Is there about 0.5—0.9 kΩ?

   YES—Go to step 10.

   NO—Replace the throttle body. ■
10. Measure resistance between the TP sensor 3P connector terminals No. 2 and No. 3 with the throttle fully closed.



Terminal side of male terminals

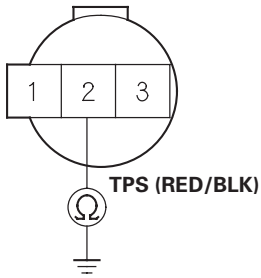
   Is there about 4.5 kΩ?

   YES—Go to step 11.

   NO—Replace the throttle body. ■
11. Disconnect PCM connector A (31P).

12. At the wire harness side, check for continuity between TP sensor 3P connector terminal No. 2 and body ground.

TP SENSOR 3P CONNECTOR



Wire side of female terminals

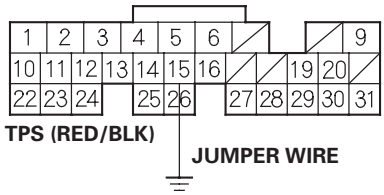
Is there continuity?

YES—Repair short in the wire between the PCM (A15) and the TP sensor. ■

NO—Go to step 13.

13. Connect PCM connector terminal A15 and body ground with a jumper wire.

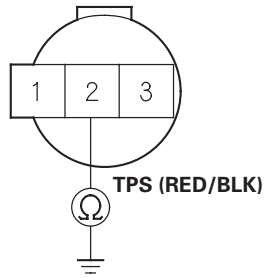
PCM CONNECTOR A (31P)



Wire side of female terminals

14. At the wire harness side, check for continuity between TP sensor 3P connector terminal No. 2 and body ground.

TP SENSOR 3P CONNECTOR



Wire side of female terminals

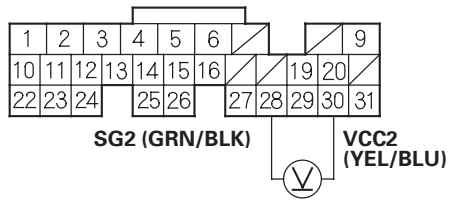
Is there continuity?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the prescribed voltage is now available, replace the original PCM. ■

NO—Repair open in the wire between the PCM (A15) and the TP sensor. ■

15. Measure voltage between PCM connector terminals A28 and A30.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (A30) and the TP sensor. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the prescribed voltage is now available, replace the original PCM. ■

DTC Troubleshooting (cont'd)

DTC P0123—**'99-00, '02-04 Models:** TP Sensor Circuit High Voltage

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

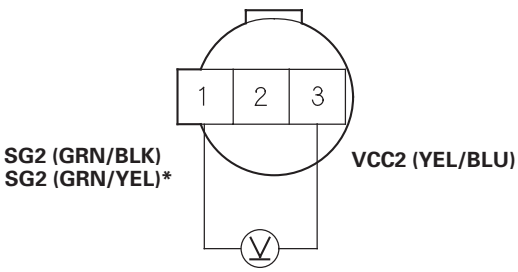
1. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then turn the ignition switch OFF.
2. Turn the ignition switch ON (II).
3. Check the throttle position with the scan tool or the HDS.

   Is there about 10 % or 0.5 V when the throttle is fully closed and about 90 % or 4.5 V when the throttle is fully opened?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the TP sensor and the PCM. ■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Disconnect the TP sensor 3P connector.
6. Turn the ignition switch ON (II).
7. At the wire harness side, measure voltage between TP sensor 3P connector terminals No. 1 and No. 3.

TP SENSOR 3P CONNECTOR



Wire side of female terminals

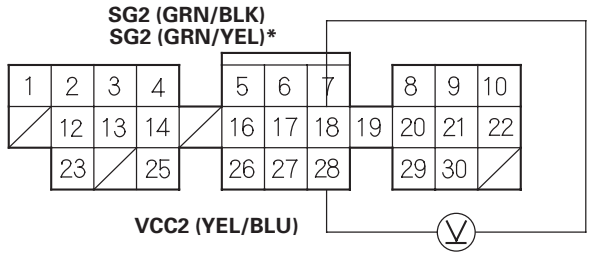
Is there about 5 V?

YES—Replace the throttle body. ■

NO—Go to step 8.

8. Measure voltage between PCM connector terminals C18 and C28.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (C18) and the TP sensor. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the prescribed voltage is now available, replace the original PCM. ■

DTC P0123—'01 Model: TP Sensor Circuit High Voltage

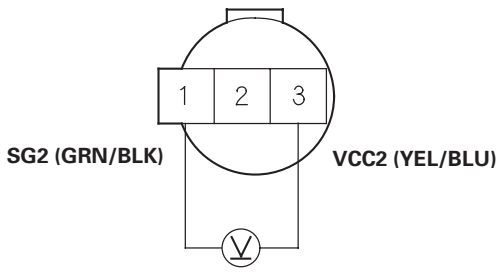
1. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then turn the ignition switch OFF.
2. Turn the ignition switch ON (II).
3. Check the throttle position with the scan tool or the HDS.

   Is there about 10 % or 0.5 V when the throttle is fully closed and about 90 % or 4.5 V when the throttle is fully opened?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the TP sensor and the PCM. ■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Disconnect the TP sensor 3P connector.
6. Turn the ignition switch ON (II).
7. At the wire harness side, measure voltage between TP sensor 3P connector terminals No. 1 and No. 3.

TP SENSOR 3P CONNECTOR



Wire side of female terminals

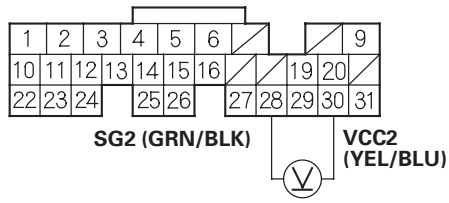
Is there about 5 V?

YES—Replace the throttle body. ■

NO—Go to step 8.

8. Measure voltage between PCM connector terminals A28 and A30.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (A28) and the TP sensor. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the prescribed voltage is now available, replace the original PCM. ■

DTC Troubleshooting (cont'd)

DTC P1121: TP Sensor Signal Lower Than Expected

1. Turn the ignition switch ON (II).
2. Check the throttle position with the scan tool or the HDS.

   Is 13.3 %, 0.7 V, or higher indicated when the throttle is fully opened?

   YES—Intermittent failure, system is OK at this time. ■

   NO—Replace the throttle body. ■

DTC P1122: TP Sensor Signal Higher Than Expected

1. Turn the ignition switch ON (II).
2. Check the throttle position with the scan tool or the HDS.

   Is 13.3 %, 0.7 V, or less indicated when the throttle is fully closed?

   YES—Intermittent failure, system is OK at this time. ■

   NO—Replace the throttle body. ■

DTC P0128—'02-04 Models: Cooling System Malfunction

NOTE: If the DTCs listed below are stored at the same time as DTC P0128, troubleshoot those DTCs first, then recheck for P0128.

P0107, P0108, P1128, P1129: Manifold Absolute Pressure (MAP) sensor
P1106, P1107, P1108: Barometric Pressure (BARO) sensor
P1259: VTEC system
P0401, P1491, P1498: Exhaust Gas Recirculation (EGR) system
P0116, P0117, P0118: Engine Coolant Temperature (ECT) sensor
P0112, P0113: Intake Air Temperature (IAT) sensor
P0335, P0336: Crankshaft Position (CKP) sensor
P0300: Random misfire
P0301, P0302, P0303, P0304, P0305, P0306: No. 1, No. 2, No. 3, No. 4, No.5 or No. 6 cylinder misfire
P0505: Idle Control System Malfunction
P1519: Idle Air Control (IAC) valve

DTC P0128 can occasionally set when the hood is opened while the engine is running.

1. Turn the ignition switch ON (II).
2. Make sure the A/C off.
3. Check the radiator fan.

   Does the radiator fan keep running?

   YES—Check the radiator fan circuit (see page 10-22), the radiator fan switch circuit (see page 10-22), and the radiator fan switch (see page 10-22). If they are OK, substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

   NO—Go to step 4.
4. Clear the DTC with the HDS.
5. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.

   Is DTC P0128 indicated?

   YES—Test the thermostat (see page 10-11). ■

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the radiator fan sensor and the PCM. ■

DTC Troubleshooting (cont'd)

DTC P0131—'99-00, '02-04 Models: Primary HO2S (Sensor 1) Circuit Low Voltage

1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Check the primary HO2S (Sensor 1) output voltage with the scan tool or the HDS during acceleration using wide open throttle.

   Does the voltage stay at 0.5 V or less?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and the PCM. ■
4. Check the fuel pressure (see page 11-216).

   Is it normal?

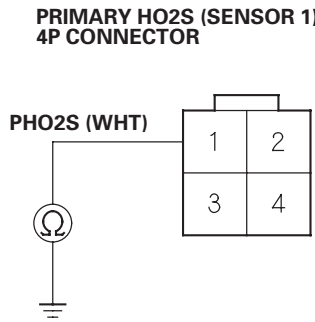
   YES—Go to step 5.

   NO—Repair the fuel supply system. ■
5. Turn the ignition switch OFF.
6. Disconnect the primary HO2S (Sensor 1) 4P connector.
7. Turn the ignition switch ON (II).
8. Check the primary HO2S (Sensor 1) output voltage with the scan tool or the HDS.

   Does the voltage stay at 0.5 V or less?

   YES—Go to step 9.

   NO—Replace the primary HO2S (Sensor 1). ■
9. Turn the ignition switch OFF.
10. Disconnect PCM connector C (31P).
11. Check for continuity between primary HO2S (Sensor 1) 4P connector terminal No. 1 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (C16) and the primary HO2S (Sensor 1). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC P0131—'01 Model: Primary HO2S (Sensor 1) Circuit Low Voltage

1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Check the primary HO2S (Sensor 1) output voltage with the scan tool or the HDS during acceleration using wide open throttle.

   Does the voltage stay at 0.5 V or less?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and the PCM. ■
4. Check the fuel pressure (see page 11-216).

   Is it normal?

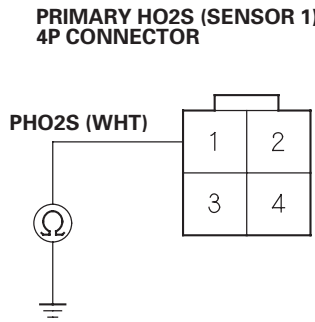
   YES—Go to step 5.

   NO—Repair the fuel supply system. ■
5. Turn the ignition switch OFF.
6. Disconnect the primary HO2S (Sensor 1) 4P connector.
7. Turn the ignition switch ON (II).
8. Check the primary HO2S (Sensor 1) output voltage with the scan tool or the HDS.

   Does the voltage stay at 0.5 V or less?

   YES—Go to step 9.

   NO—Replace the primary HO2S (Sensor 1). ■
9. Turn the ignition switch OFF.
10. Disconnect PCM connector A (31P).
11. Check for continuity between primary HO2S (Sensor 1) 4P connector terminal No. 1 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (A6) and the primary HO2S (Sensor 1). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC Troubleshooting (cont'd)

DTC P0132—'99-00, '02-04 Models: Primary HO2S (Sensor 1) Circuit High Voltage

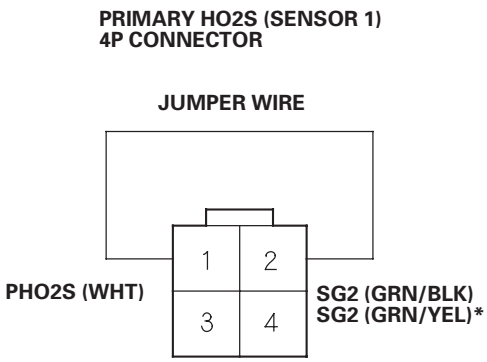
NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Check the primary HO2S (Sensor 1) output voltage with the scan tool or the HDS.

   Does the voltage stay at 1.0 V or more?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and the PCM. ■
4. Turn the ignition switch OFF.
5. Disconnect the primary HO2S (Sensor 1) 4P connector.
6. Connect primary HO2S (Sensor 1) 4P connector terminals No. 1 and No. 2 with a jumper wire.



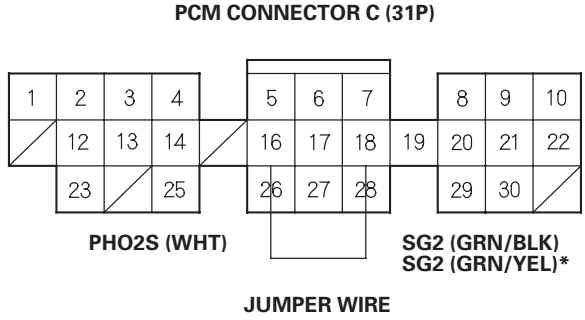
Wire side of female terminals

7. Turn the ignition switch ON (II).
8. Check the primary HO2S (Sensor 1) output voltage with the scan tool or the HDS.

   Is there 1.0 V or more?

   YES—Go to step 9.

   NO—Replace the primary HO2S (Sensor 1). ■
9. Turn the ignition switch OFF.
10. Connect PCM connector terminals C16 and C18 with a jumper wire.



Wire side of female terminals

11. Turn the ignition switch ON (II).
12. Check the primary HO2S (Sensor 1) output voltage with the scan tool or the HDS.

    Is there 1.0 V or more?

    YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

    NO—Repair open in the wire between the PCM (C16, C18) and the primary HO2S (Sensor 1). ■

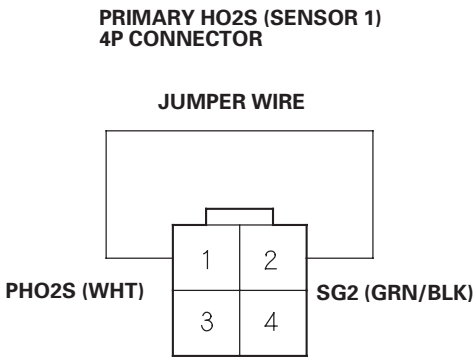
DTC P0132—'01 Model: Primary HO2S (Sensor 1) Circuit High Voltage

1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Check the primary HO2S (Sensor 1) output voltage with the scan tool or the HDS.

   Does the voltage stay at 1.0 V or more?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and the PCM. ■
4. Turn the ignition switch OFF.
5. Disconnect the primary HO2S (Sensor 1) 4P connector.
6. Connect primary HO2S (Sensor 1) 4P connector terminals No. 1 and No. 2 with a jumper wire.



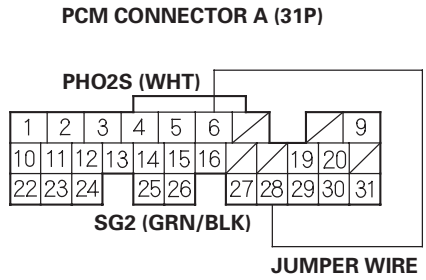
Wire side of female terminals

7. Turn the ignition switch ON (II).
8. Check the primary HO2S (Sensor 1) output voltage with the scan tool or the HDS.

   Is there 1.0 V or more?

   YES—Go to step 9.

   NO—Replace the primary HO2S (Sensor 1). ■
9. Turn the ignition switch OFF.
10. Connect PCM connector terminals A6 and A28 with a jumper wire.



Wire side of female terminals

11. Turn the ignition switch ON (II).
12. Check the primary HO2S (Sensor 1) output voltage with the scan tool or the HDS.

    Is there 1.0 V or more?

    YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

    NO—Repair open in the wire between the PCM (A6, A28) and the primary HO2S (Sensor 1). ■

DTC Troubleshooting (cont'd)

DTC P0133: Primary HO2S (Sensor 1) Circuit Slow Response

NOTE: If DTC P0131, P0132 and/or P0135 are stored at the same time as DTC P0133, troubleshoot those DTCs first, then recheck for DTC P0133.

1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Test-drive under these conditions:
   - 55 mph (89 km/h) steady speed
   - Transmission in D4 position
   - Until a readiness code is set, or Temporary DTC P0133 is set
4. Check for a Temporary DTC with the scan tool or the HDS.

   Is Temporary DTC P0133 indicated?

   YES—Replace the primary HO2S (Sensor 1). ■

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and the PCM. ■

DTC P0137—'99-00, '02-04 Models: Secondary HO2S (Sensor 2) Circuit Low Voltage

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Check the secondary HO2S (Sensor 2) output voltage at 3,000 rpm with the scan tool or the HDS.

   Does the voltage stay at 0.3 V or less?

   YES—Go to step 4.

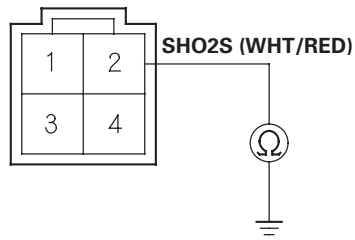
   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. ■
4. Turn the ignition switch OFF.
5. Disconnect the secondary HO2S (Sensor 2) 4P connector.
6. Turn the ignition switch ON (II).
7. Check the secondary HO2S (Sensor 2) output voltage with the scan tool or the HDS.

   Does the voltage stay at 0.3 V or less?

   YES—Go to step 8.

   NO—Replace the secondary HO2S (Sensor 2). ■
8. Turn the ignition switch OFF.
9. Disconnect PCM connector A (32P).
10. Check for continuity between secondary HO2S (Sensor 2) 4P connector terminal No. 2 and body ground.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short in the wire between the PCM (A23, A1*) and the secondary HO2S (Sensor 2). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC Troubleshooting (cont'd)

DTC P0137—'01 Model: Secondary HO2S (Sensor 2) Circuit Low Voltage

1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Check the secondary HO2S (Sensor 2) output voltage at 3,000 rpm with the scan tool or the HDS.

   Does the voltage stay at 0.3 V or less?

   YES—Go to step 4.

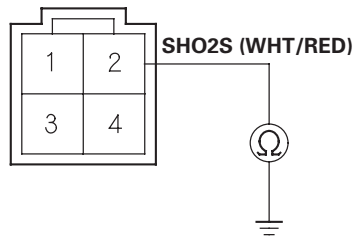
   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. ■
4. Turn the ignition switch OFF.
5. Disconnect the secondary HO2S (Sensor 2) 4P connector.
6. Turn the ignition switch ON (II).
7. Check the secondary HO2S (Sensor 2) output voltage with the scan tool or the HDS.

   Does the voltage stay at 0.3 V or less?

   YES—Go to step 8.

   NO—Replace the secondary HO2S (Sensor 2). ■
8. Turn the ignition switch OFF.
9. Disconnect PCM connector E (31P).
10. Check for continuity between secondary HO2S (Sensor 2) 4P connector terminal No. 2 and body ground.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short in the wire between the PCM (E18) and the secondary HO2S (Sensor 2). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC P0138—'99-00, '02-04 Models: Secondary HO2S (Sensor 2) Circuit High Voltage

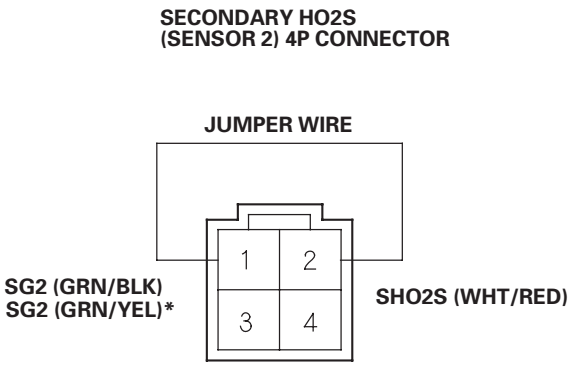
NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Check the secondary HO2S (Sensor 2) output voltage at 3,000 rpm with the scan tool or the HDS.

   Does the voltage stay at 1.0 V or more?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. ■
4. Turn the ignition switch OFF.
5. Disconnect the secondary HO2S (Sensor 2) 4P connector.
6. Connect secondary HO2S (Sensor 2) 4P connector terminals No. 1 and No. 2 with a jumper wire.



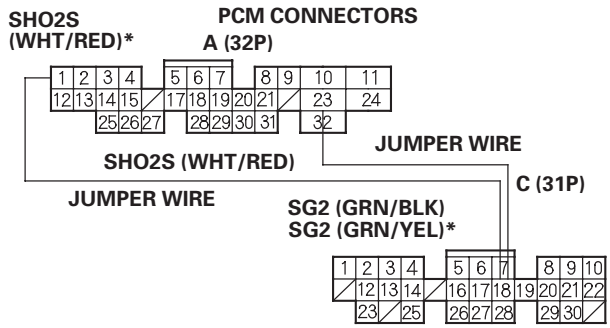
Terminal side of male terminals

7. Turn the ignition switch ON (II).
8. Check the secondary HO2S (Sensor 2) output voltage with the scan tool or the HDS.

   Is there 1.0 V or more?

   YES—Go to step 9.

   NO—Replace the secondary HO2S (Sensor 2). ■
9. Turn the ignition switch OFF.
10. Connect PCM connector terminals A23 and C18 (A1 and C18)* with a jumper wire.



Wire side of female terminals

11. Turn the ignition switch ON (II).
12. Check the secondary HO2S (Sensor 2) output voltage with the scan tool or the HDS.

    Is there 1.0 V or more?

    YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

    NO—Repair open in the wire between the PCM (A23, C18) (A1, C18)* and the secondary HO2S (Sensor 2). ■

DTC Troubleshooting (cont'd)

DTC P0138—'01 Model: Secondary HO2S (Sensor 2) Circuit High Voltage

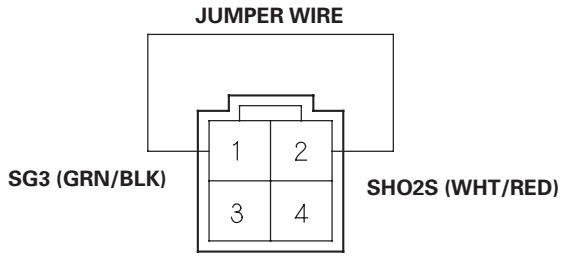
1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Check the secondary HO2S (Sensor 2) output voltage at 3,000 rpm with the scan tool or the HDS.

   Does the voltage stay at 1.0 V or more?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. ■
4. Turn the ignition switch OFF.
5. Disconnect the secondary HO2S (Sensor 2) 4P connector.
6. Connect secondary HO2S (Sensor 2) 4P connector terminals No. 1 and No. 2 with a jumper wire.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

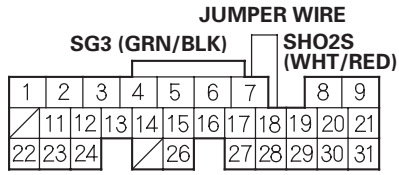
7. Turn the ignition switch ON (II).
8. Check the secondary HO2S (Sensor 2) output voltage with the scan tool or the HDS.

   Is there 1.0 V or more?

   YES—Go to step 9.

   NO—Replace the secondary HO2S (Sensor 2). ■
9. Turn the ignition switch OFF.
10. Connect PCM connector terminals E7 and E18 with a jumper wire.

PCM CONNECTORS E (31P)



Wire side of female terminals

11. Turn the ignition switch ON (II).
12. Check the secondary HO2S (Sensor 2) output voltage with the scan tool or the HDS.

    Is there 1.0 V or more?

    YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

    NO—Repair open in the wire between the PCM (E7, E18) and the secondary HO2S (Sensor 2). ■

DTC P0139: Secondary HO2S (Sensor 2) Circuit Slow Response

1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Check the secondary HO2S (Sensor 2) output voltage at 3,000 rpm with the scan tool or the HDS.

   Does the voltage stay within 0.3—0.8 V for 2 minutes?

   YES—Replace the secondary HO2S (Sensor 2). ■

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. ■

DTC Troubleshooting (cont'd)

DTC P0135—'99-00, '02-04 Models: Primary HO2S (Sensor 1) Heater Circuit Malfunction

DTC P0141—'99-00, '02-04 Models: Secondary HO2S(Sensor 2) Heater Circuit Malfunction

NOTE: Information marked with an asterisk (*) applies to DTC P0141.

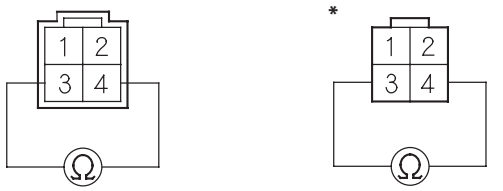
1. Reset the PCM (see page 11-4).
2. Start the engine.

   Is DTC P0135 or P0141 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1), the secondary HO2S (Sensor 2) and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the HO2S (primary or secondary*) (Sensor 1 or Sensor 2*) 4P connector.
5. At the HO2S side, measure resistance between HO2S 4P connector terminals No. 3 and No. 4.

HO2S 4P CONNECTOR



Terminal side of male terminals

Wire side of female terminals

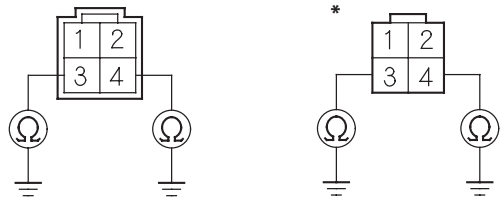
Is there 10—40 Ω ?

YES—Go to step 6.

NO—Replace the primary HO2S (Sensor 1) or secondary HO2S (Sensor 2)*. ■

6. Check for continuity between body ground and HO 2S 4P connector terminals No. 3 and No. 4 individually.

HO2S 4P CONNECTOR



Terminal side of male terminals

Wire side of female terminals

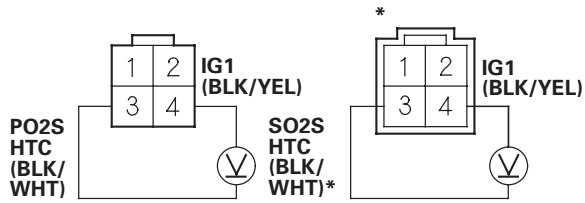
Is there continuity?

YES—Replace the HO2S (primary or secondary*) (Sensor 1 or Sensor 2*). ■

NO—Go to step 7.

7. Start the engine.
8. Measure voltage between HO2S 4P connector terminals No. 3 and No. 4.

PRIMARY/SECONDARY* HO2S (SENSOR 1/ SENSOR 2*) 4P CONNECTOR



Wire side of female terminals

Terminal side of male terminals

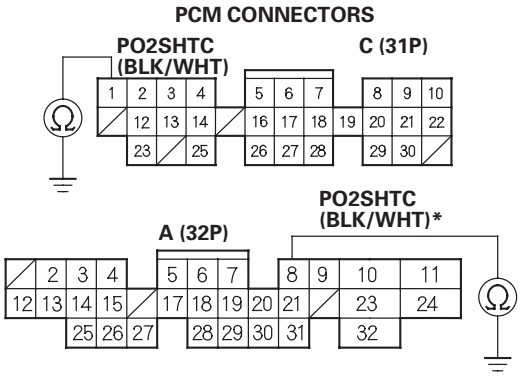
Is there battery voltage?

YES—Go to step 9.

NO—Go to step 12.

9. Turn the ignition switch OFF.
10. Disconnect PCM connector C (31P) (PCM connector A, 32P)*.

11. Check for continuity between PCM connector terminal C1 (A8)* and body ground.

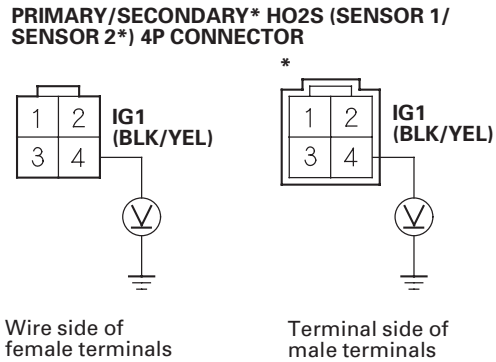


Is there continuity?

YES—Repair short in the wire between the PCM (C1, A8*) and the HO2S (primary or secondary*) (Sensor 1, Sensor 2*). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

12. Measure voltage between HO2S 4P connector terminal No. 4 and body ground.



Is there battery voltage?

YES—Go to step 13.

NO—Repair open in the wire between the primary HO2S (Sensor 1), secondary HO2S (Sensor 2)* and No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse. ■

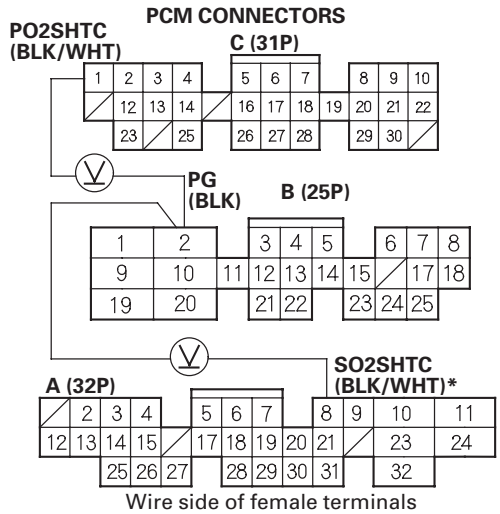
13. Turn the ignition switch OFF.

14. Reconnect the HO2S (primary or secondary*) (Sensor 1, Sensor 2*) 4P connector.

15. Disconnect PCM connector C (31P) (PCM connector A, 32P)*.

16. Turn the ignition switch ON (II).

17. Measure voltage between PCM connector terminals C1 (A8)* and B2.



Is there battery voltage?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Repair open in the wire between the PCM (C1, A8*) and HO2S (primary or secondary*) (Sensor 1, Sensor 2*). ■

DTC Troubleshooting (cont'd)

DTC P0135—'01 Model: Primary HO2S (Sensor 1) Heater Circuit Malfunction

DTC P0141—'01 Model: Secondary HO2S (Sensor 2) Heater Circuit Malfunction

NOTE: Information marked with an asterisk (*) applies to DTC P0141.

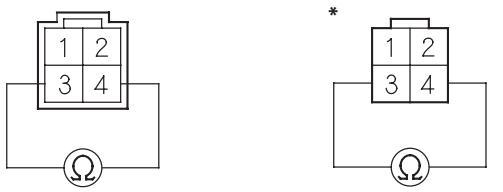
1. Reset the PCM (see page 11-4).
2. Start the engine.

   Is DTC P0135 or P0141 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1), the secondary HO2S (Sensor 2) and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the HO2S (primary or secondary*) (Sensor 1 or Sensor 2*) 4P connector.
5. At the HO2S side, measure resistance between HO2S 4P connector terminals No. 3 and No. 4.

HO2S 4P CONNECTOR



Terminal side of male terminals

Wire side of female terminals

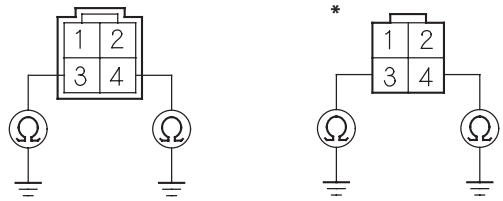
Is there 10—40 Ω ?

YES—Go to step 6.

NO—Replace the primary HO2S (Sensor 1) or secondary HO2S (Sensor 2)*. ■

6. Check for continuity between body ground and HO2S 4P connector terminals No. 3 and No. 4 individually.

HO2S 4P CONNECTOR



Terminal side of male terminals

Wire side of female terminals

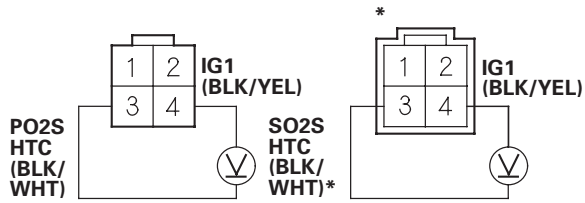
Is there continuity?

YES—Replace the HO2S (primary or secondary*) (Sensor 1 or Sensor 2*). ■

NO—Go to step 7.

7. Start the engine.
8. Measure voltage between HO2S 4P connector terminals No. 3 and No. 4.

PRIMARY/SECONDARY* HO2S (SENSOR 1/ SENSOR 2*) 4P CONNECTOR



Wire side of female terminals

Terminal side of male terminals

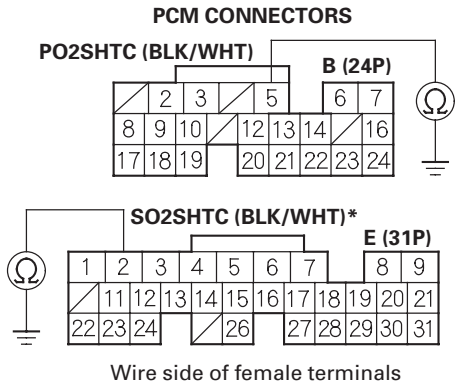
Is there battery voltage?

YES—Go to step 9.

NO—Go to step 12.

9. Turn the ignition switch OFF.
10. Disconnect PCM connector B (24P) (PCM connector E, 31P)*.

11. Check for continuity between PCM connector terminal B5 (E2)* and body ground.

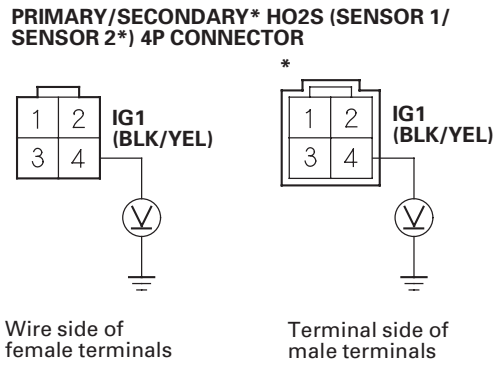


Is there continuity?

YES—Repair short in the wire between the PCM (B5, E2*) and the HO2S (primary or secondary*) (Sensor 1, Sensor 2*). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM.

12. Measure voltage between HO2S 4P connector terminal No. 4 and body ground.



Is there battery voltage?

YES—Go to step 13.

NO—Repair open in the wire between the primary HO2S (Sensor 1), secondary HO2S (Sensor 2)* and No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse. ■

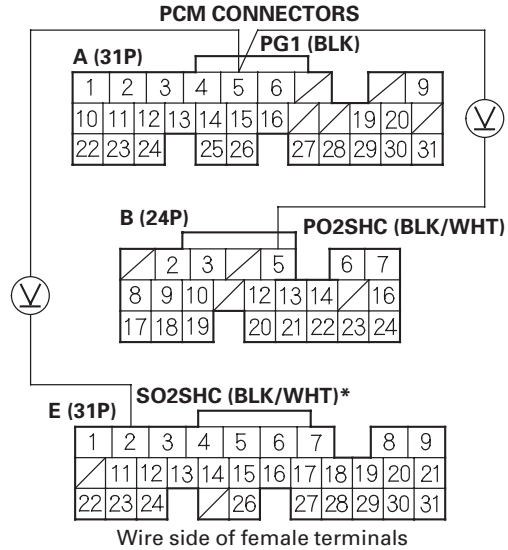
13. Turn the ignition switch OFF.

14. Reconnect the HO2S (primary or secondary*) (Sensor 1, Sensor 2*) 4P connector.

15. Disconnect PCM connector B (24P) (PCM connector E, 31P)*.

16. Turn the ignition switch ON (II).

17. Measure voltage between PCM connector terminals B5 (E2)* and A5.



Is there 0.1 V or less?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Repair open in the wire between the PCM (B5, E2*) and the HO2S (primary or secondary*) (Sensor 1, Sensor 2*). ■

DTC Troubleshooting (cont'd)

DTC P0171: Fuel System Too Lean

DTC P0172: Fuel System Too Rich

NOTE: If some of the DTCs listed below are stored at the same time as DTC P0171 and/or P0172, troubleshoot those DTCs first, then recheck for P0171 and/or P0172.

P0107, P0108, P1128, P1129: Manifold Absolute Pressure (MAP) sensor
P0135: Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) heater
P0137, P0138: Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2)
P0141: Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) heater
P0401, P1491, P1498: Exhaust Gas Recirculation (EGR) system
P1259: VTEC System

1. Check the fuel pressure (see page 11-216).

   Is fuel pressure OK?

   YES—Go to step 2.

   NO—Check these items:

   - If the pressure is too high, check the fuel pressure regulator, and the fuel return line. ■
   - If the pressure is too low, check the fuel pump, the fuel line, the fuel filter, and the fuel pressure regulator. ■

2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.

3. Check the primary HO2S (Sensor 1) output with the scan tool or the HDS.

   Does it stay at less than 0.3 V or more than 0.6 V?

   YES—Replace the primary HO2S (Sensor 1). ■

   NO—Go to step 4.

4. Turn the ignition switch OFF.

5. Connect a vacuum pump to the EVAP canister purge valve on the EVAP canister side.

6. Disconnect the EVAP canister purge valve 2P connector.

7. Start the engine.

   Is there vacuum on the gauge?

   YES—Replace the EVAP canister purge valve. ■

   NO—Check the valve clearances, and adjust if necessary. If the valve clearances are OK, replace the injectors. ■

DTC P0300: Random misfire and any combination of the following:

DTC P0301: No. 1 Cylinder Misfire Detected

DTC P0302: No. 2 Cylinder Misfire Detected

DTC P0303: No. 3 Cylinder Misfire Detected

DTC P0304: No. 4 Cylinder Misfire Detected

DTC P0305: No. 5 Cylinder Misfire Detected

DTC P0306: No. 6 Cylinder Misfire Detected

NOTE:
- If the misfiring is frequent enough to trigger detection of increased emissions during two consecutive driving cycles, the MIL will come on, and DTC P0300 (and some combination of P0301 through P0306) will be stored.
- If the misfiring is frequent enough to damage the catalyst, the MIL will blink whenever the misfiring occurs, and DTC P0300 (and some combination of P0301 through P0306) will be stored. When the misfiring stops, the MIL will remain on.

1. Troubleshoot the following DTCs first if any of them were stored along with the random misfire DTC(s):
   P0107, P0108, P1128, P1129: Manifold Absolute Pressure (MAP) Sensor
   P0131, P0132: Primary Heated Oxygen Sensor (Primary HO2S)
   P0171, P0172: Fuel System
   P0335, P0336: Crankshaft Position (CKP) Sensor
   P0340, P0341, P0365, P0366: Camshaft Position (CMP) Sensor A/B ('03-04 models)
   P0401, P1491, P1498: Exhaust Gas Recirculation (EGR) System
   P0505: Idle Control System
   P1259: VTEC System
   P1361, P1362, P1366, P1367: Top Dead Center (TDC) 1/Top Dead Center (TDC) 2 Sensor ('99-02 models)
   P1519: Idle Air Control (IAC) Valve

2. Test-drive the vehicle to verify the symptom.

3. Find the symptom in the chart below, and do the related procedures in the order listed until you find the cause.

Symptom	Procedure(s)	Also check for:
Random misfire only at low RPM and under load	Check fuel pressure (see page 11-216).	• Low compression. • Low quality fuel. • Correct EGR valve function.
Random misfire only during acceleration	Check fuel pressure (see page 11-216).	Malfunction in the VTEC system (see page 6-12).
Random misfire at high RPM and load, or under random conditions	Check fuel pressure (see page 11-216).	Correct valve clearance (see page 6-15).

DTC Troubleshooting (cont'd)

DTC P0301—'99-00, '02-04 Models: No. 1 Cylinder Misfire Detected

DTC P0302—'99-00, '02-04 Models: No. 2 Cylinder Misfire Detected

DTC P0303—'99-00, '02-04 Models: No. 3 Cylinder Misfire Detected

DTC P0304—'99-00, '02-04 Models: No. 4 Cylinder Misfire Detected

DTC P0305—'99-00, '02-04 Models: No. 5 Cylinder Misfire Detected

DTC P0306—'99-00, '02-04 Models: No. 6 Cylinder Misfire Detected

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Remove the intake manifold cover and the ignition coil cover (see steps 11 and 12 on page 6-36).
2. After checking and recording the freeze data, reset the PCM (see page 11-4). If there is no freeze data of the misfire, just clear the DTC.
3. Start the engine, and listen for a clicking sound from the injector at the problem cylinder.

   Does the injector click?

   YES—Go to step 4.

   NO—Go to step 31.
4. Turn the ignition switch OFF.
5. Exchange the ignition coil from the problem cylinder with one from another cylinder.
6. Test-drive the vehicle several times in the range of the freeze data or under various conditions if there was no freeze data.
7. Check for a DTC or Temporary DTC with the scan tool or the HDS.

   Is DTC P0301, P0302, P0303, P0304, P0305, or P0306, or Temporary DTC P1399 indicated?

   YES—Go to step 8.

   NO—Intermittent misfire due to poor contact at the ignition coil connector (no misfire at this time). ■
8. Determine which cylinder had the misfire.

   Does the misfire occur in the cylinder where the ignition coil was exchanged?

   YES—Replace the faulty ignition coil. ■

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Exchange the spark plug from the problem cylinder with one from another cylinder.
11. Test-drive the vehicle several times in the range of the freeze data or under various conditions if there was no freeze data.
12. Check for a DTC or Temporary DTC with the scan tool or the HDS.

    Is DTC P0301, P0302, P0303, P0304, P0305, or P0306, or Temporary DTC P1399 indicated?

    YES—Go to step 13.

    NO—Intermittent misfire due to spark plug fouling, etc. (no misfire at this time). ■
13. Determine which cylinder had the misfire.

    Does the misfire occur in the cylinder where the spark plug was exchanged?

    YES—Replace the faulty spark plug. ■

    NO—Go to step 14.

14. Turn the ignition switch OFF.

15. Exchange the injector from the problem cylinder with one from another cylinder.

16. Let the engine idle for 2 minutes.

17. Test-drive the vehicle several times in the range of the freeze data or under various conditions if there was no freeze data.

18. Check for a DTC or a Temporary DTC with the scan tool or the HDS.

    Is DTC P0301, P0302, P0303, P0304, P0305, or P0306, or Temporary DTC P1399 indicated?

    YES—Go to step 19.

    NO—Intermittent misfire due to bad contact in the injector connector (no misfire at this time). Check for poor connections or loose terminals at the injector. ■

19. Determine which cylinder had the misfire.

    Does the misfire occur in the cylinder where the injector was exchanged?

    YES—Replace the faulty injector (see page 11-177). ■

    NO—Go to step 20.

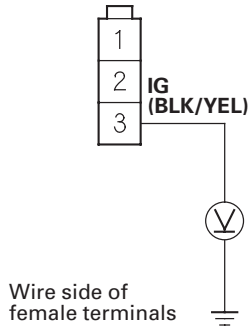
20. Turn the ignition switch OFF.

21. Disconnect the ignition coil 3P connector from the problem cylinder.

22. Turn the ignition switch ON (II).

23. Measure voltage between ignition coil 3P connector terminal No. 3 and body ground.

IGNITION COIL 3P CONNECTOR



Is there battery voltage?

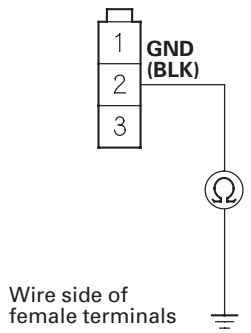
YES—Go to step 24.

NO—Repair open or short in the wire between the No. 11 COIL (No. 7 on '02-04 models) (15A) fuse and the ignition coil. ■

24. Turn the ignition switch OFF.

25. Check for continuity between ignition coil 3P connector terminal No. 2 and body ground.

IGNITION COIL 3P CONNECTOR



Is there continuity?

YES—Go to step 26.

NO—Repair open in the wire between the ignition coil and G101 (or G102). ■

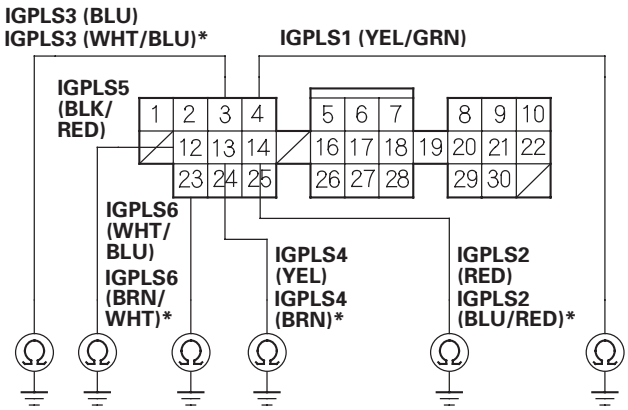
26. Disconnect PCM connector C (31P).

(cont'd)

DTC Troubleshooting (cont'd)

27. Check for continuity between body ground and the PCM connector terminal (see table).

PCM CONNECTOR C (31P)



Wire side of female terminals

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	C4	YEL/GRN
No. 2	P0302	C14	RED (BLU/RED)*
No. 3	P0303	C3	BLU (WHT/BLU)*
No. 4	P0304	C13	YEL (BRN)*
No. 5	P0305	C12	BLK/RED
No. 6	P0306	C23	WHT/BLU (BRN/WHT)*

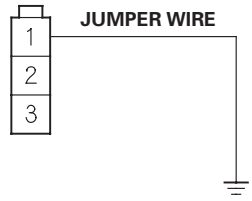
Is there continuity?

YES—Repair short in the wire between the PCM and the ignition coil. ■

NO—Go to step 28.

28. Connect ignition coil 3P connector terminal No. 1 and body ground with a jumper wire (see table).

IGNITION COIL 3P CONNECTOR

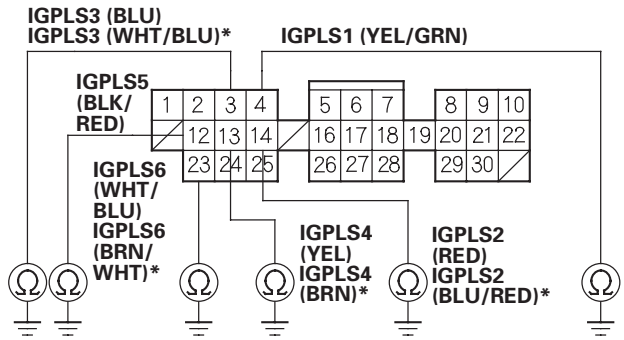


Wire side of female terminals

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0301	YEL/GRN
No. 2	P0302	RED
No. 3	P0303	BLU
No. 4	P0304	BRN
No. 5	P0305	BLK/RED
No. 6	P0306	WHT/BLU

29. Check for continuity between body ground and the PCM connector terminal (see table).

PCM CONNECTOR C (31P)



Wire side of female terminals

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	C4	YEL/GRN
No. 2	P0302	C14	RED (BLU/RED)*
No. 3	P0303	C3	BLU (WHT/BLU)*
No. 4	P0304	C13	YEL (BRN)*
No. 5	P0305	C12	BLK/RED
No. 6	P0306	C23	WHT/BLU (BRN/WHT)*

Is there continuity?

YES—Go to step 30.

NO—Repair open in the wire between the PCM and the ignition coil. ■

30. Check the engine compression (see page 6-11).

Is the engine compression OK?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Repair the engine. ■

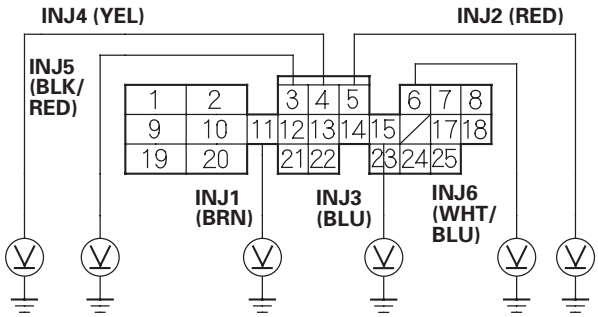
31. Turn the ignition switch OFF.

32. Disconnect PCM connector B (25P).

33. Turn the ignition switch ON (II).

34. Measure voltage between body ground and the PCM connector terminal (see table).

PCM CONNECTOR B (25P)



Wire side of female terminals

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B11	BRN
No. 2	P0302	B5	RED
No. 3	P0303	B15	BLU
No. 4	P0304	B4	YEL
No. 5	P0305	B3	BLK/RED
No. 6	P0306	B6	WHT/BLU

Is there battery voltage?

YES—Go to step 35.

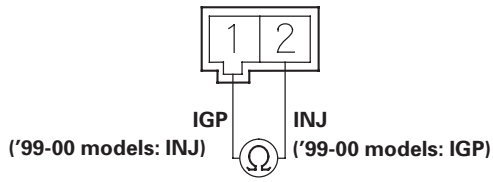
NO—Go to step 43.

35. Turn the ignition switch OFF.

36. Disconnect the injector 2P connector from the problem cylinder.

37. Measure resistance between injector 2P connector terminals No. 1 and No. 2.

INJECTOR 2P CONNECTOR



Terminal side of male terminals

Is there 10—13 Ω?

YES—Go to step 38.

NO—Replace the injector (see page 11-177). ■

38. Exchange the injector from the problem cylinder with one from another cylinder.

39. Let the engine idle for 2 minutes.

40. Test-drive the vehicle several times in the range of the freeze data or under various conditions if there was no freeze data.

41. Check for a DTC or a Temporary DTC with the scan tool or the HDS.

Is DTC P0301, P0302, P0303, P0304, P0305, or P0306, or Temporary DTC P1399 indicated?

YES—Go to step 42.

NO—Intermittent misfire due to injector malfunction, etc. Make sure the injector connections are secure. Check for poor conections or loose terminals at the injector connectors. ■

(cont'd)

DTC Troubleshooting (cont'd)

42. Determine which cylinder had the misfire.

    Does the misfire occur in the other cylinder where the injector was exchanged?

    YES—Replace the faulty injector. ■

    NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

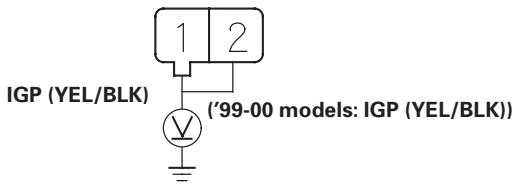
43. Turn the ignition switch OFF.

44. Disconnect the injector 2P connector from the problem cylinder.

45. Turn the ignition switch ON (II).

46. Measure voltage between injector 2P connector terminal No. 1 (No. 2 on '99 - '00 models) and body ground.

INJECTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

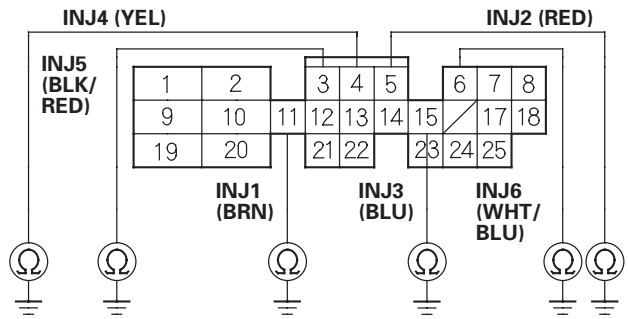
YES—Go to step 47.

NO—Repair open in the wire between the injector and the PGM-FI main relay. ■

47. Turn the ignition switch OFF.

48. Check for continuity between body ground and the PCM connector terminal (see table).

PCM CONNECTOR B (25P)



Wire side of female terminals

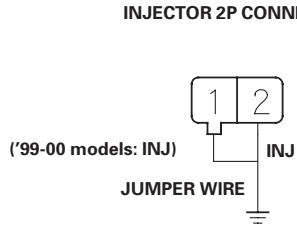
PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B11	BRN
No. 2	P0302	B5	RED
No. 3	P0303	B15	BLU
No. 4	P0304	B4	YEL
No. 5	P0305	B3	BLK/RED
No. 6	P0306	B6	WHT/BLU

Is there continuity?

YES—Repair short in the wire between the PCM and the injector. ■

NO—Go to step 49.

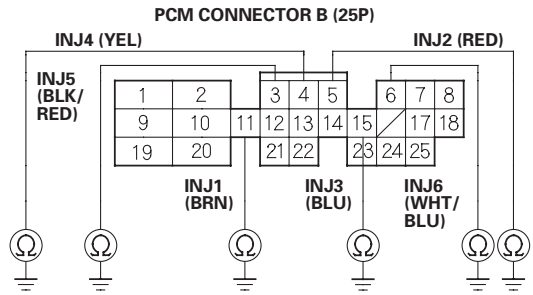
49. Connect injector 2P connector terminal No. 2 (No. 1 on '99-00 models) to body ground with a jumper wire (see table).



Wire side of female terminals

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0301	BRN
No. 2	P0302	RED
No. 3	P0303	BLU
No. 4	P0304	YEL
No. 5	P0305	BLK/RED
No. 6	P0306	WHT/BLU

50. Check for continuity between body ground and the PCM connector terminal (see table).



Wire side of female terminals

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B11	BRN
No. 2	P0302	B5	RED
No. 3	P0303	B15	BLU
No. 4	P0304	B4	YEL
No. 5	P0305	B3	BLK/RED
No. 6	P0306	B6	WHT/BLU

Is there continuity?

YES—Replace the injector, then recheck. ■

NO—Repair open in the wire between the PCM and the injector. ■

DTC P0301—'01 Model: No. 1 Cylinder Misfire Detected

DTC P0302—'01 Model: No. 2 Cylinder Misfire Detected

DTC P0303—'01 Model: No. 3 Cylinder Misfire Detected

DTC P0304—'01 Model: No. 4 Cylinder Misfire Detected

DTC P0305—'01 Model: No. 5 Cylinder Misfire Detected

DTC P0306—'01 Model: No. 6 Cylinder Misfire Deteced

1. Remove the intake manifold cover and the ignition coil cover (see steps 11 and 12 on page 6-36).

2. After checking and recording the freeze data, reset the PCM (see page 11-4). If there is no freeze data of misfiring, just clear the DTC.

3. Start the engine, and listen for a clicking sound from the injector in the problem cylinder.

   Does the injector click?

   YES—Go to step 4.

   NO—Go to step 31.

4. Turn the ignition switch OFF.

5. Exchange the ignition coil from the problem cylinder with one from another cylinder.

6. Test-drive the vehicle several times in the range of the freeze data or under various conditions if there was no freeze data.

7. Check for a DTC or a Temporary DTC with the scan tool or the HDS.

   Is DTC P0301, P0302, P0303, P0304, P0305, or P0306, or Temporary DTC P1399 indicated?

   YES—Go to step 8.

   NO—Intermittent misfire due to ignition coil fouling, etc. (no misfire at this time). ■

(cont'd)

DTC Troubleshooting (cont'd)

8. Determine which cylinder had the misfire.

   Does the misfire occur in the cylinder where the ignition coil was exchanged?

   YES—Replace the faulty ignition coil. ■

   NO—Go to step 9.

9. Turn the ignition switch OFF.

10. Exchange the spark plug from the problem cylinder with one from another cylinder.

11. Test-drive the vehicle several times in the range of the freeze data or under various conditions if there was no freeze data.

12. Check for a DTC or a Temporary DTC with the scan tool or the HDS.

    Is DTC P0301, P0302, P0303, P0304, P0305, or P0306, or Temporary DTC P1399 indicated?

    YES—Go to step 13.

    NO—Intermittent misfire due to spark plug fouling, etc. (no misfire at this time). ■

13. Determine which cylinder had the misfire.

    Does the misfire occur in the cylinder where the spark plug was exchanged?

    YES—Replace the faulty spark plug. ■

    NO—Go to step 14.

14. Turn the ignition switch OFF.

15. Exchange the injector from the problem cylinder with one from another cylinder.

16. Let the engine idle for 2 minutes.

17. Test-drive the vehicle several times in the range of the freeze data or under various conditions if there was no freeze data.

18. Check for a DTC or a Temporary DTC with the scan tool or the HDS.

    Is DTC P0301, P0302, P0303, P0304, P0305, or P0306, or Temporary DTC P1399 indicated?

    YES—Go to step 19.

    NO—Intermittent misfire due to bad contact in the injector connector (no misfire at this time). Check for poor connections or loose terminals at the injector. ■

19. Determine which cylinder had the misfire.

    Does the misfire occur in the cylinder where the injector was exchanged?

    YES—Replace the faulty injector (see page 11-177). ■

    NO—Go to step 20.

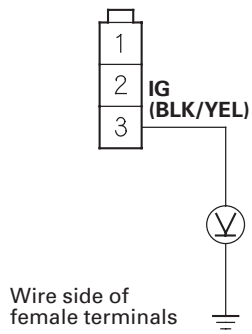
20. Turn the ignition switch OFF.

21. Disconnect the ignition coil 3P connector from the problem cylinder.

22. Turn the ignition switch ON (II).

23. Measure voltage between ignition coil 3P connector terminal No. 3 and body ground.

IGNITION COIL 3P CONNECTOR



Is there battery voltage?

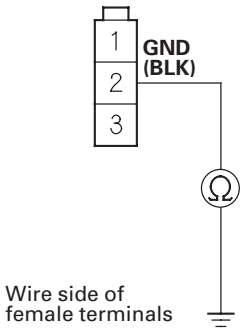
YES—Go to step 24.

NO—Repair open or short in the wire between the No 7 COIL (15A) fuse and the ignition coil. ■

24. Turn the ignition switch OFF.

25. Check for continuity between ignition coil 3P connector terminal No. 2 and body ground.

IGNITION COIL 3P CONNECTOR



Is there continuity?

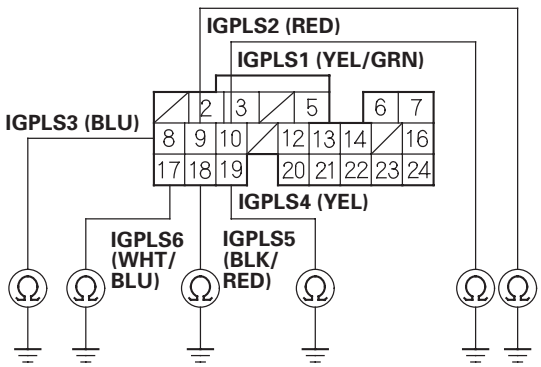
YES — Go to step 26.

NO — Repair open in the wire between the ignition coil and G101 (or G102). ■

26. Disconnect PCM connector B (24P).

27. Check for continuity between body ground and the PCM connector terminal (see table).

PCM CONNECTOR B (24P)



Wire side of female terminals

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B10	YEL/GRN
No. 2	P0302	B9	RED
No. 3	P0303	B8	BLU
No. 4	P0304	B19	YEL
No. 5	P0305	B18	BLK/RED
No. 6	P0306	B17	WHT/BLU

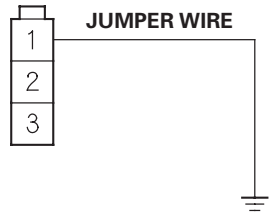
Is there continuity?

YES — Repair short in the wire between the PCM and the ignition coil. ■

NO — Go to step 28.

28. Connect ignition coil 3P connector terminal No. 1 to body ground with a jumper wire (see table).

IGNITION COIL 3P CONNECTOR



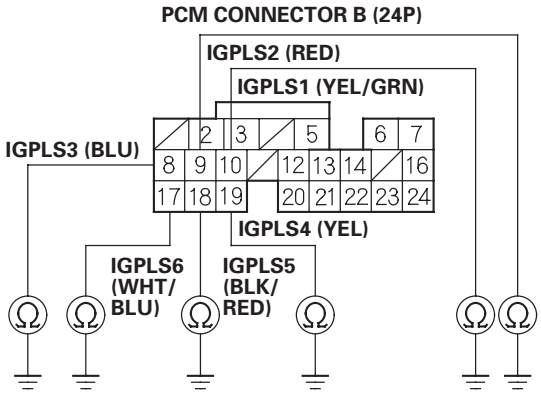
Wire side of female terminals

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0301	YEL/GRN
No. 2	P0302	RED
No. 3	P0303	BLU
No. 4	P0304	YEL
No. 5	P0305	BLK/RED
No. 6	P0306	WHT/BLU

(cont'd)

DTC Troubleshooting (cont'd)

29. Check for continuity between body ground and PCM connector terminal (see table).



Wire side of female terminals

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B10	YEL/GRN
No. 2	P0302	B9	RED
No. 3	P0303	B8	BLU
No. 4	P0304	B19	YEL
No. 5	P0305	B18	BLK/RED
No. 6	P0306	B17	WHT/BLU

Is there continuity?

YES — Go to step 30.

NO — Repair open in the wire between the PCM and the ignition coil. ■

30. Check the engine compression (see page 6-11).

Is the engine compression OK?

YES — Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

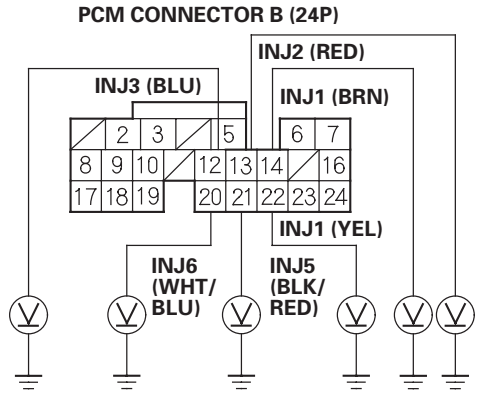
NO — Repair the engine. ■

31. Turn the ignition switch OFF.

32. Disconnect PCM connector B (24P).

33. Turn the ignition switch ON (II).

34. Measure voltage between body ground and the PCM connector terminal (see table).



Wire side of female terminals

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B14	BRN
No. 2	P0302	B13	RED
No. 3	P0303	B12	BLU
No. 4	P0304	B22	YEL
No. 5	P0305	B21	BLK/RED
No. 6	P0306	B20	WHT/BLU

Is there battery voltage?

YES — Go to step 35.

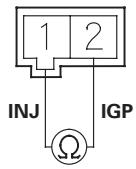
NO — Go to step 43.

35. Turn the ignition switch OFF.

36. Disconnect the injector 2P connector from the problem cylinder.

37. Measure resistance between injector 2P connector terminals No. 1 and No. 2.

INJECTOR 2P CONNECTOR



Terminal side of male terminals

Is there 10 – 13 Ω ?

YES – Go to step 38.

NO – Replace the injector (see page 11-177). ■

38. Exchange the injector from the problem cylinder with one from another cylinder.

39. Let the engine idle for 2 minutes.

40. Test-drive the vehicle several times in the range of the freeze data or under various conditions if there was no freeze data.

41. Check for a DTC or a Temporary DTC with the scan tool or the HDS.

Is DTC P0301, P0302, P0303, P0304, P0305, or P0306, or Temporary DTC P1399 indicated?

YES – Go to step 42.

NO – Intermittent misfire due to injector fouling, etc. Make sure the injector connections are secure. Check for poor connections or loose terminals at the injector connectors. ■

42. Determine which cylinder had the misfire.

Does the misfire occur in the other cylinder where the injector was exchanged?

YES – Replace the faulty injector (see page 11-177). ■

NO – Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

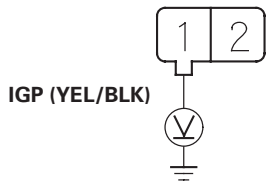
43. Turn the ignition switch OFF.

44. Disconnect the injector 2P connector from the problem cylinder.

45. Turn the ignition switch ON (II).

46. Measure voltage between injector 2P connector terminal No. 1 and body ground.

INJECTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES – Go to step 47.

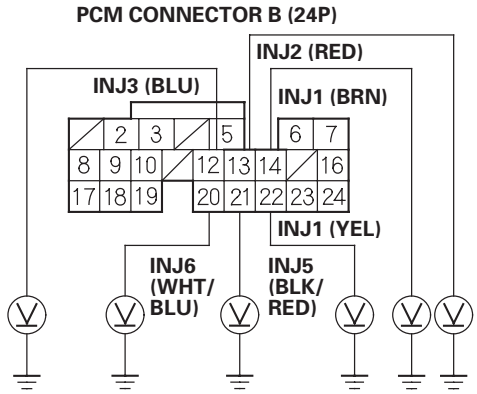
NO – Repair open in the wire between the injector and the PGM-FI main relay. ■

47. Turn the ignition switch OFF.

(cont'd)

DTC Troubleshooting (cont'd)

48. Check for continuity between body ground and PCM connector terminal (see table).



Wire side of female terminals

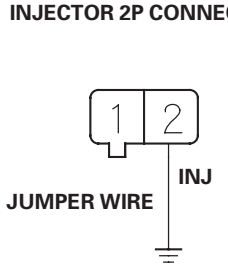
PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B14	BRN
No. 2	P0302	B13	RED
No. 3	P0303	B12	BLU
No. 4	P0304	B22	YEL
No. 5	P0305	B21	BLK/RED
No. 6	P0306	B20	WHT/BLU

Is there continuity?

YES—Repair short in the wire between the PCM and the injector. ■

NO—Go to step 49.

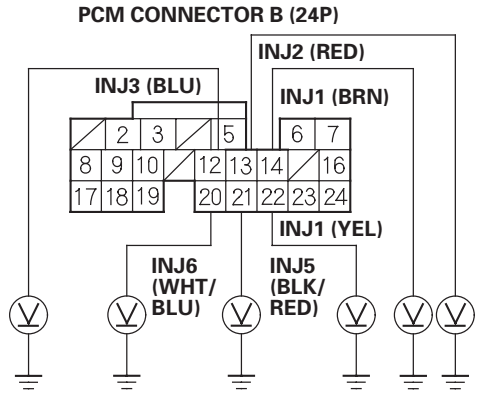
49. Connect injector 2P connector terminal No. 2 to body ground with a jumper wire (see table).



Wire side of female terminals

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0301	BRN
No. 2	P0302	RED
No. 3	P0303	BLU
No. 4	P0304	YEL
No. 5	P0305	BLK/RED
No. 6	P0306	WHT/BLU

50. Check for continuity between body ground and PCM connector terminals (see table).



Wire side of female terminals

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B14	BRN
No. 2	P0302	B13	RED
No. 3	P0303	B12	BLU
No. 4	P0304	B22	YEL
No. 5	P0305	B21	BLK/RED
No. 6	P0306	B20	WHT/BLU

Is there continuity?

YES—Replace the injector (see page 11-177), then recheck. ■

NO—Repair open in the wire between the PCM and the injector. ■

DTC P0325—'99-00, '02-04 Models: Knock Sensor Circuit Malfunction

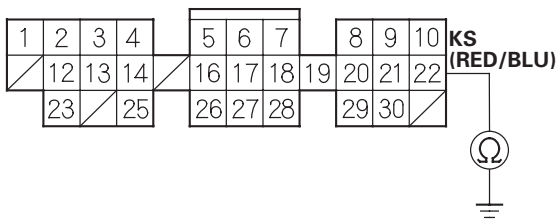
1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.
3. Hold the engine at 3,000—4,000 rpm for at least 60 seconds.

   Is DTC P0325 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the knock sensor and the PCM.
4. Turn the ignition switch OFF.
5. Disconnect the C103 knock sensor connector.
6. Check for continuity between PCM connector terminal C22 and body ground.

PCM CONNECTOR C (31P)



Wire side of female terminals

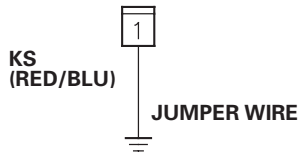
Is there continuity?

YES—Repair short in the wire between the PCM (C22) and the C103 knock sensor connector. ■

NO—Go to step 7.

7. Connect C103 knock sensor connector terminal No. 1 to body ground with a jumper wire.

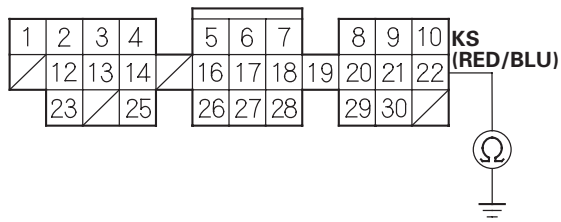
KNOCK SENSOR SUBHARNESS 1P CONNECTOR (C103)



Wire side of female terminals

8. Check for continuity between PCM connector terminal C22 and body ground.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the PCM (C22) and the C103 knock sensor connector. ■

9. Check the knock sensor subharness between C103 and the knock sensor for an open or short. If it's OK, substitute a known-good knock sensor and recheck.

   Is DTC P0325 indicated?

   YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

   NO—Replace the original knock sensor and/or knock sensor subharness. ■

DTC Troubleshooting (cont'd)

DTC P0325—**'01 Model:** Knock Sensor Circuit Malfunction

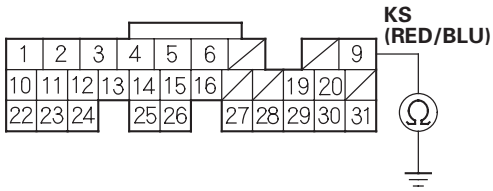
1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.
3. Hold the engine at 3,000—4,000 rpm for at least 60 seconds.

   Is DTC P0325 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the knock sensor and the PCM.
4. Turn the ignition switch OFF.
5. Disconnect the C103 knock sensor connector.
6. Check for continuity between PCM connector terminal A9 and body ground.

PCM CONNECTOR A (31P)



Wire side of female terminals

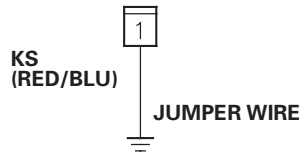
Is there continuity?

YES—Repair short in the wire between the PCM (A9) and the C103 knock sensor connector. ■

NO—Go to step 7.

7. Connect C103 knock sensor connector terminal No. 1 to body ground with a jumper wire.

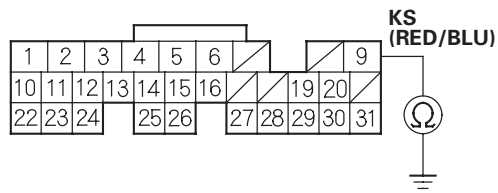
KNOCK SENSOR SUBHARNESS 1P CONNECTOR (C103)



Wire side of female terminals

8. Check for continuity between PCM connector terminal A9 and body ground.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the PCM (A9) and the C103 knock sensor connector. ■

9. Check the knock sensor subharness between C103 and the knock sensor for an open or short. If it's OK, substitute a known-good knock sensor and recheck.

   Is DTC P0325 indicated?

   YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

   NO—Replace the original knock sensor and/or knock sensor subharness. ■

DTC P0335—'99-00, '02-04 Models: CKP Sensor Circuit No Signal

DTC P0336—'99-00, '02-04 Models: CKP Sensor Circuit Intermittent Interruption

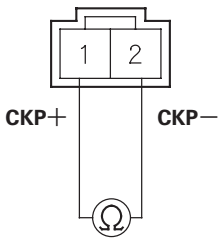
1. Reset the PCM (see page 11-4).
2. Start the engine.

   Is DTC P0335 and/or P0336 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the CKP sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the CKP sensor 2P connector.
5. Measure resistance between CKP sensor 2P connector terminals No. 1 and No. 2.

CKP SENSOR 2P CONNECTOR



Terminal side of male terminals

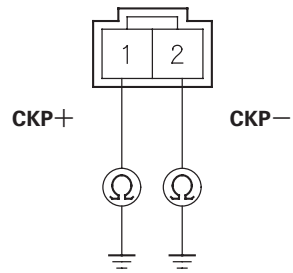
Is there 1,850—2,450 Ω ?

YES—Go to step 6.

NO—Replace the CKP sensor (see page 6-61). ■

6. Check for continuity between body ground and CKP sensor 2P connector terminals No. 1 and No. 2 individually.

CKP SENSOR 2P CONNECTOR



Terminal side of male terminals

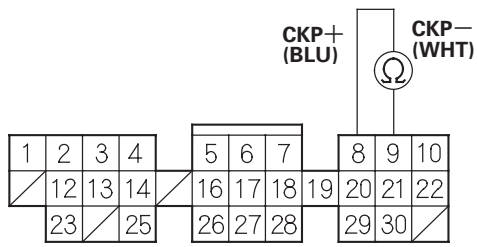
Is there continuity?

YES—Replace the CKP sensor (see page 6-61). ■

NO—Go to step 7.

7. Reconnect the CKP sensor 2P connector.
8. Disconnect PCM connector C (31P).
9. Measure resistance between PCM connector terminals C8 and C9.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there 1,850—2,450 Ω ?

YES—Go to step 10.

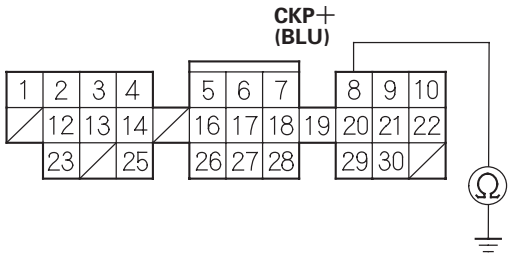
NO—Repair open in the wire between the PCM (C8, C9) and the CKP sensor. ■

(cont'd)

DTC Troubleshooting (cont'd)

10. Check for continuity between body ground and PCM connector terminal C8.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (C8) and the CKP sensor. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC P0335—'01 Model: CKP Sensor Circuit No Signal

DTC P0336—'01 Model: CKP Sensor Circuit Intermittent Interruption

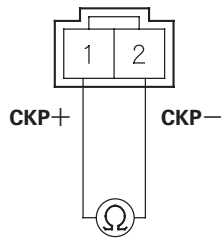
1. Reset the PCM (see page 11-4).
2. Start the engine.

   Is DTC P0335 and/or P0336 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the CKP sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the CKP sensor 2P connector.
5. Measure resistance between CKP sensor 2P connector terminals No. 1 and No. 2.

CKP SENSOR 2P CONNECTOR



Terminal side of male terminals

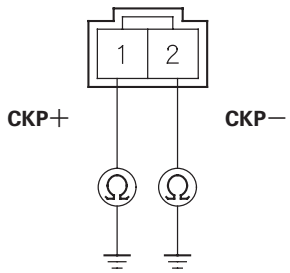
Is there 1,850—2,450 Ω ?

YES—Go to step 6.

NO—Replace the CKP sensor (see page 6-61). ■

6. Check for continuity between body ground and CKP sensor 2P connector terminals No. 1 and No. 2 individually.

CKP SENSOR 2P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Replace the CKP sensor (see page 6-61). ■

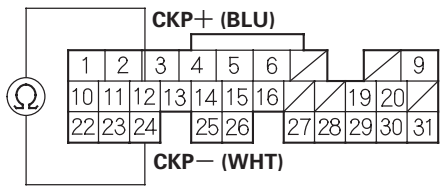
NO—Go to step 7.

7. Reconnect the CKP sensor 2P connector.

8. Disconnect PCM connector A (31P).

9. Measure resistance between PCM connector terminals A12 and A24.

PCM CONNECTOR A (31P)



Wire side of female terminals

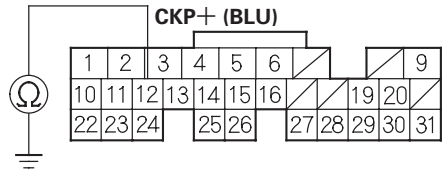
Is there 1,850—2,450 Ω ?

YES—Go to step 10.

NO—Repair open in the wire between the PCM (A12, A24) and the CKP sensor. ■

10. Check for continuity between body ground and PCM connector terminal A12.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (A12) and the CKP sensor. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC Troubleshooting (cont'd)

DTC P0340—'03-04 Models: CMP Sensor A No Signal

DTC P0341—'03-04 Models: CMP Sensor A Intermittent Interruption

DTC P0365—'03-04 Models: CMP Sensor B No Signal

DTC P0366—'03-04 Models: CMP Sensor B Intermittent Interruption

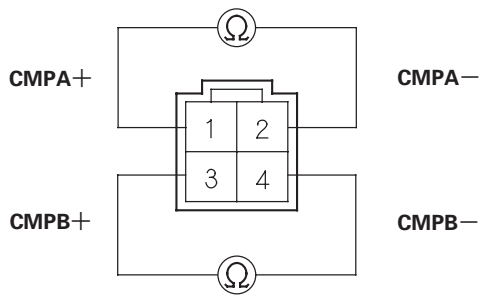
1. Reset the PCM (see page 11-4).
2. Start the engine.

   Is DTC P0340, P0341, P0365, or P0366 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the CMP sensor A/B and at the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the CMP sensor A/B 4P connector.
5. Measure resistance between the terminals of the indicated sensor (see table).

CMP SENSOR A/B 4P CONNECTOR



Terminal side of male terminals

SENSOR	DTC	SENSOR TERMINAL	PCM TERMINAL	WIRE COLOR
CMP A	P0340	1	C20	GRN
	P0341	2	C21	RED
CMP B	P0365	3	C29	YEL
	P0366	4	C30	BLK

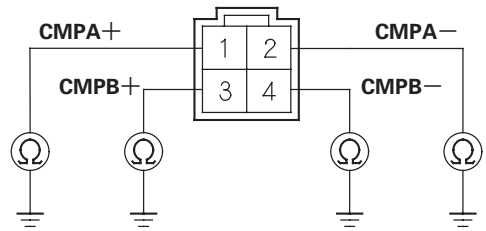
Is there 1,850—2,450 Ω ?

YES—Go to step 6.

NO—Replace the CMP sensor A/B (see page 6-60). ■

6. Check for continuity to body ground on both terminals of the indicated sensor individually.

CMP SENSOR A/B 4P CONNECTOR



Terminal side of male terminals

Is there continuity?

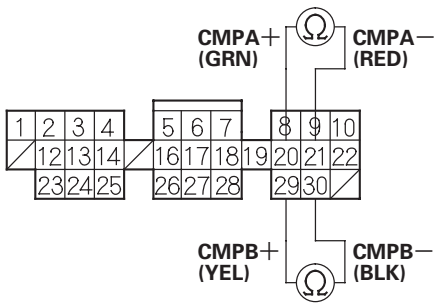
YES—Replace the CMP sensor A/B (see page 6-60). ■

NO—Go to step 7.

7. Reconnect the CMP sensor A/B 4P connector.
8. Disconnect PCM connector C (31P).

9. Measure resistance between the terminals of the indicated sensor on the PCM connector (see table).

PCM CONNECTOR C (31P)



Wire side of female terminals

SENSOR	DTC	PCM TERMINAL	WIRE COLOR
CMP A	P0340	C20	GRN
	P0341	C21	RED
CMP B	P0365	C29	YEL
	P0366	C30	BLK

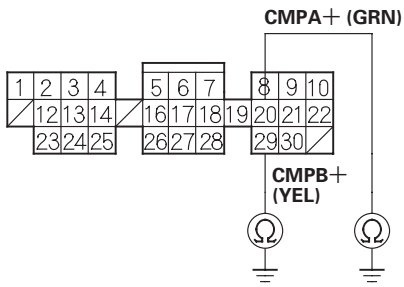
Is there 1,850−2,450 Ω ?

YES−Go to step 10.

NO−Repair open in the indicated sensor wires (see table). ■

10. Check for continuity between body ground and PCM connector terminals C20 and/or C29 individually.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES−Repair short in the indicated sensor wires. ■

NO−Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC P0560−**'01 Model:** Low Voltage in PCM Back Up Circuit

NOTE: If the No. 13 CLOCK BACK UP (7.5A) fuse in the passenger's under-dash fuse/relay box is removed and the engine is started, MIL will come on and the PCM will store DTC P0560.

1. Reset the PCM (see page 11-4).

2. Start the engine.

   Is DTC P0560 indicated?

   YES−Go to step 3.

   NO−Intermittent failure, system is OK at this time. Check for poor connections or loose terminal at the No. 13 CLOCK BACK UP (7.5A) fuse in the passenger's under-dash fuse/relay box and PCM. ■

3. Turn the ignition switch OFF.

4. Inspect the No. 13 CLOCK BACK UP (7.5A) fuse in the passenger's under-dash fuse/relay box. ■

   Is the fuse OK?

   YES−Go to step 5.

   NO−Check for these problems: ■

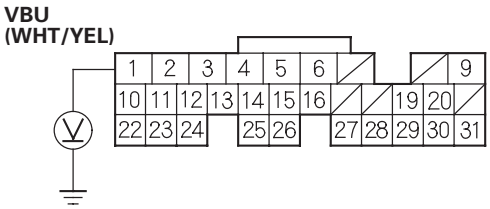
   - Repair short in the wire between the PCM (A1) and No. 13 CLOCK BACK UP (7.5A) fuse in the passenger's under-dash fuse/relay box.
   - Repair short in the wire the back up circuit (see page 22-80).

(cont'd)

DTC Troubleshooting (cont'd)

5. Measure voltage between PCM connector terminal A1 and body ground.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there battery voltage?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Repair open in the wire between the PCM (A1) and the No. 13 CLOCK BACK UP (7.5A) fuse in the passenger's under-dash fuse/relay box. ■

DTC P1106: BARO Sensor Circuit Range/ Performance Problem

1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.
3. Test-drive with the transmission in 2 position.
4. Accelerate for 5 seconds using wide open throttle.
5. Check for a Temporary DTC with the scan tool or the HDS.

   Is Temporary DTC P1106 indicated?

   YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

   NO—Intermittent failure, system is OK at this time. ■

DTC P1107: BARO Sensor Circuit Low Voltage

DTC P1108: BARO Sensor Circuit High Voltage

1. Reset the PCM (see page 11-4).
2. Turn the ignition switch ON (II).

   Is DTC P1107 or P1108 indicated?

   YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

   NO—Intermittent failure, system is OK at this time. ■

DTC P1297—'99-00, '02-04 Models: ELD Circuit Low Voltage

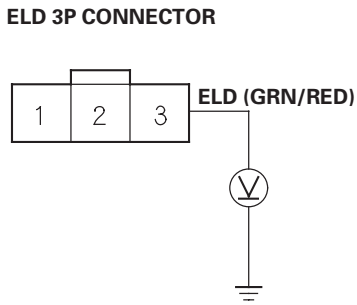
1. Reset the PCM (see page 11-4).
2. Start the engine.
3. Turn on the headlights.

   Is DTC P1297 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ELD and the PCM. ■

4. Turn the ignition switch and the headlights OFF.
5. Disconnect the ELD 3P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between body ground and ELD 3P connector terminal No. 3.



Wire side of female terminals

Is there about 5 V?

YES—Replace the ELD. ■

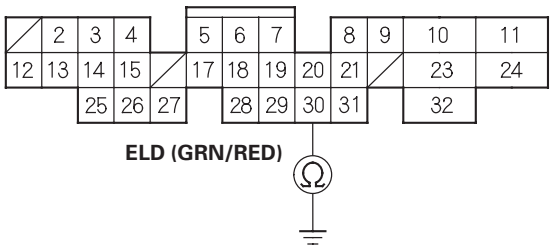
NO—Go to step 8.

(cont'd)

DTC Troubleshooting (cont'd)

8. Turn the ignition switch OFF.
9. Disconnect PCM connector A (32P).
10. Check for continuity between body ground and PCM connector terminal A30.

PCM CONNECTOR A (32P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (A30) and the ELD. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC P1297—'01 Model: ELD Circuit Low Voltage

1. Reset the PCM (see page 11-4).
2. Start the engine.
3. Turn on the headlights.

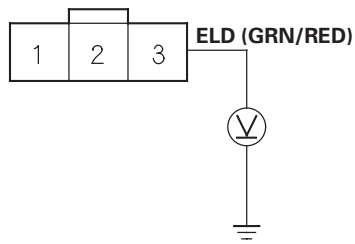
Is DTC P1297 indicated?

YES—Go to step 4.

NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ELD and the PCM. ■

4. Turn the ignition switch and the headlights OFF.
5. Disconnect the ELD 3P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between body ground and ELD 3P connector terminal No. 3.

ELD 3P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Replace the ELD. ■

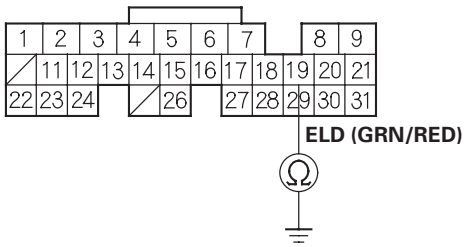
NO—Go to step 8.

8. Turn the ignition switch OFF.

9. Disconnect PCM connector E (31P).

10. Check for continuity between body ground and PCM connector terminal E19.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (E19) and the ELD. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC P1298—'99-00, '02-04 Models: ELD Circuit High Voltage

1. Reset the PCM (see page 11-4).

2. Start the engine.

3. Turn on the headlights.

   Is DTC P1298 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ELD and the PCM. ■

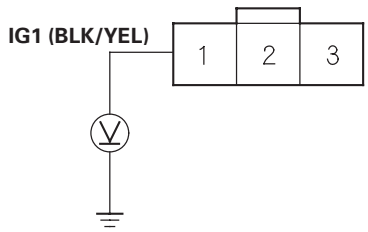
4. Turn the ignition switch and headlights OFF.

5. Disconnect the ELD 3P connector.

6. Turn the ignition switch ON (II).

7. Measure voltage between body ground and ELD 3P connector terminal No. 1.

ELD 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 8.

NO—Check the No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse and the ELD. ■

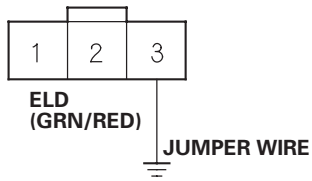
8. Turn the ignition switch OFF.

(cont'd)

DTC Troubleshooting (cont'd)

9. Connect ELD 3P connector terminal No. 3 to body ground with a jumper wire.

ELD 3P CONNECTOR

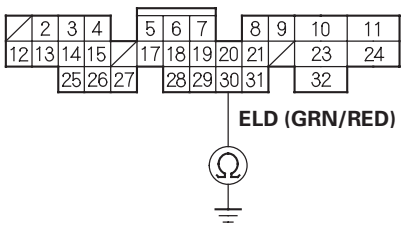


Wire side of female terminals

10. Disconnect PCM connector A (32P).

11. Check for continuity between body ground and PCM connector terminal A30.

PCM CONNECTOR A (32P)



Wire side of female terminals

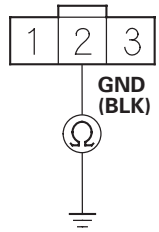
Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the PCM (A30) and the ELD. ■

12. Check for continuity between ELD 3P connector terminal No. 2 and body ground.

ELD 3P CONNECTOR



Wire side of female terminals

Is there continuity?

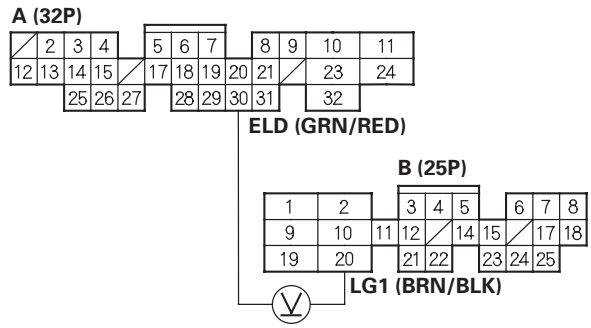
YES—Reconnect the ELD 3P connector and PCM connector A (31P). Go to step 13.

NO—Repair open in the wire between the ELD and G201. ■

13. Start the engine, and let it to idle.

14. While measuring voltage between PCM connector terminals A30 and B20, turn the headlights on (low).

PCM CONNECTORS



Wire side of female terminals

Does the voltage drop?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Replace ELD. ■

DTC P1298—'01 Model: ELD Circuit High Voltage

1. Reset the PCM (see page 11-4).
2. Start the engine.
3. Turn on the headlights.

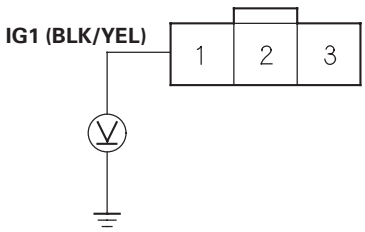
   Is DTC P1298 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ELD and the PCM. ■

4. Turn the ignition switch and headlights OFF.
5. Disconnect the ELD 3P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between body ground and ELD 3P connector terminal No. 1.

ELD 3P CONNECTOR



Wire side of female terminals

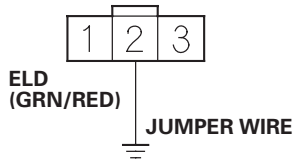
Is there battery voltage?

YES—Go to step 8.

NO—Check the No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse and the ELD. ■

8. Turn the ignition switch OFF.
9. Connect ELD 3P connector terminal No. 3 to body ground with a jumper wire.

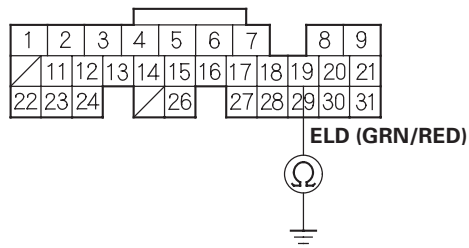
ELD 3P CONNECTOR



Wire side of female terminals

10. Disconnect PCM connector A (32P).
11. Check for continuity between body ground and PCM connector terminal E19.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

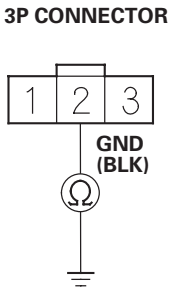
YES—Go to step 12.

NO—Repair open in the wire between the PCM (E19) and the ELD. ■

(cont'd)

DTC Troubleshooting (cont'd)

12. Check for continuity between ELD 3P connector terminal No. 2 and body ground.



Wire side of female terminals

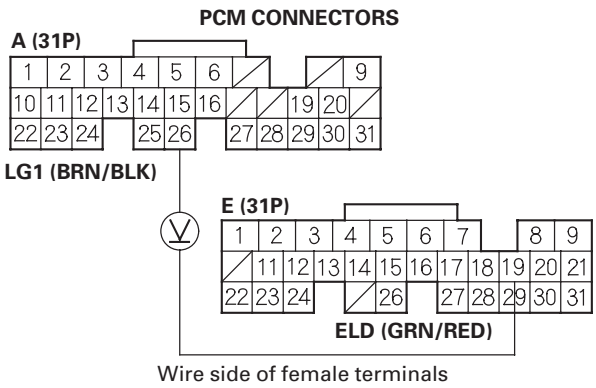
Is there continuity?

YES—Reconnect the ELD 3P connector and PCM connector A (31P). Go to step 13.

NO—Repair open in the wire between the ELD and G201. ■

13. Start the engine, and let it idle.

14. While measuring voltage between PCM connector terminals A26 and E19, turn the headlights on (low).



Wire side of female terminals

Does the voltage drop?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Replace ELD. ■

DTC P1361—'99-00, '02 Models: TDC Sensor 1 Circuit Intermittent Interruption

DTC P1362—'99-00, '02 Models: TDC Sensor 1 Circuit No Signal

DTC P1366—'99-00, '02 Models: TDC Sensor 2 Circuit Intermittent Interruption

DTC P1367—'99-00, '02 Models: TDC Sensor 2 Circuit No Signal

1. Reset the PCM (see page 11-4).

2. Start the engine.

   Is DTC P1361, P1362, P1366, or P1367 indicated?

   YES—Go to step 3.

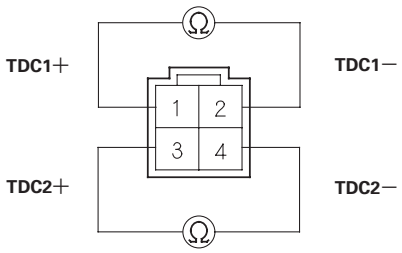
   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the TDC1/TDC2 sensor and the PCM. ■

3. Turn the ignition switch OFF.

4. Disconnect the TDC1/TDC2 sensor 4P connector.

5. Measure resistance between the terminals of indicated sensor (see table).

TDC1/TDC2 SENSOR 4P CONNECTOR



Terminal side of male terminals

SENSOR	DTC	SENSOR TERMINAL	PCM TERMINAL	WIRE COLOR
TDC1	P1361	1	C20	GRN
	P1362	2	C21	RED
TDC2	P1366	3	C29	YEL
	P1367	4	C30	BLK

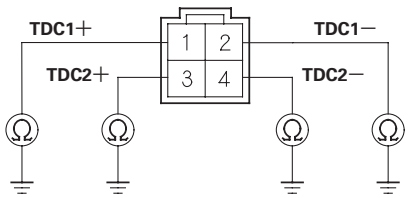
Is there 1,850−2,450 Ω ?

YES−Go to step 6.

NO−Replace the TDC1/TDC2 sensor (see page 6-60). ■

6. Check for continuity to body ground on both terminals of indicated sensor individually.

TDC1/TDC2 SENSOR 4P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES−Replace the TDC1/TDC2 sensor (see page 6-60). ■

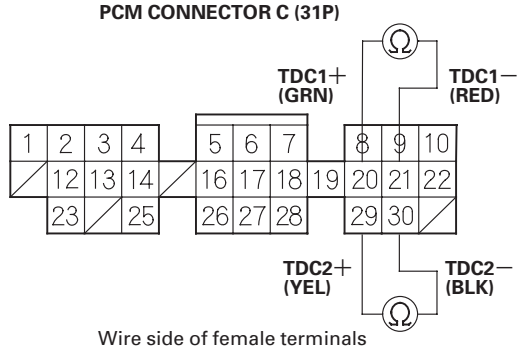
NO−Go to step 7.

7. Reconnect the TDC1/TDC2 sensor 4P connector.

8. Disconnect PCM connector C (31P).

9. Measure resistance between the terminals of the indicated sensor on the PCM connector (see table).

PCM CONNECTOR C (31P)



Wire side of female terminals

SENSOR	DTC	SENSOR TERMINAL	PCM TERMINAL	WIRE COLOR
TDC1	P1361	1	C20	GRN
	P1362	2	C21	RED
TDC2	P1366	3	C29	YEL
	P1367	4	C30	BLK

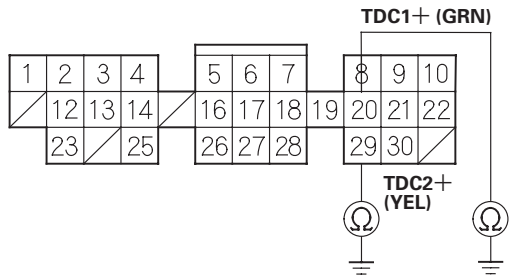
Is there 1,850−2,450 Ω ?

YES−Go to step 10.

NO−Repair open in the indicated sensor wires (see table). ■

10. Check for continuity between body ground and PCM connector terminal C20 and/or C29 individually.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES−Repair short in the indicated sensor wires (see table). ■

NO−Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC Troubleshooting (cont'd)

DTC P1361—'01 Model: TDC Sensor 1 Circuit Intermittent Interruption

DTC P1362—'01 Model: TDC Sensor 1 Circuit No Signal

DTC P1366—'01 Model: TDC Sensor 2 Circuit Intermittent Interruption

DTC P1367—'01 Model: TDC Sensor 2 Circuit No Signal

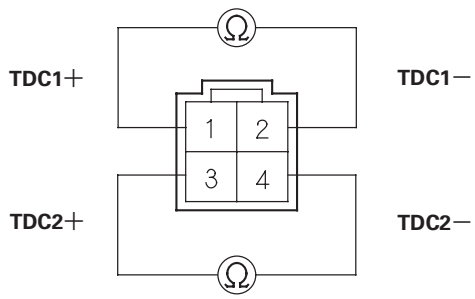
1. Reset the PCM (see page 11-4).
2. Start the engine.

   Is DTC P1361, P1362, P1366, or P1367 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the TDC1/TDC2 sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the TDC1/TDC2 sensor 4P connector.
5. Measure resistance between the terminals of indicated sensor (see table).

TDC1/TDC2 SENSOR 4P CONNECTOR



Terminal side of male terminals

SENSOR	DTC	SENSOR TERMINAL	PCM TERMINAL	WIRE COLOR
TDC1	P1361	1	A11	GRN
	P1362	2	A23	RED
TDC2	P1366	3	A10	YEL
	P1367	4	A22	BLK

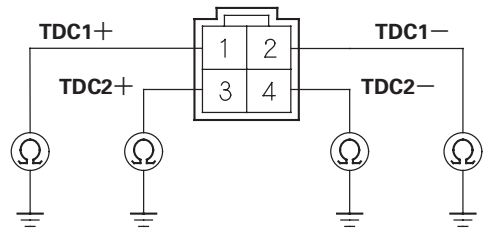
Is there 1,850—2,450 Ω ?

YES—Go to step 6.

NO—Replace the TDC1/TDC2 sensor (see page 6-60). ■

6. Check for continuity to body ground on both terminals of the indicated sensor individually.

TDC1/TDC2 SENSOR 4P CONNECTOR



Terminal side of male terminals

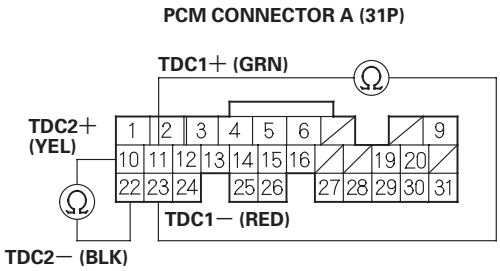
Is there continuity?

YES—Replace the TDC1/TDC2 sensor (see page 6-60). ■

NO—Go to step 7.

7. Reconnect the TDC1/TDC2 sensor 4P connector.
8. Disconnect PCM connector A (31P).

9. Measure resistance between the terminals of the indicated sensor on the PCM connector (see table).



Wire side of female terminals

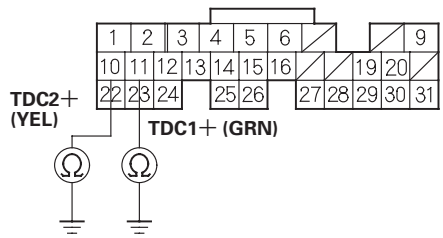
SENSOR	DTC	SENSOR TERMINAL	PCM TERMINAL	WIRE COLOR
TDC1	P1361	1	A11	GRN
	P1362	2	A23	RED
TDC2	P1366	3	A10	YEL
	P1367	4	A22	BLK

Is there 1,850−2,450 Ω ?

YES−Go to step 10.

NO−Repair open in the indicated sensor wires (see table).■

10. Check for continuity between body ground and PCM connector terminal A10 and/or A11 individually.



Wire side of female terminals

Is there continuity?

YES−Repair short in the indicated sensor wires (see table).■

NO−Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM.■

DTC P1676−**'99-00 Models:** FPTDR Signal Line Failure

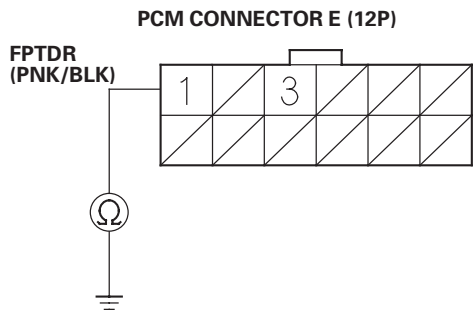
1. Reset the PCM (see page 11-4).
2. Start the engine, and wait 10 seconds.

   Is DTC P1676 indicated?

   YES−Go to step 3.

   NO−Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ABS/TCS control unit and the PCM.

3. Turn the ignition switch OFF.
4. Disconnect PCM connector E (12P) and the ABS/TCS control unit 16P connector.
5. Check for continuity between body ground and PCM connector terminal E1.



Wire side of female terminals

Is there continuity?

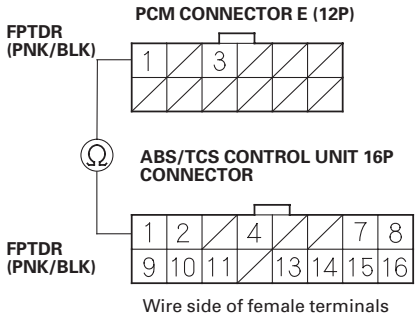
YES−Repair short in the wire between the ABS/TCS control unit and the PCM (E1).■

NO−Go to step 6.

(cont'd)

DTC Troubleshooting (cont'd)

6. Check for continuity between ABS/TCS control unit 16P connector terminal No. 1 and PCM connector terminal E1.



Wire side of female terminals

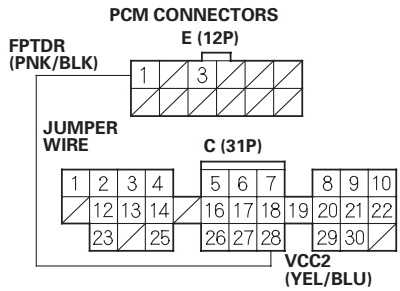
Is there continuity?

YES—Go to step 7.

NO—Repair open in the wire between the ABS/TCS control unit and the PCM (E1). ■

7. Reconnect PCM connector E (12P).

8. Connect PCM connector terminals E1 and C28 with a jumper wire.



Wire side of female terminals

9. Reset the PCM (see page 11-4).

10. Start the engine, and wait 60 seconds.

Is DTC P1676 indicated?

YES—Substitute a known-good ABS/TCS control unit and recheck. If the symptom/indication goes away, replace the original ABS/TCS control unit. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC P1676—'01 Model: FPTDR Signal Line Failure

1. Reset the PCM (see page 11-4).

2. Start the engine, and wait 10 seconds.

Is DTC P1676 indicated?

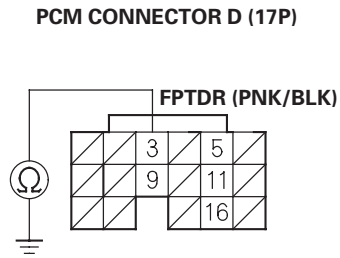
YES—Go to step 3.

NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ABS/TCS control unit and the PCM.

3. Turn the ignition switch OFF.

4. Disconnect PCM connector D (17P) and the ABS/TCS control unit 16P connector.

5. Check for continuity between body ground and PCM connector terminal D3.



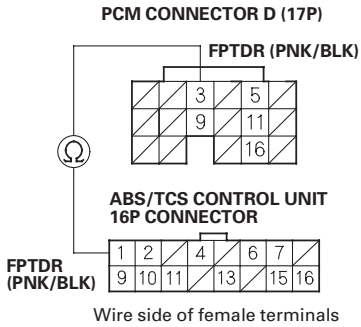
Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ABS/TCS control unit and the PCM (D3). ■

NO—Go to step 6.

6. Check for continuity between ABS/TCS control unit 16P connector terminal No. 1 and PCM connector terminal D3.



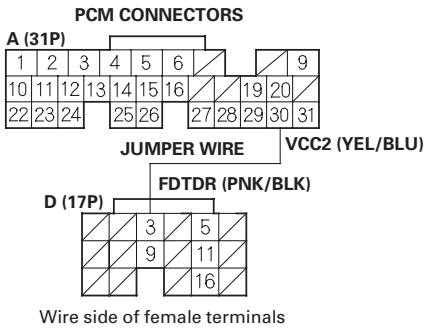
Is there continuity?

YES—Go to step 7.

NO—Repair open in the wire between the ABS/TCS control unit and the PCM (D3). ■

7. Reconnect PCM connector D (17P).

8. Connect PCM connector terminals D3 and A30 with a jumper wire.



9. Reset the PCM (see page 11-4).

10. Start the engine, and wait 60 seconds.

Is DTC P1676 indicated?

YES—Substitute a known-good ABS/TCS control unit and recheck. If the symptom/indication goes away, replace the original ABS/TCS control unit. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC P1676—'02-04 Models: FPTDR Signal Line Failure

1. Reset the PCM (see page 11-4).

2. Start the engine, and wait 10 seconds.

Is DTC P1676 indicated?

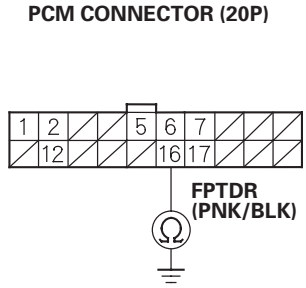
YES—Go to step 3.

NO—Intermittent failure system is OK at this time. Check for poor connections or loose terminals at the ABS/TCS control unit and the PCM.

3. Turn the ignition switch OFF.

4. Disconnect PCM connector E (20P) and the ABS/TCS control unit 16P connector.

5. Check for continuity between body ground and PCM connector terminal E16.



Is there continuity?

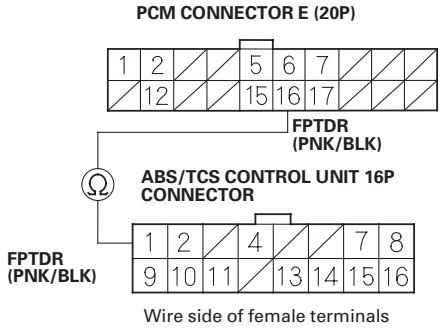
YES—Repair short in the wire between the ABS/TCS control unit and the PCM (E16). ■

NO—Go to step 6.

(cont'd)

DTC Troubleshooting (cont'd)

6. Check for continuity between ABS/TCS control unit 16P connector terminal No. 1 and PCM connector terminal E16.



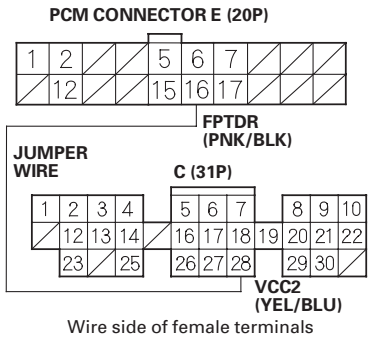
Is there continuity?

YES—Go to step 7.

NO—Repair open in the wire between the ABS/TCS control unit and the PCM (E16). ■

7. Reconnect PCM connector E (20P).

8. Connect PCM connector terminals E16 and C28 with a jumper wire.



9. Reset the PCM (see page 11-4).

10. Start the engine, and wait 60 seconds.

Is DTC P1676 indicated?

YES—Substitute a known-good ABS/TCS control unit and recheck. If the symptom/indication goes away, replace the original ABS/TCS control unit. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC P1678: FPTDR Signal Line Failure

1. Reset the PCM (see page 11-4).

2. Start the engine, and wait 60 seconds.

Is DTC P1678 indicated?

YES—Go to step 3.

NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ABS/TCS control unit and the PCM.

3. Turn the ignition switch OFF.

4. Disconnect the ABS/TCS control unit 16P connector.

5. Start the engine, and wait 10 seconds.

Is DTC P1678 indicated?

YES—Substitute a known-good ABS/TCS control unit and recheck. If the symptom/indication goes away, replace the original ABS/TCS control unit. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC P0607: PCM Back Up Circuit Malfunction

1. Reset the PCM (see page 11-4).
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON (II).

   Is DTC P0607 indicated?

   YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

   NO—Go to step 4.

4. Cycle the ignition switch OFF and ON (II) five times.
5. Check for a DTC or a Temporary DTC with the scan tool or the HDS.

   Is DTC P0607 indicated?

   YES—Inspect the No. 13 CLOCK BACK UP (7.5A) fuse in the passenger's under-dash fuse/relay box. If the fuse is OK, repair an open in the wire between the PCM (A1) and passenger's under-dash fuse/relay box. ■

   NO—Intermittent failure, system is OK at this time. A low battery can cause this problem. Ask the customer if the engine had to be jump-started recently. ■

DTC P1607: PCM Internal Circuit Malfunction

1. Reset the PCM (see page 11-4).
2. Turn the ignition switch ON (II).
3. Wait 30 seconds.

   Is DTC P1607 indicated?

   YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

   NO—Go to step 4.

4. Turn the ignition switch OFF.
5. Turn the ignition switch ON (II).
6. Wait 10 seconds.

   Is DTC P1607 indicated?

   YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

   NO—Intermittent failure, system is OK at this time. A low battery can cause this problem. Ask the customer if the engine had to be jump-started recently. ■

MIL Circuit Troubleshooting

'99-00, '02-04 Models

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Connect the HDS (see page 11-3).
2. Turn the ignition switch ON (II), and read the HDS.

   Does the HDS communicate with the PCM?

   YES – Go to step 3.

   NO – Go to step 4.
3. Check the DTCs with the HDS.

   Are any DTCs indicated?

   YES – Go to the DTC Troubleshooting Index.

   NO – Go to step 4.
4. Turn the ignition switch OFF.
5. Turn the ignition switch ON (II), and watch the malfunction indicator lamp (MIL).

   Does the MIL come on and stay on for more than 20 seconds after turning the ignition switch ON (II)?

   YES – If the MIL always comes on and stays on, go to step 22. But if the MIL sometimes works normally, first check for these problems:

   - An intermittent short in the wire between the PCM (A10) and the Data Link Connector (DLC) connector.
   - An intermittent short in the wire between the PCM (A18) and the gauge assembly.

   NO – If the MIL is always off, go to step 6. But if the MIL sometimes works normally, first check for these problems:

   - A loose No. 9 BACK UP LIGHT, INSTRUMENT LIGHT (7.5A) fuse in the driver's under-dash fuse/relay box.
   - A loose ACG S (15A) fuse in the under-hood fuse/relay box.
   - A loose No. 1 FUEL PUMP (15A) fuse in the driver's under-dash fuse/relay box.
   - A poor connection at PCM terminal A18.
   - An intermittent open in the GRN/ORN wire between the PCM (A18) and the gauge assembly.
   - An intermittent short in the wire between the PCM (C19) and the manifold absolute pressure (MAP) sensor.
   - An intermittent short in the wire between the PCM (C28) and the throttle position (TP) sensor, Exhaust Gas Recirculation (EGR) valve position sensor, or the fuel tank pressure (FTP) sensor.

6. Turn the ignition switch OFF and then ON (II) again.

   Is the low oil pressure indicator on?

   YES — Go to step 7.

   NO — Check for these problems: ■

   - A blown No. 9 BACK UP LIGHT, INSTRUMENT LIGHT (7.5A) fuse in the driver's under-dash fuse/relay box.
   - A short or open in the wire between No. 9 BACK UP LIGHT, INSTRUMENT LIGHT (7.5A) fuse and the gauge assembly.

7. Try to start the engine.

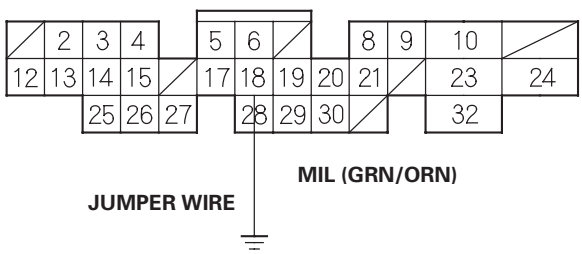
   Does the engine start?

   YES — Go to step 8.

   NO — Go to step 11.

8. Turn the ignition switch OFF .

9. Connect PCM connector terminal A18 to body ground with a jumper wire.



Wire side of female terminals

10. Turn the ignition switch ON (II).

    Is the MIL on?

    YES — Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

    NO — Check for an open in the wires between the PCM (A18) and the gauge assembly. Also check for a blown MIL bulb. ■

11. Turn the ignition switch OFF.

12. Inspect the ACGS (15A) fuse in the under-hood fuse/relay box.

    Is the fuse OK?

    YES — Go to step 13.

    NO — Check for these problems: ■

    - A short in the wire between the ACGS (15A) fuse and the PGM-FI main relay.
    - A short in the wire between the PGM-FI main relay and the PCM, injectors, or IAC valve.

13. Inspect the No. 1 FUEL PUMP (15A) fuse in the under-dash fuse/relay box.

    Is the fuse OK?

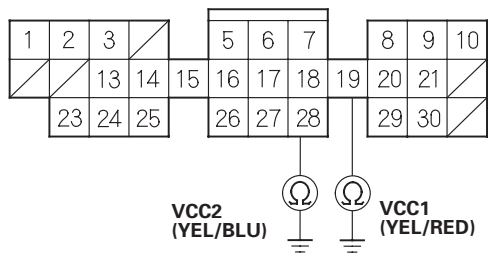
    YES — Go to step 14.

    NO — Check for these problems: ■

    - A short in the wire between the No. 1 FUEL PUMP (15A) fuse and the PGM-FI main relay.
    - A short in the wire between the PGM-FI main relay and the fuel pump.
    - A faulty PGM-FI main relay or a faulty fuel pump.

14. Disconnect PCM connector C (31P).

15. Check for continuity between body ground and PCM connector terminals C19 and C28 individually.



Wire side of female terminals

    Is there continuity?

    YES — Go to step 16.

    NO — Go to step 17.

(cont'd)

MIL Circuit Troubleshooting (cont'd)

16. Disconnect the 3P connector from each of these sensors, one at a time, and check for continuity between body ground and PCM connector terminal C19 and C28 individually.

    - Manifold Absolute Pressure (MAP) sensor
    - Exhaust Gas Recirculation (EGR) valve position sensor
    - Throttle Position (TP) sensor
    - Fuel Tank Pressure (FTP) sensor

    Is there continuity?

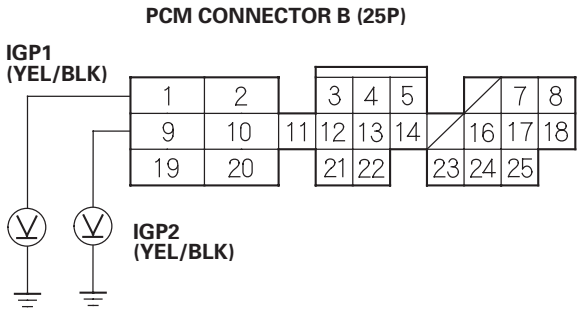
    YES—Repair short to body ground in the wire between PCM (C19) and the MAP sensor, or PCM (C28) and the TP sensor, EGR valve position sensor or FTP sensor. ■

    NO—Replace the sensor that made continuity to body ground go away when disconnected. ■

17. Disconnect the injectors and IAC valve connectors.

18. Turn the ignition switch ON (II).

19. Measure voltage between body ground and PCM connector terminals B1 and B9 individually.



Wire side of female terminals

Is there battery voltage?

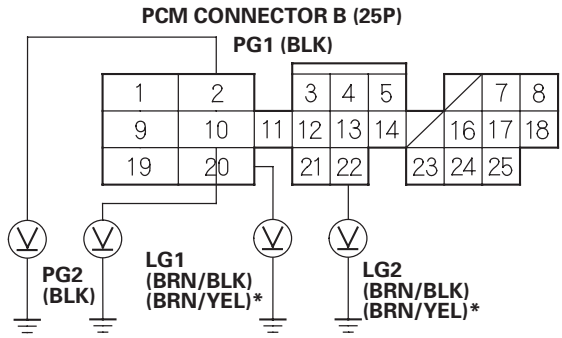
YES—Go to step 20.

NO—Check for these problems: ■

- An open in the wire(s) between the PGM-FI main relay and PCM connector terminals B1 and B9.
- Poor connections at the PGM-FI main relay.
- A faulty PGM-FI main relay (see page 11-209).

20. Reconnect the connectors to the sensors, then reconnect PCM connector C (31P).

21. Turn the ignition switch ON (II), and measure voltage between body ground and PCM connector terminals B2, B10, B20, and B22 individually.



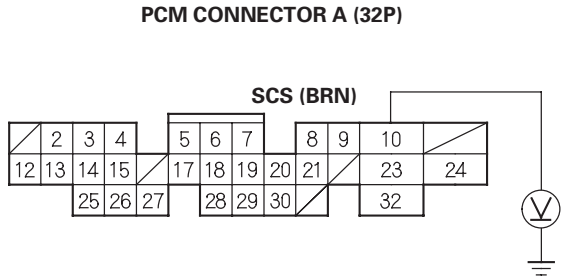
Wire side of female terminals

Is there less than 1.0 V?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Repair the open in the wire(s) between G101 and the PCM (B2, B10, B20, B22) that had more than 1.0 V. ■

22. Turn the ignition switch OFF, then turn it back ON (II), and measure voltage between PCM connector terminal A10 and body ground.



Wire side of female terminals

Is there about 5 V (or battery voltage)?

YES—Go to step 26.

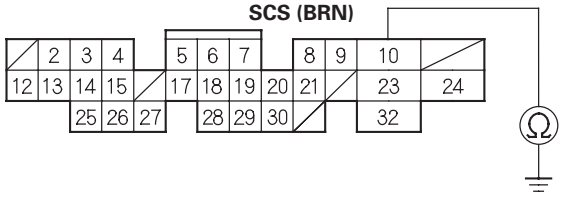
NO—Go to step 23.

23. Turn the ignition switch OFF.

24. Disconnect PCM connector A (32P).

25. Check for continuity between PCM connector terminal A10 and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the data link connector (DLC) and the ECM/PCM (A10). ■

NO—Substitute a known-good ECM/PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original ECM/PCM. ■

26. Turn the ignition switch OFF.

27. Disconnect PCM connector A (32P).

28. Turn the ignition switch ON (II).

Does the MIL stay on?

YES—Repair short in the wire between the gauge assembly and the PCM (A18). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

'01 Model

1. Connect the HDS (see page 11-4).

2. Turn the ignition switch ON (II), and read the HDS.

Does the HDS communicate with the PCM?

YES—Go to step 3.

NO—Go to step 4.

3. Check the DTCs with the HDS.

Are any DTCs indicated?

YES—Go to the DTC Troubleshooting Index.

NO—Go to step 4.

4. Turn the ignition switch OFF.

(cont'd)

MIL Circuit Troubleshooting (cont'd)

5. Turn the ignition switch ON (II), and watch the Malfunction Indicator Lamp (MIL).

   Does the MIL come on and stay on for more than 20 seconds after turning the ignition switch ON (II)?

   YES—If the MIL always come on and stays on, go to step 22. But if the MIL sometimes works normally, first check for these problems:

   - An intermittent short in the wire between the PCM (E16) and the data link connector (DLC) connector.
   - An intermittent short in the wire between the PCM (E4) and the gauge assembly.

   NO—If the MIL is always off, go to step 6. But if the MIL sometimes works normally, first check for these problems:

   - A loose No. 9 BACK UP LIGHT, INSTRUMENT LIGHT (7.5A) fuse in the driver's under-dash fuse/relay box.
   - A loose ACG S (15A) fuse in the under-hood fuse/relay box.
   - A loose No. 1 FUEL PUMP (15A) fuse in the driver's under-dash fuse/relay box.
   - A poor connection at PCM terminal E4.
   - An intermittent open in the GRN/ORN wire between the PCM (E4) and the gauge assembly.
   - An intermittent short in the wire between the PCM (A31) and the manifold absolute pressure (MAP) sensor.
   - An intermittent short in the wire between the PCM (A30) and the throttle position (TP) sensor or the Exhaust Gas Recirculation (EGR) valve position sensor.
   - An intermittent short in the wire between the PCM (E6) and the fuel tank pressure (FTP) sensor.

6. Turn the ignition switch OFF and then ON (II) again.

   Is the low oil pressure indicator on?

   YES—Go to step 7.

   NO—Check for these problems: ■

   - A blown No. 9 BACK UP LIGHT, INSTRUMENT LIGHT (7.5A) fuse in the driver's under-dash fuse/relay box.
   - A short or open in the wire between No. 9 BACK UP LIGHT, INSTRUMENT LIGHT (7.5A) fuse, and the gauge assembly.

7. Try to start the engine.

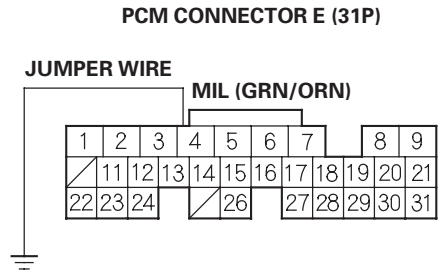
   Does the engine start?

   YES—Go to step 8.

   NO—Go to step 11.

8. Turn the ignition switch OFF .

9. Connect PCM connector terminal E4 and body ground with a jumper wire.



Wire side of female terminals

10. Turn the ignition switch ON (II).

    Is the MIL on?

    YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

    NO—Check for an open in the wires between the PCM (E4) and the gauge assembly. Also check for a blown MIL bulb. ■

11. Turn the ignition switch OFF.

12. Inspect the ACGS (15A) fuse in the under-hood fuse/relay box.

    Is the fuse OK?

    YES — Go to step 13.

    NO — Check for these problems: ■

    - A short in the wire between the ACGS (15A) fuse and the PGM-FI main relay.
    - A short in the wire between the PGM-FI main relay and the PCM, injectors, or IAC valve.

13. Inspect the No. 1 FUEL PUMP (15A) fuse in the under-dash fuse/relay box.

    Is the fuse OK?

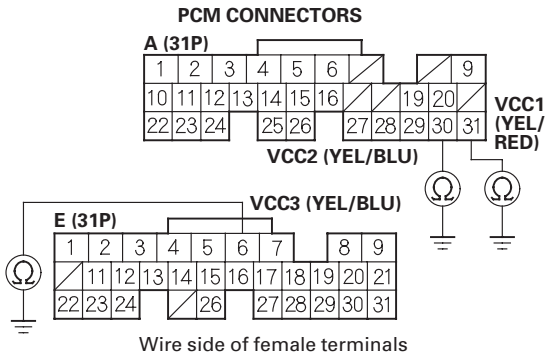
    YES — Go to step 14.

    NO — Check for these problems: ■

    - A short in the wire between the No. 1 FUEL PUMP (15A) fuse and the PGM-FI main relay.
    - A short in the wire between the PGM-FI main relay and the fuel pump.
    - A faulty PGM-FI main relay or a faulty fuel pump.

14. Disconnect PCM connector A (31P) and E (31P).

15. Check for continuity between body ground and PCM connector terminals A30, A31, and E6 individually.



Wire side of female terminals

    Is there continuity?

    YES — Go to step 16.

    NO — Go to step 17.

16. Disconnect the 3P connector from each of these sensors, one at a time, and check for continuity between body ground and PCM connector terminals A30, A31, and E6 individually.

    - Manifold Absolute Pressure (MAP) sensor
    - Exhaust Gas Recirculation (EGR) valve position sensor
    - Throttle Position (TP) sensor
    - Fuel Tank Pressure (FTP) sensor

    Is there continuity?

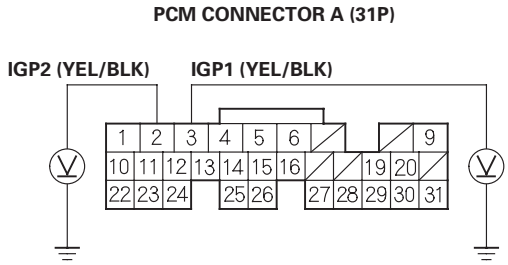
    YES — Repair short to body ground in the wire between PCM (A31) and the MAP sensor, the PCM (A30) and the TP sensor, or the EGR valve position sensor, the PCM (E6), and the FTP sensor. ■

    NO — Replace the sensor that made continuity to body ground go away when disconnected. ■

17. Disconnect the injectors and IAC valve connectors.

18. Turn the ignition switch ON (II).

19. Measure voltage between body ground and PCM connector terminals A2 and A3 individually.



Wire side of female terminals

    Is there battery voltage?

    YES — Go to step 20.

    NO — Check for these problems: ■

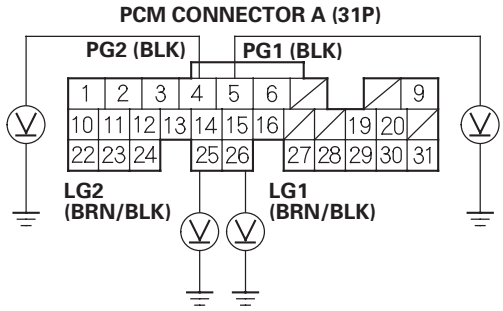
    - An open in the wire(s) between the PGM-FI main relay and PCM connector terminals A2 and A3.
    - Poor connections at the PGM-FI main relay.
    - A faulty PGM-FI main relay (see page 11-209).

20. Reconnect the connectors to the sensors, then reconnect PCM connectors A (31P) and E (31P).

(cont'd)

MIL Circuit Troubleshooting (cont'd)

21. Turn the ignition switch ON (II), and measure voltage between body ground and PCM connector terminals A4, A5, A25, and A26 individually.



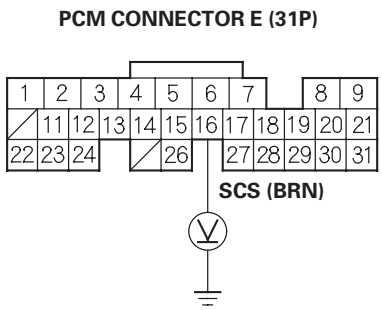
Wire side of female terminals

Is there less than 1.0 V?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Repair the open in the wire(s) that had more than 1.0 V between G101 and the PCM (A4, A5, A25, and A26). ■

22. Turn the ignition switch OFF, then turn it back ON (II), and measure voltage between PCM connector terminal E16 and body ground.



Wire side of female terminals

Is there about 5 V (or battery voltage)?

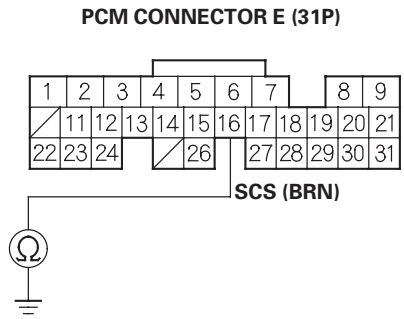
YES—Go to step 26.

NO—Go to step 23.

23. Turn the ignition switch OFF.

24. Disconnect PCM connector E (31P).

25. Check for continuity between PCM connector terminal E16 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the data link connector (DLC) and the PCM (E16). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

26. Turn the ignition switch OFF.

27. Disconnect PCM connector E (31P).

28. Turn the ignition switch ON (II).

Does the MIL stay on?

YES—Repair short in the wire between the gauge assembly and the PCM (E4). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DLC Circuit Troubleshooting

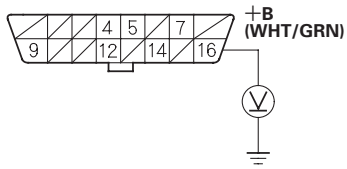
NOTE:
- If the PCM does not communicate with the HDS, do this troubleshooting.
- Check that the MIL circuit is normal, then do this troubleshooting.

'99-00, '02-04 Models

1. Turn the ignition switch ON (II).

2. Measure voltage between data link connector (DLC) terminal No. 16 and body ground.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

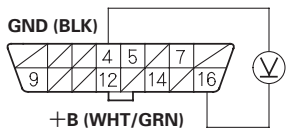
Is there battery voltage?

YES — Go to step 3.

NO — Repair open in the wire between DLC terminal No. 16 and the ACGS (15A) fuse in the under-hood fuse/relay box. ■

3. Measure voltage between DLC terminal No. 4 and No. 16.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

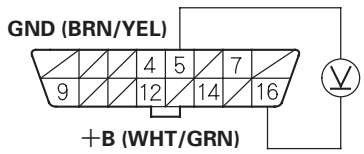
Is there battery voltage?

YES — Go to step 4.

NO — Repair open in the wire between DLC terminal No. 4 and G501. ■

4. Measure voltage between DLC terminals No. 5 and No. 16.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

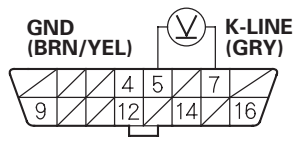
Is there battery voltage?

YES — Go to step 5.

NO — Repair open in the wire between DLC terminal No. 5 and G101. ■

5. Measure voltage between DLC terminals No. 5 and No. 7.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

Is there 8.5 V or more?

YES — Go to step 10.

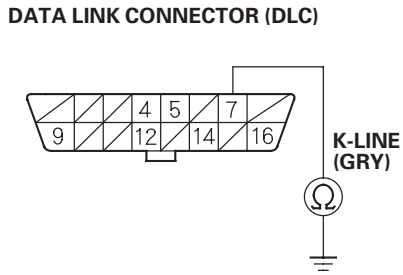
NO — Go to step 6.

6. Turn the ignition switch off.

(cont'd)

DLC Circuit Troubleshooting (cont'd)

7. Disconnect PCM connector A (32P).
8. Check for continuity between DLC terminal No. 7 and body ground.



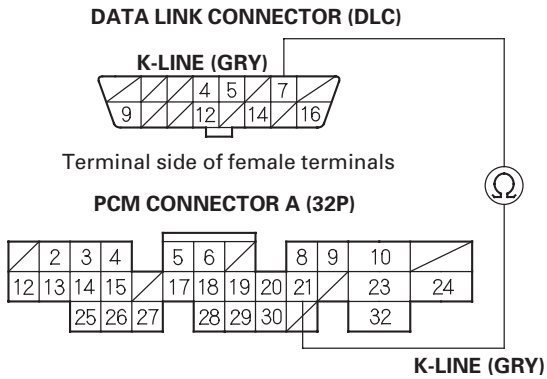
Terminal side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between DLC terminal No. 7 and the PCM (A21).

NO—Go to step 9.

9. Check for continuity between DLC terminal No. 7 and PCM terminal A21.



Terminal side of female terminals

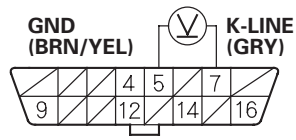
Wire side of female terminals

Is there continuity?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO—Repair open in the wire between DLC terminal No. 7 and the PCM (A21). ■

10. Turn the ignition switch OFF.
11. Disconnect PCM connector A (32P).
12. Turn the ignition switch ON (II).
13. Measure voltage between DLC terminals No. 5 and No. 7.



Terminal side of female terminals

Is there 0 V?

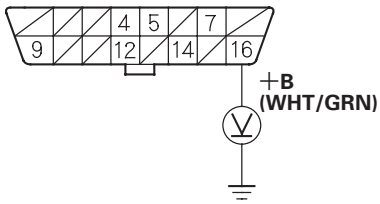
YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO—Repair short to power in the wire between DLC terminal No. 7 and PCM (A21). ■

'01 Model

1. Turn the ignition switch ON (II).
2. Measure voltage between data link connector (DLC) terminal No. 16 and body ground.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

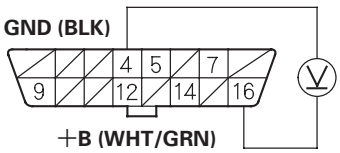
Is there battery voltage?

YES — Go to step 3.

NO — Repair open in the wire between DLC terminal No. 16 and the ACGS (15A) fuse in the under-hood fuse/relay box. ■

3. Measure voltage between DLC terminals No. 4 and No. 16.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

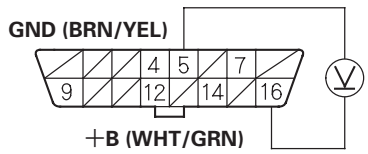
Is there battery voltage?

YES — Go to step 4.

NO — Repair open in the wire between DLC terminal No. 4 and G501. ■

4. Measure voltage between DLC terminals No. 5 and No. 16.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

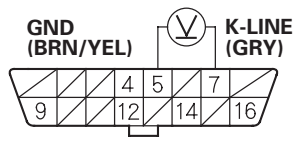
Is there battery voltage?

YES — Go to step 5.

NO — Repair open in the wire between DLC terminal No. 5 and G101. ■

5. Measure voltage between DLC terminals No. 5 and No. 7.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

Is there 8.5 V or more?

YES — Go to step 10.

NO — Go to step 6.

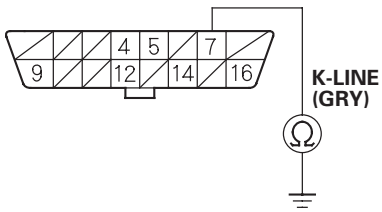
6. Turn the ignition switch OFF.

(cont'd)

DLC Circuit Troubleshooting (cont'd)

7. Disconnect PCM connector E (31P).
8. Check for continuity between DLC terminal No. 7 and body ground.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

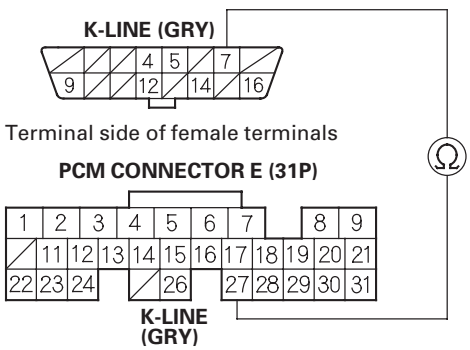
Is there continuity?

YES—Repair short to ground in the wire between DLC terminal No. 7 and the PCM (E27).

NO—Go to step 9.

9. Check for continuity between DLC terminal No. 7 and PCM terminal E27.

DATA LINK CONNECTOR (DLC)



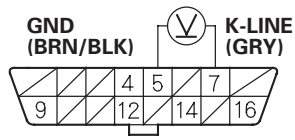
Is there continuity?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO—Repair open in the wire between DLC terminal No. 7 and the PCM (E27). ■

10. Turn the ignition switch OFF.
11. Disconnect PCM connector E (31P).
12. Turn the ignition switch ON (II).
13. Measure voltage between DLC terminals No. 5 and No. 7.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

Is there 0 V?

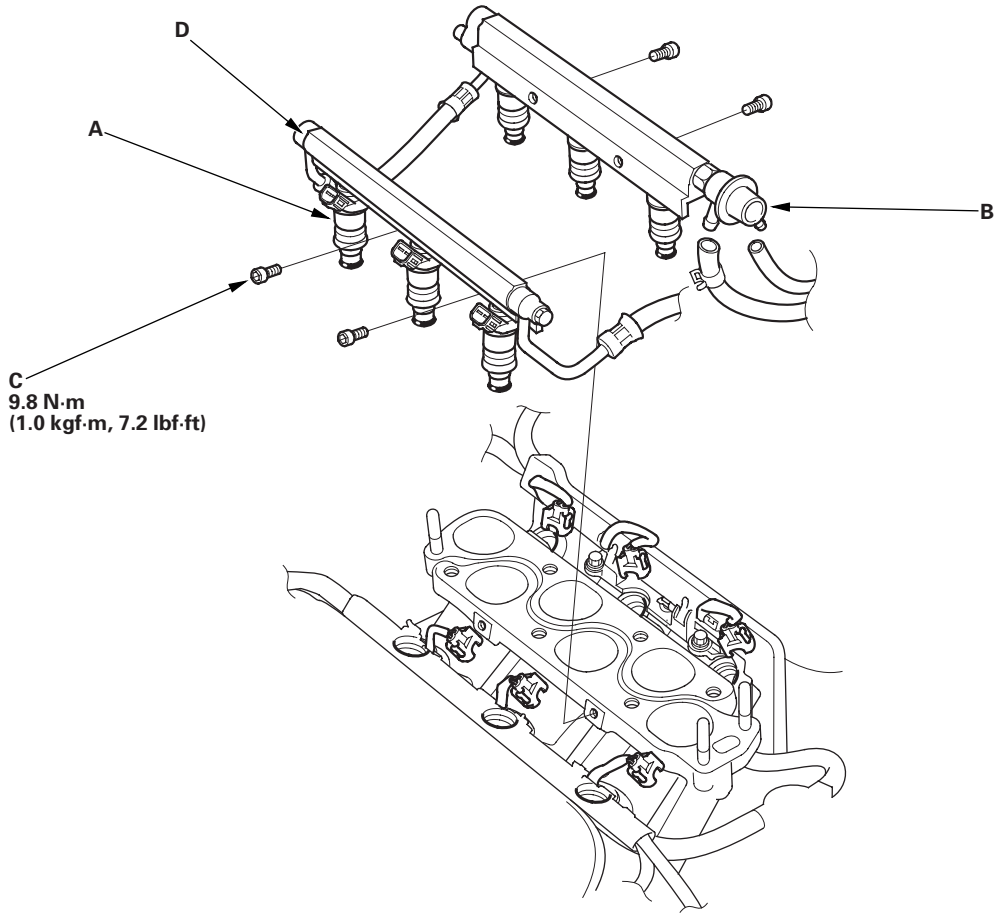
YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO—Repair short to power in the wire between DLC terminal No. 7 and PCM (E27). ■

Injector Replacement

'99-01 models

1. Relieve the fuel pressure (see page 11-215).
2. Remove the intake manifold covers and the intake manifold (see page 9-4).
3. Disconnect the connectors from the injectors (A).

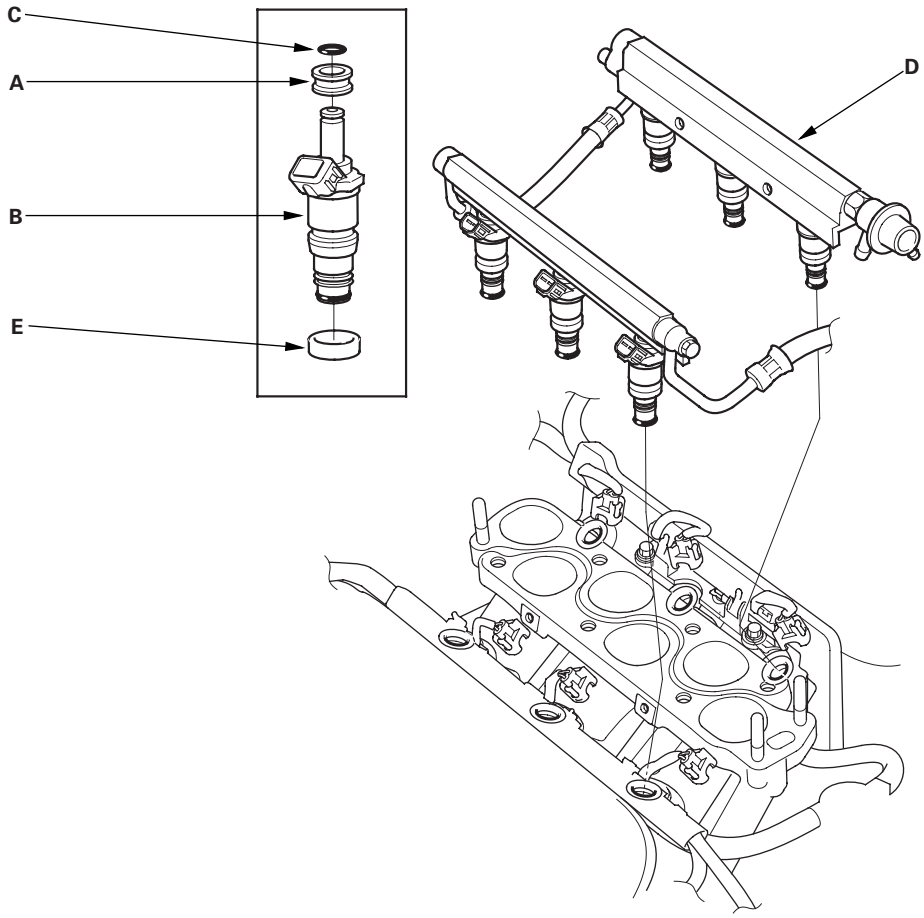


4. Disconnect the vacuum hose and fuel return hose from the fuel pressure regulator (B). Place a rag or a shop towel over the hoses before disconnecting them.
5. Remove the bolts (C) from the fuel rail (D).
6. Remove the fuel rail.
7. Remove the injectors from the fuel rails.

(cont'd)

Injector Replacement (cont'd)

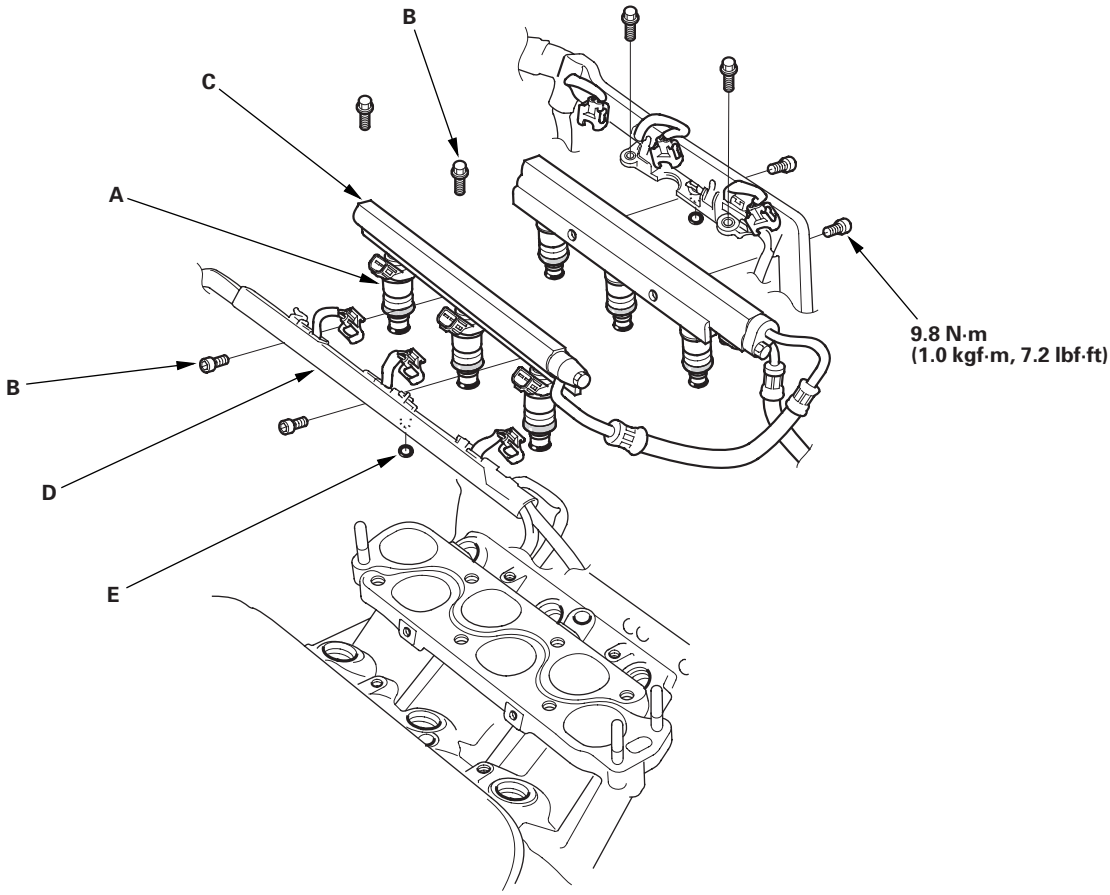
8. Slide new cushion rings (A) onto the fuel injectors (B).



9. Coat the new O-rings (C) with clean engine oil, and put them on the injectors.
10. Insert the injectors into the fuel rail (D).
11. Coat new seal rings (E) with clean engine oil, and press them into the intake manifold.
12. Install the fuel rail in the intake manifold.
13. Install and tighten the bolts.
14. Connect the vacuum hose and fuel return hose to the fuel pressure regulator.
15. Install the connectors on the injectors.
16. Install the intake manifold and the intake manifold cover (see page 9-7).
17. Turn the ignition switch ON (II), but do not operate the starter. After the fuel pump runs for about 2 seconds, the fuel pressure in the fuel line rises. Repeat this two or three times, then check for fuel leakage.

’02-04 models

1. Relieve the fuel pressure (see page 11-215).
2. Remove the intake manifold covers and the intake manifold (see page 9-4).
3. Disconnect the connectors from the injectors (A).

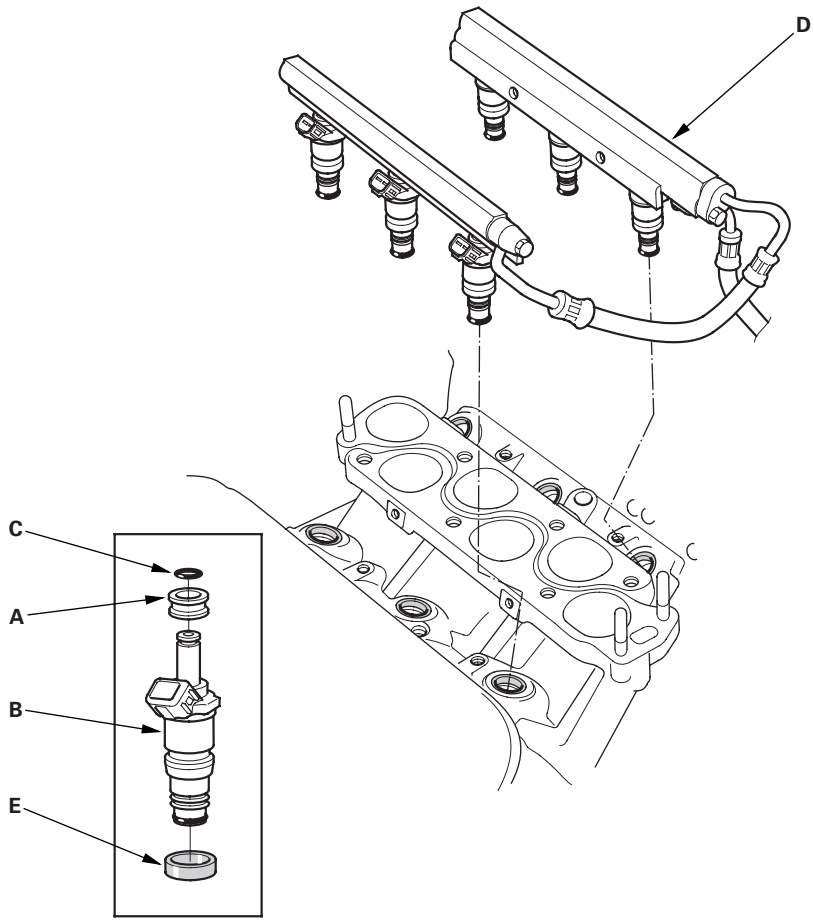


4. Remove the retainer bolts (B) from the fuel rails (C) and harness holders (D), then discard the O-rings (E).
5. Disconnect the fuel rails.
6. Remove the injectors from the fuel rails.

(cont’d)

Injector Replacement (cont'd)

7. Slide new cushion rings (A) onto the injectors (B).

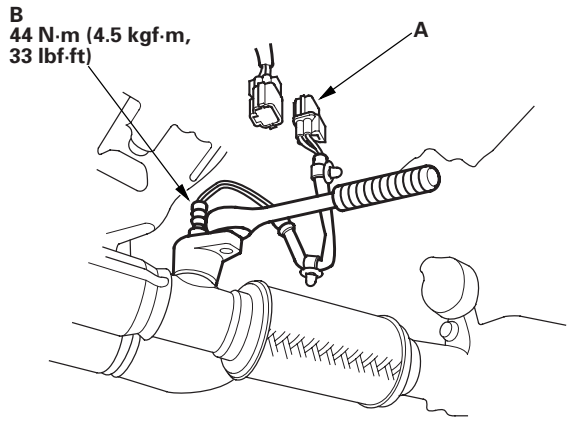


8. Coat new O-rings (C) with clean engine oil, and put them on the injectors.
9. Insert the injectors into the fuel rails (D).
10. Coat new seal rings (E) with clean engine oil, and press them into the intake manifold.
11. Install the fuel injectors and fuel rails into the intake manifold.
12. Install and tighten the retainer bolts.
13. Install the connectors on the injectors.
14. Install the intake manifold and the intake manifold covers (see page 9-7).
15. Turn the ignition switch ON (II), but do not operate the starter. After the fuel pump runs for approximately 2 seconds, the fuel pressure in the fuel line rises. Repeat this two or three times, then check for fuel leakage.

Primary HO2S Replacement

Special Tools Required
O2 sensor wrench, Snap-on YA8875, SP Tools 93750, or equivalent, commercially available

1. Disconnect the primary HO2S 4P connector (A), then remove the primary HO2S (B).

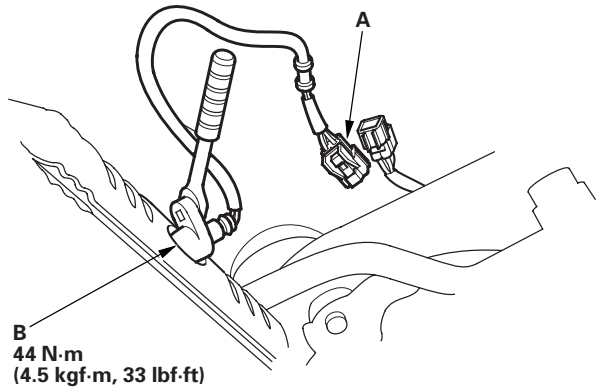


2. Install the primary HO2S in the reverse order of removal.

Secondary HO2S Replacement

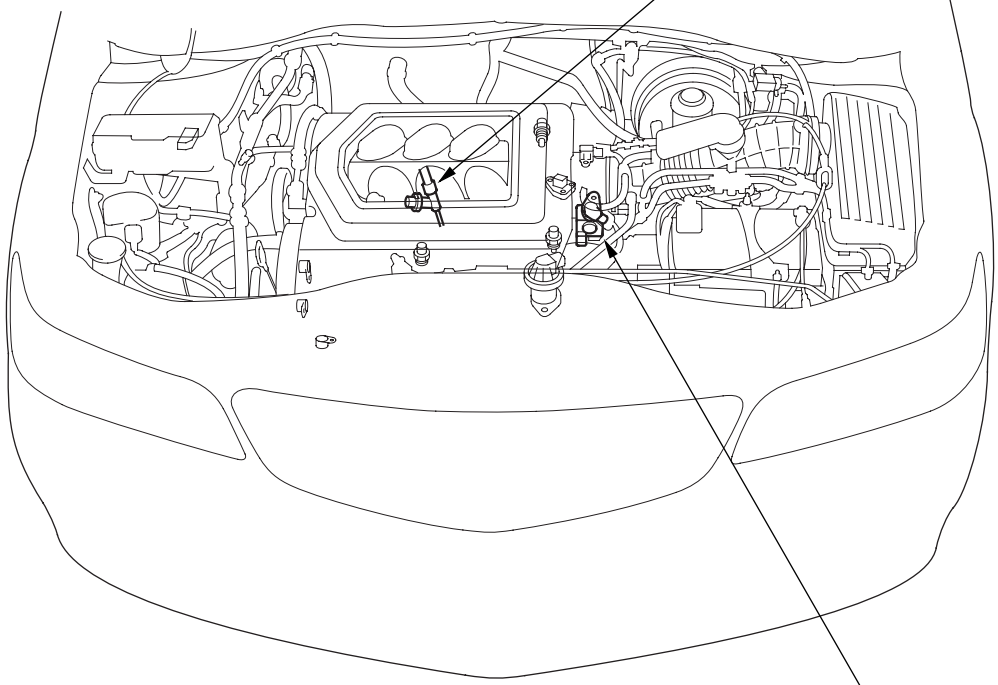
Special Tools Required
O2 sensor wrench, Snap-on YA8875, SP Tools 93750, or equivalent, commercially available

1. Disconnect the secondary HO2S 4P connector (A), then remove the secondary HO2S (B).



2. Install the secondary HO2S in the reverse order of removal.

Component Location Index



*: The illustration shows '99-00 Models.

DTC Troubleshooting

DTC P0505: Malfunction in Idle Control System

NOTE: If DTC P1519 is stored at same time as DTC P0505, troubleshoot DTC P1519 first, then recheck for DTC P0505.

1. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.

2. Check the engine speed at idle with no-load conditions: headlights, blower fan, rear window defogger, radiator fan, and air conditioner are not operating.

   Is the engine running at 730±50 rpm?

   YES—Intermittent failure, system is OK at this time. ■

   NO—If the idle speed is less than 680 rpm, go to step 3; if it's 780 rpm or higher, go to step 4.

3. Disconnect the IAC valve 3P connector.

   Does the engine speed increase or fluctuate?

   YES—Adjust the idle speed (see page 11-201). If the idle speed will not adjust properly, clean the passage in the throttle body, and then adjust it again. ■

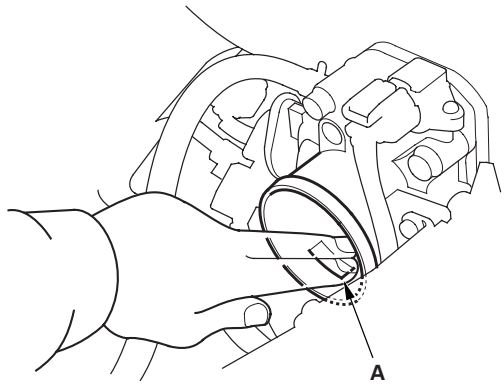
   NO—Replace the IAC valve. ■

4. Turn the ignition switch OFF.

5. Remove the intake air duct from the throttle body.

6. Start the engine, and let it idle.

7. Put your fingers on the lower port (A) in the throttle body.



   Does the engine speed drop?

   YES—Check the idle speed (see page 11-201). If it's out of specification, replace the IAC valve. ■

   NO—Check for vacuum leaks with the throttle valve completely closed, and repair as needed. ■

DTC Troubleshooting (cont'd)

DTC P1519—**'99-00, '02-04 Models:** IAC Valve Circuit Malfunction

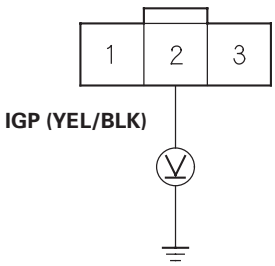
1. Reset the PCM (see page 11-4).
2. Turn the ignition switch ON (II).

   Is DTC P1519 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the IAC valve and at the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the IAC valve 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between IAC valve 3P connector terminal No. 2 and body ground.

IAC VALVE 3P CONNECTOR



Wire side of female terminals

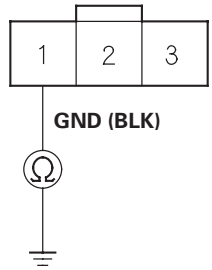
Is there battery voltage?

YES—Go to step 7.

NO—Repair open in the wire between the IAC valve and the PGM-FI main relay. ■

7. Turn the ignition switch OFF.
8. Check for continuity between body ground and IAC valve 3P connector terminal No. 1.

IAC VALVE 3P CONNECTOR



Wire side of female terminals

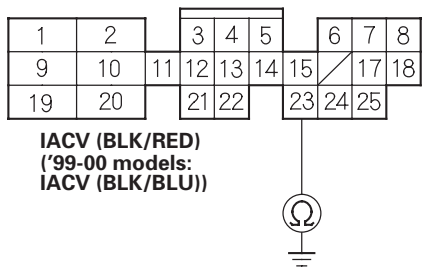
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the IAC valve and G101. ■

9. Disconnect PCM connector B (25P).
10. Check for continuity between body ground and PCM connector terminal B23.

PCM CONNECTOR B (25P)



Wire side of female terminals

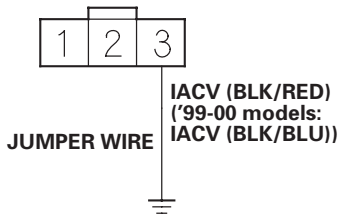
Is there continuity?

YES—Repair short in the wire between the IAC valve and the PCM (B23). ■

NO—Go to step 11.

11. Connect IAC valve 3P connector terminal No. 3 to body ground with a jumper wire.

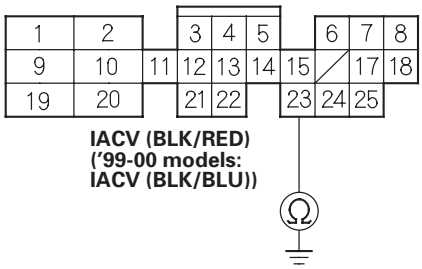
IAC VALVE 3P CONNECTOR



Wire side of female terminals

12. Check for continuity between PCM connector terminal B23 and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

YES—Go to step 13.

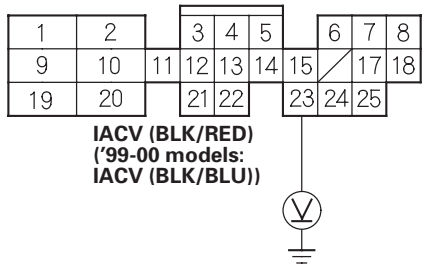
NO—Repair open in the wire between the IAC valve and the PCM (B23). ■

13. Remove the jumper wire from the IAC valve 3P connector, then reconnect the IAC valve 3P connector.

14. Turn the ignition switch ON (II).

15. Measure voltage between body ground and PCM connector terminal B23.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there battery voltage?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Replace the IAC valve. ■

DTC Troubleshooting (cont'd)

DTC P1519—**'01 Model:** IAC Valve Circuit Malfunction

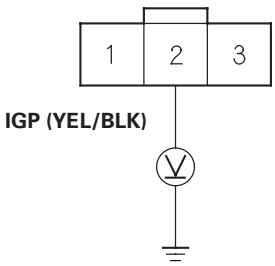
1. Reset the PCM (see page 11-4).
2. Turn the ignition switch ON (II).

   Is DTC P1519 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the IAC valve and at the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the IAC valve 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between IAC valve 3P connector terminal No. 2 and body ground.

IAC VALVE 3P CONNECTOR



Wire side of female terminals

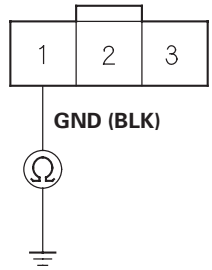
Is there battery voltage?

YES—Go to step 7.

NO—Repair open in the wire between the IAC valve and the PGM-FI main relay. ■

7. Turn the ignition switch OFF.
8. Check for continuity between body ground and IAC valve 3P connector terminal No. 1.

IAC VALVE 3P CONNECTOR



Wire side of female terminals

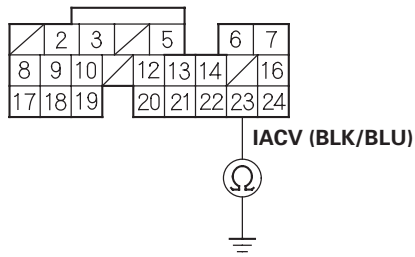
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the IAC valve and G101. ■

9. Disconnect PCM connector B (24P).
10. Check for continuity between body ground and PCM connector terminal B23.

PCM CONNECTOR B (24P)



Wire side of female terminals

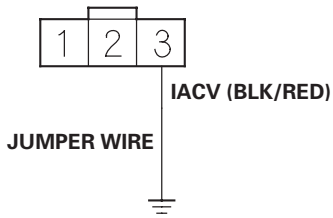
Is there continuity?

YES—Repair short in the wire between the IAC valve and the PCM (B23). ■

NO—Go to step 11.

11. Connect IAC valve 3P connector terminal No. 3 to body ground with a jumper wire.

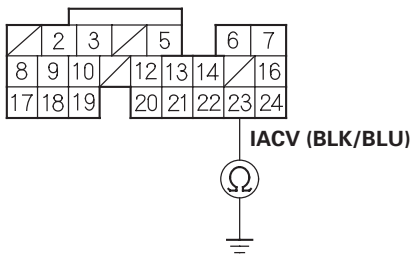
IAC VALVE 3P CONNECTOR



Wire side of female terminals

12. Check for continuity between PCM connector terminal B23 and body ground.

PCM CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

YES—Go to step 13.

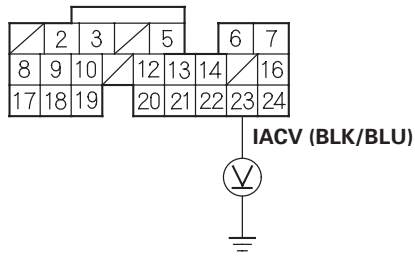
NO—Repair open in the wire between the IAC valve and the PCM (B23). ■

13. Remove the jumper wire from the IAC valve 3P connector, then reconnect the IAC valve 3P connector.

14. Turn the ignition switch ON (II).

15. Measure voltage between body ground and PCM connector terminal B23.

PCM CONNECTOR B (24P)



Wire side of female terminals

Is there battery voltage?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

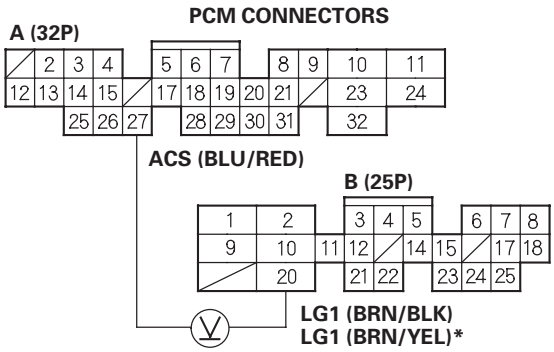
NO—Replace the IAC valve. ■

A/C Signal Circuit Troubleshooting

'99-00, '02-04 Models

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Turn the ignition switch OFF.
2. Disconnect the A/C pressure switch 4P connector.
3. Turn the ignition switch ON (II).
4. Measure voltage between PCM connector terminals A27 and B20.



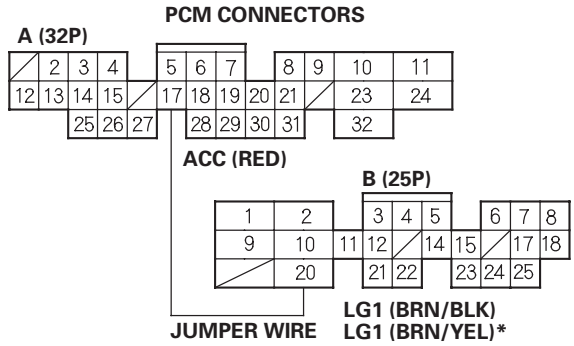
Wire side of female terminals

Is there about 5 V?

YES—Go to step 5.

NO—Go to step 12.

5. Turn the ignition switch OFF.
6. Reconnect the A/C pressure switch 4P connector.
7. Turn the ignition switch ON (II).
8. Momentarily connect PCM connector terminals A17 and B20 with a jumper wire several times.



Wire side of female terminals

Is there a clicking noise from the A/C compressor clutch?

YES—Go to step 9.

NO—Go to step 15.

9. Start the engine.
10. Turn the blower switch ON.
11. Turn the A/C switch ON.

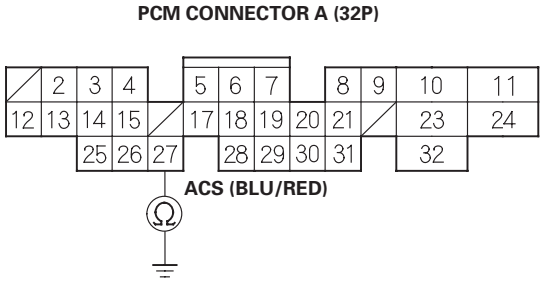
Does the A/C operate?

YES—The air conditioning signal is OK. ■

NO—Go to step 16.

12. Turn the ignition switch OFF.
13. Disconnect PCM connector A (32P).

14. Check for continuity between body ground and PCM connector terminal A27.



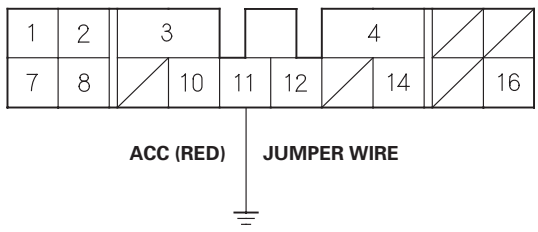
Is there continuity?

YES—Repair short in the wire between the PCM (A27) and the A/C pressure switch. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the prescribed voltage is now available, replace the original PCM. If not, check the A/C system for other symptoms. ■

15. Momentarily connect under-hood fuse/relay box 16P connector terminal No. 11 to body ground with a jumper wire several times.

NOTE: The under-hood fuse/relay box 16P connector is on the bottom of the fuse box. When you unbolt and invert the fuse box, leave the upper cover on to prevent short circuits.

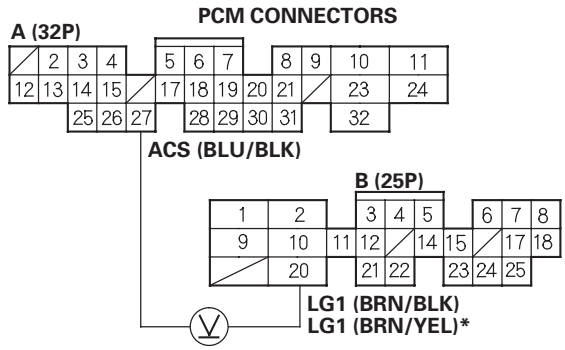


Is there a clicking noise from the A/C compressor clutch?

YES—Repair open in the wire between the PCM (A17) and the A/C clutch relay. ■

NO—Check the A/C system for other symptoms. ■

16. Measure voltage between PCM connector terminals A27 and B20.



Is there less than 1.0 V?

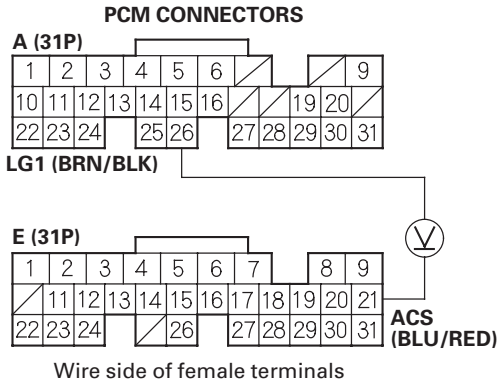
YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. If not, check the A/C system for other symptoms. ■

NO—Repair open in the wire between the PCM (A27) and the A/C pressure switch. ■

A/C Signal Circuit Troubleshooting (cont'd)

'01 Model

1. Turn the ignition switch OFF.
2. Disconnect the A/C pressure switch 4P connector.
3. Turn the ignition switch ON (II).
4. Measure voltage between PCM connector terminals A26 and E21.



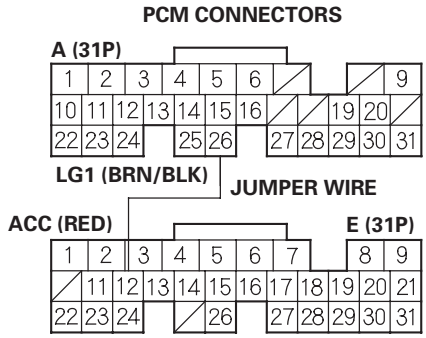
Wire side of female terminals

Is there about 5 V?

YES — Go to step 5.

NO — Go to step 12.

5. Turn the ignition switch OFF.
6. Reconnect the A/C pressure switch 4P connector.
7. Turn the ignition switch ON (II).
8. Momentarily connect PCM connector terminals A26 and E12 with a jumper wire several times.



Wire side of female terminals

Is there a clicking noise from the A/C compressor clutch?

YES — Go to step 9.

NO — Go to step 15.

9. Start the engine.
10. Turn the blower switch ON.
11. Turn the A/C switch ON.

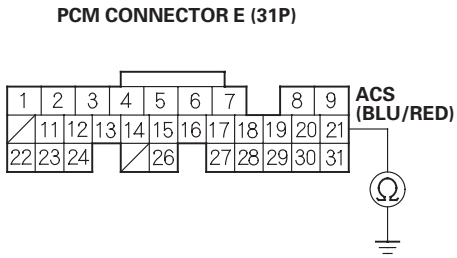
Does the A/C operate?

YES — The air conditioning signal is OK. ■

NO — Go to step 16.

12. Turn the ignition switch OFF.
13. Disconnect PCM connector E (31P).

14. Check for continuity between body ground and PCM connector terminal E21.



Wire side of female terminals

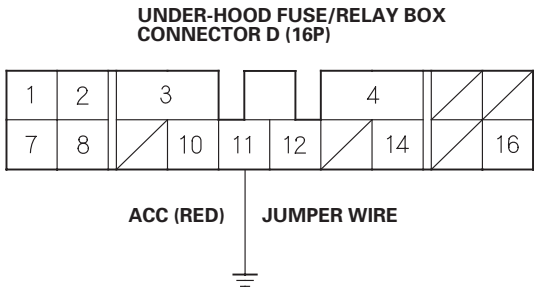
Is there continuity?

YES—Repair short in the wire between the PCM (E21) and the A/C pressure switch. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the prescribed voltage is now available, replace the original PCM. If not, check the A/C system for other symptoms. ■

15. Momentarily connect under-hood fuse/relay box 16P connector terminal No. 11 to body ground with a jumper wire several times.

NOTE: The under-hood fuse/relay box 16P connector is on the bottom of the fuse box. When you unbolt and invert the fuse box, leave the upper cover on to prevent short circuits.



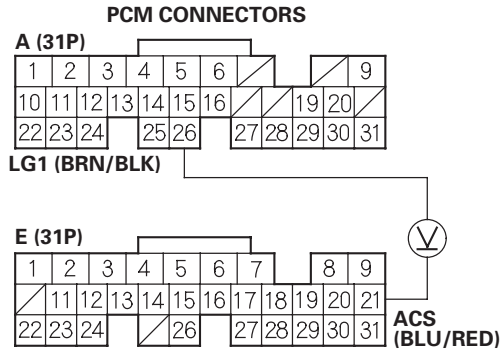
Wire side of female terminals

Is there a clicking noise from the A/C compressor clutch?

YES—Repair open in the wire between the PCM (E12) and the A/C clutch relay. ■

NO—Check the A/C system for other symptoms. ■

16. Measure voltage between PCM connector terminals A26 and E21.



Wire side of female terminals

Is there less than 1.0 V?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. If not, check the A/C system for other symptoms. ■

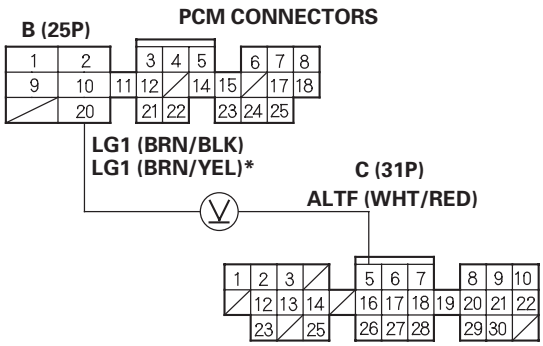
NO—Repair open in the wire between the PCM (E21) and the A/C pressure switch. ■

Alternator FR Signal Circuit Troubleshooting

'99-00, '02-04 Models

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Disconnect the alternator 4P connector.
2. Turn the ignition switch ON (II).
3. Measure voltage between PCM connector terminals B20 and C5.



Is there about 5 V?

YES—Go to step 4.

NO—Go to step 13.

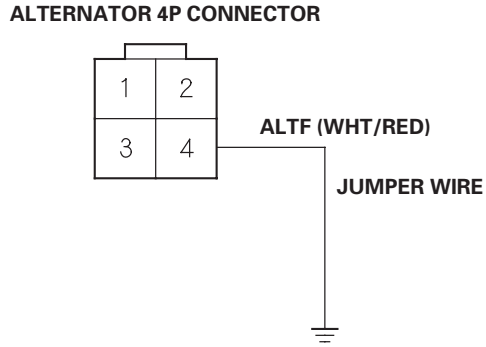
4. Turn the ignition switch OFF.
5. Reconnect the alternator 4P connector.
6. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.
7. Measure voltage between PCM connector terminals B20 and C5.

Does the voltage decrease when the headlights and rear window defogger are turned on?

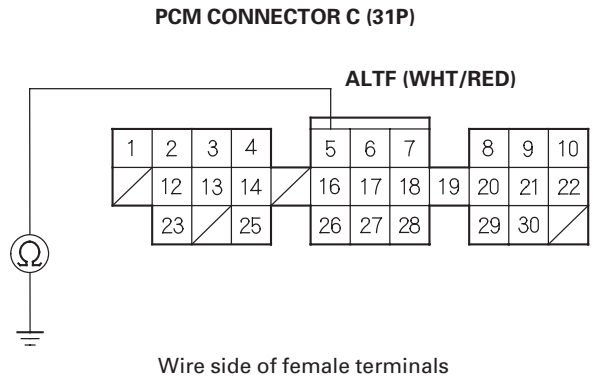
YES—The alternator FR signal is OK. ■

NO—Go to step 8.

8. Turn the ignition switch OFF.
9. Disconnect PCM connector C (31P).
10. Disconnect the alternator 4P connector.
11. Connect alternator 4P connector terminal No. 4 to body ground with a jumper wire.



12. Check for continuity between body ground and PCM connector terminal C5.



Is there continuity?

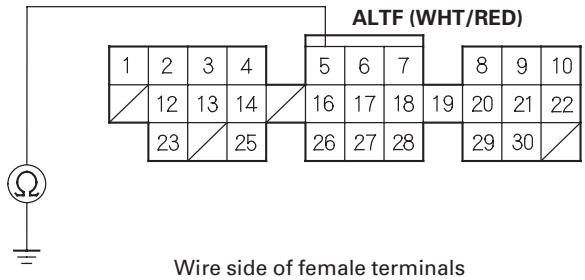
YES—Test the alternator (see step 1 on page 4-24). ■

NO—Repair open in the wire between the PCM (C5) and the alternator. ■

13. Turn the ignition switch OFF.
14. Disconnect PCM connector C (31P).

15. Check for continuity between body ground and PCM connector terminal C5.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

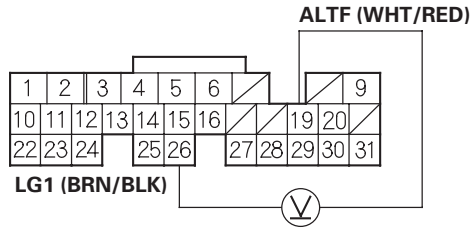
YES—Repair short in the wire between the PCM (C5) and the alternator. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the prescribed voltage is now available, replace the original PCM. ■

'01 Model

1. Disconnect the alternator 4P connector.
2. Turn the ignition switch ON (II).
3. Measure voltage between PCM connector terminals A19 and A26.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Go to step 4.

NO—Go to step 13.

4. Turn the ignition switch OFF.
5. Reconnect the alternator 4P connector.
6. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.
7. Measure voltage between PCM connector terminals A19 and A26.

   Does the voltage decrease when the headlights and rear window defogger are turned on?

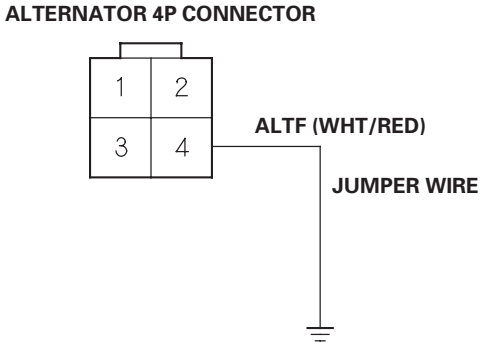
   YES—The alternator FR signal is OK. ■

   NO—Go to step 8.
8. Turn the ignition switch OFF.
9. Disconnect PCM connector A (31P).
10. Disconnect the alternator 4P connector.

(cont'd)

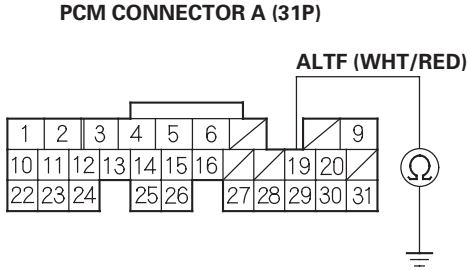
Alternator FR Signal Circuit Troubleshooting (cont'd)

11. Connect alternator 4P connector terminal No. 4 to body ground with a jumper wire.



Wire side of female terminals

12. Check for continuity between body ground and PCM connector terminal A19.



Wire side of female terminals

Is there continuity?

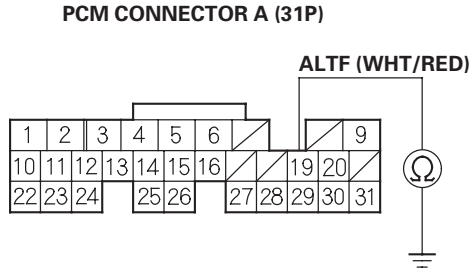
YES—Test the alternator (see step 1 on page 4-24). ■

NO—Repair open in the wire between the PCM (A19) and the alternator. ■

13. Turn the ignition switch OFF.

14. Disconnect PCM connector A (31P).

15. Check for continuity between body ground and PCM connector terminal A19.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (A19) and the alternator. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the prescribed voltage is now available, replace the original PCM. ■

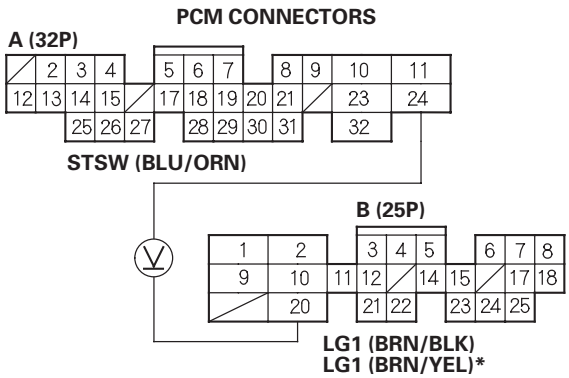
Starter Switch Signal Circuit Troubleshooting

'99-00, '02-04 Models

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Shift the transmission in P or N.

2. Measure voltage between PCM connector terminals A24 and B20 with the ignition switch in the START position (III).



Wire side of female terminals

Is there battery voltage?

YES—The starter switch signal is OK. ■

NO—Go to step 3.

3. Inspect the No. 13 STARTER SIGNAL (7.5A) fuse in the driver's under-dash fuse/relay box.

Is the fuse OK?

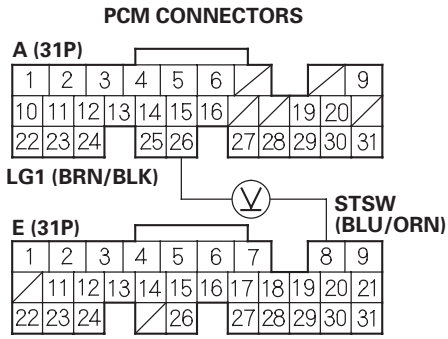
YES—Repair open in the wire between the PCM (A24) and the No. 13 STARTER SIGNAL (7.5A) fuse. ■

NO—Repair short in the wire between the PCM (A24) and the No. 13 STARTER SIGNAL (7.5A) fuse or the PGM-FI main relay. Replace the No. 13 STARTER SIGNAL (7.5A) fuse. ■

'01 Model

1. Shift the transmission in P or N position.

2. Measure voltage between PCM connector terminals A26 and E8 with the ignition switch in the START position (III).



Wire side of female terminals

Is there battery voltage?

YES—The starter switch signal is OK. ■

NO—Go to step 3.

3. Inspect the No. 13 STARTER SIGNAL (7.5A) fuse in the driver's under-dash fuse/relay box.

Is the fuse OK?

YES—Repair open in the wire between the PCM (E8) and the No. 13 STARTER SIGNAL (7.5A) fuse. ■

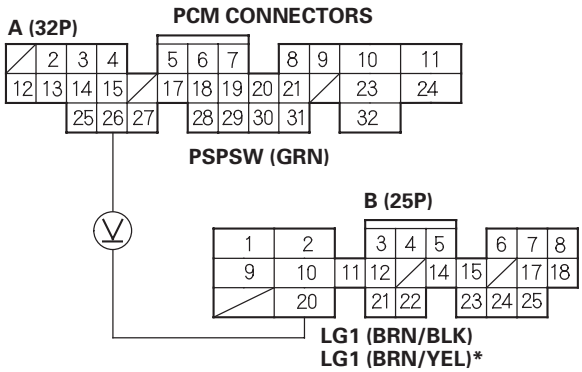
NO—Repair short in the wire between the PCM (E8) and the No. 13 STARTER SIGNAL (7.5A) fuse or the PGM-FI main relay. Replace the No. 13 STARTER SIGNAL (7.5A) fuse. ■

PSP Switch Signal Circuit Troubleshooting

'99-00, '02-04 Models

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Turn the ignition switch ON (II).
2. Measure voltage between PCM connector terminals A26 and B20.



Wire side of female terminals

Is there less than 1.0 V?

YES—Go to step 3.

NO—Go to step 6.

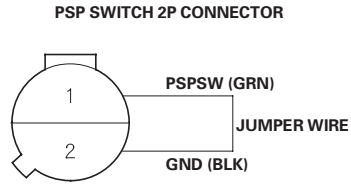
3. Start the engine.
4. Turn the steering wheel to the full lock position.
5. Measure voltage between PCM connector terminals A26 and B20.

Is there battery voltage?

YES—The PSP switch signal is OK. ■

NO—Go to step 13.

6. Turn the ignition switch OFF.
7. Disconnect the PSP switch 2P connector.
8. Turn the ignition switch ON (II).
9. At the harness side, connect PSP switch 2P connector terminals No. 1 and No. 2 with a jumper wire.



Wire side of female terminals

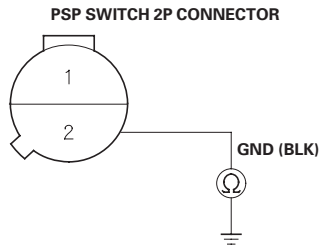
10. Measure voltage between PCM connector terminals A26 and B20.

Is there less than 1.0 V?

YES—Replace the PSP switch. ■

NO—Go to step 11.

11. Turn the ignition switch OFF.
12. Check for continuity between PSP switch 2P connector No. 2 terminal and body ground.



Wire side of female terminals

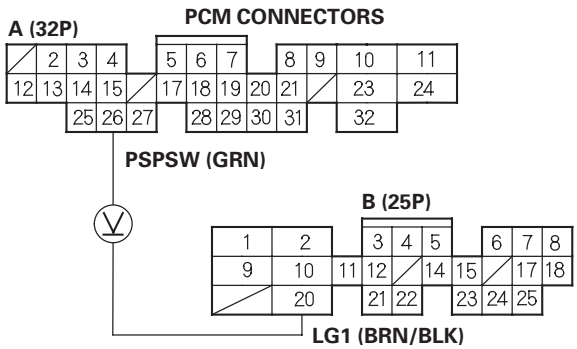
Is there continuity?

YES—Repair open in the wire between the PSP switch and PCM (A26). ■

NO—Repair open in the wire between the PSP switch and G201. ■

13. Turn the ignition switch OFF.
14. Disconnect the PSP switch 2P connector.
15. Turn the ignition switch ON (II).

16. Measure voltage between PCM connector terminals A26 and B20.



Is there battery voltage?

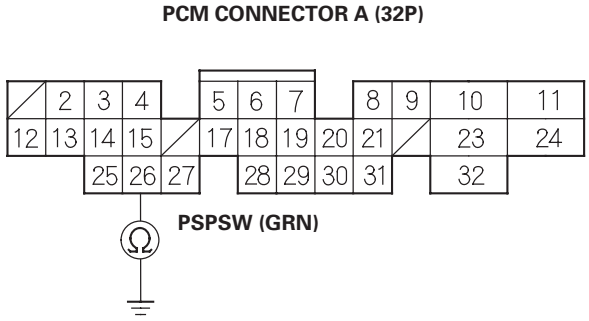
YES—Replace the PSP switch. ■

NO—Go to step 17.

17. Turn the ignition switch OFF.

18. Disconnect PCM connector A (32P).

19. Check for continuity between body ground and PCM connector terminal A26.



Is there continuity?

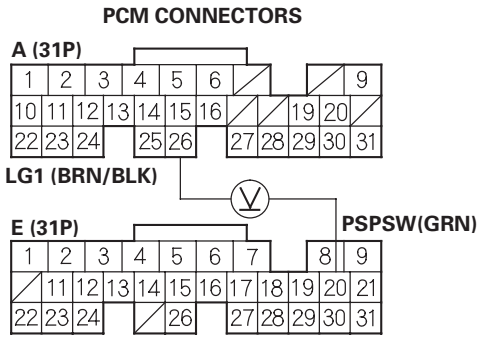
YES—Repair short in the wire between the PCM (A26) and the PSP switch. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If voltage is normal, replace the original PCM. ■

'01 Model

1. Turn the ignition switch ON (II).

2. Measure voltage between PCM connector terminals A26 and E20.



Is there less than 1.0 V?

YES—Go to step 3.

NO—Go to step 6.

3. Start the engine.

4. Turn the steering wheel to the full lock position.

5. Measure voltage between PCM connector terminals A26 and E20.

Is there battery voltage?

YES—The PSP switch signal is OK. ■

NO—Go to step 13.

6. Turn the ignition switch OFF.

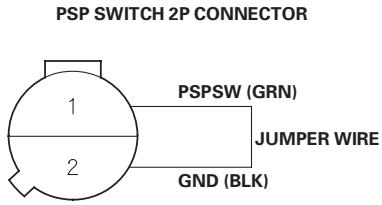
7. Disconnect the PSP switch 2P connector.

8. Turn the ignition switch ON (II).

(cont'd)

PSP Switch Signal Circuit Troubleshooting (cont'd)

9. At the harness side, connect PSP switch 2P connector terminals No. 1 and No. 2 with a jumper wire.



Wire side of female terminals

10. Measure voltage between PCM connector terminals A26 and E20.

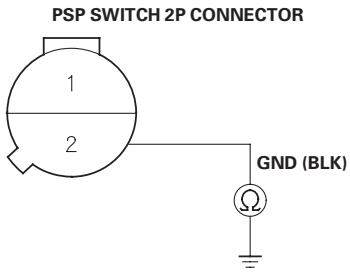
Is there less than 1.0 V?

YES—Replace the PSP switch. ■

NO—Go to step 11.

11. Turn the ignition switch OFF.

12. Check for continuity between PSP switch 2P connector No. 2 terminal and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair open in the wire between the PSP switch and PCM (E20). ■

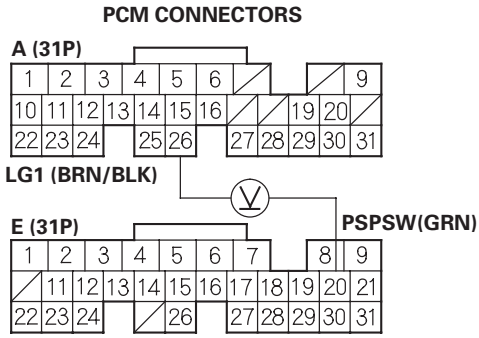
NO—Repair open in the wire between the PSP switch and G201. ■

13. Turn the ignition switch OFF.

14. Disconnect the PSP switch 2P connector.

15. Turn the ignition switch ON (II).

16. Measure voltage between PCM connector terminals A26 and E20.



Wire side of female terminals

Is there battery voltage?

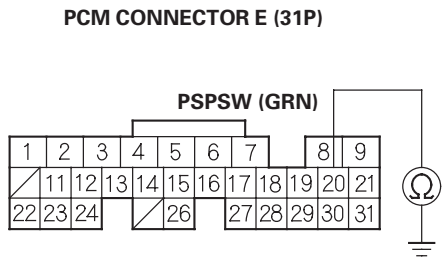
YES—Replace the PSP switch. ■

NO—Go to step 17.

17. Turn the ignition switch OFF.

18. Disconnect PCM connector E (31P).

19. Check for continuity between body ground and PCM connector terminal E20.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (E20) and the PSP switch. ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If voltage is normal, replace the original PCM. ■

Brake Pedal Position Switch Signal Circuit Troubleshooting

'99-00, '02-04 Models

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Check the brake lights.

   Are the brake lights on without pressing the brake pedal?

   YES—Inspect the brake switch (see page 19-6).

   NO—Go to step 2.

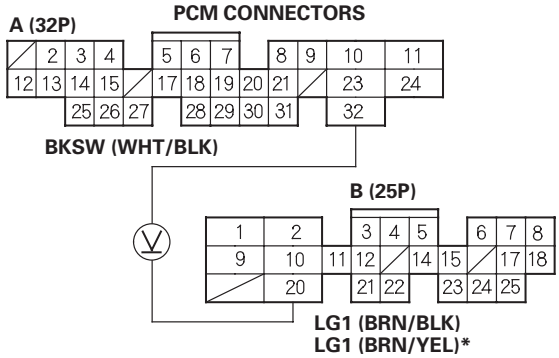
2. Press the brake pedal.

   Do the brake lights come on?

   YES—Go to step 3.

   NO—Go to step 4.

3. Measure voltage between PCM connector terminals A32 and B20 with the brake pedal pressed.



Wire side of female terminals

   Is there battery voltage?

   YES—The brake pedal position switch signal is OK. ■

   NO—Repair open in the wire between the PCM (A32) and the brake pedal position switch. ■

4. Inspect the STOP (20A) fuse in the under-hood fuse/relay box.

   Is the fuse OK?

   YES—Repair open in the wire between the brake pedal position switch and the STOP (20A) fuse. Inspect the brake pedal position switch (see page 19-6). ■

   NO—Repair short in the wire between the PCM (A32) and the STOP (20A) fuse. Replace the STOP (20A) fuse. ■

Brake Pedal Position Switch Signal Circuit Troubleshooting (cont'd)

'01 Model

1. Check the brake lights.

   Are the brake lights on without pressing the brake pedal?

   YES—Inspect the brake pedal position switch (see page 19-6).

   NO—Go to step 2.

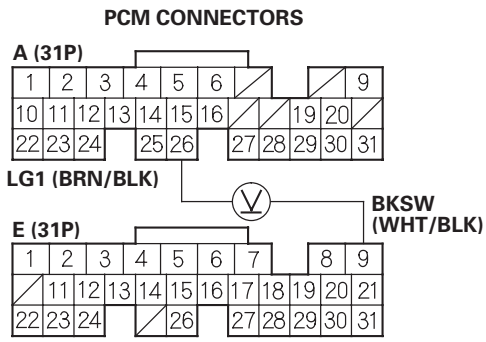
2. Press the brake pedal.

   Do the brake lights come on?

   YES—Go to step 3.

   NO—Go to step 4.

3. Measure voltage between PCM connector terminals A26 and E9 with the brake pedal pressed.



Wire side of female terminals

   Is there battery voltage?

   YES—The brake pedal position switch signal is OK. ■

   NO—Repair open in the wire between the PCM (E9) and the brake pedal position switch. ■

4. Inspect the STOP (20A) fuse in the under-hood fuse/relay box.

   Is the fuse OK?

   YES—Repair open in the wire between the brake pedal position switch and the STOP (20A) fuse. Inspect the brake pedal position switch (see page 19-6). ■

   NO—Repair short in the wire between the PCM (E9) and the STOP (20A) fuse. Replace the STOP (20A) fuse. ■

Idle Speed Adjustment

Adjust the idle speed using the HDS procedure, if possible. If not, use the following procedure:

NOTE:
- Leave the IAC valve connected.
- Before setting the idle speed, check these items:
  - The MIL has not been reported on.
  - Ignition timing
  - Throttle cable adjustment
  - Spark plugs
  - Air cleaner
  - PCV system
  - No vacuum leaks
- On Canadian models, press the parking brake pedal. Start the engine, then check that the headlights are off.

1. Disconnect the EVAP canister purge valve 2P connector.

2. Connect a tachometer.

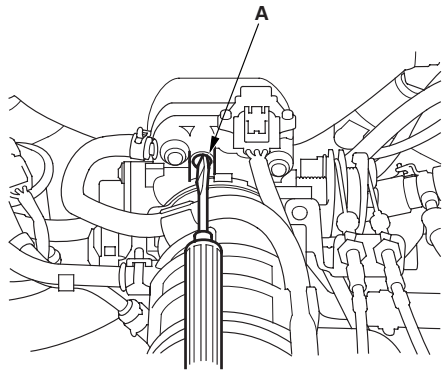
3. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.

4. Check the idle speed with no-load conditions: headlights, blower fan, rear window defogger, radiator fan, and air conditioner off.

   Idle speed should be:
   '99-01 models: 730±50 rpm (in Park or neutral)
   '02-04 models: 710±10 rpm (in Park or neutral)

5. Adjust the idle speed, if necessary, by turning the idle adjusting screw (A) 1/4-turn clockwise or counterclockwise.

   NOTE: Do not turn the idle adjusting screw more than 1/4-turn without checking the idle speed.



6. After turning the idle adjusting screw 1/4-turn, check the idle speed again. If it is out of spec, turn the idle adjusting screw 1/4-turn again.

7. Allow the engine to idle for 1 minute with the heater fan switch at HI and air conditioner on, then check the idle speed.

   Idle speed should be:
   '99-01 models: 730±50 rpm (in Park or neutral)
   '02-04 models: 710±50 rpm (in Park or neutral)

   NOTE:
   - Do not turn the idle adjusting screw when the air conditioner is on.
   - If the idle speed is not within specification, see the Symptom Troubleshooting Index.

8. Reconnect the EVAP canister purge valve 2P connector.

PCM Idle Learn Procedure

For the PCM to learn the engine idle characteristics, this procedure must be done.

Do the idle learn procedure whenever you do any of these actions:
- Disconnect the battery.
- Replace the PCM.
- Replace or clean the throttle body.
- Replace the idle air control (IAC) valve.
- Reset the PCM.
  NOTE: Clearing DTCs with the HDS does not require you to do the idle learn procedure.
- Remove the No. 13 CLOCK BACK UP (7.5A) fuse from the passenger's under-dash fuse/relay box.
- Remove the BATTERY (120A) fuse from the under-hood fuse/relay box.
- Remove the BACK UP, ACC (40A) fuse from the under-hood fuse/relay box.
- Remove any of the wires from the under-hood fuse/relay box.
- Remove any of the wires from the driver's/passenger's under-dash fuse/relay box.
- Disconnect any of the connectors from the under-hood fuse/relay box.
- Disconnect any of the connectors from the driver's/passenger's under-dash fuse/relay box.
- Disconnect the connector between the engine wire harness and left engine compartment wire harness.
- Disconnect the G2 terminal from the transmission housing.
- Disconnect the G1 terminal from the body.
- Disconnect the G101 terminal from the water passage.
- Disconnect the G102 terminal from the intake manifold.

Procedure:

1. Make sure all electrical items (A/C, audio, rear window defogger, lights, etc.,) are off.

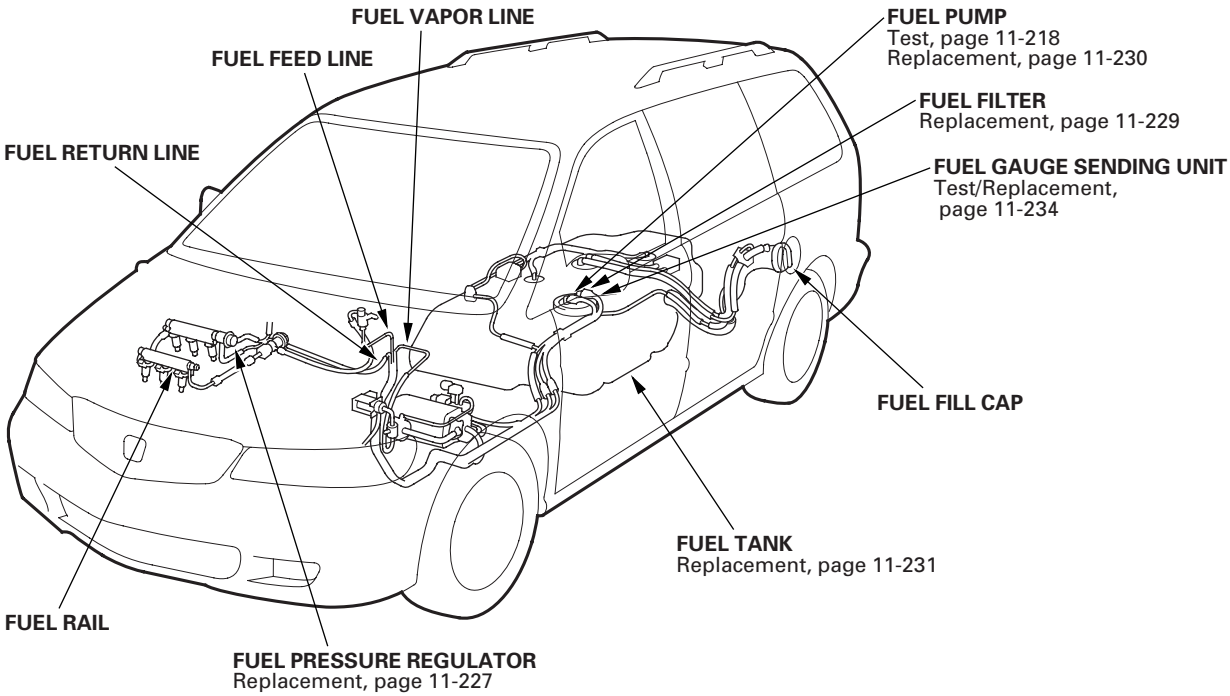
2. Start the engine, and hold it at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, or until the engine coolant temperature reaches 194°F (90°C).

3. Let the engine idle for a minimum of 5 minutes with no load.

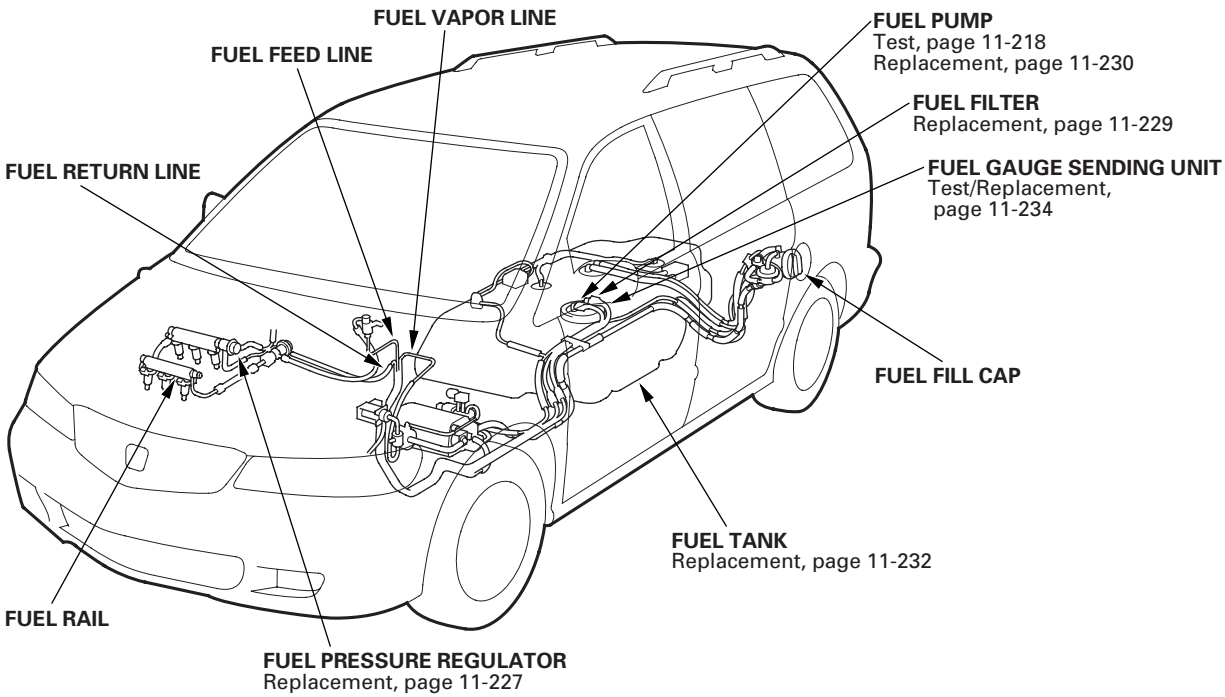
   NOTE: If the radiator fan cycles during this time, do not include its running time in the 5 minutes.

Component Location Index

'99-00 models



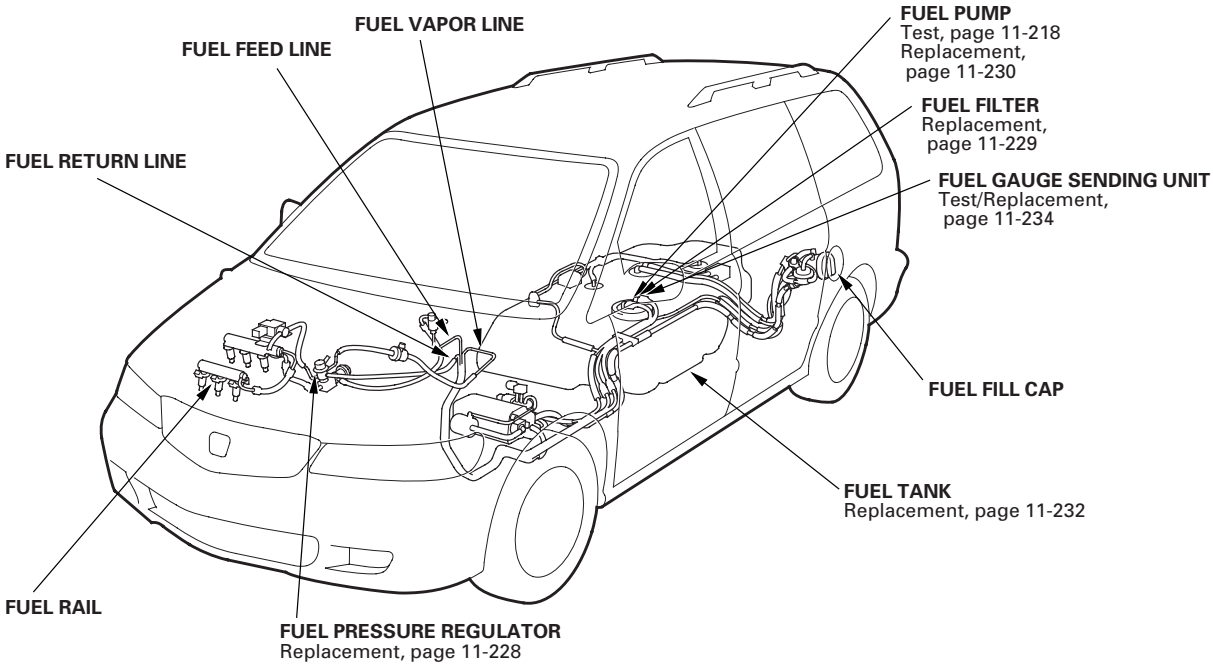
'01 model

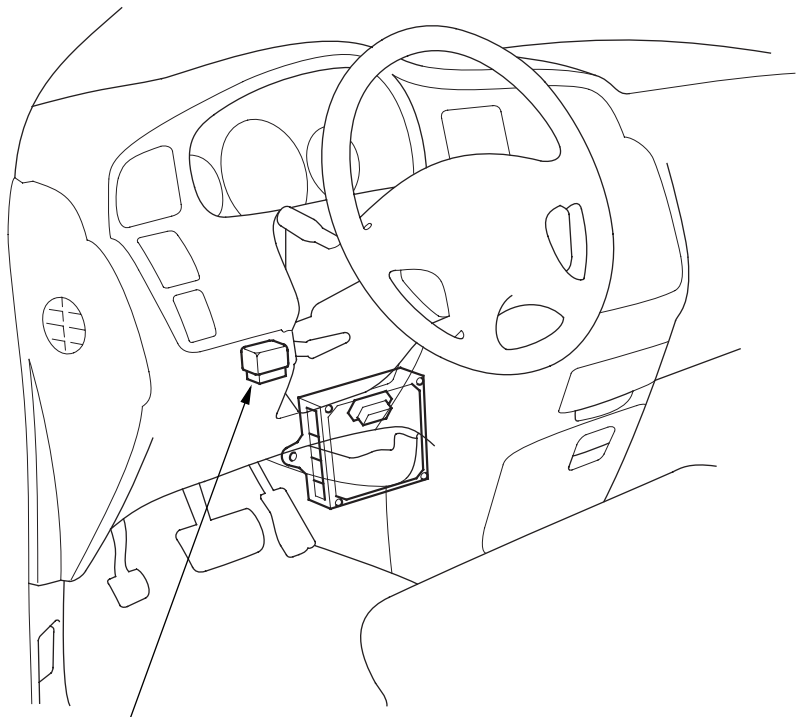


(cont'd)

Component Location Index (cont'd)

'02-04 models





DTC Troubleshooting

DTC P0461—'03-04 Models: Fuel Level Sensor (Fuel Gauge Sending Unit) Range/ Performance Problem

NOTE: Because it requires 174 miles (280 km) of driving without refueling before completing this diagnosis, this DTC cannot be duplicated during troubleshooting.

1. Remove the fuel tank unit from the fuel tank (see page 11-232).
2. Test the fuel gauge sending unit (see page 11-234).

   If the fuel gauge sending unit OK?

   YES—Check for poor connections or loose terminals at the fuel gauge sending unit and the PCM, then go to step 3.

   NO—Replace the fuel gauge sending unit (see page 11-234).
3. Reinstall the fuel tank unit on the fuel tank (see page 11-232).
4. Reset the PCM (see page 11-4).
5. Do the PCM idle learn procedure (see page 11-202).

DTC Troubleshooting (cont'd)

DTC P0462—'03-04 Models: Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Low Voltage

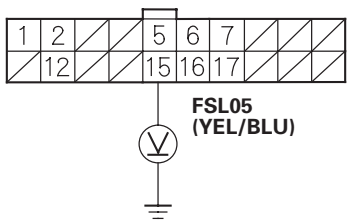
1. Reset the PCM (see page 11-4).
2. Start the engine.

   Is DTC P0462 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the fuel gauge sending unit, the gauge assembly and the PCM. ■
3. Measure voltage between PCM connector terminal E15 and body ground.

PCM CONNECTOR E (20P)



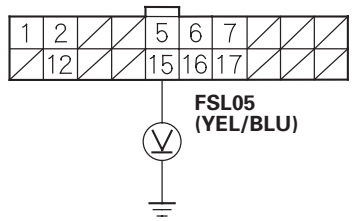
Wire side of female terminals

   Is there 0.9 V or less?

   YES—Go to step 4.

   NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom-indication goes away, replace the original PCM. ■
4. Turn the ignition switch OFF.
5. Remove the rear seats and carpet, and the access panel from the floor.
6. Disconnect the fuel tank unit 5P connector.
7. Turn the ignition switch ON (II).
8. Measure voltage between PCM connector E15 and body ground.

PCM CONNECTOR E (20P)



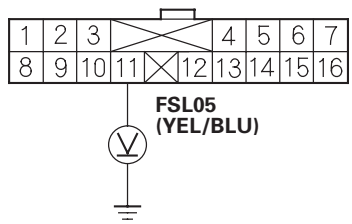
Wire side of female terminals

   Is there battery voltage?

   YES—Replace the fuel gauge sending unit. ■

   NO—Go to step 9.
9. Measure voltage between gauge assembly 16P connector terminal No. 11 and body ground.

GAUGE ASSEMBLY 16P CONNECTOR



Wire side of female terminals

   Is there about 5 V?

   YES—Repair open in the wire between the PCM (E15) and the gauge assembly. ■

   NO—Go to step 10.

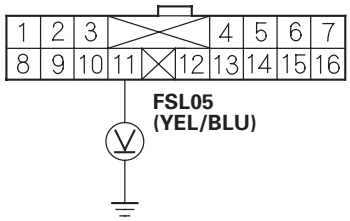
10. Turn the ignition switch OFF.

11. Disconnect the PCM connector E (20P).

12. Turn the ignition switch ON (II).

13. Measure voltage between gauge assembly 16P connector terminal No. 11 and body ground.

GAUGE ASSEMBLY 16P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom-indication goes away, replace the original PCM. ■

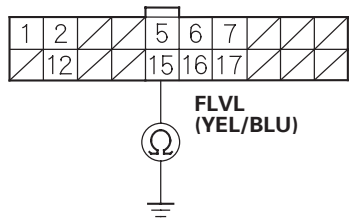
NO—Go to step 14.

14. Turn the ignition switch OFF.

15. Disconnect the gauge assembly connector B (22P).

16. Check for continuity between PCM connector terminal E15 and body ground.

PCM CONNECTOR E (20P)



Wire side of female terminals

Is there about 5 V?

YES—Repair short in the wire between gauge assembly and PCM.

NO—Replace the gauge assembly (see page 22-100).

DTC Troubleshooting (cont'd)

DTC P0463—'03-04 Models: Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit High Voltage

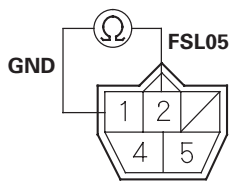
1. Reset the PCM (see page 11-4).
2. Start the engine.

   Is DTC P0463 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the fuel gauge sending unit, the gauge assembly and the PCM. ■
3. Turn the ignition switch OFF.
4. Remove the rear seats and carpet, and the access panel from the floor.
5. Disconnect the fuel tank unit 5P connector.
6. Measure resistance between fuel tank unit 5P connector terminals No. 1 and No. 2.

FUEL TANK UNIT 5P CONNECTOR



Terminal side of male terminals

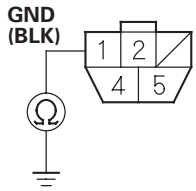
Is there 13—130 Ω ?

YES—Go to step 7.

NO—Replace the fuel gauge sending unit (see page 11-234). ■

7. Check for continuity between body ground and fuel tank unit 5P connector terminal No. 1.

FUEL TANK UNIT 5P CONNECTOR



Wire side of female terminals

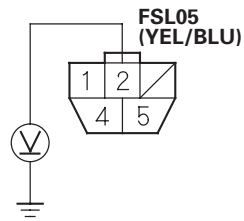
Is there continuity?

YES—Go to step 8.

NO—Repair open in the wire between fuel gauge sending unit and ground (G551).

8. Turn the ignition switch ON (II).
9. Measure voltage between fuel tank unit 5P connector terminal No. 2 and body ground.

FUEL TANK UNIT 5P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

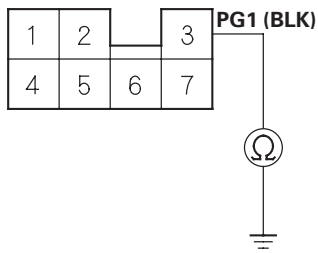
NO—Repair open in the wire between fuel pump and the gauge assembly. ■

PGM-FI Main Relay Circuit Troubleshooting

'99-00, '02-04 Models

1. Turn the ignition switch OFF.
2. Disconnect the PGM-FI main relay 7P connector.
3. Check for continuity between body ground and PGM-FI main relay 7P connector terminal No. 3.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

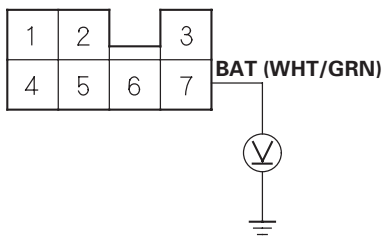
Is there continuity?

YES—Go to step 4.

NO—Repair open in the wire between the PGM-FI main relay and G101. ■

4. Measure voltage between body ground and PGM-FI main relay 7P connector terminal No. 7.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 6.

NO—Go to step 5.

5. Check for a blown ACG S (15A) fuse in the under-hood fuse/relay box.

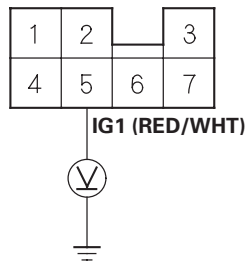
Is the fuse blown?

YES—Repair short in the wire between the PGM-FI main relay and the ACG S (15A) fuse. ■

NO—Repair open in the wire between the PGM-FI main relay and the ACG S (15A) fuse. ■

6. Turn the ignition switch ON (II), and measure voltage between body ground and PGM-FI main relay 7P connector terminal No. 5.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 8.

NO—Go to step 7.

7. Check for a blown No. 1 FUEL PUMP (15A) fuse in the driver's under-dash fuse/relay box.

Is the fuse blown?

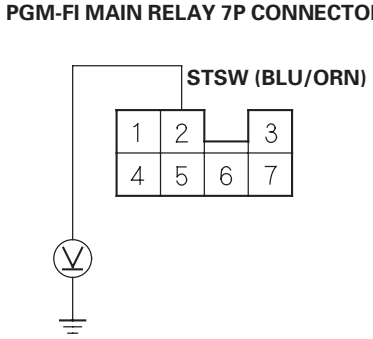
YES—Repair short in the wire between the PGM-FI main relay and the No. 1 FUEL PUMP (15A) fuse. ■

NO—Repair open in the wire between the PGM-FI main relay and the No. 1 FUEL PUMP (15A) fuse. ■

(cont'd)

PGM-FI Main Relay Circuit Troubleshooting (cont'd)

8. Shift to Park, then turn the ignition switch to the START (III) position, and measure voltage between body ground and PGM-FI main relay 7P connector terminal No. 2.



Wire side of female terminals

Is there battery voltage?

YES—Go to step 10.

NO—Go to step 9.

9. Check for a blown No. 13 STARTER SIGNAL (7.5A) fuse in the driver's under-dash fuse/relay box.

Is the fuse blown?

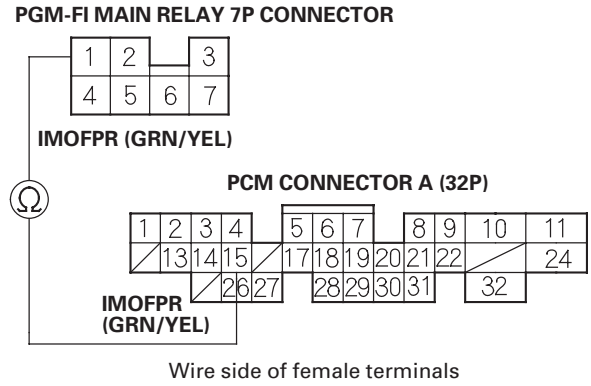
YES—Repair short in the wire between the PGM-FI main relay and the No. 13 STARTER SIGNAL (7.5A) fuse. ■

NO—Repair open in the wire between the PGM-FI main relay and the No. 13 STARTER SIGNAL (7.5A). ■

10. Turn the ignition switch OFF.

11. Disconnect PCM connector A (32P).

12. Check for continuity between PGM-FI main relay 7P connector terminal No. 1 and PCM connector terminal A15.



Wire side of female terminals

Is there continuity?

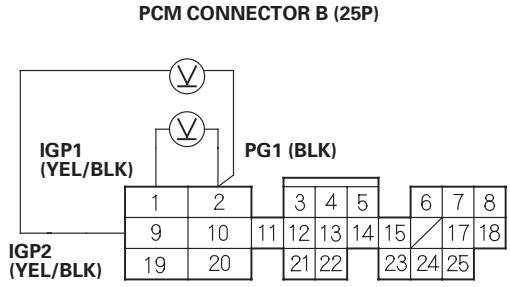
YES—Go to step 13.

NO—Repair open in the wire between the PGM-FI main relay and the PCM (A15). ■

13. Reconnect PCM connector A (32P) and the PGM-FI main relay 7P connector.

14. Turn the ignition switch ON (II).

15. Measure voltage between PCM connector terminals B1 and B2, and between B9 and B2.



Wire side of female terminals

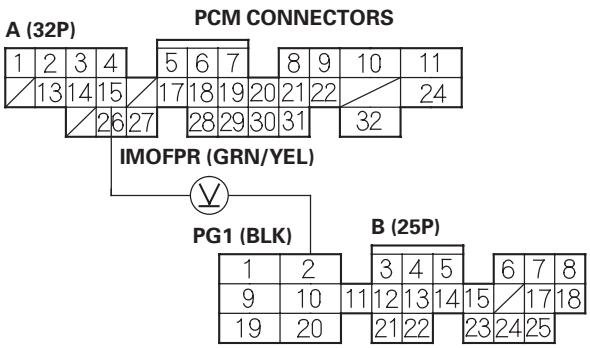
Is there battery voltage?

YES—Go to step 16.

NO—Check for an open in the wires between the PGM-FI main relay and the PCM (B1, B9). If the wires are OK, replace the PGM-FI main relay. ■

16. Turn the ignition switch OFF, then ON (II) again.

17. Measure voltage between PCM connector terminals A15 and B2 within the first 2 seconds after the ignition switch is turned ON (II).



Wire side of female terminals

Is there 1.0 V or less?

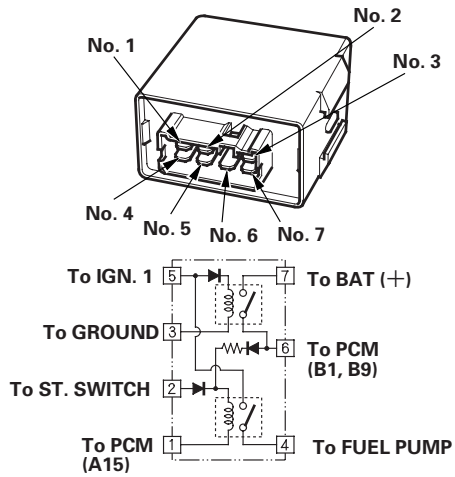
YES—The PGM-FI main relay may be faulty. Go to step 18.

NO—Substitute a known-good PCM and recheck (see page 11-5). If the prescribed voltage is now available, replace the original PCM. ■

18. Remove the PGM-FI main relay.

19. Connect battery power to PGM-FI main relay 7P connector terminal No. 2, and connect PGM-FI main relay 7P connector terminal No. 1 to ground. Then check for continuity between PGM-FI main relay 7P connector terminals No. 5 and No. 4.

NOTE: Use the terminal numbers shown. Ignore the terminal numbers molded into the relay.



Is there continuity?

YES—Go to step 20.

NO—Replace the PGM-FI main relay and retest. ■

20. Connect battery power to PGM-FI main relay 7P connector terminal No. 5, and connect PGM-FI main relay 7P connector terminal No. 3 to ground. Then check for continuity between PGM-FI main relay 7P connector terminals No. 7 and No. 6.

Is there continuity?

YES—Go to step 21.

NO—Replace the PGM-FI main relay and retest. ■

21. Connect battery power to PGM-FI main relay 7P connector terminal No. 6, and connect ground to PGM-FI main relay 7P connector terminal No. 1. Then check for continuity between PGM-FI main relay 7P connector terminals No. 5 and No. 4.

Is there continuity?

YES—The PGM-FI main relay is OK. ■

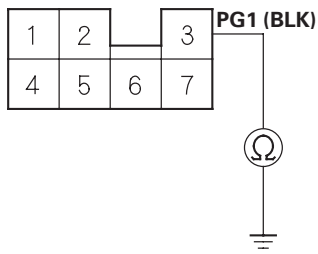
NO—Replace the PGM-FI main relay and retest. ■

PGM-FI Main Relay Circuit Troubleshooting (cont'd)

'01 Model

1. Turn the ignition switch OFF.
2. Disconnect the PGM-FI main relay 7P connector.
3. Check for continuity between body ground and PGM-FI main relay 7P connector terminal No. 3.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

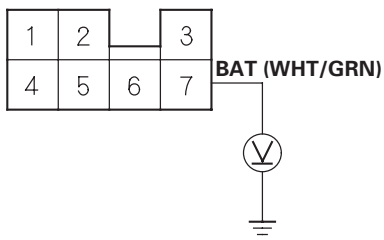
Is there continuity?

YES—Go to step 4.

NO—Repair open in the wire between the PGM-FI main relay and G101. ■

4. Measure voltage between body ground and PGM-FI main relay 7P connector terminal No. 7.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 6.

NO—Go to step 5.

5. Check for a blown ACG S (15A) fuse in the under-hood fuse/relay box.

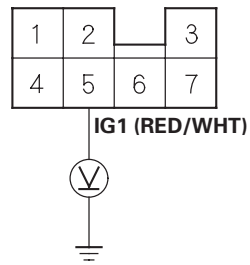
Is the fuse blown?

YES—Repair short in the wire between the PGM-FI main relay and the ACG S (15A) fuse. ■

NO—Repair open in the wire between the PGM-FI main relay and the ACG S (15A) fuse. ■

6. Turn the ignition switch ON (II), and measure voltage between body ground and PGM-FI main relay 7P connector terminal No. 5.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 8.

NO—Go to step 7.

7. Check for a blown No. 1 FUEL PUMP (15A) fuse in the driver's under-dash fuse/relay box.

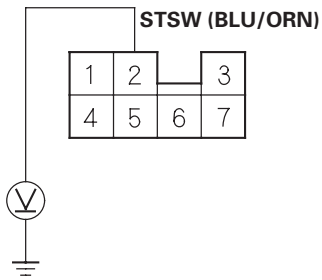
Is the fuse blown?

YES—Repair short in the wire between the PGM-FI main relay and the No. 1 FUEL PUMP (15A) fuse. ■

NO—Repair open in the wire between the PGM-FI main relay and the No. 1 FUEL PUMP (15A) fuse. ■

8. Shift to Park, then turn the ignition switch to the START (III) position, and measure voltage between body ground and PGM-FI main relay 7P connector terminal No. 2.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 10.

NO—Go to step 9.

9. Check for a blown No. 13 STARTER SIGNAL (7.5A) fuse in the driver's under-dash fuse/relay box.

Is the fuse blown?

YES—Repair short in the wire between the PGM-FI main relay and the No. 13 STARTER SIGNAL (7.5A) fuse. ■

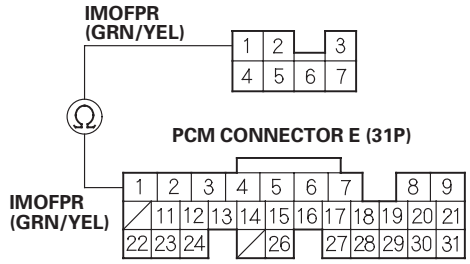
NO—Repair open in the wire between the PGM-FI main relay and the No. 13 STARTER SIGNAL (7.5A). ■

10. Turn the ignition switch OFF.

11. Disconnect PCM connector E (31P).

12. Check for continuity between PGM-FI main relay 7P connector terminal No. 1 and the PCM connector terminal E1.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 13.

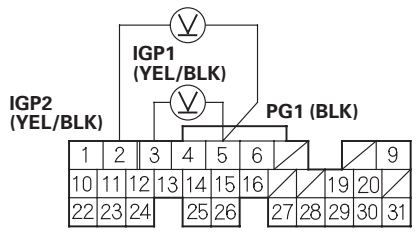
NO—Repair open in the wire between the PGM-FI main relay and the PCM (E1). ■

13. Reconnect PCM connector E (31P) and the PGM-FI main relay 7P connector.

14. Turn the ignition switch ON (II).

15. Measure voltage between PCM connector terminals A3 and A5, and between A2 and A5.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 16.

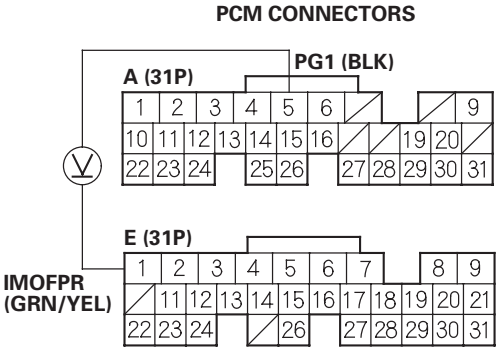
NO—Check for an open in the wires between the PGM-FI main relay and the PCM (A2, A3). If the wires are OK, replace the PGM-FI main relay. ■

(cont'd)

PGM-FI Main Relay Circuit Troubleshooting (cont'd)

16. Turn the ignition switch OFF, then ON (II) again.

17. Measure voltage between PCM connector terminals A5 and E1 within the first 2 seconds after the ignition switch is turned ON (II).



Is there 1.0 V or less?

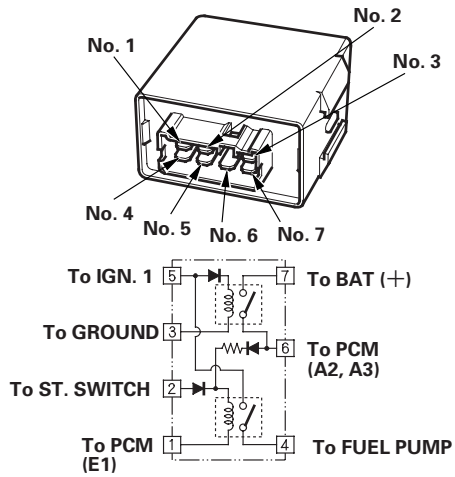
YES—The PGM-FI main relay may be faulty. Go to step 18.

NO—Substitute a known-good PCM and recheck (see page 11-5). If the prescribed voltage is now available, replace the original PCM. ■

18. Remove the PGM-FI main relay.

19. Connect battery power to PGM-FI main relay 7P connector terminal No. 2, and connect PGM-FI main relay 7P connector terminal No. 1 to ground. Then check for continuity between PGM-FI main relay 7P connector terminals No. 5 and No. 4.

NOTE: Use the terminal numbers shown. Ignore the terminal numbers molded into the relay.



Is there continuity?

YES—Go to step 20.

NO—Replace the PGM-FI main relay and retest. ■

20. Connect battery power to PGM-FI main relay 7P connector terminal No. 5, and connect PGM-FI main relay 7P connector terminal No. 3 to ground. Then check for continuity between PGM-FI main relay 7P connector terminals No. 7 and No. 6.

Is there continuity?

YES—Go to step 21.

NO—Replace the PGM-FI main relay and retest. ■

21. Connect battery power to PGM-FI main relay 7P connector terminal No. 6, and connect ground to PGM-FI main relay 7P connector terminal No. 1. Then check for continuity between PGM-FI main relay 7P connector terminals No. 5 and No. 4.

Is there continuity?

YES—The PGM-FI main relay is OK. ■

NO—Replace the PGM-FI main relay and retest. ■

Fuel Pressure Relieving

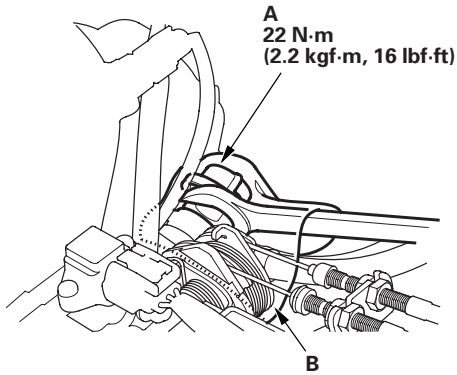
Before disconnecting fuel lines or hoses, relieve pressure from the system by loosening the fuel pulsation damper on top of the fuel rail.

1. Make sure you have the anti-theft codes for the radio and the navigation system (if equipped), then write down the frequencies for the radio's preset buttons.

2. Disconnect the negative cable from the battery.

3. Remove the fuel fill cap.

4. Place a wrench on the fuel pulsation damper (A).



*: The illustration shows '99-01 models.

5. Place a rag or shop towel (B) over the fuel pulsation damper.

6. Slowly loosen the fuel pulsation damper one complete turn.

   NOTE: Replace all washers whenever the fuel pulsation damper is loosened or removed.

Fuel Pressure Test

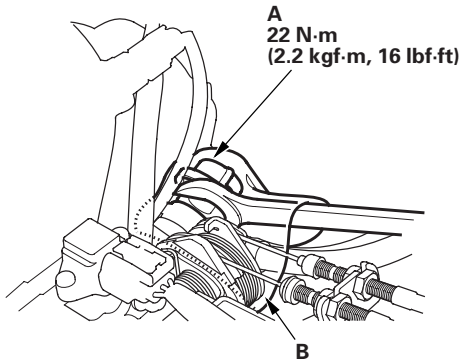
Special Tools Required
- Fuel pressure gauge 07406-004000A
- Fuel pressure gauge attachment 07VAJ-0040100

1. Make sure you have the anti-theft codes for the radio and the navigation system (if equipped), then write down the frequencies for the radio's preset buttons.

2. Disconnect the negative cable from the battery.

3. Remove the fuel fill cap.

4. Place a wrench on the fuel pulsation damper (A) at the fuel rail.

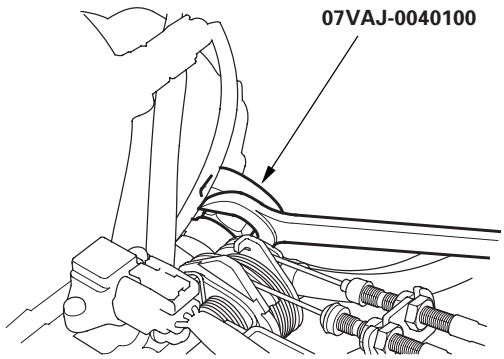


*: The illustration shows '99-01 models.

5. Place a rag or shop towel (B) over the fuel pulsation damper.

6. Slowly loosen the fuel pulsation damper one complete turn.

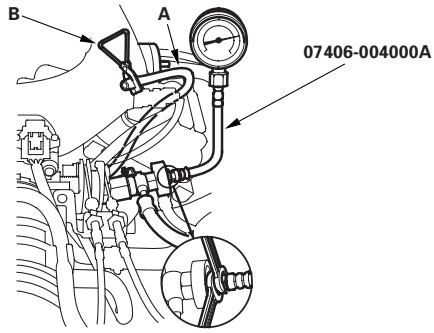
7. Remove the fuel pulsation damper from its fitting, and attach the fuel pressure gauge attachment.



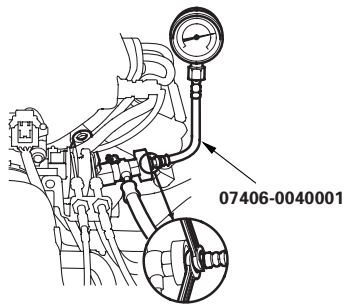
*: The illustration shows '99-01 models.

8. Attach the fuel pressure gauge.

'99-01 models



'02-04 models



9. '99-01 models:
   Disconnect the vacuum hose (A) of the fuel pressure regulator, and pinch it closed with a clamp (B). ('99-01 models)

10. Reconnect the negative cable to the battery, then start the engine and let it idle.

    - If the engine starts, go to step 12 ('99-01 models) or step 16 ('02-04 models).
    - If the engine does not start, go to step 11.

11. Check to see if the fuel pump is running: listen to the injector rails underneath the intake manifold cover while an assistant turns the ignition switch ON (II). You should hear the fuel flow through the injector rails for about 2 seconds when the ignition turned ON (II).

    - If the pump runs, go to step 12 ('99-01 models) or step 16 ('02-04 models).
    - If the pump does not run, test the fuel pump (see page 11-218). ■

12. '99-01 models:
Read the pressure gauge (with the fuel pressure regulator vacuum hose disconnected and clamped). The pressure should be 300—340 kPa (3.0—3.5 kgf/cm^2, 43—49 psi).

- If the pressure is OK and engine is running, go to step 13. If not running, repair the cause, then continue this test.
- If the pressure is out of spec, go to step 14.

13. '99-01 models:
With the engine running, reconnect the vacuum hose and read the gauge again. The pressure should be 240—300 kPa (2.5—3.0 kgf/cm^2, 36—43 psi).

- If the fuel pressure is OK, the test is complete. Go to step 15.
- If the pressure is out of spec, go to step 14.

14. '99-01 models:
Disconnect the vacuum hose from the pressure regulator again while you watch the pressure gauge. The pressure should increase when you disconnect the hose.

- If the pressure did not increase, replace the fuel pressure regulator (see page 11-227) and recheck the fuel pressure.
- If the pressure increased, and all your readings were within spec, go to step 15.
- If the pressure increased, but your readings were out of spec, check for these problems:

  – If the pressure is too low, check for a clogged fuel filter and for leaks in the fuel lines. ■
  – If the pressure is too high, check for a pinched or clogged fuel return hose or line. ■
  – Fuel rail restrictions ■

15. '99-01 models:
Reconnect the vacuum hose, remove the pressure gauge, and reinstall the fuel pulsation damper with a new washer. Tighten the fuel pulsation damper to 22 N·m (2.2kgf·m, 16 lbf·ft).

NOTE: Disassemble and clean the fuel pressure gauge attachment thoroughly after use.

16. '02-04 models:
Read the pressure gauge. The pressure should be 290—330 kPa (2.9—3.4 kgf/cm^2, 42—48 psi).

- If the pressure is OK and engine is running, the test is complete. If the engine is not running, repair the cause, then continue this test.
- If the pressure is too high, check for a pinched or clogged fuel return hose or line.
- If the pressure is too low, check for a clogged fuel filter and for leaks in the fuel lines.
- If the pressure is out of spec and the fuel lines are OK, replace the pressure regulator (see page 11-228).

17. '02-04 models:
Remove the pressure gauge, and reinstall the fuel pulsation damper with a new washer. Tighten the fuel pulsation damper to 22 N·m (2.2kgf·m, 16 lbf·ft).

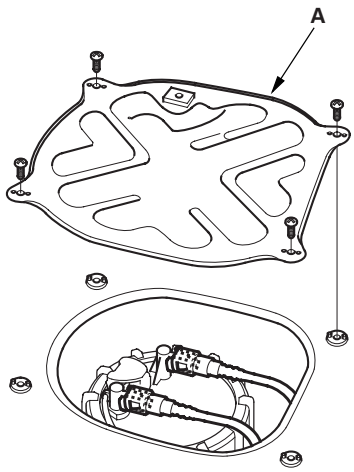
NOTE: Disassemble and clean the fuel pressure gauge attachment thoroughly after use.

Fuel Pump Test

If you suspect a problem with the fuel pump, check that the fuel pump actually runs; when it is on, you will hear fuel flow if you listen to the injector rails underneath the intake manifold cover. The fuel pump should run for 2 seconds when the ignition switch is first turned ON (II). If the fuel pump does not make noise, check as follows:

1. Remove the rear seats and carpet.

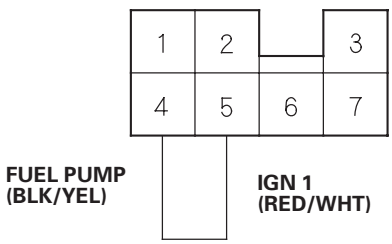
2. Remove the access panel (A) from the floor.



3. Turn the ignition switch OFF, then disconnect the fuel pump 5P connector.

4. Connect PGM-FI main relay 7P connector terminals No. 4 and No. 5 with a jumper wire.

PGM-FI MAIN RELAY 7P CONNECTOR



JUMPER WIRE

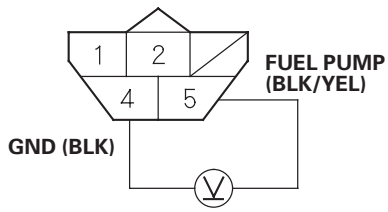
Wire side of female terminals

5. Turn the ignition switch ON (II).

6. Check that battery voltage is available between fuel pump 5P connector terminals No. 4 and 5.

   - If battery voltage is available, check the fuel pump ground. If the ground is OK, replace the fuel pump (see page 11-230).
   - If there is no voltage, check the wire harness (see page 11-208).

FUEL PUMP 5P CONNECTOR

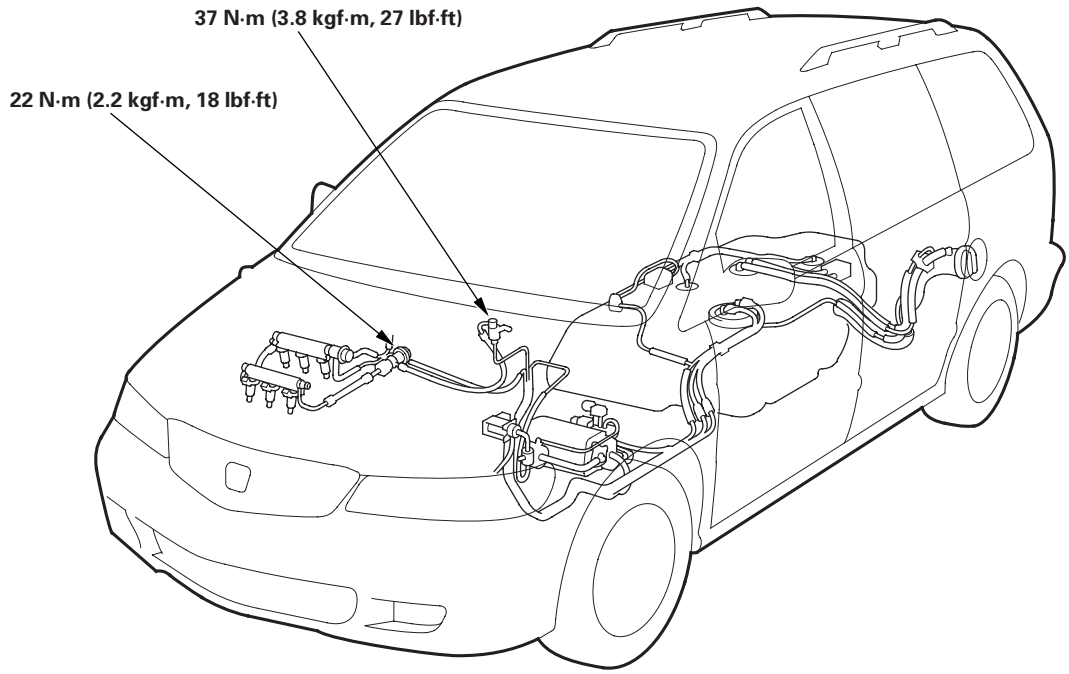


Wire side of female terminals

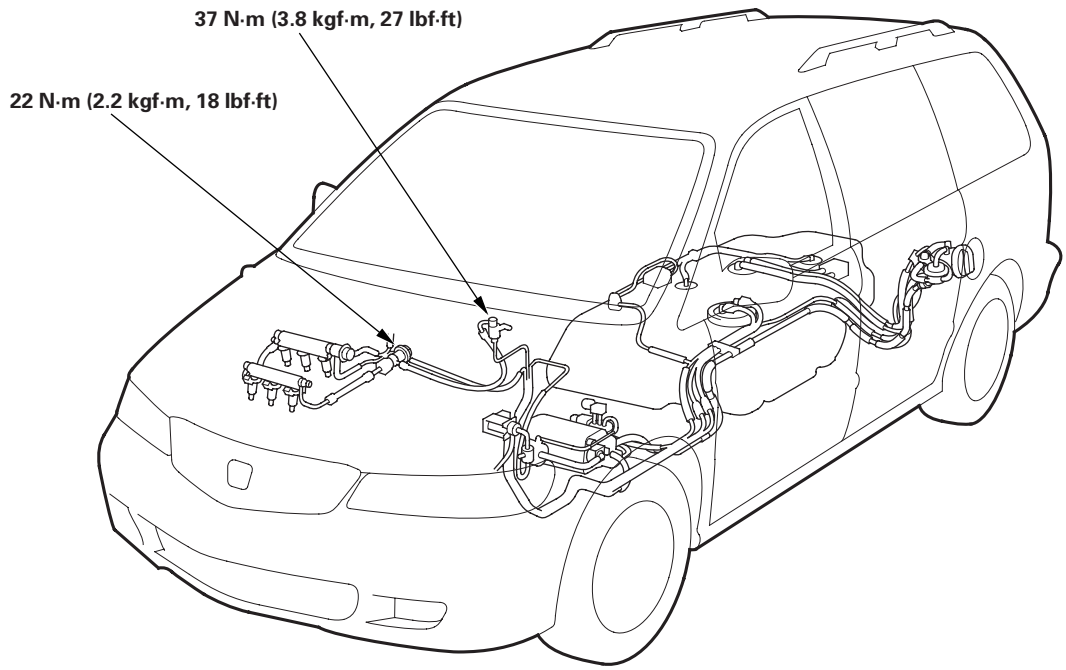
Fuel Line Inspection

Check the fuel system lines, hoses, and fuel filter for damage, leaks, and deterioration. Replace any damaged parts.

'99-00 models



'01 model



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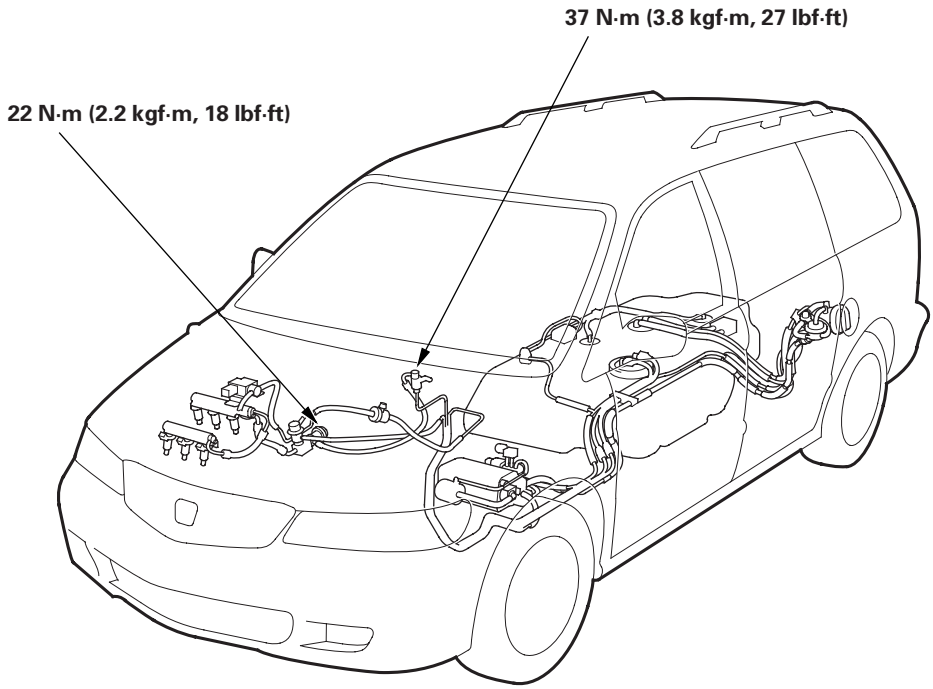
Fuel Line Inspection (cont'd)

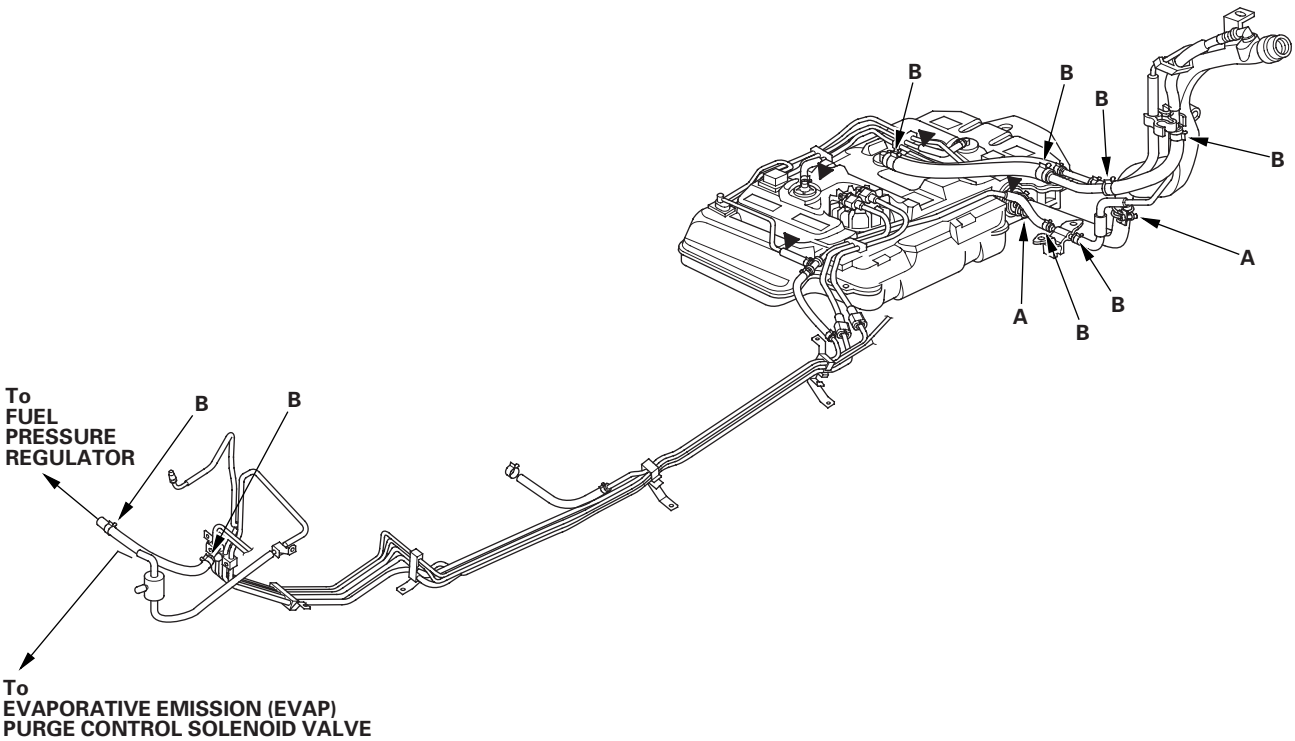
'02-04 models:

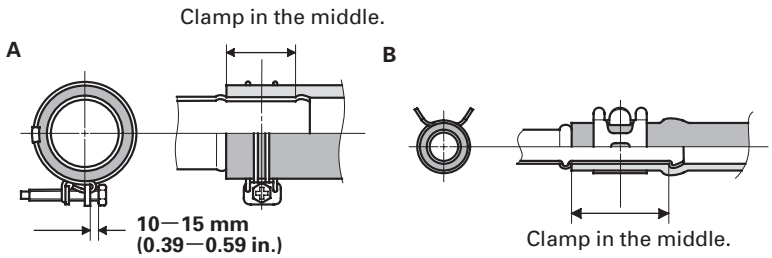


’99-00 models

Check all hose clamps, and retighten if necessary.

▶ : **Do not disconnect the hose from the line at these joints.**





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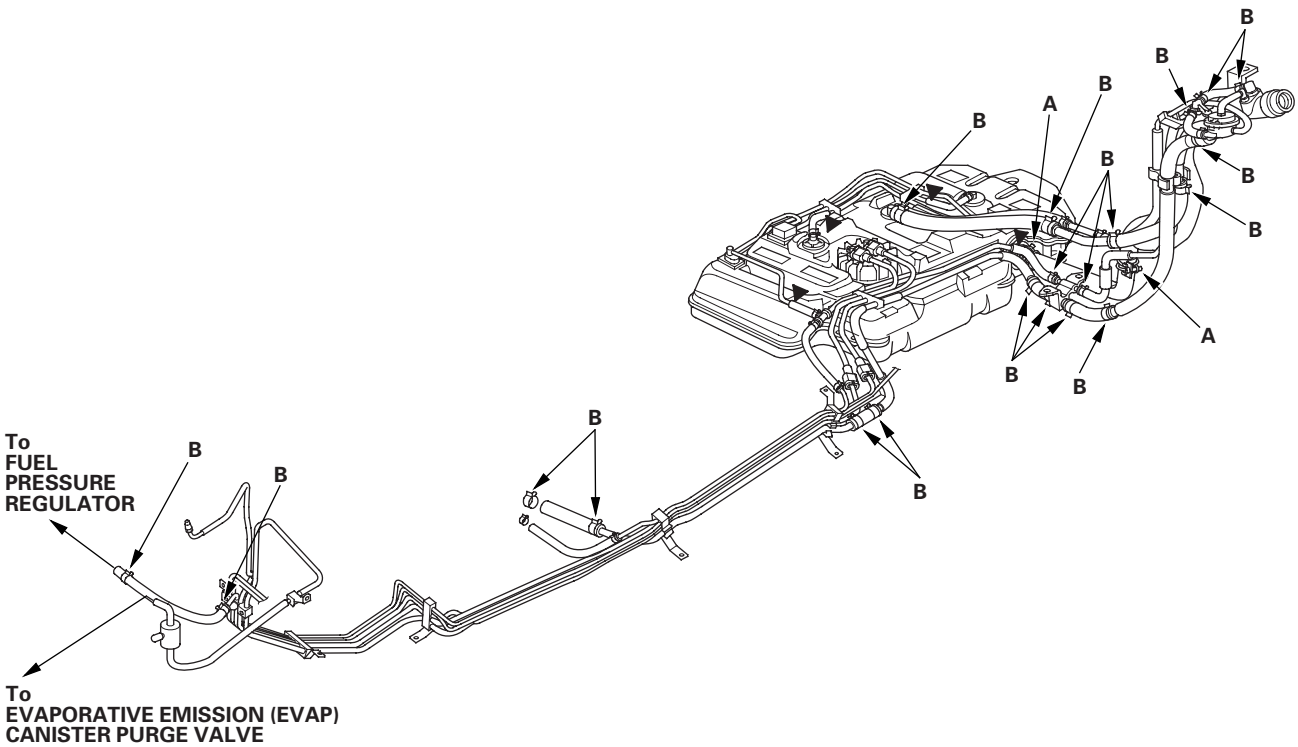
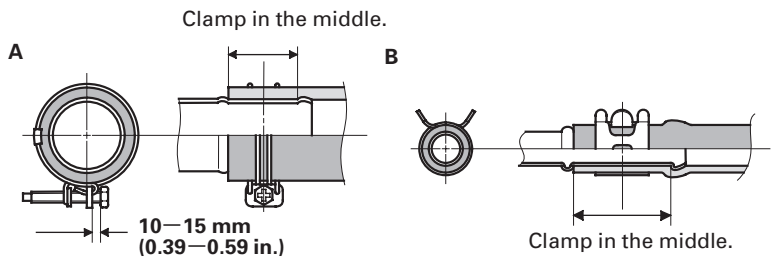
Fuel Line Inspection (cont'd)

'01-04 models

Check all hose clamps, and retighten if necessary.

▶ : **Do not disconnect the hose from the line at these joints.**





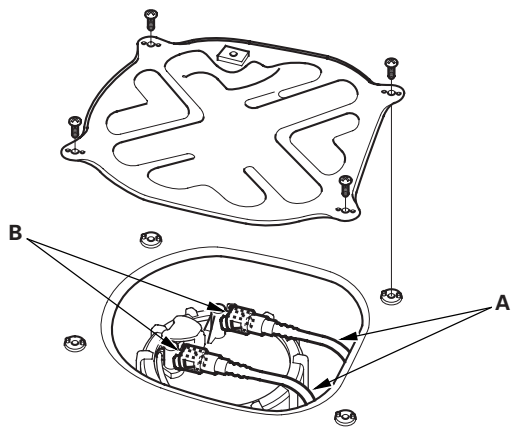
Fuel Line/Quick-Connect Fitting Precaution

The fuel tube/quick-connect fittings assembly connects the in-tank fuel pump to the fuel feed line and the fuel return line. When removing or installing the fuel pump and fuel tank, it is necessary to disconnect or connect the quick-connect fittings. Pay attention to following:

- The fuel tubes (A) and quick-connect fittings (B) are not heat-resistant; be careful not to damage them during welding or other heat-generating procedures.
- The fuel tubes (A) and quick-connect fittings (B) are not acid-proof; do not touch them with a shop towel which was used for wiping battery electrolyte. Replace them if they came into contact with electrolyte or something similar.
- When connecting or disconnecting the fuel tubes (A) and quick-connect fittings (B), be careful not to bend or twist them excessively. Replace them if they are damaged.

A disconnected quick-connect fitting can be reconnected, but the retainer on the mating line cannot be reused once it has been removed from the line. Replace the retainer when:

- replacing the fuel pump.
- replacing the fuel filter.
- replacing the fuel feed line.
- replacing the fuel return line.
- it has been removed from the line.
- it is damaged.



MANUFACTURER	TUBE COLOR	RETAINER COLOR	TUBE
SANOH	BLACK	WHITE	FEED TUBE (BOTH SIDES) RETURN TUBE (BOTH SIDES)
TOKAI	BLACK	ORANGE	FEED TUBE (PUMP SIDE)
		BLU/GREEN	FEED TUBE (PIPE SIDE)
			RETURN TUBE (PUMP SIDE)
		GREEN	RETURN TUBE (PIPE SIDE)

Fuel Line/Quick-Connect Fitting Removal

1. Make sure you have the anti-theft codes for the radio and the navigation system (if equipped), then write down the frequencies for the radio's preset buttons.

2. Disconnect the battery negative cable.

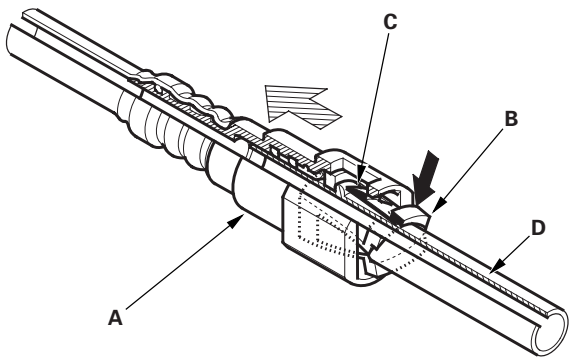
3. Remove the fuel fill cap to relieve the fuel pressure in the tank.

4. Relieve the fuel pressure (see page 11-215).

5. Check the fuel quick-connect fittings for dirt, and clean them if necessary.

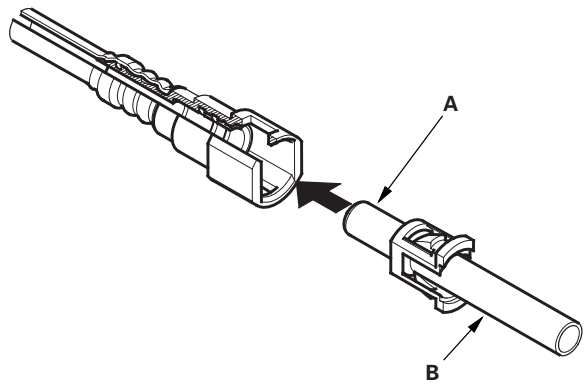
6. Hold the connector (A) with one hand, and squeeze the retainer tabs (B) with the other hand to release the tabs from the locking pawls (C). Pull the connector off.

   NOTE:
   - Be careful not to damage the line (D) or other parts.
     Do not use tools.
   - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
   - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



7. Check the contact area (A) of the line (B) for dirt and damage.

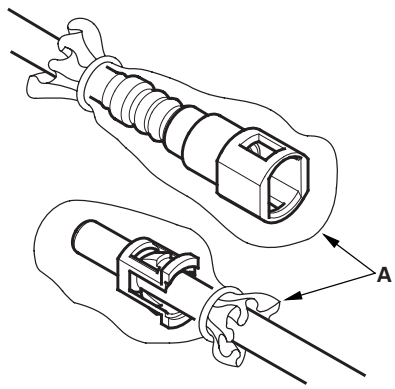
   - If the surface is dirty, clean it.
   - If the surface is rusty or damaged, replace the fuel pump, fuel filter, fuel feed line or fuel return line.



8. To prevent damage and keep foreign matter out, cover the disconnected connector and line ends with plastic bags (A).

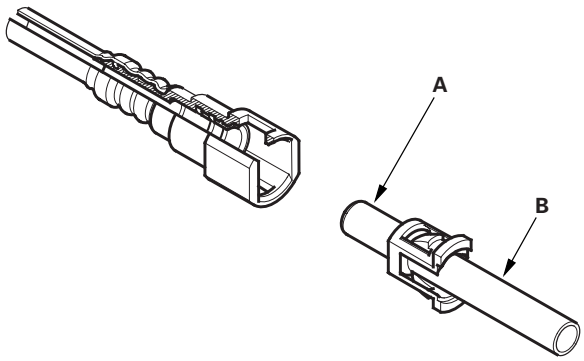
   NOTE:
   - The retainer cannot be reused once it has been removed from the line.
     Replace the retainer when:

     – replacing the fuel pump.
     – replacing the fuel filter.
     – replacing the fuel feed line.
     – replacing the fuel return line.
     – it has been removed from the line.
     – it is damaged.



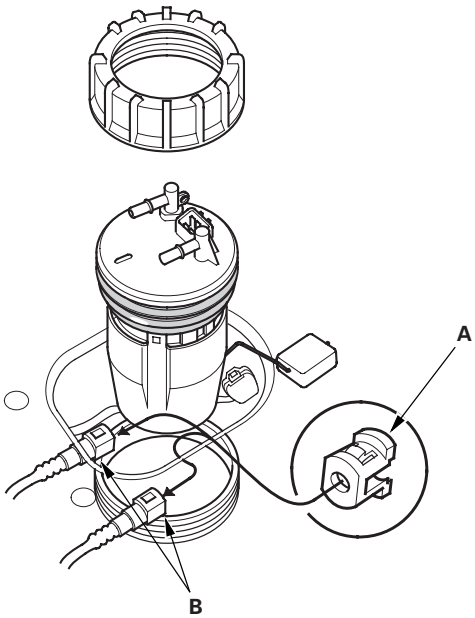
Fuel Line/Quick-Connect Fitting Installation

1. Check the contact area (A) of the line (B) for dirt and damage, and clean if necessary.

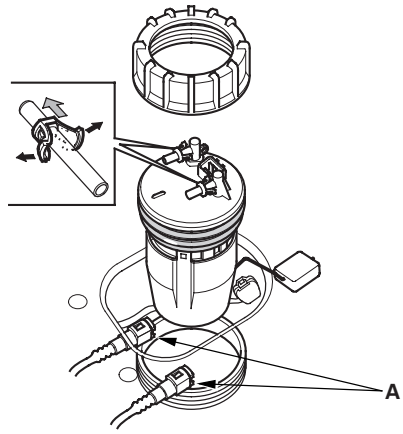


2. Insert a new retainer (A) into the connector (B) if the retainer is damaged, or after:

   - replacing the fuel pump.
   - replacing the fuel filter.
   - replacing the fuel feed line.
   - replacing the fuel return line.
   - removing the retainer from the line.



3. Before connecting a new fuel tube/quick-connect fitting assembly (A), remove the old retainer from the mating line.



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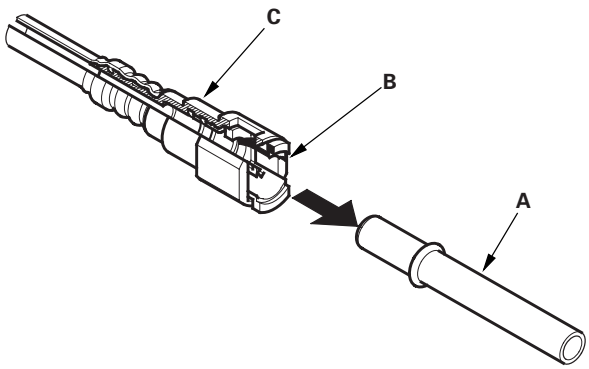
Fuel Line/Quick-Connect Fitting Installation (cont'd)

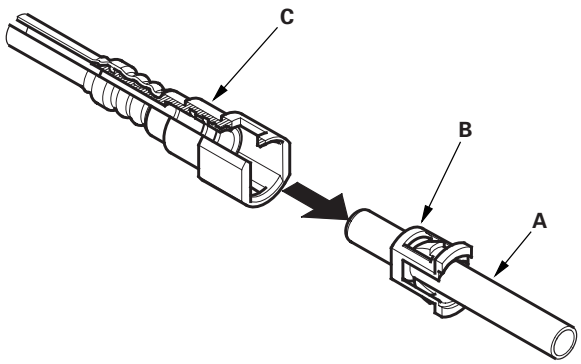
4. Align the quick-connect fittings with the line (A), and align the retainer (B) locking pawls with the connector (C) grooves. Then press the quick-connect fittings onto the line until both retainer pawls lock with a clicking sound.

   NOTE: If it is hard to connect, put a small amount of new engine oil on the line end.

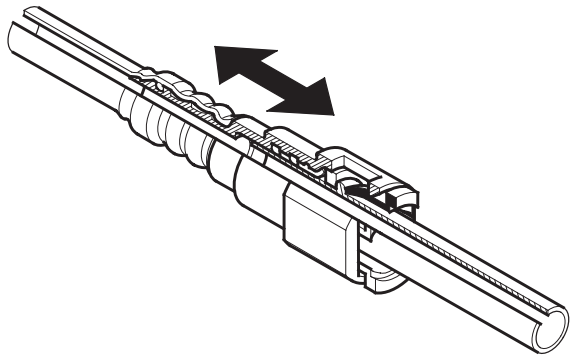
   Connection with new retainer:



   Reconnection to existing retainer:



5. Make sure the connection is secure and that the pawls are firmly locked into place; check visually and by pulling the connector.



6. Reconnect the battery negative cable, and turn the ignition switch ON (II). The fuel pump will run for about 2 seconds, and fuel pressure will rise. Repeat two or three times, and check that there is no leakage in the fuel supply system.

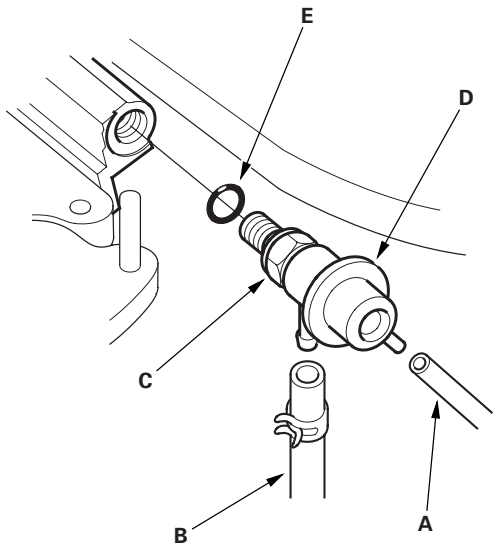
Fuel Pressure Regulator Replacement

'99-01 models

1. Remove the intake manifold cover and intake manifold (see page 9-4).

2. Place a shop towel under the fuel pressure regulator, then relieve the fuel pressure (see page 11-215).

3. Disconnect the vacuum hose (A) and fuel return hose (B).



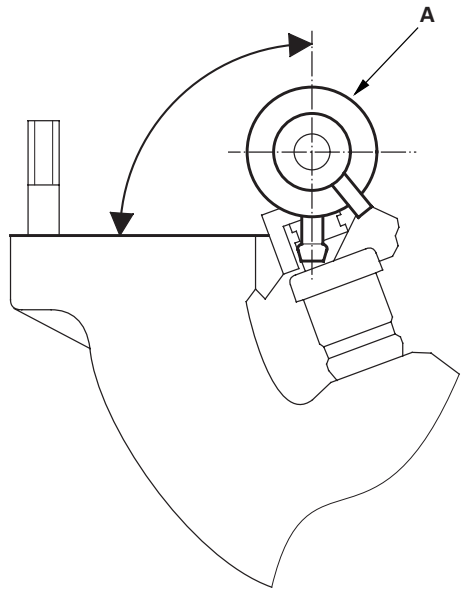
4. Loosen the locking nut (C), and remove the fuel pressure regulator (D).

5. Apply clean engine oil to a new O-ring (E), and carefully install it into its proper position.

6. Install the fuel pressure regulator into the fuel rail. Turn it by hand until it stops.

   NOTE:
   - Replace the O-ring.
   - When assembling the fuel pressure regulator, apply clean engine oil to the O-ring and assemble it into its proper position, taking care not to damage the O-ring.

7. Turn the fuel pressure regulator (A) counterclockwise to set the angle as shown.



8. Tighten the locking nut to 29 N·m (3.0 kgf·m, 22 lbf·ft).

9. Install the intake manifold and manifold cover (see page 9-7).

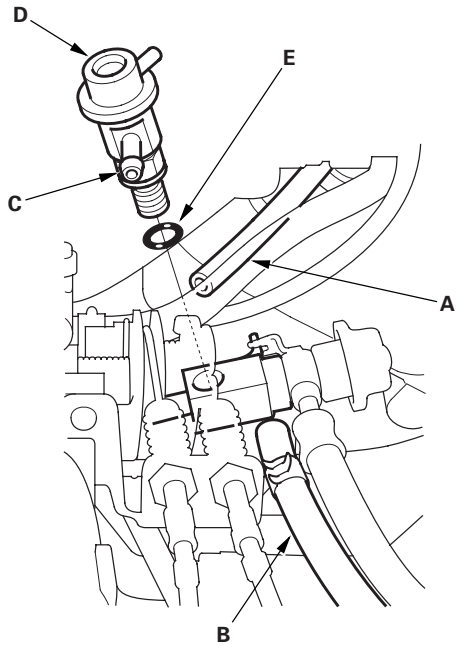
10. Turn the ignition switch ON (II), but do not operate the starter. After the fuel pump runs for about 2 seconds, the fuel pressure in the fuel line rises. Repeat this 2 or 3 times, then check for fuel leakage.

Fuel Pressure Regulator Replacement (cont'd)

'02-04 models

1. Place a shop towel under the fuel pressure regulator, then relieve the fuel pressure (see page 11-215).

2. Disconnect the vacuum hose (A) and fuel return hose (B).



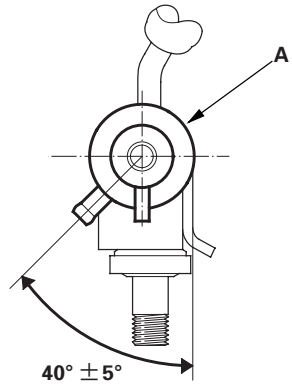
3. Loosen the locking nut (C), and remove the fuel pressure regulator (D).

4. Apply clean engine oil to a new O-ring (E), and carefully install it into its proper position.

5. Install the fuel pressure regulator in the fuel joint. Turn it by hand until it stops.

   NOTE:
   - Replace the O-ring.
   - When assembling the fuel pressure regulator, apply clean engine oil to the O-ring and assemble it into its proper position, taking care not to damage the O-ring.

6. Turn the fuel pressure regulator (A) counterclockwise to set the angle as shown.



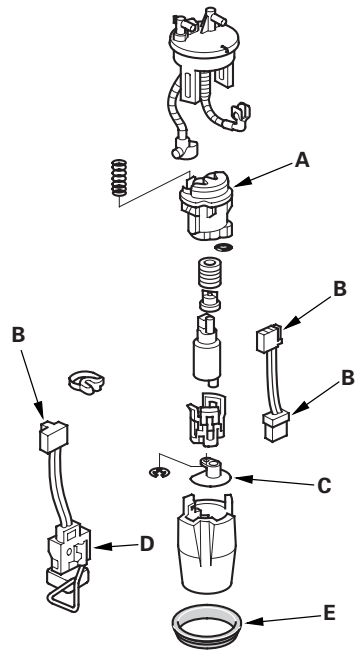
7. Tighten the locking nut to 29 N·m (3.0 kgf·m, 22 lbf·ft).

Fuel Filter Replacement

The fuel filter should be replaced whenever the fuel pressure drops below the specified value (see page 11-216) after making sure that the fuel pump and the fuel pressure regulator are OK.

1. Remove the fuel tank unit, '99-00 models (see page 11-231), '01-04 models (see page 11-232).

2. Remove the fuel filter (A).



3. Check these items before installing the fuel tank unit:

   - When connecting the wire harness, make sure the connection is secure and the terminal (B) is firmly locked into place.
   - Do not push the lower part of the suction filter (C).
   - When installing the fuel gauge sending unit (D), make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.

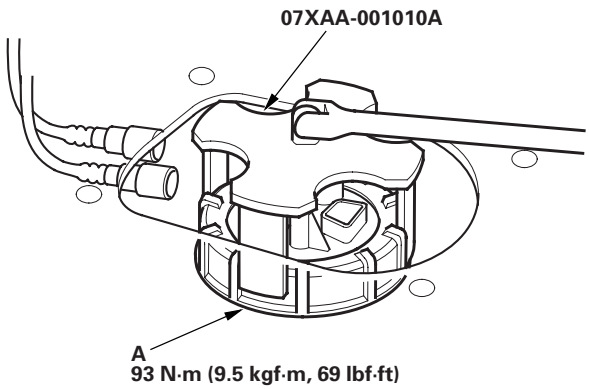
4. Install the parts in the reverse order of removal with a new base gasket (E). When installing the fuel tank unit, align the marks on the unit and the fuel tank (see page 11-230).

   NOTE: Place the new base gasket for the fuel tank unit on the tank first, then carefully insert the fuel tank unit. If the fuel tank unit is incorrectly installed, the MIL can come on with DTC P1456.

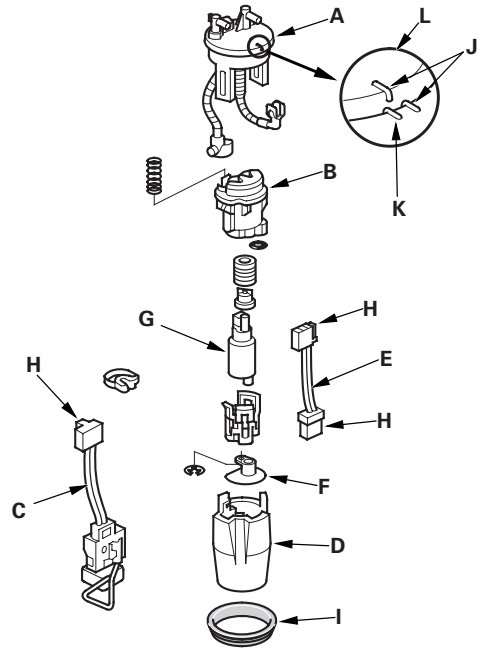
Fuel Pump Replacement

Special Tools Required
Fuel sender wrench 07XAA-001010A

1. Remove the second row seats and carpet (see page 20-65).
2. Remove the access panel from the floor (see page 11-223).
3. Turn the ignition switch OFF, then disconnect the fuel tank unit 5P connector.
4. Remove the fuel fill cap.
5. Relieve the fuel pressure (see page 11-215).
6. Disconnect the quick-connect fittings from the fuel tank unit.
7. Using the tool, loosen the fuel tank unit locknut (A).



8. Remove the bracket (A), the fuel filter (B), the fuel gauge sending unit (C), the case (D), and the wire harness (E).



9. When connecting the fuel pump, make sure the connection is secure and the suction filter (F) is firmly connected to the fuel pump (G).
10. Check these items before installing the fuel tank unit:

    - When connecting the wire harness, make sure the connection is secure and the connectors (H) are firmly locked into place.
    - Do not push the lower part of the suction filter.
    - When installing the fuel gauge sending unit, make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.

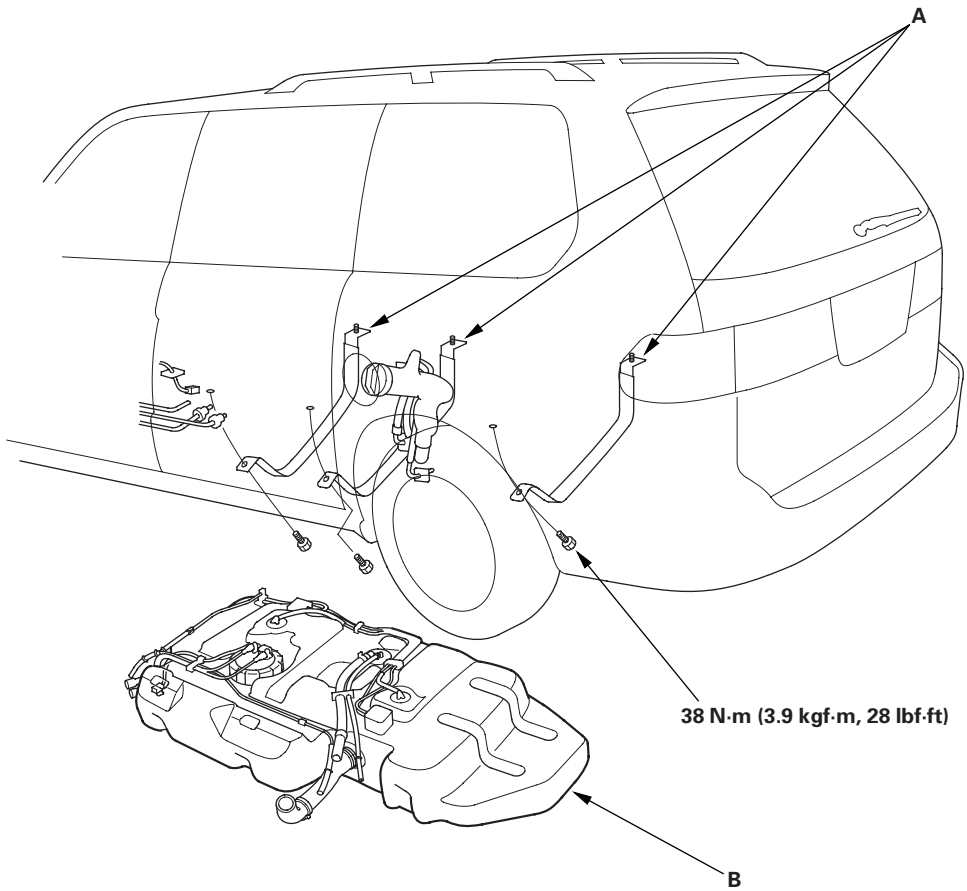
11. Install the parts in the reverse order of removal with a new base gasket (I). When installing the fuel tank unit, align the marks (J) on the unit (K) and the fuel tank (L).

    NOTE: Place the base gasket for the fuel tank unit on the tank first, then carefully insert the fuel tank unit. If the fuel tank unit is incorrectly installed, the MIL can come on with DTC P1456.

Fuel Tank Replacement

'99-00 Models

1. Relieve the fuel pressure (see page 11-215).
2. Jack up the vehicle, and support it with jackstands.
3. Drain the fuel tank: Remove the fuel tank unit (see page 11-230). Using a hand pump, hose, and container suitable for gasoline, draw the fuel from the fuel tank.
4. Disconnect the fuel vapor hoses and quick-connect fittings.
   Disconnect the hoses. Slide back the clamps, then twist the hoses as you pull to avoid damaging them.
5. Disconnect the 4P connector (C553).
6. Place a jack or other support under the tank.
7. Remove the strap bolts, and let the straps (A) hang down.

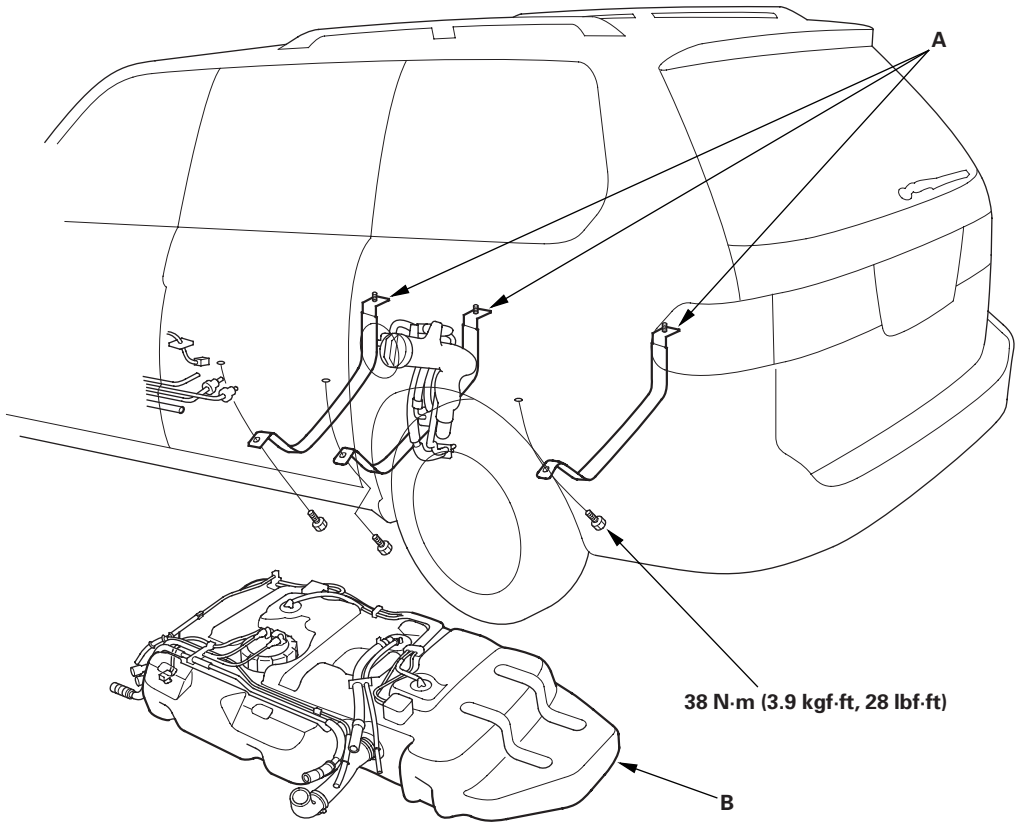


8. Remove the fuel tank (B). If it sticks to the undercoat on its mount, carefully pry it off the mount.
9. Install the parts in the reverse order of removal.

Fuel Tank Replacement (cont'd)

'01-04 Models

1. Relieve the fuel pressure (see page 11-215).
2. Jack up the vehicle, and support it with jackstands.
3. Drain the fuel tank unit: Remove the fuel tank unit (see page 11-230). Using a hand pump, hose and container suitable for gasoline, draw the fuel from the fuel tank.
4. Disconnect the fuel tank vapor vent tube, fuel vapor hoses and quick-connect fittings.
   Disconnect the hoses. Slide back the clamps, then twist the hoses as you pull to avoid damaging them.
5. Disconnect the 4P connector (C553).
6. Place a jack or other support under the tank.
7. Remove the strap bolts, and let the straps (A) hang down.



8. Remove the fuel tank (B). If it sticks to the undercoat on its mount, carefully pry it off the mount.
9. Install the parts in the reverse order of removal.

Fuel Gauge Test

NOTE: For the fuel gauge system circuit diagram, refer to the Gauges Circuit Diagram (see page 22-96).

1. Check the No. 9 BACK UP LIGHT INSTRUMENT LIGHT (7.5A) fuse in the driver's under-dash fuse/relay box before testing.

2. Turn the ignition switch OFF.

3. Remove the rear seats and carpet.

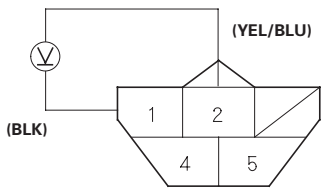
4. Remove the access panel from the floor (see page 11-223).

5. Disconnect the fuel pump 5P connector.

6. Measure voltage between fuel pump 5P connector terminals No. 1 and No. 2 with the ignition switch ON (II). There should be between 5 and 8 V (about 5V on '03-04 models).

   • If the voltage is as specified, go to step 9.
   • If the voltage is not as specified, go to step 7.

FUEL PUMP 5P CONNECTOR

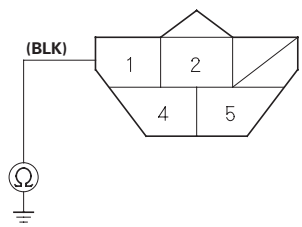


Wire side of female terminals

7. Turn the ignition switch OFF. Check for continuity between fuel pump 5P connector terminal No. 1 and body ground. There should be continuity.

   • If there is contiuity, go to step 8.
   • If there no continuity, check for an open in the BLK wire or a poor ground (G551).

FUEL PUMP 5P CONNECTOR

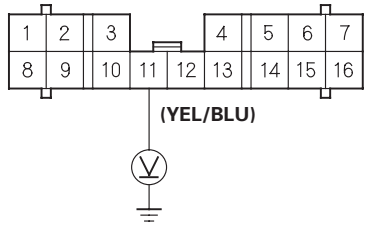


Wire side of female terminals

8. Measure voltage between gauge assembly 16P connector terminal No. 11 and body ground with the ignition switch ON (II). There should be between 5 and 8 V.

   • If the voltage is as specified, check for an open in the YEL/BLU wire.
   • If the voltage is not as specified, replace the gauge assembly.

GAUGE ASSEMBLY 16P CONNECTOR

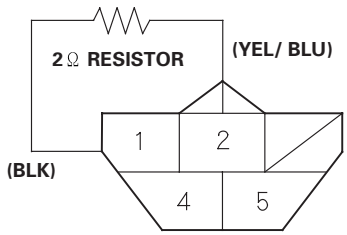


Wire side of female terminals

9. Turn the ignition switch OFF.

10. Install a 2 Ω resistor between fuel pump 5P connector terminals No. 1 and No. 2, then turn the ignition switch ON (II).

FUEL PUMP 5P CONNECTOR



Wire side of female terminals

11. Check that the pointer of the fuel gauge starts moving toward the ''F'' mark.

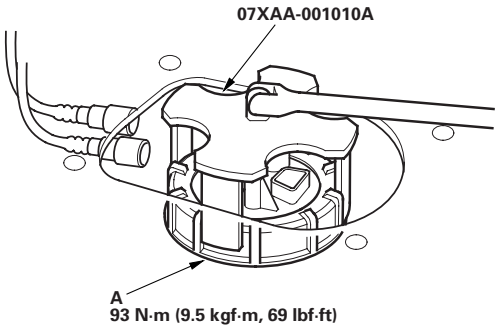
   • If the pointer of the fuel gauge does not move at all, replace the gauge.
   • If the gauge is OK, inspect the fuel gauge sending unit (see page 11-234).

   NOTE: The pointer of the fuel gauge returns to the bottom on the gauge dial when the ignition switch is OFF, regardless of the fuel level.

Fuel Gauge Sending Unit Test/Replacement

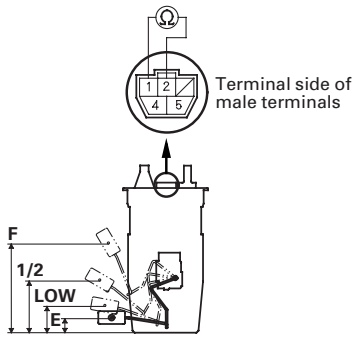
Special Tools Required
Fuel sender wrench 07XAA-001010A

1. Turn the ignition switch OFF.
2. Remove the rear seats and carpet.
3. Remove the access panel from the floor (see page 11-223).
4. Disconnect the fuel tank unit 5P connector.
5. Remove the fuel fill cap.
6. Relieve the fuel pressure (see page 11-215).
7. Disconnect the quick-connect fittings from the fuel tank unit.
8. Using the tool, loosen the fuel tank unit locknut (A).



9. Measure the resistance between the No. 1 and No. 2 terminals with the float at E (EMPTY), 1/2 (HALF FULL), and F (FULL) positions.
   If you do not get the following readings, replace the fuel gauge sending unit.

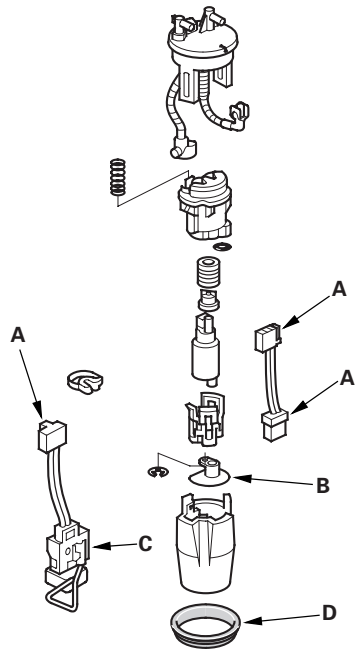
Float Position	E	LOW	1/2	F
Resistance (Ω)	130–132	99.4–114.1	68.5–74.5	11–13



10. Before you install the fuel tank unit, check these items:

    • When connecting the wire harness, make sure the connection is secure and the connectors (A) are firmly locked into place.
    • Do not fold over the lower part of the suction filter (B).
    • When installing the fuel gauge sending unit (C), make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.

    NOTE: Place the base gasket (D) for the fuel tank unit on the tank first, then carefully insert the fuel tank unit. If the fuel tank unit is incorrectly installed, the MIL can come on with DTC P1456.



11. Install the fuel tank unit in the reverse order of removal.

Low Fuel Indicator Test

1. Do the fuel gauge sending unit test (see page 11-234).

   • If the system is OK, go to step 2.
   • If the system has any malfunction, repair it.

2. Turn the ignition switch ON (II) with the float at the E (EMPTY) position.

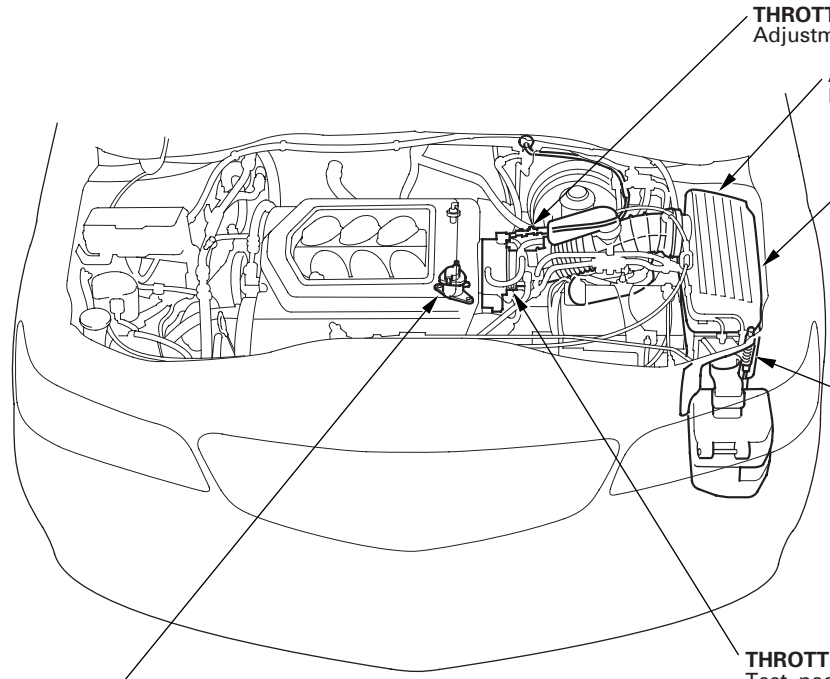
   • If the low fuel indicator is on, go to step 3.
   • If the low fuel indicator is not on, refer to the low fuel indicator circuit diagram (see page 22-96) and check the circuit.

3. Move the float above the LOW position.

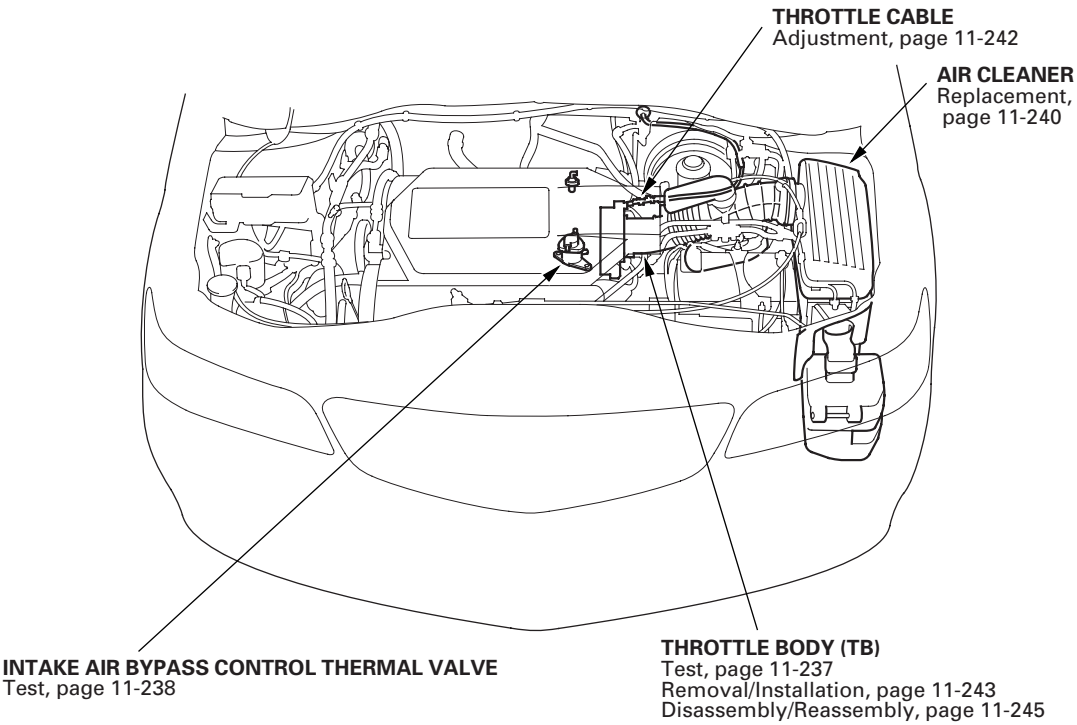
   • If the low fuel indicator goes off, the system is OK.
   • If the low fuel indicator is still on, refer to the low fuel indicator circuit diagram (see page 22-96) and check the circuit.

Component Location Index

'99-01 models:



'02-04 models:



Throttle Body Test

NOTE:
- Do not adjust the throttle stop screw. It is preset at the factory.
- If the malfunction indicator lamp (MIL) has been reported on, check for diagnostic trouble codes (DTCs) (see page 11-4).

1. With the engine off, check the throttle cable operation. The cable should move without binding or sticking.

   - If the cable operated OK, go to step 2.
   - If the cable binds or sticks, check it and its routing. If the cable is faulty, reroute it or replace it then adjust it (see page 11-242). When the cable is properly adjusted, go to step 2.

2. Operate the throttle lever by hand to see if the throttle valve and/or shaft are too loose or too tight.

   - If there is excessive play in the throttle valve shaft, or any binding in the throttle valve at the fully closed position, replace the throttle body.
   - If the throttle valve and shaft are OK, go to step 3.

3. Connect a scan tool to the data link connector (DLC).

4. Turn the ignition switch ON (II).

5. Check the throttle position with the scan tool. There should be about 10 % when the throttle is fully closed and about 90 % when the throttle is fully opened.

   - If the throttle position is correct, Check the throttle body for carbon deposits, and clean it if needed.
   - If the throttle position is not correct, replace the throttle body.

Throttle Body Cleaning

1. Check for damage to the air cleaner.

2. Remove the throttle body (see page 11-243).

3. Clean off any carbon from the throttle valve and inside of the throttle body when carburetor cleaner.

4. Install the throttle body (see page 11-243).

5. Do the PCM idle learn procedure (see page 11-202).

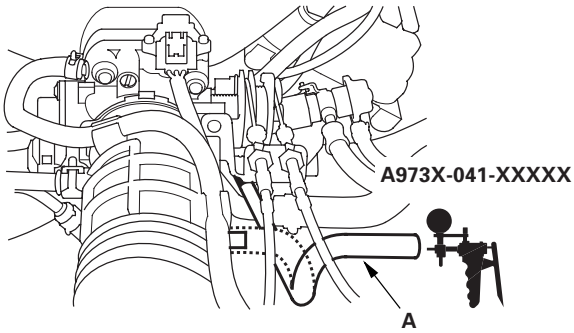
Intake Air Bypass Control Thermal Valve Test

Special Tools Required
Vacuum pump gauge, 0—30 in.Hg
A973X-041-XXXXX

1. Start the engine, and let it idle.

   NOTE: Engine coolant temperature must be below 104°F (40°C).

2. Remove the vacuum hose (A) from the intake pipe, and connect a vacuum gauge to the hose.



3. Raise and lower the engine speed, and make sure the vacuum gauge reading changes as the rpm changes.

   If the vacuum reading changes, go to step 4.
   If the vacuum reading does not change, check for these problems:

   - Misrouted, leaking, broken, or clogged intake air bypass control thermal system vacuum lines.
   - A cracked or damage intake air bypass control thermal valve.

4. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.

5. Raise and lower the engine speed, and make sure the vacuum gauge reading does not change as the rpm changes.

   If the vacuum reading changes, check for these problems:

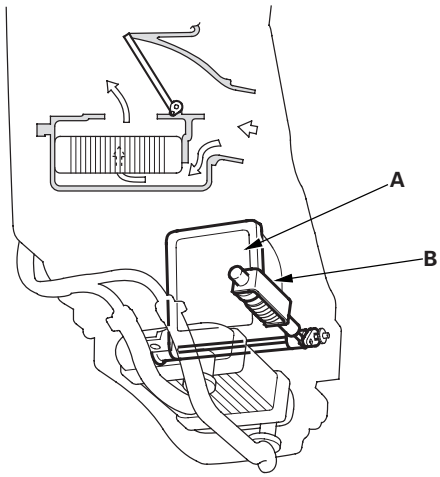
   - Misrouted, leaking, broken, or clogged intake air bypass control thermal system.
   - A cracked or damaged intake air bypass control thermal valve.

Heated Air Induction System Test

1. Remove the air cleaner housing cover and air cleaner element.

2. Check the air valve (A). The door should be open when the temperature at the wax element (B) is below 32°F (0°C).

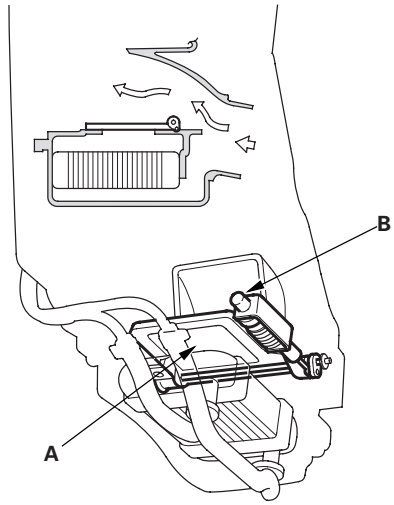
   - If the valve is open, go to step 3.
   - If the valve is not open, check the shaft for binding or sticking. If it is OK, replace the air cleaner housing.



3. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.

4. Check the air valve (A). The air valve should be closed when the temperature at the wax element (B) is above 50°F (10°C).

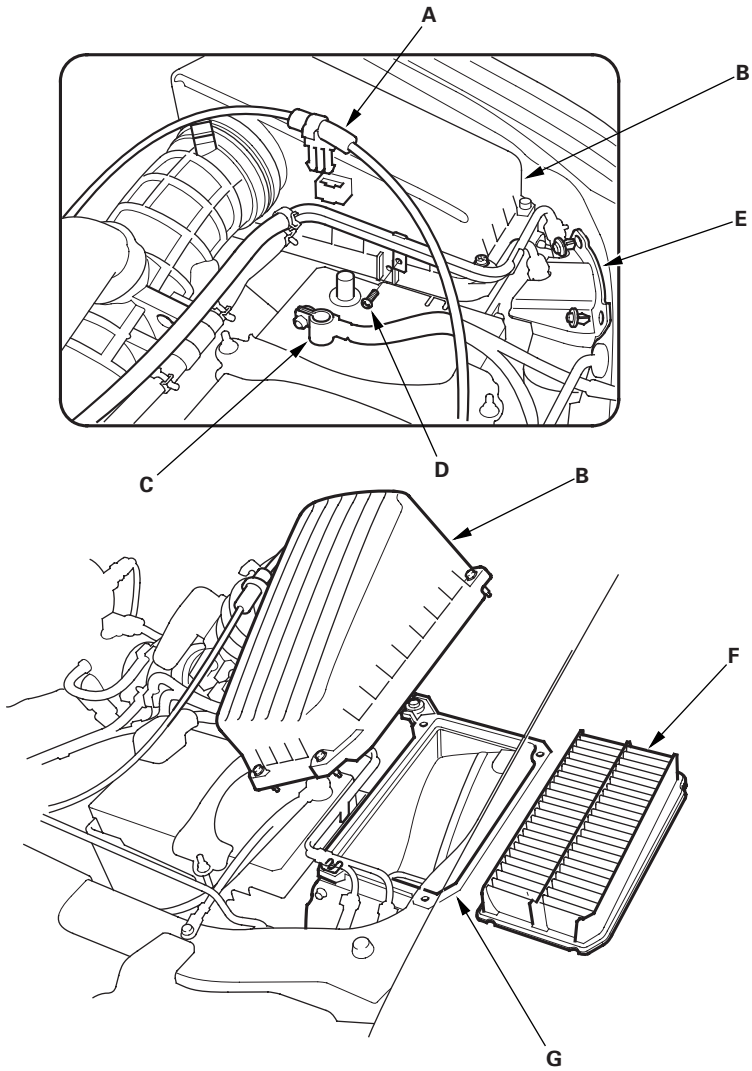
   - If the air valve is closed, the heated air induction system is OK.
   - If the air valve is not closed, check the shaft for binding or sticking. If it is OK, replace the air cleaner housing.



Air Cleaner Element Replacement

1. Make sure you have the anti-theft codes for the radio and the navigation system (if equipped), then write down the frequencies for the radio's preset buttons.

2. Remove the cable clamp (A) from the air cleaner housing cover (B).



3. Remove the battery negative terminal (C) and screw (D).

4. Remove the cover (E).

5. Remove the air cleaner element (F) from the air cleaner housing (G).

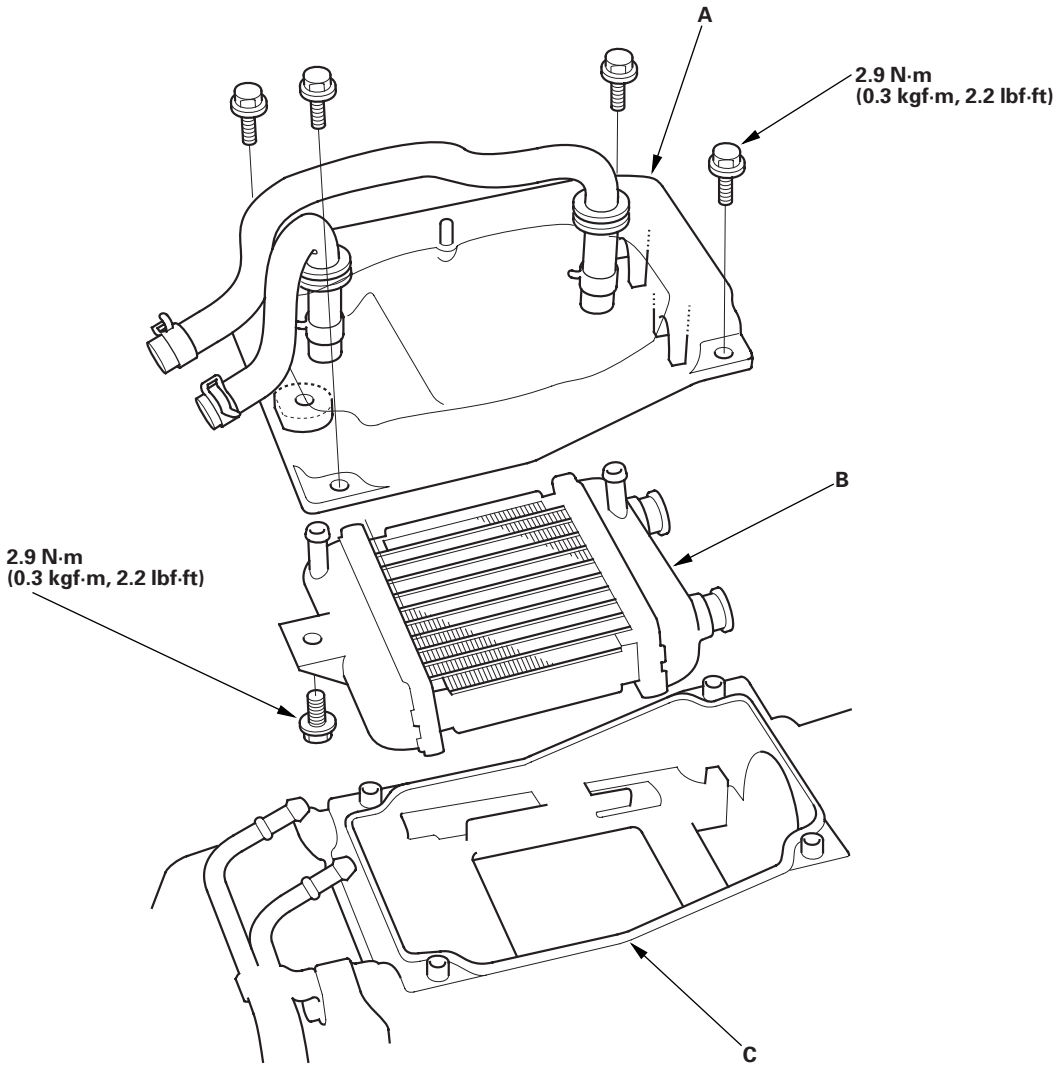
6. Install the parts in the reverse order of removal.

7. Do the PCM idle learn procedure (see page 11-202).

8. Enter the radio and the navigation system (if equipped) anti-theft codes, then enter the radio presets, set the clock.

Air Cleaner Housing Disassembly/Reassembly

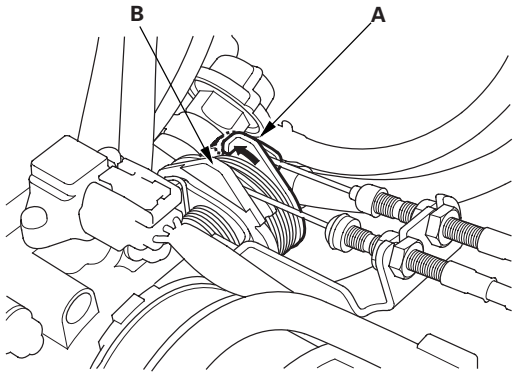
1. Drain the coolant (see page 10-13).



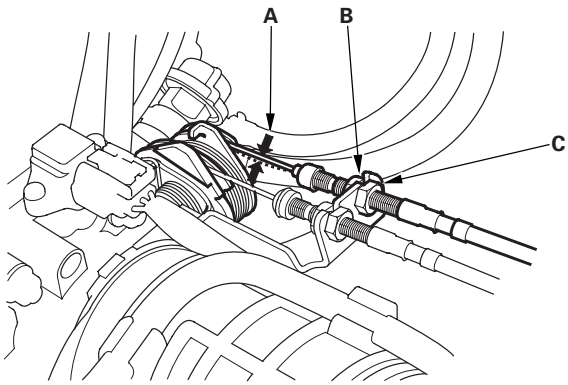
2. Remove the air cleaner housing.
3. Remove the cover (A) and the radiator (B) from the air cleaner housing (C).
4. Install the parts in the reverse order of removal.
5. Fill the radiator with coolant (see page 10-13).

Throttle Cable Adjustment

1. Hold the throttle link (A) to the throttle lever (B). There should be no clearance.



2. Check cable free play at the throttle linkage. Cable free play (A) should be 10—12 mm (3/8—1/2 in.).



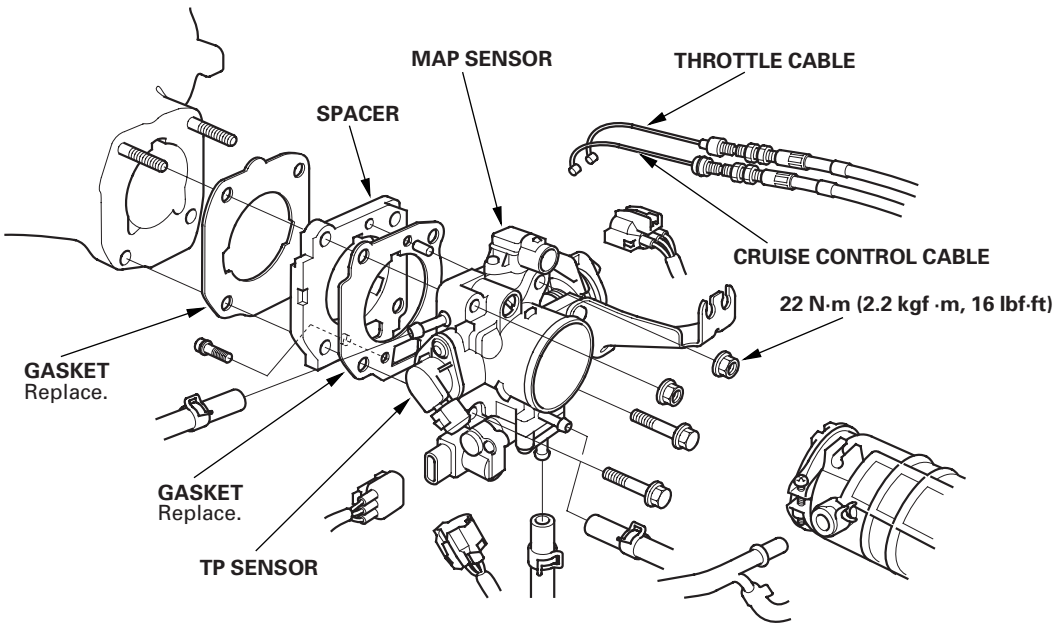
3. If free play is not within specs (10—12 mm, 3/8—1/2 in.), loosen the locknut (B), turn the adjusting nut (C) until the free play is as specified, then retighten the locknut.

4. With the cable properly adjusted, check the throttle valve to be sure it opens fully when you push the accelerator pedal to the floor. Also check the throttle valve to be sure it returns to the idle position whenever you release the accelerator pedal.

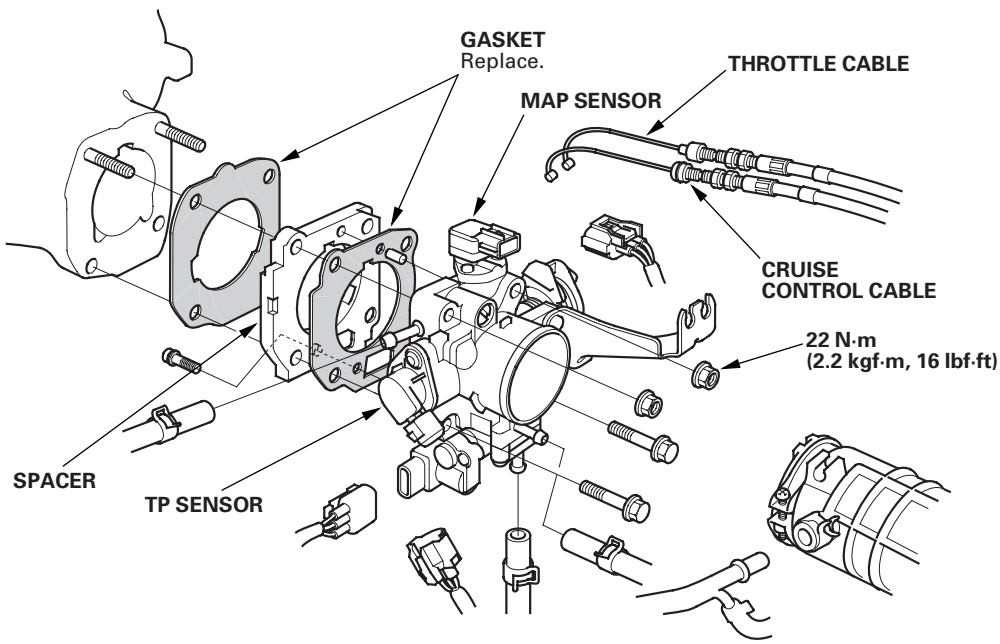
Throttle Body Removal/Installation

NOTE:
- Do not adjust the throttle stop screw.
- After reassembly, adjust the cruise control cable (see page 4-52), and the throttle cable (see page 11-242).
- The TP sensor is not removable.

'99-00 models



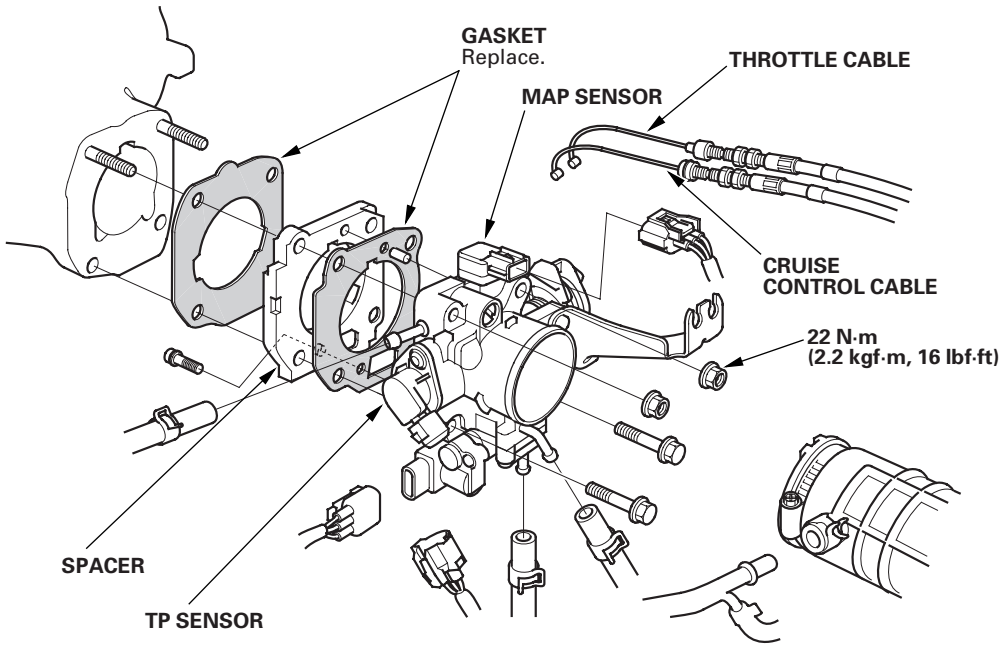
'01 model



(cont'd)

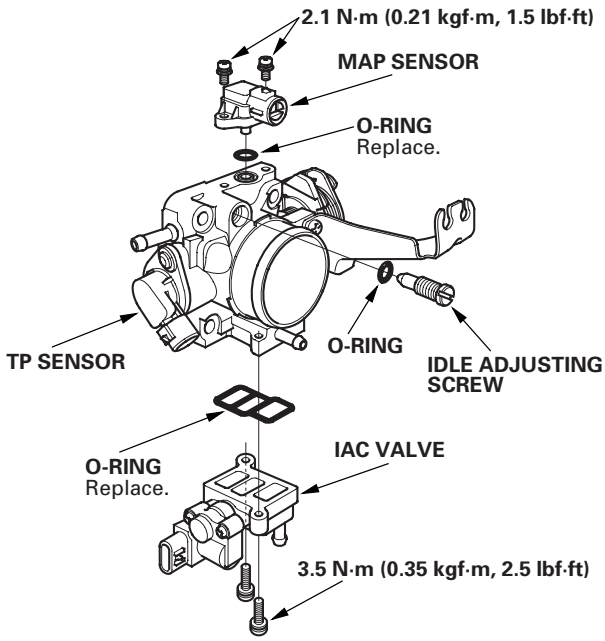
Throttle Body Removal/Installation (cont'd)

'02-04 models

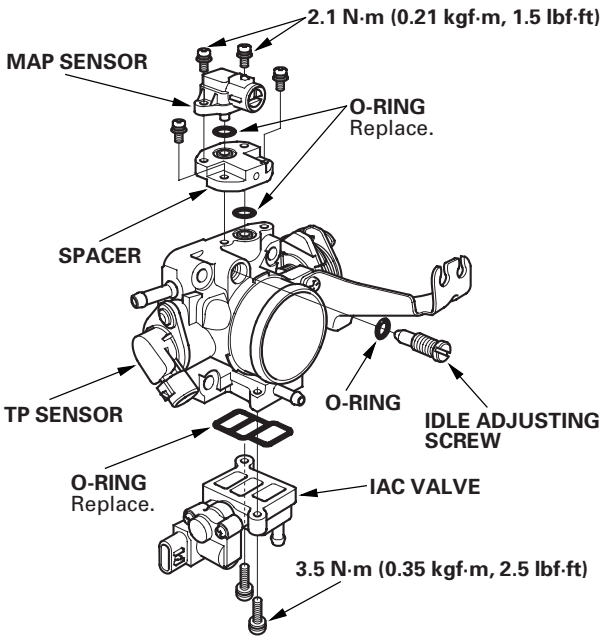


Throttle Body Disassembly/Reassembly

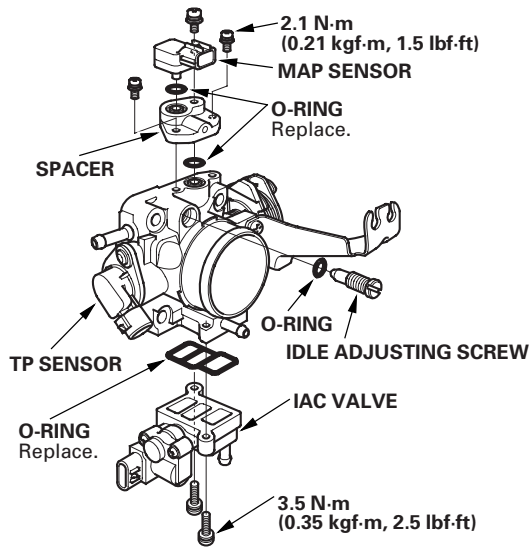
'99 model



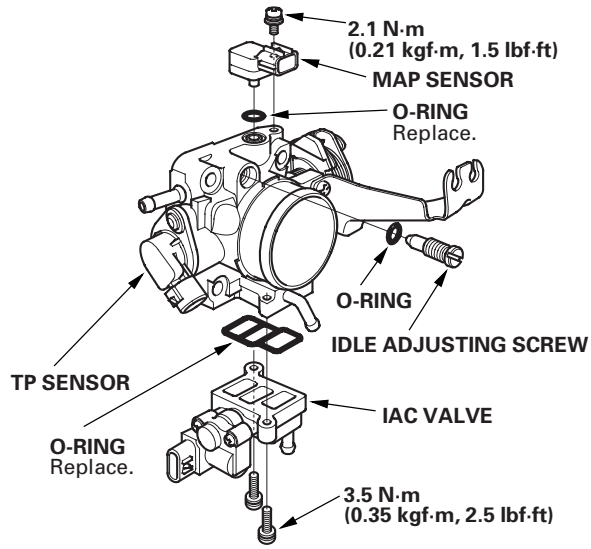
'00 model



'01 model



'02-04 models



DTC Troubleshooting

DTC P0420: Catalytic System Efficiency Below Threshold

NOTE:
- If some of the DTCs listed below are stored at the same time as DTC P0420, troubleshoot those DTCs first, then recheck for DTC P0420.
- Information marked with an asterisk (*) applies to '02-04 models.

P0137, P0138: Secondary HO2S (Sensor 2)
P0141: Secondary HO2S (Sensor 2) Heater

1. Reset the PCM (see page 11-4), then do steps 2 through 5 to reset the readiness code.
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Drive for about 10 minutes, without stopping, on a highway or freeway. Your speed can vary.
4. With the transmission in D4 (D5)* position, drive at a steady speed between 50—62 mph (80—100 km/h) for 30 seconds.
5. Repeat step 4 three times. Between each repetition, close the throttle completely for 1—2 seconds. If the engine is stopped during this part of the procedure, go to step 3 and do the procedure again.
6. Check for a temporary DTC with the scan tool or the HDS.

   Does the scan tool indicate Temporary DTC P0420?

   YES—Check the TWC. If necessary, replace the TWC. ■

   NO—Check for readiness code completion. If the readiness code is complete, it was an intermittent failure, system is OK at this time. If the readiness is incomplete, repeat steps 2 through 5. ■

DTC Troubleshooting

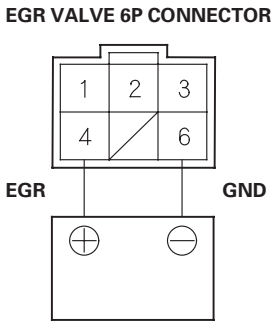
DTC P0401: EGR System Insufficient Flow

1. Reset the PCM (see page 11-4).
2. Test-drive under these conditions:
   - Without any electrical load.
   - Decelerate from 55 mph (88 km/h) for at least 5 seconds.
3. Check for a Temporary DTC with the scan tool or the HDS.

   Is Temporary DTC P0401 indicated?

   YES—Clean the intake manifold EGR port with carburetor cleaner. Clean the passage inside the EGR valve with carburetor cleaner, or replace the EGR valve. ■

   NO—Intermittent failure, go to step 4.
4. Turn the ignition switch OFF.
5. Disconnect the EGR valve 6P connector.
6. Connect the battery positive terminal to EGR valve connector terminal No. 4.



Terminal side of male terminals

7. Start the engine and let it idle, then connect the battery negative terminal to EGR valve connector terminal No. 6.

   Does the engine stall or run rough?

   YES—Intermittent failure, system is OK at this time. ■

   NO—Clean the intake manifold EGR port with caburetor cleaner. Clean the passage inside the EGR valve with carburetor cleaner, or replace the EGR valve. ■

DTC P1491—'99-00, '02-04 Models: EGR Valve Insufficient Lift

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Test-drive the vehicle under load for about 10 minutes. Try to keep the engine speed in the 1,700—2,500 rpm range.
4. Check for a Temporary DTC with the scan tool or the HDS.

   Is Temporary DTC P1491 indicated?

   YES—Go to step 5.

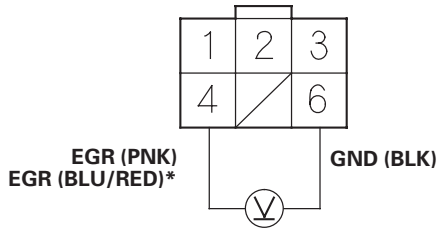
   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the EGR valve and at the PCM. ■
5. Turn the ignition switch OFF.
6. Disconnect the EGR valve 6P connector.
7. Start the engine, and let it idle.

(cont'd)

DTC Troubleshooting (cont'd)

8. Measure voltage between EGR valve 6P connector terminals No. 4 and No. 6.

EGR VALVE 6P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Substitute a known-good PCM, and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

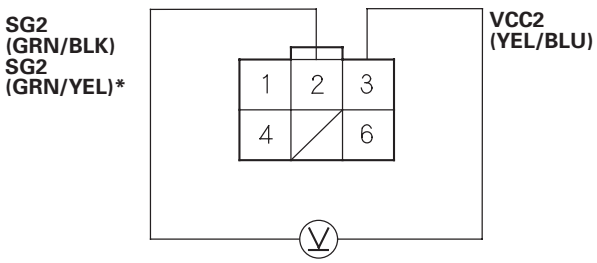
NO—Go to step 9.

9. Turn the ignition switch OFF.

10. Turn the ignition switch ON (II).

11. Measure voltage between EGR valve 6P connector terminals No. 2 and No. 3.

EGR VALVE 6P CONNECTOR



Wire side of female terminals

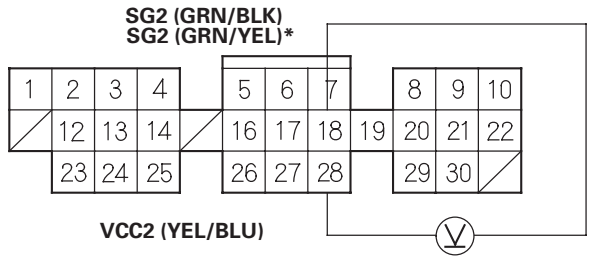
Is there about 5 V?

YES—Go to step 13.

NO—Go to step 12.

12. Measure voltage between PCM connector terminals C18 and C28.

PCM CONNECTORS C (31P)



Wire side of female terminals

Is there about 5 V?

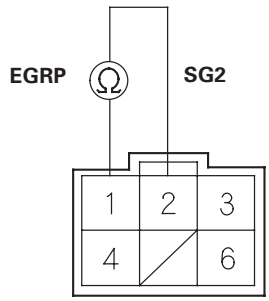
YES—Repair open in the wire between the EGR valve and the PCM (C18, C28). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

13. Turn the ignition switch OFF.

14. At the sensor side, measure resistance between EGR valve 6P connector terminals No. 1 and No. 2.

EGR VALVE 6P CONNECTOR



Terminal side of male terminals

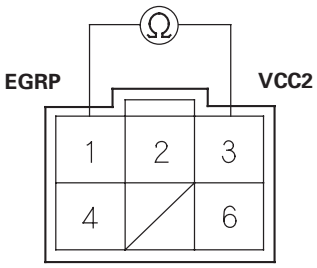
Is there continuity or resistance of 100 kΩ or more?

YES—Replace the EGR valve. ■

NO—Go to step 15.

15. Measure resistance between EGR valve 6P connector terminals No. 1 and No. 3.

EGR VALVE 6P CONNECTOR



Terminal side of male terminals

Is there 100 kΩ or more?

YES—Replace the EGR valve. ■

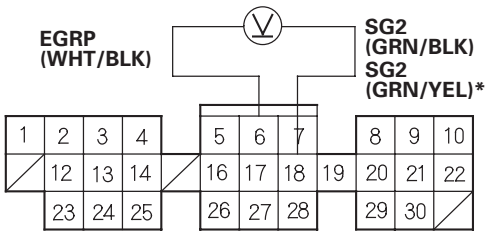
NO—Go to step 16.

16. Reconnect the EGR valve connector.

17. Turn the ignition switch ON (II).

18. Measure voltage between PCM connector terminals C6 and C18.

PCM CONNECTORS C (31P)



Wire side of female terminals

Is there about 1.2 V?

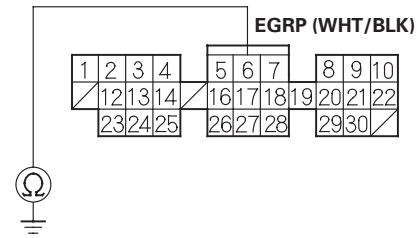
YES—Go to step 21.

NO—Go to step 19.

19. Turn the ignition switch OFF.

20. Check for continuity between PCM connector terminal C6 and body ground.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the EGR valve and PCM (C6). ■

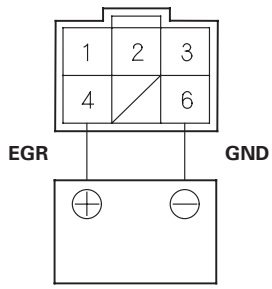
NO—Repair open in the wire between the EGR valve and PCM (C6). ■

21. Turn the ignition switch OFF.

22. Disconnect the EGR valve 6P connector.

23. Connect the battery positive terminal to EGR valve 6P connector terminal No. 4 with a jumper wire.

EGR VALVE 6P CONNECTOR



Terminal side of male terminals

24. Start the engine and let it idle, then connect the battery negative terminal to the EGR valve 6P connector terminal No. 6 with a jumper wire.

Does the engine stall or run rough?

YES—Go to step 25.

NO—Replace the EGR valve. ■

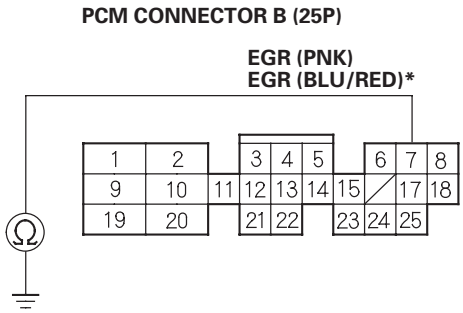
(cont'd)

DTC Troubleshooting (cont'd)

25. Turn the ignition switch OFF.

26. Disconnect PCM connector B (25P).

27. Check for continuity between PCM connector terminal B7 and body ground.



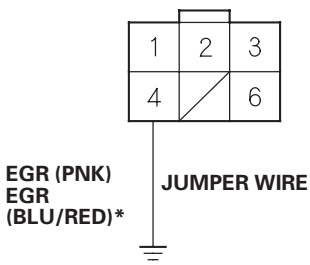
Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the EGR valve and the PCM (B7). ■

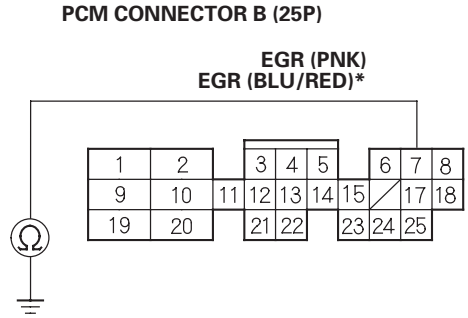
NO—Go to step 28.

28. Connect EGR valve 6P connector terminal No. 4 to body ground with a jumper wire.



Wire side of female terminals

29. Check for continuity between PCM connector terminal B7 and body ground.



Wire side of female terminals

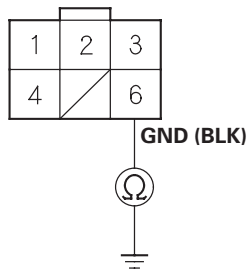
Is there continuity?

YES—Go to step 30.

NO—Repair open in the wire between the EGR valve and the PCM (B7). ■

30. Disconnect the jumper wire from the EGR valve 6P connector.

31. Check for continuity between EGR valve 6P connector terminal No. 6 and body ground.



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Repair open in the wire between the EGR valve and G101. ■

DTC P1491—'01 Model: EGR Valve Insufficient Lift

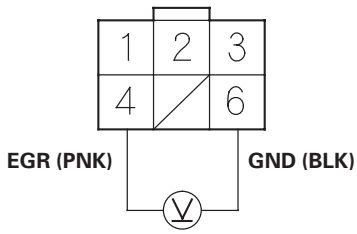
1. Reset the PCM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on.
3. Test-drive the vehicle under load for about 10 minutes. Try to keep the engine speed in the 1,700—2,500 rpm range.
4. Check for a Temporary DTC with the scan tool or the HDS.

   Is Temporary DTC P1491 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the EGR valve and at the PCM. ■
5. Turn the ignition switch OFF.
6. Disconnect the EGR valve 6P connector.
7. Start the engine, and let it idle.
8. Measure voltage between EGR valve 6P connector terminals No. 4 and No. 6.

EGR VALVE 6P CONNECTOR



Wire side of female terminals

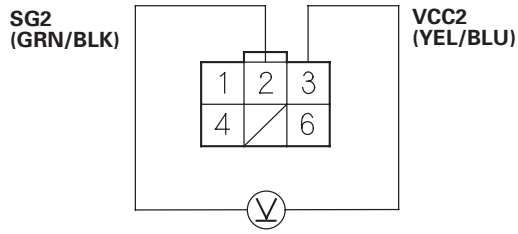
Is there battery voltage?

YES—Substitute a known-good PCM, and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Go to step 9.

9. Turn the ignition switch OFF.
10. Turn the ignition switch ON (II).
11. Measure voltage between EGR valve 6P connector terminals No. 2 and No. 3.

EGR VALVE 6P CONNECTOR



Wire side of female terminals

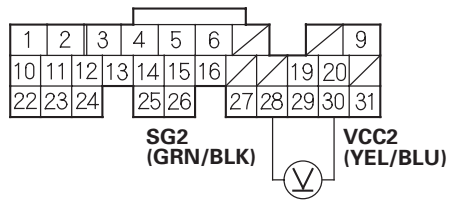
Is there about 5 V?

YES—Go to step 13.

NO—Go to step 12.

12. Measure voltage between PCM connector terminals A28 and A30.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the EGR valve and the PCM (A28, A30). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

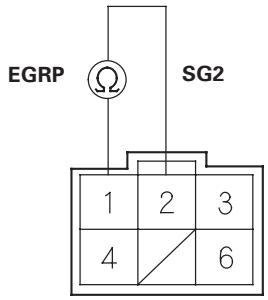
(cont'd)

DTC Troubleshooting (cont'd)

13. Turn the ignition switch OFF.

14. At the sensor side, measure resistance between EGR valve 6P connector terminals No. 1 and No. 2.

EGR VALVE 6P CONNECTOR



Terminal side of male terminals

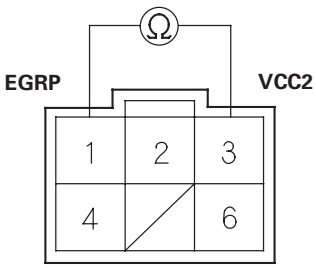
Is there continuity or resistance of 100 kΩ or more?

YES—Replace the EGR valve. ■

NO—Go to step 15.

15. Measure resistance between EGR valve 6P connector terminals No. 1 and No. 3.

EGR VALVE 6P CONNECTOR



Terminal side of male terminals

Is there 100 kΩ or more?

YES—Replace the EGR valve. ■

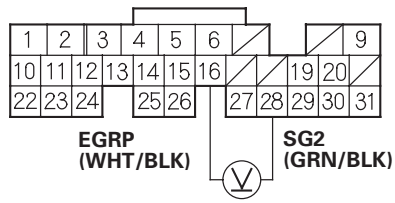
NO—Go to step 16.

16. Reconnect the EGR valve connector.

17. Turn the ignition switch ON (II).

18. Measure voltage between PCM connector terminals A16 and A28.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there about 1.2 V?

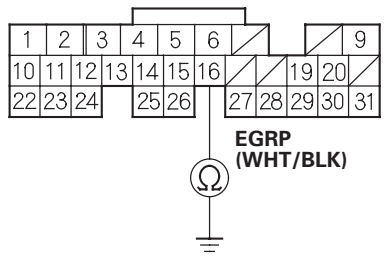
YES—Go to step 21.

NO—Go to step 19.

19. Turn the ignition switch OFF.

20. Check for continuity between PCM connector terminal A16 and body ground.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the EGR valve and PCM (A16). ■

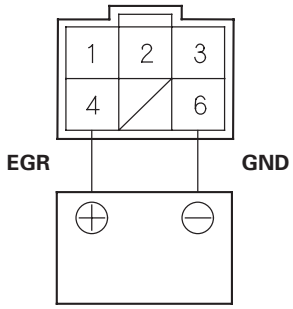
NO—Repair open in the wire between the EGR valve and PCM (A16). ■

21. Turn the ignition switch OFF.

22. Disconnect the EGR valve 6P connector.

23. Connect the battery positive terminal to EGR valve 6P connector terminal No. 4 with a jumper wire.

EGR VALVE 6P CONNECTOR



Terminal side of male terminals

24. Start the engine, and let it idle. Then connect the battery negative terminal to EGR valve 6P connector terminal No. 6 with a jumper wire.

Does the engine stall or run rough?

YES—Go to step 25.

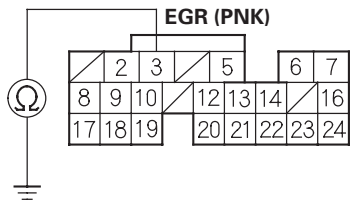
NO—Replace the EGR valve. ■

25. Turn the ignition switch OFF.

26. Disconnect PCM connector B (24P).

27. Check for continuity between PCM connector terminal B3 and body ground.

PCM CONNECTOR B (24P)



Wire side of female terminals

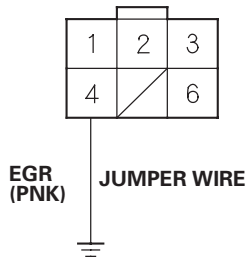
Is there continuity?

YES—Repair short in the wire between the EGR valve and the PCM (B3). ■

NO—Go to step 28.

28. Connect EGR valve 6P connector terminal No. 4 to body ground with a jumper wire.

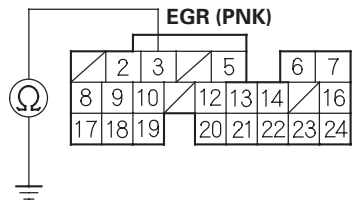
EGR VALVE 6P CONNECTOR



Wire side of female terminals

29. Check for continuity between PCM connector terminal B3 and body ground.

PCM CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

YES—Go to step 30.

NO—Repair open in the wire between the EGR valve and the PCM (B3). ■

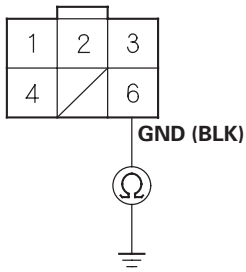
(cont'd)

DTC Troubleshooting (cont'd)

30. Disconnect the jumper wire from the EGR valve 6P connector.

31. Check for continuity between EGR valve 6P connector terminal No. 6 and body ground.

EGR VALVE 6P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Repair open in the wire between the EGR valve and G101. ■

DTC P1498—'99-00, '02-04 Models: EGR Valve Position Sensor Circuit High Voltage

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Reset the PCM (see page 11-4).
2. Start the engine.

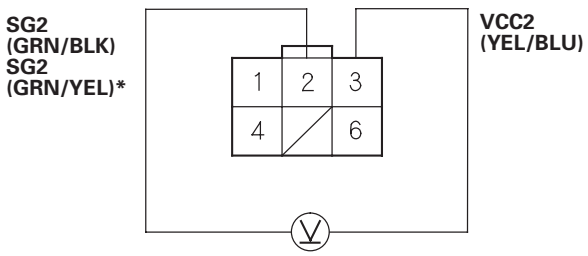
   Is DTC P1498 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the EGR valve and the PCM. ■

3. Turn the ignition switch OFF.
4. Disconnect the EGR valve 6P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between EGR valve 6P connector terminals No. 2 and No. 3.

EGR VALVE 6P CONNECTOR



Wire side of female terminals

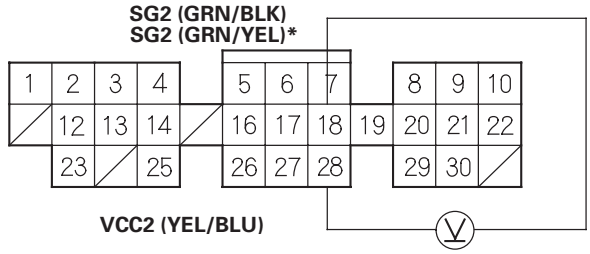
Is there about 5 V?

YES—Replace the EGR valve. ■

NO—Go to step 7.

7. Measure voltage between the PCM connector terminals C18 and C28.

PCM CONNECTORS C (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the EGR valve and the PCM (C18). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

DTC Troubleshooting (cont'd)

DTC P1498—'01 Model: EGR Valve Position Sensor Circuit High Voltage

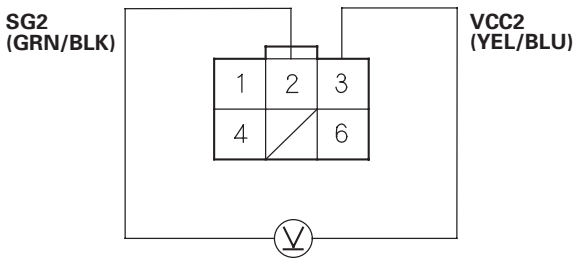
1. Reset the PCM (see page 11-4).
2. Start the engine.

   Is DTC P1498 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the EGR valve and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the EGR valve 6P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between EGR valve 6P connector terminals No. 2 and No. 3.

EGR VALVE 6P CONNECTOR



Wire side of female terminals

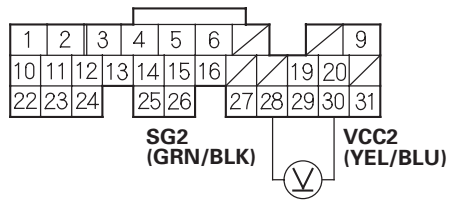
Is there about 5 V?

YES—Replace the EGR valve. ■

NO—Go to step 7.

7. Measure voltage between PCM connector terminals A28 and A30.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the EGR valve and the PCM (A28). ■

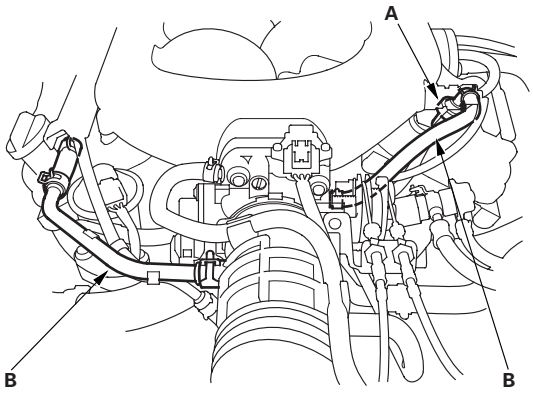
NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

PCV Valve Inspection and Test

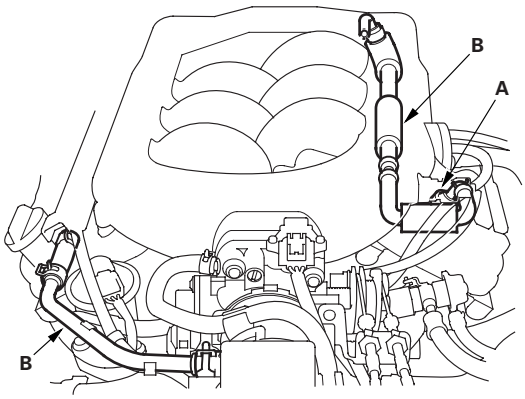
1. Remove the intake manifold cover and the rear ignition coil cover (see page 9-4).

2. Check the PCV valve (A), hoses (B), and connections for leaks or restrictions.

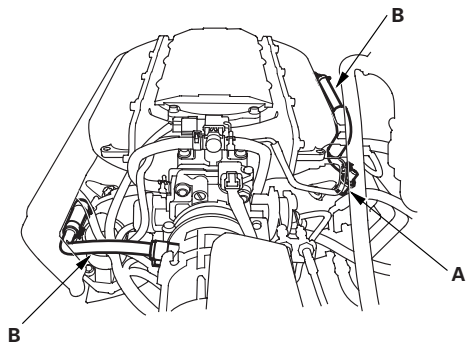
'99-00 models



'01 model

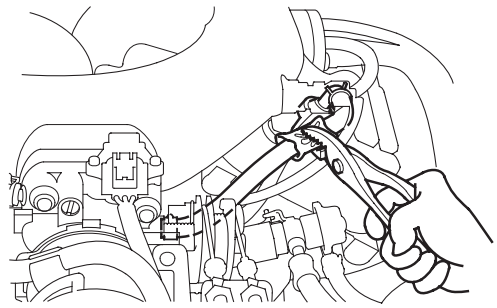


'02-04 models

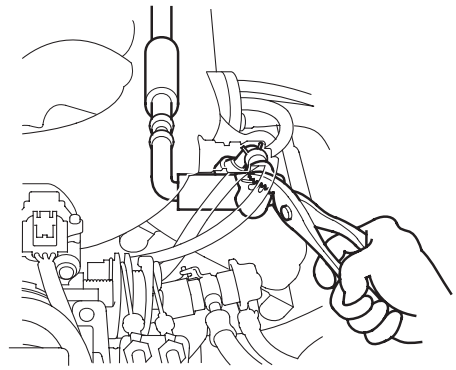


3. At idle, make sure there is a clicking sound from the PCV valve when the hose between the PCV valve and intake manifold is lightly pinched (A) with your fingers or pliers.
If there is no clicking sound, check the PCV valve grommet for cracks or damage. If the grommet is OK, replace the PCV valve and recheck.

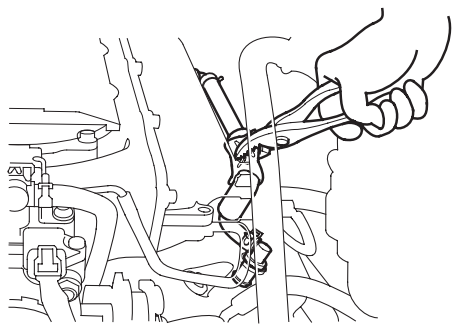
'99-00 models



'01 model

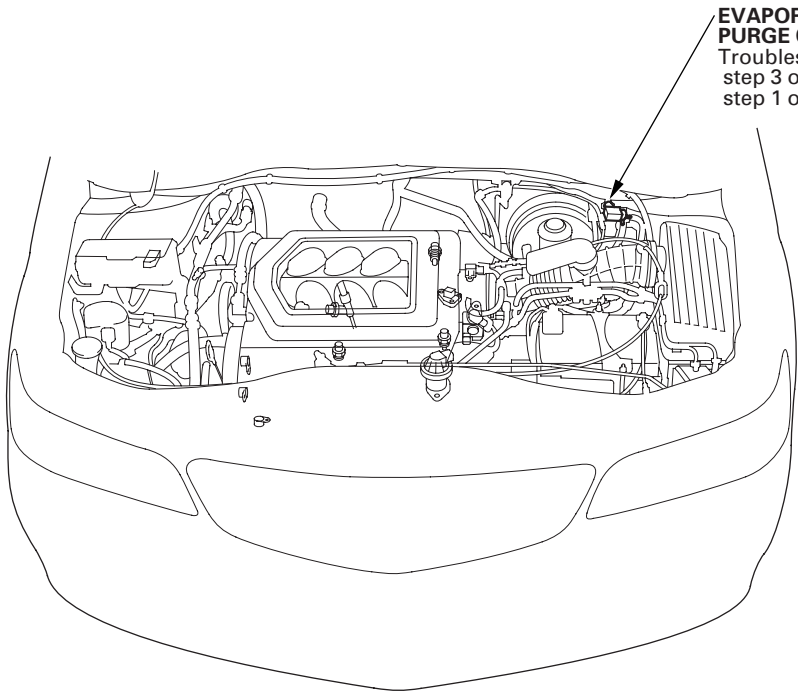


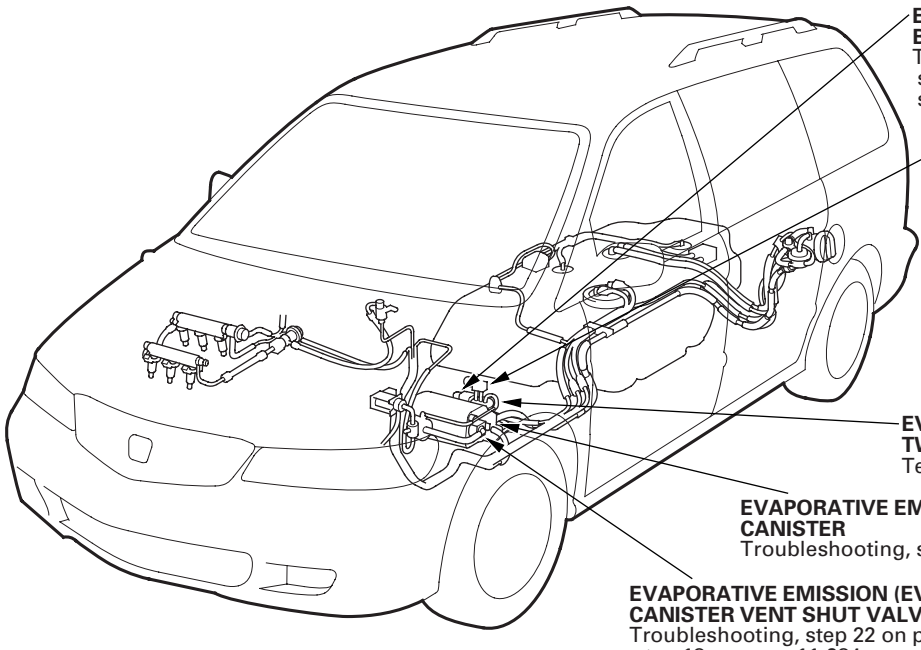
'02-04 models



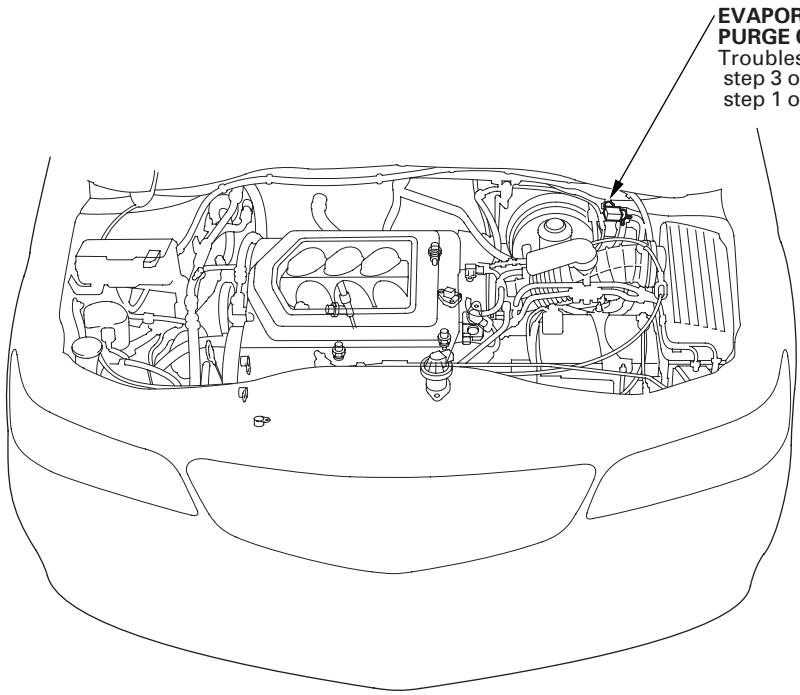
Component Location Index

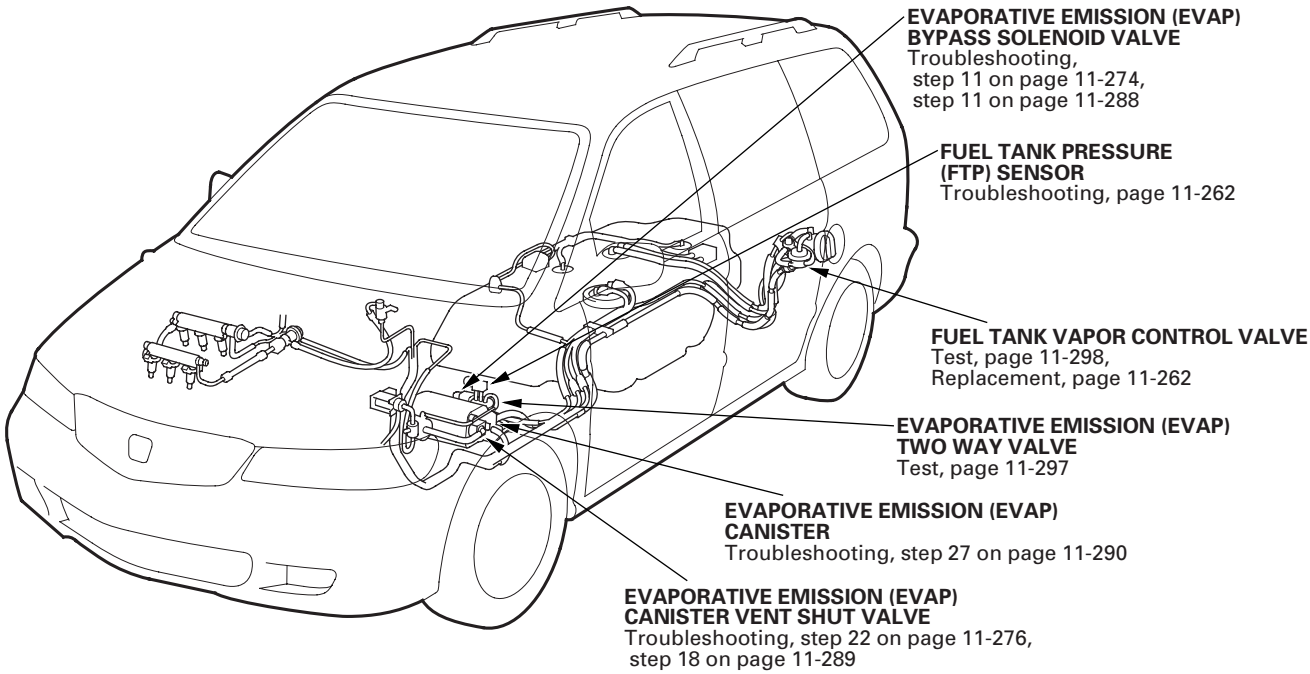
'99-00 models





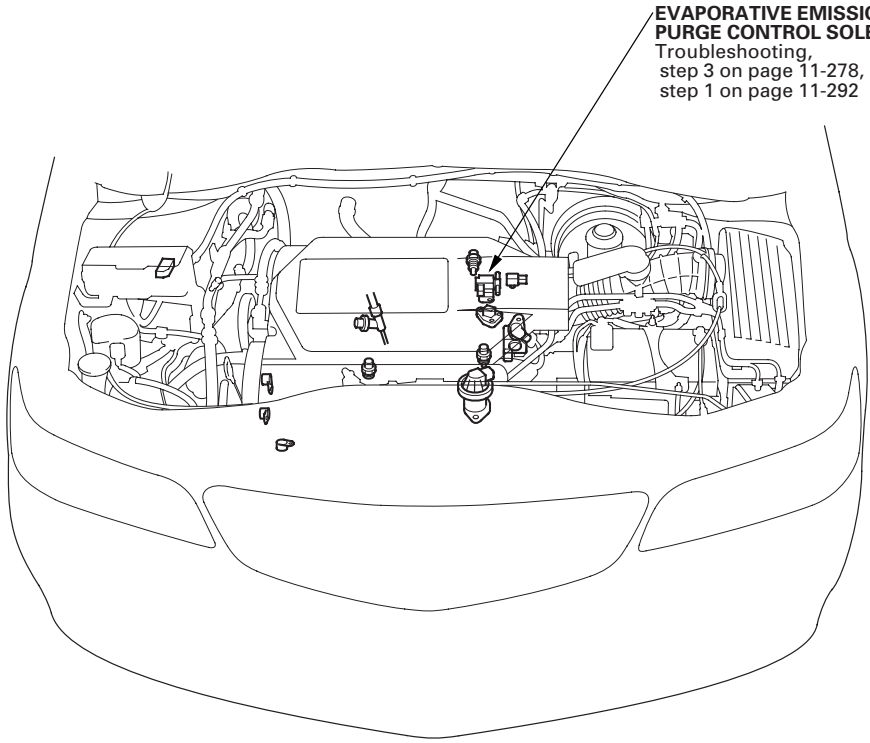
'01 model

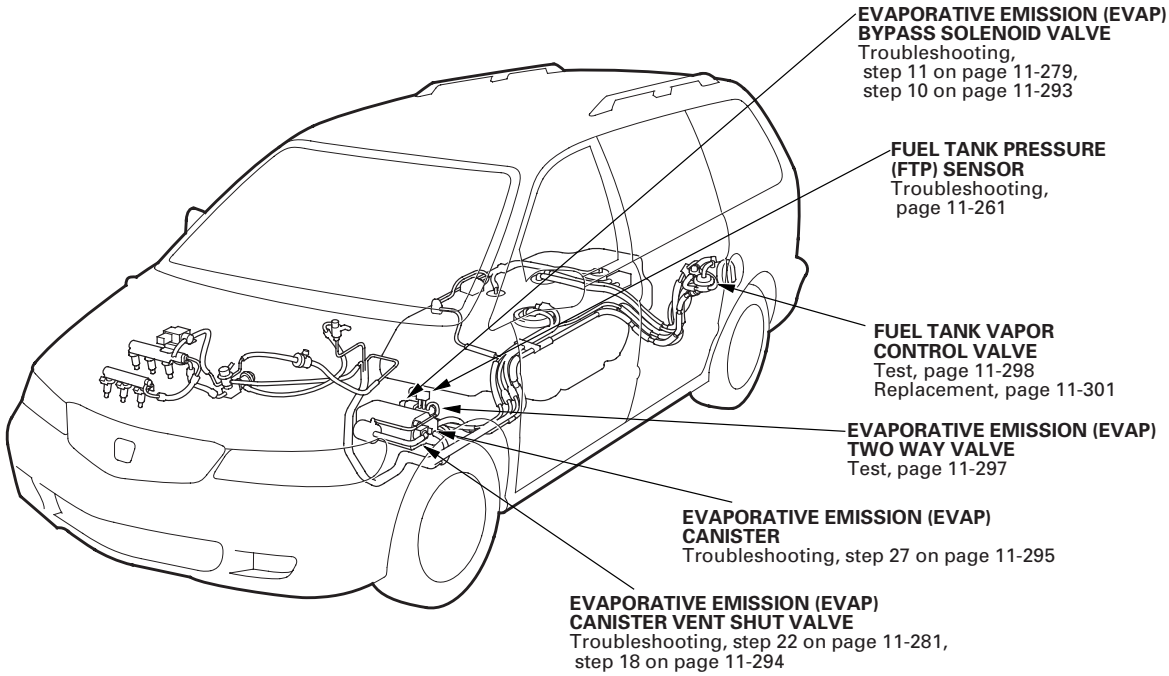

EVAPORATIVE EMISSION (EVAP) PURGE CONTROL SOLENOID VALVE
Troubleshooting,
step 3 on page 11-274,
step 1 on page 11-287


EVAPORATIVE EMISSION (EVAP) BYPASS SOLENOID VALVE
Troubleshooting,
step 11 on page 11-274,
step 11 on page 11-288
FUEL TANK PRESSURE (FTP) SENSOR
Troubleshooting, page 11-262
FUEL TANK VAPOR CONTROL VALVE
Test, page 11-298,
Replacement, page 11-262
EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
Test, page 11-297
EVAPORATIVE EMISSION (EVAP) CANISTER
Troubleshooting, step 27 on page 11-290
EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
Troubleshooting, step 22 on page 11-276,
step 18 on page 11-289

Component Location Index (cont'd)

'02-04 models



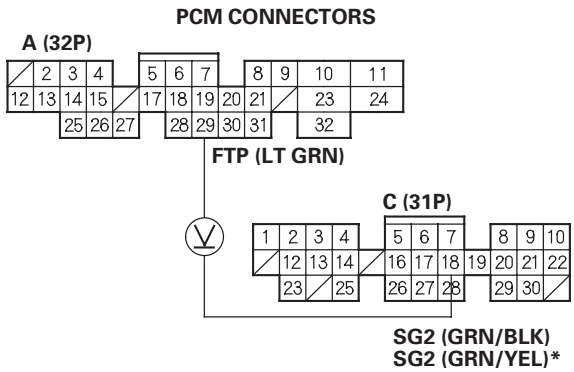


DTC P0451—'99-00, '02-04 Models: FTP Sensor Range/Performance Problem

Special Tools Required
Vacuum Pump/Gauge, 0—30 in.Hg A973X-041-XXXXX

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Remove the fuel fill cap.
2. Turn the ignition switch ON (II).
3. Monitor FTP sensor voltage with the HDS, or measure voltage between PCM connector terminals A29 and C18.



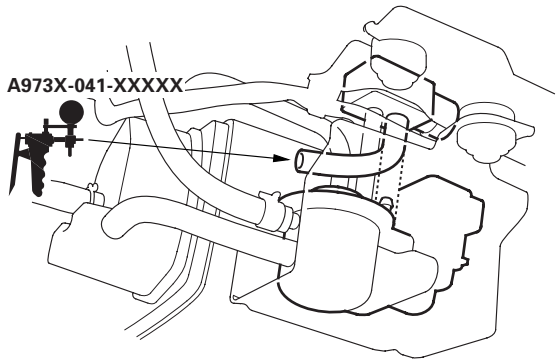
Wire side of female terminals

Is there about 2.5 V?

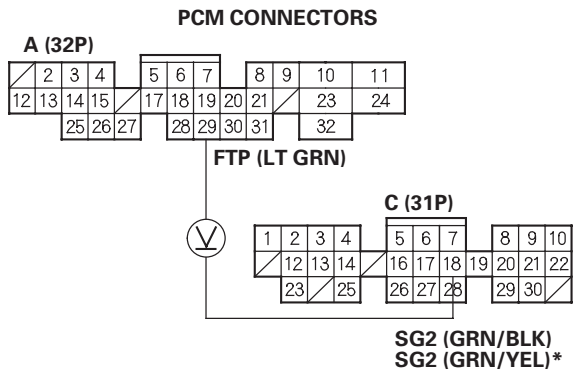
YES—Go to step 4.

NO—Replace the FTP sensor. ■

4. Turn the ignition switch OFF.
5. Disconnect the hose between the EVAP two way valve and the FTP sensor at the EVAP two way valve end.
6. Connect a vacuum pump to the open end of the hose.



7. Turn the ignition switch ON (II).
8. Monitor FTP sensor voltage with the HDS, or measure voltage between PCM connector terminals A29 and C18, and slowly squeeze the vacuum pump one stroke at a time.
9. The voltage should drop smoothly from about 2.5 V down to about 1.5 V. Stop applying vacuum when the voltage drops to about 1.5 V or damage to the FTP sensor may occur.



Wire side of female terminals

Does the voltage drop to about 1.5 V and hold?

YES—Check for misrouted, leaking, or broken FTP sensor vacuum lines. If the vacuum lines are OK, substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Replace the FTP sensor. ■

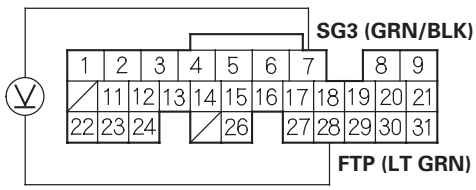
DTC Troubleshooting (cont'd)

DTC P0451—**'01 Model:** FTP Sensor Range/ Performance Problem

Special Tools Required
Vacuum pump/gauge, 0—30 in.Hg A973X-041-XXXXX

1. Remove the fuel fill cap.
2. Turn the ignition switch ON (II).
3. Monitor the FTP sensor voltage with the HDS, or measure voltage between PCM connector terminals E7 and E28.

PCM CONNECTOR E (31P)



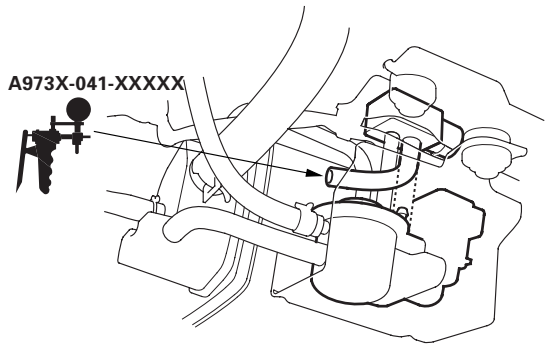
Wire side of female terminals

Is there about 2.5 V?

YES—Go to step 4.

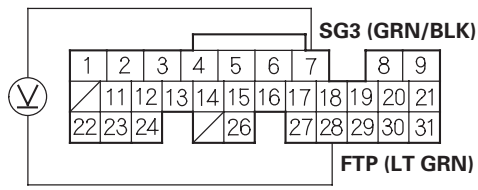
NO—Replace the FTP sensor. ■

4. Turn the ignition switch OFF.
5. Disconnect the hose between the EVAP two way valve and the FTP sensor at the EVAP two way valve end.
6. Connect a vacuum pump to the open end of the hose.



7. Turn the ignition switch ON (II).
8. Monitor the FTP sensor voltage with the HDS, or measure voltage between PCM connector terminals E7 and E28, and slowly squeeze the vacuum pump one stroke at a time.
9. The voltage should drop smoothly drop from about 2.5 V down to about 1.5 V. Stop applying vacuum when the voltage drops to about 1.5 V or damage to the FTP sensor may occur.

PCM CONNECTOR E (31P)



Wire side of female terminals

Does the voltage drop to about 1.5 V and hold?

YES—Check for misrouted, leaking, or broken FTP sensor vacuum lines. If the vacuum lines are OK, substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Replace the FTP sensor. ■

DTC P0452—'99-00, '02-04 Models: FTP Sensor Circuit Low Voltage

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Check the vacuum lines at the FTP sensor for misrouting, leakage, breakage, and clogging.

   Are the vacuum lines OK?

   YES—Go to step 2.

   NO—Repair or replace vacuum lines as necessary. ■

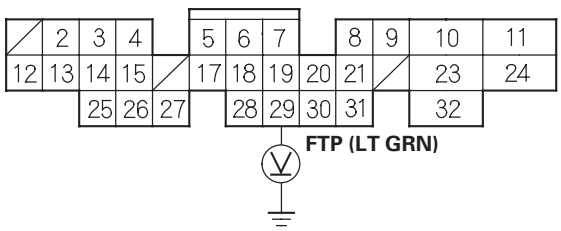
2. Reset the PCM (see page 11-4).

3. Remove the fuel fill cap.

4. Turn the ignition switch ON (II).

5. Monitor FTP sensor voltage with the HDS, or measure voltage between body ground and PCM connector terminal A29.

PCM CONNECTOR A (32P)



Wire side of female terminals

Is there about 2.5 V?

YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the PCM. ■

NO—Go to step 6.

6. Turn the ignition switch OFF.

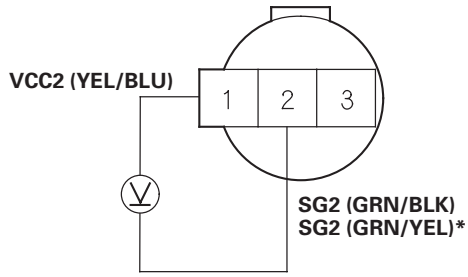
7. Reinstall the fuel fill cap.

8. Disconnect the FTP sensor 3P connector.

9. Turn the ignition switch ON (II).

10. Measure voltage between FTP sensor 3P connector terminals No. 1 and No. 2.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there about 5 V?

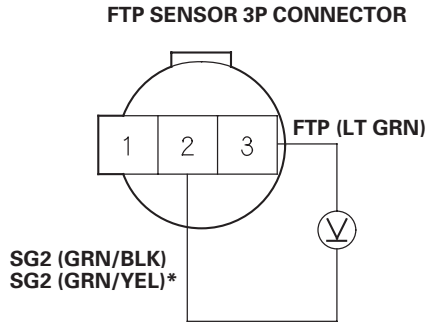
YES—Go to step 11.

NO—Repair open in the wire between the FTP sensor and the PCM (C28). ■

(cont'd)

DTC Troubleshooting (cont'd)

11. Measure voltage between FTP sensor 3P connector terminals No. 2 and No. 3.



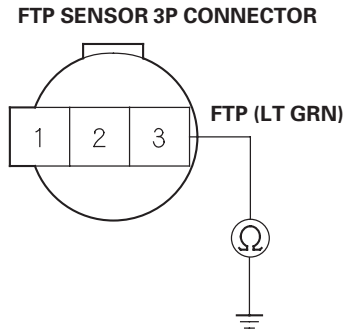
Wire side of female terminals

Is there about 5 V?

YES—Replace the FTP sensor. ■

NO—Go to step 12.

12. Turn the ignition switch OFF.
13. Disconnect PCM connector A (32P).
14. Check for continuity between FTP sensor 3P connector terminal No. 3 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the FTP sensor and the PCM (A29). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If normal voltage is indicated, replace the original PCM. ■

DTC P0452—'01 Model: FTP Sensor Circuit Low Voltage

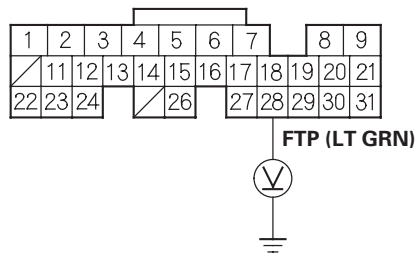
1. Check the vacuum lines at the FTP sensor for misrouting, leakage, breakage, and clogging.

   Are the vacuum lines OK?

   YES—Go to step 2.

   NO—Repair or replace vacuum lines as necessary. ■

2. Reset the PCM (see page 11-4).
3. Remove the fuel fill cap.
4. Turn the ignition switch ON (II).
5. Monitor FTP sensor voltage with the HDS, or measure voltage between body ground and PCM connector terminal E28.



Wire side of female terminals

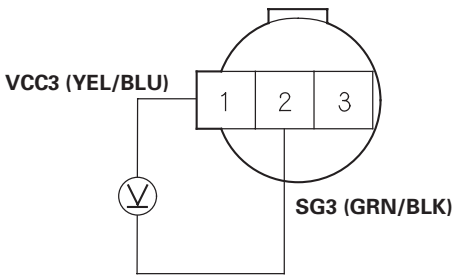
Is there about 2.5 V?

YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the PCM. ■

NO—Go to step 6.

6. Turn the ignition switch OFF.
7. Reinstall the fuel fill cap.
8. Disconnect the FTP sensor 3P connector.
9. Turn the ignition switch ON (II).
10. Measure voltage between FTP sensor 3P connector terminals No. 1 and No. 2.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

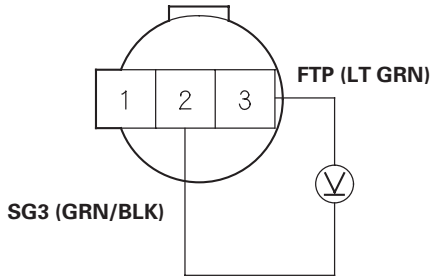
Is there about 5 V?

YES—Go to step 11.

NO—Repair open in the wire between the FTP sensor and the PCM (E6). ■

11. Measure voltage between FTP sensor 3P connector terminals No. 2 and No. 3.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

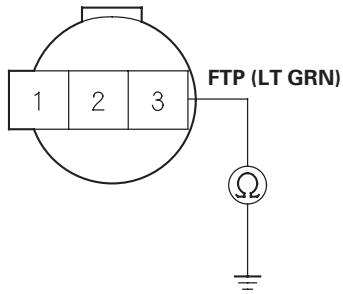
Is there about 5 V?

YES—Replace the FTP sensor. ■

NO—Go to step 12.

12. Turn the ignition switch OFF.
13. Disconnect PCM connector E (31P).
14. Check for continuity between FTP sensor 3P connector terminal No. 3 and body ground.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the FTP sensor and the PCM (E28). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If normal voltage is indicated, replace the original PCM. ■

DTC Troubleshooting (cont'd)

DTC P0453—**'99-00, '02-04 Models:** FTP Sensor Circuit High Voltage

NOTE: Information marked with an asterisk (*) applies to '02-04 models.

1. Check the vacuum lines of the FTP sensor for misrouting, leakage, breakage, and clogging.

   Are the vacuum lines OK?

   YES—Go to step 2.

   NO—Repair or replace vacuum lines as necessary. ■

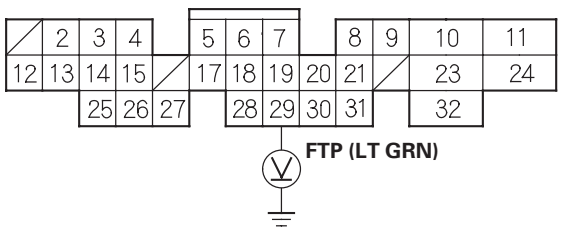
2. Reset the PCM (see page 11-4).

3. Remove the fuel fill cap.

4. Turn the ignition switch ON (II).

5. Monitor FTP sensor voltage with the HDS, or measure voltage between body ground and PCM connector terminal A29.

PCM CONNECTOR A (32P)



Wire side of female terminals

Is there about 2.5 V?

YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the PCM. ■

NO—Go to step 6.

6. Turn the ignition switch OFF.

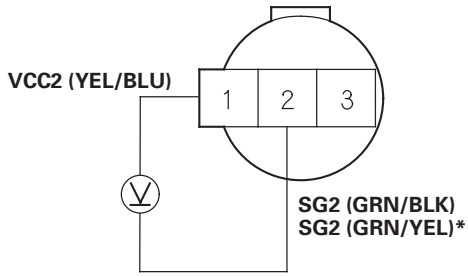
7. Reinstall the fuel fill cap.

8. Disconnect the FTP sensor 3P connector.

9. Turn the ignition switch ON (II).

10. Measure voltage between FTP sensor 3P connector terminals No. 1 and No. 2.

FTP SENSOR 3P CONNECTOR



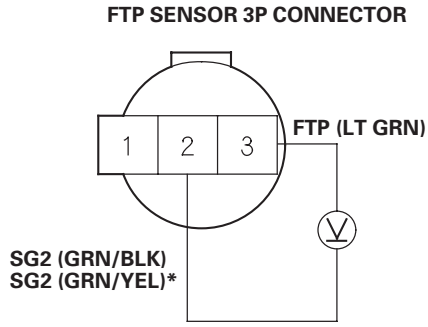
Wire side of female terminals

Is there about 5 V?

YES—Go to step 11.

NO—Repair open in the wire between the FTP sensor and the PCM (C18). ■

11. Measure voltage between FTP sensor 3P connector terminals No. 2 and No. 3.



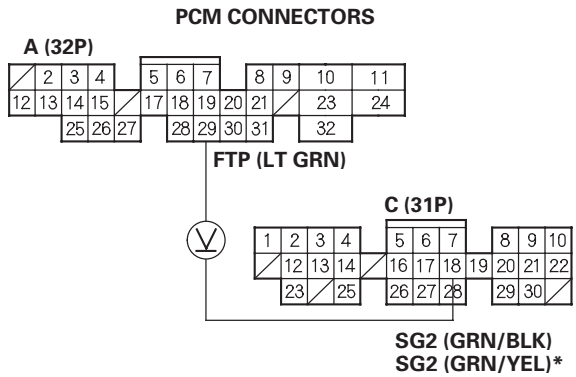
Wire side of female terminals

Is there about 5 V?

YES—Replace the FTP sensor. ■

NO—Go to step 12.

12. Measure voltage between PCM connector terminals A29 and C18.



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the FTP sensor and the PCM (A29). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If normal voltage is indicated, replace the original PCM. ■

DTC P0453—'01 Model: FTP Sensor Circuit High Voltage

1. Check the vacuum lines of the FTP sensor for misrouting, leakage, breakage, and clogging.

   Are the vacuum lines OK?

   YES—Go to step 2.

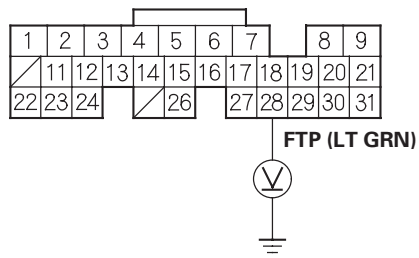
   NO—Repair or replace vacuum lines as necessary. ■

2. Reset the PCM (see page 11-4).

3. Remove the fuel fill cap.

4. Turn the ignition switch ON (II).

5. Monitor FTP sensor voltage with the HDS, or measure voltage between body ground and PCM connector terminal E28.



Wire side of female terminals

Is there about 2.5 V?

YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the PCM. ■

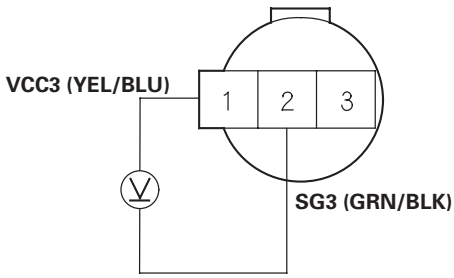
NO—Go to step 6.

(cont'd)

DTC Troubleshooting (cont'd)

6. Turn the ignition switch OFF.
7. Reinstall the fuel fill cap.
8. Disconnect the FTP sensor 3P connector.
9. Turn the ignition switch ON (II).
10. Measure voltage between FTP sensor 3P connector terminals No. 1 and No. 2.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

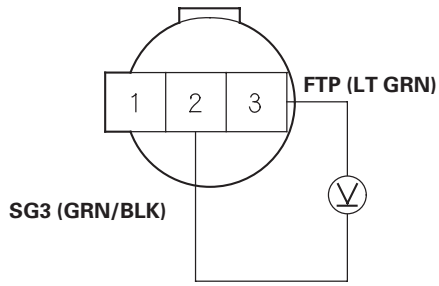
Is there about 5 V?

YES—Go to step 11.

NO—Repair open in the wire between the FTP sensor and the PCM (E7).■

11. Measure voltage between FTP sensor 3P connector terminals No. 2 and No. 3.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

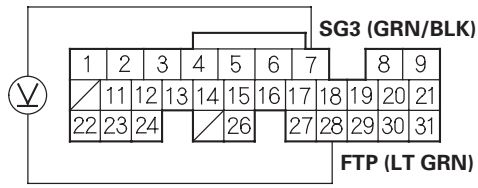
Is there about 5 V?

YES—Replace the FTP sensor.■

NO—Go to step 12.

12. Measure voltage between PCM connector terminals E7 and E28.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the FTP sensor and the PCM (E28).■

NO—Substitute a known-good PCM and recheck (see page 11-5). If normal voltage is indicated, replace the original PCM.■

DTC P1456—'99-00 Models: EVAP Control System Leakage (fuel tank system)

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank failure.

Special Tools Required

Vacuum Pump/Gauge, 0—30 in.Hg A973X-041-XXXXX

NOTE: If DTC P0461 is stored at the same time as DTC P1456, troubleshoot P0461 first, then recheck for DTC P1456.

This is a two trip code; once cleared, it cannot be reproduced in one trip. Also, certain specific driving and ambient conditions must occur before the PCM will complete the system checks. Additional test drives may still not meet the specific conditions needed to reproduce the code.

Follow these troubleshooting procedures carefully to ensure the integrity of the system and to confirm the cause of the problem or code.

NOTE: Fresh fuel has a higher volatility that will create greater pressure/vacuum. The optimum condition for testing is fresh fuel and less than a full tank of gas. If possible, to assist in leak detection, add 1 gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

Fuel Fill Cap Check

1. Check the fuel fill cap. It must say ''If not tightened 3 clicks engine light may come on.''

   Is the correct fuel fill cap installed and properly tightened?

   YES—Go to step 2.

   NO—Replace or tighten the cap. ■

2. Check the fuel fill cap seal.

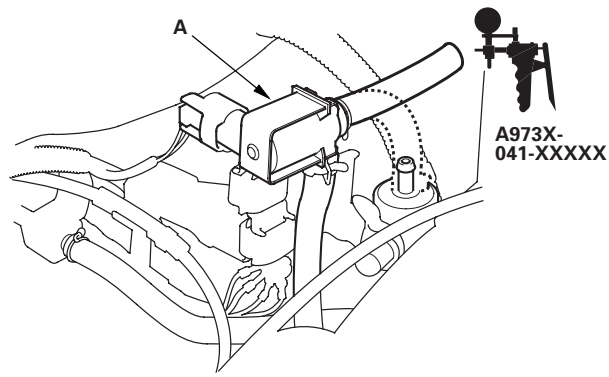
   Is the fuel fill cap seal missing or damaged?

   YES—Replace the fuel fill cap (gray or black colored cap). ■

   NO—The fuel fill cap is OK. Go to step 3.

EVAP Purge Control Solenoid Valve Test

3. Disconnect the vacuum hose from the EVAP purge control solenoid valve (A), and connect a vacuum pump to the hose.



4. Turn the ignition switch ON (II).

5. Apply vacuum to the hose.

   Does the valve hold vacuum?

   YES—The EVAP purge control solenoid valve is OK. Go to step 11.

   NO—Go to step 6.

6. Turn the ignition switch OFF.

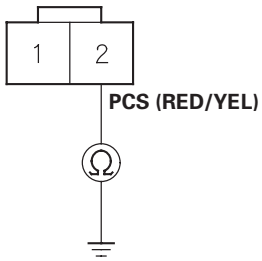
7. Disconnect the EVAP purge control solenoid valve 2P connector.

(cont'd)

DTC Troubleshooting (cont'd)

8. Check for continuity between EVAP purge control solenoid valve 2P connector terminal No. 2 and body ground.

EVAP PURGE CONTROL SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

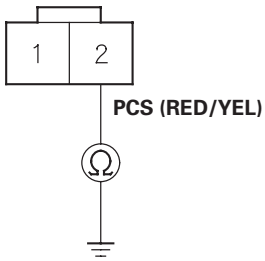
YES — Go to step 9.

NO — Replace the EVAP purge control solenoid valve. ■

9. Disconnect PCM connector A (32P).

10. Check for continuity between EVAP purge control solenoid valve 2P connector terminal No. 2 and body ground.

EVAP PURGE CONTROL SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

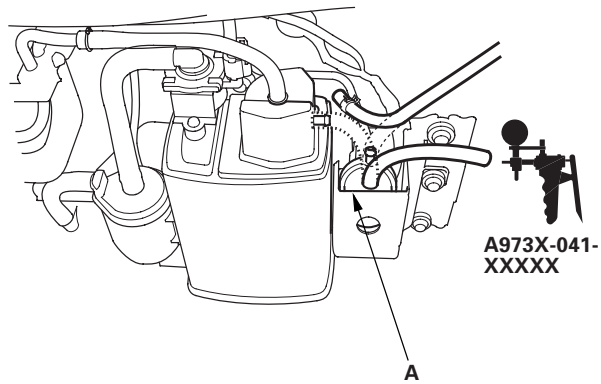
Is there continuity?

YES — Repair short in the wire between the EVAP purge control solenoid valve and the PCM (A6). ■

NO — Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

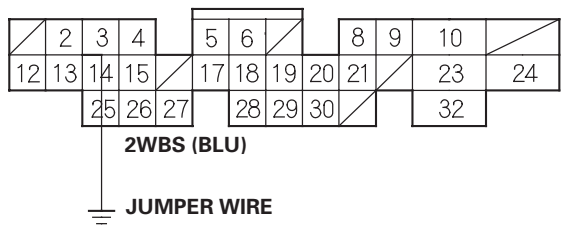
EVAP Bypass Solenoid Valve Test

11. Disconnect both vacuum hoses from the EVAP two way valve (A), and connect a vacuum pump to the canister port on the two way valve.



12. Turn the bypass solenoid valve on with the HDS, or connect PCM connector terminal A3 to body ground with a jumper wire.

PCM CONNECTOR A (32P)



Wire side of female terminals

13. Turn the ignition switch ON (II).

14. Apply vacuum to the hose.

Does the valve hold vacuum?

YES — Go to step 15.

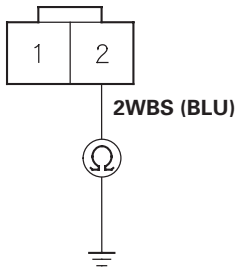
NO — Go to step 20.

15. Turn the ignition switch OFF.

16. Disconnect the EVAP bypass solenoid valve 2P connector.

17. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

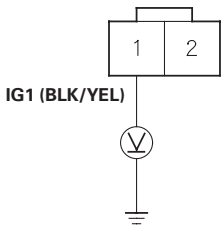
YES—Go to step 18.

NO—Repair open in wire between the EVAP bypass solenoid valve and the PCM (A3). ■

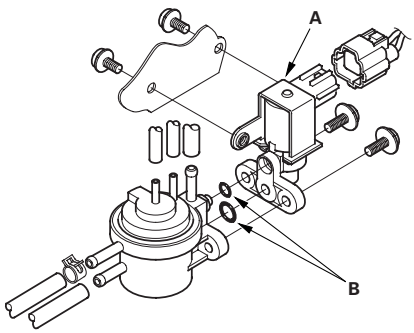
18. Turn the ignition switch ON (II).

19. Measure voltage between EVAP bypass solenoid valve 2P connector terminal No. 1 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

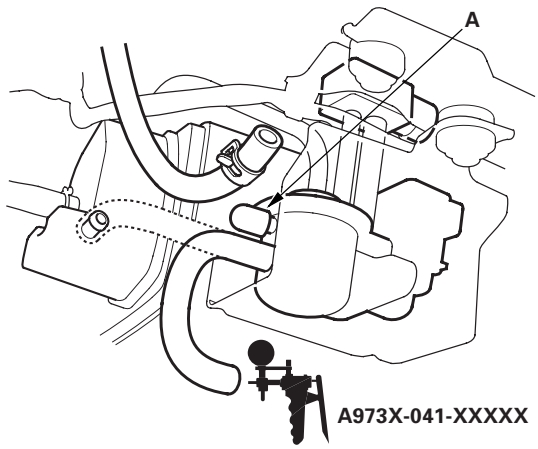


Is there battery voltage?

YES—Replace the EVAP bypass solenoid valve (A) and the O-rings (B). ■

NO—Repair open in the wire between the EVAP bypass solenoid valve and No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse. ■

20. Plug the upper port (A) of the EVAP two way valve.



21. While monitoring the FTP sensor voltage with the HDS, or while measuring the voltage between PCM connector terminals A29 and C18, slowly pump the vacuum pump until the voltage drops to about 1.5 V.

Does the voltage drop to 1.5 V and hold for at least 20 seconds?

YES—The EVAP bypass solenoid valve/EVAP two way valve is OK. Go to step 22.

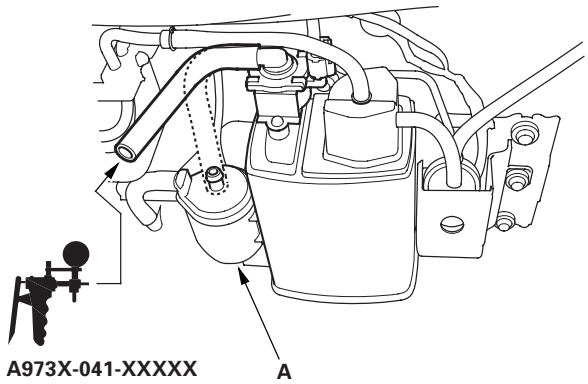
NO—Repair leakage from the EVAP bypass solenoid valve, EVAP two way valve, FTP sensor, or O-rings. ■

(cont'd)

DTC Troubleshooting (cont'd)

EVAP Canister Vent Shut Valve Test

22. Disconnect the vacuum hose from the EVAP canister filter (A), and connect a vacuum pump to the hose.



23. Turn the ignition switch ON (II).

24. Apply vacuum to the hose with 5 strokes of the pump.

    Does the valve hold vacuum?

    YES – Go to step 25.

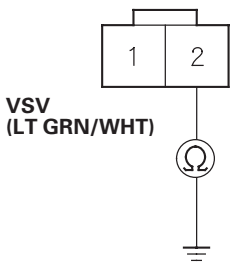
    NO – The EVAP canister vent shut valve is OK. Go to step 30.

25. Turn the ignition switch OFF.

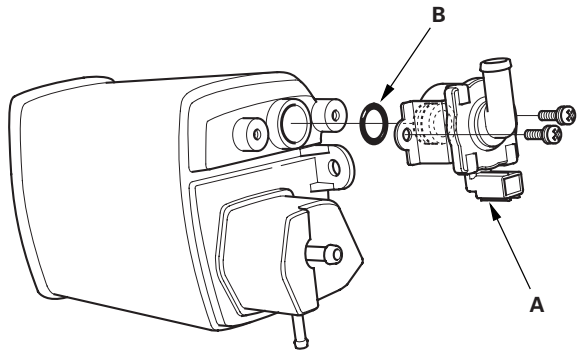
26. Disconnect the EVAP canister vent valve 2P connector.

27. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals



Is there continuity?

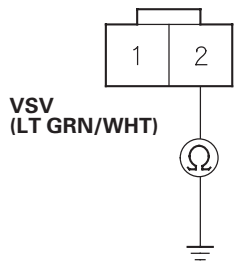
YES – Go to step 28.

NO – Replace the EVAP canister vent shut valve (A) and O-ring (B). ■

28. Disconnect PCM connector A (32P).

29. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES – Repair short in the wire between the EVAP canister vent shut valve and the PCM (A4). ■

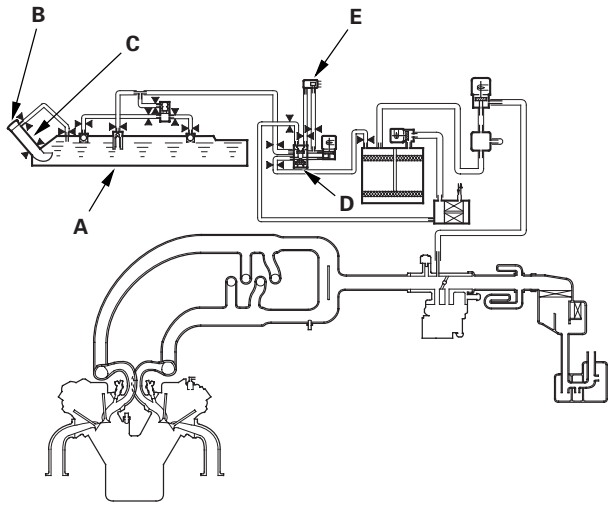
NO – Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

Vacuum Hoses and Connections Test

30. Tighten the fuel cap 3 ''clicks'', then monitor the fuel tank pressure readings with the HDS.

31. Start the engine. Let the engine idle for 5 minutes.

32. Check the fuel tank pressure sensor readings.



Is the reading above 0.5 kPa (0.16 in.Hg, 4 mmHg) pressure or below −0.5 kPa (0.16 in.Hg, 4 mmHg) vacuum?

YES—Substitute a known-good PCM and retest (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Check these parts for leaks:

- Fuel tank (A)
- Fuel fill cap (B)
- Fuel fill pipe (C)
- EVAP two way valve (D)
- FTP sensor (E)

– Repair or replace any leaking parts. ■

DTC P1456—'01 Model: EVAP Control System Leakage (fuel tank system)

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank failure.

Special Tools Required

Vacuum pump/gauge, 0—30 in.Hg A973X-041-XXXXX

NOTE: If DTC P0461 is stored at the same time as DTC P1456, troubleshoot DTC P0461 first, then recheck for DTC P1456.

NOTE: If DTC P0461 is stored at the same time as DTC P1456, troubleshoot DTC P0461 first, then recheck for DTC P1456.

This is a two trip code; once cleared, it cannot be reproduced in one trip. Also, certain specific driving and ambient conditions must occur before the PCM will complete the system checks. Additional test drives may still not meet the specific conditions needed to reproduce the code.

Follow these troubleshooting procedures carefully to ensure the integrity of the system and to confirm the cause of the problem or code.

NOTE: Fresh fuel has a higher volatility that will create greater pressure/vacuum. The optimum condition for testing is fresh fuel and less than a full tank of gas. If possible, to assist in leak detection, add 1 gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

Fuel Fill Cap Check

1. Check the fuel fill cap. It must say ''If not tightened 3 check engine light may come on.''

   Is the correct fuel fill cap installed and properly tightened?

   YES—Go to step 2.

   NO—Replace or tighten the cap. ■

(cont'd)

DTC Troubleshooting (cont'd)

2. Check the fuel fill cap seal.

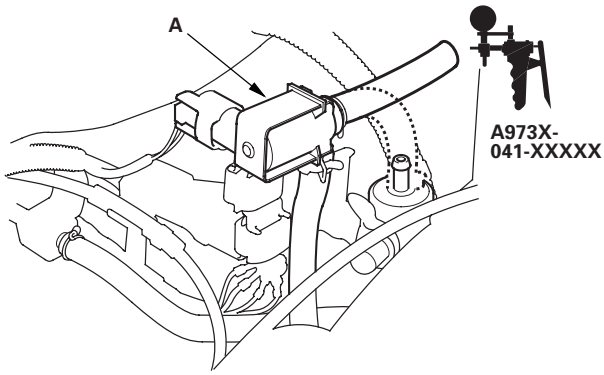
   Is the fuel fill cap seal missing or damaged?

   YES—Replace the fuel fill cap (gray or black colored cap). ■

   NO—The fuel fill cap is OK. Go to step 3.

EVAP Canister Purge Valve Test

3. Disconnect the vacuum hose from the EVAP canister purge valve (A), and connect a vacuum pump to the hose.



4. Turn the ignition switch ON (II).

5. Apply vacuum to the hose.

   Does the valve hold vacuum?

   YES—The EVAP canister purge valve is OK. Go to step 11.

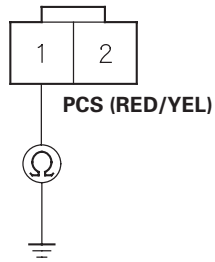
   NO—Go to step 6.

6. Turn the ignition switch OFF.

7. Disconnect the EVAP canister purge valve 2P connector.

8. Check for continuity between EVAP canister purge valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER PURGE VALVE



Wire side of female terminals

Is there continuity?

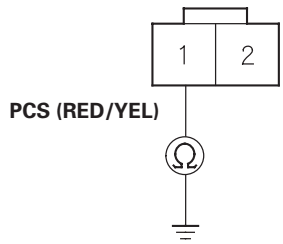
YES—Go to step 9.

NO—Replace the EVAP canister purge valve. ■

9. Disconnect PCM connector E (31P).

10. Check for continuity between EVAP canister purge valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

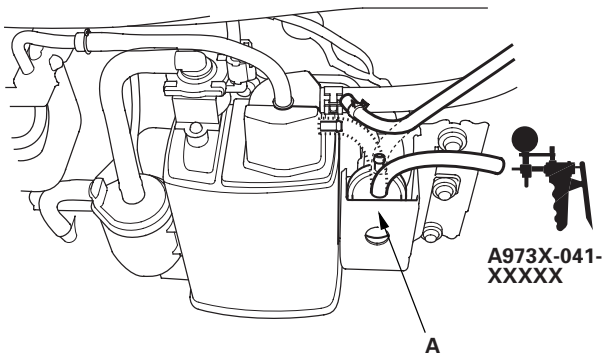
Is there continuity?

YES—Repair short in the wire between the EVAP canister purge valve and the PCM (E11). ■

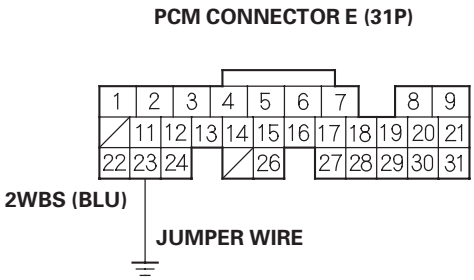
NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

EVAP Bypass Solenoid Valve Test

11. Disconnect both vacuum hoses from the EVAP two way valve (A), and connect a vacuum pump to the canister port on the two way valve.



12. Turn the bypass solenoid valve on with the HDS, or connect PCM connector terminal E23 to body ground with a jumper wire.



13. Turn the ignition switch ON (II).

14. Apply vacuum to the hose.

    Does the valve hold vacuum?

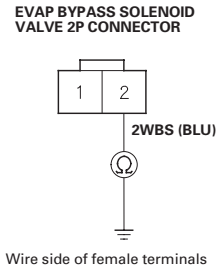
    YES — Go to step 15.

    NO — Go to step 20.

15. Turn the ignition switch OFF.

16. Disconnect the EVAP bypass solenoid valve 2P connector.

17. Check for continuity continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.



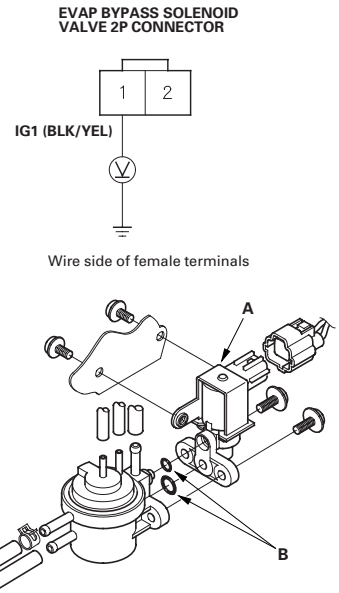
    Is there continuity?

    YES — Go to step 18.

    NO — Repair open in wire between the EVAP bypass solenoid valve and the PCM (E23). ■

18. Turn the ignition switch ON (II).

19. Measure voltage between EVAP bypass solenoid valve 2P connector terminal No. 1 and body ground.



    Is there battery voltage?

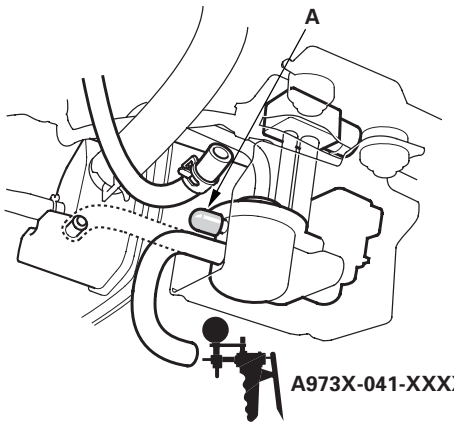
    YES — Replace the EVAP bypass solenoid valve (A) and the O-rings (B). ■

    NO — Repair open in the wire between the EVAP bypass solenoid valve and No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse. ■

(cont'd)

DTC Troubleshooting (cont'd)

20. Plug the upper port (A) of the EVAP two way valve.



21. While monitoring the FTP sensor voltage with the HDS, or while measuring the voltage between PCM connector terminals E3 and E28, slowly pump the vacuum pump until the voltage drops to about 1.5 V.

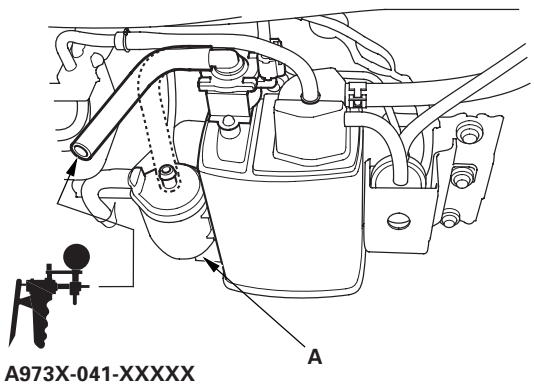
    Does the voltage drop to 1.5 V and hold for at least 20 seconds?

    YES — The EVAP bypass solenoid valve/EVAP two way valve is OK. Go to step 22.

    NO — Repair leakage from the EVAP bypass solenoid valve, EVAP two way valve, FTP sensor, or O-rings. ■

EVAP Canister Vent Shut Valve Test

22. Disconnect the vacuum hose from the EVAP canister filter (A), and connect a vacuum pump to the hose.



23. Turn the ignition switch ON (II).

24. Apply vacuum to the hose with 5 strokes of the pump.

    Does the valve hold vacuum?

    YES — Go to step 25.

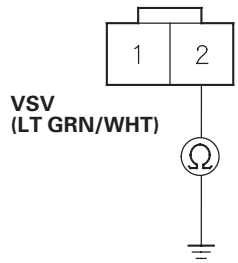
    NO — The EVAP canister vent shut valve is OK. Go to step 30.

25. Turn the ignition switch OFF.

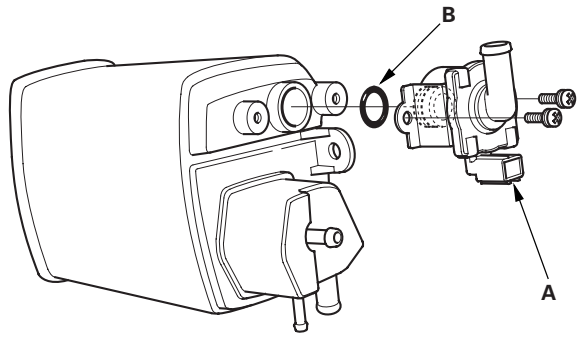
26. Disconnect the EVAP canister vent valve 2P connector.

27. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals



Is there continuity?

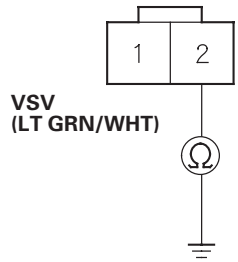
YES — Go to step 28.

NO — Replace the EVAP canister vent shut valve (A) and O-ring (B). ■

28. Disconnect PCM connector E (31P).

29. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the EVAP canister vent shut valve and the PCM (E22). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

Vacuum Hoses and Connections Test

30. Do the fuel tank vapor control valve test (see page 11-298).

Is the fuel tank vapor control valve OK?

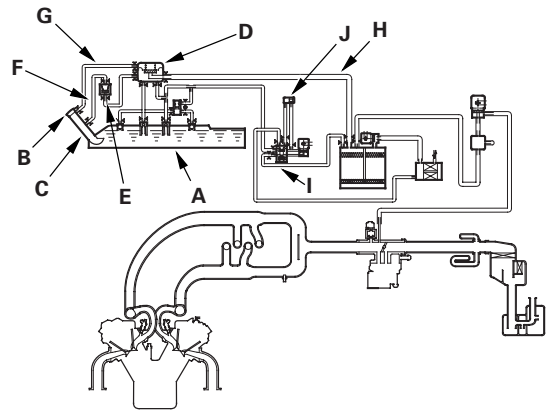
YES—Go to step 31.

NO—Replace the fuel tank vapor control valve. ■

31. Tighten the fuel cap 3 ''clicks'', then monitor the fuel tank pressure readings with the HDS.

32. Start the engine. Let the engine idle for 5 minutes.

33. Check the FTP sensor readings.



Is the reading above 0.5 kPa (0.16 in.Hg, 4 mmHg) pressure or below −0.5 kPa (0.16 in.Hg, 4 mmHg) vacuum?

YES—Substitute a known-good PCM and retest (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

NO—Check these parts for leaks:

- Fuel tank (A)
- Fuel fill cap (B)
- Fuel fill pipe (C)
- Fuel tank vapor control valve (D)
- Fuel tank vapor recirculation valve (E)
- Fuel tank vapor recirculation tube (F)
- Fuel tank vapor signal tube (G)
- Fuel tank vapor vent tube (H)
- EVAP two way valve (I)
- FTP sensor (J)

– Repair or replace any leaking parts. ■

DTC Troubleshooting (cont'd)

DTC P1456—'02-04 Models: EVAP Control System Leakage (fuel tank system)

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank failure.

Special Tools Required

Vacuum pump/gauge, 0—30 in.Hg A973X-041-XXXXX

NOTE: If DTC P0461 is stored at the same time as DTC P1456, troubleshoot P0461 first, then recheck for DTC P1456.

This is a two trip code; once cleared, it cannot be reproduced in one trip. Also, certain specific driving and ambient conditions must occur before the PCM will complete the system checks. Additional test drives may still not meet the specific conditions needed to reproduce the code.

Follow these troubleshooting procedures carefully to ensure the integrity of the system and to confirm the cause of the problem or code.

NOTE: Fresh fuel has a higher volatility that will create greater pressure/vacuum. The optimum condition for testing is fresh fuel and less than a full tank of gas. If possible, to assist in leak detection, add 1 gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

Fuel Fill Cap Check

1. Check the fuel fill cap. It must say ''If not tightened 3 clicks check engine light may come on.''

   Is the correct fuel fill cap installed and properly tightened?

   YES—Go to step 2.

   NO—Replace or tighten the cap. ■

2. Check the fuel fill cap seal.

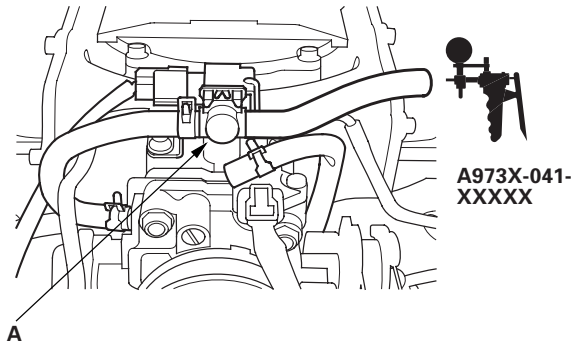
   Is the fuel fill cap seal missing or damaged?

   YES—Replace the fuel fill cap (gray or black colored cap). ■

   NO—The fuel fill cap is OK. Go to step 3.

EVAP Canister Purge Valve Test

3. Disconnect the vacuum hose from the EVAP canister purge valve (A), and connect a vacuum pump to the hose.



4. Turn the ignition switch ON (II).

5. Apply vacuum to the hose.

   Does the valve hold vacuum?

   YES—The EVAP canister purge valve is OK. Go to step 11.

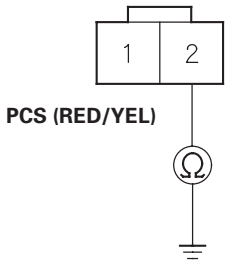
   NO—Go to step 6.

6. Turn the ignition switch OFF.

7. Disconnect the EVAP canister purge valve 2P connector.

8. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE



Wire side of female terminals

Is there continuity?

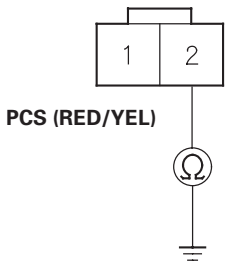
YES—Go to step 9.

NO—Replace the EVAP canister purge valve. ■

9. Disconnect PCM connector A (32P).

10. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

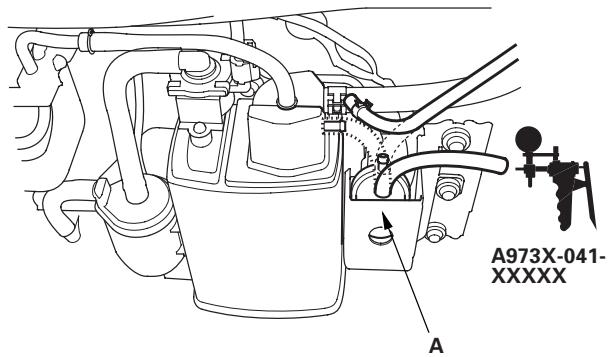
Is there continuity?

YES—Repair short in the wire between the EVAP canister purge valve and the PCM (A6). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

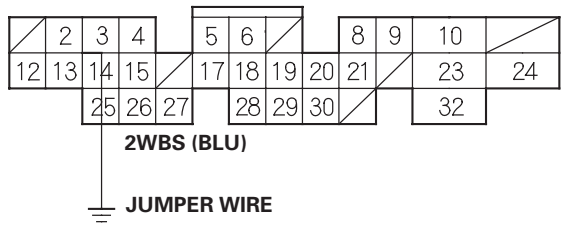
EVAP Bypass Solenoid Valve Test

11. Disconnect both vacuum hoses from the EVAP two way valve (A), and connect a vacuum pump to the canister port on the two way valve.



12. Turn the bypass solenoid valve on with the HDS, or connect PCM connector terminal A3 to body ground with a jumper wire.

PCM CONNECTOR A (32P)



Wire side of female terminals

13. Turn the ignition switch ON (II).

14. Apply vacuum to the hose.

Does the valve hold vacuum?

YES—Go to step 15.

NO—Go to step 20.

15. Turn the ignition switch OFF.

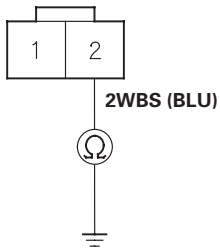
16. Disconnect the EVAP bypass solenoid valve 2P connector.

(cont'd)

DTC Troubleshooting (cont'd)

17. Check for continuity continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

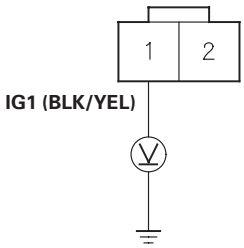
YES—Go to step 18.

NO—Repair open in the wire between the EVAP bypass solenoid valve and the PCM (A3).■

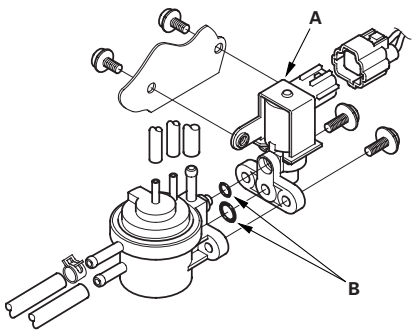
18. Turn the ignition switch ON (II).

19. Measure voltage between EVAP bypass solenoid valve 2P connector terminal No. 1 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

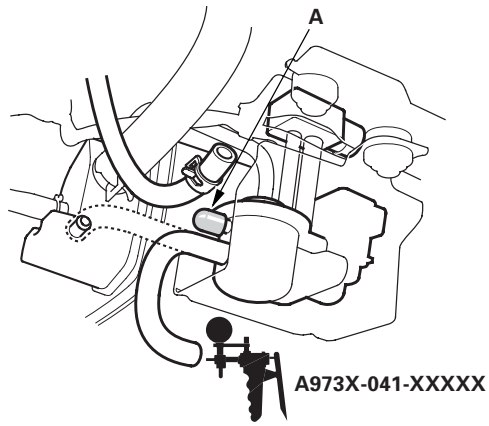


Is there battery voltage?

YES—Replace the EVAP bypass solenoid valve (A) and the O-rings (B).■

NO—Repair open in the wire between the EVAP bypass solenoid valve and No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse.■

20. Plug the upper port (A) of the EVAP two way valve.



21. While monitoring the FTP sensor voltage with the HDS, or while measuring the voltage between PCM connector terminals A29 and C18, slowly pump the vacuum pump until the voltage drops to about 1.5 V.

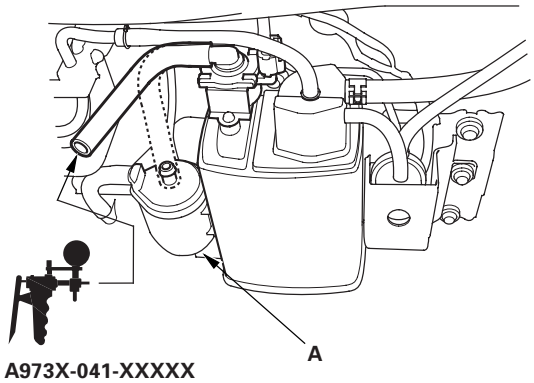
Does the voltage drop to 1.5 V and hold for at least 20 seconds?

YES—The EVAP bypass solenoid valve/EVAP two way valve is OK. Go to step 22.

NO—Repair leakage from the EVAP bypass solenoid valve, EVAP two way valve, FTP sensor, or O-rings.■

EVAP Canister Vent Shut Valve Test

22. Disconnect the vacuum hose from the EVAP canister filter (A), and connect a vacuum pump to the hose.



A973X-041-XXXXX

23. Turn the ignition switch ON (II).

24. Apply vacuum to the hose with 5 strokes of the pump.

    Does the valve hold vacuum?

    YES – Go to step 25.

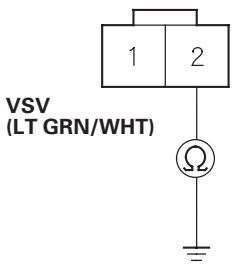
    NO – The EVAP canister vent shut valve is OK. Go to step 30.

25. Turn the ignition switch OFF.

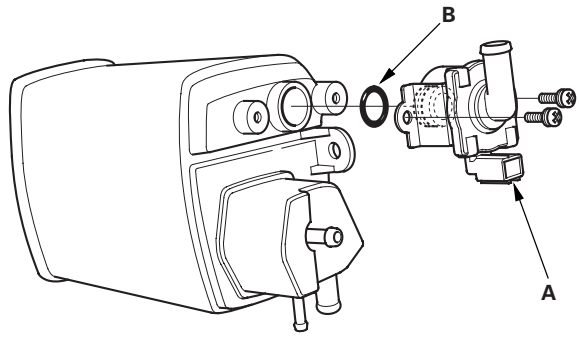
26. Disconnect the EVAP canister vent valve 2P connector.

27. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals



Is there continuity?

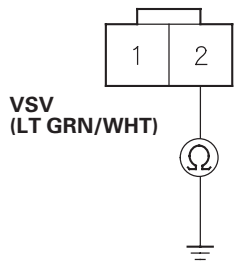
YES – Go to step 28.

NO – Replace the EVAP canister vent shut valve (A) and O-ring (B). ■

28. Disconnect PCM connector A (32P).

29. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES – Repair short in the wire between the EVAP canister vent shut valve and the PCM (A4). ■

NO – Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

(cont'd)

DTC Troubleshooting (cont'd)

Vacuum Hoses and Connections Test

30. Do the fuel tank vapor control valve test (see page 11-298).

    Is the fuel tank vapor control valve OK?

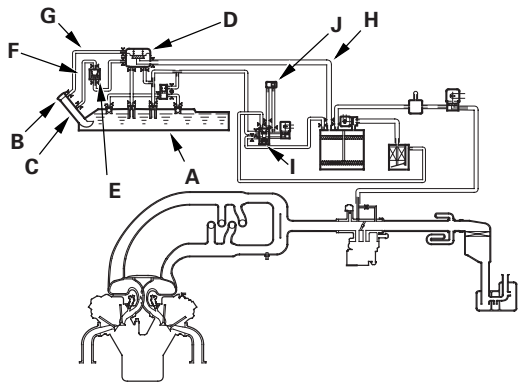
    YES—Go to step 31.

    NO—Replace the fuel tank vapor control valve. ■

31. Tighten the fuel cap 3 ''clicks'', then monitor the fuel tank pressure readings with the HDS.

32. Start the engine. Let the engine idle for 5 minutes.

33. Check the FTP sensor readings.



    Is the reading above 0.5 kPa (0.16 in.Hg, 4 mmHg) pressure or below −0.5 kPa (0.16 in.Hg, 4 mmHg) vacuum?

    YES—Substitute a known-good PCM and retest (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

    NO—Check these parts for leaks:

    - Fuel tank (A)
    - Fuel fill cap (B)
    - Fuel fill pipe (C)
    - Fuel tank vapor control valve (D)
    - Fuel tank vapor recirculation valve (E)
    - Fuel tank vapor recirculation tube (F)
    - Fuel tank vapor signal tube (G)
    - Fuel tank vapor vent tube (H)
    - EVAP two way valve (I)
    - FTP sensor (J)

      – Repair or replace any leaking parts. ■

DTC P1457—'99-00 Models: EVAP Control System Leakage (EVAP canister system)

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank system failure.

Special Tools Required

Vacuum pump/gauge, 0—30 in.Hg A973X-041-XXXXX

NOTE: If DTC P0461 is stored at the same time as DTC P1457, troubleshoot P0461 first, then recheck for DTC P1457.

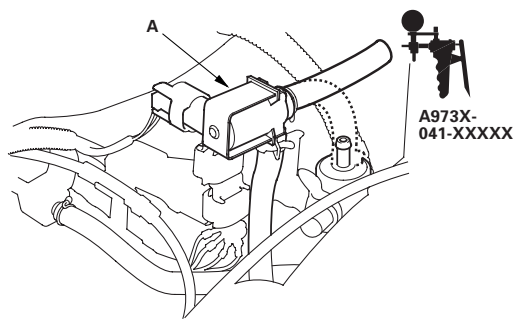
This is a two trip code; once cleared, it cannot be reproduced in one trip. Also, certain specific driving and ambient conditions must occur before the PCM will complete the system checks. Additional test drives may still not meet the specific conditions needed to reproduce the code.

Follow these troubleshooting procedures carefully to ensure the integrity of the system and to confirm the cause of the problem or code.

NOTE: Fresh fuel has a high volatility that creates greater pressure/vacuum. The optimum condition for testing is fresh fuel, and there must be less than a full tank of fuel. If possible, to assist in leak detection, add one gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

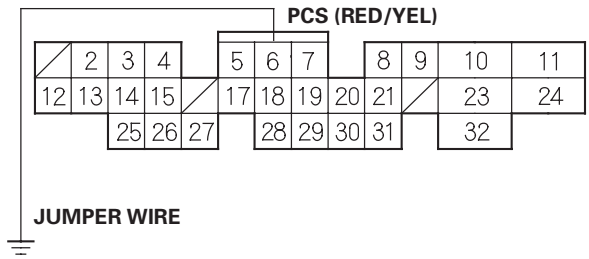
EVAP Purge Control Solenoid Valve Test

1. Disconnect the vacuum hose from the EVAP purge control solenoid valve (A), and connect a vacuum pump to the hose.



2. Turn the EVAP purge control solenoid valve on with the HDS, or connect PCM connector terminal A6 to body ground with a jumper wire.

PCM CONNECTOR A (32P)



Wire side of female terminals

3. Turn the ignition switch ON (II).

4. Apply vacuum to the hose.

   Does the valve hold vacuum?

   YES—Go to step 5.

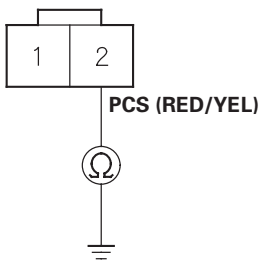
   NO—The EVAP purge control solenoid valve is OK. Go to step 10.

5. Turn the ignition switch OFF.

6. Disconnect the EVAP purge control solenoid valve 2P connector.

7. Check for continuity between EVAP purge control solenoid valve 2P connector terminal No. 2 and body ground.

EVAP PURGE CONTROL SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

   Is there continuity?

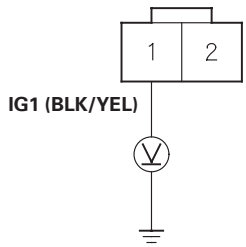
   YES—Go to step 8.

   NO—Repair open in the wire between the EVAP purge control solenoid valve and the PCM (A6). ■

8. Turn the ignition switch ON (II).

9. Measure voltage between EVAP purge control solenoid valve 2P connector terminal No. 1 and body ground.

EVAP PURGE CONTROL SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

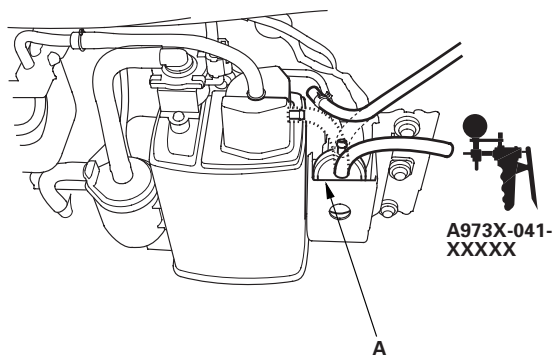
   Is there battery voltage?

   YES—Replace the EVAP purge control solenoid valve. ■

   NO—Repair open in the wire between the EVAP purge control solenoid valve and No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse. ■

EVAP Bypass Solenoid Valve Test

10. Disconnect the vacuum hose from the EVAP two way valve (A), and connect a vacuum pump to the hose.



(cont'd)

DTC Troubleshooting (cont'd)

11. Turn the ignition switch ON (II).

12. Apply vacuum to the hose.

    Does the valve hold vacuum?

    YES—The EVAP bypass solenoid valve/EVAP two way valve is OK. Go to step 18.

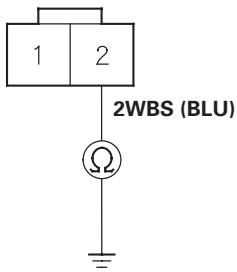
    NO—Go to step 13.

13. Turn the ignition switch OFF.

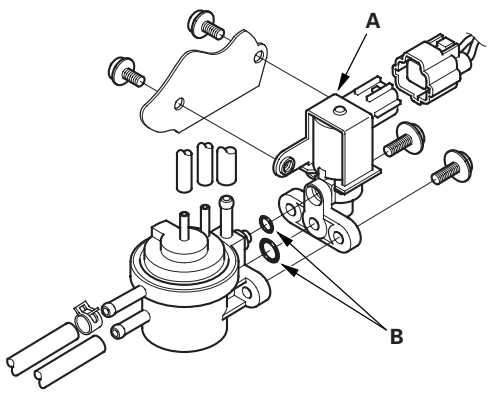
14. Disconnect the EVAP bypass solenoid valve 2P connector.

15. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals



Is there continuity?

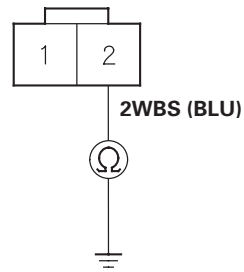
YES—Go to step 16.

NO—Replace the EVAP bypass solenoid valve (A) and O-rings (B). ■

16. Disconnect PCM connector A (32P).

17. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

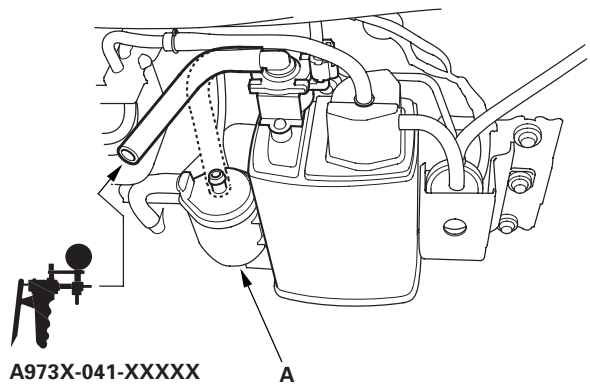
Is there continuity?

YES—Repair short in the wire between the EVAP bypass solenoid valve and the PCM (A3). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

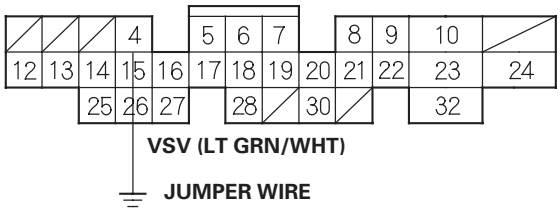
EVAP Canister Vent Shut Valve Test

18. Disconnect the vacuum hose from the EVAP canister vent filter (A), and connect a vacuum pump to the hose.



19. Turn the EVAP canister vent shut valve on with the HDS, or connect PCM connector terminal A4 to body ground with a jumper wire.

PCM CONNECTOR A (32P)



Wire side of female terminals

20. Turn the ignition switch ON (II).

21. Apply vacuum to the hose.

Does the valve hold vacuum?

YES—The EVAP control canister vent shut valve is OK. Go to step 27.

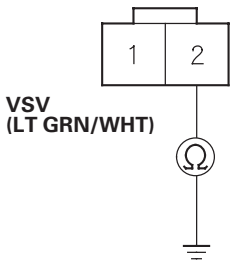
NO—Go to step 22.

22. Turn the ignition switch OFF.

23. Disconnect the EVAP canister vent shut valve 2P connector.

24. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

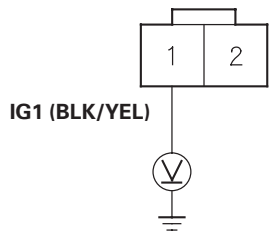
YES—Go to step 25.

NO—Repair open in the wire between the EVAP canister vent shut valve and PCM (A4). ■

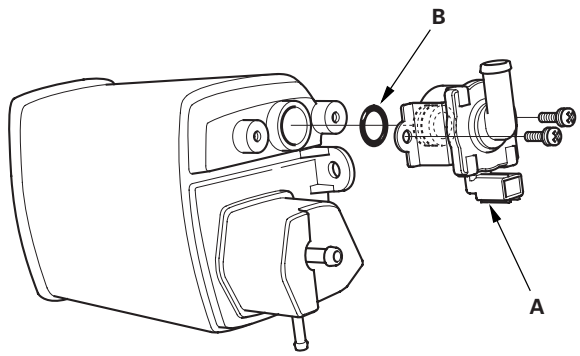
25. Turn the ignition switch ON (II).

26. Measure voltage between EVAP canister vent shut valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals



Is there battery voltage?

YES—Replace the EVAP canister vent shut valve (A) and O-ring (B). ■

NO—Repair open in the wire between the EVAP canister vent shut valve and No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse. ■

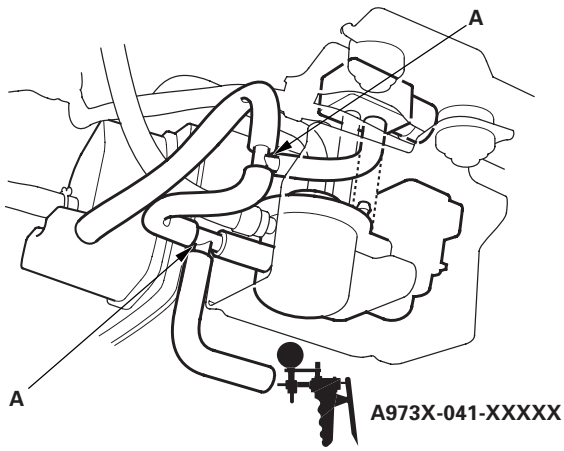
(cont'd)

DTC Troubleshooting (cont'd)

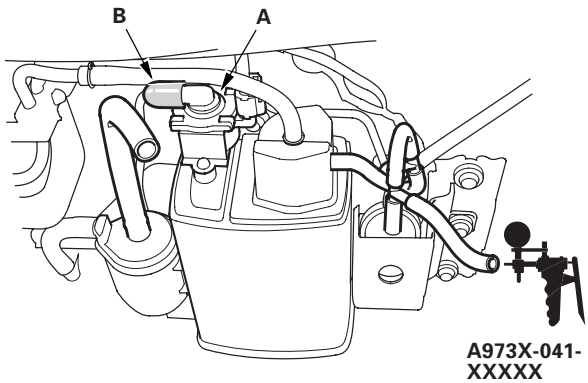
Canister System Leak Test

27. Turn the ignition switch OFF.

28. Connect 2 three-way T-fittings (A) into the hose from the EVAP canister to the EVAP two way valve. Connect the FTP sensor to one of the T-fittings and the vacuum pump to the other.



29. Remove the vent hose from the EVAP canister vent shut valve (A) and cap the port (B) to seal the fresh air vent of the EVAP canister.



30. Turn the ignition switch ON (II).

31. While monitoring FTP sensor voltage with the HDS, or while measuring voltage between PCM connector terminals A29 and C18, slowly pump the vacuum pump every 1—2 seconds.

32. Continue to pump vacuum until the voltage drops to about 1.5 V. Make sure that the engine coolant temperature is still above 95°F (35°C) and your vacuum pump does not have a leak.

33. Check the voltage for 20 seconds.

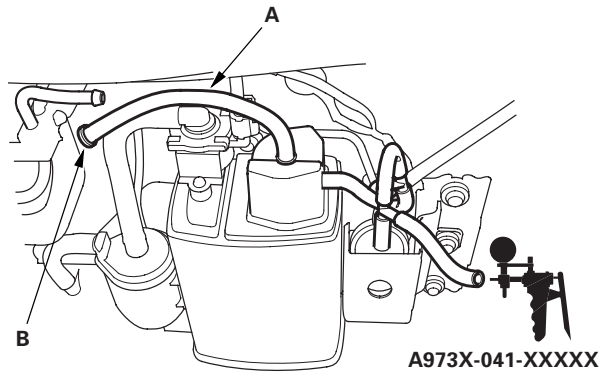
    Does the voltage drop to 1.5 V and hold for at least 20 seconds?

    YES—Inspect the EVAP canister vent shut valve line and connections. ■

    NO—Go to step 34.

34. Turn the ignition switch OFF.

35. Disconnect the purge line, hose (A) from the canister at the metal line, and plug the hose (B).



36. Turn the ignition switch ON (II).

37. While monitoring FTP sensor voltage with the HDS, or while measuring voltage between PCM connector terminals A29 and C18, slowly pump the vacuum pump.

38. Continue to pump vacuum until the voltage drops to about 1.5 V. Make sure that the engine coolant temperature is still above 95°F (35°C) and your vacuum pump does not have a leak.

39. Monitor the voltage for 20 seconds.

    Does the voltage drop to 1.5 V and hold for at least 20 seconds?

    YES—Inspect the EVAP purge control solenoid valve line and connections. If they are OK, do the EVAP two way valve test (see page 11-297). ■

    NO—Replace the EVAP canister. ■

DTC P1457—'01 Model: EVAP Control System Leakage (EVAP canister system)

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank system failure.

Special Tools Required

Vacuum pump/gauge, 0—30 in.Hg A973X-041-XXXXX

NOTE: If DTC P0461 is stored at the same time as DTC P1457, troubleshoot P0461 first, then recheck for DTC P1457.

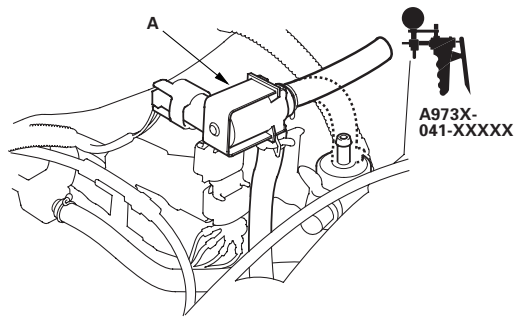
This is a two trip code; once cleared, it cannot be reproduced in one trip. Also, certain specific driving and ambient conditions must occur before the PCM will complete the system checks. Additional test drives may still not meet the specific conditions needed to reproduce the code. Use the test drive procedures for setting the readiness code (see page 11-89).

Follow these troubleshooting procedures carefully to ensure the integrity of the system and to confirm the cause of the problem or code.

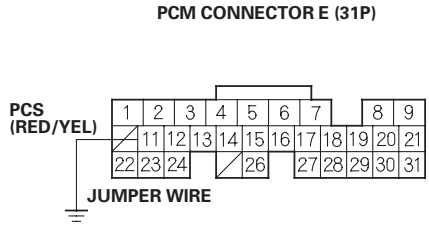
NOTE: Fresh fuel has a high volatility that creates greater pressure/vacuum. The optimum condition for testing is fresh fuel, and there must be less than a full tank of fuel. If possible, to assist in leak detection, add 1 gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

EVAP Canister Purge Valve Test

1. Disconnect the vacuum hose from the EVAP canister purge valve (A), and connect a vacuum pump to the hose.



2. Turn the EVAP canister purge valve on with the HDS, or connect PCM connector terminal E11 to body ground with a jumper wire.



Wire side of female terminals

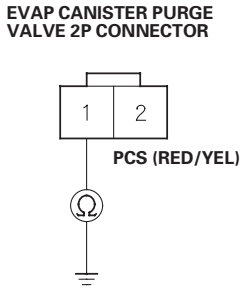
3. Turn the ignition switch ON (II).
4. Apply vacuum to the hose.

   Does the valve hold vacuum?

   YES—Go to step 5.

   NO—The EVAP canister purge valve is OK. Go to step 10.

5. Turn the ignition switch OFF.
6. Disconnect the EVAP canister purge valve 2P connector.
7. Check for continuity between EVAP canister purge valve 2P connector terminal No. 1 and body ground.



Wire side of female terminals

   Is there continuity?

   YES—Go to step 8.

   NO—Repair open in the wire between the EVAP canister purge valve and the PCM (E11).■

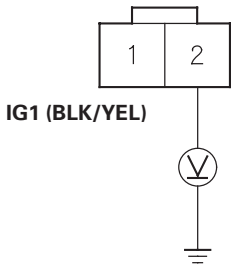
(cont'd)

DTC Troubleshooting (cont'd)

8. Turn the ignition switch ON (II).

9. Measure voltage between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

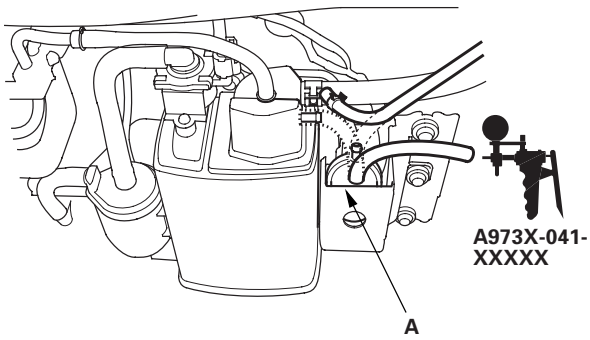
Is there battery voltage?

YES—Replace the EVAP canister purge valve. ■

NO—Repair open in the wire between the EVAP canister purge valve and No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse. ■

EVAP Bypass Solenoid Valve Test

10. Disconnect the vacuum hose from the EVAP two way valve (A), and connect a vacuum pump to the hose.



11. Turn the ignition switch ON (II).

12. Apply vacuum to the hose.

Does the valve hold vacuum?

YES—The EVAP bypass solenoid valve/EVAP two way valve is OK. Go to step 18.

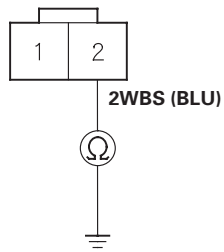
NO—Go to step 13.

13. Turn the ignition switch OFF.

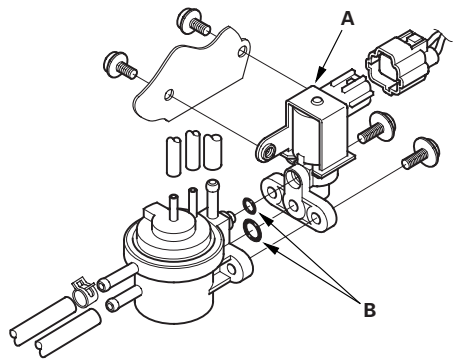
14. Disconnect the EVAP bypass solenoid valve 2P connector.

15. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals



Is there continuity?

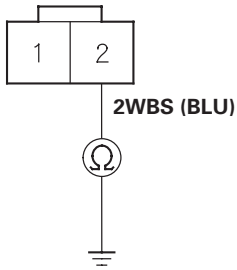
YES—Go to step 16.

NO—Replace the EVAP bypass solenoid valve (A) and O-rings (B). ■

16. Disconnect PCM connector E (31P).

17. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

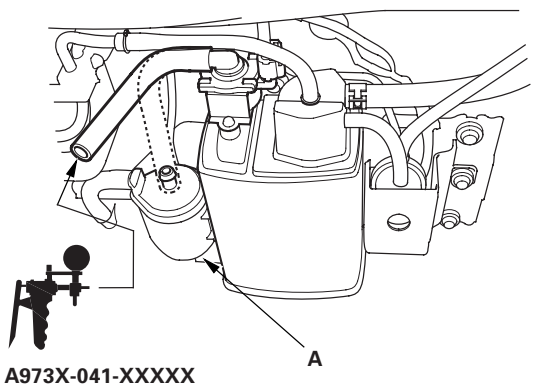
Is there continuity?

YES—Repair short in the wire between the EVAP bypass solenoid valve and the PCM (E23). ■

NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

EVAP Canister Vent Shut Valve Test

18. Disconnect the vacuum hose from the EVAP canister vent filter (A), and connect a vacuum pump to the hose.



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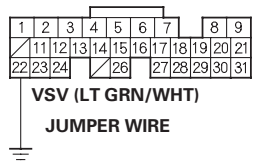
19. Turn the EVAP canister vent shut valve on with the HDS, or connect PCM connector terminal E22 to body ground with a jumper wire.

PCM CONNECTOR E (31P)



Wire side of female terminals

20. Turn the ignition switch ON (II).

21. Apply vacuum to the hose.

Does the valve hold vacuum?

YES—The EVAP canister vent shut valve is OK. Go to step 27.

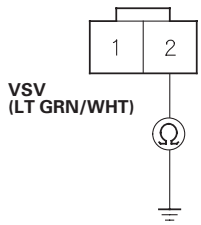
NO—Go to step 22.

22. Turn the ignition switch OFF.

23. Disconnect the EVAP canister vent shut valve 2P connector.

24. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the EVAP canister vent shut valve and the PCM (E22). ■

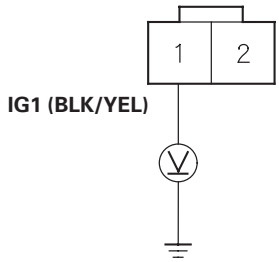
(cont'd)

DTC Troubleshooting (cont'd)

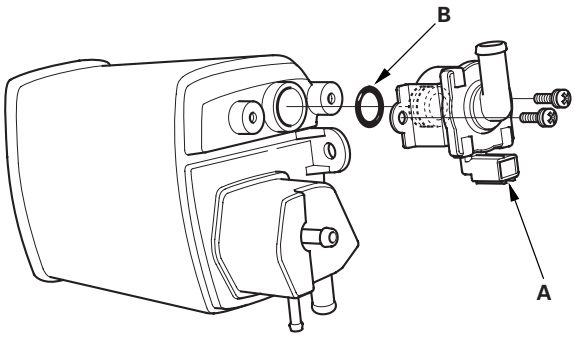
25. Turn the ignition switch ON (II).

26. Measure voltage between EVAP canister vent shut valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals



Is there battery voltage?

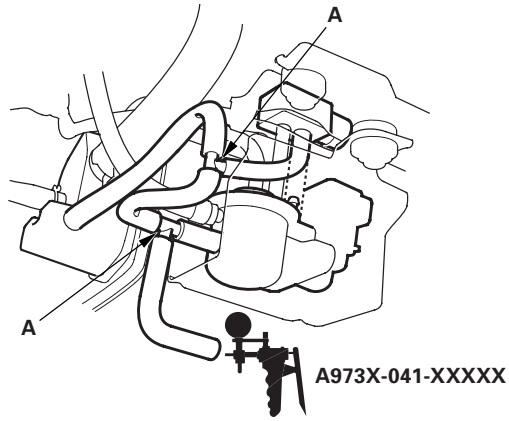
YES—Replace the EVAP canister vent shut valve (A) and O-ring (B). ■

NO—Repair open in the wire between the EVAP canister vent shut valve and No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse. ■

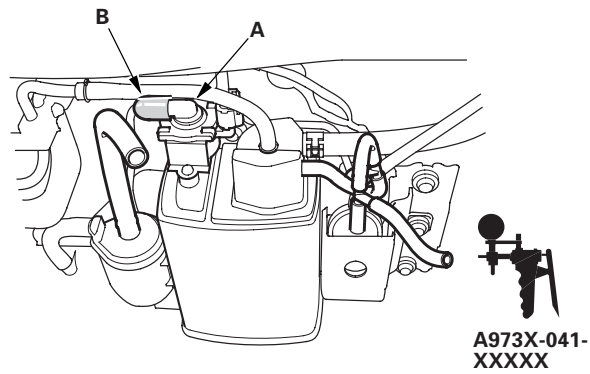
Canister System Leak Test

27. Turn the ignition switch OFF.

28. Connect 2 three-way T-fittings (A) into the hose from the EVAP canister to the EVAP two way valve. Connect the FTP sensor to one of the T-fittings and the vacuum pump to the other.



29. Remove the vent hose from the EVAP canister vent shut valve (A) and cap the port (B) to seal the fresh air vent of the EVAP canister.



30. Turn the ignition switch ON (II).

31. While monitoring FTP sensor voltage with the HDS, or measuring voltage between PCM connector terminals E7 and E28, slowly pump the vacuum pump every 1—2 seconds.

32. Continue to pump vacuum until the voltage drops to about 1.5 V. Make sure that the engine coolant temperature is still above 95°F (35°C) and your vacuum pump has no leak.

33. Monitor the voltage for 20 seconds.

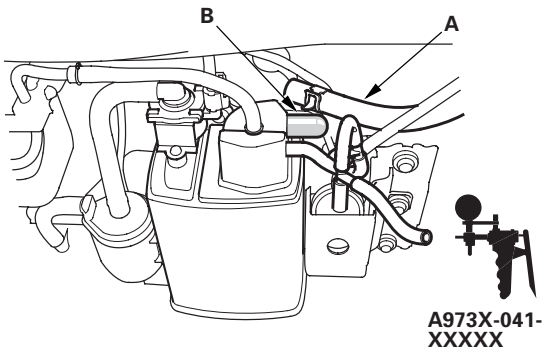
    Does the voltage drop to 1.5 V and hold for at least 20 seconds?

    YES—Inspect the EVAP canister vent shut valve line and connections. ■

    NO—Go to step 34.

34. Turn the ignition switch OFF.

35. Disconnect the fuel tank vapor vent tube (A) from the canister at the metal line and plug the hose (B).



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36. Turn the ignition switch ON (II).

37. While monitoring FTP sensor voltage with the HDS, or while measuring voltage between PCM connector terminals E7 and E28, slowly pump the vacuum pump every 1—2 seconds.

38. Continue to pump vacuum until the voltage drops to about 1.5 V. Make sure that the engine coolant temperature is still above 95°F (35°C) and your vacuum pump does not have a leak.

39. Monitor the voltage for 20 seconds.

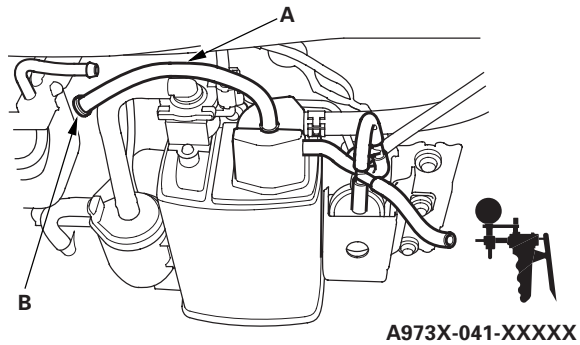
    Does the voltage drop to 1.5 V and hold for at least 20 seconds?

    YES—Check the fuel tank vapor control line and connections for misrouting, poor connections, damage, or pinched areas. If the line and connections are OK, replace the fuel tank vapor control valve. ■

    NO—Go to step 40.

40. Turn the ignition switch OFF.

41. Disconnect the purge line hose (A) from the canister at the metal line, and plug the hose (B).



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42. Turn the ignition switch ON (II).

43. While monitoring FTP sensor voltage with the HDS, or while measuring voltage between PCM connector terminals E7 and E28, slowly pump the vacuum pump every 1—2 seconds.

44. Continue to pump vacuum until the voltage drops to about 1.5 V. Make sure that the engine coolant temperature is still above 95°F (35°C) and your vacuum pump does not have a leak.

45. Monitor the voltage for 20 seconds.

    Does the voltage drop to 1.5 V and hold for at least 20 seconds?

    YES—Inspect the EVAP canister purge valve line and connections. If they are OK, do the EVAP two way valve test (see page 11-297). If the line, the connections, and the EVAP two way valve are OK, replace the EVAP canister purge valve.

    NO—Replace the EVAP canister. ■

DTC Troubleshooting (cont'd)

DTC P1457—'02-04 Models: EVAP Control System Leakage (EVAP canister system)

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank system failure.

Special Tools Required

Vacuum pump/gauge, 0—30 in.Hg A973X-041-XXXXX

NOTE: If DTC P0461 is stored at the same time as DTC P1457, troubleshoot P0461 first, then recheck for DTC P1457.

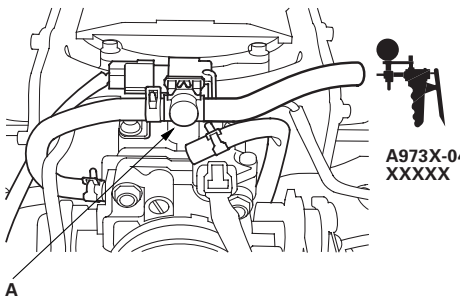
This is a two trip code; once cleared, it cannot be reproduced in one trip. Also, certain specific driving and ambient conditions must occur before the PCM will complete the system checks. Additional test drives may still not meet the specific conditions needed to reproduce the code. Use the test drive procedures for setting the readiness code (see page 11-89).

Follow these troubleshooting procedures carefully to ensure the integrity of the system and to confirm the cause of the problem or code.

NOTE: Fresh fuel has a high volatility that creates greater pressure/vacuum. The optimum condition for testing is fresh fuel, and there must be less than a full tank of fuel. If possible, to assist in leak detection, add 1 gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

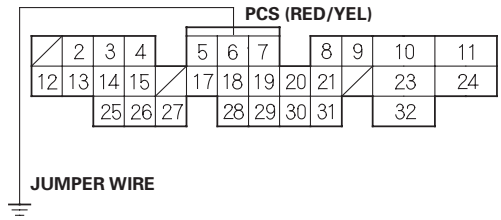
EVAP Canister Purge Valve Test

1. Disconnect the vacuum hose from the EVAP canister purge valve (A), and connect a vacuum pump to the hose.



2. Turn the EVAP canister purge valve on with the HDS, or connect PCM connector terminal A6 to body ground with a jumper wire.

PCM CONNECTOR A (32P)



Wire side of female terminals

3. Turn the ignition switch ON (II).

4. Apply vacuum to the hose.

   Does the valve hold vacuum?

   YES—Go to step 5.

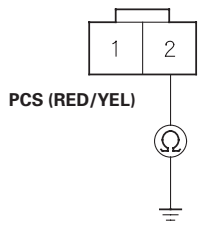
   NO—The EVAP canister purge valve is OK. Go to step 10.

5. Turn the ignition switch OFF.

6. Disconnect the EVAP canister purge valve 2P connector.

7. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

   Is there continuity?

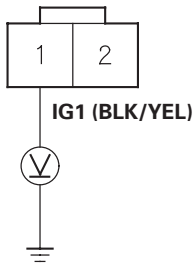
   YES—Go to step 8.

   NO—Repair open in the wire between the EVAP canister purge valve and the PCM (A6). ■

8. Turn the ignition switch ON (II).

9. Measure voltage between EVAP canister purge valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

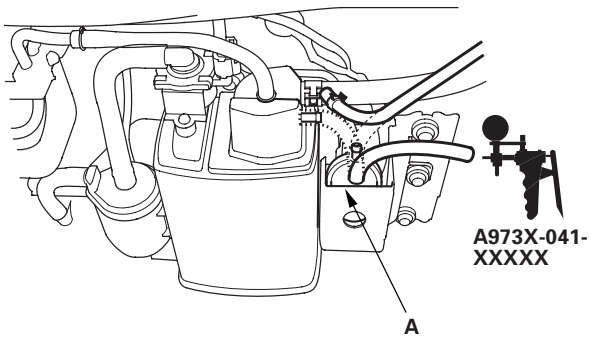
Is there battery voltage?

YES—Replace the EVAP canister purge valve. ■

NO—Repair open in the wire between the EVAP canister purge valve and No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse. ■

EVAP Bypass Solenoid Valve Test

10. Disconnect the vacuum hose from the EVAP two way valve (A), and connect a vacuum pump to the hose.



11. Turn the ignition switch ON (II).

12. Apply vacuum to the hose.

Does the valve hold vacuum?

YES—EVAP bypass solenoid valve/EVAP two way valve is OK. Go to step 18.

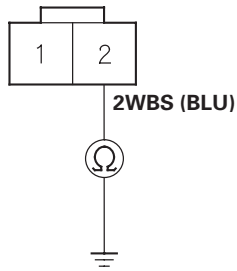
NO—Go to step 13.

13. Turn the ignition switch OFF.

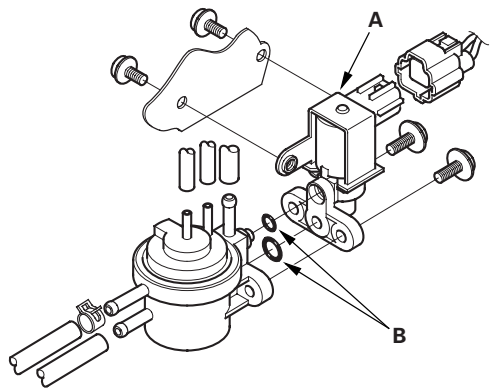
14. Disconnect the EVAP bypass solenoid valve 2P connector.

15. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals



Is there continuity?

YES—Go to step 16.

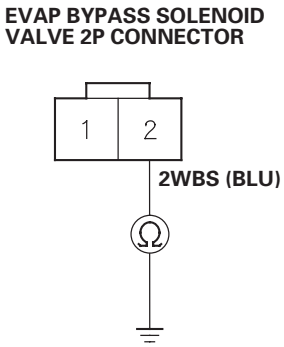
NO—Replace the EVAP bypass solenoid valve (A) and O-rings (B). ■

(cont'd)

DTC Troubleshooting (cont'd)

16. Disconnect PCM connector A (32P).

17. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.



Wire side of female terminals

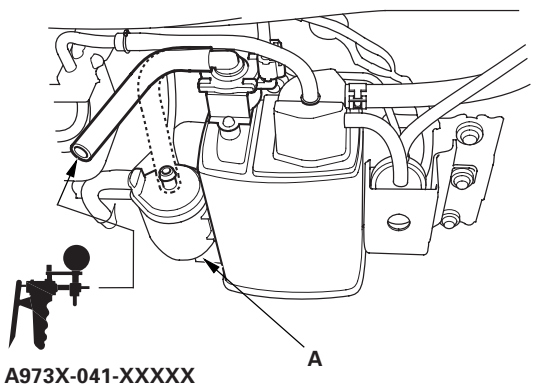
Is there continuity?

YES—Repair short in the wire between the EVAP bypass solenoid valve and the PCM (A3). ■

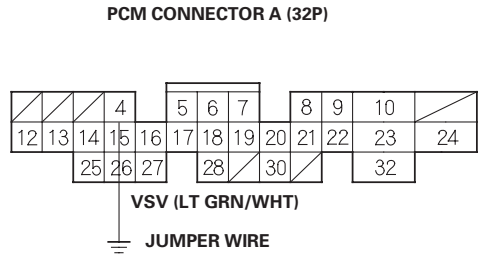
NO—Substitute a known-good PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original PCM. ■

EVAP Canister Vent Shut Valve Test

18. Disconnect the vacuum hose from the EVAP canister vent filter (A), and connect a vacuum pump to the hose.



19. Turn the EVAP canister vent shut valve on with the HDS, or connect PCM connector terminal A4 to body ground with a jumper wire.



Wire side of female terminals

20. Turn the ignition switch ON (II)

21. Apply vacuum to the hose.

Does the valve hold vacuum?

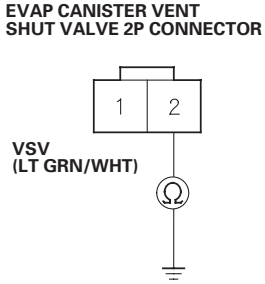
YES—The EVAP canister vent shut valve is OK. Go to step 27.

NO—Go to step 22.

22. Turn the ignition switch OFF.

23. Disconnect the EVAP canister vent shut valve 2P connector.

24. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.



Wire side of female terminals

Is there continuity?

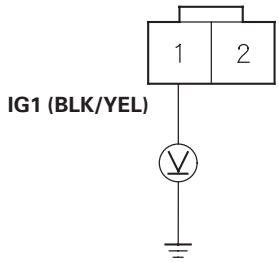
YES—Go to step 25.

NO—Repair open in the wire between the EVAP canister vent shut valve and the PCM (E22). ■

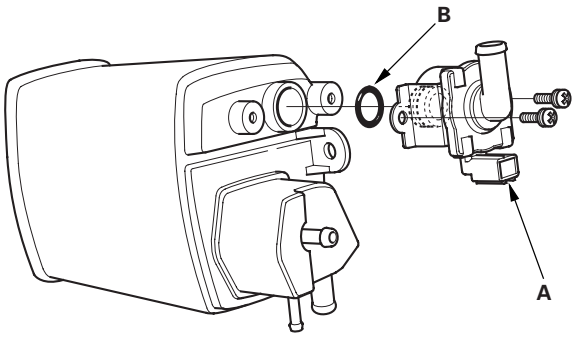
25. Turn the ignition switch ON (II).

26. Measure voltage between EVAP canister vent shut valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals



Is there battery voltage?

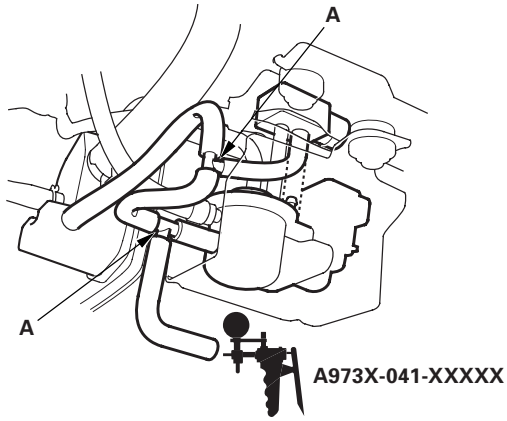
YES—Replace the EVAP canister vent shut valve (A) and O-ring (B). ■

NO—Repair open in the wire between the EVAP canister vent shut valve and No. 6 ECU (PCM) CRUISE CONTROL (15A) fuse. ■

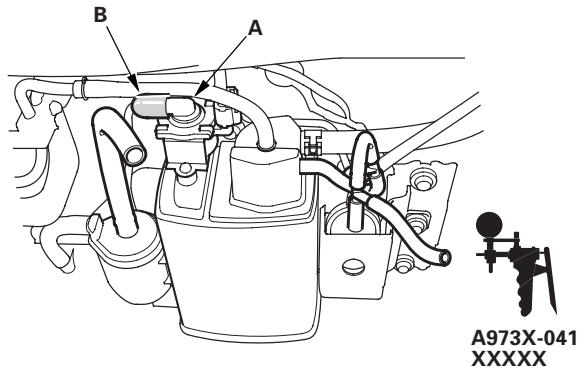
Canister System Leak Test

27. Turn the ignition switch OFF.

28. Connect 2 three-way T-fittings (A) into the hose from the EVAP canister to the EVAP two way valve. Connect the FTP sensor to one of the T-fittings and the vacuum pump to the other.



29. Remove the vent hose from the EVAP canister vent shut valve (A) and cap the port (B) to seal the fresh air vent of the EVAP canister.



30. Turn the ignition switch ON (II).

31. While monitoring FTP sensor voltage with the HDS, or while measuring voltage between PCM connector terminals A29 and C18, slowly pump the vacuum pump every 1—2 seconds.

32. Continue to pump vacuum until the voltage drops to about 1.5 V. Make sure that the engine coolant temperature is still above 95°F (35°C) and your vacuum pump has no leak.

(cont'd)

DTC Troubleshooting (cont'd)

33. Monitor the voltage for 20 seconds.

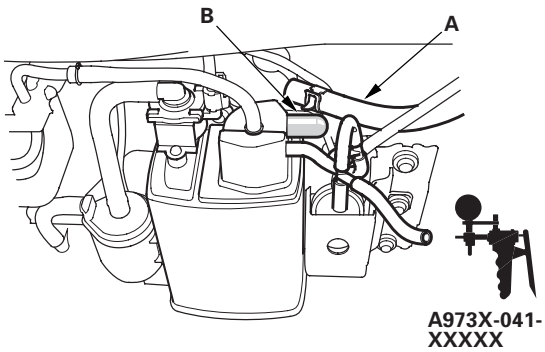
    Does the voltage drop to 1.5 V and hold for at least 20 seconds?

    YES—Inspect the EVAP canister vent shut valve line and connections. ■

    NO—Go to step 34.

34. Turn the ignition switch OFF.

35. Disconnect the fuel tank vapor vent tube (A) from the canister at the metal line, and plug the hose (B).



A973X-041-XXXXX

36. Turn the ignition switch ON (II).

37. While monitoring FTP sensor voltage with the HDS, or measuring voltage between PCM connector terminals A29 and C18, slowly pump the vacuum pump every 1—2 seconds.

38. Continue to pump vacuum until the voltage drops to about 1.5 V. Make sure that the engine coolant temperature is still above 95°F (35°C) and your vacuum pump does not have a leak.

39. Monitor the voltage for 20 seconds.

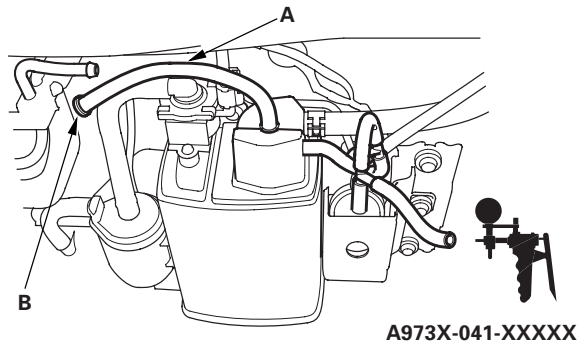
    Does the voltage drop to 1.5 V and hold for at least 20 seconds?

    YES—Check the fuel tank vapor control line and connections for misrouting, poor connections, damage, or pinched areas. If the line and connections are OK, replace the fuel tank vapor control valve. ■

    NO—Go to step 40.

40. Turn the ignition switch OFF.

41. Disconnect the purge line hose (A) from the canister at the metal line, and plug the hose (B).



A973X-041-XXXXX

42. Turn the ignition switch ON (II).

43. While monitoring FTP sensor voltage with the HDS, or while measuring voltage between PCM connector terminals A29 and C18, slowly pump the vacuum pump every 1—2 seconds.

44. Continue to pump vacuum until the voltage drops to about 1.5 V. Make sure that the engine coolant temperature is still above 95°F (35°C) and your vacuum pump does not have a leak.

45. Monitor the voltage for 20 seconds.

    Does the voltage drop to 1.5 V and hold for at least 20 seconds?

    YES—Inspect the EVAP canister purge valve line and connections. If they are OK, do the EVAP two way valve test (see page 11-297). It the line, the connections, and the EVAP two way valve are OK, replace the EVAP canister purge valve.

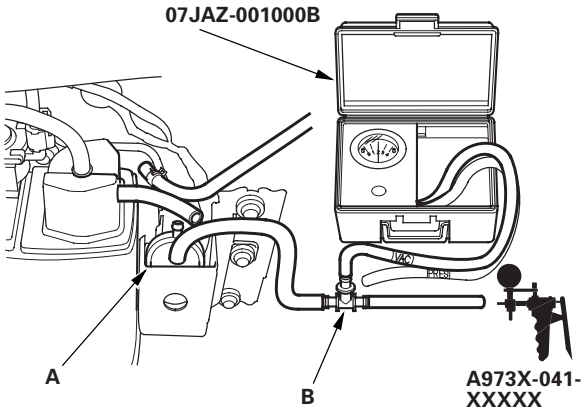
    NO—Replace the EVAP canister. ■

EVAP Two Way Valve Test

Special Tools Required
- Vacuum pump/gauge, 0 —30 in.Hg A973X-041-XXXXX
- Vacuum/pressure gauge, 0 —4 in.Hg 07JAZ-001000B

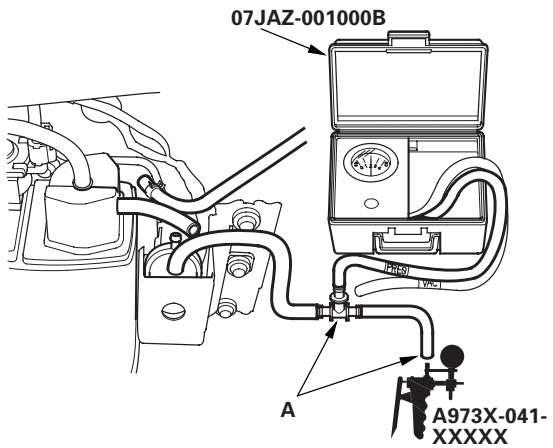
1. Remove the fuel fill cap.

2. Disconnect the vapor line from the EVAP two way valve (A), and connect it to a T-fitting (B) from the vacuum gauge and the vacuum pump as shown.



3. Apply vacuum slowly and continuously while watching the gauge. The vacuum should stabilize momentarily at 0.8 — 2.1 kPa (0.2 — 0.6 in.Hg, 6 — 16 mmHg).
   If the vacuum stabilizes (valve opens) below 0.8 kPa (0.2 in.Hg, 0.6 mm Hg) or above 2.1 kPa (0.6 in.Hg, 16 mmHg), install a new valve and retest.

4. Move the vacuum pump hose from the vacuum fitting to the pressure fitting, and move the vacuum gauge hose from the vacuum side to the pressure side (A) as shown.



5. Slowly pressurize the vapor line while watching the gauge. The pressure should stabilize momentarily above 1.0 kPa (0.3 in.Hg, 8 mm Hg).

   - If the pressure momentarily stabilizes (valve opens) above 1.0 kPa (0.3 in.Hg, 8 mmHg), the valve is OK.
   - If the pressure stabilizes below 1.0 kPa (0.3 in.Hg, 8 mmHg), install a new valve and retest.

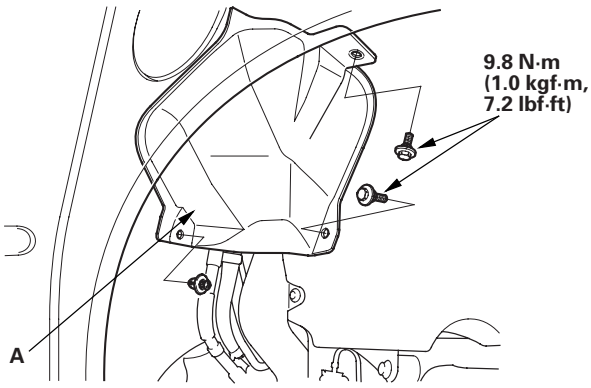
Fuel Tank Vapor Control Valve Test

Special Tools Required
Vacuum Pump/Gauge, 0—30 in.Hg A973X-041-XXXXX

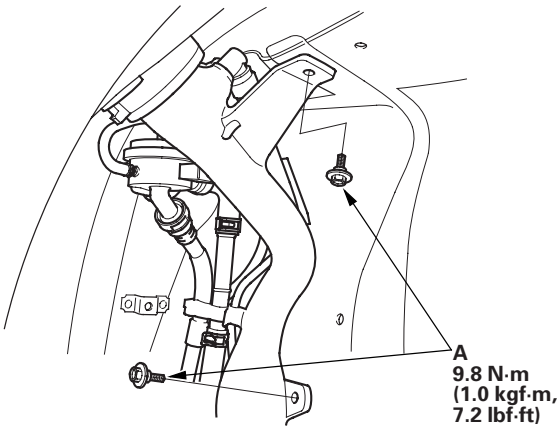
'01-04 models

Float Test

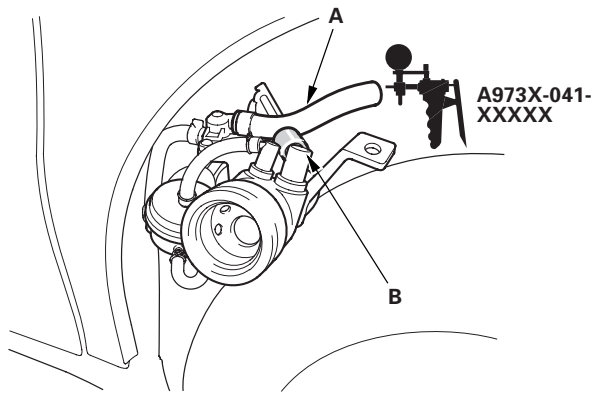
1. Make sure the fuel tank is less than half full.
2. Remove the fuel fill cap to relieve the fuel tank pressure, then reinstall the cap.
3. Remove the bolts and fuel tank vapor control valve cover (A).



4. Remove the bolts (A).



5. Disconnect the fuel tank vapor recirculation tube (A), and connect a vacuum pump to the tube.

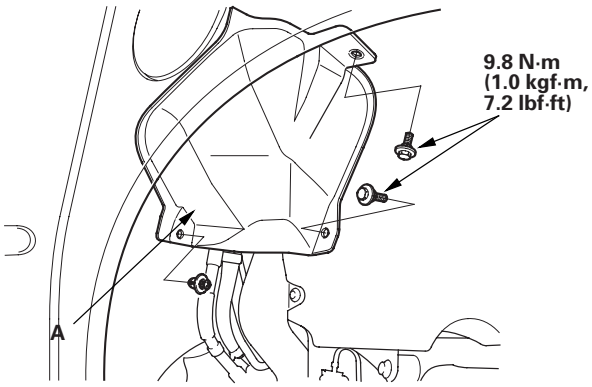


6. Plug the fuel tank vapor recirculation port (B).
7. Apply vacuum to the fuel tank vapor recirculation tube.

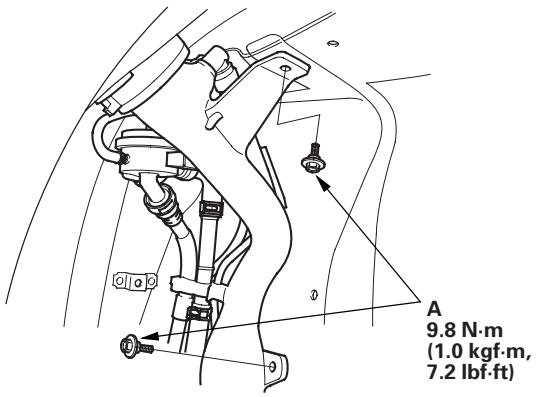
   • If the vacuum holds, replace the fuel tank vapor control valve (see page 11-301).
   • If the vacuum does not hold, the float is OK. Go to step 1 of the valve test (see page 11-299).

Valve Test

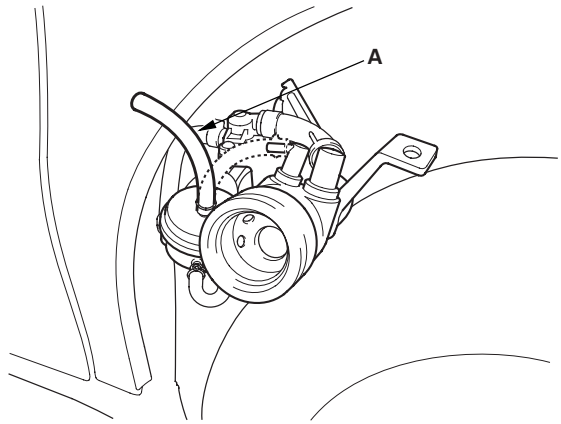
1. Make sure the fuel tank is less than half full.
2. Remove the fuel fill cap.
3. Remove the bolts and fuel tank vapor control valve cover (A).



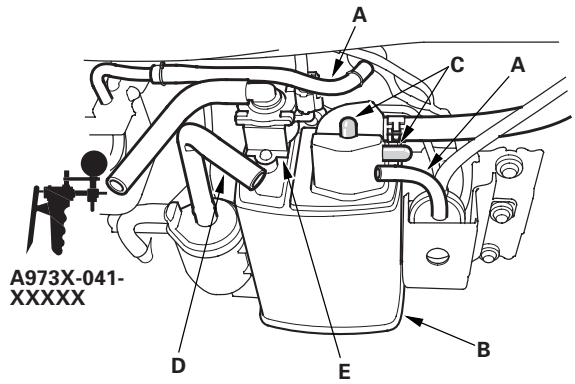
4. Remove the bolts (A).



5. Disconnect the fuel tank vapor signal tube (A).



6. Disconnect the vacuum hose (A) from the EVAP canister (B), and then plug the ports (C).

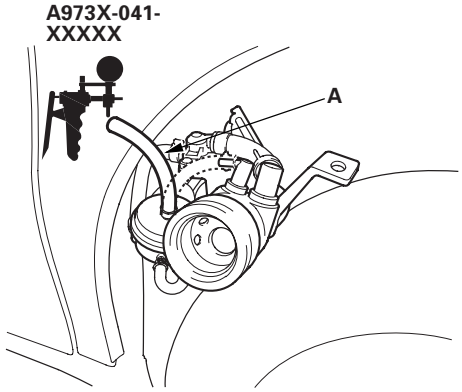


7. Disconnect the vacuum hose (D) from the EVAP canister vent shut valve (E), and connect a vacuum pump to the vacuum hose.
8. Pump the vacuum pump 80 times.
   - If the vacuum holds, go to step 9.
   - If the vacuum does not hold, go to step 11.

(cont'd)

Fuel Tank Vapor Control Valve Test (cont'd)

9. Connect a second vacuum pump to the fuel tank vapor signal tube (A).

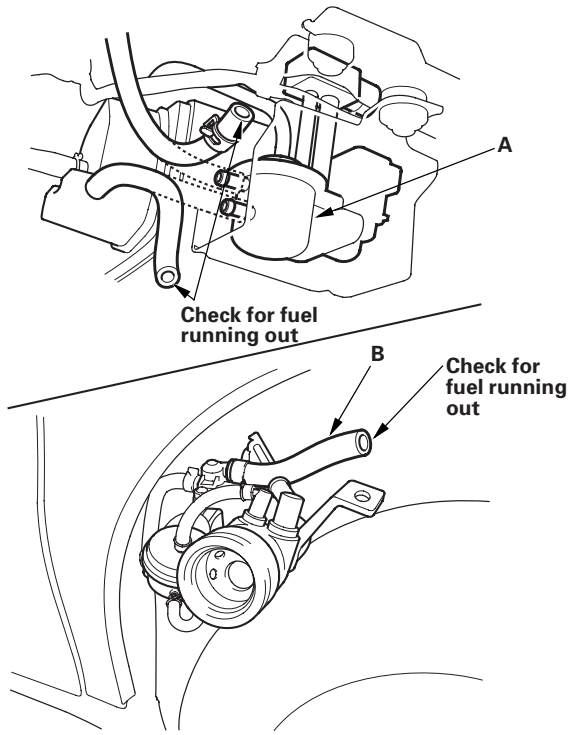


10. Apply vacuum (1 pump) to the fuel tank vapor signal tube (A), then check the vacuum on the pump in step 8.

    - If the vacuum holds, replace the fuel tank vapor control valve (see page 11-301).
    - If the vacuum is released, the fuel tank vapor control valve is OK. Go to step 11.

11. Fill the fuel tank with fuel, then check for fuel in the EVAP two way valve (A) and fuel tank vapor recirculation hose (B).

    NOTE: At either location, tiny droplets of fuel are normal.
    - If fuel runs out of the hoses at either location, replace the fuel tank vapor control valve.
    - If fuel does not run out of the hoses at the fuel tank vapor control system is normal.



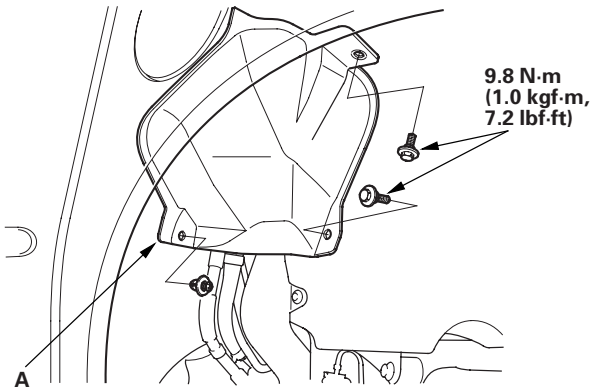
12. Disconnect the fuel tank vapor control quick disconnect from the EVAP canister, then plug the port on the canister. Reapply vacuum (80 pumps).

    - If the vacuum holds, replace the fuel tank vapor control valve (see page 11-301).
    - If the vacuum does not hold, inspect the EVAP canister, vent shut valve O-ring. If the O-ring is OK, replace the EVAP canister, and repeat the valve test.

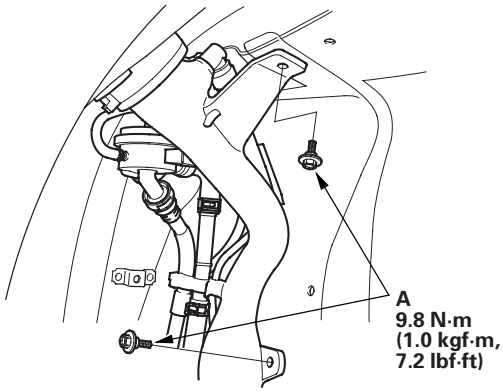
Fuel Tank Vapor Control Valve Replacement

'01-04 models

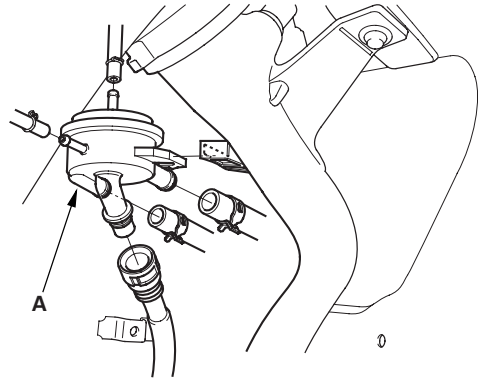
1. Remove the fuel tank vapor control valve cover (A).



2. Remove the bolts (A).



3. Remove the fuel tank vapor control valve (A).



4. Install the fuel tank vapor control valve in the reverse order of removal.

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

The Odyssey SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done only by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work must be performed by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump the SRS unit. Otherwise, the system may fail in a collision, or airbags may deploy if the ignition switch is ON (II).
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, and around the floor. Do not use electrical test equipment on these circuits.

Transaxle

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5-speed Automatic Transmission 14-245

Driveline/Axle 16-1

03/07/29 09:29:07 61S0X050_140_0003

S0X4A0000000000J1300ZAAT00

03/07/29 09:29:09 61S0X050_140_0004

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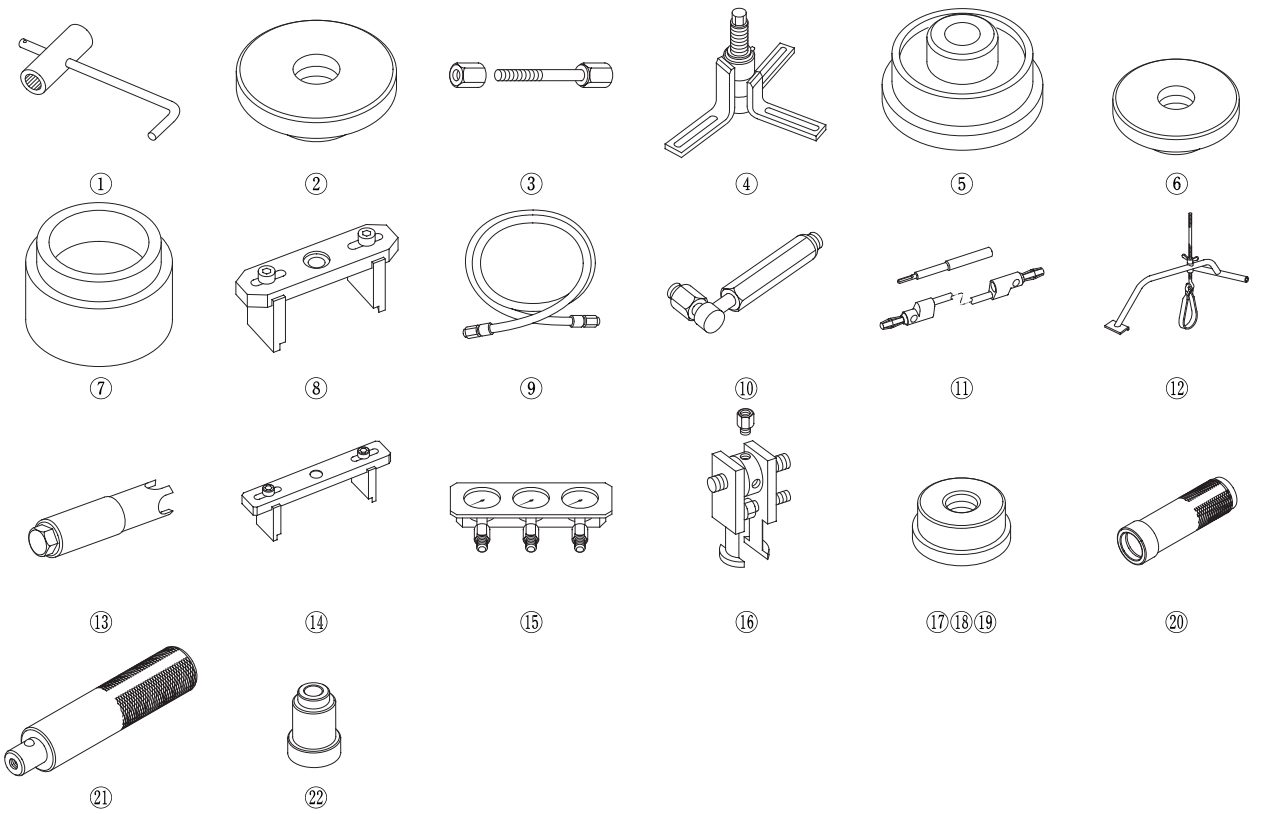
Automatic Transmission

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07GAB-PF50101 or 07GAB-PF50100	Mainshaft Holder	1
②	07GAD-PG40101 or 07GAD-PG40100	Seal Driver Attachment	1
③	07GAE-PG40200 or 07GAE-PG4020A	Clutch Spring Compressor Bolt Assembly	1
*④	07HAC-PK40102	Housing Puller	1
⑤	07HAD-SF10100	Driver Attachment	1
⑥	07JAD-PH80101	Oil Seal Driver Attachment	1
⑦	07LAD-PW50601	Attachment, 40 x 50 mm	1
**⑧	07LAE-PX40100	Clutch Spring Compressor Attachment	2
⑨	07MAJ-PY4011A	A/T Pressure Hose, 2,210 mm	4
⑩	07MAJ-PY40120	A/T Pressure Hose Adapter	4
⑪	07SAZ-001000A	Backprobe Set	2
⑫	07XAA-001030A	Engine Support Fixture	1
⑬	07XAJ-S0KA100	Preload Inspection Tool	1
⑭	07ZAE-PRP0100	Clutch Compressor Attachment	1
⑮	07406-0020400 or 07406-0020401	A/T Oil Pressure Gauge Set w/Panel	1
***⑯	07736-A01000B or 07736-A01000A	Adjustable Bearing Puller, 25－40 mm	1
⑰	07746-0010300	Attachment, 42 x 47 mm	1
⑱	07746-0010500	Attachment, 62 x 68 mm	1
⑲	07746-0010600	Attachment, 72 x 75 mm	1
⑳	07746-0030100	Driver, 40 mm I.D.	1
㉑	07749-0010000	Driver	1
㉒	07947-6340500	Driver Attachment	1

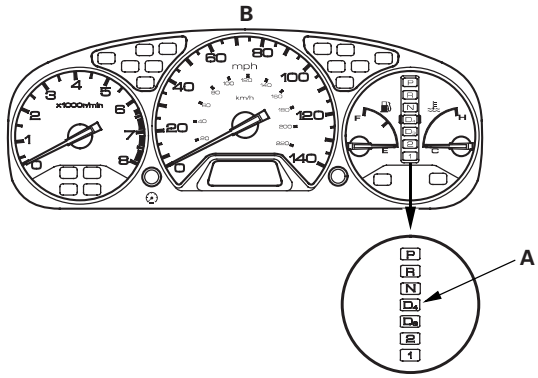
* If the top arm is too short, replace it with 07SAC-P0Z01001.
** 07HAE-PL50101 may be used to substitute one of these tools.
*** Must be used with commercially available 3/8''-16 slide hammer.



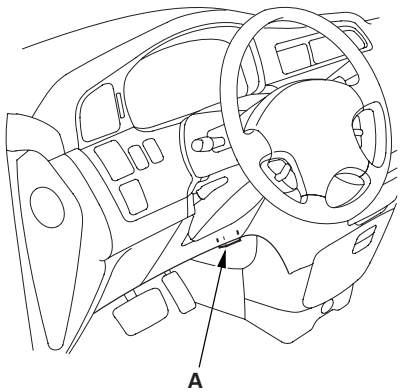
General Troubleshooting Information

How to Check for DTCs with the Honda Diagnostic System/Scan Tool

When the powertrain control module (PCM) senses an abnormality in the input or output systems, the D4 indicator (A) in the gauge assembly (B) will usually blink.



When the data link connector (DLC) (A) (located under the steering column lower cover) is connected to the Scan Tool or Honda Diagnostic System (HDS), it will indicate the diagnostic trouble code (DTC) when the ignition switch is turned ON (II).



If the D4 indicator or malfunction indicator lamp (MIL) has been reported on, or if a driveability problem is suspected, follow this procedure:

1. Connect the Scan Tool (conforming to SAE J1978) or HDS to the DLC. (See the Scan Tool or HDS user's manual for specific instructions.

2. Turn the ignition switch ON (II), select A/T system and observe the DTC in the DTCs MENU on the tester screen.

3. Record all fuel and emissions DTCs, A/T DTCs, and freeze data.

4. If there is a fuel and emissions DTC, first check the fuel and emissions system as indicated by the DTC (except for DTC P0700, DTC P0700 means there is one or more A/T DTCs, and no problems were detected in the fuel and emissions circuit of the PCM).

5. Clear the DTC and data.

   NOTE: You can also reset the memory by removing the No. 13 fuse in the passenger's under-dash fuse/relay box for more than 10 seconds. If you do, you need to do the following:
   - Get the customer's radio and navigation (if equipped) anti-theft code, and write down the radio and navigation presets.
   - Enter the radio and navigation (if equipped) anti-theft code, reset the preset stations, and set the clock.
   - Do the idle learn procedure (see page 11-202).

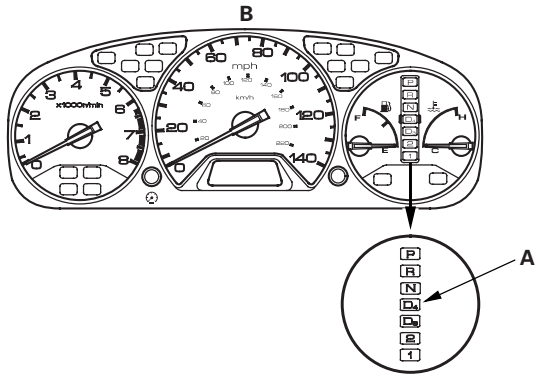
6. Drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, and then recheck for a DTC. If the A/T DTC returns, go to the DTC troubleshooting Index. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

(cont'd)

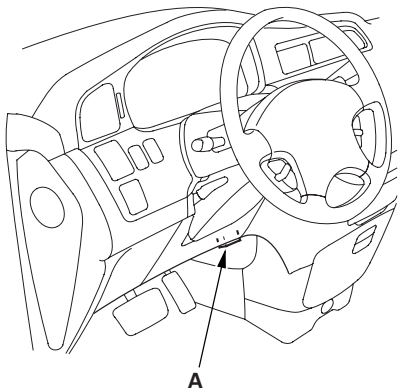
General Troubleshooting Information (cont'd)

How to Check for DTCs with the SCS Mode (retrieving the flash codes)

When the PCM senses an abnormality in the input or output system, the D4 indicator (A) in the gauge assembly (B) will usually blink.



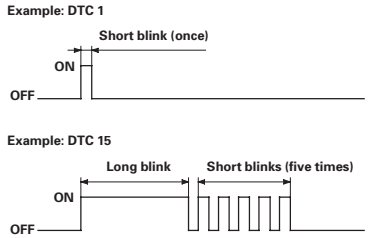
When the D4 indicator has been reported on, connect the HDS to the DLC (A) (located under the steering column lower cover). Turn the ignition switch ON (II), select Honda System, and SCS mode, then the D4 indicator will indicate the DTC.



If the D4 indicator and the MIL come on at the same time, or if a driveability problem is suspected, follow this procedure:

1. Connect the HDS to the DLC. (See the HDS user's manual for specific instructions.)

2. Turn the ignition switch ON (II), select Honda System, and then SCS mode, then observe the D4 indicator in the gauge assembly.
   Codes 1 through 9 are indicated by individual short blinks. Code 10 and above are indicated by a series of long and short blinks. One long blink equals 10 short blinks. Add the long and short blinks together to determine the code.



3. Record all fuel and emissions DTCs and A/T DTCs.

4. If there is a fuel and emissions DTC, first check the fuel and emissions system as indicated by the DTC (except DTC 70, DTC 70 means there is one or more A/T DTCs, and no problems were detected in the fuel and emissions circuit of the PCM).

5. Clear the DTC and data.

   NOTE: You can also reset the memory by removing the No. 13 fuse in the passenger's under-dash fuse/relay box for more than 10 seconds. If you do, you need to do the following:
   - Get the customer's radio and navigation (if equipped) anti-theft code, and write down the radio and navigation presets.
   - Enter the radio and navigation (if equipped) anti-theft code, reset the preset stations, and set the clock.
   - Do the idle learn procedure (see page 11-202).

6. Drive the vehicle for several minutes under the same conditions as those indicated by the freeze data or at speeds over 30 mph (50 km/h), and then recheck for DTC. If the A/T DTC returns, go to the DTC Troubleshooting Index. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

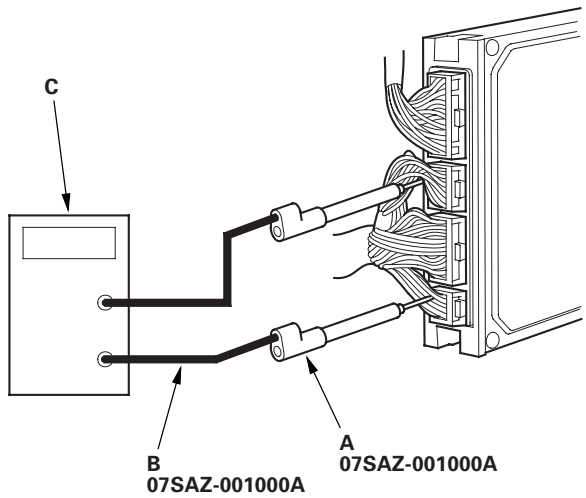
How to Troubleshoot Circuits at the PCM

Special Tools Required
Backprobe set 07SAZ-001000A (two required)

1. Pull back the carpet from passenger's side of the center lower console to expose the PCM.

2. Inspect the circuit on the PCM, according to the DTC troubleshooting, with the special tools and a digital multimeter.

3. Connect the backprobe adapters (A) to the stacking patch cords (B), and connect the cords to a multimeter (C).



4. Using the wire insulation as a guide for the contoured tip of the backprobe adapter, gently slide the tip into the connector from the wire side until it touches the end of the wire terminal.

5. If you cannot get to the wire side of the connector or the wire side is sealed, disconnect the connector and use the tester probe to probe the connectors from the terminal side. Do not force the probe into the connector.

Clear A/T DTCs, and PCM Reset Procedures

1. Connect the Scan Tool or the HDS to the DLC.

2. Turn the ignition switch ON (II).

3. Clear the DTC(s) with the Scan Tool or the HDS.

   NOTE: You can also reset the memory by removing the No. 13 fuse in the passenger's under-dash fuse/relay box for more than 10 seconds. If you do, you need to do the following:
   - Get the customer's radio and navigation (if equipped) anti-theft code, and write down the radio and navigation presets.
   - Enter the radio and navigation (if equipped) anti-theft code, reset the preset stations, and set the clock.
   - Do the idle learn procedure (see page 11-202).

(cont'd)

General Troubleshooting Information (cont'd)

How to End a Troubleshooting Session

This procedure must be done after any troubleshooting.

1. Turn the ignition switch OFF.
2. Connect the Scan Tool or the HDS to the DLC.
3. Turn the ignition switch ON (II).
4. Clear the DTC(s) with the Scan Tool or the HDS.

   NOTE: You can also reset the memory by removing the No. 13 fuse in the passenger's under-dash fuse/relay box for more than 10 seconds. If you do, you need to do the following:
   - Get the customer's radio and navigation (if equipped) anti-theft code, and write down the radio and navigation presets.
   - Enter the radio and navigation (if equipped) anti-theft code, reset the preset stations, and set the clock.
   - Do the idle learn procedure (see page 11-202).
5. To verify that the problem is repaired, test-drive the vehicle for several minutes at speeds over 30 mph (50 km/h) or under the same conditions as those indicated by the freeze data.

DTC Troubleshooting Index

1999-2000 Models

NOTE: Record all freeze data and review General Troubleshooting information (see page 14-3) before you troubleshoot.

DTC * (1)	D4 Indicator	MIL (CHECK)	Detection Item	Page
P0715 (15)	Blinks	ON	Mainshaft speed sensor	(see page 14-70)
P0720 (9)	Blinks	ON	Countershaft speed sensor	(see page 14-72)
P0730 (41)	OFF	ON	Shift control system	(see page 14-73)
P0740 (40)	OFF	ON	Lock-up control system	(see page 14-74)
P0753 (7)	Blinks	ON	Shift control solenoid valve A * (2)	(see page 14-75)
P0758 (8)	Blinks	ON	Shift control solenoid valve B * (2)	(see page 14-77)
P0763 (22)	Blinks	ON	Shift control solenoid valve C * (2)	(see page 14-79)
P1705 (5)	Blinks	ON	A/T gear position switch (short to ground) * (2)	(see page 14-81)
P1706 (6)	OFF	ON	A/T gear position switch (open) * (2)	(see page 14-84)
P1738 (25)	OFF	OFF	2nd clutch pressure switch	(see page 14-86)
P1739 (26)	OFF	OFF	3rd clutch pressure switch	(see page 14-88)
P1753 (1)	Blinks	ON	Lock-up control solenoid valve	(see page 14-90)
P1768 (16)	Blinks	ON	A/T clutch pressure control solenoid valve A * (2)	(see page 14-92)
P1773 (23)	Blinks	ON	A/T clutch pressure control solenoid valve B * (2)	(see page 14-94)

* (1): The DTC in parentheses is the code the D4 indicator indicates when the data link connector (DLC) is connected to the HDS, and the HDS is in the SCS mode.

* (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

DTC Troubleshooting Index (cont'd)

2001 Model

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

DTC * (1)	D4 Indicator	MIL	Detection Item	Page
P0715 (15)	Blinks	ON	Mainshaft speed sensor	(see page 14-96)
P0720 (9)	Blinks	ON	Countershaft speed sensor	(see page 14-98)
P0730 (41)	OFF	ON	Shift control system	(see page 14-99)
P0740 (40)	OFF	ON	Lock-up control system	(see page 14-100)
P0753 (7)	Blinks	ON	Shift solenoid valve A * (2)	(see page 14-101)
P0758 (8)	Blinks	ON	Shift solenoid valve B * (2)	(see page 14-103)
P0763 (22)	Blinks	ON	Shift solenoid valve C * (2)	(see page 14-105)
P0780 (45)	Blinks	ON	Mechanical problem in hydraulic system	(see page 14-107)
P1705 (5)	Blinks	ON	Transmission range switch (short to ground) * (2)	(see page 14-108)
P1706 (6)	OFF	ON	Transmission range switch (open) * (2)	(see page 14-111)
P1738 (25)	OFF	OFF	2nd clutch pressure switch	(see page 14-113)
P1739 (26)	OFF	OFF	3rd clutch pressure switch	(see page 14-115)
P1750 (46)	Blinks	ON	Mechanical problem in hydraulic system	(see page 14-117)
P1751 (47)	Blinks	ON	Mechanical problem in hydraulic system	(see page 14-118)
P1753 (1)	Blinks	ON	Torque converter clutch solenoid valve * (2)	(see page 14-119)
P1768 (16)	Blinks	ON	A/T clutch pressure control solenoid valve A * (2)	(see page 14-121)
P1773 (23)	Blinks	ON	A/T clutch pressure control solenoid valve B * (2)	(see page 14-123)

* (1): The DTC in parentheses is the code the D4 indicator indicates when the data link connector (DLC) is connected to the HDS, and the HDS is in the SCS mode.

* (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

Symptom Troubleshooting Index

These symptoms DO NOT trigger diagnostic trouble codes (DTCs) or cause the D4 indicator to blink. If the malfunction indicator lamp (MIL) was reported ON or the D4 indicator has been blinking, check for DTCs. But if the vehicle has one of the symptoms in the following chart, check the probable cause(s) for it, in the sequence listed, until you find the problem.

Symptom	Probable cause(s)	Notes
When you turn the ignition switch ON (II), the D4 indicator comes on and stays on or never comes on at all	A problem in the D4 indicator circuit	Check the D4 indicator circuit for 1999-2000 models (see page 14-166), for 2001 models (see page 14-169).
Shift lever cannot be moved from P while you're pressing on the brake pedal	A problem in the shift lock system of the interlock system	Check interlock system - shift lock system circuit (see page 14-179).
Ignition switch cannot be moved from ACC (I) position to LOCK (0) position (key is pushed in, shift lever in P)	A problem in the key interlock system of the interlock system	Check interlock system - key interlock system circuit (see page 14-182).
Engine runs, but vehicle does not move in any gear	1. Low ATF level 2. Shift cable broken or out of adjustment 3. Shift cable worn 4. ATF pump worn or binding 5. Regulator valve stuck or spring worn 6. ATF strainer clogged 7. Mainshaft worn or damaged 8. Final gears worn or damaged 9. Transmission-to-engine assembly error 10. Axle disengaged	• Check the ATF level, and check the ATF cooler lines for leakage and loose connections. If necessary, flush the ATF cooler lines. • Check for a loose shift cable at the shift lever and the transmission control shaft. • Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Measure line pressure. • If the strainer is clogged, find the damaged components that caused debris. • Inspect the differential pinion gear for wear. If the differential pinion gears are worn, replace the differential assembly, replace the ATF strainer, thoroughly clean the transmission, and flush the cooler and lines. • Be careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the main valve body. This will result in ATF pump seizure if not detected. Use the proper tools. • Install the main seal flush with the torque converter housing. If you push it into the torque converter housing until it bottoms out, it will block the fluid return passage and result in damage.

(cont'd)

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Vehicle moves in 2 and R, but not in D4, D3, or 1	1. 1st accumulator defective 2. 1st gears worn or damaged 3. 1st clutch defective	• Inspect 1st clutch pressure. • Inspect the secondary shaft and 1st/2nd clutch assembly for wear and damage. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Vehicle moves in D4, D3, 1, and R, but not in 2	1. Shift solenoid valve A defective 2. Shift valve A defective 3. 2nd accumulator defective 4. 2nd gears worn or damaged 5. 2nd clutch defective	• Check the 2 indicator, and check for loose connectors. Inspect the O-rings, and check the shift solenoid valve for seizure. • Inspect the secondary shaft and 1st/2nd clutch assembly for wear and damage. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Vehicle moves in D4, D3, 2, and 1, but not in R (or moves forward in R)	1. Shift fork shaft stuck 2. Modulator valve defective 3. Reverse Clutch Pressure Control (CPC) valve defective 4. 4th accumulator defective 5. 4th clutch defective 6. Reverse gears worn or damaged	• Check the line pressure and 4th clutch pressure. • Check for a missing shift fork bolt on the shift fork shaft. • If the ATF strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, and no cause for the contamination is found, replace the torque converter. • Inspect the reverse selector gear teeth chamfers, and inspect the engagement teeth chamfers of the countershaft 4th and reverse gear. Replace the reverse gears and the reverse selector if they are worn or damaged. If the transmission makes clicking, grinding, or whirring noises, also replace the mainshaft 4th gear, reverse idler gear, and countershaft 4th gear. • If the 4th clutch feed pipe guide in the end cover is scored by the mainshaft, inspect the ball bearing for excessive movement in the transmission housing. If the ball bearing is OK, replace the end cover as it is dented. The O-ring under the guide is probably worn. • Replace the mainshaft if the bushing for the 3rd and 4th clutch feed pipes are loose or damaged. If the 4th clutch feed pipe is damaged or out of round, replace the end cover. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the clutch end plate.

Symptom	Probable cause(s)	Notes
Poor acceleration; flares on starting off in D4 and D3; stall speed high in D4, D3, 2, and 1	1. Low ATF level 2. Shift cable broken or out of adjustment 3. ATF pump worn or binding 4. Regulator valve stuck or spring worn 5. ATF strainer clogged 6. Torque converter check valve defective	• Check the ATF level, and check the ATF cooler lines for leakage and loose connections. If necessary, flush the ATF cooler lines. • Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the line pressure. • Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptoms are mostly an rpm-ticking noise or a high pitched squeak. • Be careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the main valve body. This will result in ATF pump seizure if not detected. Use the proper tools.
Poor acceleration; flares on starting off in D4 and D3; stall speed high in D4, D3, and 1	1. Shift cable broken or out of adjustment 2. 1st clutch defective	• Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the 1st clutch pressure. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Poor acceleration; flares on starting off 2; stall speed high in 2	1. Shift cable broken or out of adjustment 2. 2nd clutch defective	• Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the 2nd clutch pressure. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Poor acceleration; flares on starting off in R; stall speed is within specification in D4, D3, 2, and 1, but high in R	4th clutch defective	• Check the 4th clutch pressure. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.

(cont'd)

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Poor acceleration; stall speed low	1. Torque converter clutch solenoid valve defective 2. Engine output low 3. Lock-up clutch piston defective 4. Lock-up shift valve defective	Check for a stuck lock-up valve in the valve body.
Engine idle vibration	1. Low ATF level 2. Torque converter clutch solenoid valve defective 3. Drive plate defective or transmission misassembled 4. Engine output low 5. Lock-up clutch piston defective 6. ATF pump worn or binding 7. Lock-up shift valve defective	• Set the idle rpm in gear to the specified idle speed. If it doesn't fix the problem, adjust the engine and transmission mounts. • Check the ATF level, and check the ATF cooler lines for leakage and loose connections. If necessary, flush the ATF cooler lines.
Vehicle moves in N	1. Excessive ATF 2. Foreign material in separator plate orifice 3. 1st clutch defective 4. 2nd clutch defective 5. 3rd clutch defective 6. 4th clutch defective 7. Clutch clearance incorrect 8. Needle bearing seized up, worn, or damaged 9. Thrust washer seized up, worn, or damaged	• Check the ATF level, and drain the ATF if it is over filled. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance. • Check all clutch pressures.

Symptom	Probable cause(s)	Notes
Late shift after shifting from N to D4 and D3, or excessive shock when shifted into D4 and D3	1. Shift solenoid valve C defective 2. A/T clutch pressure control solenoid valves A and B defective 3. Shift cable broken or out of adjustment 4. Joint in shift cable and transmission or body worn 5. Shift fork shaft stuck 6. CPC valve A stuck 7. Foreign material in separator plate orifice 8. Shift valve C defective 9. Servo control valve defective 10. 1st accumulator defective 11. 1st check ball stuck 12. 1st clutch defective	• Check the D4 indicator, and check for loose connectors. Inspect the O-ring, and check the shift solenoid valve for seizure. • Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the ATF strainer for debris. If the ATF strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, find the damaged components that caused the debris. If no cause for the contamination is found, replace the torque converter. • Check the 1st clutch pressure. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch-end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Late shift after shifting from N to R	1. Shift solenoid valve C defective 2. A/T clutch pressure control solenoid valves A and B defective 3. Shift cable broken or out of adjustment 4. Joint in shift cable and transmission or body worn 5. Shift fork shaft stuck 6. Foreign material in separator plate orifice 7. Reverse CPC valve defective 8. 4th accumulator defective 9. 4th clutch defective	• Check the D4 indicator, and check for loose connectors. Inspect the O-ring, and check the shift solenoid valve for seizure. • Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the ATF strainer for debris. If the ATF strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, find the damaged components that caused the debris. If no cause for the contamination is found, replace the torque converter. • Check the 4th clutch pressure. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch-end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.

(cont'd)

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
The A/T does not shift	Modulator valve defective.	Check the line pressure.
Erratic shifting; Fails to shift in D4; does not upshift to 4th	1. Shift solenoid valve A defective 2. Mainshaft speed sensor defective 3. Countershaft speed sensor defective 4. Shift valve A defective 5. Shift valve D defective	• Inspect the O-ring, and check the shift solenoid valve for seizure. • Check the D4 indicator, and check for loose connectors. Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and the shift cable.
Erratic shifting; Fails to shift in D4 and D3; does not upshift to 3rd and 4th	1. Shift solenoid valve B defective 2. Shift fork shaft stuck 3. Shift valve B defective 4. Servo control valve defective	• Check the D4 indicator, and check for loose connectors. Inspect the O-ring, and check the shift solenoid valve for seizure. • Check for a missing shift fork bolt on the shift fork shaft.
Erratic shifting; Fails to shift in D4 and D3; starts off in 3rd	1. Shift solenoid valve B defective 2. Shift valve B defective 3. Shift valve E defective	Check the D4 indicator, and check for loose connectors. Inspect the O-ring, and check the shift solenoid valve for seizure.
Excessive shock, or flares on all upshifts and downshifts	1. A/T clutch pressure control solenoid valves A and B defective 2. CPC valve A defective 3. CPC valve B defective 4. Foreign material in separator plate orifice	• Check the D4 indicator, and check for loose connectors. Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • If the ATF strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK and no cause for the contamination is found, replace the torque converter.
Excessive shock or flares on 1-2 upshift or 2-1 downshift	1. Shift solenoid valve C defective 2. 2nd clutch pressure switch or circuit defective 3. Foreign material in separator plate orifice 4. Shift valve C defective 5. 1st accumulator defective 6. 2nd accumulator defective 7. 1st check ball stuck 8. 2nd check ball stuck 9. 1st clutch defective 10. 2nd clutch defective	• Check the D4 indicator, and check for loose connectors. Inspect the O-rings, and check the shift solenoid valve for seizure. • Check the D4 indicator, and check for loose connectors. Check that the outlet is not clogged inside of the connector. • Check the 1st and 2nd clutch pressures. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch-end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.

Symptom	Probable cause(s)	Notes
Excessive shock, or flares on 2-3 upshift or 3-2 downshift	1. Shift solenoid valve C defective 2. 3rd clutch pressure switch or circuit defective 3. Foreign material in separator plate orifice 4. Shift valve C defective 5. 2nd accumulator defective 6. 3rd accumulator defective 7. 2nd check ball stuck 8. 2nd clutch defective 9. 3rd clutch defective	• Check the D4 indicator, and check for loose connectors. Inspect the O-rings, and check the shift solenoid valve for seizure. • Check the 2nd and 3rd clutch pressures. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch-end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Excessive shock, or flares on 3-4 upshift or 4-3 downshift	1. Shift solenoid valve C defective 2. Foreign material in separator plate orifice 3. Shift valve C defective 4. 3rd accumulator defective 5. 4th accumulator defective 6. 3rd clutch defective 7. 4th clutch defective	• Check the D4 indicator, and check for loose connectors. Inspect the O-rings, and check the shift solenoid valve for seizure. • Check the 3rd and 4th clutch pressures. • If the ATF strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, and no cause for the contamination is found, replace the torque converter, and check the stall speed. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch-end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Noise from transmission in all shift lever positions	1. ATF pump worn or binding 2. Torque converter housing or transmission housing bearing worn or damaged	• Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptoms are mostly an rpm-ticking noise or a high pitched squeak. • Inspect the contact of the countershaft and secondary shaft with the bearings. Check the ATF guide plates for damage and wear. Inspect the 1st clutch feed pipe for damage and out of round. If the 1st clutch feed pipe is damaged or out of round, replace it. Replace the secondary shaft if the bushing for the 1st clutch feed pipe is damaged or out of round.
Vehicle does not accelerate above 31 mph (50 km/h)	Torque converter one-way clutch defective	Replace the torque converter.

(cont'd)

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Vibration in all shift lever positions	Drive plate defective or transmission misassembled	• Check for a missinstalled/damaged drive plate. • Set the idle rpm in gear to the specified idle speed. If it doesn't fix the problem, adjust the engine mounts. • Check the stall speed.
Shift lever does not operate smoothly	1. Transmission range switch defective or out of adjustment 2. Shift cable broken or out of adjustment 3. Joint in shift cable and transmission or body worn	• Check the D4 indicator, and check for loose connectors. Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and the shift cable. • Check for a loose shift cable at the shift lever and the transmission control shaft.
Transmission does not shift into P	1. Shift cable broken or out of adjustment 2. Joint in shift cable and transmission or body worn 3. Park mechanism defective	• Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the park pawl spring installation and the park lever spring installation. If installation is incorrect, install the spring correctly. Make sure that the park lever stop is not installed upside down. Check the distance between the park pawl and the park lever roller pin. If the distance is out of tolerance, adjust the distance with the park lever stop.
Torque converter clutch does not disengage	1. Torque converter clutch solenoid valve defective 2. A/T clutch pressure control solenoid valves A and B defective 3. Torque converter clutch piston defective 4. Lock-up shift valve defective 5. Lock-up control valve defective 6. Lock-up timing valve defective	Check the D4 indicator, and check for loose connectors. Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves.

Symptom	Probable cause(s)	Notes
Torque converter clutch does not operate smoothly	1. Torque converter clutch solenoid valve defective 2. A/T clutch pressure control solenoid valves A and B defective 3. Torque converter clutch piston defective 4. Torque converter check valve defective 5. Lock-up shift valve defective 6. Lock-up control valve defective 7. Lock-up timing valve defective	• Check the D4 indicator, and check for loose connectors. Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Center all engine mounts.
Torque converter clutch does not engage	1. Torque converter clutch solenoid valve defective 2. A/T clutch pressure control solenoid valves A and B defective 3. Mainshaft speed sensor defective 4. Countershaft speed sensor defective 5. Torque converter clutch piston defective 6. Torque converter check valve defective 7. Lock-up shift valve defective 8. Lock-up control valve defective	Check the D4 indicator, and check for loose connectors. Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves.
A/T gear position indicator does not indicate shift lever positions	1. Transmission range switch defective or out of adjustment 2. Shift cable broken or out of adjustment 3. Shift cable joint in transmission or body worn	• Check the D4 indicator, and check for loose connectors. Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and the shift cable. • Check for a loose shift cable at the shift lever and the transmission control shaft.
Speedometer does not work	Countershaft speed sensor defective	Check the D4 indicator, and check for loose connectors.

System Description

General Operation

The automatic transmission is a combination of a 3-element torque converter and triple-shaft electronically controlled unit which provides 4 speeds forward and 1 reverse. The entire unit is positioned in line with the engine.

Torque Converter, Gears, and Clutches

The torque converter consists of a pump, turbine, and stator assembly in a single unit. The converter housing (pump) is connected to the engine crankshaft and turn as the engine turns. Around the outside of the torque converter is a ring gear which meshes with the starter pinion when the engine is being started. The entire torque converter assembly serves as a flywheel, transmitting power to the transmission mainshaft. The transmission has three parallel shafts: the mainshaft, the countershaft, and the secondary shaft. The mainshaft is in line with the engine crankshaft. The mainshaft includes the 3rd and 4th clutches, and gears for 3rd, 4th, reverse, and idler (reverse gear is integral with the 4th gear). The countershaft includes the final drive, 1st, 3rd, 4th, reverse, 2nd, park, and idler gears (the final drive gear is integral with the countershaft). The secondary shaft includes the 1st and 2nd clutches, and gears for 1st, 2nd, and idler. The countershaft 4th gear and the countershaft reverse gear can be locked to the countershaft at its center, providing 4th gear or reverse, depending which way the selector moved. The gears on the mainshaft and the secondary shaft are in constant mesh with those on the countershaft. When certain combinations of gears in the transmission are engaged by the clutches, power is transmitted through the mainshaft, then to the secondary shaft to the countershaft to provide drive.

Electronic Control

The electronic control system consists of the powertrain control module (PCM), sensors, and six solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions. The PCM is located below the dashboard, under the front lower panel behind the center console.

Hydraulic Control

The valve bodies include the main valve body, the regulator valve body, the servo body, and the accumulator body. They are bolted to the torque converter housing. The main valve body contains the manual valve, the modulator valve, the shift valve C, the shift valve D, the shift valve E, the servo control valve, the torque converter check valve, the reverse Clutch Pressure Control C (CPC) valve, the lock-up shift valve, the relief valve, the cooler check valve, and the ATF pump gears. The regulator valve body contains the regulator valve, the lock-up timing valve, and the lock-up control valve. The servo body contains the servo valve, the shift valve A, the shift valve B, the CPC valves A and B, and 3rd and 4th accumulators. The accumulator body contains the 1st and 2nd accumulators and lubrication check valve. Fluid from the regulator passes through the manual valve to the various control valves. The 1st, 3rd, and 4th clutches receive fluid from their respective feed pipes, and the 2nd clutch receives fluid from the internal hydraulic circuit.

Shift Control Mechanism

To shift gears, the PCM controls shift solenoid valves A, B, and C, and A/T clutch pressure control solenoid valves A and B while receiving input signals from various sensors and switches located throughout the vehicle. The shift solenoid valves shift the positions of the shift valves to switch the port leading hydraulic pressure to the clutch. The A/T clutch pressure control solenoid valves A and B control the CPC valves A and B to shift smoothly between lower gear and higher gear. This pressurizes a line to one of the clutches, engaging the clutch and its corresponding gear.

Lock-up Mechanism

The lock-up mechanism operates in the D4 position (3rd and 4th) and D3 position (3rd). The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same speed as the engine crankshaft. Together with hydraulic control, the PCM optimizes the timing of the lock-up mechanism. When the torque converter clutch solenoid valve activates, modulator pressure changes to switch lock-up on and off. The lock-up control valve and the lock-up timing valve control the amount of lock-up according to A/T clutch pressure control solenoid valves A and B. The torque converter clutch solenoid valve is mounted on the torque converter housing, and A/T clutch pressure control solenoid valves A and B are mounted on the transmission housing. They are all controlled by the PCM.

Gear Selection
The shift lever has seven positions; P: PARK, R: REVERSE, N: NEUTRAL, D4: 1st through 4th gear ranges, D3: 1st through 3rd gear ranges, 2: 2nd gear, and 1: 1st gear.

Position	Description
P: PARK	Front wheels locked; park pawl engaged with park gear on countershaft. All clutches are released.
R: REVERSE	Reverse; reverse selector engaged with countershaft reverse gear and 4th clutch locked.
N: NEUTRAL	All clutches are released.
D4: DRIVE (1st through 4th)	General driving; starts off in 1st, shifts automatically to 2nd, 3rd, then 4th, depending on vehicle speed and throttle position. Downshift through 3rd, 2nd, and 1st on deceleration to stop. The lock-up mechanism operates in 3rd and 4th gear.
D3: DRIVE (1st through 3rd)	Used for rapid acceleration at highway speeds and general driving; up-hill and down-hill driving; starts off in 1st, shifts automatically to 2nd, then 3rd, depending on vehicle speed and throttle position. Downshifts through 2nd to 1st on deceleration to stop. The lock-up mechanism operates in 3rd gear only.
2: SECOND	Used for engine braking or better traction starting off on loose or slippery surfaces; stays in 2nd gear, does not shift up or down.
1: FIRST	Used for engine braking; stays in 1st gear, does not shift up.

Starting is possible only in the P and N positions because of the slide-type neutral-safety switch.

Automatic Transaxle (A/T) Gear Position Indicator
The A/T gear position indicator in the instrument panel shows which shift lever position has been selected.

System Description (cont'd)

Clutches

The 4-speed automatic transmission uses hydraulically-actuated clutches to engage or disengage the transmission gears. When hydraulic pressure is introduced into the clutch drum, the clutch piston moves. This presses the friction discs and steel plates together, locking them so they don't slip. Power is then transmitted through the engaged clutch pack to its hub-mounted gear. Likewise, when the hydraulic pressure is bled from the clutch pack, the piston releases the friction discs and the steel plates, and they are free to slide past each other. This allows the gear to spin independently on its shaft, transmitting no power.

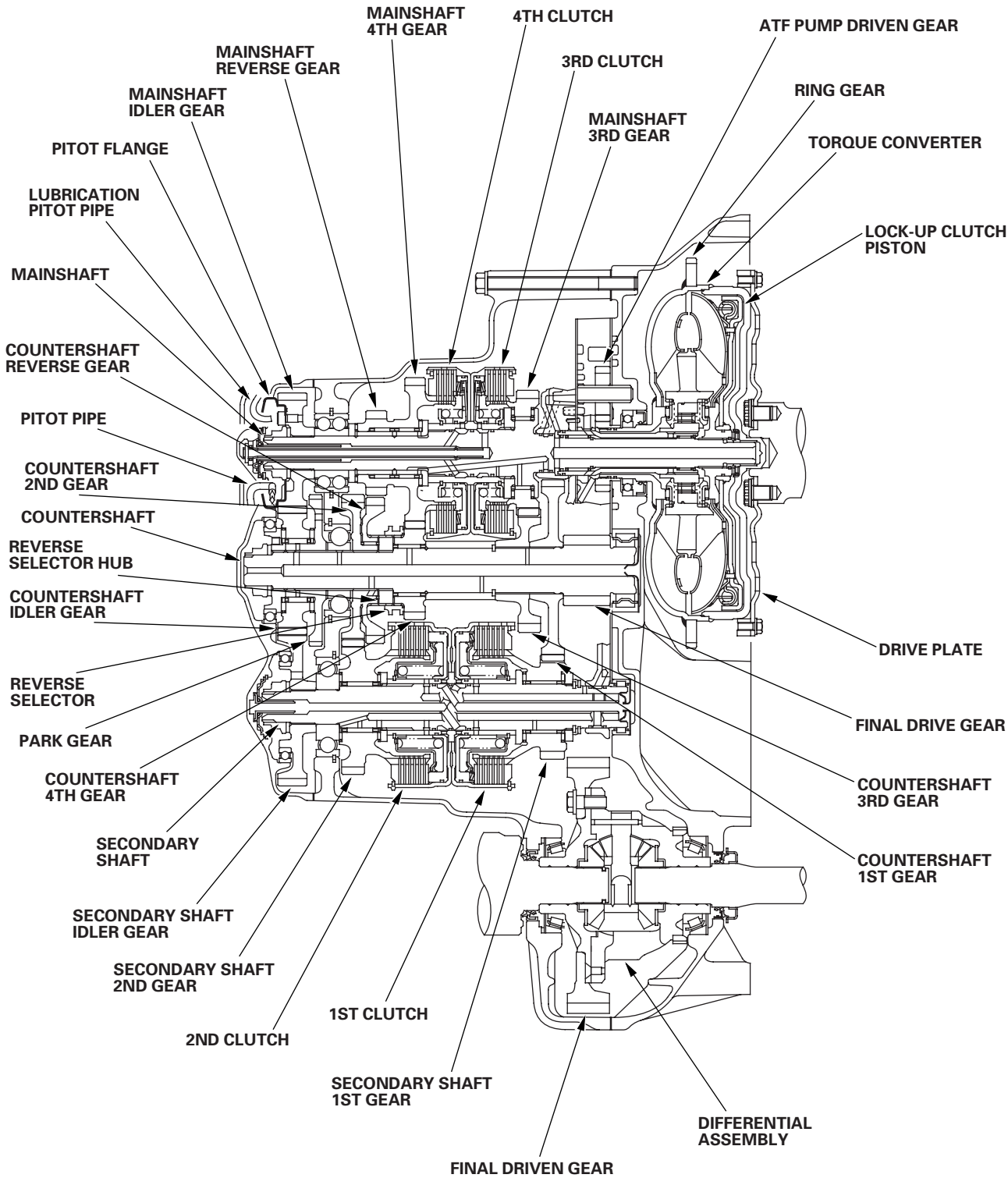
1st Clutch
The 1st clutch engages/disengages 1st gear, and is located at the middle of the secondary shaft. The 1st clutch is joined back-to-back to the 2nd clutch. The 1st clutch is supplied hydraulic pressure by its ATF feed pipe within the secondary shaft.

2nd Clutch
The 2nd clutch engages/disengages 2nd gear, and is located at the middle of the secondary shaft. The 2nd clutch is joined back-to-back to the 1st clutch. The 2nd clutch is supplied hydraulic pressure through the secondary shaft by a circuit connected to the internal hydraulic circuit.

3rd Clutch
The 3rd clutch engages/disengages 3rd gear, and is located at the middle of the mainshaft. The 3rd clutch is joined back-to-back to the 4th clutch. The 3rd clutch is supplied hydraulic pressure by its ATF feed pipe within the mainshaft.

4th Clutch
The 4th clutch engages/disengages 4th gear, as well as reverse gear, and is located at the middle of the mainshaft. The 4th clutch is joined back-to-back to the 3rd clutch. The 4th clutch is supplied hydraulic pressure by its ATF feed pipe within the mainshaft.

Transmission Cutaway View



System Description (cont'd)

Power Flow

POSITION		PART							
		TORQUE CONVERTER	1ST GEAR 1ST CLUTCH	2ND GEAR 2ND CLUTCH	3RD GEAR 3RD CLUTCH	4TH		REVERSE GEAR	PARK GEAR
						GEAR	CLUTCH		
P		○	×	×	×	×	×	×	○
R		○	×	×	×	×	○	○	×
N		○	×	×	×	×	×	×	×
D4	1ST	○	○	×	×	×	×	×	×
	2ND	○	×	○	×	×	×	×	×
	3RD	○	×	×	○	×	×	×	×
	4TH	○	×	×	×	○	○	×	×
D3	1ST	○	○	×	×	×	×	×	×
	2ND	○	×	○	×	×	×	×	×
	3RD	○	×	×	○	×	×	×	×
2		○	×	○	×	×	×	×	×
1		○	○	×	×	×	×	×	×

○:Operates
×:Doesn't operate

Gear Operation

Gears on the mainshaft:

- The 3rd gear is engaged/disengaged with the mainshaft by the 3rd clutch.
- The 4th gear is engaged/disengaged with the mainshaft by the 4th clutch.
- The reverse gear is engaged/disengaged with the mainshaft by the 4th clutch.
- The idler gear is splined with the mainshaft and rotates with the mainshaft.

Gears on the countershaft:

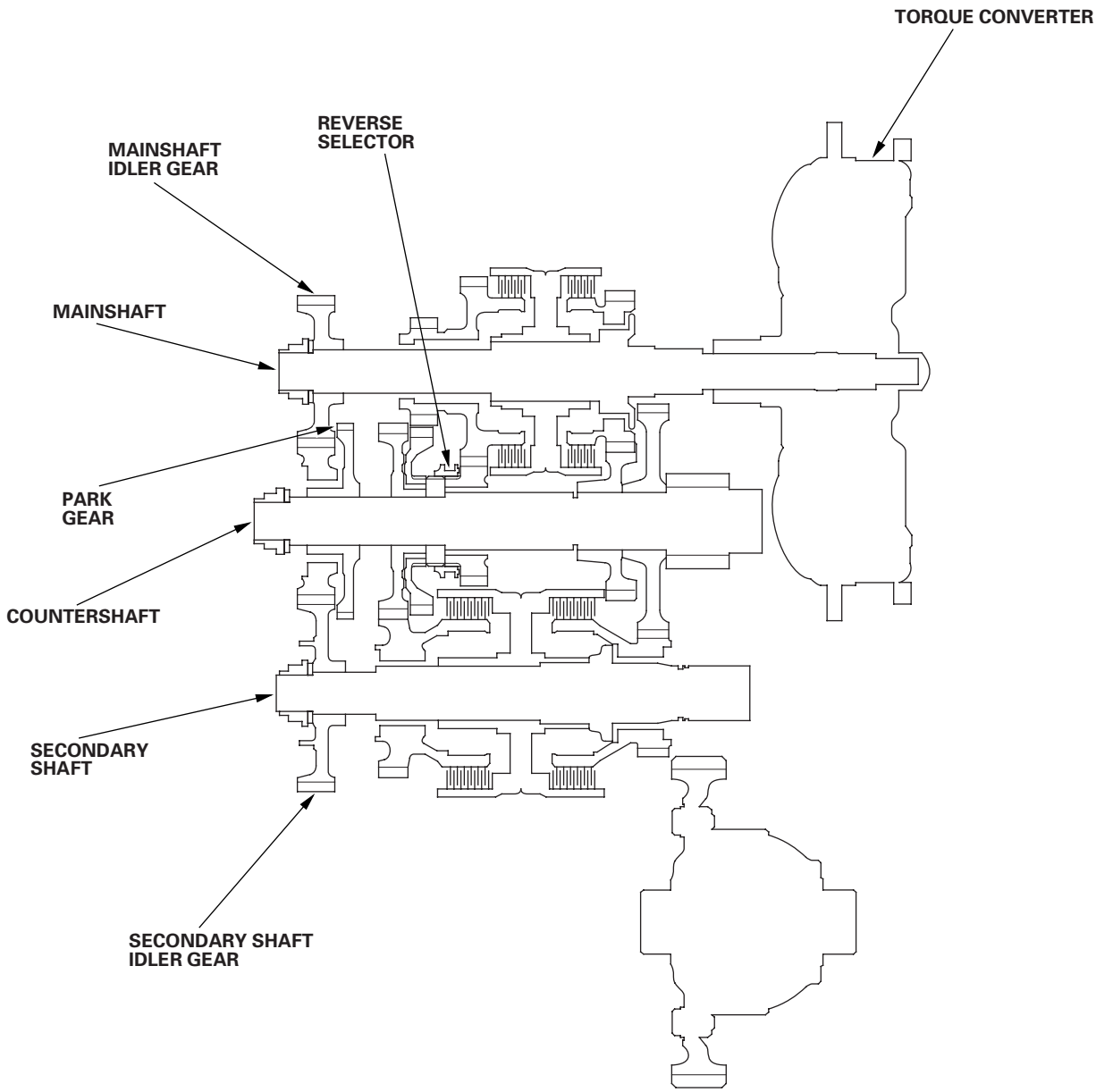
- The final drive gear is integral with the countershaft.
- The 1st gear, 3rd gear, 2nd gear, and park gear are splined with the countershaft, and rotate with the countershaft.
- The 4th gear and reverse gear rotate freely from the countershaft. The reverse selector engages the 4th gear or the reverse gear with the reverse selector hub. The reverse selector hub is splined with the countershaft so that the 4th gear or reverse gear engages with the countershaft.
- The idler gear rotates freely from the countershaft.

Gears on the secondary shaft:

- The 1st gear is engaged/disengaged with the secondary shaft by the 1st clutch.
- The 2nd gear is engaged/disengaged with the secondary shaft by the 2nd clutch.
- The idler gear is splined with the secondary shaft and rotates with the secondary shaft.

P Position
Hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. The countershaft is locked by the park pawl interlocking the park gear.

N Position
Engine power transmitted from the torque converter drives the mainshaft idler gear, the countershaft idler gear, and the secondary shaft idler gear, but hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. The countershaft 4th gear is engaged to the reverse selector hub by the shift fork reverse selector when the shift lever is shifted in the N position from the D4 position. The countershaft reverse gear is engaged when shifted from the R position.



(cont'd)

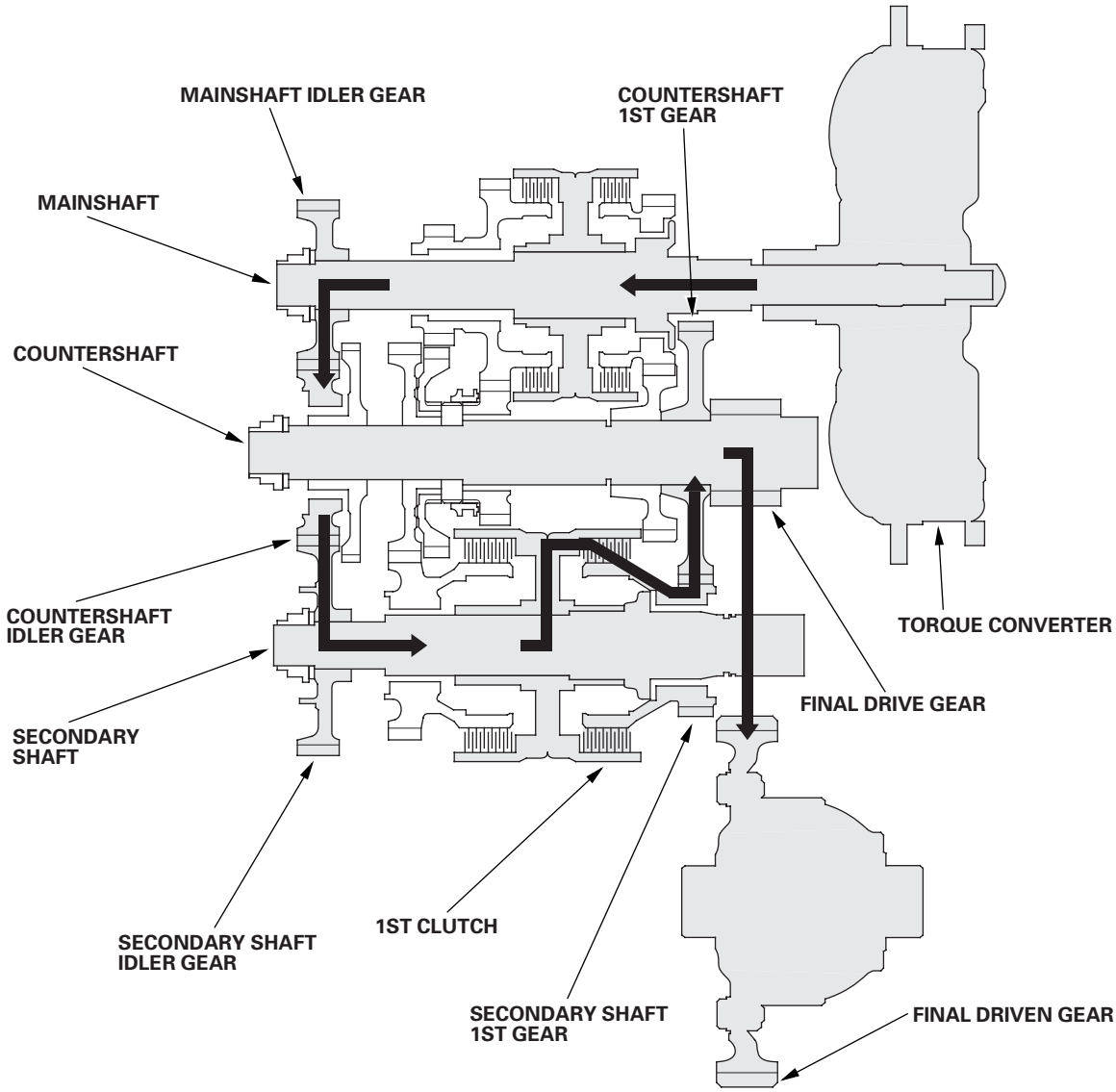
System Description (cont'd)

Power Flow (cont'd)

In the D4 or D3 position, the optimum gear is automatically selected from the 1st, 2nd, 3rd, and 4th gears, according to conditions such as the balance between the throttle opening (engine loading) and vehicle speed.

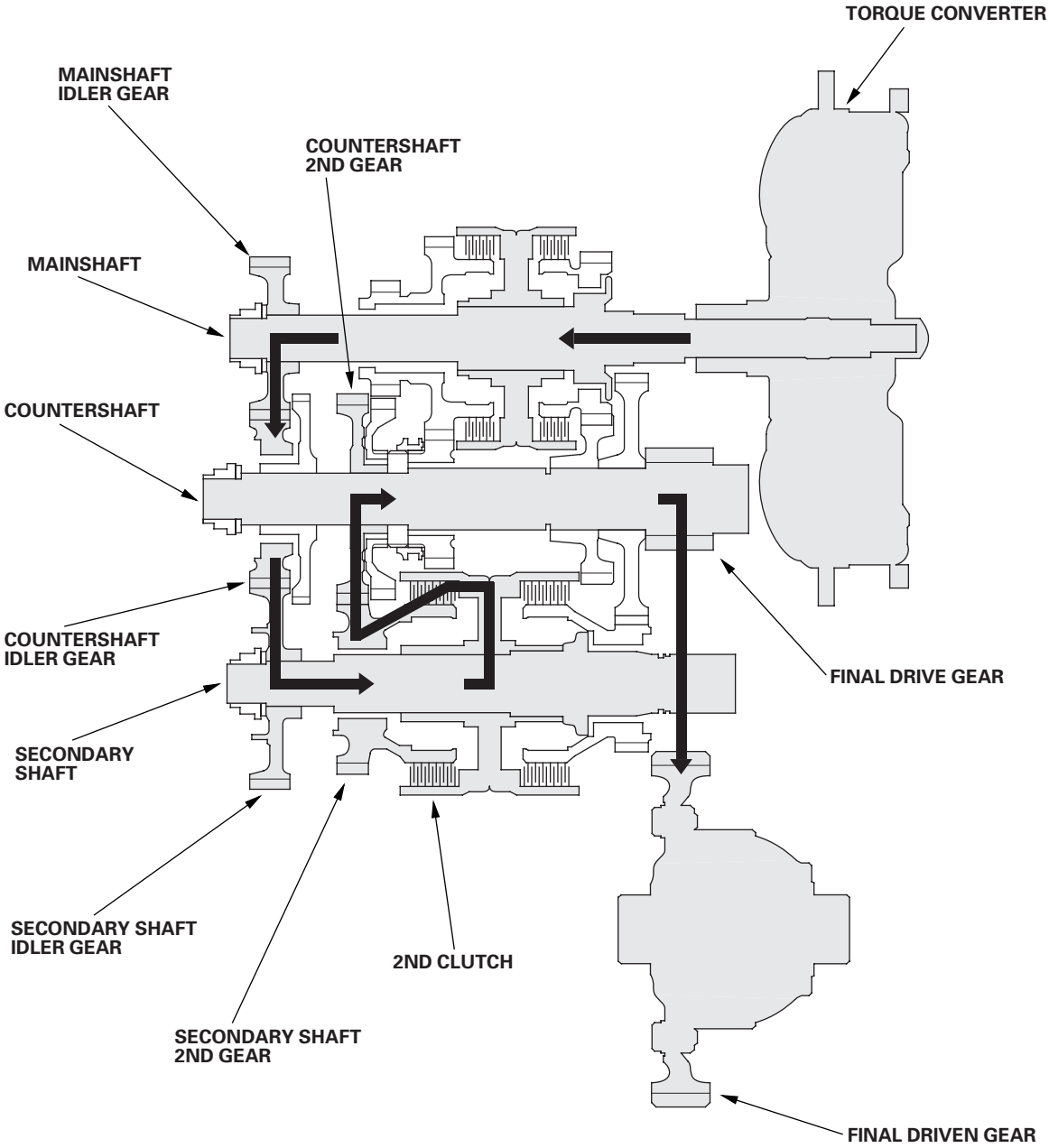
D4 or D3 Position in 1st gear and the 1 Position

- Hydraulic pressure is applied to the 1st clutch, then the 1st clutch engages the secondary shaft 1st gear with the secondary shaft.
- The mainshaft idler gear drives the secondary shaft via the countershaft idler gear and secondary shaft idler gear.
- The secondary shaft 1st gear drives the countershaft 1st gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



D4 or D3 Position in 2nd gear and the 2 Position

- Hydraulic pressure is applied to the 2nd clutch, then the 2nd clutch engages the secondary shaft 2nd gear with the secondary shaft.
- The mainshaft idler gear drives the secondary shaft via the countershaft idler gear and secondary shaft idler gear.
- The secondary shaft 2nd gear drives the countershaft 2nd gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



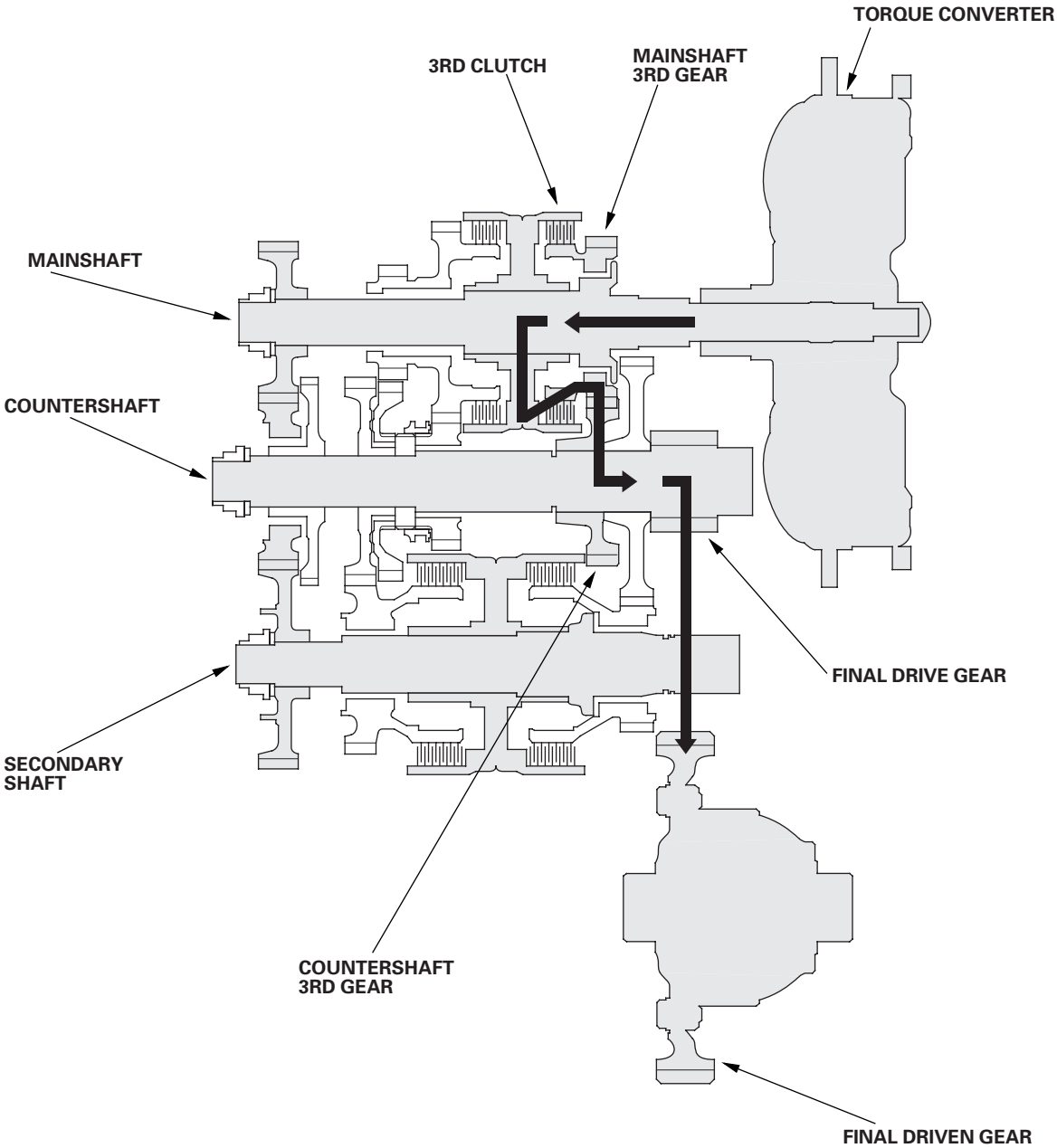
(cont'd)

System Description (cont'd)

Power Flow (cont'd)

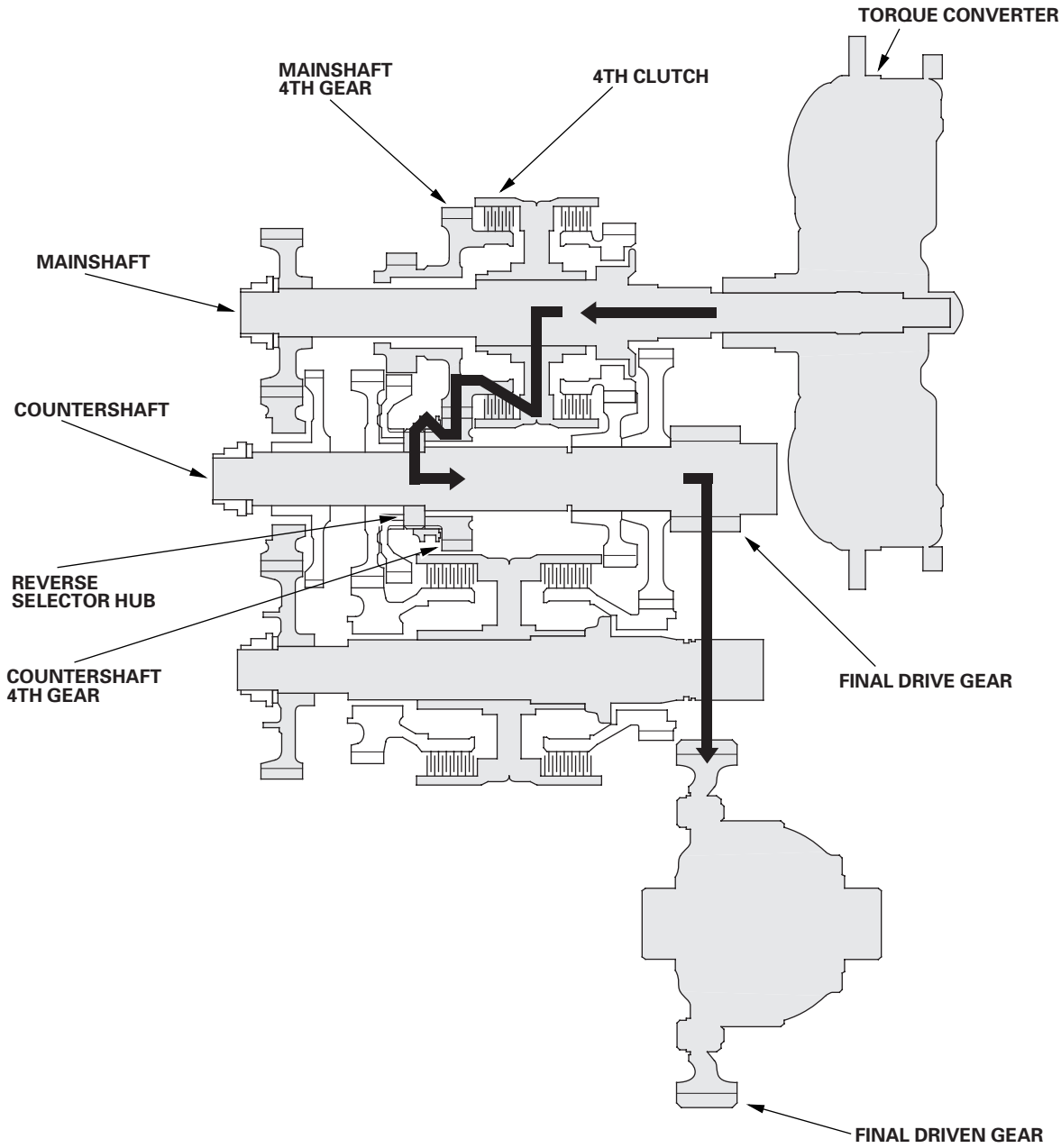
D4 or D3 Position in 3rd gear

- Hydraulic pressure is applied to the 3rd clutch, then the 3rd clutch engages the mainshaft 3rd gear with the mainshaft.
- The mainshaft 3rd gear drives the countershaft 3rd gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



D4 Position in 4th gear

- Hydraulic pressure is applied to the servo valve to engage the reverse selector with the countershaft 4th gear while the shift lever is in the forward range (D4, D3, 2, and 1 position).
- Hydraulic pressure is also applied to the 4th clutch, then the 4th clutch engages the mainshaft 4th gear with the mainshaft.
- The mainshaft 4th gear drives the countershaft 4th gear, which drives the reverse selector hub and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



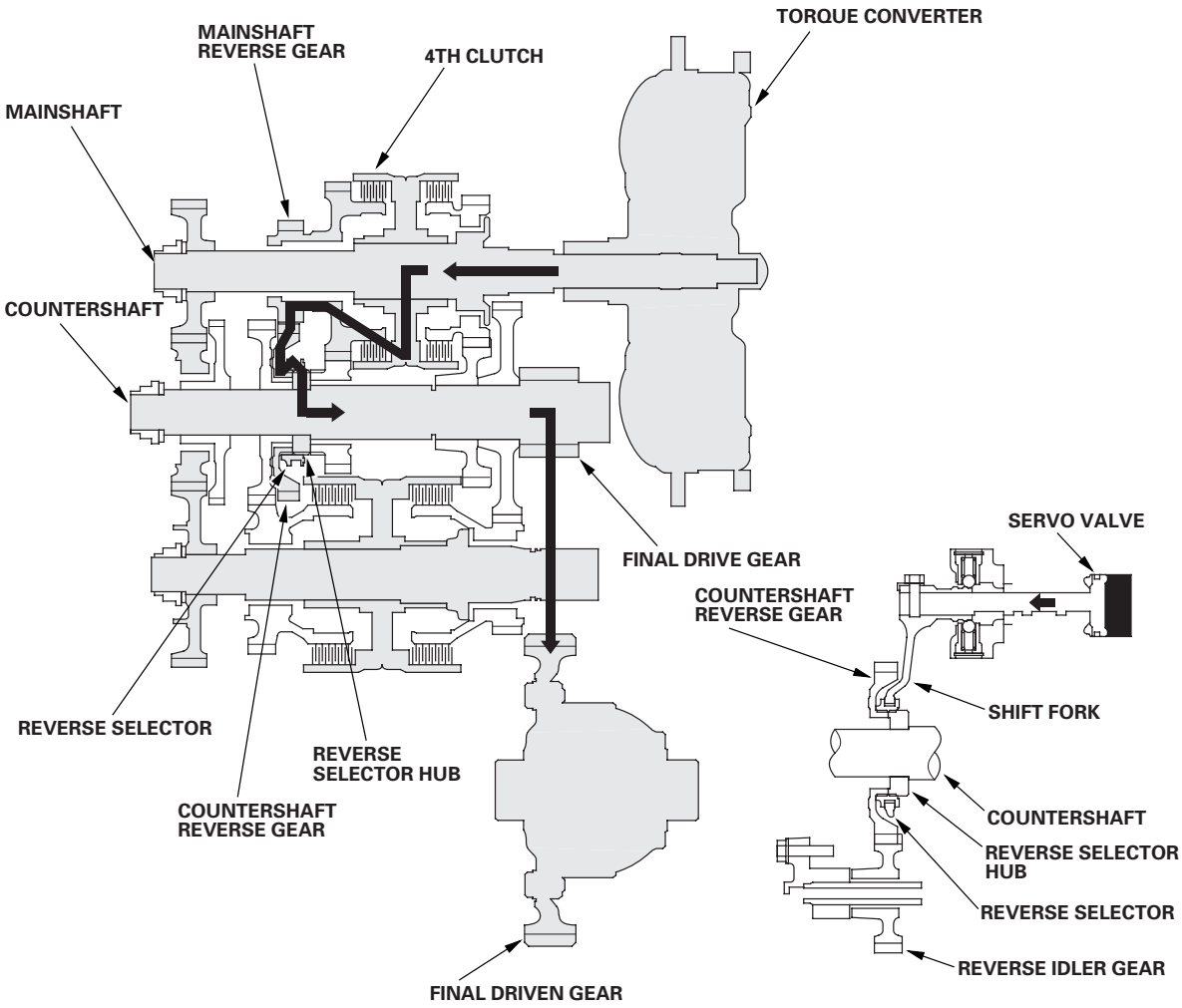
(cont'd)

System Description (cont'd)

Power Flow (cont'd)

R Position

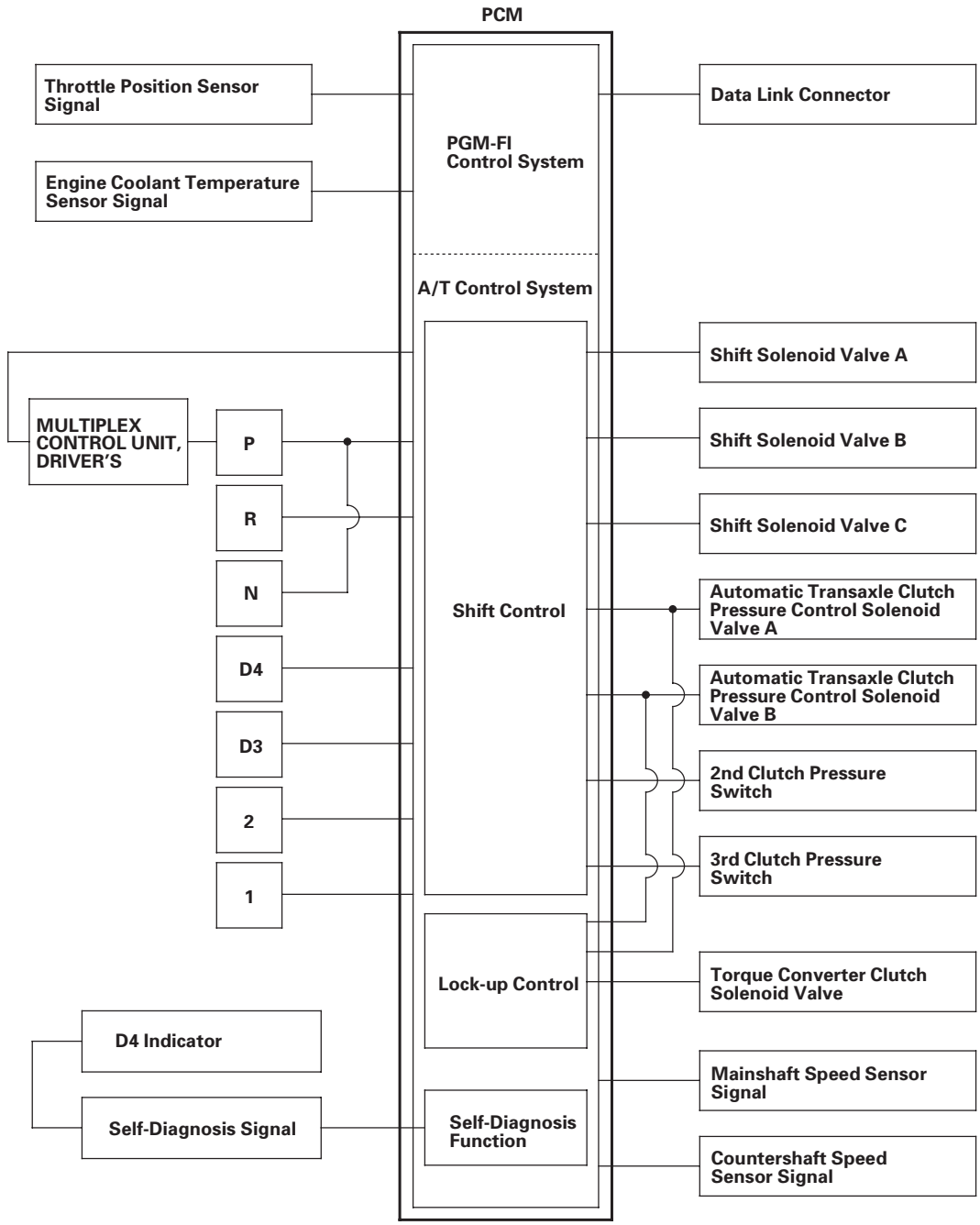
- Hydraulic pressure is applied to the servo valve to engage the reverse selector with the countershaft (reverse gear while the shift lever is in the R position).
- Hydraulic pressure is also applied to the 4th clutch, then the 4th clutch engages the mainshaft reverse gear with the mainshaft.
- The mainshaft reverse gear drives the countershaft reverse gear via the reverse idler gear.
- The rotation direction of the countershaft reverse gear is changed via the reverse idler gear.
- The countershaft reverse gear drives the countershaft via the reverse selector which drives the reverse selector hub.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



Electronic Control System

Functional Diagram

The electronic control system consists of the powertrain control module (PCM), sensors, and six solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions. The PCM is located below the dashboard, under the front lower panel behind the center console.

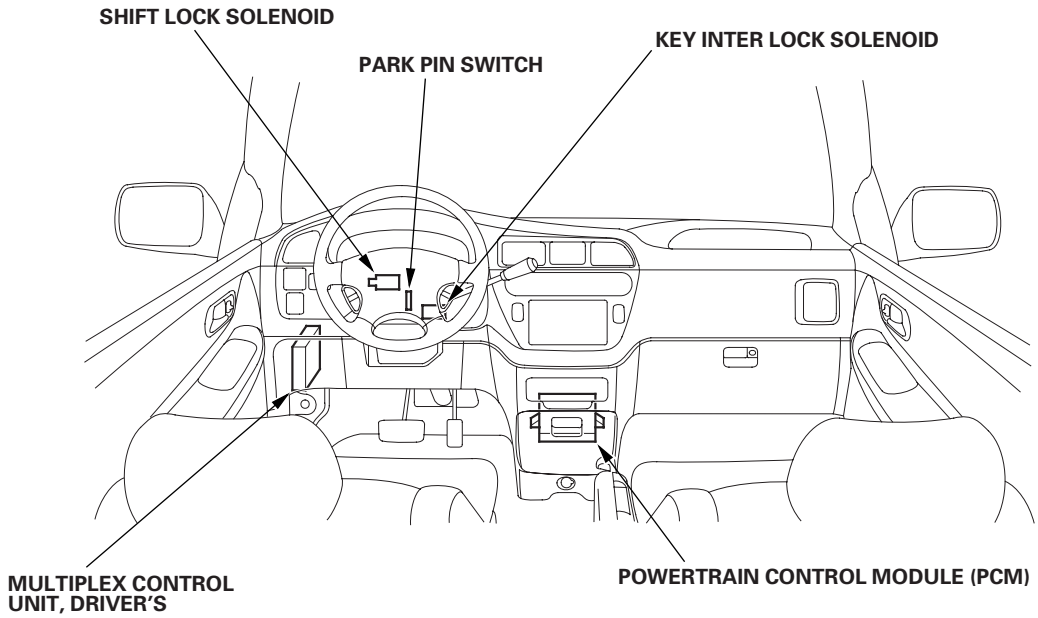


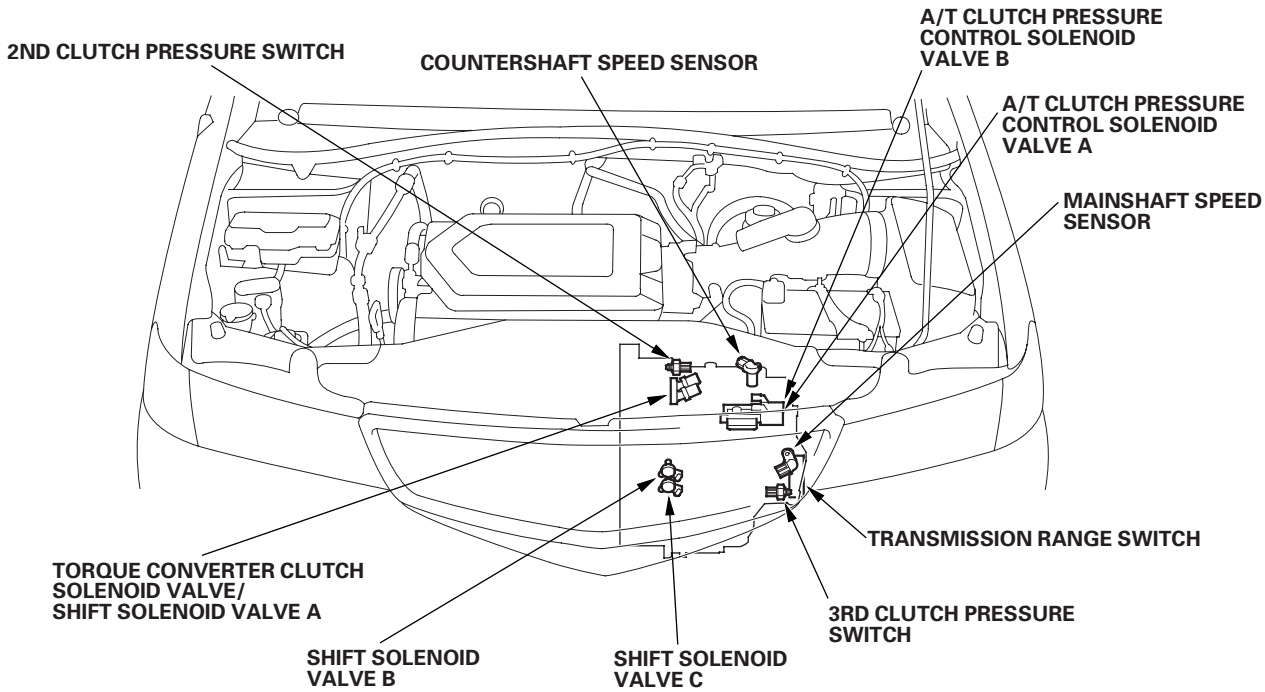
(cont'd)

System Description (cont'd)

Electronic Control System (cont'd)

Electronic Controls Location





Shift Control
Shifting is related to engine torque through the solenoid valves, which are controlled by the PCM. The PCM instantly determines which gear should be selected by various signals sent from sensors, and actuates the shift solenoid valves A, B, and C to control shifting. Also, a grade logic control system has been adopted to control shifting in the D4 and D3 positions while the vehicle is ascending or descending a slope, or reducing speed.
The combination of driving signals to shift solenoid valves A, B, and C are shown in the table.

Position	Gear position	Shift solenoid valves		
		A	B	C
D4, D3	Shifting from the N position	ON	ON	ON
	Stays in 1st	OFF	ON	ON
	Shifting gears between 1st and 2nd	ON	ON	ON
	Stays in 2nd	ON	ON	OFF
	Shifting gears between 2nd and 3rd	ON	OFF	OFF
	Stays in 3rd	ON	OFF	ON
D4	Shifting gears between 3rd and 4th	OFF	OFF	ON
	Stays in 4th	OFF	OFF	OFF
2	2nd	ON	ON	OFF
1	1st	OFF	ON	ON
R	Shifting from the P and N position	OFF	ON	ON
	Stays in reverse	OFF	ON	OFF
	Reverse inhibit	OFF	ON	ON
P	Park	OFF	ON	OFF
N	Neutral	OFF	ON	OFF

Lock-up Control
The torque converter clutch solenoid valve controls modulator pressure to switch the lock-up shift valve and lock-up ON and OFF. The PCM controls the torque converter clutch solenoid valve and the A/T clutch pressure control solenoid valves A and B. When the torque converter clutch solenoid valve is turned ON, the condition of lock-up starts. The A/T clutch pressure control solenoid valves A and B regulate A/T clutch pressure control solenoid pressure and apply the pressure to the lock-up control valve and the lock-up timing valve. The lock-up control mechanism operates in 3rd and 4th gear in D4, and in 3rd gear in D3 positions.

(cont'd)

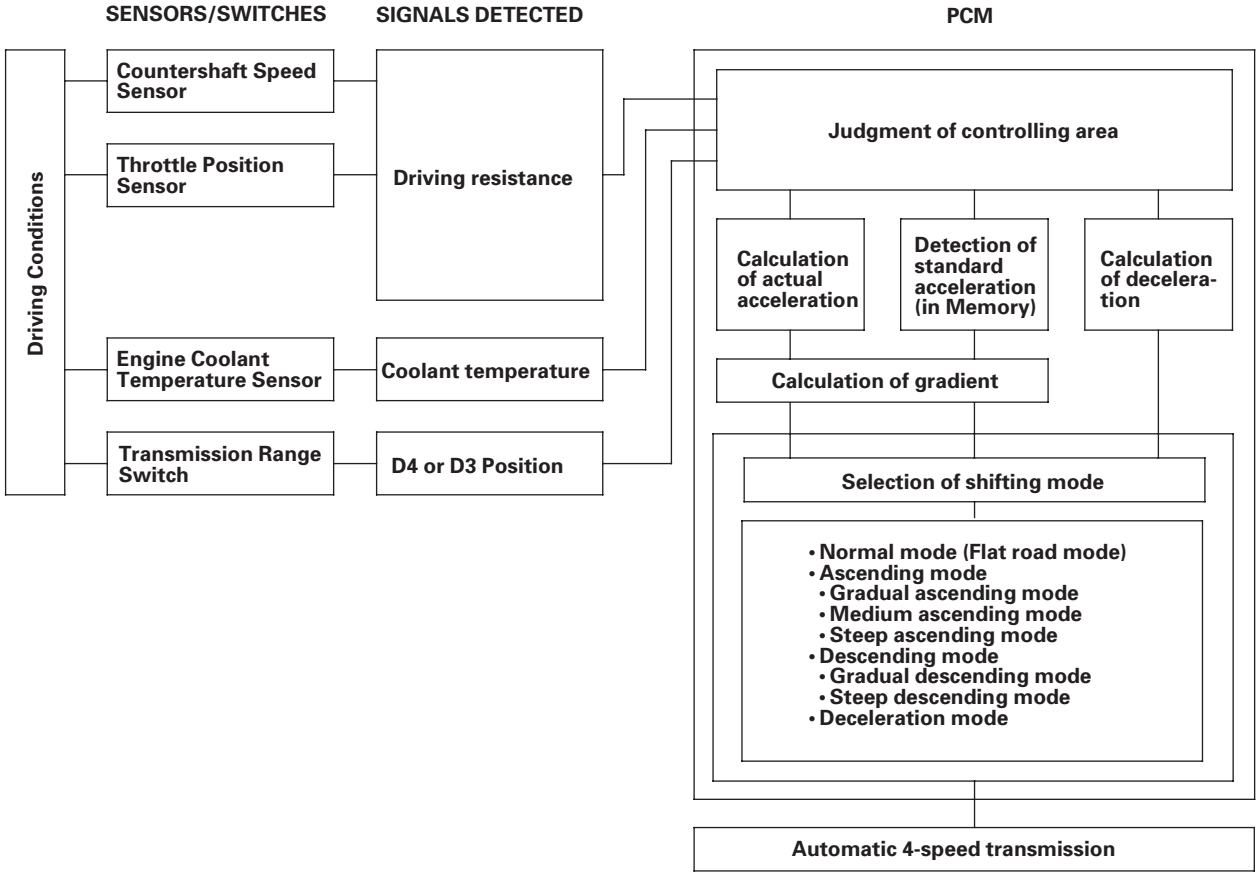
System Description (cont'd)

Electronic Control System (cont'd)

Grade Logic Control System

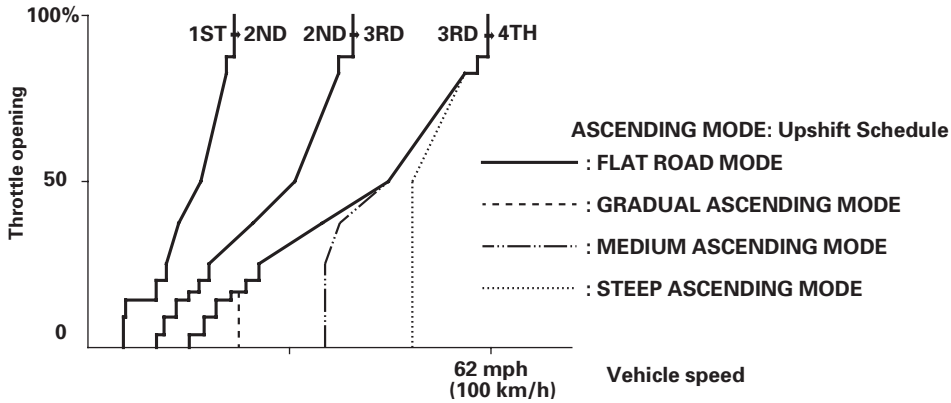
How it works:

The PCM compares actual driving conditions with memorized driving conditions, based on the input from the countershaft speed sensor, the throttle position sensor, the engine coolant temperature sensor, the brake pedal position switch signal, and the shift lever position signal, to control shifting while the vehicle is ascending or descending a slope, or reducing speed.

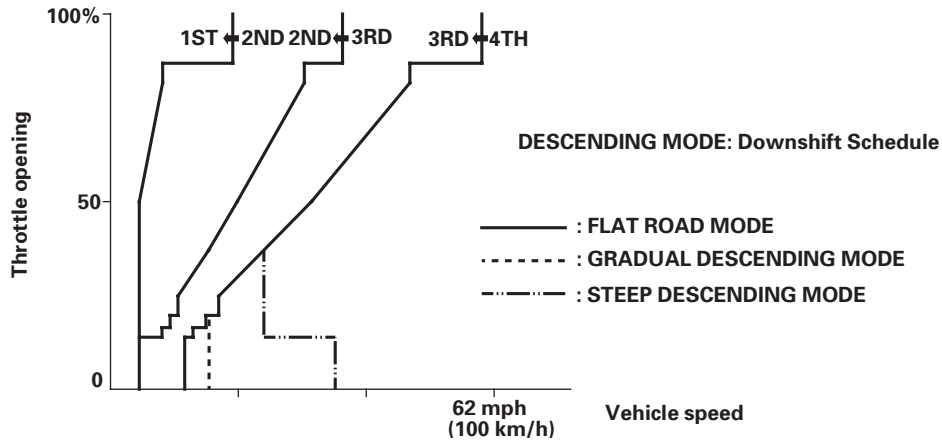


Grade Logic Control: Ascending Control
When the PCM determines that the vehicle is climbing a hill in the D4 and D3 positions, the system extends the engagement area of 2nd gear and 3rd gear to prevent the transmission from frequently shifting between 2nd and 3rd gears, and between 3rd and 4th gears, so the vehicle can run smooth and have more power when needed.

NOTE: Shift schedules stored in the PCM between 2nd and 3rd gears, and between 3rd and 4th gears, enable to automatically select the most suitable gear according to the magnitude of a gradient.



Grade Logic Control: Descending Control
When the PCM determines that the vehicle is going down a hill in the D4 and D3 positions, the shift-up speed from 3rd to 4th gear and from 2nd to 3rd (when the throttle is closed) becomes faster than the set speed for flat road driving to widen the 3rd gear and 2nd gear driving areas. This, in combination with engine braking from the deceleration lock-up, achieves smooth driving when the vehicle is descending. There are two descending modes with different 3rd gear driving areas and 2nd gear driving areas according to the magnitude of a gradient stored in the PCM. When the vehicle is in 4th gear, and you are decelerating when you are applying the brakes on a steep hill, the transmission will downshift to 3rd gear. When you accelerate, the transmission will then return to higher gear.



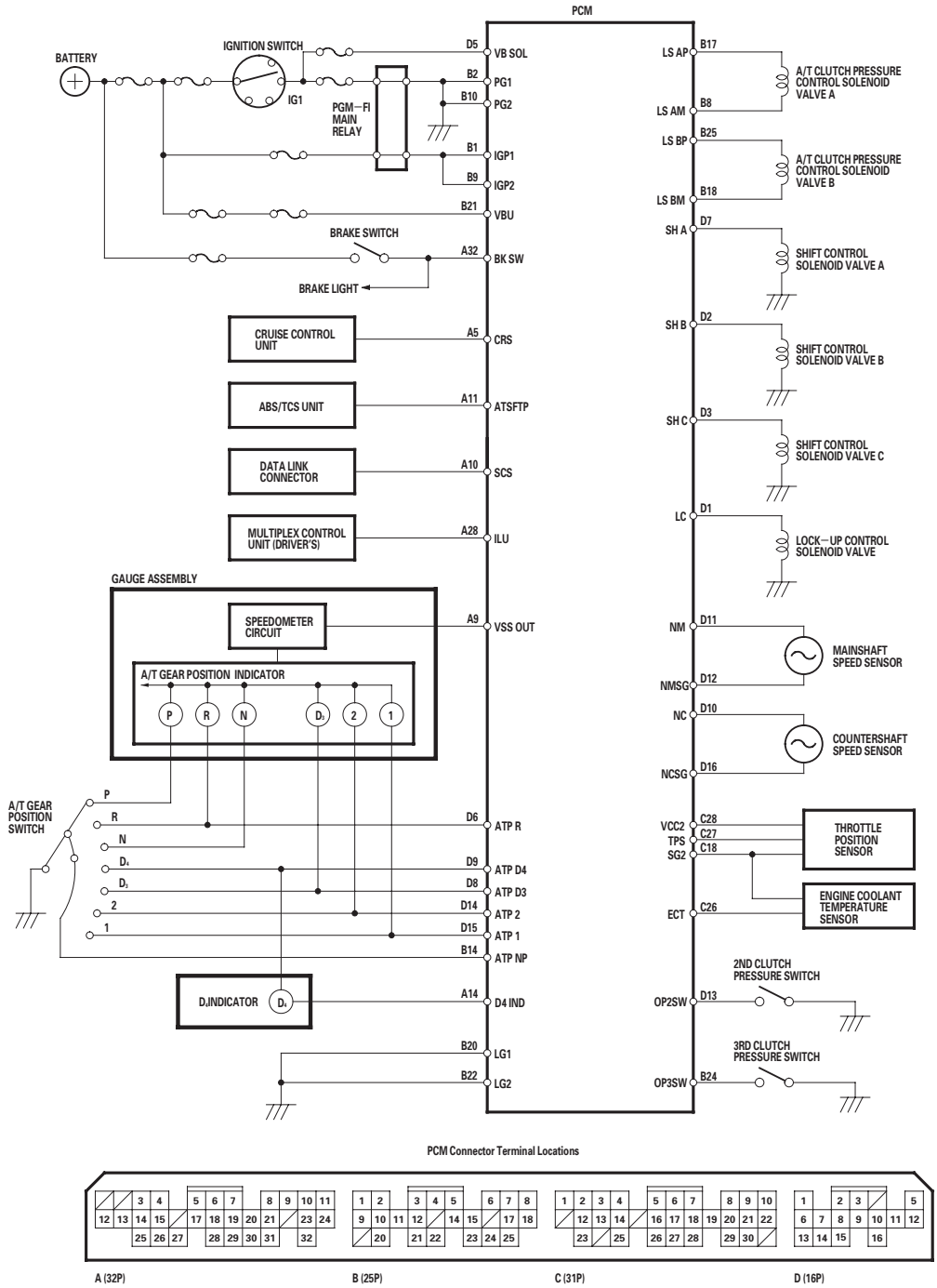
Grade Logic Control: Deceleration Control
When the vehicle goes around a corner, and needs to decelerate first and then accelerate, the PCM sets the data for deceleration control to reduce the number of times the transmission shifts. When the vehicle is decelerating from speeds above 27 mph (43 km/h), the PCM shifts the transmission from 4th to 2nd earlier than normal to cope with upcoming acceleration.

(cont'd)

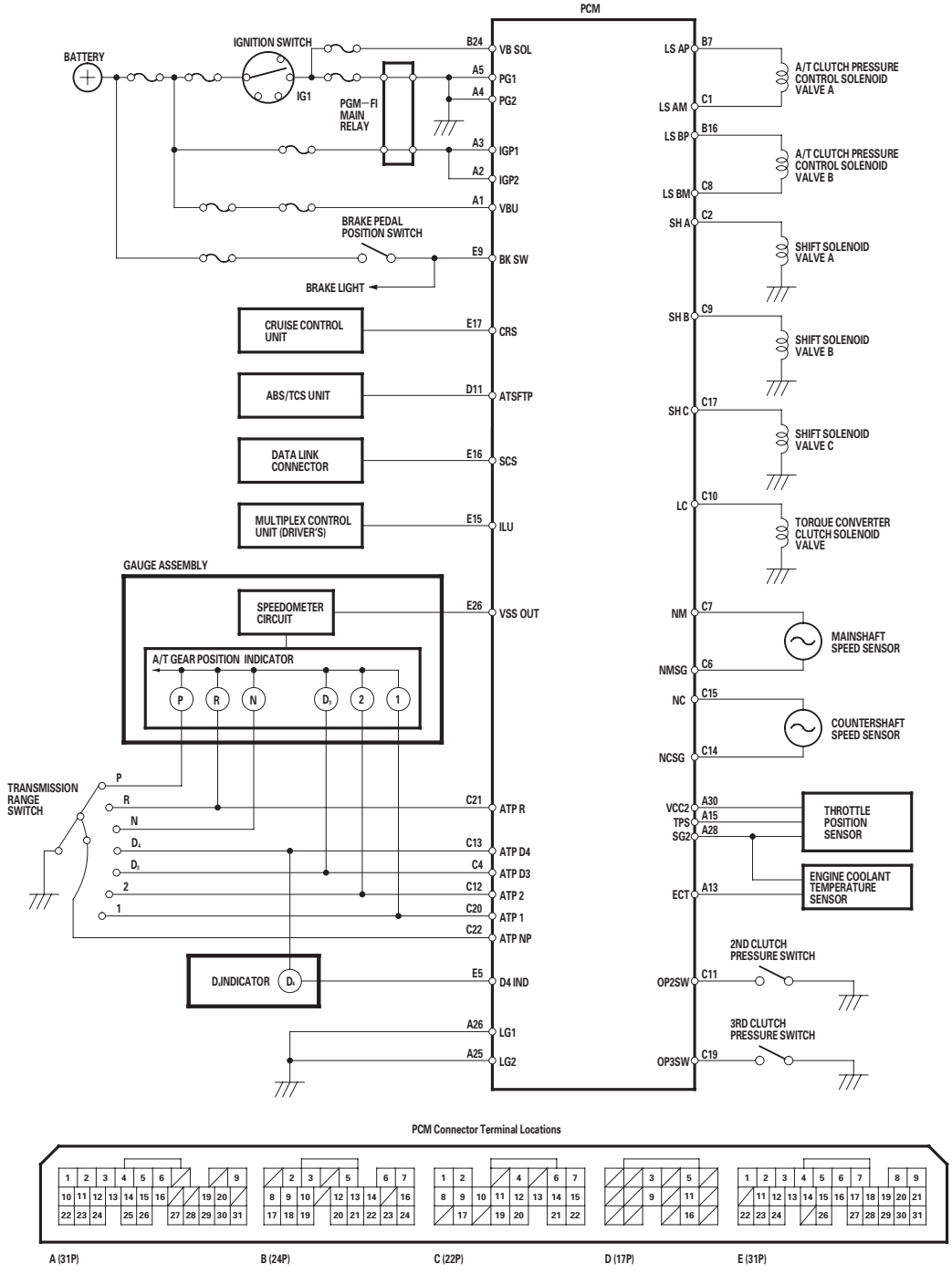
System Description (cont'd)

Electronic Control System (cont'd)

PCM Electrical Connections (1999-2000 models)



PCM Electrical Connections (2001 model)



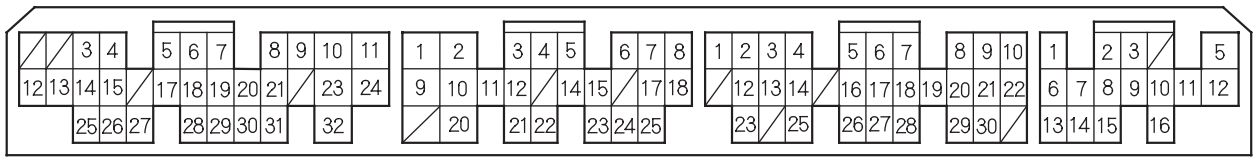
(cont'd)

System Description (cont'd)

Electronic Control System (cont'd)

PCM Inputs and Outputs (1999-2000 models)
The PCM terminal voltage and measuring conditions for the A/T control system are shown.

PCM Connector Terminal Locations



PCM CONNECTOR A (32P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
A5	BLU/GRN	CRS	Downshift signal input from cruise control unit	When cruise control is used: About 1 V
A9	BLU/WHT	VSS OUT	Vehicle speed signal detected from countershaft speed sensor, and sent to speedometer and odometer	Depending on vehicle speed: Pulsing signal
A10	BRN	SCS	Timing and adjustment service check signal	With ignition switch ON (II) and DLC open: 5 V With ignition switch ON (II) and DLC connected with HDS: 0 V
A14	GRN/BLK	D4 IND	D4 indicator control	When ignition switch is first turned ON (II): Battery voltage for 2 seconds In the D4 position: Battery voltage
A28	WHT/RED	ILU	Interlock control	With ignition switch ON (II), brake pedal pressed, and accelerator pedal released: Battery voltage
A32	WHT/BLK	BK SW	Brake switch signal output	Brake pedal pressed: Battery voltage Brake pedal released: 0 V

PCM CONNECTOR B (25P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
B1	YEL/BLK	IGP1	Power supply circuit from main relay	With ignition switch ON (II): Battery voltage With ignition switch OFF: 0 V
B2	BLK	PG1	Ground	Less than 1.0 V at all times
B8	WHT	LS AM	A/T clutch pressure control solenoid valve A power supply negative electrode	
B9	YEL/BLK	IGP2	Power supply circuit from main relay	With ignition switch ON (II): Battery voltage With ignition switch OFF: 0 V
B10	BLK	PG2	Ground	Less than 1.0 V at all times
B14	WHT/BLU	ATP NP	A/T gear position switch P and N positions input	In the P and N positions: 0 V In other than the P and N position: Battery voltage
B17	RED	LS AP	A/T clutch pressure control solenoid valve A power supply positive electrode	With ignition switch ON (II): Pulsing signal
B18	GRN	LS BM	A/T clutch pressure control solenoid valve B power supply negative electrode	
B20	BRN/BLK	LG1	Ground	Less than 1.0 V at all times
B21	WHT/YEL	VBU	Back-up power supply	Always battery voltage
B22	BRN/BLK	LG2	Ground	Less than 1.0 V at all times
B24	WHT/RED	OP3SW	A/T 3rd clutch pressure switch signal input	With ignition switch ON (II): Battery voltage (No 3rd clutch pressure)
B25	ORN	LS BP	A/T clutch pressure control solenoid valve B power supply positive electrode	With ignition switch ON (II): Pulsing signal

PCM CONNECTOR D (16P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
D1	YEL	LC	Lock-up control solenoid valve control	During lock-up conditions: Battery voltage During no lock-up condition: 0 V
D2	GRN/WHT	SH B	Shift control solenoid valve B control	Battery voltage in these positions: • 1, 2 • D4 and D3 in 1st and 2nd gear • P, R, and N 0 V in these positions: • D4 and D3 in 3rd gear • D4 in 4th gear
D3	GRN	SH C	Shift control solenoid valve C control	Battery voltage in these positions: • 1 • D4 and D3 in 1st and 3rd gear 0 V in these positions: • 2 • D4 and D3 in 2nd gear • D4 in 4th gear • P, R, and N

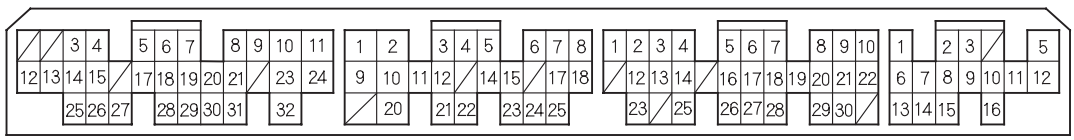
(cont'd)

System Description (cont'd)

Electronic Control System (cont'd)

PCM Inputs and Outputs (1999-2000 models)

PCM Connector Terminal Locations



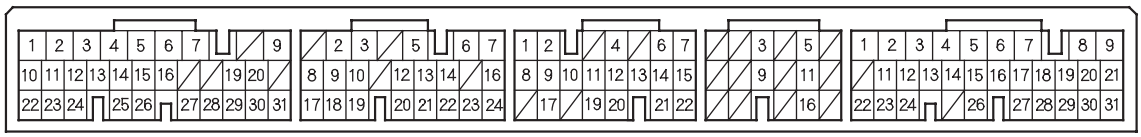
A (32P) B (25P) C (31P) D (16P)

PCM CONNECTOR D (16P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
D4	———	———	Not used	
D5	BLK/YEL	VB SOL	Power supply for solenoid valves (Fuse No. 6 in driver's under-dash fuse/ relay box)	With ignition switch ON (II): Battery voltage With ignition switch OFF: 0 V
D6	WHT	ATP R	A/T gear position switch R position input	In R position: 0 V In other than R position: Battery voltage
D7	BLU/YEL	SH A	Shift control solenoid valve A control	Battery voltage in these positions: • 2 • D4 and D3 in 2nd and 3rd gear 0 V in these positions: • 1 • D4 and D3 in 1st gear • D4 in 4th gear • P, R, and N
D8	PNK	ATP D3	A/T gear position switch D3 position input	In the D3 position: 0 V In other than the D3 position: Battery voltage
D9	YEL	ATP D4	A/T gear position switch D4 position input	In the D4 position: 0 V In other than the D4 position: Battery voltage
D10	BLU	NC	Countershaft speed sensor input	Depending on vehicle speed: Pulsing signal When vehicle is stopped: About 0 V
D11	RED	NM	Mainshaft speed sensor input	Depending on vehicle speed: Pulsing signal When engine is stopped: About 0 V
D12	WHT	NMSG	Mainshaft speed sensor ground	
D13	BLU/BLK	OP2SW	A/T 2nd clutch pressure switch signal input	With ignition switch ON (II): Battery voltage (No 2nd clutch pressure)
D14	BLU	ATP 2	A/T gear position switch 2 position input	In the 2 position: 0 V In other than the 2 position: Battery voltage
D15	BRN	ATP 1	A/T gear position switch 1 position input	In the 1 position: 0 V In other than the 1 position: Battery voltage
D16	GRN	NCSG	Countershaft speed sensor ground	

PCM Inputs and Outputs (2001 model)
The PCM terminal voltage and measuring conditions for the A/T control system are shown.

PCM Connector Terminal Locations



PCM CONNECTOR A (32P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
A1	WHT/YEL	VBU	Back-up power supply	Always battery voltage
A2	YEL/BLK	IGP2	Power supply circuit from main relay	With ignition switch ON (II): Battery voltage With ignition switch OFF: 0 V
A3	YEL/BLK	IGP1	Power supply circuit from main relay	With ignition switch ON (II): Battery voltage With ignition switch OFF: 0 V
A4	BLK	PG2	Ground	
A5	BLK	PG1	Ground	
A25	BRN/BLK	LG2	Ground	
A26	BRN/BLK	LG1	Ground	

PCM CONNECTOR B (24P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
B7	RED	LS AP	A/T clutch pressure control solenoid valve A power supply positive electrode	With ignition switch ON (II): Pulsing signal
B16	ORN	LS BP	A/T clutch pressure control solenoid valve B power supply positive electrode	With ignition switch ON (II): Pulsing signal
B24	BLK/YEL	VB SOL	Power supply for solenoid valve assemblies (Fuse No. 6 in driver's under-dash fuse/relay box)	With ignition switch ON (II): Battery voltage With ignition switch OFF: 0 V

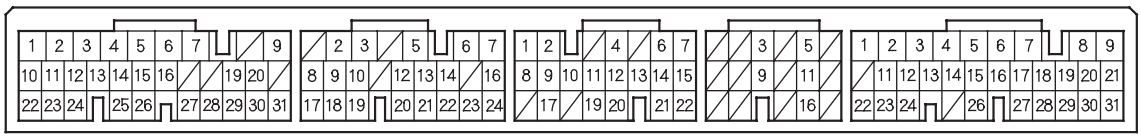
(cont'd)

System Description (cont'd)

Electronic Control System (cont'd)

PCM Inputs and Outputs (2001 model)

PCM Connector Terminal Locations



A (31P) B (24P) C (22P) D (17P) E (31P)

PCM CONNECTOR C (22P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
C1	WHT	LS AM	A/T clutch pressure control solenoid valve A power supply negative electrode	
C2	BLU/YEL	SH A	Shift solenoid valve A control	Battery voltage in these positions: • 2 • D4 and D3 in 2nd and 3rd gears 0 V in these positions: • 1 • D4 and D3 in 1st gear • D4 in 4th gear • P, R, and N
C3	———	———	Not used	
C4	PNK	ATP D3	Transmission range switch D3 position input	In the D3 position: 0 V In other than the D3 position: Battery voltage
C5	———	———	Not used	
C6	WHT	NMSG	Mainshaft speed sensor ground	
C7	RED	NM	Mainshaft speed sensor input	Depending on vehicle speed: Pulsing signal When engine stopped: About 0 V
C8	GRN	LS BM	A/T clutch pressure control solenoid valve B power supply negative electrode	
C9	GRN/WHT	SH B	Shift solenoid valve B control	Battery voltage in these positions: • 1, 2 • D4 and D3 in 1st and 2nd gears • P, R, and N 0 V in these positions: • D4 and D3 in 3rd gear • D4 in 4th gear

PCM CONNECTOR C (22P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
C10	YEL	LC	Torque converter clutch solenoid valve control	During lock-up condition: Battery voltage During no lock-up condition: 0 V
C11	BLU/BLK	OP2SW	A/T 2nd clutch pressure switch signal input	With ignition switch ON (II): Battery voltage (No 2nd clutch pressure)
C12	BLU	ATP 2	Transmission range switch 2 position input	In the 2 position: 0 V In other than the 2 position: Battery voltage
C13	YEL	ATP D4	Transmission range switch D4 position input	In the D4 position: 0 V In other than the D4 position: About 5 V
C14	GRN	NCSG	Countershaft speed sensor ground	
C15	BLU	NC	Countershaft speed sensor input	Depending on vehicle speed: Pulsing signal When vehicle stopped: About 0 V
C16	———	———	Not used	
C17	GRN	SH C	Shift solenoid valve C control	Battery voltage in these positions: • 1 • D4 and D3 in 1st and 3rd gears 0 V in these positions: • 2 • D4 and D3 in 2nd gear • D4 in 4th gear • P, R, and N
C18	———	———	Not used	
C19	WHT/RED	OP3SW	A/T 3rd clutch pressure switch signal input	With ignition switch ON (II): Battery voltage (No 3rd clutch pressure)
C20	BRN	ATP 1	Transmission range switch 1 position input	In the 1 position: 0 V In other than the 1 position: Battery voltage
C21	WHT	ATP R	Transmission range switch R position input	In the R position: 0 V In other than the R position: Battery voltage
C22	BLU/WHT	ATP NP	Transmission range switch P and N positions input	In the P and N positions: 0 V In other than the P and N positions: About 5 V

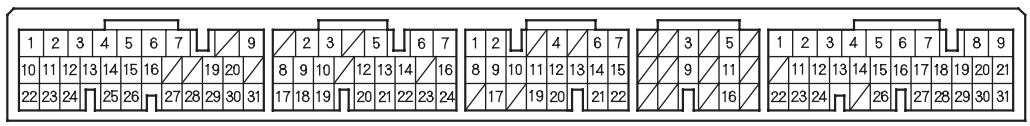
(cont'd)

System Description (cont'd)

Electronic Control System (cont'd)

PCM Inputs and Outputs (2001 model)

PCM Connector Terminal Locations

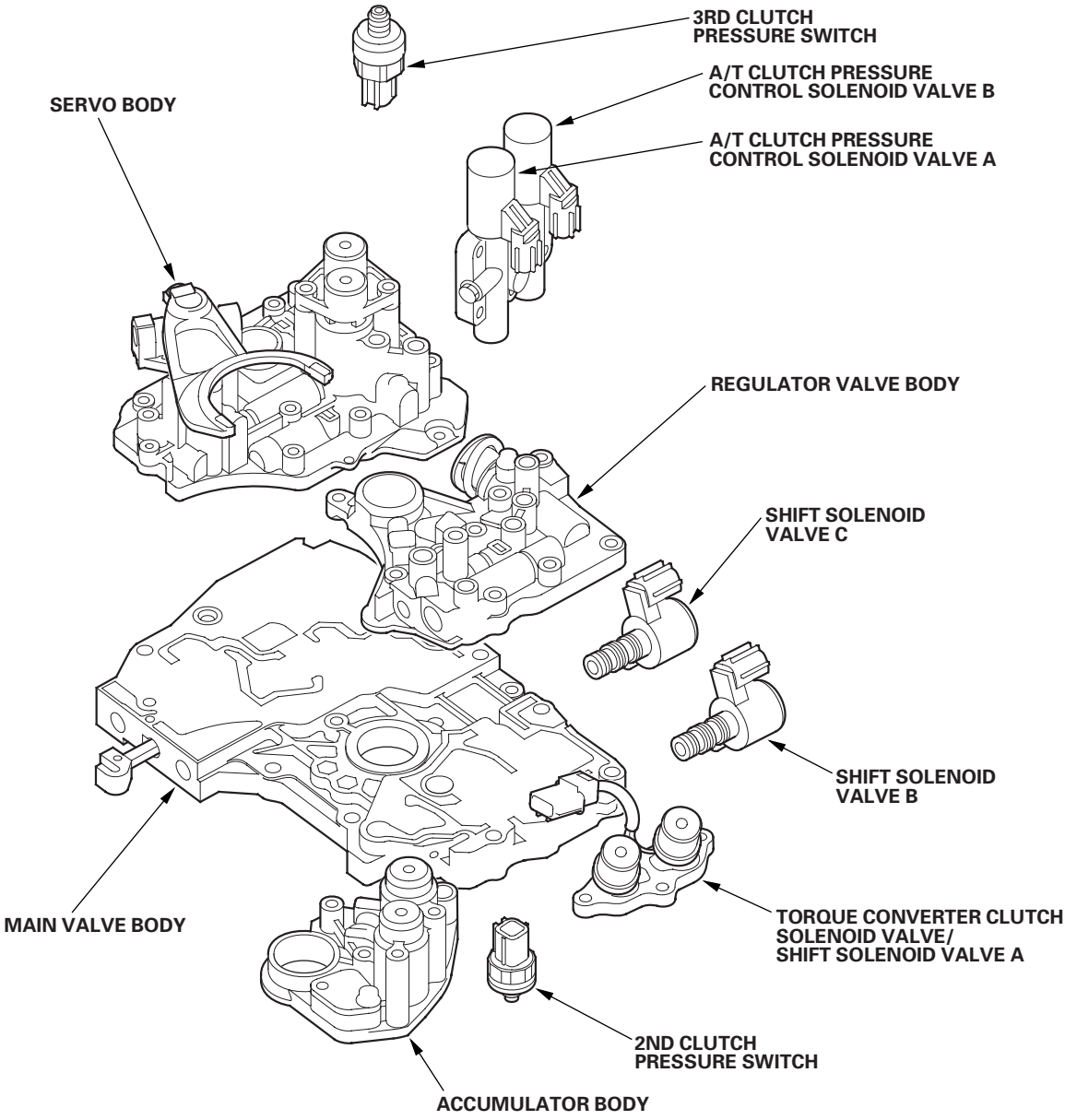


PCM CONNECTOR E (31P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
E5	GRN/BLK	D4 IND	D4 indicator control	When ignition switch is first turned ON (II): Battery voltage for 2 seconds In the D4 position: Battery voltage
E9	WHT/BLK	BK SW	Brake pedal position switch signal output	Brake pedal pressed: Battery voltage Brake pedal released: 0 V
E15	WHT/RED	ILU	Interlock control	With ignition switch ON (II), brake pedal pressed, and accelerator pedal released: Battery voltage
E16	BRN	SCS	Timing and adjustment service check signal	With ignition switch ON (II) and DLC open: 5 V With ignition switch ON (II) and DLC connected with HDS: 0 V
E17	BLU/GRN	CRS	Downshift signal input from cruise control unit	When cruise control is used: About 1 V
E26	BLU/WHT	VSS OUT	Vehicle speed signal detected from countershaft speed sensor, and sent to speedometer and odometer	Depending on vehicle speed: Pulsing signal

Hydraulic Controls

The valve body includes the main valve body, the regulator valve body, the servo body and the accumulator body. The ATF pump is driven by splines on the left end of the torque converter which is attached to the engine. Fluid flows through the regulator valve to maintain specified pressure through the main valve body to the manual valve, directing pressure to each of the clutches. The shift solenoid valves B and C are mounted on the outside of the torque converter housing. The shift solenoid valve A and the torque converter clutch solenoid valve are mounted on the torque converter housing as an assembly. The A/T clutch pressure control solenoid valves A and B are mounted on the transmission housing.

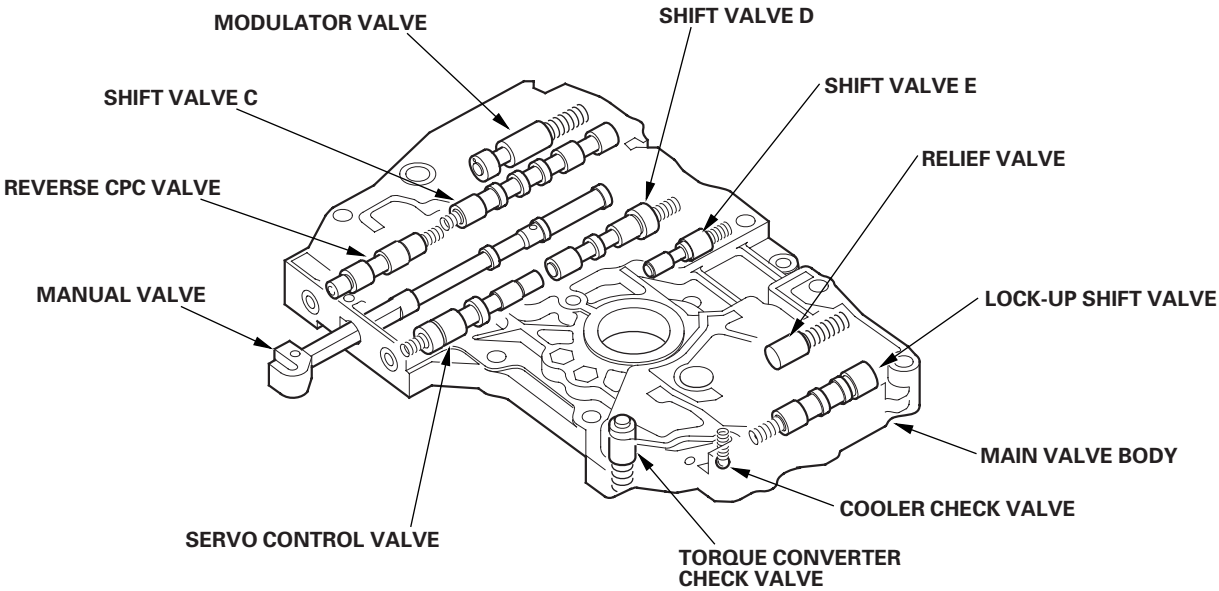


(cont'd)

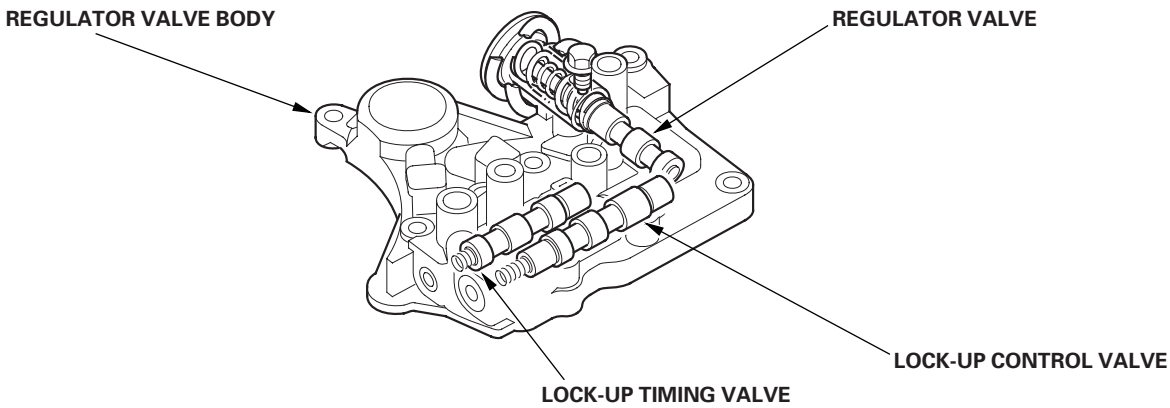
System Description (cont'd)

Hydraulic Controls (cont'd)

Main Valve Body
The main valve body contains the manual valve, the modulator valve, the shift valve C, the shift valve D, the shift valve E, the servo control valve, the cooler check valve, the torque converter check valve, the reverse CPC valve, the lock-up shift valve, the relief valve, and the ATF pump gears. The primary function of the main valve body is to switch fluid pressure on and off and to control hydraulic pressure going to the hydraulic control system.

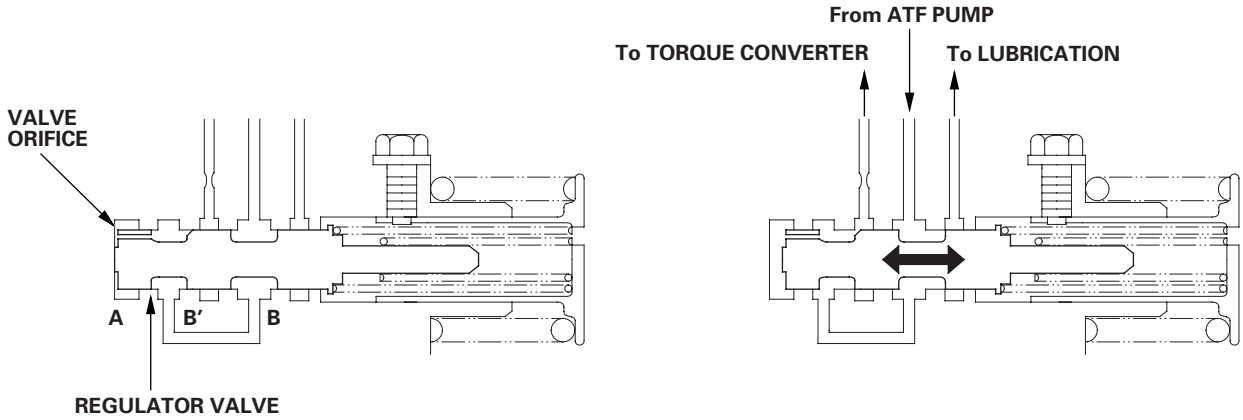


Regulator Valve Body
The regulator valve body is located on the main valve body. The regulator valve body contains the regulator valve, the lock-up timing valve, and the lock-up control valve.

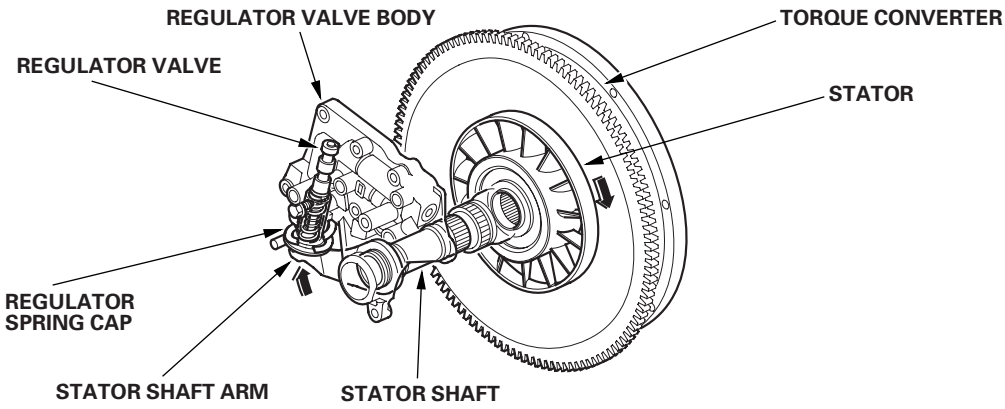


Regulator Valve
The regulator valve maintains constant hydraulic pressure from the ATF pump to the hydraulic control system, while also furnishing fluid to the lubricating system and torque converter. Fluid from the ATF pump flows through B and B'. Fluid entering from B flows through the valve orifice to the A cavity. This pressure of the A cavity pushes the regulator valve to the right side, and this movement of the regulator valve uncovers the fluid port to the torque converter and the relief valve. The fluid flows out to the torque converter and the relief valve, and the regulator valve moves to the left side. According to the level of the hydraulic pressure through B, the position of the regulator valve changes, and the amount of fluid from B' through torque converter changes. This operation is continued, maintaining the line pressure.

NOTE: When used, ''left'' or ''right'' indicates direction on the illustration.



Increases in hydraulic pressure according to torque are performed by the regulator valve using stator torque reaction. The stator shaft is splined with the stator in the torque converter, and its arm end contacts the regulator spring cap. When the vehicle is accelerating or climbing (torque converter range), stator torque reaction acts on the stator shaft, and the stator arm pushes the regulator spring cap in the direction of the arrow in proportion to the reaction. The stator reaction spring compresses, and the regulator valve moves to increase the line pressure which is regulated by the regulator valve. The line pressure reaches its maximum when the stator torque reaction reaches its maximum.

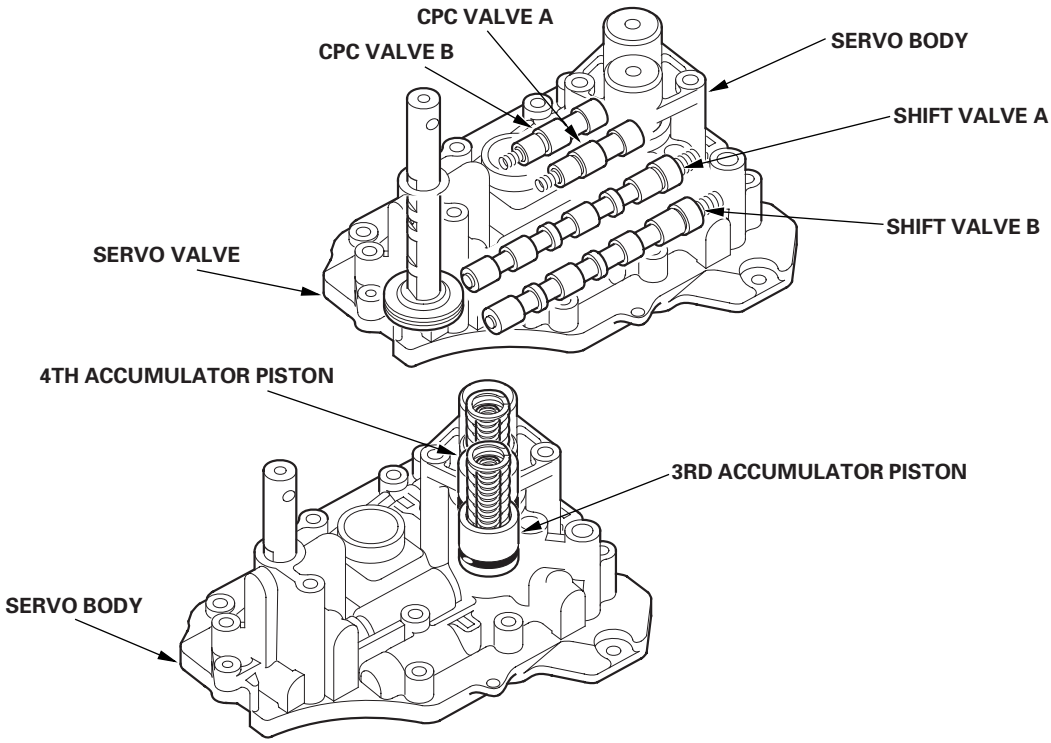


(cont'd)

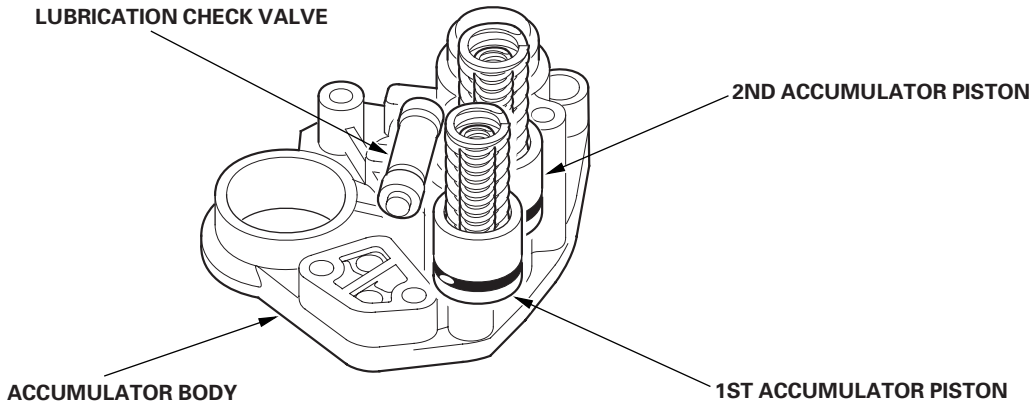
System Description (cont'd)

Hydraulic Controls (cont'd)

Servo Body
The servo body is on the main valve body. It contains the servo valve, the shift valve A, the shift valve B, the CPC valves A and B, and the 3rd and the 4th accumulators.



Accumulator Body
The accumulator body is on the torque converter housing, next to the main valve body. It contains the 1st and the 2nd accumulators, and the lubrication check valve.



Hydraulic Flow

Distribution of Hydraulic Pressure

As the engine turns, the ATF pump starts to operate. Automatic transmission fluid (ATF) is drawn through the ATF strainer (filter) and discharged into the hydraulic circuit. Then, ATF flowing from the ATF pump becomes line pressure that's regulated by the regulator valve. Torque converter pressure from the regulator valve enters the torque converter through the lock-up shift valve and it is discharged from the torque converter. The torque converter check valve prevents torque converter pressure from rising.

The PCM controls the shift solenoid valves ON and OFF, and the shift solenoid valves control shift solenoid pressure to the shift valves. Applying shift control solenoid pressure to the shift valves moves the position of the shift valve, and switches the port of hydraulic pressure. The PCM also controls A/T clutch pressure control solenoid valves A and B. The A/T clutch pressure control solenoid valves regulate the A/T clutch pressure control solenoid pressure and apply the A/T clutch pressure control solenoid pressure to CPC valves A and B.

When shifting between upper gear and lower gear, the clutch is engaged by pressure from the CPC pressure mode. The PCM controls one of the shift solenoid valves to move the position of the shift valve. This movement switches the port of the CPC and line pressure. Line pressure is then applied to the clutch, and the CPC pressure is intercepted. Engaging the clutch with line pressure happens after CPC pressure mode has completed.

Hydraulic pressure at the ports is as follows:

PORT NO.	DESCRIPTION OF PRESSURE	PORT NO.	DESCRIPTION OF PRESSURE	PORT NO.	DESCRIPTION OF PRESSURE
1	LINE	5H	CPC B or LINE	57	LS B
3	LINE	5J	CPC B or LINE	58	LS A or LS B
3′	LINE	5K	CPC B or LINE	90	TORQUE CONVERTER
3′′	LINE	5K′	CPC B or LINE	90′	TORQUE CONVERTER
4	LINE	6	MODULATE	91	TORQUE CONVERTER
4′	LINE	SA	SH A	91′	TORQUE CONVERTER
4′′	LINE	SB	SH B	92	TORQUE CONVERTER
4A	CPC A	SC	SH C	93	ATF COOLER
4B	CPC B	LA	LC	94	TORQUE CONVERTER
5A	CPC A	9	LINE	95	LUBRICATION
5D	CPC B	10	1ST CLUTCH	95′	LUBRICATION
5B	CPC A or LINE	20	2ND CLUTCH	96	TORQUE CONVERTER
5E	CPC A or LINE	25	LINE	97	TORQUE CONVERTER
5F	CPC A or LINE	30	3RD CLUTCH	99	SUCTION
5F′	CPC A or LINE	40	4TH CLUTCH	X	DRAIN
5C	CPC B or LINE	41	4TH CLUTCH	HX	HIGH POSITION DRAIN
5G	CPC B or LINE	56	LS A	AX	AIR DRAIN

NOTE:
- CPC: Clutch Pressure Control pressure
- SH: Shift Solenoid pressure
- LS: A/T Clutch Pressure Control Solenoid pressure
- LC: Torque Converter Clutch Solenoid pressure

(cont'd)

System Description (cont'd)

Hydraulic Flow (cont'd)

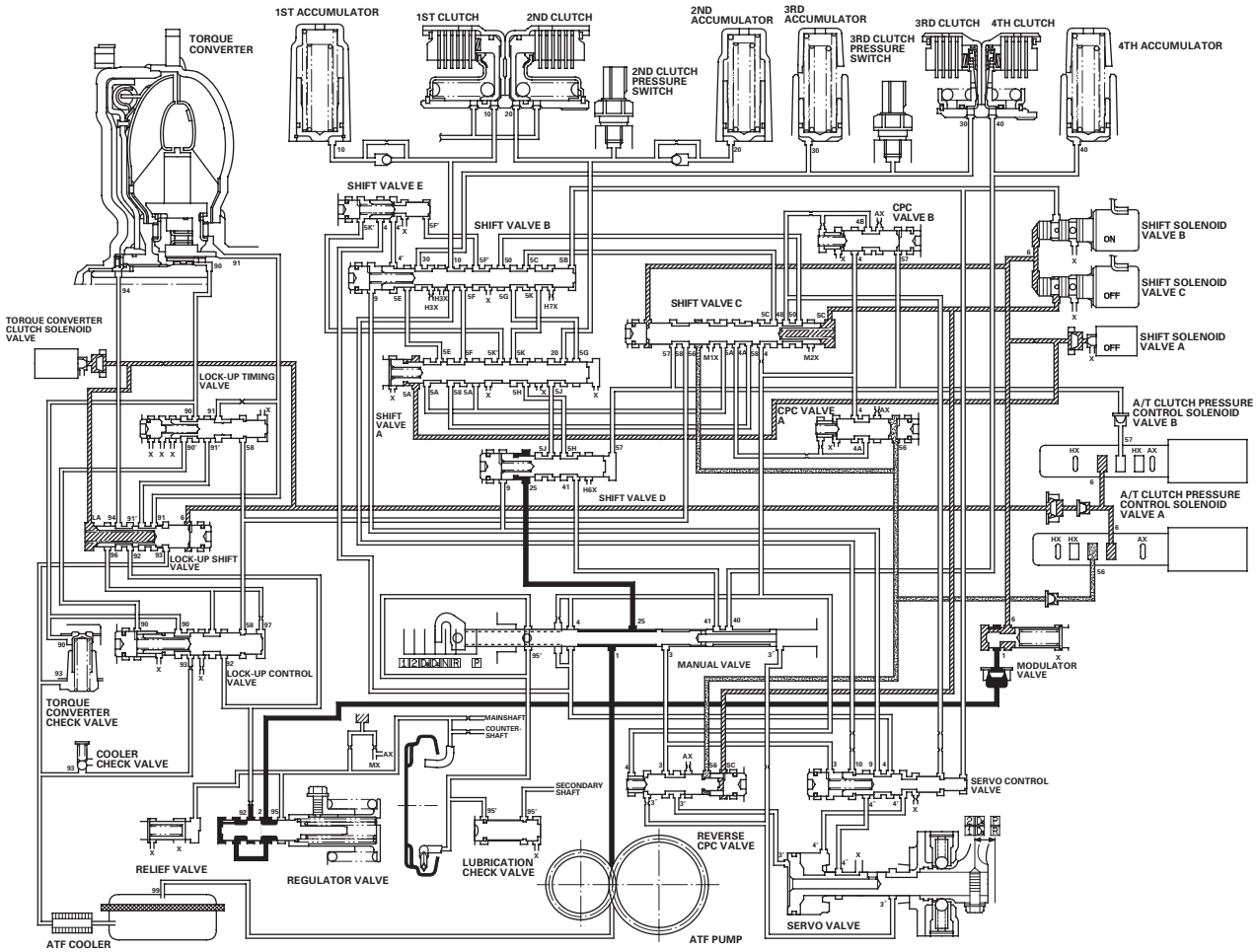
N Position

The PCM controls the shift solenoid valves. The conditions of the shift solenoid valve and positions of the shift valve are as follows:

- The shift solenoid valve A is turned OFF, and the shift valve A moves to the left side.
- The shift solenoid valve B is turned ON, and the shift valve B stays on the right side.
- The shift solenoid valve C is turned OFF, and the shift valve C stays on the left side.

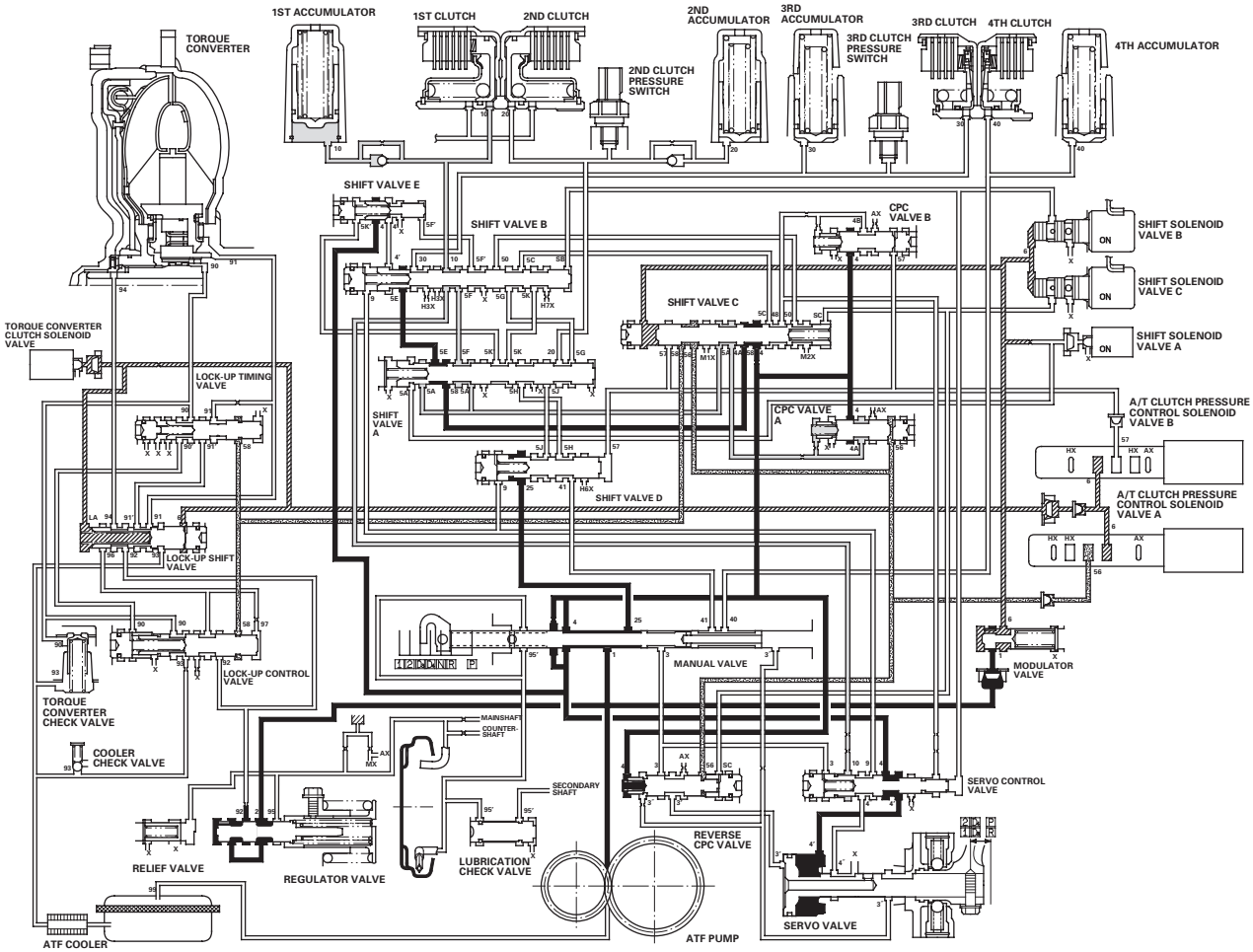
Line pressure (1) passes through the manual valve and stops at shift valve D. Line pressure (1) also flows to the modulator valve, and becomes modulator pressure (6). Modulator pressure (6) flows to the shift solenoid valves and the A/T clutch pressure control solenoid valves. Under this condition, hydraulic pressure is not applied to the clutches.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



D4 Position: 1st gear shifting from the N position
The PCM turns the shift solenoid valves A and C ON when shifting to the D4 position from N. Shift solenoid valve B keeps ON. Shift solenoid valve C is turned ON, and SH C pressure (SC) in the right side of the shift valve C is released, then the shift valve C is moved to the right side. Shift solenoid valve A is turned ON, and SH A pressure (SA) in the left side of the shift valve A is released, then shift valve A is moved to the right side. The A/T clutch pressure control solenoid valve A regulates LS A pressure (56) and applies it to CPC valve A. Line pressure (1) becomes line pressure (4) at the manual valve, and flows to shift valve C and CPC valve A. Line pressure (4) becomes CPC A pressure (4A) and passes through shift valve C, A, and B, then CPC A pressure (4A) becomes 1st clutch pressure (10) at shift valve B. 1st clutch pressure (10) is applied to the 1st clutch, then the 1st clutch is engaged with pressure of the CPC pressure mode. Line pressure (4) passes through shift valve A and B, then stops at shift valve B.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

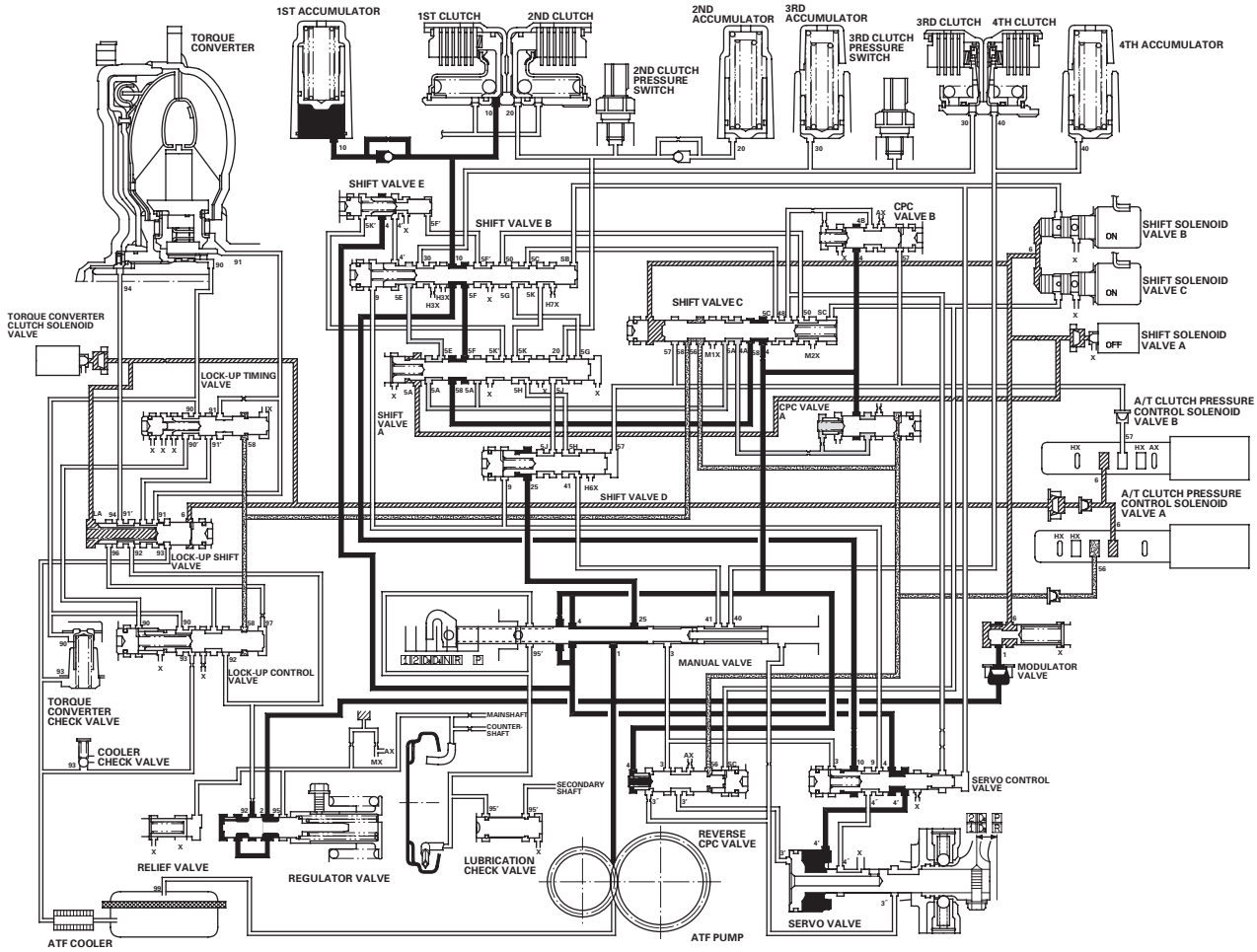
System Description (cont'd)

Hydraulic Flow (cont'd)

D4 Position: Driving in 1st gear

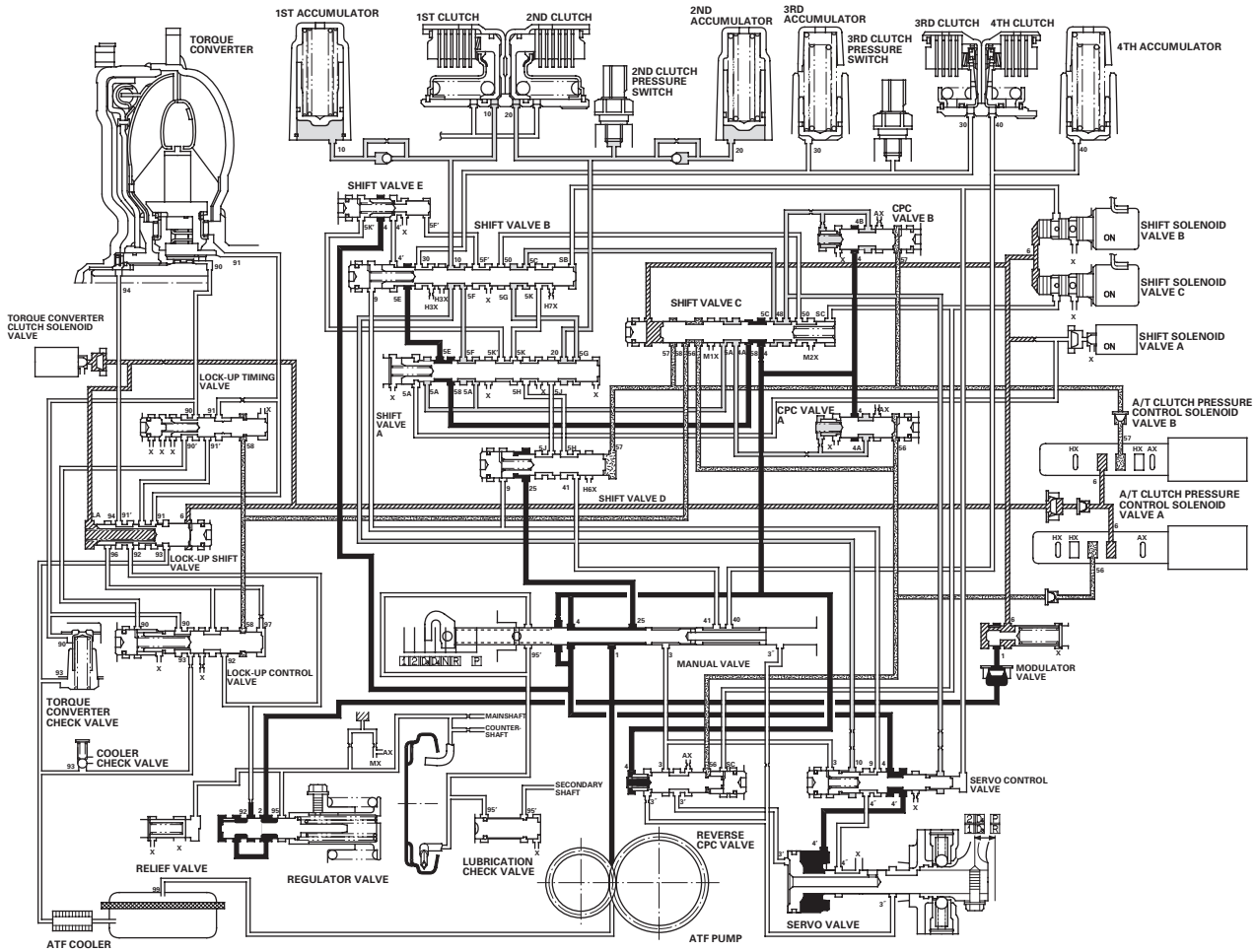
The PCM turns shift solenoid valve A OFF, but shift solenoid valves B and C keep ON. SH A pressure (SA) is applied to the left side of shift valve A, then shift valve A is moved to the left side. This movement switches the port of line pressure and CPC pressure on shift valve A. The 1st clutch pressure is changed to line pressure mode, and the 1st clutch is engaged securely. CPC A pressure (5E) stops at shift valve B.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



D4 Position: Shifting between 1st gear and 2nd gear
As the speed of the vehicle reaches the prescribed value, the PCM turns shift solenoid valve A OFF. Shift solenoid valves B and C keep ON. Then shift solenoid valve A is turned ON, and SH A pressure (SA) in the left side of the shift valve A is released. Shift valve A is moved to the right side to switch the port of line pressure and CPC pressure. The PCM also controls the A/T clutch pressure control solenoid valves. The A/T clutch pressure control solenoid valves A and B apply their pressure to the CPC valves A and B. Line pressure (4) becomes CPC B pressure (4B) at the CPC valve B, and CPC B pressure passes through shift valves C, B, and A, to become 2nd clutch pressure. The 1st and 2nd clutches are engaged with the CPC pressure mode.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

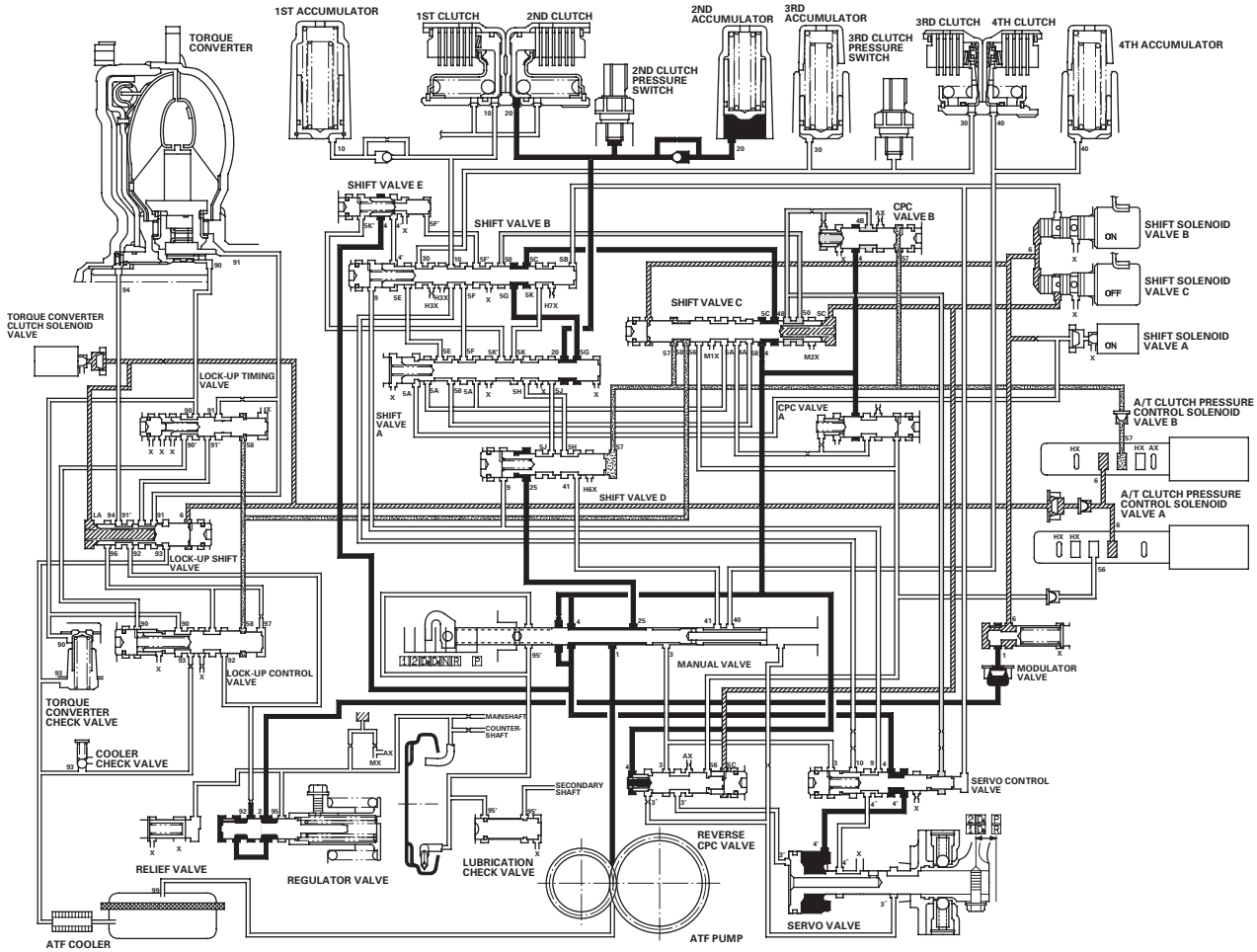
System Description (cont'd)

Hydraulic Flow (cont'd)

D4 Position: Driving in 2nd gear

The PCM turns shift solenoid valve C OFF, and controls A/T clutch pressure control solenoid valve A to release LS A pressure (56). Shift solenoid valves A and B keep ON. Releasing LS A pressure in the CPC valve A releases CPC A pressure in the 1st clutch pressure circuit. Shift solenoid valve C is turned OFF, and SH C pressure (SC) is applied to the right side of shift valve C. Then shift valve C is moved to the left side to switch the port of line pressure and CPC pressure. The 2nd clutch pressure is changed to line pressure mode, and the 2nd clutch is engaged securely. The CPC B pressure (5D) stops at shift valve B.

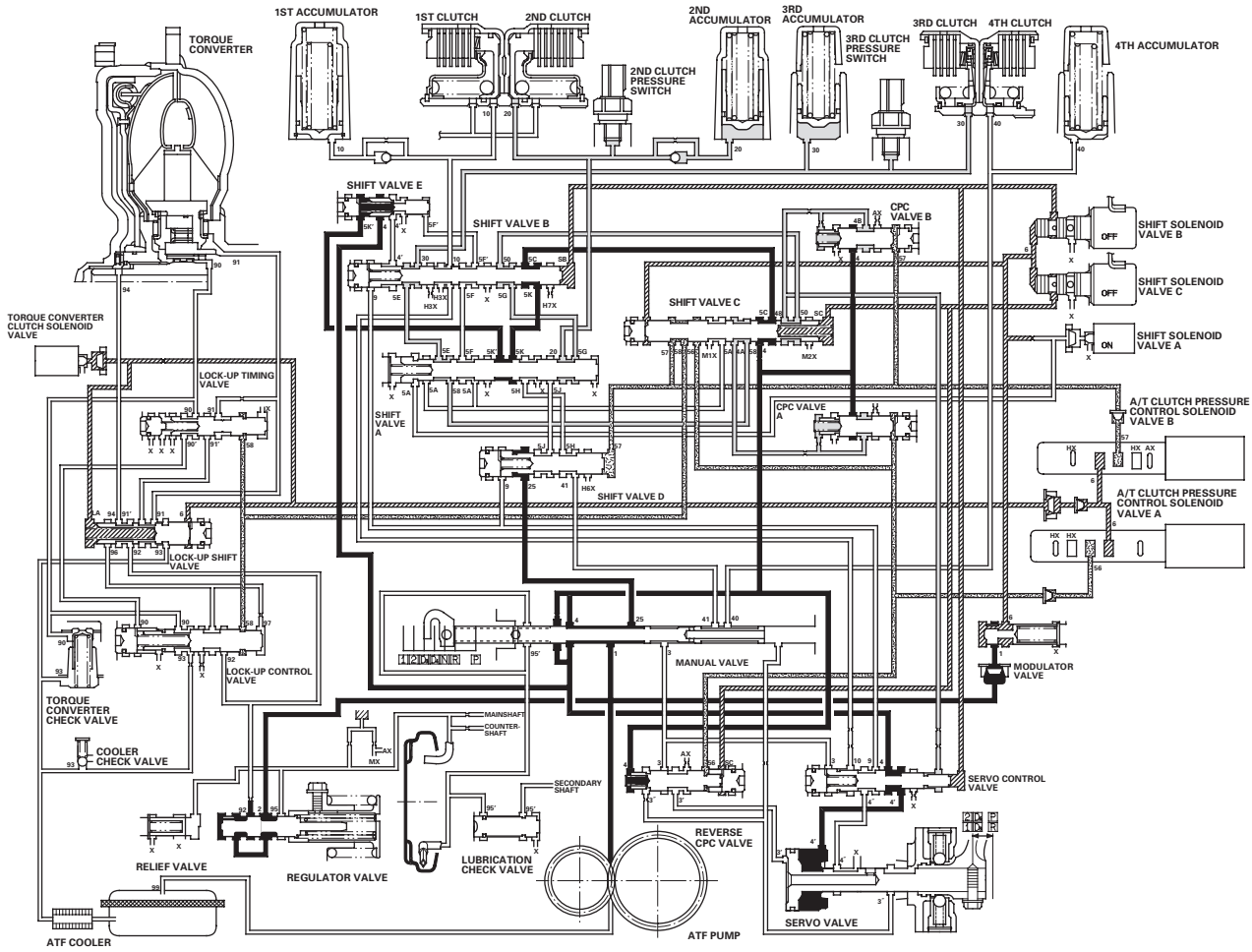
NOTE: When used, ''left'' or ''right'' indicate direction on the hydraulic circuit.



D4 Position: Shifting between 2nd gear and 3rd gear

As the speed of the vehicle reaches the prescribed value, the PCM turns shift solenoid valve B OFF. The PCM also controls A/T clutch pressure control solenoid valve A to apply LS A pressure (56) to CPC valve A. Shift solenoid valve A keeps ON, and C keeps OFF. Shift solenoid valve B is turned OFF, and SH B pressure (SB) is applied to the right side of shift valve B. Then shift valve B is moved to the left side to switch the port of line pressure and CPC pressure. Line pressure (4) becomes CPC A pressure (4A) at the CPC valve A. The CPC A pressure (4A) becomes 3rd clutch pressure (30) at shift valve B, and flows to the 3rd clutch. The 2nd clutch pressure is changed to CPC pressure mode by switching the position of shift valve B.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

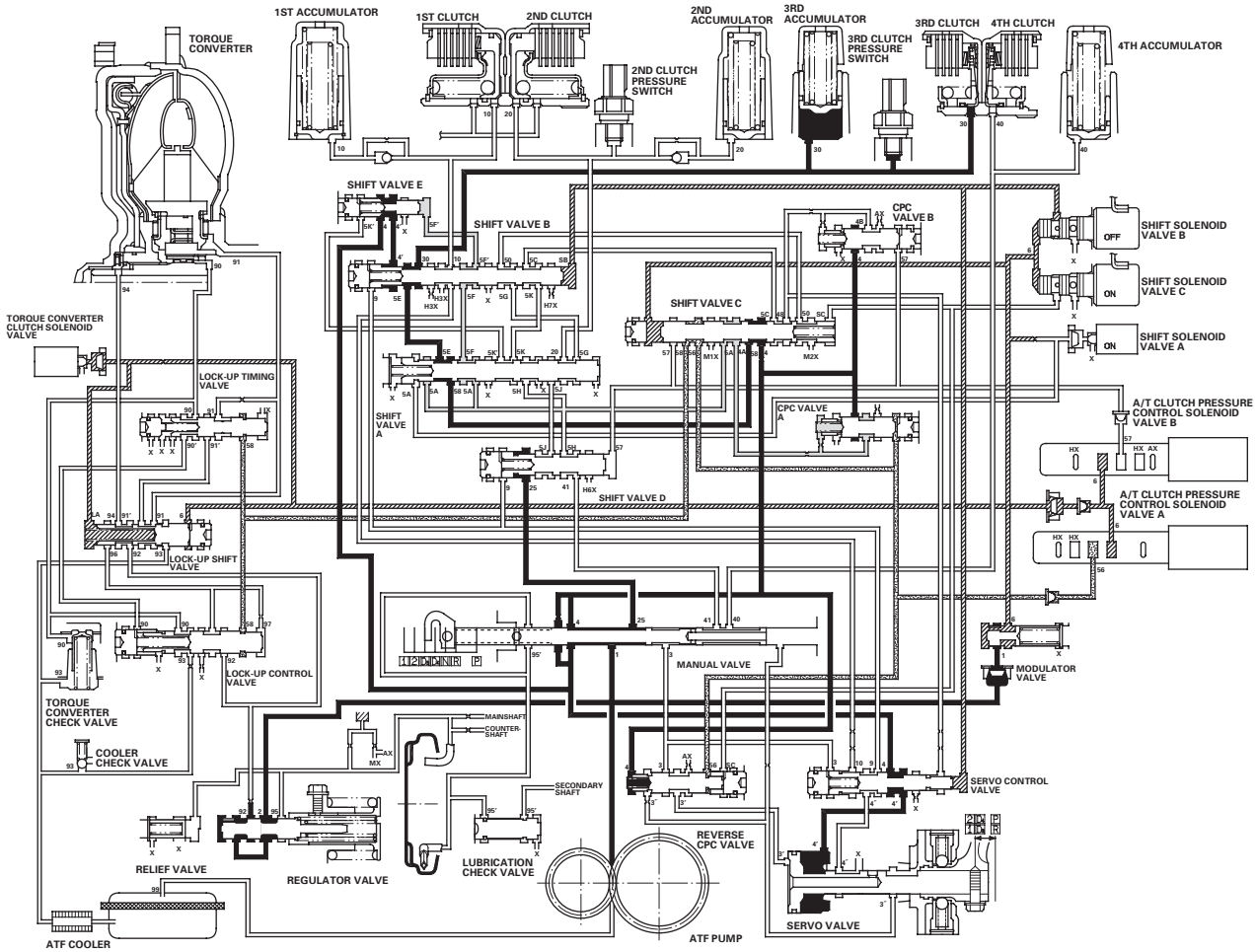
System Description (cont'd)

Hydraulic Flow (cont'd)

D4 Position: Driving in 3rd gear

The PCM turns the shift solenoid valve C ON, and controls A/T clutch pressure control solenoid valve B to release LS B pressure (57). Shift solenoid valve A keeps ON, and B keeps OFF. Releasing LS B pressure in the CPC valve B releases CPC B pressure in the 2nd clutch pressure circuit. Shift solenoid valve C is turned ON, and SH C pressure (SC) in the right side of shift valve C is released. Then shift valve C is moved to the right side to switch the port line pressure and CPC pressure. The 3rd clutch pressure is changed to line pressure mode, and the 3rd clutch is engaged securely. The CPC A pressure (4A) stops at shift valve E.

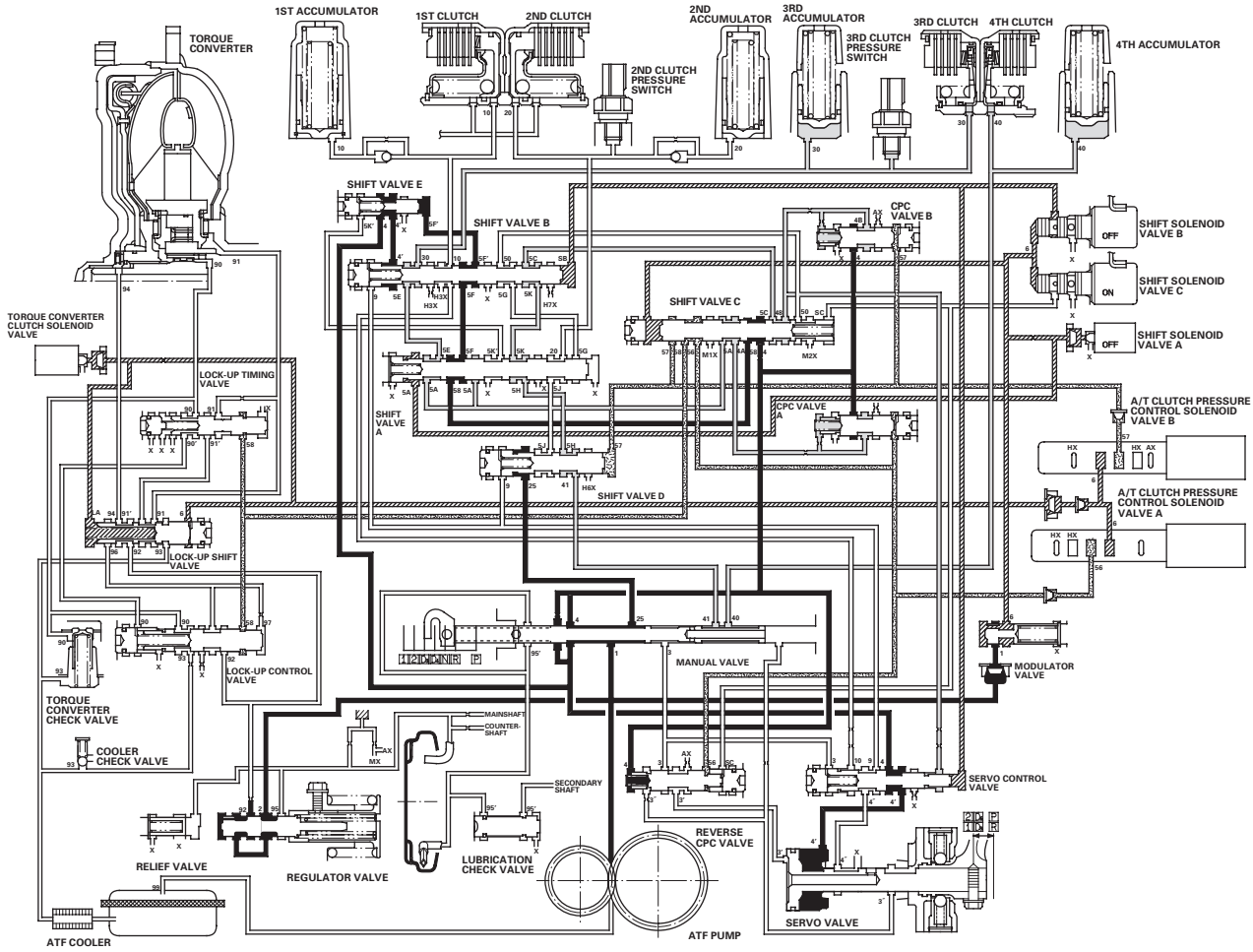
NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



D4 Position: Shifting between 3rd gear and 4th gear

As the speed of the vehicle reaches the prescribed value, the PCM turns shift solenoid valve A OFF. The PCM also controls A/T clutch pressure control solenoid valve B to apply LS B pressure (57) to CPC valve B. Shift solenoid valve B keeps OFF, and C keeps ON. Shift solenoid valve A is turned OFF, and SH A pressure (SA) is applied to the left side of shift valve A. Then shift valve A is moved to the left side to switch line pressure and CPC pressure. Line pressure (4) becomes CPC B pressure (4B) at CPC valve B. The CPC B pressure (4B) becomes 4th clutch pressure (41) at shift valve D, and flows to the 4th clutch via the manual valve. The 3rd clutch pressure is changed to CPC pressure mode by switching the position of shift valve A.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

System Description (cont'd)

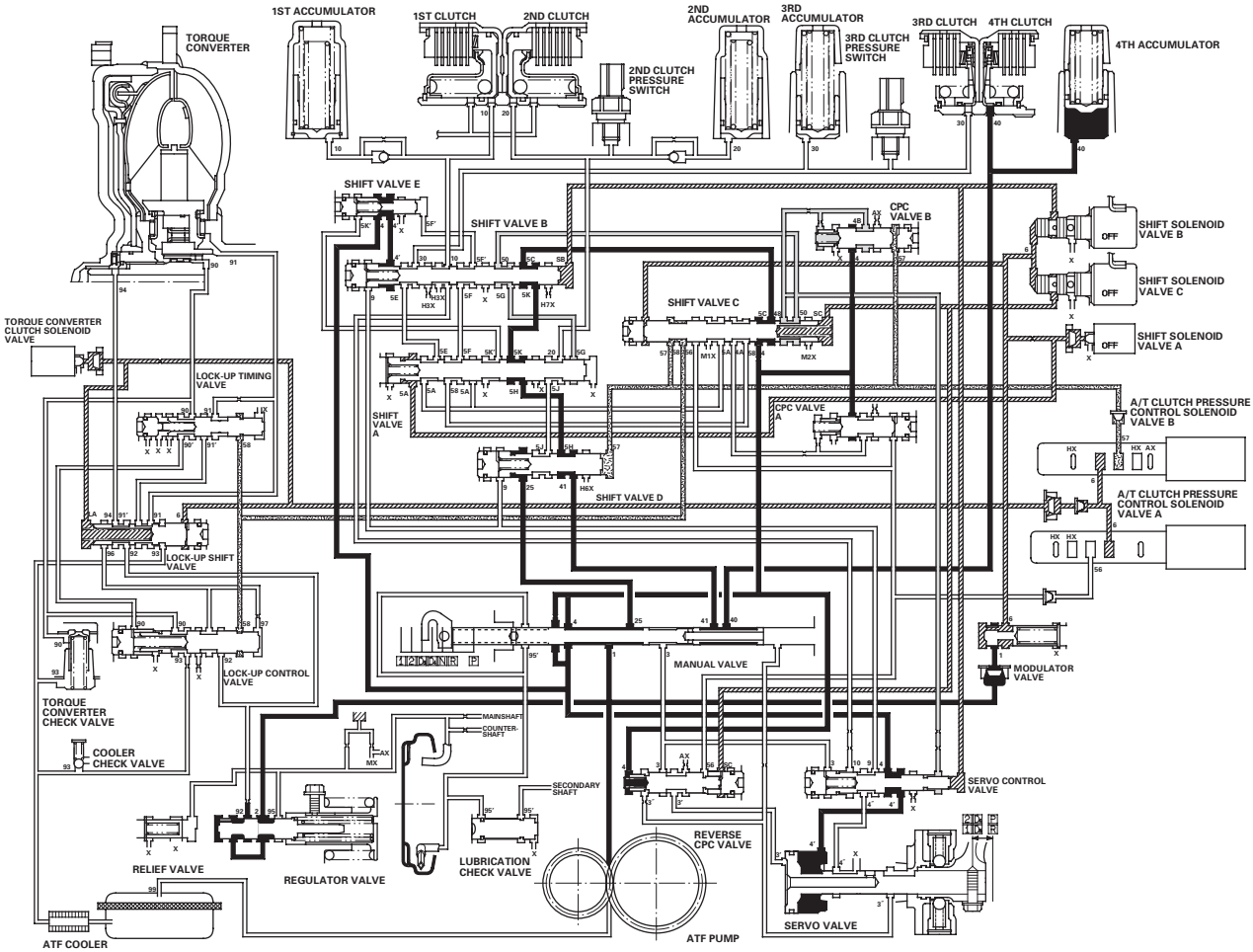
Hydraulic Flow (cont'd)

D4 Position: Driving in 4th gear

The PCM turns shift solenoid valve C OFF, and controls A/T clutch pressure control solenoid valve A to release LS A pressure (56). Shift solenoid valves A and B keep OFF. Releasing LS A pressure (56) releases CPC A pressure in the 3rd clutch pressure circuit. Shift solenoid valve C is turned OFF, and SH C pressure (SC) is applied to the right side of shift valve C. Then shift valve C is moved to the left side to switch the port of line pressure and CPC pressure.

The CPC B pressure (5B) changes to line pressure (5B) at shift valve C, and flows to the 4th clutch via shift valve B, shift valve C, shift valve D, and the manual valve. The 4th clutch pressure is changed to line pressure mode by switching the position of shift valve C, and 4th clutch is engaged securely. The CPC B pressure (5D) stops at shift valve A.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



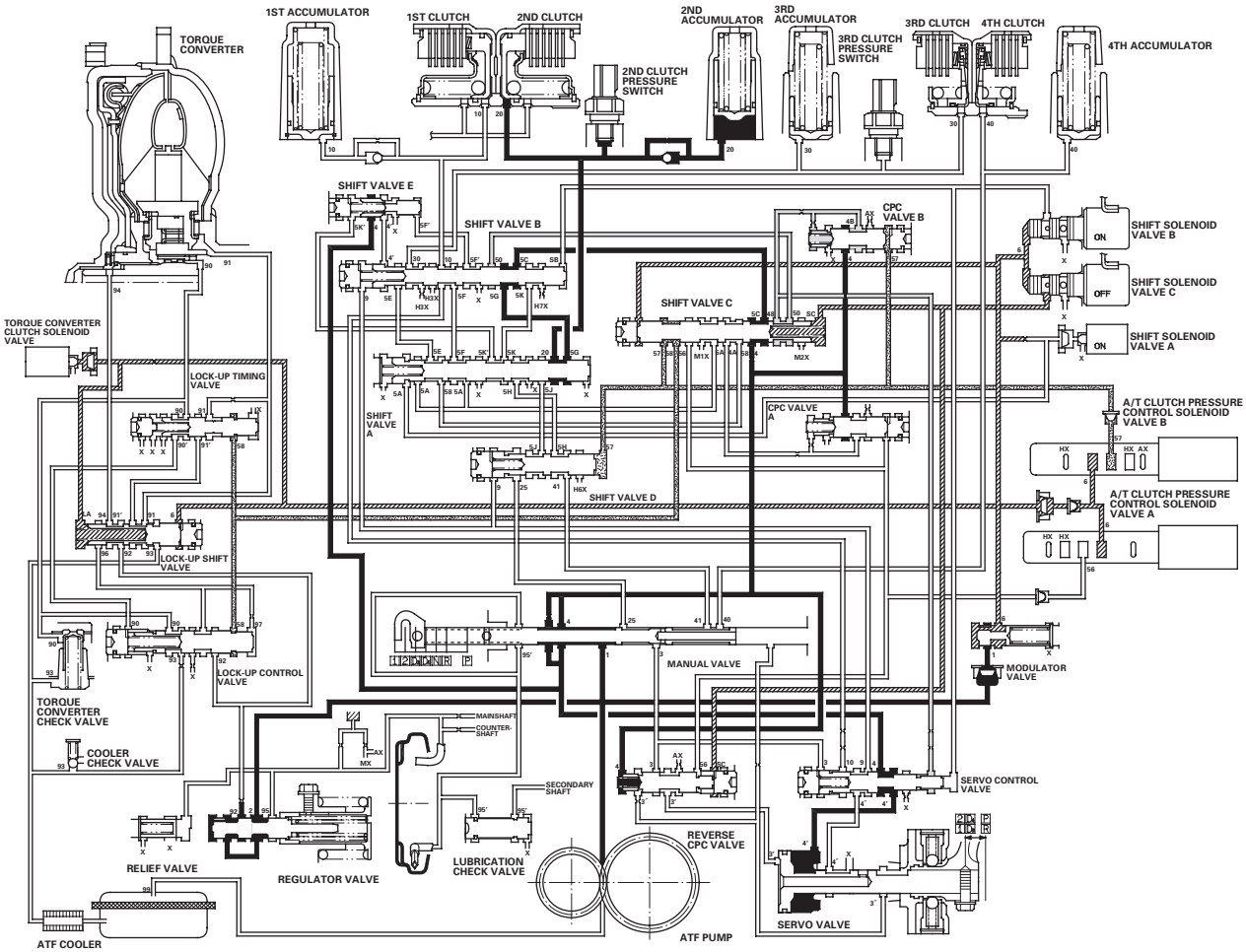
2 Position

The PCM controls the shift solenoid valves and the A/T clutch pressure control solenoid valves. The conditions of the shift solenoid valves and the positions of the shift valve are as follows:

- Shift solenoid valve A is turned ON, and the shift valve A stays on the right side.
- Shift solenoid valve B is turned ON, and the shift valve B stays on the right side.
- Shift solenoid valve C is turned OFF, and the shift valve C moves to the left side.

The PCM also controls A/T clutch pressure control solenoid valve B to apply LS B pressure (57) to CPC valve B. Line pressure (4) from the manual valve becomes line pressure (5C) at shift valve C. Line pressure (5C) flows to shift valve A via shift valve B, and becomes 2nd clutch pressure (20). The 2nd clutch pressure is applied to the 2nd clutch, and 2nd clutch is engaged.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

System Description (cont'd)

Hydraulic Flow (cont'd)

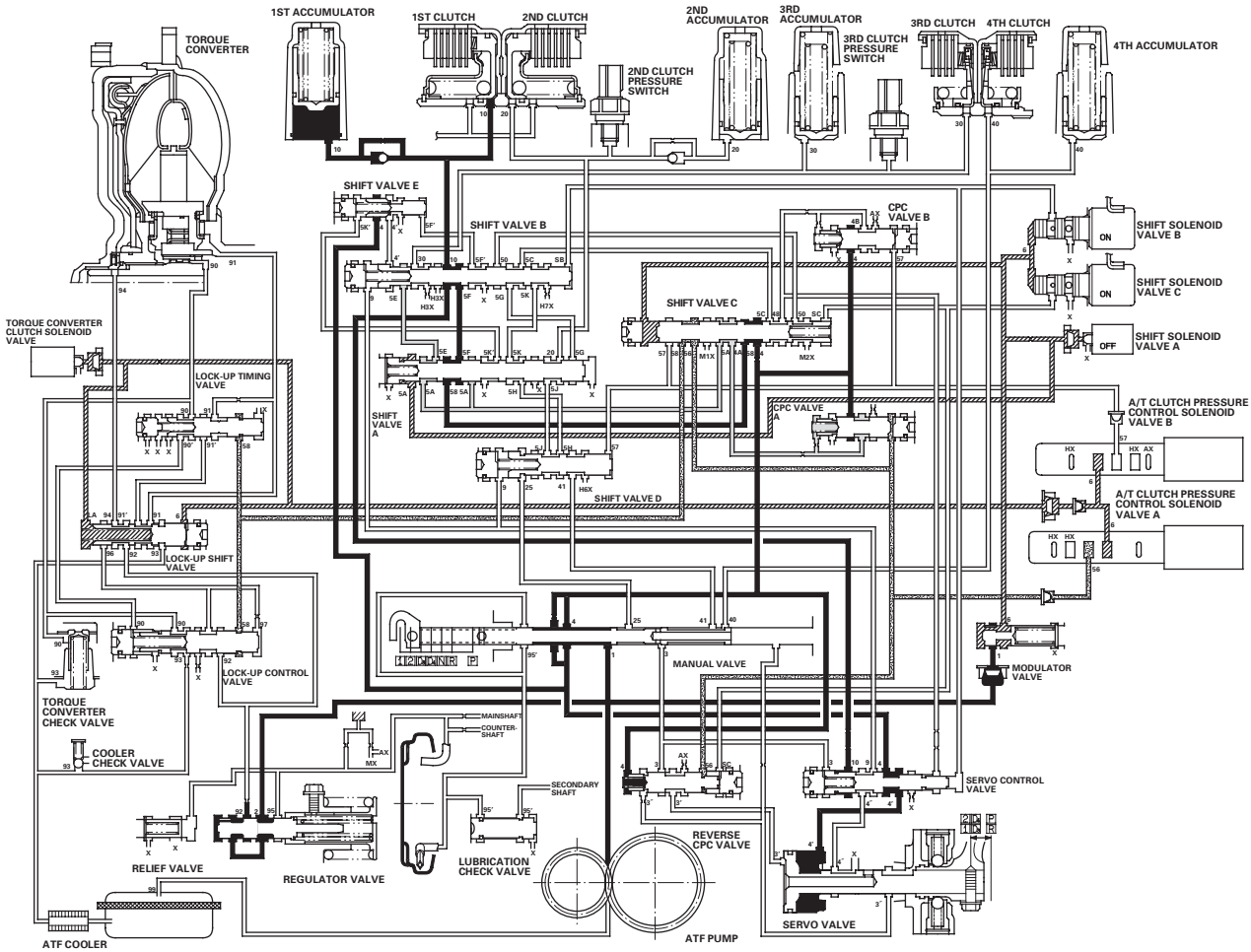
1 Position

The PCM controls the shift solenoid valves and the A/T clutch pressure control solenoid valves. The conditions of the shift control solenoid valves and the positions of the shift valve are as follows:

- Shift solenoid valve A is turned OFF, and the shift valve A moves to the left side.
- Shift solenoid valve B is turned ON, and the shift valve B stays on the right side.
- Shift solenoid valve C is turned ON, and the shift valve C stays on the right side.

Line pressure (4) becomes line pressure (5B) at shift valve C. Line pressure (5C) flows to shift valve B via shift valve A, and becomes 1st clutch pressure (10). 1st clutch pressure (10) is applied to the 1st clutch, then 1st clutch is engaged.

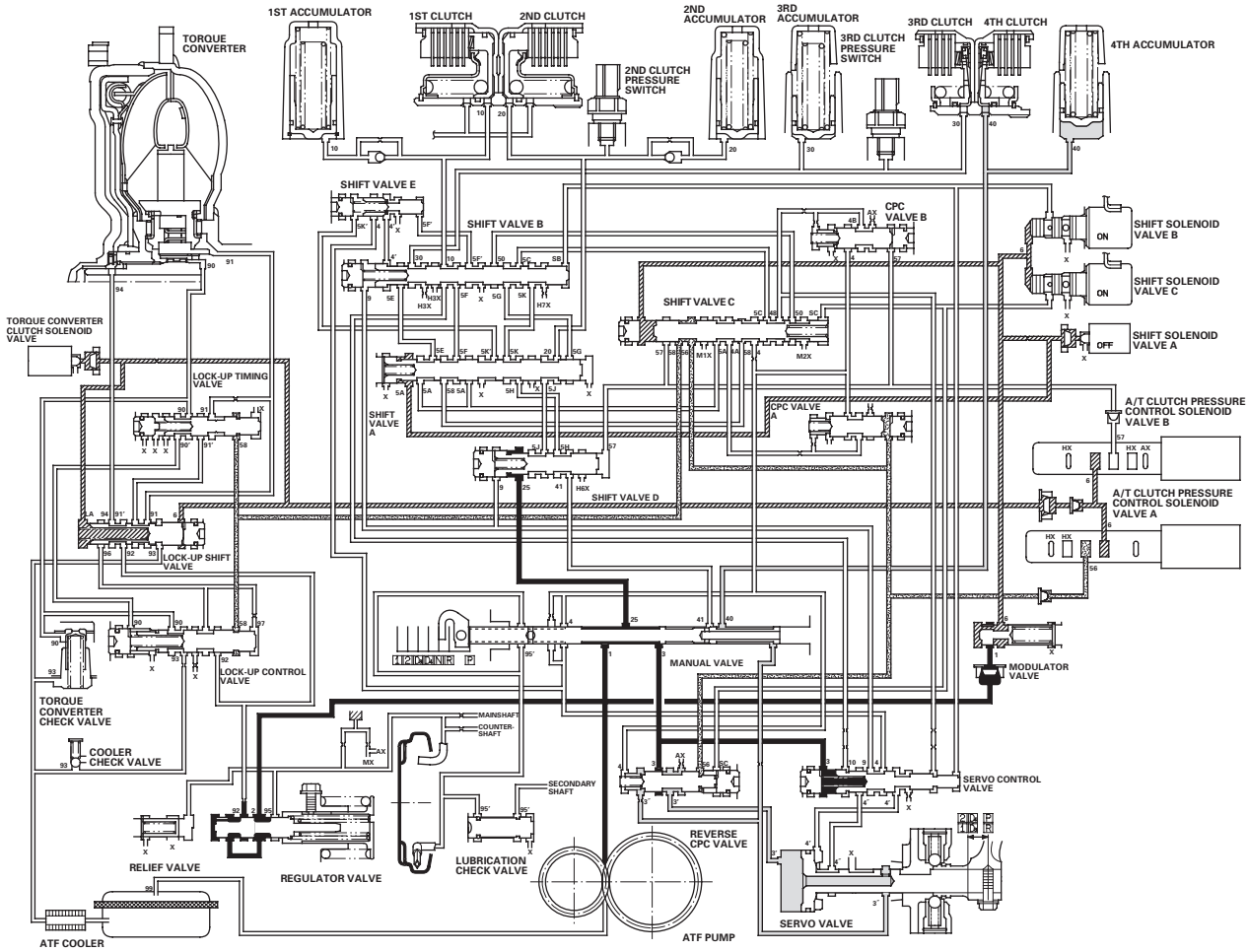
NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



R Position: Shifting to the R position from the P or N position

Line pressure (1) becomes line pressure (3) at the manual valve, and flows to the reverse CPC valve. Line pressure (3) is regulated by the reverse CPC valve and becomes line pressure (3'). Line pressure (3') pushes the servo valve to the reverse position, passes through the servo valve, and flows to the manual valve. Line pressure (3') becomes 4th clutch pressure (40). The 4th clutch pressure (40) is applied to the 4th clutch, and 4th clutch is engaged with the reverse CPC pressure mode.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

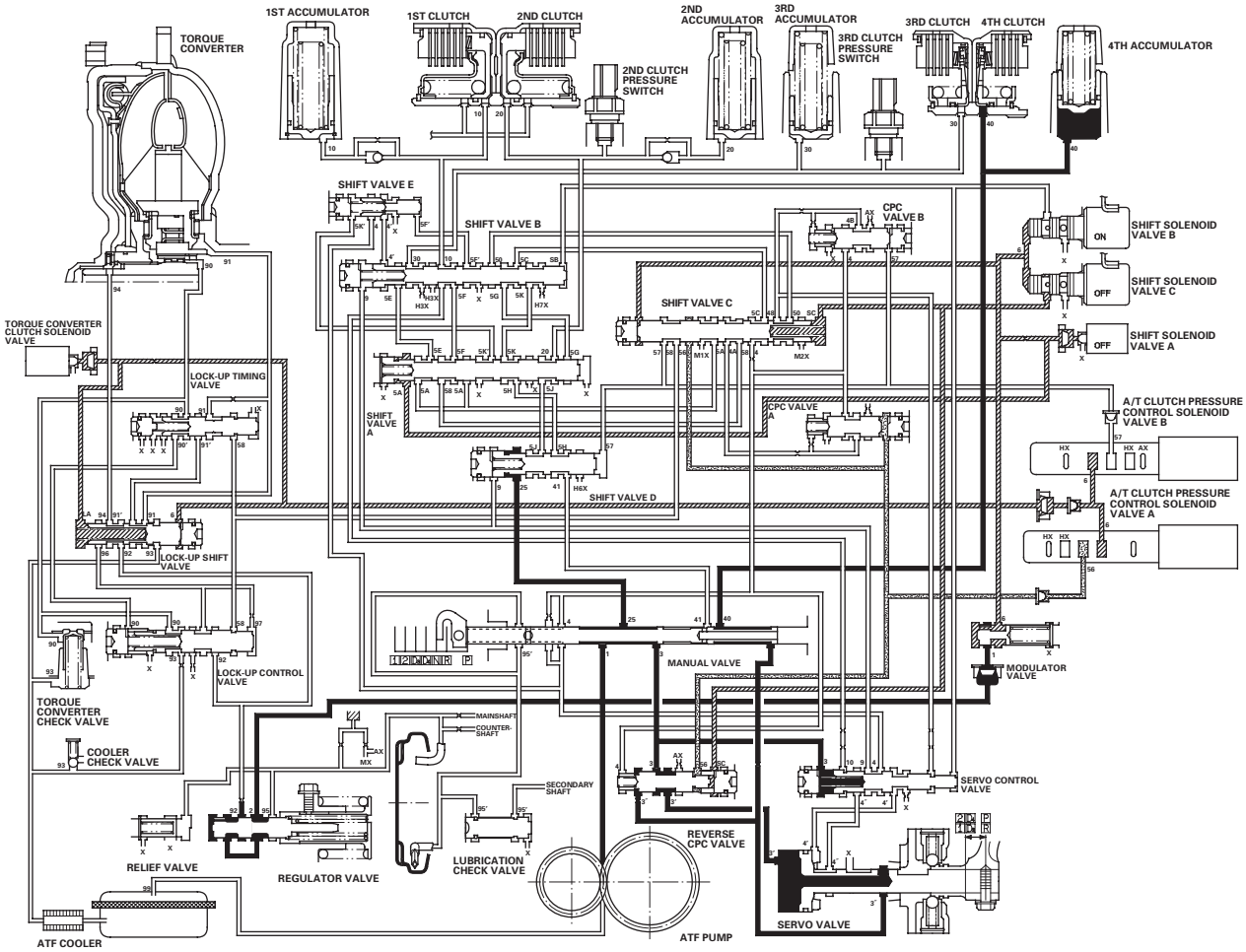
System Description (cont'd)

Hydraulic Flow (cont'd)

R Position: Driving in reverse gear
The PCM turns shift solenoid valve C OFF. Shift solenoid valve A remains OFF, and B remains ON. Shift solenoid valve C is turned OFF, and SH C pressure (SC) is applied to the right side of the reverse CPC valve. Then the reverse CPC valve moves to the left side, creating full line pressure. Line pressure to the 4th clutch is the same as in shifting to the R position, and 4th clutch pressure increases. The 4th clutch is engaged with line pressure mode.

Reverse Inhibitor Control
When the R position is selected while the vehicle is moving forward at speeds over 6 mph (10 km/h), the PCM outputs to turn the shift solenoid valve C ON; shift solenoid valve A remains OFF, and shift solenoid valve B remains ON. The reverse CPC valve is moved to right side and cover the port to stop the line pressure (3') to the servo valve. The line pressure (3') is not applied to the servo valve, and the 4th clutch pressure (40) is not applied to the 4th clutch, as a result, power is not transmitted to the reverse direction.

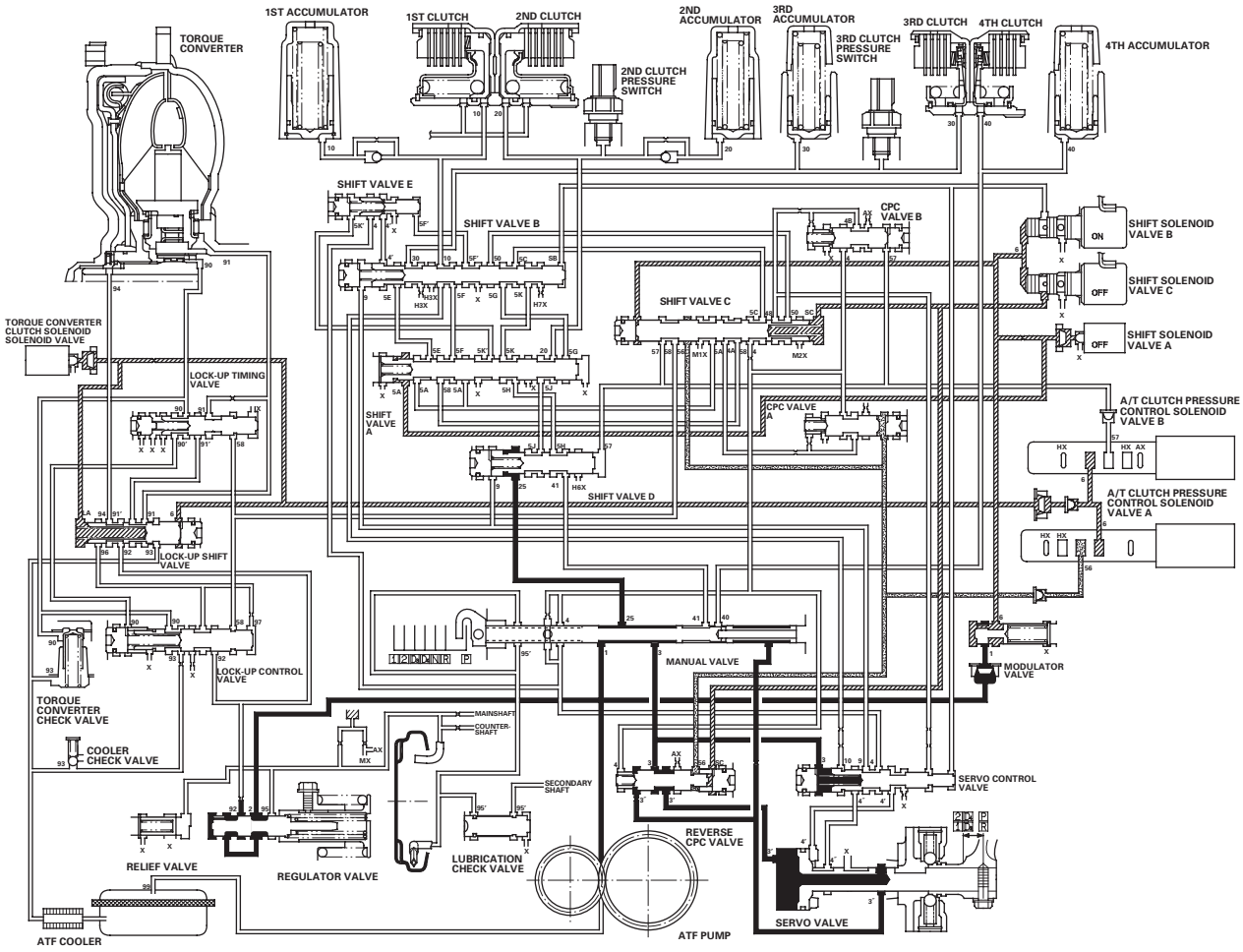
NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



P Position

Shift solenoid valve C is turned OFF by the PCM, and SH C pressure (SC) is applied to the right side of the reverse CPC valve. Then the reverse CPC valve is moved to the left side to uncover the port leading line pressure (3) to the servo valve. Line pressure (3') passes through the servo valve and flows to the manual valve. Line pressure (3') is intercepted at the manual valve, and is not applied to the clutches.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



System Description (cont'd)

Lock-up System

The lock-up mechanism operates in D4 position (3rd and 4th), and D3 position (3rd). The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same speed as the engine crankshaft. Together with hydraulic control, the PCM optimizes the timing of the lock-up mechanism. When the torque converter clutch solenoid valve activates, modulator pressure changes to switch lock-up ON and OFF. The lock-up control valve and the lock-up timing valve control the amount of lock-up according to A/T clutch pressure control solenoid valves A and B. The torque converter clutch solenoid valve is mounted on the torque converter housing, and A/T clutch pressure control solenoid valves A and B are mounted on the transmission housing. They are controlled by the PCM.

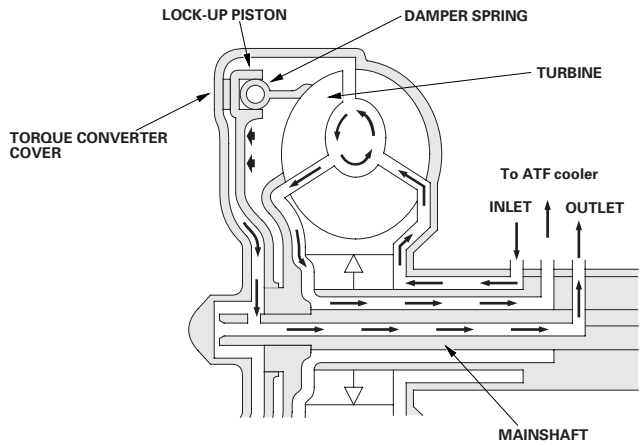
General Operation

1. Operation (clutch on)
   With the torque converter clutch on, fluid in the chamber between the torque converter clutch cover and the torque converter clutch piston is drained off, and the converter fluid exerts pressure through the piston against the torque converter cover. As a result, the converter turbine is locked to the converter cover. The effect is to bypass the converter, placing the vehicle in direct drive.

Power flow

The power flows by way of:

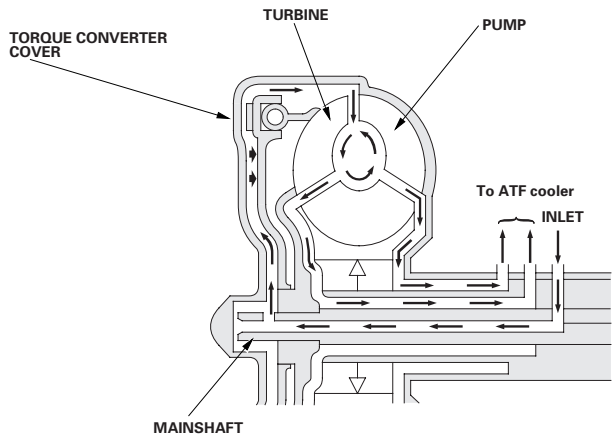
Engine
↓
Drive plate
↓
Torque converter cover
↓
Lock-up piston
↓
Damper spring
↓
Turbine
↓
Mainshaft



2. Operation (clutch off)
   With the torque converter clutch off, fluid flows in the reverse of CLUTCH ON. As a result, the torque converter clutch piston moves away from the converter cover, and torque converter lock-up is released.

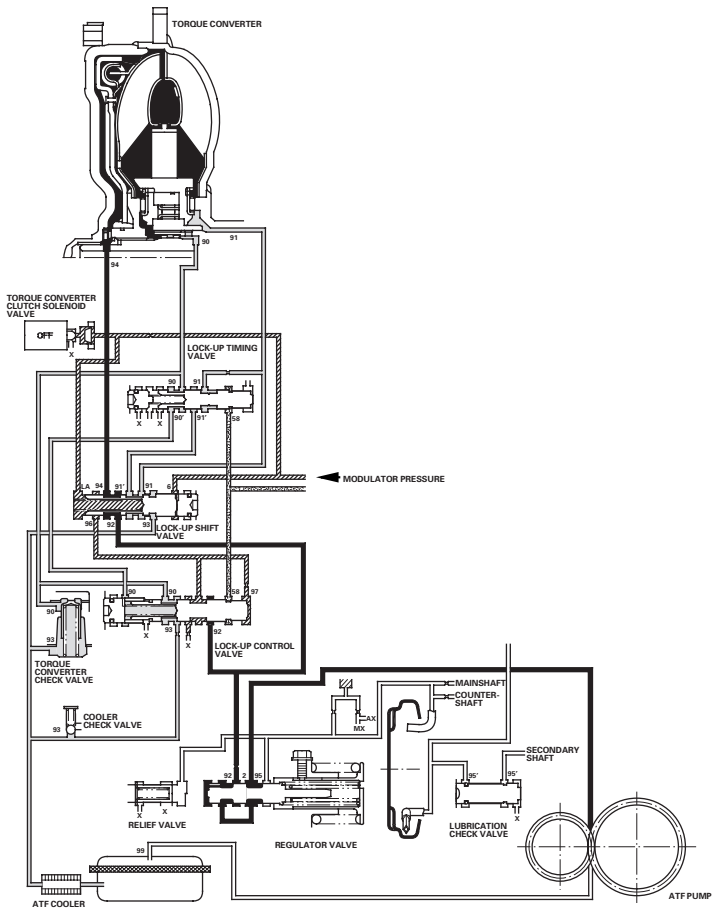
Power flow

Engine
↓
Drive plate
↓
Torque converter cover
↓
Pump
↓
Turbine
↓
Mainshaft



No Lock-up
The torque converter clutch solenoid valve is turned OFF by the PCM. The lock-up shift valve receives LC pressure (LA) on the left side, and modulator pressure (6) on the right side. The lock-up shift valve is in the right side to uncover the port leading torque converter pressure (92) to the left side of the torque converter. Torque converter pressure (92) becomes torque converter pressure (94), and enters into the left side of the torque converter to disengage the torque converter clutch. The torque converter clutch is OFF.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

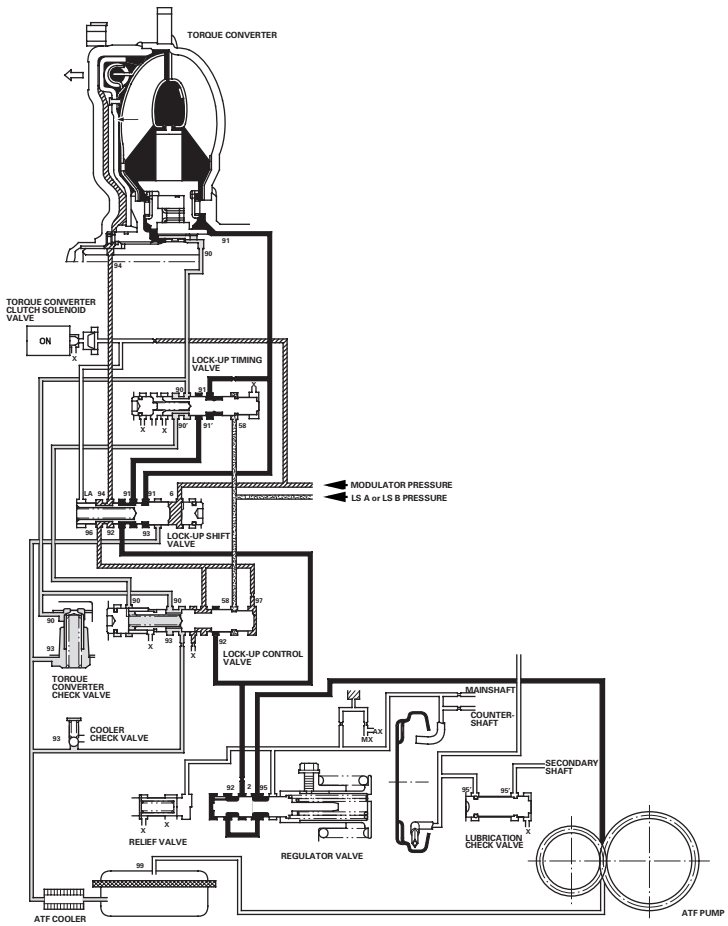
System Description (cont'd)

Lock-up System (cont'd)

Partial Lock-up

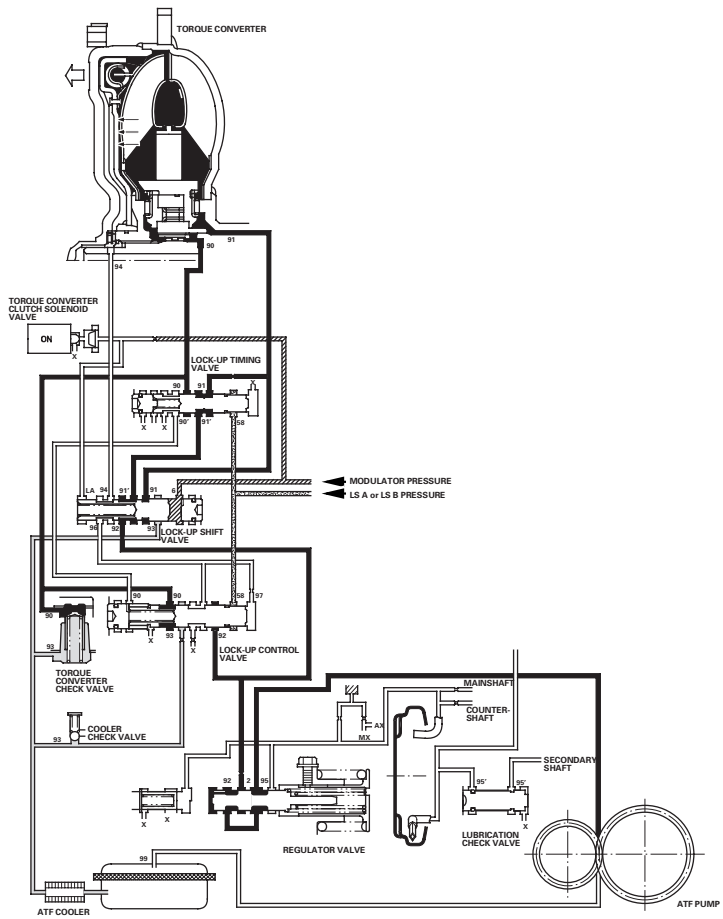
As the speed of the vehicle reaches the prescribed value, the torque converter clutch solenoid valve is turned ON by the PCM to release LC pressure (LA) in the left side of the lock-up shift valve. The lock-up shift valve is moved to the left side to switch the port leading torque converter pressure to the left side and right side of the torque converter. Torque converter pressure (92) flows to the right side of the torque converter to engage the torque converter clutch. The PCM also controls A/T clutch pressure control solenoid valves A and B, and LS A or LS B pressure is applied to the lock-up control valve and the lock-up timing valve. The position of the lock-up control valve depends on torque converter pressure and LS A or LS B pressure. When LS A or LS B pressure (58) is lower, torque converter pressure (91) from the lock-up timing valve is lower. The torque converter clutch is engaged partially. LS A or LS B (58) increases, and the lock-up timing valve is moved to the left side to uncover the port leading torque converter pressure to high. The torque converter clutch is then engaged securely. Under this condition, the torque converter clutch is engaged by pressure from the right side of the torque converter; this condition is partial lock-up.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



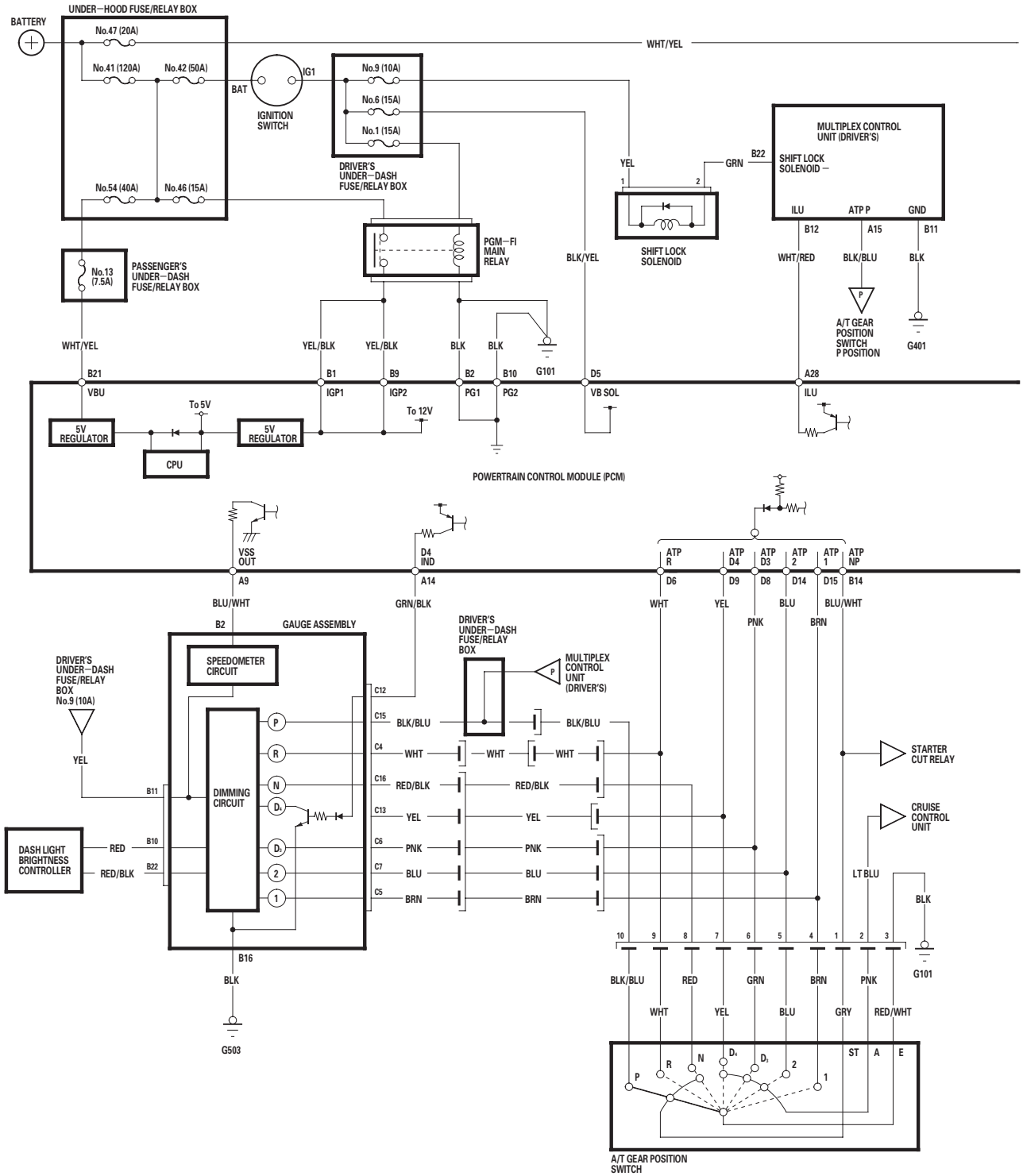
Full Lock-up
When the vehicle speed further increases, the PCM controls A/T clutch pressure control solenoid valves A and B to increase LS A or LS B pressure (58). The LS A or LS B pressure (58) is applied to the lock-up control valve and the lock-up timing valve, and moves them to the left side. Under this condition, torque converter back pressure is released fully, causing the torque converter clutch to be fully engaged.

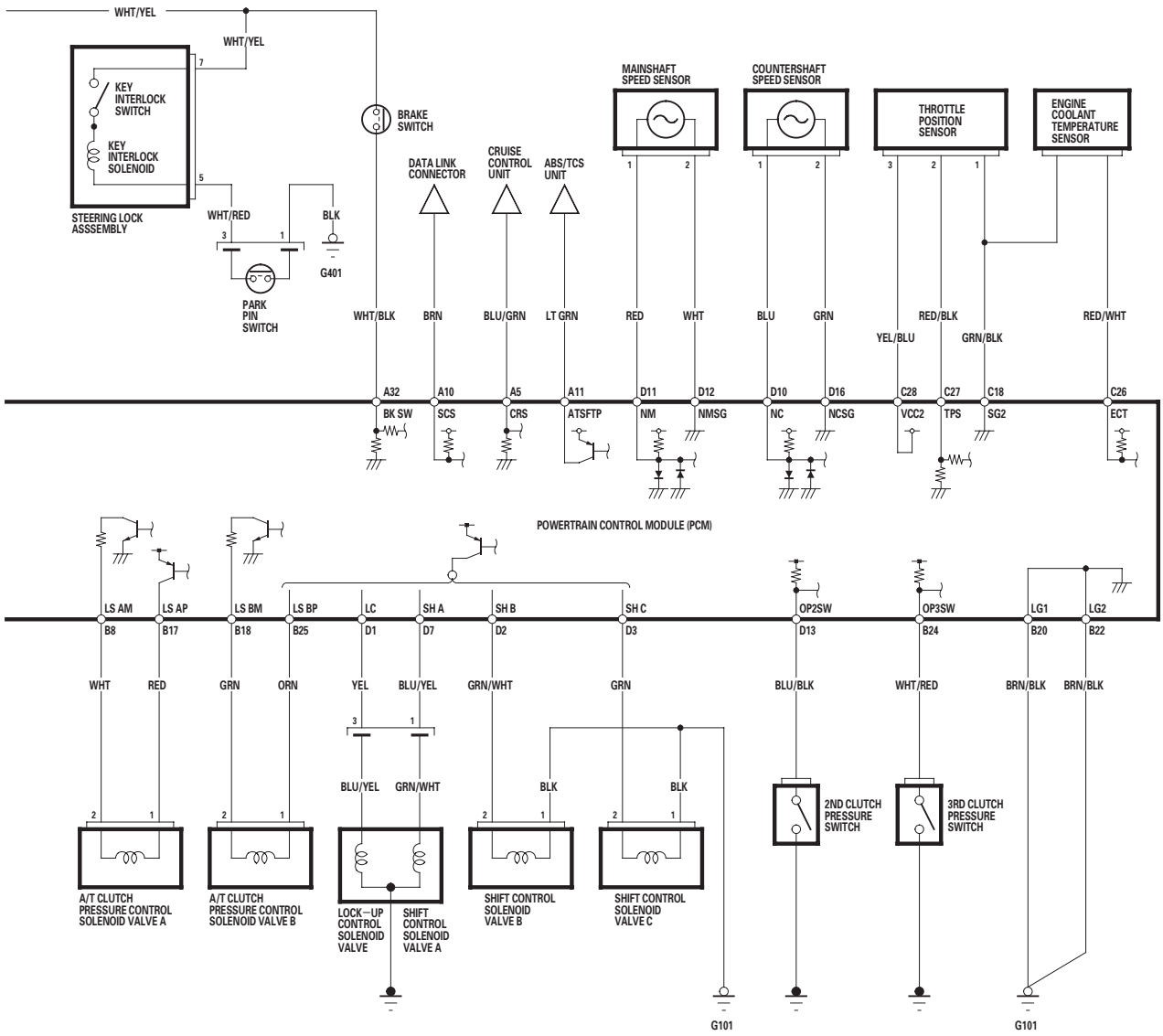
NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



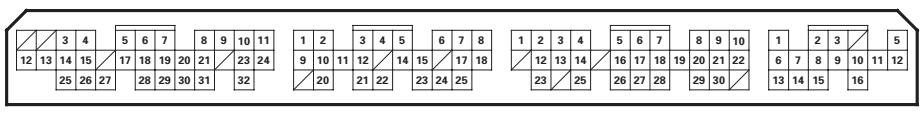
System Description (cont'd)

Circuit Diagram — 1999-2000 Models



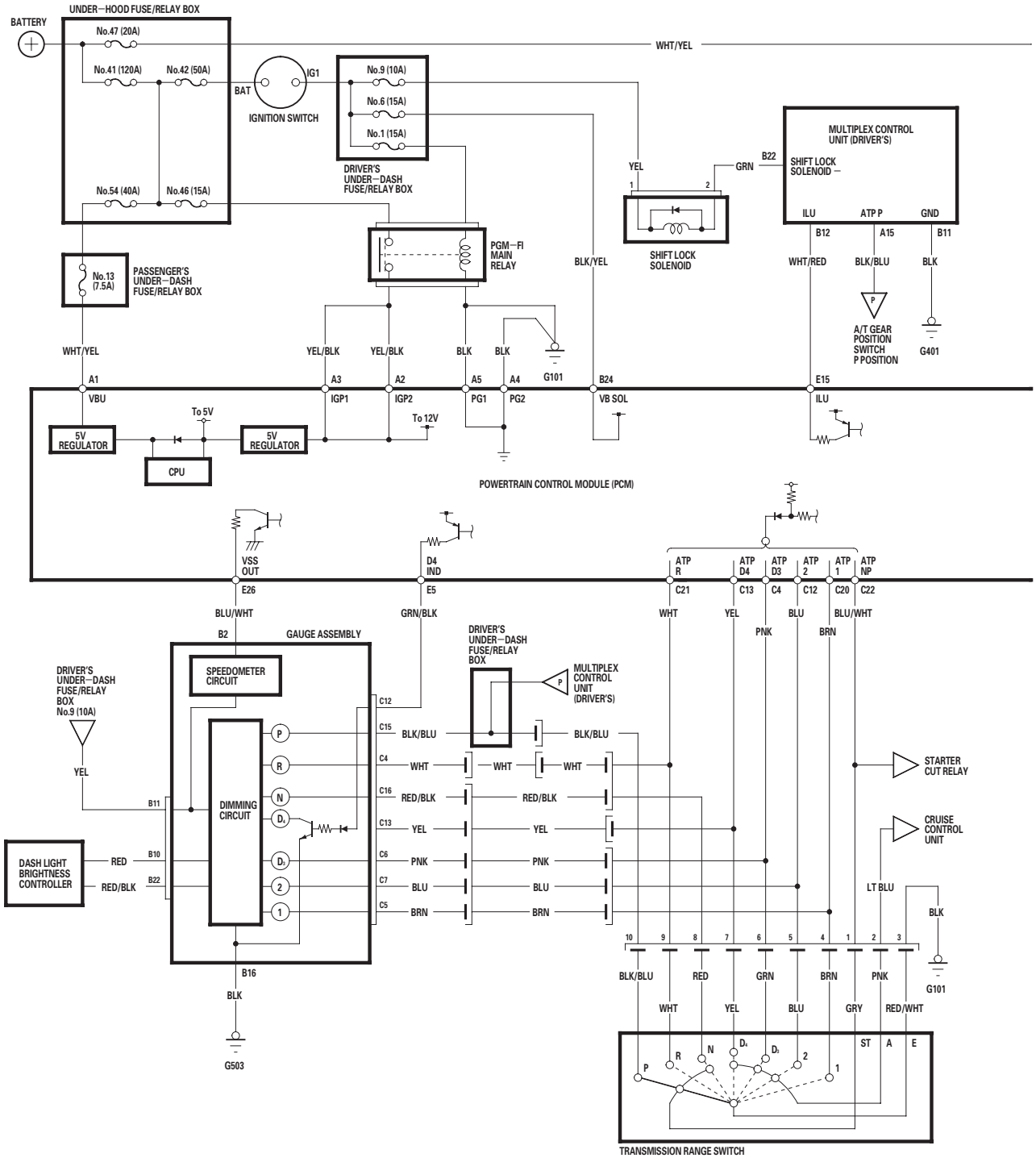


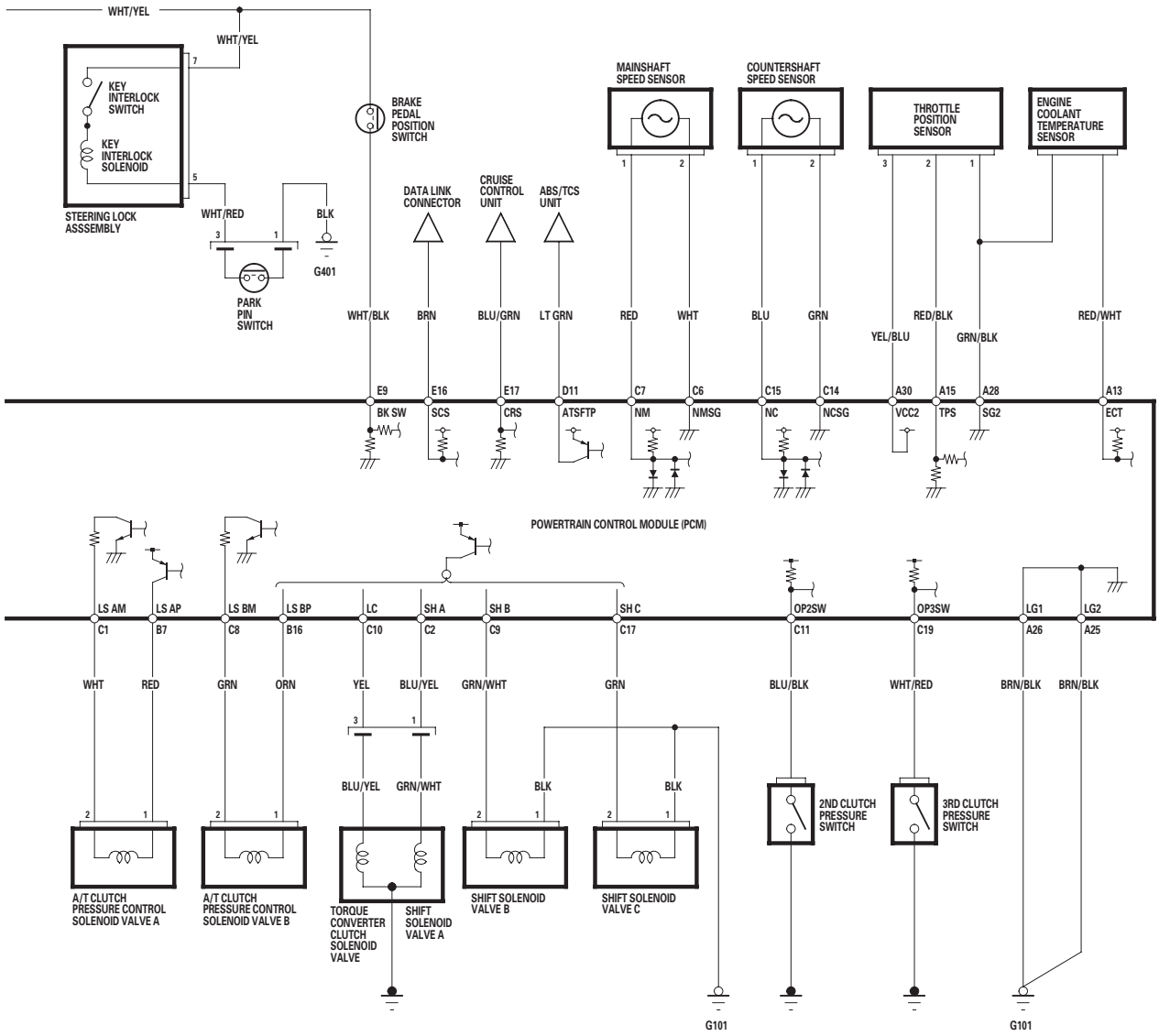
PCM Connector Terminal Locations



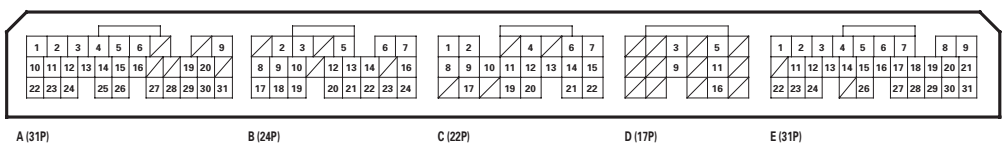
System Description (cont'd)

Circuit Diagram—2001 Model





PCM Connector Terminal Locations



DTC Troubleshooting

1999-2000 Models

DTC P0715: Problem in Mainshaft Speed Sensor Circuit

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

Code P0715 (15) on the PCM doesn't always mean there's an electrical problem in the mainshaft or countershaft speed sensor circuit; code P0715 (15) may also indicate a mechanical problem in the transmission. Any problem causing irregular countershaft to mainshaft speed difference can cause this code.

1. Check the mainshaft and countershaft speed sensor installation.

   Are the mainshaft and the countershaft speed sensors installed properly?

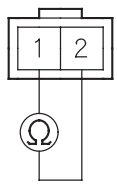
   YES—Go to step 2.

   NO—Reinstall and recheck. ■

2. Disconnect the 2P connector from the mainshaft speed sensor.

3. Measure mainshaft speed sensor resistance at the sensor connector.

MAINSHAFT SPEED SENSOR CONNECTOR



Terminal side of male terminals

Is there 400—600 Ω ?

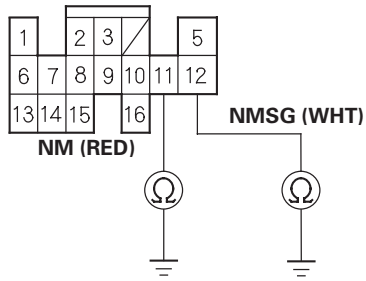
YES—Go to step 4.

NO—Replace the mainshaft speed sensor (see page 14-134). ■

4. Disconnect the D (16P) connector from the PCM.

5. Check for continuity between body ground and the D11 terminal and D12 terminal individually.

PCM CONNECTOR D (16P)



Wire side of female terminals

Is there continuity?

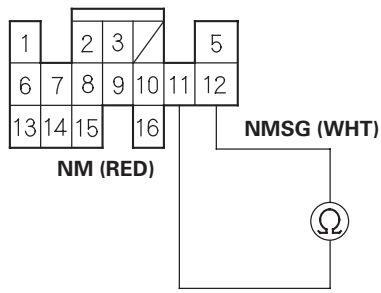
YES—Repair short to ground in the wires between the D11 and D12 terminals and the mainshaft speed sensor. ■

NO—Go to step 6.

6. Connect the mainshaft speed sensor connector.

7. Measure the resistance between the D11 and D12 terminals.

PCM CONNECTOR D (16P)



Wire side of female terminals

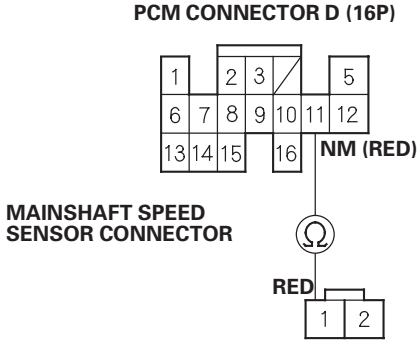
Is there 400—600 Ω ?

YES—Run the Electrical Troubleshooting Flowchart for code P0720 (code 9). Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Go to step 8.

8. Disconnect the 2P connector from the mainshaft speed sensor.

9. Check for continuity between the D11 terminal and the No. 1 terminal of the mainshaft speed sensor connector.



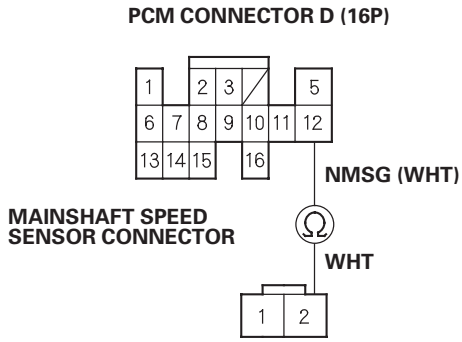
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the D11 terminal and the mainshaft speed sensor. ■

10. Check for continuity between the D12 terminal and the No. 2 terminal of the mainshaft speed sensor connector.



Wire side of female terminals

Is there continuity?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Repair open in the wire between the D12 terminal and the mainshaft speed sensor. ■

DTC Troubleshooting (cont'd)

1999-2000 Models

DTC P0720: Problem in Countershaft Speed Sensor Circuit

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Check the countershaft speed sensor installation.

   Is the countershaft speed sensor installed properly?

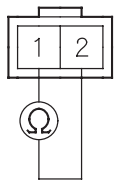
   YES—Go to step 2.

   NO—Reinstall and recheck. ■

2. Disconnect the 2P connector from the countershaft speed sensor.

3. Measure countershaft speed sensor resistance at the sensor connector.

   COUNTERSHAFT SPEED SENSOR CONNECTOR



Terminal side of male terminals

   Is there 400—600 Ω?

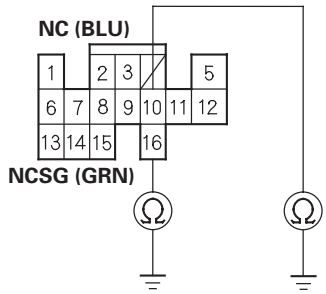
   YES—Go to step 4.

   NO—Replace the countershaft speed sensor (see page 14-134). ■

4. Disconnect the D (16P) connector from the PCM.

5. Check for continuity between body ground and the D10 terminal and D16 terminal individually.

   PCM CONNECTOR D (16P)



Wire side of female terminals

   Is there continuity?

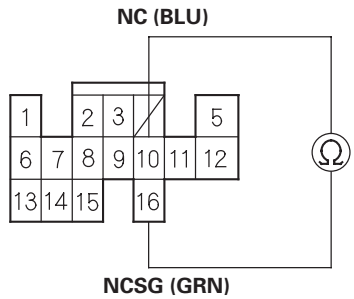
   YES—Repair short to ground in the wires between the D10 and D16 terminals and the countershaft speed sensor. ■

   NO—Go to step 6.

6. Connect the countershaft speed sensor connector.

7. Measure the resistance between the D10 and D16 terminals.

   PCM CONNECTOR D (16P)



Wire side of female terminals

   Is there 400—600 Ω?

   YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

   NO—Repair loose terminal or open in the wires between the D10 and D16 terminals and the countershaft speed sensor. ■

1999-2000 Models

DTC P0730: Problem in Shift Control System

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- Keep replacement control solenoid valves on hand:
  – Lock-up control solenoid valve/shift control solenoid valve A assembly
  – Shift control solenoid valves B and C
  – A/T clutch pressure control solenoid valve A/B assembly

1. Check whether the scan tool or the HDS indicates another code.

   Does the scan tool or the HDS indicate another code?

   YES—Perform the Troubleshooting Flowchart for the indicated Code(s). Recheck for code P0730 after troubleshooting. ■

   NO—Go to step 2.

   NOTE: Do not continue with this troubleshooting until the causes of any other DTCs have been corrected.

2. Measure the 1st, 2nd, 3rd, and 4th clutch pressure (see page 14-128).

   Is each clutch pressure within the service limit?

   YES—Go to step 3.

   NO—Repair the hydraulic system as necessary. ■

3. Replace the Solenoid Assembly set (lock-up control solenoid valve/shift control solenoid valve A assembly (see page 14-130), the shift control solenoid valves B and C (see page 14-131) and the A/T clutch pressure control solenoid valve A/B assembly (see page 14-133)).

4. Clear the DTC with the scan tool or the HDS.

5. Drive the vehicle at a speed over 12 mph (20 km/h) in 1st, 2nd, 3rd, and 4th gear in D4 position for more than 30 seconds.

6. Recheck for code P0730.

   Does the scan tool or the HDS indicate code P0730?

   YES—Replace the transmission. ■

   NO—The system is OK at this time. ■

DTC Troubleshooting (cont'd)

1999-2000 Models

DTC P0740: Problem in Lock-up Control System

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- Keep replacement control solenoid valves on hand:
  – Lock-up control solenoid valve assembly (lock-up control solenoid valve/shift control solenoid valve A assembly)
  – A/T clutch pressure control solenoid valve A/B assembly

1. Check whether the scan tool or the HDS indicates another code.

   Does the scan tool or the HDS indicate another code?

   YES—Perform the Troubleshooting Flowchart for the indicated Code(s). Recheck for code P0740 after troubleshooting. ■

   NO—Go to step 2.

   NOTE: Do not continue with this troubleshooting until the causes of any other DTCs have been corrected.

2. Measure the line pressure (see page 14-128).

   Is the line pressure within the service limit?

   YES—Go to step 3.

   NO—Replace the transmission. ■

3. Replace the Lock-up Control Solenoid Assembly set (lock-up control solenoid valve/shift control solenoid valve A assembly (see page 14-130) and the A/T clutch pressure control solenoid valve A/B assembly (see page 14-133)).

4. Clear the DTC with the scan tool or the HDS.

5. Using the scan tool, check to be sure that the engine coolant temperature is 176°F (80°C) or above.

6. Drive the vehicle under the same conditions as those indicated by the freeze data for more than 1 minute, or drive the vehicle at 55 mph (88 km/h) with TPS voltage 0.8 V for more than 1 minute.

7. Recheck for code P0740.

   Does the scan tool or the HDS indicate code P0740?

   YES—Inspect the O-ring on the torque converter. If the O-ring is missing, replace the O-ring. If the O-ring is damaged or OK, replace the transmission and torque converter. ■

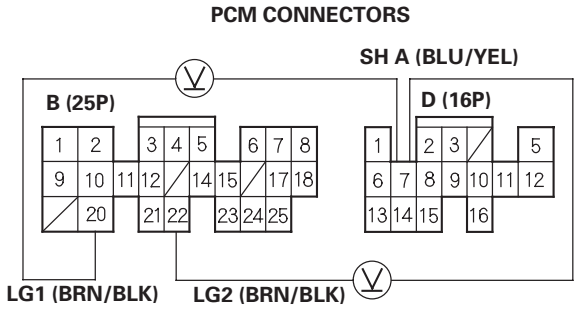
   NO—The system is OK at this time. ■

1999-2000 Models

DTC P0753: Problem in Shift Control Solenoid Valve A Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch OFF.
2. Disconnect the B (25P) and D (16P) connectors from the PCM.
3. Turn the ignition switch ON (II).
4. Measure the voltage between the D7 and B20 or B22 terminals.



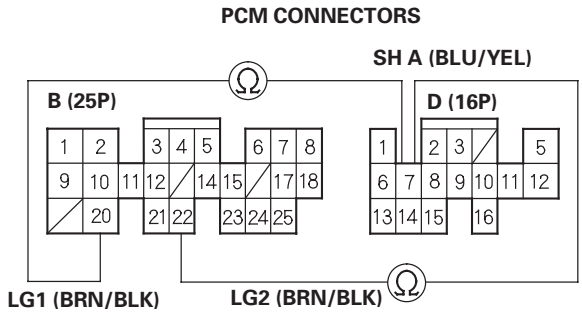
Wire side of female terminals

Is there voltage?

YES—Repair short to power in the wire between the D7 terminal and the shift control solenoid valve A. ■

NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Measure the resistance between the D7 and B20 or B22 terminals.



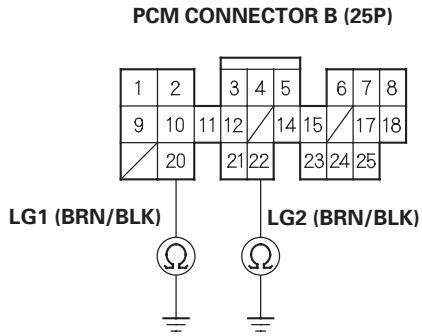
Wire side of female terminals

Is there 12—25 Ω ?

YES—Go to step 11.

NO—Go to step 7.

7. Check for continuity between the B20 and B22 terminals and body ground.



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

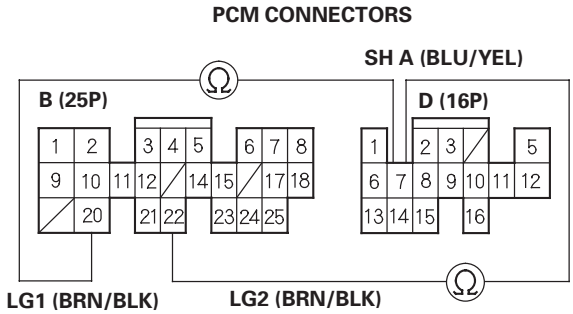
NO—Repair open in the wires between the B20 and B22 terminals and ground (G101), or repair poor ground (G101). ■

(cont'd)

DTC Troubleshooting (cont'd)

8. Disconnect the 3P connector from the lock-up control solenoid valve/shift control solenoid valve A assembly.

9. Check for continuity between the D7 and B20 or B22 terminals.



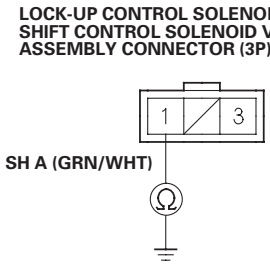
Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between the D7 terminal and shift control solenoid valve A. ■

NO—Go to step 10.

10. Measure the resistance between the No. 1 terminal of the lock-up control solenoid valve/shift control solenoid valve A assembly connector and body ground.



Terminal side of male terminals

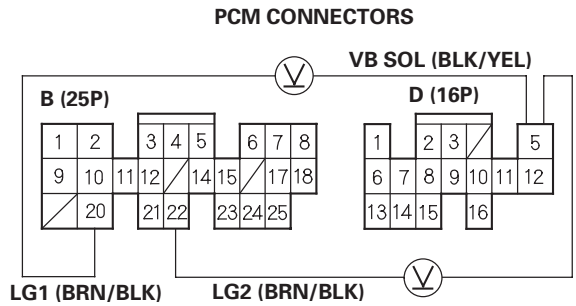
Is there 12—25 Ω ?

YES—Check for an open in the wire between the D7 terminal and shift control solenoid valve A. ■

NO—Replace the lock-up control solenoid valve-shift control solenoid valve A assembly (see page 14-130). ■

11. Turn the ignition switch ON (II).

12. Measure the voltage between the D5 and B20 or B22 terminals.



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the D5 terminal and the driver's under-dash fuse/relay box. ■

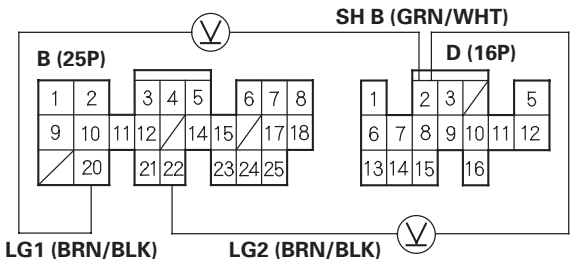
1999-2000 Models

DTC P0758: Problem in Shift Control Solenoid Valve B Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch OFF.
2. Disconnect the B (25P) and D (16P) connectors from the PCM.
3. Turn the ignition switch ON (II).
4. Measure the voltage between the D2 and B20 or B22 terminals.

PCM CONNECTORS



Wire side of female terminals

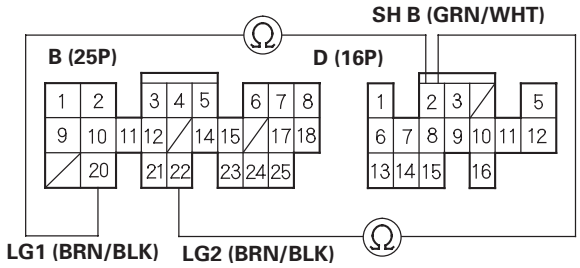
Is there voltage?

YES—Repair short to power in the wire between the D2 terminal and the shift control solenoid valve B.■

NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Measure the resistance between the D2 and B20 or B22 terminals.

PCM CONNECTORS



Wire side of female terminals

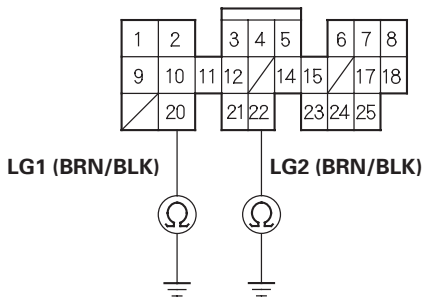
Is there 12—25 Ω ?

YES—Go to step 11.

NO—Go to step 7.

7. Check for continuity between the B20 and B22 terminals and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

NO—Repair open in the wires between the B20 and B22 terminals and body ground (G101), or repair poor ground (G101).■

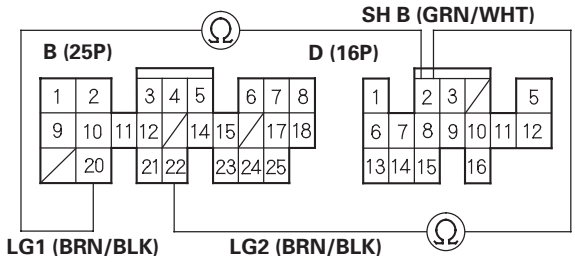
(cont'd)

DTC Troubleshooting (cont'd)

8. Disconnect the 2P connector from the shift control solenoid valve B.

9. Check for continuity between the D2 and B20 or B22 terminals.

PCM CONNECTORS



Wire side of female terminals

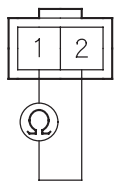
Is there continuity?

YES—Repair short to ground in the wire between the D2 terminal and the shift control solenoid valve B. ■

NO—Go to step 10.

10. Measure shift control solenoid valve B resistance at the solenoid valve connector.

SHIFT CONTROL SOLENOID VALVE B CONNECTOR



Terminal side of male terminals

Is the resistance 12—25 Ω?

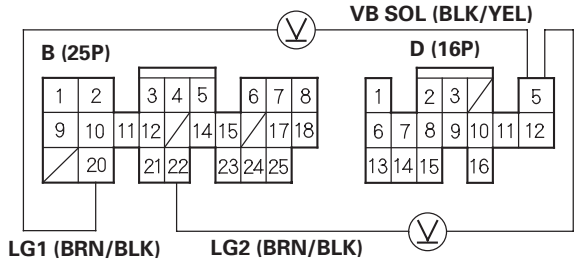
YES—Check for an open in the wires between the D2 terminal and the shift control solenoid valve B and between the No. 1 terminal of the shift control solenoid valve B connector and ground (G101). ■

NO—Replace the shift control solenoid valve B (see page 14-131). ■

11. Turn the ignition switch ON (II).

12. Measure the voltage between the D5 and B20 or B22 terminals.

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

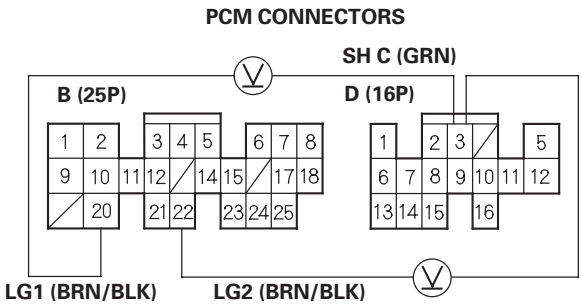
NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the D5 terminal and the driver's under-dash fuse/relay box. ■

1999-2000 Models

DTC P0763: Problem in Shift Control Solenoid Valve C Circuit

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Turn the ignition switch OFF.
2. Disconnect the B (25P) and D (16P) connectors from the PCM.
3. Turn the ignition switch ON (II).
4. Measure the voltage between the D3 and B20 or B22 terminals.



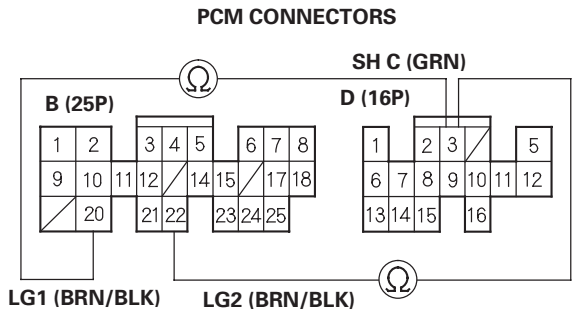
Wire side of female terminals

Is there voltage?

YES—Repair short to power in the wire between the D3 terminal and the shift control solenoid valve C. ■

NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Measure the resistance between the D3 and B20 or B22 terminals.



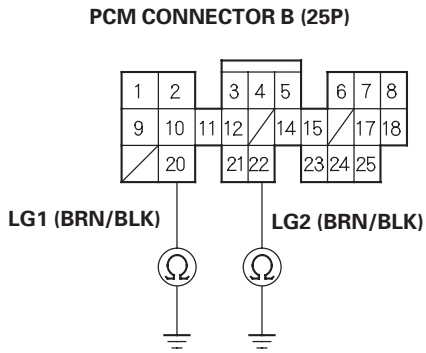
Wire side of female terminals

Is there 12—25 Ω ?

YES—Go to step 11.

NO—Go to step 7.

7. Check for continuity between the B20 and B22 terminals and body ground.



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

NO—Repair open in the wires between the B20 and B22 terminals and ground (G101), or repair poor ground (G101). ■

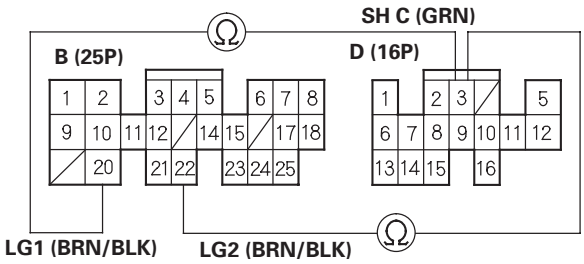
(cont'd)

DTC Troubleshooting (cont'd)

8. Disconnect the 2P connector from shift control solenoid valve C.

9. Check for continuity between the D3 and B20 or B22 terminals.

PCM CONNECTORS



Wire side of female terminals

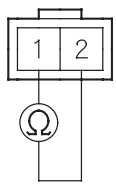
Is there continuity?

YES—Repair short to ground in the wire between the D3 terminal and the shift control solenoid valve C. ■

NO—Go to step 10.

10. Measure shift control solenoid valve C resistance at the solenoid valve connector.

SHIFT CONTROL SOLENOID VALVE C CONNECTOR



Terminal side of male terminals

Is there 12—25 Ω ?

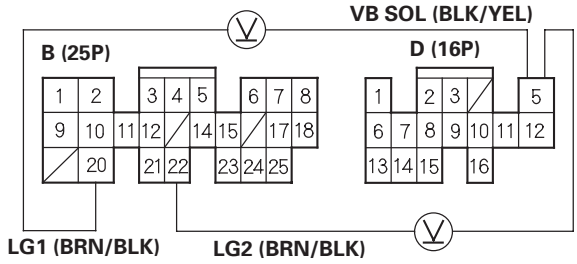
YES—Check for an open in the wires between the D3 terminal and the shift control solenoid valve C and between the No. 1 terminal of the shift control solenoid valve C connector and ground (G101). ■

NO—Replace shift control solenoid valve C (see page 14-131). ■

11. Turn the ignition switch ON (II).

12. Measure the voltage between the D5 and B20 or B22 terminals.

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the D5 terminal and the driver's under-dash fuse/relay box. ■

1999-2000 Models

DTC P1705: Short in A/T Gear Position Switch Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch ON (II).
2. Observe the A/T gear position indicator, and shift each position separately.

   Do any indicators stay on when the shift lever is not in that position?

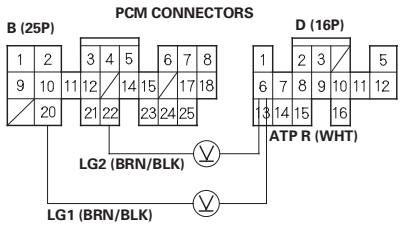
   YES—Go to step 3.

   NO—The system is OK at this time. Check the wire harness for damage. ■
3. Disconnect the A/T gear position switch connector.

   Do all gear position indicators go out?

   YES—Replace the A/T gear position switch (see page 14-174). ■

   NO—Go to step 4.
4. Turn the ignition switch OFF, and connect the A/T gear position switch connector.
5. Turn the ignition switch ON (II).
6. Shift to all positions other than R.
7. Measure the voltage between the D6 and B20 or B22 terminals.



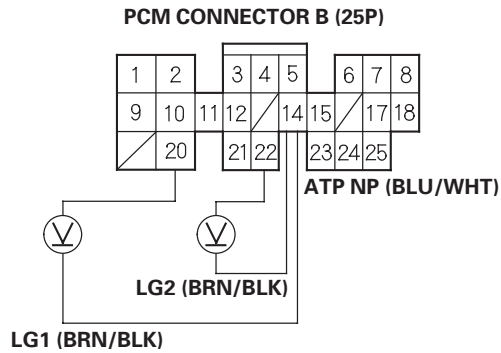
Wire side of female terminals

Is there battery voltage?

YES—Go to step 8.

NO—Check for a short in the wire between the D6 terminal and the A/T gear position switch or A/T gear position indicator, and check for an open in the wires between the B20 and B22 terminals and body ground (G101). If wires are OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

8. Shift to all positions other than P or N.
9. Measure the voltage between the B14 and B20 or B22 terminals.



Wire side of female terminals

Is there about 5 V?

YES—Go to step 10.

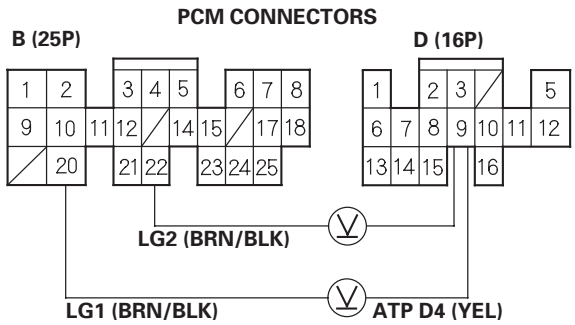
NO—Check for a short in the wire between the B14 terminal and the A/T gear position switch, and in the P and N position signal wires between the A/T gear position indicator and the A/T gear position switch. If wires are OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

10. Shift to all positions other than D4.

(cont'd)

DTC Troubleshooting (cont'd)

11. Measure the voltage between the D9 and B20 or B22 terminals.



Wire side of female terminals

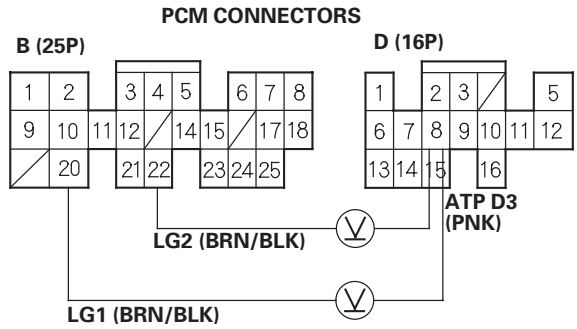
Is there about 5 V?

YES—Go to step 12.

NO—Check for a short in the wire between the D9 terminal and the A/T gear position switch or A/T gear position indicator. If wire is OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

12. Shift to all positions other than D3.

13. Measure the voltage between the D8 and B20 or B22 terminals.



Wire side of female terminals

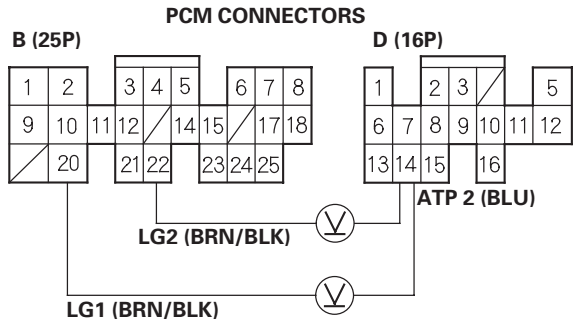
Is there battery voltage?

YES—Go to step 14.

NO—Check for a short in the wire between the D8 terminal and the A/T gear position switch or A/T gear position indicator. If wires are OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

14. Shift to all positions other than 2.

15. Measure the voltage between the D14 and B20 or B22 terminals.



Wire side of female terminals

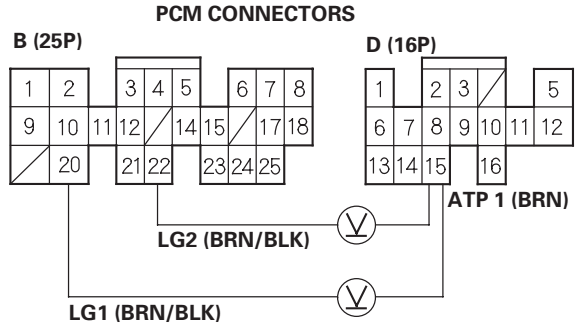
Is there battery voltage?

YES—Go to step 16.

NO—Check for a short in the wire between the D14 terminal and the A/T gear position switch or A/T gear position indicator. If wires are OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

16. Shift to all positions other than 1.

17. Measure the voltage between the D15 and B20 or B22 terminals.



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Check for a short in the wire between the D15 terminal and the A/T gear position switch or A/T gear position indicator. If wires are OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

DTC Troubleshooting (cont'd)

1999-2000 Models

DTC P1706: Open in A/T Gear Position Switch Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Test the A/T gear position switch (see page 14-173).

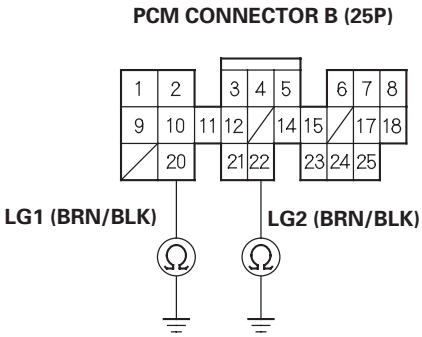
   Is the switch OK?

   YES—Go to step 2.

   NO—Replace the A/T gear position switch (see page 14-174). ■

2. Turn the ignition switch OFF.

3. Check for continuity between the B20 and B22 terminals and body ground.



Wire side of female terminals

   Is there continuity?

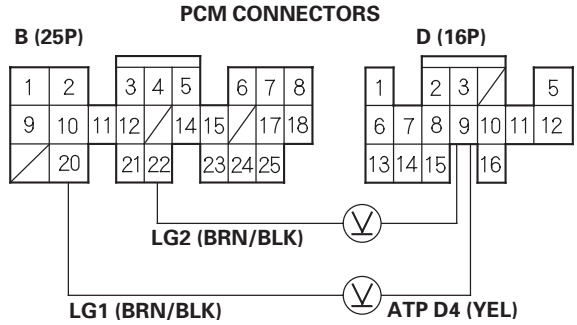
   YES—Go to step 4.

   NO—Repair open in the wires between the B20 and B22 terminals and ground (G101), or repair poor ground (G101). ■

4. Turn the ignition switch ON (II).

5. Shift to D4 position.

6. Measure the voltage between the D9 and B20 or B22 terminals.



Wire side of female terminals

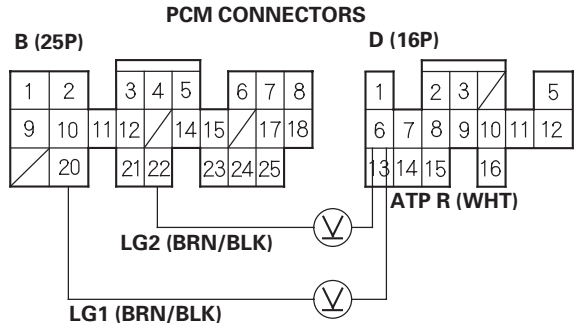
   Is there voltage?

   YES—Repair open in the wire between the D9 terminal and the A/T gear position switch. ■

   NO—Go to step 7.

7. Shift to R position.

8. Measure the voltage between the D6 and B20 or B22 terminals.



Wire side of female terminals

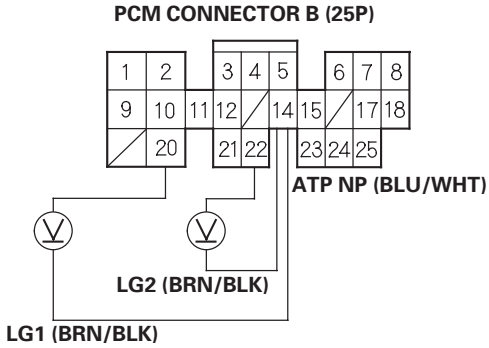
   Is there voltage?

   YES—Repair open in the wire between the D6 terminal and the A/T gear position switch. ■

   NO—Go to step 9.

9. Shift to P or N position.

10. Measure the voltage between the B14 and B20 or B22 terminals.



Wire side of female terminals

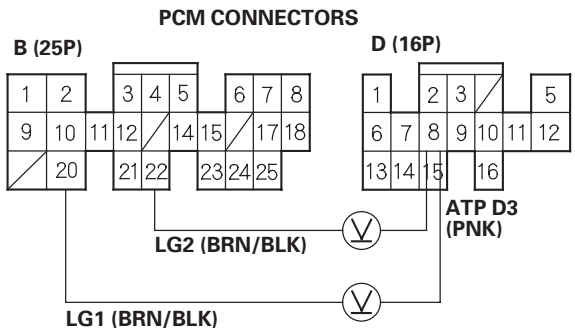
Is there voltage?

YES—Repair open in the wire between the B14 terminal and the A/T gear position switch. ■

NO—Go to step 11.

11. Shift to D3 position.

12. Measure the voltage between the D8 and B20 or B22 terminals.



Wire side of female terminals

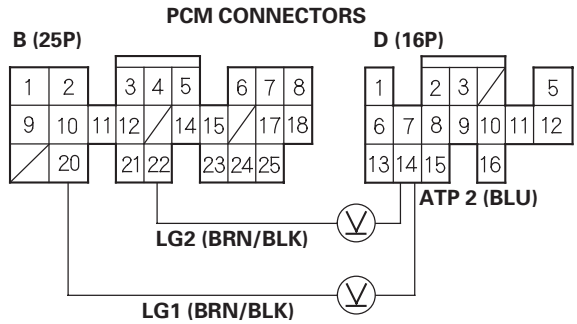
Is there voltage?

YES—Repair open in the wire between the D8 terminal and the A/T gear position switch. ■

NO—Go to step 13.

13. Shift to 2 position.

14. Measure the voltage between the D14 and B20 or B22 terminals.



Wire side of female terminals

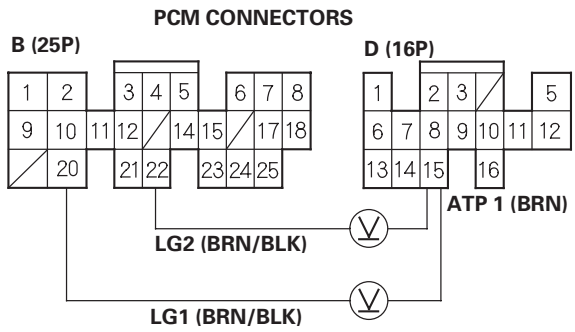
Is there voltage?

YES—Repair open in the wire between the D14 terminal and the A/T gear position switch. ■

NO—Go to step 15.

15. Shift to 1 position.

16. Measure the voltage between the D15 and B20 or B22 terminals.



Wire side of female terminals

Is there voltage?

YES—Repair open in the wire between the D15 terminal and the A/T gear position switch. ■

NO—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

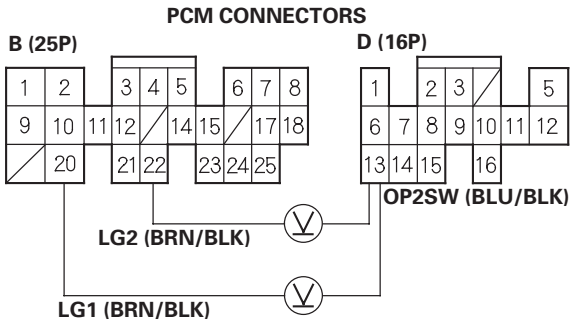
DTC Troubleshooting (cont'd)

1999-2000 Models

DTC P1738: Problem in 2nd Clutch Pressure Switch Circuit

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Turn the ignition switch ON (II).
2. Measure the voltage between the D13 and B20 or B22 terminals.



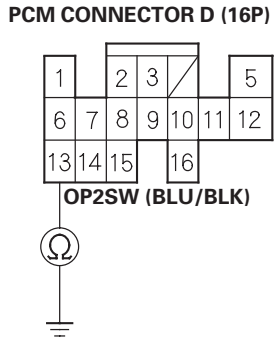
Wire side of female terminals

Is there battery voltage?

YES—Go to step 7.

NO—Go to step 3.

3. Turn the ignition switch OFF.
4. Disconnect the D (16P) connector from the PCM.
5. Disconnect the 2nd clutch pressure switch connector.
6. Check for continuity between the D13 terminal and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between the D13 terminal and the 2nd clutch pressure switch. ■

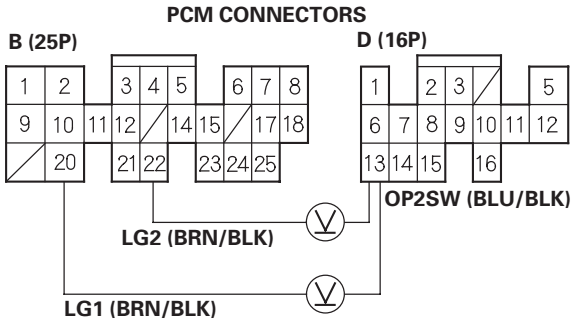
NO—Disconnect the 2nd clutch pressure switch connector and go to step 15.

7. Raise the front of the vehicle, and make sure it is securely supported.

8. Set the parking brake, and block rear wheels securely.

9. Start the engine, cancel the TCS, then shift to 2 position and drive for more than five seconds.

10. Measure the voltage between the D13 and B20 or B22 terminals.



Wire side of female terminals

Is there about 0 V?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Go to step 11.

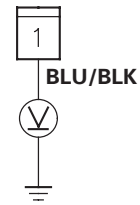
11. Turn the ignition switch OFF.

12. Disconnect the 2nd clutch pressure switch connector.

13. Turn the ignition switch ON (II).

14. Measure the voltage between the 2nd clutch pressure switch connector terminal and body ground.

2ND CLUTCH PRESSURE SWITCH CONNECTOR



Wire side of female terminal

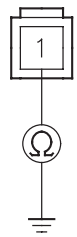
Is there battery voltage?

YES—Go to step 15.

NO—Repair open in the wire between the 2nd clutch pressure switch and the PCM. ■

15. Measure the resistance between the 2nd clutch pressure switch connector terminal and body ground.

2ND CLUTCH PRESSURE SWITCH CONNECTOR



Terminal side of male terminals

Is there 10 MΩ or more?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Replace the 2nd clutch pressure switch (see page 14-135). ■

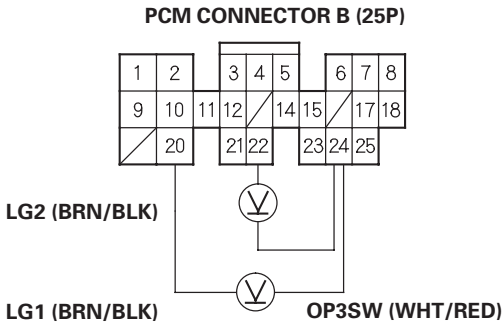
DTC Troubleshooting (cont'd)

1999-2000 Models

DTC P1739: Problem in 3rd Clutch Pressure Switch Circuit

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Turn the ignition switch ON (II).
2. Measure the voltage between the B24 and B20 or B22 terminals.



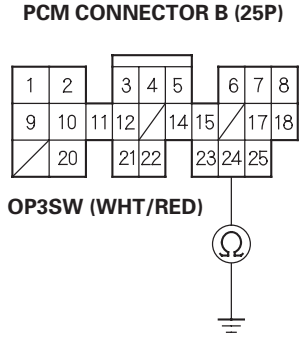
Wire side of female terminals

Is there battery voltage?

YES—Go to step 7.

NO—Go to step 3.

3. Turn the ignition switch OFF.
4. Disconnect the B (25P) connector from the PCM.
5. Disconnect the 3rd clutch pressure switch connector.
6. Check for continuity between the B24 terminal and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between the B24 terminal and the 3rd clutch pressure switch. ■

NO—Disconnect the 3rd clutch pressure switch connector and go to step 15.

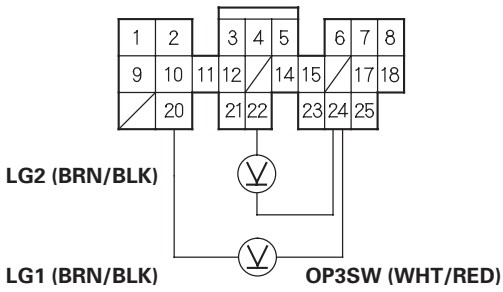
7. Raise the front of the vehicle, and make sure it is securely supported.

8. Set the parking brake, and block rear wheels securely.

9. Start the engine, cancel the TCS, then shift to D3 position and drive in 3rd gear for more than five seconds.

10. Measure the voltage between the B24 and B20 or B22 terminals.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there about 0 V?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Go to step 11.

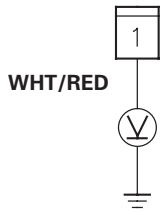
11. Turn the ignition switch OFF.

12. Disconnect the 3rd clutch pressure switch connector.

13. Turn the ignition switch ON (II).

14. Measure the voltage between the 3rd clutch pressure switch connector terminal and body ground.

3RD CLUTCH PRESSURE SWITCH CONNECTOR



Wire side of female terminal

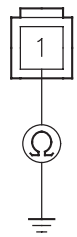
Is there battery voltage?

YES—Go to step 15.

NO—Repair open in the wire between the 3rd clutch pressure switch and the PCM. ■

15. Measure the resistance between the 3rd clutch pressure switch connector terminal and body ground.

3RD CLUTCH PRESSURE SWITCH CONNECTOR



Terminal side of male terminal

Is there 10 MΩ or more?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Replace the 3rd clutch pressure switch (see page 14-135). ■

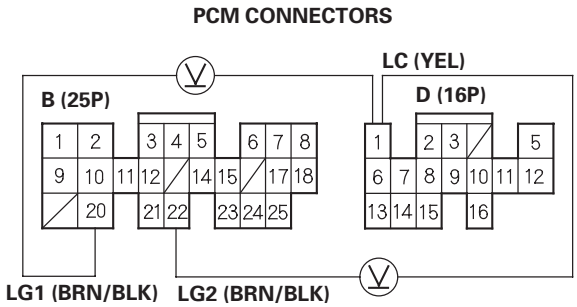
DTC Troubleshooting (cont'd)

1999-2000 Models

DTC P1753: Problem in Lock-up Control Solenoid Valve Circuit

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Turn the ignition switch OFF.
2. Disconnect the B (25P) and D (16P) connectors from the PCM.
3. Turn the ignition switch ON (II).
4. Measure the voltage between the D1 and B20 or B22 terminals.



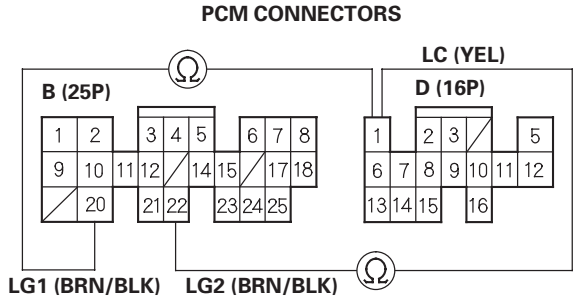
Wire side of female terminals

Is there voltage?

YES—Repair short to power in the wire between the D1 terminal and the lock-up control solenoid valve. ■

NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Measure the resistance between the D1 and B20 or B22 terminals.



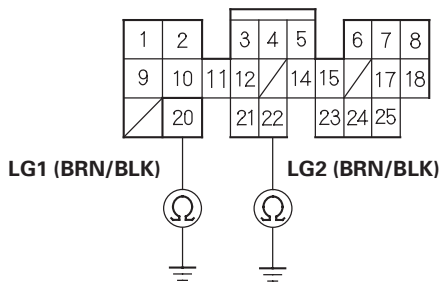
Wire side of female terminals

Is there 12—25 Ω ?

YES—Go to step 11.

NO—Go to step 7.

7. Check for continuity between the B20 and B22 terminals and body ground.



Wire side of female terminals

Is there continuity?

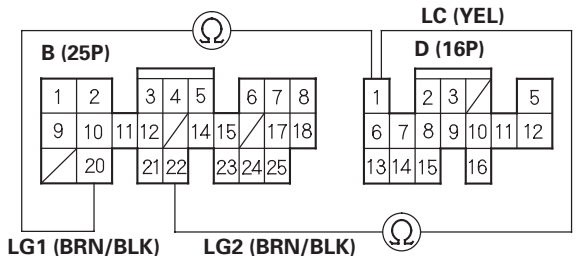
YES—Go to step 8.

NO—Repair open in the wires between the B20 and B22 terminals and ground (G101), or repair poor ground (G101). ■

8. Disconnect the 3P connector from the lock-up control solenoid valve/shift control solenoid valve A assembly.

9. Check for continuity between the D1 and B20 or B22 terminals.

PCM CONNECTORS



Wire side of female terminals

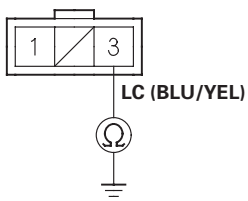
Is there continuity?

YES—Repair short to ground in the wire between the D1 terminal and the lock-up control solenoid valve. ■

NO—Go to step 10.

10. Measure the resistance between the No. 3 terminal of the lock-up control solenoid valve/shift control solenoid valve A assembly connector and body ground.

LOCK-UP CONTROL SOLENOID VALVE/ SHIFT CONTROL SOLENOID VALVE A ASSEMBLY CONNECTOR (3P)



Terminal side of male terminals

Is the resistance 12—25 Ω ?

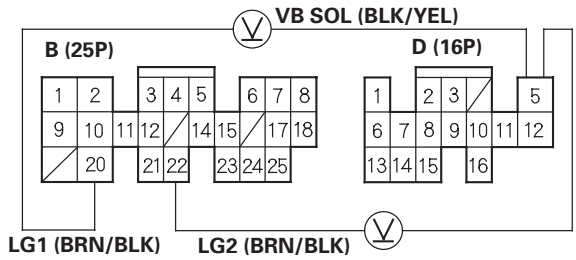
YES—Check for an open in the wire between the D1 terminal and the lock-up control solenoid valve. ■

NO—Replace the lock-up control solenoid valve/ shift control solenoid valve A assembly (see page 14-130). ■

11. Turn the ignition switch ON (II).

12. Measure the voltage between the D5 and B20 or B22 terminals.

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the D5 terminal and the driver's under-dash fuse/relay box. ■

DTC Troubleshooting (cont'd)

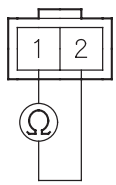
1999-2000 Models

DTC P1768: Problem in A/T Clutch Pressure Control Solenoid Valve A Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Disconnect the 2P connector from A/T clutch pressure control solenoid valve A.
2. Measure A/T clutch pressure control solenoid resistance at the solenoid valve connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Terminal side of male terminals

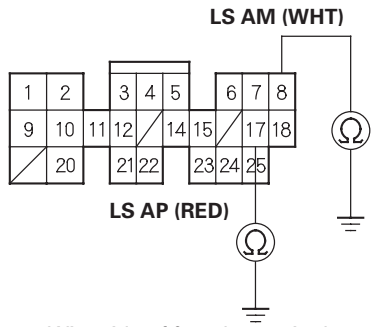
Is the resistance about 5 Ω ?

YES—Go to step 3.

NO—Replace the A/T clutch pressure control solenoid valve A/B assembly (see page 14-133). ■

3. Disconnect the B (25P) connector from the PCM.
4. Check for continuity between body ground and the B8 terminal and the B17 terminal individually.

PCM CONNECTOR B (25P)



Wire side of female terminals

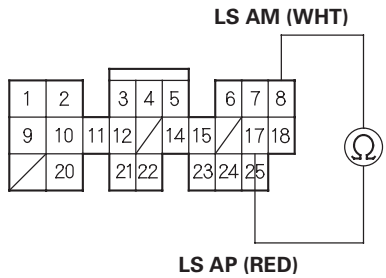
Is there continuity?

YES—Repair short to ground in the wires between the B8 and B17 terminals and A/T clutch pressure control solenoid valve A. ■

NO—Go to step 5.

5. Connect the A/T clutch pressure control solenoid valve A connector.
6. Measure the resistance between the B8 and B17 terminals.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is the resistance about 5 Ω ?

YES—Go to step 7.

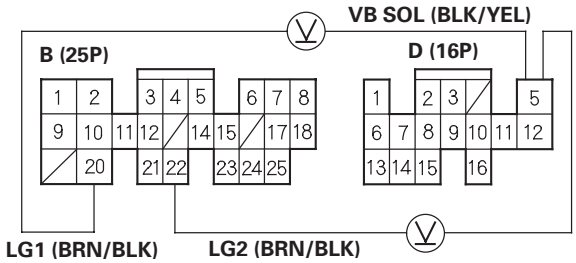
NO—Repair loose terminal or open in the wires between the B8 and B17 terminals and A/T clutch pressure control solenoid valve A. ■

7. Disconnect the D (16P) connector from the PCM.

8. Turn the ignition switch ON (II).

9. Measure the voltage between the D5 and B20 or B22 terminals.

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

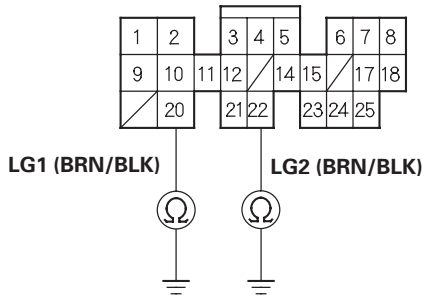
YES—Go to step 10.

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the D5 terminal and the driver's under-dash fuse/relay box. ■

10. Turn the ignition switch OFF.

11. Check for continuity between the B20 and B22 terminals and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Repair open in the wire between the B2, B10, B20, and B22 terminals and ground (G101), or repair poor ground (G101). ■

DTC Troubleshooting (cont'd)

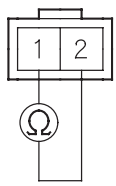
1999-2000 Models

DTC P1773: Problem in A/T Clutch Pressure Control Solenoid Valve B Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Disconnect the 2P connector from A/T clutch pressure control solenoid valve B.
2. Measure A/T clutch pressure control solenoid resistance at the solenoid valve connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Terminal side of male terminals

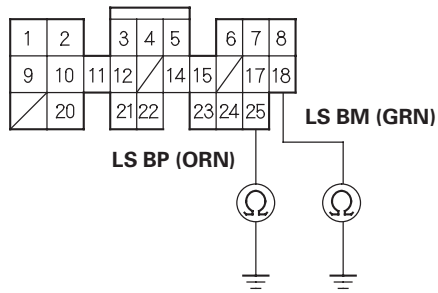
Is the resistance about 5 Ω ?

YES—Go to step 3.

NO—Replace the A/T clutch pressure control solenoid valve A/B assembly (see page 14-133). ■

3. Disconnect the B (25P) connector from the PCM.
4. Check for continuity between body ground and the B18 terminal and the B25 terminal individually.

PCM CONNECTOR B (25P)



Wire side of female terminals

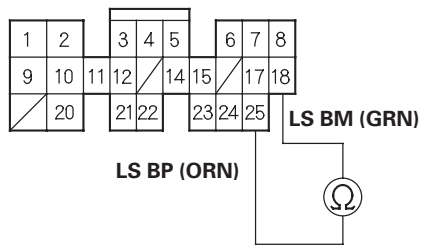
Is there continuity?

YES—Repair short to ground in the wires between the B18 and B25 terminals and A/T clutch pressure control solenoid valve B. ■

NO—Go to step 5.

5. Connect the A/T clutch pressure control solenoid valve B connector.
6. Measure the resistance between the B18 and B25 terminals.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is the resistance about 5 Ω ?

YES—Go to step 7.

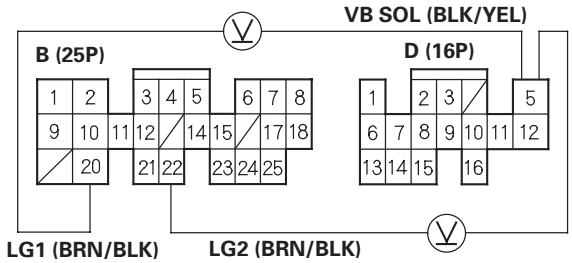
NO—Repair loose terminal or open in the wires between the B18 and B25 terminals and A/T clutch pressure control solenoid valve B. ■

7. Disconnect the D (16P) connector from the PCM.

8. Turn the ignition switch ON (II).

9. Measure the voltage between the D5 and B20 or B22 terminals.

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

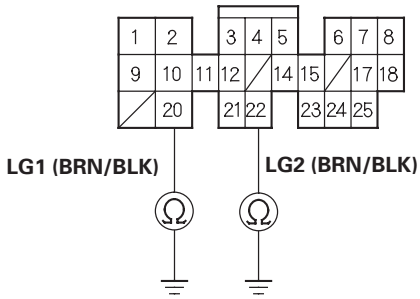
YES—Go to step 10.

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the D5 terminal and the driver's under-dash fuse/relay box. ■

10. Turn the ignition switch OFF.

11. Check for continuity between the B20 and B22 terminals and body ground individually.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Repair open in the wire between the B2, B10, B20, and B22 terminals and ground (G101), or repair poor ground (G101). ■

DTC Troubleshooting (cont'd)

2001 Model

DTC P0715: Problem in Mainshaft Speed Sensor Circuit

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

Code P0715 (code 15) on the PCM doesn't always mean there's an electrical problem in the mainshaft or countershaft speed sensor circuit; code P0715 (code 15) may also indicate a mechanical problem in the transmission. Any problem causing irregular countershaft to mainshaft speed difference can cause this code.

1. Check the mainshaft and countershaft speed sensor installation.

   Are the mainshaft and the countershaft speed sensors installed properly?

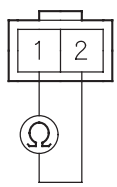
   YES—Go to step 2.

   NO—Reinstall and recheck. ■

2. Disconnect the mainshaft speed sensor connector (2P).

3. Measure the mainshaft speed sensor resistance at the sensor connector.

MAINSHAFT SPEED SENSOR CONNECTOR



Terminal side of male terminals

Is there 400—600 Ω ?

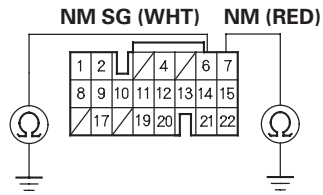
YES—Go to step 4.

NO—Replace the mainshaft speed sensor (see page 14-134). ■

4. Disconnect PCM connector C (22P).

5. Check for continuity between PCM connector terminal C6 and body ground, and between terminal C7 and body ground.

PCM CONNECTOR C (22P)



Wire side of female terminals

Is there continuity?

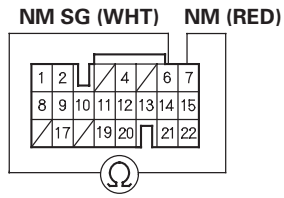
YES—Repair short in the wires between PCM connector terminals C6 and C7, and the mainshaft speed sensor. ■

NO—Go to step 6.

6. Connect the mainshaft speed sensor connector.

7. Measure the resistance between PCM connector terminals C6 and C7.

PCM CONNECTOR C (22P)



Wire side of female terminals

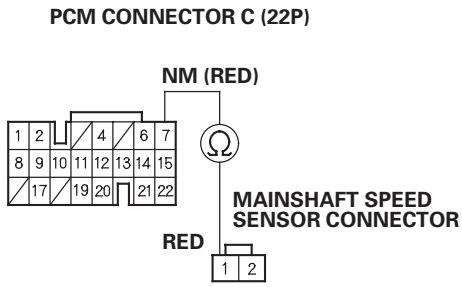
Is there 400—600 Ω ?

YES—Run the Electrical Troubleshooting Flowchart for code P0720 (code 9). Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Go to step 8.

8. Disconnect the mainshaft speed sensor connector (2P).

9. Check for continuity between PCM connector terminal C7 and the No. 1 terminal of the mainshaft speed sensor connector.



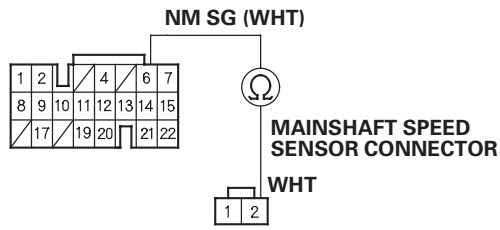
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between PCM connector terminal C7 and the mainshaft speed sensor. ■

10. Check for continuity between PCM connector terminal C6 and the No. 2 terminal of the mainshaft speed sensor connector.



Wire side of female terminals

Is there continuity?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Repair open in the wire between PCM connector terminal C6 and the mainshaft speed sensor. ■

DTC Troubleshooting (cont'd)

2001 Model

DTC P0720: Problem in Countershaft Speed Sensor Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Check the countershaft speed sensor installation.

   Is the countershaft speed sensor installed properly?

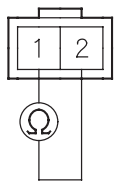
   YES—Go to step 2.

   NO—Reinstall and recheck. ■

2. Disconnect the countershaft speed sensor connector (2P).

3. Measure the countershaft speed sensor resistance at the sensor connector.

COUNTERSHAFT SPEED SENSOR CONNECTOR



Terminal side of male terminals

Is there 400—600 Ω ?

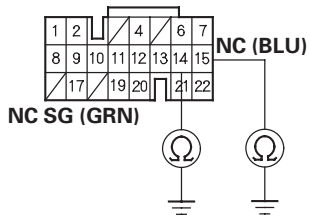
YES—Go to step 4.

NO—Replace the countershaft speed sensor (see page 14-134). ■

4. Disconnect PCM connector C (22P).

5. Check for continuity between PCM connector terminal C14 and body ground, and between terminal C15 and body ground.

PCM CONNECTOR C (22P)



Wire side of female terminals

Is there continuity?

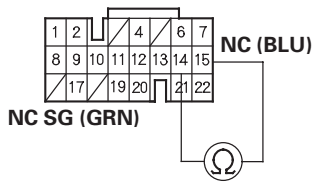
YES—Repair short to ground in the wires between PCM connector terminals C14 and C15, and the countershaft speed sensor. ■

NO—Go to step 6.

6. Connect the countershaft speed sensor connector.

7. Measure the resistance between PCM connector terminals C14 and C15.

PCM CONNECTOR C (22P)



Wire side of female terminals

Is there 400—600 Ω ?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Repair loose terminal or open in the wires between PCM connector terminals C14 and C15, and the countershaft speed sensor. ■

2001 Model

DTC P0730: Problem in Shift Control System

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- Keep replacement solenoid valves on hand:
  – Torque converter clutch solenoid valve-shift solenoid valve A
  – Shift solenoid valves B and C
  – A/T clutch pressure control solenoid valves A and B

1. Check whether the scan tool or the HDS indicates another code.

   Does the scan tool or the HDS indicate another code?

   YES—Perform the Troubleshooting Flowchart for the indicated Code(s). Recheck for code P0730 after troubleshooting. ■

   NO—Go to step 2.

   NOTE: Do not continue with this troubleshooting until the causes of any other DTCs have been corrected.

2. Measure the 1st, 2nd, 3rd, and 4th clutch pressure (see page 14-128).

   Is each clutch pressure within the service limit?

   YES—Go to step 3.

   NO—Replace the transmission. ■

3. Replace the shift solenoid, torque converter clutch solenoid and A/T clutch pressure control solenoid set:

   - Refer to Torque Converter Clutch Solenoid Valve-Shift Solenoid Valve A Replacement (see page 14-130).
   - Refer to Shift Solenoid Valves B and C Replacement (see page 14-131).
   - Refer to A/T Clutch Pressure Control Solenoid Valves A and B Replacement (see page 14-133).

4. Clear the DTC with the scan tool or the HDS.

5. Drive the vehicle at speeds over 12 mph (20 km/h) in 1st, 2nd, 3rd, and 4th gear in D4 position for more than 30 seconds.

6. Recheck for code P0730.

   Does the scan tool or the HDS indicate code P0730?

   YES—Replace the transmission. ■

   NO—The system is OK at this time. ■

DTC Troubleshooting (cont'd)

2001 Model

DTC P0740: Problem in Lock-up Control System

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- Keep replacement solenoid valves on hand:
  – Torque converter clutch solenoid valve-shift solenoid valve A
  – A/T clutch pressure control solenoid valves A and B

1. Check whether the scan tool or the HDS indicates another code.

   Does the scan tool or the HDS indicate another code?

   YES—Perform the Troubleshooting Flowchart for the indicated Code(s). Recheck for code P0740 after troubleshooting. ■

   NO—Go to step 2.

   NOTE: Do not continue with this troubleshooting until the causes of any other DTCs have been corrected.

2. Measure the line pressure (see page 14-128).

   Is the line pressure within the service limit?

   YES—Go to step 3.

   NO—Replace the transmission. ■

3. Replace the torque converter clutch solenoid and A/T clutch pressure control solenoid valve set:

   - Refer to Torque Converter Clutch Solenoid Valve-Shift Solenoid Valve A Replacement (see page 14-130).
   - Refer to A/T Clutch Pressure Control Solenoid Valves A and B Replacement (see page 14-133).

4. Clear the DTC with the scan tool or the HDS.

5. Using the scan tool, check to be sure that the engine coolant temperature is 176°F (80°C) or above.

6. Drive the vehicle under the same conditions as those indicated by the freeze data for more than 1 minute, or drive the vehicle at 55 mph (88 km/h) with TPS voltage 0.8 V for more than 1 minute.

7. Recheck for code P0740.

   Does the scan tool or the HDS indicate code P0740?

   YES—Inspect the O-ring on the torque converter. If the O-ring is missing, replace the O-ring. If the O-ring is damaged or OK, replace the transmission and torque converter. ■

   NO—The system is OK at this time. ■

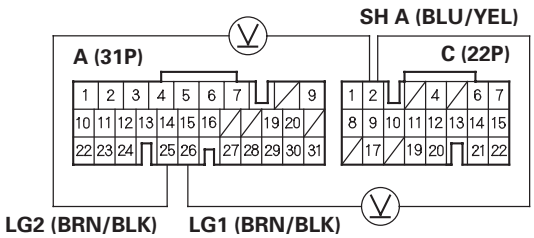
2001 Model

DTC P0753: Problem in Shift Solenoid Valve A Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch OFF.
2. Disconnect PCM connectors A (31P) and C (22P).
3. Turn the ignition switch ON (II).
4. Measure the voltage between PCM connector terminals C2 and A25 or A26.

PCM CONNECTORS



Wire side of female terminals

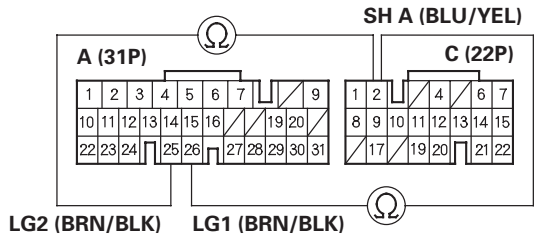
Is there voltage?

YES—Repair short to power in the wire between PCM connector terminal C2 and the shift solenoid valve A.■

NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Measure the resistance between PCM connector terminals C2 and A25 or A26.

PCM CONNECTORS



Wire side of female terminals

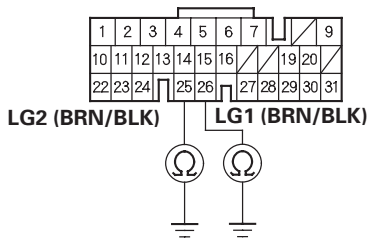
Is the resistance 12—25 Ω?

YES—Go to step 11.

NO—Go to step 7.

7. Check for continuity between PCM connector terminal A25 and body ground, and between terminal A26 and body ground.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

NO—Repair open in the wires between PCM connector terminals A25 and A26, and ground (G101), or repair poor ground (G101).■

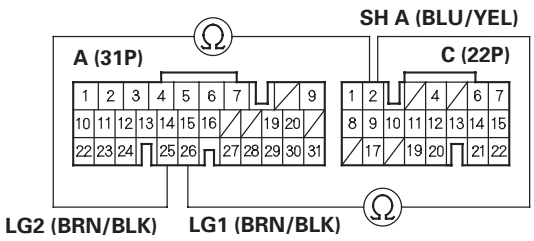
(cont'd)

DTC Troubleshooting (cont'd)

8. Disconnect the 3P connector from the torque converter clutch solenoid valve-shift solenoid valve A.

9. Check for continuity between PCM connector terminals C2 and A25 or A26.

PCM CONNECTORS



Wire side of female terminals

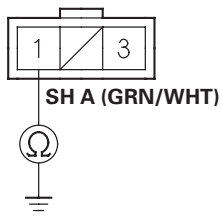
Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal C2 and the shift solenoid valve A. ■

NO—Go to step 10.

10. Measure the resistance between the No. 1 terminal of torque converter clutch solenoid valve-shift solenoid valve A connector and body ground.

TORQUE CONVERTER CLUTCH SOLENOID VALVE-SHIFT SOLENOID VALVE A CONNECTOR (3P)



Terminal side of male terminals

Is there 12—25 Ω ?

YES—Check for an open in the wire between the C2 terminal and the shift solenoid valve A. ■

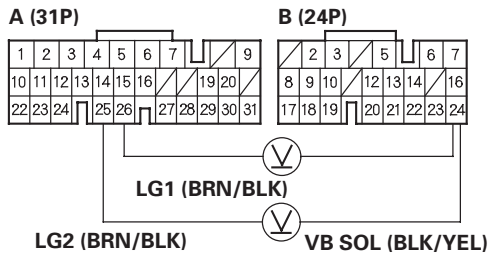
NO—Replace the torque converter clutch solenoid valve-shift solenoid valve A (see page 14-130). ■

11. Disconnect PCM connector B (24P).

12. Turn the ignition switch ON (II).

13. Measure the voltage between PCM connector terminals B24 and A25 or A26.

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

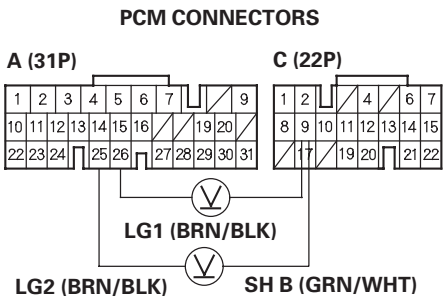
NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal B24 and the driver's under-dash fuse/relay box. ■

2001 Model

DTC P0758: Problem in Shift Solenoid Valve B Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch OFF.
2. Disconnect PCM connectors A (31P) and C (22P).
3. Turn the ignition switch ON (II).
4. Measure the voltage between PCM connector terminals C9 and A25 or A26.



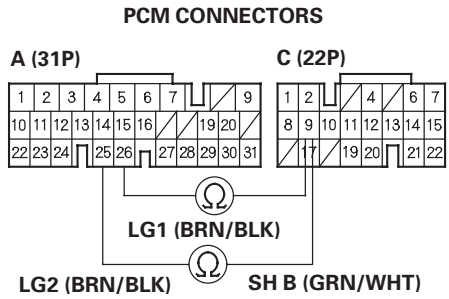
Wire side of female terminals

Is there voltage?

YES—Repair short to power in the wire between PCM connector terminal C9 and the shift solenoid valve B.■

NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Measure the resistance between PCM connector terminals C9 and A25 or A26.



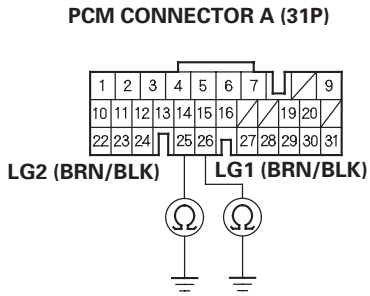
Wire side of female terminals

Is the resistance 12—25 Ω ?

YES—Go to step 11.

NO—Go to step 7.

7. Check for continuity between PCM connector terminal A25 and body ground, and between terminal A26 and body ground.



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

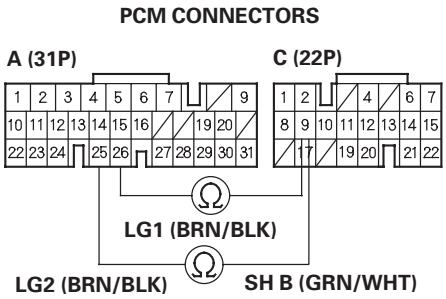
NO—Repair open in the wires between PCM connector terminals A25 and A26, and ground (G101), or repair poor ground (G101).■

(cont'd)

DTC Troubleshooting (cont'd)

8. Disconnect shift solenoid valve B connector (2P).

9. Check for continuity between PCM connector terminals C9 and A25 or A26.



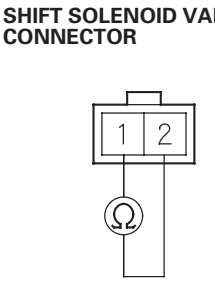
Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal C9 and the shift solenoid valve B. ■

NO—Go to step 10.

10. Measure the shift solenoid valve B resistance at the solenoid valve connector.



Terminal side of male terminals

Is there 12—25 Ω?

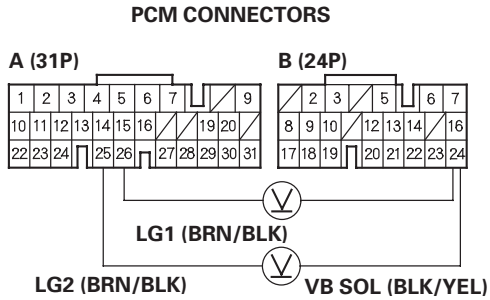
YES—Check for an open in the wire between PCM connector terminal C9 and the shift solenoid valve B, and between the No. 1 terminal of the shift solenoid valve B connector and body ground (G101). ■

NO—Replace the shift solenoid valve B (see page 14-131). ■

11. Disconnect PCM connector B (24P).

12. Turn the ignition switch ON (II).

13. Measure the voltage between PCM connector terminals B24 and A25 or A26.



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

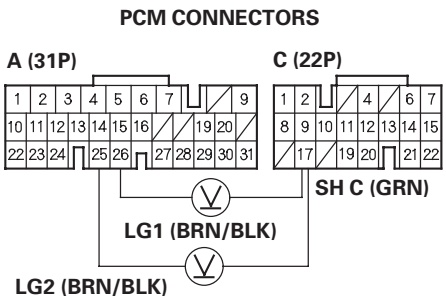
NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal B24 and the driver's under-dash fuse/relay box. ■

2001 Model

DTC P0763: Problem in Shift Solenoid Valve C Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch OFF.
2. Disconnect PCM connectors A (31P) and C (22P).
3. Turn the ignition switch ON (II).
4. Measure the voltage between PCM connector terminals C17 and A25 or A26.



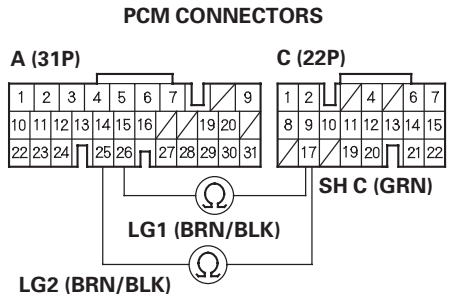
Wire side of female terminals

Is there voltage?

YES—Repair short to power in the wire between PCM connector terminal C17 and the shift solenoid valve C. ■

NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Measure the resistance between PCM connector terminals C17 and A25 or A26.



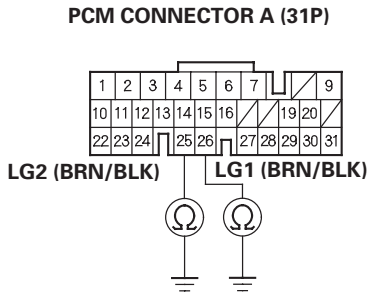
Wire side of female terminals

Is there 12—25 Ω ?

YES—Go to step 11.

NO—Go to step 7.

7. Check for continuity PCM connector terminal A25 and body ground, and between terminal A26 and body ground.



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

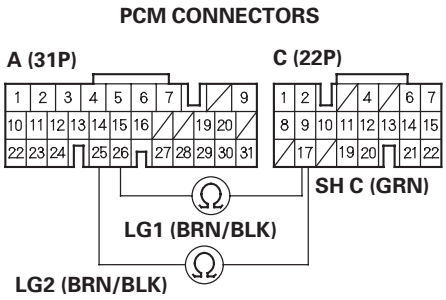
NO—Repair open in the wires between PCM connector terminals A25 and A26, and ground (G101), or repair poor ground (G101). ■

(cont'd)

DTC Troubleshooting (cont'd)

8. Disconnect the shift solenoid valve C connector (2P).

9. Check for continuity between PCM connector terminals C17 and A25 or A26



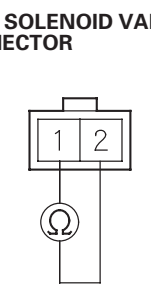
Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal C17 and the shift solenoid valve C. ■

NO—Go to step 10.

10. Measure the shift solenoid valve C resistance at the solenoid valve connector.



Terminal side of male terminals

Is there 12—25 Ω ?

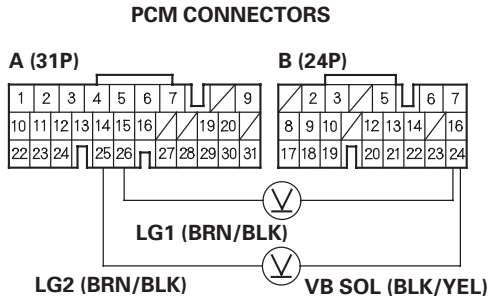
YES—Check for an open in the wires between PCM connector terminal C17 and the shift solenoid valve C, and between the No. 1 terminal of the shift solenoid valve C connector and body ground (G101). ■

NO—Replace shift control solenoid valve C (see page 14-131). ■

11. Disconnect PCM connector B (24P).

12. Turn the ignition switch ON (II).

13. Measure the voltage between PCM connector terminals B24 and A25 or A26.



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal B24 and the driver's under-dash fuse/relay box. ■

2001 Model

DTC P0780: Mechanical Problem in Hydraulic Control System for Shift Solenoid Valve A and A/T Clutch Pressure Control Solenoid Valves A and B, or Problem in Hydraulic Control System

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- Keep replacement solenoid valves on hand:
  – Torque converter clutch solenoid valve-shift solenoid valve A
  – A/T clutch pressure control solenoid valves A and B

1. Check whether the scan tool or the HDS indicates another code.

   Does the scan tool or the HDS indicate another code?

   YES—Perform the Troubleshooting Flowchart for the indicated Code(s). Recheck for code P0780 after troubleshooting. ■

   NO—Go to step 2.

   NOTE: Do not continue with this troubleshooting until the causes of any other DTCs have been corrected.

2. Turn the ignition switch OFF.

3. Replace the shift solenoid valve A (and torque converter clutch solenoid valve as a set) (see page 14-130) and A/T clutch pressure control solenoid valves A and B (see page 14-133).

4. Clear the DTC with the scan tool or the HDS.

5. Drive the vehicle for several minutes in 1st, 2nd, 3rd, and 4th gears in D4 position.

6. Recheck for code P0780.

   Does the scan tool or the HDS indicate code P0780?

   YES—Replace the transmission. ■

   NO—The problem has been corrected. ■

DTC Troubleshooting (cont'd)

2001 Model

DTC P1705: Short in Transmission Range Switch Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch ON (II).
2. Observe the A/T gear position indicator, and shift each position separately.

   Do any indicators stay on when the shift lever is not in that position?

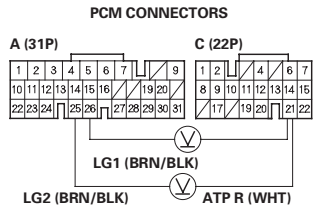
   YES—Go to step 3.

   NO—The system is OK at this time. Check the wire harness for damage. ■
3. Disconnect the transmission range switch connector.

   Do all gear position indicators go out?

   YES—Replace the transmission range switch (see page 14-174). ■

   NO—Go to step 4.
4. Turn the ignition switch OFF, and connect the transmission range switch connector.
5. Turn the ignition switch ON (II).
6. Shift to any position other than R.
7. Measure the voltage between PCM connector terminals C21 and A25 or A26.

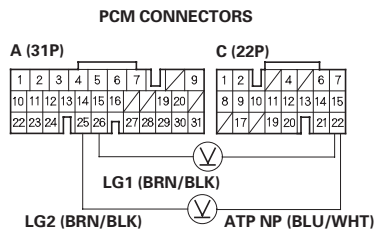


Wire side of female terminals

   Is there battery voltage?

   YES—Go to step 8.

   NO—Check for a short in the wire between PCM connector terminal C21 and the transmission range switch or A/T gear position indicator, and check for an open in the wires between PCM connector terminals A25 and A26, and body ground (G101). If the wires are OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■
8. Shift to any position other than P or N.
9. Measure the voltage between PCM connector terminals C22 and A25 or A26.



Wire side of female terminals

   Is there about 5 V?

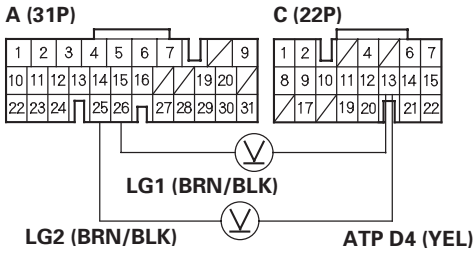
   YES—Go to step 10.

   NO—Check for a short in the wire between PCM connector terminal C22 and the transmission range switch, and in the P and N position signal wires between the A/T gear position indicator and the transmission range switch. If the wires are OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

10. Shift to any position other than D4.

11. Measure the voltage between PCM connector terminals C13 and A25 or A26.

PCM CONNECTORS



Wire side of female terminals

Is there about 5 V?

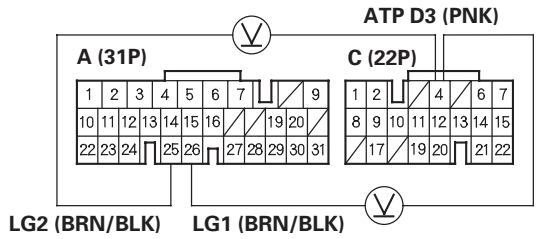
YES—Go to step 12.

NO—Check for a short in the wire between PCM connector terminal C13 and the transmission range switch or A/T gear position indicator. If the wire is OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

12. Shift to any position other than D3.

13. Measure the voltage between PCM connector terminals C4 and A25 or A26.

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Go to step 14.

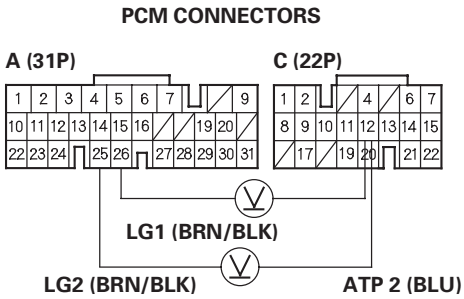
NO—Check for a short in the wire between PCM connector terminal C4 and the transmission range switch or A/T gear position indicator. If the wire is OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

(cont'd)

DTC Troubleshooting (cont'd)

14. Shift to any position other than 2.

15. Measure the voltage between PCM connector terminals C12 and A25 or A26.



Wire side of female terminals

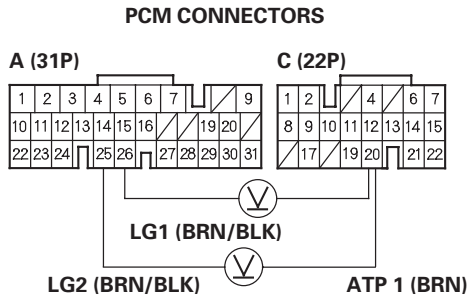
Is there battery voltage?

YES — Go to step 16.

NO — Check for a short in the wire between PCM connector terminal C12 and the transmission range switch or A/T gear position indicator. If the wire is OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

16. Shift to any position other than 1.

17. Measure the voltage between PCM connector terminals C20 and A25 or A26.



Wire side of female terminals

Is there battery voltage?

YES — Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO — Check for a short in the wire between PCM connector terminal C20 and the transmission range switch or A/T gear position indicator. If the wire is OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

2001 Model

DTC P1706: Open in Transmission Range Switch Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Test the transmission range switch (see page 14-173).

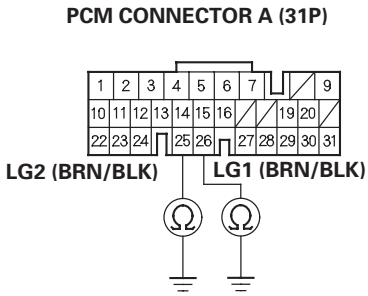
   Is the switch OK?

   YES—Go to step 2.

   NO—Replace the transmission range switch (see page 14-174). ■

2. Turn the ignition switch OFF.

3. Check for continuity between PCM connector terminal A25 and body ground, and between terminal A26 and body ground.



Wire side of female terminals

   Is there continuity?

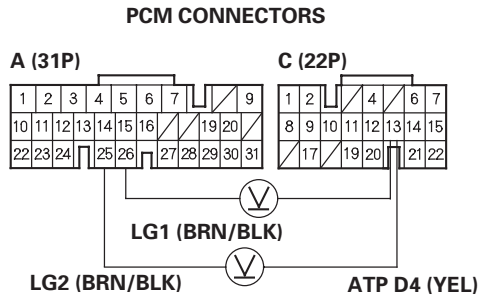
   YES—Go to step 4.

   NO—Repair open in the wires between PCM connector terminals A25 and A26, and ground (G101), or repair poor ground (G101). ■

4. Turn the ignition switch ON (II).

5. Shift to D4 position.

6. Measure the voltage between PCM connector terminals C13 and A25 or A26.



Wire side of female terminals

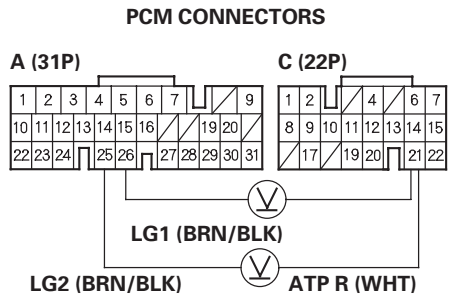
   Is there voltage?

   YES—Repair open in the wire between PCM connector terminal C13 and the transmission range switch. ■

   NO—Go to step 7.

7. Shift to R position.

8. Measure the voltage between PCM connector terminals C21 and A25 or A26.



Wire side of female terminals

   Is there voltage?

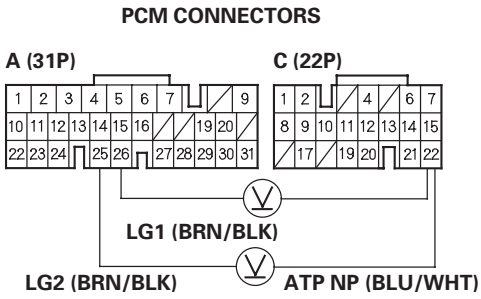
   YES—Repair open in the wire between PCM connector terminal C21 and the transmission range switch. ■

   NO—Go to step 9.

(cont'd)

DTC Troubleshooting (cont'd)

9. Shift to P or N position.
10. Measure the voltage between PCM connector terminals C22 and A25 or A26.



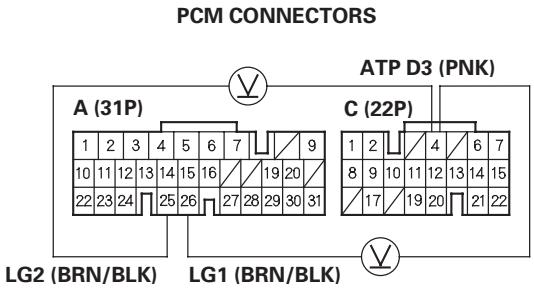
Wire side of female terminals

Is there voltage?

YES — Repair open in the wire between PCM connector terminal C22 and the transmission range switch. ■

NO — Go to step 11.

11. Shift to D3 position.
12. Measure the voltage between PCM connector terminals C4 and A25 or A26.



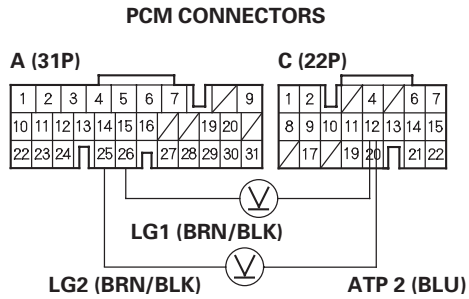
Wire side of female terminals

Is there voltage?

YES — Repair open in the wire between PCM connector terminal C4 and the transmission range switch. ■

NO — Go to step 13.

13. Shift to 2 position.
14. Measure the voltage between PCM connector terminals C12 and A25 or A26.



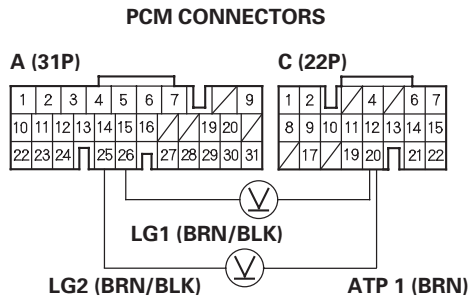
Wire side of female terminals

Is there voltage?

YES — Repair open in the wire between PCM connector terminal C12 and the transmission range switch. ■

NO — Go to step 15.

15. Shift to 1 position.
16. Measure the voltage between PCM connector terminals C20 and A25 or A26.



Wire side of female terminals

Is there voltage?

YES — Repair open in the wire between PCM connector terminal C20 and the transmission range switch. ■

NO — Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

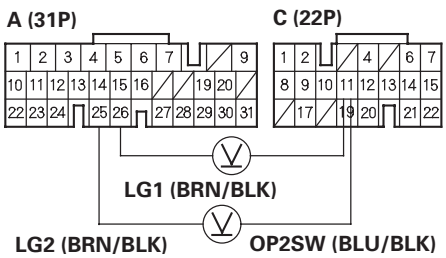
2001 Model

DTC P1738: Problem in 2nd Clutch Pressure Switch Circuit

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Turn the ignition switch ON (II).
2. Measure the voltage between PCM connector terminals C11 and A25 or A26.

PCM CONNECTORS



Wire side of female terminals

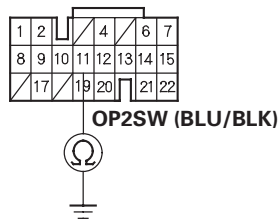
Is there battery voltage?

YES—Go to step 7.

NO—Go to step 3.

3. Turn the ignition switch OFF.
4. Disconnect PCM connector C (22P).
5. Disconnect the 2nd clutch pressure switch connector.
6. Check for continuity between PCM connector terminal C11 and body ground.

PCM CONNECTOR C (22P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal C11 and the 2nd clutch pressure switch. ■

NO—Disconnect the 2nd clutch pressure switch connector and go to step 15.

(cont'd)

DTC Troubleshooting (cont'd)

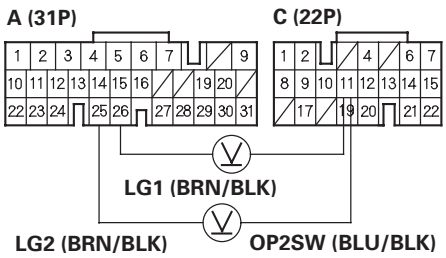
7. Raise the front of the vehicle, and make sure it is securely supported.

8. Set the parking brake, and block the rear wheels securely.

9. Start the engine, cancel the TCS, then shift to 2 position, and drive for more than 5 seconds.

10. Measure the voltage PCM connector terminals C11 and A25 or A26.

PCM CONNECTORS



Wire side of female terminals

Is there about 0 V?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Go to step 11.

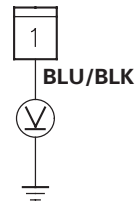
11. Turn the ignition switch OFF.

12. Disconnect the 2nd clutch pressure switch connector.

13. Turn the ignition switch ON (II).

14. Measure the voltage between the 2nd clutch pressure switch connector terminal and body ground.

2ND CLUTCH PRESSURE SWITCH CONNECTOR



Wire side of female terminal

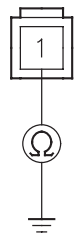
Is there battery voltage?

YES—Go to step 15.

NO—Repair open in the wire between the 2nd clutch pressure switch and the PCM. ■

15. Measure the resistance between the 2nd clutch pressure switch connector terminal and body ground.

2ND CLUTCH PRESSURE SWITCH CONNECTOR



Terminal side of male terminals

Is there 10 MΩ or more?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Replace the 2nd clutch pressure switch (see page 14-135). ■

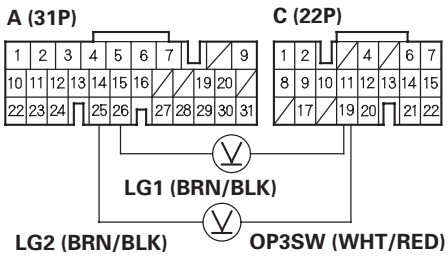
2001 Model

DTC P1739: Problem in 3rd Clutch Pressure Switch Circuit

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Turn the ignition switch ON (II).
2. Measure the voltage between PCM connector terminals C19 and A25 or A26.

PCM CONNECTORS



Wire side of female terminals

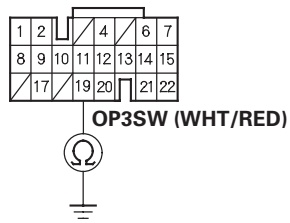
Is there battery voltage?

YES—Go to step 7.

NO—Go to step 3.

3. Turn the ignition switch OFF.
4. Disconnect PCM connector C (22P).
5. Disconnect the 3rd clutch pressure switch connector.
6. Check for continuity between PCM connector terminal C19 and body ground.

PCM CONNECTOR C (22P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal C19 and the 3rd clutch pressure switch. ■

NO—Disconnect the 3rd clutch pressure switch connector and go to step 15.

(cont'd)

DTC Troubleshooting (cont'd)

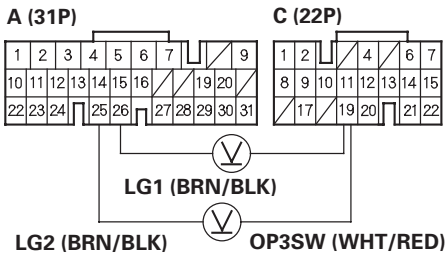
7. Raise the front of the vehicle, and make sure it is securely supported.

8. Set the parking brake, and block the rear wheels securely.

9. Start the engine, cancel the TCS, then shift to D3 position, and drive in 3rd gear for more than 5 seconds.

10. Measure the voltage between PCM connector terminals C19 and A25 or A26.

PCM CONNECTORS



Wire side of female terminals

Is there about 0 V?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Go to step 11.

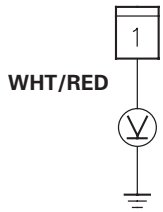
11. Turn the ignition switch OFF.

12. Disconnect the 3rd clutch pressure switch connector.

13. Turn the ignition switch ON (II).

14. Measure the voltage between the 3rd clutch pressure switch connector terminal and body ground.

3RD CLUTCH PRESSURE SWITCH CONNECTOR



Wire side of female terminal

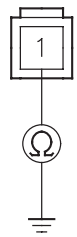
Is there battery voltage?

YES—Go to step 15.

NO—Repair open in the wire between the 3rd clutch pressure switch and the PCM. ■

15. Measure the resistance between the 3rd clutch pressure switch connector terminal and body ground.

3RD CLUTCH PRESSURE SWITCH CONNECTOR



Terminal side of male terminal

Is there 10 MΩ or more?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Replace the 3rd clutch pressure switch (see page 14-135). ■

2001 Model

DTC P1750: Mechanical Problem in Hydraulic Control System for A/T Clutch Pressure Control Solenoid Valves A and B, or Problem in Hydraulic Control System

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Check whether the scan tool or the HDS indicates another code.

   Does the scan tool or the HDS indicate another code?

   YES—Perform the Troubleshooting Flowchart for the indicated Code(s). Recheck for code P1750 after troubleshooting. ■

   NO—Go to step 2.

2. Turn the ignition switch OFF.
3. Replace the A/T clutch pressure control solenoid valves A and B (see page 14-133).
4. Clear the DTC with the scan tool or the HDS.
5. Drive the vehicle for several minutes in 1st, 2nd, 3rd, and 4th gears in D4 position.
6. Recheck for code P1750.

   Does the scan tool or the HDS indicate code P1750?

   YES—Replace the transmission. ■

   NO—The problem has been corrected. ■

DTC Troubleshooting (cont'd)

2001 Model

DTC P1751: Mechanical Problem in Hydraulic Control System for Shift Solenoid Valve B and A/T Clutch Pressure Control Solenoid Valves A and B, or Problem in Hydraulic Control System

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- Keep replacement control solenoid valves on hand:
  – Shift solenoid valve B
  – A/T clutch pressure control solenoid valves A and B

1. Check whether the scan tool or the HDS indicates another code.

   Does the scan tool or the HDS indicate another code?

   YES—Perform the Troubleshooting Flowchart for the indicated Code(s). Recheck for code P1751 after troubleshooting. ■

   NO—Go to step 2.

2. Turn the ignition switch OFF.

3. Replace the shift solenoid valve B (see page 14-131) and A/T clutch pressure control solenoid valves A and B (see page 14-133).

4. Clear the DTC with the scan tool or the HDS.

5. Drive the vehicle for several minutes in 1st, 2nd, 3rd, and 4th gears in D4 position.

6. Recheck for code P1751.

   Does the scan tool or the HDS indicate code P1751?

   YES—Replace the transmission. ■

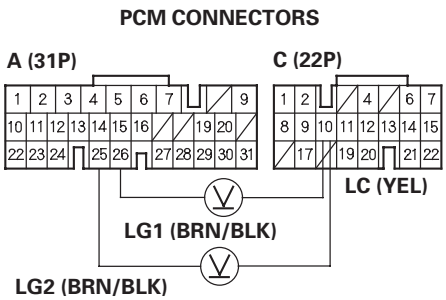
   NO—The problem has been corrected. ■

2001 Model

DTC P1753: Problem in Torque Converter Clutch Solenoid Valve Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch OFF.
2. Disconnect PCM connectors A (31P) and C (22P).
3. Turn the ignition switch ON (II).
4. Measure the voltage between PCM connector terminals C10 and A25 or A26.



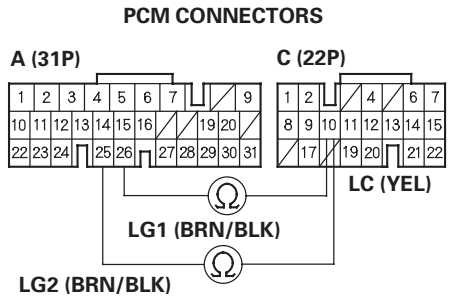
Wire side of female terminals

Is there voltage?

YES—Repair short to power in the wire between PCM connector terminal C10 and the torque converter clutch solenoid valve. ■

NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Measure the resistance between PCM connector terminals C10 and A25 or A26.



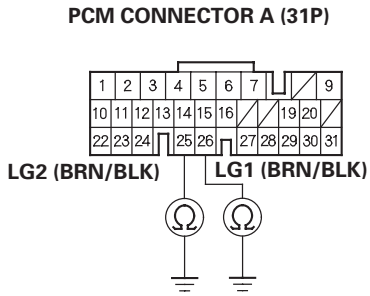
Wire side of female terminals

Is there 12—25 Ω ?

YES—Go to step 11.

NO—Go to step 7.

7. Check for continuity between PCM connector terminal A25 and body ground, and between terminal A26 and body ground.



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

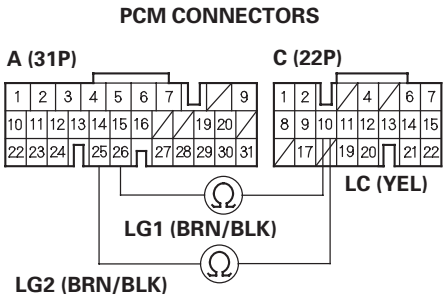
NO—Repair open in the wires between PCM connector terminals A25 and A26, and ground (G101), or repair poor ground (G101). ■

(cont'd)

DTC Troubleshooting (cont'd)

8. Disconnect the 3P connector from the torque converter clutch solenoid valve-shift solenoid valve A.

9. Check for continuity between PCM connector terminals C10 and A25 or A26.



Wire side of female terminals

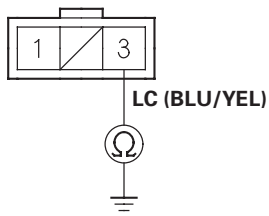
Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal C10 and the torque converter clutch solenoid valve. ■

NO—Go to step 10.

10. Measure the resistance between the No. 3 terminal of the torque converter clutch solenoid valve-shift solenoid valve A connector and body ground.

TORQUE CONVERTER CLUTCH SOLENOID VALVE-SHIFT SOLENOID VALVE A CONNECTOR (3P)



Terminal side of male terminals

Is there 12—25 Ω ?

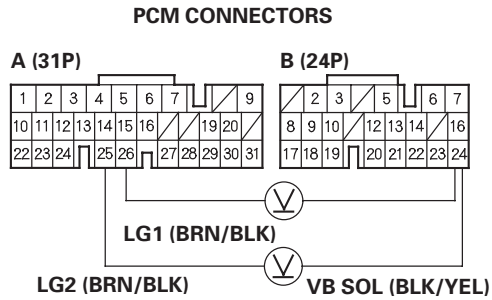
YES—Check for an open in the wire between the C10 terminal and the torque converter clutch solenoid valve. ■

NO—Replace the torque converter clutch solenoid valve-shift solenoid valve A (see page 14-130). ■

11. Disconnect PCM connector B (24P).

12. Turn the ignition switch ON (II).

13. Measure the voltage between PCM connector terminals B24 and A25 or A26.



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal B24 and the driver's under-dash fuse/relay box. ■

2001 Model

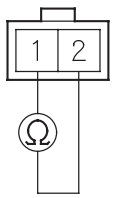
DTC P1768: Problem in A/T Clutch Pressure Control Solenoid Valve A Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Disconnect A/T clutch pressure control solenoid valve A connector (2P).

2. Measure A/T clutch pressure control solenoid valve A resistance at the solenoid valve A connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Terminal side of male terminals

Is the resistance 3—10 Ω ?

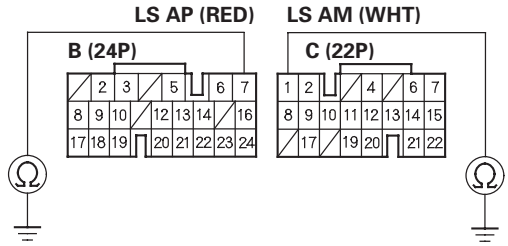
YES—Go to step 3.

NO—Replace the A/T clutch pressure control solenoid valve A and B (see page 14-133). ■

3. Disconnect PCM connectors B (24P) and C (22P).

4. Check for continuity between PCM connector terminal B7 and body ground, and between terminal C1 and body ground.

PCM CONNECTORS



Wire side of female terminals

Is there continuity?

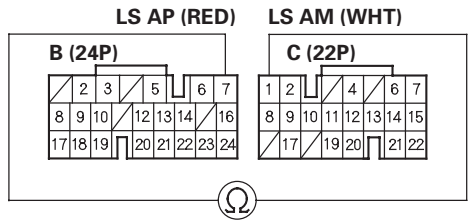
YES—Repair short to ground in the wires between PCM connector terminals B7 and C1, and the A/T clutch pressure control solenoid valve A. ■

NO—Go to step 5.

5. Connect the A/T clutch pressure control solenoid valve A connector.

6. Measure the resistance between PCM connector terminals B7 and C1.

PCM CONNECTORS



Wire side of female terminals

Is there 3—10 Ω ?

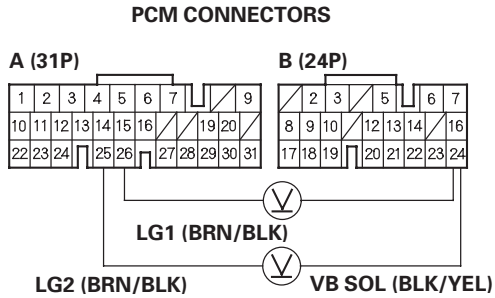
YES—Go to step 7.

NO—Repair loose terminal or open in the wires between PCM connector terminals B7 and C1, and the A/T clutch pressure control solenoid valve A. ■

(cont'd)

DTC Troubleshooting (cont'd)

7. Disconnect PCM connector A (31P).
8. Turn the ignition switch ON (II).
9. Measure the voltage between PCM connector terminals B24 and A25 or A26.



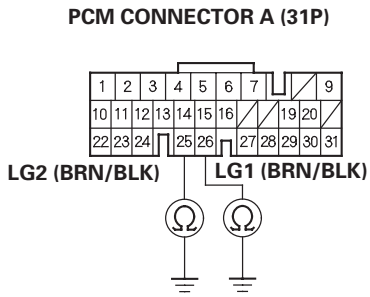
Wire side of female terminals

Is there battery voltage?

YES—Go to step 10.

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal B24 and the driver's under-dash fuse/relay box. ■

10. Turn the ignition switch OFF.
11. Check for continuity between PCM connector terminal A25 and body ground, and between terminal A26 and body ground.



Wire side of female terminals

Is there continuity?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Repair open in the wire between PCM connector terminals A25 and A26, and body ground (G101), or repair poor ground (G101). ■

2001 Model

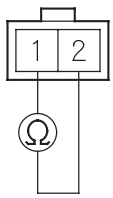
DTC P1773: Problem in A/T Clutch Pressure Control Solenoid Valve B Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Disconnect the AT clutch pressure control solenoid valve B connector (2P).

2. Measure the A/T clutch pressure control solenoid resistance at the solenoid valve connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Terminal side of male terminals

Is there 3—10 Ω ?

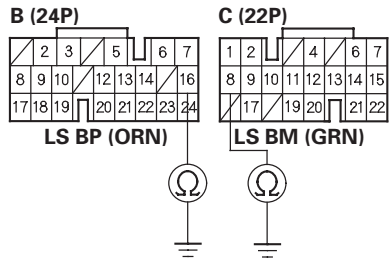
YES—Go to step 3.

NO—Replace the A/T clutch pressure control solenoid valves A and B (see page 14-133). ■

3. Disconnect PCM connectors B (24P) and C (22P).

4. Check for continuity between PCM connector terminal B16 and body ground, and between terminal C8 and body ground.

PCM CONNECTORS



Wire side of female terminals

Is there continuity?

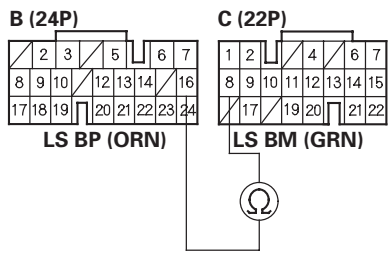
YES—Repair short to ground in the wires between PCM connector terminals B16 and C8, and the A/T clutch pressure control solenoid valve B. ■

NO—Go to step 5.

5. Connect the A/T clutch pressure control solenoid valve B connector.

6. Measure the resistance between PCM connector terminals B16 and C8.

PCM CONNECTORS



Wire side of female terminals

Is there 3—10 Ω ?

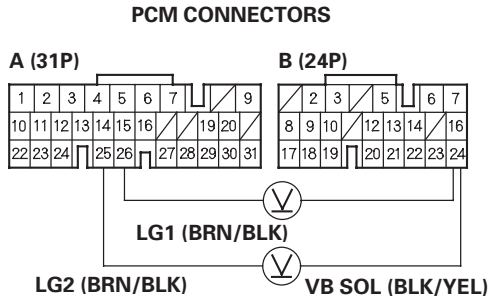
YES—Go to step 7.

NO—Repair loose terminal or open in the wires between PCM connector terminals B16 and C8, and the A/T clutch pressure control solenoid valve B. ■

(cont'd)

DTC Troubleshooting (cont'd)

7. Disconnect PCM connector A (31P).
8. Turn the ignition switch ON (II).
9. Measure the voltage between PCM connector terminals B24 and A25 or A26.



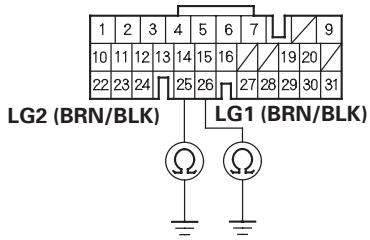
Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Go to step 10.

10. Turn the ignition switch OFF.
11. Check for continuity between PCM connector terminal A25 and body ground, and between terminal A26 and body ground.



Wire side of female terminals

Is there continuity?

YES—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal B24 and the driver's under-dash fuse/relay box. ■

NO—Repair open in the wire between PCM connector terminals A25 and A26, and ground (G101), or repair poor ground (G101). ■

Road Test

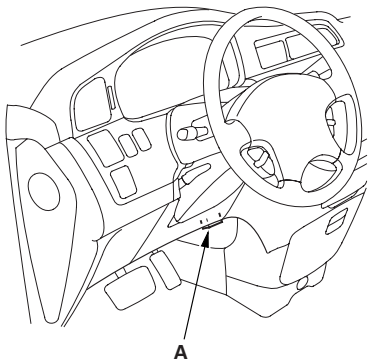
Special Tools Required
Backprobe set 07SAZ-001000A (two required)

1. Warm up the engine to normal operating temperature (the radiator fan comes on).

2. Apply the parking brake, and block both rear wheels. Start the engine, then shift to the D position while pressing the brake pedal. Press the accelerator pedal, and release it suddenly. The engine should not stall.

3. Repeat step 2 in the D3 position.

4. Connect the HDS to the DLC (A), and go to the PGM-FI Data List; then go to step 7. If you don't have a HDS, go to step 5.



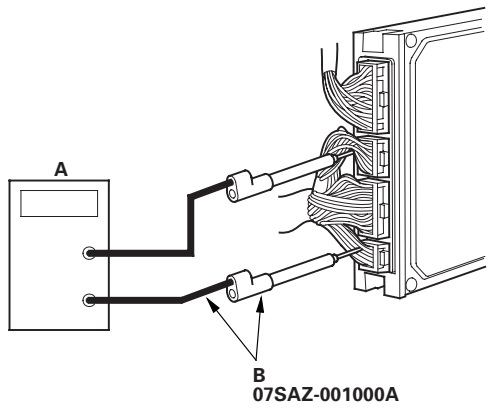
5. Pull back the carpet, and remove the passenger's and driver's side center lower covers to expose the PCM (see page 11-4).

6. Remove the PCM cover from the passenger's side under-dash fuse to access the PCM mounting nut.

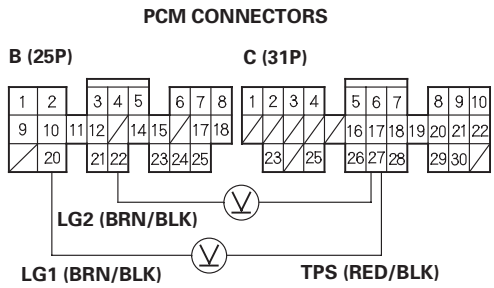
7. Remove the PCM mounting bolt, then remove the PCM.

8. Connect a digital multimeter (A) and the special tools (B) to check voltage between these PCM connector terminals.

   - 1999-2000 models: Between PCM connector terminals C27 and B20 or B22.
   - 2001 model: Between PCM connector terminals A15 and A25 or A26.

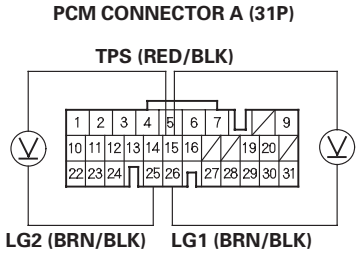


1999-2000 models:



Wire side of female terminals

2001 model:



Wire side of female terminals

(cont'd)

Road Test (cont'd)

9. Test-drive the vehicle on a flat road in the D4 position. Check for abnormal noise and clutch slippage. While driving, check that the shift points occur at the proper speeds by monitoring the throttle position sensor voltage and comparing your shift point speeds and voltage to those in the table. (The throttle position sensor voltage represents the throttle opening.)

Upshift: D4 position

Throttle position sensor voltage: 0.7 V	
1st→2nd	12—14 mph (20—24 km/h)
2nd→3rd	21—24 mph (34—38 km/h)
3rd→4th	36—40 mph (57—63 km/h)
Lock-up ON	46—50 mph (74—80 km/h)
Throttle position sensor voltage: 2.25 V	
1st→2nd	30—33 mph (48—52 km/h)
2nd→3rd	52—56 mph (83—89 km/h)
3rd→4th	74—78 mph (119—125 km/h)
Lock-up ON	83—87 mph (133—139 km/h)
Fully-opened throttle Throttle position sensor voltage: 4.5 V	
1st→2nd	46—50 mph (74—80 km/h)
2nd→3rd	83—87 mph (133—139 km/h)
3rd→4th	116—120 mph (185—191 km/h)
Lock-up ON	116—120 mph (184—192 km/h)

Downshift: D4 position

Throttle position sensor voltage: 0.8 V	
Lock-up OFF	45—49 mph (72—78 km/h)
4th→3rd	19—21 mph (30—34 km/h)
3rd→1st	7—9 mph (10—14 km/h)
Throttle position sensor voltage: 2.25 V	
Lock-up OFF	70—74 mph (112—118 km/h)
4th→3rd	48—52 mph (77—83 km/h)
3rd→2nd	27—29 mph (43—47 km/h)
2nd→1st	7—9 mph (10—14 km/h)
Fully-opened throttle Throttle position sensor voltage: 4.5 V	
Lock-up OFF	102—107 mph (165—171 km/h)
4th→3rd	101—105 mph (162—168 km/h)
3rd→2nd	68—72 mph (109—115 km/h)
2nd→1st	37—41 mph (59—60 km/h)

10. Accelerate to about 35 mph (57 km/h) so the transmission is in 4th or 5th, then shift from the D4 position to the 2 position. The vehicle should immediately begin slowing down from engine braking.

11. Check for abnormal noise and clutch slippage in the following positions.

    1 (1st Gear) Position
    Accelerate from a stop at full throttle. Check that there is no abnormal noise or clutch slippage. Upshifts should not occur with the shift lever in this position.

    2 (2nd Gear) Position
    Accelerate from a stop at full throttle. Check that there is no abnormal noise or clutch slippage. Upshifts and downshifts should not occur with the shift lever in this position.

    R (Reverse) Position
    Accelerate from a stop at full throttle, and check for abnormal noise and clutch slippage.

12. Test in P (Park) Position.
    Park the vehicle on a slope (about 16°), apply the brake, and shift into the P position. Release the brake; the vehicle should not move.

Stall Speed Test

1. Engage the parking brake, and block all four wheels.

2. Connect a tachometer to the engine, and start the engine.

3. Make sure the A/C switch is OFF.

4. After the engine has warmed up to normal operating temperature (the radiator fan comes on), shift to the 2 position.

5. Fully press the brake pedal and accelerator pedal for 6 to 8 seconds, and note the engine speed. Do not move the shift lever while raising the engine speed.

6. Allow 2 minutes for cooling, then repeat the test in the D4, 1, and R positions.

   NOTE:
   - Do not test stall speed for more than 10 seconds at a time.
   - Stall speed tests should be used for diagnostic purposes only.
   - Stall speed should be the same in D4, 2, 1, and R positions.
   - Do not test stall speed with the A/T pressure gauges installed.

   Stall Speed rpm:
   Specification: 2,400 rpm
   Service Limit: 2,250—2,550 rpm

7. If the measurements are out of the service limit, problems and probable causes are listed in the table below:

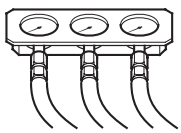
Problem	Probable causes
Stall speed rpm high in the D4, 2, 1, and R positions	• Low fluid level • ATF pump output low • Clogged ATF strainer • Regulator valve stuck • Slipping clutch
Stall speed rpm high in the 1 position	Slippage of 1st clutch
Stall speed rpm high in the 2 position	Slippage of 2nd clutch
Stall speed rpm high in the R position	Slippage of 4th clutch
Stall speed low in the D4, 2, 1, and R positions	• Engine output low • Torque converter one-way clutch slipping

Pressure Test

Special Tools Required
- A/T oil pressure gauge set 07406-0020400 or 07406-0020401
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure hose adapter 07MAJ-PY40120

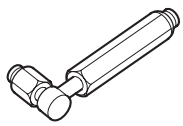
1. Before testing, be sure the transmission fluid is filled to the proper level.
2. Raise the vehicle, and make sure it is securely supported.
3. Allow all four wheels to rotate freely.
4. Warm up the engine (the radiator fan comes on), then stop it and connect a tachometer.
5. Connect the oil pressure gauges to the line pressure inspection hole (A). Do not allow dust or other foreign particles to enter the holes while connecting the gauges.

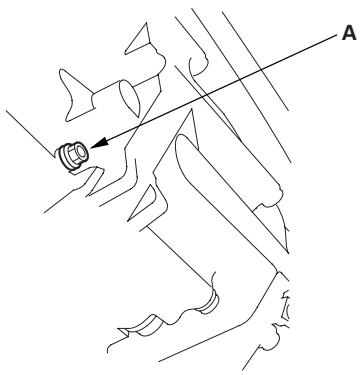
A/T OIL PRESSURE GAUGE SET W/PANEL
07406-0020400 or 07406-0020401



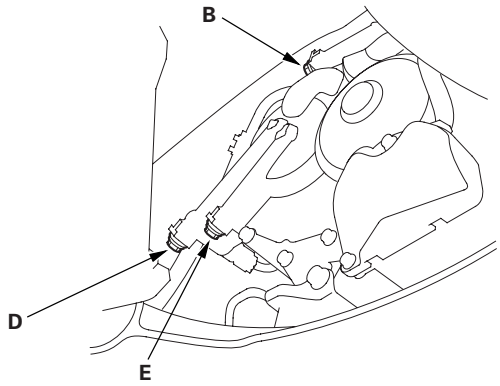
A/T PRESSURE HOSE, 2,210 mm 07MAJ-PY4011A (4 Required)

A/T PRESSURE HOSE ADAPTER 07MAJ-PY40120 (4 Required)

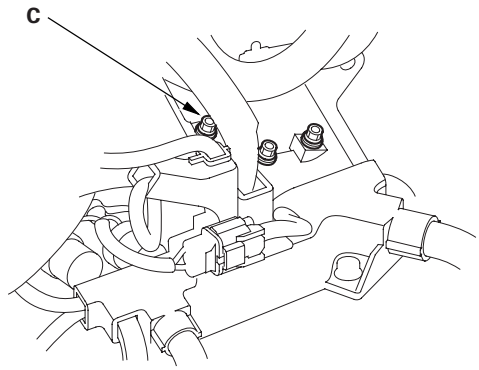




6. Connect the oil pressure gauges to the 1st clutch pressure inspection hole (B), 3rd clutch pressure inspection hole (D), and 4th clutch pressure inspection hole (E).



7. Connect the oil pressure gauge to the 2nd clutch pressure inspection hole (C).



8. Start the engine, and run it at 2,000 rpm in the N or P position.

9. Measure line pressure at the line pressure inspection hole (A) in the N or P position.

   NOTE: Higher pressure may be indicated if measurements are made in shift lever position other than N or P.

Pressure	Fluid Pressure	
	Standard	Service Limit
Line (A)	850－910 kPa (8.7－9.3 kgf/cm^2, 120－130 psi)	800 kPa (8.2 kgf/cm^2, 120 psi)

10. Shift to the 1 position, and measure 1st clutch pressure at the 1st clutch pressure inspection hole (B).

11. Shift to the 2 position, and measure 2nd clutch pressure at the 2nd clutch pressure inspection hole (B).

12. Shift to the P position, then press the brake pedal and hold it.

13. Shift to the D4 position, and release the brake pedal (the transmission should be in 1st gear).

14. Accelerate the engine to 2,500 rpm (the transmission will shift to 2nd gear).

15. Release the accelerator for more than 5 seconds after the transmission is shifted to 2nd gear (the engine will come down to about 1,000 rpm).

16. Press the accelerator very slowly to increase engine speed to 2,000 rpm gradually over 5 seconds, then hold it at 2,000 rpm.

17. Measure 3rd and 4th clutch pressure at 3rd clutch pressure inspection hole (D), and 4th clutch pressure inspection hole (E) (the transmission will shift from 2nd gear to 3rd gear, and then 4th gear).

18. Bring the engine back to an idle, then apply the brake to stop the wheels from rotating.

19. Shift to the R position. Raise the engine rpm to 2,000 rpm, and measure 4th clutch pressure at the 4th clutch pressure inspection hole (E).

Pressure	Fluid Pressure	
	Standard	Service Limit
1st clutch (B) 2nd clutch (C) 3rd clutch (D) 4th clutch (B)	840－920 kPa (8.6－9.4 kgf/cm^2, 120－130 psi)	790 kPa (8.1 kgf/cm^2, 120 psi)

20. If the measurements are out service limit, problems and probable causes are listed in the table:

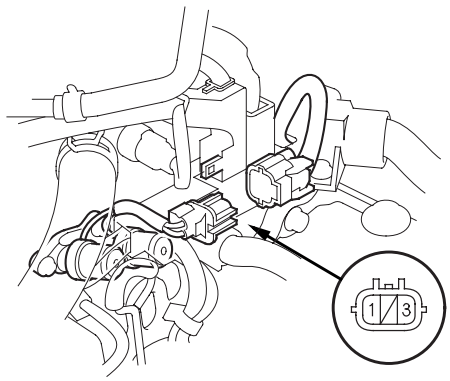
Problem	Probable causes
No or low line pressure	• Torque converter • ATF pump • Regulator valve • Torque converter check valve
No or low 1st clutch pressure	• 1st clutch • O-rings
No or low 2nd clutch pressure	• 2nd clutch • O-rings
No or low 3rd clutch pressure	• 3rd clutch • O-rings
No or low 4th clutch pressure	• 4th clutch • O-rings
No or low 4th clutch pressure in the R position	• Servo valve • 5th clutch • O-rings

21. Install the sealing bolts with the new sealing washers, and tighten the bolts to the specified torque. Do not reuse old sealing washers.

    Torque: 18 N·m (1.8 kgf·m, 13 lbf·ft)

Torque Converter Clutch Solenoid Valve - Shift Solenoid Valve A Test

1. Disconnect the 3P connector from the torque converter clutch solenoid valve/shift control solenoid valve A.



2. Measure the resistance of the torque converter clutch solenoid valve between the No. 3 terminal of the 3P connector and body ground.

   Standard: **12 — 25 Ω**

3. Measure the resistance of the shift solenoid valve A between the No. 1 terminal of the 3P connector and body ground.

   Standard: **12 — 25 Ω**

4. Replace the torque converter clutch solenoid valve/ shift solenoid valve A if either resistance is out of specification.

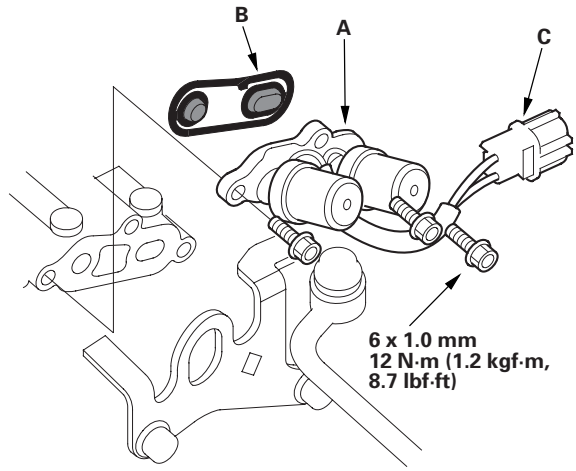
5. If the resistance is within the standard, connect the No. 1 terminal of the 3P connector to the battery positive terminal. A clicking sound should be heard. Connect the No. 3 terminal to the battery positive terminal. A clicking sound should be heard. Replace the torque converter clutch solenoid valve/ shift solenoid valve A if no sound is heard.

Torque Converter Clutch Solenoid Valve - Shift Solenoid Valve A Replacement

NOTE: Torque converter clutch solenoid valve/shift solenoid valve A must be removed/replaced as an assembly.

1. Remove the bolt securing the harness cover, then remove the harness cover from the transmission hanger.

2. Remove the mounting bolts and torque converter clutch solenoid valve/shift solenoid valve A (A).



3. Clean the mounting surface and fluid passage, and install a new torque converter clutch solenoid valve /shift solenoid valve A with a new filter/gasket (B).

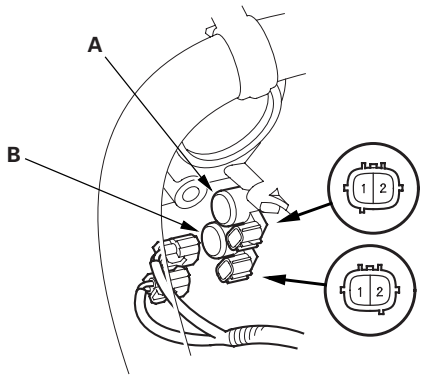
4. Install the harness cover on the transmission hanger.

5. Install the male terminal connector (C) of the solenoid connector on the harness cover.

6. Check the connector for rust, dirt or oil, then reconnect it.

Shift Solenoid Valve B and C Test

1. Remove the starter.
2. Disconnect the shift solenoid valve B (A) or C (B) connector.



3. Measure the resistance between the No. 1 and No. 2 terminals of the shift solenoid valve B or C.

   Standard: **12 — 25 Ω**

4. Replace the shift solenoid valve B or C if the resistance is out of standard.
5. If the resistance is within the standard, connect the No. 2 terminal of the shift solenoid valve B or C connector to the battery positive terminal, and connect the No. 1 terminal to the battery negative terminal. A clicking sound should be heard. Replace the shift solenoid valve B or C if no clicking sound is heard.

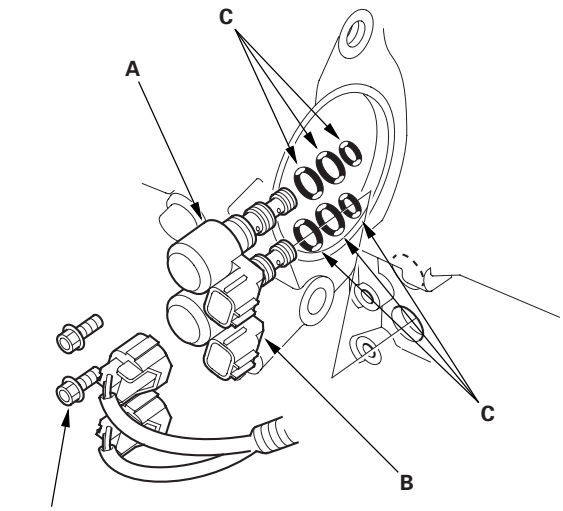
Shift Solenoid Valve B and C Replacement

NOTE: If the shift solenoid valve B and C are replaced or removed at the same time, be sure to reinstall them correctly. The connector color of shift solenoid valve B is black, and the connector color of shift solenoid valve C is brown.

1. Remove the starter.

   NOTE: If you are only replacing shift solenoid valve C, starter removal is not needed.

2. Remove the mounting bolt and the shift solenoid valve B.

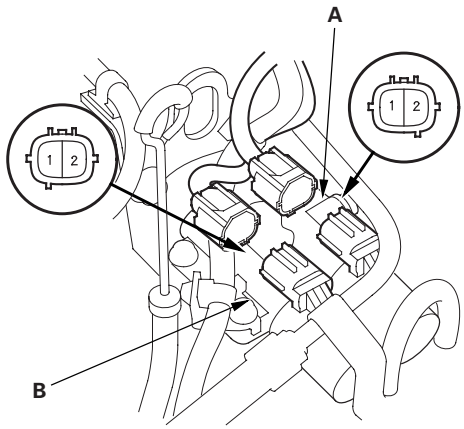


6 x 1.0 mm
12 N·m (1.2 kgf·m, 8.7 lbf·ft)

3. Remove the mounting bolt and the shift solenoid valve C.
4. Install a new shift solenoid valve B (A) or C (B) with new O-rings (C). While installing the valves, do not allow dust or other foreign particles to enter the transmission.
5. Check the connector for rust, dirt or oil, then reconnect it.
6. Install the starter, if removed.

A/T Clutch Pressure Control Solenoid Valve A and B Test

1. Disconnect the 2P connectors from the A/T clutch pressure control solenoid valves A and B.



2. Measure the resistance between the No. 1 and No. 2 terminals of each connector.

   Standard: **3 — 10** Ω

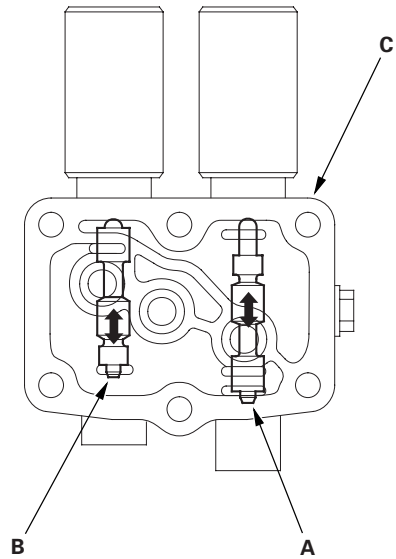
3. If the resistance of either solenoid is out of standard, replace the A/T clutch pressure control solenoid valves A and B.

4. Connect the No. 1 terminal of the A/T clutch pressure control solenoid valves A and B to the battery positive terminal, and connect the No. 2 terminal to the battery negative terminal. A clicking sound should be heard.

5. If not, remove the A/T clutch pressure control solenoid valves A and B.

6. Check the fluid passage of the A/T clutch pressure control solenoid valves for dust and dirt, and clean the passage if necessary.

7. Connect the No. 1 terminal of the A/T clutch pressure control solenoid valves A and B to the battery positive terminal, and connect the No. 2 terminal to the battery negative terminal. Make sure the A/T clutch pressure control solenoid valves A and B move.



8. Disconnect one of the battery terminals and check valve movement.

   NOTE: You can see the valve movement through the fluid passage in the mounting surface of the assembly body (C).

9. If either valve binds, or moves sluggishly, or if the solenoid does not operate, replace the A/T clutch pressure control solenoid valves A and B.

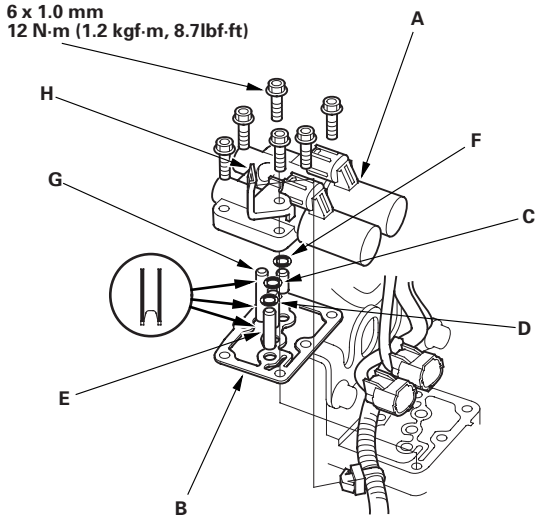
A/T Clutch Pressure Control Solenoid Valve A and B Replacement

1. Remove the ATF cooler hose (outlet line) at the ATF cooler line. Turn the end of the cooler hose up to prevent ATF from flowing out, then plug the line and hose.

2. Remove the bolt securing the harness cover, then remove the harness cover from the transmission hanger.

3. Remove the ATF cooler line (outlet line) from the transmission housing.

4. Remove the mounting bolts and the A/T clutch pressure control solenoid valves A and B (A).



5. Clean the mounting surface and fluid passages of the A/T clutch pressure control solenoid valves A and B and the transmission housing.

6. Place a new gasket (B) on the transmission housing, then install the 8 x 18 mm ATF feed pipe (C), 8 x 26 mm pipe (D), and 8 x 36 mm pipe (E) with their filter side into the transmission housing.

7. Install new O-rings (F) over the feed pipes, and install the 8 x 40 mm ATF feed pipe (G).

8. Install the new A/T clutch pressure control solenoid valves A and B (A) and harness clamp bracket (H).

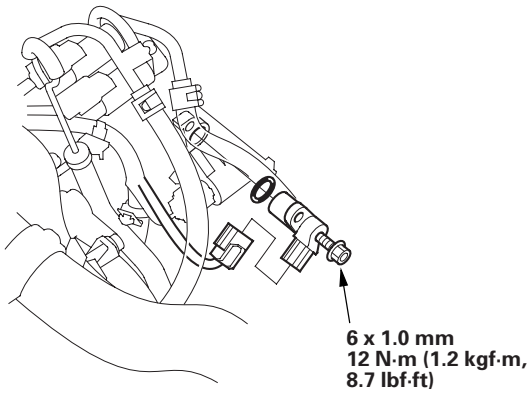
9. Check the A/T clutch pressure control solenoid valve connectors for rust, dirt, or oil then connect them securely.

10. Install the ATF cooler outlet line, and connect the ATF cooler hose to the cooler line.

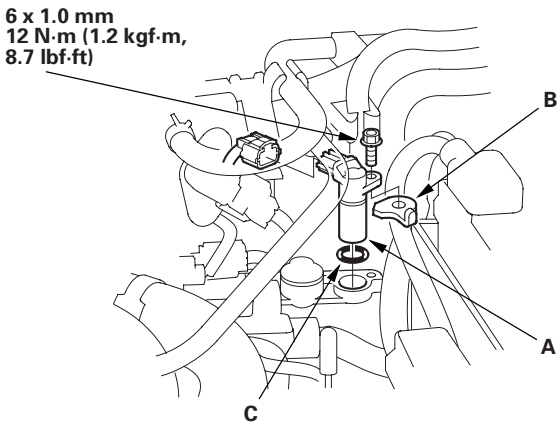
Mainshaft and Countershaft Speed Sensor Replacement

1. Disconnect the connectors from the mainshaft and countershaft speed sensors.

2. Remove the bolt securing the mainshaft speed sensor, then remove the mainshaft speed sensor from the end cover.



3. Remove the bolt securing the countershaft speed sensor, then remove the countershaft speed sensor (A) and the washer (B) from the transmission housing.



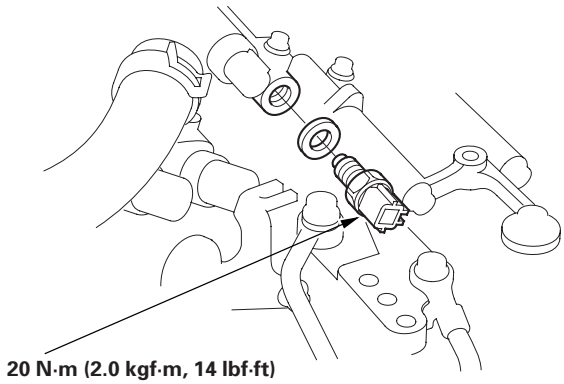
4. Replace the O-rings (C) with new ones before installing the sensors.

5. Install the mainshaft speed sensor, then connect the connector.

6. Install the countershaft speed sensor with the washer, then connect the connector.

2nd Clutch Pressure Switch Replacement

1. Disconnect the connector from the 2nd clutch pressure switch.

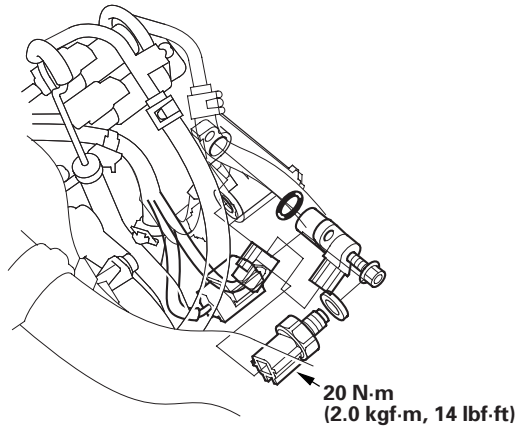


2. Replace the 2nd clutch pressure switch, then install a new one with a new sealing washer. Tighten the switch on the metal part, not the plastic part.

3. Reconnect the connector, making sure there is no water, oil, dust, or other foreign particles inside it.

3rd Clutch Pressure Switch Replacement

1. Disconnect the connector from the 3rd clutch pressure switch.



2. Replace the 3rd clutch pressure switch, then install a new one with a new sealing washer. Tighten the switch on the metal part, not the plastic part.

3. Reconnect the connector, making sure there is no water, oil, dust, or other foreign particles inside it.

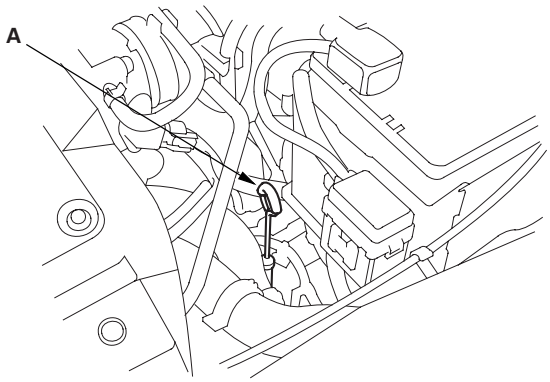
ATF Level Check

NOTE: Keep all foreign particles out of the transmission.

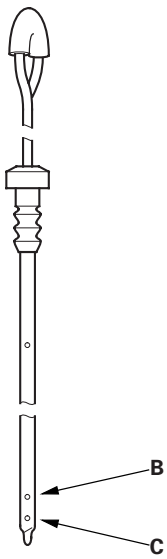
1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Park the vehicle on the level ground. Turn off the engine.

   NOTE: Check the fluid level within 60—90 seconds after turning the engine off.

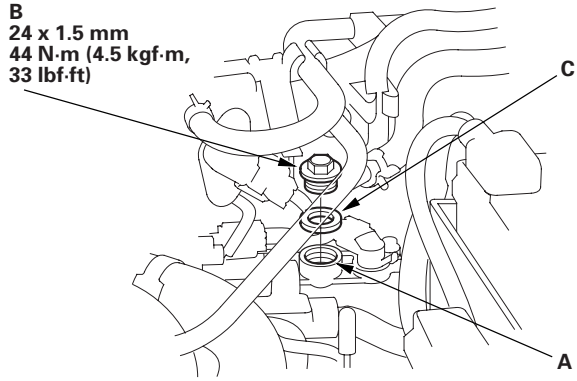
3. Remove the dipstick (yellow loop) (A) from the transmission, and wipe it with a clean cloth.



4. Insert the dipstick into the transmission.
5. Remove the dipstick and check the fluid level. It should be between the upper mark (B) and lower mark (C).



6. If the level is below the lower mark, check for fluid leaks at the transmission, hose and line joints. If a problem is found, fix it before filling the transmission.
7. If necessary, fill the transmission into the filler hole (A) to bring the fluid level up to the upper mark. Always use Honda ATF-Z1 Automatic Transmission Fluid (ATF). Using a non-Honda ATF can affect shift quality



8. If the level is above the upper mark, drain the ATF to proper level (see step 3 on page 14-137).
9. Install the ATF filler bolt (B) with a new sealing washer (C).
10. Insert the dipstick back into the transmission.

ATF Replacement

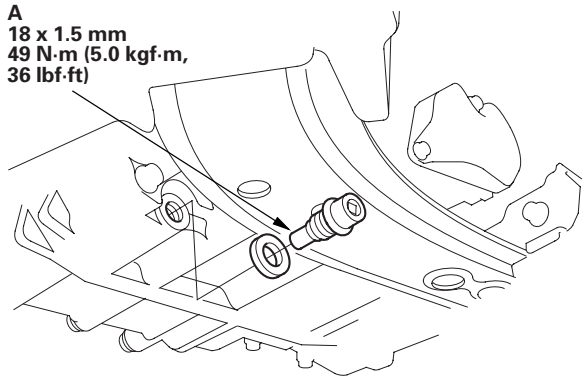
NOTE: Keep all foreign particles out of the transmission.

1. Bring the transmission up to operating temperature (the radiator fan comes on) by driving the vehicle.

2. Park the vehicle on the level ground, and turn the engine off.

3. Remove the ATF filler bolt and the drain plug (A), and drain the automatic transmission fluid (ATF).

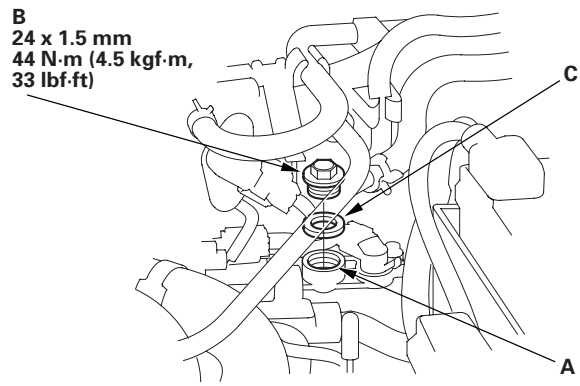
   NOTE: If a cooler flusher is used, refer to ATF Cooler Flushing (see page 14-155).



4. Reinstall the drain plug with a new sealing washer.

5. Refill the transmission with the recommended fluid into the filler hole (A) to the upper mark on the dipstick. Always use Honda ATF-Z1 Automatic Transmission Fluid (ATF). Using a non-Honda ATF can affect shift quality.

   Automatic Transmission Fluid Capacity:
   2.9 ℓ (3.1 US qt) at changing
   7.2 ℓ (7.6 US qt) at overhaul



6. Install the ATF filler bolt (B) with a new sealing washer (C).

Transmission Removal

Special Tools Required
- Engine support hanger 07XAA-001030A
- Engine hanger balance bar VSB02C000019
- Subframe adapter EQS07AODSY0
  (Available through the Honda Tool and Equipment Program, 888-424-6857)

1. Before disconnecting the battery, make sure you have the anti-theft code for the radio, then write down the frequencies for the radio's preset stations.

2. Remove the bolt securing the lower portion of the windshield washer reservoir opening. Remove the support rod, then fix the hood in a vertical position using the support rod.

3. Remove the intake air duct, resonator cover, and air cleaner housing assembly.

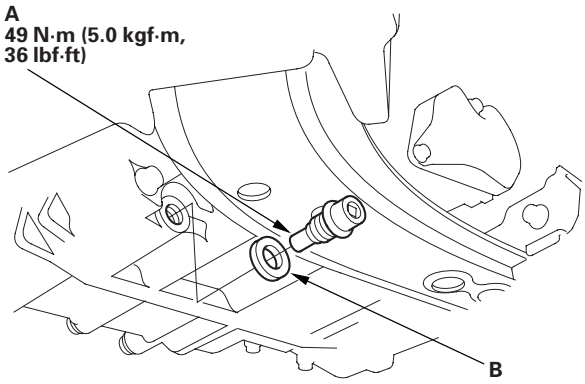
4. Disconnect the battery negative terminal, then remove the positive terminal.

5. Remove the battery hold-down bracket, then remove the battery and battery tray.

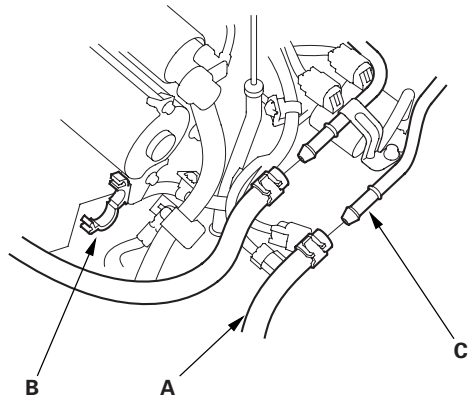
6. Remove the battery cable clamps, connector, and relay bracket from the battery base.

7. Remove the battery base.

8. Raise the vehicle, and make sure it is securely supported. Remove the drain plug (A), and drain the automatic transmission fluid (ATF). Reinstall the drain plug with a new sealing washer (B).



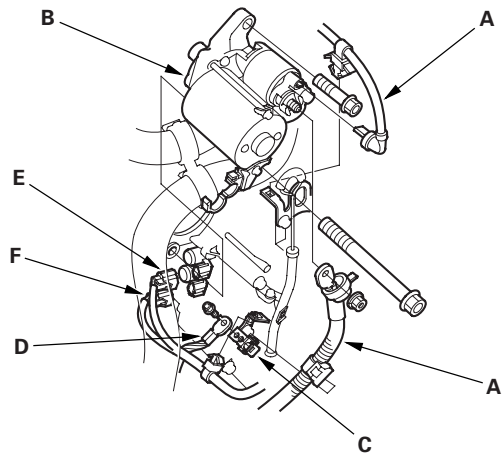
9. Remove the ATF cooler hose (A) from the clamp (B) on the starter.



10. Remove the ATF cooler hoses (A) from the ATF cooler lines (C). Turn the ends of the ATF cooler hoses up to prevent ATF flowing out, then plug the ATF cooler hoses and lines.

    NOTE: Check for any signs of leakage at the hose joints.

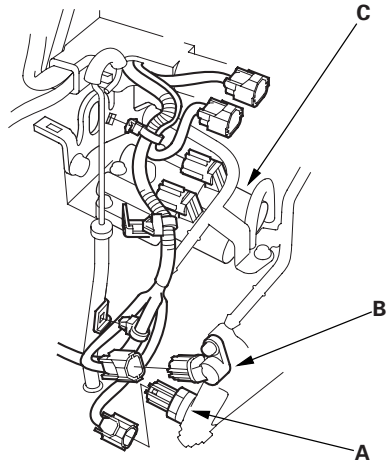
11. Remove the starter cables (A) from the starter (B) and clamp bracket (C), then remove the starter.



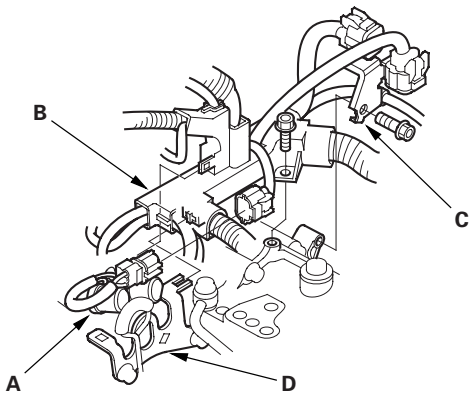
12. Remove the transmission ground terminal (D).

13. Disconnect the shift solenoid valve B connector (E), and C connector (F), then remove the harness clamp from the clamp bracket.

14. Disconnect the connectors from the 3rd clutch pressure switch (A), mainshaft speed sensor (B), and A/T clutch pressure control solenoid valves A and B (C), then remove the harness clamps from the clamp brackets.



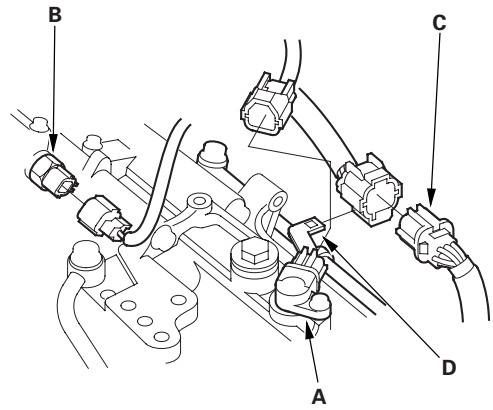
15. Disconnect the connector from the torque converter clutch solenoid valve/shift solenoid valve A (A), then remove the connector from harness cover (B).



16. Remove the bolt securing connector bracket (C).

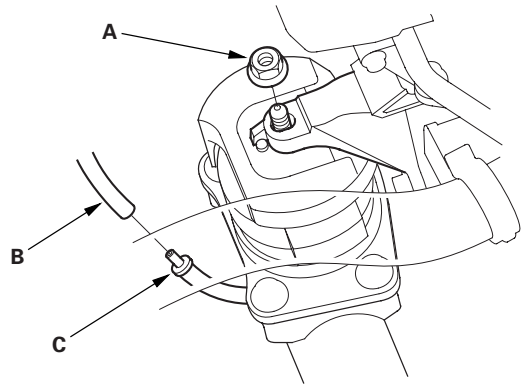
17. Remove the bolt securing the harness cover, then push the harness cover rearward to remove it from the transmission hanger (D).

18. Disconnect the connectors from the countershaft speed sensor (A), and 2nd clutch pressure switch (B).



19. Remove the A/T gear position switch connector (C) from the connector bracket (D), then disconnect it.

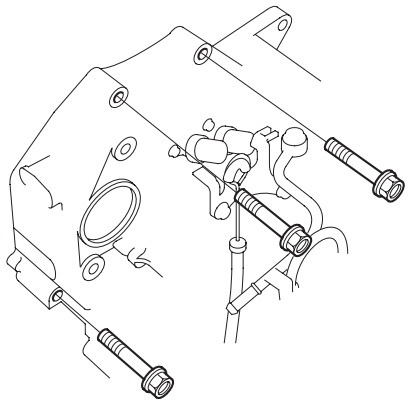
20. Remove the nut (A) from the front mount, and disconnect the vacuum tube (B) at the joint (C).



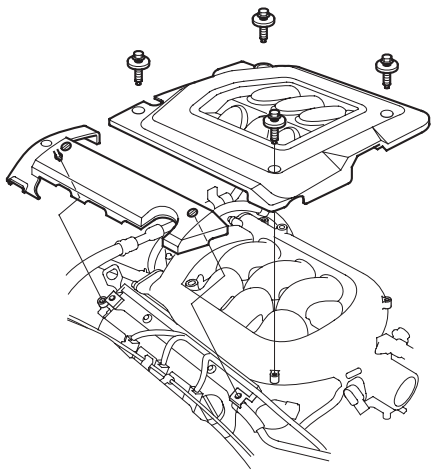
(cont'd)

Transmission Removal (cont'd)

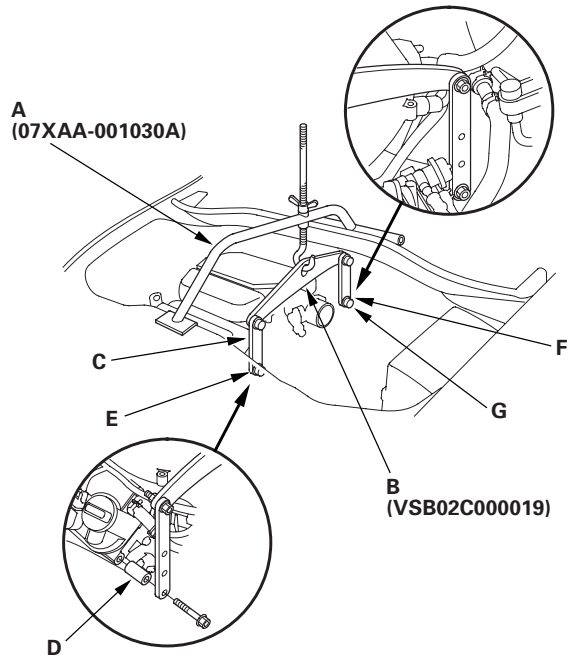
21. Remove the transmission housing mounting bolts.



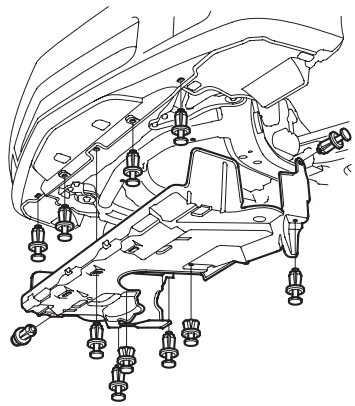
22. Remove the engine covers.



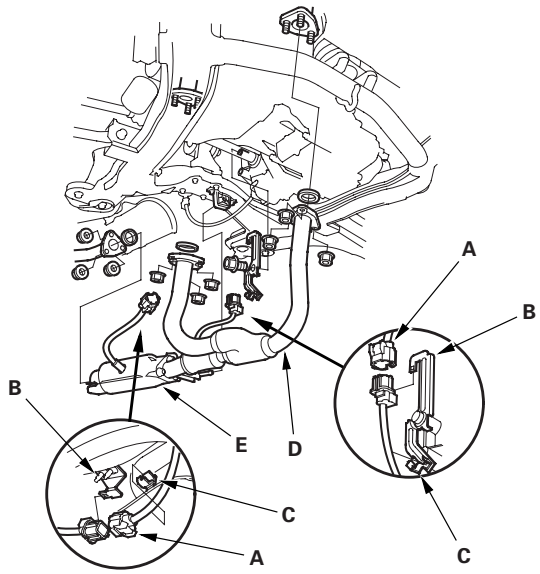
23. Lift and support the engine with engine support hanger (A) and engine balance bar (B). Attatch the front arm (C) to the front cylinder head with a spacer (D) and the 10 x 1.25 mm bolt (E). Attatch the rear arm (F) the rear cylinder head with the 8 x 1.25 mm bolt (G).



24. Remove the splash shield.

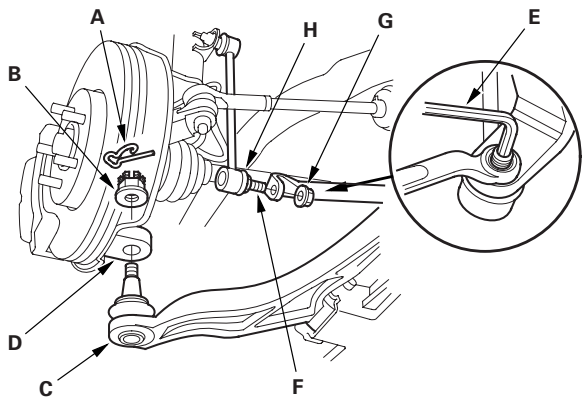


25. Remove the oxygen sensor connectors (A) from their connector brackets (B), and remove the harnesses from the clamps (C).



26. Remove the exhaust pipe A (D) and three way catalytic converter (E).

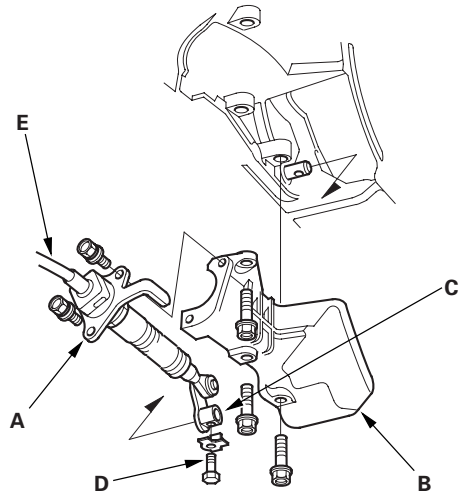
27. Remove the spring pins (A) and castle nuts (B), and separate the lower arms (C) from the knuckles (D) (see page 18-11).



28. Put a 6 mm Allen-type wrench (E) in the top of the ball joint pin (F), and remove the nut (G), then separate the stabilizer link (H).

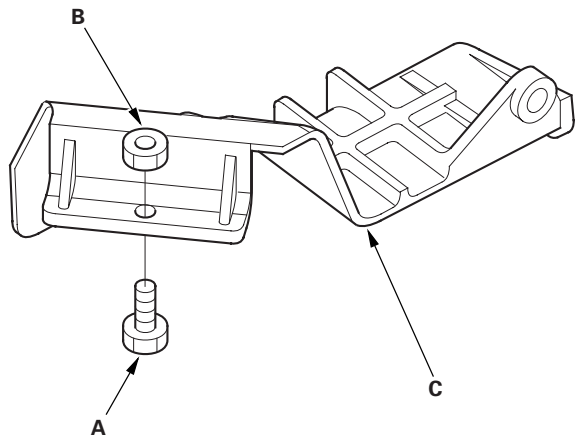
29. Remove the bolts securing the shift cable holder (A), then remove the shift cable cover (B).

NOTE: To prevent damage to the control lever (C), remove the bolts securing the holder before removing the bolts securing the cover.



30. Remove the lock bolt (D) securing the control lever, then remove the shift cable (E) with the control lever. Do not bend the shift cable excessively.

31. Install a 6 x 1.0 x 14 mm bolt (A) and nut (B) on the shift cable cover (C), then reinstall the shift cable cover to the torque converter housing.
If you don't do this, the bolt head of the cable cover may prevent you from removing the torque converter during transmission removal.



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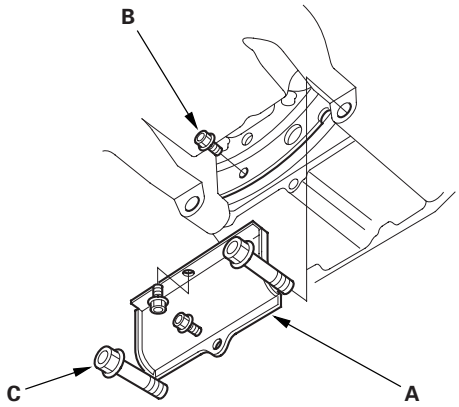
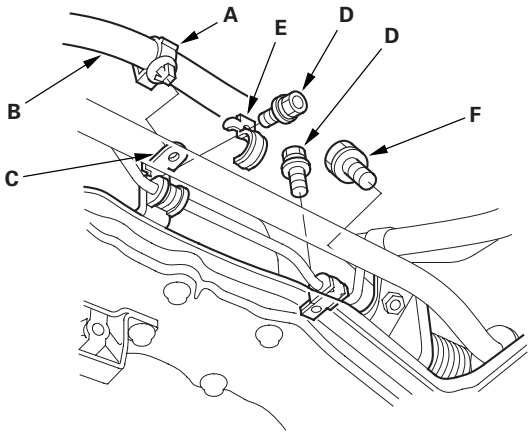
Transmission Removal (cont'd)

32. Remove the torque converter cover (A), then remove the eight drive plate bolts (B) one at a time while rotating the crankshaft pulley.



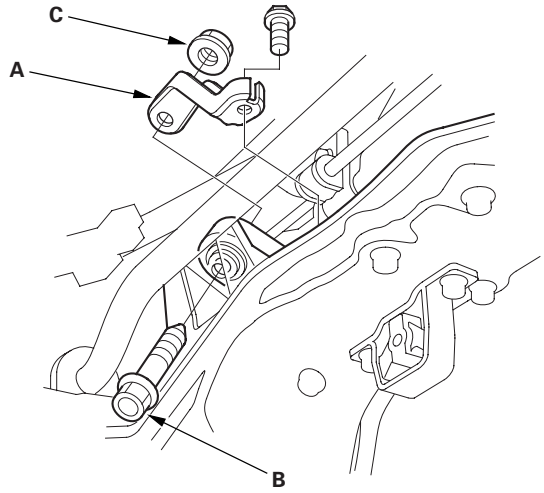
33. Remove the engine stiffener bolts (C).

34. Remove the clip (A) on the power steering fluid return hose (B) from the bracket (C).

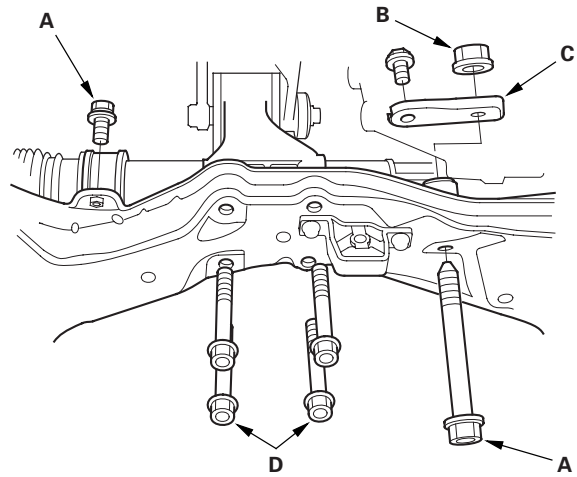


35. Remove the power steering fluid pipe bracket bolts (D) and bracket (E), and remove the steering gearbox mounting bolt (F).

36. Remove the stiffener (A), the steering gearbox mounting bolt (B) and nut (C).

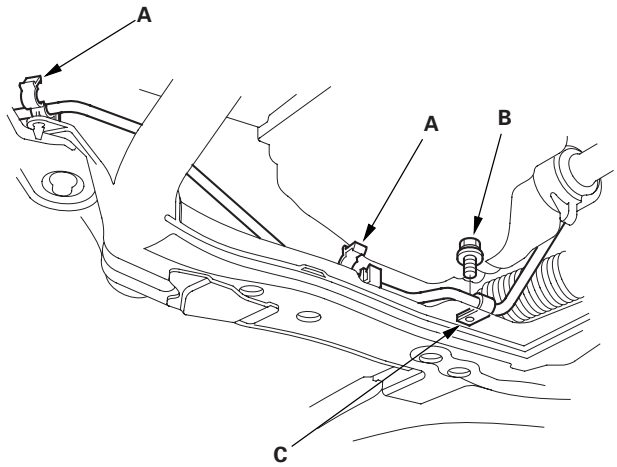


37. Remove the steering gearbox mounting bolts (A) and nut (B), and remove the stiffener (C).

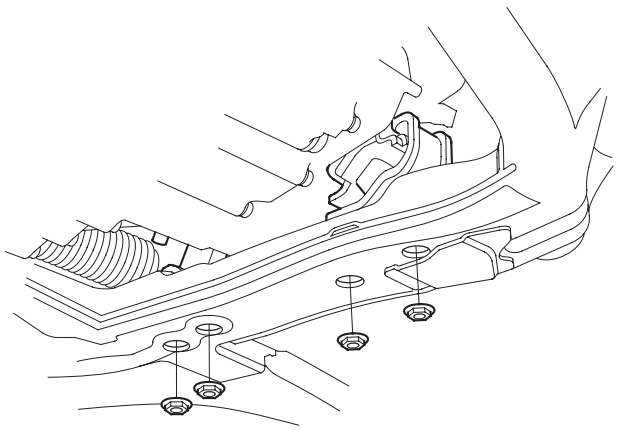


38. Remove the rear mount mounting bolts (D).

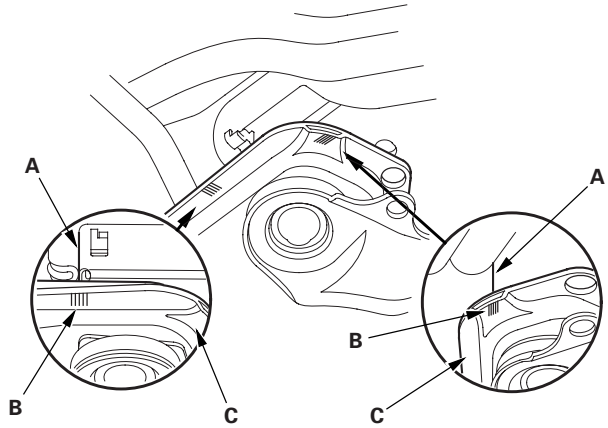
39. Unclamp the power steering fluid pipe clamps (A), and remove the bolt (B) securing the power steering fluid pipe bracket (C).



40. Remove the transmission lower mount nuts.

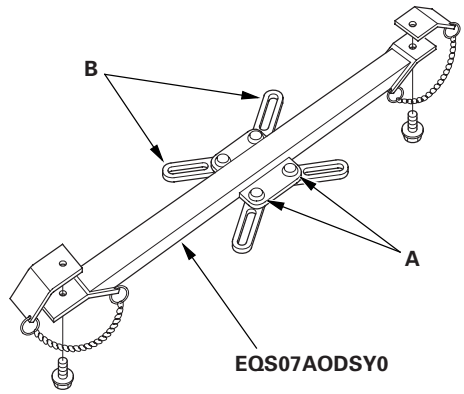


41. Make reference marks (A) on the body across the marks (B) on the edge of the front subframe (C).



42. Loosen the four bolts (A) holding the adjustable arms (B) of the front subframe adapter (T/N EQ07AODSY0) to its center plate.

NOTE: The adapter is designed to be used with the Honda transmission jack (model number LSL-W 93714) or powertrain lift (model number OTC-1585), both available through the Honda Tool and Equipment Program. It will also work with most commercially available transmission jacks.



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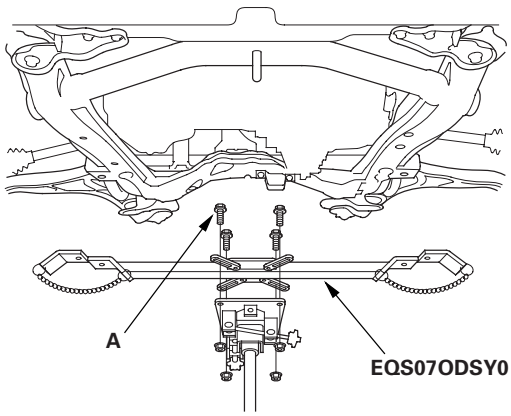
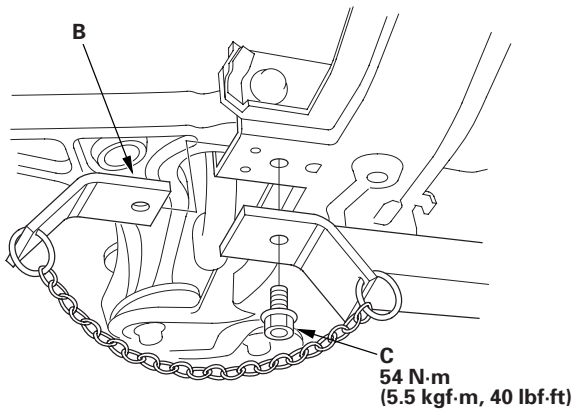
Transmission Removal (cont'd)

43. Line up the slots in the arms with the bolt holes on the corner of the jack base, then attach the adapter to the jack base with the bolts (A) that came with the jack. Tighten the bolts securely.

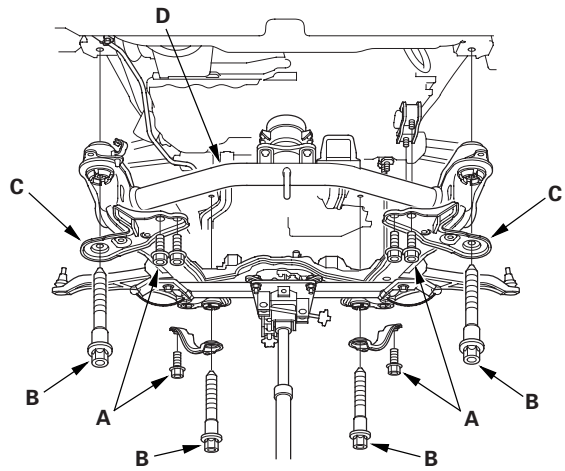


44. Raise the jack to vehicle height, then attach the adapter to the front subframe by sliding the adapter's nut plates (B), between the subframe and the body.



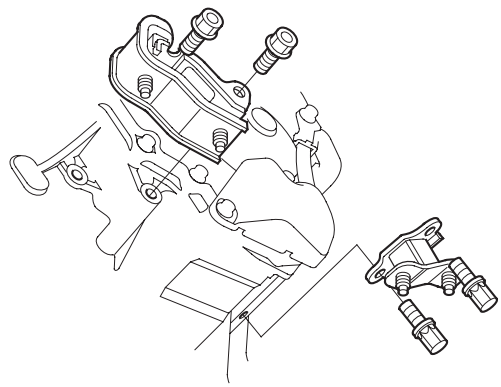
45. Insert the nut plate bolts through the holes in the adapter and the subframe; then thread the bolts (C) into the nut plates and tighten them to 54 N·m (5.5 kgf·m, 40 lbf·ft).

46. Remove the 12 x 1.25 mm bolts (A), subframe mounting bolts (4) (B), and the stiffeners (C), then lower the front subframe (D).



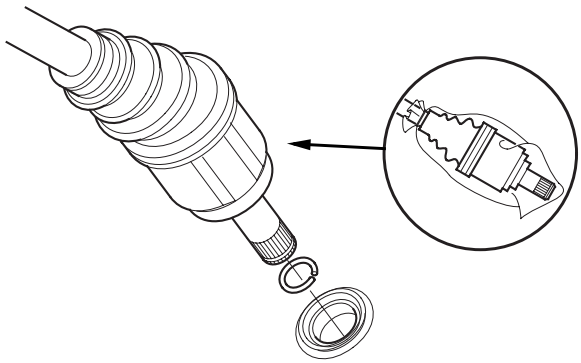
47. Hang the steering gearbox on passenger side with a rope to the body.

48. Remove the transmission lower mounts.

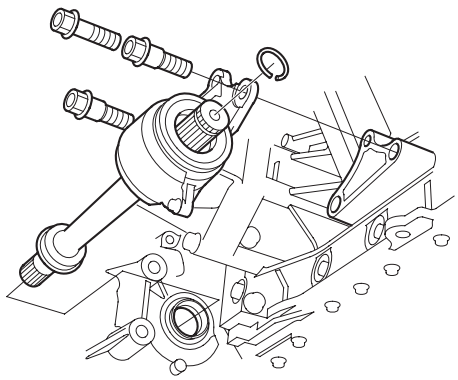


49. Pry the left driveshaft out of the differential and the right driveshaft from the intermediate shaft (see step 10 on page 16-4).

50. Move the left driveshaft to the front side. Coat all precision finished surfaces with clean engine oil, then tie the plastic bags over the driveshaft ends.

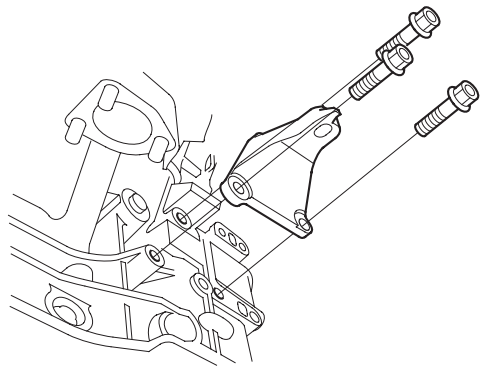


51. Remove the intermediate shaft.

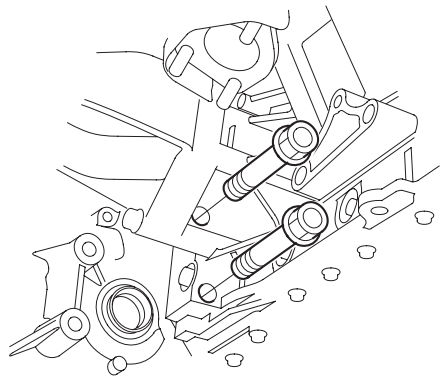


52. Coat all precision finished surfaces with clean engine oil, then tie plastic bags over both ends of the intermediate shaft.

53. Remove the front mount bracket.



54. Remove the transmission housing mounting bolts.



(cont'd)

Transmission Removal (cont'd)

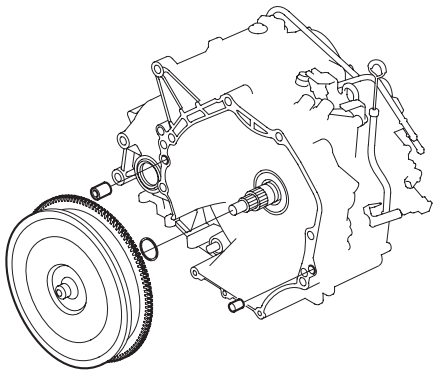
55. Lower the transmission, and tilt the engine just enough for the transmission to clear its end cover from the side frame.

56. Place a transmission jack under the transmission.

57. Pull the transmission away from the engine until it clears the dowel pins, then lower it on the transmission jack.

    NOTE: If the torque converter is stuck to the drive plate, pull it toward the transmission housing from the starter opening.

58. Remove the shift cable cover, then remove the torque converter assembly from the torque converter housing.

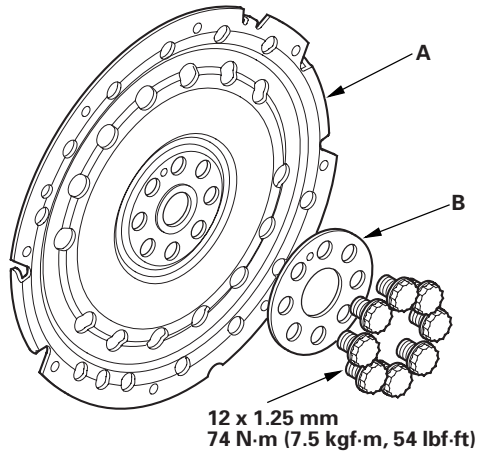


59. Inspect the drive plate, and replace it if it's damaged.

60. Remove the 6 x 1.0 x 14 mm bolt that you installed on the shift cable cover in step 31.

Drive Plate Removal and Installation

1. Remove the drive plate (A) and washer (B) from the engine crankshaft

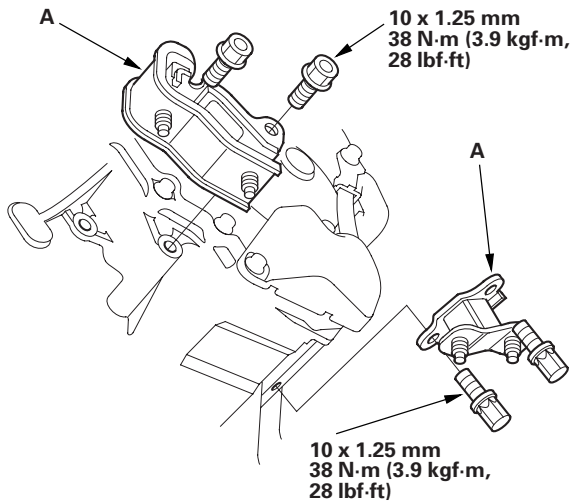


2. Install the drive plate and washer on the engine crankshaft, and tighten the eight bolts in a crisscross pattern.

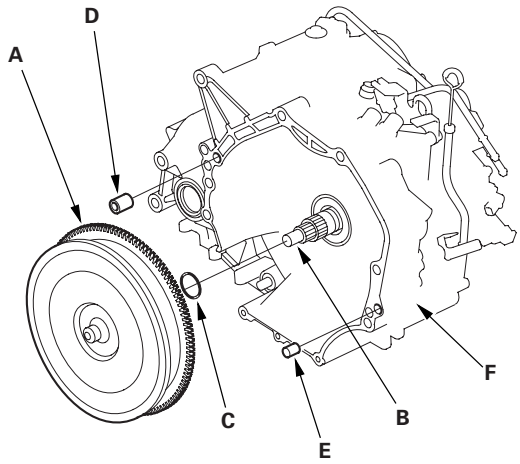
Transmission Installation

1. Flush the ATF cooler (see page 14-155).

2. Install the transmission lower mounts (A).



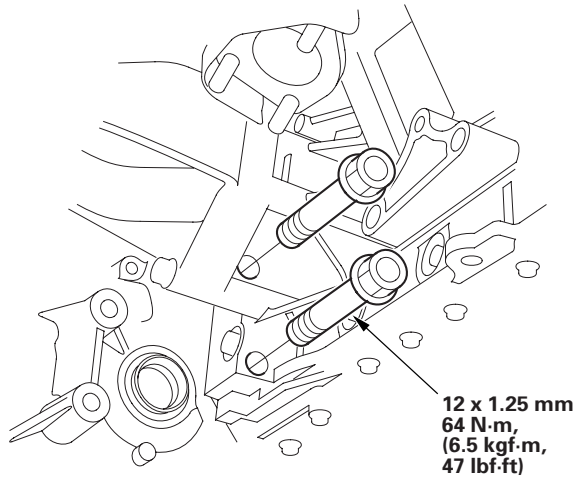
3. Install the torque converter assembly (A) on the mainshaft (B) with a new O-ring (C).



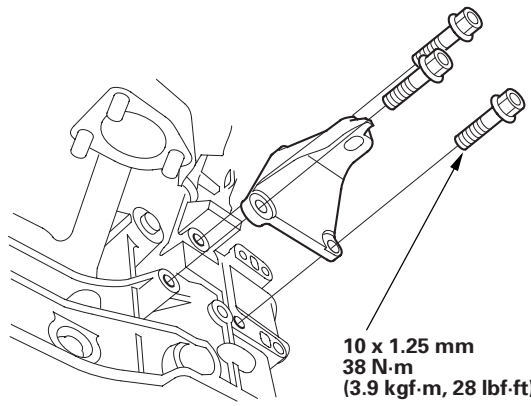
4. Install the 14 mm dowel pin (D) and 10 mm dowel pin (E) in the torque converter housing (F).

5. Place the transmission on a jack, and raise it to engine level.

6. Attach the transmission to the engine, then install the transmission housing mounting bolts.



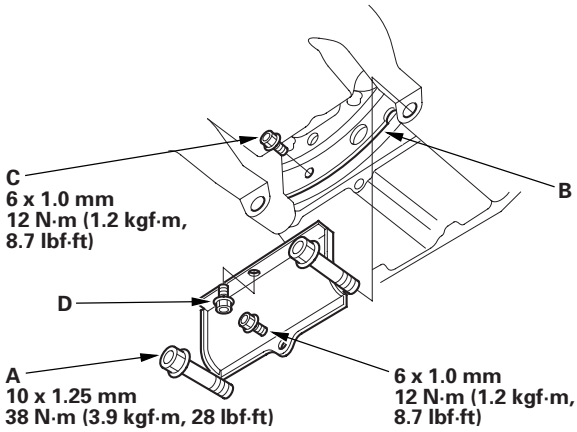
7. Install the front mount bracket.



(cont'd)

Transmission Installation (cont'd)

8. Install the engine stiffener mounting bolts (A).

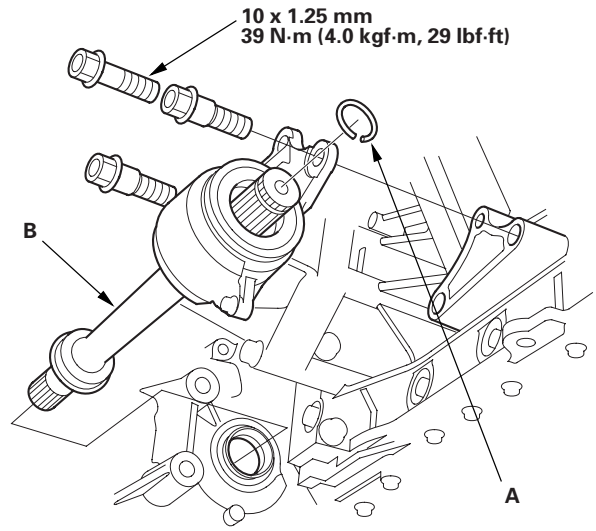


9. Attach the torque converter to the drive plate (B) with eight bolts (C). Rotate the crankshaft pulley as necessary to tighten the bolts to 1/2 of the specified torque, then to the final torque, in a crisscross pattern. After tightening the last bolt, check that the crankshaft rotates freely.

10. Install the torque converter cover (D).

11. Tighten the crankshaft pulley bolt as necessary (see page 6-18).

12. Install new set ring (A) on the intermediate shaft (B).



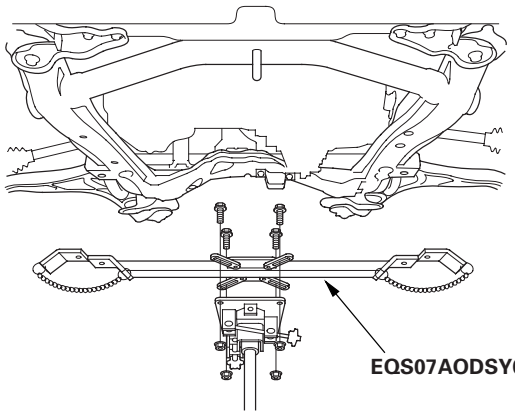
13. Clean the areas where the intermediate shaft contacts the transmission (differential) with solvent or carburetor cleaner, and dry with compressed air. Then install the intermediate shaft in the differential. While installing the intermediate shaft, be sure not to allow dust or other foreign particles to enter the transmission.

14. Install a new set ring on the right driveshaft.

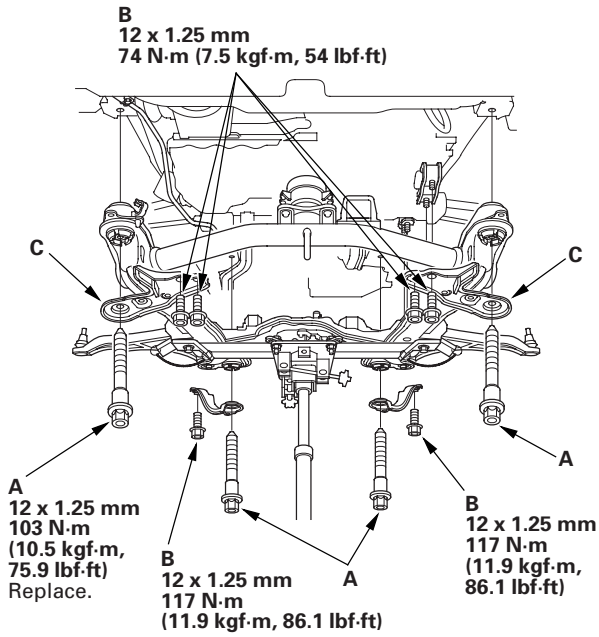
15. Install the right and left driveshaft. While installing the left driveshaft in the differential, be sure not to allow dust or other foreign particles to enter the transmission.

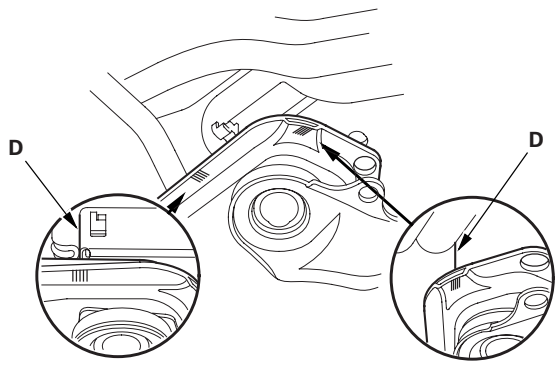
    NOTE:
    - Clean the areas where the left driveshaft contacts the transmission (differential) with solvent or carburetor cleaner, and dry with compressed air.
    - Turn the right and left steering knuckle fully outward, and slide the left driveshaft into the differential until you feel its spring clip engage the side gear. Slide the right driveshaft into the intermediate shaft until you feel its spring clip engage the intermediate shaft.

16. Support the front subframe with the front subframe adapter (T/N EQS07AODSY0) and a jack, and lift it up the body.



17. Loosely install the subframe mounting bolts (4) (A) and the 12 x 1.25 mm bolts (6) (B) with the stiffeners (C), then tighten the bolts to the specified torque by aligning all reference marks (D).





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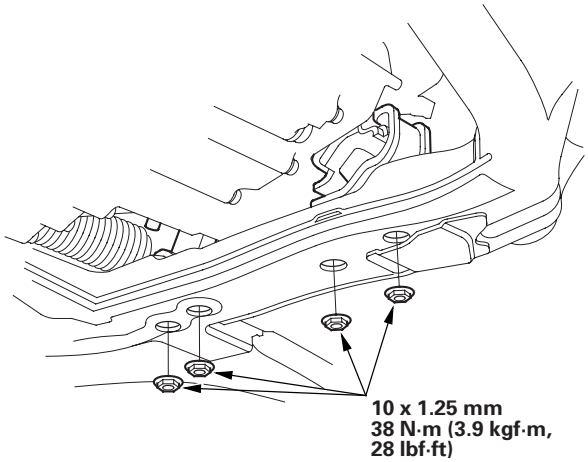
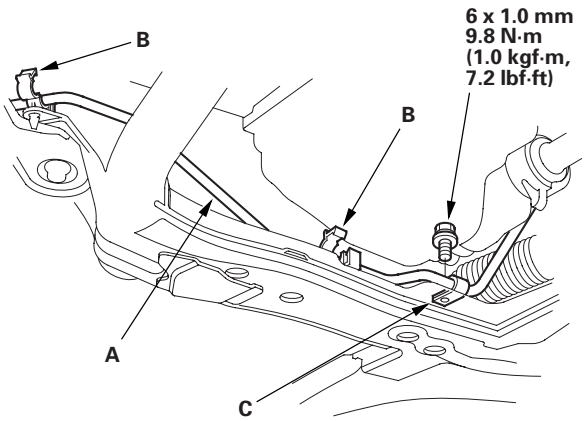
Transmission Installation (cont'd)

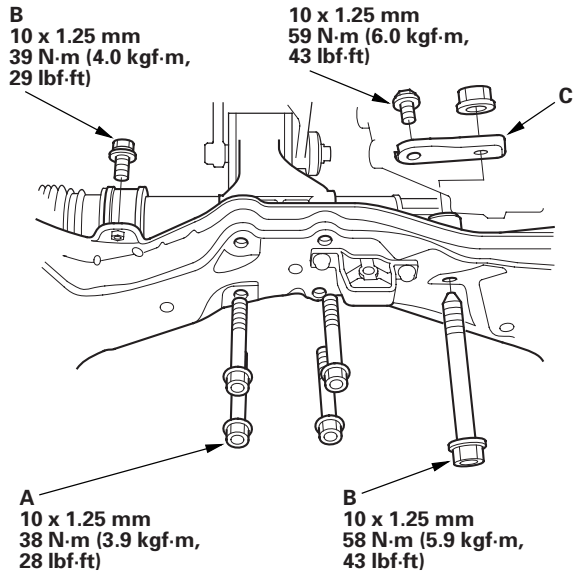
18. Install the transmission lower mount nuts.



19. Install the power steering fluid pipe (A) on the clamps (B), and install the power steering fluid pipe bracket (C).

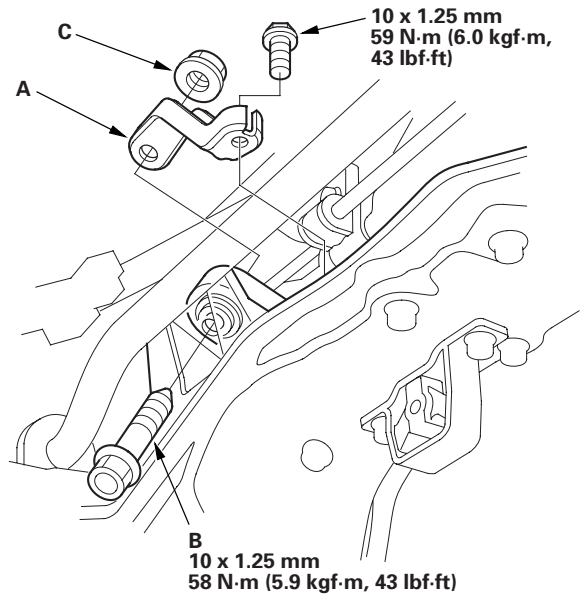


20. Install the rear mount mounting bolts (A).

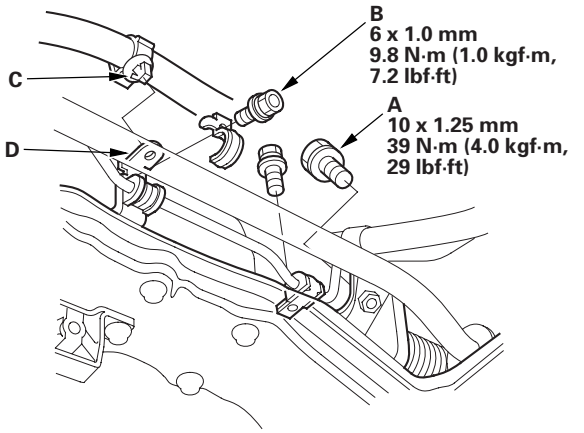


21. Install the steering gearbox mounting bolts (B) and the stiffener (C).

22. Install the stiffener (A) and the steering gearbox mounting bolt (B) with nut (C).

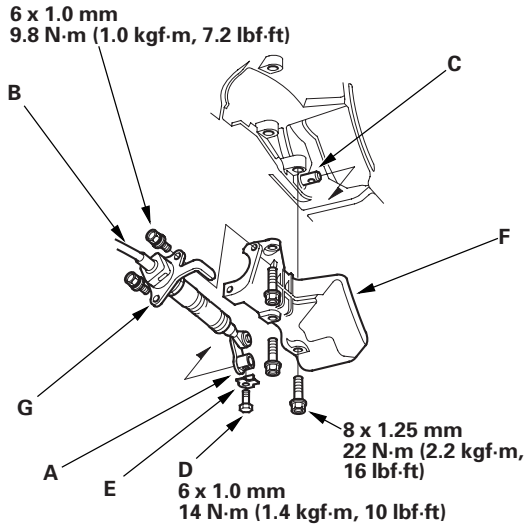


23. Install the steering gearbox mounting bolt (A) and the power steering fluid pipe bracket bolts (B).



24. Install the power steering fluid return hose clip (C) on the bracket (D).

25. Install the control lever (A) with the shift cable (B) on the control shaft (C). Do not bend the shift cable excessively.

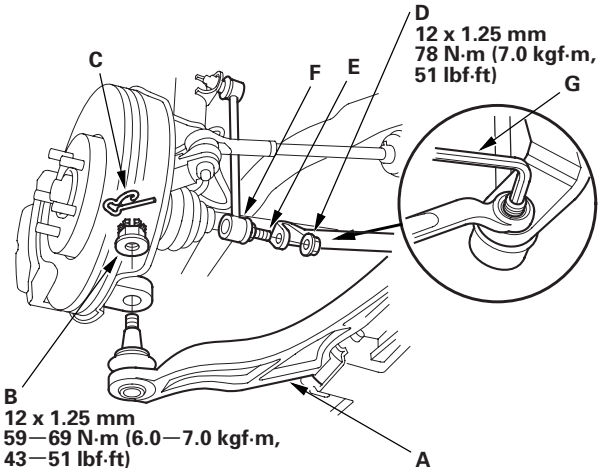


26. Install the lock bolt (D) with a new lock washer (E), then bend the lock washer tab against the bolt.

27. Install the shift cable cover (F), then install the shift cable holder (G) on the shift cable cover.

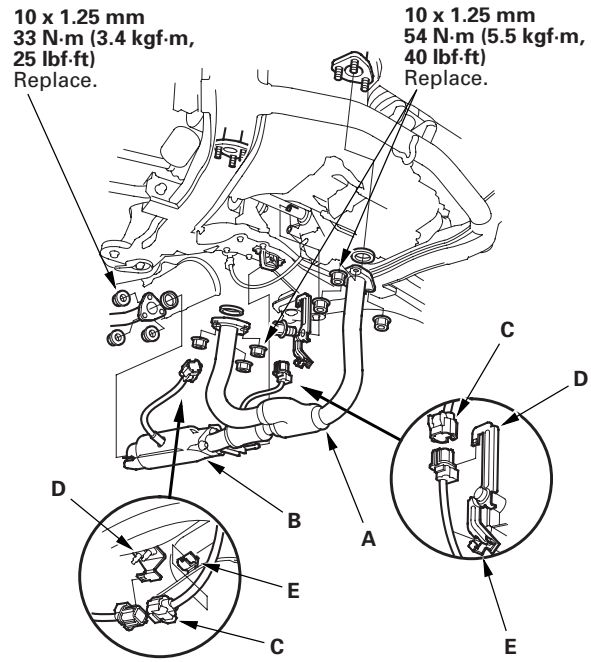
    NOTE: To prevent damage to the control lever, be sure to install the shift cable holder after installing the shift cable cover to the torque converter housing.

28. Install the ball joints on each lower arms (A) with the castle nuts (hex nuts) (B) and spring pins (C).



29. Install the nut (D) to the ball joint pin (E) on the stabilizer link (F), then use a 6 mm Allen-type wrench (G), and tighten the nut to the specified torque.

30. Install the exhaust pipe A (A) and the three way catalytic converter (B) assembly.

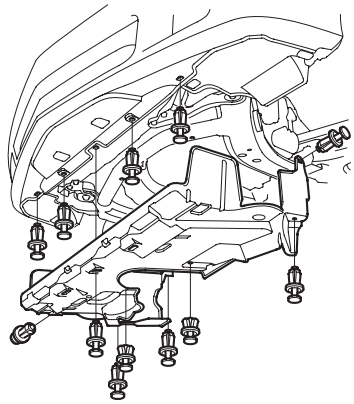


31. Connect the oxygen sensor connectors (C), then install them on their connector brackets (D). Install the harnesses on the clamps (E).

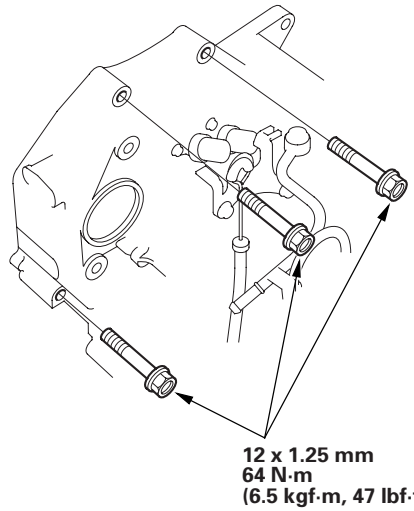
(cont'd)

Transmission Installation (cont'd)

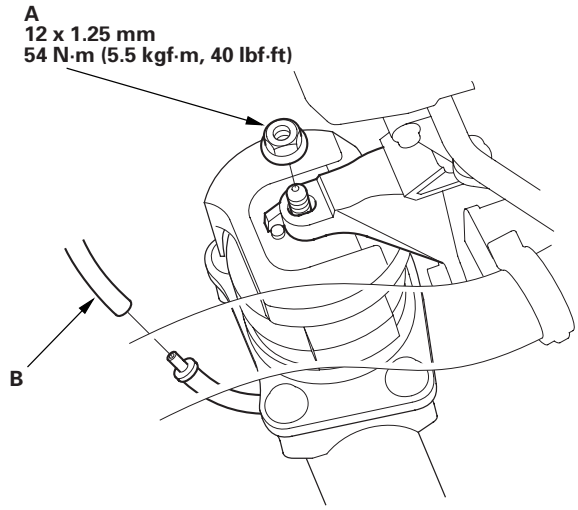
32. Install the splash shield.



33. Install the transmission housing mounting bolts.



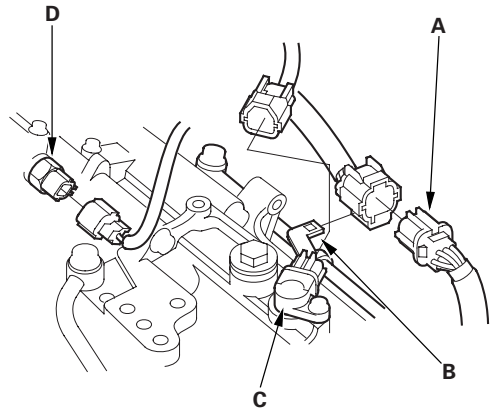
34. Install and tighten the nut (A) on the front mount.



35. Connect the vacuum tube (B).

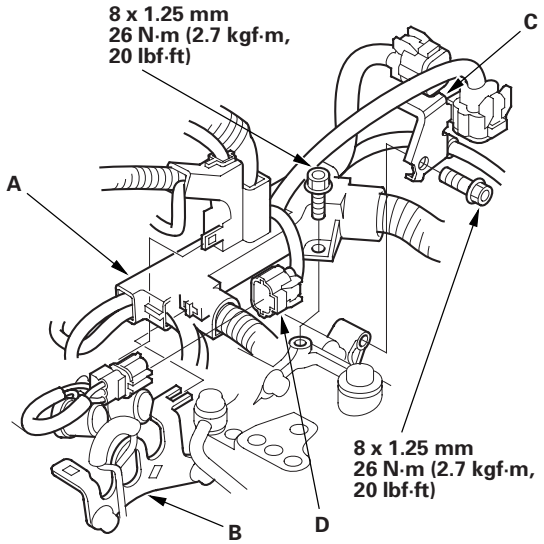
36. Remove the engine hanger.

37. Connect the A/T gear position switch connector (A), then install it on its connector bracket (B).



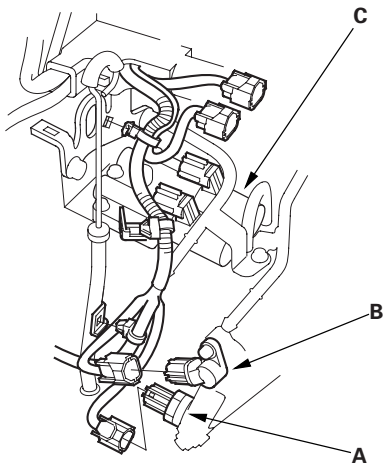
38. Connect the connectors to the countershaft speed sensor (C) and the 2nd clutch pressure switch (D). Do not allow, fluid, oil, dust, or other foreign particles to enter the connectors.

39. Install the harness cover (A) on the transmission hanger (B), then install the connector bracket (C).

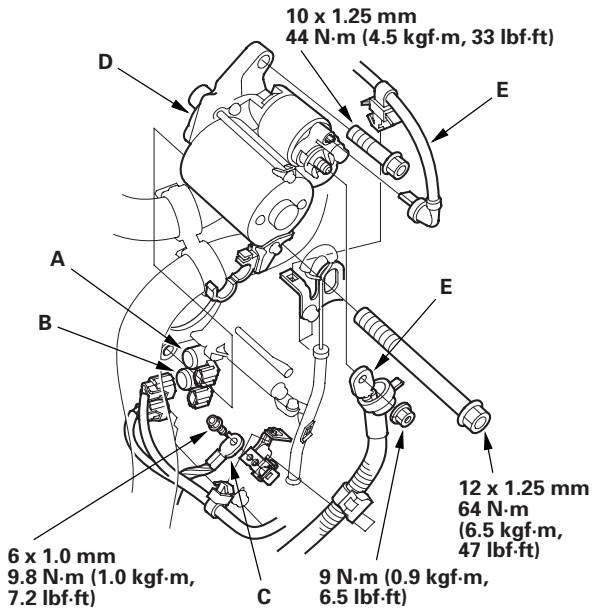


40. Install the torque converter clutch solenoid valve/ shift solenoid valve A connector (D) on the harness cover, then connect the connector.

41. Connect the connectors to the 3rd clutch pressure switch (A), mainshaft speed sensor (B), and A/T clutch pressure control solenoid valves A and B (C), then install the clamps on the clamp brackets. Do not allow fluid, oil, dust, or other foreign particles to enter the connectors.



42. Connect the connectors to the shift solenoid valve B (A) and shift solenoid valve C (B), then install the clamp on the clamp bracket.



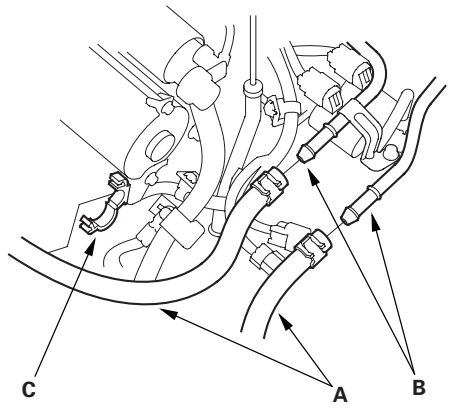
43. Install the transmission ground cable terminal (C).

44. Install the starter (D) on the torque converter housing. Connect the starter cables (E) to the starter, and install the harness clamp on the clamp bracket. Make sure the crimped side of the starter cable ring terminal is facing out.

(cont'd)

Transmission Installation (cont'd)

45. Connect the ATF cooler hoses (A) to the ATF cooler lines (B) (see page 14-156). Clamp the ATF cooler hose with the clamp (C) on the starter.



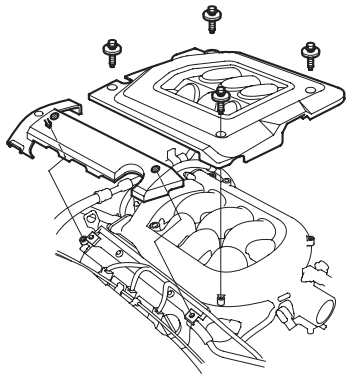
46. Install the battery base bracket and battery base.

47. Install the battery cable clamps, connector, and relay bracket on the battery base.

48. Install the battery tray and battery, then secure the battery with its hold-down bracket.

49. Install the intake air duct, resonator cover, and air cleaner housing assembly.

50. Install the engine covers.



51. Refill the transmission with ATF (see step 5 on page 14-137).

52. Connect the battery positive terminal, then connect the negative terminal.

53. Set the parking brake. Start the engine, and shift the transmission through all gears three times.

54. Check the shift lever operation, A/T gear position indicator operation, and shift cable adjustment.

55. Check and adjust the front wheel alignment (see page 18-5).

56. Reinstall the support rod of the hood to the proper location, and secure the windshield washer reservoir opening with the bolt.

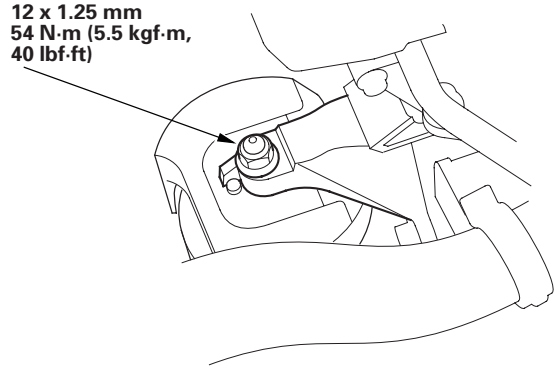
57. Start the engine and let it reach normal operating temperature (the radiator fan comes on) with the transmission in the P or N position, then turn it off and check the ATF level (see page 14-136).

58. Do the PCM idle learn procedure (see page 11-202).

59. Do a road test (see page 14-125).

60. Enter the anti-theft code for the radio, then enter the radio station presets, and set the clock.

61. Loosen the front mount nut after the road test, then retighten the nut to the specified torque.



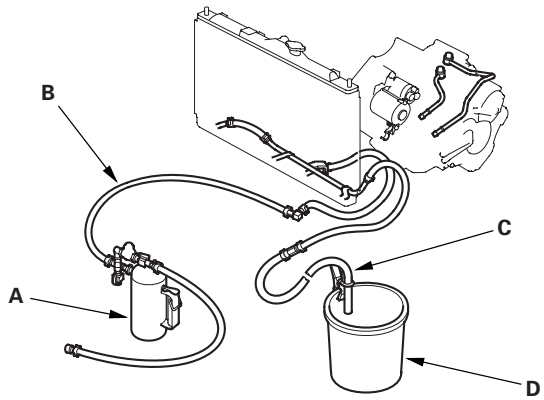
ATF Cooler Flushing

Special Tools Required
Commercially Available Transmission Cooler Flusher
Kent-Moore J38405-A or equivalent

This procedure should be performed before reinstalling the transmission.

1. Check equipment for wear and cracks before using. Replace any worn or cracked components.

2. Using the measuring cup, fill the flusher (A) with 21 ounces (approximately 2/3 full) of biodegradable flushing fluid (J35944-20). Do not substitute with any other fluid. Follow the handling procedure on the fluid container.



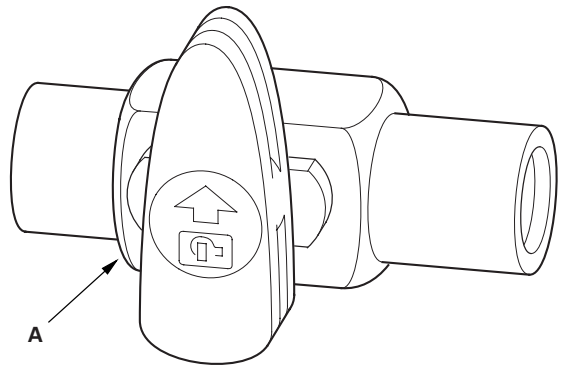
3. Secure the flusher filler cap, and pressurize the flusher with compressed air to 550—829 kPa (5.6—8.45 kgf/cm^2, 80—120 psi). The air line should be equipped with a water trap to ensure a dry air system.

4. Hang the flusher under the vehicle.

5. Attach the flusher discharge hose (B) to the return line of the ATF cooler using a clamp.

6. Connect the drain hose (C) to the inlet line on the ATF cooler using a clamp. Securely clamp the opposite end of the drain hose to a bucket (D) or floor drain.

7. With the water and air valves (A) off, attach the water and air supplies to the flusher. (Hot water if available.)



8. Turn on the water valve for 10 seconds. If water does not flow through the cooler, it is completely plugged, cannot be flushed, and must be replaced.

9. Press the trigger to mix the flushing fluid into the water flow. Use the wire clip to hold the trigger down.

10. While flushing with the water and flushing fluid for two minutes, turn the air valve on for five seconds every 15—20 seconds to create a surging action.

    Air Pressure: MAX 845 kPa (8.45 kgf/cm^2, 120 psi)

11. Turn the water valve off. Release the trigger, then reverse the hoses to the cooler so you can flush in the opposite direction. Repeat step 8 through 10.

12. Release the trigger, and rinse the cooler with water for one minute.

13. Turn the water valve and the water supply off.

14. Turn the air valve on for two minutes, or until no moisture is visible leaving the drain hose. Residual moisture in the cooler or lines can damage the transmission.

15. Remove the flusher from the cooler line. Attach the drain hose to an ATF container.

16. Install the transmission, and leave the drain hose attached to the cooler line.

(cont'd)

ATF Cooler Flushing (cont'd)

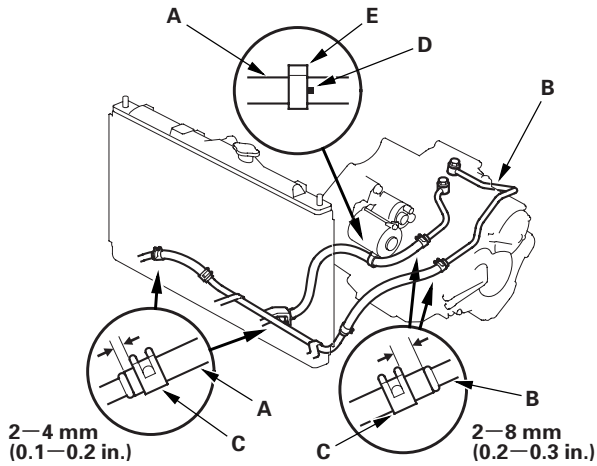
17. Make sure the transmission is in the P position. Fill the transmission with ATF, and run the engine for 30 seconds or until approximately 0.95 ℓ (1.0 US qt) is discharged.

18. Remove the drain hose, and reconnect the cooler return hose to the transmission.

19. Refill the transmission with ATF to the proper level (see step 5 on page 14-137).

ATF Cooler Hose Replacement

1. Connect the cooler hoses (A) to the lines (B) and the ATF cooler, and secure them with the clips (C).



2. Clamp the ATF cooler hose with the yellow mark (D) on the clamp (E).

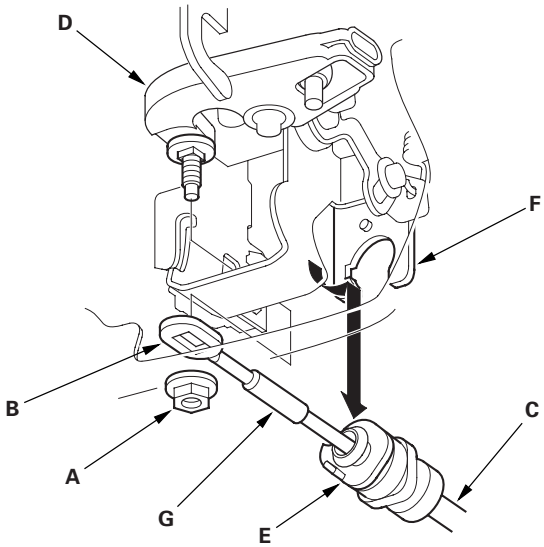
Shift Lever Removal

SRS components are located in this area. Review the SRS component locations (see page 23-18), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the steering column upper and lower covers (see page 17-25).

2. Shift the transmission into the N position.

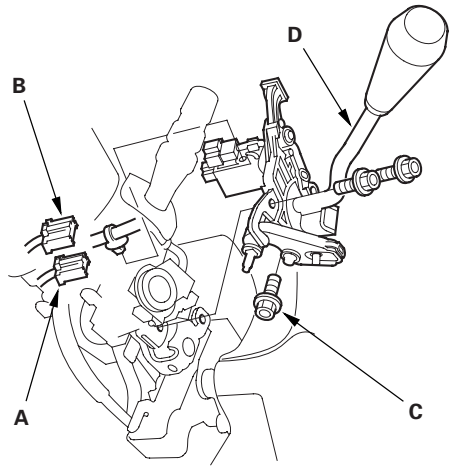
3. Remove the nut (A) securing the shift cable end (B), then separate the shift cable (C) from the shift lever assembly (D).



4. Rotate the socket holder (E) on the shift cable counterclockwise a quarter turn, then slide the holder to remove the shift cable from the shift cable bracket (F).

   NOTE: Do not remove the shift cable by twisting the shift cable guide (G).

5. Disconnect the shift lock solenoid connector (A) and the park pin switch connector (B).

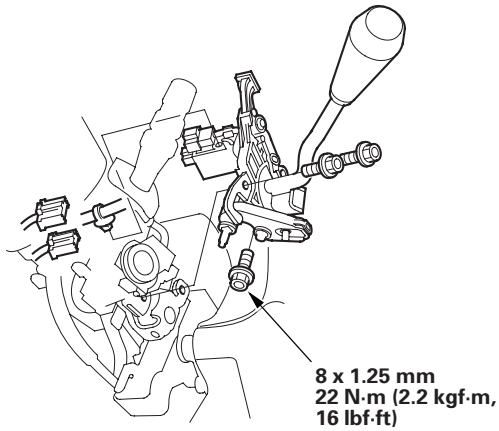


6. Remove the three bolts (C) securing the shift lever assembly, then remove the shift lever assembly (D).

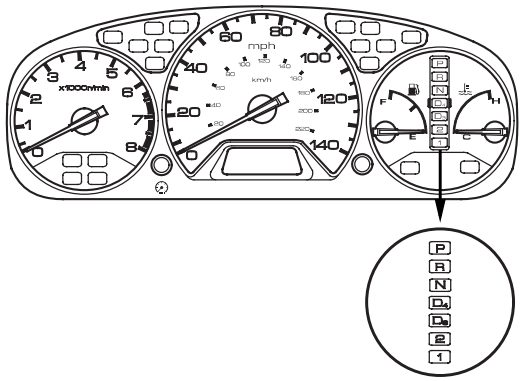
Shift Lever Installation

SRS components are located in this area. Review the SRS component locations (see page 23-18), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Install the shift lever assembly on the steering column.



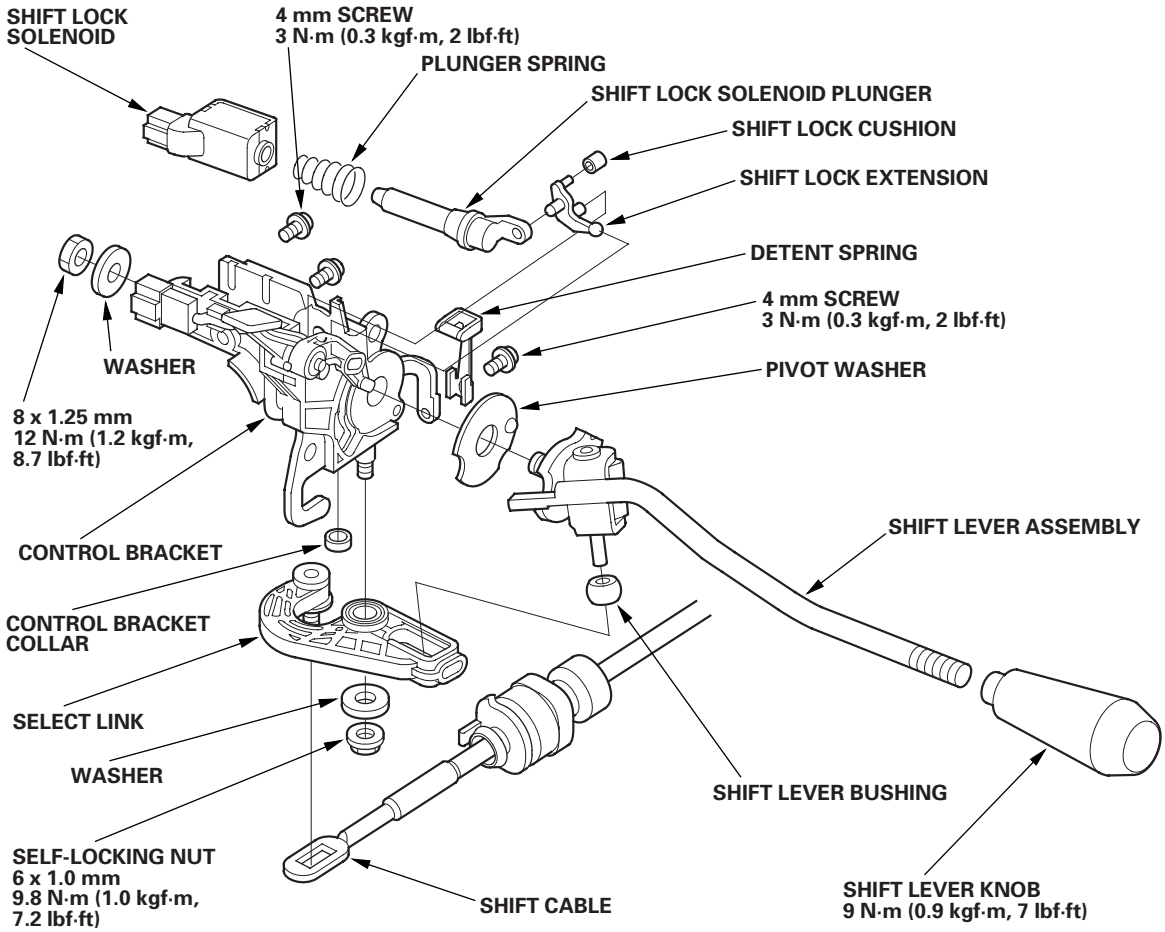
2. Turn the ignition switch ON (II), and verify that the N position indicator comes on.



3. Install the shift cable end to the shift lever. If necessary, adjust the shift cable (see step 5 on page 14-162).

Shift Lever Disassembly/Reassembly

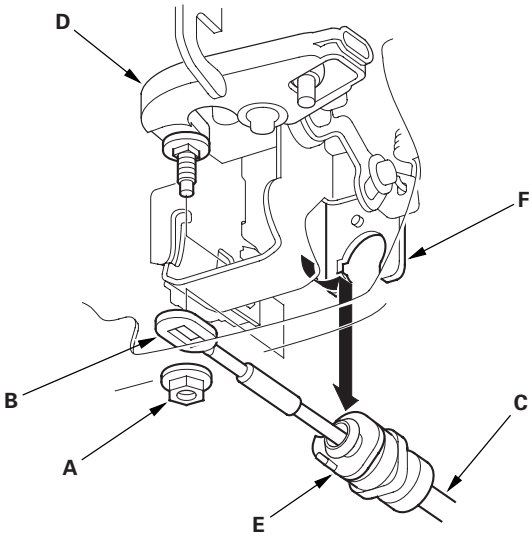
Apply silicone grease to these parts:
- Sliding surfaces on the detent plate.
- Sliding area on shift lever and control bracket.
- Movable parts of the shift lock mechanism.
- Select link and shift lever contacting area.
- Select link and control bracket contacting area.
- One side of washer opposite of the self-locking nut.
- Pivot washer.
- Shift lever bushing.



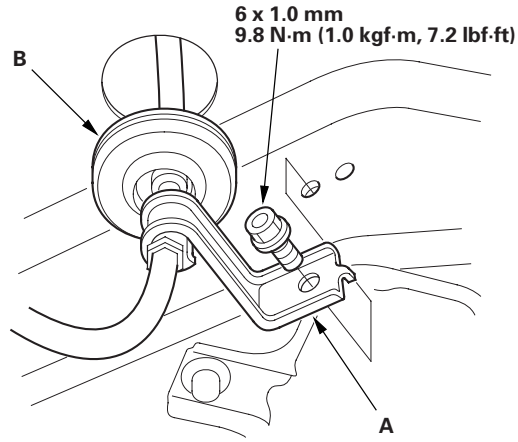
Shift Cable Replacement

SRS components are located in this area. Review the SRS component locations (see page 23-18), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Raise the front of the vehicle, and make sure it is securely supported.
2. Set the parking brake, and block the rear wheels securely.
3. Remove the steering column covers (see page 17-25).
4. Shift the transmission into the N position.
5. Remove the nut (A) securing the shift cable end (B), then separate the shift cable (C) from the shift lever assembly (D).

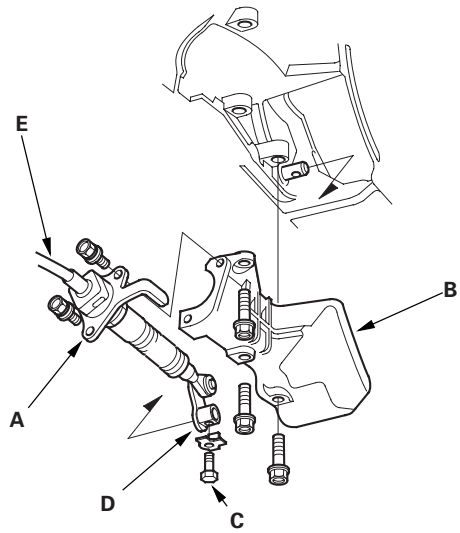


6. Rotate the socket holder (E) on the shift cable counterclockwise a quarter turn, then slide the holder to remove the shift cable from the shift cable bracket (F).
7. Remove the shift cable guide bracket (A) and grommet (B).



8. Remove the bolts securing the shift cable holder (A), then remove the shift cable cover (B).

   NOTE: To prevent damage to the control lever joint, remove the bolts securing the shift cable holder before removing the bolts securing the shift cable cover.

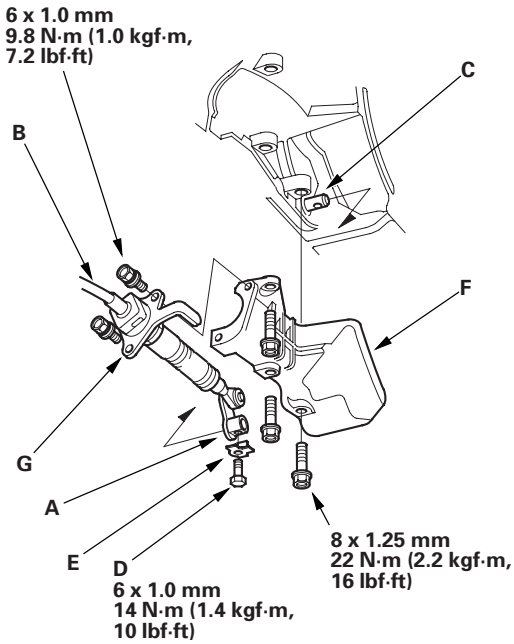


9. Remove the lock bolt (C) securing the control lever (D), then remove the shift cable (E) with the control lever.

10. Insert the new shift cable through the grommet hole, then install the shift cable guide bracket.

11. Verify that the transmission is in the N position on the control shaft.

12. Install the control lever (A) with the shift cable (B) on the control shaft (C). Do not bend the shift cable excessively.



13. Install the lock bolt (D) with a new lock washer (E), then bend the lock washer tab against the bolt head.

14. Install the shift cable cover (F), then install the shift cable holder (G) on the shift cable cover.

    NOTE: To prevent damage to the control lever joint, be sure to install the shift cable holder after installing the shift cable cover to the torque converter housing.

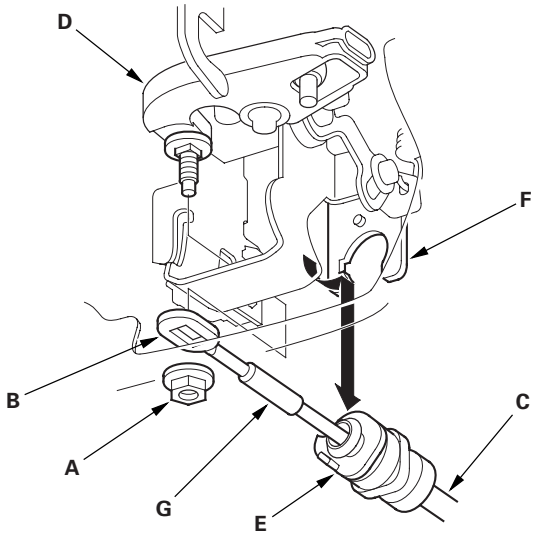
15. Turn the ignition switch ON (II), and verify that the N position indicator comes on.

16. Install the shift cable end to the shift cable. If necessary, adjust the shift cable (see step 5 on page 14-162).

Shift Cable Adjustment

SRS components are located in this area. Review the SRS component locations (see page 23-18), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

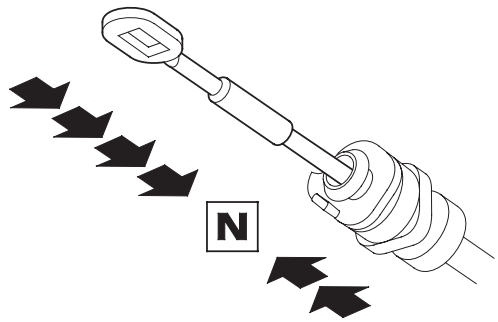
1. Remove the steering column covers (see page 17-25).
2. Shift the transmission into the N position.
3. Remove the nut (A) securing the shift cable end (B), then separate the shift cable (C) from the shift lever assembly (D).



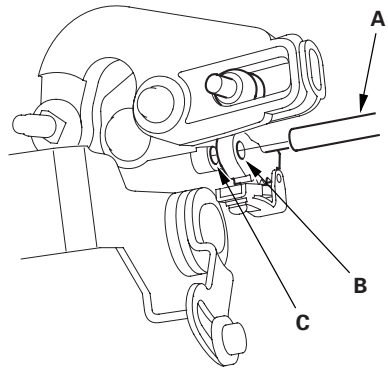
4. Rotate the socket holder (E) on the shift cable counterclockwise a quarter turn, then slide the holder to remove the shift cable from the shift cable bracket (F).

   NOTE: Do not remove the shift cable by twisting the shift cable guide (G).

5. Push the shift cable until it stops, then release it. Pull the shift cable back two steps so that the shift lever position is in the N.

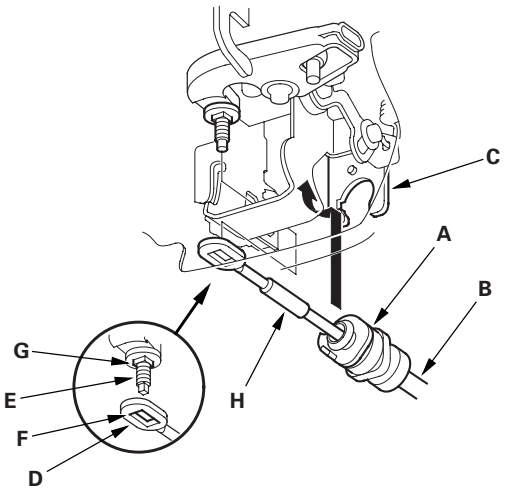


6. Turn the ignition switch ON (II), and verify that the N position indicator comes on.
7. Turn the ignition switch OFF.
8. Insert a 6.0 mm (0.24 in.) pin (A) through the positioning hole (B) on the detent plate and into the positioning hole (C) on the control bracket.



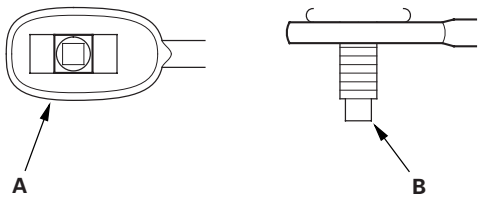
9. Align the socket holder (A) on the shift cable (B) with the slot in the shift cable bracket (C), then slide the holder into the bracket. Install the shift cable end (D) over the mounting stud (E) by aligning its square hole (F) with the square fitting (G) at the bottom of the stud, and rotate the holder clockwise a quarter turn to secure the shift cable.

   NOTE: Do not install the shift cable by twisting the shift cable guide (H).

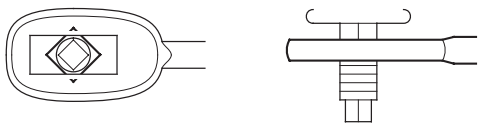


10. Verify that the shift cable end (A) is properly installed on the mounting stud (B).

Properly Installed:



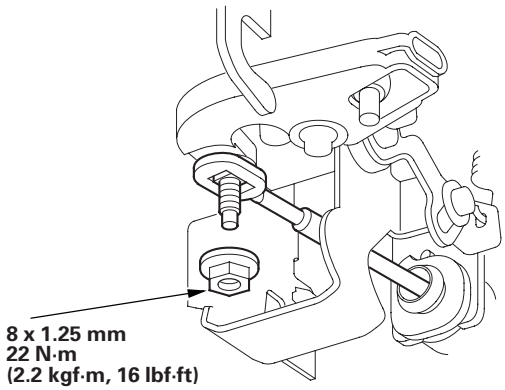
Improperly Installed:



Cable end rides on the bottom of the mounting stud.

11. If improperly installed, remove the shift cable from the shift cable bracket, and reinstalled the shift cable. Do not install the shift cable end on the mounting stud while the shift cable is on the shift cable bracket.

12. Install and tighten the nut to the specified torque.



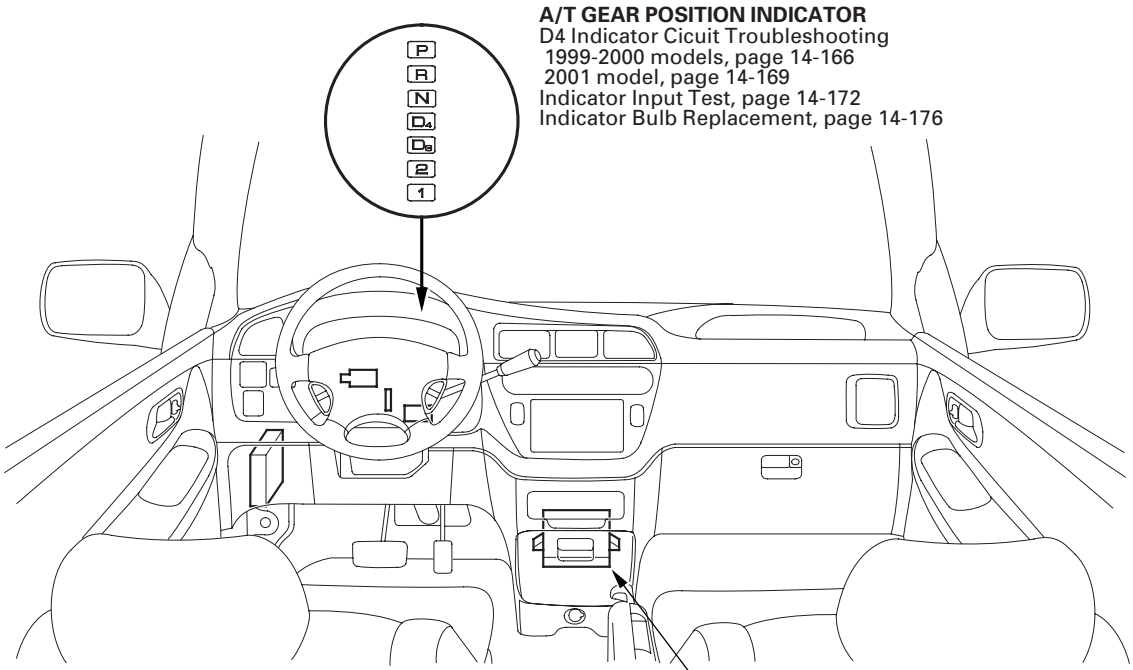
13. Remove the 6.0 mm (0.24 in.) pin that was installed to hold the shift lever.

14. Move the shift lever to each gear, and verify that the A/T gear position indicator follows the transmission range switch.

15. Push the shift lock release, and verify that the shift lever releases.

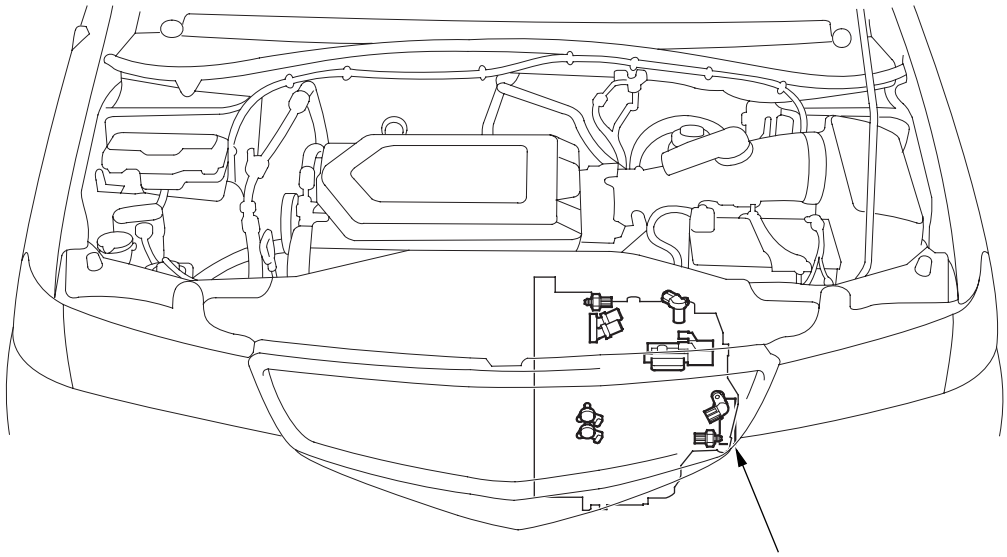
A/T Gear Position Indicator

Component Location Index



A/T GEAR POSITION INDICATOR
D4 Indicator Cicuit Troubleshooting
1999-2000 models, page 14-166
2001 model, page 14-169
Indicator Input Test, page 14-172
Indicator Bulb Replacement, page 14-176

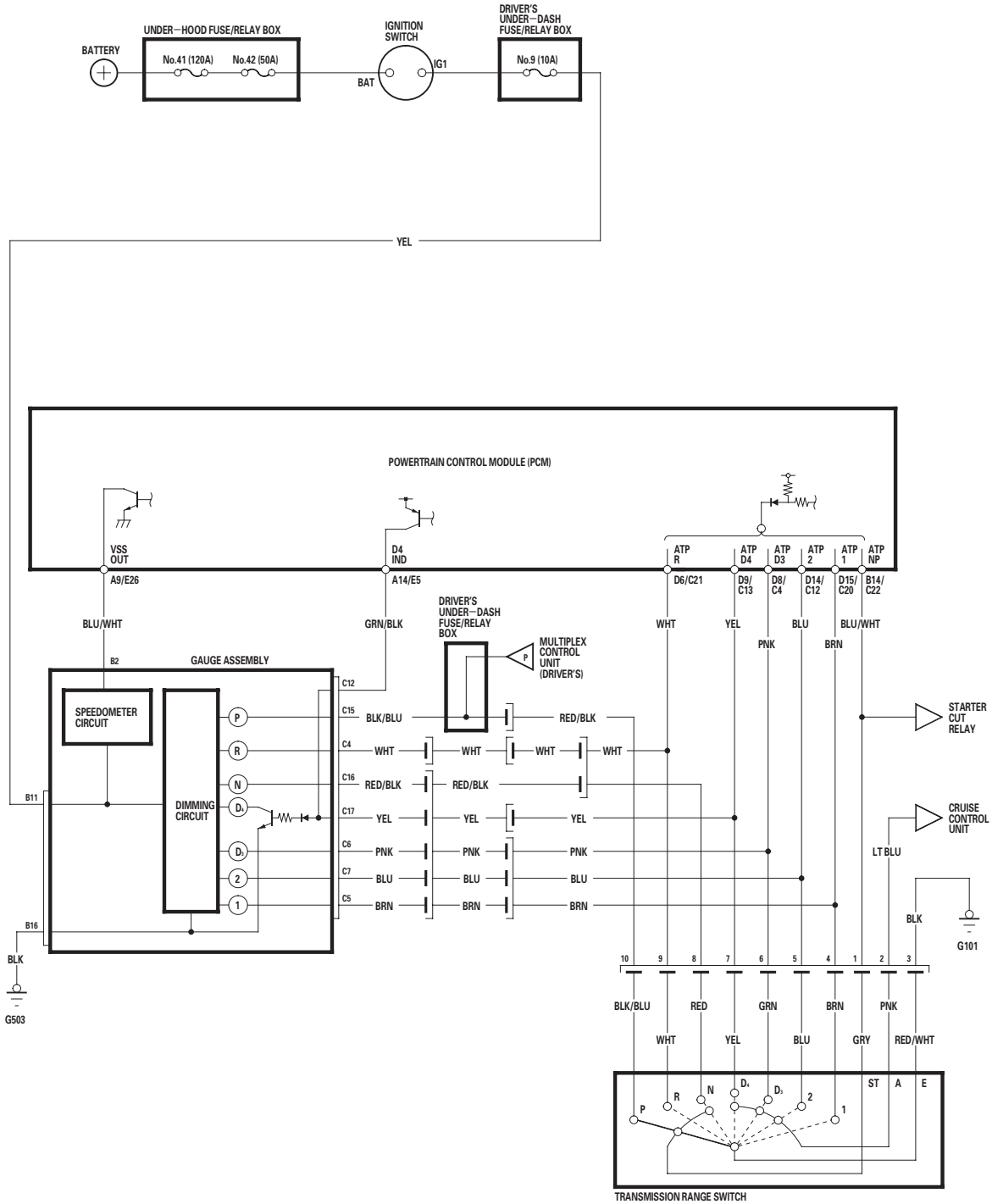
POWERTRAIN CONTROL MODULE (PCM)



TRANSMISSION RANGE SWITCH
Test, page 14-173
Replacement, page 14-174

Circuit Diagram

NOTE: PCM terminal number shows the number of the 1999—2000 models/2001 models.



D4 Indicator Circuit Troubleshooting

1999-2000 Models

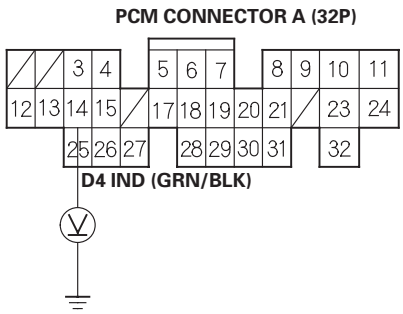
1. Turn the ignition switch ON (II), and watch the D4 indicator.

   Does the D4 indicator come on and stay on?

   YES—Go to step 2.

   NO—If the light comes on for about 2 seconds and then goes off, it's OK. If it doesn't come on at all, go to step 12.

2. Make sure the HDS is not connected to the Data Link Connector (DLC).
3. Turn the ignition switch OFF.
4. Disconnect the A (32P) and D (16P) connectors from the PCM.
5. Turn the ignition switch ON (II).
6. Measure the voltage between the A14 terminal and body ground.



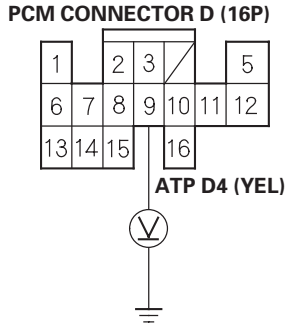
Wire side of female terminals

   Is there voltage?

   YES—Repair short to power in the wire between the A14 terminal and the gauge assembly. ■

   NO—Go to step 7.

7. Turn the ignition switch OFF.
8. Reconnect the A (32P) and D (16P) connectors to the PCM.
9. Turn the ignition switch ON (II).
10. Shift to any position other than D4.
11. Measure the voltage between the D9 terminal and body ground.



Wire side of female terminals

   Is there voltage?

   YES—Faulty PCM or gauge assembly. ■

   NO—Check for a short to ground in the wire between the D9 terminal and the transmission range switch. If the wire is OK, check the transmission range switch. ■

12. Make sure the HDS is not connected to the DLC.
13. Shift to D4 position.

    Does the D4 indicator come on?

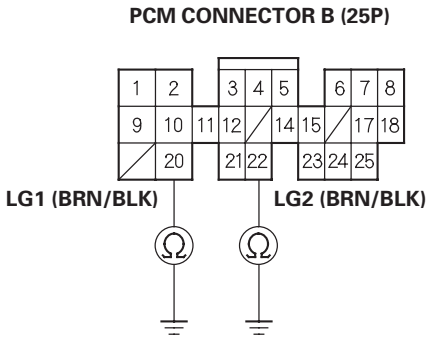
    YES—Check for loose terminal fit in the PCM connectors and recheck the D4 indicator several times. If the problem is intermittent, substitute a known-good PCM and recheck. If the light then works OK every time, replace the original PCM. ■

    NO—Go to step 14.

14. Turn the ignition switch OFF.

15. Disconnect the B (25P) connector from the PCM.

16. Check for continuity between body ground and B20 and B22 terminals.



Wire side of female terminals

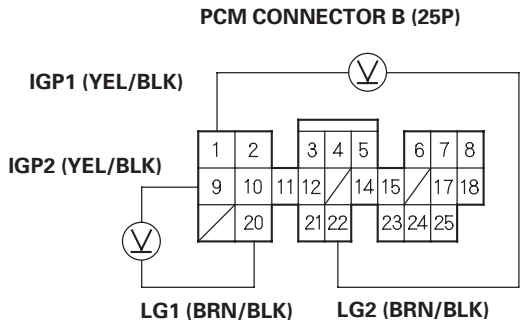
Is there continuity?

YES — Go to step 17.

NO — Repair open in the wire(s) between the B20 or B22 terminal and ground (G101), or repair poor ground (G101). ■

17. Turn the ignition switch ON (II).

18. Measure the voltage between terminals B1 and B22, and between terminals B9 and B20.



Wire side of female terminals

Is there battery voltage?

YES — Go to step 19.

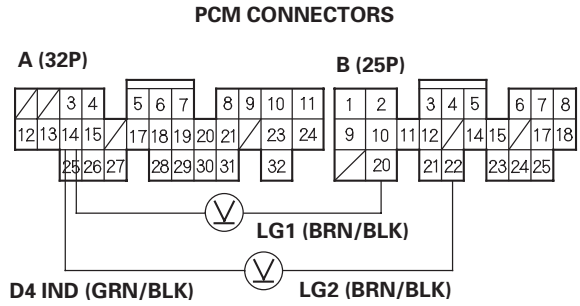
NO — Repair open or short in the wire between the B1 or B9 terminal and the PGM-FI main relay. ■

19. Turn the ignition switch OFF.

20. Reconnect the B (25P) connector to the PCM.

21. Connect the digital multimeter between the A14 and B20 or B22 terminals.

22. Turn the ignition switch ON (II).



Wire side of female terminals

Is there battery voltage for at least 2 seconds?

YES — Check for an open in the wire between the A14 terminal and the gauge assembly. If the wire is OK, check for a faulty D4 indicator bulb or a faulty printed circuit board in the gauge assembly. ■

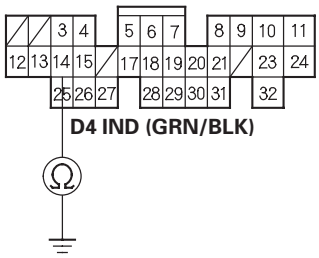
NO — Go to step 23.

(cont'd)

D4 Indicator Circuit Troubleshooting (cont'd)

23. Turn the ignition switch OFF.
24. Disconnect PCM connector A (32P).
25. Check for continuity between the A14 terminal and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between the A14 terminal and the gauge assembly. ■

NO—Check for loose terminal fit in the PCM connectors. Check the A/T gear position switch. If necessary, substitute a known-good PCM and recheck. ■

2001 Model

1. Turn the ignition switch ON (II), and watch the D4 indicator.

   Does the D4 indicator come on and stay on?

   YES—Go to step 2.

   NO—If the light comes on for about 2 seconds and then goes off, it's OK. If it doesn't come on at all, go to step 12.

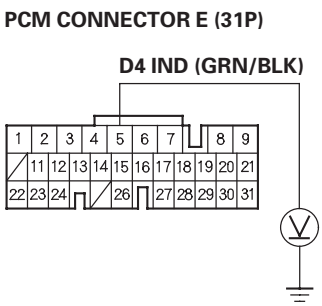
2. Make sure the HDS is not connected to the Data Link Connector (DLC).

3. Turn the ignition switch OFF.

4. Disconnect PCM connector C (22P) and E (31P).

5. Turn the ignition switch ON (II).

6. Measure the voltage between PCM connector E5 terminal and body ground.



Wire side of female terminals

   Is there voltage?

   YES—Repair short to power in the wire between PCM connector terminal E5 and the gauge assembly. ■

   NO—Go to step 7.

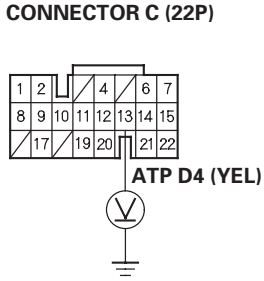
7. Turn the ignition switch OFF.

8. Reconnect PCM connectors C (22P) and E (31P).

9. Turn the ignition switch ON (II).

10. Shift to any position other than D4.

11. Measure the voltage between PCM connector terminal C13 and body ground.



Wire side of female terminals

   Is there voltage?

   YES—Faulty PCM or gauge assembly. ■

   NO—Check for a short to ground in the wire between PCM connector terminal C13 and the transmission range switch. If the wire is OK, check the transmission range switch. ■

12. Make sure the HDS is not connected to the DLC.

13. Shift to D4 position.

   Does the D4 indicator come on?

   YES—Check for loose terminal fit in the PCM connectors and recheck the D4 indicator several times. If the problem is intermittent, substitute a known-good PCM and recheck. If the light then works OK every time, replace the original PCM. ■

   NO—Go to step 14.

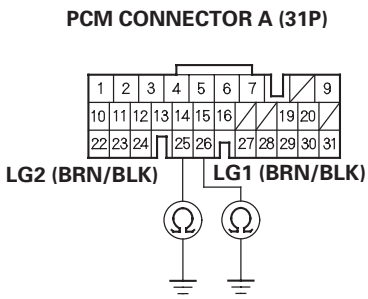
14. Turn the ignition switch OFF.

(cont'd)

D4 Indicator Circuit Troubleshooting (cont'd)

15. Disconnect PCM connector A (31P).

16. Check for continuity between PCM connector terminal A25 and body ground, and between terminal A26 and body ground.



Wire side of female terminals

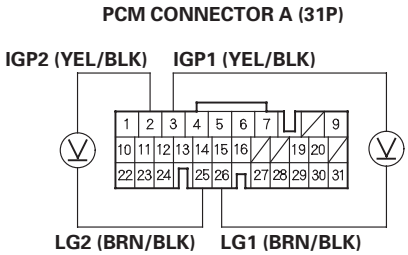
Is there continuity?

YES — Go to step 17.

NO — Repair open in the wire(s) between PCM connector terminals A25 or A26, and ground (G101), or repair poor ground (G101). ■

17. Turn the ignition switch ON (II).

18. Measure the voltage between PCM connector terminals A2 and A25, and between terminals A3 and A26.



Wire side of female terminals

Is there battery voltage?

YES — Go to step 19.

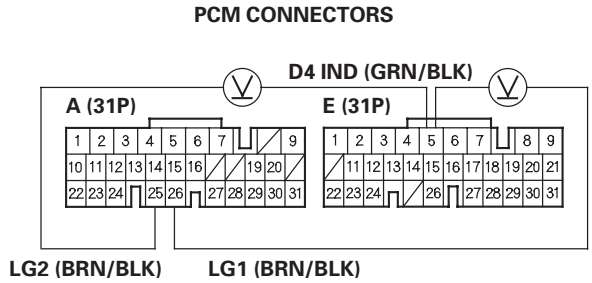
NO — Repair open or short in the wire between PCM connector terminals A2 or A3 and the PGM-FI main relay. ■

19. Turn the ignition switch OFF.

20. Reconnect PCM connector A (31P).

21. Connect the digital multimeter between PCM connector terminals E5 and A25 or A26.

22. Turn the ignition switch ON (II).



Wire side of female terminals

Is there voltage for at least 2 seconds?

YES — Check for an open in the wire between PCM connector terminal E5 and the gauge assembly. If the wire is OK, check for a faulty D4 indicator bulb or a faulty printed circuit board in the gauge assembly. ■

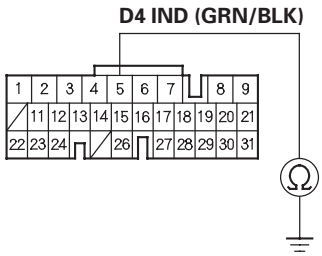
NO — Go to step 23.

23. Turn the ignition switch OFF.

24. Disconnect PCM connector E (31P).

25. Check for continuity between PCM connector terminal E5 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal E5 and the gauge assembly. ■

NO—Check for loose terminal fit in the PCM connectors. Check the transmission range switch. If necessary, substitute a known-good PCM and recheck. ■

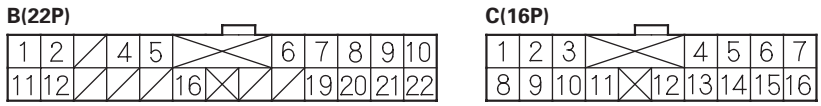
A/T Gear Position Indicator

Indicator Input Test

SRS components are located in this area. Review the SRS component locations (see page 23-18), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the gauge assembly from the dashboard, then disconnect the gauge assembly B (22P) and C (16P) connectors.
2. Inspect the connectors and connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, make the following input tests at the gauge assembly B (22P) and C (16P) connectors.
     – If a test indicates a problem, find a correct the cause, then recheck the system.
     – If all the input tests prove OK, but the indicator is faulty, replace the printed circuit board.

GAUGE ASSEMBLY CONNECTORS



Wire side of female terminals

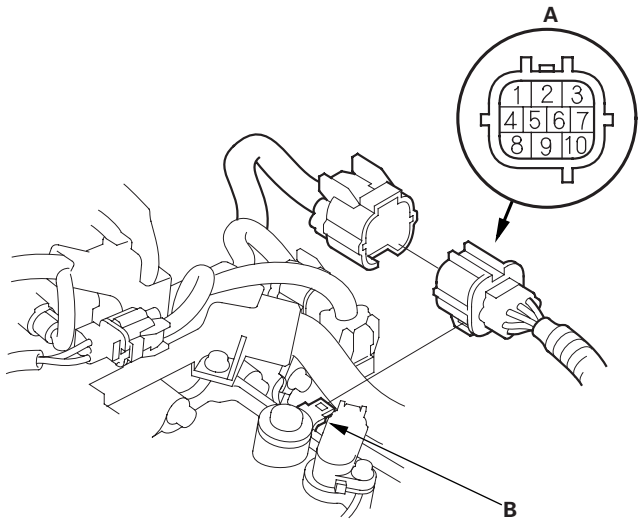
Cavity	Wire Color	Test Condition	Test: Desired Result	Possible Cause (If result is not obtained)
B11	YEL	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • An open in the wire
B16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
B22	RED/BLK	Headlights ON	Check for voltage to ground: There should be battery voltage.	• Blown No. 10 (15A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
C4	WHT	Ignition switch ON (II) and shift lever in R	Check for voltage to ground: There should be 1 V or less. There should be no battery voltage in any other shift lever position.	• Faulty transmission range switch • An open in the wire
C5	BRN	Ignition switch ON (II) and shift lever in 1		
C6	PNK	Ignition switch ON (II) and shift lever in D3		
C7	BLU	Ignition switch ON (II) and shift lever in 2		
C12	GRN/BLK	Ignition switch ON (II) and shift lever in D4	Check for voltage to ground: There should be battery voltage.	• Faulty transmission range switch • Faulty PCM • An open in the wire
C13	YEL	Ignition switch ON (II) and shift lever in D4	Check for voltage to ground: There should be 1 V or less. There should be no battery voltage in any other shift lever position.	• Faulty transmission range switch • An open in the wire
C15	BLK/BLU	Shift lever in P	Check for continuity to ground: There should be no continuity in any other shift lever position.	• Faulty transmission range switch • An open in the wire
C16	RED/BLK	Ignition switch ON (II) and shift lever in N	Check for voltage to ground: There should be 1 V or less. There should be battery voltage in any other shift lever position.	

Transmission Range Switch Test

1. Remove the transmission range switch connector (A) from the connector bracket (B), then disconnect the connector.

2. Check for continuity between the terminals in each switch position according to the table.

   NOTE: Terminal No. 1: Neutral position switch

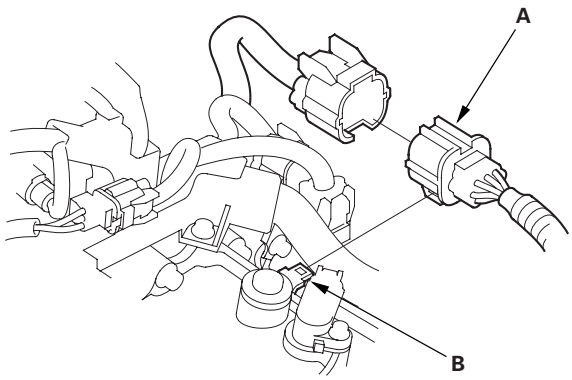


Transmission Range Switch Continuity Check

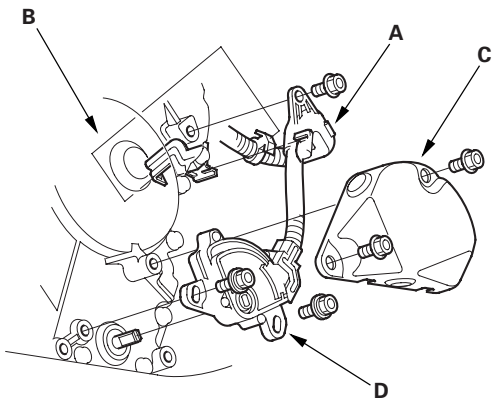
Terminal / Position	1	2	3	4	5	6	7	8	9	10
P	○		○							○
R			○						○	
N	○		○					○		
D4		○	○				○			
D3		○	○			○				
2		○	○		○					
1			○	○						

Transmission Range Switch Replacement

1. Raise the front of the vehicle, and make sure it is securely supported (see page 1-15).
2. Set the parking brake, and block both rear wheels securely.
3. Shift to the N position.
4. Remove the transmission range switch connector (A) from the connector bracket (B), then disconnect the connector.

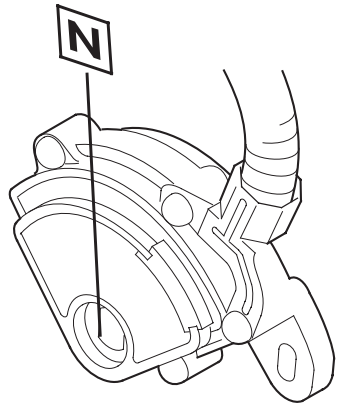


5. Remove the clamp from the harness clamp bracket on the transmission housing, then remove the harness clamp (A) from the end cover (B).

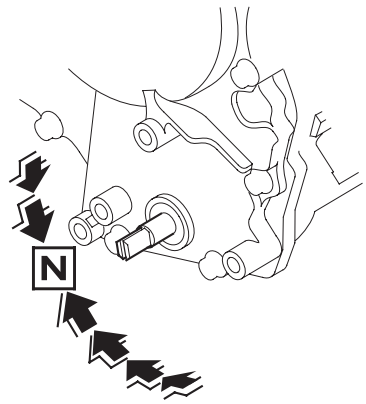


6. Remove the transmission range switch cover (C), then remove the transmission range switch (D) from the end cover.
7. Set the transmission range switch to the N position.

   NOTE: The transmission range switch clicks in the N position.

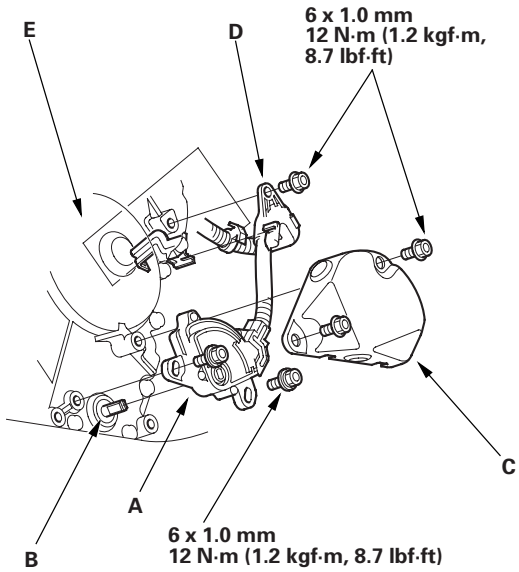


8. Set the control shaft to the N position.



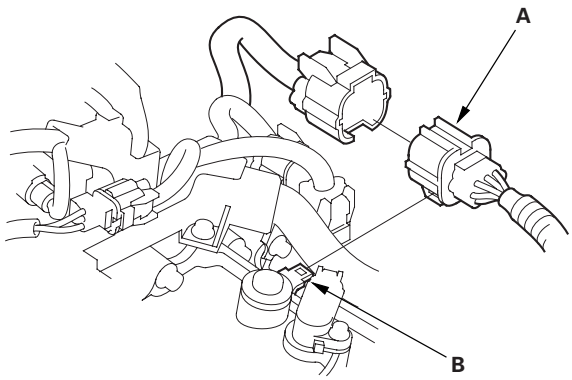
9. Install the transmission range switch (A) gently on the control shaft (B), then secure it with the bolts.

   NOTE: Take care not to move the transmission range switch when tightening the bolts.

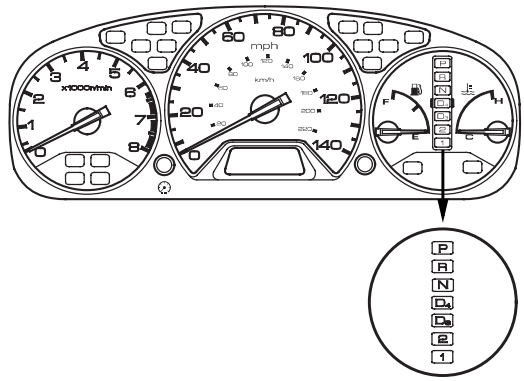


10. Install the transmission range switch cover (C), and the harness clamp (D) on the end cover (E).

11. Connect the transmission range switch connector (A), then install it on the connector bracket (B).



12. Turn the ignition switch ON (II). Move the shift lever through all gears, and check the transmission range switch synchronization with the A/T gear position indicator.



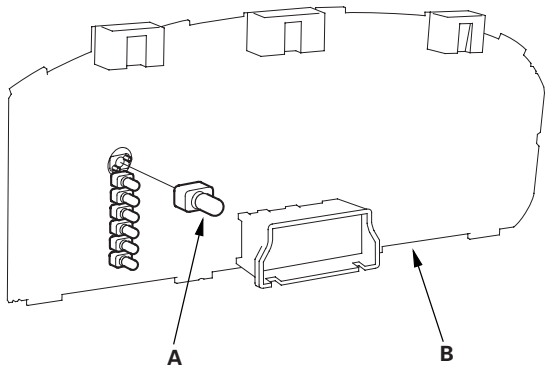
13. Start the engine. Move the shift lever through all gears, and verify the following:

    - The engine will not start in any position, other than the N or P.
    - The back-up lights come on when the shift lever is in the R position.

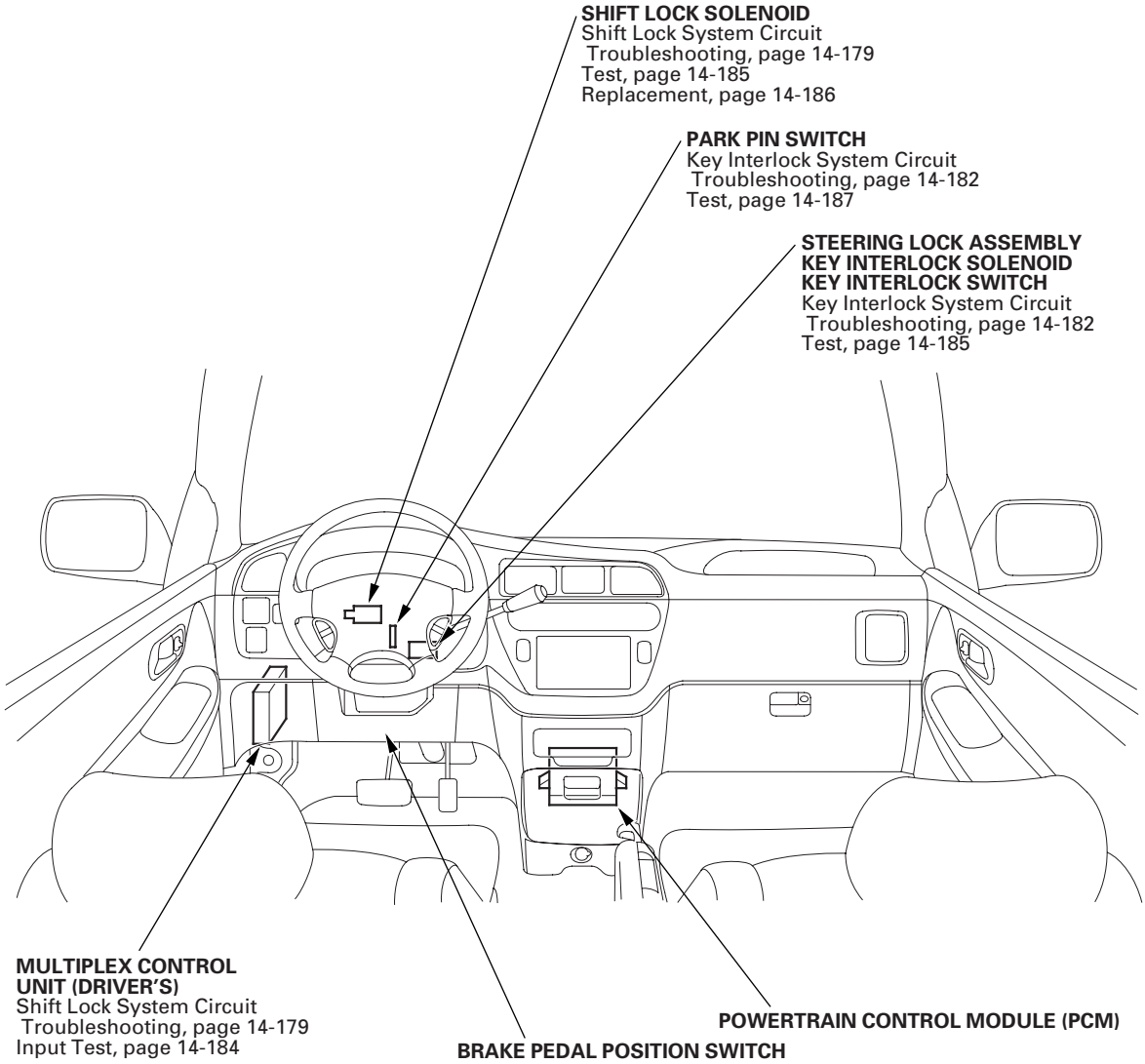
Indicator Bulb Replacement

SRS components are located in this area. Review the SRS component locations (see page 23-18), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the gauge assembly (see page 22-100).
2. Disassemble the gauge assembly.
3. Replace the bulbs (A) at the gauge assembly (B).

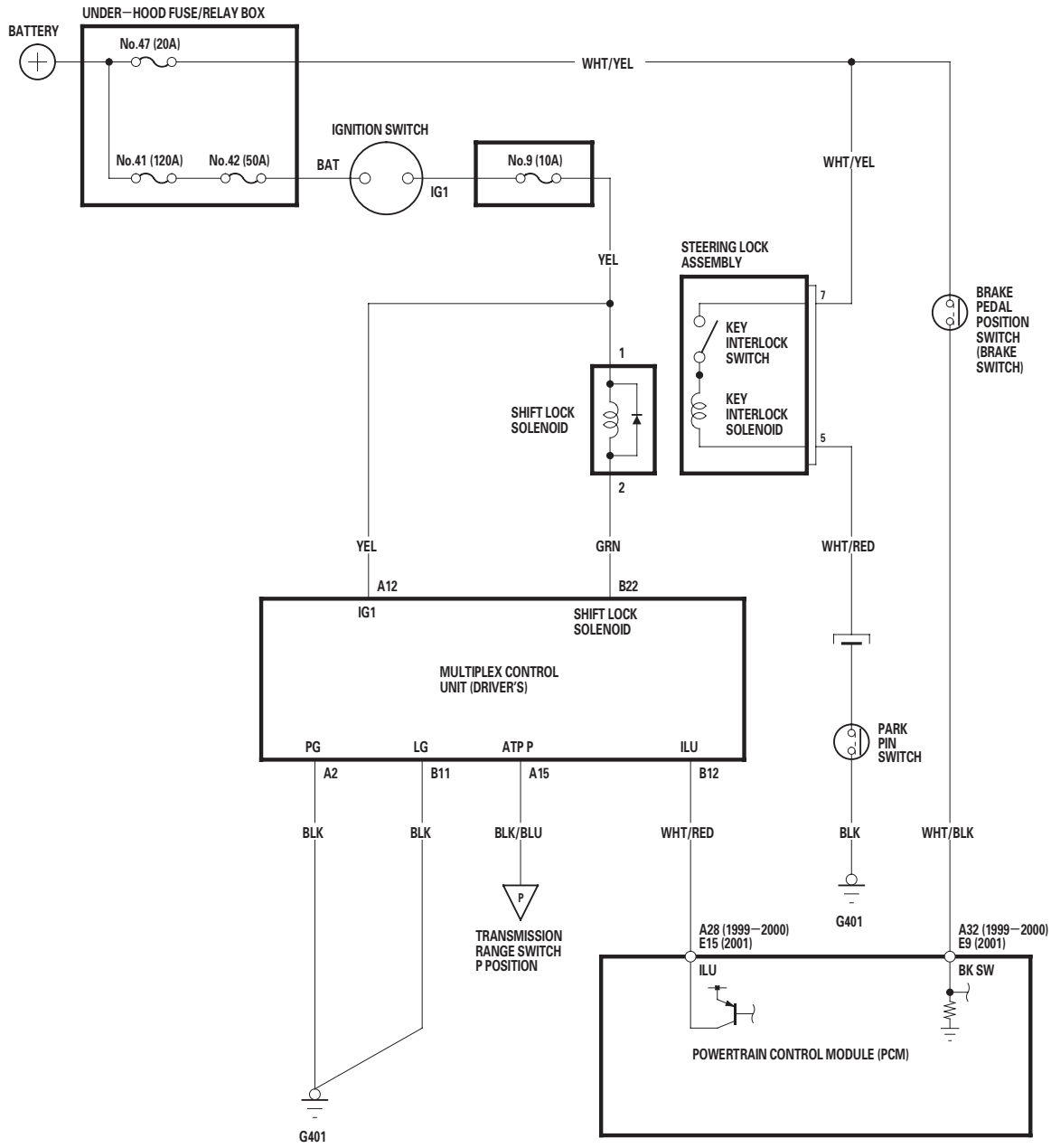


Component Location Index



A/T Interlock System

Circuit Diagram



MULTIPLEX CONTROL UNIT, DRIVER'S CONNECTORS

A (24P)

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal side of male terminals

B (22P)

1		3	4	5					8		
11	12	13	14	15	16		17				22

Wire side of female terminals

Shift Lock System Circuit Troubleshooting

1. Press the brake pedal.

   Are the brake lights ON?

   YES—Go to step 2.

   NO—Repair faulty brake light circuit. ■

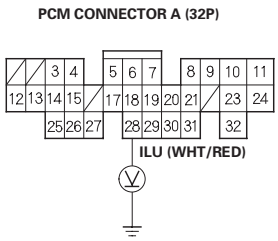
2. Turn the ignition switch ON (II), and shift to P position.

3. Press the brake pedal, and release the accelerator pedal.

4. Measure ILU voltage between these terminals and body ground:

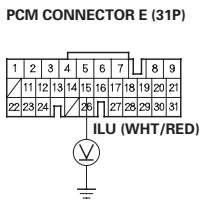
   - 1999-2000 models: Between A28 terminal and ground.
   - 2001 model: Between E15 terminal and ground.

   1999-2000 Models:



Wire side of female terminals

   2001 Model:



Wire side of female terminals

   Is there battery voltage?

   YES—Check for an open in the wire between the A28 terminal (1999-2000 models) or E15 terminal (2001 model) and the multiplex control unit (driver's), and check for loose terminal fit in the multiplex control unit (driver's) connectors. If necessary, substitute a known-good multiplex control unit (driver's) and recheck. ■

   NO—Go to step 5.

5. Turn the ignition switch OFF.

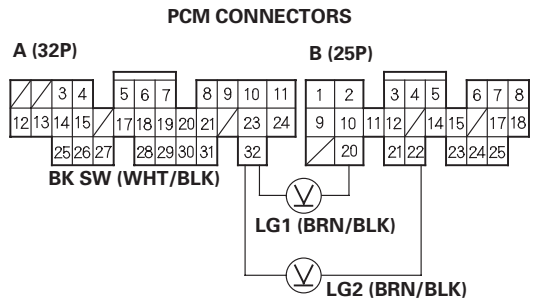
6. Disconnect these connectors from the PCM:

   - 1999-2000 models: A (32P) and B (25P) connectors.
   - 2001 model: A (31P) and E (31P) connectors.

7. Press the brake pedals and measure the voltage between these terminals.

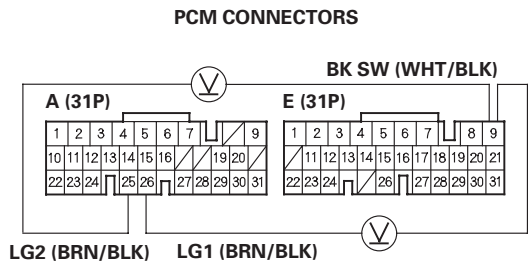
   - 1999-2000 models: Between the A32 and B20 or B22 terminals.
   - 2001 model: Between the E9 and A25 or A26 terminals.

   1999-2000 Models:



Wire side of female terminals

   2001 Model:



Wire side of female terminals

   Is there battery voltage?

   YES—Release the brake pedal and go to step 8.

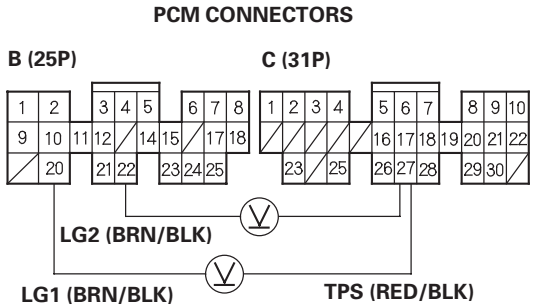
   NO—Repair open in the wire between the A32 terminal (1999-2000 models) or E9 terminal (2001 model) and the brake pedal position switch (brake switch). ■

(cont'd)

Shift Lock System Circuit Troubleshooting (cont'd)

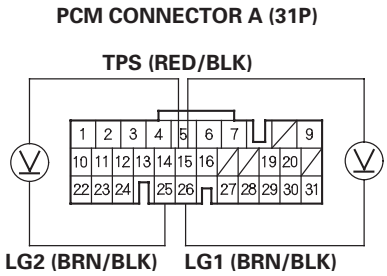
8. Reconnect the disconnected connectors to the PCM.
9. Turn the ignition switch ON (II).
10. Measure the voltage between these terminals:
    - 1999-2000 models: Between the C27 and B20 or B 22 terminals.
    - 2001 model: Between the A15 and A25 or A26 terminals.

1999-2000 Models:



Wire side of female terminals

2001 Model:



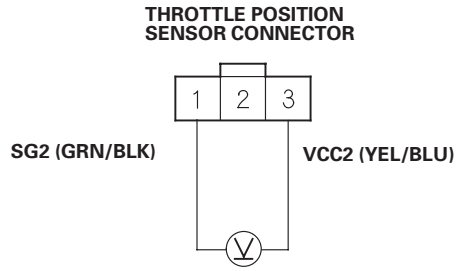
Wire side of female terminals

Is there about 0.5 V (throttle fully closed)?

YES — Go to step 15.

NO — Go to step 11.

11. Turn the ignition switch OFF.
12. Disconnect the TPS connector.
13. Turn the ignition switch ON (II).
14. Measure the voltage between the No. 1 and No. 3 terminals of the TPS connector.



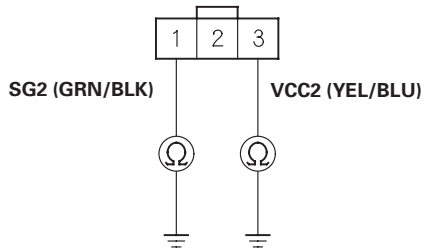
Wire side of female terminals

Is there about 5 V?

YES — Check for an open or short in the wire between the C27 terminal and the TPS. If the wire is OK, replace the TPS. ■

NO — Go to step 15.

15. Turn the ignition switch OFF, and disconnect the PCM C (31P) connector. Check for continuity between the No. 1 terminal of the TPS connector and body ground, and between the No. 3 terminal of the TPS connector and body ground.



Wire side of female terminals

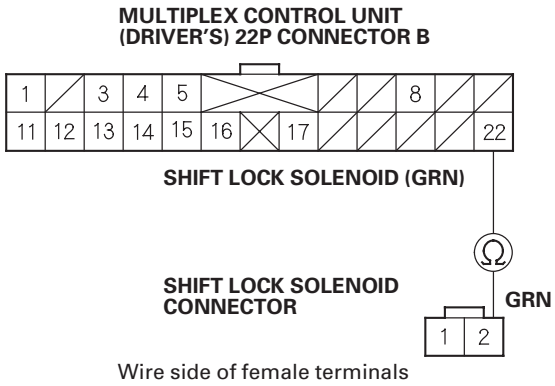
Is there continuity?

YES — Check for a short to ground between the No. 1 or No. 3 terminal of the TPS connector and ground. If the wire is OK, replace the PCM. ■

NO — Go to step 16.

16. Disconnect the shift lock solenoid connector.

17. Check for continuity between the No. 2 terminal of the shift lock solenoid connector and the No. 22 terminal of the multiplex control unit (driver's) 22P connector B.



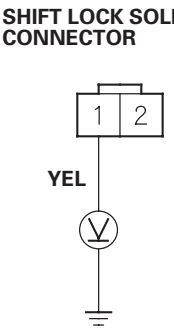
Is there continuity?

YES—Go to step 18.

NO—Repair open in the wire between the No. 22 terminal of the multiplex control unit (driver's) 22P connector and the shift lock solenoid. ■

18. Turn the ignition switch ON (II).

19. Measure the voltage between the No. 1 terminal of the shift lock solenoid connector and body ground.



Is there battery voltage?

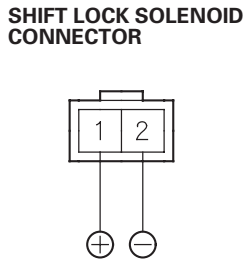
YES—Go to step 20.

NO—Check for blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open or short in the wire between the No. 1 terminal of the shift lock solenoid and the driver's under-dash fuse/relay box. ■

20. Connect the No. 1 terminal of the shift lock solenoid connector to the battery positive terminal, and connect the No. 2 terminal to the battery negative terminal.

NOTE: Do not connect the No. 2 terminal to the battery positive terminal or you will damage the diode inside the shift lock solenoid.

21. Check the shift lock solenoid operation.



Does the shift lock solenoid operate properly?

YES—Check for a loose multiplex control unit (driver's) connector. If necessary, substitute a known-good multiplex control unit (driver's) and recheck. ■

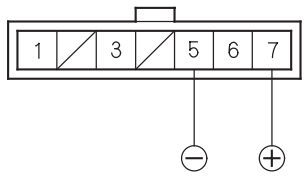
NO—Replace the shift lock solenoid (see page 14-186). ■

Key Interlock System Circuit Troubleshooting

1. Disconnect the key switch connector (7P) from the steering lock assembly.

2. Connect the No. 7 terminal of the key switch connector to the battery positive terminal, and connect the No. 5 terminal to the battery negative terminal.

KEY SWITCH CONNECTOR (7P)



Terminal side of male terminals

3. Turn the ignition switch to ACC (I), then push the ignition key.

4. Check the key interlock solenoid operation. A clicking sound should be heard while pushing the ignition key, and you should not be able to turn it to the OFF position.

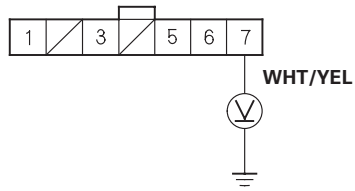
   Does the key interlock solenoid operate properly?

   YES—Go to step 5.

   NO—Faulty key interlock solenoid/switch. Replace the ignition key cylinder/steering lock assembly. ■

5. Measure the voltage between the No. 7 terminal and body ground.

KEY SWITCH CONNECTOR (7P)



Wire side of female terminals

   Is there battery voltage?

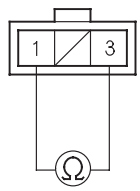
   YES—Go to step 6.

   NO—Check for a blown No. 47 (20A) fuse in the under-hood fuse/relay box. If the fuse is OK, repair open or short in the wire between the No. 7 terminal of the key switch connector and under-hood fuse/relay box. ■

6. Disconnect the park pin switch connector on the shift lever.

7. With the shift lever in Park and pulled back toward the driver, check for continuity between the No. 1 and No. 3 terminals of the park pin switch connector.

PARK PIN SWITCH CONNECTOR



Terminal side of male terminals

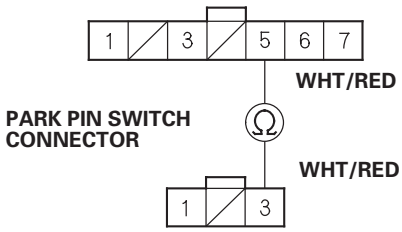
   Is there continuity?

   YES—Go to step 8.

   NO—Repair open in the wires between the park pin switch and the connector. If the wires are OK, replace the park pin switch . ■

8. Check for continuity between the No. 3 terminal of the park pin switch connector and the No. 5 terminal of the key switch connector.

KEY SWITCH CONNECTOR (7P)



Wire side of female terminals

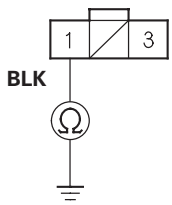
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between No. 3 terminal of the park pin switch connector and the No. 5 terminal of the key switch connector. ■

9. Check for continuity between the No. 1 terminal of the park pin switch connector and body ground.

PARK PIN SWITCH CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Check for a loose key switch connector and park pin switch connector. If necessary, substitute a known-good steering lock assembly. ■

NO—Repair open in the wire between the No. 1 terminal of the park pin switch connector and ground (G401), or repair poor ground (G401). ■

Control Unit Input Test

SRS components are located in this area. Review the SRS component locations (see page 23-18), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Disconnect the 22P connector from the multiplex control unit, driver's, then remove the control unit from the driver's under-dash fuse/relay box.

2. Inspect the connectors and connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.

   NOTE: If the shift lock solenoid clicks when the ignition switch is turned ON (II) while pressing the brake pedal with the shift lever in the P position, the shift lock system is OK. If the shift lever cannot be shifted from the P position, test the A/T gear position switch.

3. With the control unit still disconnected from its connectors and the fuse/relay box, make these input tests.
   - If a test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 4.

Multiplex Control Unit, Driver's, Connector A (24P)

Cavity	Wire Color	Test Condition	Test: Desired Result	Possible Cause (If result is not obtained)
A2	———	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • An open in the wire
A12	———	Ignition switch turned ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • An open in the wire
A15	———	Shift lever in P	Check for continuity to ground: There should be continuity.	• Faulty transmission range switch • Poor ground (G101) • An open in the wire

Multiplex Control Unit, Driver's, Connector B (22P)

Cavity	Wire Color	Test Condition	Test: Desired Result	Possible Cause (If result is not obtained)
B11	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • An open in the wire
B22	GRN	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • Faulty shift lock solenoid • An open in the wire

4. Reconnect the connectors to the multiplex control unit, and make this input test.
   - If a test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, substitute a known-good multiplex control unit, and recheck the system. If the system is OK, the multiplex control unit must be faulty; replace it.

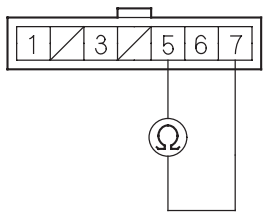
Cavity	Wire Color	Test Condition	Test: Desired Result	Possible Cause (If result is not obtained)
B12	WHT/RED	Ignition switch ON (II) and brake pedal pushed	Check for voltage to ground: There should be battery voltage.	• Faulty brake pedal position switch (brake switch) • Faulty PCM • Faulty multiplex control unit (driver's) • An open in the wire
		Ignition switch ON (II), brake pedal and accelerator pedal pressed at the same time	Check for voltage to ground: There should be 1 V or less.	

Key Interlock Solenoid/Switch Test

SRS components are located in this area. Review the SRS component locations (see page 23-18), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the steering lower cover (see page 17-25).
2. Disconnect the key switch connector (7P) from the steering lock assembly.
3. Check for continuity between the No. 5 and No. 7 terminals when the key is pushed, and check for no continuity when the key is released.

KEY SWITCH CONNECTOR (7P)



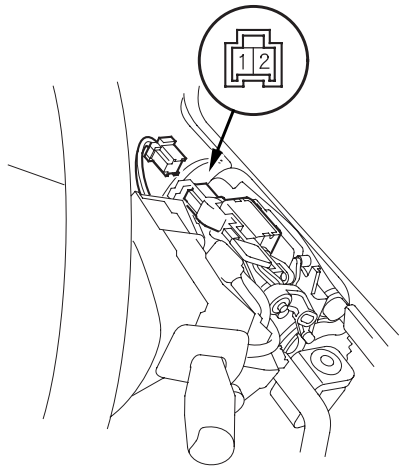
Terminal side of male terminals

4. Check that the key cannot be removed with power connected to the No. 7 terminal and ground connected to the No. 3 terminals.
   - If the key cannot be removed, the key interlock solenoid is OK.
   - If the key can be removed, replace the steering lock assembly (the key interlock solenoid is not available separately).

Shift Lock Solenoid Test

SRS components are located in this area. Review the SRS component locations (see page 23-18), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the steering column upper cover (see page 17-25).
2. Disconnect the shift lock solenoid 2P connector.



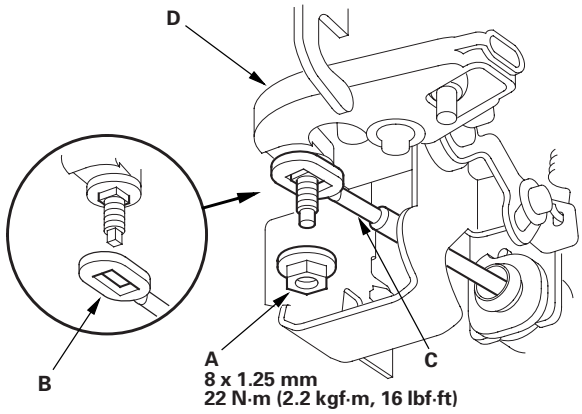
3. Connect the No. 1 terminal of the shift lock solenoid connector to the battery positive terminal, and connect the No. 2 terminal to the battery negative terminal.
4. Check that the shift lever can be moved from the P position. Release the battery terminals from the shift lock solenoid connector. Move the shift lever back to the P position, and make sure it locks.

   NOTE: Do not connect power to the No. 2 terminal (reverse polarity) or you will damage the diode inside the solenoid.
5. Check that the shift lock releases when the release lever is pushed, and check that it locks when the release lever is released.
6. If the solenoid does not work, replace it.

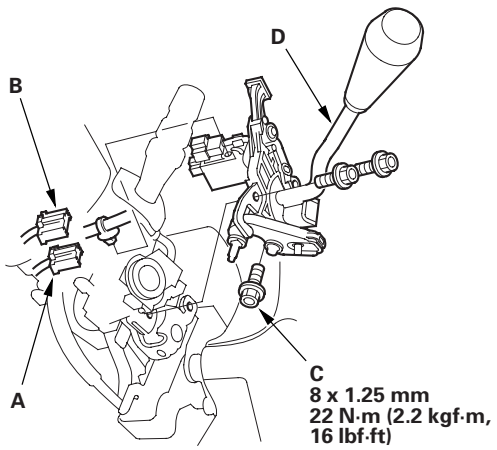
Shift Lock Solenoid Replacement

SRS components are located in this area. Review the SRS component locations (see page 23-18), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

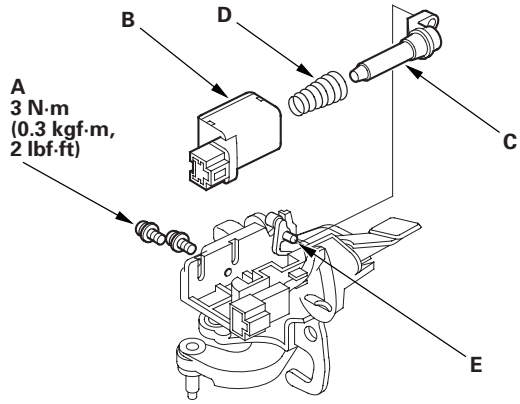
1. Remove the steering column covers (see page 17-25).
2. Shift the transmission into the N position.
3. Remove the nut (A) securing the shift cable end (B), then separate the shift cable (C) from the shift lever assembly (D).



4. Disconnect the shift lock solenoid connector (A) and the park pin switch connector (B).



5. Remove the three bolts (C) securing the shift lever assembly, then remove the shift lever assembly (D).
6. Remove the screws (A) securing the shift lock solenoid (B), then remove the shift lock solenoid.



7. Install the shift lock solenoid plunger (C) and plunger spring (D) in the new shift lock solenoid.
8. Install the shift lock solenoid by aligning the joint of the shift lock solenoid with the tip of the shift lock extension (E), then tighten the screws.
9. Install the shift lever assembly.
10. Install the shift cable end to the shift cable. If necessary, adjust the shift cable (see page 14-162).

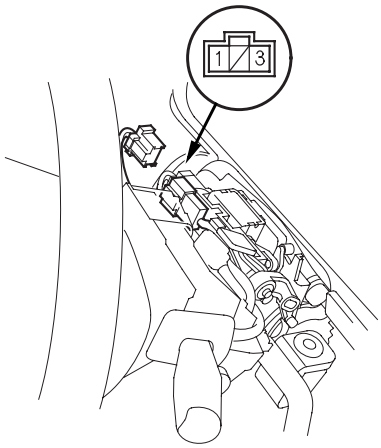
Park Pin Switch Test

SRS components are located in this area. Review the SRS component locations (see page 23-18), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the steering column covers (see page 17-25).

2. Disconnect the park pin switch connector.

3. Shift the shift lever into the P position, then check for continuity between the No. 1 and No. 3 terminals. There should be no continuity.

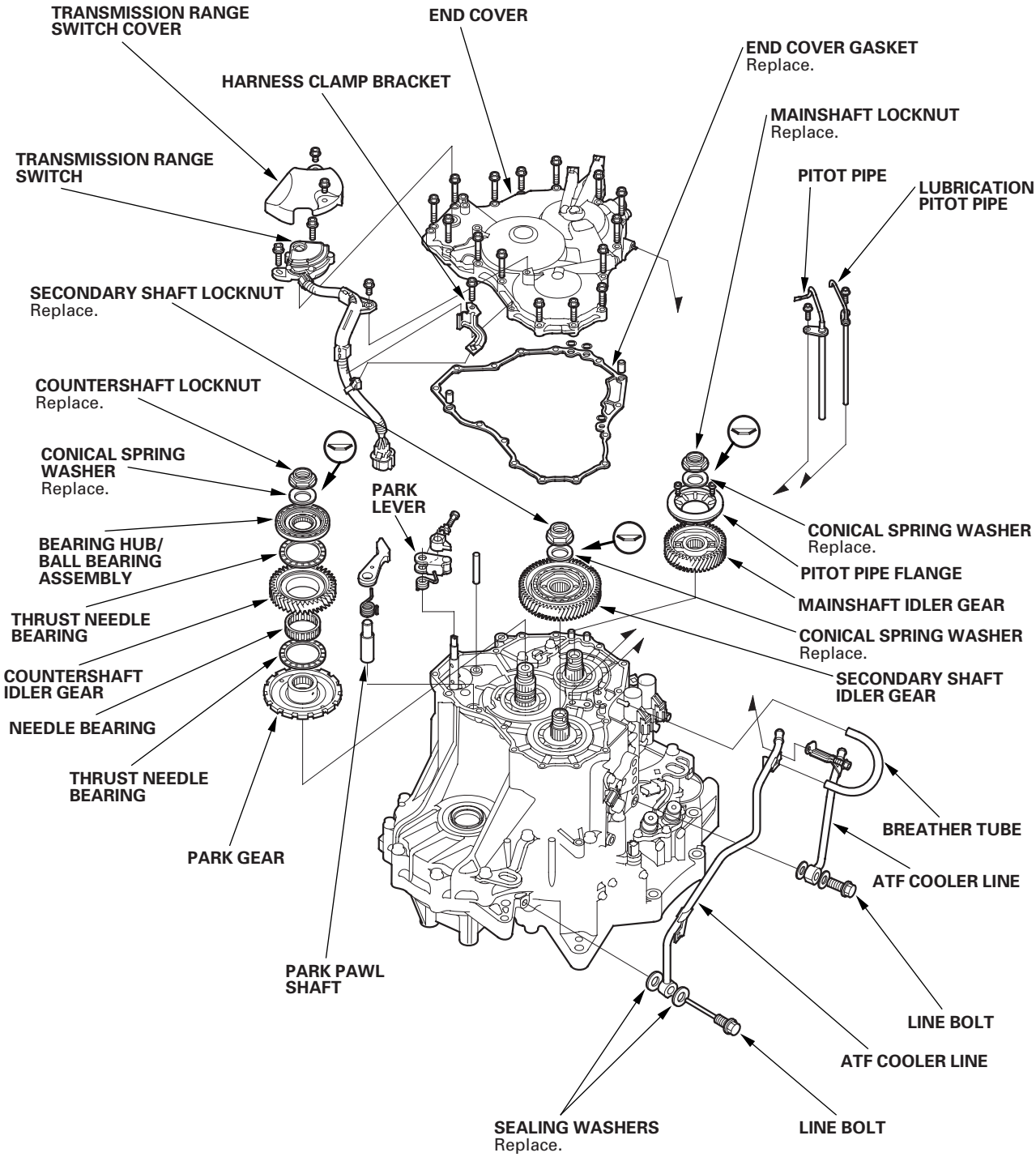


4. Shift the shift lever out of the P position, and check for continuity between the terminals in step 3. There should be continuity.

5. If the park pin switch is faulty, replace the control bracket assembly. (The park pin switch is not available separately.)

End Cover and Idler Gear Removal

Exploded View



Special Tools Required
Mainshaft holder
07GAB-PF50101 or 07GAB-PF50100

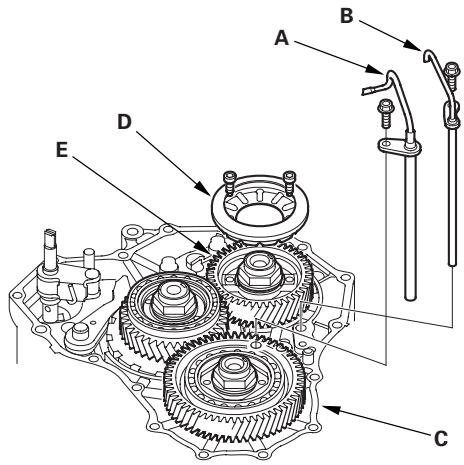
NOTE: Refer to the Exploded View as needed during the following procedure.

1. Remove the transmission range switch cover.

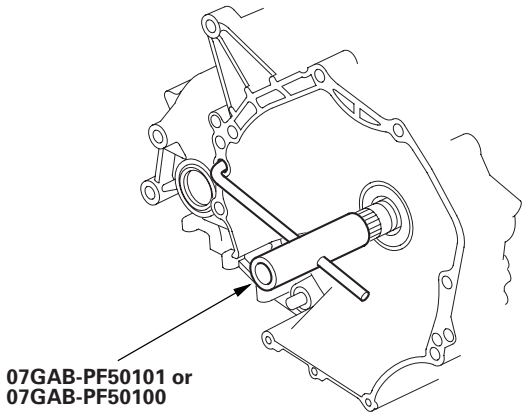
2. Remove the harness clamp bolt and the two transmission range switch bolts, then remove the transmission range switch.

3. Remove the 16 bolts securing the end cover, then remove the end cover.

4. Remove the pitot pipe (A) and the lubrication pitot pipe (B) from the transmission housing (C), then remove the pitot flange (D) from the mainshaft idler gear (E).



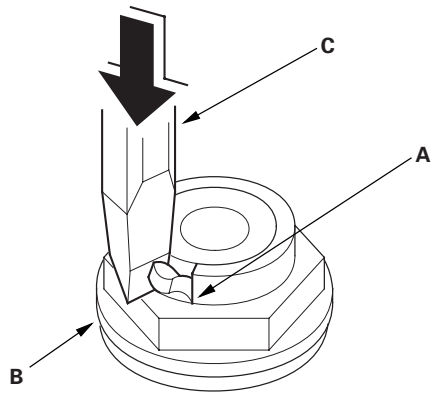
5. Slip the special tool onto the mainshaft.



6. Engage the park pawl with the park gear.

7. Cut the lock tabs (A) of each shaft locknut (B) using a chisel (C). Then remove the locknuts and conical spring washers from each shaft.

   NOTE:
   - Countershaft and secondary shaft locknuts have left-hand threads.
   - Clean the old locknuts; they are used to install the press fit idler gears on the mainshaft and secondary shaft, and the park gear and bearing hub on the countershaft.
   - Keep all of the chiseled particles out of the transmission.

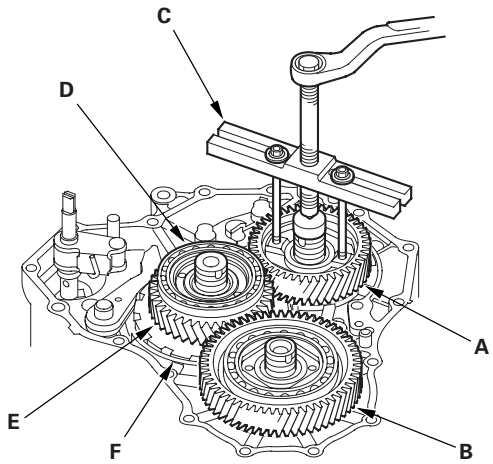


8. Remove the special tool from the mainshaft.

(cont'd)

End Cover and Idler Gear Removal (cont'd)

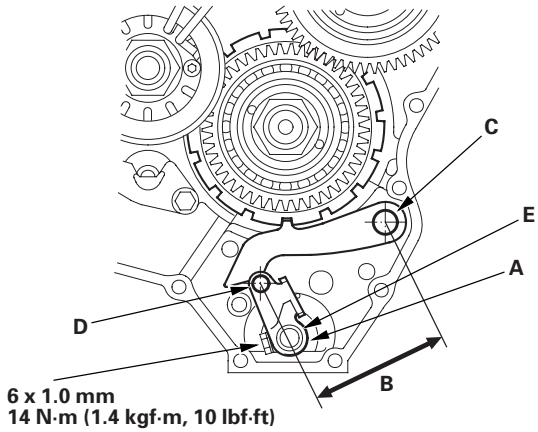
9. Remove the mainshaft idler gear (A) and the secondary shaft idler gear (B) with a puller (C).



10. Remove the bearing hub (D) with the puller from the countershaft, then remove the countershaft idler gear (E) and bearings.
11. Remove the park gear (F) with the puller.
12. Remove the park pawl, spring, shaft, and shaft stop.
13. Remove the park lever from the control shaft.
14. Remove the line bolts, then remove the ATF cooler lines.

Park Lever Stop Inspection and Adjustment

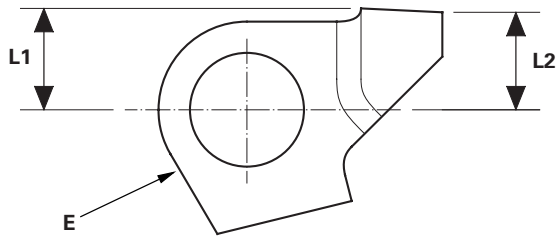
1. Set the park lever (A) in the P position.



2. Measure the distance (B) between the park pawl shaft (C) and the park lever roller pin (D).

   Standard: 84.6—85.6 mm (3.33—3.37 in.)

3. If the measurement is out of tolerance, select and install the appropriate park lever stop (E) from the table.



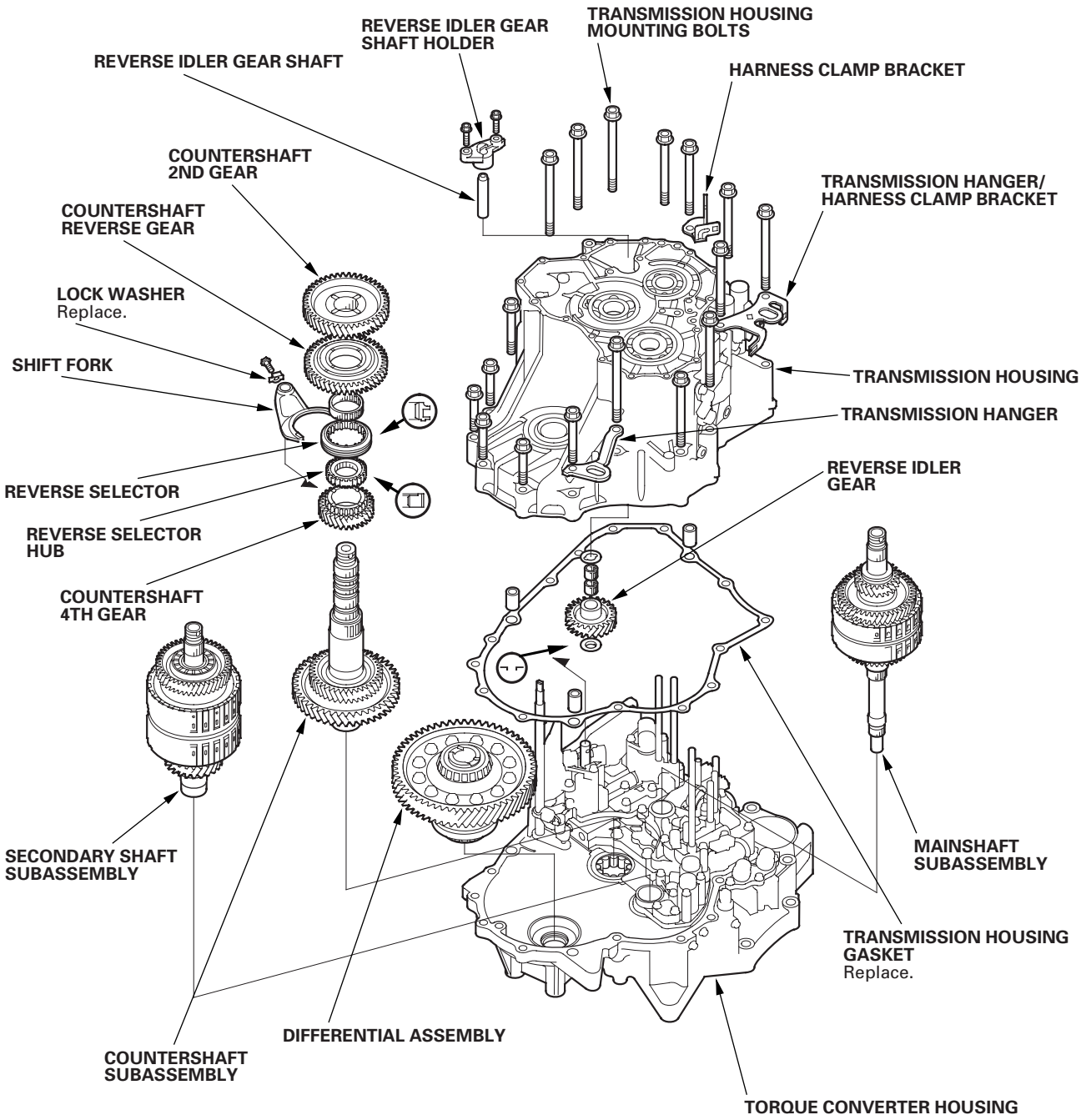
PARK LEVER STOP

Mark	Part Number	L1	L2
1	24537-PA9-003	11.00 mm (0.433 in.)	11.00 mm (0.433 in.)
2	24538-PA9-003	10.80 mm (0.425 in.)	10.65 mm (0.419 in.)
3	24539-PA9-003	10.60 mm (0.417 in.)	10.30 mm (0.406 in.)

4. After replacing the park lever stop, make sure the distance is within tolerance.

Housing and Shaft Assembly Removal

Exploded View



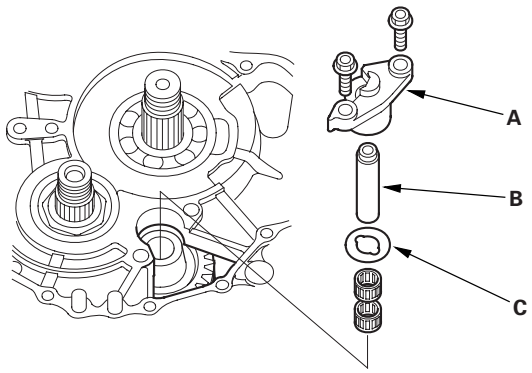
(cont'd)

Housing and Shaft Assembly Removal (cont'd)

Special Tools Required
Housing puller 07HAC-PK40102

NOTE: Refer to the exploded view as needed during the following procedure.

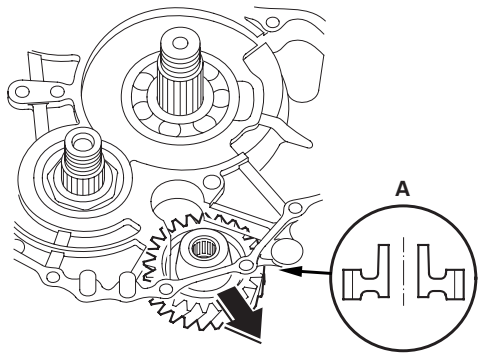
1. Remove the two bolts securing the reverse idler gear shaft holder, then remove the reverse idler gear shaft holder (A), shaft (B), and washer (C).



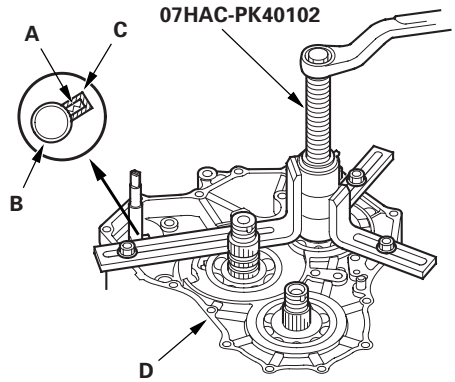
2. Remove the transmission housing mounting bolts, transmission hangers, and harness clamp bracket.

3. Move the reverse idler gear (A) to disengage it from the mainshaft and countershaft reverse gears.

   NOTE: The transmission housing will not separate from the torque converter housing if the reverse idler gear is not moved.



4. Align the spring pin (A) on the control shaft (B) with the transmission housing groove (C) by turning the control shaft.



5. Install the special tool over the mainshaft, then remove the transmission housing (D).

   NOTE: If the top arm of your housing puller is too short, replace it with Housing Puller Arm, 205 mm 07SAC-P0Z0101.

6. Remove the reverse idler gear, needle bearings, and thrust washer from the transmission housing.

7. Remove the countershaft 2nd gear, then remove the countershaft reverse gear and the needle bearing.

8. Remove the lock bolt securing the shift fork, then remove the shift fork with the reverse selector, reverse selector hub, and countershaft 4th gear. If the reverse selector hub is press-fitted, leave it and 4th gear on the countershaft.

9. Remove the secondary shaft subassembly.
   If the reverse selector hub is press-fitted, remove the secondary shaft subassembly, countershaft subassembly and mainshaft subassembly together.

10. Remove the countershaft subassembly.

11. Remove the mainshaft subassembly.

12. Remove the differential assembly.

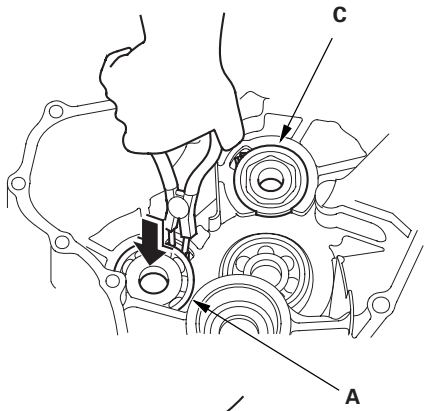
Bearing Removal and Installation

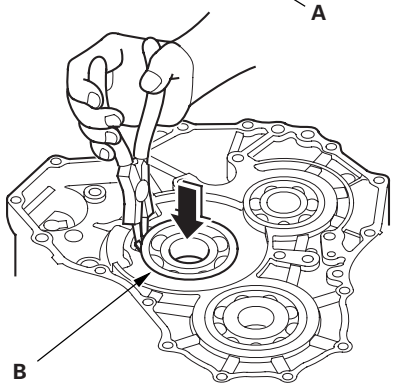
Special Tools Required
- Driver 07749-0010000
- Seal driver attachment
  07GAD-PG40101 or 07GAD-PG40100
- Attachment, 62 x 68 mm 07746-0010500
- Attachment, 72 x 75 mm 07746-0010600

NOTE: Coat all parts with ATF before assembly.

1. To remove the mainshaft bearing (A), countershaft bearing (B), and secondary shaft bearing (C) from the transmission housing, expand each snap ring with the snap ring pliers, then push the bearing out.

   NOTE: Do not remove the snap rings unless it's necessary to clean the grooves in the housing.

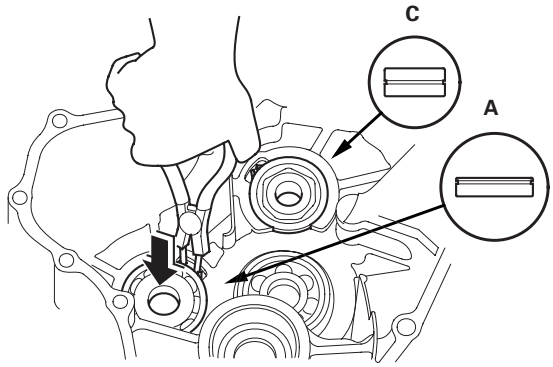


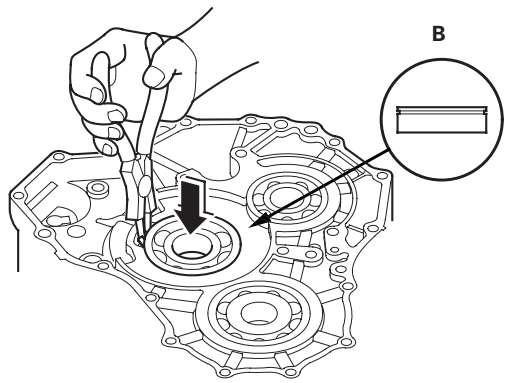


2. Install the bearings in the direction shown.

3. Expand each snap ring with the snap ring pliers, and insert the bearing part-way into the housing.

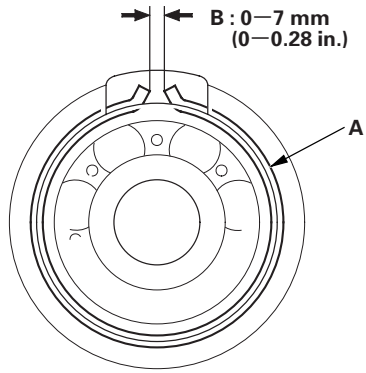
4. Release the pliers, then push the bearing down into the housing until the snap ring snaps in place around it.





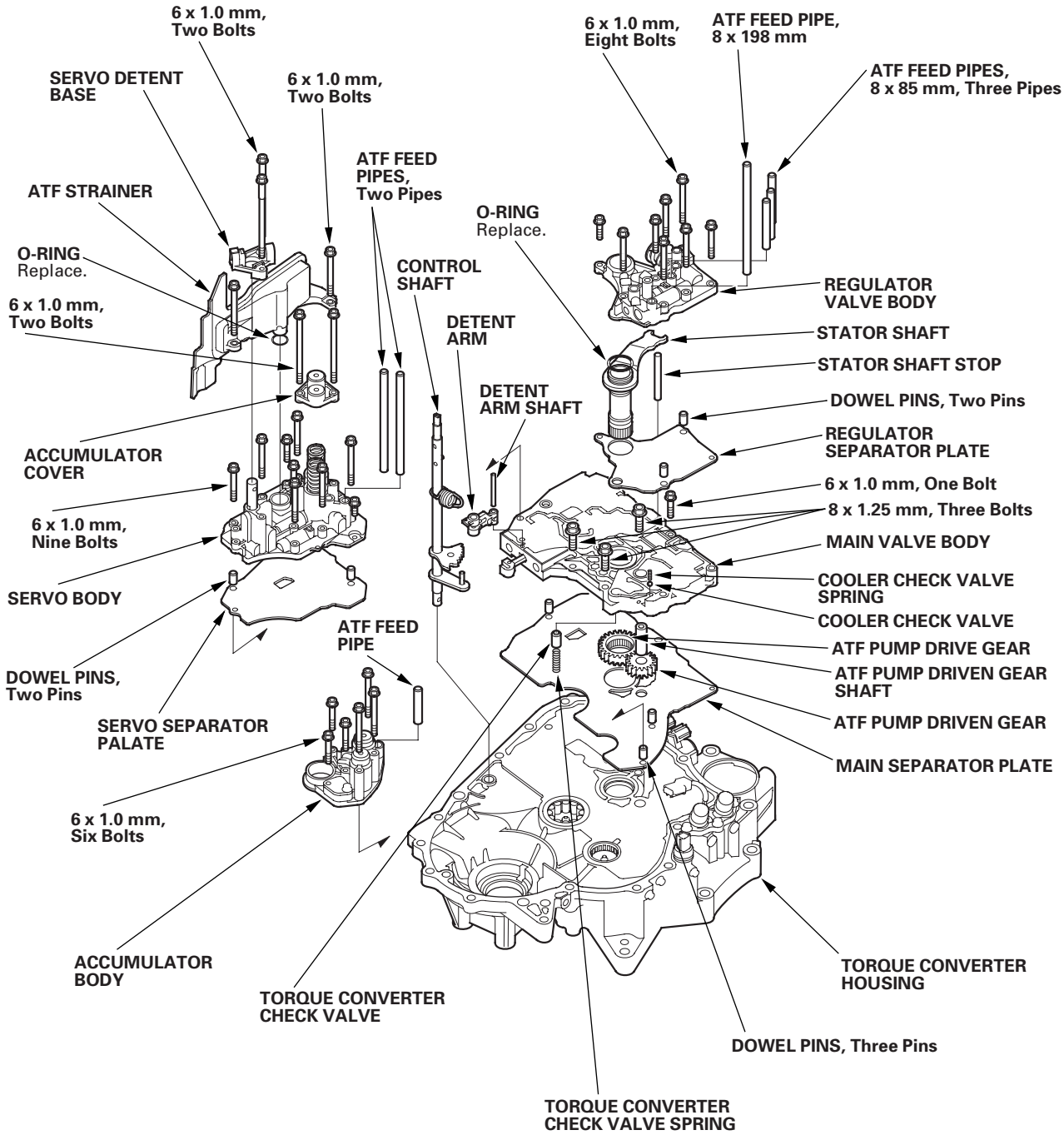
5. After installing the bearings verify the following:

   - The snap rings (A) are seated in the bearing and housing grooves.
   - The ring end gaps (B) are correct.



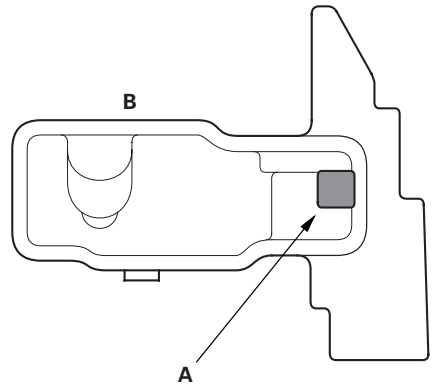
Valve Body and ATF Strainer Removal

Exploded View



NOTE: Refer to the Exploded View as needed during the following procedure.

1. Remove the ATF feed pipes from the regulator valve body, servo body and accumulator body.
2. Remove the servo detent base (two bolts).
3. Remove the ATF strainer (two bolts).
4. Remove the accumulator cover (two bolts).
5. Remove the bolts securing the servo body (nine bolts), then remove the servo body, servo separator plate, and dowel pins (two).
6. Remove the accumulator body (six bolts).
7. Remove the regulator valve body (eight bolts).
8. Remove the stator shaft and stator shaft stop.
9. Remove the regulator separator plate and dowel pins (two).
10. Unhook the detent spring from the detent arm, then remove the detent arm shaft, detent arm, and control shaft.
11. Remove the cooler check valve spring and cooler check valve (steel ball).
12. Remove the main valve body (four bolts).
13. Remove the torque converter check valve and spring.
14. Remove the ATF pump driven gear shaft, then remove the ATF pump gears.
15. Remove the main separator plate and dowel pins (three).
16. Clean the inlet opening (A) of the ATF strainer (B) thoroughly with compressed air, then check that it is in good condition, and the inlet opening is not clogged.



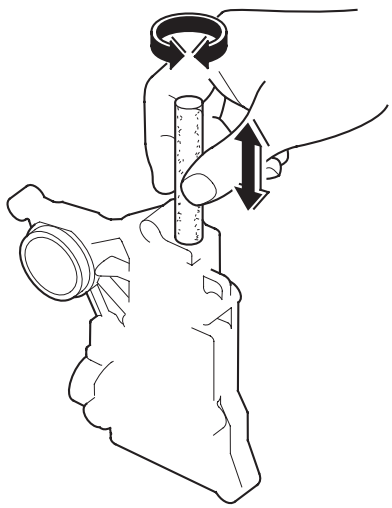
17. Test the ATF strainer by pouring clean ATF through the inlet opening, and replace it if it is clogged or damaged.

Valve Body Repair

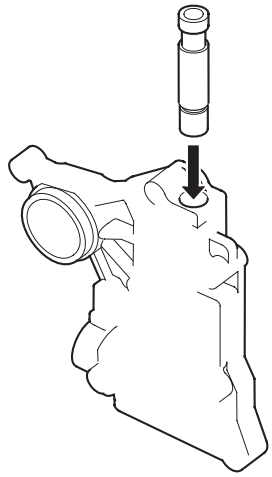
NOTE: This repair is only necessary if one or more of the valves in a valve body do not slide smoothly in their bores. Use this procedure to free the valves.

1. Soak a sheet of # 600 abrasive paper in ATF for about 30 minutes.
2. Carefully tap the valve body so the sticking valve drops out of its bore. It may be necessary to use a small screwdriver to pry the valve free. Be careful not to scratch the bore with the screwdriver.
3. Inspect the valve for any scuff marks. Use the ATF-soaked # 600 paper to polish off any burrs that are on the valve, then wash the valve in solvent and dry it with compressed air.
4. Roll up half a sheet of ATF-soaked # 600 paper and insert it in the valve bore of the sticking valve. Twist the paper slightly, so that it unrolls and fits the bore tightly, then polish the bore by twisting the paper as you push it in and out.

   NOTE: The valve body is aluminum and doesn't require much polishing to remove any burrs.



5. Remove the # 600 paper. Thoroughly wash the entire valve body in solvent, then dry it with compressed air.
6. Coat the valve with ATF, then drop it into its bore. It should drop to the bottom of the bore under its own weight. If not, repeat steps 4 and 5, then retest. If the valve still sticks, replace the valve body.

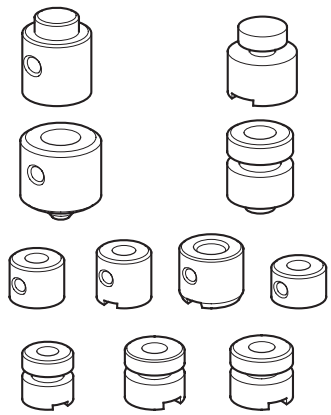


7. Remove the valve, and thoroughly clean it and the valve body with solvent. Dry all parts with compressed air, then reassemble using ATF as a lubricant.

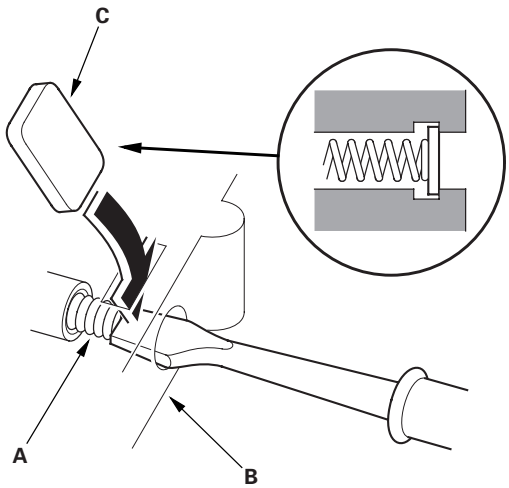
Valve Body Valve Reassembly

1. Coat all parts with ATF before assembly.

2. Install the valves and springs in the sequence shown for the main valve body (see page 14-198), regulator valve body (see page 14-201), and servo body (see page 14-202). Refer to the following valve cap illustrations, and install each valve cap so the end shown facing up will be facing the outside of the valve body.

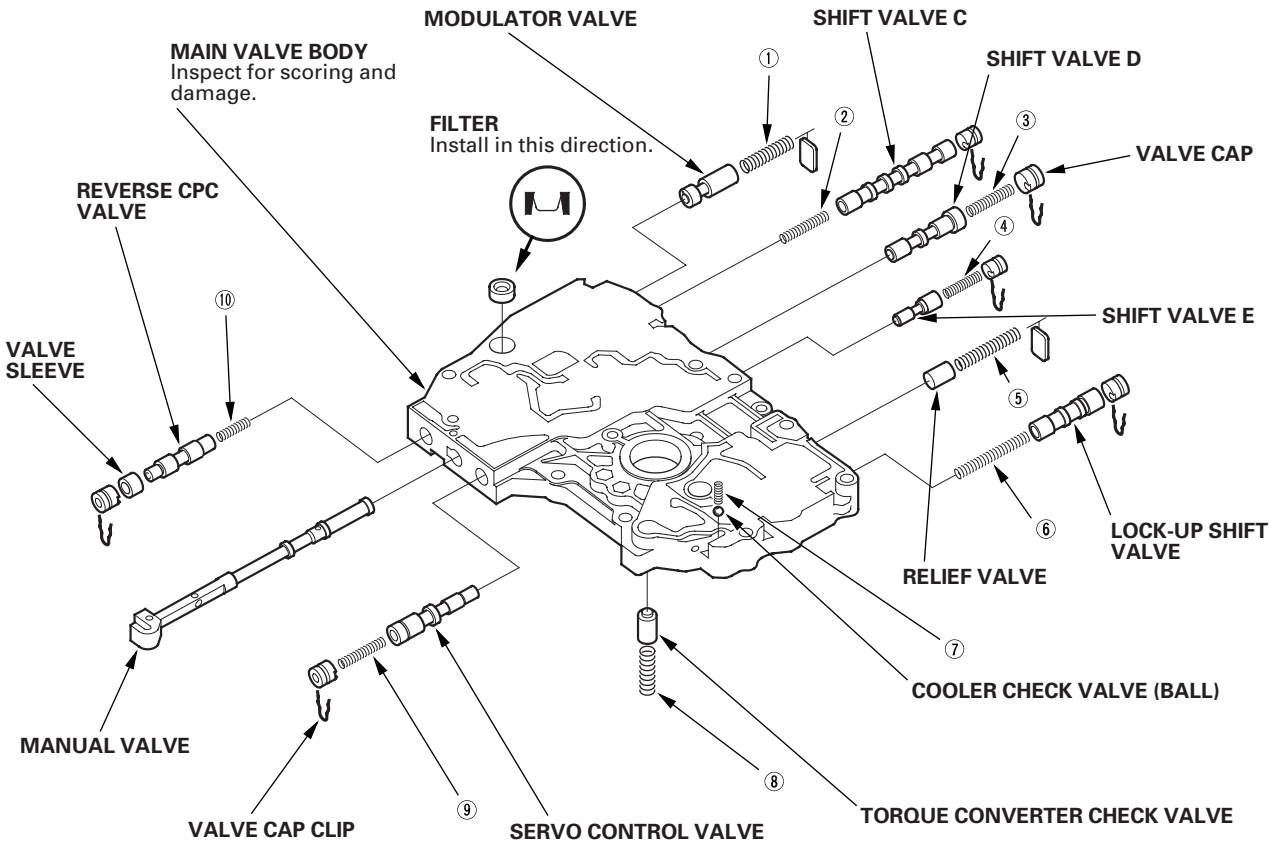


3. Install all the springs and seats. Insert the spring (A) in the valve, then install the valve in the valve body (B). Push the spring in with a screwdriver, then install the spring seat (C).

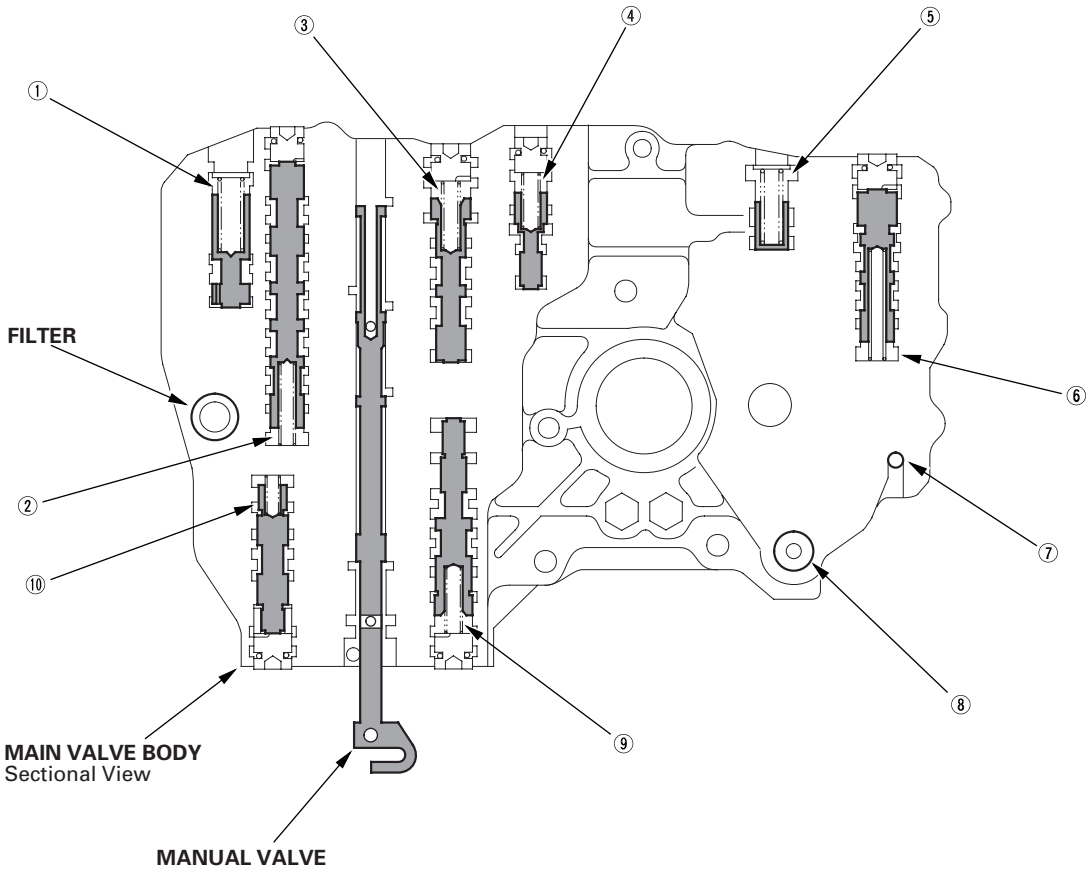


Main Valve Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
2. Do not use a magnet to remove the check valve ball; it may magnetize the ball.
3. Check all valves for free movement. If any fail to slide freely, refer to Valve Body Repair (see page 14-196).
4. Replace the valve body as an assembly if any parts are worn or damaged.
5. Coat all parts with ATF during assembly.
6. Install the filter in the direction shown.



Sectional View

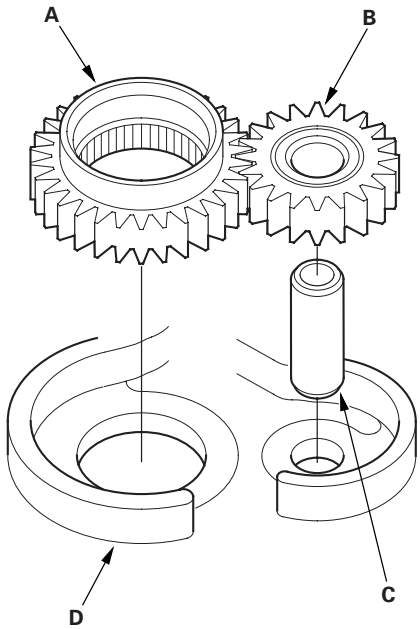


SPRING SPECIFICATIONS

No.	Spring	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	Modulator valve spring	1.6 (0.063)	10.4 (0.409)	33.5 (1.319)	9.8
②	Shift valve C spring	0.8 (0.031)	6.6 (0.260)	49.1 (1.933)	21.7
③	Shift valve D spring	0.7 (0.028)	6.6 (0.260)	35.7 (1.406)	17.2
④	Shift valve E spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9
⑤	Relief valve spring	1.1 (0.043)	8.6 (0.339)	30.1 (1.185)	10.7
⑥	Lock-up shift valve spring	0.9 (0.035)	7.6 (0.299)	63.0 (2.480)	22.4
⑦	Cooler check valve spring	0.6 (0.024)	5.8 (0.228)	14.5 (0.571)	6.8
⑧	Torque converter check valve	1.2 (0.047)	8.6 (0.339)	34.4 (1.354)	11.7
⑨	Servo control valve spring	0.7 (0.028)	6.6 (0.260)	35.7 (1.406)	17.2
⑩	Reverse CPC valve spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9

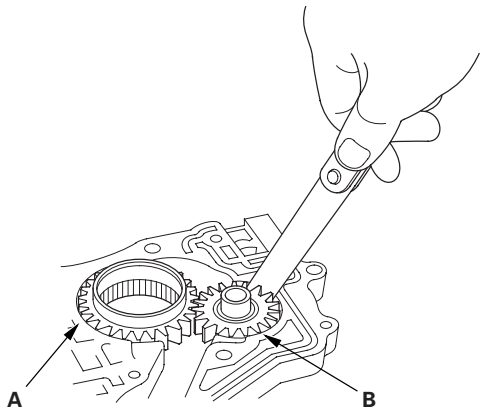
ATF Pump Inspection

1. Install the ATF pump drive gear (A), driven gear (B), and ATF pump driven gear shaft (C) in the main valve body (D). Lubricate all parts with ATF, and install the ATF pump driven gear with its grooved and chamfered side facing up.



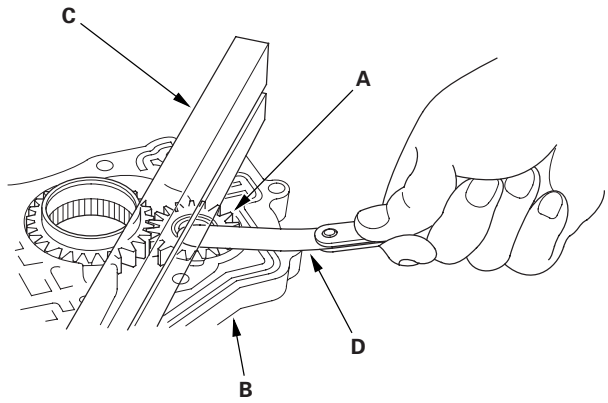
2. Measure the side clearance of the ATF pump drive gear (A) and driven gear (B).

ATF Pump Gears Side (Radial) Clearance:
Standard (New):
ATF Pump Drive Gear
0.210－0.265 mm (0.0083－0.00104 in.)
ATF Pump Driven Gear
0.070－0.125 mm (0.0028－0.0050 in.)



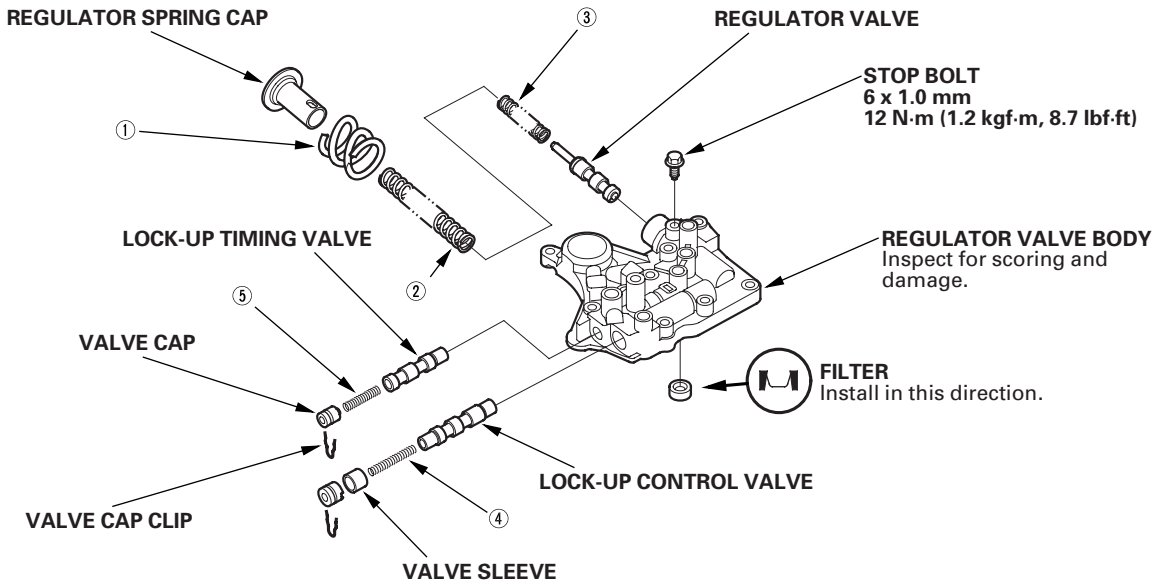
3. Remove the ATF pump driven gear shaft. Measure the thrust clearance between the ATF pump driven gear (A) and the valve body (B) with a straight edge (C) and a feeler gauge (D).

ATF Pump Drive/Driven Gear Thrust (Axial) Clearance:
Standard (New): 0.03－0.05 mm (0.001－0.002 in.)
Service Limit: 0.07 mm (0.003 in.)



Regulator Valve Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
2. Check all valves for free movement. If any fail to slide freely, refer to Valve Body Repair (see page 14-196).
3. Replace the valve body as an assembly if any parts are worn or damaged.
4. Hold the regulator spring cap in place while removing the stop bolt. The regulator spring cap is spring loaded. Once the stop bolt is removed, release the spring cap slowly so it does not pop out.
5. Reassembly is the reverse of disassembly. Install the filter in the direction shown.
6. Coat all parts with ATF during reassembly.
7. Align the hole in the regulator spring cap with the hole in the valve body, then press the spring cap into the valve body, and tighten the stop bolt.

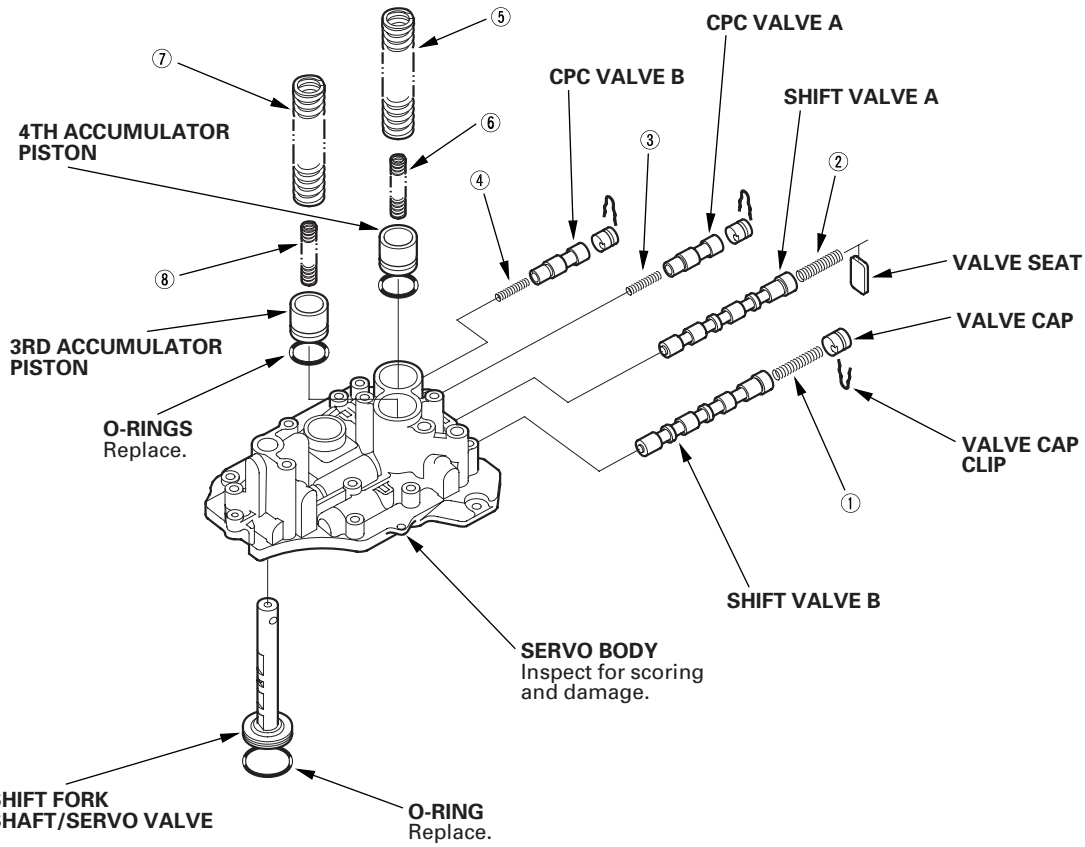


SPRING SPECIFICATIONS

No.	Spring	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	Stator reaction spring	5.5 (0.217)	37.4 (1.472)	30.3 (1.193)	2.12
②	Regulator valve spring A	1.9 (0.075)	14.7 (0.579)	77.4 (3.047)	15.2
③	Regulator valve spring B	1.6 (0.063)	9.2 (0.362)	44.0 (1.732)	12.5
④	Lock-up control valve spring	0.8 (0.031)	6.6 (0.260)	44.3 (1.744)	25.5
⑤	Lock-up timing valve spring	0.65 (0.026)	6.6 (0.260)	34.8 (1.370)	15.6

Servo Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
2. Check all valves for free movement. If any fail to slide freely, refer to Valve Body Repair (see page 14-196).
3. Replace the valve body as an assembly if any parts are worn or damaged.
4. Coat all parts with ATF during reassembly.

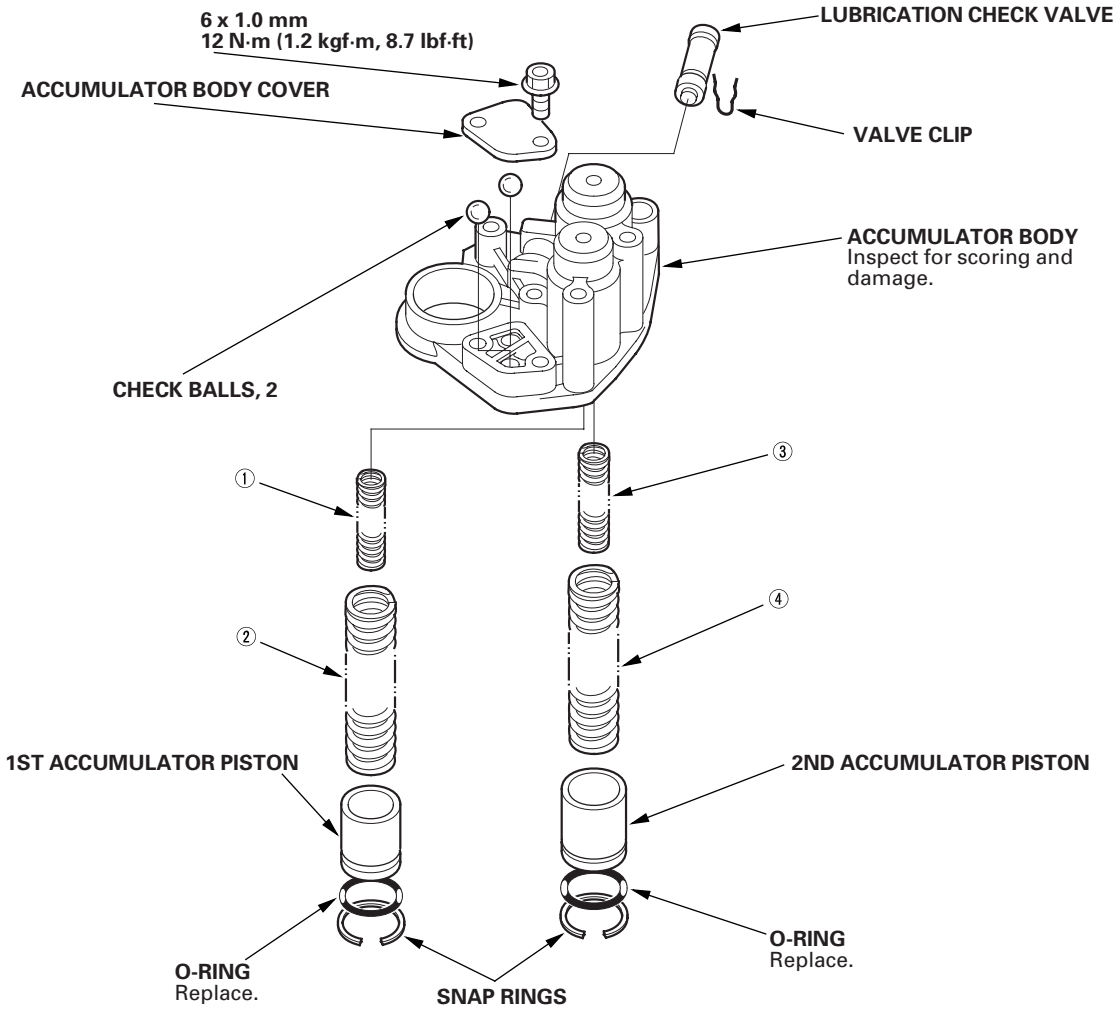


SPRING SPECIFICATIONS

No.	Spring	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	Shift valve B spring	0.8 (0.031)	7.1 (0.280)	40.4 (1.591)	16.9
②	Shift valve A spring	0.8 (0.031)	7.1 (0.280)	40.4 (1.591)	16.9
③	CPC valve A spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9
④	CPC valve B spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9
⑤	4th accumulator spring A	2.6 (0.102)	19.6 (0.772)	66.4 (2.614)	9.7
⑥	4th accumulator spring B	2.4 (0.094)	12.8 (0.504)	51.5 (2.028)	11.5
⑦	3rd accumulator spring A	2.6 (0.102)	19.6 (0.772)	66.4 (2.614)	9.7
⑧	3rd accumulator spring B	2.4 (0.094)	12.8 (0.504)	51.5 (2.028)	11.5

Accumulator Body Disassembly, Inspection, and Reassembly

1. Do not use a magnet to remove the check balls; it may magnetize the balls.
2. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
3. Coat all parts with ATF during reassembly.



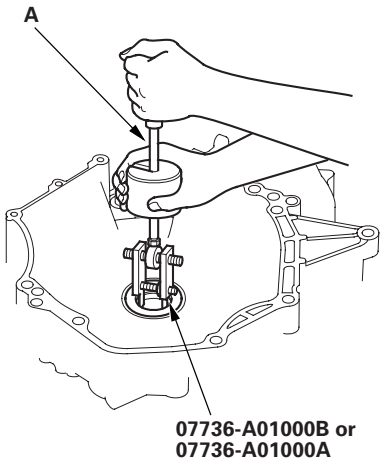
SPRING SPECIFICATIONS

No.	Springs	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	1st accumulator spring B	2.7 (0.106)	14.8 (0.583)	52.5 (2.067)	11.3
②	1st accumulator spring A	2.6 (0.102)	21.6 (0.850)	80.5 (3.169)	11.2
③	2nd accumulator spring B	2.4 (0.094)	12.6 (0.496)	53.5 (2.106)	12.9
④	2nd accumulator spring A	2.7 (0.106)	19.6 (0.772)	66.3 (2.610)	9.9

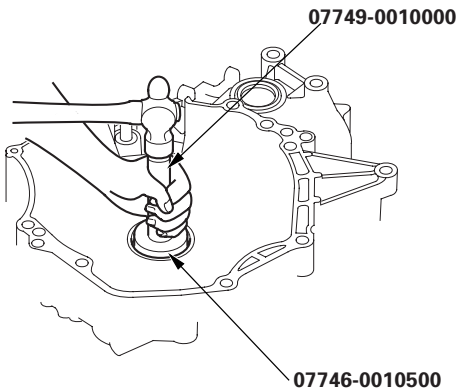
Mainshaft Bearing and Oil Seal Replacement

Special Tools Required
- Adjustable bearing puller, 25—40 mm 07736-A01000B or 07736-A01000A
- Driver 07749-0010000
- Attachment, 62 x 68 mm 07746-0010500
- Attachment, 72 x 75 mm 07746-0010600

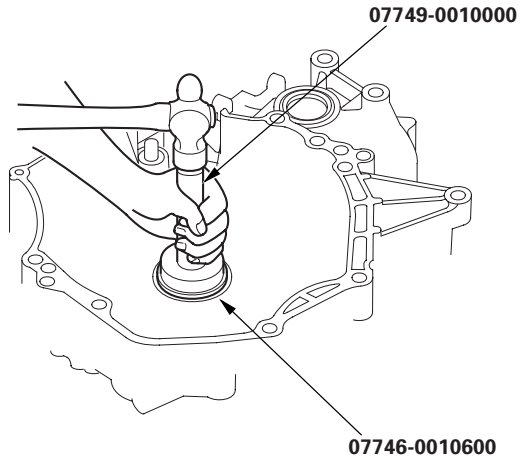
1. Remove the mainshaft bearing and oil seal with the special tool and a commercially available 3/8''-16 slide hammer (A).



2. Install the new mainshaft bearing until it bottoms in the housing with the special tools.



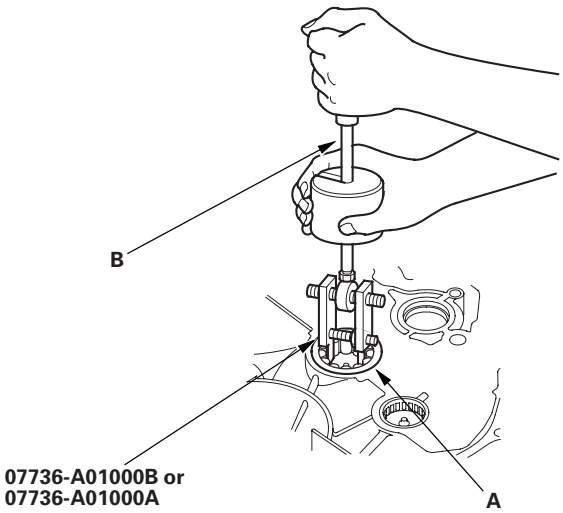
3. Install the new oil seal flush with the housing with the special tools.



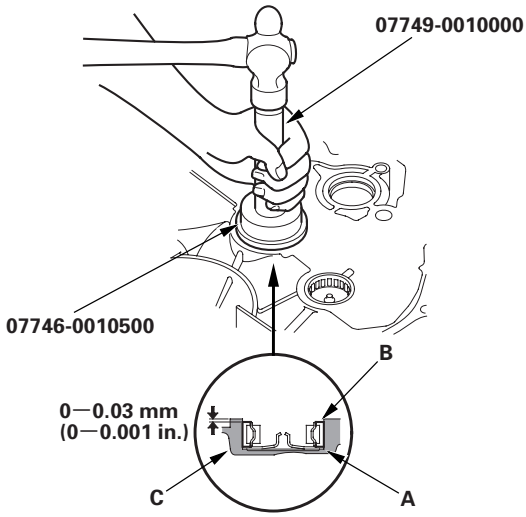
Countershaft Bearing Replacement

Special Tools Required
- Adjustable bearing puller, 25—40 mm 07736-A01000B or 07736-A01000A
- Driver 07749-0010000
- Attachment, 62 x 68 mm 07746-0010500

1. Remove the countershaft bearing (A) with the special tool and a commercially available 3/8''-16 slide hammer (B).



2. Install the ATF guide plate (A).

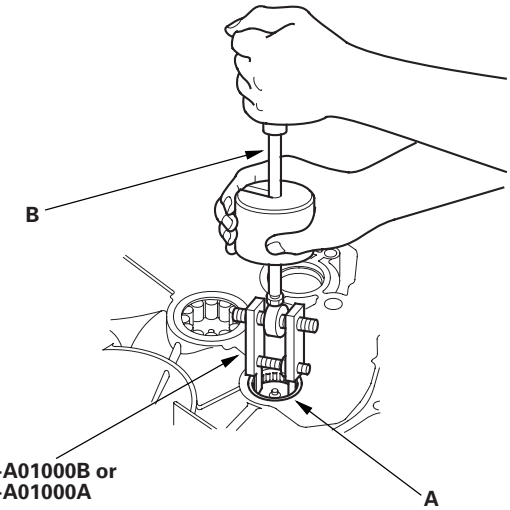


3. Install the new bearing (B) into the housing (C) with the special tools.

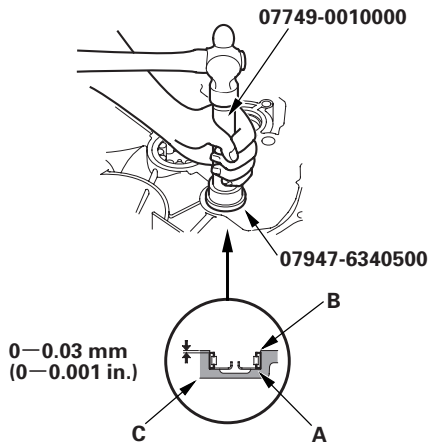
Secondary Shaft Bearing Replacement

Special Tools Required
- Adjustable bearing puller, 25—40 mm 07736-A01000B or 07736-A01000A
- Driver 07749-0010000
- Driver attachment 07947-6340500

1. Remove the secondary shaft bearing (A) with the special tool and a commercially available 3/8''-16 slide hammer (B).



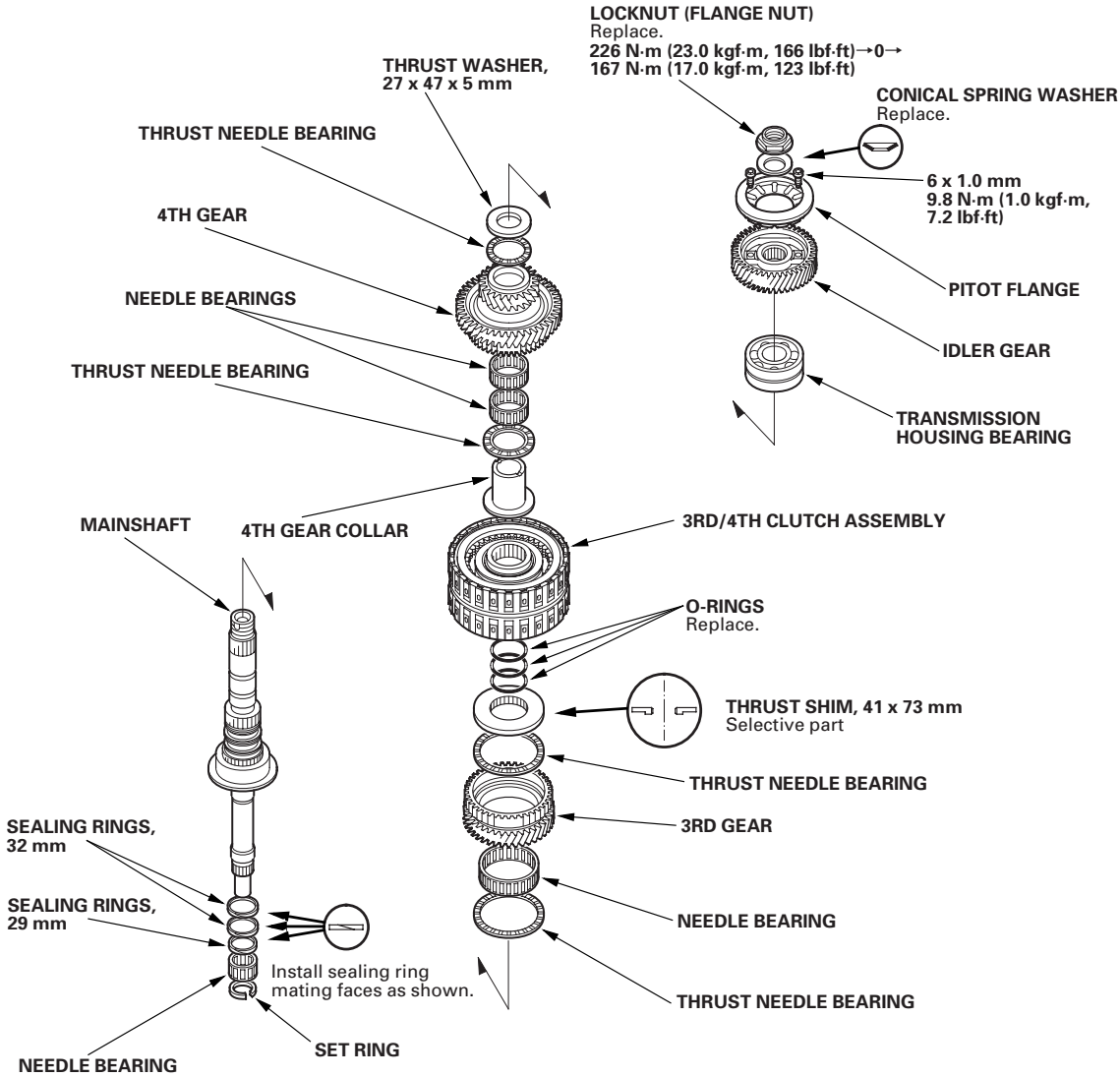
2. Install the ATF guide plate (A).



3. Install the new bearing (B) into the housing (C) with the special tools.

Mainshaft Disassembly, Inspection, and Reassembly

1. Lubricate all parts with ATF during reassembly.

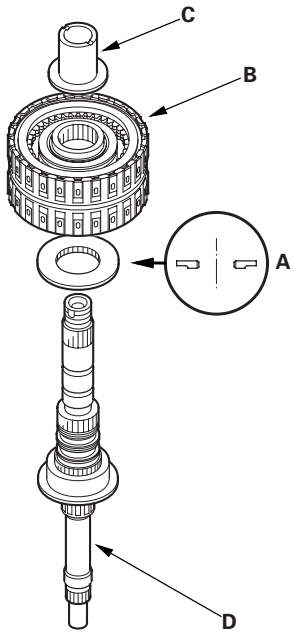


2. Check the clearance of the 3rd/4th clutch assembly (see page 14-207).
3. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.
4. Inspect the splines for excessive wear and damage.
5. Check shaft bearing surfaces for scoring, scratches, and excessive wear.
6. Before installing the O-rings, wrap the shaft splines with tape to prevent damage to the O-rings.
7. Install the conical spring washer and 41 x 73 mm thrust shim in the direction shown.
8. Inspect condition of the sealing rings. If the sealing rings are worn, distorted, or damaged, replace them (see page 14-208).

3rd/4th Clutch Clearance Inspection

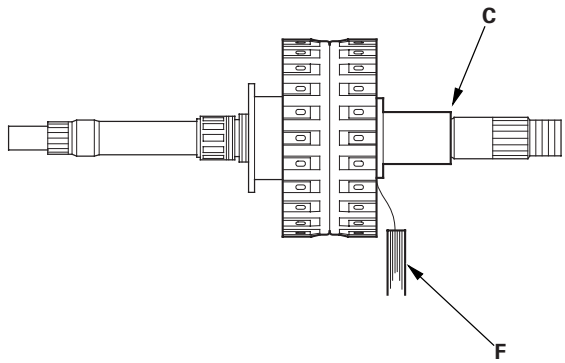
1. Remove the O-rings from the mainshaft.

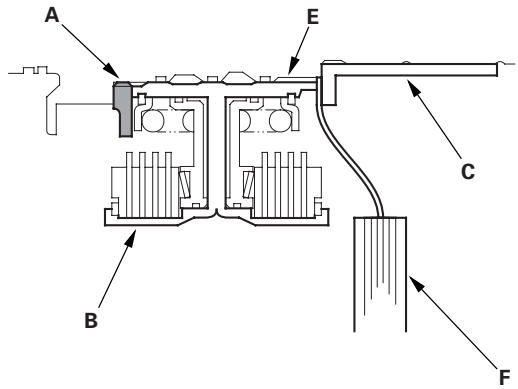
2. Assemble the 41 x 73 mm thrust shim (A), 3rd/4th clutch assembly (B), and 4th gear collar (C) on the mainshaft (D).



3. Hold the 4th gear collar (C) against the clutch assembly (B), then measure the clearance between the clutch guide (E) and the 4th gear collar with a feeler gauge (F) in at least three places. Use the average as the actual clearance.

Standard: 0.03—0.11 mm (0.001—0.004 in.)





4. If the clearance is out of standard, remove the thrust shim and measure its thickness.

5. Select and install a new shim, then recheck.

THRUST SHIM, 41 x 73 mm

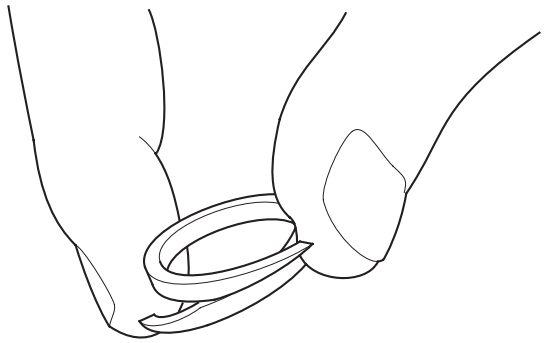
No.	Part Number	Thickness
1	90414-P7T-000	7.85 mm (0.309 in.)
2	90415-P7T-000	7.90 mm (0.311 in.)
3	90416-P7T-000	7.95 mm (0.313 in.)
4	90417-P7T-000	8.00 mm (0.315 in.)
5	90418-P7T-000	8.05 mm (0.317 in.)
6	90419-P7T-000	8.10 mm (0.319 in.)

6. After replacing the thrust shim, make sure the clearance is within standard.

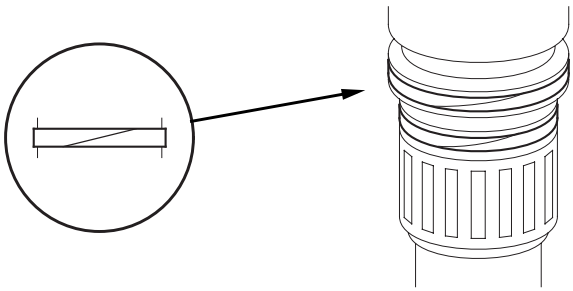
Mainshaft Sealing Ring Replacement

The sealing rings are synthetic resin with chamfered ends. Check the condition of the sealing rings, and replace them only if they are worn, distorted, or damaged.

1. For a better fit, squeeze sealing rings together slightly before installing them.



2. Apply ATF to the new sealing rings then install them on the mainshaft.

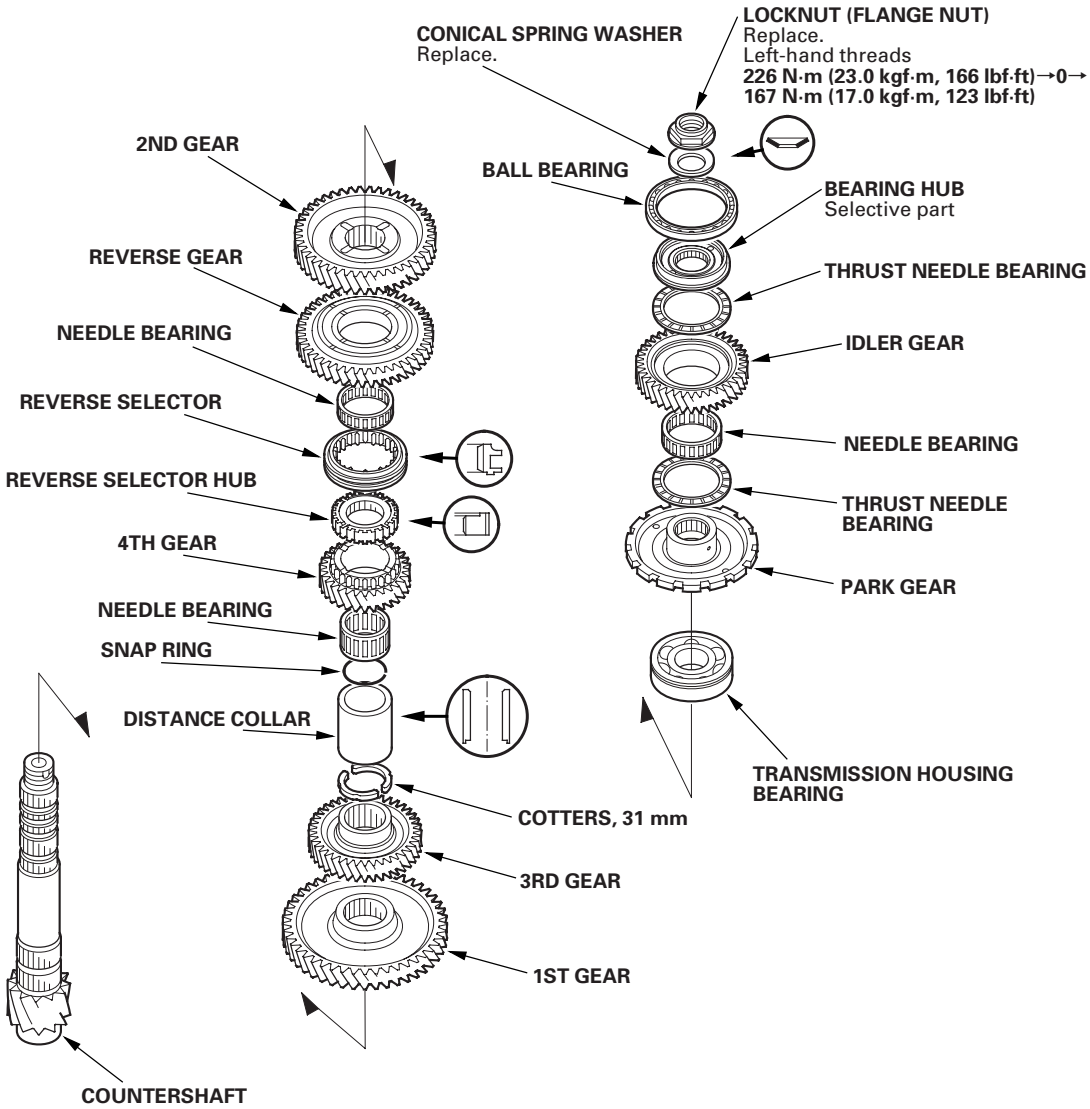


3. After installing the sealing rings, verify the following:

   - The rings are fully seated in the groove.
   - The rings are not twisted.
   - The chamfered ends of the rings are properly joined.

Countershaft Disassembly, Inspection, and Reassembly

1. Remove the locknut, and take off components down to the reverse selector hub.



2. Remove the reverse selector hub, 3rd gear, and 1st gear (see page 14-210).

3. Check the bearing in the bearing hub for wear and rough movement. If the bearing is worn or damaged, replace it (see page 14-212).

4. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.

5. Check the splines for excessive wear and damage.

6. Check the shaft bearing surfaces for scoring, scratches, and excessive wear.

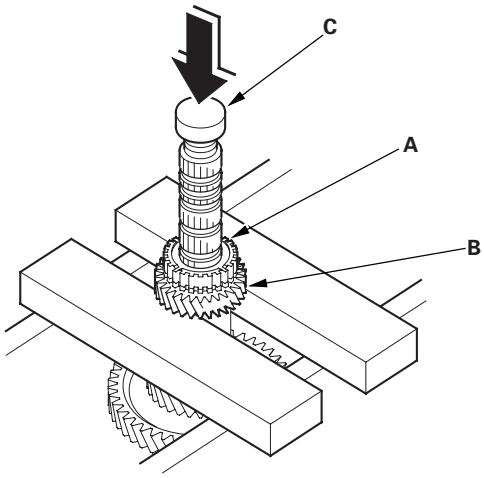
7. Lubricate all parts with ATF, and reassemble the shafts and gears.

8. Install the conical spring washer, reverse selector, reverse selector hub, and distance collar in the direction shown.

Countershaft Reverse Selector Hub, 3rd Gear, and 1st Gear Removal

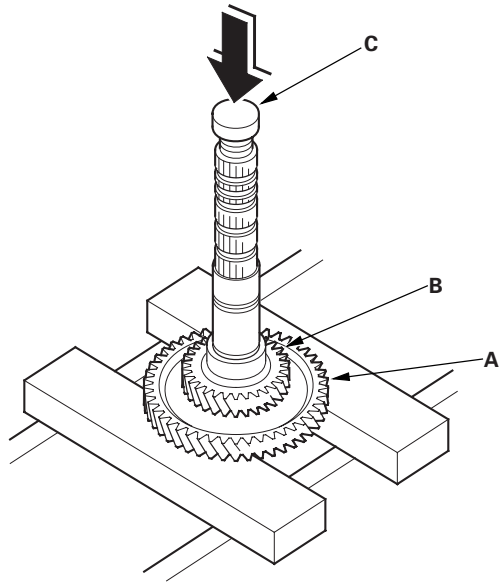
1. Remove the reverse selector hub (A) and the 4th gear (B) from the countershaft with a press. Place a shaft protector (C) between the countershaft and press to prevent damaging the countershaft.

   NOTE: Some reverse selector hubs are not press-fitted, and can be removed without using a puller.



2. Remove the needle bearing, snap ring, distance collar, and 31 mm cotters from the countershaft.

3. Remove the 1st gear (A) and 3rd gear (B) together from the countershaft with a press. Place a shaft protector (C) between the countershaft and press to prevent damaging the countershaft.



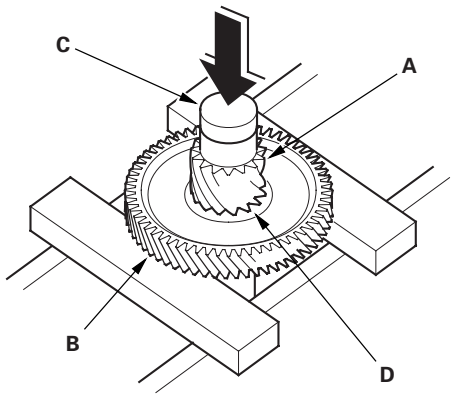
Countershaft Reverse Selector Hub, 3rd Gear, and 1st Gear Installation

Special Tools Required
Driver, 40 mm I.D. 07746-0030100

1. Apply ATF to the parts.

2. Align the shaft splines with those on 1st gear, then press the countershaft (A) into the 1st gear (B) with a press.

   - Place an attachment (C) between the press and countershaft to prevent damaging the countershaft.
   - Stop pressing the countershaft when the 1st gear contacts the final drive gear (D).



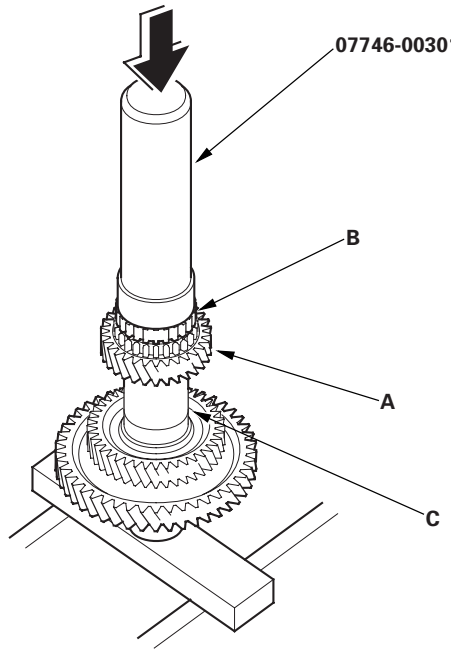
3. Align the shaft splines with those on 3rd gear, then press the countershaft into the 3rd gear with a press.

   - Place an attachment between the press and countershaft to prevent damaging the countershaft.
   - Stop pressing the countershaft when the 3rd gear contacts the 1st gear.

4. Install the 31 mm cotters, distance collar, snap ring, needle bearing, and 4th gear (A) on the countershaft.

5. Slide the reverse selector hub (B) over the countershaft (C), and then press it into place with the special tool and a press.

   NOTE: Some reverse selector hubs are not press-fitted and can be installed without using the special tool and a press.

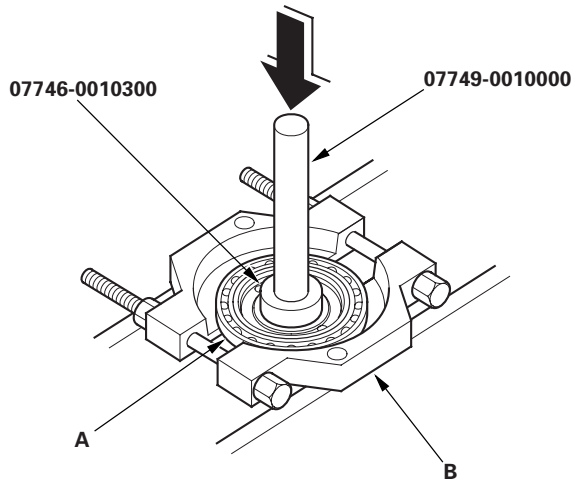


Countershaft Bearing Hub/Bearing Replacement

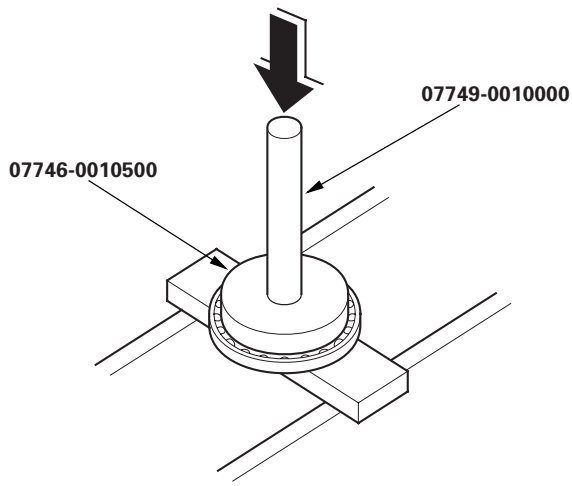
Special Tools Required
- Driver 07749-0010000
- Attachment, 42 x 47 mm 07746-0010300
- Attachment, 62 x 68 mm 07746-0010500

1. Check the bearing for wear, damage, and rough movement. If the bearing is worn or damaged, replace it.

2. Remove the bearing (A) from the bearing hub with the special tools, a bearing separator (B) and a press.

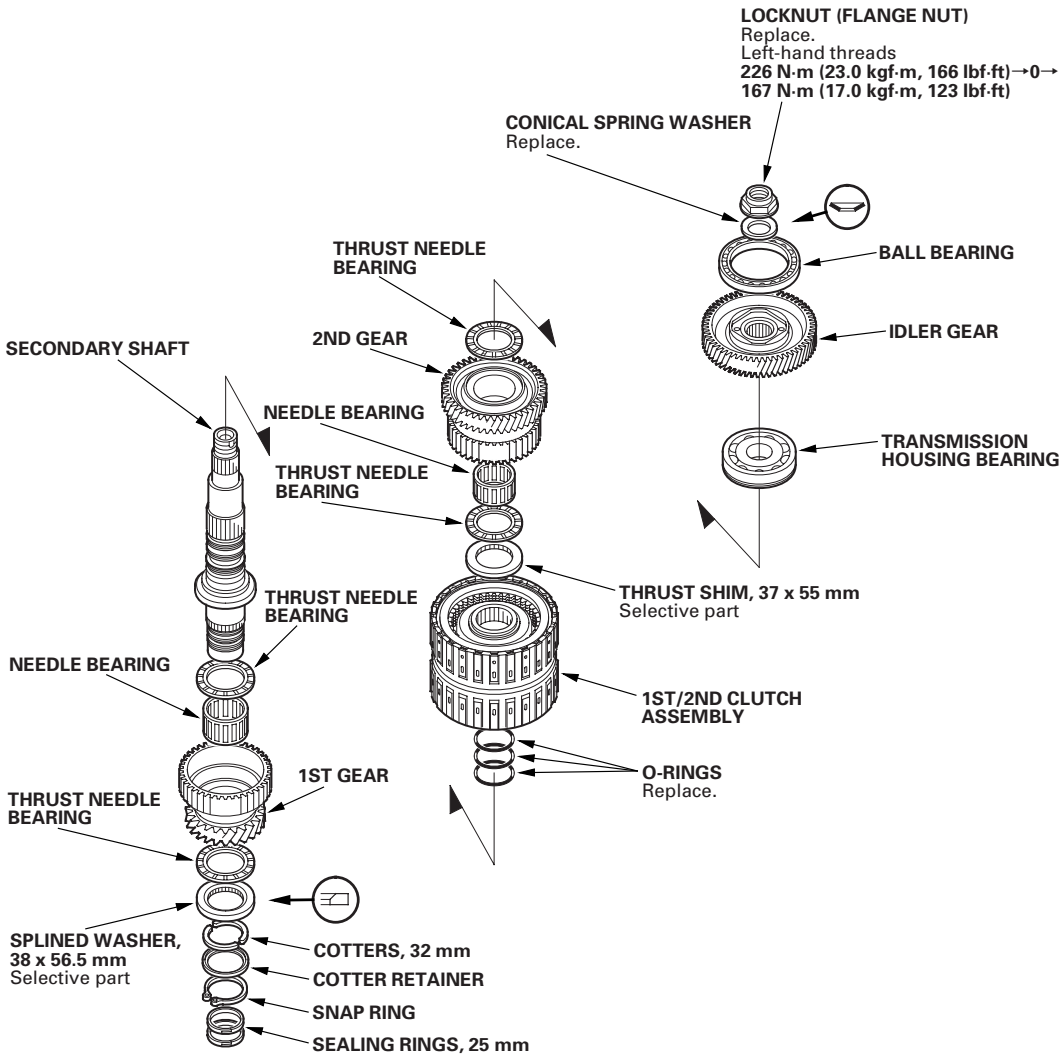


3. Install the new bearing on the bearing hub with the special tools and a press.



Secondary Shaft Disassembly, Inspection, and Reassembly

1. Remove the locknut, and disassemble the shaft and gears.

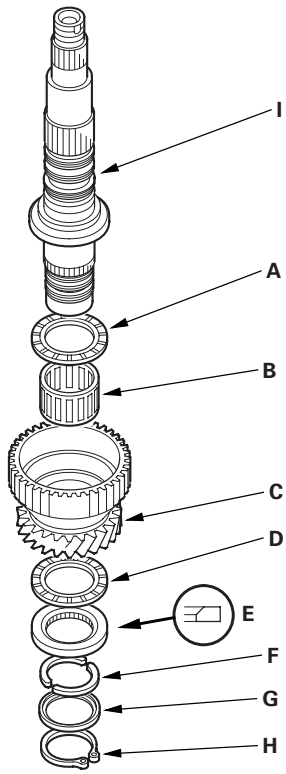


2. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.
3. Check clearance of the secondary shaft assembly (see page 14-214).
4. Check the splines for excessive wear and damage.
5. Check the shaft bearing surfaces for scoring, scratches, and excessive wear.
6. Check the idler gear bearing for wear and rough movement. If the bearing is worn or damaged, replace it (see page 14-216).
7. Before installing the O-rings, wrap the shaft splines with tape to prevent damage to the O-rings.
8. Lubricate all parts with ATF during reassembly.
9. Install the conical spring washer and 38 x 56.5 splined washer in the direction shown.

Secondary Shaft Clearance Inspection

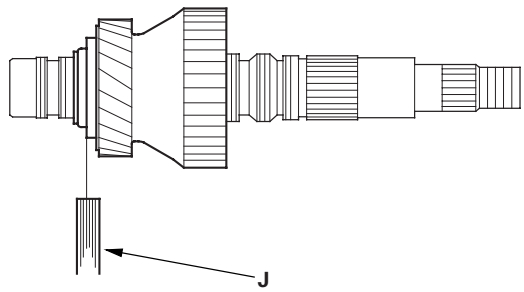
1. Remove the O-rings from the shaft.

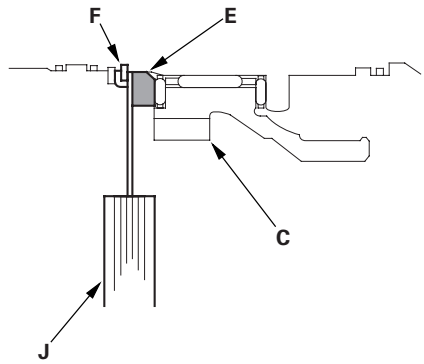
2. Assemble the thrust needle bearing (A), needle bearing (B), 1st gear (C), thrust needle bearing (D), 38 x 56.5 mm splined washer (E), 32 mm cotters (F), cotter retainer (G), and snap ring (H) on the secondary shaft (I).



3. Measure the clearance between the 38 x 56.5 mm splined washer (E) and cotters (F) with a feeler gauge (J) in at least three places. Use the average as the actual clearance.

Standard: 0.07—0.15 mm (0.003—0.006 in.)





4. If the clearance is out of standard, remove the splined washer, and measure its thickness.

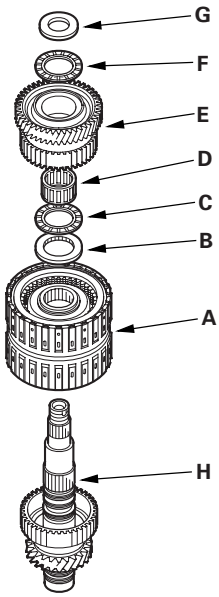
5. Select and install a new splined washer, then recheck.

SPLINED WASHER, 38 x 56.5 mm

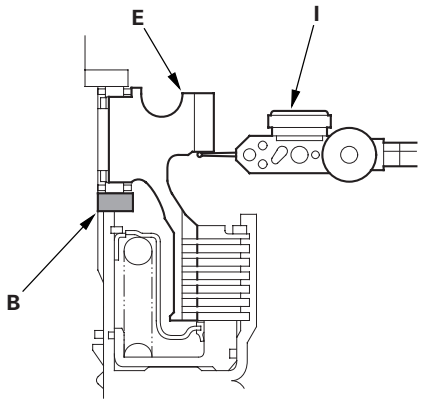
No.	Part Number	Thickness
1	90502-P0Z-000	6.85 mm (0.270 in.)
2	90503-P0Z-000	6.90 mm (0.272 in.)
3	90504-P0Z-000	6.95 mm (0.274 in.)
4	90505-P0Z-000	7.00 mm (0.276 in.)
5	90506-P0Z-000	7.05 mm (0.278 in.)
6	90507-P0Z-000	7.10 mm (0.280 in.)

6. Remove the 27 x 47 x 5 mm thrust washer from the mainshaft.

7. Assemble the 1st/2nd clutch assembly (A), 37 x 55 mm thrust shim (B), thrust needle bearing (C), needle bearing (D), 2nd gear (E), thrust needle bearing (F), and 27 x 47 x 5 mm thrust washer (removed from mainshaft) (G) on the secondary shaft (H).

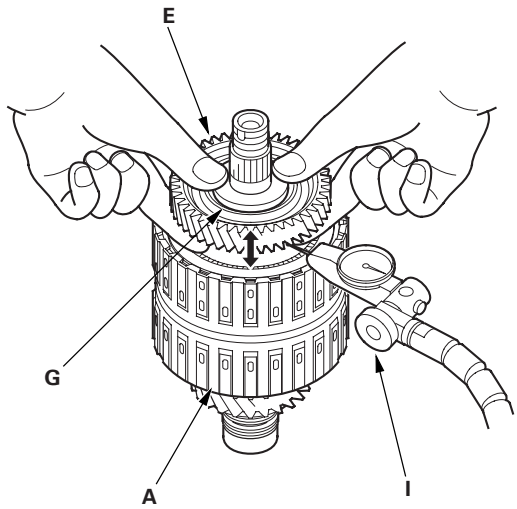


8. Set the dial indicator (I) on 2nd gear (E).



9. Hold the 27 x 47 x 5 mm thrust washer (G) against the clutch assembly (A), and measure the 2nd gear axial clearance in at least three places while moving the 2nd gear (E). Use the average as the actual clearance.

Standard: 0.04—0.12 mm (0.002—0.005 in.)



10. If the clearance is out of standard, remove the 37 x 55 mm thrust shim and measure its thickness.

11. Select and install a new thrust shim, then recheck.

THRUST SHIM, 37 x 55 mm

No.	Part Number	Thickness
1	90406-P0Z-000	4.90 mm (0.193 in.)
2	90407-P0Z-000	4.95 mm (0.195 in.)
3	90408-P0Z-000	5.00 mm (0.197 in.)
4	90409-P0Z-000	5.05 mm (0.199 in.)
5	90410-P0Z-000	5.10 mm (0.201 in.)
6	90411-P0Z-000	5.15 mm (0.203 in.)
7	90412-P0Z-000	5.20 mm (0.205 in.)

12. Disassemble the shaft and gears.

13. Reinstall the 27 x 47 x 5 mm thrust washer on the mainshaft.

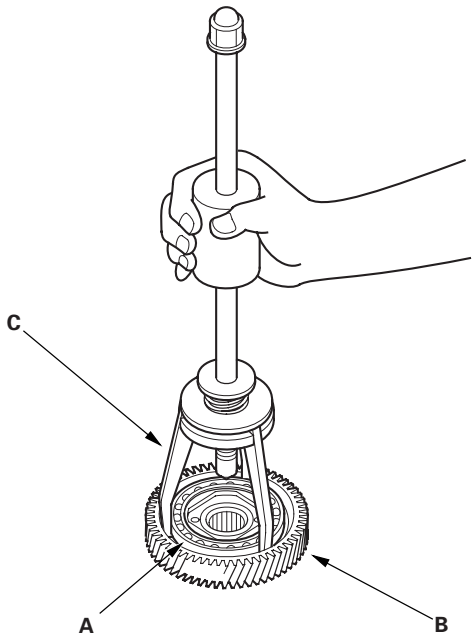
Secondary Shaft Idler Gear Bearing Replacement

Special Tools Required
- Driver 07749-0010000
- Attachment, 62 x 68 mm 07746-0010500

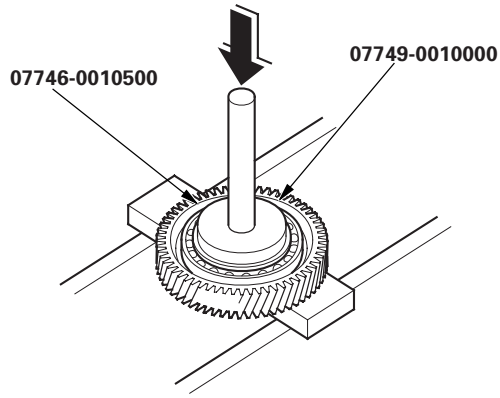
1. Check the bearing for wear, damage, and rough movement. If the bearing is worn or damaged, go to step 2.

2. Place the secondary shaft idler gear in a vise with soft jaws.

3. Remove the bearing (A) from the secondary shaft idler gear (B) with a commercially available, 3-jaw slide hammer (C).



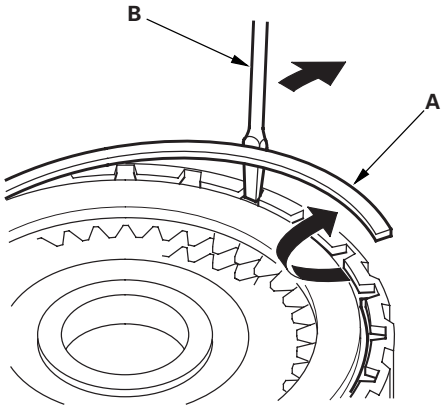
4. Install the bearing on the secondary shaft idler gear with the special tools and a press.



Clutch Disassembly

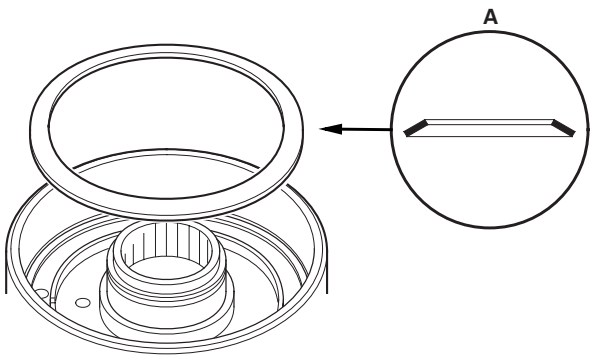
Special Tools Required
- Clutch spring compressor attachment 07LAE-PX40100
- Clutch spring compressor attachment 07HAE-PL50101
- Clutch spring compressor bolt assembly 07GAE-PG40200 or 07GAE-PG4020A

1. Remove the snap ring (A), then remove the clutch end plate, the clutch discs, and the plates with a screwdriver (B).

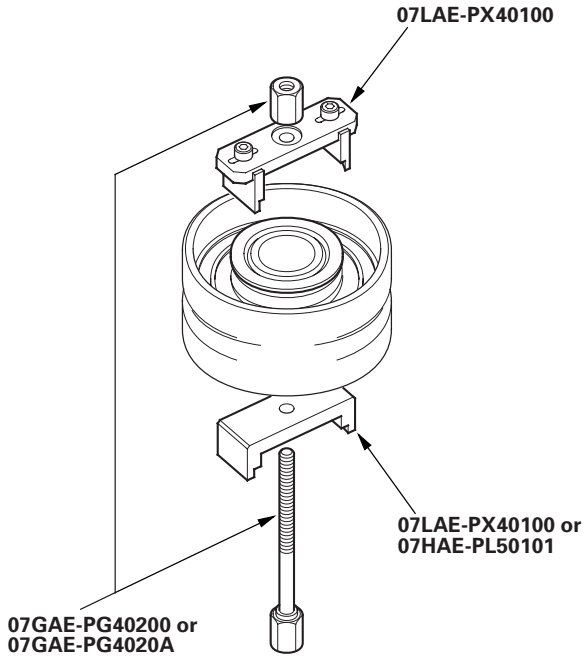


2. Remove the disc spring (A) from the 1st, 3rd, and 4th clutches.

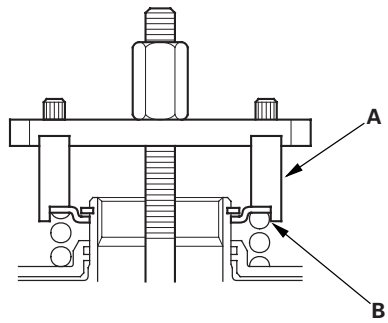
   NOTE: The 2nd clutch does not have a disc spring.



3. Install the special tools on the clutch assembly.



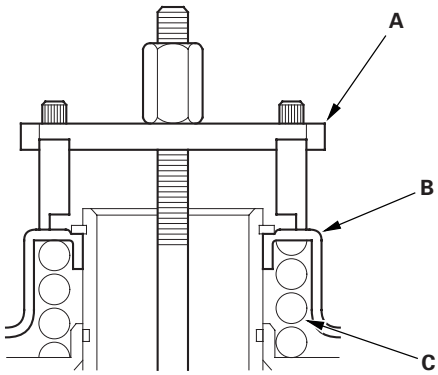
4. Be sure the special tool (A) is adjusted to have full contact with the spring retainer (B) on the 3rd and 4th clutches.



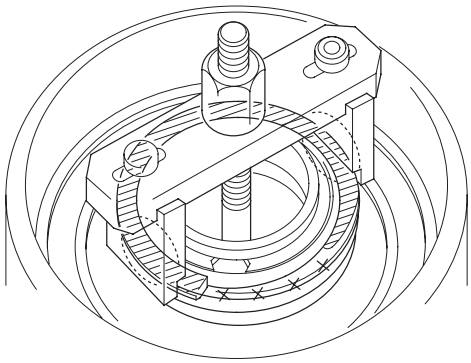
(cont'd)

Clutch Disassembly (cont'd)

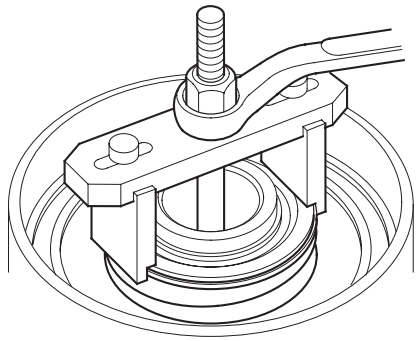
5. Set the special tool (A) on the spring retainer (B) of the 1st and 2nd clutches so the special tool contacts the clutch return spring (C).



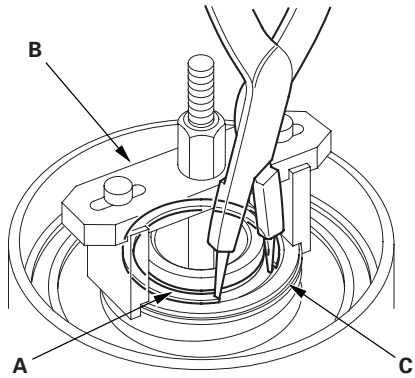
6. If either end of the special tool is set over an area of the spring retainer which is unsupported by the return spring, the retainer may be damaged.



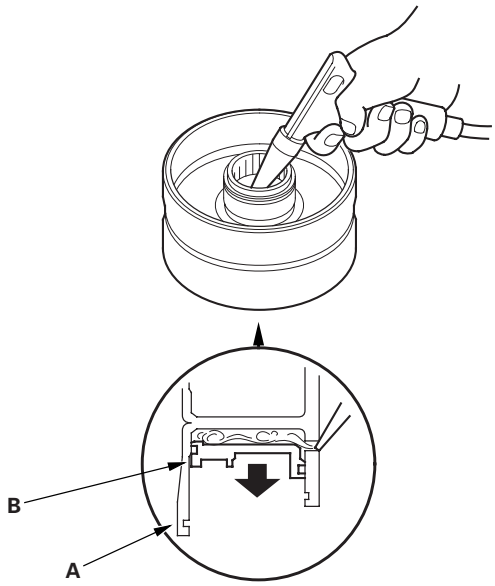
7. Compress the spring until the snap ring can be removed.



8. Remove the snap ring (A). Then remove the special tool (B), spring retainer (C) and return spring.

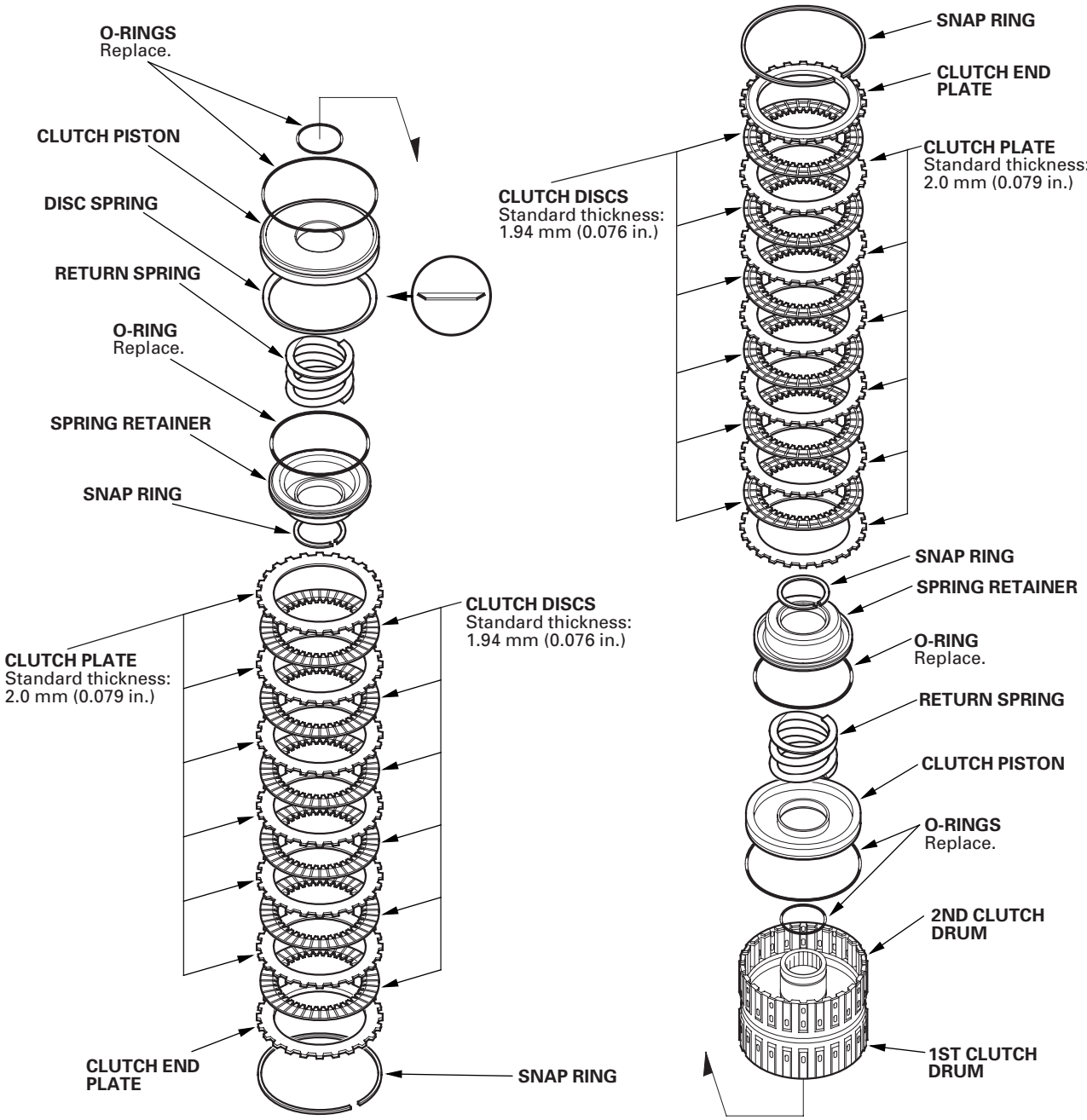


9. For 3rd and 4th clutch: Wrap a shop rag around the clutch drum (A), and apply air pressure to the fluid passage to remove the piston (B). Place a finger tip on the other end while applying air pressure.

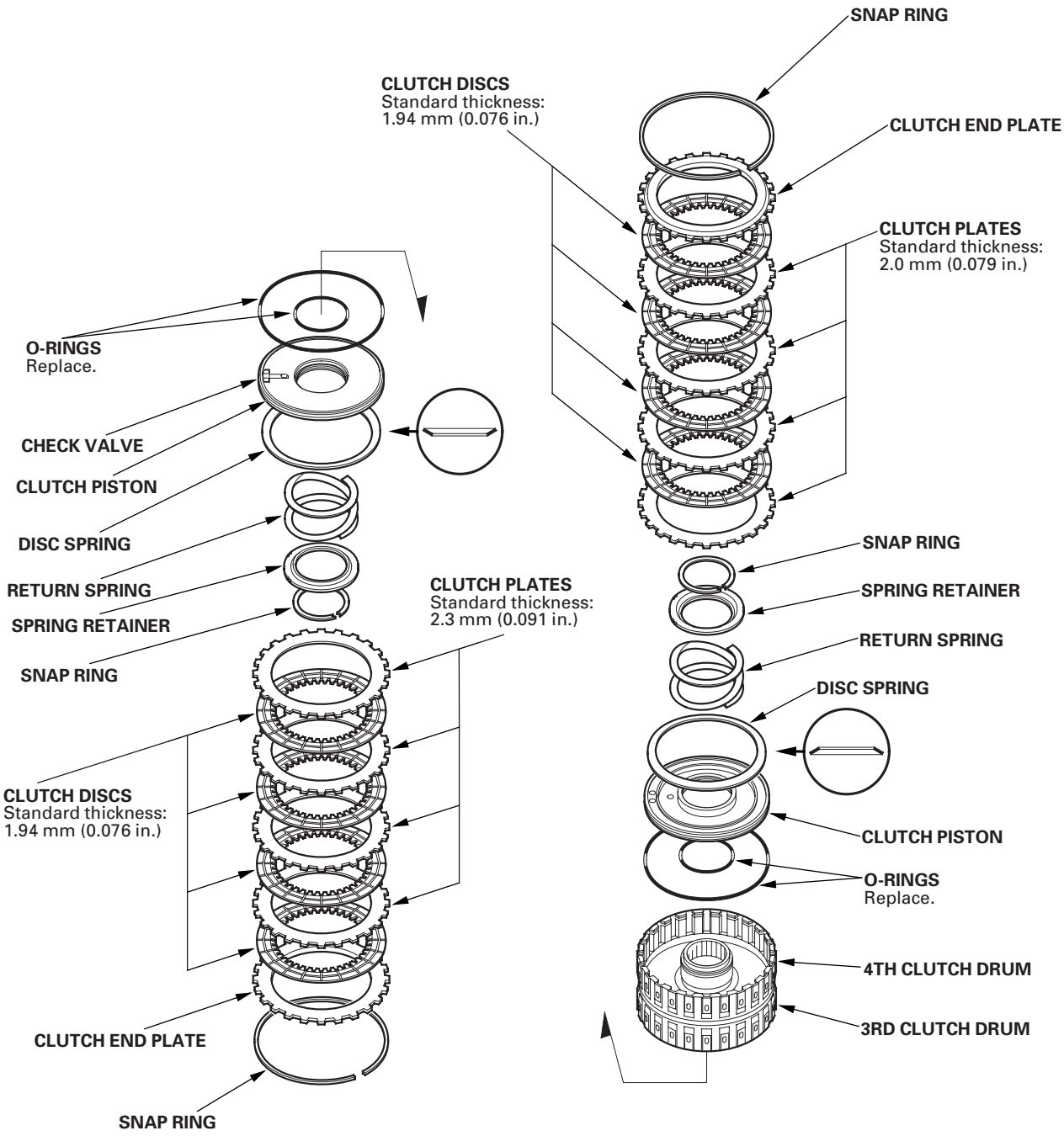


Clutch Inspection

1ST/2ND CLUTCH



3RD/4TH CLUTCH



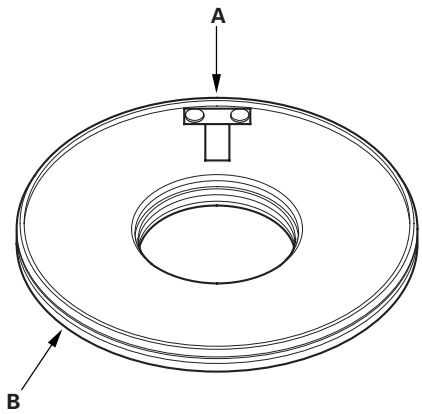
Clutch Reassembly

Special Tools Required
- Clutch spring compressor attachment 07LAE-PX40100
- Clutch spring compressor attachment 07HAE-PL50101
- Clutch spring compressor bolt assembly 07GAE-PG40200 or 07GAE-PG4020A
- Clutch compressor attachment 07ZAE-PRP0100

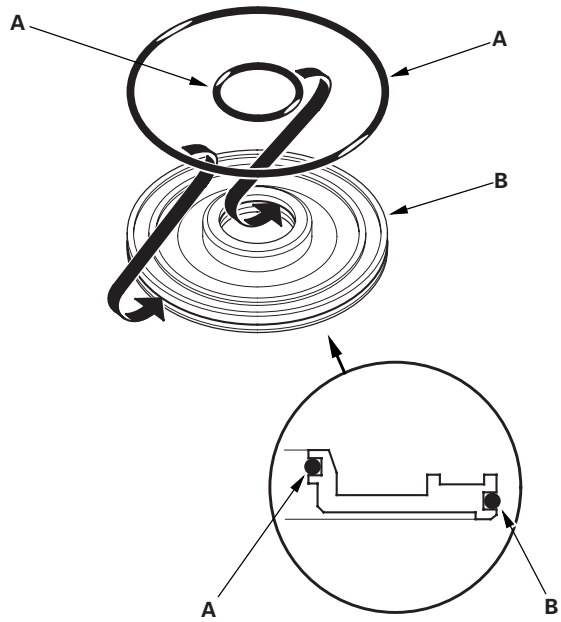
Note these items during reassembly:
- Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air.
- Blow out all passages.
- Apply ATF to all parts before assembly.

1. Soak the clutch discs thoroughly in ATF for a minimum of 30 minutes.

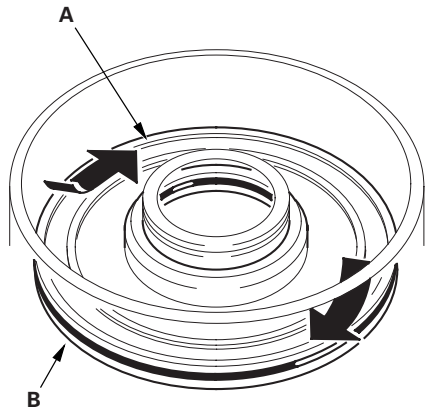
2. Inspect the check valve (A) on the clutch pistons (B); if it's loose or stuck, replace the piston.



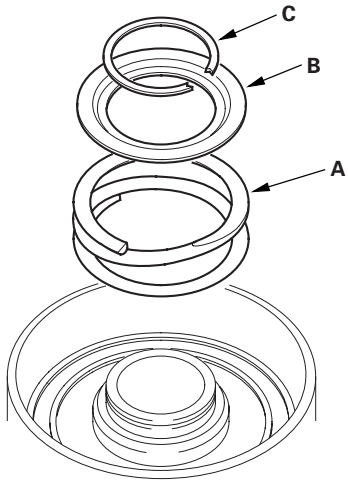
3. Install new O-rings (A) on the piston (B).



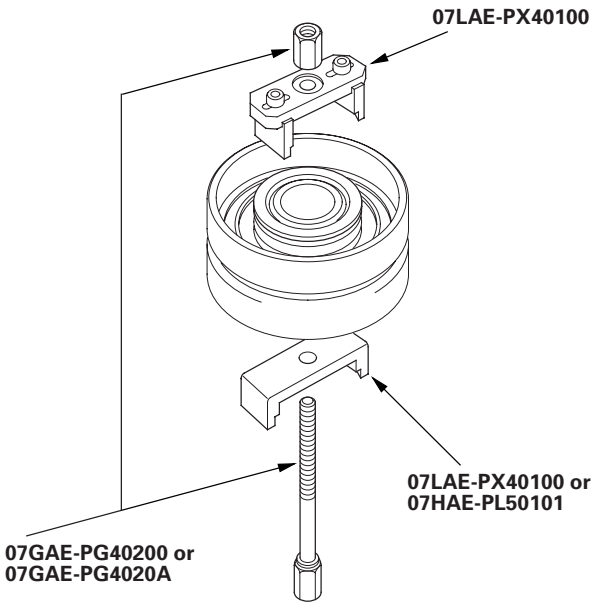
4. Install the piston (A) in the clutch drum (B). Apply pressure and rotate to ensure proper seating. Lubricate the piston O-ring with ATF before installing. Do not pinch the O-ring by installing the piston with too much force.



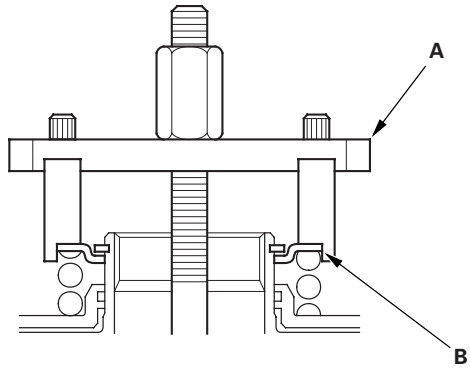
5. Install the return spring (A) and spring retainer (B), and position the snap ring (C) on the retainer.



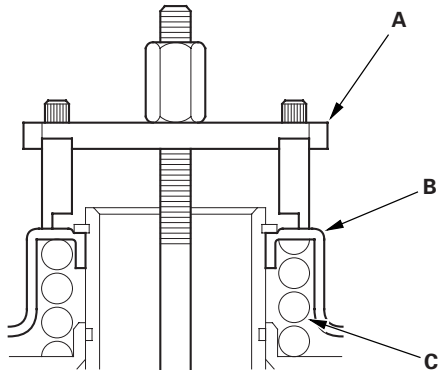
6. Install the special tools on the clutch assembly.



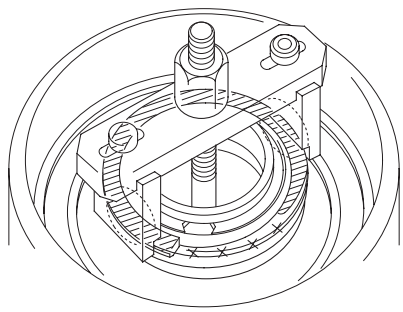
7. Be sure the special tool (A) is adjusted to have full contact with the spring retainer (B) on the 3rd and 4th clutches.



8. Set the special tool (A) on the spring retainer (B) of the 1st and 2nd clutches so the special tool contacts the clutch return spring (C).



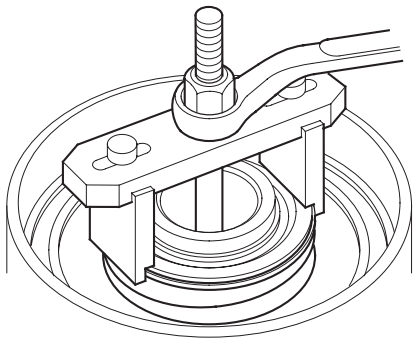
9. If either end of the special tool is set over an area of the spring retainer which is unsupported by the return spring, the retainer may be damaged.



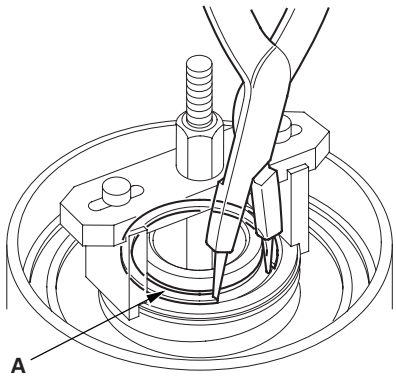
(cont'd)

Clutch Reassembly (cont'd)

10. Compress the return spring.



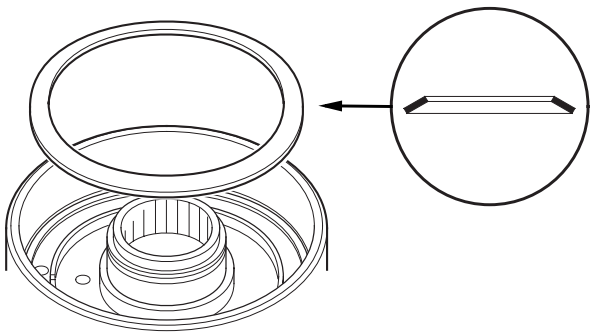
11. Install the snap ring (A).



12. Remove the special tools.

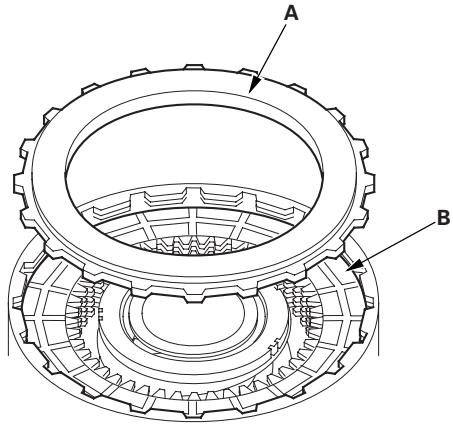
13. Install the disc spring in the 1st, 3rd, and 4th clutches in the direction shown.

    NOTE: The 2nd clutch does not have a disc spring.

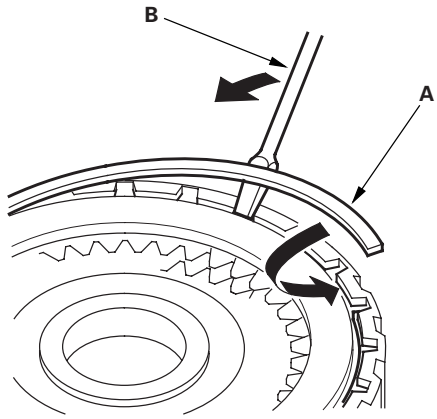


14. Make sure the inside of the clutch drum is free of dirt and other foreign matter.

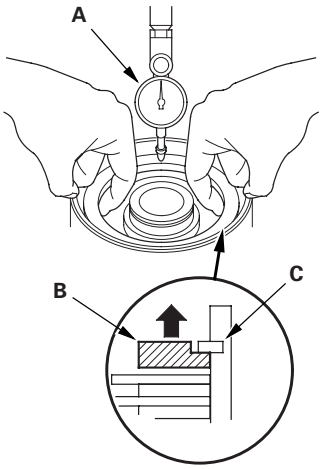
15. Starting with a clutch plate, alternately install the clutch plates and discs. Install the clutch end plate (A) with the flat side toward the disc (B).



16. Install the snap ring (A) with a screwdriver (B).

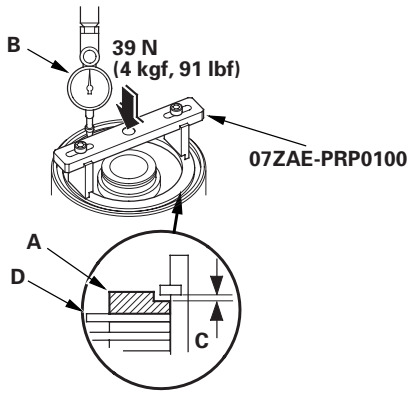


17. Set a dial indicator (A) on the clutch end plate (B).



18. Zero the dial indicator with the clutch end plate lifted up to the snap ring (C).

19. Release the clutch end plate to lower the clutch end plate, then put the special tool on the end plate (A).

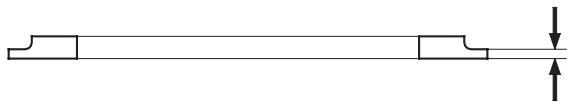


20. Press the special tool down with 39 N (4 kgf, 9 lbf) using a force gauge, and read the dial indicator (B). The dial indicator reads the clearance (C) between the clutch end plate and top disc (D). Take measurements in at least three places, and use the average as the actual clearance.

Clutch End Plate-to-Top Disc Clearance:
Service Limit:
1st Clutch: 1.2—1.4 mm (0.047—0.055 in.)
2nd Clutch: 0.85—1.05 mm (0.033—0.041 in.)
3rd Clutch: 0.55—0.75 mm (0.022—0.030 in.)
4th Clutch: 0.55—0.75 mm (0.022—0.030 in.)

21. If the clearance is not within the service limit, select a new clutch end plate from the following table.

NOTE: If the thickest clutch end plate is installed, but the clearance is still over the standard, replace the clutch discs and clutch plates as a set.



1ST and 2ND CLUTCH END PLATES

Mark	Part Number	Thickness
6	22551-P7T-003	2.6 mm (0.102 in.)
7	22552-P7T-003	2.7 mm (0.106 in.)
8	22553-P7T-003	2.8 mm (0.110 in.)
9	22554-P7T-003	2.9 mm (0.114 in.)
0	22555-P7T-003	3.0 mm (0.118 in.)
1	22556-P7T-003	3.1 mm (0.122 in.)
2	22557-P7T-003	3.2 mm (0.126 in.)
3	22558-P7T-003	3.3 mm (0.130 in.)
4	22559-P7T-003	3.4 mm (0.134 in.)

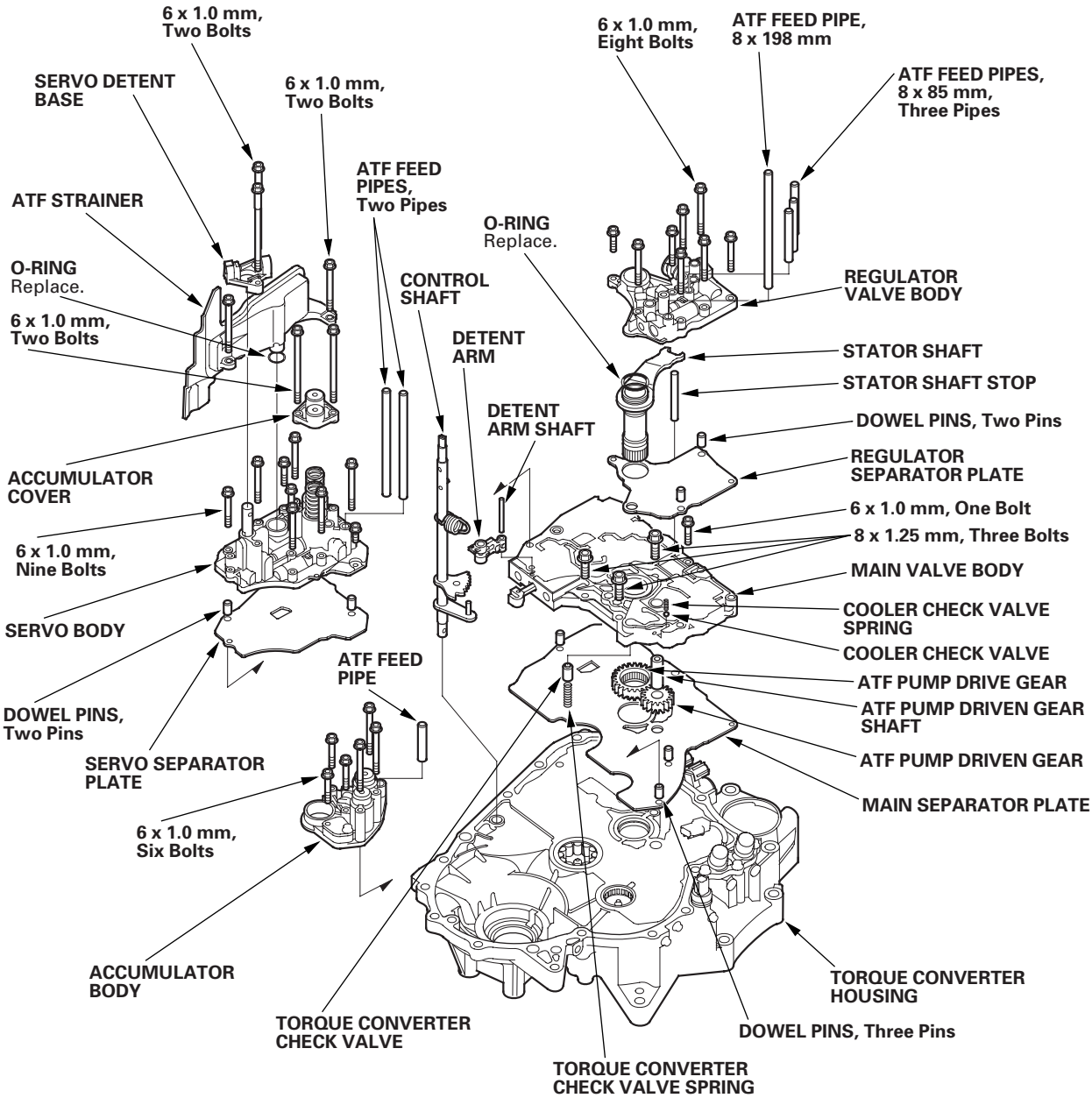
3RD and 4TH CLUTCH END PLATES

Mark	Part Number	Thickness
1	22561-P7T-003	2.1 mm (0.083 in.)
2	22562-P7T-003	2.2 mm (0.087 in.)
3	22563-P7T-003	2.3 mm (0.091 in.)
4	22564-P7T-003	2.4 mm (0.094 in.)
5	22565-P7T-003	2.5 mm (0.098 in.)
6	22566-P7T-003	2.6 mm (0.102 in.)
7	22567-P7T-003	2.7 mm (0.106 in.)
8	22568-P7T-003	2.8 mm (0.110 in.)
9	22569-P7T-003	2.9 mm (0.114 in.)

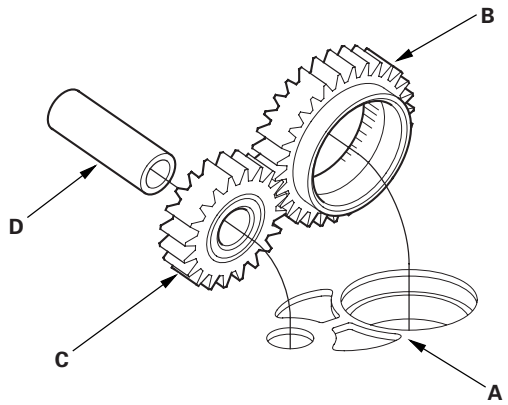
Valve Body and ATF Strainer Installation

Exploded View

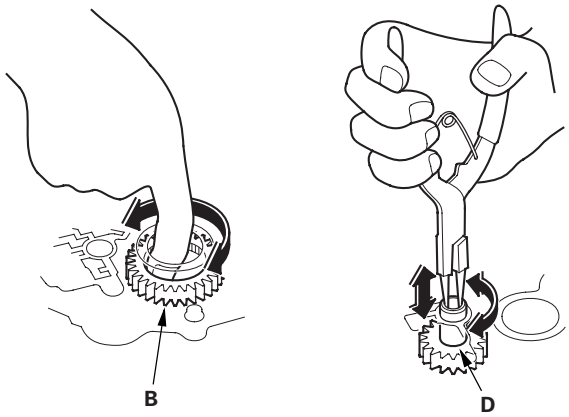
Torque:
6 x 1.0 mm: 12 N·m (1.2 kgf·m, 8.7 lbf·ft)
8 x 1.25 mm: 18 N·m (1.8 kgf·m, 13 lbf·ft)



1. Install the main separator plate (A) and three dowel pins on the torque converter housing. Then install the ATF pump drive gear (B), driven gear (C) and ATF pump driven gear shaft (D). Install the ATF pump driven gear with its grooved and chamfered side facing down.



2. Install the torque converter check valve and spring, then install the main valve body (one 6 mm bolt and three 8 mm bolts). Make sure the ATF pump drive gear (B) rotates smoothly in the normal operating direction, and the ATF pump driven gear shaft (D) moves smoothly in the axial and normal operating direction.



3. If the ATF pump drive gear and ATF pump driven gear shaft do not move smoothly, loosen the main valve body bolts. Realign the ATF pump driven gear shaft, retighten the bolts to the specified torque, and recheck movement. Failure to align the ATF pump driven gear shaft correctly will result in a seized ATF pump drive gear or ATF pump driven gear shaft.

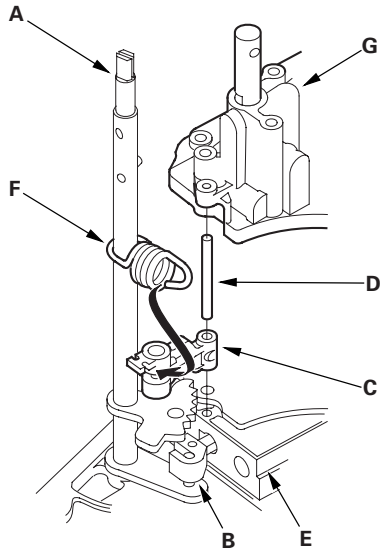
4. Install the cooler check valve and spring on the main valve body, then install the two dowel pins and the regulator separator plate.

5. Install the stator shaft and stator shaft stop.

6. Install the regulator valve body (eight bolts).

7. Install the two dowel pins and the servo separator plate on the main valve body.

8. Install the control shaft (A) in the torque converter housing along with the manual valve (B).



9. Install the detent arm (C) and arm shaft (D) in the main valve body (E), then hook the detent arm spring (F) to the detent arm.

10. Install the servo body (G) (nine bolts).

11. Install the accumulator cover (two bolts).

12. Install the ATF strainer (two bolts).

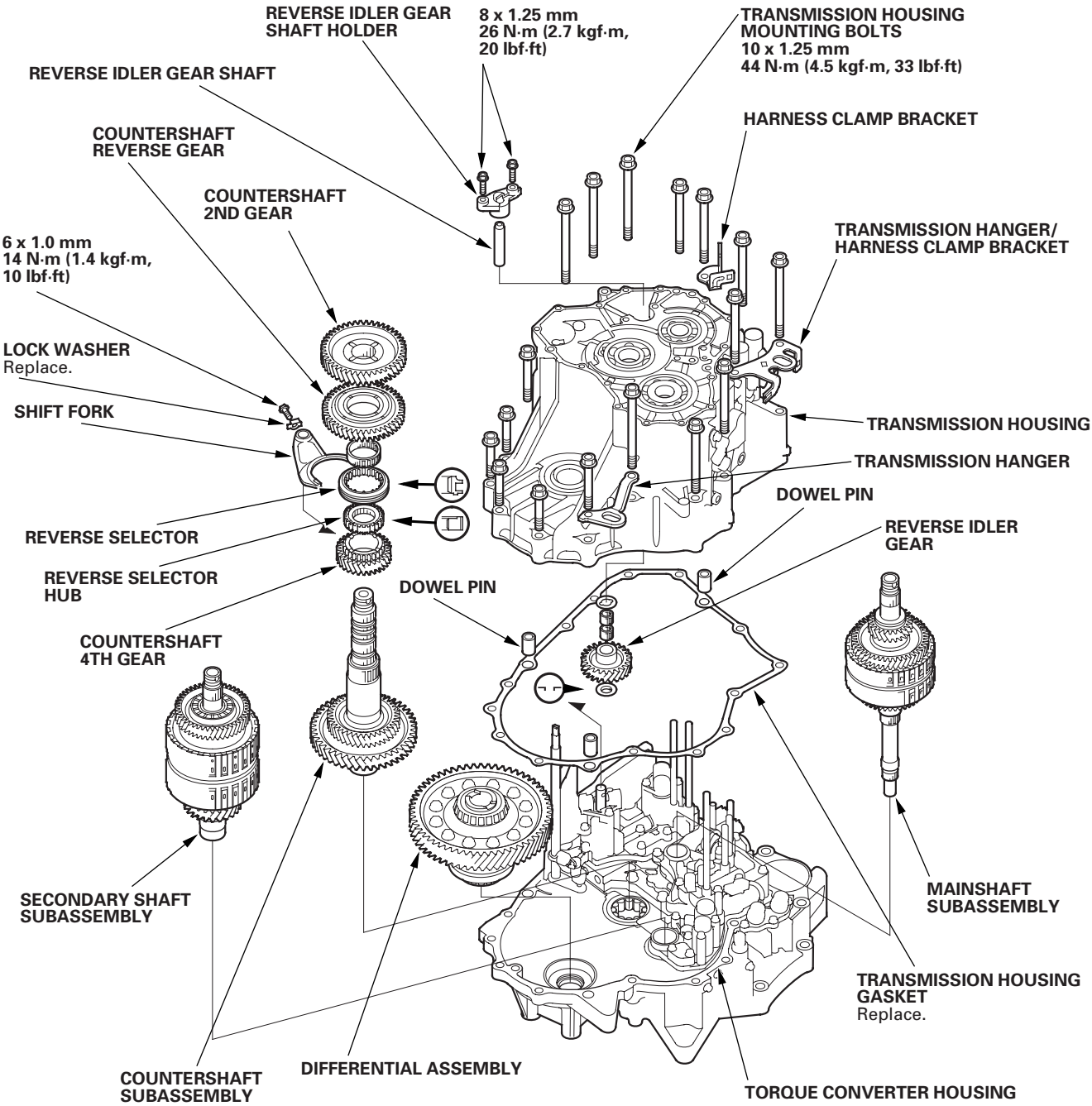
13. Install the servo detent base (two bolts).

14. Install the accumulator body (six bolts).

15. Install the two ATF feed pipes in the servo body, four pipes in the regulator valve body, and one pipe in the accumulator body.

Shaft Assembly and Housing Installation

Exploded View

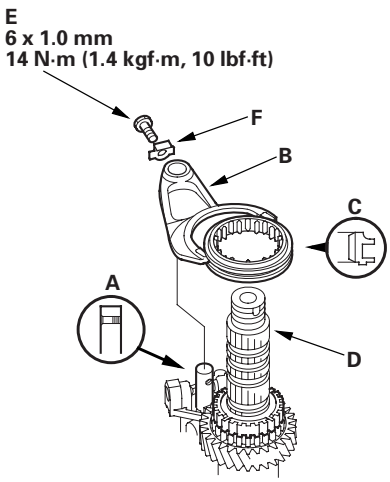


NOTE: Refer to the Exploded View as needed during the following procedure.

1. Install the differential assembly, countershaft subassembly, mainshaft subassembly, and secondary shaft subassembly in the torque converter housing.

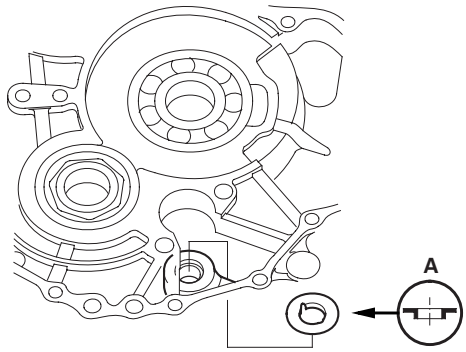
2. Install the countershaft 4th gear and reverse selector hub on the countershaft. If the reverse selector hub is a press-fitted type, refer to the reverse selector hub installation procedures (see page 14-211).

3. Turn the shift fork shaft (A) so the large chamfered hole is facing the fork bolt hole. Then install the shift fork (B) and reverse selector (C) together on the shift fork shaft and countershaft (D). Secure the shift fork to the shift fork shaft with the lock bolt (E) and a new lock washer (F), then bend the lock washer against the bolt head.

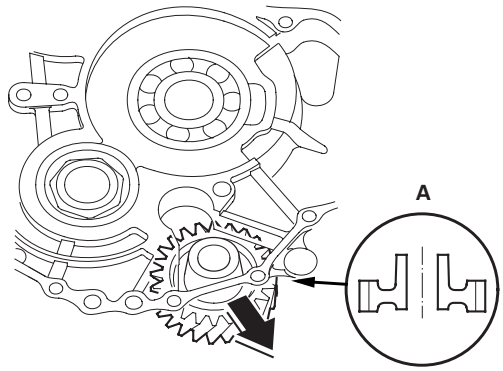


4. Install the needle bearing, countershaft reverse gear, and countershaft 2nd gear on the countershaft.

5. Place the thrust washer (A) in the transmission housing.



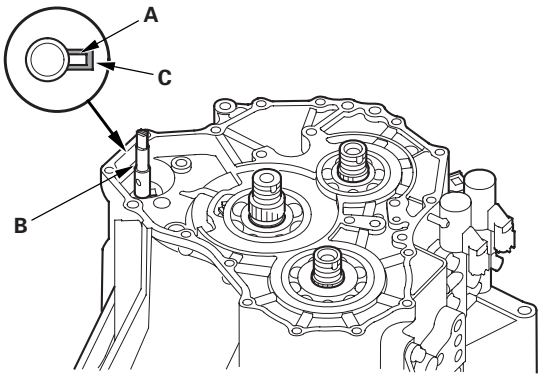
6. Place the reverse idler gear (A) in the transmission housing as shown, then slide it in the direction shown.



(cont'd)

Shaft Assembly and Housing Installation (cont'd)

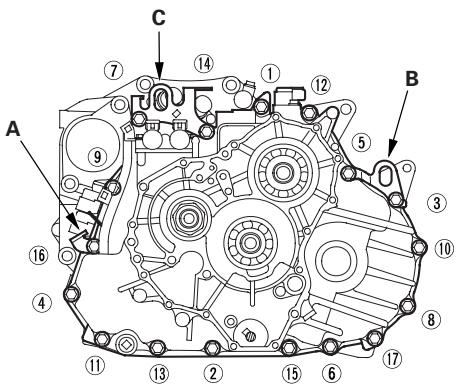
7. Align the spring pin (A) on the control shaft (B) with the transmission housing groove (C) by turning the control shaft.



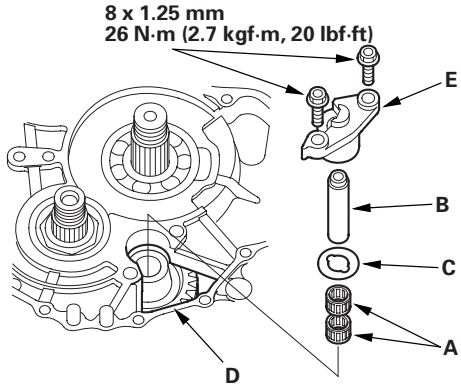
8. Install three dowel pins and a new gasket on the torque converter housing.

9. Place the transmission housing on the torque converter housing, then install the transmission housing mounting bolts along with the harness clamp bracket (A), transmission hanger (B), and transmission hanger/harness clamp bracket (C). Tighten the bolts in two or more steps in the sequence shown.

Torque: 44 N·m (4.5 kgf·m, 33 lbf·ft)



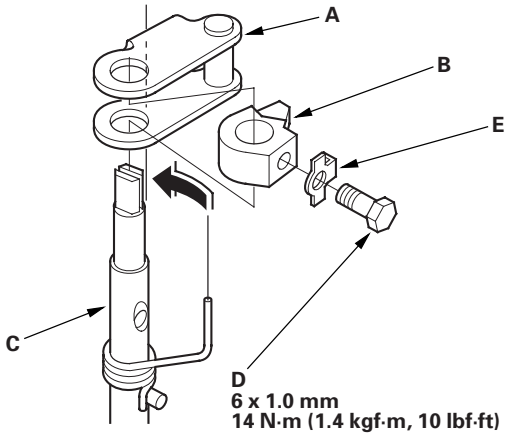
10. Engage the reverse idler gear with the countershaft reverse gear and the mainshaft reverse gear. Then install the needle bearings (A), reverse idler gear shaft (B), and thrust washer (C) in the reverse idler gear (D), and install the reverse idler gear shaft holder (E) on the transmission housing.



End Cover and Idler Gear Installation

Special Tools Required
Mainshaft holder
07GAB-PF50101 or 07GAB-PF50100

1. Install the park lever (A) and park lever stop (B) on the control shaft (C), then install the lock bolt (D) with a new lock washer (E). Do not bend the lock tab of the lock washer until step 25.

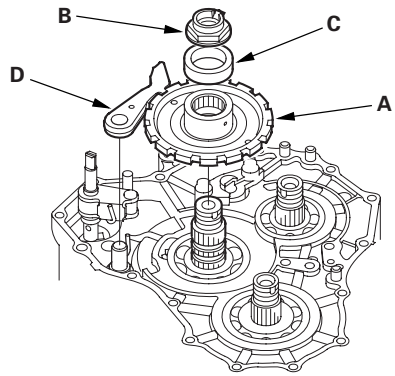


2. Lubricate the following parts with ATF:

   - Splines of the countershaft, the park gear, and the old locknut.
   - Threads of the countershaft and the old locknut.
   - Old conical spring washer.

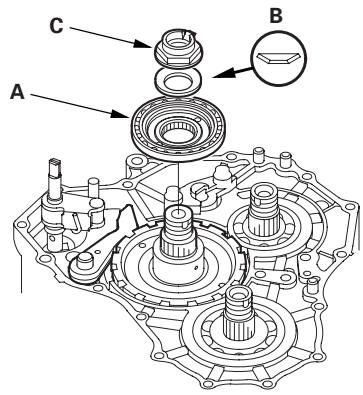
3. Install the park gear (A) using the old locknut (B) and a collar (C). Hold the park pawl (D) against the park gear, then tighten the old locknut until the shaft splines come out slightly over the park gear splines.

   NOTE:
   - Do not use an impact wrench.
   - Countershaft locknut has left-hand threads.



4. Remove the locknut and the collar, then install only the bearing hub/bearing assembly (A) and old conical spring washer (B). Tighten the old locknut (C) to 226 N·m (23.0 kgf·m, 166 lbf·ft), then remove the locknut and conical spring washer.

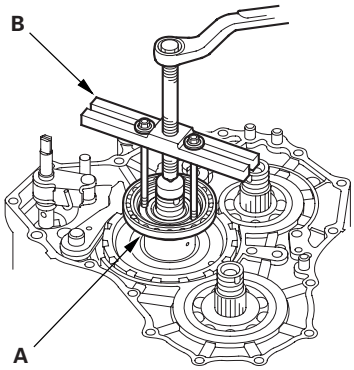
   NOTE: Use a torque wrench to tighten the locknut. Do not use an impact wrench.



(cont'd)

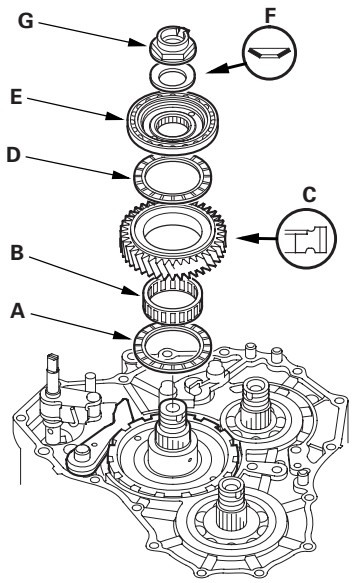
End Cover and Idler Gear Installation (cont'd)

5. Remove the bearing hub/bearing assembly (A) with a puller (B).

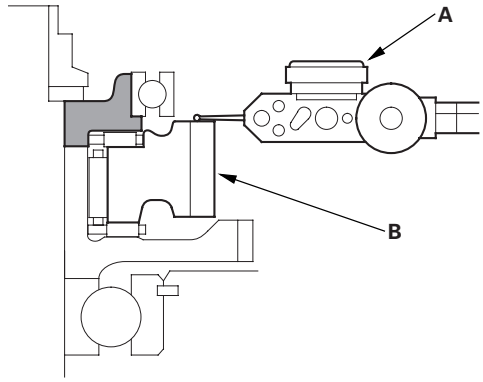


6. Install the thrust needle bearing (A), needle bearing (B), countershaft idler gear (C), thrust needle bearing (D), bearing hub/bearing assembly (E), and the old conical spring washer (F). Then tighten the old locknut (G) to 164 N·m (17.0 kgf·m, 123 lbf·ft).

   NOTE: Use a torque wrench to tighten the locknut. Do not use an impact wrench.

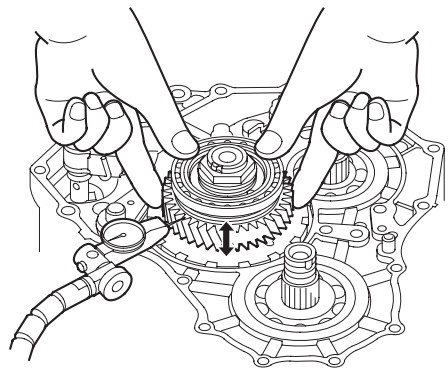


7. Set the dial indicator (A) to the countershaft idler gear (B) as shown.



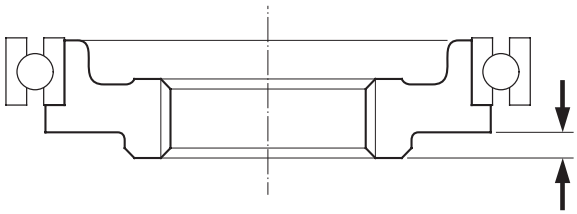
8. Measure the countershaft idler gear axial clearance in at least three places, while moving the countershaft idler gear.
   Use the average as the actual clearance.

   Standard: 0.015—0.045 mm (0.0006—0.0018 in.)



9. If the clearance is out of standard, remove the bearing hub/bearing assembly using a puller as described.

10. Select and install the new bearing hub/bearing assembly, then recheck.



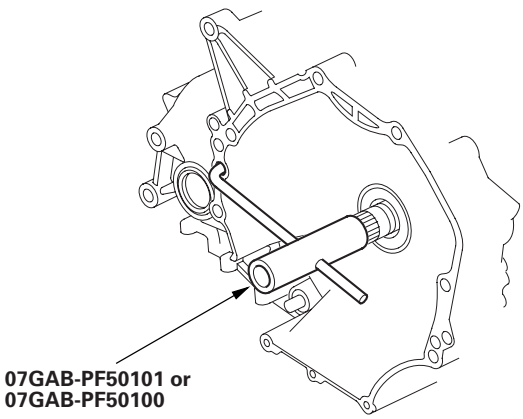
BEARING HUB

Mark	Part Number	Difference
A	90520-P6H-000	3.503 mm (0.1379 in.)
B	90521-P6H-000	3.490 mm (0.1374 in.)
C	90522-P6H-000	3.477 mm (0.1369 in.)
D	90523-P6H-000	3.464 mm (0.1364 in.)

11. After replacing the bearing hub/bearing assembly, make sure the clearance is within standard.

12. Remove the old locknut and old conical spring washer from the countershaft.

13. Install the special tool onto the mainshaft.

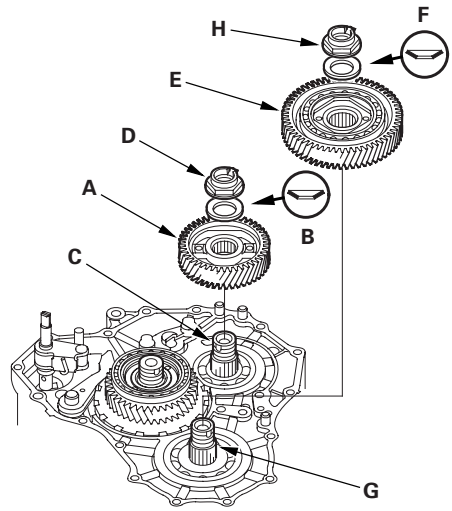


14. Lubricate the following parts with ATF:

    - Splines of the mainshaft, secondary shaft, and idler gears.
    - Threads of the mainshaft and secondary shaft.
    - Threads of the old mainshaft and secondary shaft locknuts.
    - Old conical spring washers.

15. Install the mainshaft idler gear (A) and the old conical spring washer (B) on the mainshaft (C). Tighten the old locknut (D) to 226 N·m (23.0 kgf·m, 166 lbf·ft) to seat the mainshaft idler gear.

    NOTE: Use a torque wrench to tighten the locknut. Do not use an impact wrench.



16. Install the secondary shaft idler gear (E) and the old conical spring washer (F) on the secondary shaft (G). Tighten the old locknut (H) to 226 N·m (23.0 kgf·m, 166 lbf·ft) to seat the secondary shaft idler gear.

    NOTE:
    - Use a torque wrench to tighten the locknut. Do not use an impact wrench.
    - Secondary shaft locknut has left-hand threads.

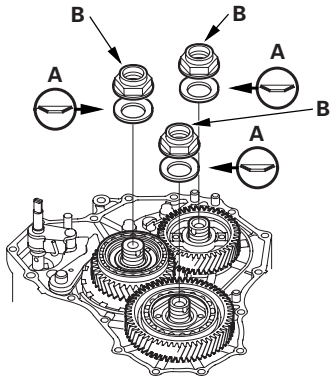
17. Remove the old locknuts and old conical spring washers from the mainshaft and the secondary shaft.

(cont'd)

End Cover and Idler Gear Installation (cont'd)

18. Lubricate the threads of each shaft, the new locknuts, and the new conical spring washers with ATF.

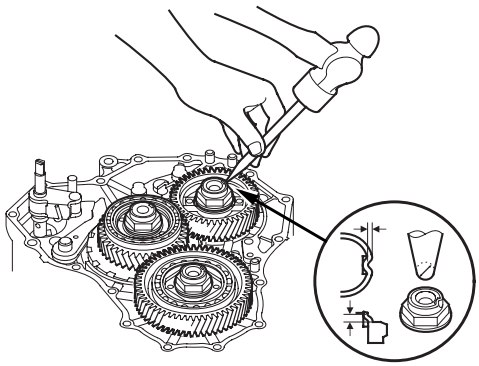
19. Install the new conical spring washers (A) in the direction shown, and install the new locknuts (B).



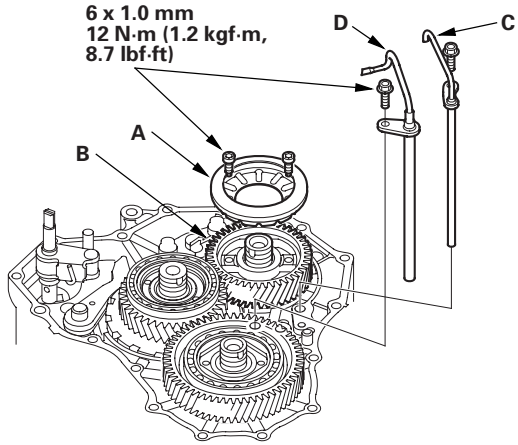
20. Tighten the locknut to 167 N·m, (17.0 kgf·m, 123 lbf·ft).

    NOTE:
    - Use a torque wrench to tighten the locknut. Do not use an impact wrench.
    - Countershaft and secondary shaft locknuts have left-hand threads.

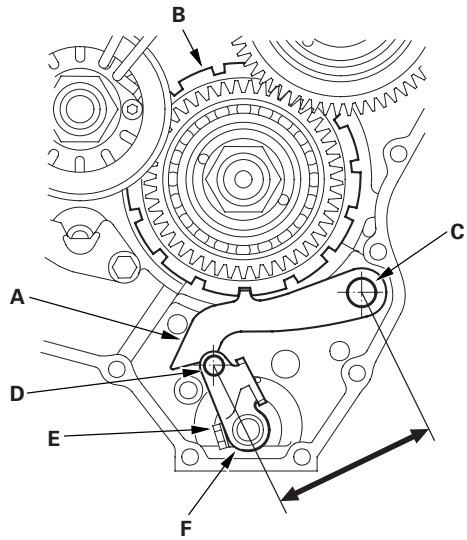
21. Stake each locknut into its shaft using a 3.5 mm punch.



22. Install the pitot flange (A) on the mainshaft idler gear (B), then install the lubrication pitot pipe (C) and the pitot pipe (D) on the transmission housing.



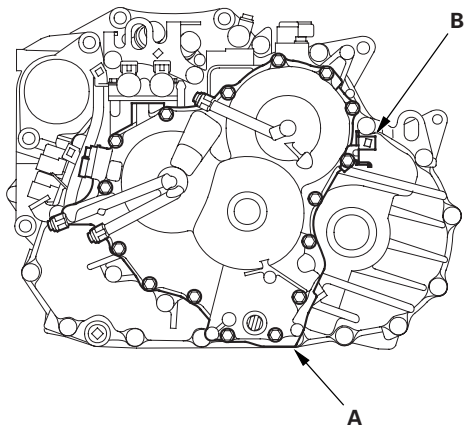
23. Set the park lever in P position, then verify that the park pawl (A) engages the park gear (B).



24. If the park pawl does not engage fully, check the distance between the pawl shaft (C) and the park lever roller pin (D) (see page 14-190).

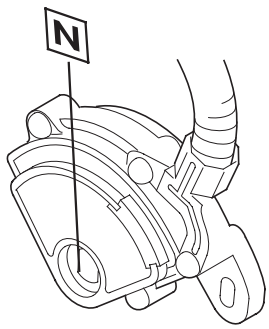
25. Tighten the lock bolt (E), and bend the lock tab of the lock washer (F) against the lock bolt head.

26. Install the end cover (A) with the two dowel pins, new O-rings, new gasket, and harness clamp bracket (B). Tighten the 16 bolts to 12 N·m, (1.2 kgf·m, 8.7 lbf·ft).



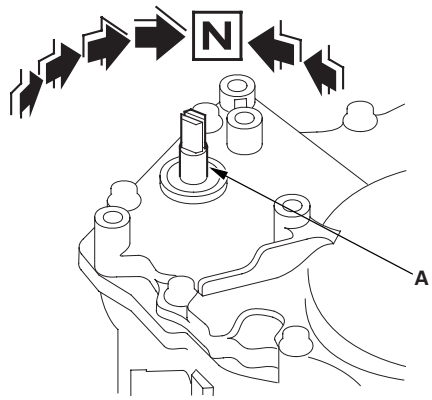
27. Set the transmission range switch to N position.

    NOTE: The transmission range switch clicks in N position.



28. Set the control shaft (A) to the N position by turning it.

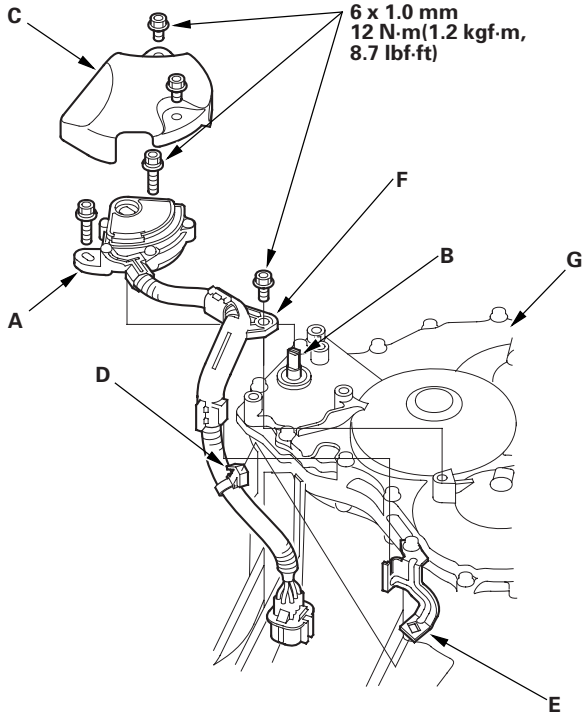
    NOTE: Be careful not to squeeze the end of the control shaft tips together when turning into position. If the tips are squeezed together it will cause a faulty shift signal or position due to the play between the control shaft and position switch.



(cont'd)

End Cover and Idler Gear Installation (cont'd)

29. Install the transmission range switch (A) gently on the control shaft (B), then secure it with the bolts. Take care not to move the transmission range switch when tightening the bolts.



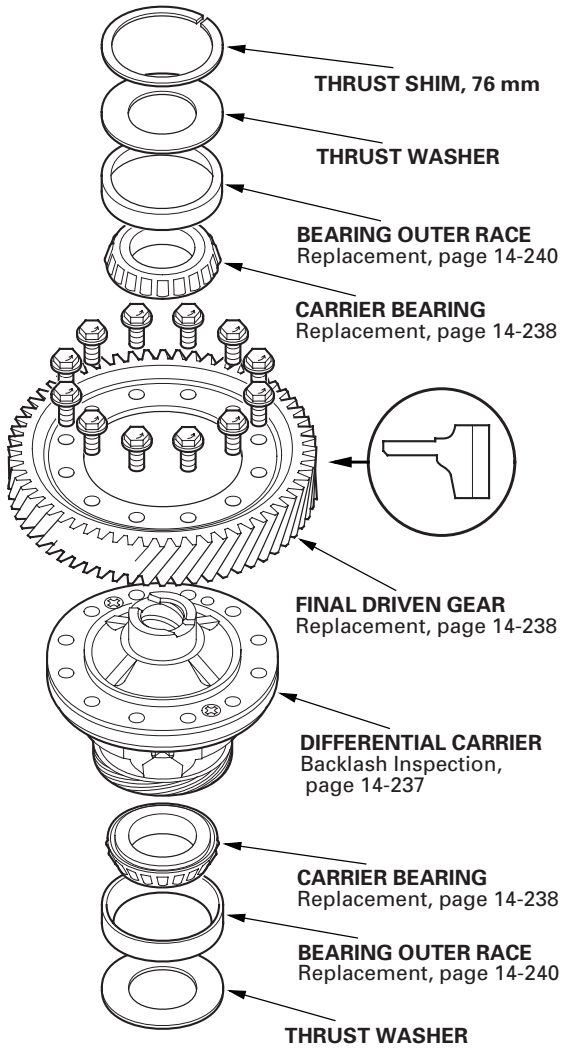
30. Install the transmission range switch cover (C); install the harness clamp (D) on the clamp bracket (E); install the harness clamp (F) on the end cover (G).

31. Install the ATF cooler lines and new sealing washers. Tighten the line fittings to 28 N·m (2.9 kgf·m, 21 lbf·ft).

32. Install the breather tube.

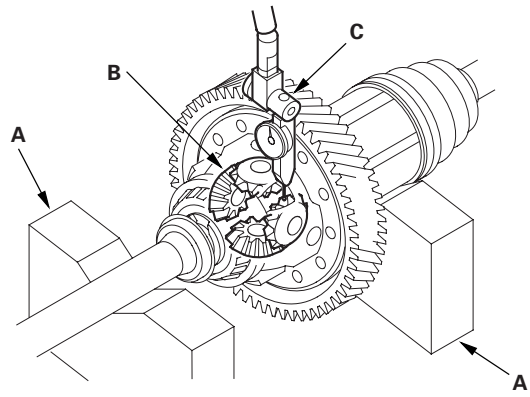
33. Install the ATF dipstick.

Component Location Index



Backlash Inspection

1. Install both axles, and place the differential assembly on V-blocks (A).



2. Check the backlash of the pinion gears (B) with a dial indicator (C).

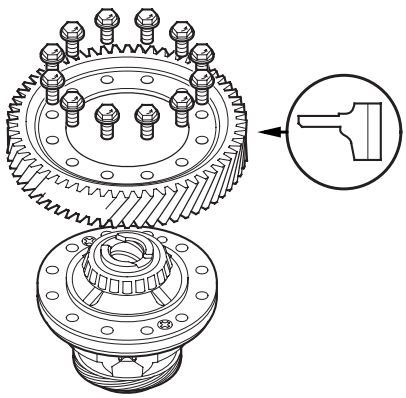
   Standard: 0.175—0.275 mm (0.007—0.011 in.)

3. If the backlash is out of standard, replace the differential carrier.

Differential Carrier, Final Driven Gear Replacement

1. Remove the final driven gear from the differential carrier.

   NOTE: The final driven gear bolts have left-hand threads.



2. Install the final driven gear with the chamfered side on the inner bore facing the differential carrier.

3. Tighten the bolts to the specified torque in a crisscross pattern.

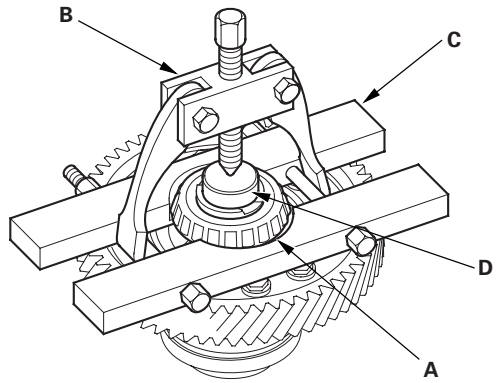
   Torque: 101 N·m (10.3 kgf·m, 74.5 lbf·ft)

Carrier Bearing Replacement

Special Tools Required
Attachment, 40 x 50 mm 07LAD-PW50601

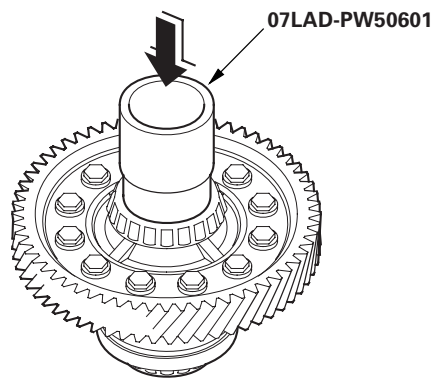
NOTE:
- The bearing and outer race should be replaced as a set.
- Inspect and adjust the bearing preload whenever the bearing is replaced.
- Check the bearing for wear and rough rotation. If the bearing is OK, removal is not necessary.

1. Remove the carrier bearing (A) with a commercially available bearing puller (B), bearing separator (C), and stepped adapter (D).



2. Install the new carrier bearings with the special tool and a press.

   NOTE:
   - Press the bearings on until they bottom.
   - Use the small end of the special tool to install the bearing.
   - Press the bearings on securely so there is no clearance between the bearings and the differential carrier.

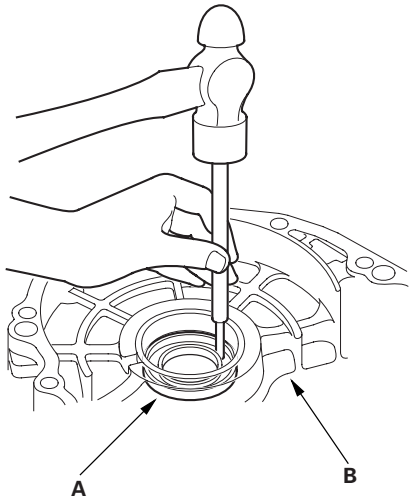


Oil Seal Replacement

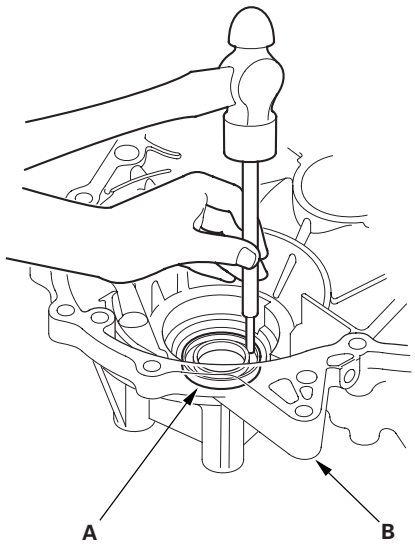
Special Tools Required
- Driver 07749-0010000
- Seal driver attachment
  07GAD-PG40101 or 07GAD-PG40100
- Oil seal driver attachment 07JAD-PH80101

1. Remove the differential assembly.

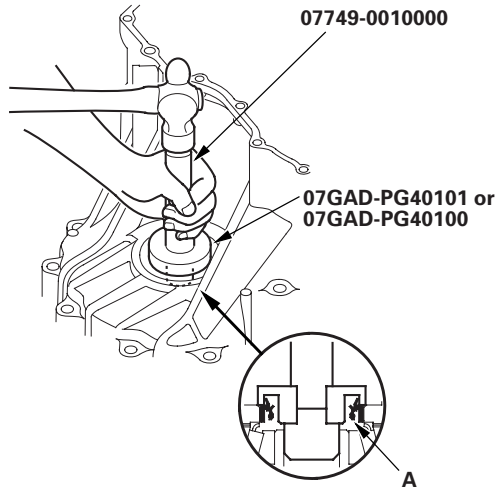
2. Remove the oil seal (A) from the transmission housing (B).



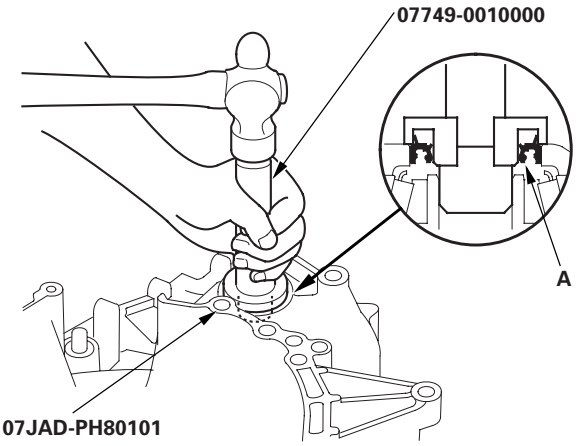
3. Remove the oil seal (A) from the torque converter housing (B).



4. Install the oil seal (A) in the transmission housing with the special tools.



5. Install the oil seal (A) in the torque converter housing with the special tools.



Carrier Bearing Outer Race Replacement

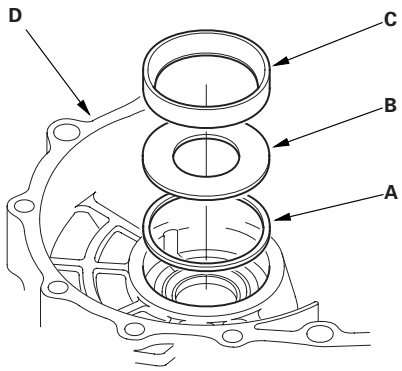
Special Tools Required
- Driver 07749-0010000
- Driver attachment 07HAD-SF10100

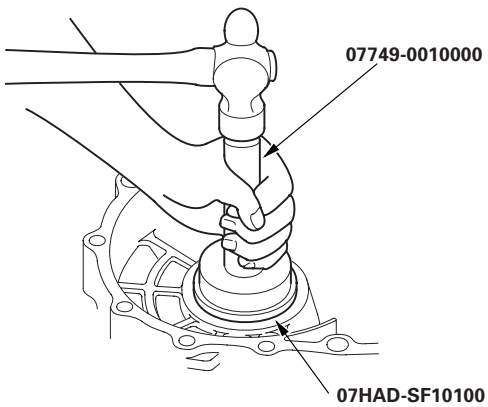
NOTE:
- Replace the bearing with a new one whenever the outer race is replaced.
- Do not use shim(s) on the torque converter housing side.
- Adjust preload after replacing the bearing and outer race.
- Coat all parts with ATF during installation.

1. Remove the bearing outer race from the transmission housing by heating the housing to about 212°F (100°C) with a heat gun.

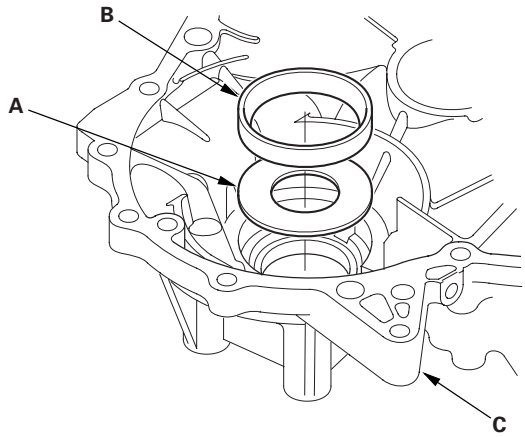
2. Remove the bearing outer race from the torque converter housing.

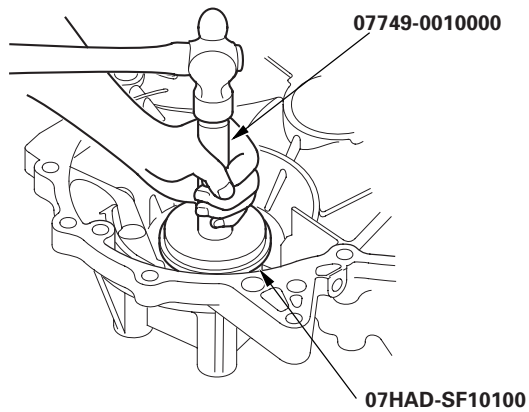
3. Install the thrust shim (A), thrust washer (B), and outer race (C) in the transmission housing (D) with the special tools.





4. Install the thrust washer (A) and outer race (B) in the torque converter housing (C), and use the special tools to make sure the outer race bottoms out in the housing.





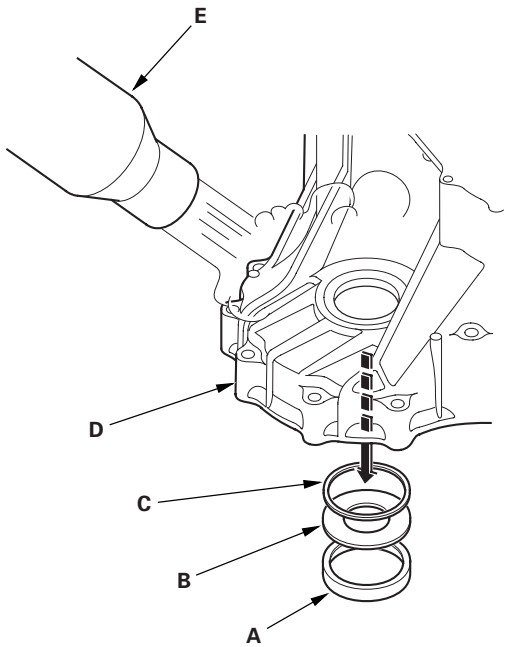
Carrier Bearing Preload Inspection

Special Tools Required
- Driver 07749-0010000
- Driver attachment 07HAD-SF10100
- Preload inspection tool 07XAJ-S0KA100

NOTE: If the transmission housing, torque converter housing, differential carrier, tapered roller bearing, outer race, or thrust shim were replaced, the bearing preload must be adjusted.

1. Remove the bearing outer race (A), thrust washer (B), and thrust shim (C) from the transmission housing (D) by heating the housing to about 212°F (100°C) with a heat gun (E). Do not heat the housing in excess of 212°F (100°C).

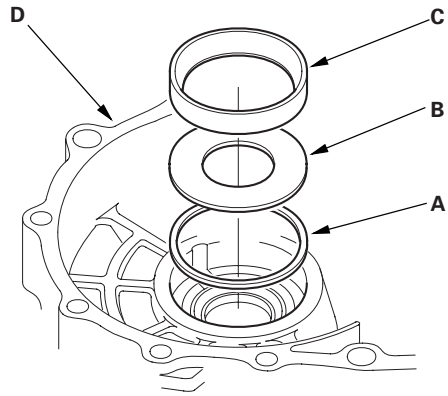
   NOTE: Let the transmission housing cool to room temperature before adjusting the bearing preload.



2. Replace the tapered roller bearing when the outer race is to be replaced.

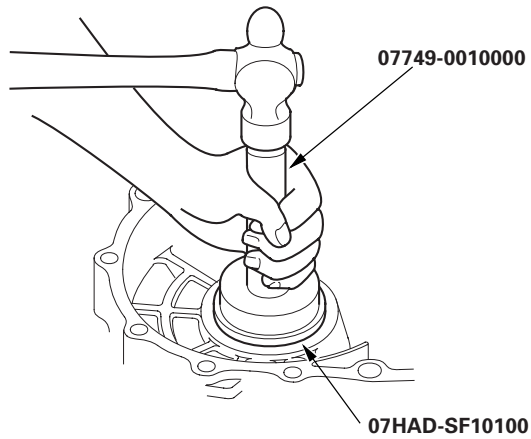
3. Do not use a shim on the torque converter housing side.

4. Install the 76 mm thrust shim (A), thrust washer (B), and bearing outer race (C) in the transmission housing (D). If you replace the 76 mm thrust shim with a new one, use the same thickness shim as the old one.



5. Drive the outer race with the special tools, and install it securely in the transmission housing.

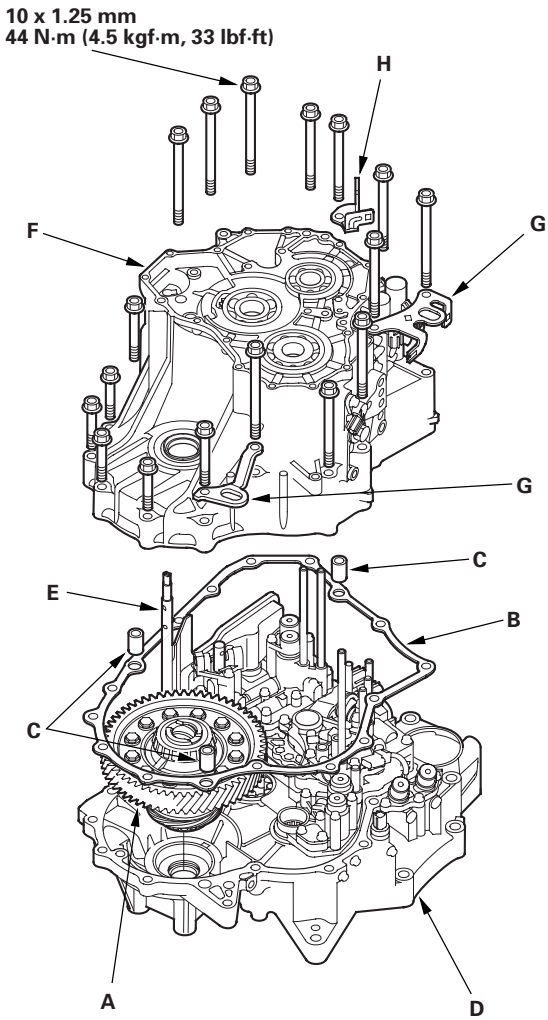
6. Check that there is no clearance between the thrust washer, outer race, shim, and transmission housing.



(cont'd)

Carrier Bearing Preload Inspection (cont'd)

7. Install the differential assembly (A), gasket (B), and dowel pins (C) on the torque converter housing (D). Align the spring pin on the control shaft (E) with the transmission housing groove.



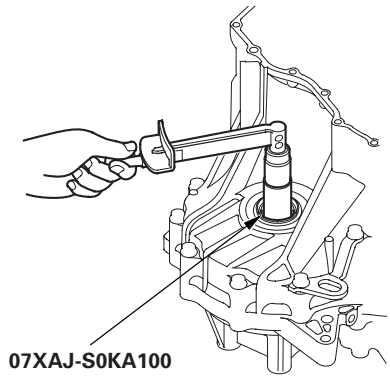
8. Install the transmission housing (F) with the transmission hangers (G) and harness clamp bracket (H), then tighten the bolts.

9. Rotate the differential assembly in both directions to seat the bearings.

10. Measure the starting torque of the differential assembly with the special tool, a torque wrench, and socket. Measure the starting torque at normal room temperature in both directions.

Standard:

New bearing:	**2.7—3.9 N·m (28—40 kgf·cm, 24—35 lbf·in.)**
Reused bearings:	**2.5—3.6 N·m (25—37 kgf·cm, 22—32 lbf·in.)**



11. If the measurement is out of standard, remove the thrust shim and select the thrust shim from table. Install the new thrust shim and recheck. To increase the starting torque, increase the thickness of the thrust shim. To decrease the starting torque, decrease the thickness of the shim. Changing the shim to the next size will increase or decrease starting torque about 0.3—0.4 N·m (3—4 kgf·cm, 2—3 lbf·in.).

THRUST SHIM, 76 mm

NO.	Part Number	Thickness
S	41438-PX4-700	2.05 mm (0.081 in.)
T	41439-PX4-700	2.01 mm (0.083 in.)
U	41440-PX4-700	2.15 mm (0.085 in.)
A	41441-PK4-000	2.20 mm (0.087 in.)
B	41442-PK4-000	2.25 mm (0.089 in.)
C	41443-PK4-000	2.30 mm (0.091 in.)
D	41444-PK4-000	2.35 mm (0.093 in.)
E	41445-PK4-000	2.40 mm (0.094 in.)
F	41446-PK4-000	2.45 mm (0.096 in.)
G	41447-PK4-000	2.50 mm (0.098 in.)
H	41448-PK4-000	2.55 mm (0.100 in.)
I	41449-PK4-000	2.60 mm (0.102 in.)
J	41450-PK4-000	2.65 mm (0.104 in.)
K	41451-PK4-000	2.70 mm (0.106 in.)
L	41452-PK4-000	2.75 mm (0.108 in.)
M	41453-PK4-000	2.80 mm (0.110 in.)
N	41454-PK4-000	2.85 mm (0.112 in.)
O	41455-PK4-000	2.90 mm (0.114 in.)
P	41456-PK4-000	2.95 mm (0.116 in.)
Q	41457-PK4-000	3.00 mm (0.118 in.)
R	41458-PK4-000	3.05 mm (0.120 in.)

5-speed Automatic Transmission (2002-2004 Models)

Automatic Transmission

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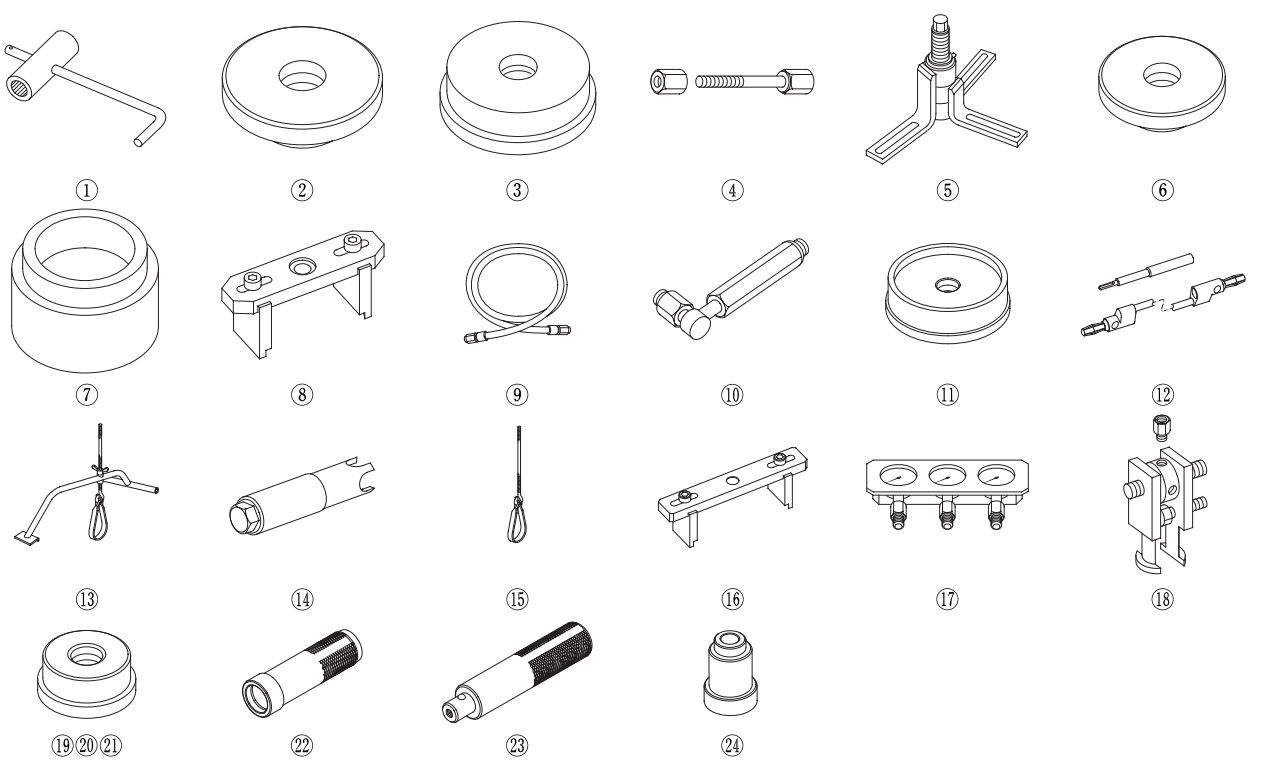
Automatic Transmission

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07GAB-PF50101 or 07GAB-PF50100	Mainshaft Holder	1
②	07GAD-PG40101 or 07GAD-PG40100	Seal Driver Attachment	1
③	07GAD-SD40101	Attachment, 78 x 90 mm	1
④	07GAE-PG40200 or 07GAE-PG4020A	Clutch Spring Compressor Bolt Assembly	1
*⑤	07HAC-PK40102	Housing Puller	1
⑥	07JAD-PH80101	Oil Seal Driver Attachment	1
⑦	07LAD-PW50601	Attachment, 40 x 50 mm	1
**⑧	07LAE-PX40100	Clutch Spring Compressor Attachment	2
⑨	07MAJ-PY4011A	A/T Pressure Hose, 2,210 mm	4
⑩	07MAJ-PY40120	A/T Pressure Hose Adapter	4
⑪	07NAD-PX40100	Attachment, 78 x 80 mm	1
⑫	07SAZ-001000A	Backprobe Set	2
⑬	07XAA-001030A	Engine Support Fixture	1
⑭	07YAJ-S3V0100	Preload Inspection Tool	1
⑮	07ZAA-S0XA100	Cable Eyebolt Assembly	1
⑯	07ZAE-PRP0100	Clutch Compressor Attachment	1
⑰	07406-0020400 or 07406-0020401	A/T Oil Pressure Gauge Set w/Panel	1
***⑱	07736-A01000B or 07736-A01000A	Adjustable Bearing Puller, 25－40 mm	1
⑲	07746-0010500	Attachment, 62 x 68 mm	1
⑳	07746-0010600	Attachment, 72 x 75 mm	1
㉑	07746-0010800	Attachment, 22 x 24 mm	1
㉒	07746-0030100	Driver, 40 mm I.D.	1
㉓	07749-0010000	Driver	1
㉔	07947-6340500	Driver Attachment	1

* If the top arm is too short, replace it with 07SAC-P0Z01001.
* * 07HAE-PL50101 may be used to substitute one of these tools.
* * * Must be used with commercially available 3/8''-16 slide hammer.



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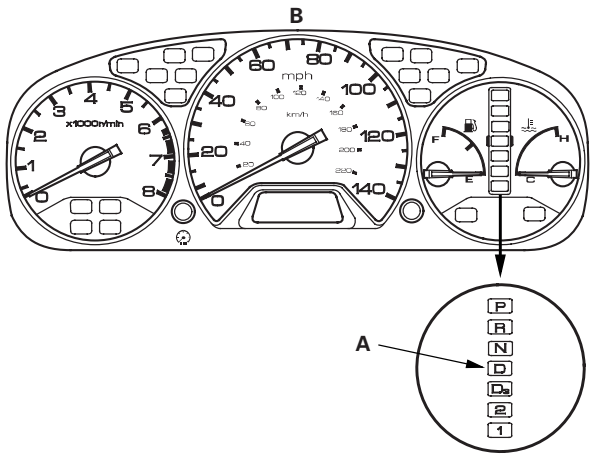
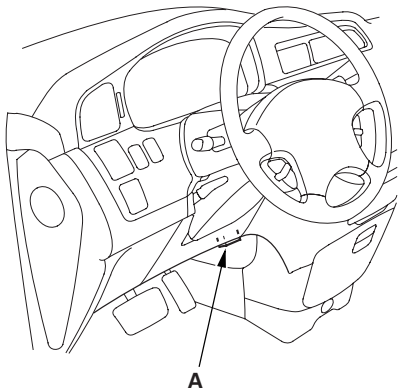
General Troubleshooting Information

How to Check for DTCs with the Honda Diagnostic System/Scan Tool

When the powertrain control module (PCM) senses an abnormality in the input or output systems, the D indicator (A) in the gauge assembly (B) will usually blink.



When the data link connector (DLC) (A) (located under the steering column lower cover) is connected to the Scan Tool or Honda diagnostic system (HDS), it will indicate the diagnostic trouble code (DTC) when the ignition switch is turned ON (II).



If the D indicator or malfunction indicator lamp (MIL) has been reported on, or if a driveability problem is suspected, follow this procedure:

1. Connect the Scan Tool (conforming to SAE J1978) or HDS to the DLC. (See the Scan Tool or HDS user's manual for specific instructions.)

2. Turn the ignition switch ON (II), select A/T system and observe the DTC in the DTCs MENU or the tester screen.

3. Record all fuel and emissions DTCs, A/T DTCs, and freeze data.

4. If there is a fuel and emissions DTC, first check the fuel and emissions system as indicated by the DTC (except for DTC P0700, DTC P0700 means there is one or more A/T DTCs, and no problems were detected in the fuel and emissions circuit of the PCM).

5. Clear the DTC and data.

   NOTE: You can also reset the memory by removing the No. 13 fuse in the passenger's under-dash fuse/relay box for more than 10 seconds. If you do, you need to do the following:
   - Get the customer's radio and navigation (if equipped) anti-theft code, and write down the radio and navigation presets.
   - Enter the radio and navigation (if equipped) anti-theft code, reset the preset stations, and set the clock.
   - Do the idle learn procedure (see page 11-202).

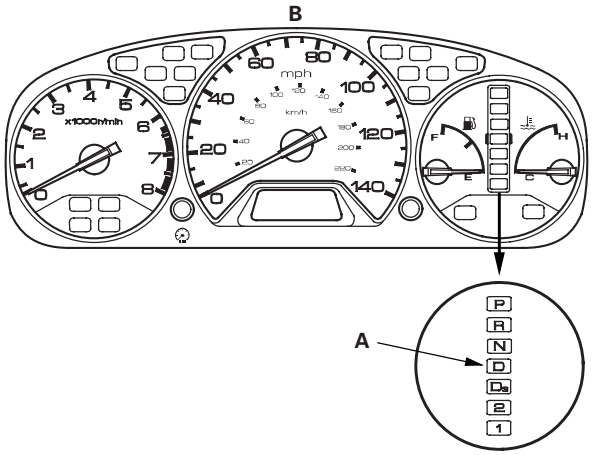
6. Drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, and then recheck for a DTC. If the A/T DTC returns, go to the DTC troubleshooting Index. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

(cont'd)

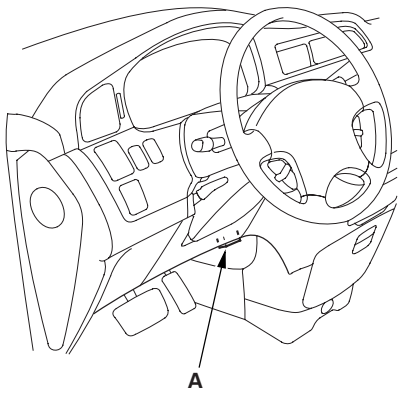
General Troubleshooting Information (cont'd)

How to Check for DTCs with the SCS Mode (retrieving the flash codes)

When the PCM senses an abnormality in the input or output system, the D indicator (A) in the gauge assembly (B) will usually blink.



When the D indicator has been reported on, connect the HDS to the DLC (A) (located under the steering column lower cover). Turn the ignition switch ON (II), select Honda System, and SCS mode, then the D indicator will indicate the DTC.

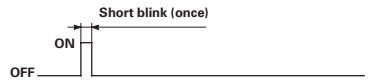


If the D indicator and the MIL come on at the same time, or if a driveability problem is suspected, follow this procedure:

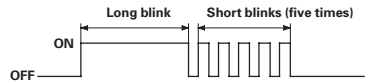
1. Connect the HDS to the DLC. (See the HDS user's manual for specific instructions.)

2. Turn the ignition switch ON (II), select Honda System, and then SCS mode, then observe the D indicator in the gauge assembly.
   Codes 1 through 9 are indicated by individual short blinks. Code 10 and above are indicated by a series of long and short blinks. One long blink equals 10 short blinks. Add the long and short blinks together to determine the code.

   Example: DTC 1

   Example: DTC 15

3. Record all fuel and emissions DTCs and A/T DTCs.

4. If there is a fuel and emissions DTC, first check the fuel and emissions system as indicated by the DTC (except DTC 70, DTC 70 means there is one or more A/T DTCs, and no problems were detected in the fuel and emissions circuit of the PCM).

5. Clear the DTC and data.

   NOTE: You can also reset the memory by removing the No. 13 fuse in the passenger's under-dash fuse/relay box for more than 10 seconds. If you do, you need to do the following:
   - Get the customer's radio and navigation (if equipped) anti-theft code, and write down the radio and navigation presets.
   - Enter the radio and navigation (if equipped) anti-theft code, reset the preset stations, and set the clock.
   - Do the idle learn procedure (see page 11-202).

6. Drive the vehicle for several minutes under the same conditions as those indicated by the freeze data or at speeds over 30 mph (50 km/h), and then recheck for DTC. If the A/T DTC returns, go to the DTC Troubleshooting Index. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

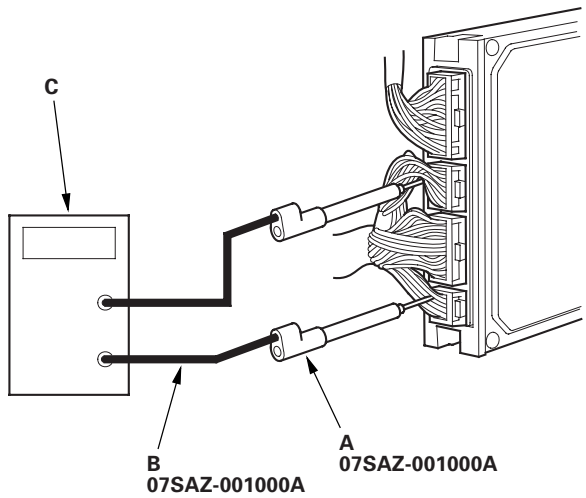
How to Troubleshoot Circuits at the PCM

Special Tools Required
Backprobe set 07SAZ-001000A (two required)

1. Pull back the carpet from passenger's side of the center lower console to expose the PCM.

2. Inspect the circuit on the PCM, according to the DTC troubleshooting, with the special tools and a digital multimeter.

3. Connect the backprobe adapters (A) to the stacking patch cords (B), and connect the cords to a multimeter (C).



4. Using the wire insulation as a guide for the contoured tip of the backprobe adapter, gently slide the tip into the connector from the wire side until it touches the end of the wire terminal.

5. If you cannot get to the wire side of the connector or the wire side is sealed, disconnect the connector and use the tester probe to probe the connectors from the terminal side. Do not force the probe into the connector.

Clear A/T DTCs, and PCM Reset Procedures

1. Connect the Scan Tool or the HDS to the DLC.

2. Turn the ignition switch ON (II).

3. Clear the DTC(s) with the scan tool or the HDS.

   NOTE: You can also reset the memory by removing the No. 13 fuse in the passenger's under-dash fuse/relay box for more than 10 seconds. If you do, you need to do the following:
   - Get the customer's radio and navigation (if equipped) anti-theft code, and write down the radio and navigation presets.
   - Enter the radio and navigation (if equipped) anti-theft code, reset the preset stations, and set the clock.
   - Do the idle learn procedure (see page 11-202).

(cont'd)

General Troubleshooting Information (cont'd)

How to End a Troubleshooting Session

This procedure must be done after any troubleshooting.

1. Turn the ignition switch OFF.
2. Connect the Scan Tool or the HDS to the DLC.
3. Turn the ignition switch ON (II).
4. Clear the DTC(s) with the Scan Tool or the HDS.

   NOTE: You can also reset the memory by removing the No. 13 fuse in the passenger's under-dash fuse/relay box for more than 10 seconds. If you do, you need to do the following:
   - Get the customer's radio and navigation (if equipped) anti-theft code, and write down the radio and navigation presets.
   - Enter the radio and navigation (if equipped) anti-theft code, reset the preset stations, and set the clock.
   - Do the idle learn procedure (see page 11-202).
5. To verify that the problem is repaired, test-drive the vehicle for several minutes at speeds over 30 mph (50 km/h) or under the same conditions as those indicated by the freeze data.

DTC Troubleshooting Index

NOTE: Record all freeze data and review the general troubleshooting information (see page 14-247) before you troubleshoot.

DTC * (1)	D Indicator	MIL	Detection Item	Page
P0710 (28)	Blinks	OFF	ATF temperature sensor * (2)	(see page 14-316)
P0715 (15)	Blinks	ON	Input shaft (mainshaft) speed sensor	(see page 14-318)
P0720 (9)	Blinks	ON	Output shaft (countershaft) speed sensor	(see page 14-321)
P0730 (41)	OFF	ON	Shift control system	(see page 14-324)
P0740 (40)	OFF	ON	Lock-up control system	(see page 14-325)
P0743 (1)	Blinks	ON	Torque converter clutch solenoid valve * (2)	(see page 14-326)
P0748 (16)	Blinks	ON	A/T clutch pressure control solenoid valve A * (2)	(see page 14-328)
P0753 (7)	Blinks	ON	Shift solenoid valve A * (2)	(see page 14-330)
P0758 (8)	Blinks	ON	Shift solenoid valve B * (2)	(see page 14-332)
P0763 (22)	Blinks	ON	Shift solenoid valve C * (2)	(see page 14-334)
P0778 (23)	Blinks	ON	A/T clutch pressure control solenoid valve B * (2)	(see page 14-336)
P0780 (45)	Blinks	ON	Mechanical problem in hydraulic system	(see page 14-338)
P0798 (29)	Blinks	ON	A/T clutch pressure control solenoid valve C * (2)	(see page 14-339)
P0845 (26)	Blinks	OFF	3rd clutch transmission fluid pressure switch	(see page 14-341)
P1705 (5)	Blinks	ON	Transmission range switch (short to ground) * (2)	(see page 14-343)
P1706 (6)	OFF	ON	Transmission range switch (open) * (2)	(see page 14-346)
P1740 (27)	Blinks	OFF	4th clutch transmission fluid pressure switch	(see page 14-348)
P1750 (46)	Blinks	ON	Mechanical problem in hydraulic system	(see page 14-350)
P1751 (47)	Blinks	ON	Mechanical problem in hydraulic system	(see page 14-351)

* (1): The DTC in parentheses is the flash code the D indicator indicates when the date link connector is connected to the HDS, and the HDS is in the SCS mode (see page 14-247).

* (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

Symptom Troubleshooting Index

These symptoms DO NOT trigger diagnostic trouble codes (DTCs) or cause the D indicator to blink. If the malfunction indicator lamp (MIL) was reported ON or the D indicator has been blinking, check for DTCs. If the vehicle has one of the symptoms in the following chart, check the probable cause(s) for it, in the sequence listed, until you find the problem.

Symptom	Probable cause(s)	Notes
When you turn the ignition switch ON (II), the D indicator comes on stays on or never comes on at all	A problem in the D indicator circuit	Check the D indicator circuit (see page 14-399).
Shift lever cannot be moved from P while you're pressing on the brake pedal	A problem in the shift lock system of the interlock system	Check interlock system — shift lock system circuit (see page 14-409).
Ignition switch cannot be moved from ACC (I) position to LOCK (0) position (key is pushed in, shift lever in P)	A problem in the key interlock system of the interlock system	Check interlock system — key interlock system circuit (see page 14-412).

Symptom	Probable cause(s)	Notes
Engine runs, but vehicle does not move in any gear	1. Low ATF level 2. Shift cable broken or out of adjustment 3. Shift cable worn 4. ATF pump worn or binding 5. Regulator valve stuck or spring worn 6. ATF strainer clogged 7. Mainshaft worn or damaged 8. Final gears worn or damaged 9. Transmission-to-engine assembly error 10. Axle disengaged	• Check the ATF level and check the ATF cooler lines for leakage and loose connections. If necessary, flush the ATF cooler lines. • Check for a loose shift cable at the shift lever and the transmission control shaft. • Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Check the line pressure. • Check the ATF strainer for debris. If the strainer is clogged, find the damaged components that caused debris. • Inspect the differential pinion gears for wear. If the differential pinion gears are worn, replace the differential assembly, replace the ATF strainer, thoroughly clean the transmission, and flush the cooler and lines. Replace the torque converter. • Be careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the main valve body. This will result in ATF pump seizure if not detected. Use the proper tools. • Install the main seal flush with the torque converter housing. If you push it into the torque converter housing until it bottoms out, it will block the fluid return passage and result in damage.
Vehicle moves in R, but not in D, D3, or 1	1. 1st accumulator defective 2. 1st clutch defective	• Check the 1st clutch pressure. • Inspect the secondary shaft and 1st/1st-hold/2nd clutch assembly for wear and damage. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn and damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Vehicle moves in 2 and R, but not in D, D3, or 1	1. 1st gear one-way clutch defective 2. 1st gears worn or damaged 3. 1st clutch defective	• Check the 1st clutch pressure. • Inspect the secondary shaft and 1st/1st-hold/2nd clutch assembly for wear and damage. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.

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Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Vehicle moves in D, D3, 2, and R, but not in 1	1. 1st-hold accumulator defective 2. 1st-hold clutch defective	• Check the 1st-hold clutch pressure. • Inspect the secondary shaft and 1st/1st-hold/2nd clutch assembly for wear and damage. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Vehicle moves in D, D3, 1, and R, but not in 2	1. 2nd accumulator defective 2. 2nd gears worn or damaged 3. 2nd clutch defective	• Check the 2nd clutch pressure. • Inspect the secondary shaft and 1st/1st-hold/2nd clutch assembly for wear and damage. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Vehicle moves in D, D3, 2, and 1, but not in R (or moves forward in R)	1. Shift fork shaft stuck 2. Modulator valve defective 3. Reverse CPC valve defective 4. 5th accumulator defective 5. 5th clutch defective 6. Reverse gears worn or damaged	• Check the line pressure and 5th clutch pressure. • Check for a missing shift fork bolt on the shift fork shaft. • Check the ATF strainer for debris. If the ATF strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, find the damaged components that caused the debris. If no cause for the contamination is found, replace the torque converter. • Inspect the reverse selector gear teeth chamfers, and inspect engagement teeth chamfers of the countershaft 5th gear and reverse gear. Replace the reverse gears and the reverse selector if they are worn or damaged. If the transmission makes clicking, grinding, or whirring noises, also replace the mainshaft 5th gear, reverse idler gear, and countershaft 5th gear. • If the 5th clutch feed pipe guide in the end cover is scored by the mainshaft, inspect the ball bearing for excessive movement in the transmission housing. If the ball bearing is OK, replace the end cover as it is dented. The O-ring under the guide is probably worn. • Replace the mainshaft if the bushing for the 4th and 5th clutch feed pipes are loose or damaged. If the 5th clutch feed pipe is damaged or out of round, replace the end cover. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clearance with the clutch end plate.

Symptom	Probable cause(s)	Notes
Poor acceleration; flares on starting off in D and D3; stall speed high in D, D3, 2, and 1	1. Low ATF level 2. Shift cable broken or out of adjustment 3. ATF pump worn or binding 4. Regulator valve stuck or spring worn 5. ATF strainer clogged 6. Torque converter check valve defective	• Check the ATF level and check the ATF cooler lines for leakage and loose connections. If necessary, flush the ATF cooler lines. • Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the line pressure. • Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptom is mostly an rpm-ticking noise or a high pitched squeak. • Be careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the main valve body. This will result in ATF pump seizure if not detected. Use the proper tools.
Poor acceleration; flares on starting off in D and D3; stall speed high in 2	2nd clutch defective	• Check the 2nd clutch pressure. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Poor acceleration; flares on starting off in R; stall speed high in R	1. Shift cable broken or out of adjustment 2. 5th clutch defective	• Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the 5th clutch pressure. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.

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Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Poor acceleration; stall speed low	1. Torque converter clutch solenoid valve defective 2. Engine output low 3. Lock-up clutch piston defective 4. Lock-up shift valve defective	Check for a stuck lock-up valve in the valve body.
Engine idle vibration	1. Low ATF level 2. Torque converter clutch solenoid valve defective 3. Drive plate defective or transmission misassembled 4. Engine output low 5. Lock-up clutch piston defective 6. ATF pump worn or binding 7. Lock-up shift valve defective	• Set idle rpm in gear to the specified idle speed. If still no good, adjust the engine and transmission mounts. • Check the ATF level and check the ATF cooler lines for leakage and loose connections. If necessary, flush the ATF cooler lines.
Vehicle moves in N	1. Excessive ATF 2. Foreign material in separator plate orifice 3. Relief valve defective 4. 1st-hold clutch defective 5. 1st clutch defective 6. 2nd clutch defective 7. 3rd clutch defective 8. 4th clutch defective 9. 5th clutch defective 10. Clutch clearance incorrect 11. Needle bearing seized up, worn, or damaged 12. Thrust washer seized up, worn, or damaged	• Check the ATF level, and drain the ATF if it is over filled. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance. • Check all clutch pressures.

Symptom	Probable cause(s)	Notes
Late shift after shifting from N to D and D3, or excessive shock when shifted into D or D3	1. Shift solenoid valve C defective 2. A/T clutch pressure control solenoid valves A and B defective 3. A/T clutch pressure control solenoid valve C defective 4. Shift cable broken or out of adjustment 5. Joint in shift cable and transmission or body worn 6. Input shaft (mainshaft) speed sensor defective 7. Output shaft (countershaft) speed sensor defective 8. ATF temperature sensor defective 9. CPC valve C stuck 10. Foreign material in separator plate orifice 11. Shift valve C defective 12. Shift valve E defective 13. Servo control valve defective 14. 1st accumulator defective 15. 1st check ball stuck 16. 1st clutch defective	• Check the D indicator, and check for loose connectors. Inspect the O-ring, and check the shift solenoid valve for seizure. • Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the ATF strainer for debris. If the ATF strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, find the damaged components that caused the debris. If no cause for the contamination is found, replace the torque converter. • Check the 1st clutch pressure. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Late shift after shifting from N to R	1. Shift solenoid valve C defective 2. A/T clutch pressure control solenoid valves A and B defective 3. A/T clutch pressure control solenoid valve C defective 4. Shift cable broken or out of adjustment 5. Joint in shift cable and transmission or body worn 6. Input shaft (mainshaft) speed sensor defective 7. Output shaft (countershaft) speed sensor defective 8. ATF temperature sensor defective 9. Shift fork shaft stuck 10. CPC valve C stuck 11. Reverse CPC valve defective 12. Foreign material in separator plate orifice 13. Shift valve E defective 14. 5th accumulator defective 15. 5th clutch defective	• Check the D indicator, and check for loose connectors. Inspect the O-ring, and check the shift solenoid valve for seizure. • Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Check for a loose shift cable on the shift lever and the transmission control shaft. • Check the ATF strainer for debris. If the ATF strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, find the damaged components that caused the debris. If no cause for the contamination is found, replace the torque converter. • Check the 5th clutch pressure. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.

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Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
The A/T does not shift	1. Input shaft (mainshaft) speed sensor defective 2. Output shaft (countershaft) speed sensor defective 3. Modulator valve defective	• Check the D indicator, and check for loose connectors. • Check the line pressure.
Erratic shifting: Fails to shift in D and D3; starts off in 5th	1. Shift solenoid valve B defective 2. Shift valve B defective	Check the D indicator, and check for loose connectors. Inspect the O-ring, and check the shift solenoid valve for seizure.
Erratic shifting: Fails to shift in 2; starts off in 4th	1. Shift solenoid valve B defective 2. Shift valve B defective	Check the D indicator, and check for loose connectors. Inspect the O-ring, and check the shift solenoid valve for seizure.
Erratic shifting: Fails to shift in D and D3; starts off in 3rd	1. Shift solenoid valve A defective 2. Shift valve A defective	Check the D indicator, and check for loose connectors. Inspect the O-ring, and check the shift solenoid valve for seizure.
Excessive shock, or flares on all upshifts and downshifts	1. A/T clutch pressure control solenoid valves A and B defective 2. Input shaft (mainshaft) speed sensor defective 3. Output shaft (countershaft) speed sensor defective 4. ATF temperature sensor defective 5. CPC valve A defective 6. Foreign material in separator plate orifice	• Check the D indicator, and check for loose connectors. Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Inspect the sensor O-rings.
Excessive shock, or flares on 1-2 upshift or 2-1 downshift	1. Foreign material in separator plate orifice 2. 2nd accumulator defective 3. 2nd check ball stuck 4. 2nd clutch defective	• Check the 1st and 2nd clutch pressures. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.

Symptom	Probable cause(s)	Notes
Excessive shock, or flares on 2-3 upshift or 3-2 downshift	1. Shift solenoid valve C defective 2. A/T clutch pressure control solenoid valves A and B defective 3. 3rd clutch transmission fluid pressure switch defective 4. CPC valve B defective 5. Foreign material in separator plate orifice 6. Shift valve C defective 7. 2nd accumulator defective 8. 3rd accumulator defective 9. 2nd check ball stuck 10. 2nd clutch defective 11. 3rd clutch defective	• Check the D indicator, and check for loose connectors. Inspect the O-rings, and check the shift solenoid valve for seizure. • Check for clogged orifice in the clutch transmission fluid pressure switch connector. If the orifice is clogged, remove it and clean the connector. • Check the 2nd and 3rd clutch pressures. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Excessive shock, or flares on 3-4 upshift or 4-3 downshift	1. Shift solenoid valve C defective 2. A/T clutch pressure control solenoid valves A and B defective 3. 4th clutch transmission fluid pressure switch defective 4. CPC valve B defective 5. Foreign material in separator plate orifice 6. Shift valve C defective 7. 3rd accumulator defective 8. 4th accumulator defective 9. 3rd clutch defective 10. 4th clutch defective	• Check the D indicator, and check for loose connectors. Inspect the O-rings, and check the shift solenoid valve for seizure. • Check for clogged orifice in the clutch transmission fluid pressure switch connector. If the orifice is clogged, remove it and clean the connector. • Check the 3rd and 4th clutch pressures. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.
Excessive shock, or flares on 4-5 upshift or 5-4 downshift	1. Shift solenoid valve C defective 2. A/T clutch pressure control solenoid valves A and B defective 3. A/T clutch pressure control solenoid valve C defective 4. CPC valve B defective 5. CPC valve C defective 6. Foreign material in separator plate orifice 7. Shift valve C defective 8. Shift valve E defective 9. Kick-down valve or kick-down short valve defective 10. 4th accumulator defective 11. 5th accumulator defective 12. 4th clutch defective 13. 5th clutch defective	• Check the D indicator, and check for loose connectors. Inspect the O-rings, and check the shift solenoid valve for seizure. • Check the 4th and 5th clutch pressures. • Inspect the clutch piston and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs and plates are worn or damaged, replace them as a set. If they are OK, adjust the clutch end plate clearance.

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Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Noise from transmission in all shift lever positions	1. ATF pump worn or binding 2. Torque converter housing or transmission housing bearing worn or damaged	• Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Inspect the contact of the countershaft and secondary shaft with the bearings. Check the ATF guide plates for damage and wear. Inspect the 1st clutch feed pipe for damage and out of round. If the 1st clutch feed pipe is damaged or out of round, replace it. Replace the secondary shaft if the bushing for the 1st clutch feed pipe is damaged or out of round.
Vehicle does not accelerate above 31 mph (50 km/h)	Torque converter one-way clutch defective	Replace the torque converter.
Vibration in all shift lever positions	Drive plate defective or transmission misassembled	• Check for a misinstalled/damaged drive plate. • Set idle rpm in gear to the specified idle speed. If still no good, adjust the engine mounts. • Check the stall speed.
Shift lever does not operate smoothly	1. Transmission range switch defective or out of adjustment 2. Shift cable broken or out of adjustment 3. Joint in shift cable and transmission or body worn	• Check the D indicator, and check for loose connectors. Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and the shift cable. • Check for a loose shift cable at the shift lever and the transmission control shaft.
Transmission does not shift into P	1. Shift cable broken or out of adjustment 2. Joint in shift cable and transmission or body worn 3. Park mechanism defective	• Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the park pawl spring installation and the park lever spring installation. If installation is incorrect, install the spring correctly. Make sure that the park lever stop is not installed upside down. Check the distance between the park pawl shaft and the park lever roller pin. If the distance is out of tolerance, adjust the distance with the park lever stop.
Torque converter clutch does not disengage	1. Torque converter clutch solenoid valve defective 2. A/T clutch pressure control solenoid valve C defective 3. Torque converter clutch piston defective 4. Lock-up shift valve defective 5. Lock-up control valve defective 6. Lock-up timing valve defective	Check the D indicator, and check for loose connectors. Inspect the A/T clutch pressure control solenoid valve body gasket for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves.

Symptom	Probable cause(s)	Notes
Torque converter clutch does not operate smoothly	1. Torque converter clutch solenoid valve defective 2. A/T clutch pressure control solenoid valve C defective 3. Torque converter clutch piston defective 4. Torque converter check valve defective 5. Lock-up shift valve defective 6. Lock-up control valve defective 7. Lock-up timing valve defective	• Check the D indicator, and check for loose connectors. Inspect the A/T clutch pressure control solenoid valve body gasket for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Center all engine mounts.
Torque converter clutch does not engage	1. Torque converter clutch solenoid valve defective 2. A/T clutch pressure control solenoid valve C defective 3. Input shaft (mainshaft) speed sensor defective 4. Output shaft (countershaft) speed sensor defective 5. Torque converter clutch piston defective 6. Torque converter check valve defective 7. Lock-up shift valve defective 8. Lock-up control valve defective	Check the D indicator, and check for loose connectors. Inspect the A/T clutch pressure control solenoid valve body gasket for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves.
A/T gear position indicator does not indicate shift lever positions	1. Transmission range switch defective or out of adjustment 2. Shift cable broken or out of adjustment 3. Joint in shift cable and transmission or body worn	• Check the D indicator, and check for loose connectors. Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and the shift cable. • Check for a loose shift cable at the shift lever and the transmission control shaft.
Speedometer and odometer do not work	Output shaft (countershaft) speed sensor defective	Check the D indicator, and check for loose connectors.
The engine does not rev to high rpm, and the transmission upshifts at low rpm. (Engine at normal operating temperature)	VTEC rocker arms defective	Check the engine rocker arms as described.

System Description

General Operation

The automatic transmission is a combination of a 3-element torque converter and triple-shaft electronically controlled unit which provides 5 speeds forward and 1 reverse. The entire unit is positioned in line with the engine.

Torque Converter, Gears, and Clutches

The torque converter consists of a pump, turbine, and stator assembly in a single unit. The converter housing (pump) is connected to the engine crankshaft and turn as the engine turns. Around the outside of the torque converter is a ring gear which meshes with the starter pinion when the engine is being started. The entire torque converter assembly serves as a flywheel, transmitting power to the transmission mainshaft. The transmission has three parallel shafts: the mainshaft, the countershaft, and the secondary shaft. The mainshaft is in line with the engine crankshaft. The mainshaft includes the 4th and 5th clutches, and gears for 3rd, 4th, 5th, and reverse, (reverse gear is integral with the 5th gear). The countershaft includes the final drive, 1st, 4th, 5th, reverse, 2nd, park, and 3rd gears (the final drive gear is integral with the countershaft). The secondary shaft includes the 1st, 1st-hold and 2nd clutches, and gears for 1st, 2nd, and idler. The countershaft 5th gear and the countershaft reverse gear can be locked to the countershaft at its center, providing 5th gear or reverse, depending with which way the selector is moved. The gears on the mainshaft and the secondary shaft are in constant mesh with those on the countershaft. When certain combinations of gears in the transmission are engaged by the clutches, power is transmitted through the mainshaft, then to the secondary shaft, and/or to the countershaft to provide drive.

Electronic Control

The electronic control system consists of the powertrain control module (PCM), sensors, and seven solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions. The PCM is located below the dashboard, under the front lower panel behind the center console.

Hydraulic Control

The valve bodies include the main valve body, the regulator valve body, the servo body, and the accumulator body. They are bolted to the torque converter housing. The main valve body contains the manual valve, the modulator valve, the shift valve C, the shift valve D, the kick-down valve, the servo control valve, the torque converter check valve, the reverse CPC valve, the lock-up shift valve, the relief valve, the cooler check valve, and the ATF pump gears. The regulator valve body contains the regulator valve, the lock-up timing valve, and the lock-up control valve. The servo body contains the servo valve, the shift valve A, the shift valve B, the CPC valves A and B. The top accumulator body contains shift valve E, CPC valve C, 1st-hold accumulator piston, 4th accumulator piston, and 5th accumulator piston. The accumulator body contains the 1st and 2nd accumulators and lubrication check valve. Fluid from the regulator passes through the manual valve to the various control valves. The 1st/1st-hold, 3rd, 4th, and 5th clutches receive fluid from their respective feed pipes, and the 2nd clutch receives fluid from the internal hydraulic circuit.

Shift Control Mechanism

To shift gears, the PCM controls shift solenoid valves A, B, and C, and A/T clutch pressure control solenoid valves A and B while receiving input signals from various sensors and switches located throughout the vehicle. The shift solenoid valves shift the positions of the shift valves to switch the port leading hydraulic pressure to the clutch. The A/T clutch pressure control solenoid valves A and B control the CPC valves A and B to shift smoothly between lower gear and higher gear. This pressurizes a line to one of the clutches, engaging the clutch and its corresponding gear.

Lock-up Mechanism

The lock-up mechanism operates in the D position (3rd, 4th, and 5th), and D3 position (3rd). The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same speed as the engine crankshaft. Together with hydraulic control, the PCM optimizes the timing of the lock-up mechanism. When the torque converter clutch solenoid valve activates, modulator pressure changes to switch lock-up on and off. The lock-up control valve and the lock-up timing valve control the amount of lock-up according to A/T clutch pressure control solenoid valve C. The torque converter clutch solenoid valve is mounted on the torque converter housing, and A/T clutch pressure control solenoid valve C is mounted on the transmission housing. They are all controlled by the PCM.

Gear Selection
The shift lever has seven positions; P: PARK, R: REVERSE, N: NEUTRAL, D: 1st through 5th gear ranges, D3: 1st through 3rd gear ranges, 2: 2nd gear, 1: 1st gear.

Position	Description
P: PARK	Front wheels locked; park pawl engaged with park gear on countershaft. All clutches are released.
R: REVERSE	Reverse; reverse selector engaged with countershaft reverse gear and 5th clutch locked.
N: NEUTRAL	All clutches are released.
D: DRIVE (1st through 5th)	General driving; starts off in 1st, shifts automatically to 2nd, 3rd, 4th, then 5th, depending on vehicle speed and throttle position. Downshift through 4th, 3rd, 2nd, and 1st on deceleration to stop. The lock-up mechanism operates in 3rd, 4th, and 5th gear.
D3: DRIVE (1st through 3rd)	Used for rapid acceleration at highway speeds and general driving; up-hill and down-hill driving; starts off in 1st, shifts automatically to 2nd, then 3rd, depending on vehicle speed and throttle position. Downshifts through 2nd to 1st on deceleration to stop. The lock-up mechanism operates in 3rd gear only.
2: SECOND	Used for engine braking or better traction starting off on loose or slippery surfaces; stays in 2nd gear, does not shift up or down.
1: FIRST	Used for engine braking; stays in 1st gear, does not shift up.

Starting is possible only in the P and N positions because of a slide-type neutral-safety switch.

Automatic Transaxle (A/T) Gear Position Indicator
The A/T gear position indicator in the instrument panel shows which shift lever position has been selected.

System Description (cont'd)

Clutches

The 5-speed automatic transmission uses hydraulically-actuated clutches to engage or disengage the transmission gears. When hydraulic pressure is introduced into the clutch drum, the clutch piston moves. This presses the friction discs and steel plates together, locking them so they don't slip. Power is then transmitted through the engaged clutch pack to its hub-mounted gear. Likewise, when the hydraulic pressure is bled from the clutch pack, the piston releases the friction discs and the steel plates, and they are free to slide past each other. This allows the gear to spin independently on its shaft, transmitting no power.

1st Clutch
The 1st clutch engages/disengages 1st gear, and is located at the middle of the secondary shaft. The 1st clutch is joined back-to-back to the 2nd clutch. The 1st clutch is supplied hydraulic pressure by its ATF feed pipe within the secondary shaft.

1st-hold Clutch
The 1st-hold clutch engages/disengages 1st-hold, and is located in the 1st clutch drum. The 1st-hold clutch is supplied hydraulic pressure through the orifice inside the secondary shaft by a circuit connected to the internal hydraulic circuit.

2nd Clutch
The 2nd clutch engages/disengages 2nd gear, and is located at the middle of the secondary shaft. The 2nd clutch is joined back-to-back to the 1st clutch. The 2nd clutch is supplied hydraulic pressure through the secondary shaft by a circuit connected to the internal hydraulic circuit.

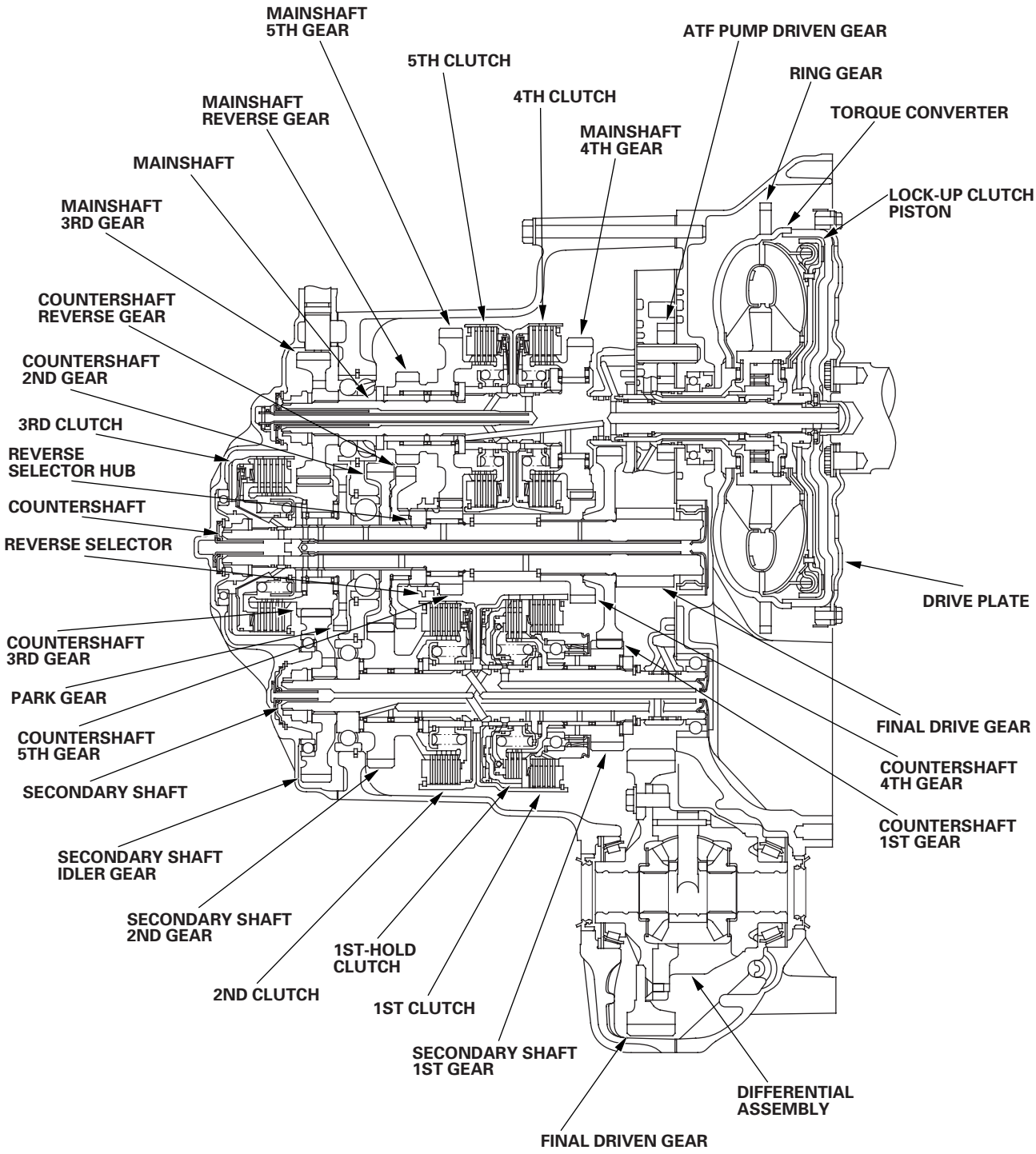
3rd Clutch
The 3rd clutch engages/disengages 3rd gear, and is located at the end of the countershaft, just behind the end cover. The 3rd clutch is supplied hydraulic pressure by its ATF feed pipe in the countershaft.

4th Clutch
The 4th clutch engages/disengages 4th gear, and is located at the middle of the mainshaft. The 4th clutch is joined back-to-back to the 5th clutch. The 4th clutch is supplied hydraulic pressure by its ATF feed pipe within the mainshaft.

5th Clutch
The 5th clutch engages/disengages 5th gear, as well as reverse gear, and is located at the middle of the mainshaft. The 5th clutch is joined back-to-back to the 4th clutch. The 5th clutch is supplied hydraulic pressure by its ATF feed pipe within the mainshaft.

One-way Clutch
The one-way clutch is positioned between the 1st clutch hub and the secondary shaft 1st gear. The secondary shaft 1st gear is splined to the 1st-hold clutch hub, with the 1st-hold clutch hub splined to the secondary shaft. The secondary shaft 1st gear provides the outer race surface, and the 1st clutch hub provides the inner race surface. The one-way clutch locks when power is transmitted from the secondary shaft 1st gear to the countershaft 1st gear. The 1st clutch and gears remain engaged in the 1st, 2nd, 3rd, 4th, and 5th gear ranges in the D, D3, or 2 position.
However, the one-way clutch disengages when the 2nd, 3rd, 4th, or 5th clutches and gears are applied in the D, D3, or 2 position. This is because the increased rotational speed of the gears on the secondary shaft causes the one-way clutch to free-wheel with the 1st clutch still engaged.

Transmission Cutaway View



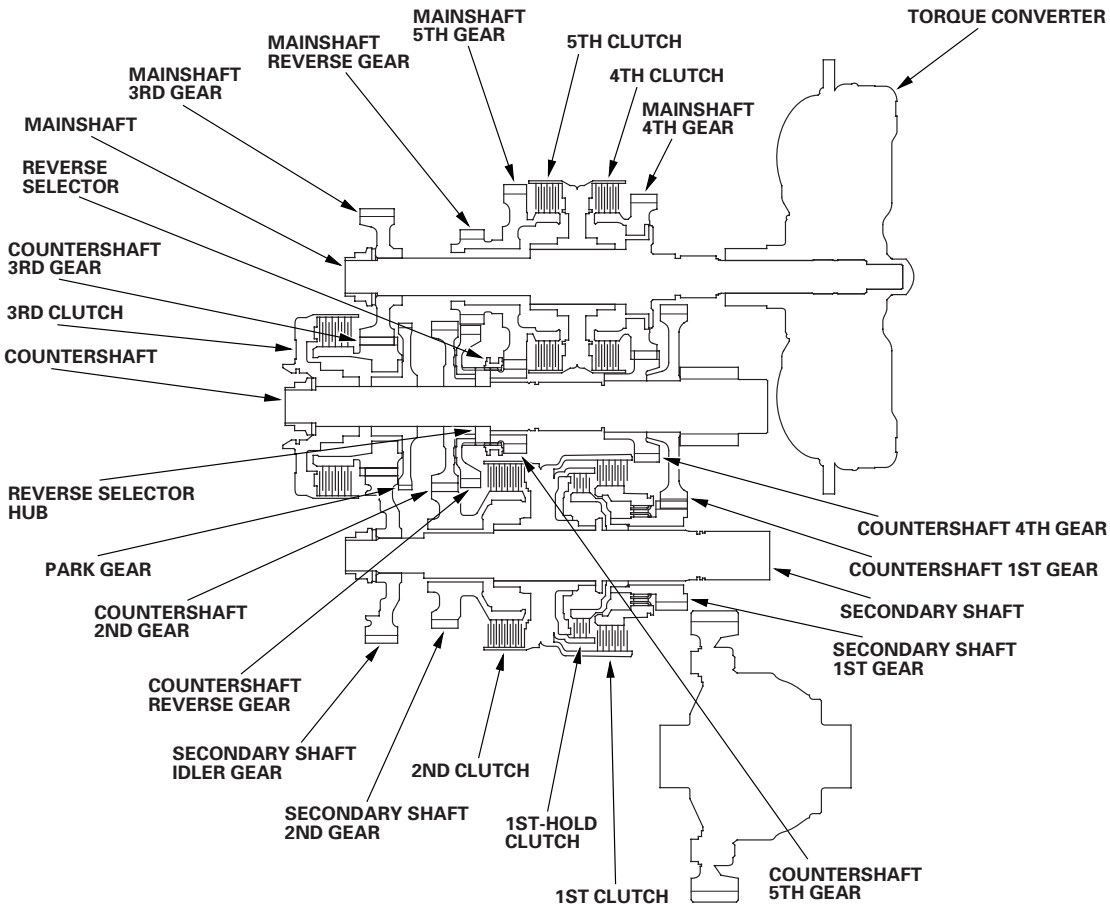
System Description (cont'd)

Power Flow

Gear operation
Gears on the mainshaft:
- 4th gear is engaged/disengaged with the mainshaft by the 4th clutch.
- 5th gear is engaged/disengaged with the mainshaft by the 5th clutch.
- Reverse gear is engaged/disengaged with the mainshaft by the 5th clutch.
- 3rd gear is splined with the mainshaft and rotates with the mainshaft.

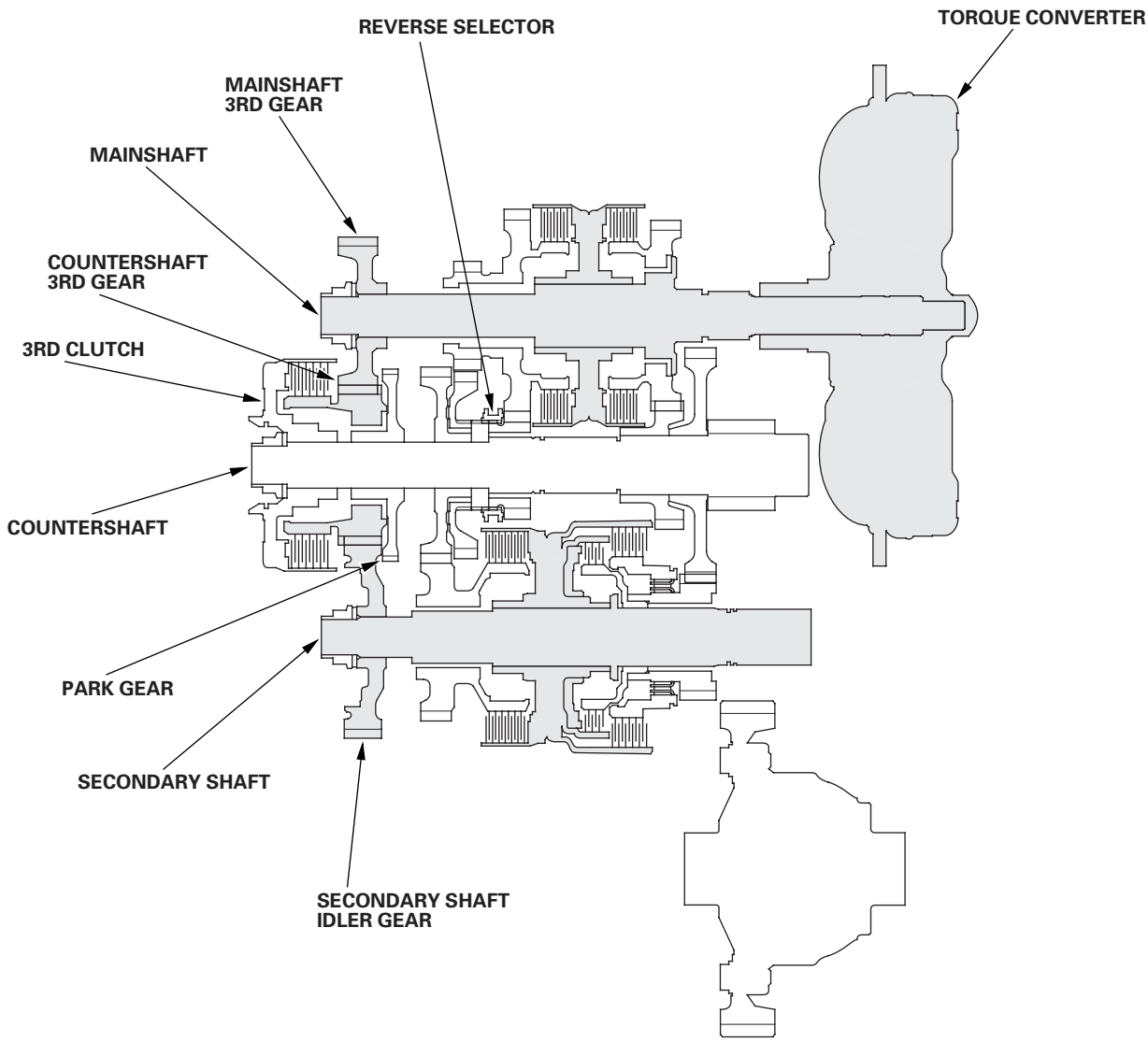
Gears on the countershaft:
- Final gear is integral with the countershaft.
- 1st gear, 4th gear, 2nd gear and park gear are splined with the countershaft, and rotate with the countershaft.
- 5th gear and reverse gear rotate freely from the countershaft. The reverse selector engages 5th gear and reverse gear with the reverse selector hub. The reverse selector hub is splined to the countershaft so 5th gear and reverse gear engage with the countershaft.
- Countershaft 3rd gear is engaged/disengaged with the countershaft by the 3rd clutch.

Gears on the secondary shaft:
- 1st gear is engaged/disengaged with the secondary shaft by the 1st clutch. 1st gear is engaged with the secondary shaft by the one-way clutch and the 1st-hold clutch when decelerating using for engine braking.
- 2nd gear is engaged/disengaged with the secondary shaft by the 2nd clutch.
- The idler gear is splined with the secondary shaft, and rotates with the secondary shaft.



P Position
Hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. The countershaft is locked by the park pawl interlocking the park gear.

N Position
Engine power transmitted from the torque converter drives the mainshaft 3rd gear, the countershaft 3rd gear, and the secondary shaft idler gear, but hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. The countershaft 5th gear is engaged to the reverse selector hub by the shift fork reverse selector when the shift lever is shifted to the N position from any of the forward range positions (D, D3, 2, and 1 positions). The countershaft reverse gear is engaged when shifted from the R position.



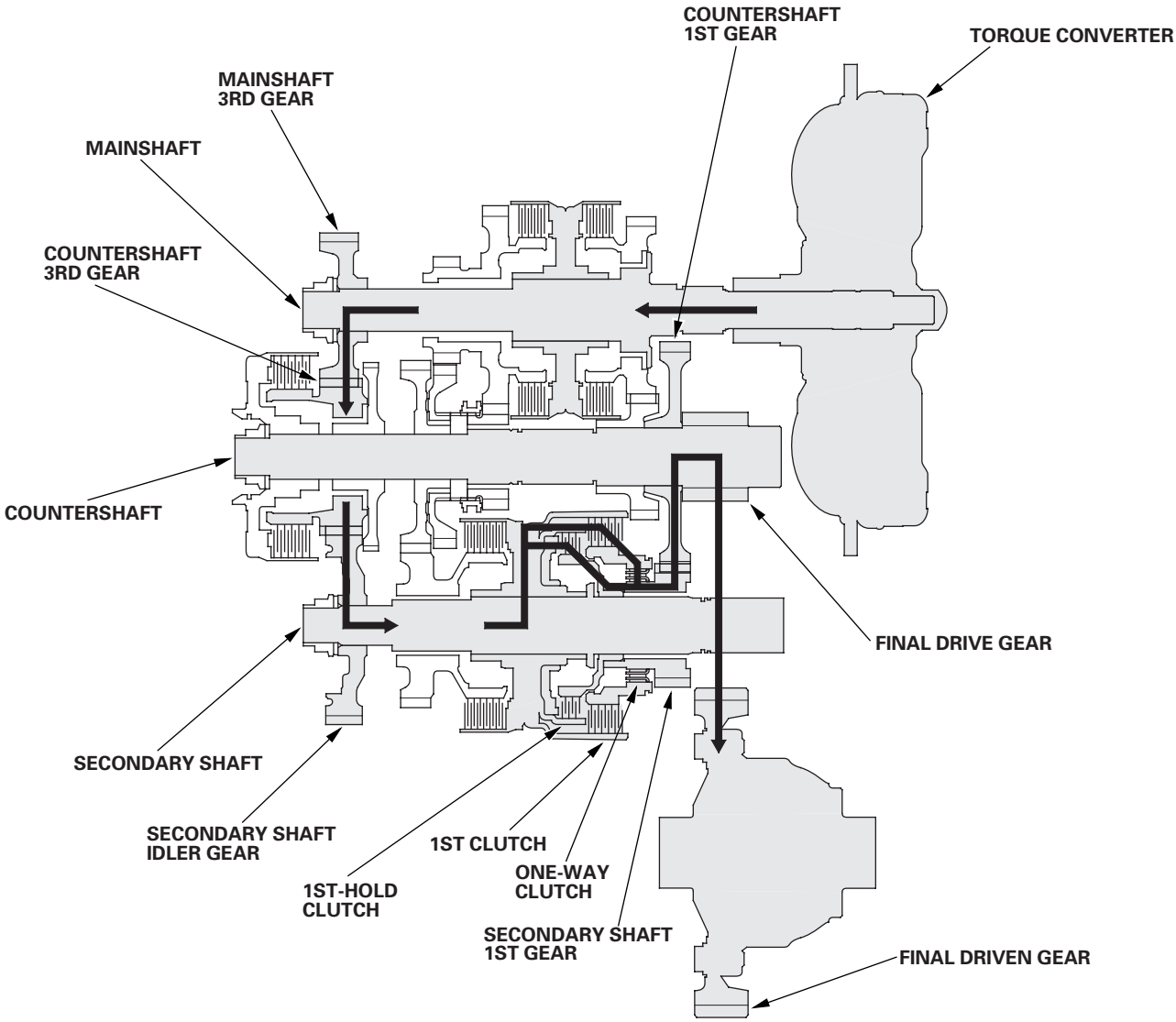
(cont'd)

System Description (cont'd)

Power Flow (cont'd)

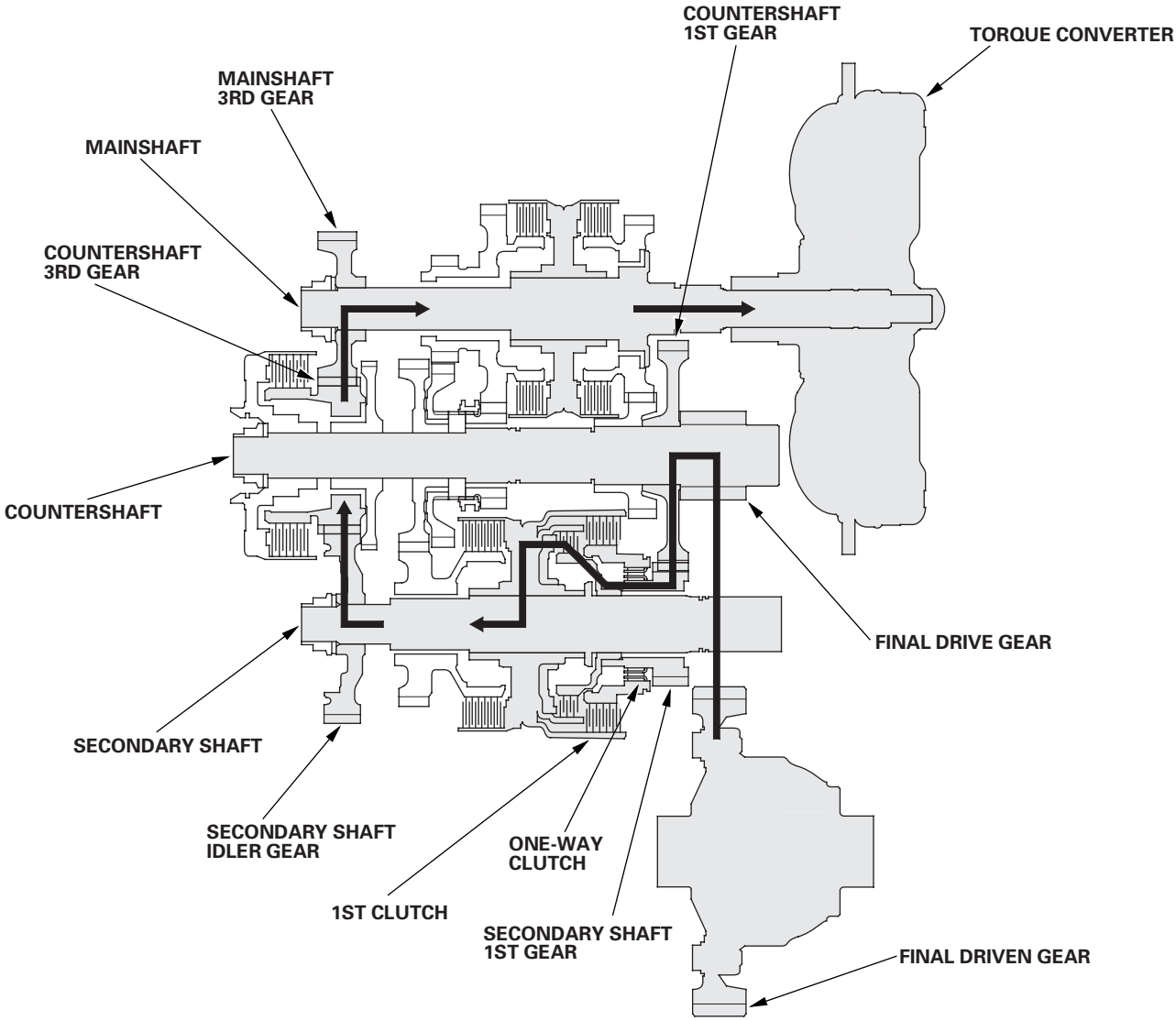
1 Position
In 1 position, hydraulic pressure is applied to the 1st clutch and the 1st-hold clutch.
The power flow when accelerating is as follows:

- Hydraulic pressure is applied to the 1st clutch, then the 1st clutch engages the secondary shaft 1st gear with the secondary shaft by the one-way clutch.
- Hydraulic pressure is also applied to the 1st-hold clutch, and the 1st-hold clutch engages the secondary shaft 1st gear with the secondary shaft.
- The mainshaft 3rd gear drives the secondary shaft via the countershaft 3rd gear and the secondary shaft idler gear.
- The secondary shaft 1st gear drives the countershaft 1st gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



1 Position
The power flow when decelerating is as follows:

- Hydraulic pressure is applied to the 1st clutch and the 1st-hold clutch. Rolling resistance from the road surface goes through the front wheels to the final drive gear, then to the secondary shaft idler gear.
- The one-way clutch disengages because the application of torque is reversed.
- The counterforce conveyed to the secondary shaft idler gear turns the mainshaft 3rd gear via the countershaft 3rd gear. As a result, engine braking can be obtained with 1st gear.



(cont'd)

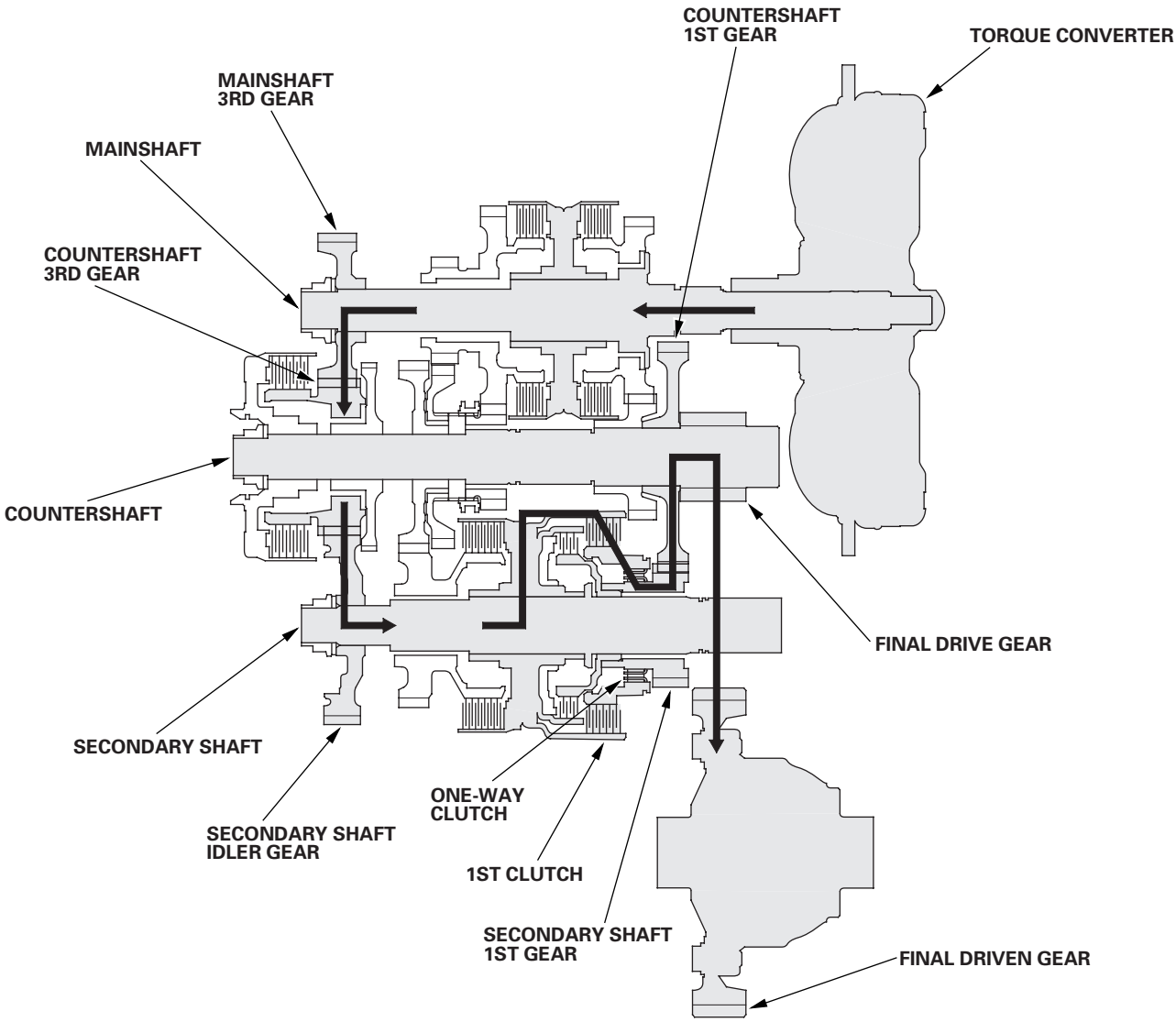
System Description (cont'd)

Power Flow (cont'd)

In D or D3 position, the optimum gear is automatically selected from the 1st, 2nd, 3rd, 4th, and 5th gears according to conditions such as the balance between the throttle opening (engine loading) and vehicle speed.

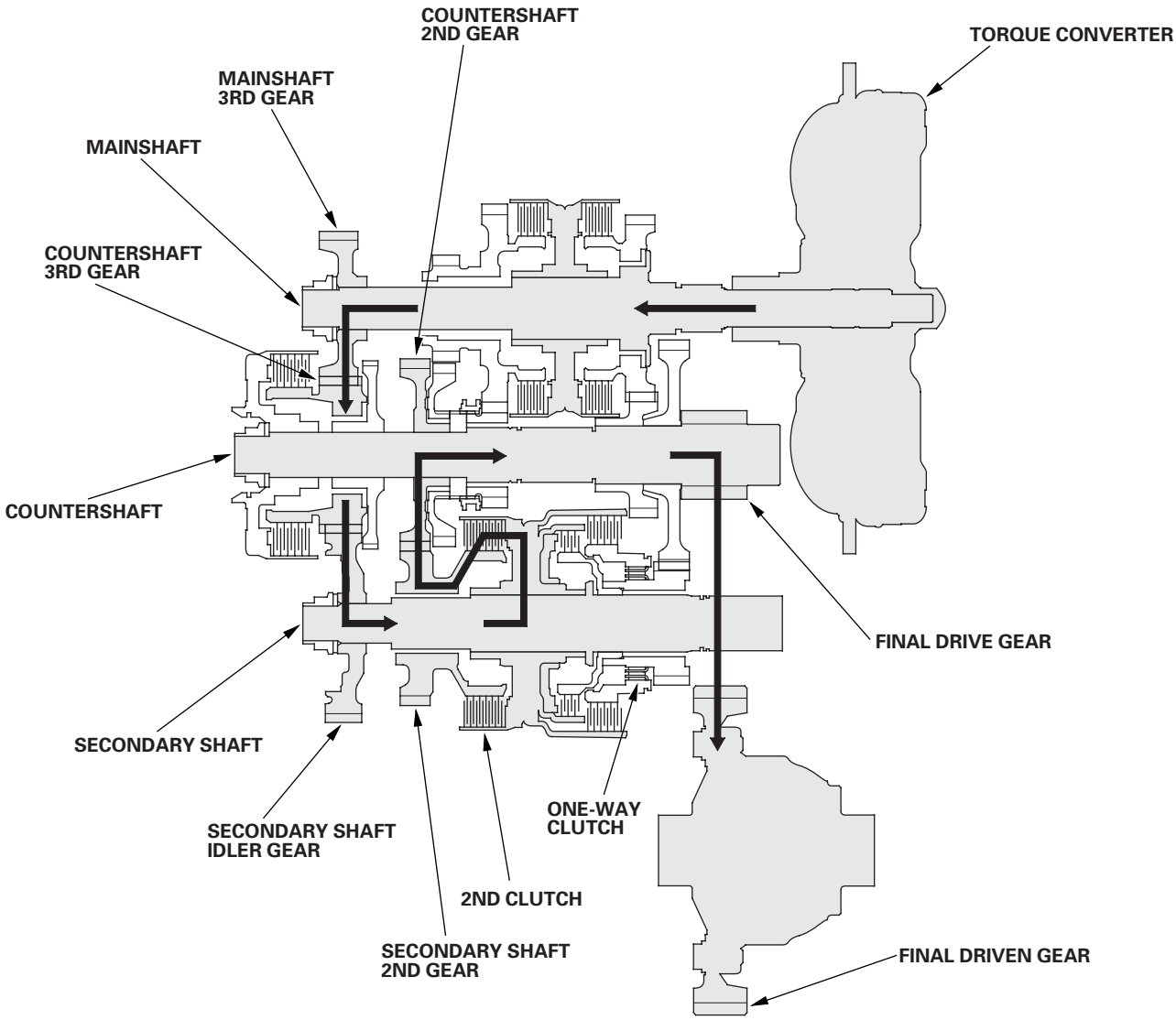
D or D3 Position in 1st gear

- Hydraulic pressure is applied to the 1st clutch, then the 1st clutch engages the secondary shaft 1st gear with the secondary shaft by the one-way clutch.
- The mainshaft 3rd gear drives the secondary shaft via the countershaft 3rd gear and secondary shaft idler gear.
- The secondary shaft 1st gear drives the countershaft 1st gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



D or D3 Position in 2nd gear and 2 Position

- Hydraulic pressure is applied to the 2nd clutch, then the 2nd clutch engages the secondary shaft 2nd gear with the secondary shaft.
- The mainshaft 3rd gear drives the secondary shaft via the countershaft 3rd gear and secondary shaft idler gear.
- The secondary shaft 2nd gear drives the countershaft 2nd gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.
- Hydraulic pressure is also applied to the 1st clutch, but since the rotation speed of 2nd gear exceeds that of 1st gear, power from 1st gear cut off at the one-way clutch.



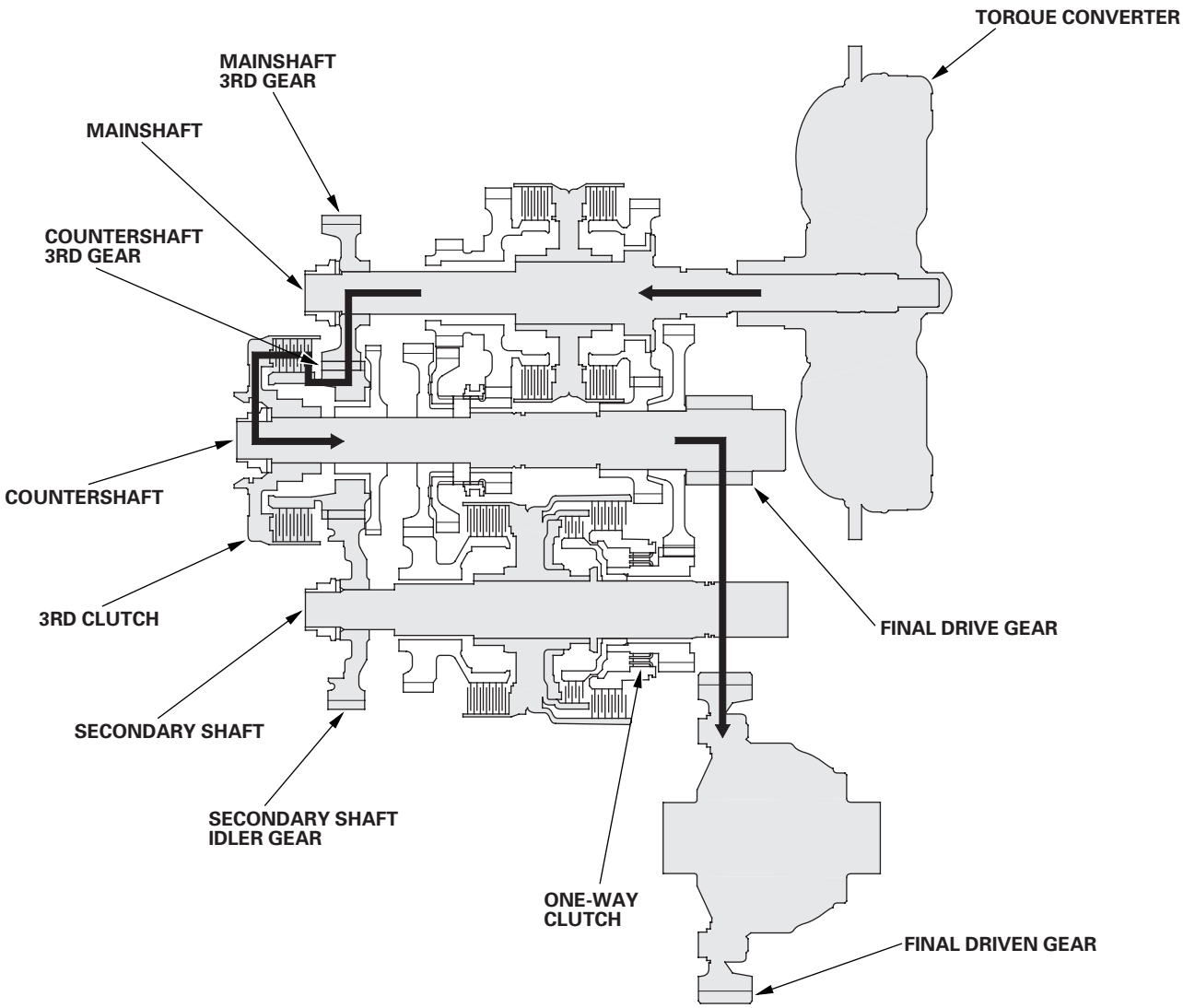
(cont'd)

System Description (cont'd)

Power Flow (cont'd)

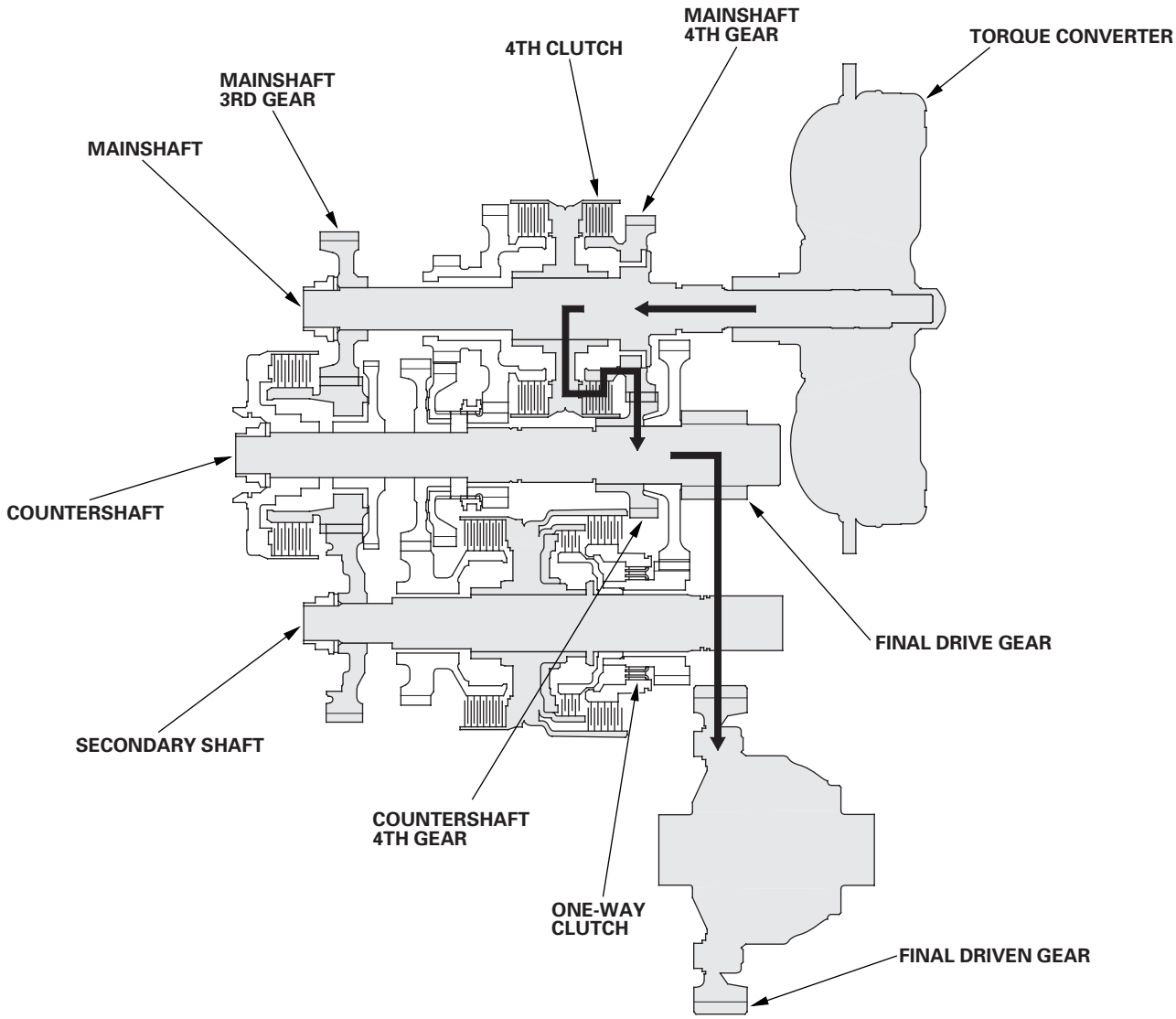
D or D3 Position in 3rd gear

- Hydraulic pressure is applied to the 3rd clutch, then the 3rd clutch engages the countershaft 3rd gear with the countershaft.
- The mainshaft 3rd gear drives the countershaft 3rd gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.
- Hydraulic pressure is also applied to the 1st clutch, but since the rotation speed of 3rd gear exceeds that of 1st gear, power from 1st gear cut off at the one-way clutch.



D Position in 4th gear

- Hydraulic pressure is applied to the 4th clutch, then the 4th clutch engages the mainshaft 4th gear with the mainshaft.
- The mainshaft 4th gear drives the countershaft 4th gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.
- Hydraulic pressure is also applied to the 1st clutch, but since the rotation speed of 4th gear exceeds that of 1st gear, power from 1st gear cut off at the one-way clutch.



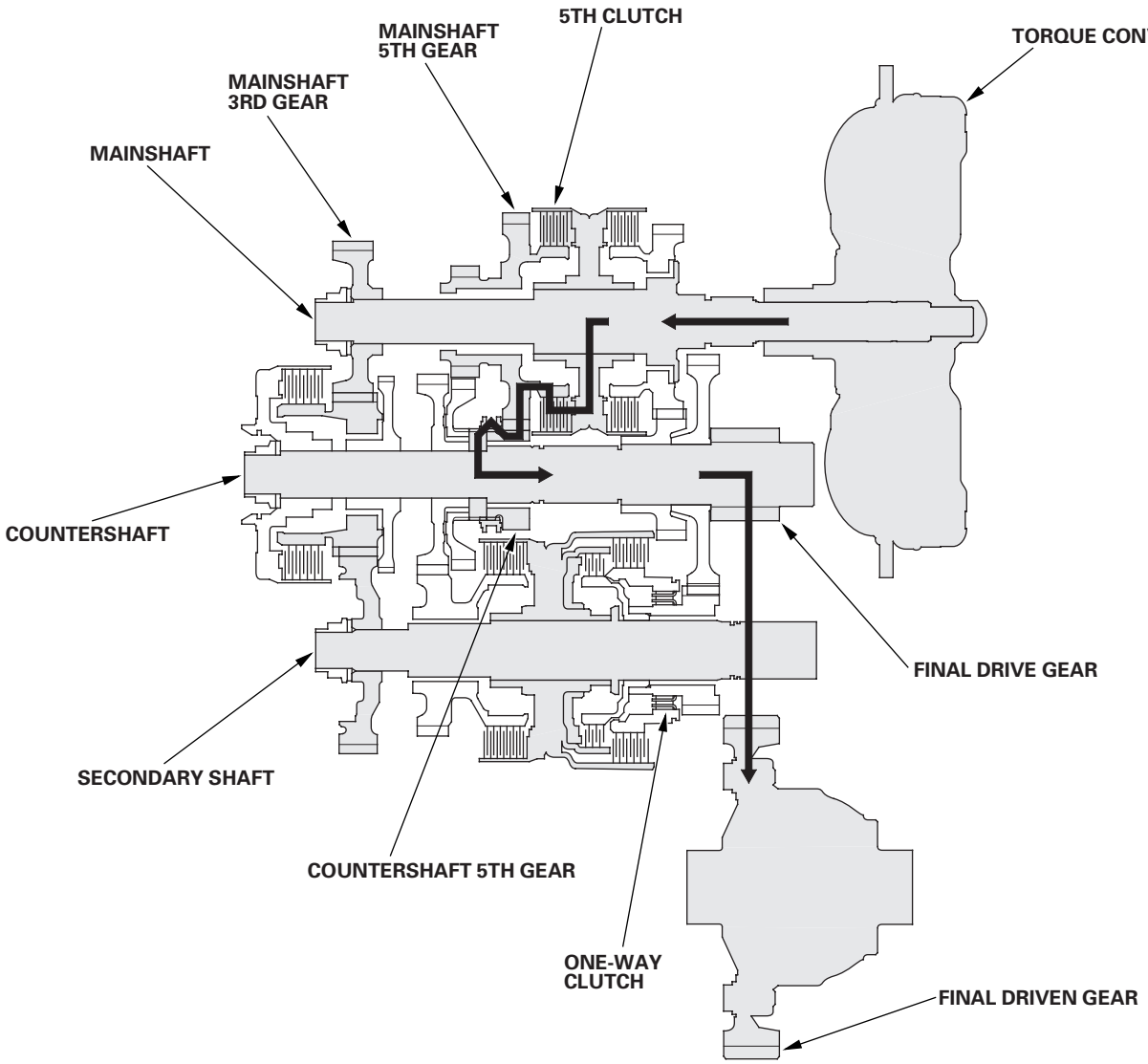
(cont'd)

System Description (cont'd)

Power Flow (cont'd)

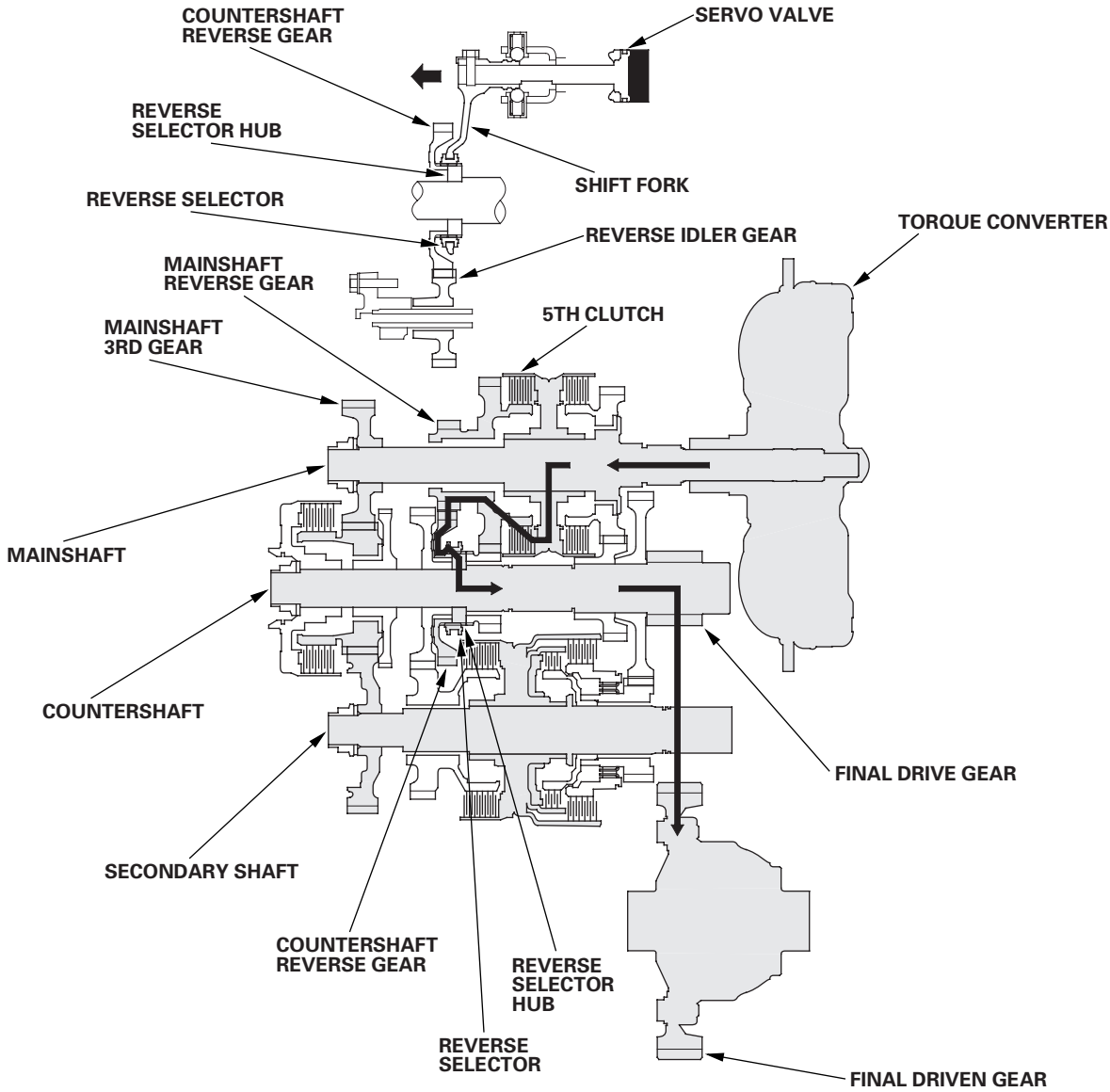
D Position in 5th gear

- Hydraulic pressure is applied to the servo valve to engage the reverse selector with the countershaft 5th gear while the shift lever is in the forward range (D, D3, 2, and 1 position).
- Hydraulic pressure is also applied to the 5th clutch, then the 5th clutch engages the mainshaft 5th gear with the mainshaft.
- The mainshaft 5th gear drives the countershaft 5th gear, which drives the reverse selector hub and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.
- Hydraulic pressure is also applied to the 1st clutch, but since the rotation speed of 5th gear exceeds that of 1st gear, power from 1st gear cut off at the one-way clutch.



R Position

- Hydraulic pressure is applied to the servo valve to engage the reverse selector with the countershaft (reverse gear while the shift lever is in the R position).
- Hydraulic pressure is also applied to the 5th clutch, then the 5th clutch engages the mainshaft reverse gear with the mainshaft.
- The mainshaft reverse gear drives the countershaft reverse gear via the reverse idler gear.
- The rotation direction of the countershaft reverse gear is changed via the reverse idler gear.
- The countershaft reverse gear drives the countershaft via the reverse selector which drives the reverse selector hub.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



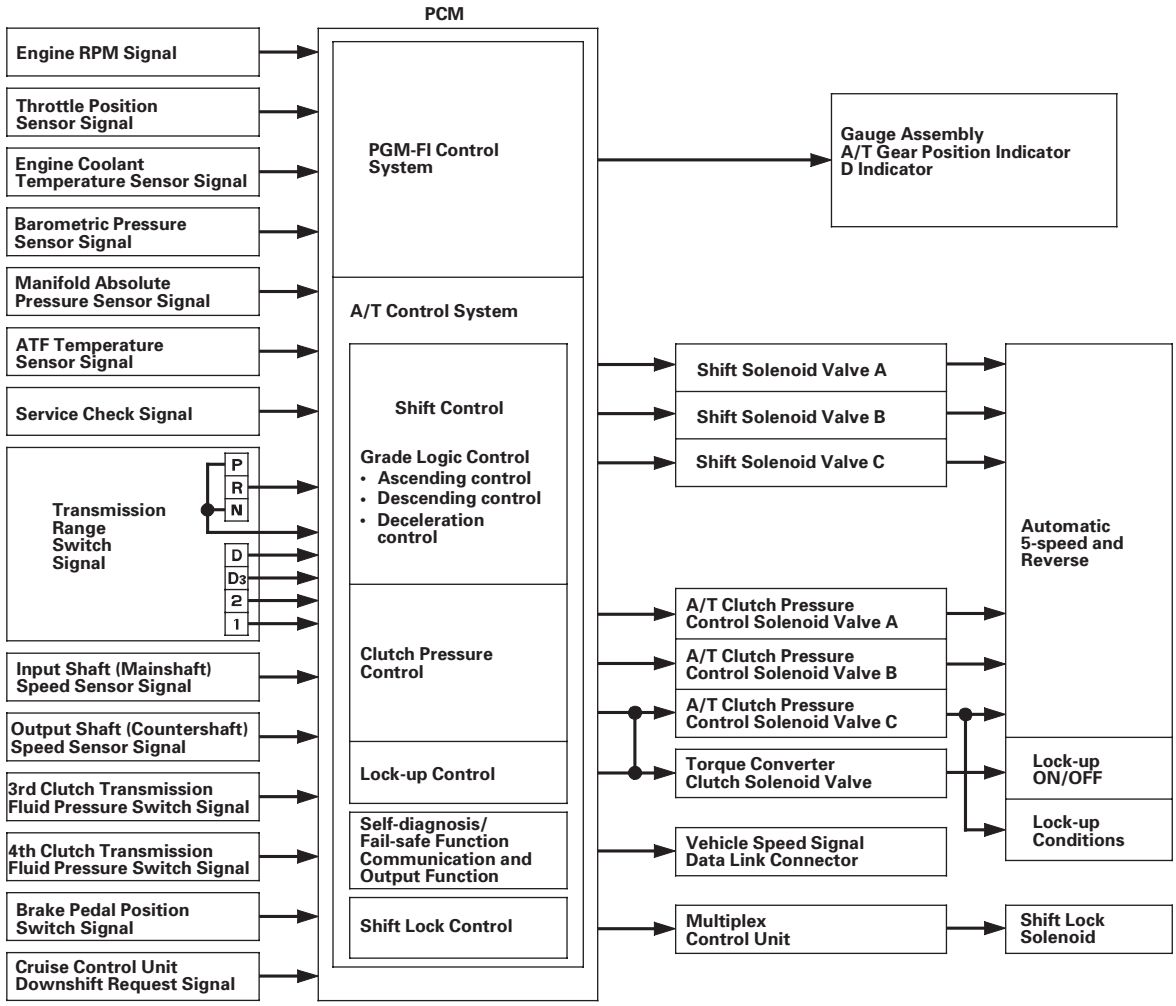
System Description (cont'd)

Electronic Control System

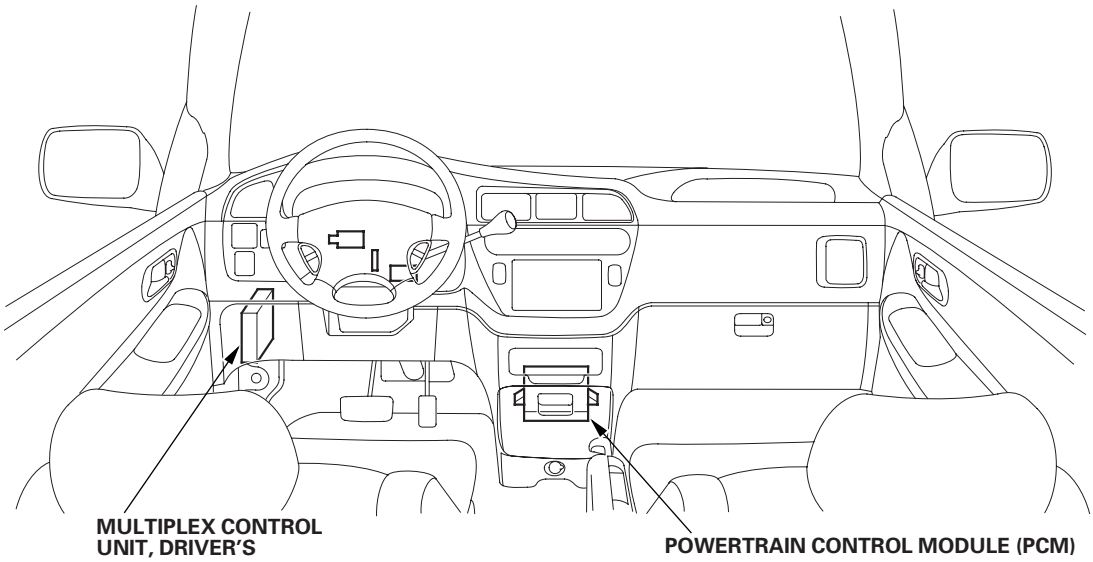
Functional Diagram

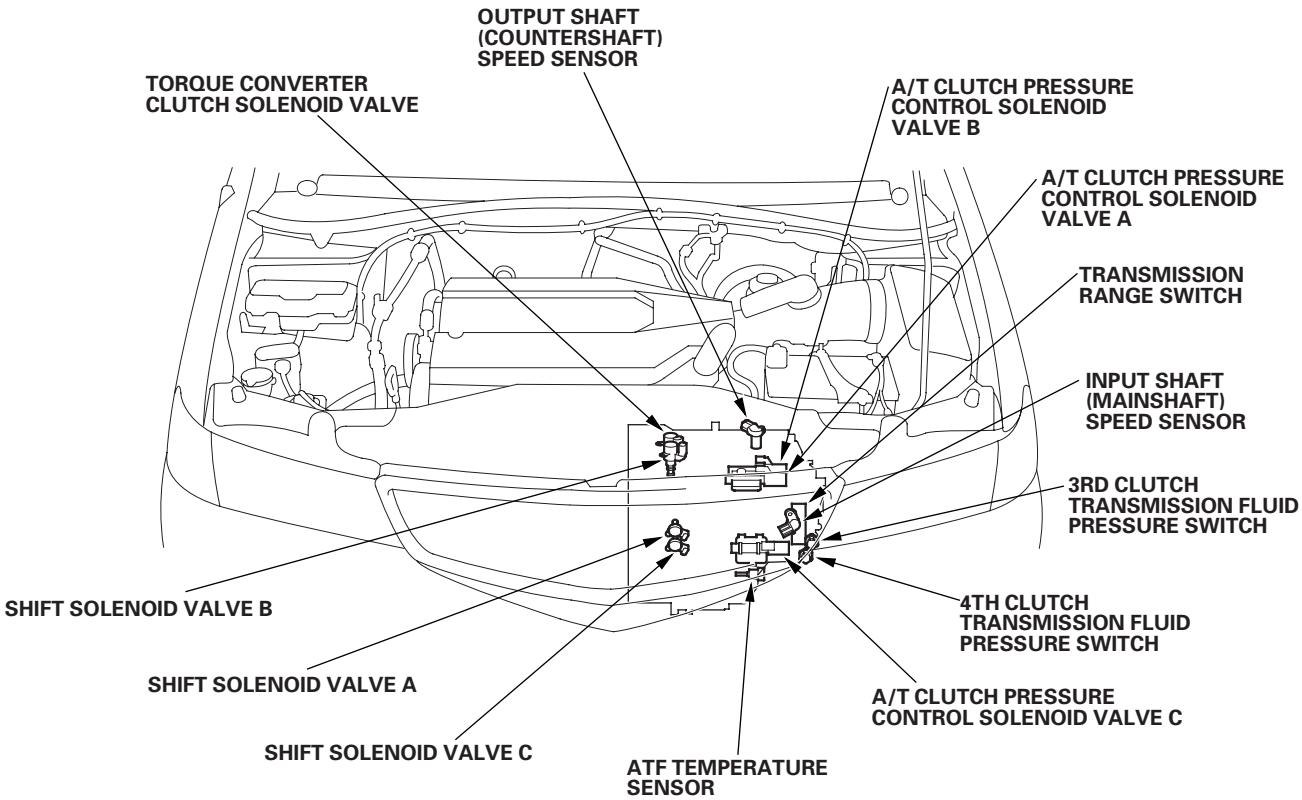
The electronic control system consists of the powertrain control module (PCM), sensors, and solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions.

The PCM recieves input signals from the sensors, switches, and other control units, perform processing data, and outputs signals for the engine control system and A/T control system. The A/T control system includes shift control, grade logic control, clutch pressure control, and lock-up control is stored in the PCM.
The PCM switches the shift solenoid valves and the A/T clutch pressure control solenoid valves to control shifting transmission gears and lock-up torque converter clutch.



Electronic Control Location





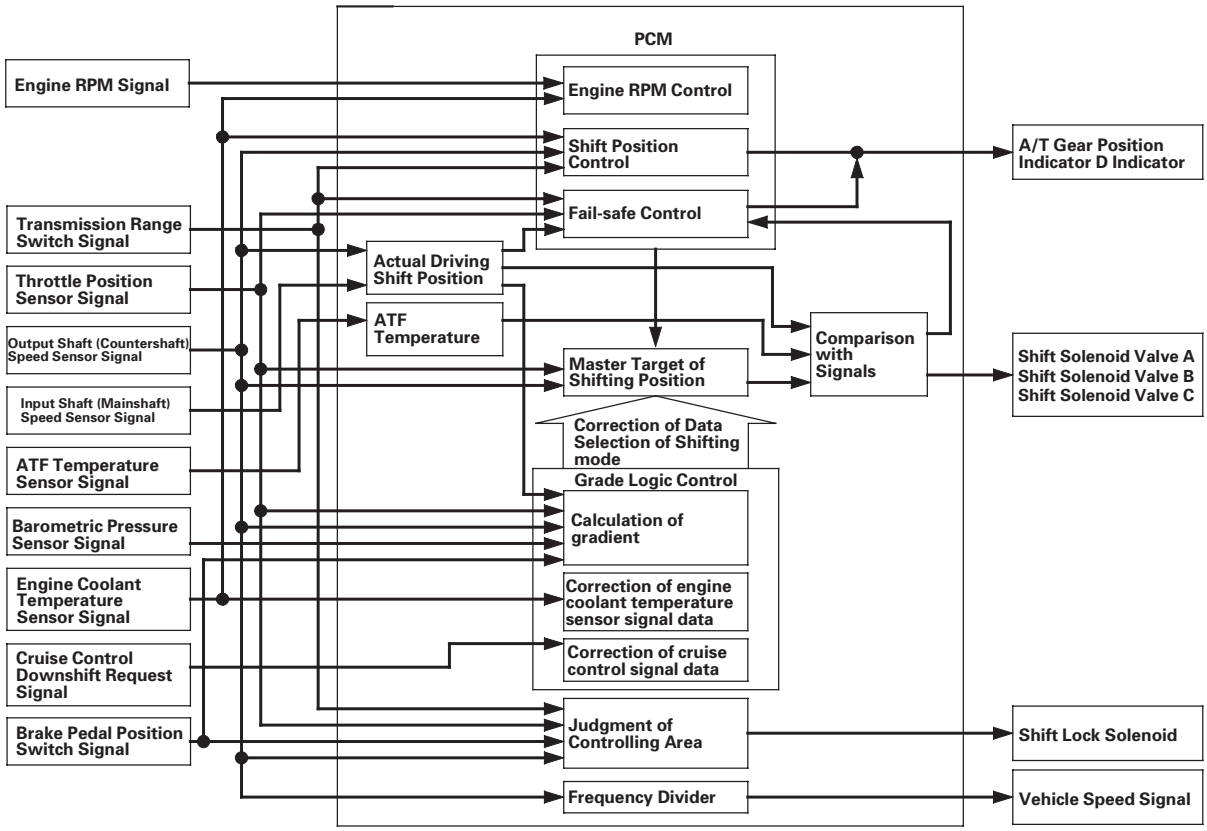
(cont'd)

System Description (cont'd)

Electronic Control System

Shift Control
The PCM instantly determines which gear should be selected by various signals sent from sensors and switches, and it actuates the shift solenoid valves A, B, and C to control shifting.

Also, as grade logic control system has been adopted to control shifting in the D and D3 positions. The PCM compares actual driving conditions with memorized driving conditions, based on the input from the throttle position sensor, the engine coolant temperature sensor, the barometric pressure sensor, the brake pedal position switch signal, and the shift lever position signal, to control shifting while the vehicle is ascending or descending a slope.



The PCM turns on the shift solenoid valves A, B, and C to control shifting transmission gear.
The combination of driving signals to shift solenoid valves A, B, and C are shown in the table.

Position	Gear position	Shift solenoid valves		
		A	B	C
D, D3	Shifting from the N position	OFF	ON	OFF
	Stays in 1st	ON	ON	ON
	Shifting gears between 1st and 2nd	ON	ON	ON
	Stays in 2nd	ON	ON	OFF
	Shifting gears between 2nd and 3rd	OFF	ON	OFF
	Stays in 3rd	OFF	ON	ON
D	Shifting gears between 3rd and 4th	OFF	OFF	ON
	Stays in 4th	OFF	OFF	OFF
	Shifting gears between 4th and 5th	ON	OFF	OFF
	Stays in 5th	ON	OFF	ON
2	2nd	ON	ON	OFF
1	1st	ON	ON	ON
R	Shifting from the P and N position	OFF	ON	ON
	Stays in reverse	OFF	ON	OFF
	Reverse inhibit	ON	ON	ON
P	Park	OFF	ON	OFF
N	Neutral	OFF	ON	OFF

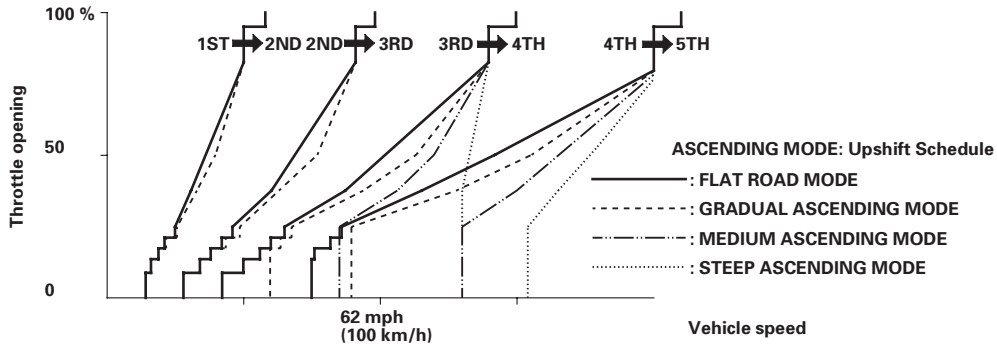
(cont'd)

System Description (cont'd)

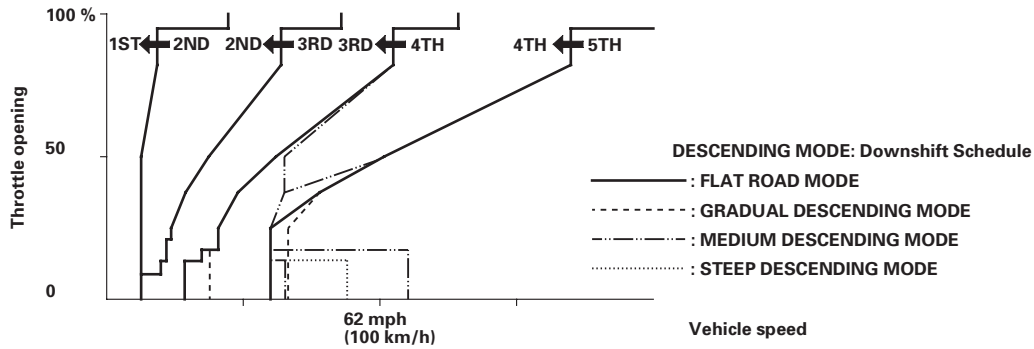
Electronic Control System (cont'd)

Grade Logic Control: Ascending Control
When the PCM determines that the vehicle is climbing a hill in the D and D3 positions, the system extends the engagement area of 2nd gear, 3rd gear, and 4th gear to prevent the transmission from frequently shifting between 2nd and 3rd gears, between 3rd and 4th gears, and between 4th and 5th gear, so the vehicle can run smooth and have more power when needed.

NOTE: Shift schedules stored in the PCM between 2nd and 3rd gears, between 3rd and 4th gears, and between 4th and 5th gear, enable to automatically select the most suitable gear according to the magnitude of a gradient.



Grade Logic Control: Descending Control
When the PCM determines that the vehicle is going down a hill in the D and D3 positions, the shift-up speed from 4th to 5th gear, 3rd to 4th gear and from 2nd to 3rd (when the throttle is closed) becomes faster than the set speed for flat road driving to widen the 4th gear, 3rd gear and 2nd gear driving areas. This, in combination with engine braking from the deceleration lock-up, achieves smooth driving when the vehicle is descending. There are three descending modes with different 4th gear driving areas, 3rd gear driving areas and 2nd gear driving areas according to the magnitude of a gradient stored in the PCM. When the vehicle is in 5th gear or 4th gear, and you are decelerating while applying the brakes on a steep hill, the transmission will downshift to lower gear. When you accelerate, the transmission will then return to higher gear.

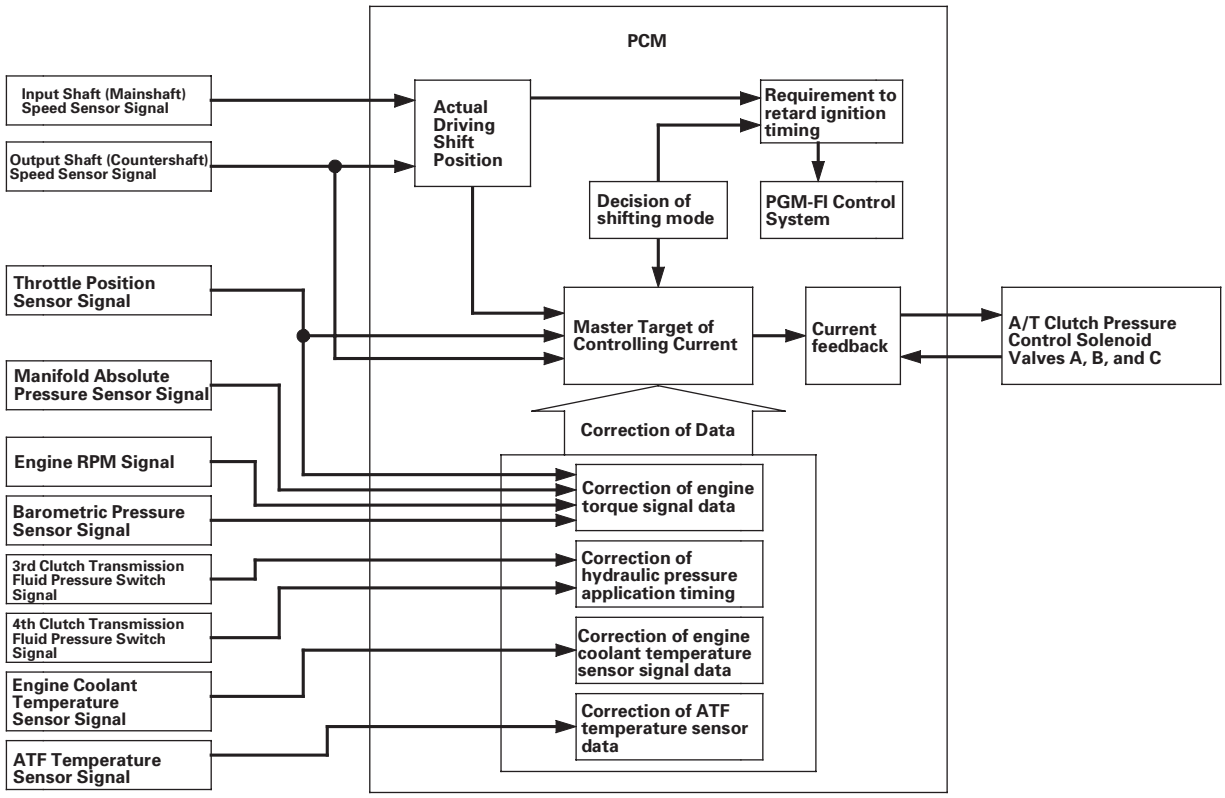


Grade Logic Control: Deceleration Control
When the vehicle goes around a corner, and needs to decelerate first and then accelerate, the PCM sets the data for deceleration control to reduce the number of times the transmission shifts. When the vehicle is decelerating from speeds above 37 mph (60 km/h), the PCM shifts the transmission from 5th or 4th to 2nd earlier than normal to cope with upcoming acceleration.

Clutch Pressure Control

The PCM actuates the A/T clutch pressure control solenoid valves A, B, and C to control the clutch pressure. When shifting between lower and higher gears, the clutch pressure regulated by the A/T clutch pressure control solenoid valves A, B, and C engages and disengages the clutch smoothly.

The PCM receives input signals from the various sensors and switches, performs processing data, and outputs a current to the A/T clutch pressure control solenoid valves A, B, and C.



(cont'd)

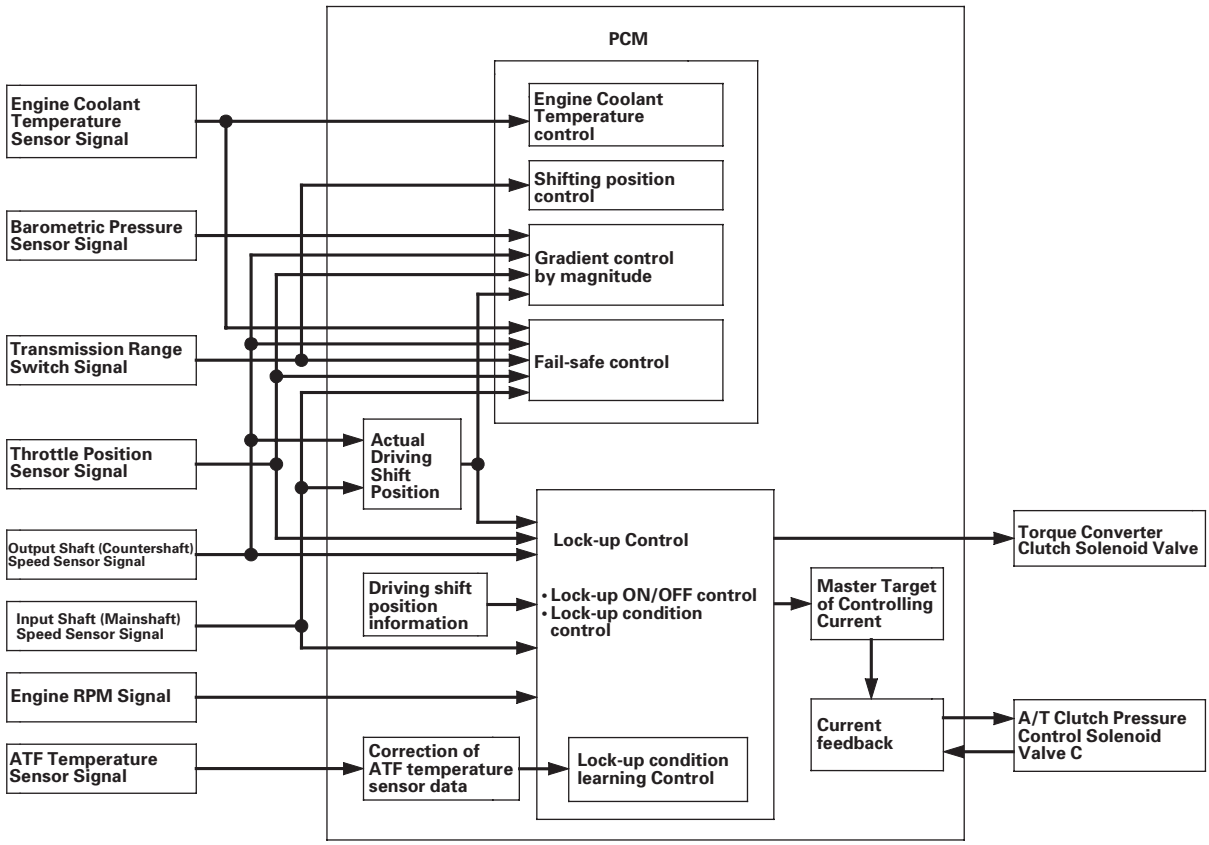
System Description (cont'd)

Electronic Control System (cont'd)

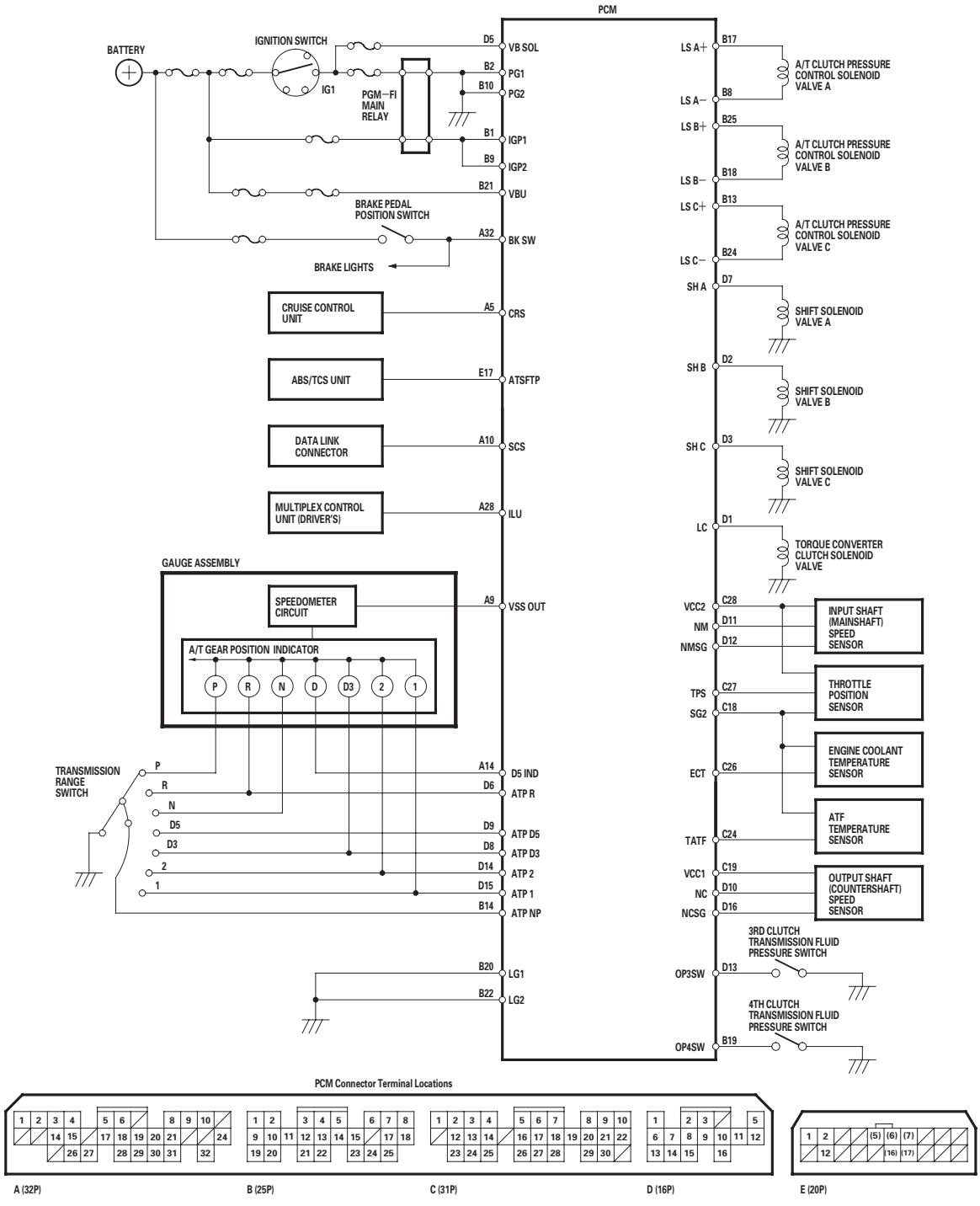
Lock-up Control

The torque converter clutch solenoid valve controls the hydraulic pressure to switch the lock-up shift valve and lock-up ON and OFF. The PCM actuates the torque converter clutch solenoid valve and the A/T clutch pressure control solenoid valve C to control the torque converter clutch lock-up on. When the torque converter clutch solenoid valve is ON, the condition of the lock-up starts. The A/T clutch pressure control solenoid valve C regulates and applies the hydraulic pressure to the lock-up control valve to control the amount of the lock-up.

The lock-up mechanism operates in 3rd, 4th, and 5th gears in the D position, and 3rd gear in the D3 position.



PCM Electrical Connections



(cont'd)

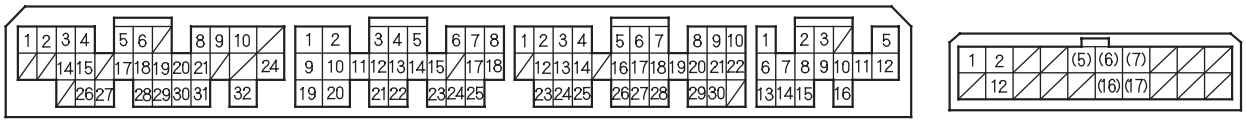
System Description (cont'd)

Electronic Control System (cont'd)

PCM Inputs and Outputs

The PCM terminal voltage and measuring conditions for the A/T control system are shown.

PCM Connector Terminal Locations



A (32P) B (25P) C (31P) D (16P) E (20P)

PCM CONNECTOR A (32P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
A5	BLU/GRN	CRS	Downshift signal input from cruise control unit	When cruise control is used: About 1 V
A9	BLU/WHT	VSS OUT	Vehicle speed signal detected from output shaft (countershaft) speed sensor, and sent to speedometer and odometer	Depending on vehicle speed: Pulsing signal
A10	BRN	SCS	Detects service check signal	With ignition switch ON (II) and data link connector open: 5 V With ignition switch ON (II) and data link connector connected with HDS in SCS mode: 0 V
A14	GRN/BLK	D IND	D indicator control	When ignition switch is first turned ON (II): About 7 V for 2 seconds In the D position: About 7 V
A28	WHT/RED	ILU	Interlock control	With ignition switch ON (II), brake pedal pressed, and accelerator pedal released: Battery voltage
A32	WHT/BLK	BK SW	Brake pedal position switch signal input	Brake pedal pressed: Battery voltage Brake pedal released: 0 V

PCM CONNECTOR B (25P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
B1	YEL/BLK	IGP1	Power supply circuit from main relay	With ignition switch ON (II): Battery voltage With ignition switch OFF: 0 V
B2	BLK	PG1	Ground	Less than 1.0 V at all times
B8	WHT	LS A−	A/T clutch pressure control solenoid valve A power supply negative electrode	
B9	YEL/BLK	IGP2	Power supply circuit from main relay	With ignition switch ON (II): Battery voltage With ignition switch OFF: 0 V
B10	BLK	PG2	Ground	Less than 1.0 V at all times
B13	GRN/RED	LS C+	A/T clutch pressure control solenoid valve C power supply positive electrode	With ignition switch ON (II): Pulsing signal
B14	BLU/WHT	ATP NP	Transmission range switch P and N positions input	In the P and N positions: 0 V In other than the P and N position: Battery voltage
B17	RED	LS A+	A/T clutch pressure control solenoid valve A power supply positive electrode	With ignition switch ON (II): Pulsing signal
B18	GRN	LS B−	A/T clutch pressure control solenoid valve B power supply negative electrode	
B19	BLU/YEL	AT OP4SW	A/T 4th clutch transmission fluid pressure switch signal input	With ignition switch ON (II): Battery voltage (No 4th clutch pressure) With 4th clutch pressure: About 0 V
B20	BRN/YEL	LG1	Ground	Less than 1.0 V at all times
B21	WHT/RED	VBU	Back-up power supply	Always battery voltage
B22	BRN/YEL	LG2	Ground	Less than 1.0 V at all times
B24	RED/BLU	LS C−	A/T clutch pressure control solenoid valve C power supply negative electrode	
B25	BRN/WHT	LS B+	A/T clutch pressure control solenoid valve B power supply positive electrode	With ignition switch ON (II): Pulsing signal

PCM CONNECTOR C (31P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
C18	GRN/YEL	SG2	Sensor ground	Less than 1.0 V at all times
C19	YEL/RED	VCC1	Power supply for sensors	With ignition switch ON (II): 5 V With ignition switch OFF: 0 V
C24	BLU/YEL	ATFT	ATF temperature sensor signal input	With ignition switch ON (II): About 0.5 − 4.5 V With ignition switch OFF: 0 V
C28	YEL/BLU	VCC2	Power supply for sensors	With ignition switch ON (II): 5 V With ignition switch OFF: 0 V

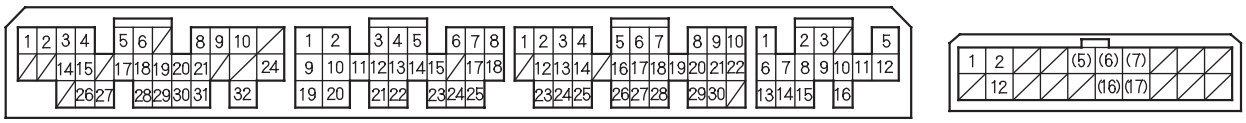
(cont'd)

System Description (cont'd)

Electronic Control System (cont'd)

PCM Inputs and Outputs (cont'd)

PCM Connector Terminal Locations



A (32P) B (25P) C (31P) D (16P) E (20P)

PCM CONNECTOR D (16P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
D1	YEL	LC	Torque converter clutch solenoid valve control	During lock-up condition: Battery voltage During no lock-up condition: 0 V
D2	GRN/WHT	SH B	Shift solenoid valve B control	Battery voltage in these positions: • 1, 2 • D and D3 in 1st , 2nd, and 3rd gear • P, R, and N 0 V in these positions: • D in 4th and 5th gear
D3	GRN	SH C	Shift solenoid valve C control	Battery voltage in these positions: • 1 • D and D3 in 1st, 3rd and 5th gear 0 V in these positions: • 2 • D and D3 in 2nd gear • D in 4th gear • P, R, and N
D5	BLK/YEL	VB SOL	Power supply for solenoid valves (Fuse No. 6 in driver's under-dash fuse/relay box)	With ignition switch ON (II): Battery voltage With ignition switch OFF: 0 V
D6	WHT	ATP R	Transmission range switch R position input	In the R position: 0 V In other than the R position: Battery voltage
D7	BLU/YEL	SH A	Shift solenoid valve A control	Battery voltage in these positions: • 1, 2 • D and D3 in 1st and 2nd gear • D in 5th gear 0 V in these positions: • D and D3 in 3rd gear • D in 4th gear • P, R, and N

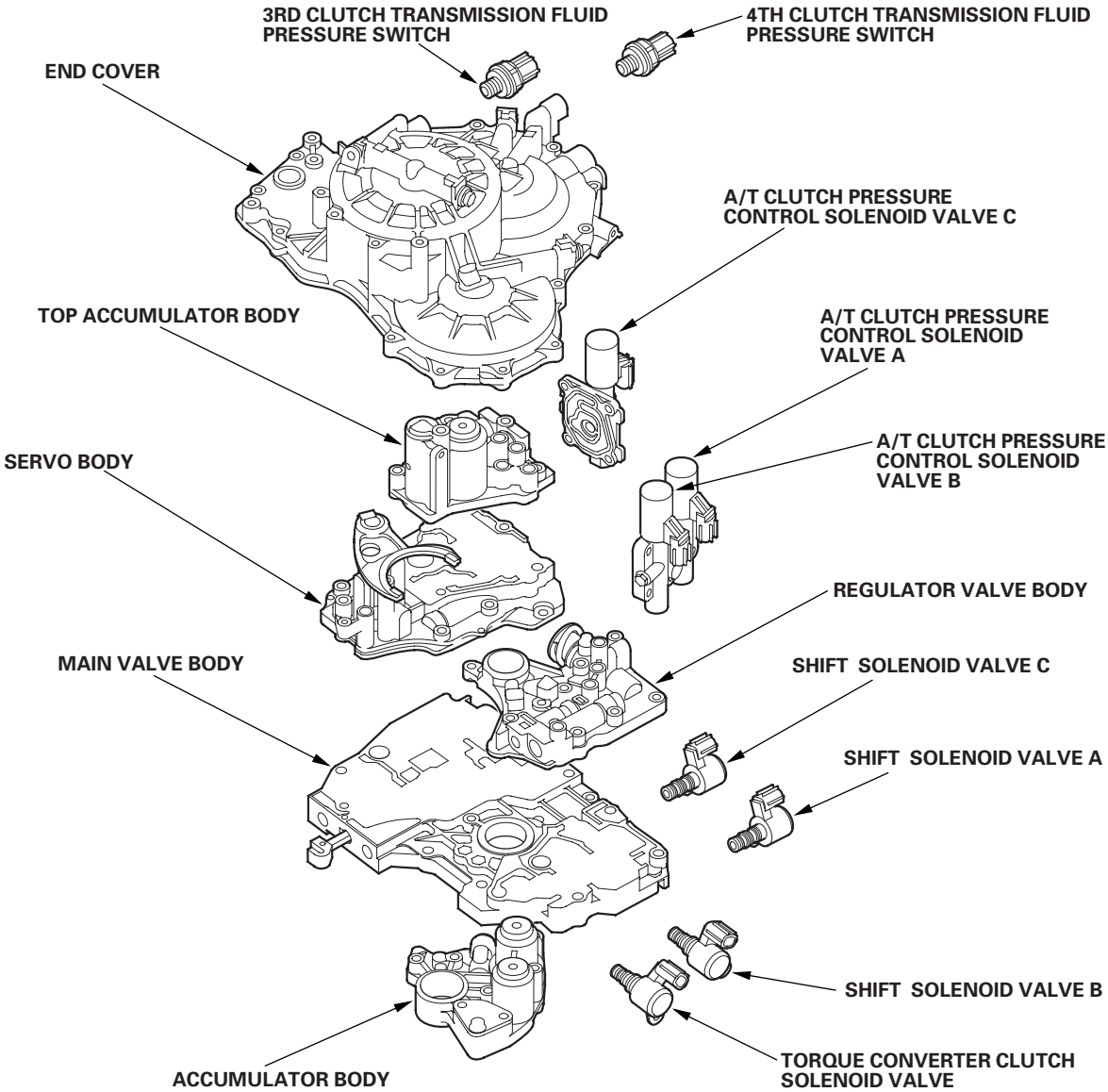
PCM CONNECTOR D (16P)

Terminal Number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
D8	RED	ATP D3	Transmission range switch D3 position input	In the D3 position: 0 V In other than the D3 position: Battery voltage
D9	YEL	ATP D5	Transmission range switch D position input	In the D position: 0 V In other than the D position: Battery voltage
D10	BLU	NC	Output shaft (countershaft) speed sensor input	Depending on vehicle speed: Pulsing signal When vehicle is stopped: About 0 V
D11	RED	NM	Input shaft (mainshaft) speed sensor input	Depending on vehicle speed: Pulsing signal When engine is stopped: About 0 V
D12	WHT	NMSG	Input shaft (mainshaft) speed sensor ground	
D13	BLU/WHT	ATOP3SW	A/T 3rd clutch transmission fluid pressure switch signal input	With ignition switch ON (II): Battery voltage (No 3rd clutch pressure) With 3rd clutch pressure: About 0 V
D14	BLU	ATP 2	Transmission range switch 2 position input	In the 2 position: 0 V In other than the 2 position: Battery voltage
D15	BRN	ATP 1	Transmission range switch 1 position input	In the 1 position: 0 V In other than the 1 position: Battery voltage
D16	GRN	NCSG	Output shaft (countershaft) speed sensor ground	

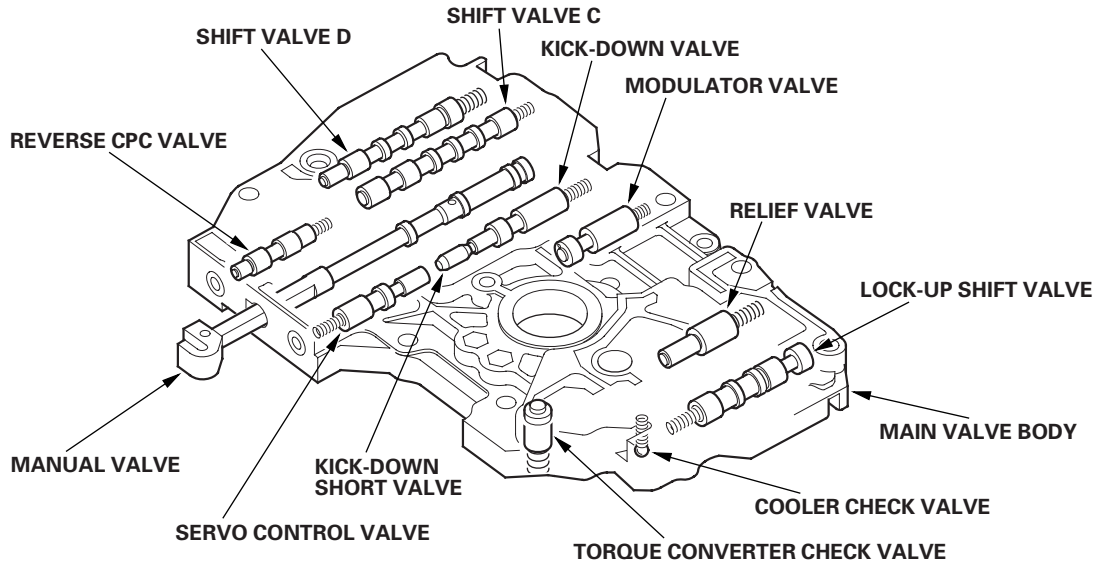
System Description (cont'd)

Hydraulic Controls

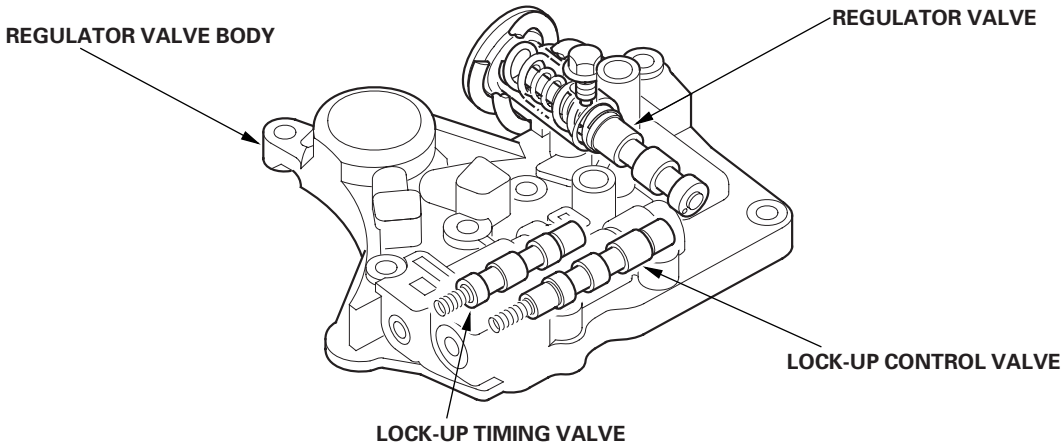
The valve body includes the main valve body, the regulator valve body, the servo body and the accumulator body. The ATF pump is driven by splines on the left end of the torque converter which is attached to the engine. Fluid flows through the regulator valve to maintain specified pressure through the main valve body to the manual valve, directing pressure to each of the clutches. The shift solenoid valves B and C are mounted on the outside of the torque converter housing. The shift solenoid valve A and the torque converter clutch solenoid valve are mounted on the torque converter housing. The A/T clutch pressure control solenoid valves A, B, and C are mounted on the transmission housing.



Main Valve Body
The main valve body contains the manual valve, the modulator valve, the shift valve C, the shift valve D, the servo control valve, the cooler check valve, the torque converter check valve, the reverse CPC valve, the lock-up shift valve, the relief valve, the kick-down valve, the kick-down short valve, and the ATF pump gears. The primary function of the main valve body is to switch fluid pressure on and off and to control hydraulic pressure going to the hydraulic control system.



Regulator Valve Body
The regulator valve body is located on the main valve body. The regulator valve body contains the regulator valve, the lock-up timing valve, and the lock-up control valve.



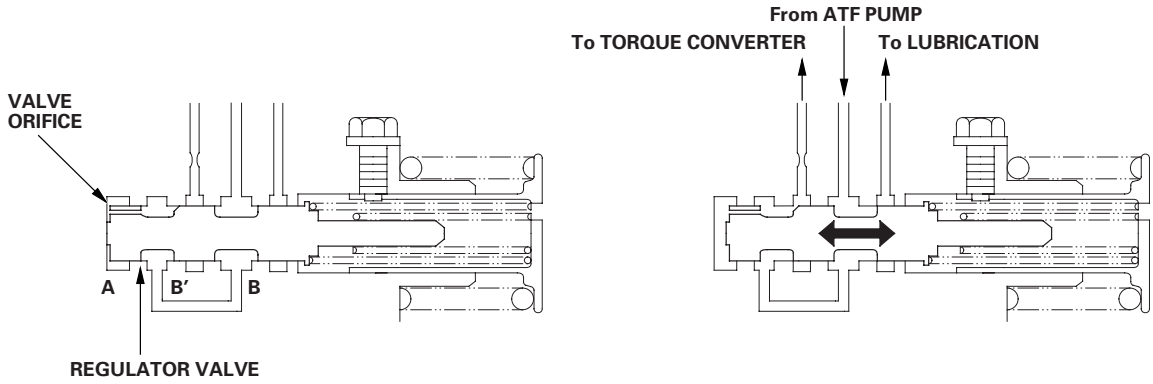
(cont'd)

System Description (cont'd)

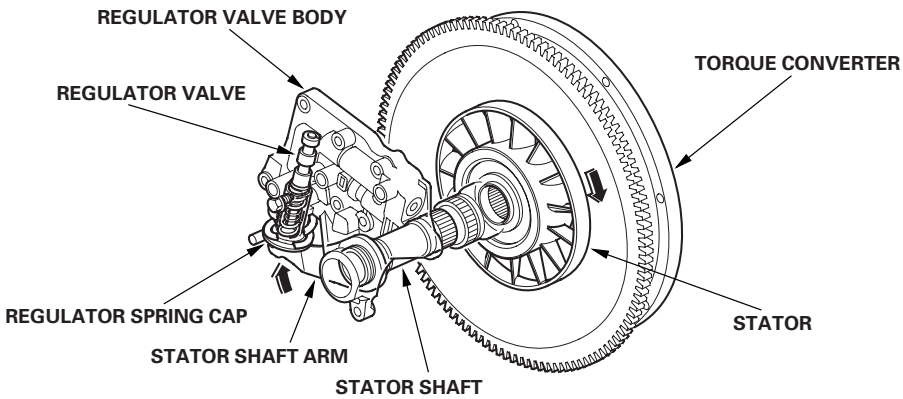
Hydraulic Controls (cont'd)

Regulator Valve
The regulator valve maintains constant hydraulic pressure from the ATF pump to the hydraulic control system, while also furnishing fluid to the lubricating system and torque converter. Fluid from the ATF pump flows through B and B'. Fluid entering from B flows through the valve orifice to the A cavity. This pressure of the A cavity pushes the regulator valve to the right side, and this movement of the regulator valve uncovers the fluid port to the torque converter and the relief valve. The fluid flows out to the torque converter and the relief valve, and the regulator valve moves to the left side. According to the level of the hydraulic pressure through B, the position of the regulator valve changes, and the amount of fluid from B' through torque converter changes. This operation is continued, maintaining the line pressure.

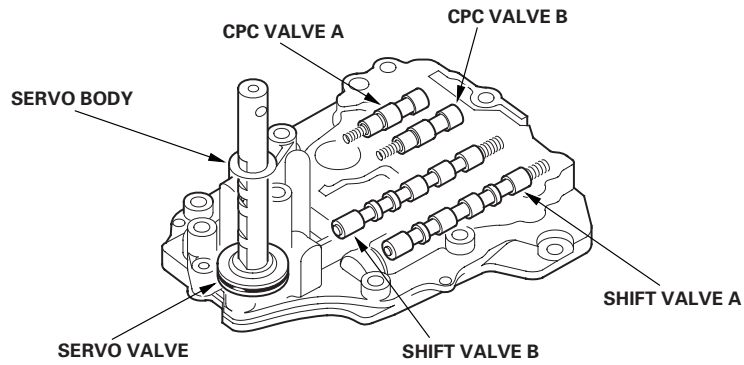
NOTE: When used, ''left'' or ''right'' indicates direction on the illustration.



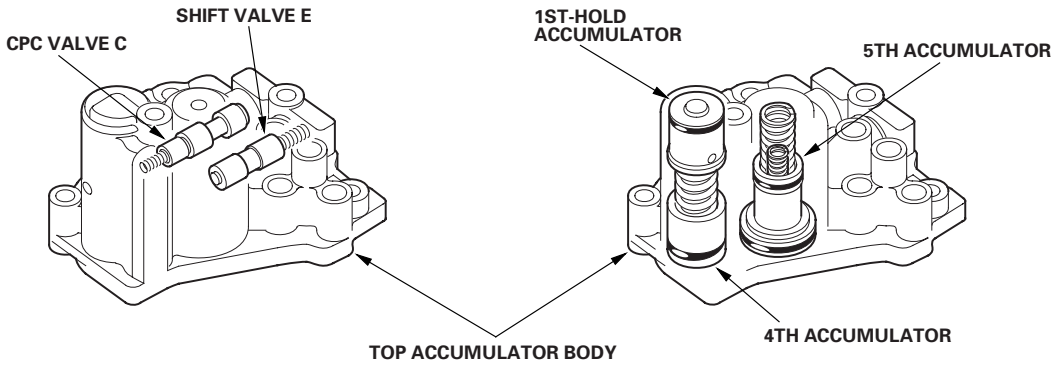
Increases in hydraulic pressure according to torque are performed by the regulator valve using stator torque reaction. The stator shaft is splined to the stator in the torque converter, and its arm end contacts the regulator spring cap. When the vehicle is accelerating or climbing (torque converter range), stator torque reaction acts on the stator shaft, and the stator arm pushes the regulator spring cap in the direction of the arrow in proportion to the reaction. The stator reaction spring compresses, and the regulator valve moves to increase the line pressure which is regulated by the regulator valve. The line pressure reaches its maximum when the stator torque reaction reaches its maximum.



Servo Body
The servo body is on the main valve body. It contains the servo valve, the shift valve A, the shift valve B, CPC valves A and B.

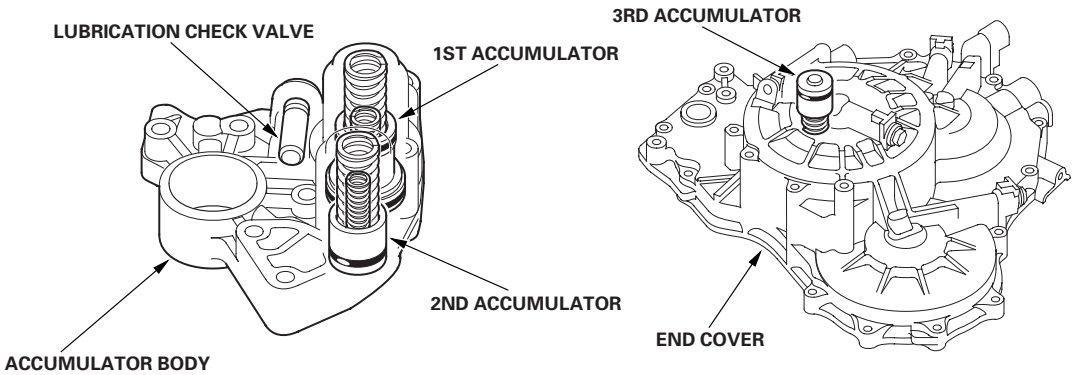


Top Accumulator Body
The top accumulator body contains shift valve E, CPC valve C, 4th/1st-hold accumulator, and 5th accumulator.



Accumulator Body
The accumulator body is on the torque converter housing, next to the main valve body. It contains the 1st and the 2nd accumulators and the lubrication check valve.

3rd Accumulator
The 3rd accumulator is in the end cover.



System Description (cont'd)

Hydraulic Flow

Distribution of Hydraulic Pressure

As the engine turns, the ATF pump starts to operate. Automatic transmission fluid (ATF) is drawn through the ATF strainer (filter) and discharged into the hydraulic circuit. Then, ATF flowing from the ATF pump becomes line pressure that's regulated by the regulator valve. Torque converter pressure from the regulator valve enters the torque converter through the lock-up shift valve and it is discharged from the torque converter. The torque converter check valve prevents torque converter pressure from rising.

The PCM turns the shift solenoid valves ON and OFF, and the shift solenoid valves control shift solenoid pressure to the shift valves. Applying shift solenoid pressure to the shift valves moves the position of the shift valve, and switches the port of hydraulic pressure. The PCM also controls A/T clutch pressure control solenoid valves A and B. The A/T clutch pressure control solenoid valves regulate the A/T clutch pressure control solenoid pressure and apply the A/T clutch pressure control solenoid pressure to CPC valves A and B.

When shifting gears, the clutch is engaged by pressure from the CPC pressure mode. The PCM controls one of the shift solenoid valves to move the position of the shift valve. This movement switches the port of the CPC and line pressure. Line pressure is then applied to the clutch, and the CPC pressure is intercepted. Engaging the clutch with line pressure happens after CPC pressure mode has completed.

Hydraulic pressure at the ports is as follows:

PORT NO.	DESCRIPTION OF PRESSURE	PORT NO.	DESCRIPTION OF PRESSURE	PORT NO.	DESCRIPTION OF PRESSURE
1	LINE	5N	CPC A or LINE	56	LS A
2	LINE	5D	CPC B or LINE	57	LS B
3	LINE	5G	CPC B or LINE	58	LS C
3′	LINE	5K	CPC B or LINE	90	TORQUE CONVERTER
3′′	LINE	6	MODULATE	90′	TORQUE CONVERTER
4	LINE	SA	SH A	91	TORQUE CONVERTER
4′	LINE	SB	SH B	91′	TORQUE CONVERTER
4′′	LINE	SC	SH C	92	TORQUE CONVERTER
4A	CPC A	LA	LC A	93	ATF COOLER
4B	CPC B	9	LINE	94	TORQUE CONVERTER
4C	CPC C	10	1ST CLUTCH	95	LUBRICATION
5B	CPC A	15	1ST-HOLD CLUTCH	95′	LUBRICATION
5C	CPC B	20	2ND CLUTCH	96	TORQUE CONVERTER
5H	CPC B	25	LINE	99	SUCTION
5J	CPC B	30	3RD CLUTCH	X	DRAIN
5A	CPC A or LINE	40	4TH CLUTCH	HX	HIGH POSITION DRAIN
5E	CPC A or LINE	50	5TH CLUTCH	AX	AIR DRAIN
5F	CPC A or LINE	51	5TH CLUTCH		
5M	CPC A or LINE	55	CPC C or LINE		

NOTE:

- CPC: Clutch Pressure Control pressure
- SH: Shift Solenoid pressure
- LS A: A/T Clutch Pressure Control Solenoid A pressure
- LS B: A/T Clutch Pressure Control Solenoid B pressure
- LS C: A/T Clutch Pressure Control Solenoid C pressure
- LC: Torque Converter Clutch Solenoid pressure

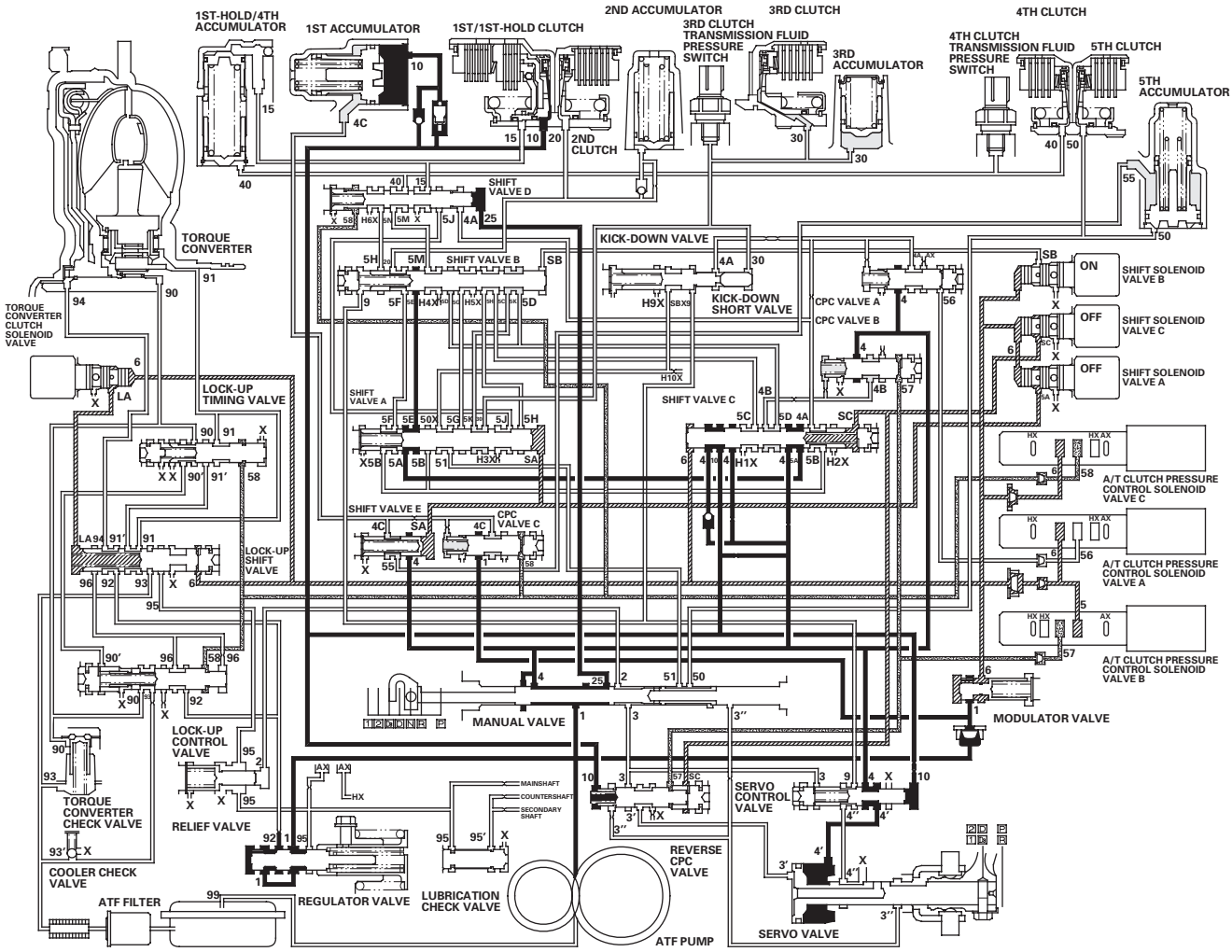
N Position

The PCM controls the shift solenoid valves. The conditions of the shift solenoid valve and positions of the shift valve are as follows:

- The shift solenoid valve A is turned OFF, and the shift valve A moves to the left side.
- The shift solenoid valve B is turned ON, and the shift valve B stays on the right side.
- The shift solenoid valve C is turned OFF, and the shift valve C stays on the left side.

Line pressure (1) passes through the manual valve and becomes line pressure (25). Line pressure (25) stops at shift valve D. Line pressure (1) also flows to the modulator valve and becomes modulator pressure (6). Modulator pressure (6) flows to the shift solenoid valves and the A/T clutch pressure control solenoid valves. Under this condition, hydraulic pressure is not applied to the clutches.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

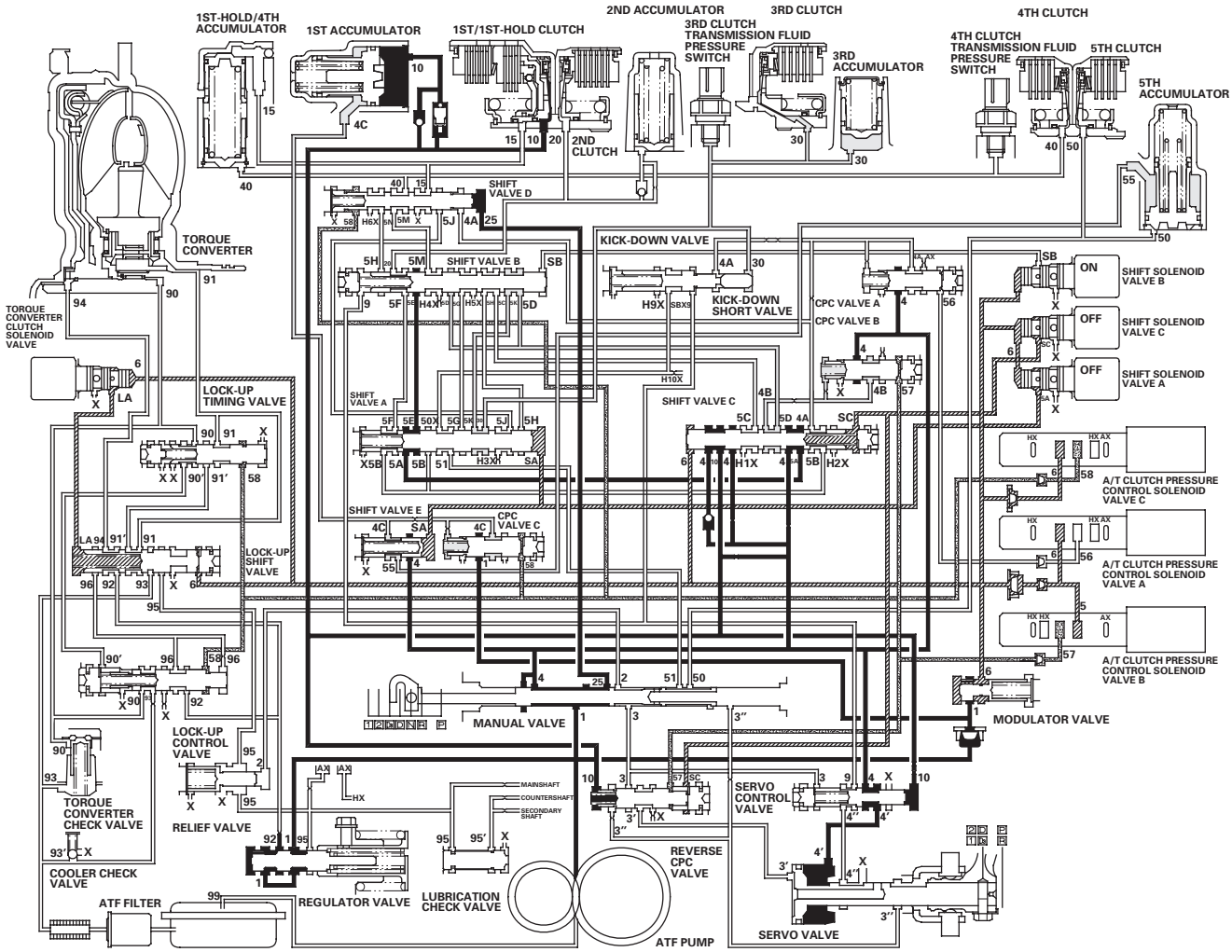
System Description (cont'd)

Hydraulic Flow (cont'd)

D Position: 1st gear shifting from the N position

Shift solenoid valves remain the same as in the N position when shifting to the D position from the N position. The manual valve is moved to the D position, and switches the port of line pressure (4) leading to shift valve C and CPC valve B. Line pressure (4) flows to the 1st clutch via the orifice. Line pressure (1) becomes CPC C pressure (4C) at CPC valve C, then goes to the 1st accumulator back side. Line pressure (4) also becomes the CPC B pressure (4B) at the CPC B valve. CPC B pressure goes to the 3rd clutch, via the shift valves C, B, and A, and the 3rd clutch is engaged. The 1st clutch is engaged gently when shifting to the D position from the N position.

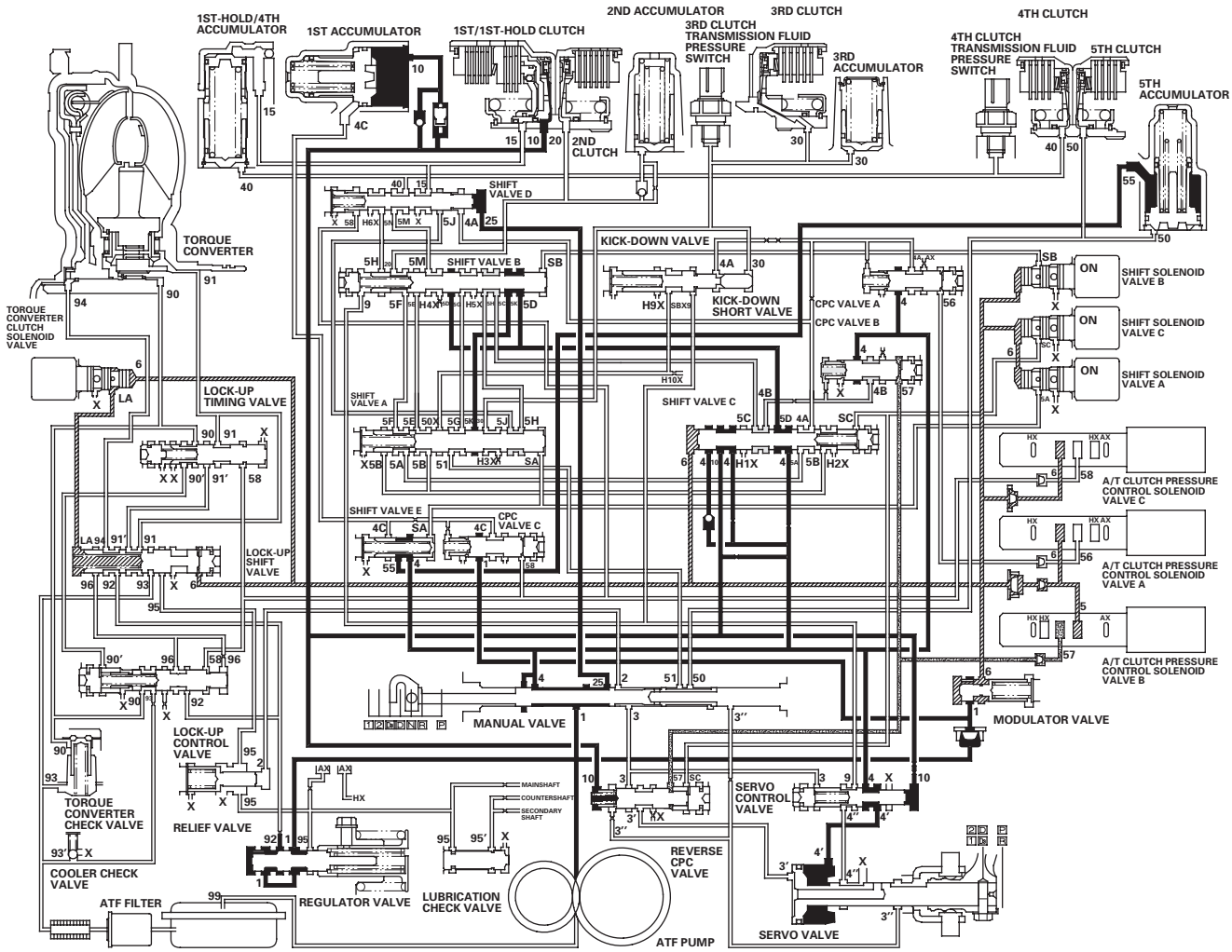
NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



D Position: Driving in 1st gear

The PCM turns shift solenoid valves A and C ON, and shift solenoid valve B keeps ON. SH A pressure (SA) in the right side of shift valves A and E is released, and shift valves A and E are moved to the right side. SH C pressure (SC) in the right side of shift valve C is released, and modulator pressure (6) is applied to the left side of shift valve C. Shift valve C is moved to the right side. These valve movements release CPC C pressure (4C) from the back of the 1st accumulator and the 3rd clutch, and the 1st clutch is engaged securely.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

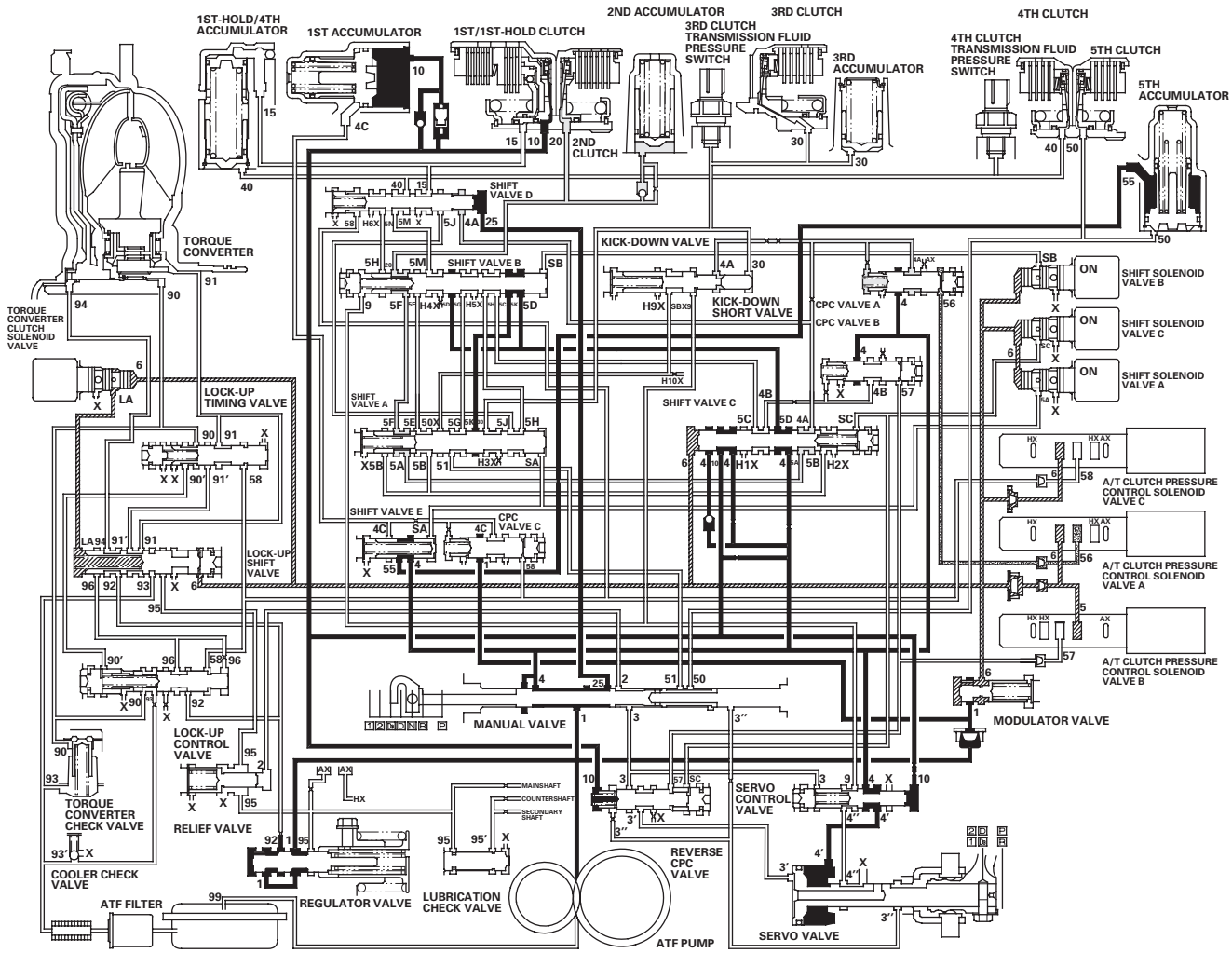
System Description (cont'd)

Hydraulic Flow (cont'd)

D Position: Shifting between 1st gear and 2nd gear

As the speed of the vehicle reaches the prescribed value, the PCM controls the A/T clutch pressure control solenoid valves. LS B pressure (57) in the right side of CPC valve B is released, and LS A pressure (56) is applied to the right side of CPC valve A. Line pressure (4) becomes CPC A pressure (4A) at CPC valve A, and CPC A pressure passes through shift valves C, A, and B, to become 2nd clutch pressure. The 2nd clutch is engaged with CPC pressure, and the 1st clutch is also engaged. No power is transmitted because of the one-way clutch.

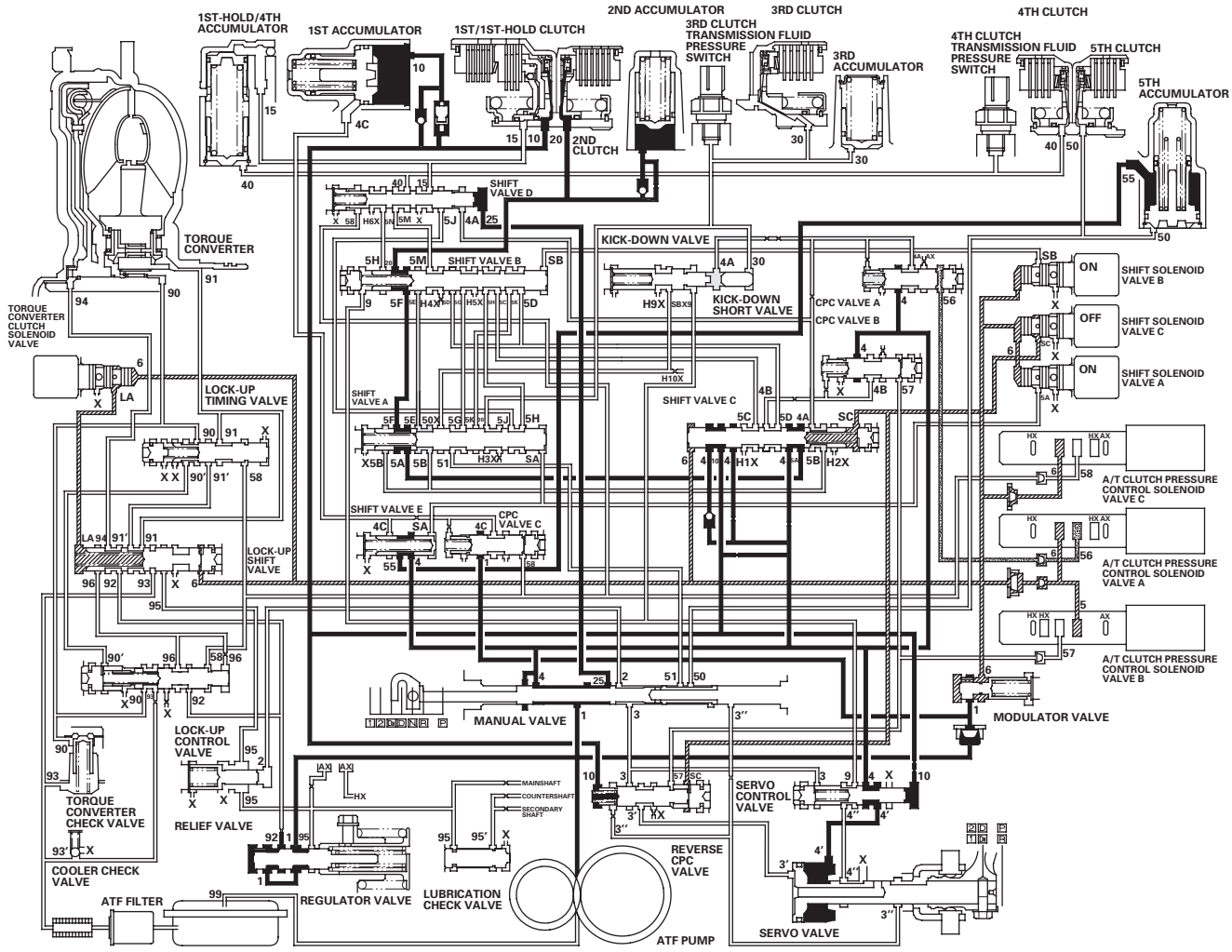
NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



D Position: Driving in 2nd gear

The PCM turns shift solenoid valve C OFF, and shift solenoid valves A and B stays ON. Shift solenoid valve C is turned OFF, and SH C pressure (SC) is applied to the right side of shift valve C. Then shift valve C is moved to the left side to switch the port of line pressure and CPC pressure. The 2nd clutch pressure is changed to line pressure mode, and the 2nd clutch is engaged securely. The 1st clutch is also engaged. No power is transmitted because of the one-way clutch.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

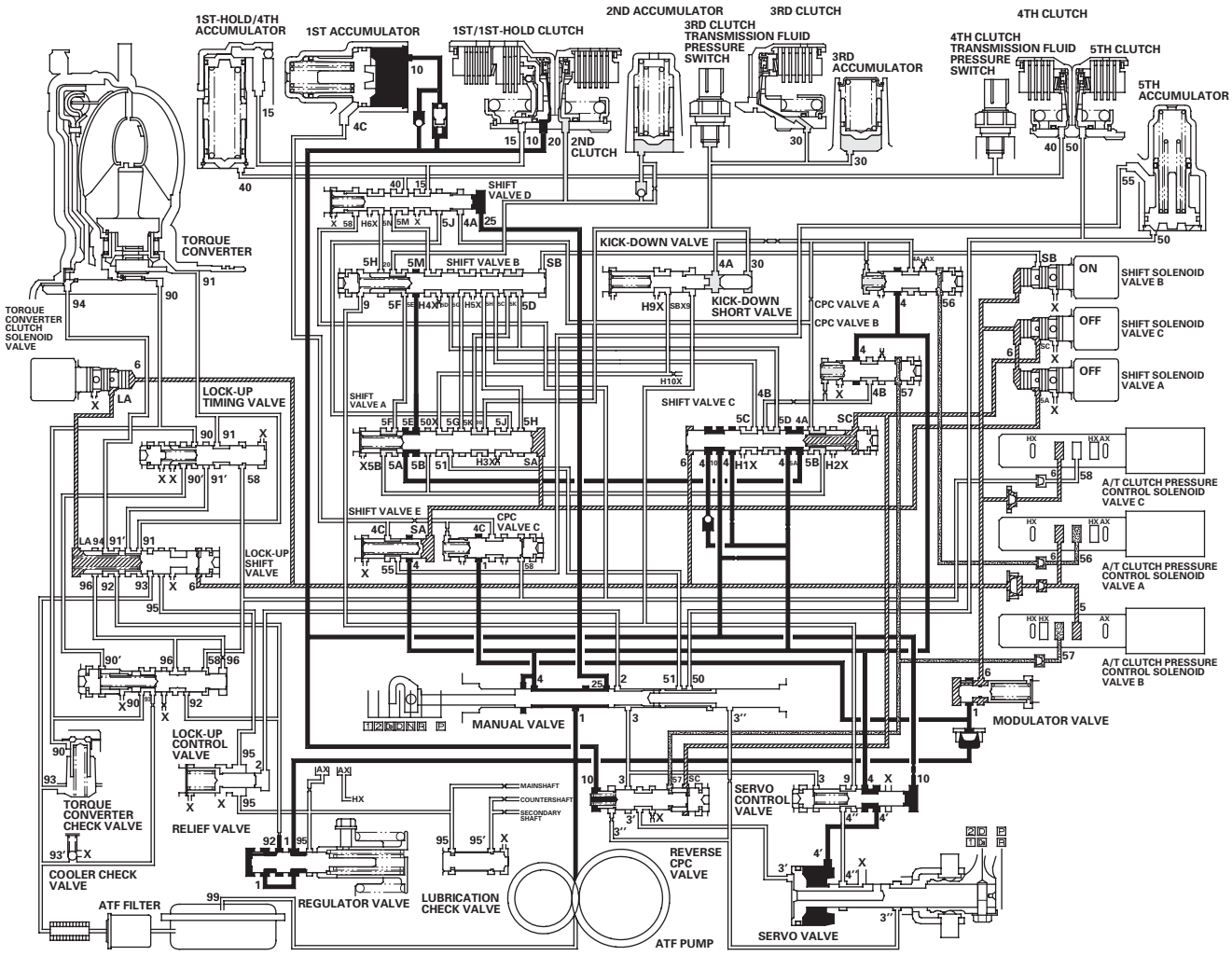
System Description (cont'd)

Hydraulic Flow (cont'd)

D Position: Shifting between 2nd gear and 3rd gear

As the speed of the vehicle reaches the prescribed value, the PCM turns shift solenoid valve A OFF. The PCM also controls the A/T clutch pressure control solenoid valve B to apply LS B pressure (57) to CPC valve B. Shift solenoid valve B keeps ON, and C keeps OFF. Shift solenoid valve A is turned OFF, and SH A pressure (SA) is applied to the right side of shift valves A and E. Then shift valves A and E are moved to the left side to switch the port of line pressure and CPC pressure. Line pressure (4) becomes CPC A pressure (4A) at CPC valve A, and becomes CPC B pressure (4B) at CPC valve B. CPC B pressure (4B) becomes 3rd clutch pressure (30) at shift valve A via shift valves C and B, and flows to the 3rd clutch. The 2nd clutch pressure is changed to CPC pressure mode by switching the position of shift valve A. The 1st clutch is also engaged. No power is transmitted because of the one-way clutch.

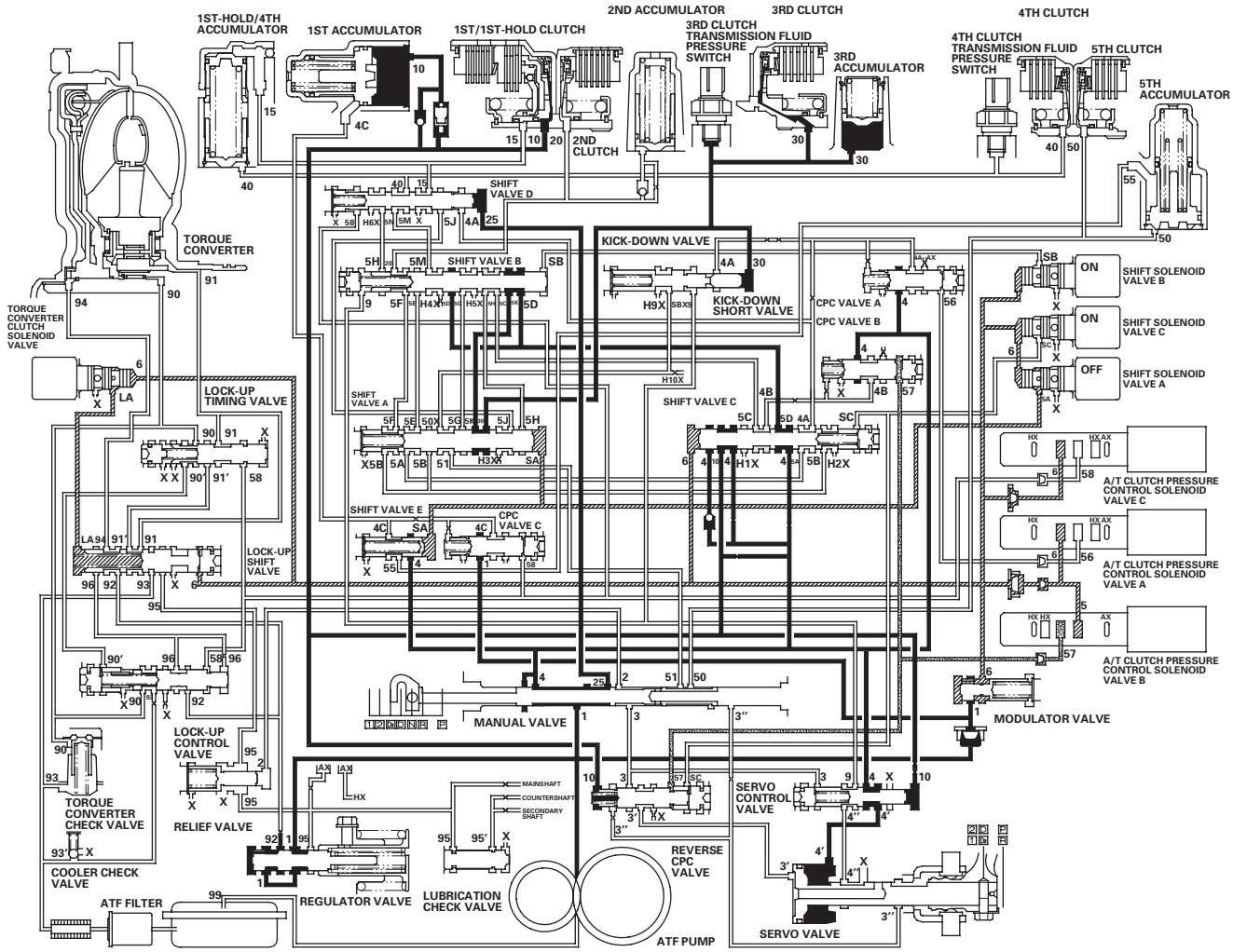
NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



D Position: Driving in 3rd gear

The PCM turns shift solenoid valve C ON, and controls A/T clutch pressure control solenoid valve A to release LS A pressure (56) in CPC valve A. Shift solenoid valve A stays OFF, and B stays ON. Releasing LS A pressure (56) in CPC valve A releases CPC A pressure in the 2nd clutch pressure circuit. Shift solenoid valve C is turned ON, and SH C pressure (SC) in the right side of shift valve C is released. Then shift valve C is moved to the right side to switch the port of line pressure and CPC pressure. The 3rd clutch pressure is changed to line pressure mode, and the 3rd clutch is engaged securely. The 1st clutch is also engaged. No power is transmitted because of the one-way clutch.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

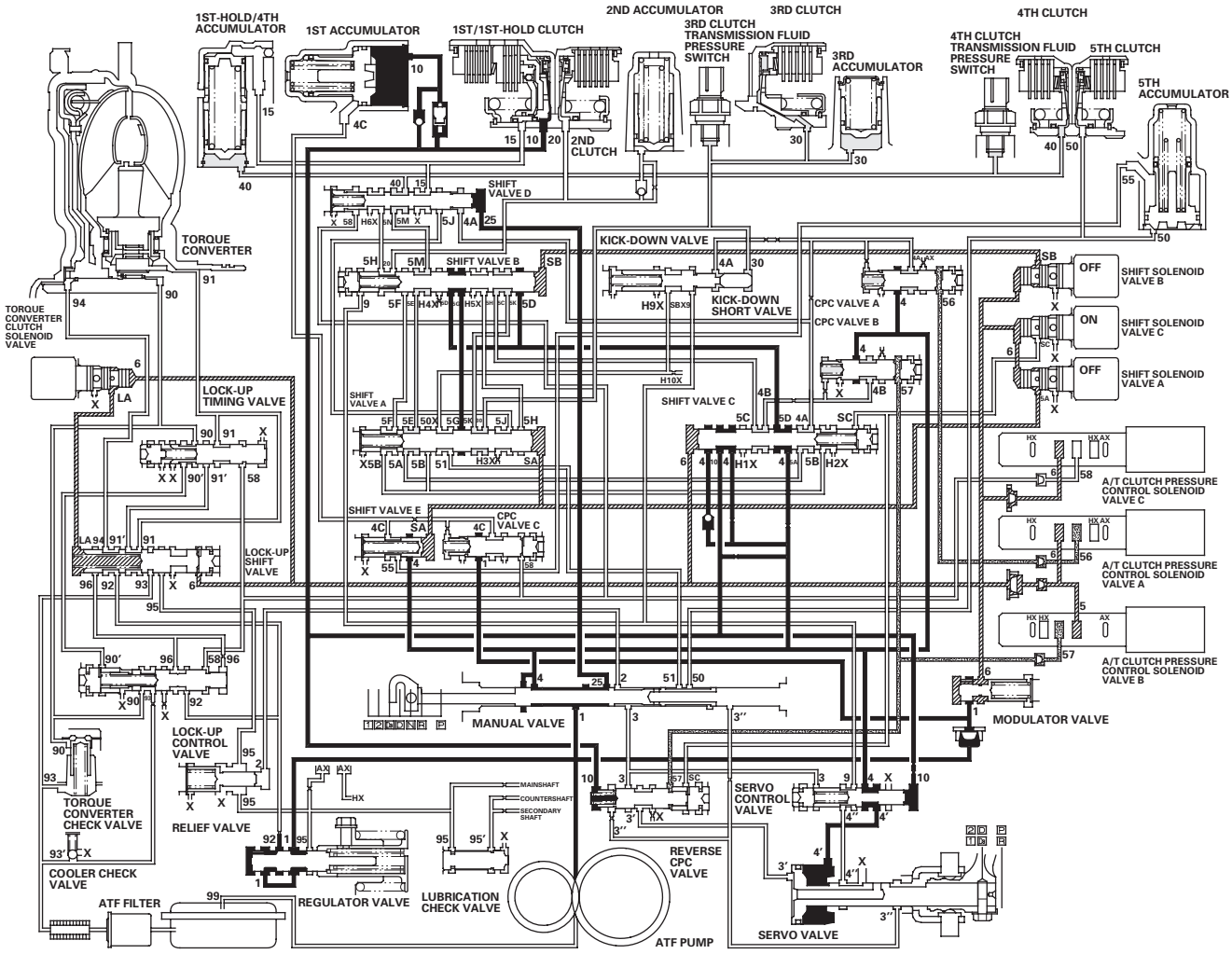
System Description (cont'd)

Hydraulic Flow (cont'd)

D Position: Shifting between 3rd gear and 4th gear

As the speed of the vehicle reaches the prescribed value, the PCM turns shift solenoid valve B OFF. The PCM also controls the A/T clutch pressure control solenoid valve A to apply LS A pressure (56) to CPC valve A. Shift solenoid valve A stays OFF, and C stays ON. Shift solenoid valve B is turned OFF, and SH B pressure (SB) is applied to the right side of shift valve B. Then shift valve B is moved to the left side to switch the port of line pressure and CPC pressure. Line pressure (4) becomes CPC A pressure (4A) at CPC valve A, and becomes CPC B pressure (4B) at CPC valve B. CPC A pressure (4A) becomes 4th clutch pressure (40) at shift valve D via shift valves C, A, and B, and flows to the 4th clutch. The 3rd clutch pressure is changed to CPC pressure mode by switching the position of shift valve B. The 1st clutch is also engaged. No power is transmitted because of the one-way clutch.

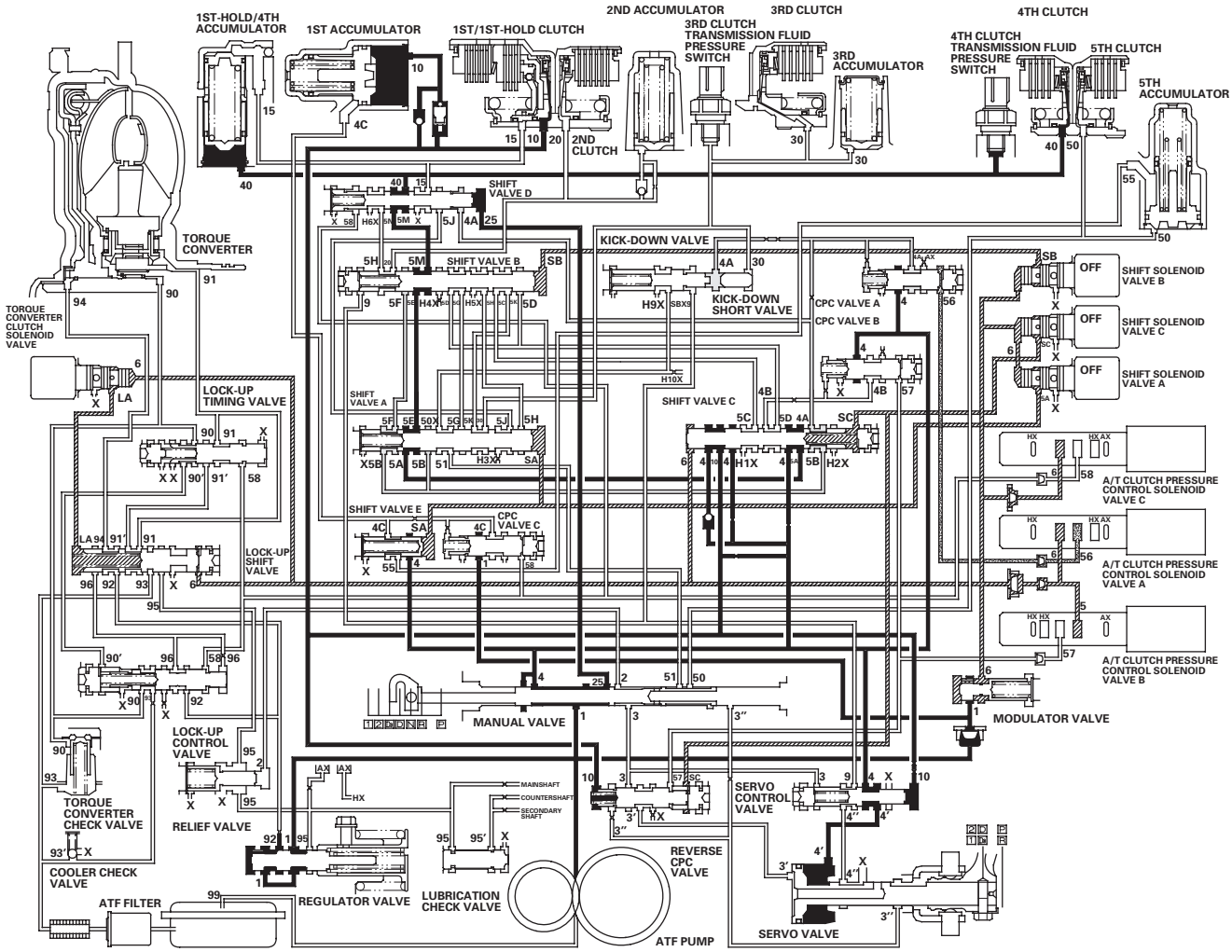
NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



D Position: Driving in 4th gear

The PCM turns shift solenoid valve C OFF, and controls A/T clutch pressure control solenoid valve B to release LS B pressure (57) in CPC valve B. Shift solenoid valves A and B stays OFF. Releasing LS B pressure (57) in CPC valve B releases CPC B pressure in the 3rd clutch pressure circuit. Shift solenoid valve C is turned OFF, and SH C pressure (SC) is applied to the right side of shift valve C. Then shift valve C is moved to the left side to switch the port of line pressure and CPC pressure. Line pressure (4) from the manual valve becomes 4th clutch pressure (40) at shift valve D via shift valves C, A, and B, and flows to the 4th clutch. The 4th clutch pressure is changed to line pressure mode by switching the position of shift valve C, and the 4th clutch is engaged securely. The 1st clutch is also engaged. No power is transmitted because of the one-way clutch.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

System Description (cont'd)

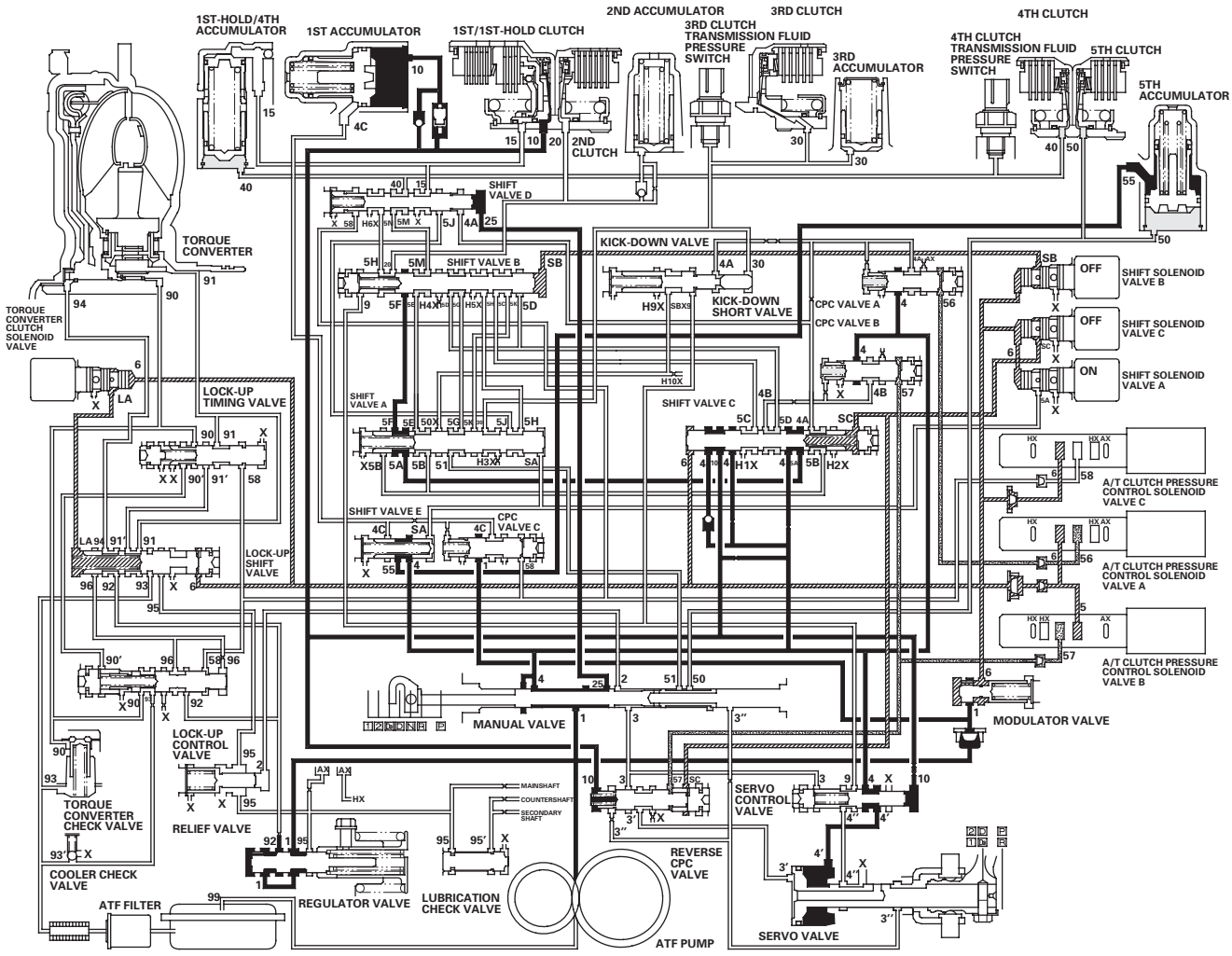
Hydraulic Flow (cont'd)

D Position: Shifting between 4th gear and 5th gear

As the speed of the vehicle reaches the prescribed value, the PCM turns shift solenoid valve A ON. The PCM also controls the A/T clutch pressure control solenoid valve B to apply LS B pressure (57) to CPC valve B.

Shift solenoid valves B and C stays OFF. Shift solenoid valve A is turned ON, and SH A pressure (SA) in the right side of shift valves A and E is released. Then shift valves A and E are moved to the left side to switch the port of line pressure and CPC pressure. Line pressure (4) becomes CPC A pressure (4A) at CPC valve A, and becomes CPC B pressure (4B) at CPC valve B. CPC B pressure (4B) becomes 5th clutch pressure (50) at shift valve C, and flows to the 5th clutch via shift valves B and A and the manual valve. The 4th clutch pressure is changed to CPC pressure mode by switching the position of shift valve A. The 1st clutch is also engaged. No power is transmitted because of the one-way clutch.

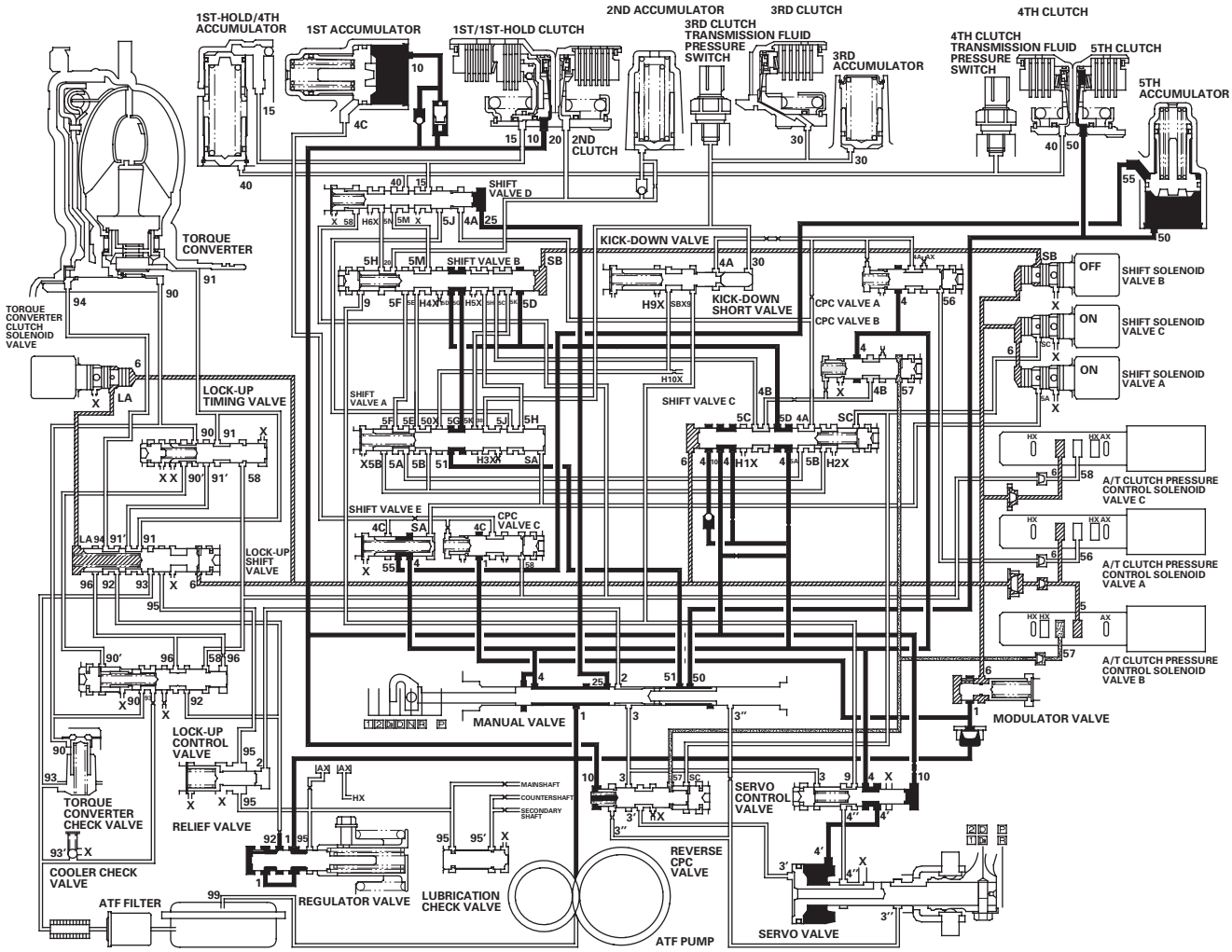
NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



D Position: Driving in 5th gear

The PCM turns shift solenoid valve C ON, and controls A/T clutch pressure control solenoid valve A to release LS A pressure (56) in CPC valve A. Shift solenoid valve A stays ON, and B stays OFF. Releasing LS A pressure (56) in CPC valve A releases CPC A pressure in the 4th clutch pressure circuit. Shift solenoid valve C is turned ON, and SH C pressure (SC) in the right side of shift valve C is released. Then shift valve C is moved to the right side to switch the port of line pressure and CPC pressure. Line pressure (4) from the manual valve becomes 5th clutch pressure (50) at the manual valve, via shift valves C, B, and A, and flows to the 5th clutch. The 5th clutch pressure is changed to line pressure mode by switching the position of shift valve C. The 5th clutch is engaged securely, and the 1st clutch is also engaged. No power is transmitted because of the one-way clutch.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

System Description (cont'd)

Hydraulic Flow (cont'd)

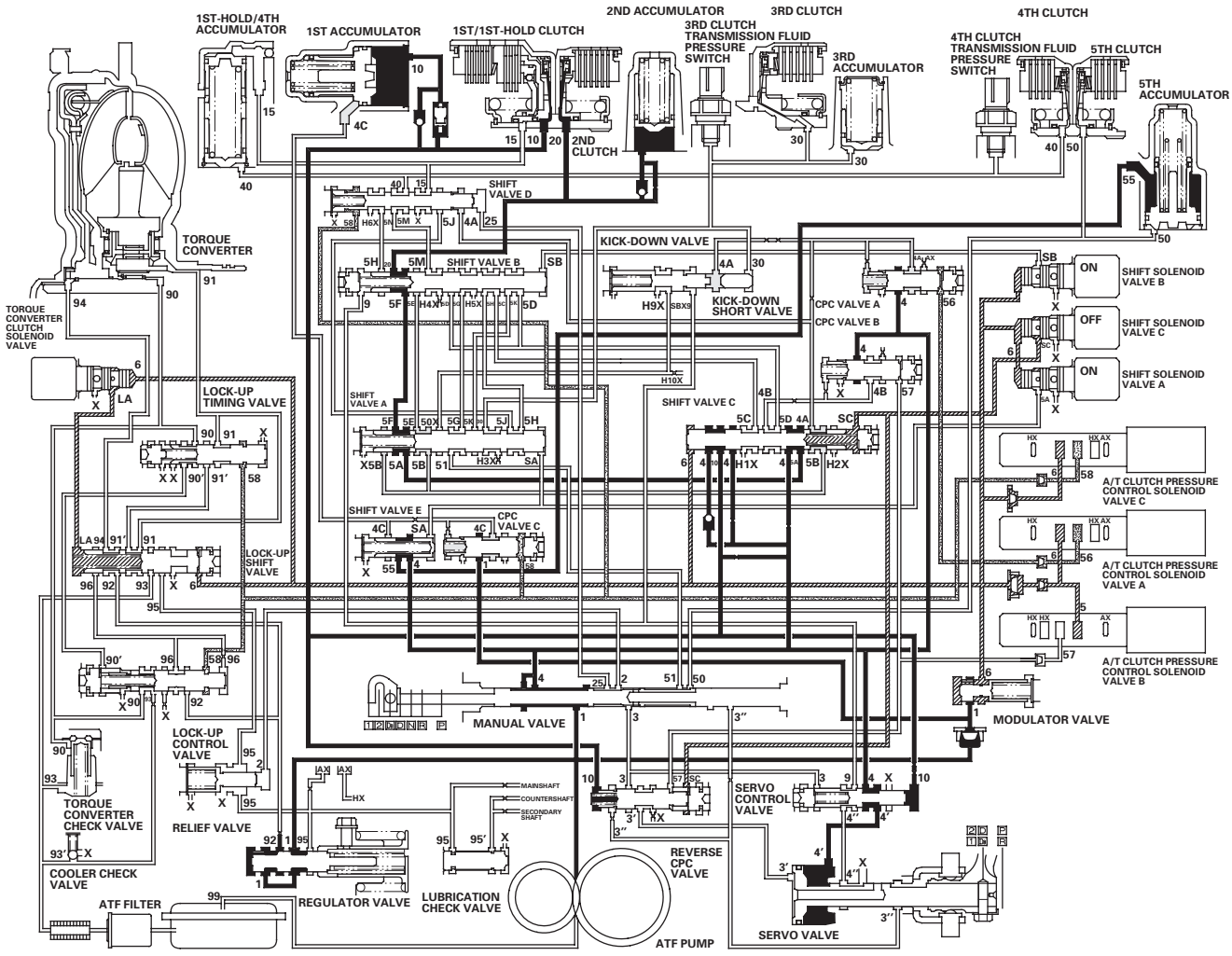
2 Position

The PCM controls the shift solenoid valves and the A/T clutch pressure control solenoid valves. The conditions of the shift solenoid valves and the positions of shift valves are as follows:

- Shift solenoid valve A is turned ON, and shift valve A stays on the right side.
- Shift solenoid valve B is turned ON, and shift valve B stays on the right side.
- Shift solenoid valve C is turned OFF, and shift valve C stays on the left side.

The PCM also controls A/T clutch pressure control solenoid valve A to apply LS A pressure (56) to CPC valve A. Line pressure (4) from the manual valve becomes 2nd clutch pressure (20) at shift valve B, via shift valves C and A. 2nd clutch pressure (20) is applied to the 2nd clutch, and the 2nd clutch is engaged. The 1st clutch is also engaged. No power is transmitted because of the one-way clutch.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



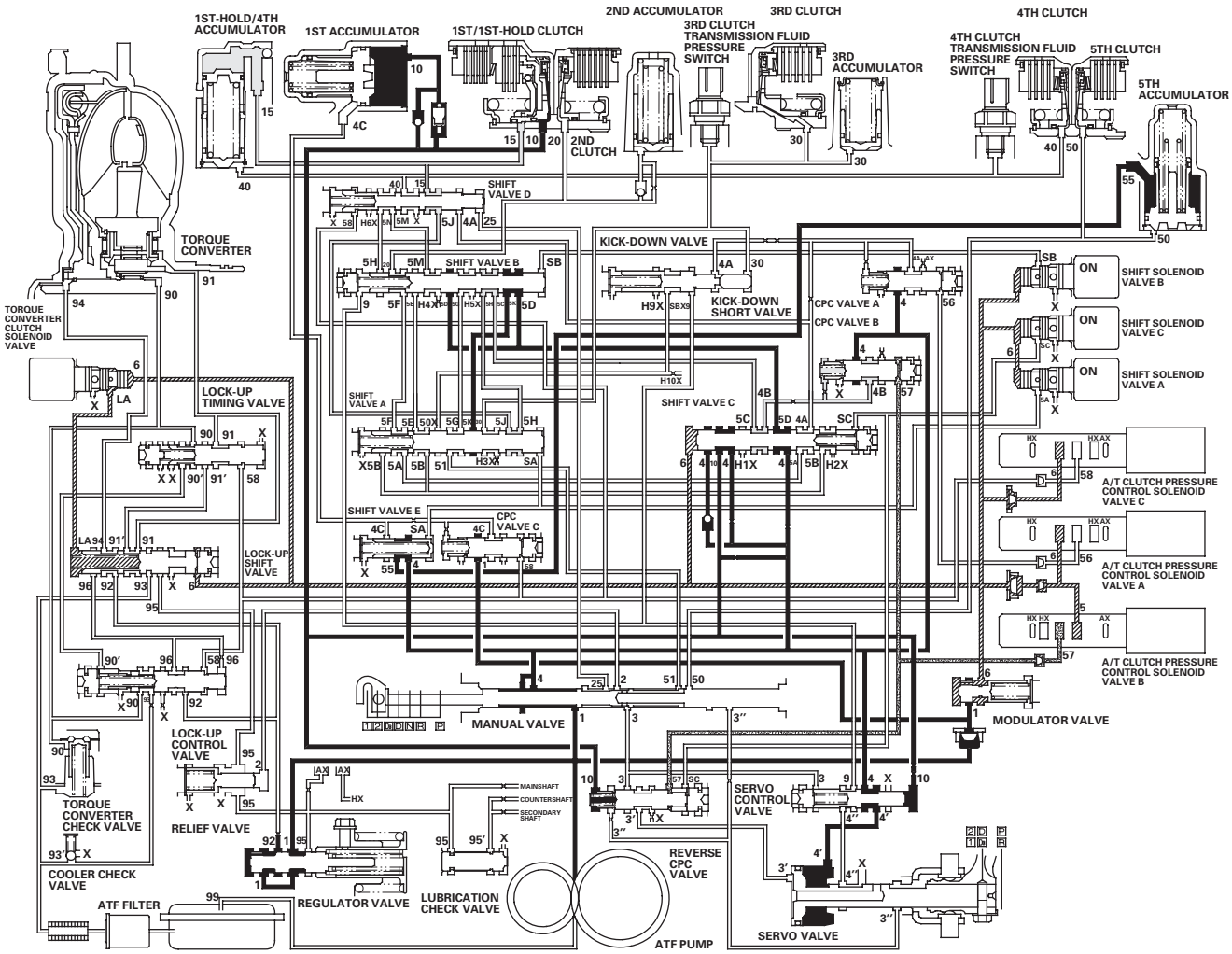
1 Position

The PCM controls the shift solenoid valves and the A/T clutch pressure control solenoid valves. The conditions of the shift solenoid valves and the positions of shift valves are as follows:

- Shift solenoid valve A is turned ON, and shift valve A stays on the right side.
- Shift solenoid valve B is turned ON, and shift valve B stays on the right side.
- Shift solenoid valve C is turned ON, and shift valve C moves to the right side by modulator pressure (6).

The PCM also controls A/T clutch pressure control solenoid valve B to apply LS B pressure (57) to CPC valve B. Line pressure (4) from the manual valve becomes 1st clutch pressure (10) at shift valve C. 1st clutch pressure (10) is applied to the 1st clutch, and the 1st clutch is engaged. Line pressure (4) also flows to CPC valve B, and becomes CPC B pressure (4B). CPC B pressure (4B) becomes 1st-hold clutch pressure (15) at shift valve D, via shift valves C, B, and A. 1st-hold clutch pressure (15) is applied to the 1st-hold clutch, and the 1st-hold clutch is engaged.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

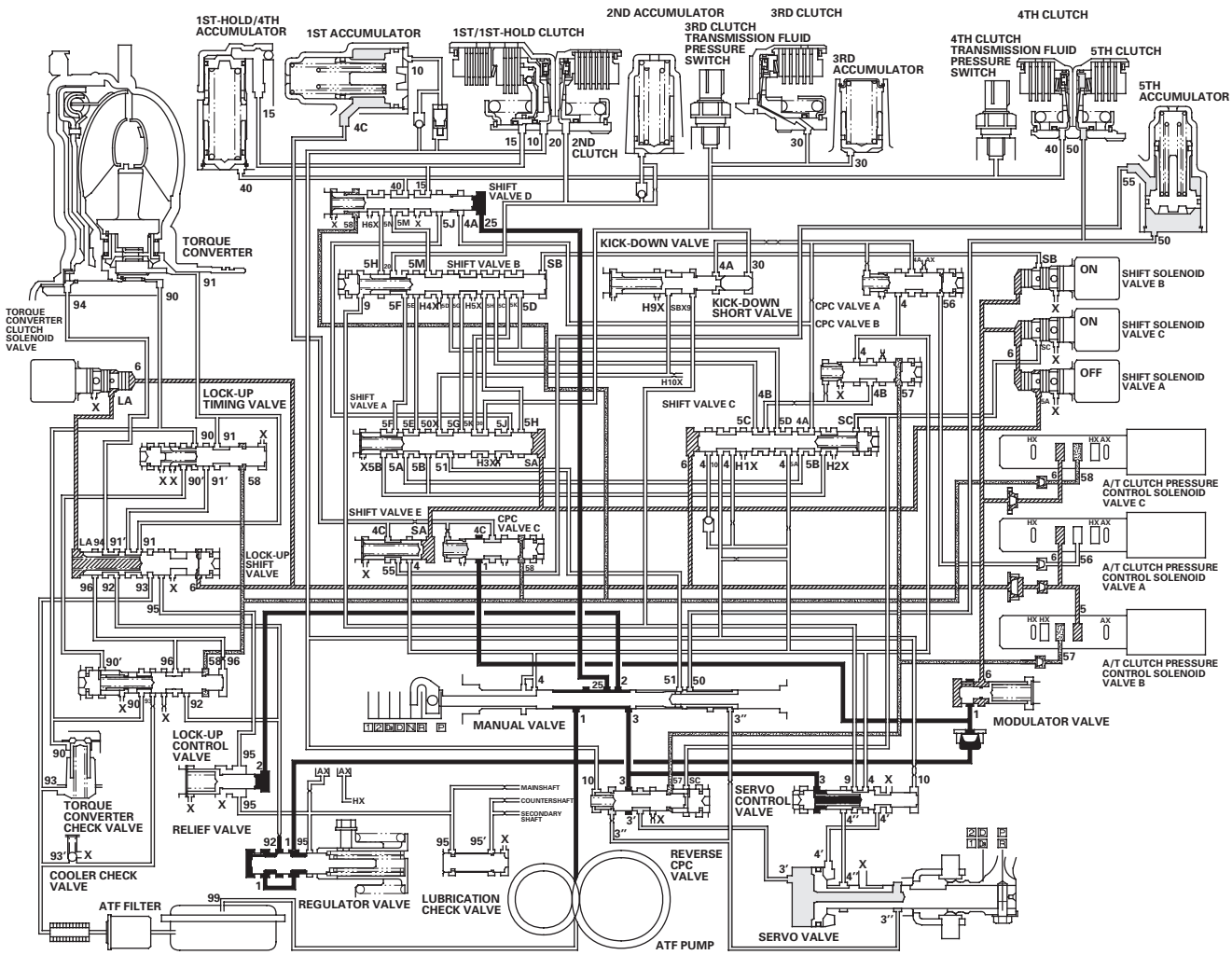
System Description (cont'd)

Hydraulic Flow (cont'd)

R Position: Shifting to the R position from the P or N position

Line pressure (1) becomes line pressure (3) at the manual valve, and flows to the reverse CPC valve. Line pressure (3) is regulated by the reverse CPC valve and becomes line pressure (3'). Line pressure (3') pushes the servo valve to the reverse position, passes through the servo valve, and flows to the manual valve. Line pressure (3'') becomes 5th clutch pressure (50). The 5th clutch pressure (50) is applied to the 5th clutch, and 5th clutch is engaged with the reverse CPC pressure mode.

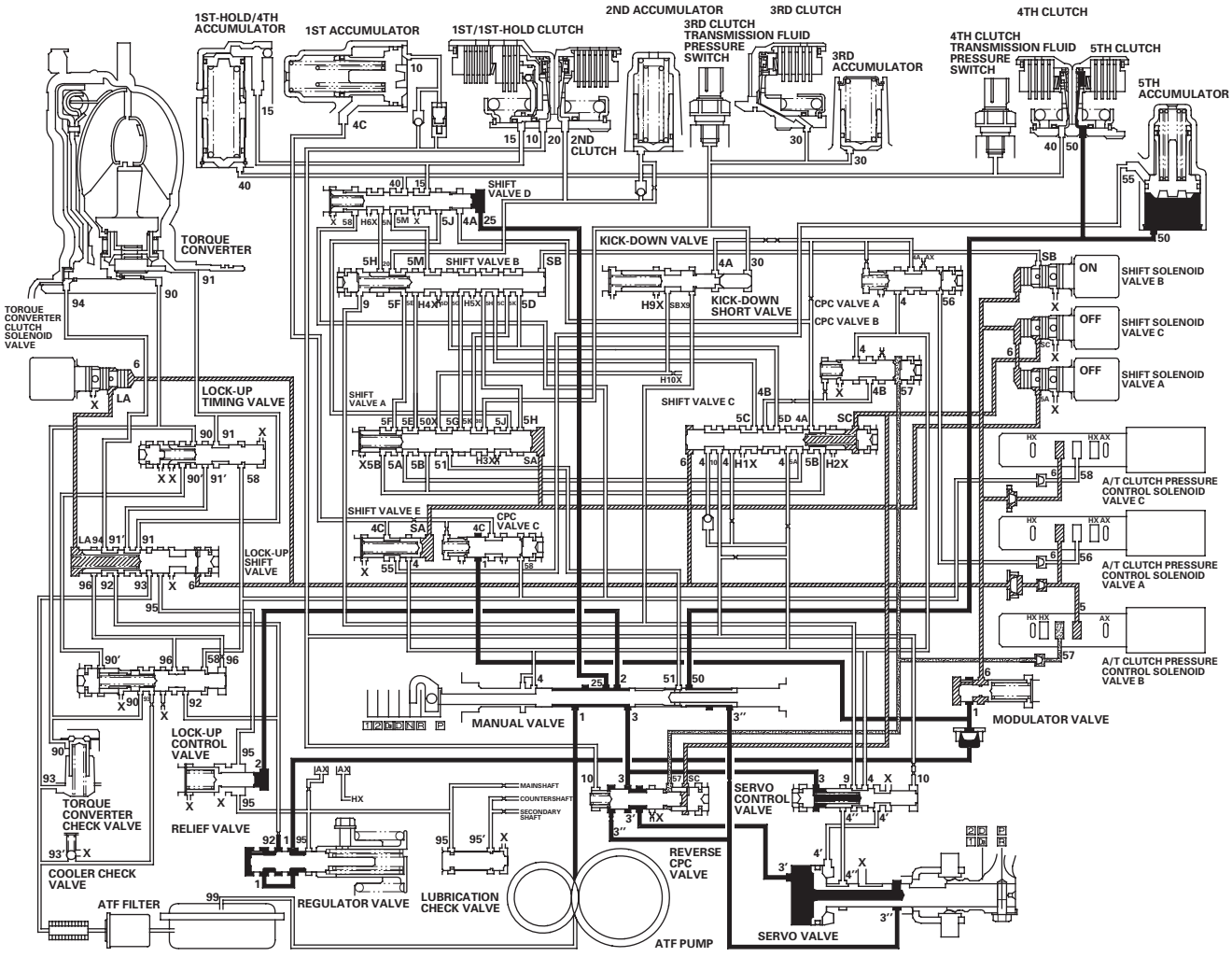
NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



R Position: Driving in reverse gear
The PCM turns shift solenoid valve C OFF. Shift solenoid valve A keeps OFF and B keeps ON. Shift solenoid valve C is turned OFF, and SH C pressure (SC) is applied to the right side of the reverse CPC valve. Then the reverse CPC valve moves to the left side, creating full line pressure. Line pressure to the 5th clutch is the same as when shifting to the R position, and 5th clutch pressure increases. The 5th clutch is engaged with line pressure mode.

Reverse Inhibitor Control
When the R position is selected while the vehicle is moving forward at speeds over 6 mph (10 km/h), the PCM outputs to turn shift solenoid valves A and C ON; and shift solenoid valve B keeps ON. The reverse CPC valve is moved to right side and covers the port to stop the line pressure (3′) to the servo valve. The line pressure (3′) is not applied to the servo valve, and the 5th clutch pressure (50) is not applied to the 5th clutch. As a result, power is not transmitted to the reverse position.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

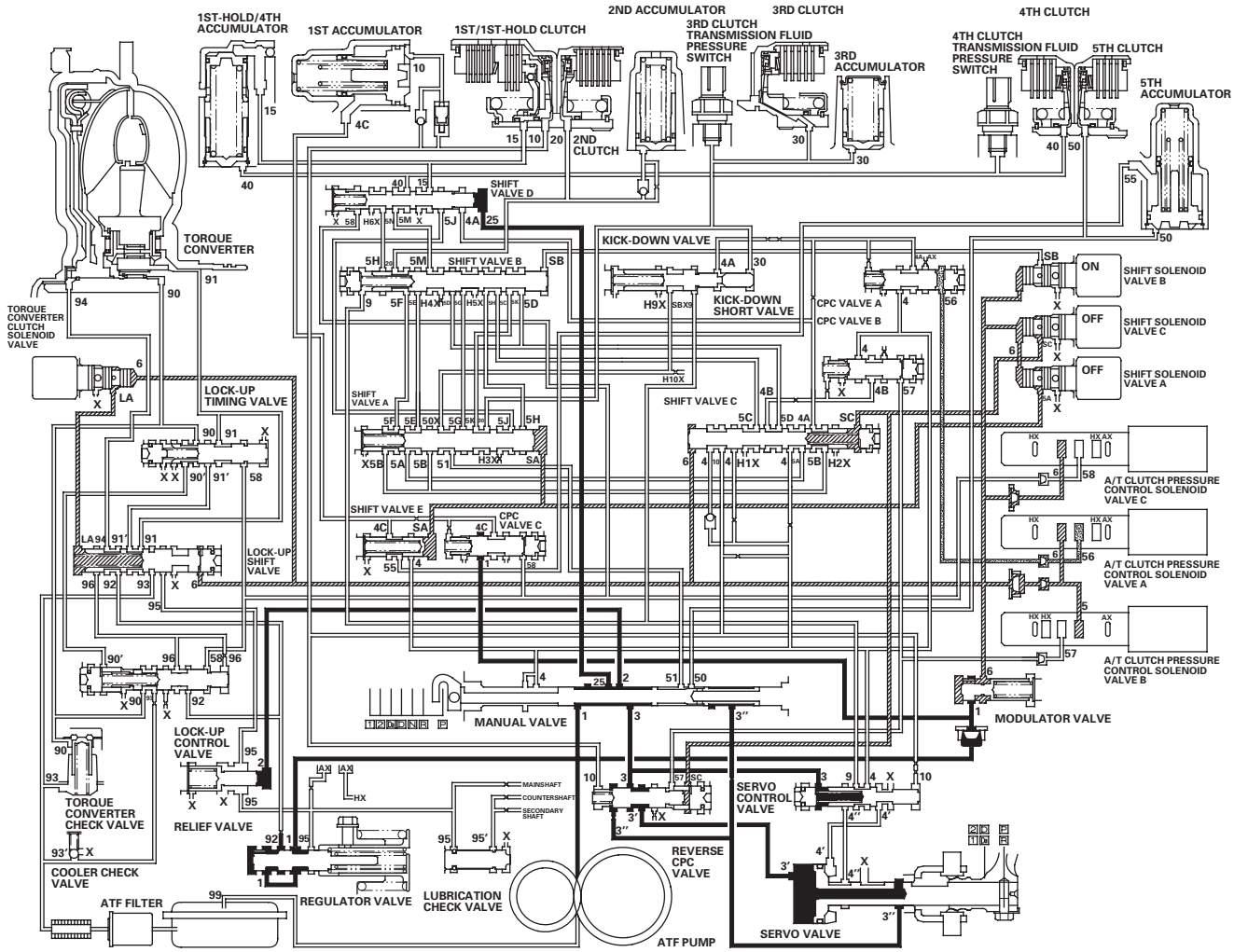
System Description (cont'd)

Hydraulic Flow (cont'd)

P Position

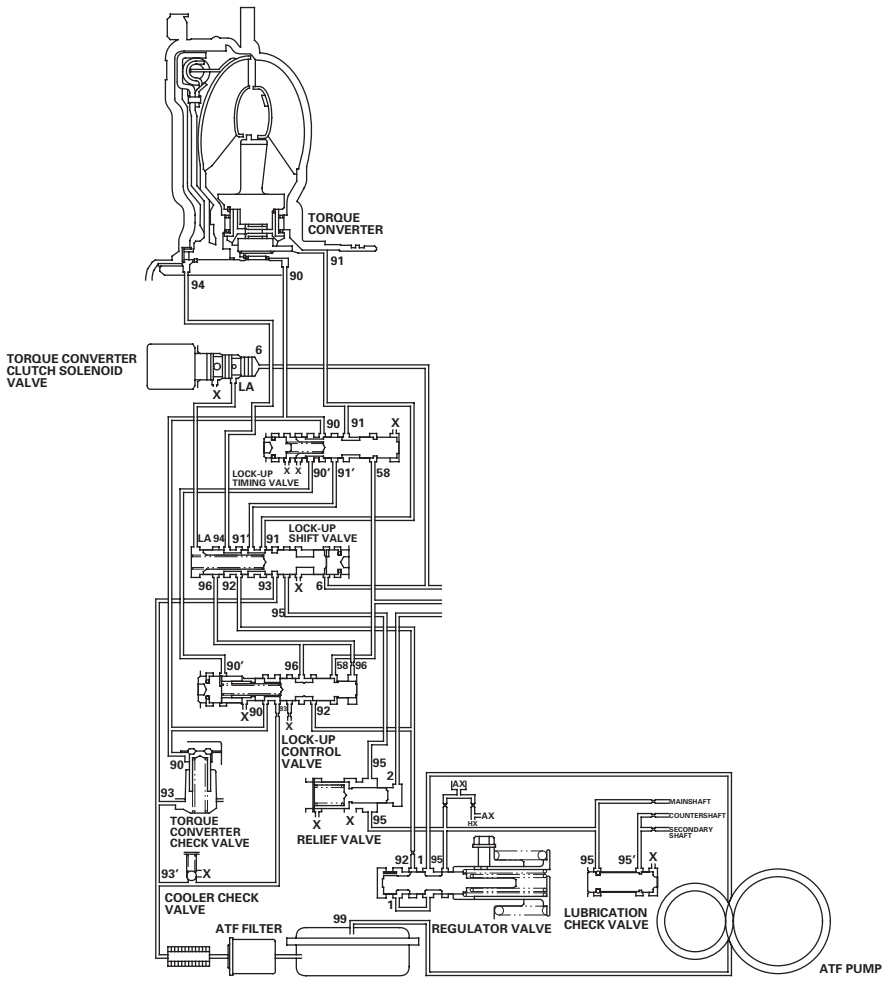
Shift solenoid valve C is turned OFF by the PCM, and SH C pressure (SC) is applied to the right side of the reverse CPC valve. Then the reverse CPC valve is moved to the left side to uncover the port leading line pressure (3) to the servo valve. Line pressure (3') passes through the servo valve and flows to the manual valve. Line pressure (3'') is intercepted at the manual valve, and is not applied to the clutches.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



Lock-up System

The lock-up mechanism operates in the D position (3rd, 4th, and 5th), and D3 position (3rd). The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same speed as the engine crankshaft. Together with hydraulic control, the PCM optimizes the timing of the lock-up mechanism. When the torque converter clutch solenoid valve activates, modulator pressure changes to switch lock-up ON and OFF. The lock-up control valve and the lock-up timing valve control the amount of lock-up according to A/T clutch pressure control solenoid valve C. The torque converter clutch solenoid valve is mounted on the torque converter housing, and A/T clutch pressure control solenoid valve C is mounted on the transmission housing. They are controlled by the PCM.



(cont'd)

System Description (cont'd)

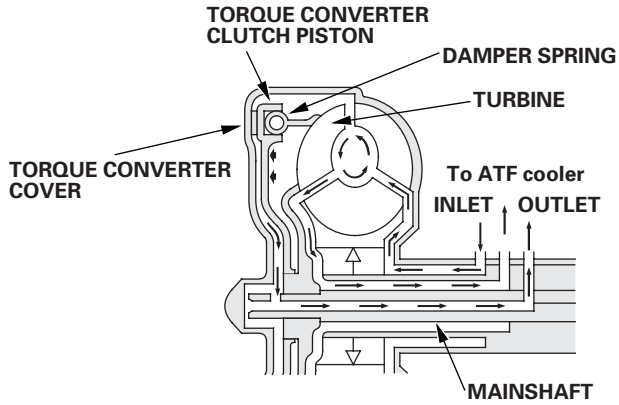
Lock-up System

Torque Converter Clutch Lock-up ON (Engaging Torque Converter Clutch)
Fluid in the chamber between the torque converter cover and the torque converter clutch piston is drained off, and fluid entering from the chamber between the pump and stator exerts pressure through the torque converter clutch piston against the torque converter cover. The torque converter clutch piston engages with the torque converter cover; torque converter clutch lock-up ON, and the mainshaft rotates at the same as the engine.

Power flow

The power flows by way of:

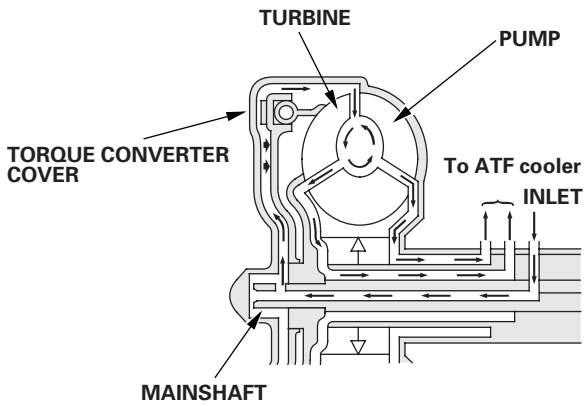
Engine
↓
Drive plate
↓
Torque converter cover
↓
Torque converter clutch piston
↓
Damper spring
↓
Turbine
↓
Mainshaft



Torque Converter Clutch Lock-up OFF (Disengaging Torque Converter Clutch)
Fluid entered from the chamber between the torque converter cover and the torque converter clutch piston passes through the torque converter and goes out through the chambers between the turbine and the stator, and between the pump and the stator. As a result, the torque converter clutch piston moves away from the torque converter cover, and the torque converter clutch lock-up is released; torque converter clutch lock-up OFF.

Power flow

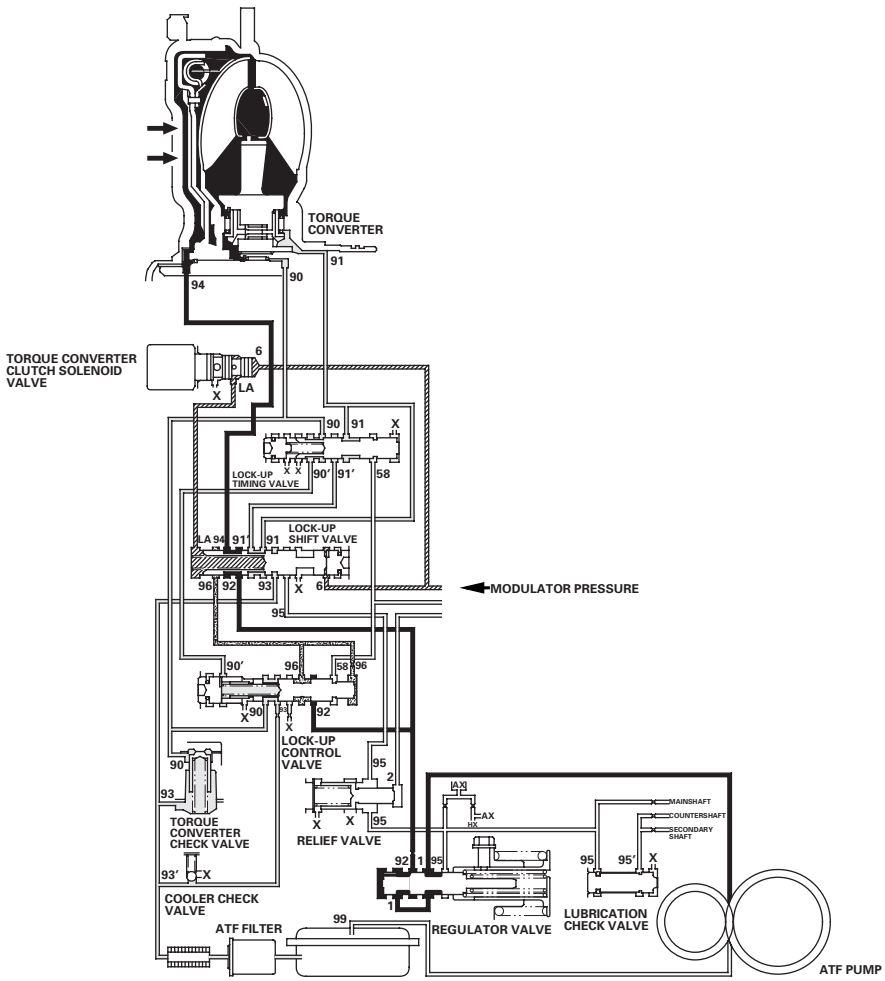
Engine
↓
Drive plate
↓
Torque converter cover
↓
Pump
↓
Turbine
↓
Mainshaft



No Lock-up

The torque converter clutch solenoid valve is turned OFF by the PCM. The lock-up shift valve receives LC pressure (LA) on the left side, and modulator pressure (6) on the right side. The lock-up shift valve is in the right side to uncover the port leading torque converter pressure (92) to the left side of the torque converter. Torque converter pressure (92) becomes torque converter pressure (94), and enters into the left side of the torque converter to disengage the torque converter clutch. The torque converter clutch is OFF.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

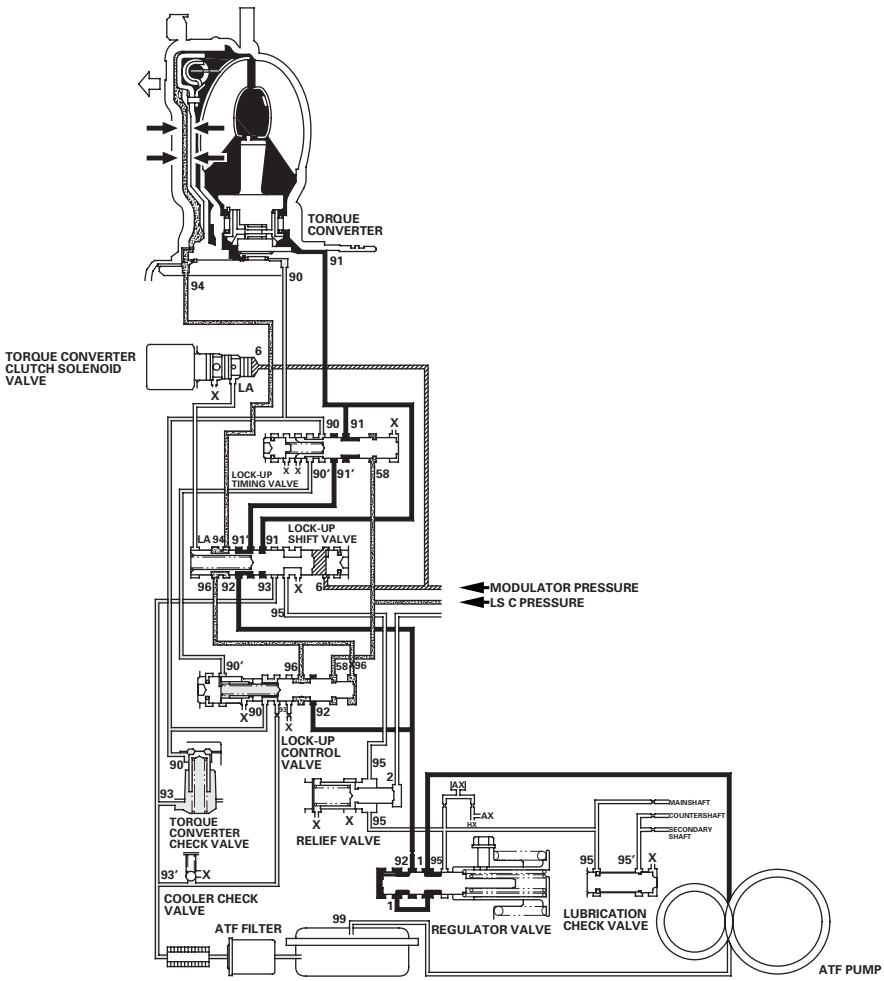
System Description (cont'd)

Lock-up System (cont'd)

Partial Lock-up

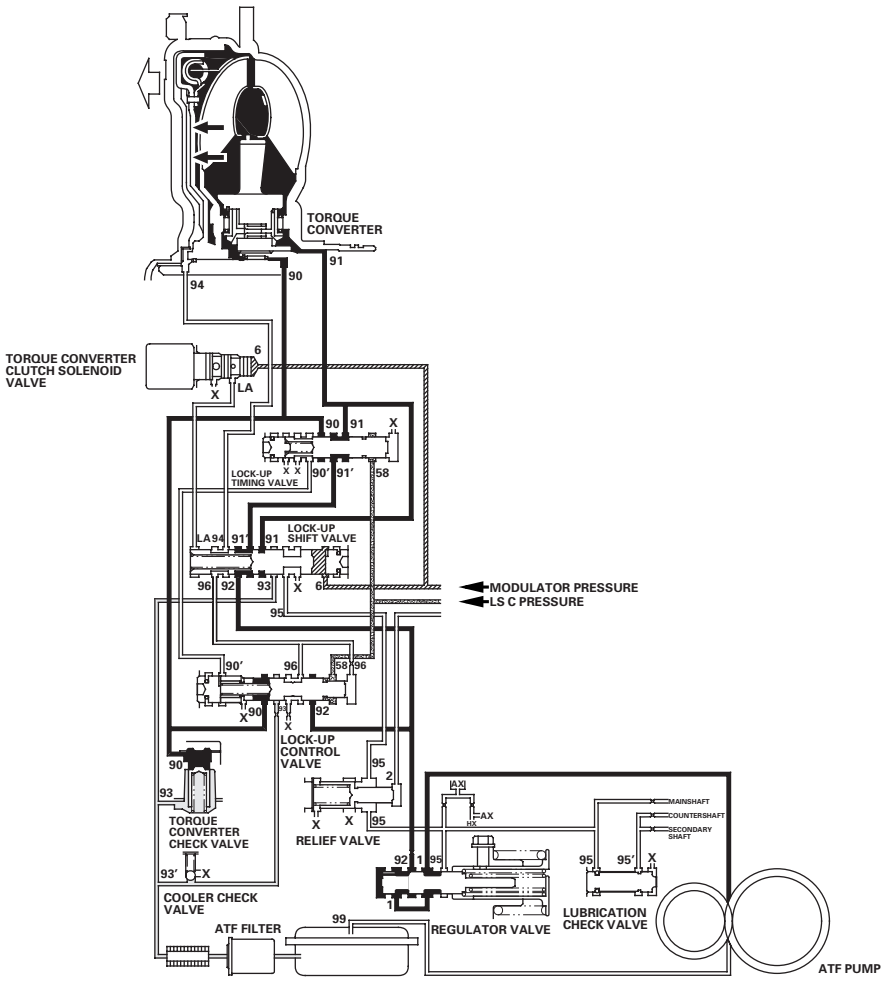
As the speed of the vehicle reaches the prescribed value, the torque converter clutch solenoid valve is turned ON by the PCM to release LC pressure (LA) in the left cavity of the lock-up shift valve. Modulator pressure (6) is applied to the right side of the lock-up shift valve, then the lock-up shift valve is moved in the left side to switch the port leading torque converter pressure to the right side of the torque converter. Torque converter pressure (91) is applied to the right side of the torque converter to engage the torque converter clutch. The PCM also controls A/T clutch pressure control solenoid valve C, and LS C pressure (58) is applied to the lock-up control valve and the lock-up timing valve. When LS C pressure (58) is lower, torque converter pressure (91) from the lock-up timing valve is lower. The torque converter clutch is engaged partially. LS C pressure (58) increases, and the lock-up timing valve is moved to the left side to uncover the port leading torque converter pressure to high. The torque converter clutch is then engaged securely. Under this condition, the torque converter clutch is engaged by pressure from the right side of the torque converter; this lock-up condition is partial lock-up.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



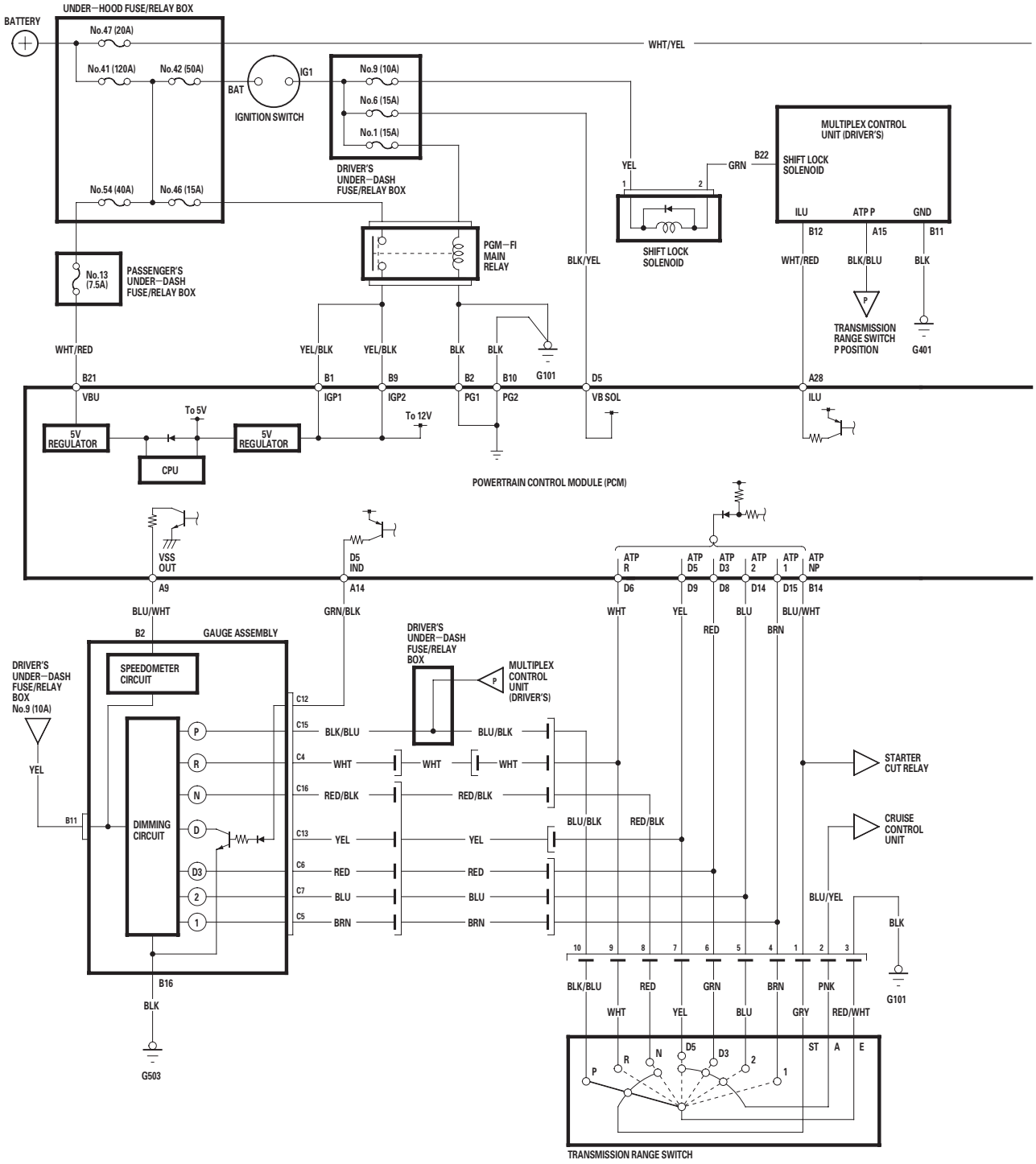
Full Lock-up
When the vehicle speed further increases, the PCM controls A/T clutch pressure control solenoid valve C to increase LS C pressure (58). The LS C pressure (58) is applied to the lock-up control valve and the lock-up timing valve, and moves them to the left side. Under this condition, torque converter back pressure (F2) is released fully, causing the torque converter clutch to be fully engaged.

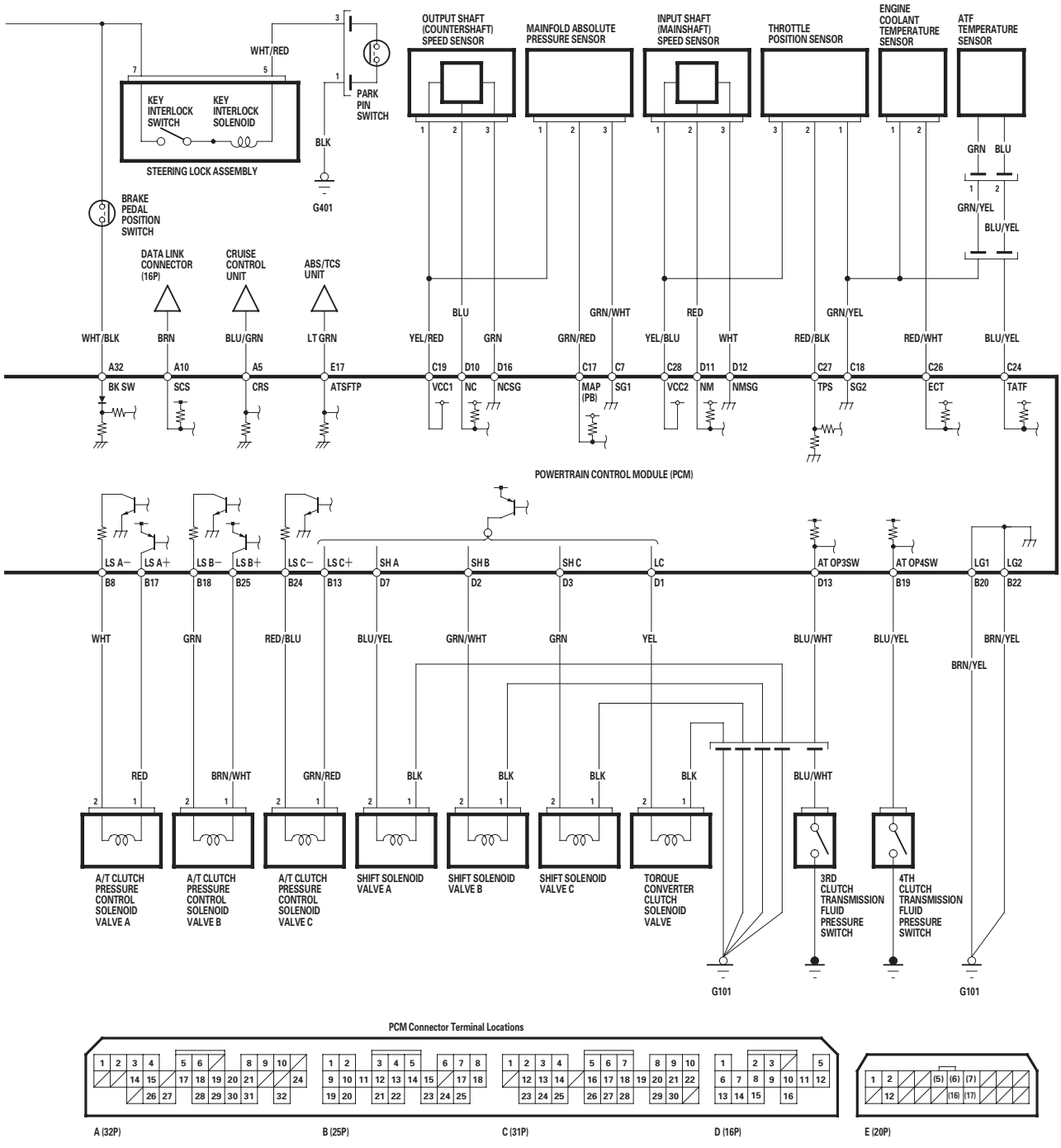
NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



System Description (cont'd)

Circuit Diagram




OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR
MAINFOLD ABSOLUTE PRESSURE SENSOR
INPUT SHAFT (MAINSHAFT) SPEED SENSOR
THROTTLE POSITION SENSOR
ENGINE COOLANT TEMPERATURE SENSOR
ATF TEMPERATURE SENSOR
WHT/RED
KEY INTERLOCK SWITCH
KEY INTERLOCK SOLENOID
STEERING LOCK ASSEMBLY
PARK PIN SWITCH
BLK
G401
BRAKE PEDAL POSITION SWITCH
DATA LINK CONNECTOR (16P)
CRUISE CONTROL UNIT
ABS/TCS UNIT
GRN
BLU
GRN/YEL
BLU/YEL
WHT/BLK
BRN
BLU/GRN
LT GRN
YEL/RED
BLU
GRN
GRN/RED
GRN/WHT
YEL/BLU
RED
WHT
RED/BLK
GRN/YEL
RED/WHT
BLU/YEL
A32
A10
A5
E17
C19
D10
D16
C17
C7
C28
D11
D12
C27
C18
C26
C24
BK SW
SCS
CRS
ATSFTP
VCC1
NC
NCSG
MAP (PB)
SG1
VCC2
NM
NMSG
TPS
SG2
ECT
TATF
POWERTRAIN CONTROL MODULE (PCM)
LS A−
LS A+
LS B−
LS B+
LS C−
LS C+
SH A
SH B
SH C
LC
AT OP3SW
AT OP4SW
LG1
LG2
B8
B17
B18
B25
B24
B13
D7
D2
D3
D1
D13
B19
B20
B22
WHT
GRN
RED/BLU
BLU/YEL
GRN/WHT
GRN
YEL
BLU/WHT
BLU/YEL
BRN/YEL
BRN/YEL
RED
BRN/WHT
GRN/RED
BLK
BLK
BLK
BLK
BLU/WHT
A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A
A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B
A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C
SHIFT SOLENOID VALVE A
SHIFT SOLENOID VALVE B
SHIFT SOLENOID VALVE C
TORQUE CONVERTER CLUTCH SOLENOID VALVE
3RD CLUTCH TRANSMISSION FLUID PRESSURE SWITCH
4TH CLUTCH TRANSMISSION FLUID PRESSURE SWITCH
G101
G101
PCM Connector Terminal Locations
A (32P)
B (25P)
C (31P)
D (16P)
E (20P)

DTC Troubleshooting

DTC P0710: Problem in ATF Temperature Sensor Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Check whether the scan tool or the HDS indicates a code for the fuel and emissions system.

   Does the scan tool or the HDS indicate a code for the fuel and emissions system?

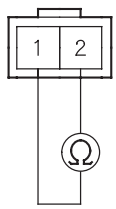
   YES—Perform the Troubleshooting Flowchart for the fuel and emissions system. Recheck for code P0710 after troubleshooting. ■

   NO—Go to step 2.

2. Disconnect the 2P connector from the ATF temperature sensor harness.

3. Measure ATF temperature sensor resistance at the sensor connector.

   ATF TEMPERATURE SENSOR CONNECTOR



   Terminal side of male terminals

   Is the resistance 50 Ω — 2.5 kΩ ?

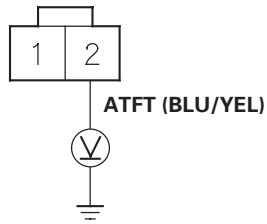
   YES—Go to step 4.

   NO—Replace the ATF temperature sensor (see page 14-366). ■

4. Turn the ignition switch ON (II).

5. Measure the voltage between terminal No. 2 ATF temperature sensor connector and body ground.

   ATF TEMPERATURE SENSOR CONNECTOR



   Wire side of female terminals

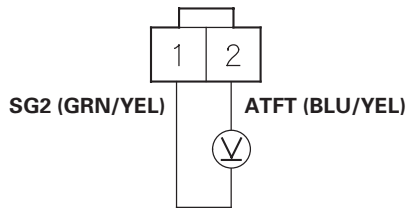
   Is there about 5 V?

   YES—Go to step 6.

   NO—Go to step 7.

6. Measure the voltage between ATF temperature sensor connector terminals No. 1 and No. 2.

   ATF TEMPERATURE SENSOR CONNECTOR



   Wire side of female terminals

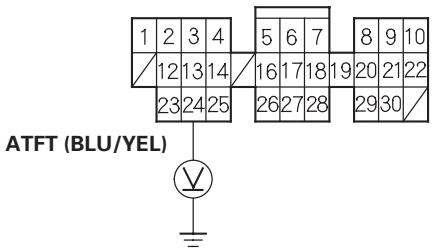
   Is there about 5 V?

   YES—Check for loose terminal fit at the PCM connectors C24, C18, and at the ATF temperature sensor. If necessary, substitute a known-good PCM and recheck. If the DTC recurs, substitute a known-good ATF temperature sensor. ■

   NO—Repair open or loose terminal fit in the wire between the C18 terminal and the ATF temperature sensor. ■

7. Measure the voltage between PCM connector terminal C24 and body ground.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between PCM connector terminal C24 terminal and the ATF temperature sensor. Check fit at all terminals from C24 to the sensor. ■

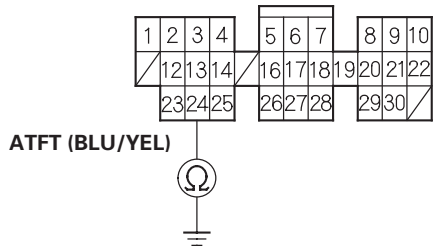
NO—Go to step 8.

8. Turn the ignition switch OFF.

9. Disconnect PCM connector C (31P).

10. Check for continuity between PCM connector terminal C24 and body ground.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal C24 and the ATF temperature sensor. ■

NO—Check for loose terminal fit in the PCM connectors C24 and C18. If necessary, substitute a known-good PCM or ATF temperature sensor and recheck only if the code resets after being cleared. ■

DTC Troubleshooting (cont'd)

DTC P0715: A Problem in Input Shaft (Mainshaft) Speed Sensor Circuit

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.

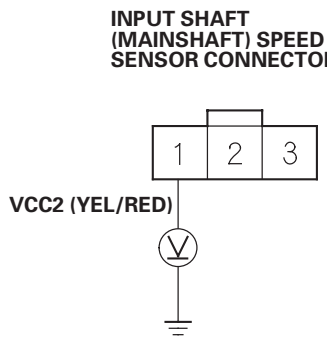
Code P0715 (code 15) doesn't always mean there's an electrical problem in the input shaft (mainshaft) or output shaft (countershaft) speed sensor circuit; code P0715 (code 15) may also indicate a mechanical problem in the transmission. Any problem causing irregular countershaft-to-mainshaft speed difference can cause this code.
A mainshaft speed of 0 mph (km/h) in the freeze data usually means there is an electrical problem in the input shaft (mainshaft) speed sensor circuit. A mainshaft speed that is higher or lower than countershaft and vehicle speed sensor usually means a hydraulic system problem caused the DTC.

1. Turn the ignition switch ON (II).
2. Check whether the scan tool or the HDS indicates the code for the throttle position (TP) sensor or the engine coolant temperature (ECT) sensor.

   Does the scan tool or the HDS indicate the code for the TP sensor or the ECT sensor?

   YES—Perform the Troubleshooting for the TP sensor or the ECT sensor. Recheck for code P0715 after troubleshooting. ■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect the input shaft (mainshaft) speed sensor connector.
5. Turn the ignition switch ON (II).
6. Measure the voltage between input shaft (mainshaft) speed sensor connector terminal No. 1 and body ground.

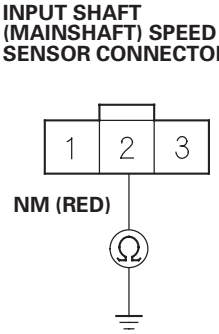


Wire side of female terminals

   Is there about 5 V?

   YES—Go to step 7.

   NO—Go to step 15.
7. Turn the ignition switch OFF.
8. Disconnect PCM connector D (16P).
9. Check for continuity between input shaft (mainshaft) speed sensor connector terminal No. 2 and body ground.



Wire side of female terminals

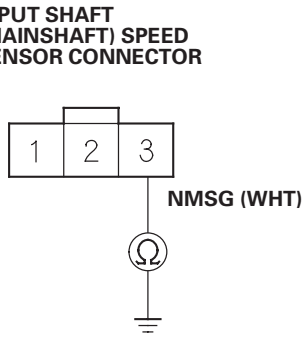
   Is there continuity?

   YES—Repair short to ground in the wire between PCM connector terminal D11 and the input shaft (mainshaft) speed sensor. ■

   NO—Go to step 10.

10. Connect PCM connector D (16P).

11. Check for continuity between input shaft (mainshaft) speed sensor connector terminal No. 3 and body ground.



Wire side of female terminals

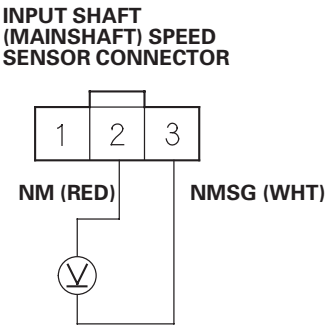
Is there continuity?

YES — Go to step 12.

NO — Repair open in the wire between PCM connector terminal D12 and the input shaft (mainshaft) speed sensor. ■

12. Turn the ignition switch ON (II).

13. Measure the voltage between input shaft (mainshaft) speed sensor connector terminals No. 2 and No. 3.



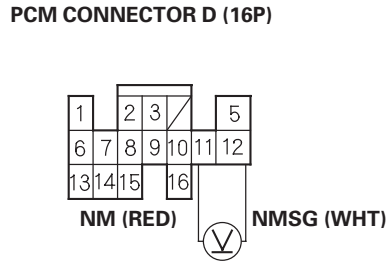
Wire side of female terminals

Is there about 5 V?

YES — Go to step 19.

NO — Go to step 14.

14. Measure the voltage between PCM connector terminals D11 and D12.



Wire side of female terminals

Is there about 5 V?

YES — Repair open in the wire between PCM connector terminal D11 and the input shaft (mainshaft) speed sensor. ■

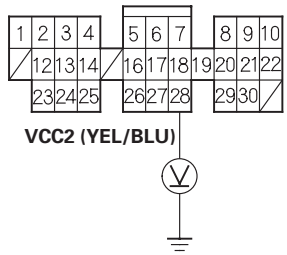
NO — Check for loose terminal fit in the PCM connectors D11, D12, and C28. If necessary, substitute a known-good PCM and recheck only if the code resets after being cleared. ■

(cont'd)

DTC Troubleshooting (cont'd)

15. Measure the voltage between PCM connector terminal C28 and body ground.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there 4.75—5.25 V?

YES—Repair open in the wire between PCM connector terminal C28 and the input shaft (mainshaft) speed sensor. ■

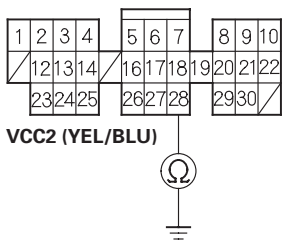
NO—Go to step 16.

16. Turn the ignition switch OFF.

17. Disconnect PCM connector C (31P).

18. Check for continuity between PCM connector terminal C28 and body ground.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

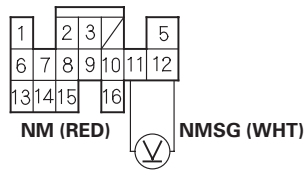
YES—Repair short to ground in the wire between PCM connector terminal C28 and the input shaft (mainshaft) speed sensor. ■

NO—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck only if the code resets after being cleared. ■

19. Connect the input shaft (mainshaft) speed sensor connector.

20. Measure the voltage between PCM Connector terminals D11 and D12.

PCM CONNECTOR D (16P)



Wire side of female terminals

Is there 0 V to about 5 V?

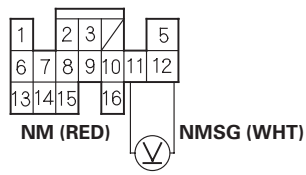
YES—Go to step 21.

NO—Replace the input shaft (mainshaft) speed sensor (see page 14-364). ■

21. Start the engine, and run it at idle in P position.

22. Hold the engine at idle, and measure the voltage between PCM connector terminals D11 and D12.

PCM CONNECTOR D (16P)



Wire side of female terminals

Is there 1.5—3.5 V?

YES—Check for loose terminal fit in the PCM connectors D11, D12, and C28. Clear DTCs. If necessary (only if the DTC recodes), substitute a known-good PCM and recheck only if the DTC recodes. ■

NO—Replace the input shaft (mainshaft) speed sensor (see page 14-364). ■

DTC P0720: Problem in Output Shaft (Countershaft) Speed Sensor Circuit

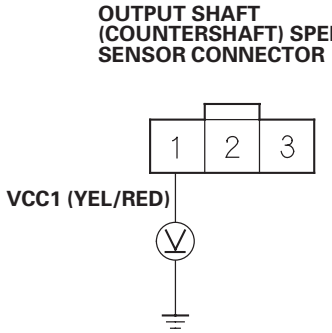
NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.

1. Turn the ignition switch ON (II).
2. Check whether the scan tool or the HDS indicates the code for the manifold absolute pressure (MAP) sensor.

   Does the scan tool or the HDS indicate the code for the MAP sensor?

   YES—Perform the Troubleshooting for the MAP sensor. Recheck for code P0720 after troubleshooting. ■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect the output shaft (countershaft) speed sensor connector.
5. Turn the ignition switch ON (II).
6. Measure the voltage between output shaft (countershaft) speed sensor connector terminal No. 1 and body ground.

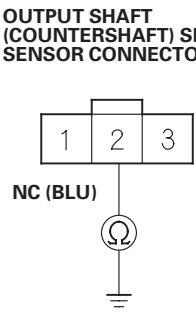


Wire side of female terminals

   Is there about 5 V?

   YES—Go to step 7.

   NO—Go to step 14.
7. Turn the ignition switch OFF.
8. Disconnect PCM connector D (16P).
9. Check for continuity between output shaft (countershaft) speed sensor connector terminal No. 2 and body ground.

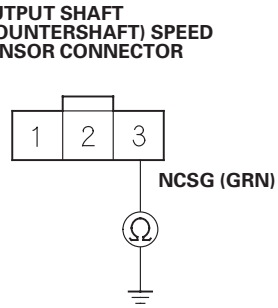


Wire side of female terminals

   Is there continuity?

   YES—Repair short to ground in the wire between PCM connector terminal D10 and the output shaft (countershaft) speed sensor. ■

   NO—Go to step 10.
10. Check for continuity between output shaft (countershaft) speed sensor connector terminal No. 3 and body ground.



Wire side of female terminals

    Is there continuity?

    YES—Go to step 11.

    NO—Repair open in the wire between PCM connector terminal D16 and the countershaft speed sensor. ■

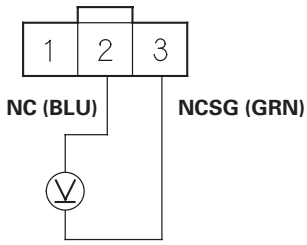
(cont'd)

DTC Troubleshooting (cont'd)

11. Turn the ignition switch ON (II).

12. Measure the voltage between output shaft (countershaft) speed sensor connector terminals No. 2 and No. 3.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

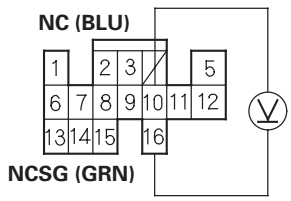
Is there about 5 V?

YES — Go to step 18.

NO — Go to step 13.

13. Measure the voltage between PCM connector terminals D10 and D16.

PCM CONNECTOR D (16P)



Wire side of female terminals

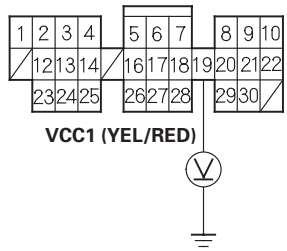
Is there about 5 V?

YES — Repair open in the wire between PCM connector terminal D10 and the output shaft (countershaft) speed sensor. ■

NO — Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

14. Measure the voltage between PCM connector terminal C19 and body ground.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there 4.75 — 5.25 V?

YES — Repair open in the wire between PCM connector terminal C19 and the output shaft (countershaft) speed sensor. ■

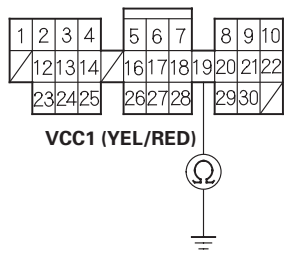
NO — Go to step 15.

15. Turn the ignition switch OFF.

16. Disconnect PCM connector (31P).

17. Check for continuity between PCM connector terminal C19 and body ground.

PCM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

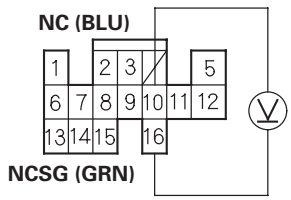
YES — Repair short to ground in the wire between PCM connector terminal C19 and output shaft (countershaft) speed sensor. ■

NO — Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

18. Connect the output shaft (countershaft) speed sensor connector.

19. Measure the voltage between PCM connector terminals D10 and D16.

PCM CONNECTOR D (16P)



Wire side of female terminals

Is there 0 V to about 5 V?

YES—Go to step 20.

NO—Replace the output shaft (countershaft) speed sensor (see page 14-364). ■

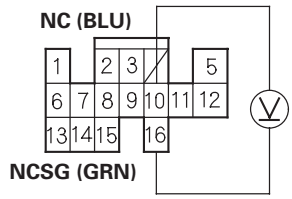
20. Raise the front of the vehicle, and make sure it is securely supported.

21. Set the parking brake, and block both rear wheels securely.

22. Start the engine, then shift to D position and let the wheels spin the vehicle.

23. Measure the voltage between PCM connector terminals D10 and D16.

PCM CONNECTOR D (16P)



Wire side of female terminals

Is there 1.5—3.5 V?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Replace the output shaft (countershaft) speed sensor (see page 14-364). ■

DTC Troubleshooting (cont'd)

DTC P0730: Problem in Shift Control System

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- Keep these replacement solenoid valves on hand:
  – Shift solenoid valves A, B, and C
  – A/T clutch pressure control solenoid valves A and B

1. Check whether the scan tool or the HDS indicates another code.

   Does the scan tool or the HDS indicate another code?

   YES—Perform the Troubleshooting Flowchart for the indicated code(s). Recheck for code P0730 after troubleshooting. ■

   NO—Go to step 2.

   NOTE: Do not continue with this troubleshooting until the causes of any other DTCs have been corrected.

2. Measure the 1st, 2nd, 3rd, 4th, and 5th clutch pressure (see page 14-355).

   Is each clutch pressure within the service limit?

   YES—Go to step 3.

   NO—Replace the transmission. ■

3. Replace shift solenoid valve B (see page 14-358).

4. Replace shift solenoid valves A and C (see page 14-359).

5. Replace A/T clutch pressure control solenoid valves A and B (see page 14-361).

6. Clear the DTC with the scan tool or the HDS.

7. Drive the vehicle under the same conditions as those indicated by the freeze data, or at speeds over 12 mph (20 km/h) in 1st, 2nd, 3rd, 4th, and 5th gear in the D position for more than 30 seconds.

8. Recheck for code P0730.

   Does the scan tool or the HDS indicate code P0730?

   YES—Replace the transmission. ■

   NO—The system is OK at this time. ■

DTC P0740: Problem in Lock-up Control System

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- Keep these replacement solenoid valves on hand:
  – Torque converter clutch solenoid valve
  – A/T clutch pressure control solenoid valve C

1. Check whether the scan tool or the HDS indicates another code.

   Does the scan tool or the HDS indicate another code?

   YES—Perform the Troubleshooting Flowchart for the indicated code(s). Recheck for code P0740 after troubleshooting. ■

   NO—Go to step 2.

   NOTE: Do not continue with this troubleshooting until the causes of any other DTCs have been corrected.

2. Measure the line pressure (see page 14-355).

   Is the line pressure within the service limit?

   YES—Go to step 3.

   NO—Replace the transmission. ■

3. Replace torque converter clutch solenoid valve (see page 14-357).

4. Replace A/T clutch pressure control solenoid valve C (see page 14-363).

5. Clear the DTC with the scan tool or the HDS.

6. Using the scan tool, check to be sure that the engine coolant temperature is 176°F (80°C) or above.

7. Drive the vehicle under the same conditions as those indicated by the freeze data, or at 55 mph (88 km/h) with very steady throttle for more than 1 minute.

8. Recheck for code P0740.

   Does the scan tool or the HDS indicate code P0740?

   YES—Remove the torque converter and inspect the O-ring. If the O-ring is missing, replace the O-ring. If the O-ring is damaged or OK, replace the transmission and torque converter. ■

   NO—The system is OK at this time. ■

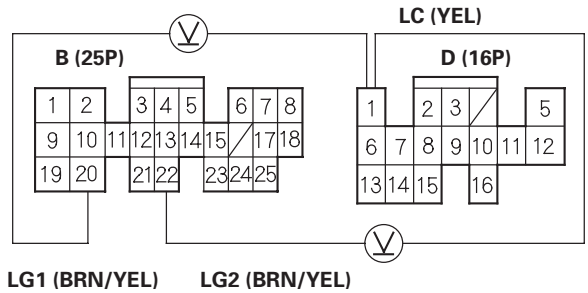
DTC Troubleshooting (cont'd)

DTC P0743: Problem in Torque Converter Clutch Solenoid Valve Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch OFF.
2. Disconnect PCM connectors B (25P) and D (16P).
3. Turn the ignition switch ON (II).
4. Measure the voltage between PCM connector terminals D1 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

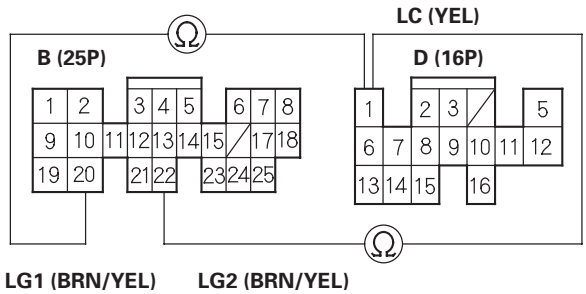
Is there voltage?

YES—Repair short to power in the wire between PCM connector terminal D1 and the torque converter clutch solenoid valve. ■

NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Measure the resistance between PCM connector terminals D1 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

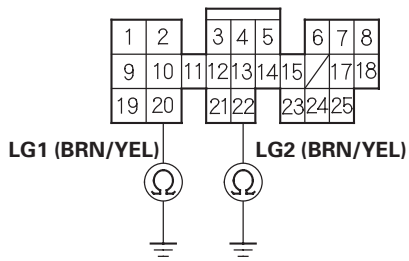
Is the resistance 12—25 Ω ?

YES—Go to step 11.

NO—Go to step 7.

7. Check for continuity between PCM connector terminals B20 and body ground, and between B22 and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

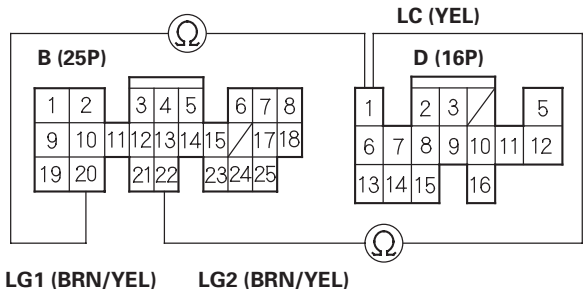
YES—Go to step 8.

NO—Repair open in the wires between PCM connector terminals B20, B22, and ground (G101), or repair poor ground (G101). ■

8. Disconnect the torque converter clutch solenoid valve connector (2P).

9. Check for continuity between PCM connector terminals D1 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

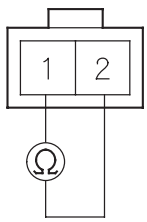
Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal D1 and the torque converter clutch solenoid valve. ■

NO—Go to step 10.

10. Measure torque converter clutch solenoid valve resistance at the solenoid valve connector.

TORQUE CONVERTER CLUTCH SOLENOID VALVE CONNECTOR



Terminal side of male terminals

Is the resistance 12—25 Ω?

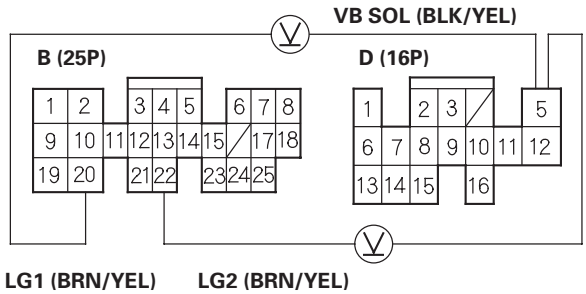
YES—Check for an open in the wires between PCM connector terminal D1 and the torque converter clutch solenoid valve, and between torque converter clutch solenoid valve connector terminal No. 1 and ground (G101). ■

NO—Replace the torque converter clutch solenoid valve (see page 14-357). ■

11. Turn the ignition switch ON (II).

12. Measure the voltage between PCM connector terminals D5 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal D5 and the driver's under-dash fuse/relay box. ■

DTC Troubleshooting (cont'd)

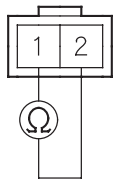
DTC P0748: Problem in A/T Clutch Pressure Control Solenoid Valve A Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Disconnect the 2P connector from A/T clutch pressure control solenoid valve A.

2. Measure A/T clutch pressure control solenoid resistance at the solenoid valve connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Terminal side of male terminals

Is the resistance 3—10 Ω ?

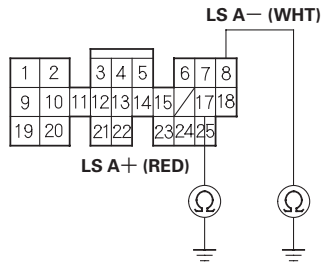
YES—Go to step 3.

NO—Replace the A/T clutch pressure control solenoid valve A (see page 14-361). ■

3. Disconnect PCM connector B (25P).

4. Check for continuity between PCM connector terminals B8 and body ground, and between B17 and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

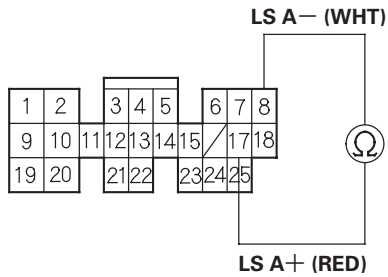
YES—Repair short to ground in the wires between PCM connector terminals B8 and B17, and A/T clutch pressure control solenoid valve A. ■

NO—Go to step 5.

5. Connect the A/T clutch pressure control solenoid valve A connector.

6. Measure the resistance between PCM connector terminals B8 and B17.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is the resistance 3—10 Ω ?

YES—Go to step 7.

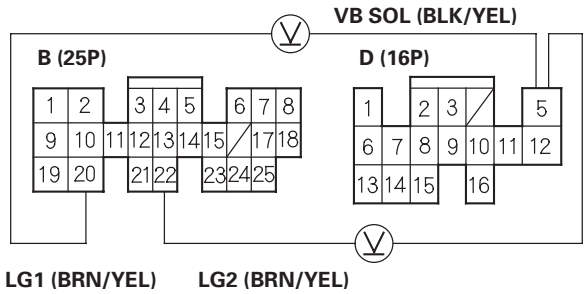
NO—Repair loose terminal or open in the wires between PCM connector terminals B8 and B17, and A/T clutch pressure control solenoid valve A. ■

7. Disconnect PCM connector D (16P).

8. Turn the ignition switch ON (II).

9. Measure the voltage between PCM connector terminals D5 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal D5 and the driver's under-dash fuse/relay box, between PCM connector terminals B20 and B22, and ground (G101), or repair poor ground (G101). ■

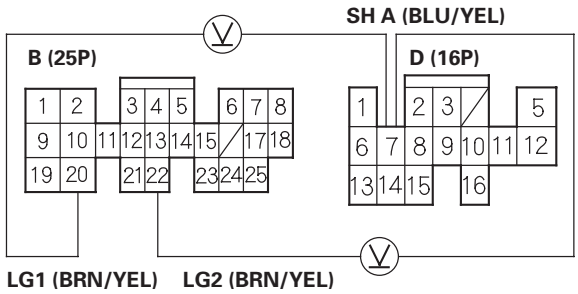
DTC Troubleshooting (cont'd)

DTC P0753: Problem in Shift Solenoid Valve A Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch OFF.
2. Disconnect PCM connectors B (25P) and D (16P).
3. Turn the ignition switch ON (II).
4. Measure the voltage between PCM connector terminals D7 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

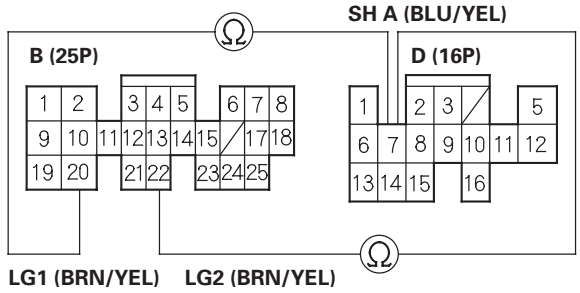
Is there voltage?

YES—Repair short to power in the wire between PCM connector terminal D7 and the shift solenoid valve A. ■

NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Measure the resistance between PCM connector terminals D7 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

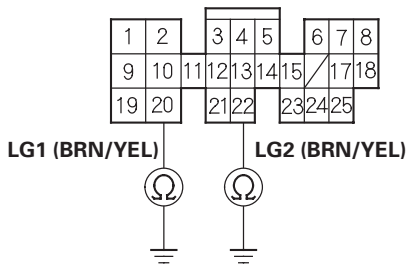
Is the resistance 12—25 Ω ?

YES—Go to step 11.

NO—Go to step 7.

7. Check for continuity between PCM connector terminals B20 and body ground, and between B22 and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

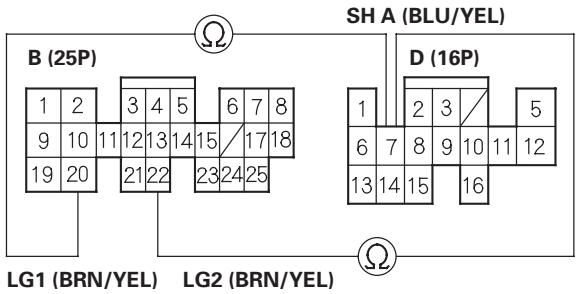
YES—Go to step 8.

NO—Repair open in the wires between PCM connector terminals B20, B22, and ground (G101), or repair poor ground (G101). ■

8. Disconnect the 2P connector from shift solenoid valve A.

9. Check for continuity between PCM connector terminals D7 and B20 or B22 .

PCM CONNECTORS



Wire side of female terminals

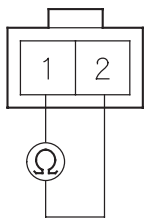
Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal D7 and shift solenoid valve A. ■

NO—Go to step 10.

10. Measure shift solenoid valve A resistance at the solenoid valve connector.

SHIFT SOLENOID VALVE A CONNECTOR



Terminal side of male terminals

Is the resistance 12—25 Ω ?

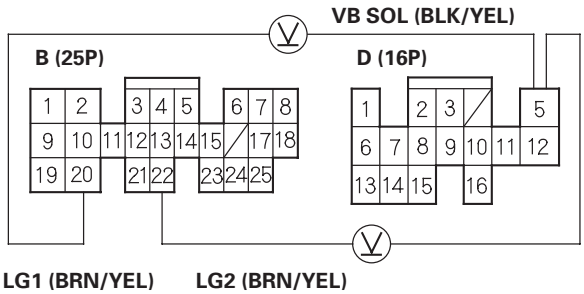
YES—Check for an open in the wire between PCM connector terminal D7 and shift solenoid valve A, and between shift solenoid valve A connector terminal No. 1 and ground (G101). ■

NO—Replace the shift solenoid valve A (see page 14-359). ■

11. Turn the ignition switch ON (II).

12. Measure the voltage between PCM connector terminals D5 and B20 or B22 .

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors D5 and D7. If necessary, substitute a known-good PCM and recheck. ■

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal D5 and the driver's under-dash fuse/relay box. ■

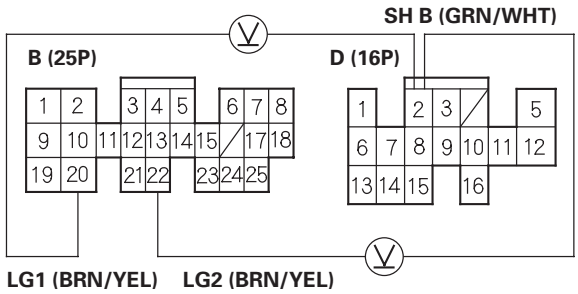
DTC Troubleshooting (cont'd)

DTC P0758: Problem in Shift Solenoid Valve A Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch OFF.
2. Disconnect PCM connectors B (25P) and D (16P).
3. Turn the ignition switch ON (II).
4. Measure the voltage between PCM connector terminals D2 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

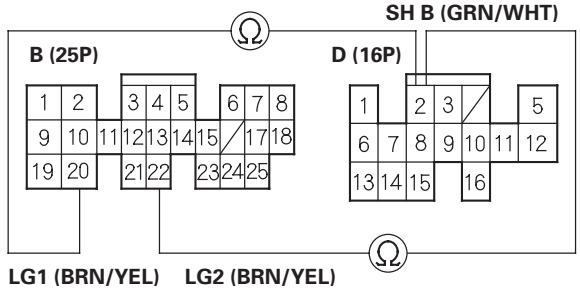
Is there voltage?

YES—Repair short to power in the wire between PCM connector terminal D2 and the shift solenoid valve B.■

NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Measure the resistance between PCM connector terminals D2 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

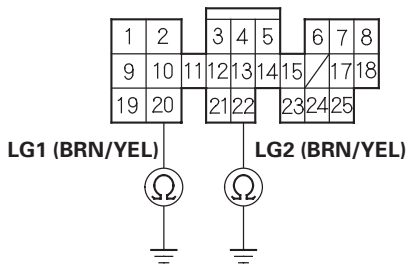
Is the resistance 12—25 Ω ?

YES—Go to step 11.

NO—Go to step 7.

7. Check for continuity between PCM connector terminals B20 and body ground, and between B22 and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

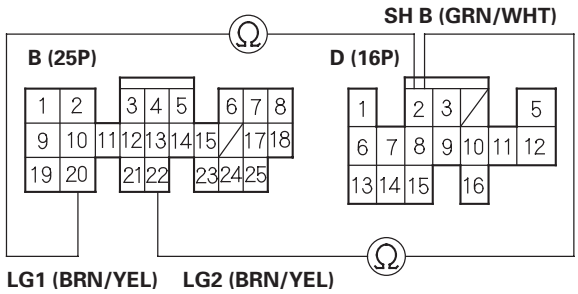
YES—Go to step 8.

NO—Repair open in the wires between PCM connector terminals B20, B22, and ground (G101), or repair poor ground (G101).■

8. Disconnect the 2P connector from shift solenoid valve B.

9. Check for continuity between PCM connector terminals D2 and B20 or B22 .

PCM CONNECTORS



Wire side of female terminals

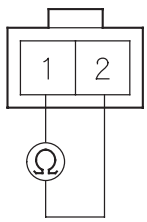
Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal D2 and shift solenoid valve B.■

NO—Go to step 10.

10. Measure shift solenoid valve B resistance at the solenoid valve connector.

SHIFT SOLENOID VALVE B CONNECTOR



Terminal side of male terminals

Is the resistance 12—25 Ω ?

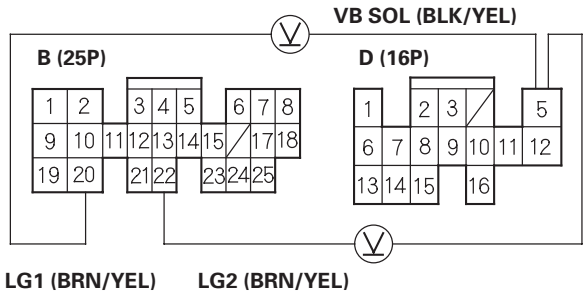
YES—Check for an open in the wire between PCM connector terminal D2 and shift solenoid valve B, and between shift solenoid valve B connector terminal No. 1 and ground (G101).■

NO—Replace the shift solenoid valve B (see page 14-358).■

11. Turn the ignition switch ON (II).

12. Measure the voltage between PCM connector terminals D5 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors D2 and D5. If necessary, substitute a known-good PCM and recheck.■

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal D5 and the driver's under-dash fuse/relay box.■

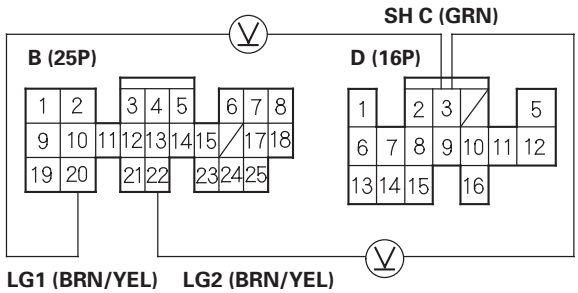
DTC Troubleshooting (cont'd)

DTC P0763: Problem in Shift Solenoid Valve C Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch OFF.
2. Disconnect PCM connectors B (25P) and D (16P).
3. Turn the ignition switch ON (II).
4. Measure the voltage between PCM connector terminals D3 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

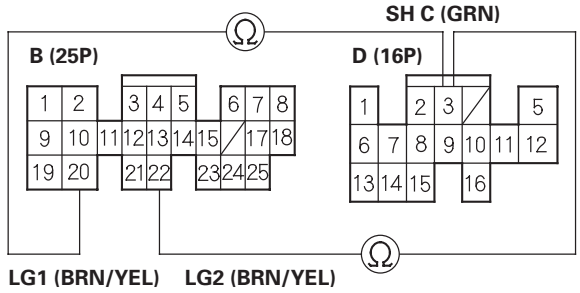
Is there voltage?

YES—Repair short to power in the wire between PCM connector terminal D3 and the shift solenoid valve C.■

NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Measure the resistance between PCM connector terminals D3 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

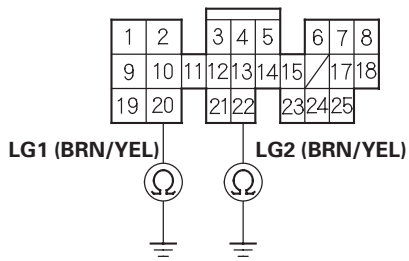
Is the resistance 12—25 Ω?

YES—Go to step 11.

NO—Go to step 7.

7. Check for continuity between PCM connector terminals B20 and body ground, and between B22 and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

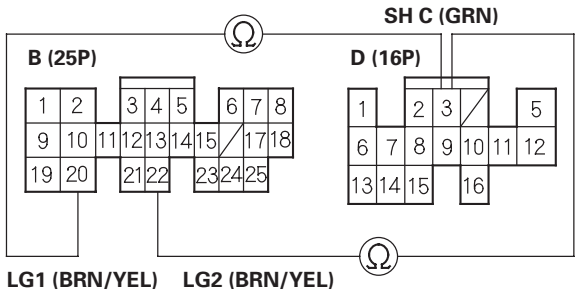
YES—Go to step 8.

NO—Repair open in the wires between PCM connector terminals B20, B22, and ground (G101), or repair poor ground (G101).■

8. Disconnect the 2P connector from shift solenoid valve C.

9. Check for continuity between PCM connector terminals D3 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

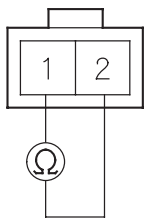
Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal D3 and shift solenoid valve C.■

NO—Go to step 10.

10. Measure shift solenoid valve C resistance at the solenoid valve connector.

SHIFT SOLENOID VALVE C CONNECTOR



Terminal side of male terminals

Is the resistance 12—25 Ω?

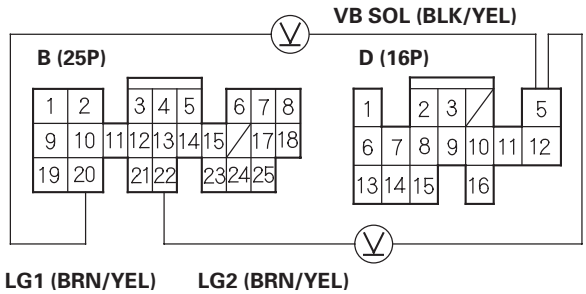
YES—Check for an open in the wire between PCM connector terminal D3 and shift solenoid valve C, and between shift solenoid valve C connector terminal No. 1 and ground (G101).■

NO—Replace the shift solenoid valve C (see page 14-359).■

11. Turn the ignition switch ON (II).

12. Measure the voltage between PCM connector terminals D5 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors D3 and D5. If necessary, substitute a known-good PCM and recheck.■

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal D5 and the driver's under-dash fuse/relay box.■

DTC Troubleshooting (cont'd)

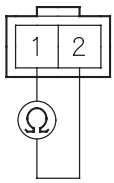
DTC P0778: Problem in A/T Clutch Pressure Control Solenoid Valve B Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Disconnect the 2P connector from A/T clutch pressure control solenoid valve B.

2. Measure A/T clutch pressure control solenoid resistance at the solenoid valve connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Terminal side of male terminals

Is the resistance 3—10 Ω ?

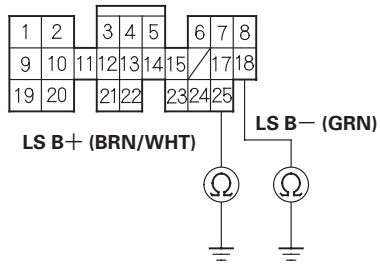
YES—Go to step 3.

NO—Replace the A/T clutch pressure control solenoid valve B (see page 14-361). ■

3. Disconnect PCM connector B (25P).

4. Check for continuity between PCM connector terminals B18 and body ground, and between B25 and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

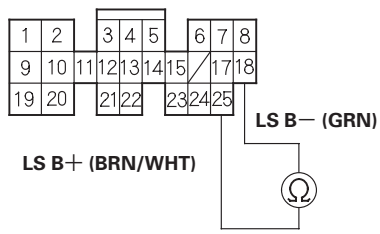
YES—Repair short to ground in the wires between PCM connector terminals B18 and B25, and A/T clutch pressure control solenoid valve B. ■

NO—Go to step 5.

5. Connect the A/T clutch pressure solenoid valve B connector.

6. Measure the resistance between PCM connector terminals B18 and B25.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is the resistance 3—10 Ω ?

YES—Go to step 7.

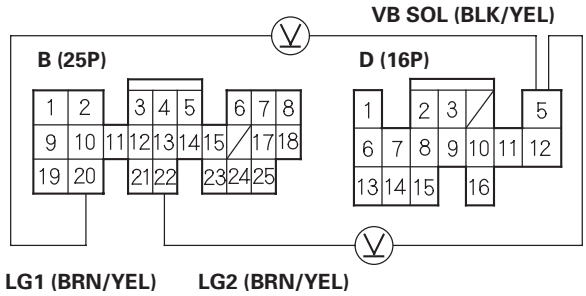
NO—Repair loose terminal or open in the wires between PCM connector terminals B18 and B25, and A/T clutch pressure control solenoid valve B. ■

7. Disconnect PCM connector D (16P).

8. Turn the ignition switch ON (II).

9. Measure the voltage between PCM connector terminals D5 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal D5 and the driver's under-dash fuse/relay box, between PCM connector terminals B20 and B22, and ground (G101), or repair poor ground (G101). ■

DTC Troubleshooting (cont'd)

DTC P0780: Mechanical Problem in Hydraulic Control System of Shift Solenoid Valve A and A/T Clutch Pressure Control Solenoid Valves A and B, or Problem in the Hydraulic Control System

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- Keep these replacement solenoid valves on hand:
  – Shift solenoid valve A
  – A/T clutch pressure control solenoid valves A and B

1. Check whether the scan tool or the HDS indicates another code.

   Does the scan tool or the HDS indicate another code?

   YES—Perform the Troubleshooting Flowchart for the indicated code(s). Recheck for code P0780 after troubleshooting. ■

   NO—Go to step 2.

2. Turn the ignition switch OFF.

3. Replace the shift solenoid valve A (see page 14-359), and A/T clutch pressure control solenoid valves A and B (see page 14-361).

4. Clear the DTC with scan tool or the HDS.

5. Drive the vehicle for several minutes in 1st, 2nd, 3rd, 4th, and 5th gears in the D position.

6. Recheck for code P0780.

   Does the scan tool or the HDS indicate code P0780?

   YES—Replace the transmission. ■

   NO—The problem has been corrected. ■

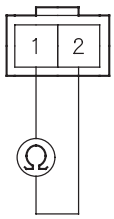
DTC P0798: Problem in A/T Clutch Pressure Control Solenoid Valve C Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Disconnect the 2P connector from A/T clutch pressure control solenoid valve C.

2. Measure A/T clutch pressure control solenoid resistance at the solenoid valve connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR



Terminal side of male terminals

Is the resistance 3—10 Ω ?

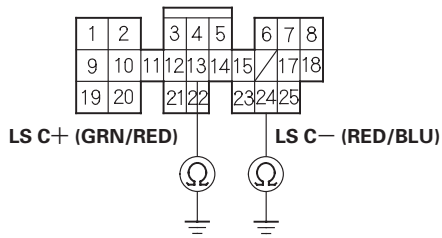
YES—Go to step 3.

NO—Replace A/T clutch pressure control solenoid valve C (see page 14-363). ■

3. Disconnect PCM connector B (25P).

4. Check for continuity between PCM connector terminals B13 and body ground, and between B24 and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

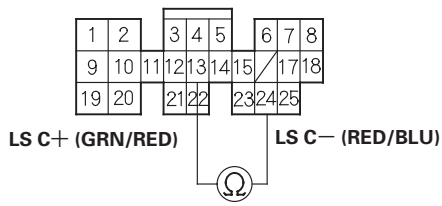
YES—Repair short to ground in the wires between PCM connector terminals B13 and B24, and A/T clutch pressure control solenoid valve C. ■

NO—Go to step 5.

5. Connect the A/T clutch pressure control solenoid valve C connector.

6. Measure the resistance between PCM connector terminals B13 and B24.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is the resistance 3—10 Ω ?

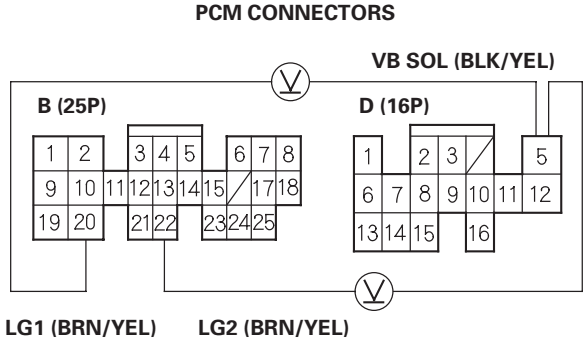
YES—Go to step 7.

NO—Repair loose terminal or open in the wires between PCM connector terminals B13 and B24, and A/T clutch pressure control solenoid valve C. ■

(cont'd)

DTC Troubleshooting (cont'd)

7. Disconnect PCM connector D (16P).
8. Turn the ignition switch ON (II).
9. Measure the voltage between PCM connector terminals D5 and B20 or B22.



Wire side of female terminals

Is there battery voltage?

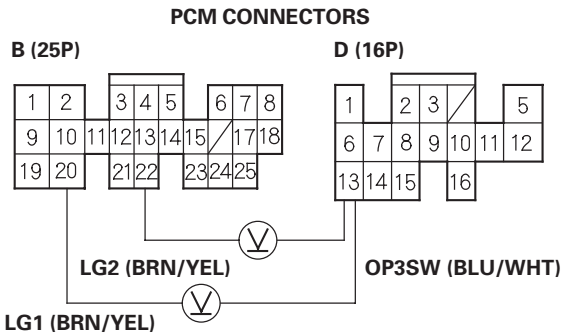
YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Check for blown No. 6 (15A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal D5 and the driver's under-dash fuse/relay box, between PCM connector terminals B20 and B22, and ground (G101), or repair poor ground (G101). ■

DTC P0845: Problem in 3rd Clutch Transmission Fluid Pressure Switch Circuit

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.

1. Turn the ignition switch ON (II).
2. Measure the voltage between PCM connector terminals D13 and B20 or B22.



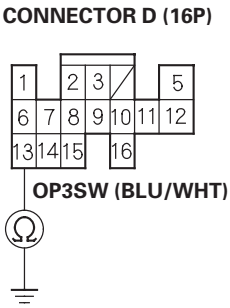
Wire side of female terminals

Is there battery voltage?

YES—Go to step 7.

NO—Go to step 3.

3. Turn the ignition switch OFF.
4. Disconnect PCM connector D (16P).
5. Disconnect the 3rd clutch transmission fluid pressure switch connector.
6. Check for continuity between PCM connector terminal D13 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between PCM connector terminal D13 and the 3rd clutch transmission fluid pressure switch. ■

NO—Disconnect the 3rd clutch transmission fluid pressure switch connector, and go to step 15.

(cont'd)

DTC Troubleshooting (cont'd)

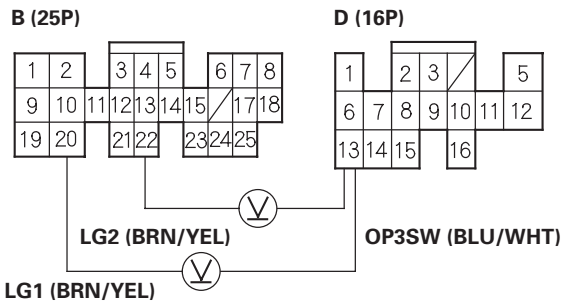
7. Raise the front of the vehicle, and make sure it is securely supported.

8. Set the parking brake, and block the rear wheels securely.

9. Start the engine, then shift to D3 position and let the wheels spin in 3rd gear for more than 5 seconds.

10. Measure the voltage between PCM connector terminals D13 and B20 or B22 .

PCM CONNECTORS



Wire side of female terminals

Is there about 0 V?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Go to step 11.

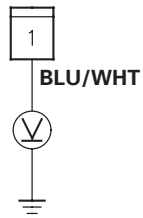
11. Turn the ignition switch OFF.

12. Disconnect the 3rd clutch transmission fluid pressure switch connector.

13. Turn the ignition switch ON (II).

14. Measure the voltage between the 3rd clutch transmission fluid pressure switch connector terminal and body ground.

3RD CLUTCH TRANSMISSION FLUID PRESSURE SWITCH CONNECTOR



Wire side of female terminal

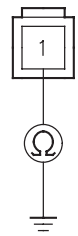
Is there battery voltage?

YES—Go to step 15.

NO—Repair open in the wire between the 3rd transmission fluid clutch pressure switch and the PCM. ■

15. Measure the resistance between the 3rd clutch transmission fluid pressure switch connector terminal and body ground.

3RD CLUTCH TRANSMISSION FLUID PRESSURE SWITCH CONNECTOR



Terminal side of male terminals

Is the resistance 10 MΩ and more?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Replace the 3rd clutch transmission fluid pressure switch (see page 14-365). ■

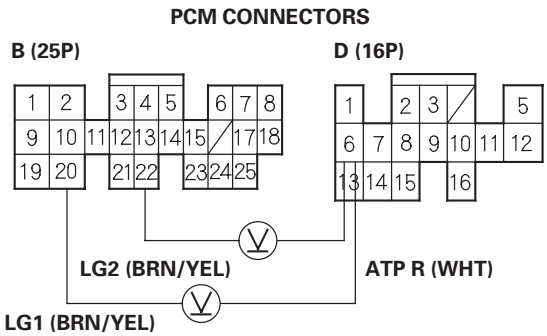
DTC P1705: Short in Transmission Range Switch Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch ON (II).

2. Shift to all positions other than R.

3. Measure the voltage between PCM connector terminals D6 and B20 or B22 .



Wire side of female terminals

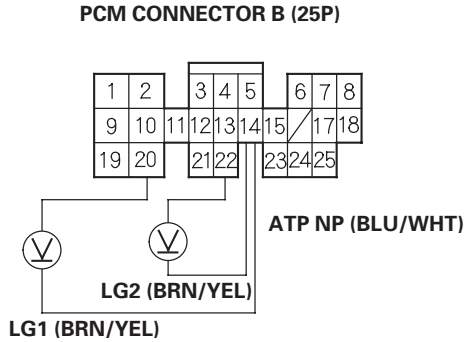
Is there battery voltage?

YES—Go to step 4.

NO—Check for a short in the wire between PCM connector terminal D6 and the transmission range switch or A/T gear position indicator, and check for an open in the wires between PCM connector terminals B20 and B22 and body ground (G101). If the wires are OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

4. Shift to all positions other than P or N.

5. Measure the voltage between PCM connector terminals B14 and B20 or B22 .



Wire side of female terminals

Is there about 5 V?

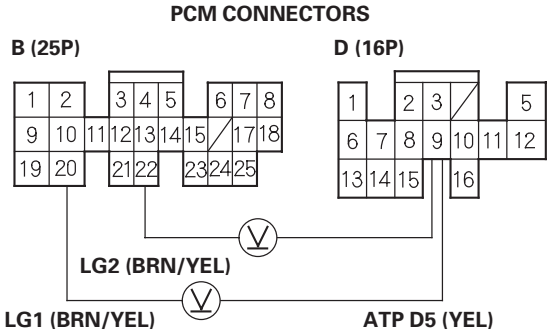
YES—Go to step 6.

NO—Check for a short in the wire between PCM connector terminal B14 terminal and the transmission range switch. If the wires are OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

(cont'd)

DTC Troubleshooting (cont'd)

6. Shift to all positions other than D.
7. Measure the voltage between PCM connector terminals D9 and B20 or B22 .



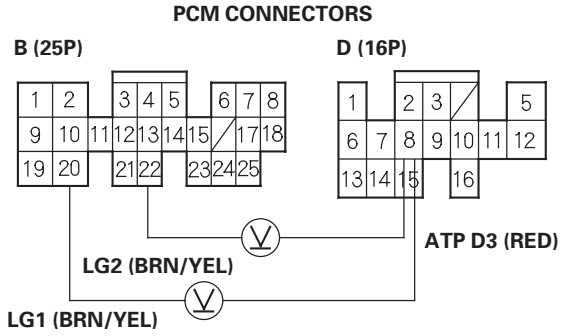
Wire side of female terminals

Is there about 5 V?

YES — Go to step 8.

NO — Check for a short in the wire between PCM connector terminal D9 and the transmission range switch or A/T gear position indicator. If the wire is OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

8. Shift to all positions other than D3.
9. Measure the voltage between PCM connector terminals D8 and B20 or B22.



Wire side of female terminals

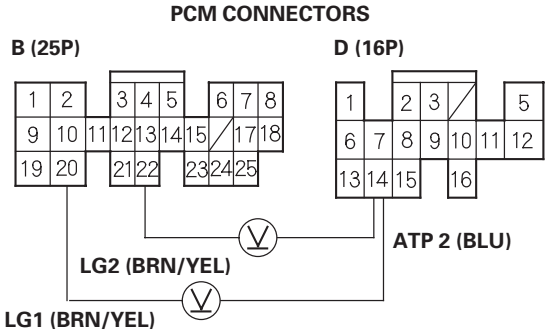
Is there battery voltage?

YES — Go to step 10.

NO — Check for a short in the wire between PCM connector terminal D8 and the transmission range switch or A/T gear position indicator. If the wires are OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

10. Shift to all positions other than 2.

11. Measure the voltage between PCM connector terminals D14 and B20 or B22 .



Wire side of female terminals

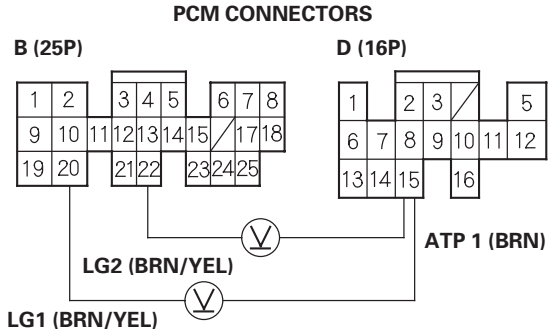
Is there battery voltage?

YES — Go to step 12.

NO — Check for a short in the wire between PCM connector terminal D14 and the transmission range switch or A/T gear position indicator. If the wires are OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

12. Shift to all positions other than 1.

13. Measure the voltage between PCM connector terminals D15 and B20 or B22.



Wire side of female terminals

Is there battery voltage?

YES — Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO — Check for a short in the wire between PCM connector terminal D15 and the transmission range switch or A/T gear position indicator. If the wires are OK, check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

DTC Troubleshooting (cont'd)

DTC P1706: Open in Transmission Range Switch Circuit

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Test the transmission range switch (see page 14-403).

   Is the switch OK?

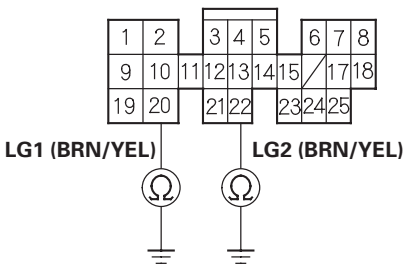
   YES—Go to step 2.

   NO—Replace the transmission range switch (see page 14-404). ■

2. Turn the ignition switch OFF.

3. Check for continuity between PCM connector terminals B20 and body ground, and between B22 and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

YES—Go to step 4.

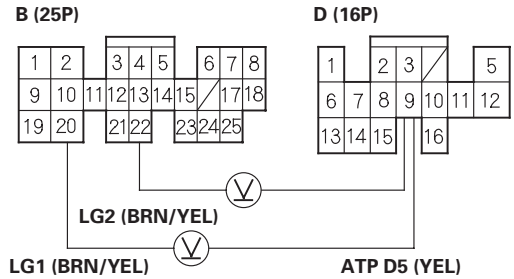
NO—Repair open in the wire between PCM connector terminals B20, B22, and ground (G101), or repair poor ground (G101). ■

4. Turn the ignition switch ON (II).

5. Shift to the D position.

6. Measure the voltage between PCM connector terminals D9 and B20 or B22 .

PCM CONNECTORS



Wire side of female terminals

Is there voltage?

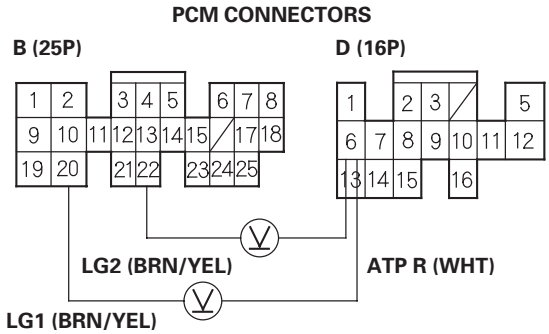
YES—Repair open in the wire between PCM connector terminal D9 and the transmission range switch. ■

NO—Go to step 7.

7. Shift to the R position.

8. Measure the voltage between PCM connector terminals D6 and B20 or B22 .

PCM CONNECTORS



Wire side of female terminals

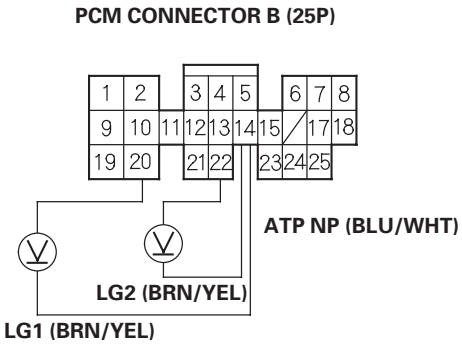
Is there voltage?

YES—Repair open in the wire between PCM connector terminal D6 and the transmission range switch. ■

NO—Go to step 9.

9. Shift to the P and N position.

10. Measure the voltage between PCM connector terminals B14 and B20 or B22.



Wire side of female terminals

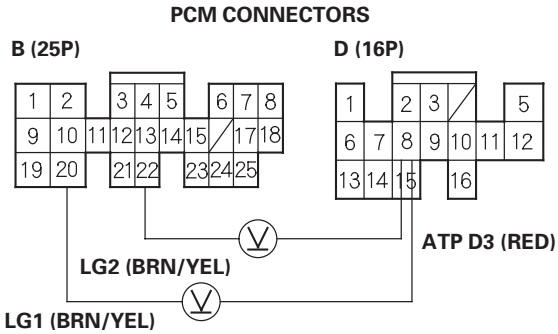
Is there voltage?

YES—Repair open in the wire between PCM connector terminal B14 and the transmission range switch. ■

NO—Go to step 11.

11. Shift to the D3 position.

12. Measure the voltage between PCM connector terminals D8 and B20 or B22.



Wire side of female terminals

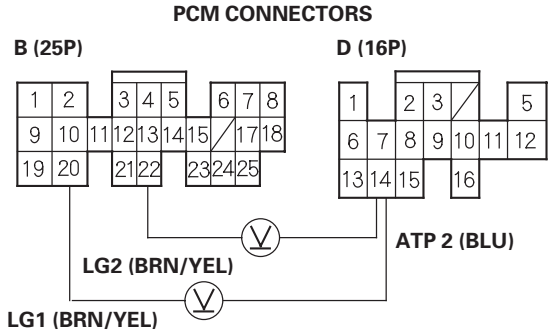
Is there voltage?

YES—Repair open in the wire between PCM connector terminal D8 and the transmission range switch. ■

NO—Go to step 13.

13. Shift to the 2 position.

14. Measure the voltage between PCM connector terminals D14 and B20 or B22.



Wire side of female terminals

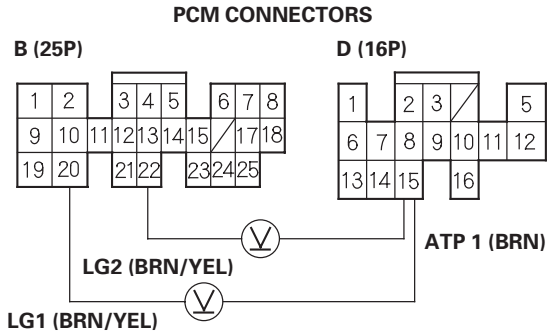
Is there voltage?

YES—Repair open in the wire between PCM connector terminal D14 and the transmission range switch. ■

NO—Go to step 15.

15. Shift to the 1 position.

16. Measure the voltage between PCM connector terminals D15 and B20 or B22.



Wire side of female terminals

Is there voltage?

YES—Repair open in the wire between PCM connector terminal D15 and the transmission range switch. ■

NO—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

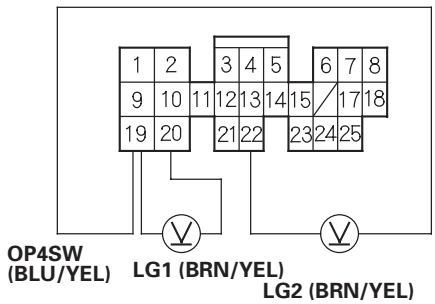
DTC Troubleshooting (cont'd)

DTC P1740: Problem in 4th Clutch Transmission Fluid Pressure Switch Circuit

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.

1. Turn the ignition switch ON (II).
2. Measure the voltage between PCM connector terminals B19 and B20 or B22.

PCM CONNECTOR B (25P)



Wire side of female terminals

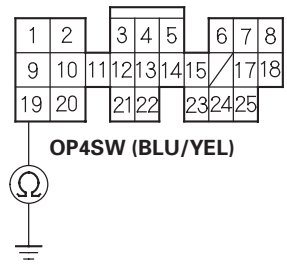
Is there battery voltage?

YES — Go to step 7.

NO — Go to step 3.

3. Turn the ignition switch OFF.
4. Disconnect PCM connector B (25P).
5. Disconnect the 4th clutch transmission fluid pressure switch connector.
6. Check for continuity between PCM connector terminal B19 and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

YES — Repair short to ground in the wire between PCM connector terminal B19 and the 4th clutch transmission fluid pressure switch. ■

NO — Disconnect the 4th clutch transmission fluid pressure switch connector, and go to step 15.

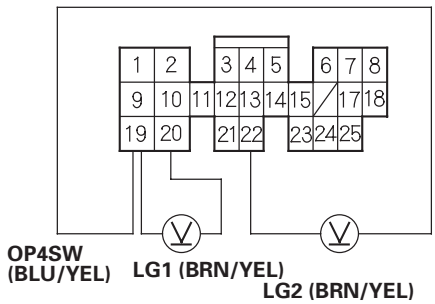
7. Raise the front of the vehicle, and make sure it is securely supported.

8. Set the park brake, and block the rear wheels securely.

9. Start the engine, then shift to the D position and let the wheels spin in 4th gear for more than 5 seconds.

10. Measure the voltage between PCM connector terminals B19 and B20 or B22.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there about 0 V?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Go to step 11.

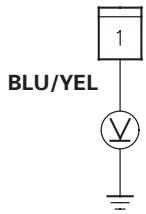
11. Turn the ignition switch OFF.

12. Disconnect the 4th clutch transmission fluid pressure switch connector.

13. Turn the ignition switch ON (II).

14. Measure the voltage between the 4th clutch transmission fluid pressure switch connector terminal and body ground.

4TH CLUTCH TRANSMISSION FLUID PRESSURE SWITCH CONNECTOR



Wire side of female terminal

Is there battery voltage?

YES—Go to step 15.

NO—Repair open in the wire between the 4th clutch transmission fluid pressure switch and the PCM. ■

15. Measure the resistance between the 4th clutch transmission fluid pressure switch connector terminal and body ground.

4TH CLUTCH TRANSMISSION FLUID PRESSURE SWITCH CONNECTOR

Terminal side of male terminal

Is the resistance 10 MΩ or more?

YES—Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

NO—Replace the 4th clutch transmission fluid pressure switch (see page 14-365). ■

DTC Troubleshooting (cont'd)

DTC P1750: Mechanical Problem in Hydraulic Control System of A/T Clutch Pressure Control Solenoid Valves A and B, or Problem in the Hydraulic Control System

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.

1. Check whether the scan tool or the HDS indicates another code.

   Does the scan tool or the HDS indicate another code?

   YES—Perform the Troubleshooting Flowchart for the indicated code(s). Recheck for code P1750 after troubleshooting. ■

   NO—Go to step 2.

2. Turn the ignition switch OFF.
3. Replace the A/T clutch pressure control solenoid valves A and B (see page 14-361).
4. Clear the DTC with the scan tool or the HDS.
5. Drive the vehicle for several minutes in 1st, 2nd, 3rd, 4th, and 5th gears in the D position.
6. Recheck for code P1750.

   Does the scan tool on the HDS indicate code P1750?

   YES—Replace the transmission. ■

   NO—The problem has been corrected. ■

DTC P1751: Mechanical Problem in Hydraulic Control System of Shift Solenoid Valve B and A/T Clutch Pressure Control Solenoid Valves A and B, or Problem in the Hydraulic Control System

NOTE:
- Record all freeze data and review General Troubleshooting Information (see page 14-247) before you troubleshoot.
- Keep these replacement solenoid valves on hand:
  – Shift solenoid valve B
  – A/T clutch pressure control solenoid valves A and B

1. Check whether the scan tool or the HDS indicates another code.

   Does the scan tool or the HDS indicate another code?

   YES—Perform the Troubleshooting Flowchart for the indicated code(s). Recheck for code P1751 after troubleshooting. ■

   NO—Go to step 2.

2. Turn the ignition switch OFF.

3. Replace the shift solenoid valve B (see page 14-358), and A/T clutch pressure control solenoid valves A and B (see page 14-361).

4. Drive the vehicle for several minutes in 1st, 2nd, 3rd, 4th, and 5th gears in the D position.

5. Recheck for code P1751.

   Does the scan tool or the HDS indicate code P1751?

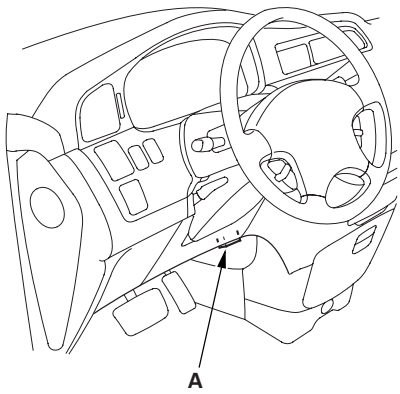
   YES—Replace the transmission. ■

   NO—The problem has been corrected. ■

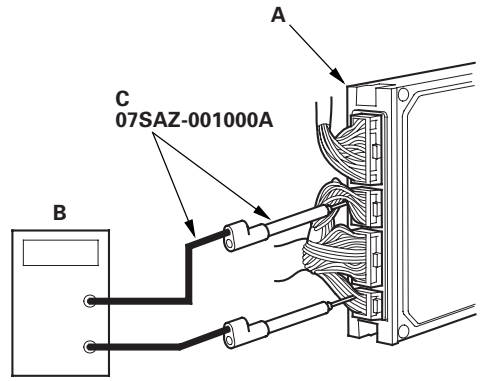
Road Test

Special Tools Required
Backprobe set 07SAZ-001000A (Two required)

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Apply parking brake, and block rear wheels securely.
3. Start the engine, then shift to the D position while depressing the brake pedal. Depress the accelerator pedal, and release it suddenly. Make sure that the engine should not stall.
4. Repeat the same test in the D3, 2, and 1 position.
5. Connect the HDS to the DLC (A), and go to the PGM-FI data list; then go to step 10. If you don't have a HDS, go to step 6.

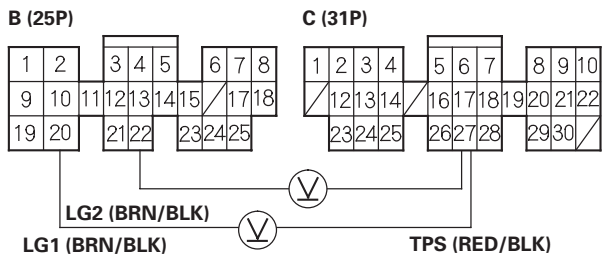


6. Pull back the carpet, and remove the passenger's and driver's side center lower covers to expose the PCM (see page 11-4).
7. Remove the PCM cover from the passenger's side under-dash to access the PCM mounting nut.
8. Remove the PCM mounting bolt, then remove the PCM (A).



9. Connect a digital multimeter (B) and the special tools (C) to check voltage between PCM connector terminals C27 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

10. Test-drive the vehicle on a flat road in the D position. Check for abnormal noise and clutch slippage. While driving, check that the shift points occur at the proper speeds by monitoring the throttle position sensor voltage and comparing your shift point speeds and voltage to those in the table. (The throttle position sensor voltage represents the throttle opening.)

Upshift: D position

Throttle position sensor voltage: 0.75 V	
1st → 2nd	10 – 11 mph (16 – 18 km/h)
2nd → 3rd	19 – 22 mph (31 – 35 km/h)
3rd → 4th	26 – 30 mph (42 – 48 km/h)
4th → 5th	45 – 48 mph (73 – 77 km/h)
Lock-up ON	48 – 50 mph (77 – 80 km/h)
Throttle position sensor voltage: 2.25 V	
1st → 2nd	30 – 31 mph (48 – 50 km/h)
2nd → 3rd	47 – 50 mph (76 – 80 km/h)
3rd → 4th	60 – 70 mph (106 – 112 km/h)
4th → 5th	88 – 89 mph (141 – 143 km/h)
Lock-up ON	89 – 90 mph (143 – 145 km/h)
Fully-opened throttle	
1st → 2nd	40 – 43 mph (65 – 69 km/h)
2nd → 3rd	67 – 70 mph (107 – 111 km/h)
3rd → 4th	100 – 103 mph (161 – 165 km/h)

Downshift: D position

Throttle position sensor voltage: 0.75 V	
Lock-up OFF	38 – 40 mph (61 – 65 km/h)
5th → 4th	36 – 40 mph (58 – 61 km/h)
4th → 3rd	17 – 19 mph (29 – 31 km/h)
2nd → 1st	9 – 10 mph (15 – 17 km/h)
Throttle position sensor voltage: 2.25 V	
Lock-up OFF	76 – 80 mph (123 – 129 km/h)
5th → 4th	65 – 68 mph (105 – 109 km/h)
4th → 3rd	40 – 41 mph (64 – 67 km/h)
3rd → 2nd	23 – 25 mph (38 – 41 km/h)
2nd → 1st	9 – 10 mph (15 – 17 km/h)
Fully-opened throttle	
4th → 3rd	88 – 92 mph (142 – 148 km/h)
3rd → 2nd	56 – 60 mph (90 – 97 km/h)
2nd → 1st	30 – 33 mph (48 – 54 km/h)

11. Accelerate to about 35 mph (57 km/h) so the transmission is in 4th or 5th, then shift from the D position to the 2 position. The vehicle should immediately begin slowing down from engine braking.

12. Check for abnormal noise and clutch slippage in the following positions.

    1 (1st Gear) Position
    Accelerate from a stop at full throttle. Check that there is no abnormal noise or clutch slippage. Upshifts should not occur with the shift lever in this position.

    2 (2nd Gear) Position
    Accelerate from a stop at full throttle. Check that there is no abnormal noise or clutch slippage. Upshifts and downshifts should not occur with the shift lever in this position.

    R (Reverse) Position
    Accelerate from a stop at full throttle, and check for abnormal noise and clutch slippage.

13. Test in P (Park) Position.
    Park the vehicle on a slope (about 16°), apply the brake, and shift into the P position. Release the brake; the vehicle should not move.

Stall Speed Test

1. Engage the parking brake, and block all four wheels.
2. Connect a tachometer to the engine, and start the engine.
3. Make sure the A/C switch is OFF.
4. After the engine has warmed up to normal operating temperature (the radiator fan comes on), shift to the 2 position.
5. Fully press the brake pedal and accelerator pedal for 6 to 8 seconds, and note the engine speed. Do not move the shift lever while raising the engine speed.
6. Allow 2 minutes for cooling, then repeat the test in the D, 1, and R positions.

   NOTE:
   - Do not test stall speed for more than 10 seconds at a time.
   - Stall speed tests should be used for diagnostic purposes only.
   - Stall speed should be the same in D, 2, 1, and R positions.
   - Do not test stall speed with the A/T pressure gauges installed.

   Stall Speed rpm:
   Specification: 2,250 rpm
   Service Limit: 2,100－2,400 rpm

7. If the measurements are out of the service limit, problems and probable causes are listed in the table:

Problem	Probable causes
Stall speed rpm high in the D, 2, 1, and R positions	• Low fluid level • ATF pump output low • Clogged ATF strainer • Regulator valve stuck • Slipping clutch
Stall speed rpm high in the 1 position	• Slippage of 1st clutch • 1st gear one-way clutch defective
Stall speed rpm high in the 2 position	Slippage of 2nd clutch
Stall speed rpm high in the R position	Slippage of 5th clutch
Stall speed low in the D, 2, 1, and R positions	• Engine output low • Torque converter one-way clutch slipping

Pressure Test

Special Tools Required
- A/T clutch pressure gauge set 07406-0020400 or 07406-0020401
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure hose adapter 07MAJ-PY40120

1. Before testing, be sure the transmission fluid is filled to the proper level.

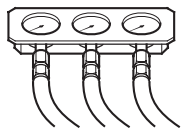
2. Raise the vehicle, and make sure it is securely supported.

3. Allow all four wheels to rotate freely.

4. Warm up the engine (the radiator fan comes on), then stop it and connect a tachometer.

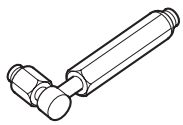
5. Connect the oil pressure gauges to the line pressure inspection hole (A), 2nd clutch pressure inspection hole (B), and 1st-hold clutch pressure inspection hole (C). Do not allow dust or other foreign particles to enter the holes while connecting the gauges.

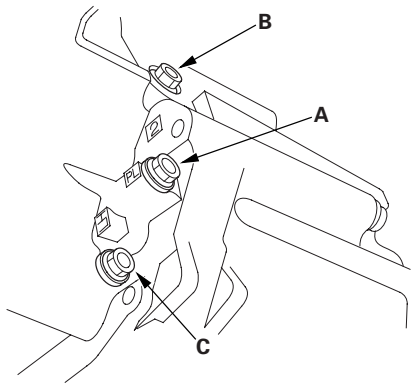
A/T OIL PRESSURE GAUGE SET W/PANEL
07406-0020400 or 07406-0020401



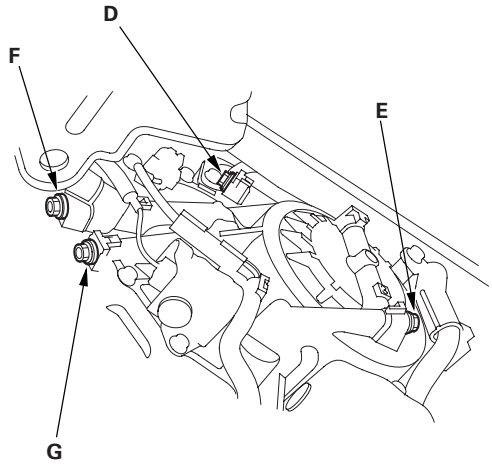
A/T PRESSURE HOSE, 2,210 mm 07MAJ-PY4011A (4 Required)

A/T PRESSURE HOSE ADAPTER 07MAJ-PY40120 (4 Required)





6. Connect the oil pressure gauges to the 1st clutch pressure inspection hole (D), 3rd clutch pressure inspection hole (E), 4th clutch pressure inspection hole (F), and 5th clutch pressure inspection hole (G).



(cont'd)

Pressure Test (cont'd)

7. Start the engine, and run it at 2,000 rpm in the P or N position.

8. Measure line pressure at the line pressure inspection hole (A).

   NOTE: Higher pressure may be indicated if measurements are made in shift lever position other than N or P.

Pressure	Fluid Pressure	
	Standard	Service Limit
Line (A)	900－960 kPa (9.2－9.8 kgf/cm^2, 130－140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)

9. Shift to the 1 position, and measure 1st clutch pressure at the 1st clutch pressure inspection hole (G) and 1st-hold clutch pressure at the 1st-hold clutch pressure inspection hole (C).

10. Shift to the 2 position, and measure 2nd clutch pressure at the 2nd clutch pressure inspection hole (B).

11. Shift to the P position, then press the brake pedal and hold it.

12. Shift to the 2 position, and release the brake pedal (the transmission should be in 2nd gear).

13. Press the accelerator very slowly to increase engine speed to 2,000 rpm gradually over 10 seconds, then hold it at 2,000 rpm.

14. Hold in the 2 position at 2,000 rpm, shift into N for 1 second, then shift to the D3 position (the transmission will shift to 3rd gear), and measure 3rd clutch pressure at the 3rd clutch pressure inspection hole (D).

15. Shift to the D position, and measure 4th clutch pressure at the 4th clutch pressure inspection hole (E), then in about 15 seconds, the transmission will shift to 5th gear.

16. Measure 5th clutch pressure at the 5th clutch pressure inspection hole (F).

17. Bring the engine back to an idle, then apply the brake to stop the wheels from rotating.

18. Shift to the R position. Raise the engine rpm to 2,000 rpm, and measure the reverse clutch pressure at the 5th clutch pressure inspection hole (F).

Pressure	Fluid Pressure	
	Standard	Service Limit
1st-hold clutch (C)	760－830 kPa (7.7－8.5 kgf/cm^2, 110－120 psi)	710 kPa (7.2 kgf/cm^2, 100 psi)
1st clutch (G)	890－970 kPa (9.1－9.9 kgf/cm^2, 130－140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
2nd clutch (B)		
3rd clutch (D)		
4th clutch (E)		
5th clutch (F)		

19. If the measurements are out of service limit, problems and probable causes are listed in the table below:

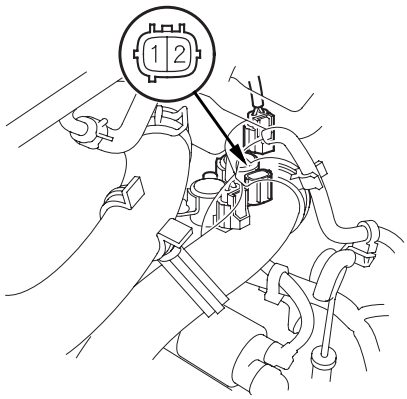
Problem	Probable causes
No or low line pressure	• Torque converter • ATF pump • Regulator valve • Torque converter check valve
No or low 1st clutch pressure	• 1st clutch • O-rings
No or low 2nd clutch pressure	• 2nd clutch • O-rings
No or low 3rd clutch pressure	• 3rd clutch • O-rings
No or low 4th clutch pressure	• 4th clutch • O-rings
No or low 5th clutch pressure	• 5th clutch • O-rings
No or low 5th clutch pressure in the R position	• Servo valve • 5th clutch • O-rings

20. Install the sealing bolts with the new sealing washers, and tighten the bolts to the specified torque. Do not reuse old sealing washers.

    Torque: 18 N·m (1.8 kgf·m,13 lbf·ft)

Torque Converter Clutch Solenoid Valve Test

1. Disconnect the connector from the torque converter clutch solenoid valve.



2. Measure torque converter clutch solenoid valve resistance at the solenoid valve connector (black).

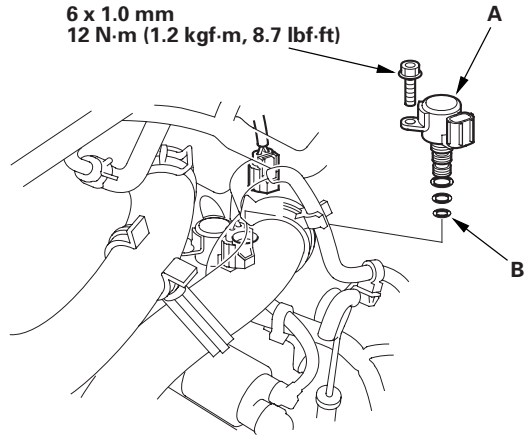
   Standard: 12—25 Ω

3. Replace torque converter clutch solenoid valve if the resistance is out of standard.

4. If the resistance is within the standard, connect the No. 2 terminal of the torque converter clutch solenoid valve connector to the battery positive terminal, and connect the No. 1 terminal to the battery negative terminal. A clicking sound should be heard.
   Replace torque converter clutch solenoid valve if no clicking sound is heard.

Torque Converter Clutch Solenoid Valve Replacement

1. Remove the mounting bolt and torque converter clutch solenoid valve.

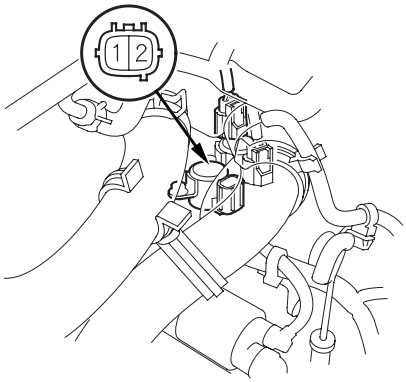


2. Install a new torque converter clutch solenoid valve (A) with new O-rings (B). When installing the solenoid valve, do not allow dust or other foreign particles to enter the transmission.

3. Check the connector for rust, dirt, or oil, then reconnect it.

Shift Solenoid Valve B Test

1. Disconnect the connector from the shift solenoid valve B.



2. Measure shift solenoid valve B resistance at the solenoid valve connector (blown).

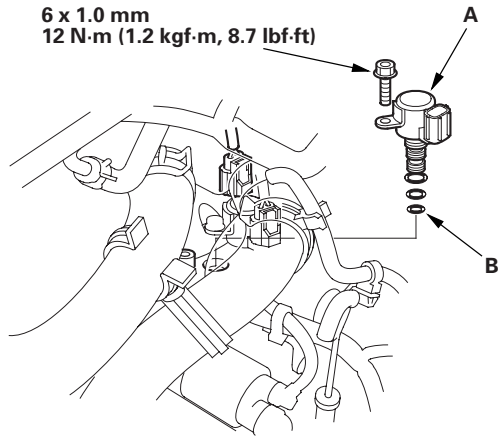
   Standard: 12—25 Ω

3. Replace the shift solenoid valve B if the resistance is out of standard.

4. If the resistance is within the standard, connect the No. 2 terminal of the shift solenoid valve B connector to the battery positive terminal, and connect the No. 1 terminal to the battery negative terminal. A clicking sound should be heard. Replace the shift solenoid valve B if no clicking sound is heard.

Shift Solenoid Valve B Replacement

1. Remove the mounting bolt and the shift solenoid valve B.

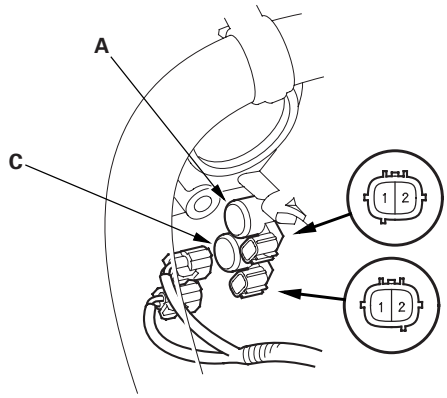


2. Install a new shift solenoid valve B (A) with new O-rings (B). When installing the solenoid valve, do not allow dust or other foreign particles to enter the transmission.

3. Check the connector for rust, dirt, or oil, then reconnect it.

Shift Solenoid Valve A and C Test

1. Remove the starter.
2. Disconnect the shift control solenoid valve A and C connectors.



3. Measure the shift solenoid valve A and C resistance at each solenoid valve connector.

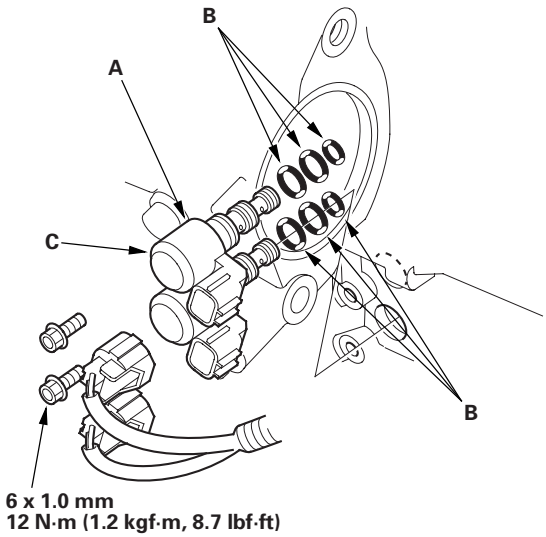
   Standard: 12—25 Ω

4. Replace shift solenoid valve A or C if the resistance is out of standard.
5. If the resistance is within the standard, connect the No. 2 terminal of the shift solenoid valve A or C connector to the battery positive terminal, and connect the No. 1 terminal to the battery negative terminal. A clicking sound should be heard. Replace shift solenoid valve A or C if no clicking sound is heard.

Shift Solenoid Valve A and C Replacement

NOTE: If shift solenoid valves A and C are replaced or removed at the same time, be sure to reinstall them correctly. The connector color of shift solenoid valve A is black, and the connector color of shift solenoid valve C is brown.

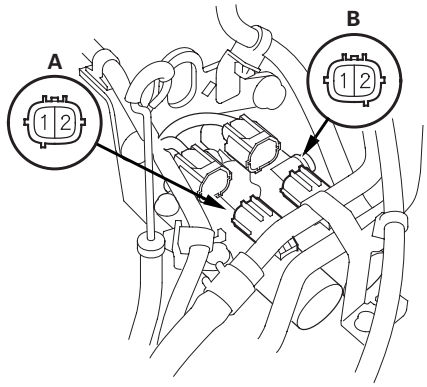
1. If you are replacing shift solenoid valve C, remove the starter.
2. Remove the mounting bolt and the shift solenoid valve A.



3. Remove the mounting bolt and shift solenoid valve C.
4. Install a new shift solenoid valve A or C with new O-rings (B). While installing the valves, do not allow dust or other foreign particles to enter the transmission.
5. Check the connectors for rust, dirt, or oil, then reconnect them.
6. Install the starter, if removed.

A/T Clutch Pressure Control Solenoid Valve A and B Test

1. Disconnect the 2P connectors from the A/T clutch pressure control solenoid valves A (A) and B (B).



2. Measure the A/T clutch pressure control solenoid valves A and B resistances at each solenoid valve connector.

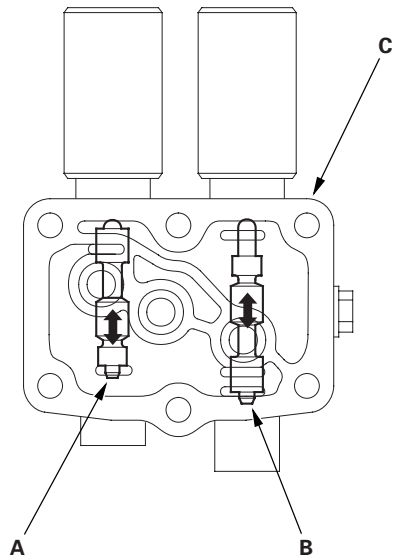
   Standard: 3—10 Ω

3. If the resistance of either solenoid is out of standard, replace A/T clutch pressure control solenoid valves A and B.

4. Connect the No. 1 terminal of A/T clutch pressure control solenoid valves A and B to the battery positive terminal, and connect the No. 2 terminal to the battery negative terminal. A clicking sound should be heard. Remove A/T clutch pressure control solenoid valves A and B, if no sound is heard.

5. Check the fluid passage of the A/T clutch pressure control solenoid valves for dust and dirt, and clean the passage if necessary.

6. Connect the No. 1 terminal of A/T clutch pressure control solenoid valves A and B to the battery positive terminal, and connect the No. 2 terminal to the battery negative terminal. Make sure the A/T clutch pressure control solenoid valves A and B move.



7. Disconnect one of the battery terminals and check valve movement.

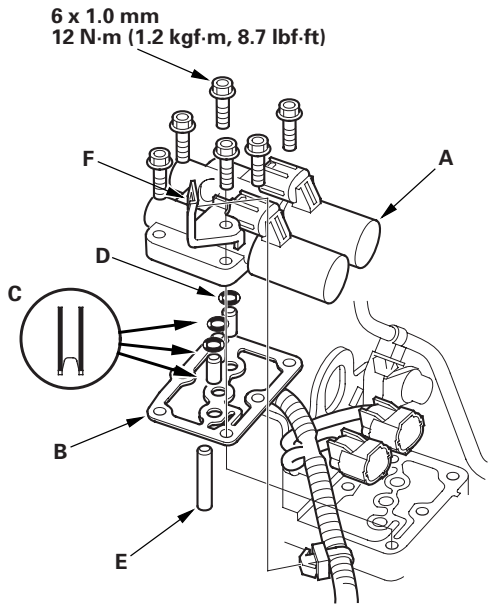
   NOTE: You can see the valve movement through the fluid passage in the mounting surface of the solenoid valve body (C).

8. If either valve binds, or moves sluggishly, or if the solenoid does not operate, replace the A/T clutch pressure control solenoid valves A and B.

A/T Clutch Pressure Control Solenoid Valve A and B Replacement

1. Remove the harness cover from the transmission hanger.

2. Remove the mounting bolts and A/T clutch pressure control solenoid valves A and B (A).



3. Clean the mounting surface and fluid passages of A/T clutch pressure control solenoid valves A and B and the transmission housing.

4. Place a new gasket (B) on the transmission housing, then install the 8 x 18 mm ATF feed pipes (C) with their filter sides into the transmission housing.

5. Install new O-rings (D) over the feed pipes, and install the 8 x 40 mm ATF feed pipe (E).

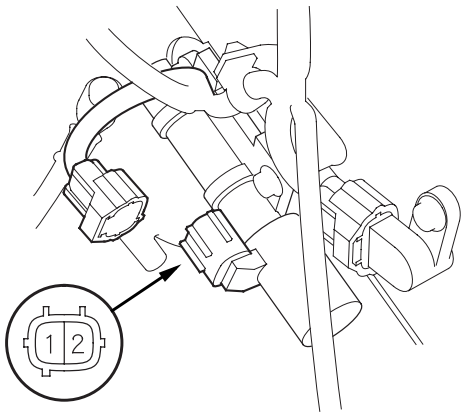
6. Install new A/T clutch pressure control solenoid valves A and B (A) and harness clamp bracket (F).

7. Check the A/T clutch pressure control solenoid valve connectors for rust, dirt, or oil, then connect them securely.

8. Install the harness cover on the transmission hanger.

A/T Clutch Pressure Control Solenoid Valve C Test

1. Disconnect the connector from A/T clutch pressure control solenoid valve C.



2. Measure A/T clutch pressure control solenoid valve C resistance at the solenoid valve connector.

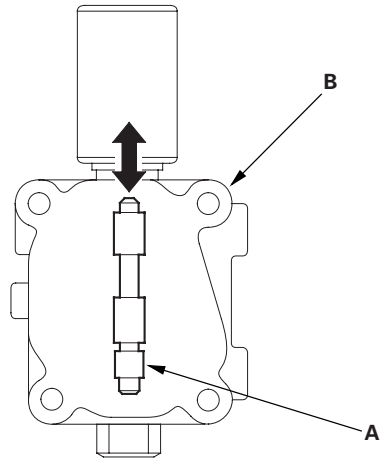
   Standard: 3—10 Ω

3. If the resistance is out of standard, replace the A/T clutch pressure control solenoid valve C.

4. Connect the No. 1 terminal of A/T clutch pressure control solenoid valve C to the battery positive terminal, and connect the No. 2 terminal to the battery negative terminal. A clicking sound should be heard. Remove A/T clutch pressure control solenoid valve C if no sound is heard.

5. Check the fluid passage of A/T clutch pressure control solenoid valve C for dust and dirt.

6. Connect the No. 1 terminal of A/T clutch pressure control solenoid valve C to the battery positive terminal, and connect the No. 2 terminal to the battery negative terminal. Make sure A/T clutch pressure control solenoid valve C (A) moves.



7. Disconnect one of the battery terminals and check valve movement.

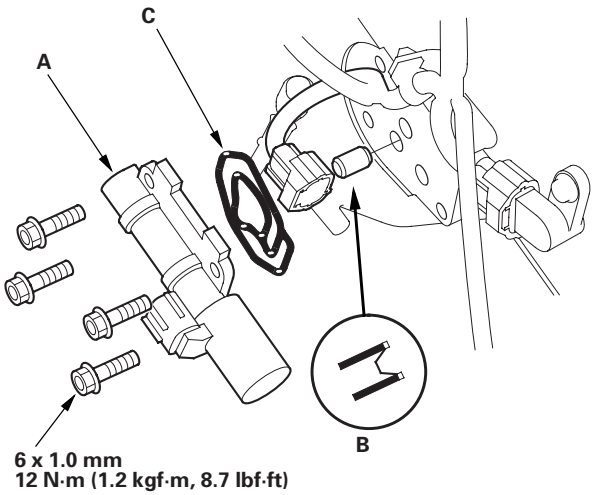
   NOTE: You can see the valve movement through the fluid passage in the mounting surface of the body (B).

8. If the valve binds, or moves sluggishly, or if the solenoid does not operate, replace A/T clutch pressure control solenoid valve C.

A/T Clutch Pressure Control Solenoid Valve C Replacement

1. Disconnect the connector from A/T clutch pressure control solenoid valve C.

2. Remove A/T clutch pressure control solenoid valve C (A).



3. Clean the mounting surface and fluid passage of A/T clutch pressure control solenoid valve C and the transmission housing.

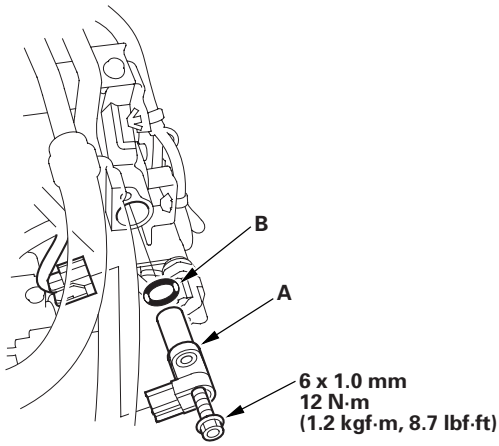
4. Install the 8 x 12 mm ATF feed pipe (B) with its filter side into the transmission housing.

5. Install the new gasket (C) in the mounting groove of A/T clutch pressure control solenoid valve C body properly, then install them on transmission housing. Do not pinch the gasket.

6. Check the solenoid connector for rust, dirt, or oil, and connect it securely.

Input Shaft (Mainshaft) Speed Sensor Replacement

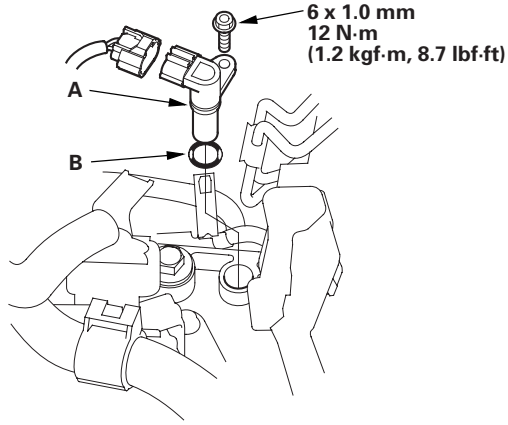
1. Disconnect the input shaft (mainshaft) speed sensor connector.
2. Remove the bolt securing the input shaft (mainshaft) speed sensor, then remove the input shaft (mainshaft) speed sensor (A) from the end cover.



3. Install the new O-ring (B) on the input shaft (mainshaft) speed sensor, then install the input shaft (mainshaft) speed sensor in the end cover. Do not allow dust or foreign particles to enter the transmission.
4. Check the connector for rust, dirt, or oil, then connect the connector securely.

Output Shaft (Countershaft) Speed Sensor Replacement

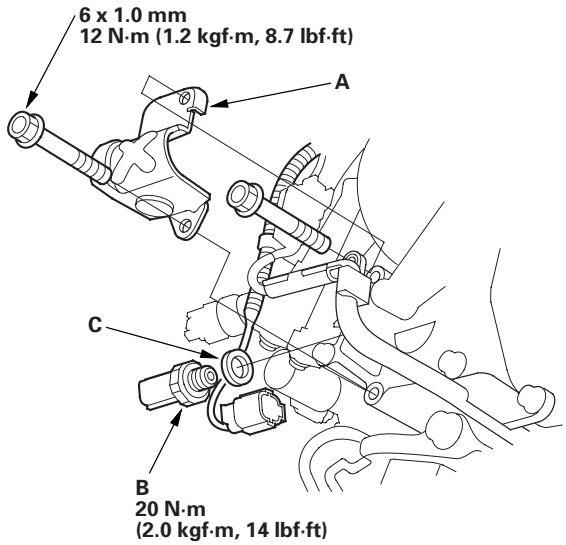
1. Disconnect the output shaft (countershaft) speed sensor connector.
2. Remove the bolt securing the output shaft (countershaft) speed sensor, then remove the output shaft (countershaft) speed sensor (A) from the transmission housing.



3. Install the new O-ring (B) on the output shaft (countershaft) speed sensor, then install the output shaft (countershaft) speed sensor in the transmission housing. Do not allow dust or foreign particles to enter the transmission.
4. Check for rust, dirt, or oil, then connect the connector securely.

3rd Clutch Transmission Fluid Pressure Switch Replacement

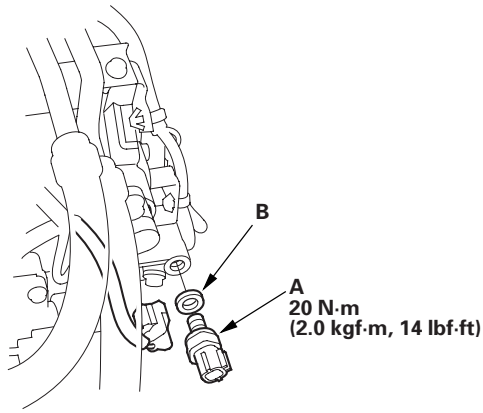
1. Remove the switch cover (A).



2. Disconnect the connector from the 3rd clutch transmission fluid pressure switch (B).
3. Replace the 3rd clutch transmission fluid pressure switch, then install a new one with a new sealing washer (C). Tighten the switch on the metal part, not the plastic part.
4. Reconnect the connector, making sure there is no water, oil, dust, or other foreign particles inside it.
5. Install the switch cover.

4th Clutch Transmission Fluid Pressure Switch Replacement

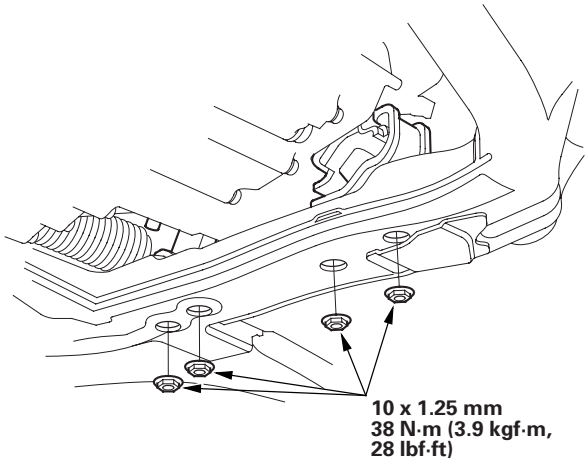
1. Disconnect the connector from the 4th clutch transmission fluid pressure switch (A).



2. Replace the 4th clutch transmission fluid pressure switch, then install a new one with a new sealing washer (B). Tighten the switch on the metal part, not the plastic part.
3. Reconnect the connector, making sure there is no water, oil, dust, or other foreign particles inside it.

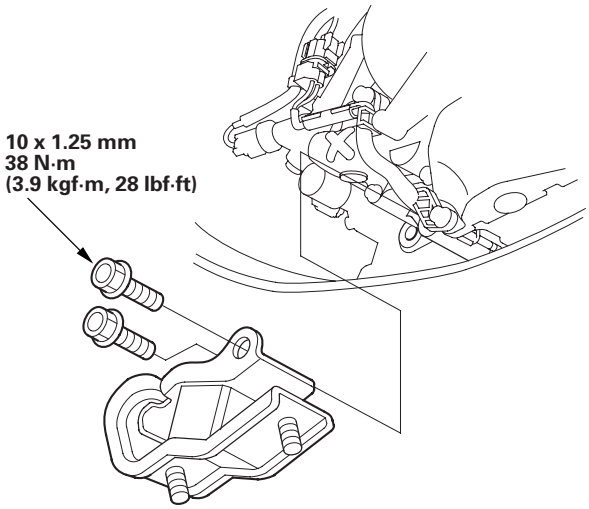
ATF Temperature Sensor Replacement

1. Remove the transmission lower mount nuts.

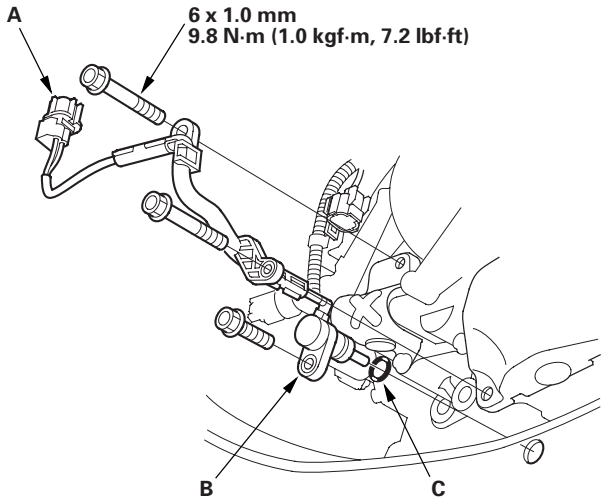


2. Place the transmission jack under the transmission, and lift it up until the studs of the transmission lower front mount clear the subframe.

3. Remove the transmission lower front mount.



4. Disconnect the connector (A) from the ATF temperature sensor.



5. Remove the bolts securing the sensor harness clamp and ATF temperature sensor, then remove the ATF temperature sensor (B).

6. Install the new ATF temperature sensor with a new O-ring (C).

7. Install the harness clamp, then connect the connector.

8. Install the transmission lower front mount.

9. Lower the transmission, then install the transmission lower mount nuts.

10. Remove the transmission jack.

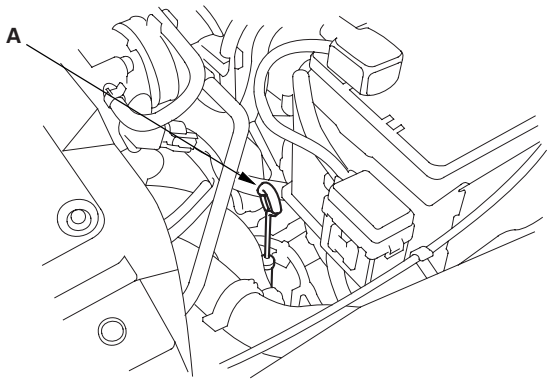
ATF Level Check

NOTE: Keep all foreign particles out of the transmission.

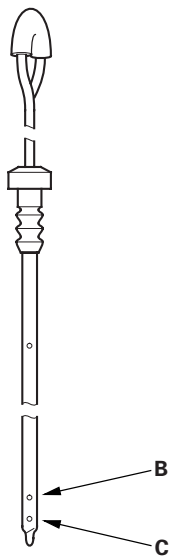
1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Park the vehicle on the level ground. Turn off the engine.

   NOTE: Check the fluid level within 60—90 seconds after turning the engine off.

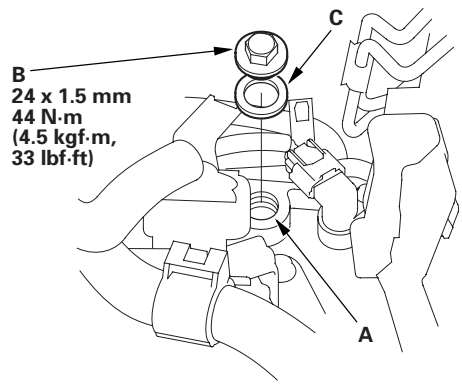
3. Remove the dipstick (yellow loop) (A) from the transmission, and wipe it with a clean cloth.



4. Insert the dipstick into the transmission.
5. Remove the dipstick and check the fluid level. It should be between the upper mark (B) and lower mark (C).



6. If the level is below the lower mark, check for fluid leaks at the transmission, hose and line joints. If a problem is found, fix it before filling the transmission.
7. If necessary, fill the transmission into the filler hole (A) to bring the fluid level up to the upper mark. Always use Honda ATF-Z1 Automatic Transmission Fluid (ATF). Using a non-Honda ATF can affect shift quality.



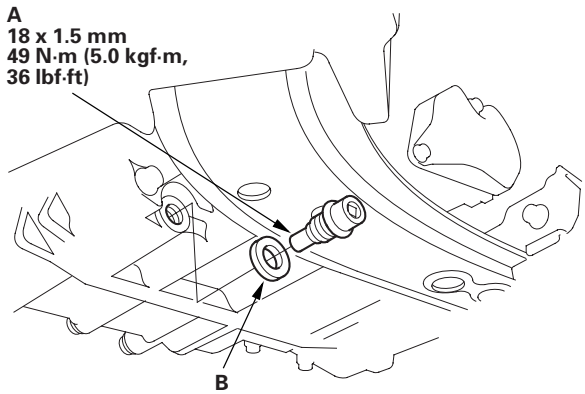
8. If the level is above the upper mark, drain the ATF to proper level (see step 3 on page 14-368).
9. Install the ATF filler bolt (B) with a new sealing washer (C).
10. Insert the dipstick back into the transmission.

ATF Replacement

NOTE: Keep all foreign particles out of the transmission.

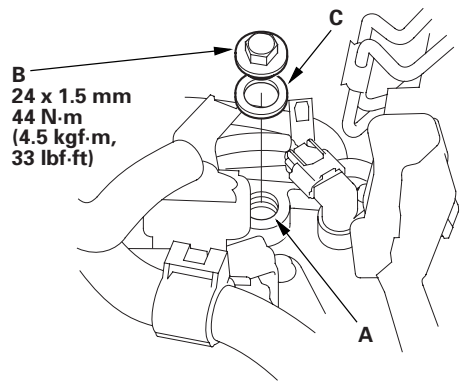
1. Bring the transmission up to operating temperature (the radiator fan comes on) by driving the vehicle.
2. Park the vehicle on the level ground, and turn the engine off.
3. Remove the ATF filler bolt and the drain plug (A), and drain the automatic transmission fluid (ATF).

   NOTE: If a cooler flusher is used, refer to ATF Cooler Flushing (see page 14-388).



4. Reinstall the drain plug with a new sealing washer (B).
5. Refill the transmission with the recommended fluid into the filler hole (A) to the upper mark on the dipstick. Always use Honda ATF-Z1 Automatic Transmission Fluid (ATF). Using a non-Honda ATF can affect shift quality.

   Automatic Transmission Fluid Capacity:
   3.3 ℓ (3.5 US qt) at changing
   7.9 ℓ (8.3 US qt) at overhaul



6. Install the ATF filler bolt (B) with a new sealing washer (C).

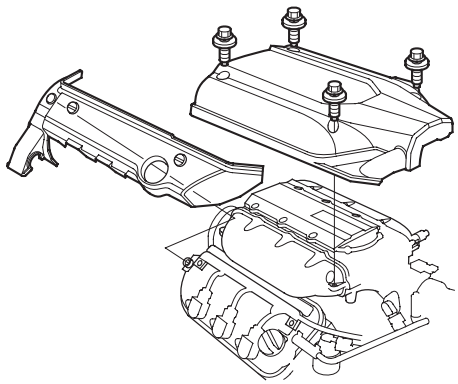
Transmission Removal

Special Tools Required
- Engine support hanger 07XAA-001030A
- Engine hanger balance bar VSB02C000019
- Subframe adapter EQS07AODSY0
  (Available through the Honda Tool and Equipment Program, 888-424-6857)

1. Before disconnecting the battery, make sure you have the anti-theft code for the radio, then write down the frequencies for the radio's preset stations.

2. Remove the bolt securing the lower portion of the windshield washer reservoir opening. Remove the support rod, then fix the hood in a vertical position using the support rod.

3. Remove the engine covers.



4. Remove the intake air duct, resonator cover, and air cleaner housing assembly.

5. Disconnect the battery negative terminal, then remove the battery positive terminal.

6. Remove the battery hold-down bracket, then remove the battery and battery tray.

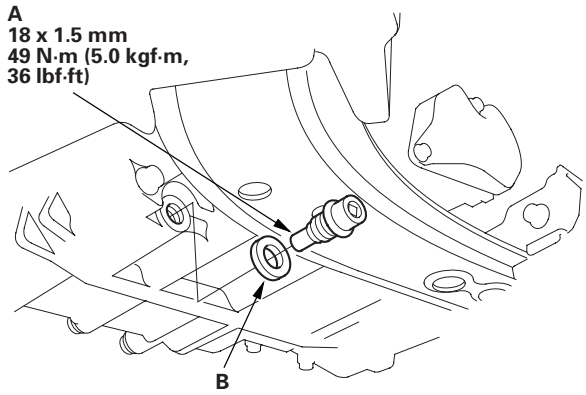
7. Remove the battery cable clamps, connector, and relay bracket from the battery base.

8. Remove the battery base.

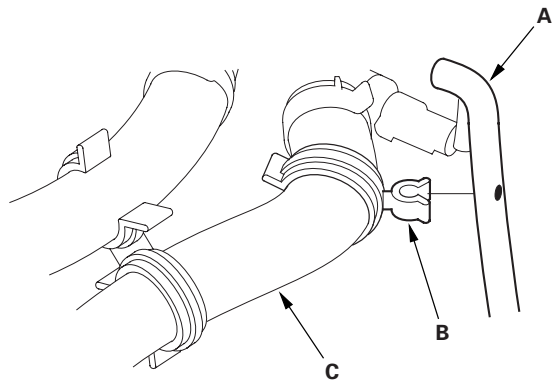
9. Raise the vehicle, and make sure it is securely supported.

10. Remove the splash shield.

11. Remove the drain plug (A), and drain the automatic transmission fluid (ATF). Reinstall the drain plug and a new sealing washer (B).



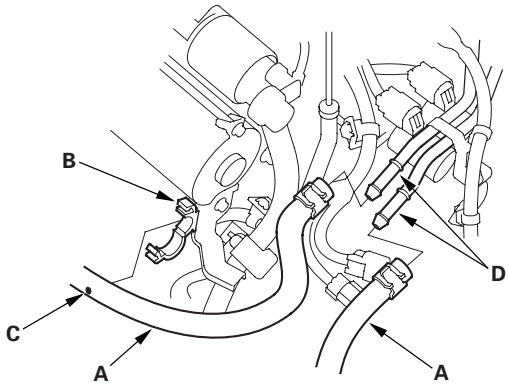
12. Remove the breather tube (A) from its clamp (B) on the radiator hose (C).



(cont'd)

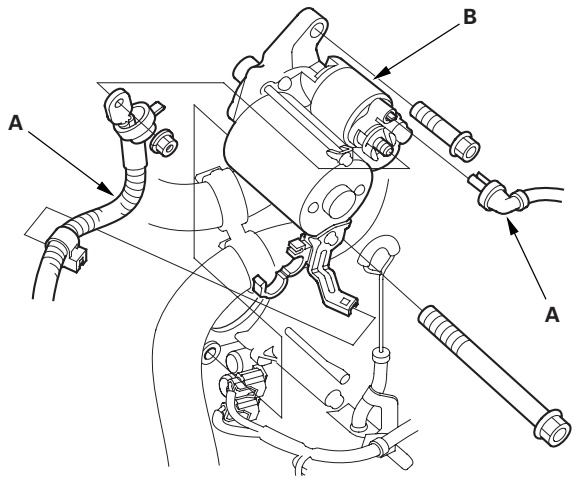
Transmission Removal (cont'd)

13. Remove the ATF cooler hose (A) from the clamp (B) on the starter, and paint a white dot (C) on the hose where it came out of the clamp.

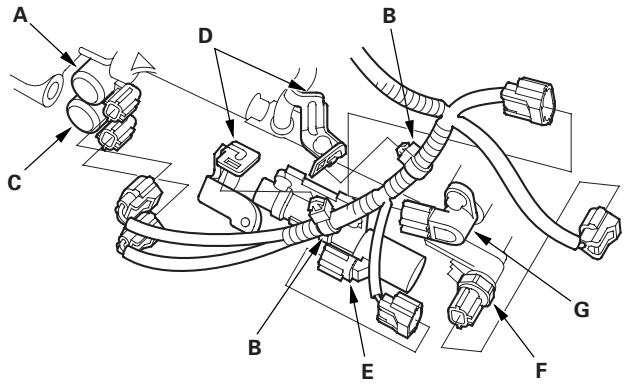


14. Remove the ATF cooler hose (A) from the ATF cooler lines (D). Turn the ends of the ATF cooler hoses up to prevent ATF from flowing out, then plug the ATF cooler hoses and lines. Check for any signs of leakage at the hose joints.

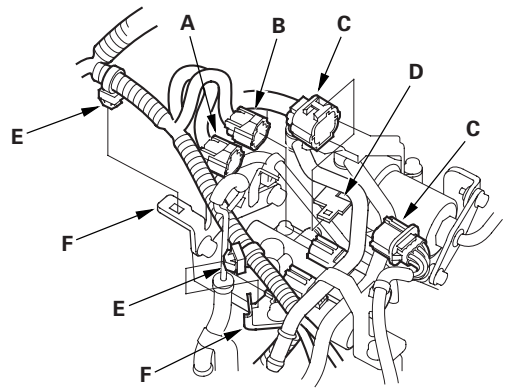
15. Remove the starter cables (A) from the starter (B), then remove the starter.



16. Remove the harness clamps (B) from the brackets (D), then disconnect the connectors from the shift solenoid valves A and C, A/T clutch pressure control solenoid valve C (E), 4th clutch transmission fluid pressure switch (F), and input shaft (mainshaft) speed sensor (G).

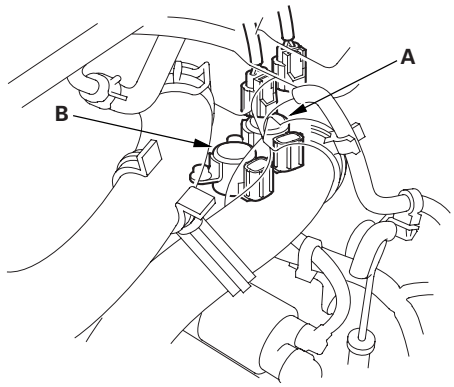


17. Remove the 8P connector (C) from the connector bracket (D), then disconnect the connector.

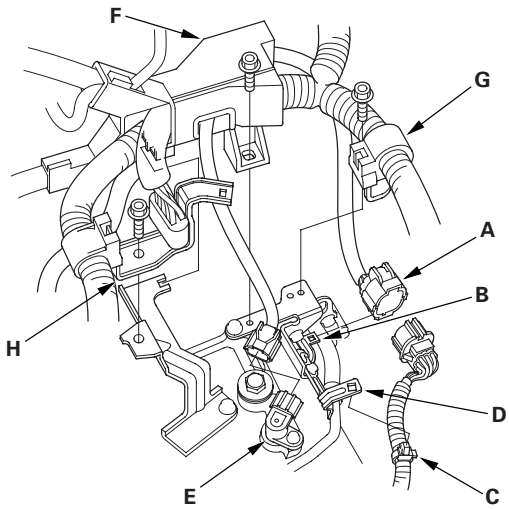


18. Remove the harness clamps (E) from the brackets (F), then disconnect the connectors from the A/T clutch pressure control solenoid valves A and B.

19. Disconnect the connectors from the torque converter clutch solenoid valve (A) and shift solenoid valve B.



20. Remove the transmission range switch connector (A) from the connector bracket (B).

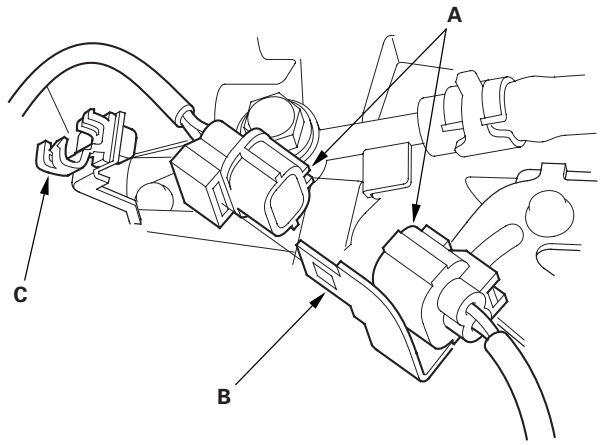


21. Disconnect the transmission range switch connector, then remove the harness clamp (C) from the bracket (D).

22. Disconnect the connector from the output shaft (countershaft) speed sensor (E).

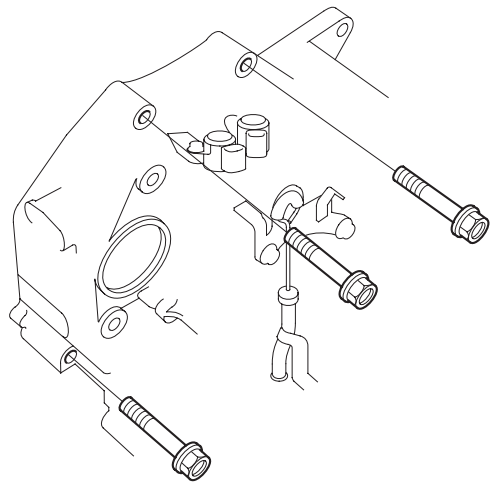
23. Remove the bolts securing the harness cover (F), harness clamp (G), and bracket (H).

24. Remove the primary heated oxygen sensor (Primary HO2S) connector (A) from its connector bracket (B).



25. Disconnect the Primary HO2S connector (A), and remove the Primary HO2S harness from the harness clamp (C).

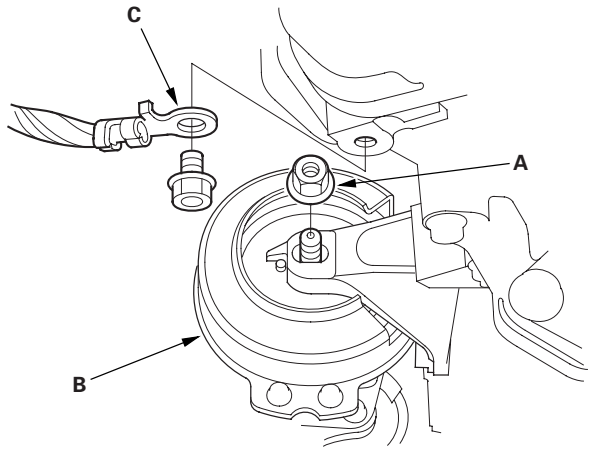
26. Remove the transmission housing mounting bolts (3).



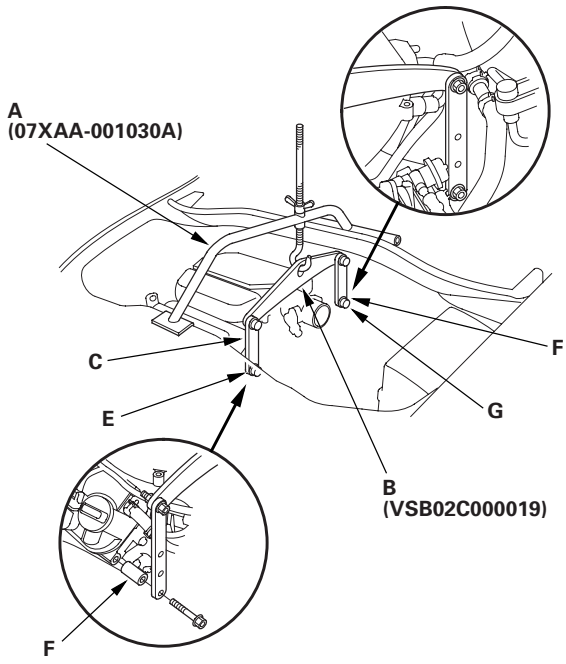
(cont'd)

Transmission Removal (cont'd)

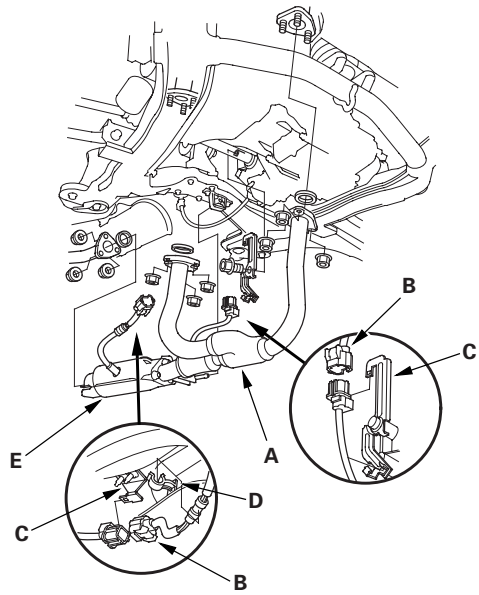
27. Remove the nut (A) from the front mount (B), and remove the ground cable (C) from the engine.



28. Lift and support the engine with engine support hanger (A) and engine balancer bar (B). Attatch the front arm (C) to the front cylinder head with a spacer (D) and the 10 x 1.25 mm bolt (E). Attatch the rear arm (F) the rear cylinder head with the 8 x 1.25 mm bolt (G).

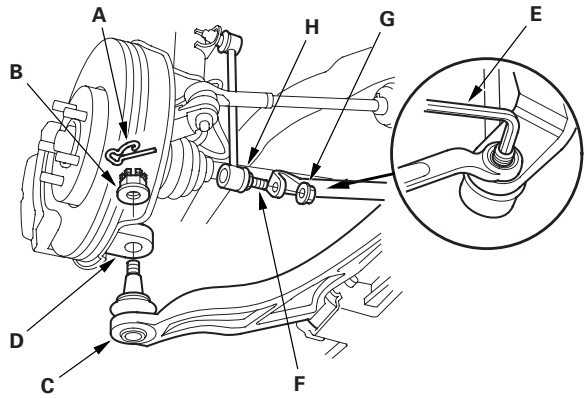


29. Remove the oxygen sensor connectors (B) from their connector brackets (C), and remove the harness from the clamps (D).



30. Remove the exhaust pipe A and three-way catalytic converter (E).

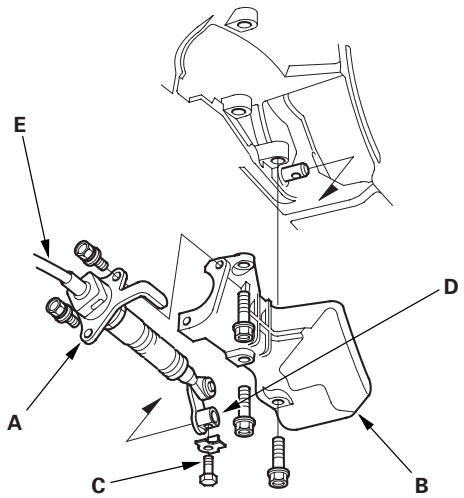
31. Remove the spring pins (A) and castle nuts (B), and separate the lower arms (C) from the knuckles (D) (see page 18-17).



32. Put a 6 mm Allen wrench (E) in the top of the joint pin (F), and remove the nut (G), then separate the stabilizer link (H).

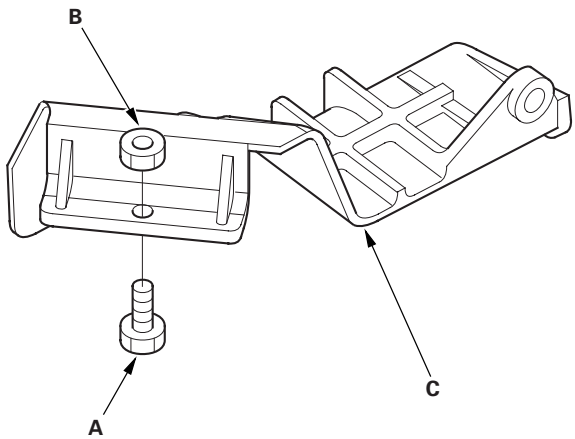
33. Remove the bolts securing the shift cable holder (A), then remove the shift cable cover (B).

    NOTE: To prevent damage to the control lever joint, remove the bolts securing the holder before removing the bolt securing the cover.

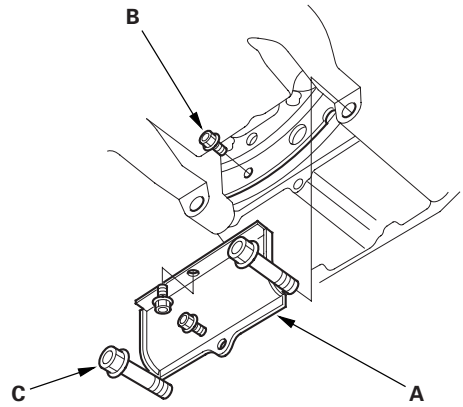


34. Remove the lock bolt (C) securing the control lever (D), then remove the shift cable (E) with the control lever. Do not bend the shift cable excessively.

35. Install a 6 x 1.0 x 14 mm bolt (A) and nut (B) on the shift cable cover (C), then reinstall the shift cable cover to the torque converter housing.
    If you don't do this, the bolt head of the cable cover may prevent you from removing the torque converter during transmission removal.

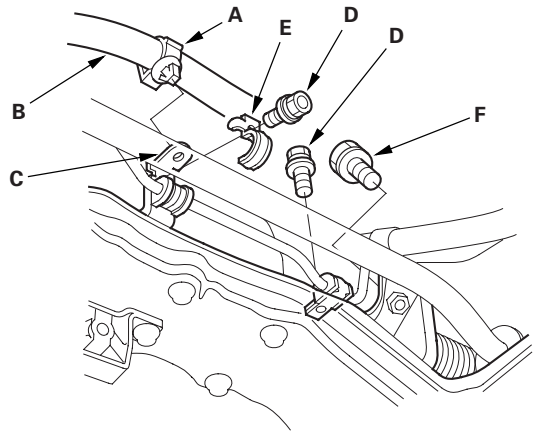


36. Remove the torque converter cover (A), then remove the eight drive plate bolts (B) one at a time while rotating the crankshaft pulley.



37. Remove the engine stiffener bolts (C).

38. Remove the clamp (A) on the power steering fluid return hose (B) from the bracket (C).

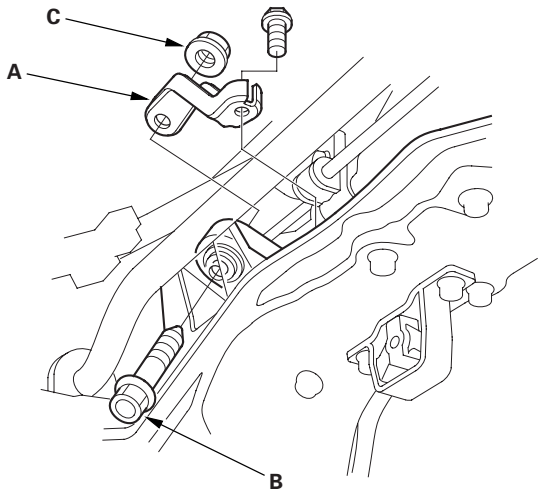


39. Remove the power steering fluid line bracket bolts (D) and bracket (E), and remove the steering gearbox mounting bolt (F).

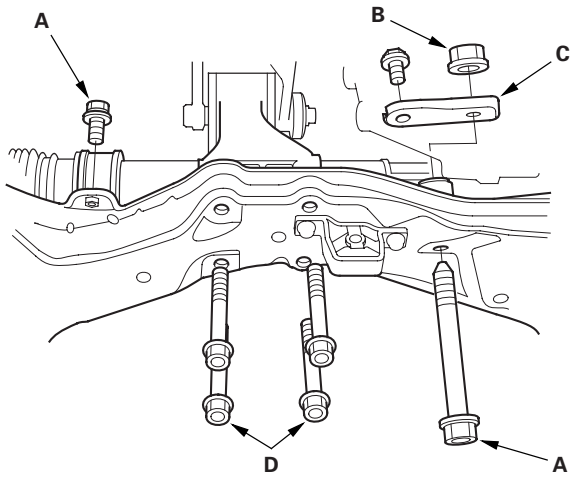
(cont'd)

Transmission Removal (cont'd)

40. Remove the stiffener (A), the steering gearbox mounting bolt (B) and nut (C).

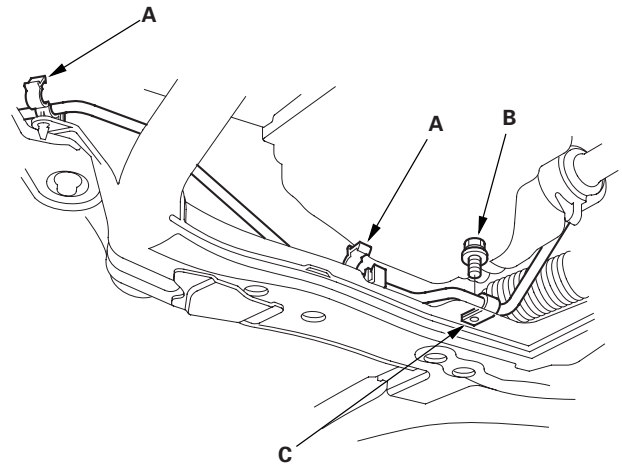


41. Remove the steering gearbox mounting bolts (A) and nut (B), and remove the stiffener (C).

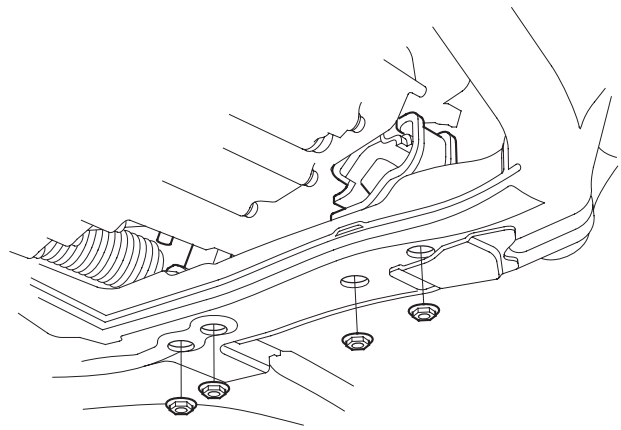


42. Remove the rear mount mounting bolts (D).

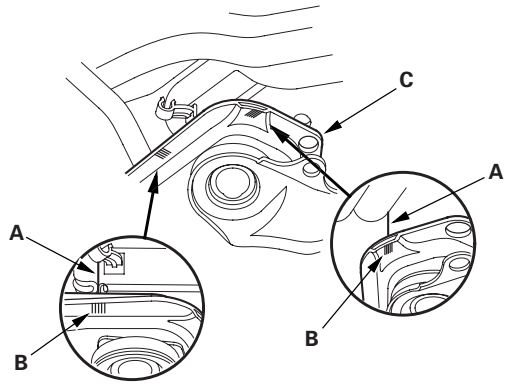
43. Unclamp the power steering fluid line clamps (A), and remove the bolt (B) securing the power steering fluid line bracket (C).



44. Remove the transmission lower mount nuts.

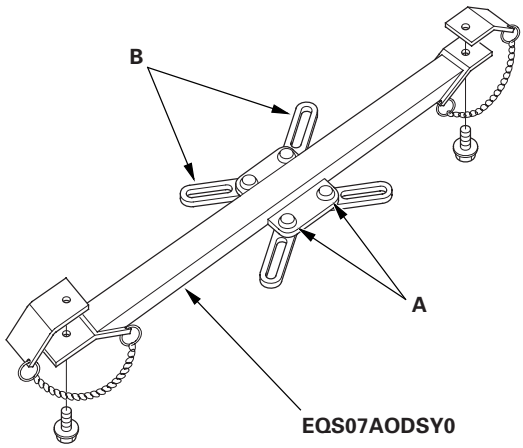


45. Make reference marks (A) on the body across the marks (B) on the edge of the front subframe (C).

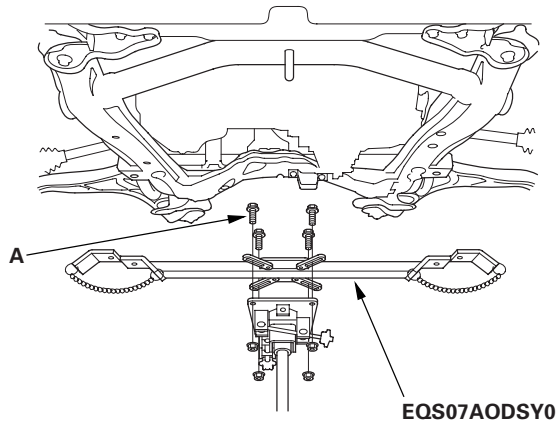


46. Loosen the four bolts (A) holding the adjustable arms (B) of the front subframe adapter (T/N EQS07AODSY0) to its center plate.

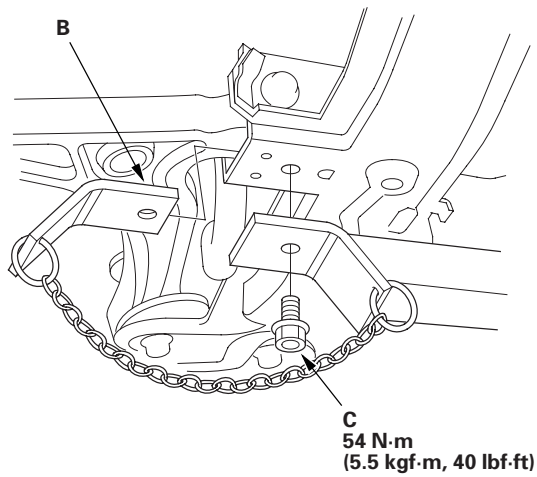
    NOTE: The adapter is designed to be used with the Honda transmission jack (model number LSL-W93714) or powertrain lift (model number OTC-1585), both available through the Honda Tool and Equipment Program. It will also work with most commercially available transmission jack.



47. Line up the slots in the arms with the bolt holes on the corner of the jack base, then attach the adapter to the jack base with the bolts (A) that came with the jack. Tighten the bolts securely.



48. Raise the jack to vehicle height, then attach the adapter to the front subframe by sliding the adapter's nut plates (B), between the subframe and the body.

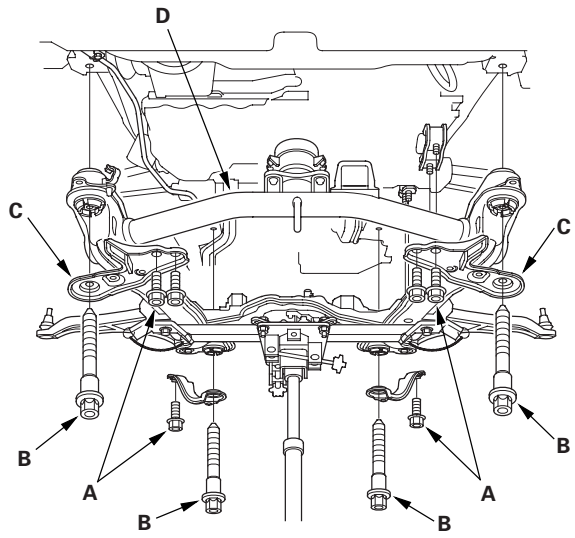


49. Insert the nut plate bolts through the holes in the adapter and the subframe; then thread the bolts (C) into the nut plates and tighten them to 54 N·m (5.5 kgf·m, 40 lbf·ft).

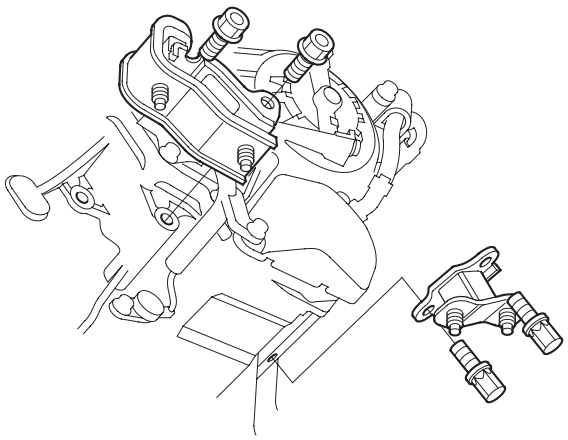
(cont'd)

Transmission Removal (cont'd)

50. Remove the 12 x 1.25 mm bolts (A), subframe mounting bolts (4) (B), and the stiffeners (C), then lower the front subframe (D).

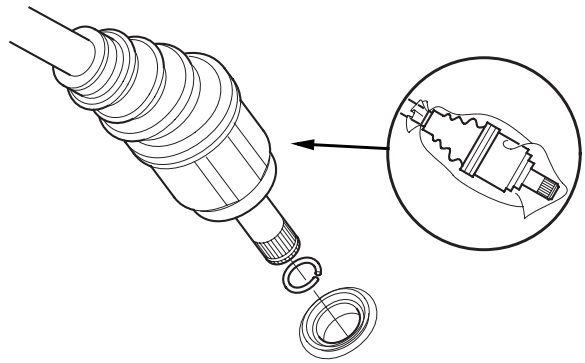


51. Remove the transmission lower mounts.

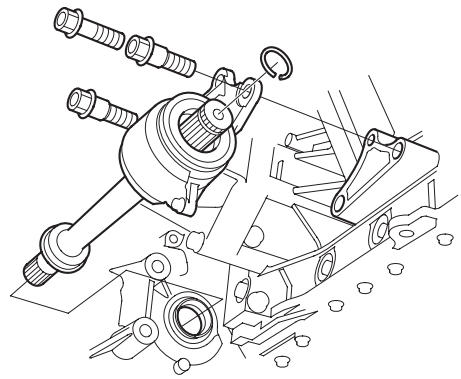


52. Pry the left driveshaft out of the differential and the right driveshaft from the intermediate shaft (see page 16-3).

53. Move the left driveshaft to the front side. Coat all precision finished surfaces with clean engine oil, then tie the plastic bags over the driveshaft ends.

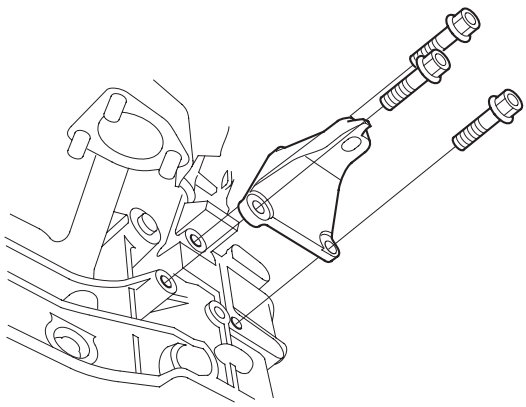


54. Remove the intermediate shaft.

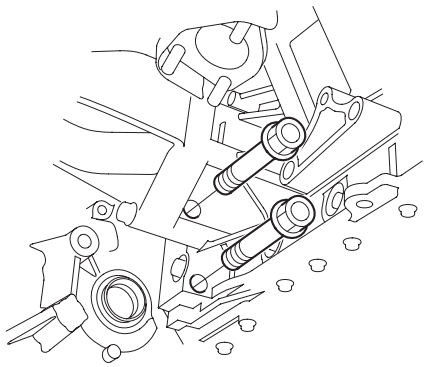


55. Coat all precision finished surfaces with clean engine oil, then tie plastic bags over both ends of the intermediate shaft.

56. Remove the front mount bracket.



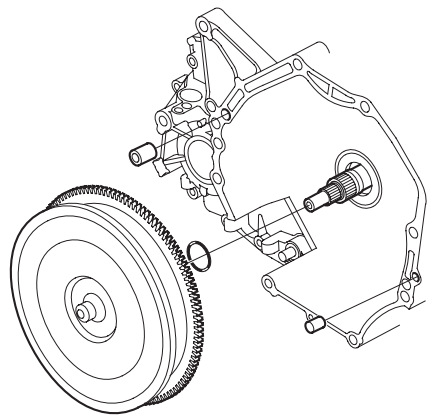
57. Remove the transmission housing mounting bolts.



58. Pull the transmission away from the engine until it clears the dowel pins, then lower it on the transmission jack.

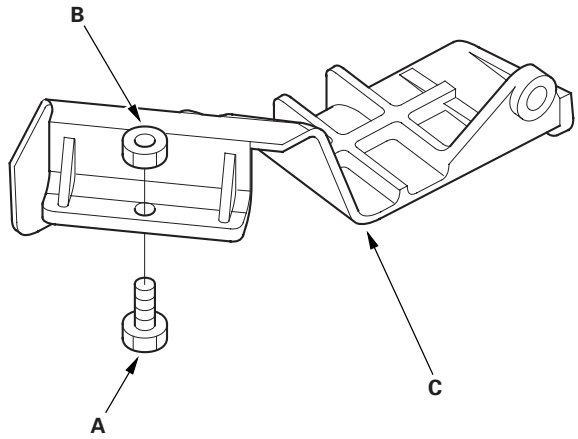
    NOTE: If the torque converter is stuck to the drive plate, pull it toward the transmission housing through the starter opening.

59. Remove the shift cable cover, then remove the torque converter assembly from the torque converter housing.



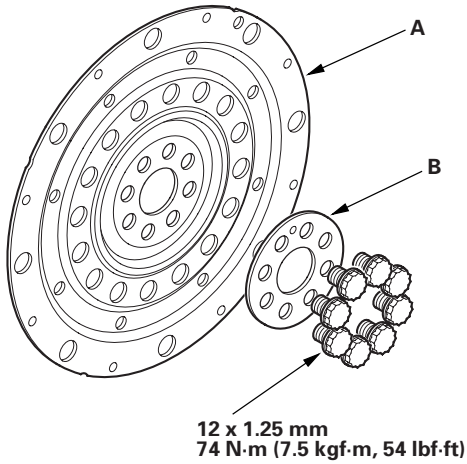
60. Inspect the drive plate, and replace it if it's damaged.

61. Remove the 6 x 1.0 x 14 mm bolt (A) and nut (B) from the shift cable cover (C).



Drive Plate Removal and Installation

1. Remove the drive plate (A) and washer (B) from the engine crankshaft.

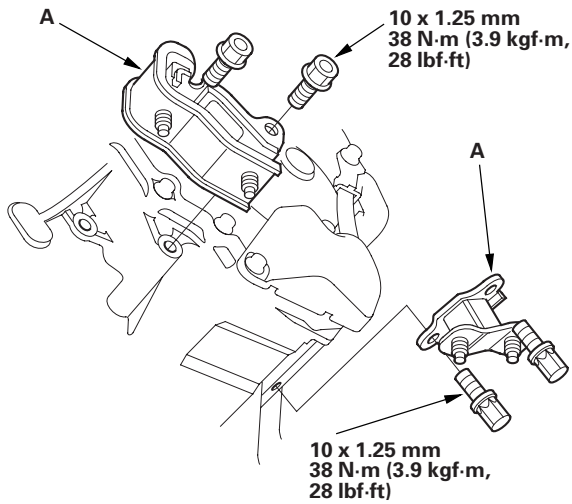


2. Install the drive plate and washer on the engine crankshaft, and tighten the eight bolts in a crisscross pattern.

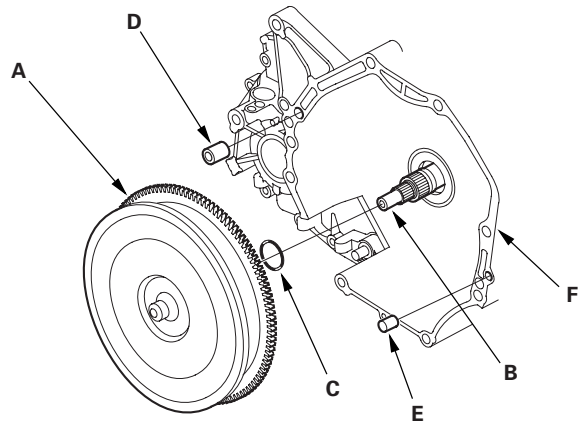
Transmission Installation

1. Flush the ATF cooler (see page 14-388).

2. Install the transmission lower mounts.



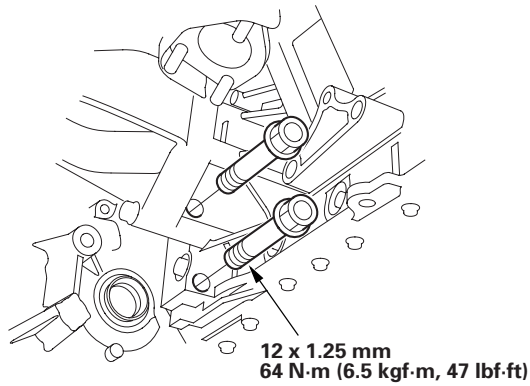
3. Install the torque converter (A) on the mainshaft (B) with the new O-ring (C).



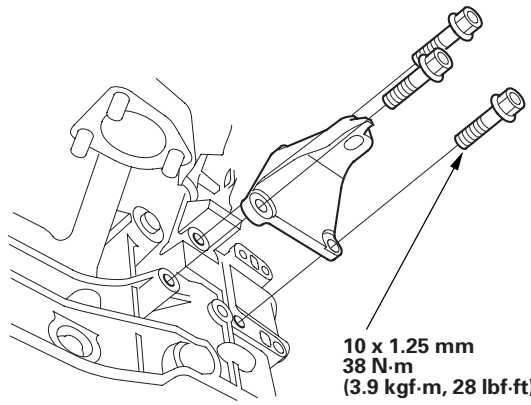
4. Install the 14 mm dowel pin (D) and 10 mm dowel pin (E) in the torque converter housing (F).

5. Place the transmission on a jack, and raise it to engine level.

6. Attach the transmission to the engine, then install the transmission housing mounting bolts.



7. Install the front mount bracket.



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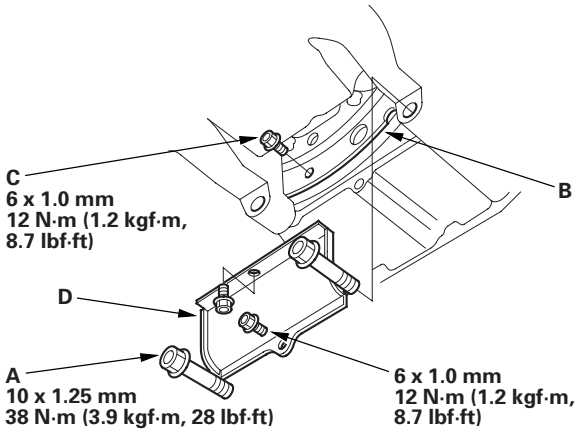
Transmission Installation (cont'd)

8. Install the engine stiffener mounting bolts (A).

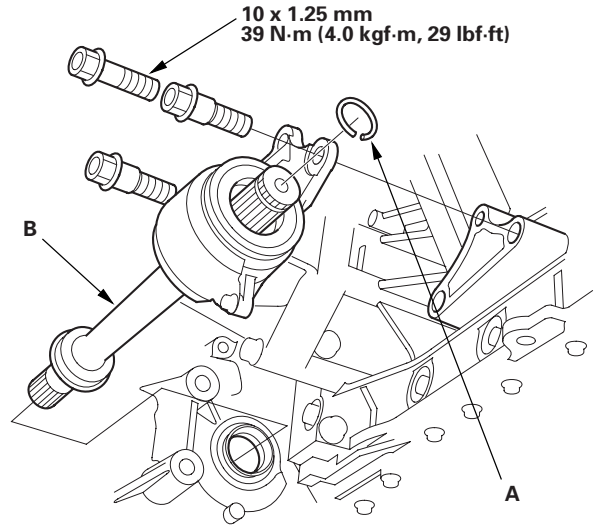


9. Attach the torque converter to the drive plate (B) with eight bolts (C). Rotate the crankshaft pulley as necessary to tighten the bolts to 1/2 of the specified torque, then to the final torque, in a crisscross pattern. After tightening the last bolt, check that the crankshaft rotates freely.

10. Install the torque converter cover (D).

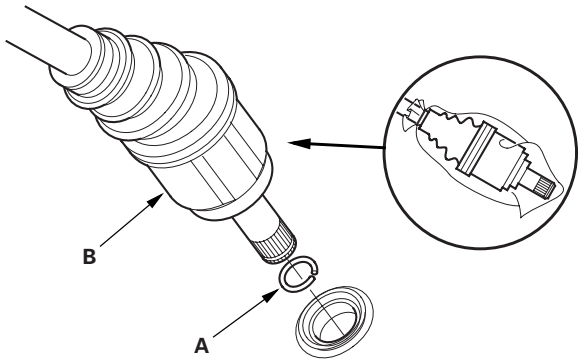
11. Tighten the crankshaft pulley bolt as necessary (see page 6-18).

12. Install new set ring (A) on the intermediate shaft (B).



13. Clean the areas where the intermediate shaft contacts the transmission (differential) with solvent or carburetor cleaner, and dry with compressed air. Then install the intermediate shaft in the differential. While installing the intermediate shaft, be sure not to allow dust or other foreign particles to enter the transmission.

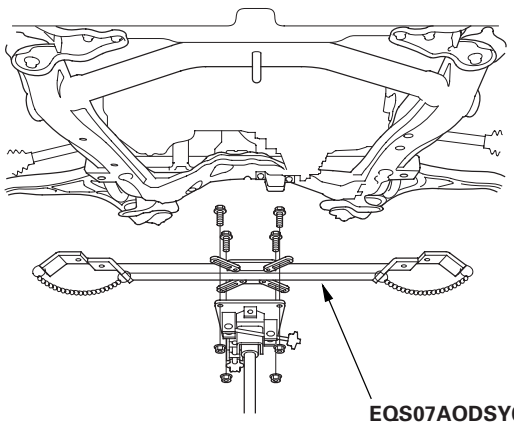
14. Install a new set ring (A) on the right driveshaft (B).



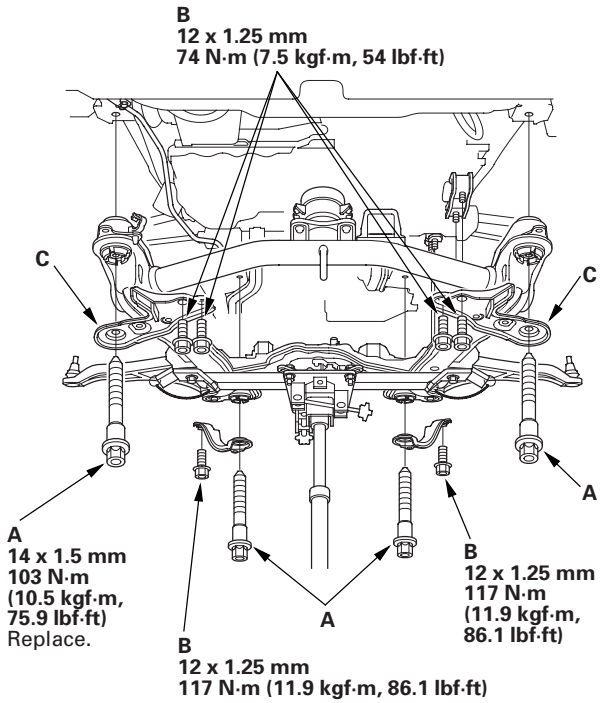
15. Install the right and left driveshaft. While installing the left driveshaft in the differential, be sure not to allow dust or other foreign particles to enter the transmission.

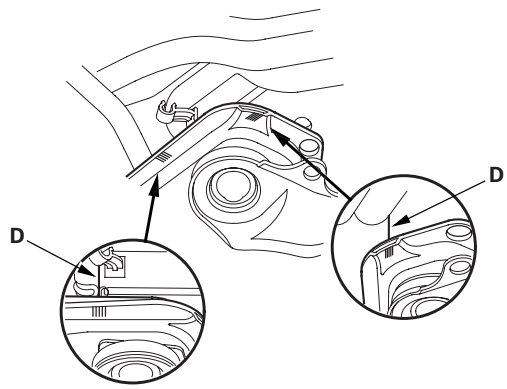
    NOTE:
    - Clean the areas where the left driveshaft contacts the transmission (differential) with solvent or carburetor cleaner, and dry with compressed air.
    - Turn the right and left steering knuckle fully outward, and slide the left driveshaft into the differential until you feel its spring clip engage the side gear. Slide the right driveshaft into the intermediate shaft until you feel its spring clip engage the intermediate shaft.

16. Support the front subframe with the front subframe adapter (T/N EQS07AODSY0) and a jack, and a lift it up to the body.



17. Loosely install the subframe mounting bolts (4) (A) and the 12 x 1.25 mm bolts (6) (B) with the stiffeners (C), then tighten the bolts to the specified torque by aligning all reference marks (D).





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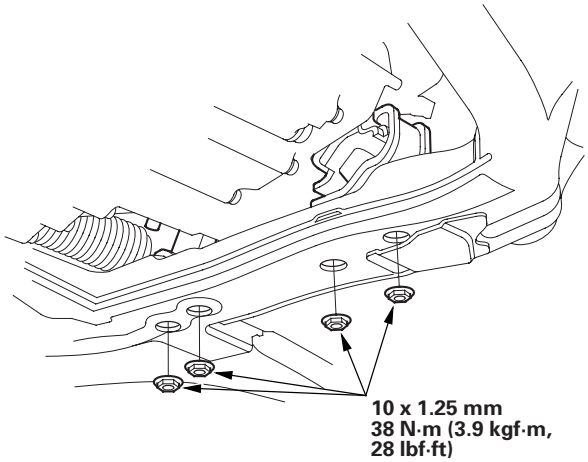
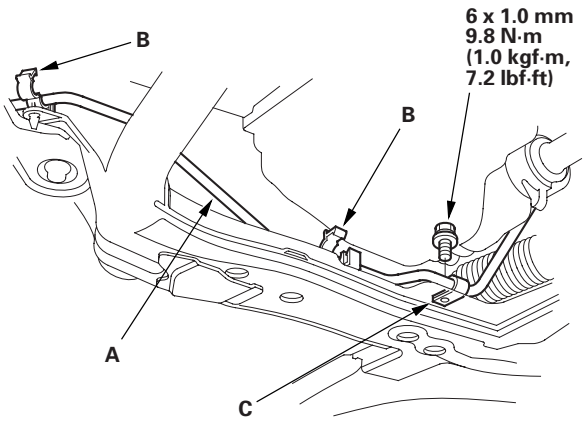
Transmission Installation (cont'd)

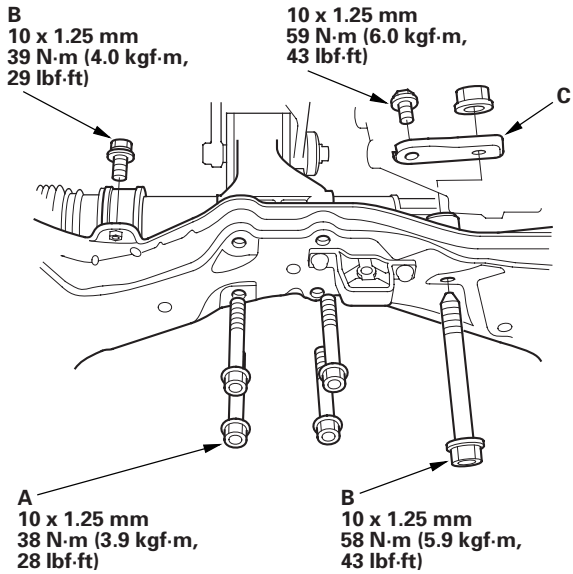
18. Install the transmission lower mount nuts.



19. Install the power steering fluid line (A) on the clamps (B), and install the power steering fluid line bracket (C).

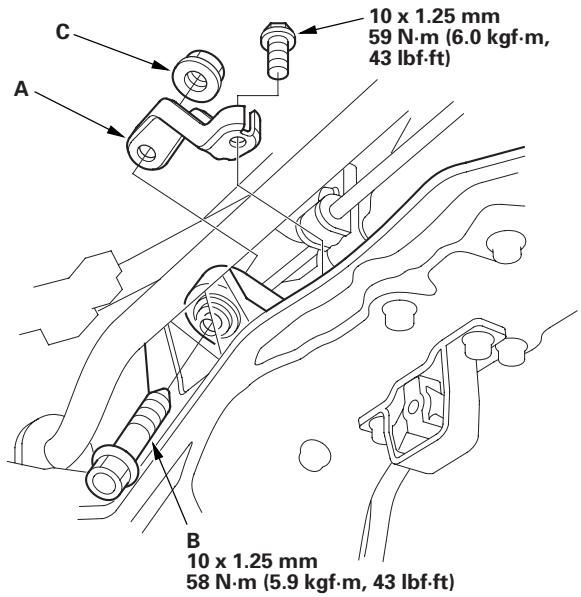


20. Install the rear mount mounting bolts (A).

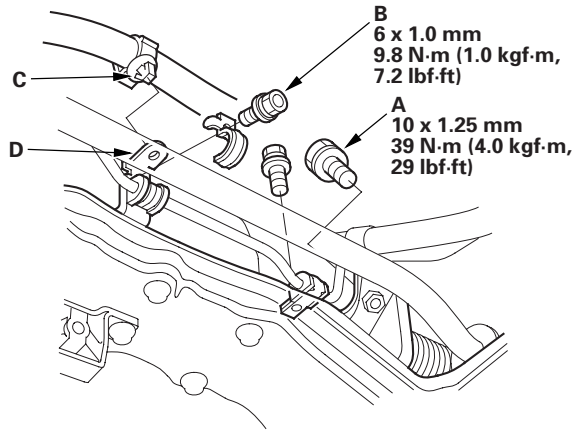


21. Install the steering gearbox mounting bolts (B) and the stiffener (C).

22. Install the stiffener (A) and the steering gearbox mounting bolt (B) with nut (C).

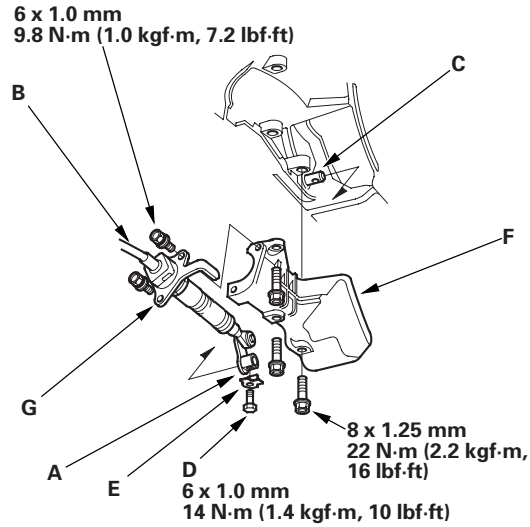


23. Install the steering gearbox mounting bolt (A) and the power steering fluid line bracket bolts (B).



24. Install the power steering fluid return hose clamp (C) on the bracket (D).

25. Install the control lever (A) with the shift cable (B) on the control shaft (C). Do not bend the shift cable excessively.

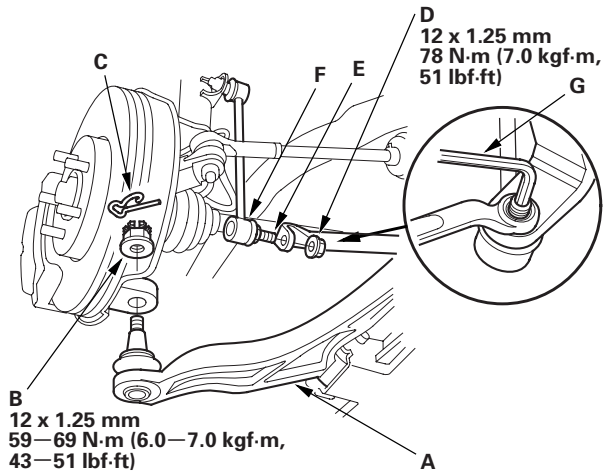


26. Install the lock bolt (D) with a new lock washer (E), then bend the lock washer tab against the bolt.

27. Install the shift cable cover (F), then install the shift cable holder (G) on the shift cable cover.

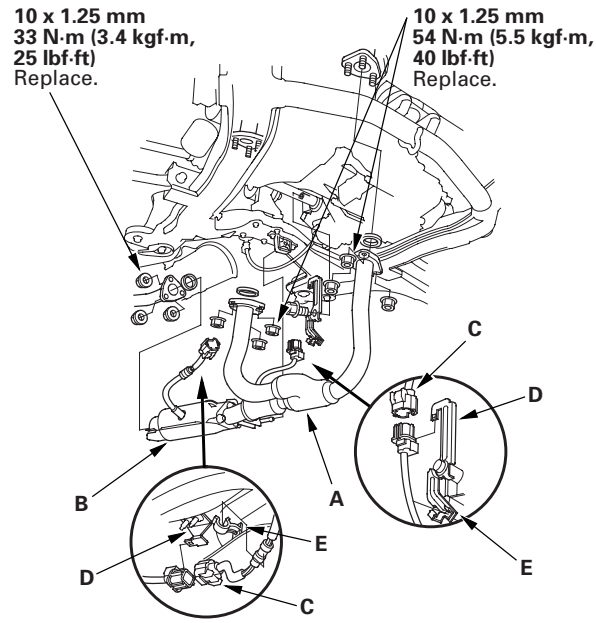
    NOTE: To prevent damage to the control lever joint, be sure to install the shift cable holder after installing the shift cable cover to the torque converter housing.

28. Install the ball joints on each lower arms (A) with the castle nuts (hex nuts) (B) and spring pins (C).



29. Install the nut (D) to the ball joint pin (E) on the stabilizer link (F), then use a 6 mm Allen wrench (G), and tighten the nut to the specified torque.

30. Install the exhaust pipe A and the three way catalytic converter (B) assembly.

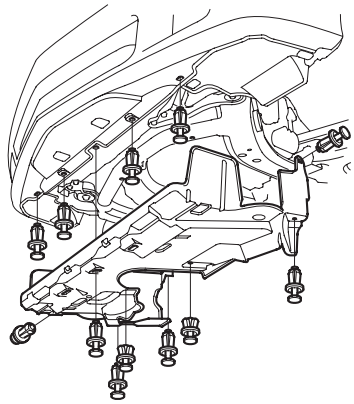


31. Connect the oxygen sensor connectors (C), then install them on their connector brackets (D). Install the harnesses on the clamps (E).

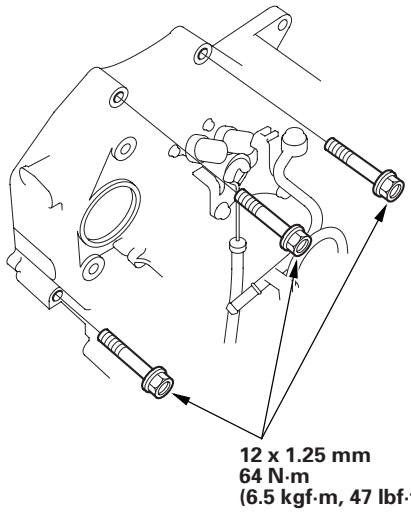
(cont'd)

Transmission Installation (cont'd)

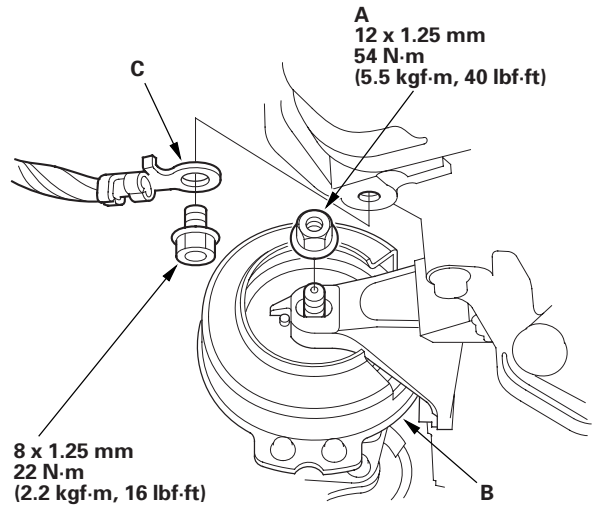
32. Install the splash shield.



33. Install the transmission housing mounting bolts.

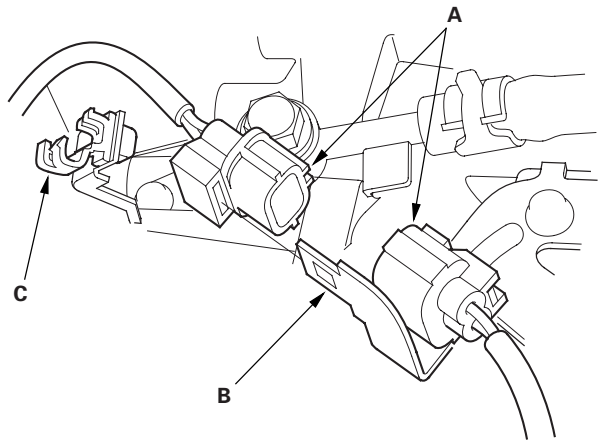


34. Install and tighten the nut (A) on the front mount (B), and install the ground cable (C) to the engine.

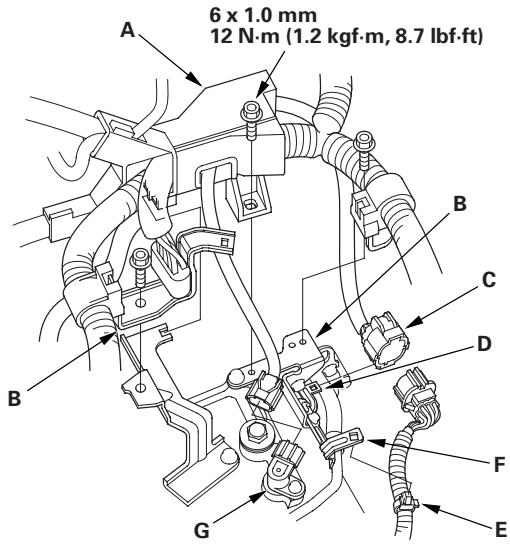


35. Remove the engine support hanger.

36. Connect the Primary HO2S connector (A), install it on its connector bracket (B), and clamp the harness in the clamp (C).



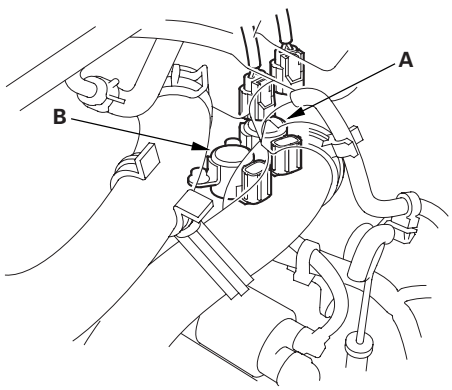
37. Install the harness cover (A) on bracket (B).



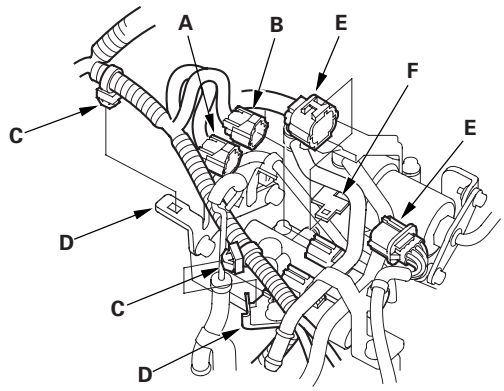
38. Connect the transmission range switch connector (C), then install it on its connector bracket (D). Install the harness clamp (E) on the bracket (F).

39. Connect the output shaft (countershaft) speed sensor connector (G).

40. Connect the connectors to the torque converter solenoid valve (A) and the shift solenoid valve B.

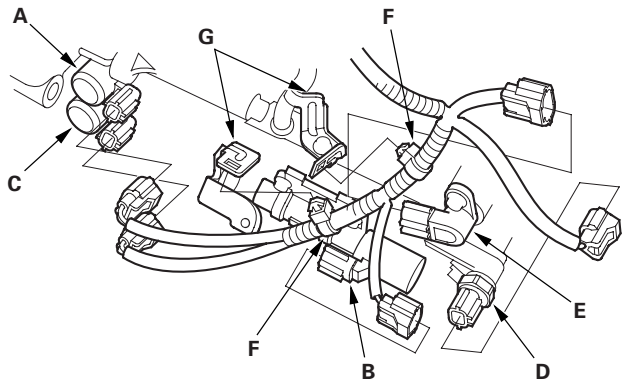


41. Connect the connectors to the A/T clutch pressure control solenoid valves A and B, then install the harness clamps (C) on the brackets (D).



42. Connect the 8P connector (E), then install it on its connector bracket (F).

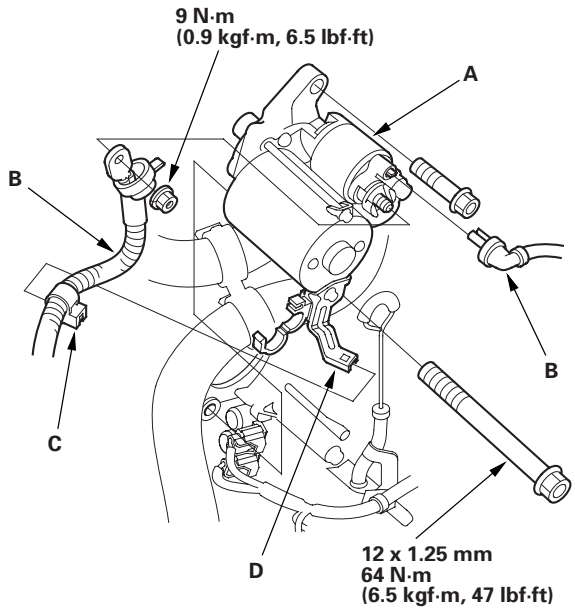
43. Connect the connectors to the shift solenoid valves A and C, A/T clutch pressure control solenoid valve C (B), 4th clutch transmission fluid pressure switch (D), and input shaft (mainshaft) speed sensor (E), then install the harness clamps (F) on the brackets (G).



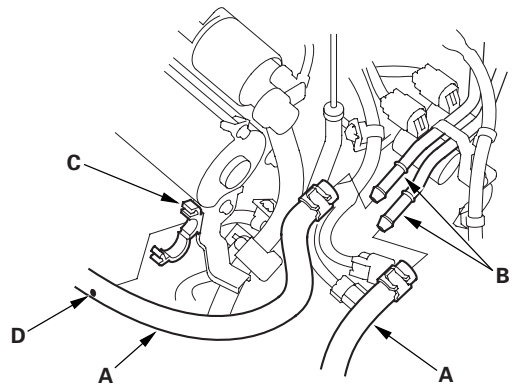
(cont'd)

Transmission Installation (cont'd)

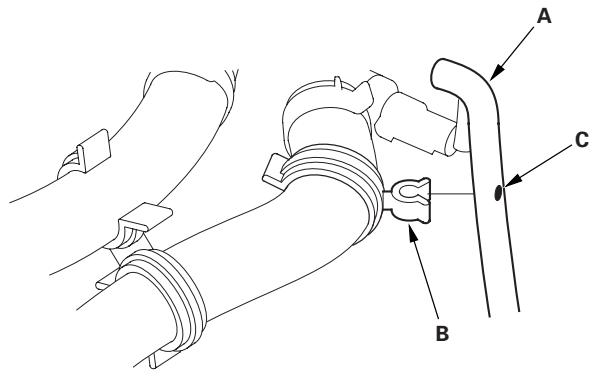
44. Install the starter (A) on the torque converter housing. Connect the starter cables (B) to the starter, and install the harness clamp (C) on the clamp bracket (D). Make sure the crimped side of the starter cable ring terminal is facing out.



45. Connect the ATF cooler hoses (A) to the ATF cooler lines (B) (see page 14-389). Clamp the ATF cooler hose with the clamp (C) on the starter by aligning the white dot (D) on the hose with the clamp.



46. Install the transmission breather tube (A) in the clamp (B) by aligning the dot (C) with the clamp.



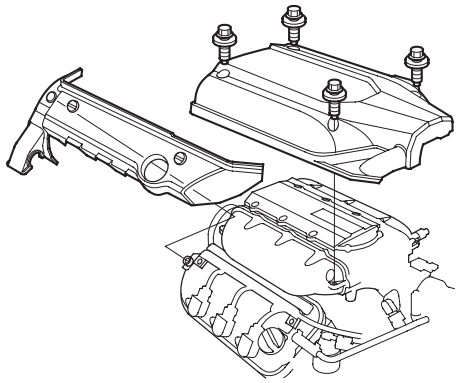
47. Install the battery base bracket and battery base.

48. Install the battery cable clamps, connector, and relay bracket on the battery base.

49. Install the battery tray and battery, then secure the battery with its hold-down bracket.

50. Install the intake air duct, resonator cover, and air cleaner housing assembly.

51. Install the engine covers.



52. Refill the transmission with ATF (see step 5 on page 14-368).

53. Connect the battery positive terminal, then connect the negative terminal.

54. Set the parking brake. Start the engine, and shift the transmission through all gears three times.

55. Check the shift lever operation, A/T gear position indicator operation, and shift cable adjustment.

56. Check and adjust the front wheel alignment (see page 18-5).

57. Reinstall the support rod of the hood to the proper location, and secure the windshield washer reservoir opening with the bolt.

58. Start the engine, and let it reach normal operating temperature (the radiator fan comes on) with the transmission in the P or N position, then turn it off and check the ATF level (see page 14-367).

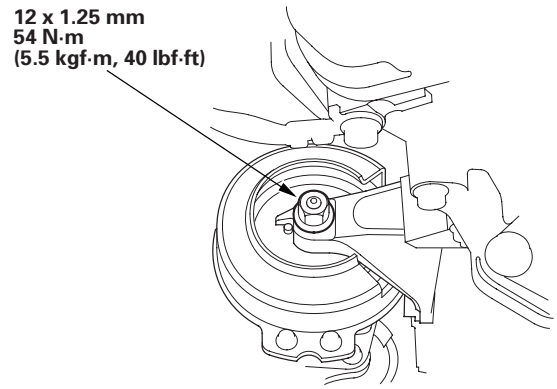
59. Do the PCM idle learn procedure (see page 11-202).

60. Do the power window control unit reset procedure (2003-2004 model) (see page 22-200).

61. Perform a road test (see page 14-352).

62. Enter the anti-theft code for the radio and the navigation system, then enter the radio station presets, and set the clock.

63. Loosen the front mount nut after the road test, then retighten the nut to the specified torque.

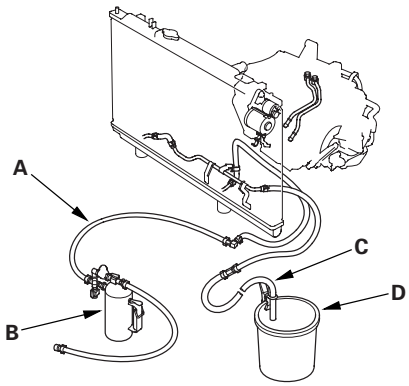


ATF Cooler Flushing

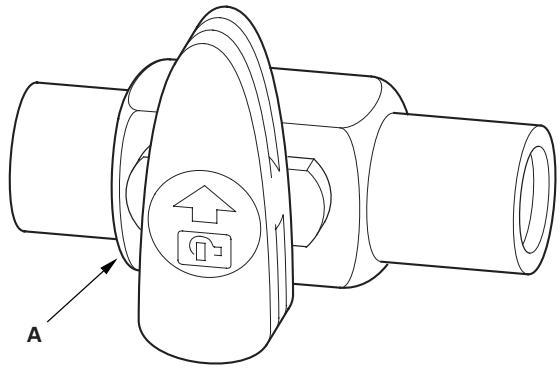
Special Tools Required
Commercially Available Transmission Cooler Flusher
Kent-Moore J38405-A or equivalent

This procedure should be performed before reinstalling the transmission.

1. Check the equipment for wear and cracks before using it. Replace any worn or cracked components.
2. Using the measuring cup, fill the flusher (A) with 21 ounces (approximately 2/3 full) of biodegradable flushing fluid (J35944-20). Do not substitute with any other fluid. Follow the handling procedure on the fluid container.



3. Secure the flusher filler cap, and pressurize the flusher with compressed air to 550—829 kpa (5.6—8.45 kgf/cm^2, 80—120 psi). The air line should be equipped with a water trap to ensure a dry air system.
4. Hang the flusher under the vehicle.
5. Attach the flusher discharge hose (B) to the return line of the ATF cooler using a clamp.
6. Connect the drain hose (C) to the inlet line on the ATF cooler using a clamp. Securely clamp the opposite end of the drain hose to a bucket (D) or floor drain.
7. With the water and air valves (A) off, attach the water and air supplies to the flusher. (Hot water if available.)



8. Turn on the water valve for 10 seconds. If water does not flow through the cooler, it is completely plugged, cannot be flushed, and must be replaced.
9. Press the trigger to mix the flushing fluid into the water flow. Use the wire clip to hold the trigger down.
10. While flushing with the water and flushing fluid for 2 minutes, turn the air valve on for 5 seconds every 15—20 seconds to create a surging action.

    Air Pressure: MAX 845 kPa (8.45 kgf/cm^2, 120 psi)

11. Turn the water valve off. Release the trigger, then reverse the hoses to the cooler so you can flush in the opposite direction. Repeat steps 8 through 10.
12. Release the trigger, and rinse the cooler with water for 1 minute.
13. Turn the water valve and the water supply off.
14. Turn the air valve on for 2 minutes, or until no moisture is visible leaving the drain hose. Residual moisture in the cooler or lines can damage the transmission.
15. Remove the flusher from the cooler line. Attach the drain hose to an ATF container.
16. Install the transmission, and leave the drain hose attached to the cooler line.

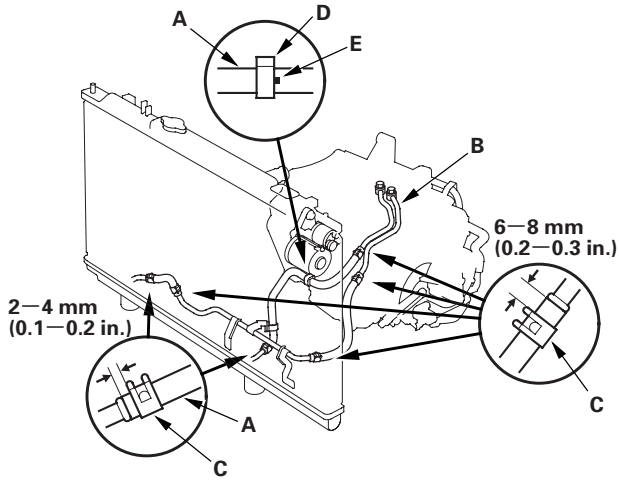
17. Make sure the transmission is in the P position. Fill the transmission with ATF, and run the engine for 30 seconds or until approximately 0.95 ℓ (1.0 US qt) is discharged.

18. Remove the drain hose, and reconnect the cooler return hose to the transmission.

19. Refill the transmission with ATF to the proper level (see step 5 on page 14-367).

ATF Cooler Hose Replacement

1. Connect the cooler hoses (A) to the lines (B) and the ATF cooler, and secure them with the clips (C).



2. Clamp the ATF cooler hose with the yellow mark (D) on the clamp (E).

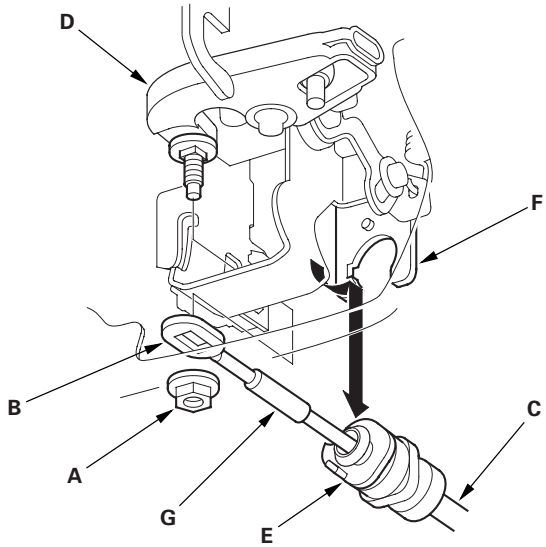
Shift Lever Removal

SRS components are located in this area. Review the SRS component locations, 2002 model (see page 23-19), 2003-2004 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the steering column upper and lower covers (see page 17-25).

2. Shift the transmission into the N position.

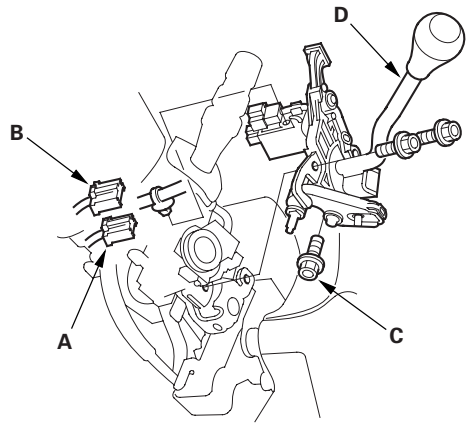
3. Remove the nut (A) securing the shift cable end (B), then separate the shift cable (C) from the shift lever assembly (D).



4. Rotate the socket holder (E) on the shift cable counterclockwise a quarter turn, then slide the holder to remove the shift cable from the shift cable bracket (F).

   NOTE: Do not remove the shift cable by twisting the shift cable guide (G).

5. Disconnect the shift lock solenoid connector (A) and the park pin switch connector (B).

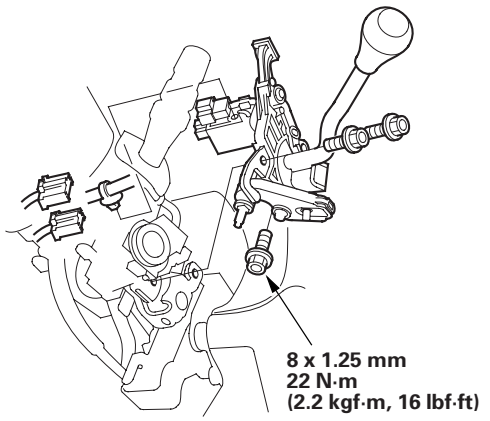


6. Remove the three bolts (C) securing the shift lever assembly, then remove the shift lever assembly (D).

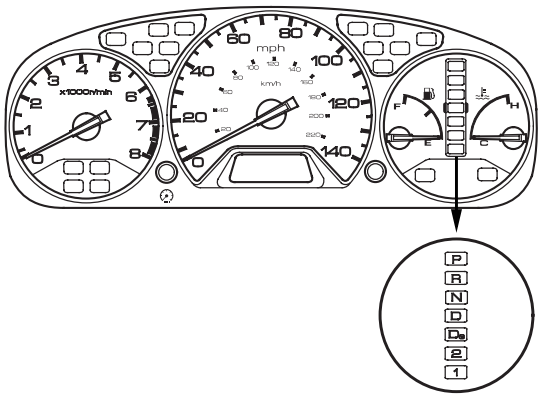
Shift Lever Installation

SRS components are located in this area. Review the SRS component locations, 2002 model (see page 23-19), 2003-2004 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Install the shift lever assembly on the steering column.



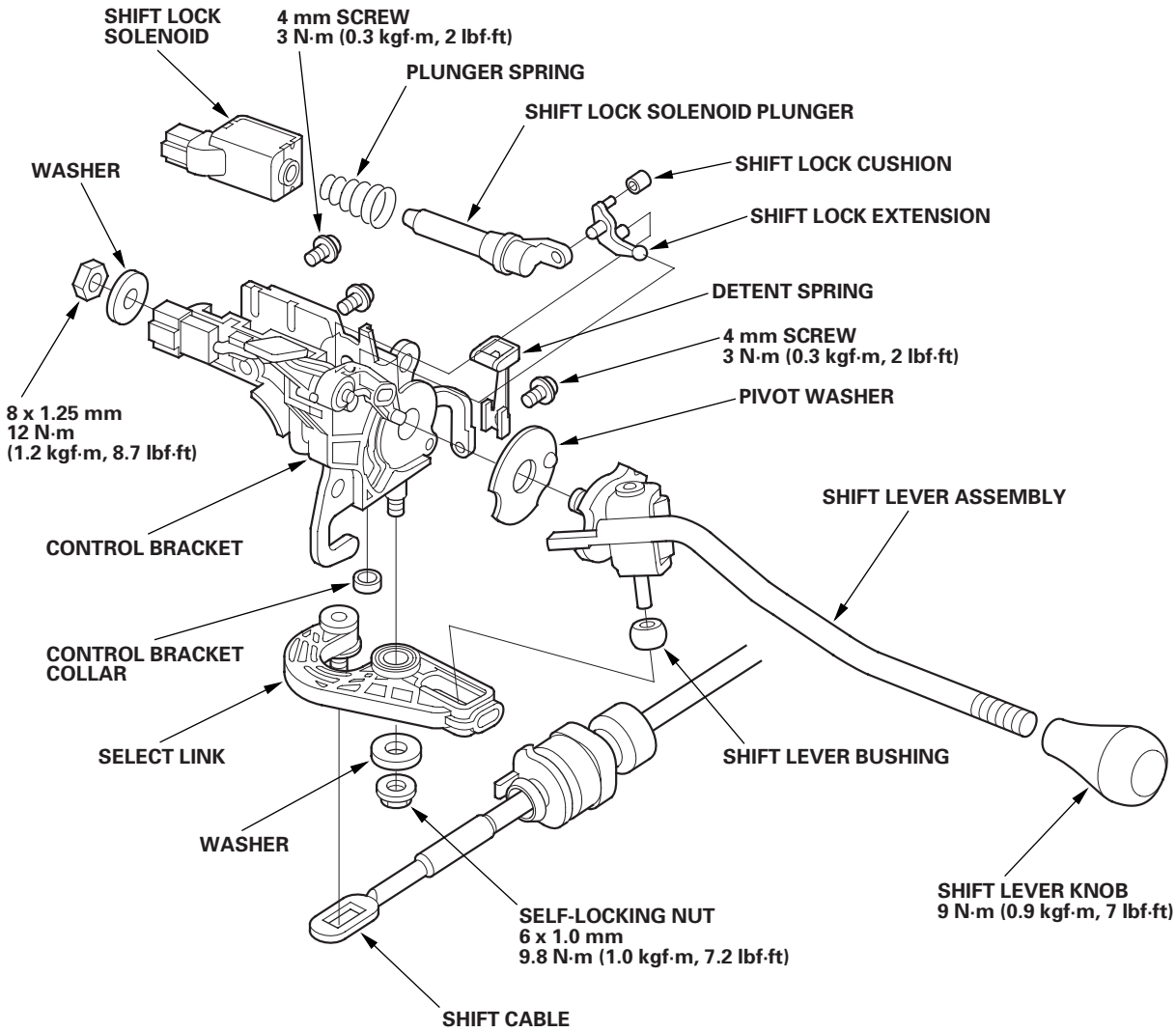
2. Turn the ignition switch ON (II), and verify that the N position indicator comes on.



3. Install the shift cable end to the shift lever. If necessary, adjust the shift cable (see step 5 on page 14-395).

Shift Lever Disassembly/Reassembly

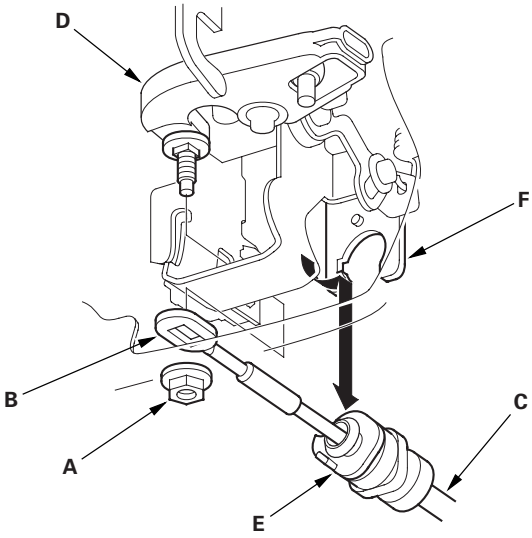
Apply silicone grease to these parts:
- Sliding surfaces on the detent plate.
- Sliding area on shift lever and control bracket.
- Movable parts of the shift lock mechanism.
- Select link and shift lever contacting area.
- Select link and control bracket contacting area.
- One side of washer opposite of the self-locking nut.
- Pivot washer.
- Shift lever bushing.



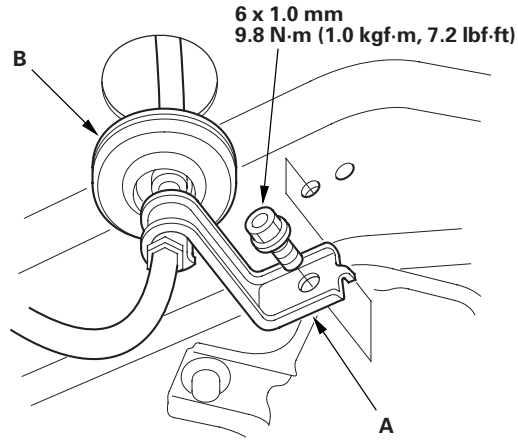
Shift Cable Replacement

SRS components are located in this area. Review the SRS component locations, 2002 model (see page 23-19), 2003-2004 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

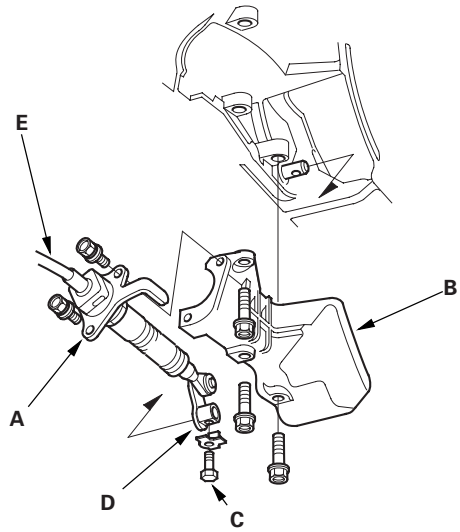
1. Raise the front of the vehicle, and make sure it is securely supported.
2. Set the parking brake, and block the rear wheels securely.
3. Remove the steering column covers (see page 17-25).
4. Shift the transmission into the N position.
5. Remove the nut (A) securing the shift cable end (B), then separate the shift cable (C) from the shift lever assembly (D).



6. Rotate the socket holder (E) on the shift cable counterclockwise a quarter turn, then slide the holder to remove the shift cable from the shift cable bracket (F).
7. Remove the shift cable guide bracket (A) and grommet (B).



8. Remove the bolts securing the shift cable holder (A), then remove the shift cable cover (B).



9. Remove the lock bolt (C) securing the control lever (D), then remove the shift cable (E) with the control lever.

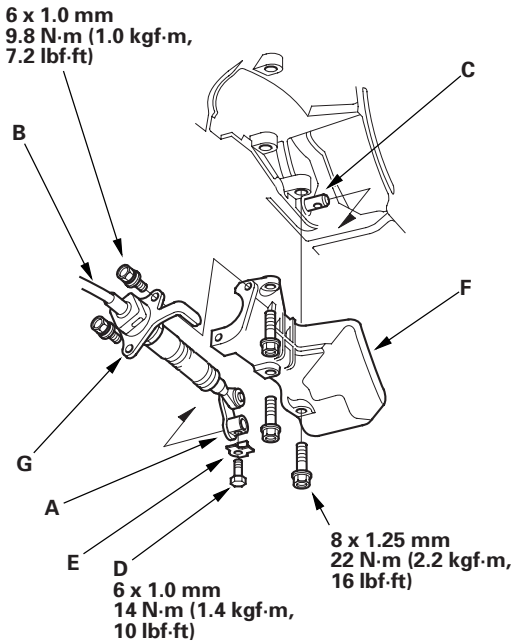
(cont'd)

Shift Cable Replacement (cont'd)

10. Insert the new shift cable through the grommet hole, then install the shift cable guide bracket.

11. Verify that the transmission is in the N position on the control shaft.

12. Install the control lever (A) with the shift cable (B) on the control shaft (C). Do not bend the shift cable excessively.



13. Install the lock bolt (D) with a new lock washer (E), then bend the lock washer tab against the bolt head.

14. Install the shift cable cover (F), then install the shift cable holder (G) on the shift cable cover.

    NOTE: To prevent damage to the control lever joint, be sure to install the shift cable holder after installing the shift cable cover to the torque converter housing.

15. Turn the ignition switch ON (II), and verify that the the N position indicator comes on.

16. Install the shift cable end to the shift lever. If necessary, adjust the shift cable (see step 5 on page 14-395).

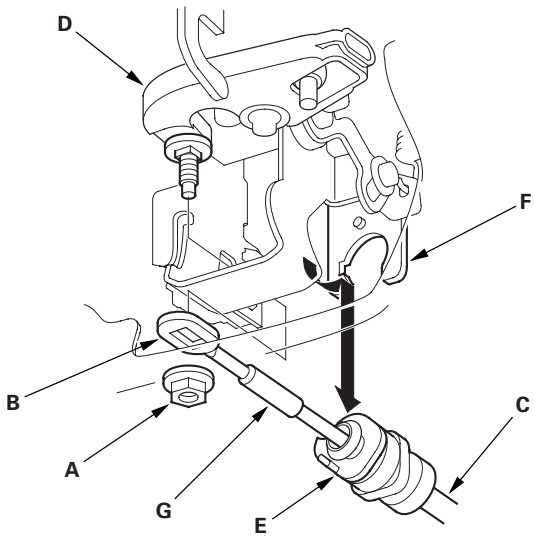
Shift Cable Adjustment

SRS components are located in this area. Review the SRS component locations, 2002 model (see page 23-19), 2003-2004 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the steering column covers (see page 17-25).

2. Shift the transmission into the N position.

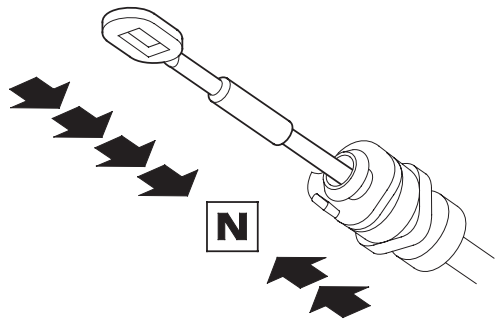
3. Remove the nut (A) securing the shift cable end (B), then separate the shift cable (C) from the shift lever assembly (D).



4. Rotate the socket holder (E) on the shift cable counterclockwise a quarter turn, then slide the holder to remove the shift cable from the shift cable bracket (F).

   NOTE: Do not remove the shift cable by twisting the shift cable guide (G).

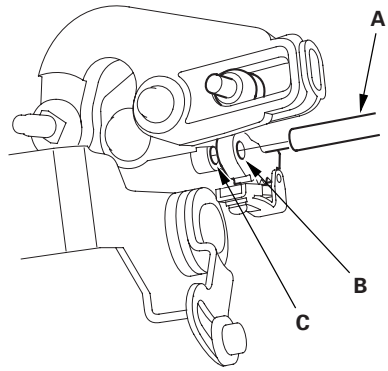
5. Push the shift cable until it stops, then release it. Pull the shift cable back two steps so that the shift lever position is in N.



6. Turn the ignition switch ON (II), and verify that the N position indicator comes on.

7. Turn the ignition switch OFF.

8. Insert a 6.0 mm (0.24 in.) pin (A) through the positioning hole (B) on the detent plate and into the positioning hole (C) on the control bracket.

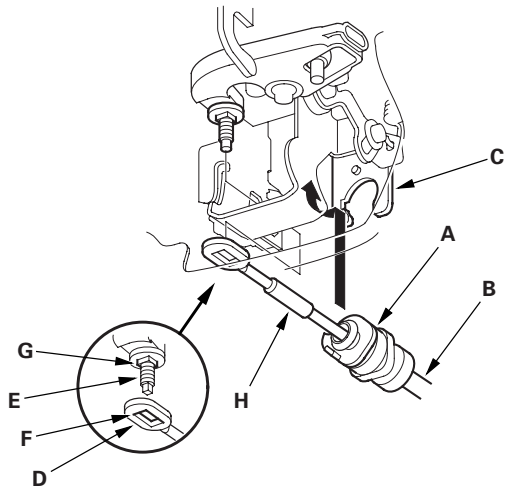


(cont'd)

Shift Cable Adjustment (cont'd)

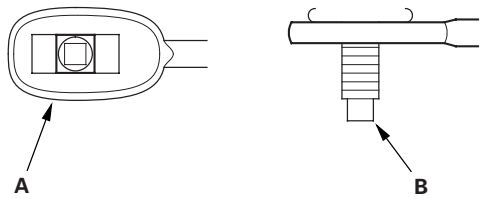
9. Align the socket holder (A) on the shift cable (B) with the slot in the shift cable bracket (C), then slide the holder into the bracket. Install the shift cable end (D) over the mounting stud (E) by aligning its square hole (F) with the square fitting (G) at the bottom of the stud, and rotate the holder clockwise a quarter turn to secure the shift cable.

   NOTE: Do not install the shift cable by twisting the shift cable guide (H).

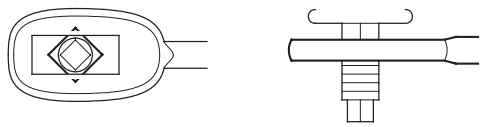


10. Verify that the shift cable end (A) is properly installed on the mounting stud (B).

Properly Installed:



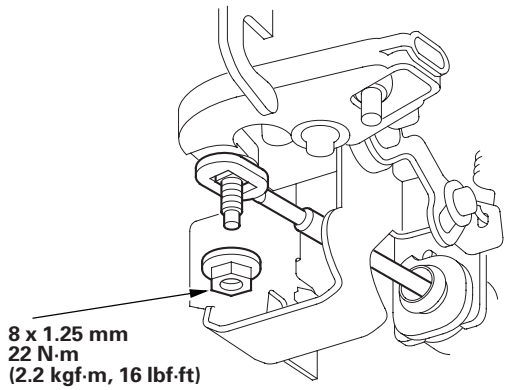
Improperly Installed:



Cable end rides on the bottom of the mounting stud.

11. If improperly installed, remove the shift cable from the shift cable bracket, and reinstalled the shift cable. Do not install the shift cable end on the mounting stud while the shift cable is on the shift cable bracket.

12. Install and tighten the nut to the specified torque.



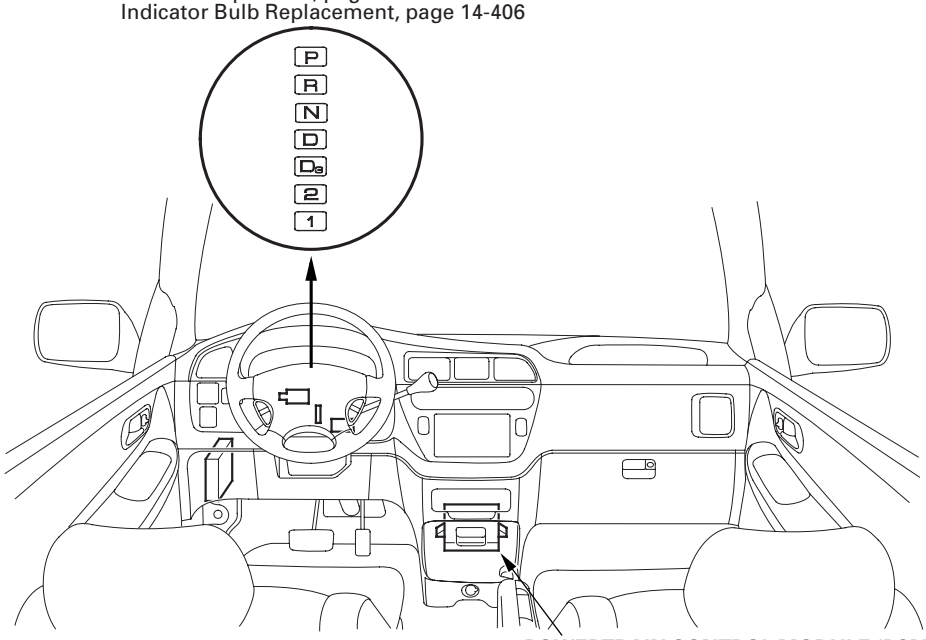
13. Remove the 6.0 mm (0.24 in.) pin that was installed to hold the shift lever.

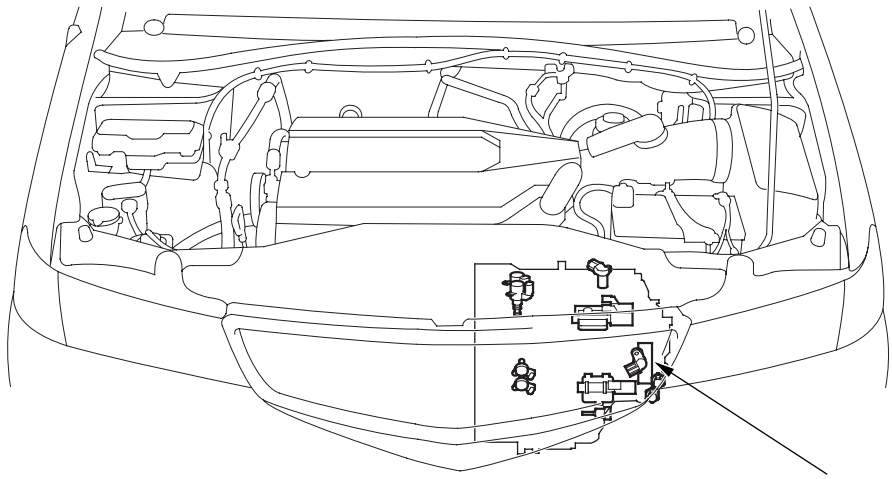
14. Move the shift lever to each gear, and verify that the A/T gear position indicator follows the transmission range switch.

15. Push the shift lock release, and verify that the shift lever releases.

Component Location Index

A/T GEAR POSITION INDICATOR
D Indicator Circuit Troubleshooting, page 14-399
Indicator Input Test, page 14-402
Indicator Bulb Replacement, page 14-406

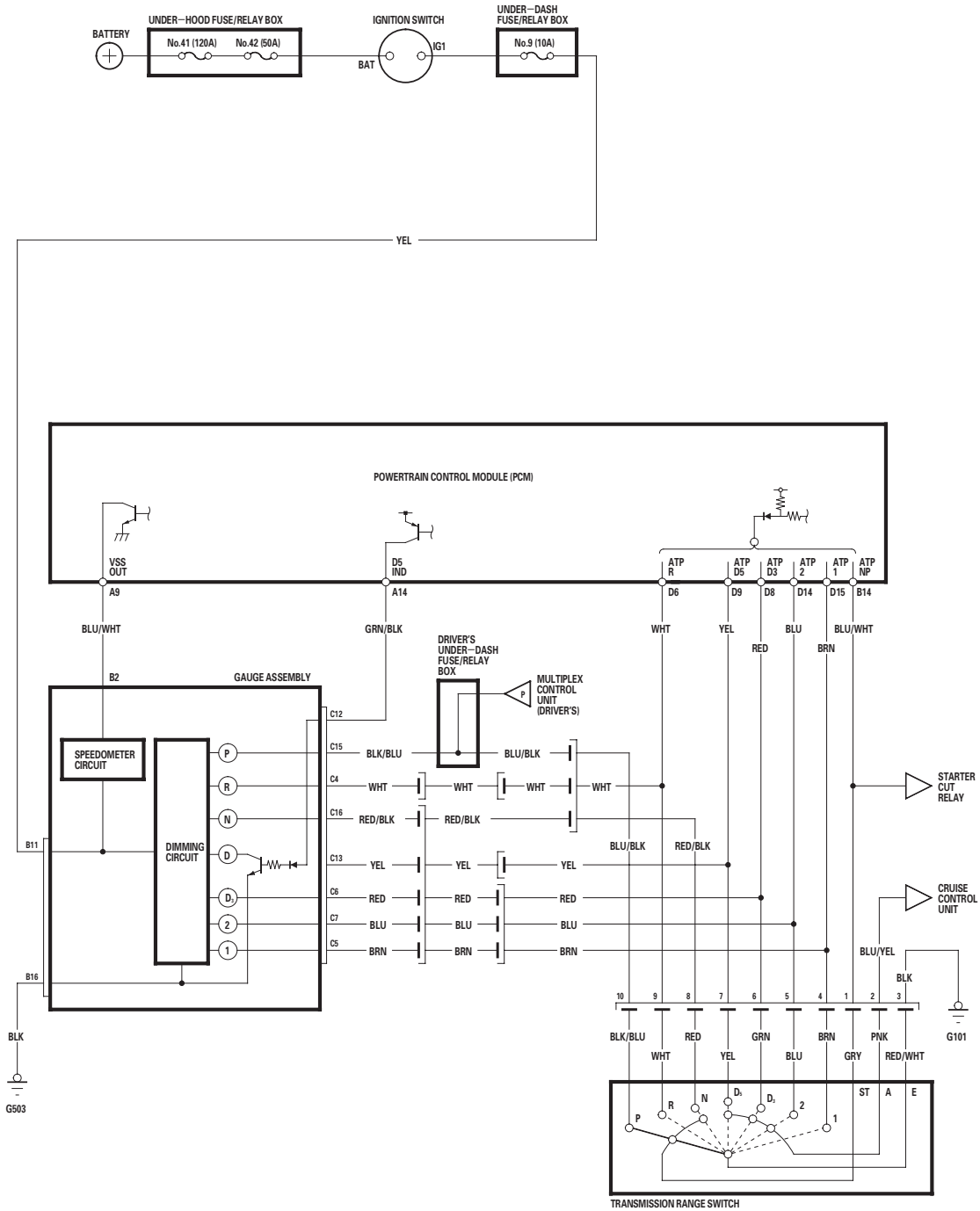




TRANSMISSION RANGE SWITCH
Test, page 14-403
Replacement, page 14-404

A/T Gear Position Indicator

Circuit Diagram



D Indicator Circuit Troubleshooting

1. Turn the ignition switch ON (II), and watch the D indicator.

   Does the D indicator come on and stay on?

   YES—Go to step 2.

   NO—If the indicator comes on for about 2 seconds and then goes off, it's OK. If it doesn't come on at all, go to step 13.

2. Make sure the HDS is not connected to the data link connector.

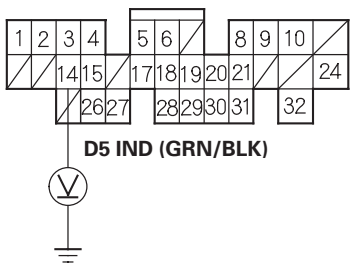
3. Turn the ignition switch OFF.

4. Disconnect PCM connector A (32P).

5. Turn the ignition switch ON (II).

6. Measure the voltage between PCM connector terminal A14 terminal and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals

   Is there voltage?

   YES—Repair short to power in the wire between PCM connector terminal A14 and the gauge assembly. ■

   NO—Go to step 7.

7. Turn the ignition switch OFF.

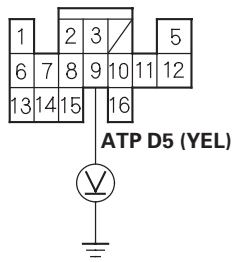
8. Reconnect PCM connector A (32P).

9. Turn the ignition switch ON (II).

10. Shift to any position other than D.

11. Measure the voltage between PCM connector terminal D9 and body ground.

PCM CONNECTOR D (16P)



Wire side of female terminals

   Is there voltage?

   YES—Faulty PCM or gauge assembly. ■

   NO—Check for a short to ground in the wire between PCM connector terminal D9 and the transmission range switch. If the wire is OK, check the transmission range switch. ■

12. Turn the ignition switch ON (II).

13. Shift to the D position.

   Does the D indicator come on?

   YES—Check for loose terminal fit in the PCM connector A14 and recheck the D indicator several times. If the problem is intermittent, substitute a known-good PCM and recheck. If the indicator then works OK every time, replace the original PCM. ■

   NO—Go to step 14.

14. Turn the ignition switch OFF.

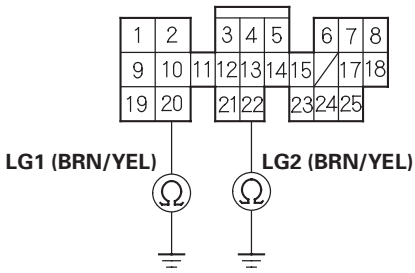
(cont'd)

D Indicator Circuit Troubleshooting (cont'd)

15. Disconnect PCM connector B (25P).

16. Check for continuity between PCM connector terminals B20 and body ground, and between B22 and body ground.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity between ground and each terminal?

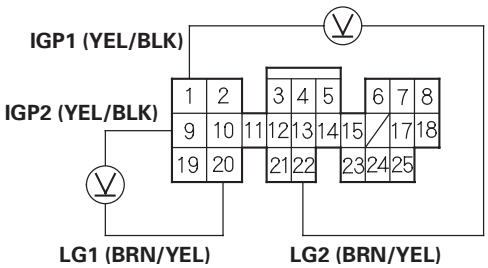
YES — Go to step 17.

NO — Repair open in the wire(s) between PCM connector terminal B20, B22, and ground (G101), or repair poor ground (G101). ■

17. Turn the ignition switch ON (II).

18. Measure the voltage between PCM connector terminals B1 and B22, and between B9 and B20.

PCM CONNECTOR B (25P)



Wire side of female terminals

Is there battery voltage?

YES — Go to step 19.

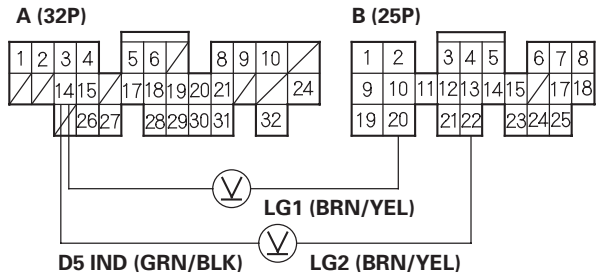
NO — Repair open or short in the wire between PCM connector terminal B1 or B9 and the PGM-FI main relay. ■

19. Turn the ignition switch OFF.

20. Reconnect PCM connector B (25P).

21. Connect the digital multimeter between PCM connector terminals A14 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

22. Turn the ignition switch ON (II).

Is there voltage for at least 2 seconds?

YES — Check for an open in the wire between PCM connector terminal A14 and the gauge assembly. If the wire is OK, check for a faulty D indicator bulb or a faulty printed circuit board in the gauge assembly. ■

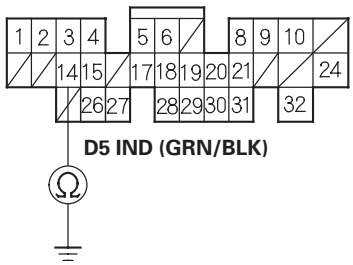
NO — Go to step 23.

23. Turn the ignition switch OFF.

24. Disconnect PCM connector A (32P).

25. Check for continuity between PCM connector terminal A14 and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals

Is there continuity?

YES—Repair open in the wire between PCM connector terminal A14 and the gauge assembly. ■

NO—Check for loose terminal fit in the PCM connectors. Check the transmission range switch. If necessary, substitute a known-good PCM and recheck. ■

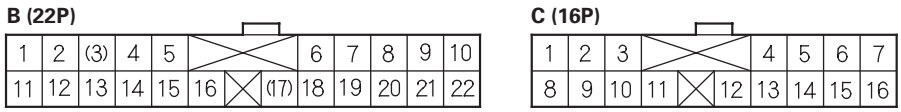
A/T Gear Position Indicator

Indicator Input Test

SRS components are located in this area. Review the SRS component locations, 2002 model (see page 23-19), 2003-2004 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the gauge assembly from the dashboard, then disconnect the gauge assembly B (22P) and C (16P) connectors.
2. Inspect the connectors and connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, make the following input tests at the gauge assembly B (22P) and C (16P) connectors.
     – If a test indicates a problem, find a correct the cause, then recheck the system.
     – If all the input tests prove OK, but the indicator is faulty, replace the printed circuit board.

GAUGE ASSEMBLY CONNECTORS



Wire side of female terminals

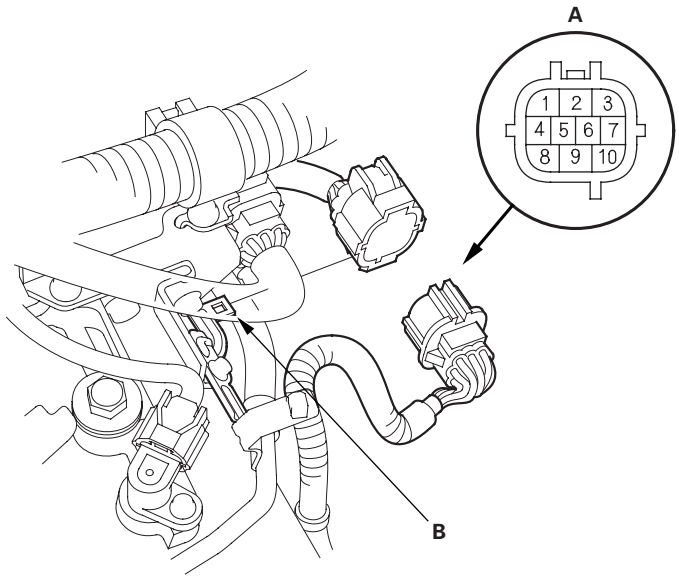
Cavity	Wire Color	Test Condition	Test: Desired Result	Possible Cause (If result is not obtained)
B11	YEL	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • An open in the wire
B16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G503) • An open in the wire
B22	RED/BLK	Headlights ON	Check for voltage to ground: There should be battery voltage.	• Blown No. 10 (15A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
C4	WHT	Ignition switch ON (II) and shift lever in R	Check for voltage to ground: There should be 1 V or less. There should be no battery voltage in any other shift lever position.	• Faulty transmission range switch • An open in the wire
C5	BRN	Ignition switch ON (II) and shift lever in 1		
C6	RED	Ignition switch ON (II) and shift lever in D3		
C7	BLU	Ignition switch ON (II) and shift lever in 2		
C12	GRN/BLK	Ignition switch ON (II) and shift lever in D	Check for voltage to ground: There should be battery voltage.	• Faulty transmission range switch • Faulty PCM • An open in the wire
C13	YEL	Ignition switch ON (II) and shift lever in D	Check for voltage to ground: There should be 1 V or less. There should be no battery voltage in any other shift lever position.	• Faulty transmission range switch • An open in the wire
C15	BLK/BLU	Shift lever in P	Check for continuity to ground: There should be no continuity in any other shift lever position.	• Faulty transmission range switch • An open in the wire
C16	RED/BLK	Ignition switch ON (II) and shift lever in N	Check for voltage to ground: There should be 1 V or less. There should be battery voltage in any other shift lever position.	

Transmission Range Switch Test

1. Remove the transmission range switch connector (A) from the connector bracket (B), then disconnect the connector.

2. Check for continuity between the terminals in each switch position according to the table.

   NOTE: Terminal No.1: Neutral position switch.

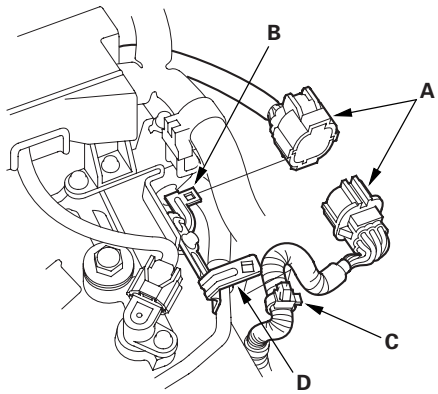


Transmission Range Switch Continuity Check

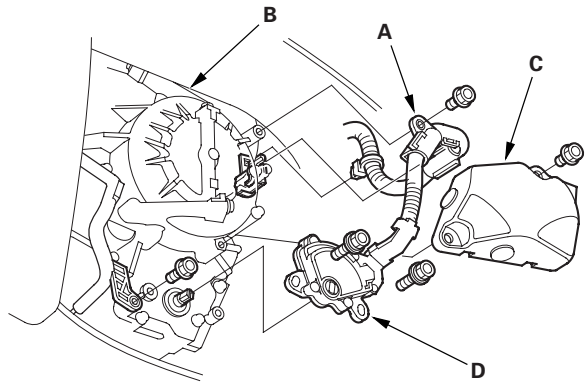
Terminal / Position	1	2	3	4	5	6	7	8	9	10
P	○		○							○
R			○						○	
N	○		○					○		
D		○	○				○			
D3		○	○			○				
2		○	○		○					
1			○	○						

Transmission Range Switch Replacement

1. Raise the vehicle, and make sure it is securely supported.
2. Shift to the N position.
3. Remove the transmission range switch connector (A) from the connector bracket (B), then disconnect the connector.

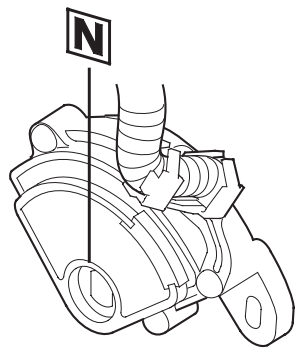


4. Remove the harness clamp (C) from its bracket (D).
5. Remove the clamp from the clamp bracket on the transmission housing, and remove the harness holder (A) from the end cover (B).



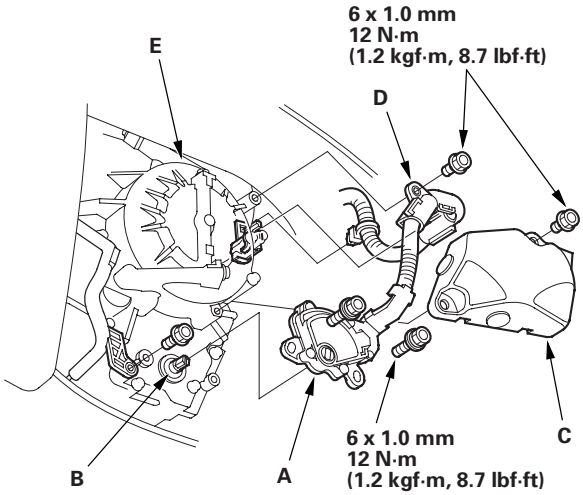
6. Remove the transmission range switch cover (C), then remove the transmission range switch (D) from the end cover.
7. Set the new transmission range switch to the N position.

   NOTE: The transmission range switch clicks in the N position.



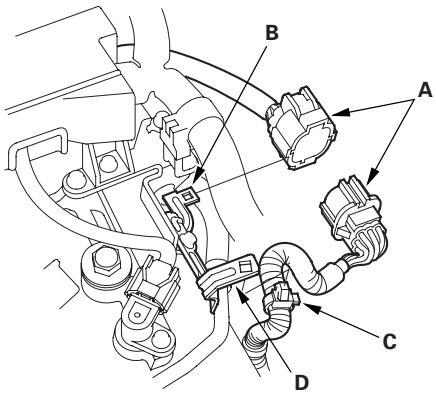
8. Install the transmission range switch (A) on the control shaft (B), then secure it with the bolts.

   NOTE: Do not move the transmission range switch when tightening the bolts.



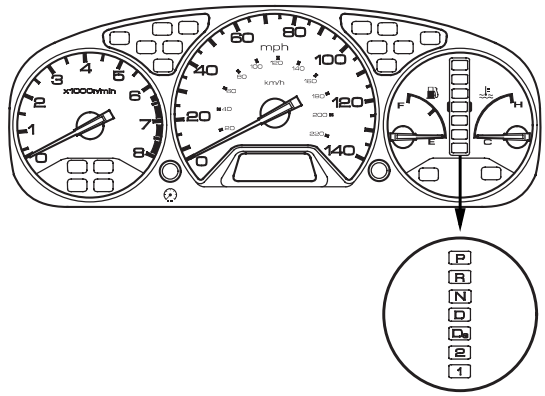
9. Install the transmission range switch cover (C), and the harness holder (D) on the end cover (E).

10. Connect the transmission range switch connector (A), then install it on the connector bracket (B).



11. Install the harness clamp (C) on its bracket (D).

12. Turn the ignition switch ON (II). Move the shift lever through all gears, and check the transmission range switch synchronization with the A/T gear position indicator.



13. Allow the wheels to rotate freely, then start the engine.

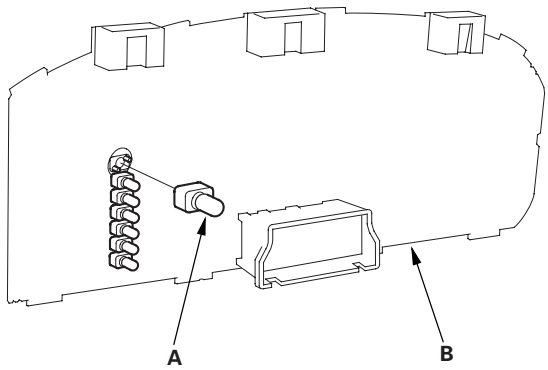
14. Move the shift lever through all gears, and verify the following:

    - The engine will not start in any position other than N or P.
    - The back-up lights come on when the shift lever is in the R position.

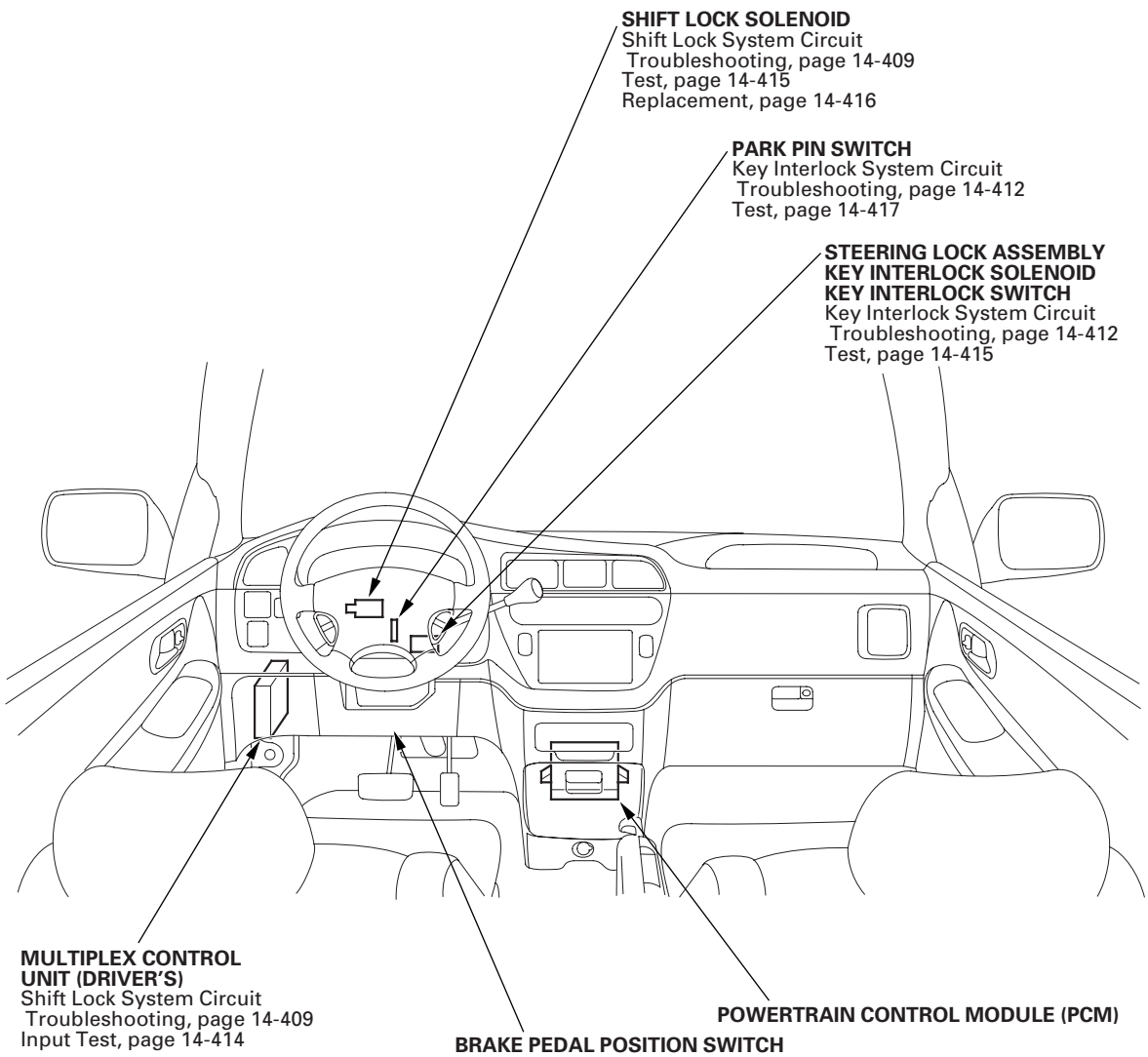
Indicator Bulb Replacement

SRS components are located in this area. Review the SRS component locations, 2002 model (see page 23-19), 2003-2004 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

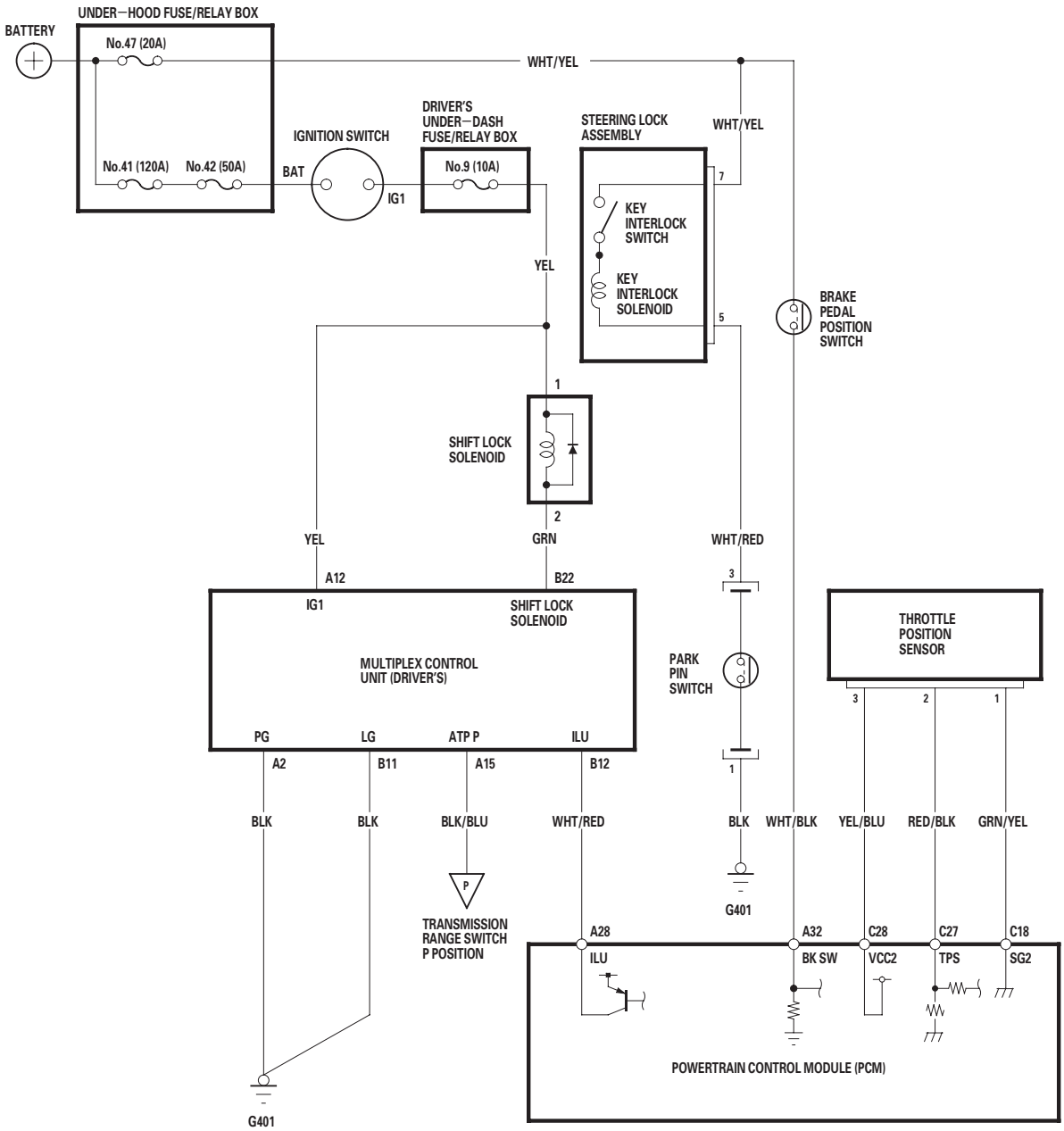
1. Remove the gauge assembly (see page 22-100).
2. Disassemble the gauge assembly.
3. Replace the bulbs (A) at the gauge assembly (B).



Component Location Index



Circuit Diagram



MULTIPLEX CONTROL UNIT, DRIVER'S CONNECTORS

A (24P)

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal side of male terminals

B (22P)

1		3	4	5				8		
11	12	13	14	15	16		17			22

Wire side of female terminals

Shift Lock System Circuit Troubleshooting

1. Press the brake pedal.

   Are the brake lights ON?

   YES—Go to step 2.

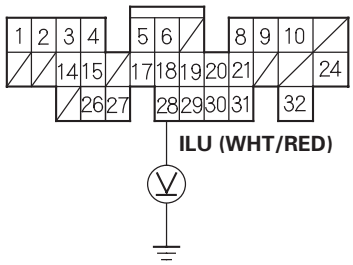
   NO—Repair faulty brake light circuit. ■

2. Turn the ignition switch ON (II), and shift to the P position.

3. Press the brake pedal, and release the accelerator pedal.

4. Measure the voltage between PCM connector terminal A28 and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals

   Is there battery voltage?

   YES—Check for an open in the wire between PCM connector terminal A28 and the multiplex control unit (driver's). If the wire is OK, check for loose terminal fit in the multiplex control unit (driver's) connectors. If necessary, substitute a known-good multiplex control unit (driver's) and recheck. ■

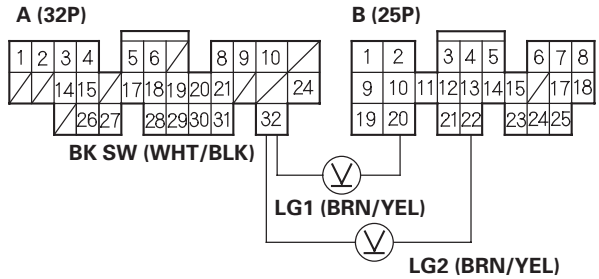
   NO—Go to step 5.

5. Turn the ignition switch OFF, and disconnect the battery negative terminal.

6. Disconnect PCM connectors A (32P) and B (25P).

7. Press the brake pedal, and measure the voltage between PCM connector terminals A32 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

   Is there battery voltage?

   YES—Release the brake pedal, and go to step 8.

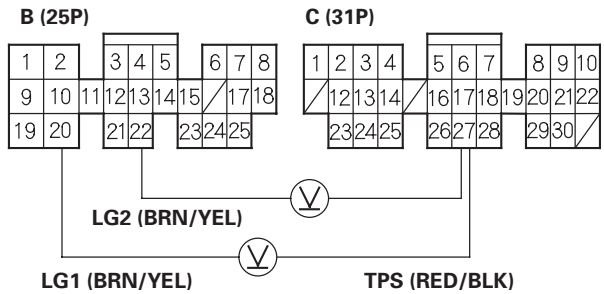
   NO—Repair open in the wire between PCM connector terminal A32 and the brake pedal position switch. ■

8. Connect PCM connectors A (32P) and B (25P).

9. Turn the ignition switch ON (II).

10. Measure the voltage between PCM connector terminals A27 and B20 or B22.

PCM CONNECTORS



Wire side of female terminals

   Is there about 0.5 V (throttle fully closed)?

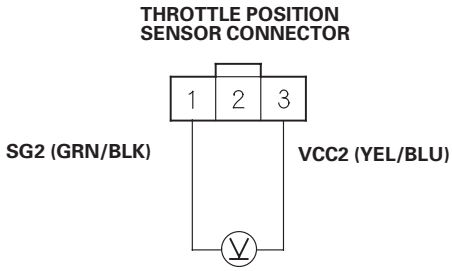
   YES—Go to step 18.

   NO—Go to step 11.

(cont'd)

Shift Lock System Circuit Troubleshooting (cont'd)

11. Turn the ignition switch OFF.
12. Disconnect the throttle position sensor (TPS) connector.
13. Turn the ignition switch ON (II).
14. Measure the voltage between TPS connector terminals No. 1 and No. 3.



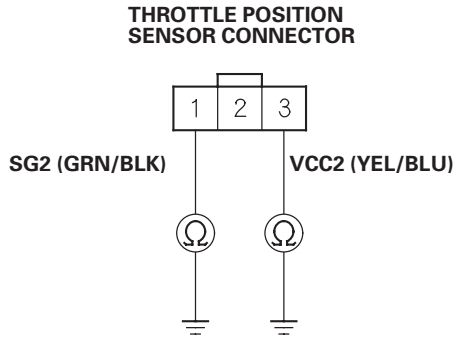
Wire side of female terminals

Is there about 5V?

YES—Check for a short or an open in the wire between PCM connector terminal A27 and the TPS. If the wire is OK, replace the TPS. ■

NO—Go to step 15.

15. Turn the ignition switch OFF.
16. Disconnect PCM connector C (31P).
17. Check for continuity between TPS connector terminal No. 1 and body ground, and between terminal No. 3 and body ground.



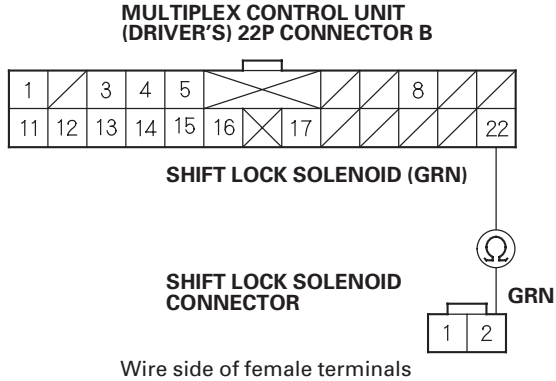
Wire side of female terminals

Are there continuity?

YES—Check for a short to ground in the wires between TPS connector terminals No. 1 and No. 3, and the PCM. If the wires are OK, replace the PCM. ■

NO—Go to step 18.

18. Disconnect the shift lock solenoid connector.
19. Check for continuity between shift lock solenoid connector terminal No. 2 and multiplex control unit (driver's) connector terminal B22.



Wire side of female terminals

Is there continuity?

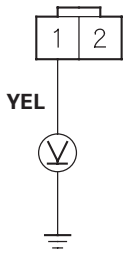
YES—Go to step 20.

NO—Repair open in the wire between multiplex control unit (driver's) connector terminal B22 and the shift lock solenoid. ■

20. Turn the ignition switch ON (II).

21. Measure the voltage between shift lock solenoid connector terminal No. 1 and body ground.

SHIFT LOCK SOLENOID CONNECTOR



Wire side of female terminals

Is there battery voltage?

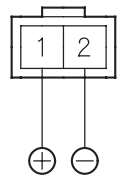
YES — Go to step 22.

NO — Check for blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box. If the fuse is OK, repair open or short in the wire between the No. 1 terminal of the shift lock solenoid connector and the driver's under-dash fuse/relay box. ■

22. Connect the battery positive terminal to shift lock solenoid connector terminal No. 1, and connect the battery negative terminal to the terminal No. 2.

NOTE: Do not connect the terminal No. 2 to the battery positive terminal or you will damage the diode inside the shift lock solenoid.

SHIFT LOCK SOLENOID CONNECTOR



Terminal side of male terminals

23. Check that the shift lock solenoid operates.

Does the shift lock solenoid operate properly?

YES — Check for a loose multiplex control unit (driver's) connector. If necessary, substitute a known-good multiplex control unit (driver's) and recheck. ■

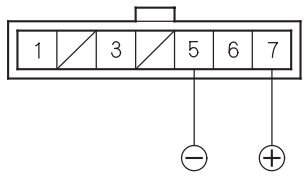
NO — Replace the shift lock solenoid. ■

Key Interlock System Circuit Troubleshooting

1. Disconnect the key switch connector (7P) from the steering lock assembly.

2. Connect the battery positive terminal key switch connector terminal No. 7, and connect the battery negative terminal to the terminal No. 5.

KEY SWITCH CONNECTOR (7P)



Terminal side of male terminals

3. Turn the ignition switch to ACC (I), then push the ignition key.

4. Check the key interlock solenoid operation.
   A clicking sound should be heard while pushing the ignition key, and you should not be able to turn it to the OFF position.

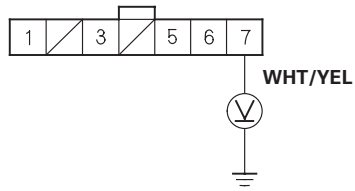
   Does the key interlock solenoid operate properly?

   YES—Go to step 5.

   NO—Faulty key interlock solenoid/switch. Replace the ignition key cylinder/steering lock assembly. ■

5. Measure the voltage between the terminal No. 7 and body ground.

KEY SWITCH CONNECTOR (7P)



Wire side of female terminals

   Is there battery voltage?

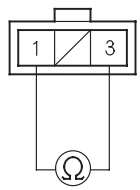
   YES—Go to step 6.

   NO—Check for a blown No. 47 (20A) fuse in the under-hood fuse/relay box. If the fuse is OK, repair open or short in the wire between key switch connector terminal No. 7 and under-hood fuse/relay box. ■

6. Disconnect the park pin switch connector on the shift lever.

7. With the shift lever in P and pulled back toward the driver, check for continuity between park pin switch connector terminals No. 1 and No. 3.

PARK PIN SWITCH CONNECTOR



Terminal side of male terminals

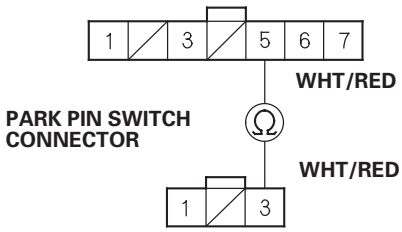
   Is there continuity?

   YES—Go to step 8.

   NO—Repair open in the wires between the park pin switch and the connector. If the wires are OK, replace the park pin switch . ■

8. Check for continuity between park pin switch connector terminal No. 3 and key switch connector terminal No. 5.

KEY SWITCH CONNECTOR (7P)



Wire side of female terminals

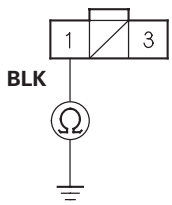
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between park pin switch connector terminal No. 3 and the key switch connector terminal No. 5. ■

9. Check for continuity between park pin switch connector terminal No. 1 and body ground.

PARK PIN SWITCH CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Check for a loose key switch connector and park pin switch connector. If necessary, substitute a known-good steering lock assembly. ■

NO—Repair open in the wire between park pin switch connector terminal No. 1 and ground (G401), or repair poor ground (G401). ■

Control Unit Input Test

SRS components are located in this area. Review the SRS component locations, 2002 model (see page 23-19), 2003-2004 models (see page 23-20), and the precautions and the procedures (see page 23-21) in the SRS before performing repairs or service.

1. Disconnect the 22P connector from the multiplex control unit, driver's, then remove the control unit from the driver's under-dash fuse/relay box.

2. Inspect the connectors and connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.

   NOTE: If the shift lock solenoid clicks when the ignition switch is turned ON (II) while pressing the brake pedal with the shift lever in the P position, the shift lock system is OK. If the shift lever cannot be shifted from the P position, test the transmission range switch.

3. With the control unit still disconnected from its connectors and the fuse/relay box, make these input tests.
   - If a test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 4.

Multiplex Control Unit, Driver's, Connector A (24P)

Cavity	Wire Color	Test Condition	Test: Desired Result	Possible Cause(If result is not obtained)
A2	———	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • An open in the wire
A12	———	Ignition switch turned ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • An open in the wire
A15	———	Shift lever in P	Check for continuity to ground: There should be continuity.	• Faulty transmission range switch • Poor ground (G101) • An open in the wire

Multiplex Control Unit, Driver's, Connector B (22P)

Cavity	Wire Color	Test Condition	Test: Desired Result	Possible Cause(If result is not obtained)
B11	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • An open in the wire
B22	GRN	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • Faulty shift lock solenoid • An open in the wire

4. Reconnect the connectors to the multiplex control unit, and make this input test.
   - If a test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, substitute a known-good multiplex control unit, and recheck the system. If the system is OK, the multiplex control unit must be faulty; replace it.

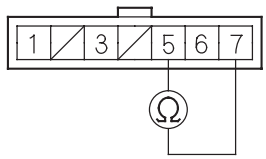
Cavity	Wire Color	Test Condition	Test: Desired Result	Possible Cause(If result is not obtained)
B12	WHT/RED	Ignition switch ON (II) and brake pedal pushed	Check for voltage to ground: There should be battery voltage.	• Faulty brake pedal position switch • Faulty PCM • Faulty multiplex control unit (driver's) • An open in the wire
		Ignition switch ON (II), brake pedal and accelerator pedal pressed at the same time	Check for voltage to ground: There should be 1 V or less.	

Key Interlock Solenoid/Switch Test

SRS components are located in this area. Review the SRS component locations, 2002 model (see page 23-19), 2003-2004 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the steering lower cover (see page 17-25).
2. Disconnect the key switch connector (7P) from the steering lock assembly.
3. Check for continuity between the terminals No. 5 and No. 7 when the key is pushed, and check for no continuity when the key is released.

KEY SWITCH CONNECTOR (7P)



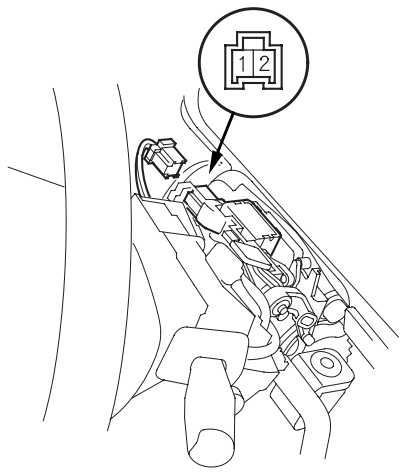
Terminal side of male terminals

4. Check that the key cannot be removed with power connected to the terminal No. 7 and ground connected to the terminal No. 3.
   - If the key cannot be removed, the key interlock solenoid is OK.
   - If the key can be removed, replace the steering lock assembly (the key interlock solenoid is not available separately).

Shift Lock Solenoid Test

SRS components are located in this area. Review the SRS component locations, 2002 model (see page 23-19), 2003-2004 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the steering column upper cover (see page 17-25).
2. Disconnect the shift lock solenoid 2P connector.



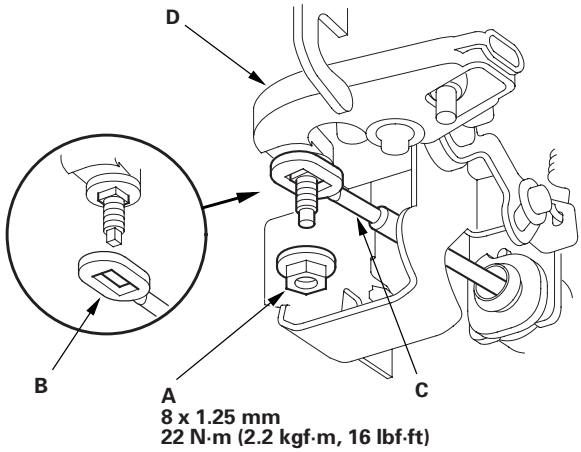
3. Connect the battery positive terminal shift lock solenoid connector terminal No. 1, and connect the battery negative terminal to the terminal No. 2.
4. Check that the shift lever can be moved from the P position. Release the battery terminals from the shift lock solenoid connector. Move the shift lever back to the P position, and make sure it locks.

   NOTE: Do not connect power to the terminal No. 2 (reverse polarity) or you will damage the diode inside the solenoid.
5. Check that the shift lock releases when the release lever is pushed, and check that it locks when the release lever is released.
6. If the solenoid does not work, replace it.

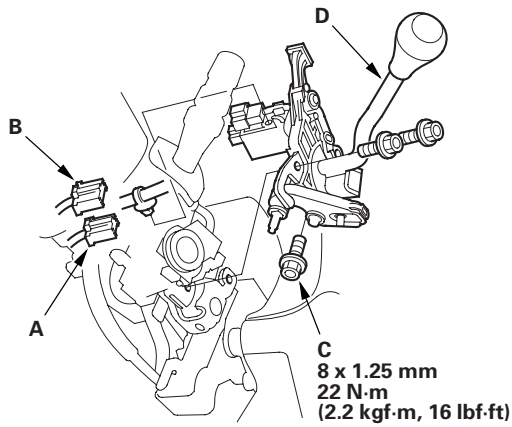
Shift Lock Solenoid Replacement

SRS components are located in this area. Review the SRS component locations, 2002 model (see page 23-19), 2003-2004 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

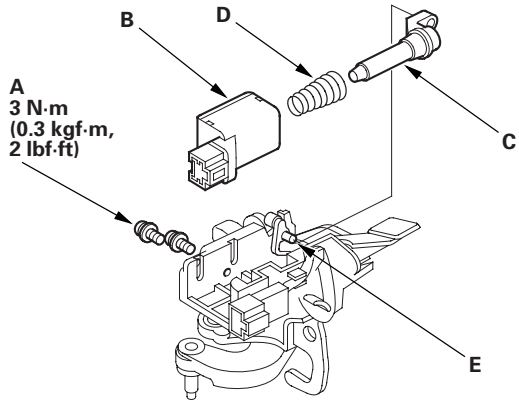
1. Remove the steering column covers (see page 17-25).
2. Shift the transmission into the N position.
3. Remove the nut (A) securing the shift cable end (B), then separate the shift cable (C) from the shift lever assembly (D).



4. Disconnect the shift lock solenoid connector (A) and the park pin switch connector (B).



5. Remove the three bolts (C) securing the shift lever assembly, then remove the shift lever assembly (D).
6. Remove the screws (A) securing the shift lock solenoid (B), then remove the shift lock solenoid.



7. Install the shift lock solenoid plunger (C) and plunger spring (D) in the new shift lock solenoid.
8. Install the shift lock solenoid by aligning the joint of the shift lock solenoid with the tip of the shift lock extension (E), then tighten the screws.
9. Install the shift lever assembly.
10. Install the shift cable end to the shift lever. If necessary, adjust the shift cable (see step 5 on page 14-395).

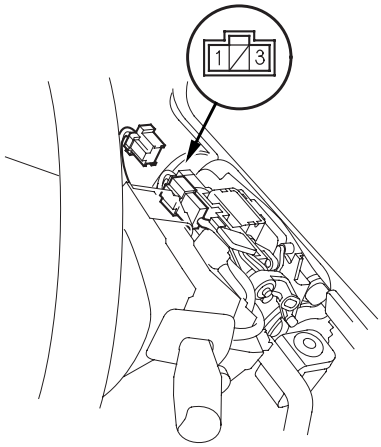
Park Pin Switch Test/Replacement

SRS components are located in this area. Review the SRS component locations, 2002 model (see page 23-19), 2003-2004 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Remove the steering column covers (see page 17-25).

2. Disconnect the park pin switch connector.

3. Shift the shift lever into the P position, then check for continuity between the terminals No. 1 and No. 3. There should be no continuity.

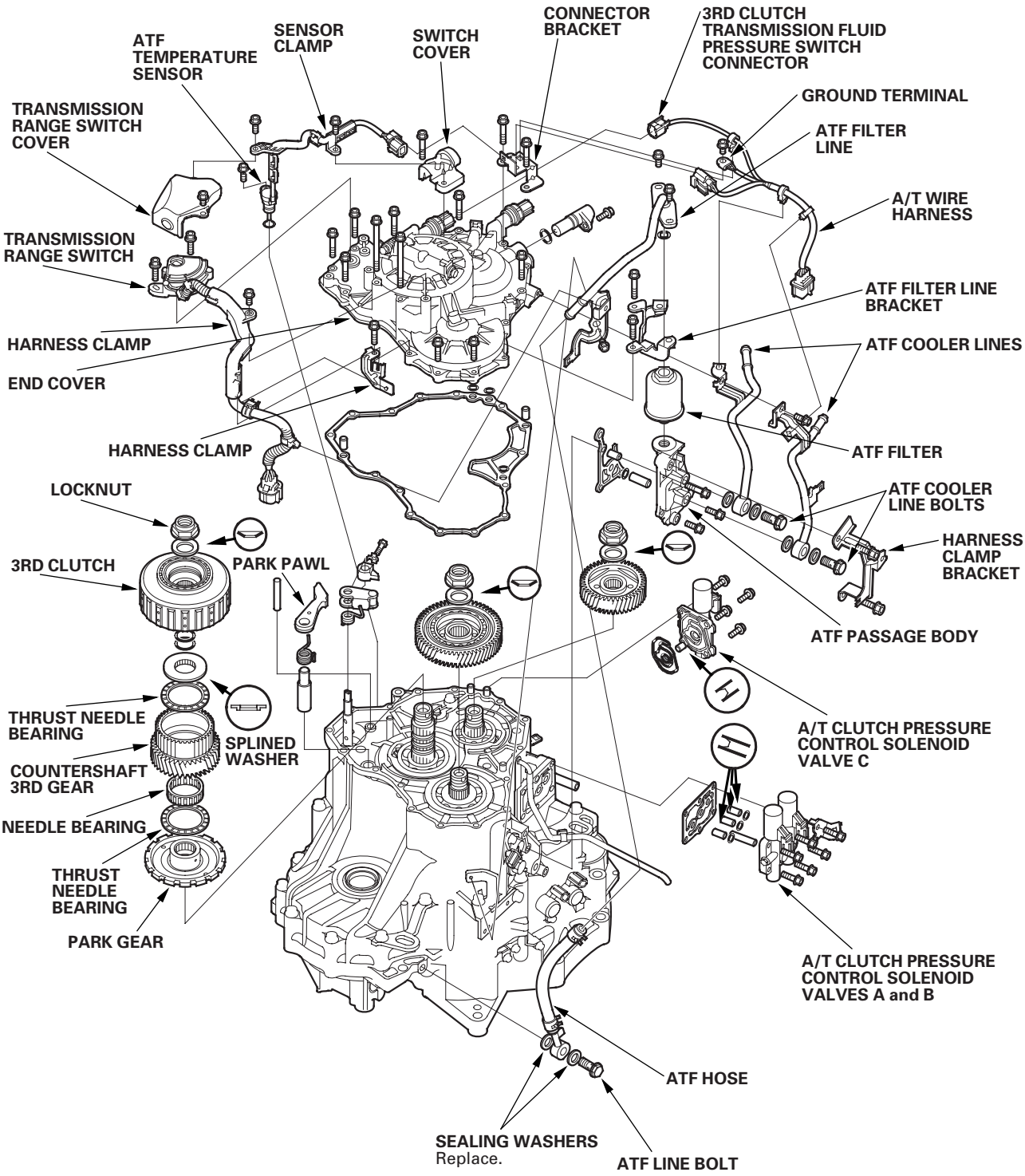


4. Shift the shift lever out of the P position, and check for continuity between the terminals in step 3.

5. If the park pin switch is faulty, replace the control bracket assembly. (The park pin switch is not available separately.)

End Cover, 3rd Gear, Idler Gear, and 3rd Clutch Removal

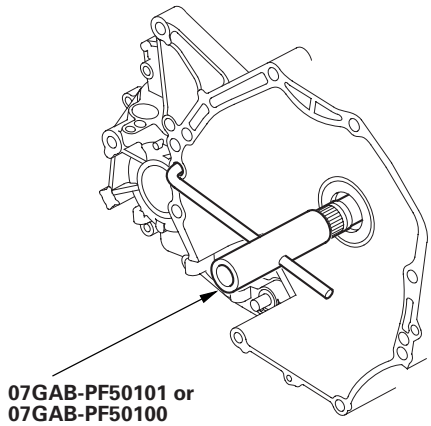
Exploded View



Special Tools Required
- Mainshaft holder
  07GAB-PF50101 or 07GAB-PF50100
- Adjustable bearing puller, 25—40 mm
  07736-A01000B or 07736-A01000A

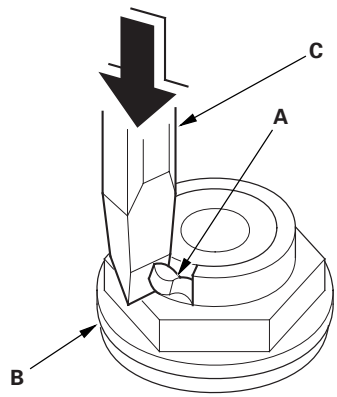
NOTE: Refer to the exploded view as needed during the following procedure.

1. Remove the ATF temperature sensor connector from the connector bracket, then disconnect the connector.
2. Remove the ATF temperature sensor harness clamp bolts and the ATF temperature sensor, then remove the switch cover.
3. Remove the A/T wire harness ground terminal from the connector bracket, and disconnect the 3rd clutch transmission fluid pressure switch connector, then remove the connector bracket.
4. Remove the transmission range switch cover.
5. Remove the transmission range switch harness clamp bolts and harness clamp, then remove the transmission range switch.
6. Remove the harness clamp bracket, ATF cooler line bolts (two), and lines.
7. Remove the line bolt, the ATF hose, and the ATF filter line.
8. Remove the ATF filter line bracket and ATF filter. Remove the ATF passage body if necessary.
9. Remove the A/T clutch pressure control solenoid valve C.
10. Remove the remaining 10 bolts on the end cover, then remove the end cover.
11. Slip the special tool onto the mainshaft.



12. Engage the park pawl with the park gear.
13. Cut the lock tabs (A) of each shaft locknut (B) using a chisel (C). Then remove the locknuts and conical spring washers from each shaft.

    NOTE:
    - Countershaft and secondary shaft locknuts have left-hand threads.
    - Clean the old locknut; they are used to install the press fit mainshaft 3rd gear, secondary shaft idler gear, park gear, and 3rd clutch assembly on the countershaft.
    - Keep all of the chiseled particles out of the transmission.

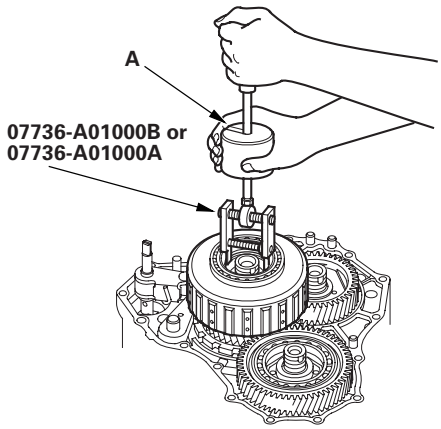


14. Remove the special tool from the mainshaft.

(cont'd)

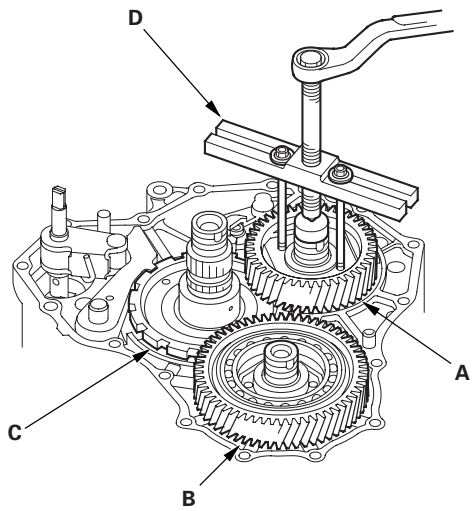
End Cover, 3rd Gear, Idler Gear, and 3rd Clutch Removal (cont'd)

15. Remove the 3rd clutch assembly using the special tool and a commercially available 3/8-16'' slide hammer (A).



16. Remove the splined washer, thrust needle bearing, countershaft 3rd gear, needle bearing, and thrust needle bearing from the countershaft.

17. Remove the mainshaft 3rd gear (A), secondary shaft idler gear (B), and park gear (C) with a puller (D).



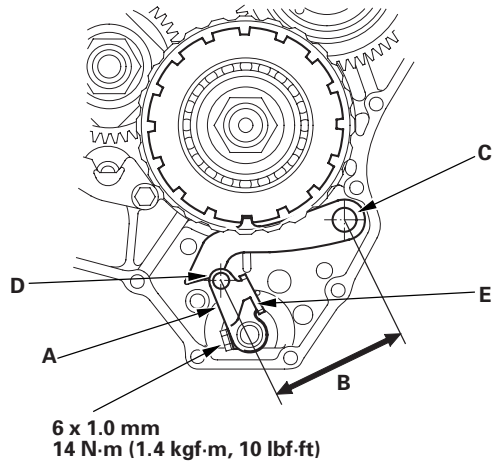
18. Remove the park pawl, park pawl spring, park pawl shaft, and stop shaft.

19. Remove the park lever from the control shaft.

20. Remove A/T clutch pressure control solenoid valves A and B.

Park Lever Stop Inspection and Adjustment

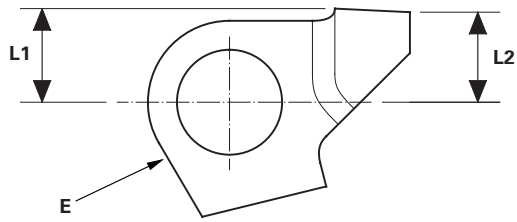
1. Set the park lever (A) in the P position.



2. Measure the distance (B) between the park pawl shaft (C) and the park lever roller pin (D).

   Standard: 84.6—85.6 mm (3.33—3.37 in.)

3. If the measurement is out of tolerance, select and install the appropriate park lever stop (E) from the table.



PARK LEVER STOP

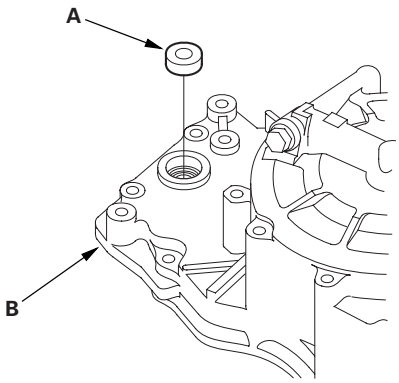
Mark	Part Number	L1	L2
1	24537-PA9-003	11.00 mm (0.433 in.)	11.00 mm (0.433 in.)
2	24538-PA9-003	10.80 mm (0.425 in.)	10.65 mm (0.419 in.)
3	24539-PA9-003	10.60 mm (0.417 in.)	10.30 mm (0.406 in.)

4. After replacing the park lever stop, make sure the distance is within tolerance.

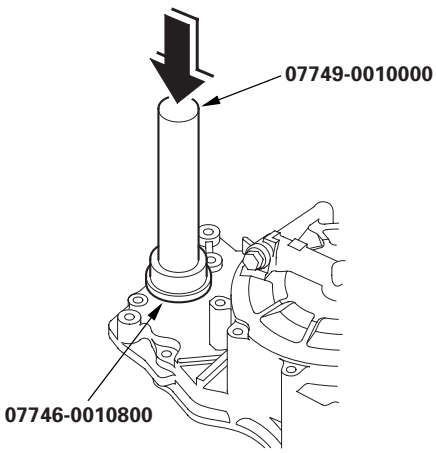
Control Shaft Oil Seal Replacement

Special Tools Required
- Driver 07749-0010000
- Attachment, 22 x 24 mm 07746-0010800

1. Remove the oil seal (A) from the end cover (B).



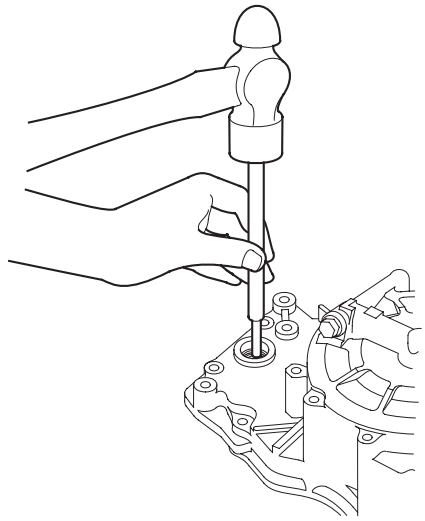
2. Install the new oil seal flush to the end cover with the special tools.



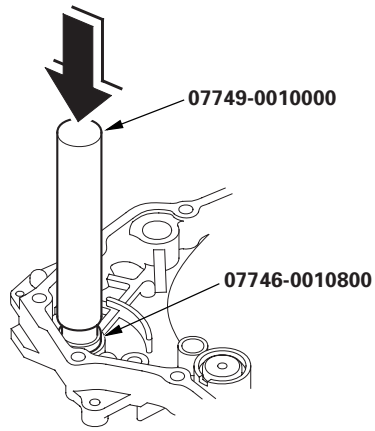
Control Shaft Bearing Replacement

Special Tools Required
- Driver 07749-0010000
- Attachment, 22 x 24 mm 07746-0010800

1. Remove the oil seal from the end cover, then remove the bearing.



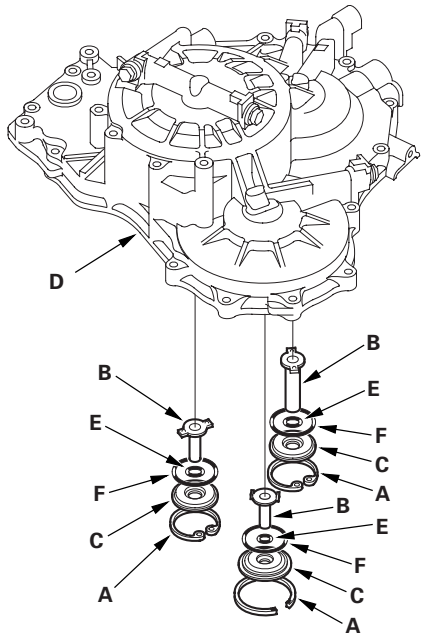
2. Install the new bearing flush to the end cover with the special tools.



3. Install the new oil seal.

ATF Feed Pipe Replacement

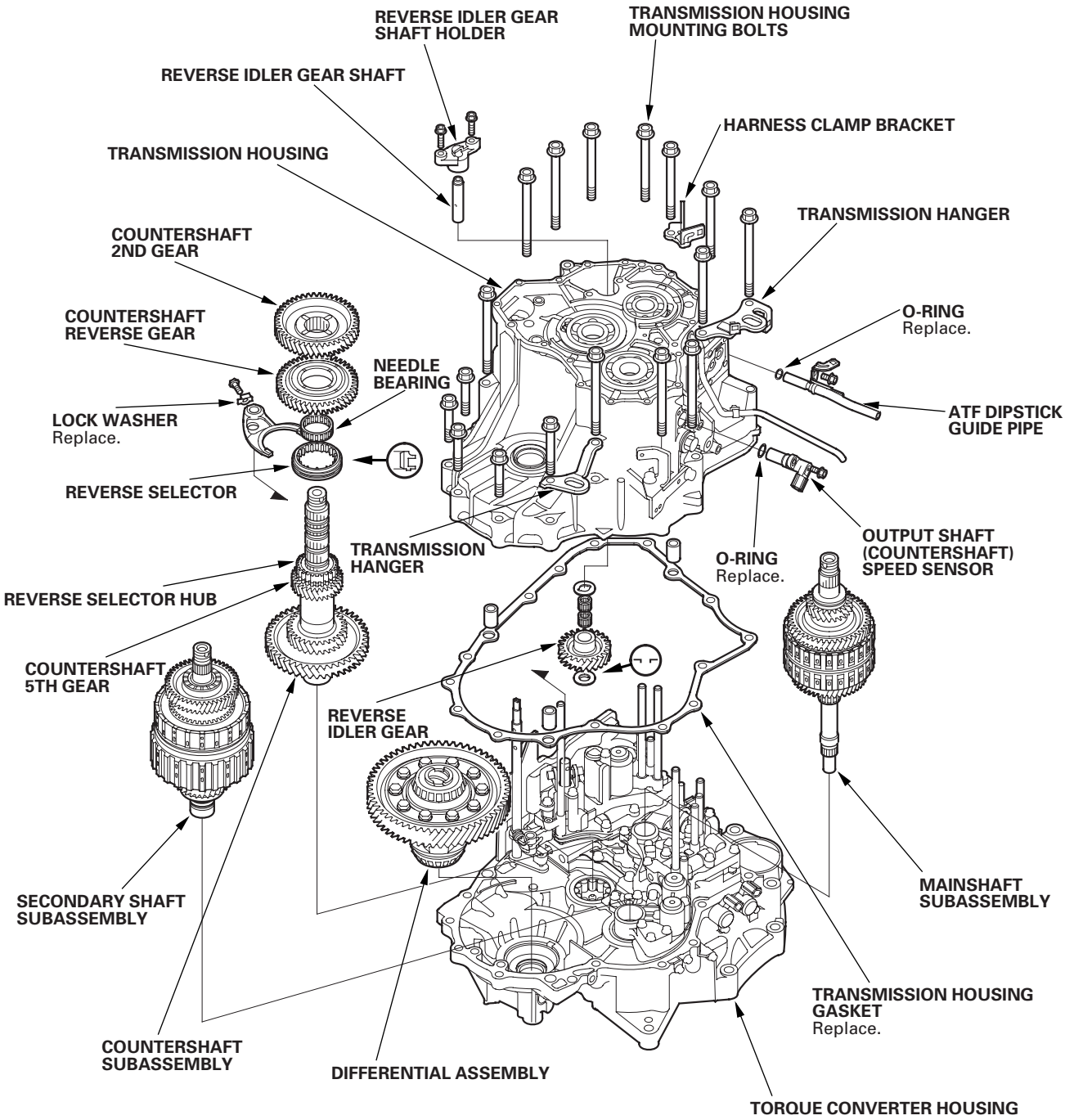
1. Remove the snap rings (A), ATF feed pipes (B) and feed pipe flanges (C) from the end cover (D).



2. Install the new O-ring (E) over the ATF feed pipe.
3. Install ATF feed pipe in the end cover with aligning the feed pipe tabs with the indentations in the end cover.
4. Install the new O-ring (F) in the end cover, then install the feed pipe flange over the ATF feed pipe and O-rings.
5. Secure the ATF feed pipe and feed pipe flange with the snap ring.

Housing and Shaft Assembly Removal

Exploded View



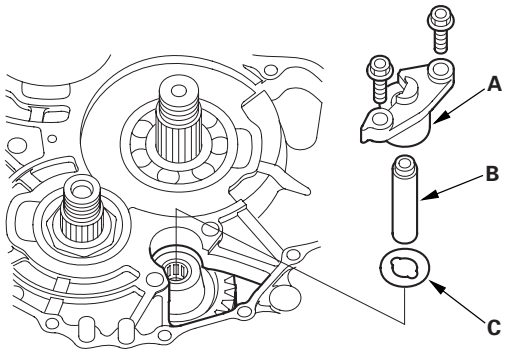
(cont'd)

Housing and Shaft Assembly Removal (cont'd)

Special Tools Required
Housing puller 07HAC-PK40102

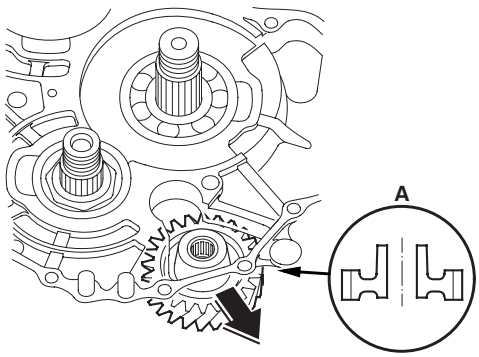
NOTE: Refer to the exploded view as needed during the following procedure.

1. Remove the ATF dipstick guide pipe.
2. Remove the two bolts securing the reverse idler gear shaft holder, then remove the reverse idler gear shaft holder (A), shaft (B), and washer (C).

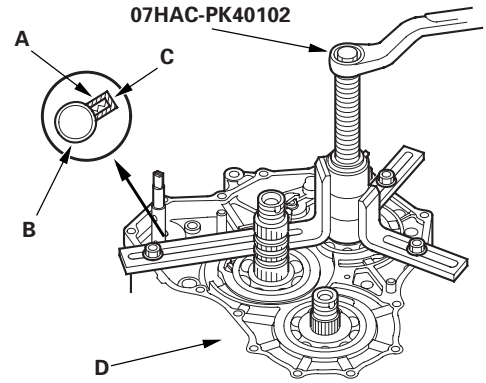


3. Remove the transmission housing mounting bolts, transmission hangers, and harness clamp bracket.
4. Move the reverse idler gear (A) to disengage it from the mainshaft and countershaft reverse gears.

   NOTE: The transmission housing will not separate from the torque converter housing if the reverse idler gear is not moved.



5. Align the spring pin (A) on the control shaft (B) with the transmission housing groove (C) by turning the control shaft.



6. Install the special tool over the mainshaft, then remove the transmission housing (D).

   NOTE: If the top arm of your housing puller is too short, replace it with Housing puller arm, 205 mm, T/N 07SAC-P0Z0101.

7. Remove the reverse idler gear, needle bearings, and thrust washer from the transmission housing.
8. Remove the countershaft 2nd gear, then remove the countershaft reverse gear and the needle bearing.
9. Remove the lock bolt securing the shift fork, then remove the shift fork with the reverse selector. If the reverse selector hub is not press-fitted, remove the reverse selector hub, countershaft 5th gear, and needle bearing from the countershaft.
10. Remove the secondary shaft subassembly. If the reverse selector hub is press-fitted, remove the secondary shaft subassembly, countershaft subassembly and mainshaft subassembly together.
11. Remove the countershaft subassembly.
12. Remove the mainshaft subassembly.
13. Remove the differential assembly.
14. Remove the output shaft (countershaft) speed sensor if necessary.

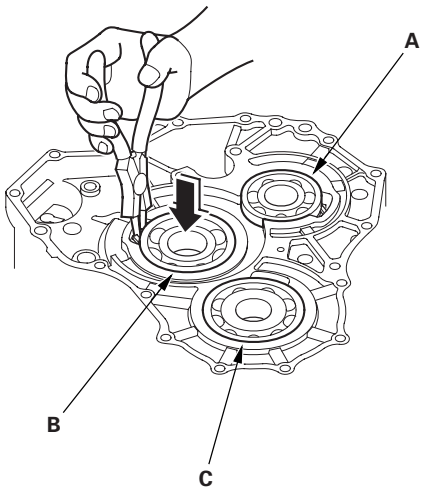
Bearing Removal and Installation

Special Tools Required
- Driver 07749-0010000
- Seal driver attachment
  07GAD-PG40101 or 07GAD-PG40100
- Attachment, 62 x 68 mm 07746-0010500
- Attachment, 72 x 75 mm 07746-0010600

NOTE: Coat all parts with ATF before assembly.

1. To remove the mainshaft bearing (A), countershaft bearing (B), and secondary shaft bearing (C) from the transmission housing, expand each snap ring with the snap ring pliers, then push the bearing out.

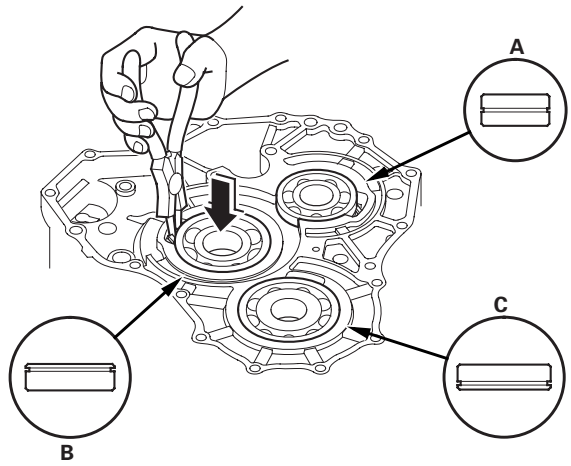
   NOTE: Do not remove the snap rings unless it's necessary to clean the grooves in the housing.



2. Install the bearings in the direction shown.

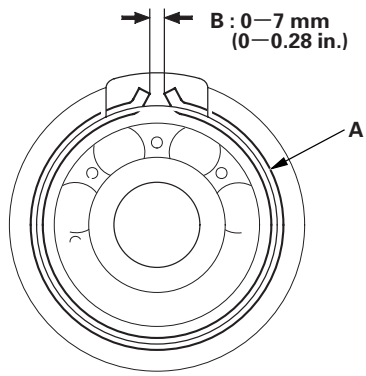
3. Expand each snap ring with the snap ring pliers, and insert the bearing part-way into the housing.

4. Release the pliers, then push the bearing down into the housing until the snap ring snaps in place around it.



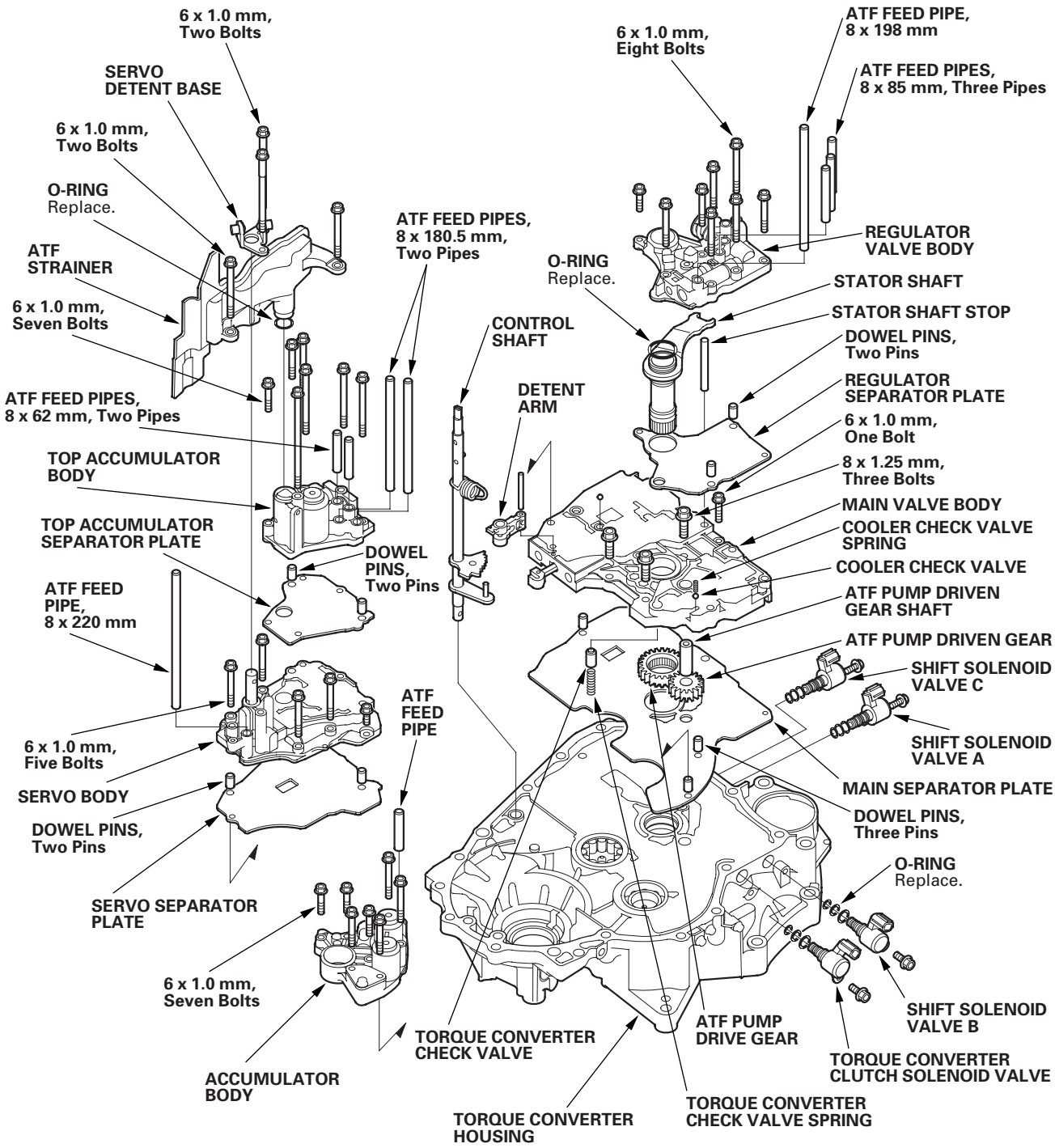
5. After installing the bearings verify the following:

   - The snap rings (A) are seated in the bearing and housing grooves.
   - The ring end gaps (B) are correct.



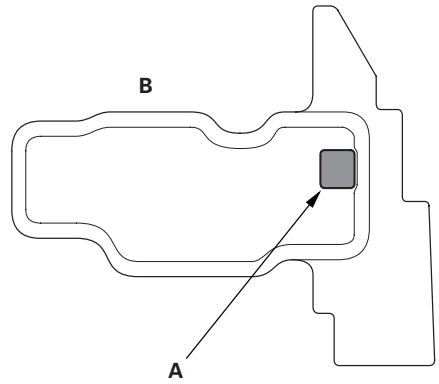
Valve Body and ATF Strainer Removal

Exploded View



NOTE: Refer to the exploded view as needed during the following procedure.

1. Remove the ATF feed pipes from the regulator valve body, servo body, top accumulator body, and accumulator body.
2. Remove the servo detent base (two bolts).
3. Remove the ATF strainer (two bolts).
4. Remove the top accumulator body (seven bolts), then remove the accumulator body separator plate and dowel pins (2).
5. Remove the servo body (five bolts), then remove servo separator plate and dowel pins (2).
6. Remove the regulator valve body (eight bolts).
7. Remove the stator shaft and stator shaft stop.
8. Remove the regulator separator plate and dowel pins (2).
9. Remove the accumulator body (seven bolts).
10. Unhook the detent spring from the detent arm, then remove the detent arm shaft, detent arm, and control shaft.
11. Remove the cooler check valve spring and cooler check valve (ball).
12. Remove the main valve body (four bolts).
13. Remove the torque converter check valve and spring.
14. Remove the ATF pump driven gear shaft, then remove the ATF pump gears.
15. Remove the main separator plate and dowel pins (3).
16. Clean the inlet opening (A) of the ATF strainer (B) thoroughly with compressed air, then check that it is in good condition and that the inlet opening is not clogged.



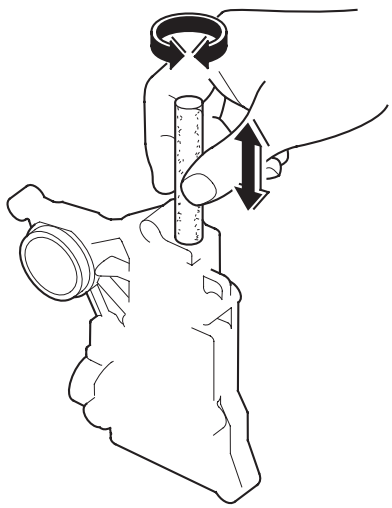
17. Test the ATF strainer by pouring clean ATF through the inlet opening, and replace it if it is clogged or damaged.

Valve Body Repair

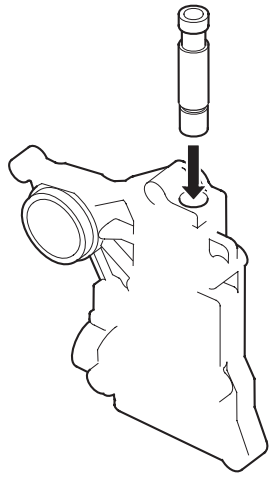
NOTE: This repair is only necessary if one or more of the valves in a valve body do not slide smoothly in their bores. Use this procedure to free the valves.

1. Soak a sheet of # 600 abrasive paper in ATF for about 30 minutes.
2. Carefully tap the valve body so the sticking valve drops out of its bore. It may be necessary to use a small screwdriver to pry the valve free. Be careful not to scratch the bore with the screwdriver.
3. Inspect the valve for any scuff marks. Use the ATF-soaked # 600 paper to polish off any burrs that are on the valve, then wash the valve in solvent and dry it with compressed air.
4. Roll up half a sheet of ATF-soaked # 600 paper and insert it in the valve bore of the sticking valve. Twist the paper slightly, so that it unrolls and fits the bore tightly, then polish the bore by twisting the paper as you push it in and out.

   NOTE: The valve body is aluminum and doesn't require much polishing to remove any burrs.



5. Remove the # 600 paper. Thoroughly wash the entire valve body in solvent, then dry it with compressed air.
6. Coat the valve with ATF, then drop it into its bore. It should drop to the bottom of the bore under its own weight. If not, repeat steps 4 and 5, then retest. If the valve still sticks, replace the valve body.

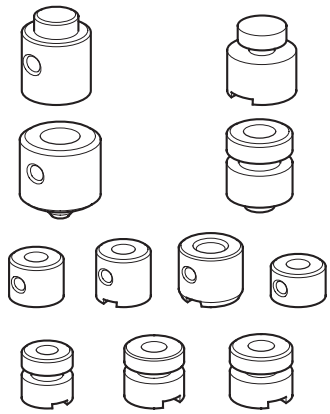


7. Remove the valve, and thoroughly clean it and the valve body with solvent. Dry all parts with compressed air, then reassemble using ATF as a lubricant.

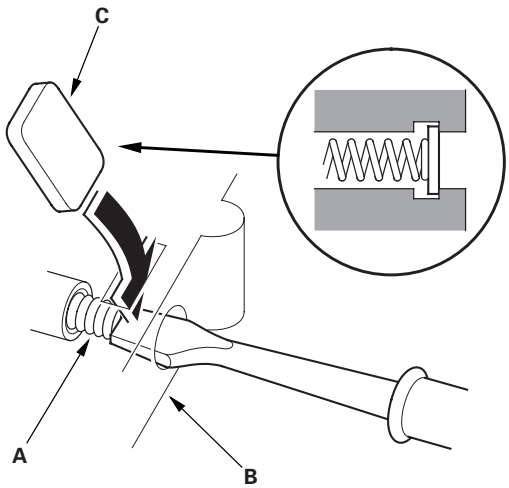
Valve Body Valve Installation

1. Coat all parts with ATF before assembly.

2. Install the valves and springs in the sequence shown for the main valve body (see page 14-430), regulator valve body (see page 14-433), servo body (see page 14-434), and top accumulator body (see page 14-435). Refer to the following valve cap illustrations, and install each valve cap so the end shown facing up will be facing the outside of the valve body.

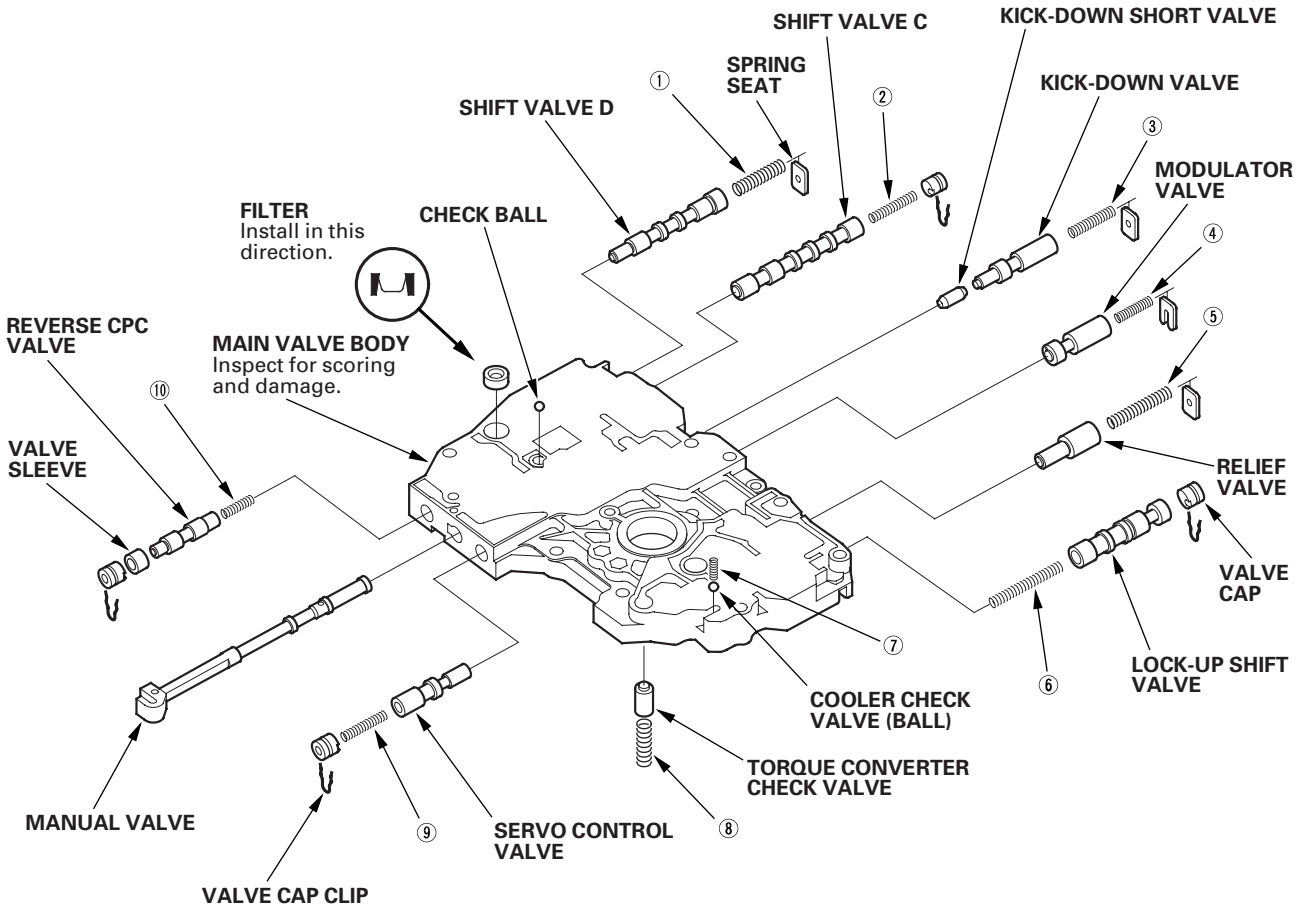


3. Install all the springs and seats. Insert the spring (A) in the valve, then install the valve in the valve body (B). Push the spring in with a screwdriver, then install the spring seat (C).

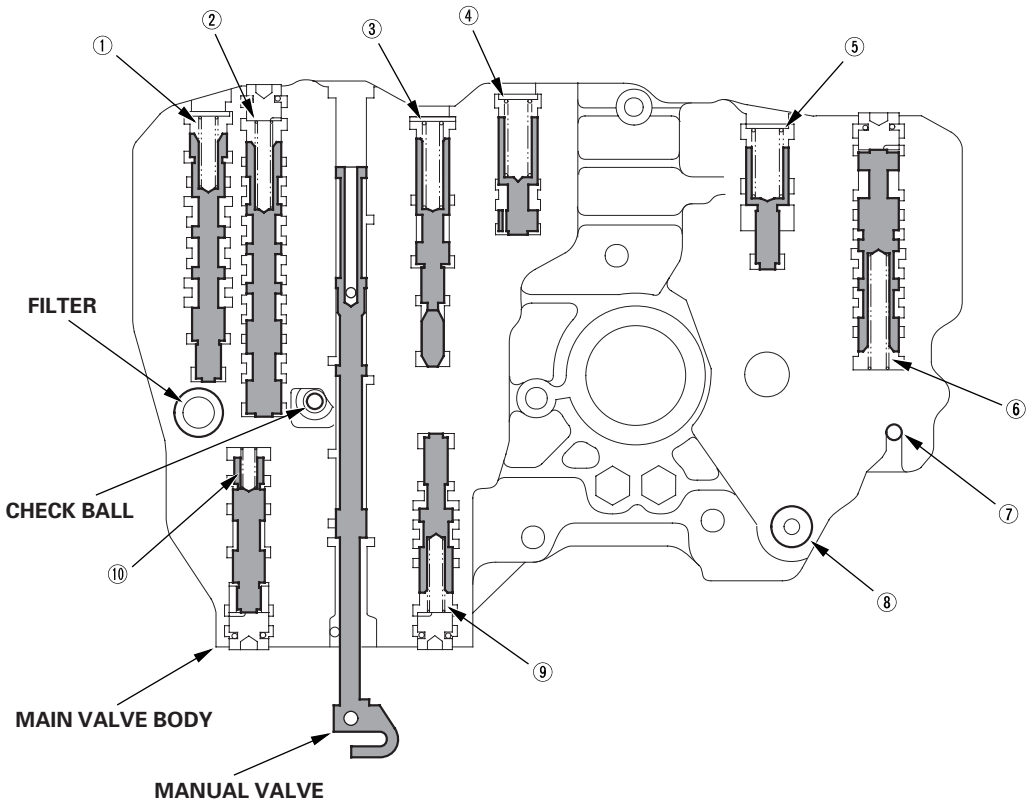


Main Valve Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
2. Do not use a magnet to remove the check ball, it may magnetize the ball.
3. Check all valves for free movement. If any fail to slide freely, refer to Valve Body Repair (see page 14-428).
4. Replace the valve body as an assembly if any parts worn or damaged.
5. Coat all parts with ATF during assembly.
6. Install the filter in the direction shown.



Sectional View

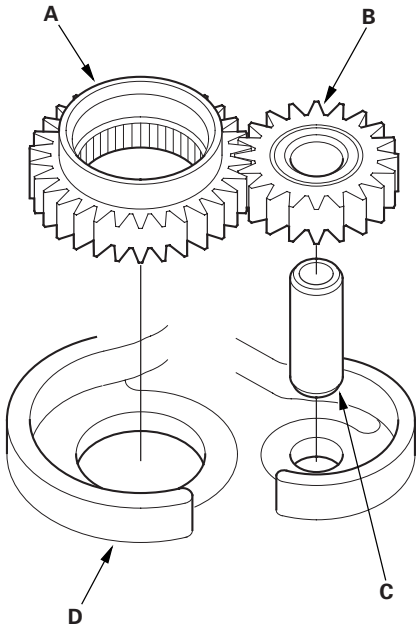


SPRING SPECIFICATIONS

No.	Spring	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	Shift valve D spring	0.7 (0.028)	6.6 (0.260)	33.7 (1.327)	11.6
②	Shift valve C spring	0.8 (0.031)	6.6 (0.260)	49.1 (1.933)	21.7
③	Kick-down valve spring	0.8 (0.031)	6.6 (0.260)	49.1 (1.933)	21.7
④	Modulator valve spring	1.6 (0.063)	10.4 (0.409)	33.5 (1.319)	9.8
⑤	Relief valve spring	1.2 (0.047)	11.1 (0.437)	39.0 (1.535)	9.9
⑥	Lock-up shift valve spring	0.9 (0.035)	7.6 (0.299)	63.0 (2.480)	22.4
⑦	Cooler check valve spring	0.6 (0.024)	5.8 (0.228)	14.5 (0.571)	6.8
⑧	Torque converter check valve spring	1.2 (0.047)	8.6 (0.339)	34.4 (1.354)	11.7
⑨	Servo control valve spring	0.9 (0.035)	6.4 (0.252)	32.5 (1.280)	17.5
⑩	Reverse CPC valve spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9

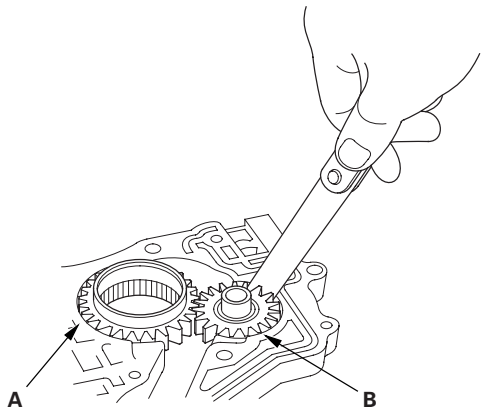
ATF Pump Inspection

1. Install the ATF pump drive gear (A), driven gear (B), and ATF pump driven gear shaft (C) in the main valve body (D). Lubricate all parts with ATF, and install the ATF pump driven gear with its grooved and chamfered side facing up.



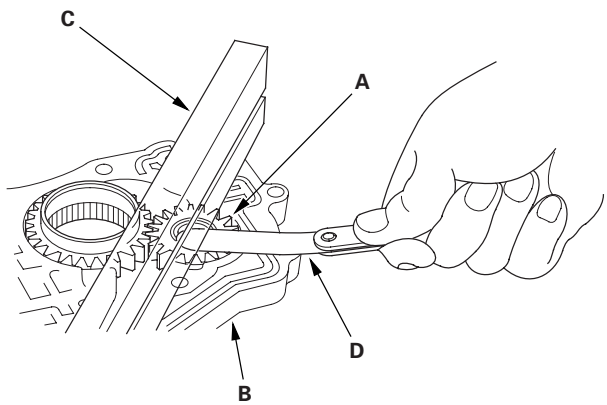
2. Measure the side clearance of the ATF pump drive gear (A) and driven gear (B).

ATF Pump Gears Side (Radial) Clearance:
Standard (New):
ATF Pump Drive Gear
0.210－0.265 mm (0.0083－0.00104 in.)
ATF Pump Driven Gear
0.070－0.125 mm (0.0028－0.0050 in.)



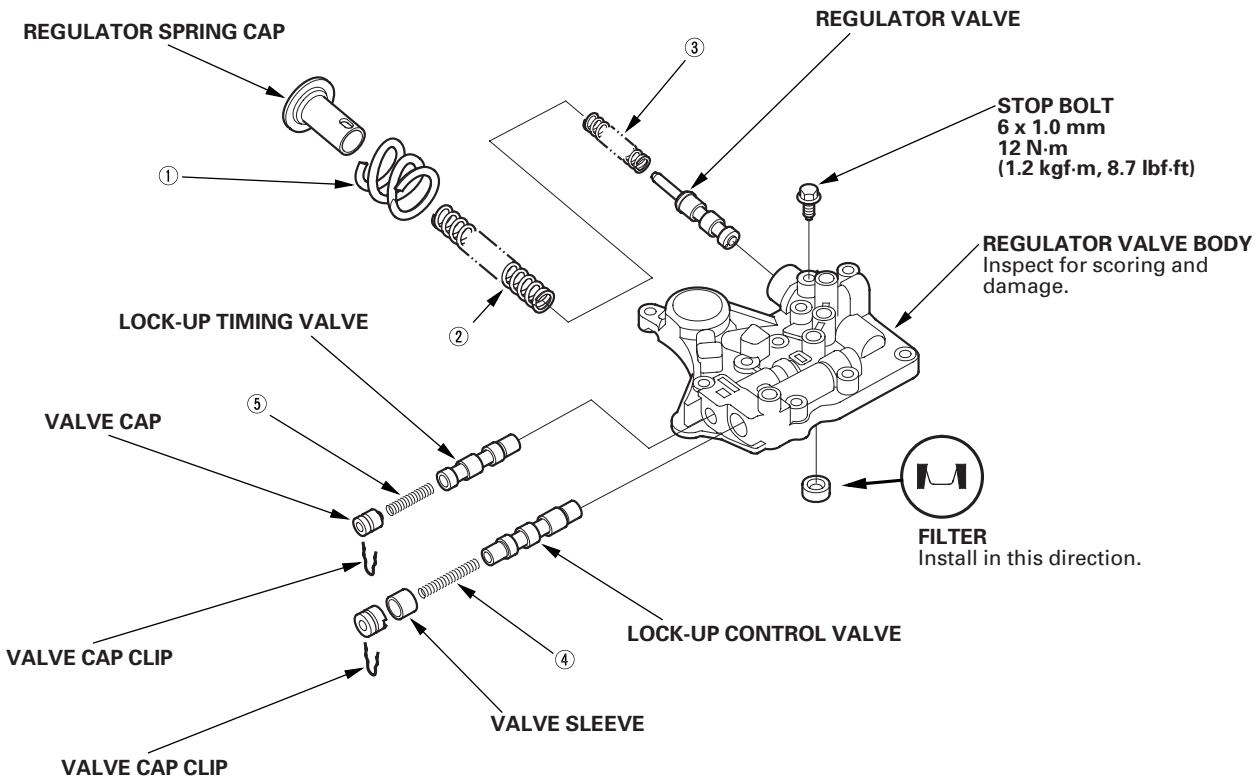
3. Remove the ATF pump driven gear shaft. Measure the thrust clearance between the ATF pump driven gear (A) and the valve body (B) with a straight edge (C) and a feeler gauge (D).

ATF Pump Drive/Driven Gear Thrust (Axial) Clearance:
Standard (New): 0.03－0.05 mm (0.001－0.002 in.)
Service Limit: 0.07 mm (0.003 in.)



Regulator Valve Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
2. Check all valves for free movement. If any fail to slide freely, refer to Valve Body Repair (see page 14-428).
3. Replace the valve body as an assembly if any parts are worn or damaged.
4. Hold the regulator spring cap in place while removing the stop bolt. The regulator spring cap is spring loaded. Once the stop bolt is removed, release the spring cap slowly so it does not pop out.
5. Reassembly is the reverse of the disassembly. Install the filter in the direction shown.
6. Coat all parts with ATF during assembly.
7. Align the hole in the regulator spring cap with the hole in the valve body, then press the spring cap into the valve body, and tighten the stop bolt.

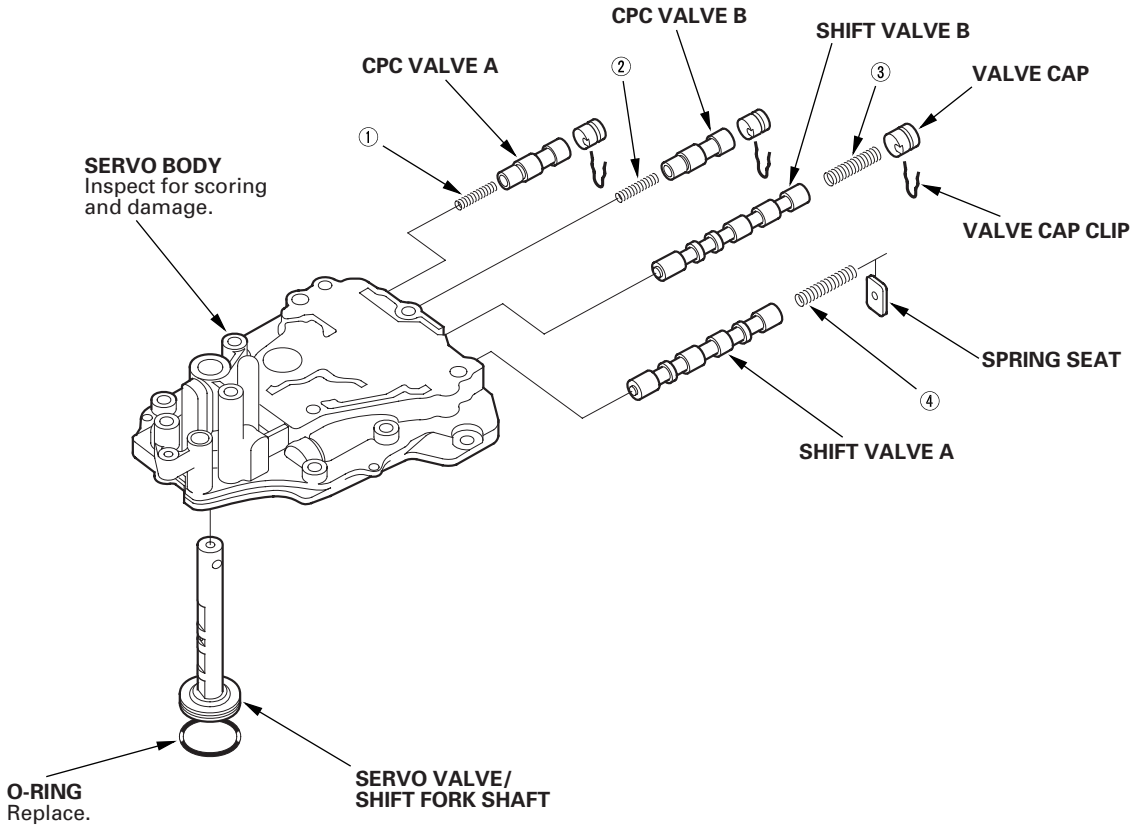


SPRING SPECIFICATIONS

No.	Spring	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	Stator reaction spring	5.5 (0.217)	37.4 (1.472)	30.3 (1.193)	2.1
②	Regulator valve spring A	1.9 (0.075)	14.7 (0.579)	80.6 (3.173)	16.1
③	Regulator valve spring B	1.6 (0.063)	9.2 (0.362)	44.0 (1.732)	12.5
④	Lock-up control valve spring	0.7 (0.028)	6.6 (0.260)	42.9 (1.689)	14.2
⑤	Lock-up timing valve spring	0.65 (0.026)	6.6 (0.260)	34.8 (1.370)	15.6

Servo Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
2. Check all valves for free movement. If any fail to slide freely, refer to Valve Body Repair (see page 14-428).
3. Replace the valve body as an assembly if any parts are worn or damaged.
4. Coat all parts with ATF during assembly.

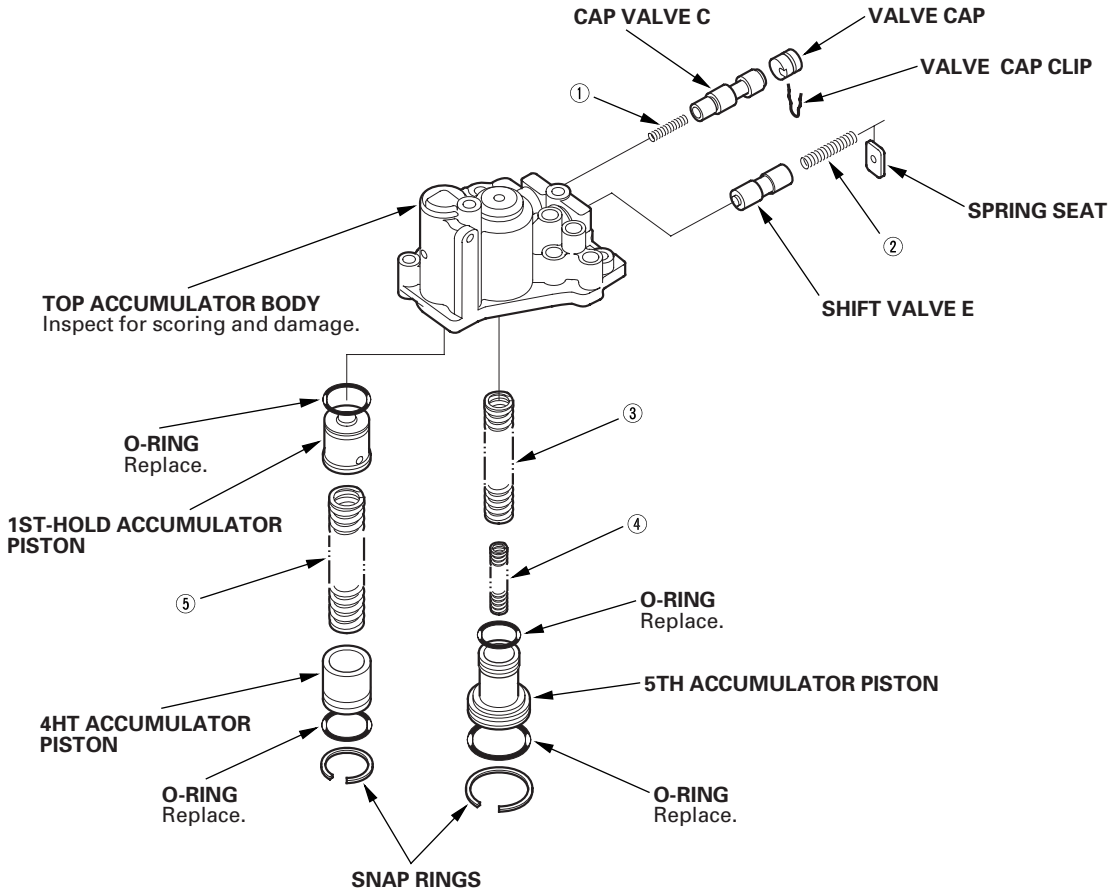


SPRING SPECIFICATIONS

No.	Spring	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	CPC valve A spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9
②	CPC valve B spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9
③	Shift valve B spring	0.8 (0.031)	6.6 (0.260)	49.1 (1.933)	21.7
④	Shift valve A spring	0.8 (0.031)	6.6 (0.260)	49.1 (1.933)	21.7

Top Accumulator Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
2. Check all valves for free movement. If any fail to slide freely, refer to Valve Body Repair (see page 14-428).
3. Replace the valve body as an assembly if any parts are worn or damaged.
4. Coat all parts with ATF during assembly.

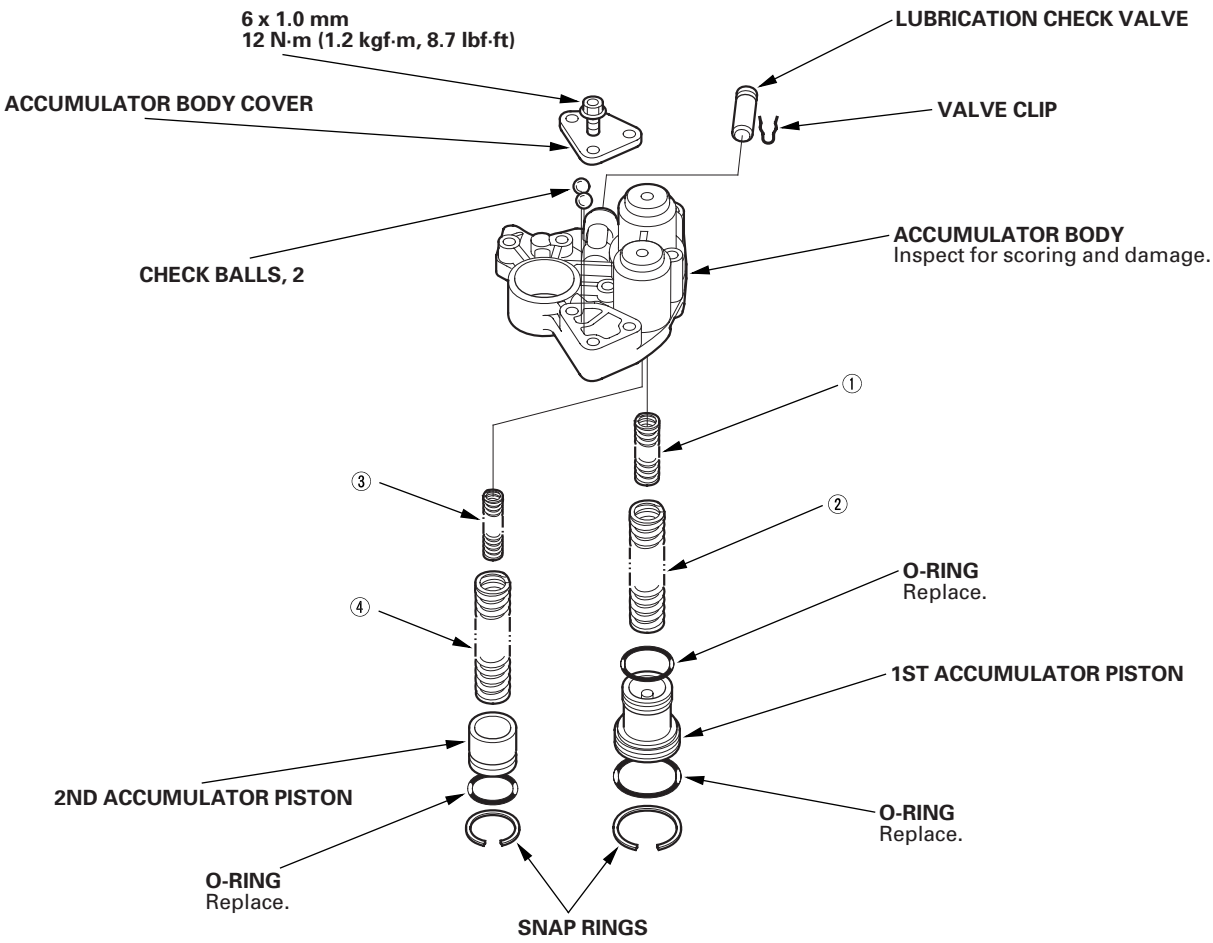


SPRING SPECIFICATIONS

No.	Springs	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	CPC valve C spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9
②	Shift valve E spring	0.8 (0.031)	7.1 (0.280)	49.0 (1.929)	17.2
③	5th accumulator spring A	2.2 (0.087)	16.4 (0.646)	75.7 (2.980)	14.2
④	5th accumulator spring B	2.0 (0.079)	10.0 (0.394)	45.5 (1.791)	11.6
⑤	4th/1st-hold accumulator spring	3.4 (0.134)	19.6 (0.772)	57.4 (2.260)	8.4

Accumulator Body Disassembly, Inspection, and Reassembly

1. Do not use a magnet to remove the check balls; it may magnetize the balls.
2. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
3. Coat all parts with ATF during assembly.



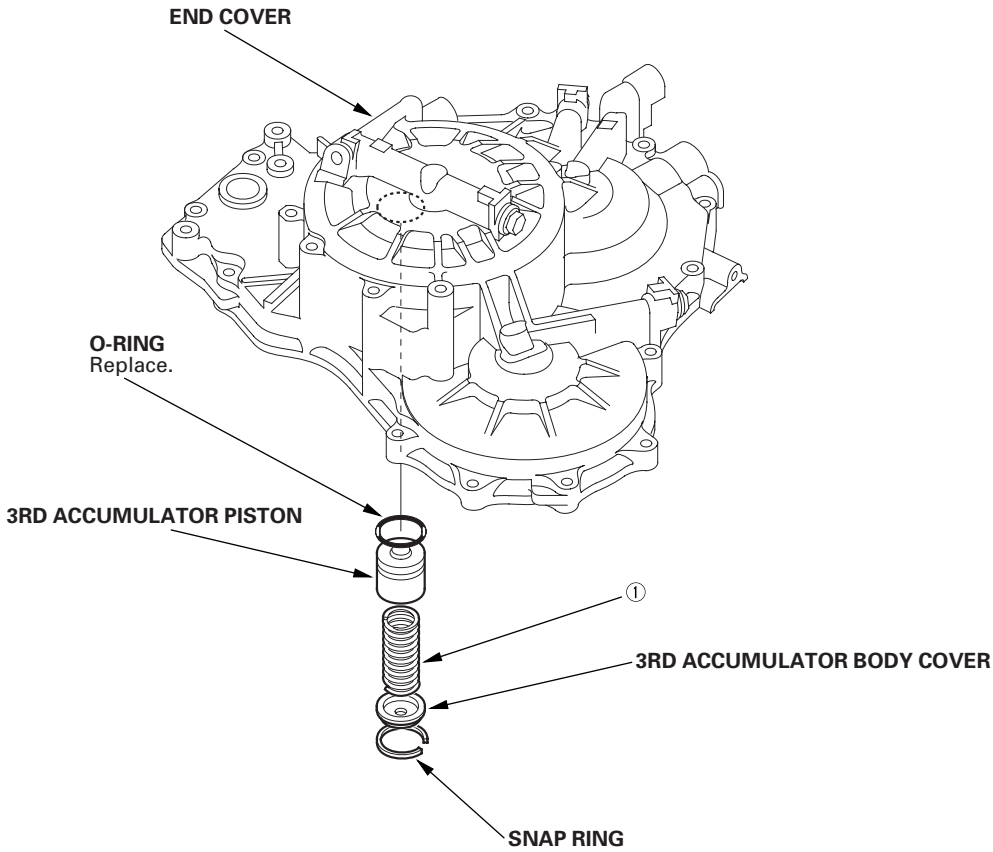
SPRING SPECIFICATIONS

No.	Springs	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	1st accumulator spring B	2.3 (0.091)	12.6 (0.496)	42.0 (1.654)	9.9
②	1st accumulator spring A	2.4 (0.094)	19.5 (0.768)	67.7 (2.665)	10.2
③	2nd accumulator spring B	2.6 (0.102)	13.2 (0.520)	44.0 (1.732)	8.5
④	2nd accumulator spring A	2.3 (0.091)	19.6 (0.772)	57.7 (2.272)	6.6

3rd Accumulator and End Cover Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.

2. Coat all parts with ATF during assembly.



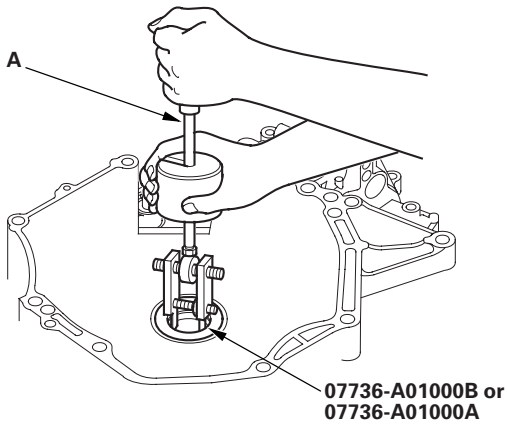
SPRING SPECIFICATIONS

No.	Springs	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	3rd accumulator spring	3.1 (0.122)	19.6 (0.772)	39.4 (1.551)	5.5

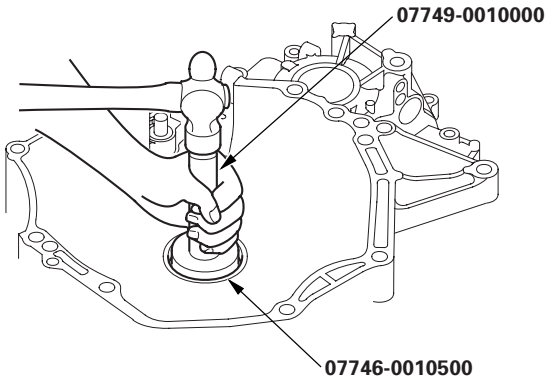
Mainshaft Bearing and Oil Seal Replacement

Special Tools Required
- Adjustable bearing puller, 25—40 mm 07736-A01000B or 07736-A01000A
- Driver 07749-0010000
- Attachment, 62 x 68 mm 07746-0010500
- Attachment, 72 x 75 mm 07746-0010600

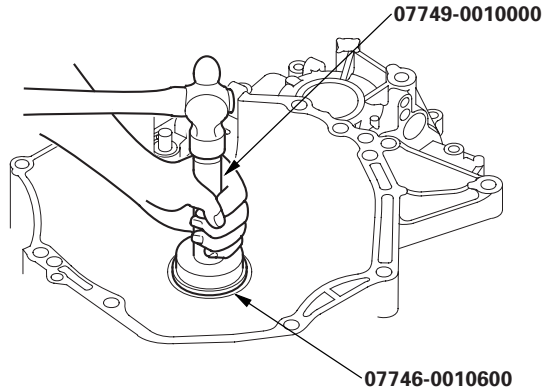
1. Remove the mainshaft bearing and oil seal with the special tools and a commercially available 3/8''-16 slide hammer (A).



2. Install the new mainshaft bearing until it bottoms in the housing with the special tools.



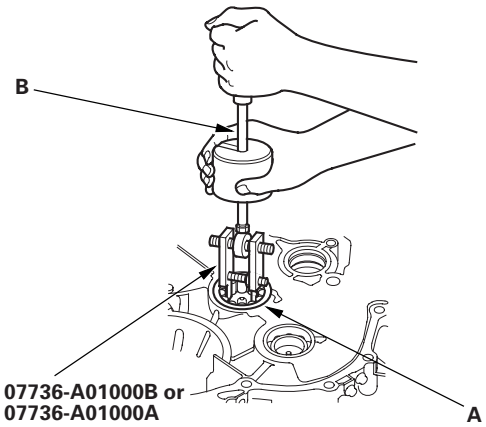
3. Install the new oil seal flush to the housing with the special tools.



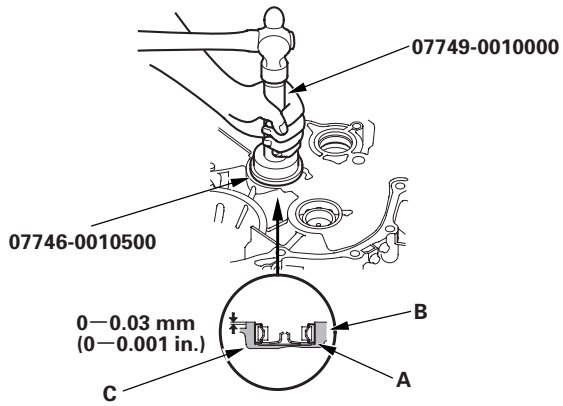
Countershaft Bearing Replacement

Special Tools Required
- Adjustable bearing puller, 25—40 mm 07736-A01000B or 07736-A01000A
- Driver 07749-0010000
- Attachment, 62 x 68 mm 07746-0010500

1. Remove the countershaft bearing (A) with the special tools and a commercially available 3/8''-16 slide hammer (B).



2. Install the ATF guide plate (A).

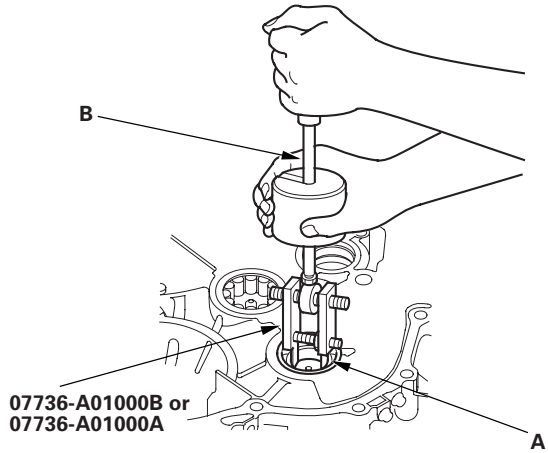


3. Install the new bearing (B) into the housing (C) with the special tools.

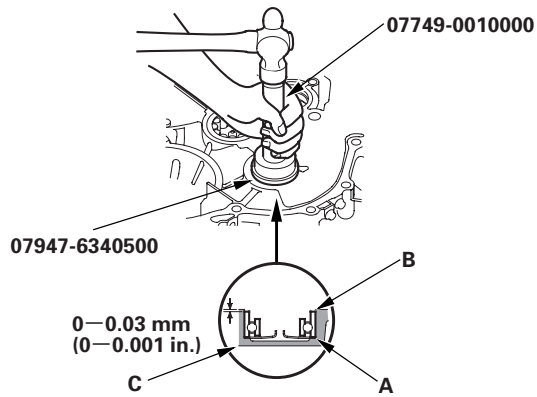
Secondary Shaft Bearing Replacement

Special Tools Required
- Adjustable bearing puller, 25—40 mm 07736-A01000B or 07736-A01000A
- Driver 07749-0010000
- Driver attachment 07947-6340500

1. Remove the secondary shaft bearing (A) with the special tools and a commercially available 3/8''-16 slide hammer (B).



2. Install the ATF guide plate (A).

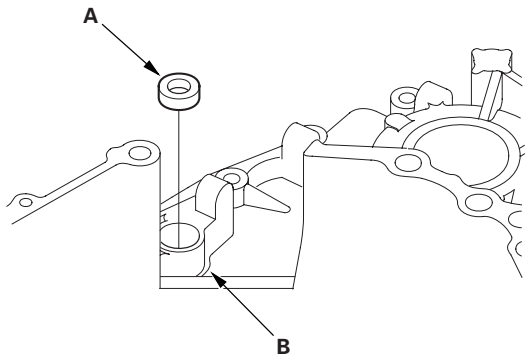


3. Install the new bearing (B) into the housing (C) with the special tools.

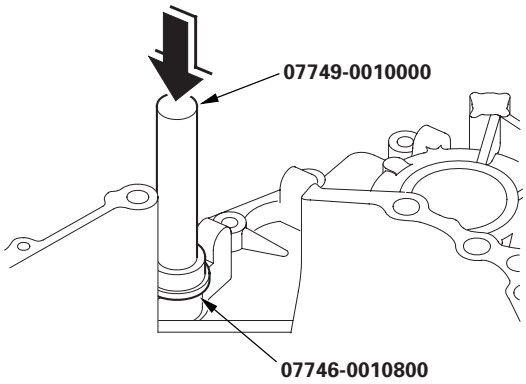
Control Shaft Oil Seal Replacement

Special Tools Required
- Driver 07749-0010000
- Attachment, 22 x 24 mm 07746-0010800

1. Remove the oil seal (A), from the torque converter housing (B).

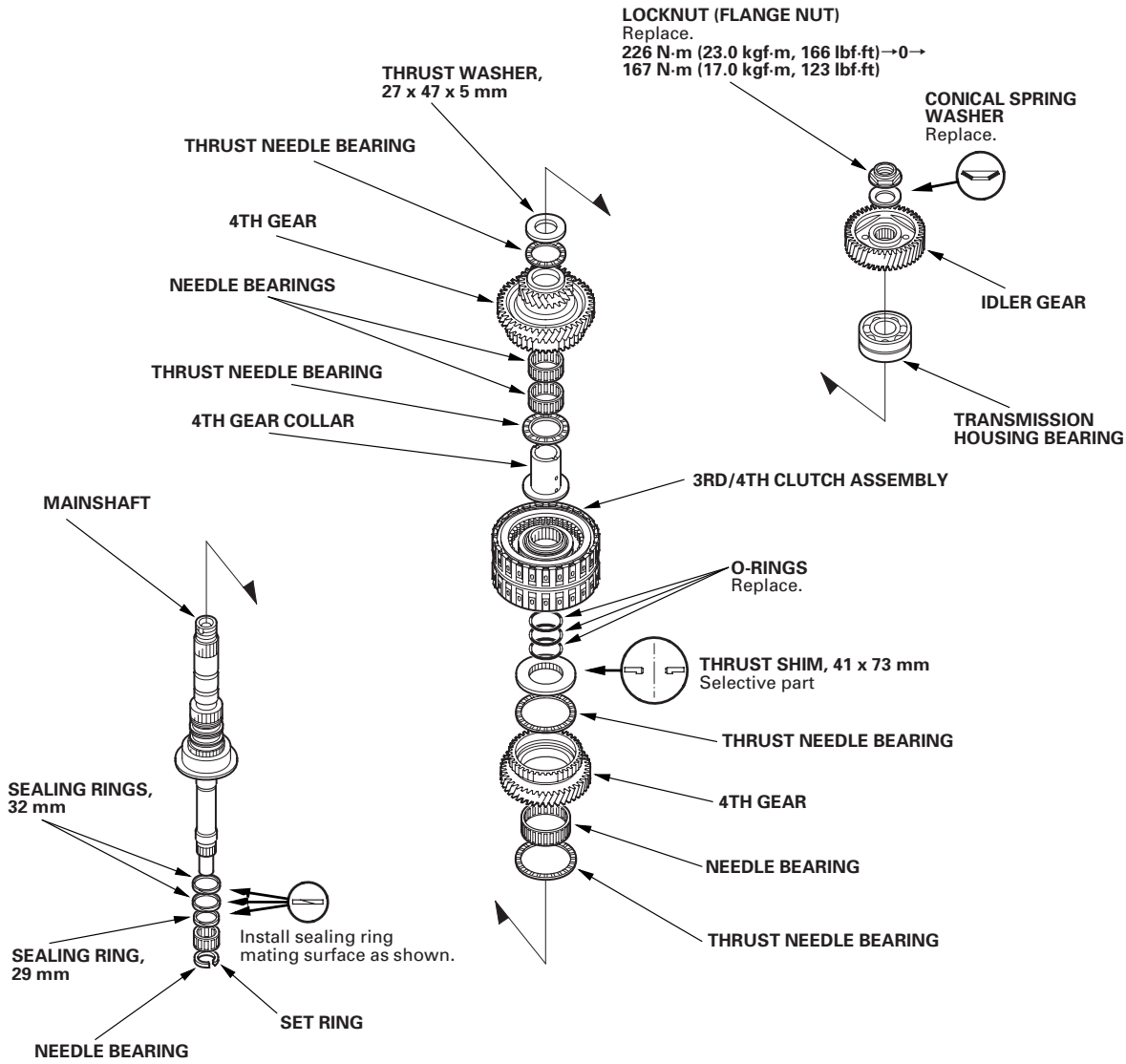


2. Install the new oil seal flush to the torque converter housing with the special tools.



Mainshaft Disassembly, Inspection, and Reassembly

1. Lubricate all parts with ATF during assembly.

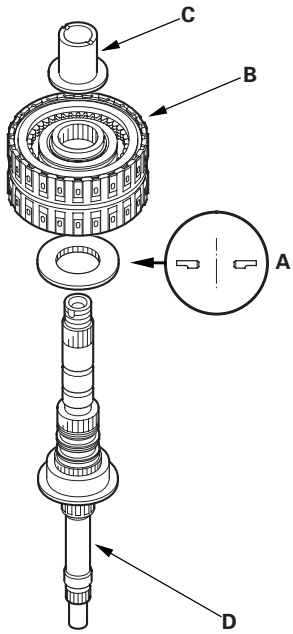


2. Check the clearance of the 4th/5th clutch assembly.
3. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.
4. Inspect the splines for excessive wear and damage.
5. Check shaft bearing surfaces for scoring and excessive wear.
6. Before installing the O-rings, wrap the shaft splines with tape to prevent O-ring damage.
7. Install the conical spring washer and 41 x 73 mm thrust shim in the direction shown.
8. Inspect the condition of the sealing rings. If the sealing rings are worn, distorted, or damaged, replace them (see page 14-443).

4th/5th Clutch Clearance Inspection

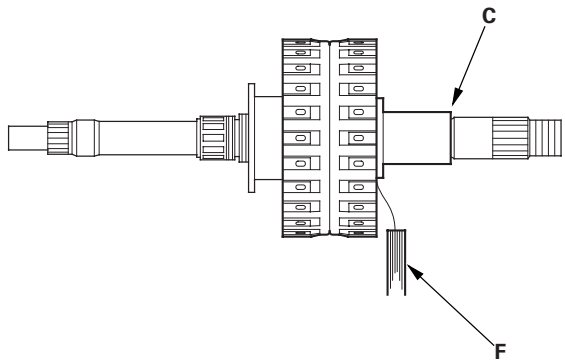
1. Remove the O-rings from the mainshaft.

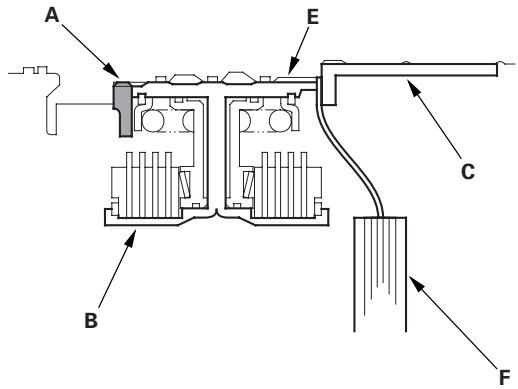
2. Assemble the 41 x 73 mm thrust shim (A), 4th/5th clutch assembly (B), and 5th gear collar (C) on the mainshaft (D).



3. Hold the 5th gear collar (C) against the clutch assembly (B), then measure the clearance between the clutch guide (E) and the 5th gear collar with a feeler gauge (F) in at least 3 places. Use the average as the actual clearance.

Standard: 0.03—0.11 mm (0.001—0.004 in.)





4. If the clearance is out of standard, remove the thrust shim and measure its thickness.

5. Select and install a new shim, then recheck.

THRUST SHIM, 41 x 73 mm

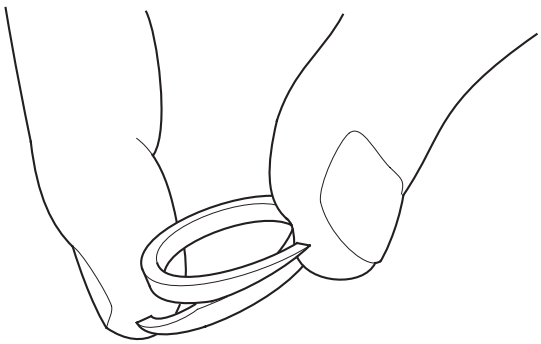
No.	Part Number	Thickness
1	90414-P7W-000	7.85 mm (0.309 in.)
2	90415-P7W-000	7.90 mm (0.311 in.)
3	90416-P7W-000	7.95 mm (0.313 in.)
4	90417-P7W-000	8.00 mm (0.315 in.)
5	90418-P7W-000	8.05 mm (0.317 in.)
6	90419-P7W-000	8.10 mm (0.319 in.)

6. After replacing the thrust shim, make sure the clearance is within standard.

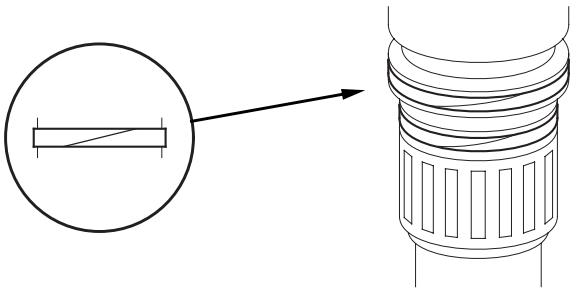
Mainshaft Sealing Ring Replacement

The sealing rings are synthetic resin with chamfered ends. Check the condition of the sealing rings, and replace them only if they are worn, distorted, or damaged.

1. For a better fit, squeeze sealing rings together slightly before installing them.



2. Apply ATF to the new sealing rings then install them on the mainshaft.

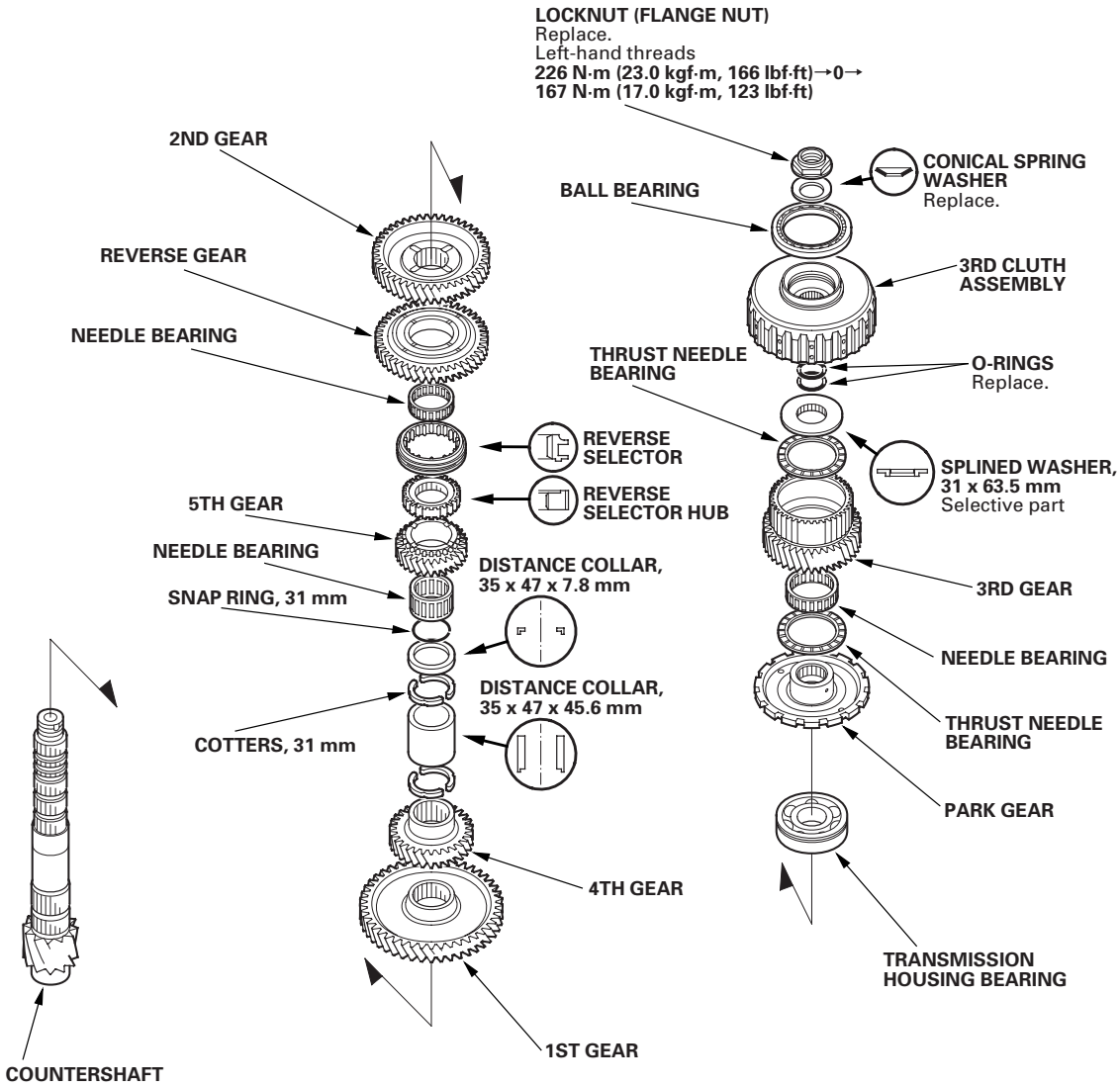


3. After installing the sealing rings, verify the following:

   - The rings are fully seated in the groove.
   - The rings are not twisted.
   - The chamfered ends of the rings are properly joined.

Countershaft Disassembly, Inspection, and Reassembly

1. Remove the locknut, and take off components down to the reverse selector hub.



2. Remove the reverse selector hub, 4th gear, and 1st gear (see page 14-445).

3. Check the bearing on the 3rd clutch for wear and rough movement. If the bearing is worn or damaged, replace it (see page 14-447).

4. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.

5. Check the splines for excessive wear and damage.

6. Check the shaft bearing surfaces for scoring and excessive wear.

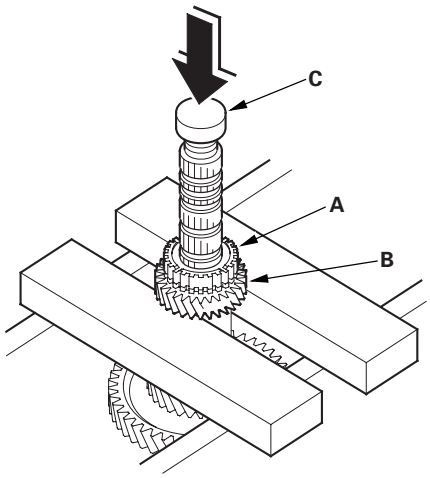
7. Lubricate all parts with ATF, and reassemble the shafts and gears.

8. Install the distance collars, reverse selector hub, reverse selector, splined washer, and conical spring washer in the direction shown.

Countershaft Reverse Selector Hub and 4th Gear Removal

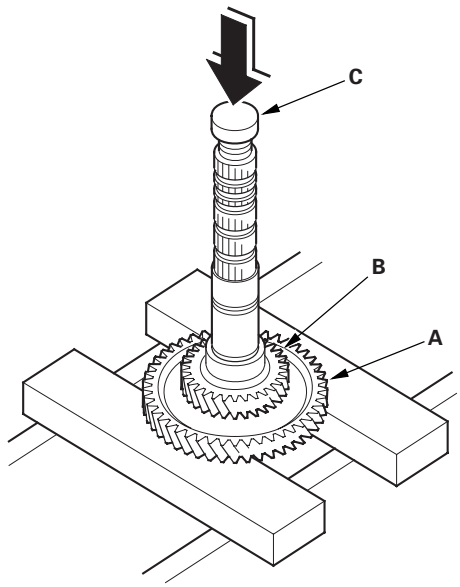
1. Remove the reverse selector hub (A) and the 5th gear (B) from the countershaft with a press. Place a shaft protector (C) between the countershaft and press to prevent damaging the countershaft.

   NOTE: Some reverse selector hubs are not press-fitted, and can be removed without using a press.



2. Remove the needle bearing, snap ring, 35 x 47 x 7.8 mm distance collar, 31 mm cotters, 35 x 47 x 45.6 mm distance collar, and 31 mm cotters from the countershaft.

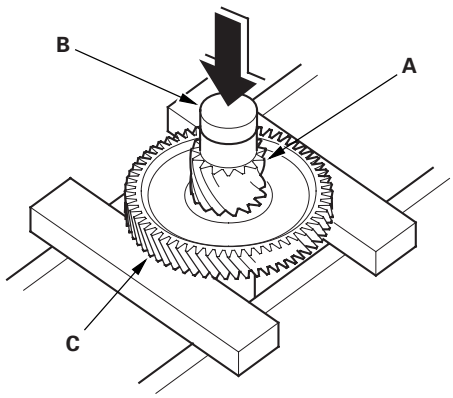
3. Remove the 1st gear (A) and 4th gear (B) from the countershaft with a press. Place a shaft protector (C) between the countershaft and press to prevent damaging the countershaft.



Countershaft 4th Gear and Reverse Selector Hub Installation

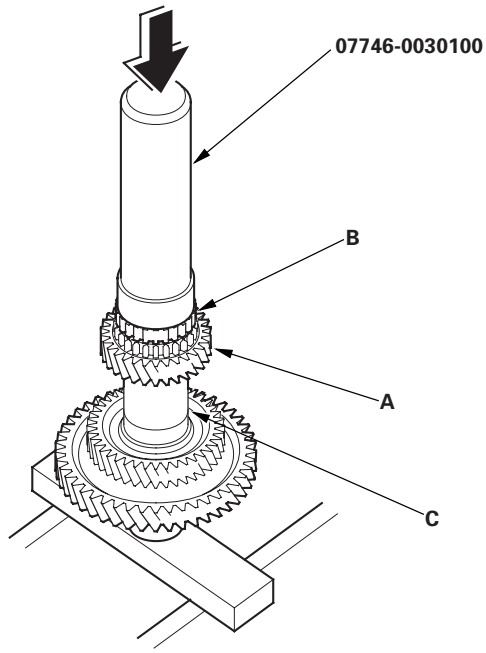
Special Tools Required
Driver, 40 mm I.D. 07746-0030100

1. Apply ATF to the parts.
2. Install the 1st gear on the countershaft by hand.
3. Align the shaft splines with those on 4th gear, then press the countershaft (A) into the 4th gear with a press. Place a shaft protector (B) between the countershaft and press to prevent damaging the countershaft.



4. Stop pressing the countershaft when the 4th gear contacts the 1st gear (C).
5. Install the 31 mm cotters, 35 x 47 x 45.6 mm distance collar, 31 mm cotters, 35 x 47 x 7.8 mm distance collar, snap ring, needle bearing, and 5th gear (A) on the countershaft.
6. Slide the reverse selector hub (B) over the countershaft (C), and then press it into place with the special tool and a press.

   NOTE: Some reverse selector hubs are not press-fitted, and can be installed without using the special tool and a press.

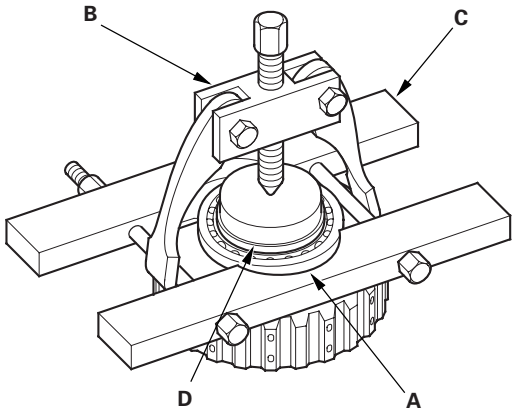


3rd Clutch Ball Bearing Replacement

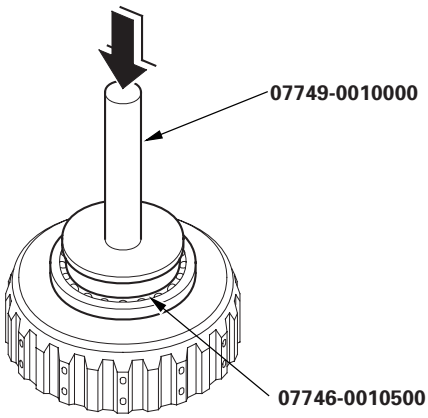
Special Tools Required
- Driver 07749-0010000
- Attachment, 62 x 68 mm 07746-0010500

NOTE: Check the bearing for wear and rough movement. If the bearing is OK, removal is not necessary.

1. Remove the ball bearing (A) from the 3rd clutch with a commercially available bearing puller (B), bearing separator (C), and stepper adapter (D).

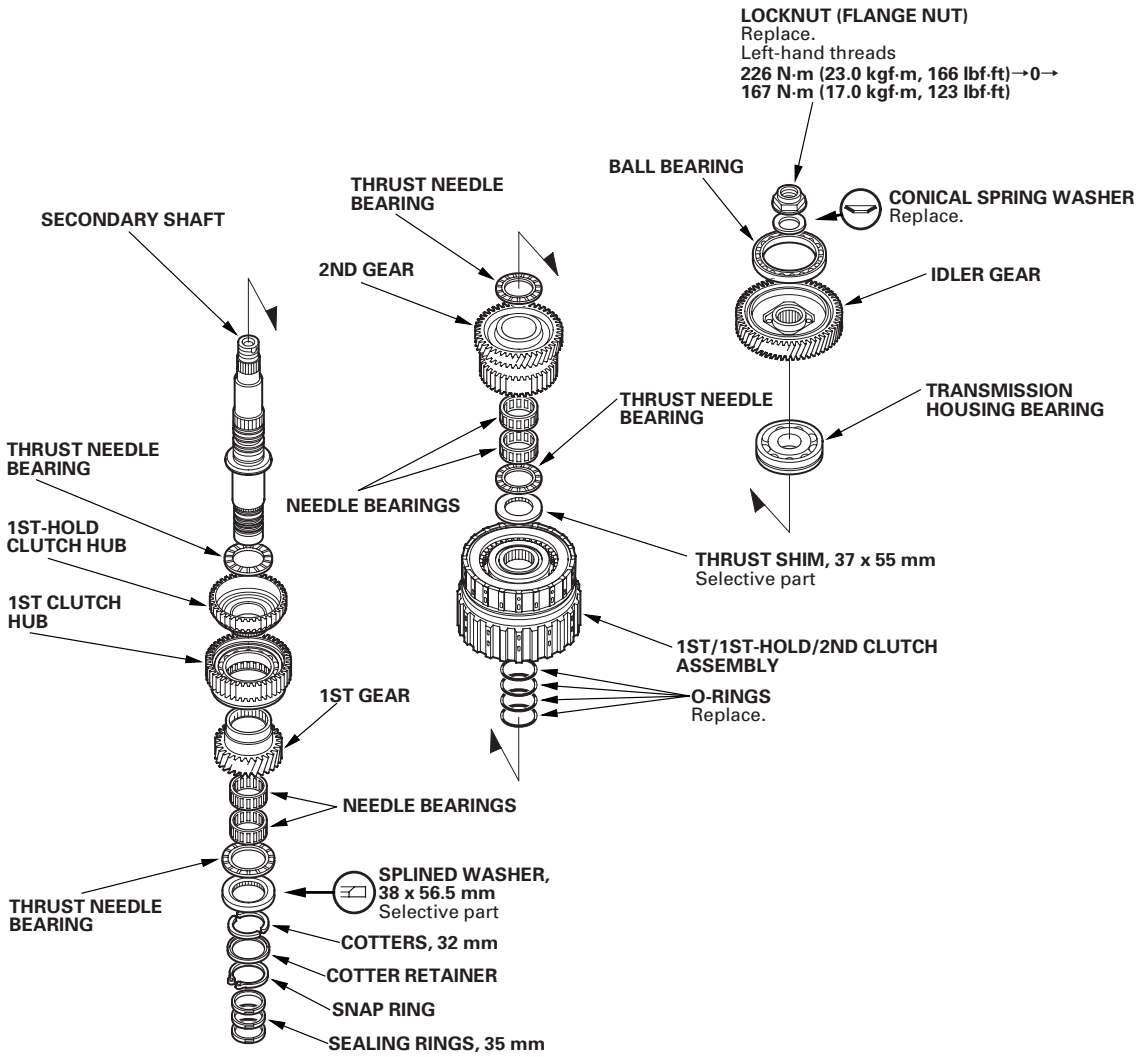


2. Install the new bearing on the 3rd clutch with the special tools and a press.



Secondary Shaft Disassembly, Inspection, and Reassembly

1. Remove the locknut, and disassemble the shaft and gears.

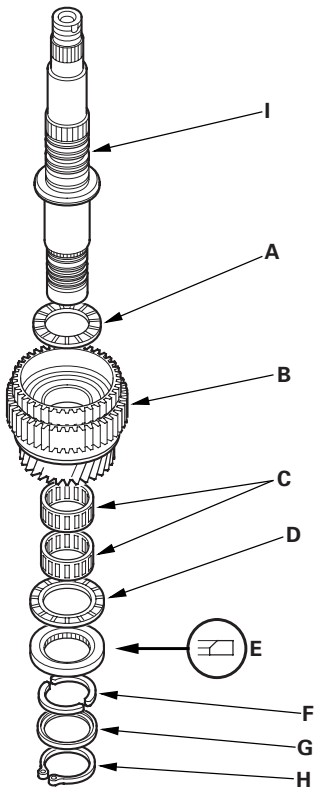


2. Inspect the thrust needle bearing and needle bearing for galling and rough movement.
3. Check the clearance of the secondary shaft assembly.
4. Check the splines for excessive wear and damage.
5. Check the shaft bearing surfaces for scoring and excessive wear.
6. Check the idler gear bearing for wear and rough movement. If the bearing is worn or damaged, replace it (see page 14-451).
7. Before installing the O-rings, wrap the shaft splines with tape to prevent damage to the O-rings.
8. Lubricate all parts with ATF during reassembly.
9. Install the conical spring washer and splined washer in the direction shown.

Secondary Shaft Clearance Inspection

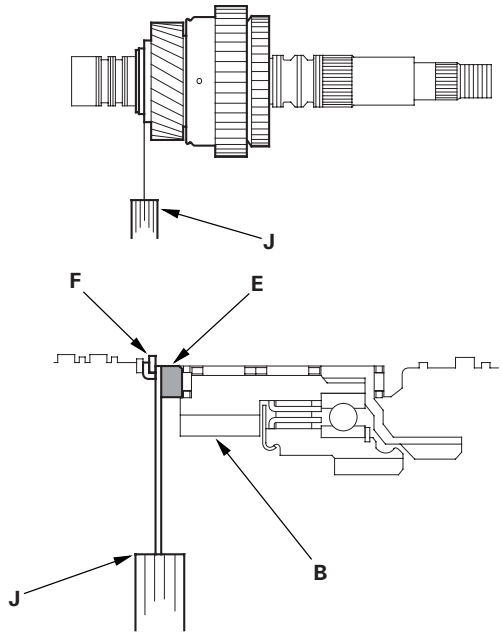
1. Remove the O-rings from the secondary shaft.

2. Assemble the thrust needle bearing (A), 1st gear assembly (B), needle bearings (C), thrust needle bearing (D), 38 x 56.5 mm splined washer (E), 32 mm cotters (F), cotter retainer (G), and snap ring (H) on the secondary shaft (I).



3. Measure the clearance between the 38 x 56.5 mm splined washer (E) and 32 mm cotters (F) with a feeler gauge (J) in at least three places. Use the average as the actual clearance.

Standard: 0.07—0.15 mm (0.003—0.006 in.)



4. If the measurement is out of standard, remove the splined washer, and measure its thickness.

5. Select and install a new splined washer, then recheck the clearance.

SPLINED WASHER, 38 x 56.5 mm

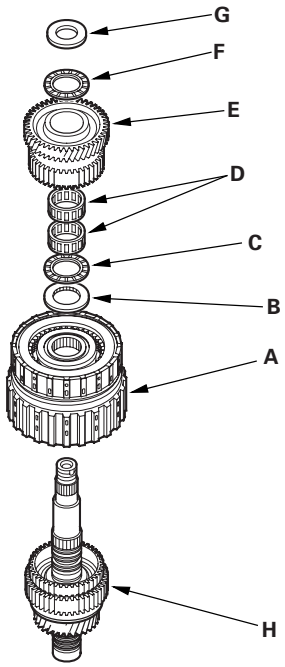
No.	Part Number	Thickness
1	90502-P0Z-000	6.85 mm (0.270 in.)
2	90503-P0Z-000	6.90 mm (0.272 in.)
3	90504-P0Z-000	6.95 mm (0.274 in.)
4	90505-P0Z-000	7.00 mm (0.276 in.)
5	90506-P0Z-000	7.05 mm (0.278 in.)
6	90507-P0Z-000	7.10 mm (0.280 in.)

(cont'd)

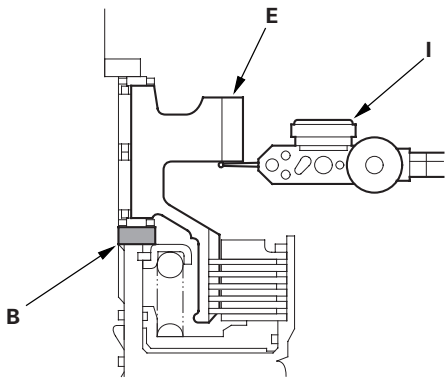
Secondary Shaft Clearance Inspection (cont'd)

6. Remove the 27 x 47 x 5 mm thrust washer from the mainshaft.

7. Assemble the 1st/1st-hold/2nd clutch assembly (A), 37 x 55 mm thrust washer (B), thrust needle bearing (C), needle bearings (D), 2nd gear (E), thrust needle bearing (F), and 27 x 47 x 5 mm thrust washer (removed from mainshaft) (G) on the secondary shaft subassembly (H).

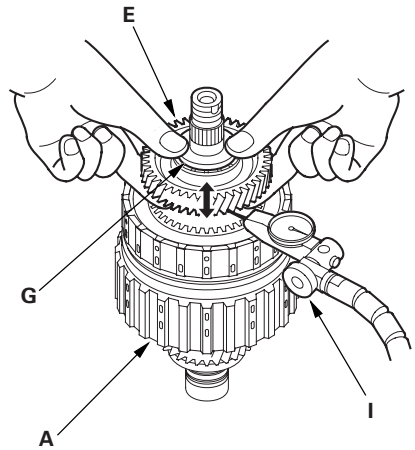


8. Set the dial indicator (I) on the 2nd gear (E).



9. Hold the 27 x 47 x 5 mm thrust washer (G) against the clutch assembly (A), and measure the 2nd gear axial clearance in at least three places while moving the 2nd gear (E). Use the average as the actual clearance.

Standard: 0.04—0.12 mm (0.002—0.005 in.)



10. If the measurement is out of standard, remove the 37 x 55 mm thrust washer and measure its thickness.

11. Select and install a new thrust washer, then recheck the clearance.

THRUST SHIM, 37 x 55 mm

No.	Part Number	Thickness
1	90406-P0Z-000	4.90 mm (0.193 in.)
2	90407-P0Z-000	4.95 mm (0.195 in.)
3	90408-P0Z-000	5.00 mm (0.197 in.)
4	90409-P0Z-000	5.05 mm (0.199 in.)
5	90410-P0Z-000	5.10 mm (0.201 in.)
6	90411-P0Z-000	5.15 mm (0.203 in.)
7	90412-P0Z-000	5.20 mm (0.205 in.)

12. Disassemble the shaft and gears.

13. Reinstall the 27 x 47 x 5 mm thrust washer on the mainshaft.

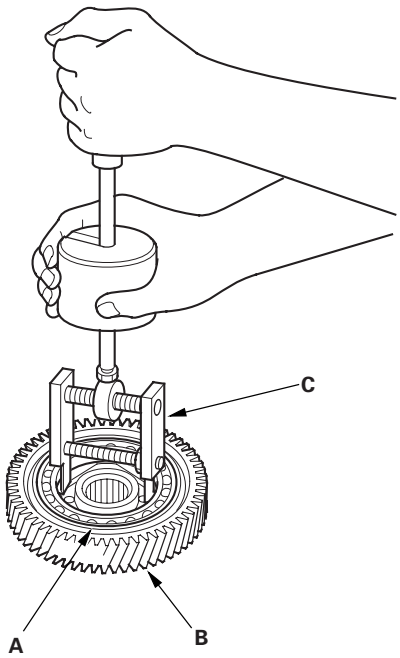
Secondary Shaft Idler Gear Bearing Replacement

Special Tools Required
- Driver 07749-0010000
- Attachment, 78 x 90 mm 07GAD-SD40101

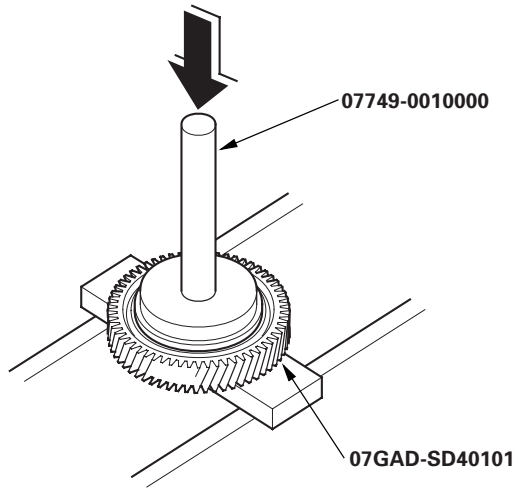
1. Check the bearing for wear, damage, and rough movement. If the bearing is worn or damaged, go to step 2.

2. Place the secondary shaft idler gear in a vise with soft jaws.

3. Remove the bearing (A) from the secondary shaft idler gear (B) with a puller (C).

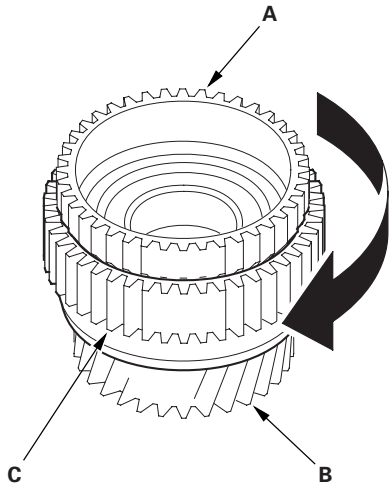


4. Install the bearing on the secondary shaft idler gear with the special tools and a press.



1st Gear One-way Clutch Inspection

1. Hold the 1st-hold clutch hub (A), and turn the 1st gear (B) in the direction shown to be sure it turns freely. Also make sure the 1st gear does not turn in the opposite direction.

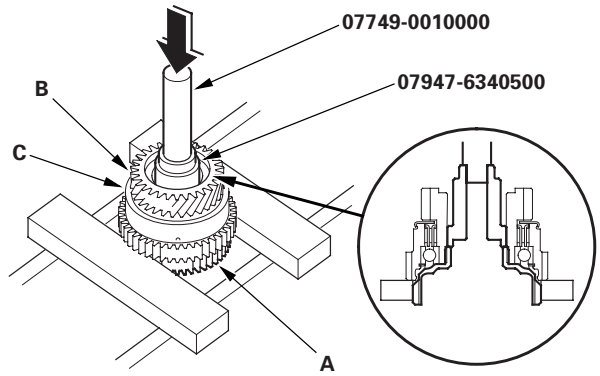


2. If any problem occurs on the 1st gear one-way clutch, replace the 1st clutch hub (C). The 1st gear one-way clutch is not available separately from the 1st clutch hub.

1st Clutch Hub Replacement

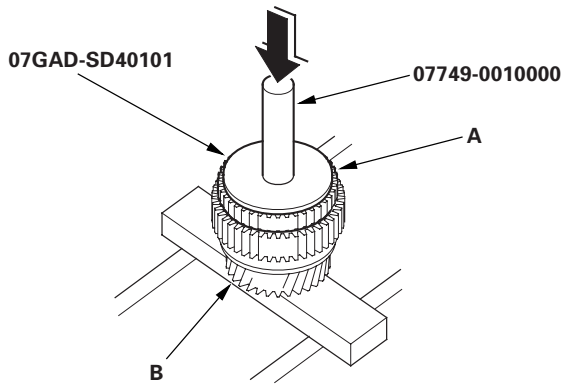
Special Tools Required
- Driver 07749-0010000
- Driver attachment 07947-6340500
- Attachment, 78 x 90 mm 07GAD-SD40101

1. Remove the 1st-hold clutch hub (A) from the 1st gear (B) with the special tools and a press.



2. Remove the 1st clutch hub (C) from the 1st gear, then install the new 1st clutch hub in the 1st gear.

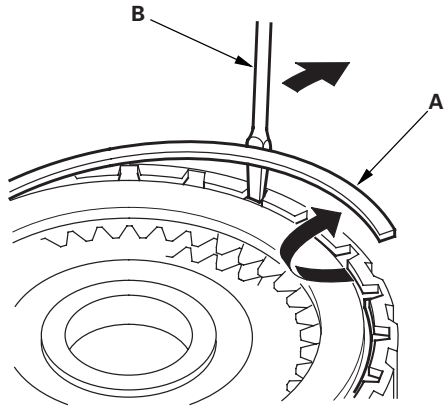
3. Install the 1st-hold clutch hub (A) in the 1st gear (B) with the special tools and a press.



Clutch Disassembly

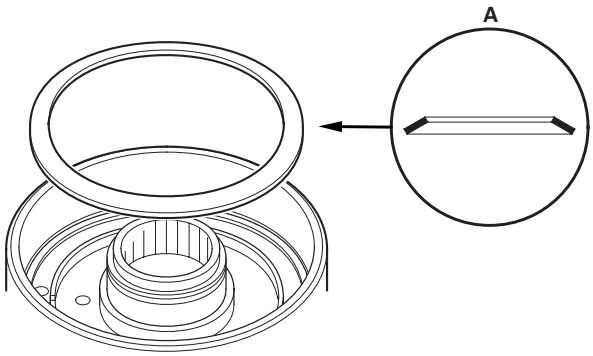
Special Tools Required
- Clutch spring compressor attachment 07LAE-PX40100
- Clutch spring compressor attachment 07HAE-PL50101
- Clutch spring compressor bolt assembly 07GAE-PG40200 or 07GAE-PG4020A

1. Remove the snap ring (A), then remove the clutch end plate, the clutch discs, and the plates with a screwdriver (B).

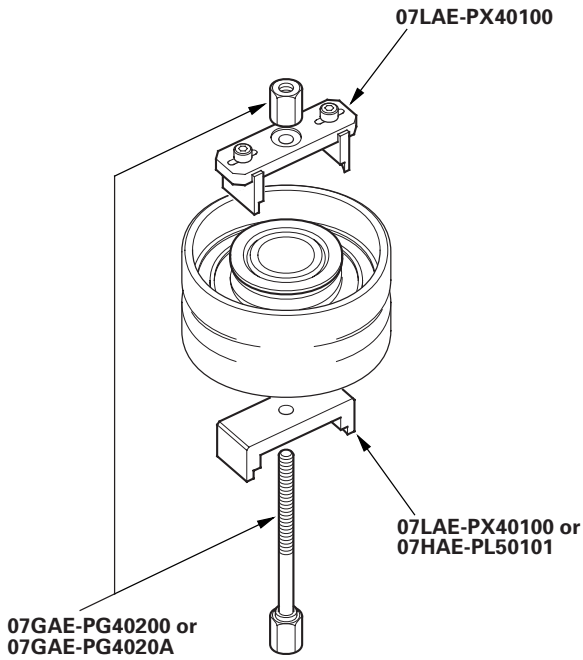


2. Remove the disc spring (A) from the 1st, 3rd, 4th and 5th clutches.

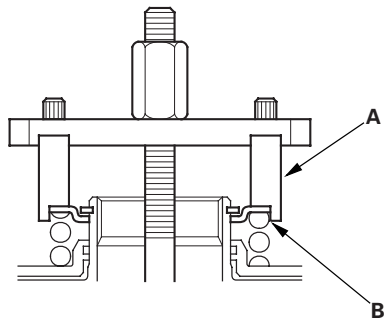
   NOTE: The 2nd clutch and 1st-hold clutch do not have a disc spring.



3. Install the special tools on the 4th/5th clutch assembly and 1st clutch.



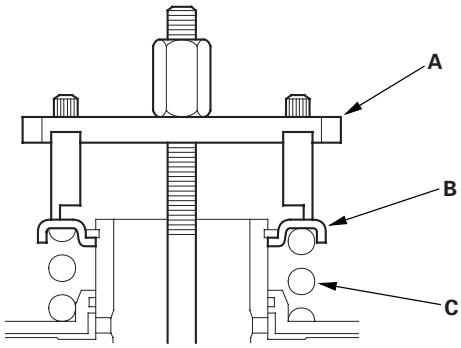
4. Be sure the special tool (A) is adjusted to have full contact with the spring retainer (B) on the 4th, 5th and 1st clutches.



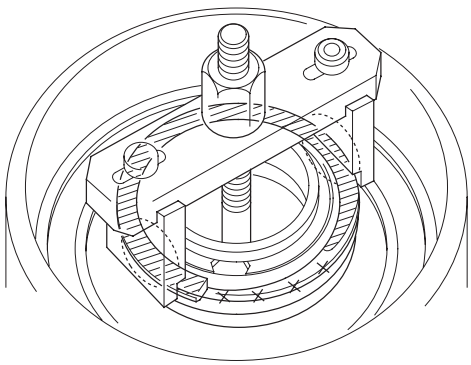
(cont'd)

Clutch Disassembly (cont'd)

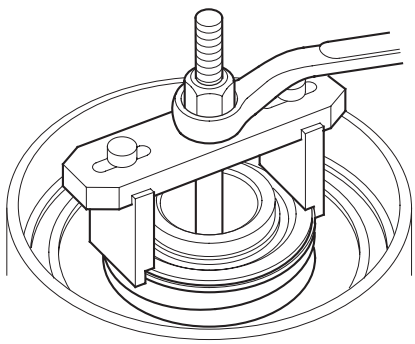
5. Set the special tool (A) on the spring retainer (B) of the 2nd and 3rd clutches so the tool works on the clutch return spring (C).



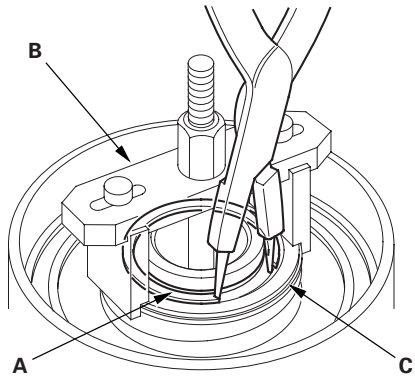
6. If either end of the special tool is set over an area of the spring retainer which is unsupported by the return spring, the retainer may be damaged.



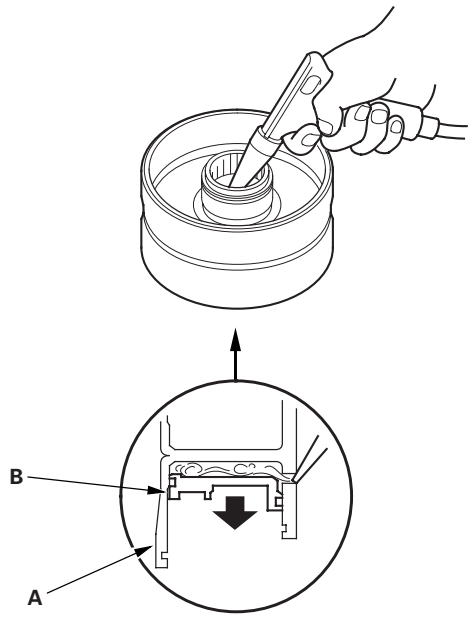
7. Compress the spring until the snap ring can be removed.



8. Remove the snap ring (A). Then remove the special tool (B), spring retainer (C), and the return spring.



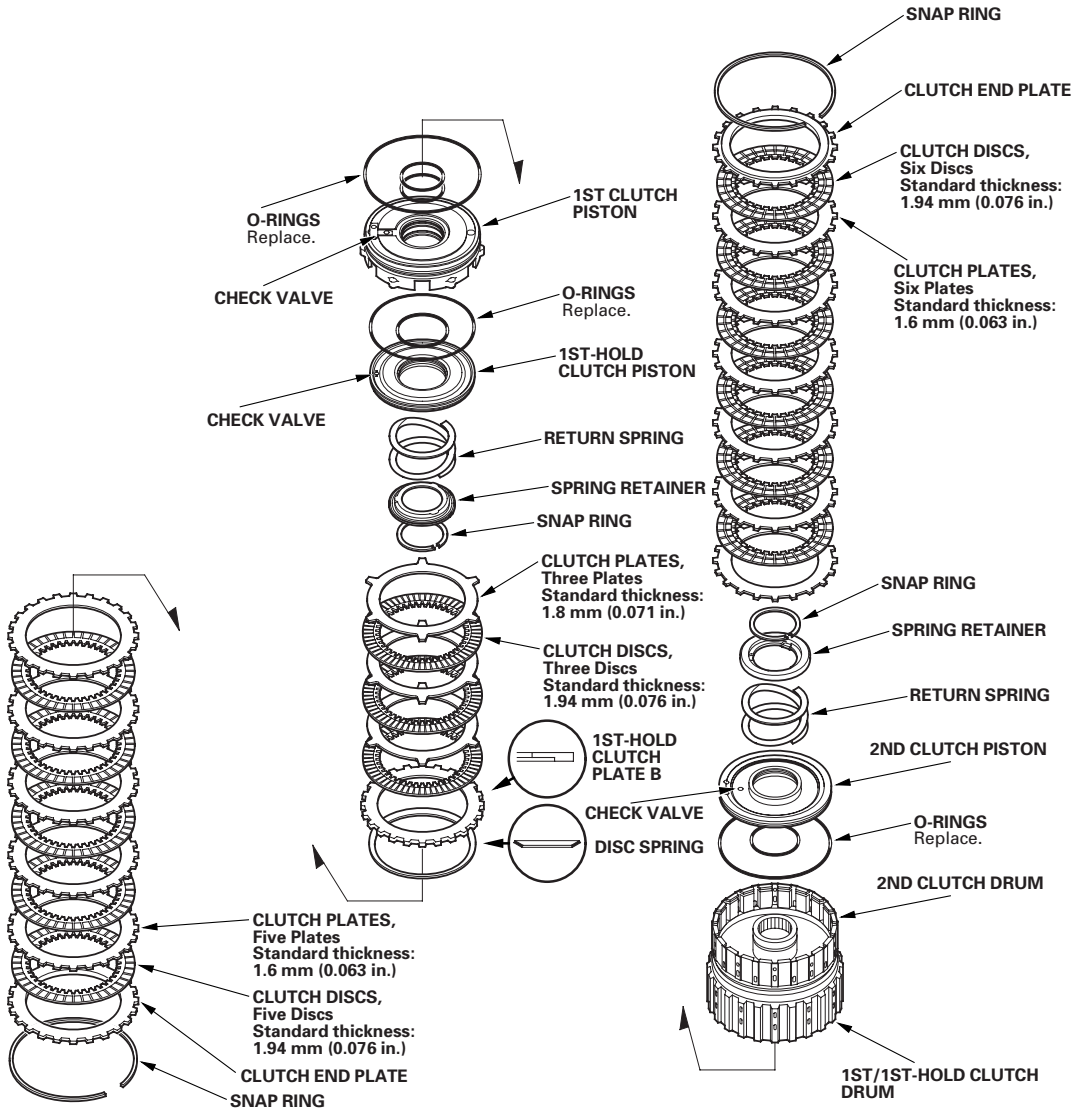
9. Wrap a shop rag around the clutch drum (A), and apply air pressure to the fluid passage to remove the piston (B). Place a finger tip on the other end while applying air pressure.



Clutch Inspection

1st/1st-hold/2nd Clutch

1. Inspect the clutch piston and clutch piston check valve. If the clutch check valve is loose or stuck damaged, replace the clutch piston.



2. Check the spring retainer for wear and damage.

3. Inspect the clutch discs, clutch plates, and clutch end plate for wear, damage, and discoloration.

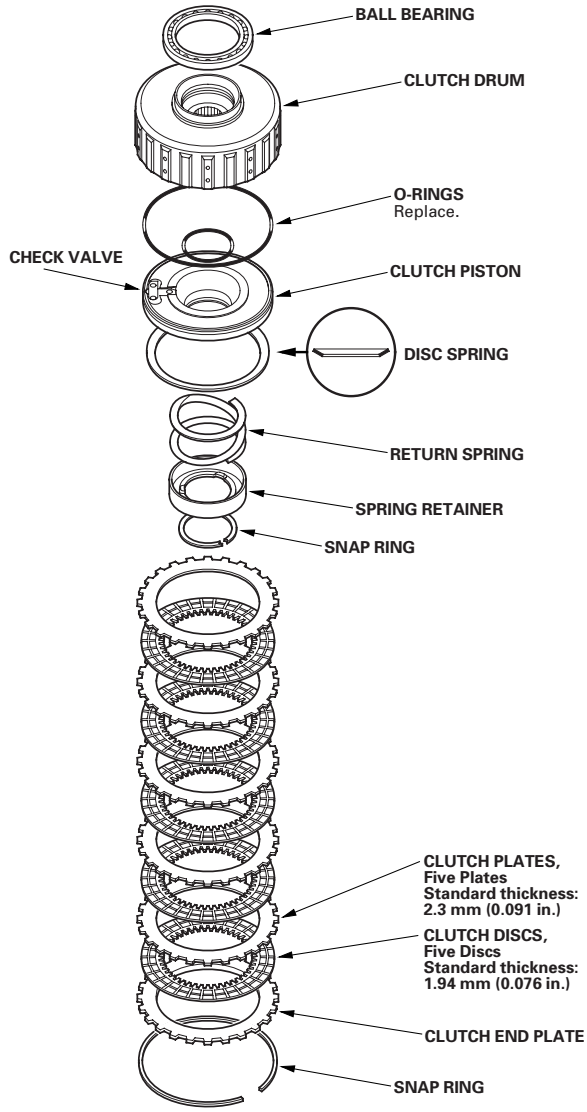
   - If the clutch discs are worn or damaged, replace the discs as a set.
   - If the clutch plates are worn, damaged, or discolored, replace the plates as a set.
   - If the clutch end plate is worn, damaged, or discolored, inspect the clutch end-plate-to-top-disc clearance, then replace the clutch-end-plate.
   - If the 1st-hold clutch plate B is worn, damaged, or discoloration, inspect the 1st-hold clutch plate B-to-top-disc clearance, then replace plate B.

(cont'd)

Clutch Inspection (cont'd)

3rd Clutch

1. Inspect the clutch piston and clutch piston check valve. If the clutch check valve is loose or stuck damaged, replace the clutch piston.



2. Check the spring retainer for wear and damage.

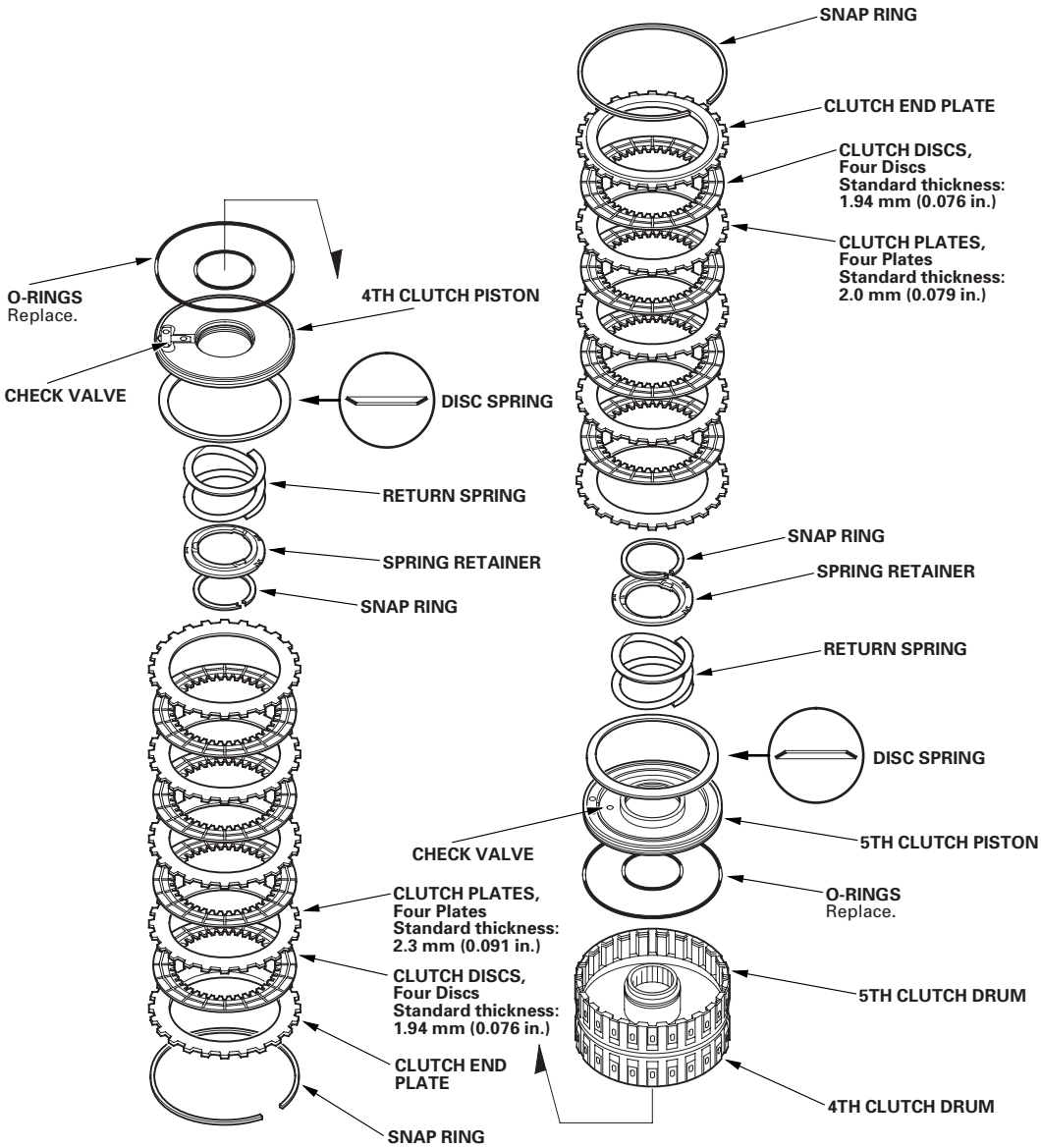
3. Inspect the clutch discs, clutch plates, and clutch end plate for wear, damage, and discoloration.

   - If the clutch discs are worn or damaged, replace the discs as a set.
   - If the clutch plates are worn, damaged, or discolored, replace the plates as a set.
   - If the clutch end plate is worn, damaged, or discolored, inspect the clutch end-plate-to-top-disc clearance, then replace the clutch-end-plate.

4. If the 3rd clutch assembly, clutch discs, or clutch plates are replaced, replace the PCM (see page 11-4).

4th/5th Clutch

1. Inspect the clutch piston and clutch piston check valve. If the clutch check valve is loose or stuck damaged, replace the clutch piston.



2. Check the spring retainer for wear and damage.

3. Inspect the clutch discs, clutch plates, and clutch end plate for wear, damage, and discoloration.

   - If the clutch discs are worn or damaged, replace the discs as a set.
   - If the clutch plates are worn, damaged, or discolored, replace the plates as a set.
   - If the clutch end plate is worn, damaged, or discolored, inspect the clutch end-plate-to-top-disc clearance, then replace the clutch-end-plate.

Clutch Reassembly

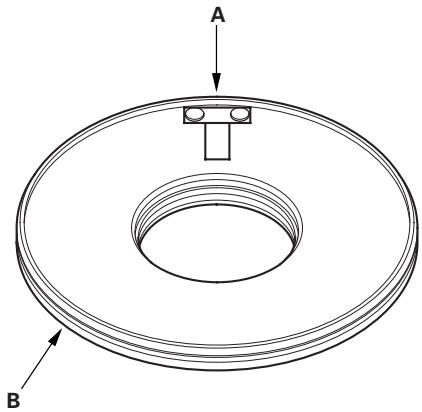
Special Tools Required
- Clutch spring compressor attachment 07LAE-PX40100
- Clutch spring compressor attachment 07HAE-PL50101
- Clutch spring compressor bolt assembly 07GAE-PG40200 or 07GAE-PG4020A
- Clutch compressor attachment 07ZAE-PRP0100

Note these items during reassembly:

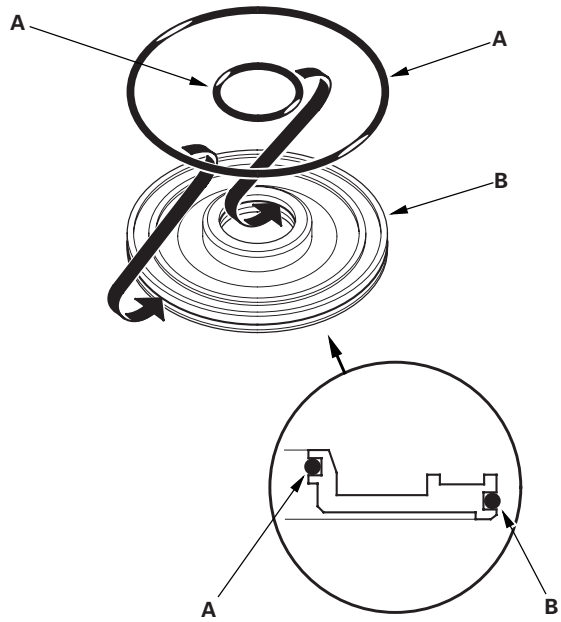
- Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air.
- Blow out all passages.
- Apply ATF to all parts before assembly.

1. Soak the clutch discs thoroughly in ATF for a minimum of 30 minutes.

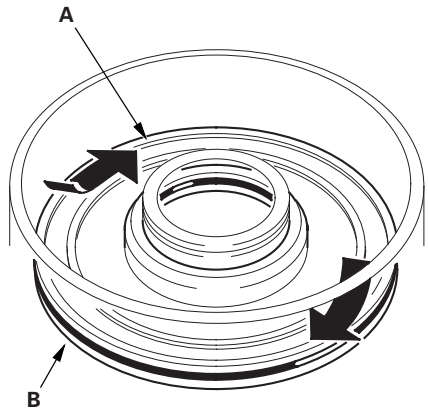
2. Inspect the check valve (A) on the clutch pistons (B) except 1st-hold clutch; if it's loose or stuck, replace the piston.



3. Install new O-rings (A) on the piston (B).



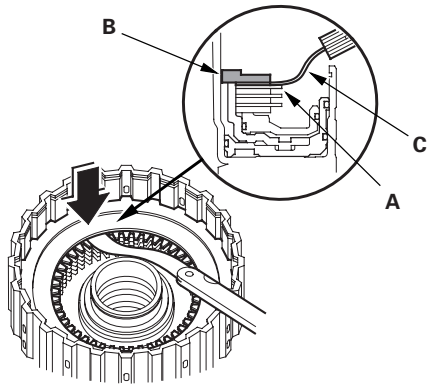
4. Install the piston (A) in the clutch drum (B). Apply pressure and rotate to ensure proper seating. Lubricate the piston O-ring with ATF before installing. Do not pinch the O-ring by installing the piston with too much force.



5. Check the 1st-hold clutch plate-to-top-disc clearance; starting with a clutch plate, alternately install the clutch plate and discs in the 1st-hold clutch drum, then install the 1st-hold clutch plate.

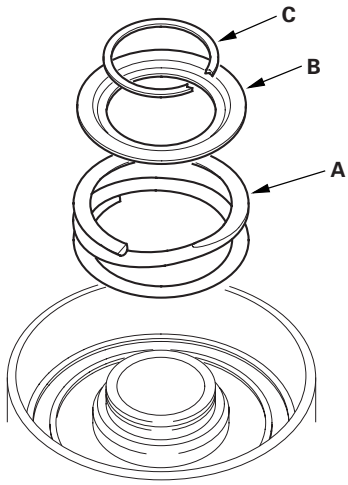
6. Measure the 1st-hold clutch clearance between the 1st-hold clutch plate B and the top disc (A) with a feeler gauge (C) while pressing the 1st-hold clutch plate B down. Take measurements in at least three places, and use the average as the actual clearance.

1st-hold Clutch Plate B-to-Top-disc Clearance
Service Limit: 0.5—0.9 mm (0.020—0.035 in.)

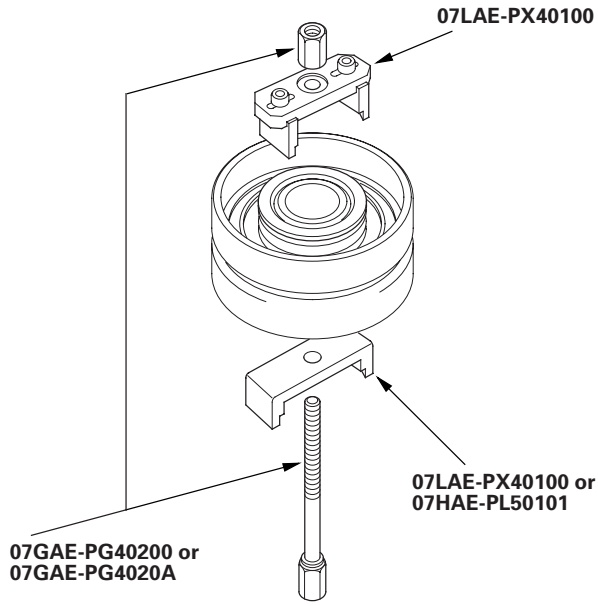


7. If the clearance is out of standard, replace the 1st-hold clutch plates and discs as a set, and recheck.

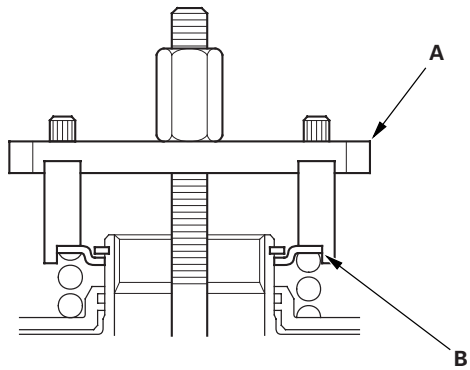
8. Install the return spring (A) and spring retainer (B), and position the snap ring (C) on the retainer.



9. Install the special tools on the clutch assembly.



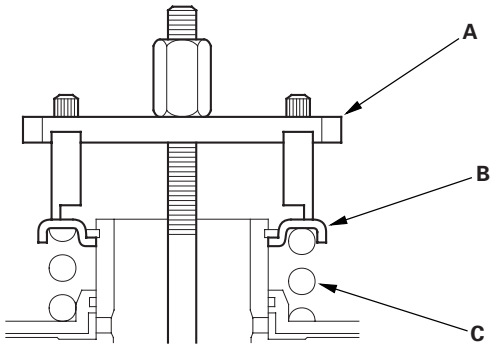
10. Be sure the special tool (A) is adjusted to have full contact with the spring retainer (B) on the 4th, 5th, and 1st clutches.



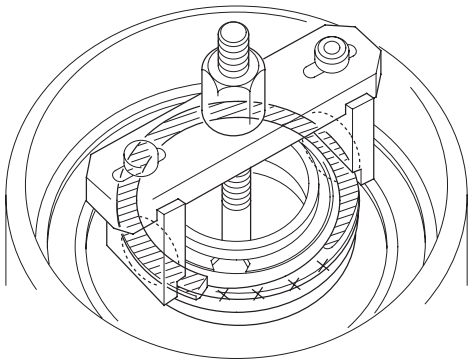
(cont'd)

Clutch Reassembly (cont'd)

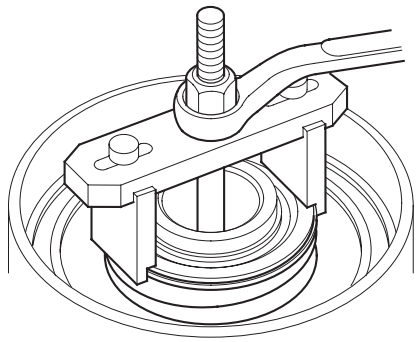
11. Set the special tool (A) on the spring retainer (B) of the 2nd and 3rd clutches so the tool works on the clutch return spring (C).



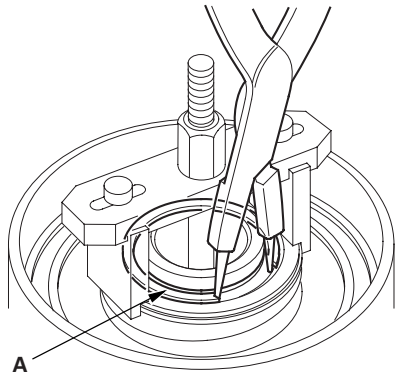
12. If either end of the special tool is set over an area of the spring retainer which is unsupported by the return spring, the retainer may be damaged.



13. Compress the return spring.



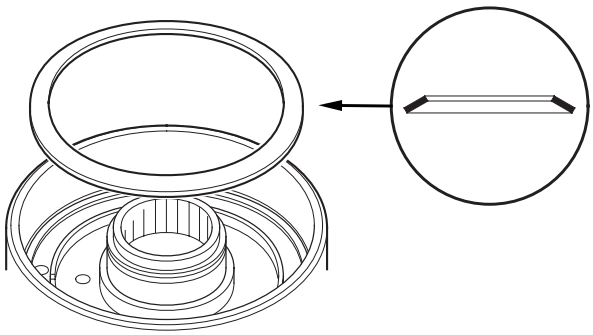
14. Install the snap ring (A).



15. Remove the special tools.

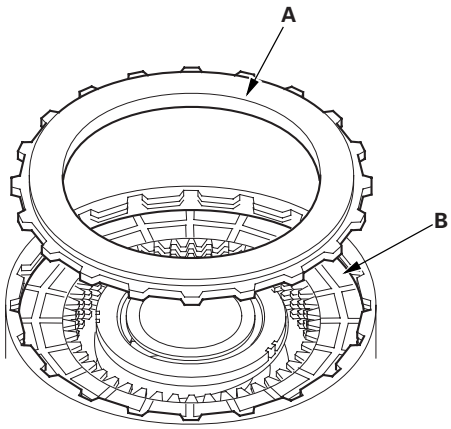
16. Install the disc spring in the 1st, 3rd, 4th, and 5th clutches in the direction shown.

    NOTE: The 2nd clutch and 1st-hold clutch do not have a disc spring.

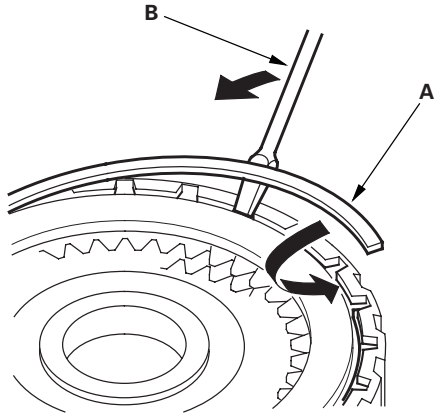


17. Make sure the inside of the clutch drum is free of dirt and other foreign particles.

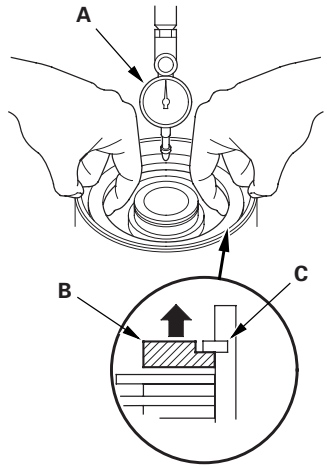
18. Starting with a clutch plate, alternately install the clutch plates and discs. Install the clutch end plate (A) with the flat side toward the disc (B).



19. Install the snap ring (A) with a screwdriver (B).



20. Set a dial indicator (A) on the clutch end plate (B).

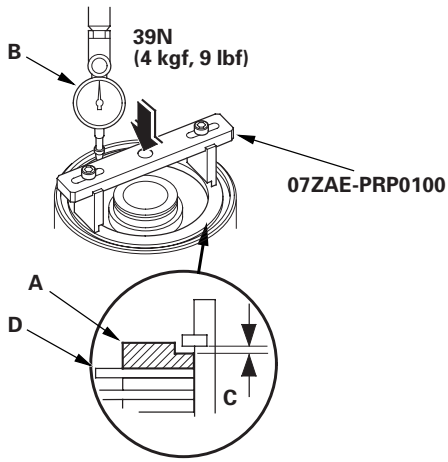


21. Zero the indicator with the clutch end plate lifted up to the snap ring (C).

(cont'd)

Clutch Reassembly (cont'd)

22. Release the clutch end plate to lower it, then put the special tool on the end plate (A).

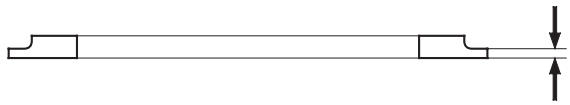


23. Press the special tool down with 39 N (4 kgf, 9 lbf) using a force gauge, and read the dial indicator reads the clearance (B) between the clutch end plate and top disc (C). Take measurements at least three places, and use the average as the actual clearance.

Clutch End-Plate-to-Top-Disc Clearance Service Limit:
- **1st Clutch: 1.1 —1.3 mm (0.043 —0.051 in.)**
- **2nd Clutch: 0.85 —1.05 mm (0.033 —0.041 in.)**
- **3rd Clutch: 0.7 —0.9 mm (0.028 —0.035 in.)**
- **4th Clutch: 0.55 —0.75 mm (0.022 —0.030 in.)**
- **5th Clutch: 0.55 —0.75 mm (0.022 —0.030 in.)**

24. If the clearance is not within the service limit, select a new clutch end plate from the following table.

NOTE: If the thickest clutch end plate is installed, but the clearance is still over the service limit, replace the clutch discs and plates as a set. Replace the PCM, if 3rd clutch discs and plates replacement is required.



1ST CLUTCH END PLATES

Mark	Part Number	Thickness
1	22551-P7W-003	3.1 mm (0.122 in.)
2	22552-P7W-003	3.2 mm (0.126 in.)
3	22553-P7W-003	3.3 mm (0.130 in.)
4	22554-P7W-003	3.4 mm (0.134 in.)
5	22555-P7W-003	3.5 mm (0.138 in.)
6	22556-P7W-003	3.6 mm (0.142 in.)
7	22557-P7W-003	3.7 mm (0.146 in.)
8	22558-P7W-003	3.8 mm (0.150 in.)
9	22559-P7W-003	3.9 mm (0.154 in.)

2ND CLUTCH END PLATES

Mark	Part Number	Thickness
1	22551-PY4-003	2.1 mm (0.083 in.)
2	22552-PY4-003	2.2 mm (0.087 in.)
3	22553-PY4-003	2.3 mm (0.091 in.)
4	22554-PY4-003	2.4 mm (0.094 in.)
5	22555-PY4-003	2.5 mm (0.098 in.)
6	22556-PY4-003	2.6 mm (0.102 in.)
7	22557-PY4-003	2.7 mm (0.106 in.)
8	22558-PY4-003	2.8 mm (0.110 in.)
9	22559-PY4-003	2.9 mm (0.114 in.)

3RD CLUTCH END PLATES

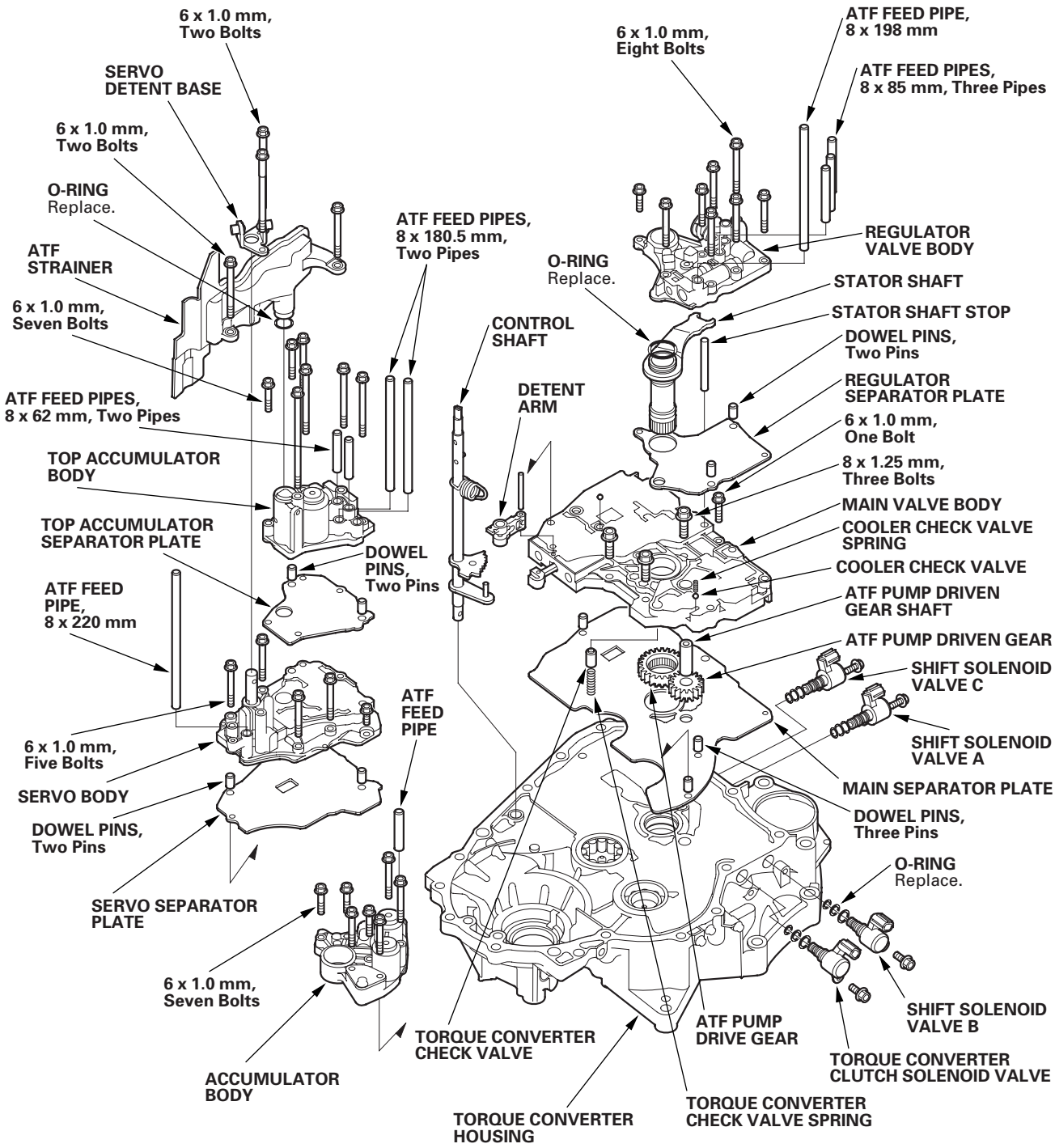
Mark	Part Number	Thickness
6	22556-RAY-A01	2.6 mm (0.102 in.)
7	22557-RAY-A01	2.7 mm (0.106 in.)
8	22558-RAY-A01	2.8 mm (0.110 in.)
9	22559-RAY-A01	2.9 mm (0.114 in.)
10	22560-PVG-003	3.0 mm (0.118 in.)
11	22561-PVG-003	3.1 mm (0.122 in.)
12	22562-PVG-003	3.2 mm (0.126 in.)
13	22563-PVG-003	3.3 mm (0.130 in.)
14	22564-PVG-003	3.4 mm (0.134 in.)

4TH and 5TH CLUTCH END PLATES

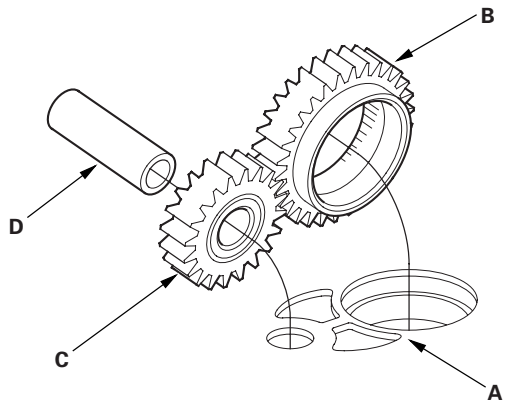
Mark	Part Number	Thickness
1	22561-P7T-003	2.1 mm (0.083 in.)
2	22562-P7T-003	2.2 mm (0.087 in.)
3	22563-P7T-003	2.3 mm (0.091 in.)
4	22564-P7T-003	2.4 mm (0.094 in.)
5	22565-P7T-003	2.5 mm (0.098 in.)
6	22566-P7T-003	2.6 mm (0.102 in.)
7	22567-P7T-003	2.7 mm (0.106 in.)
8	22568-P7T-003	2.8 mm (0.110 in.)
9	22569-P7T-003	2.9 mm (0.114 in.)

Valve Body and ATF Strainer Installation

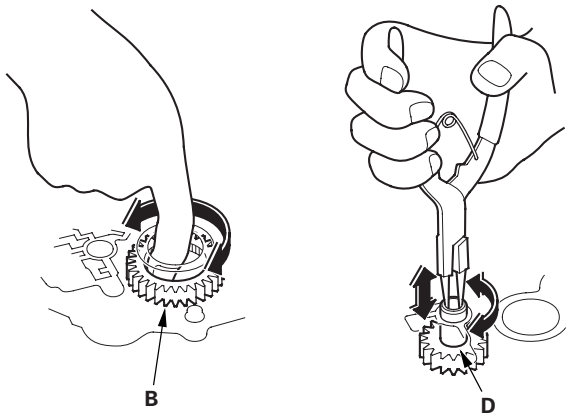
Exploded View



1. Install the main separator plate (A) and three dowel pins on the torque converter housing. Then install the ATF pump drive gear (B), driven gear (C), and ATF pump driven gear shaft (D). Install the ATF pump driven gear with its grooved and chamfered side facing down.



2. Install the main valve body (one 6 mm bolt and three 8 mm bolts). Make sure the ATF pump drive gear (B) rotates smoothly in the normal operating direction, and the ATF pump driven gear shaft (D) moves smoothly in the axial and normal operating direction.



3. If the ATF pump drive gear and ATF pump driven gear shaft do not move smoothly, loosen the main valve body bolts. Realign the ATF pump driven gear shaft, and retighten the bolts to the specified torque, then recheck. Failure to align the ATF pump driven gear shaft correctly will result in a seized ATF pump drive gear or ATF pump driven gear shaft.

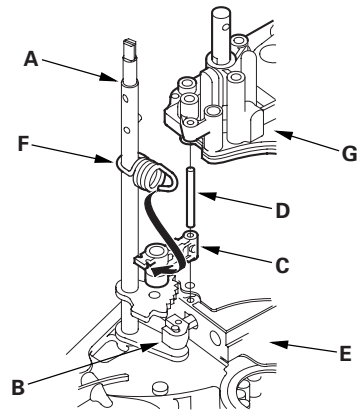
4. Install the torque converter check valve and spring, and the cooler check valve and spring on the main valve body, then install the two dowel pins and the regulator separator plate.

5. Install the stator shaft and stator shaft stop.

6. Install the regulator valve body (eight bolts).

7. Install the two dowel pins and the servo separator plate on the main valve body.

8. Install the control shaft (A) in the torque converter housing along with the manual valve (B).



9. Install the detent arm (C) and arm shaft (D) in the main valve body (E), then hook the detent arm spring (F) to the detent arm.

10. Install the servo body (G) (five bolts).

11. Install the top accumulator separator plate with two dowel pins on the servo body, then install the top accumulator body (seven bolts).

12. Install the ATF strainer (two bolts).

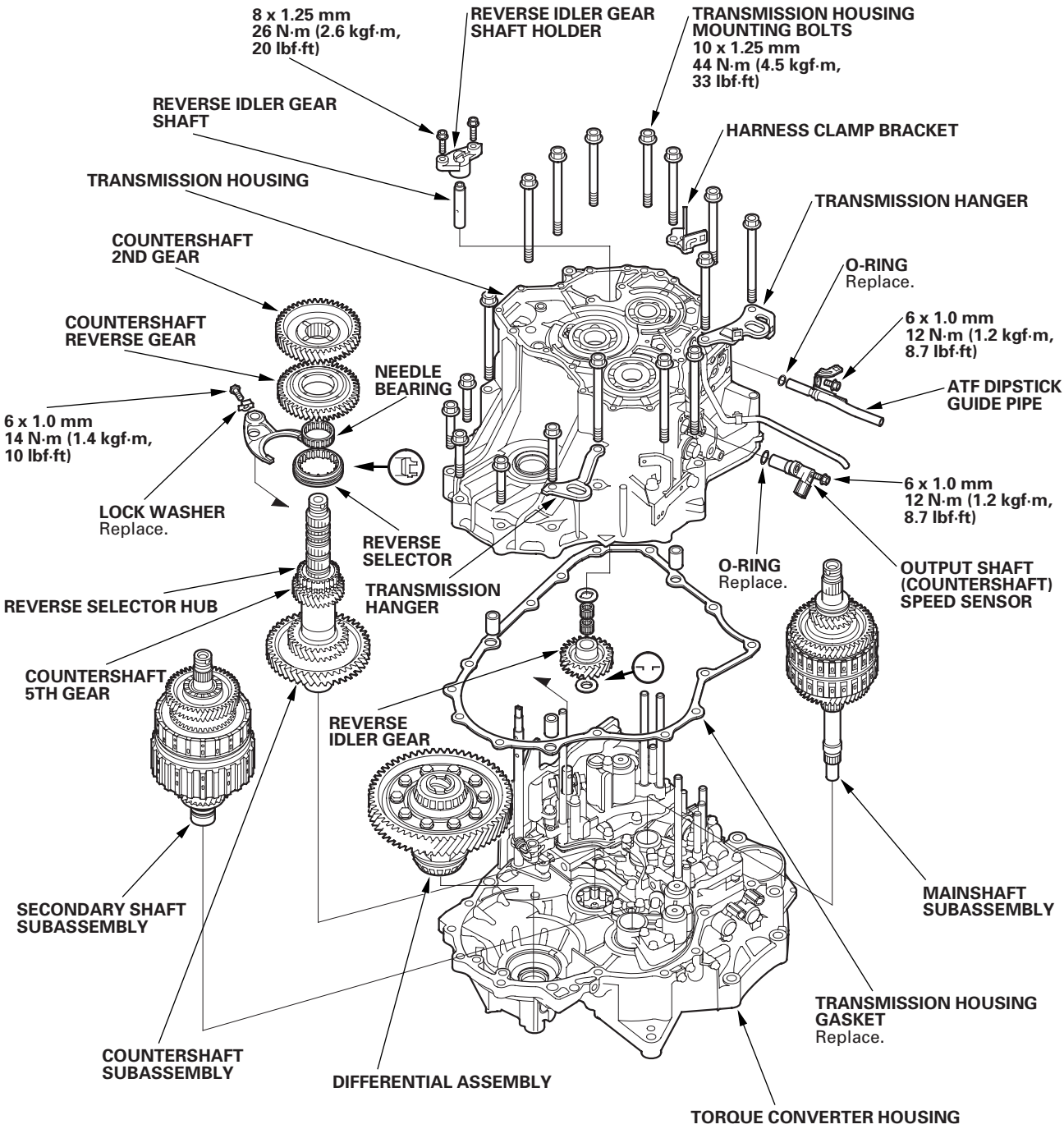
13. Install the servo detent base (two bolts).

14. Install the accumulator body (seven bolts).

15. Install the one ATF feed pipe in the servo body, four pipes in the regulator valve body, four pipes in the top accumulator body, and one pipe in the accumulator body.

Shaft Assembly and Housing Installation

Exploded View



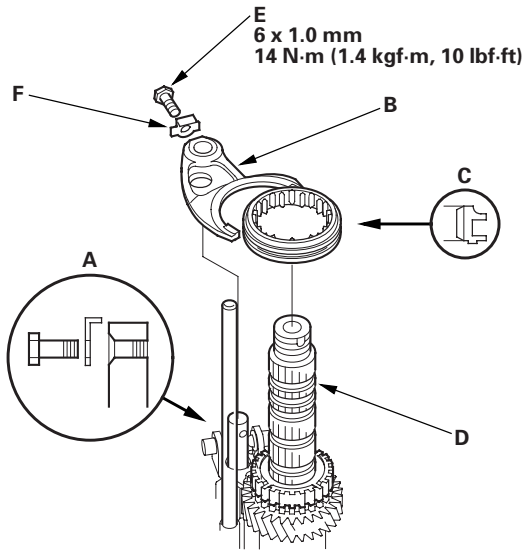
NOTE: Refer to the exploded view as needed during the following procedure.

1. Install the differential assembly in the torque converter housing.

2. If the reverse selector hub is press-fitted type, join the mainshaft, countershaft, and secondary shaft together, then install them in the torque converter housing.

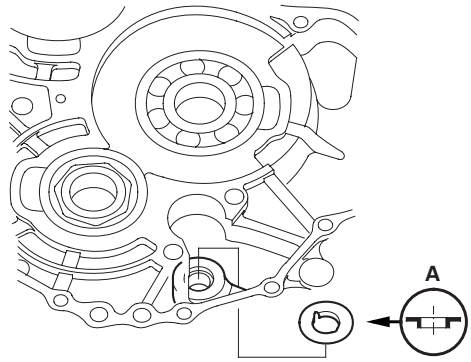
3. If the reverse selector hub is not press-fitted type, install the countershaft, mainshaft, and secondary shaft in the torque converter housing, then install the countershaft 5th gear and reverse selector hub on the countershaft.

4. Turn the shift fork shaft (A) so the large chamfered hole is facing the fork bolt hole. Then install the shift fork (B) and reverse selector (C) together on the shift fork shaft and countershaft (D). Secure the shift fork to the shift fork shaft with the lock bolt (E) and a new lock washer (F), then bend the lock washer against the bolt head.

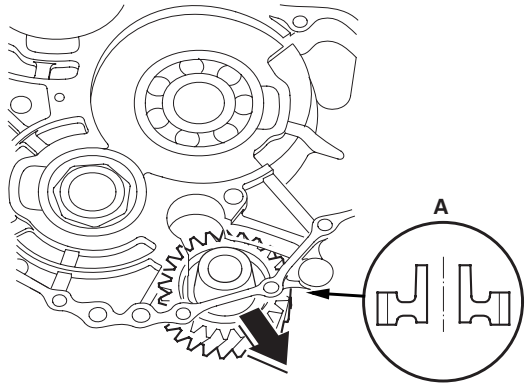


5. Install the needle bearing, countershaft reverse gear, and countershaft 2nd gear on the countershaft.

6. Place the thrust washer (A) in the transmission housing.



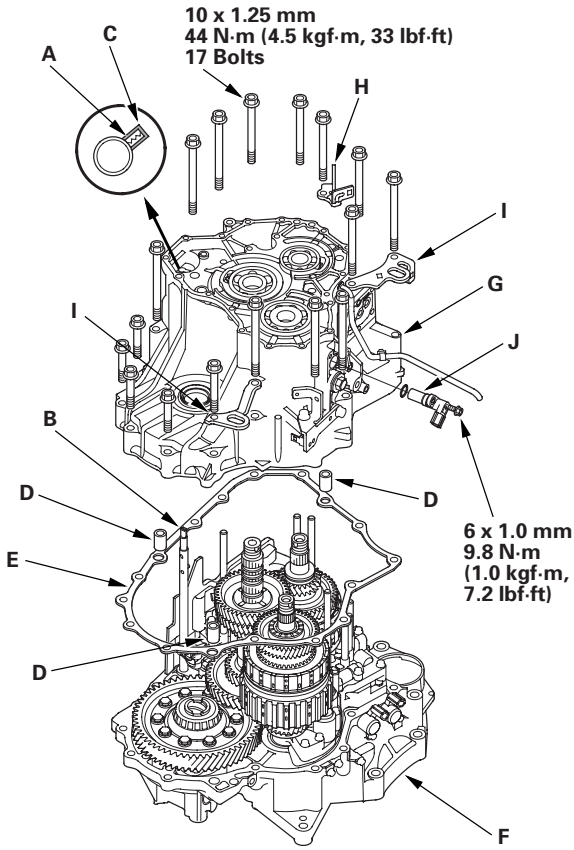
7. Place the reverse idler gear (A) in the transmission housing as shown, then slide it in the direction shown.



(cont'd)

Shaft Assembly and Housing Installation (cont'd)

8. Align the spring pin (A) on the control shaft (B) with the transmission housing groove (C) by turning the control shaft.



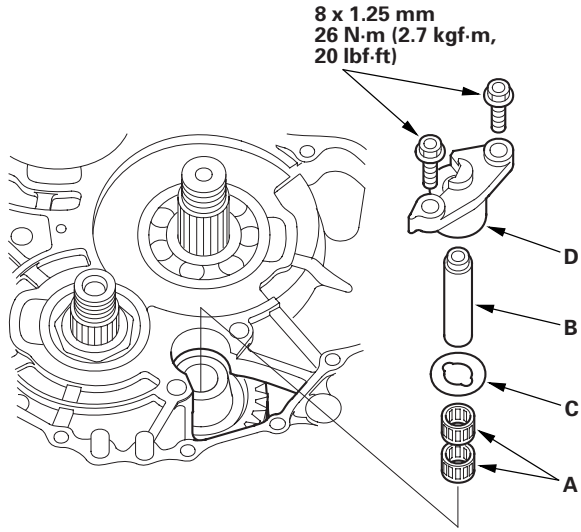
9. Install three dowel pins (D) and a new gasket (E) on the torque converter housing (F).

10. Place the transmission housing (G) on the torque converter housing, then install the transmission housing mounting bolts along with the harness clamp bracket (H) and transmission hangers (I).

11. Tighten the mounting bolts in two or more steps in a crisscross pattern.

12. Install the new O-ring on the output shaft (countershaft) speed sensor (J), then install it in the transmission housing.

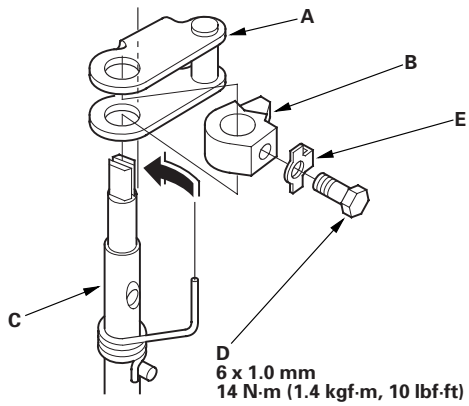
13. Engage the reverse idler gear with the countershaft reverse gear and mainshaft reverse gear. Then install the needle bearings (A), reverse idler gear shaft (B), and thrust washer (C) in the reverse idler gear, and install the reverse idler gear shaft holder (D) on the transmission housing.



End Cover, 3rd Gear, Idler Gear, and 3rd Clutch Installation

Special Tools Required
- Mainshaft holder
  07GAB-PF50101 or 07GAB-PF50100
- Adjustable bearing puller, 25—40 mm
  07736-A01000B or 07736-A01000A

1. Install the park lever (A) and park lever stop (B), on the control shaft (C), then install the lock bolt (D) with a new lock washer (E). Do not bend the lock tab of the lock washer until step 28.

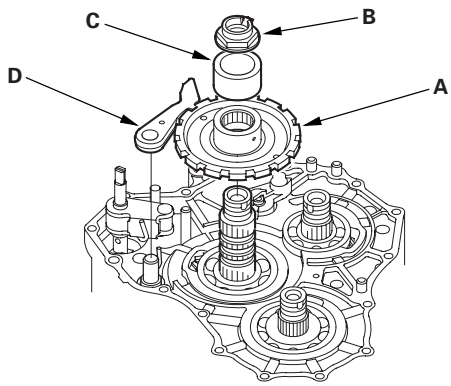


2. Lubricate the following parts with ATF:

   - Splines of the countershaft, the park gear, and the old locknut.
   - Threads of the countershaft and the old locknut.
   - Old conical spring washer.

3. Install the park gear (A) using the old locknut (B) and a collar (C). Hold the park pawl (D) against the park gear, then tighten the old locknut until the shaft splines come out over the park gear splines.

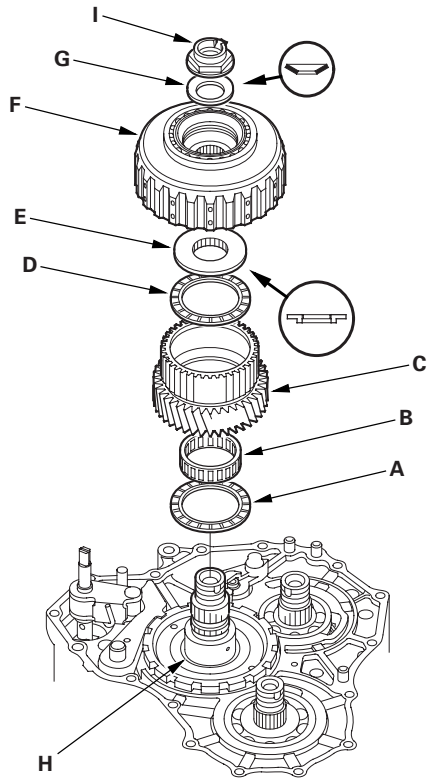
   NOTE:
   - Do not use an impact wrench.
   - Countershaft locknut has left-hand threads.



4. Remove the locknut and collar.

5. Install the thrust needle bearing (A), needle bearing (B), 3rd gear (C), thrust needle bearing (D), 31 x 63.5 mm splined washer (E), 3rd clutch assembly (F), and old conical spring washer (G) on the countershaft (H). Tighten the old locknut (I) to 226 N·m (23.0 kgf·m, 166 lbf·ft).

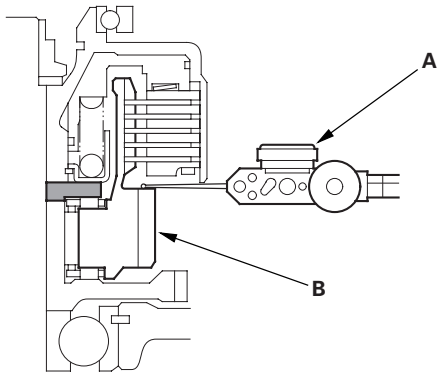
   NOTE: Use a torque wrench to tighten the locknut. Do not use an impact wrench.



(cont'd)

End Cover, 3rd Gear, Idler Gear, and 3rd Clutch Installation (cont'd)

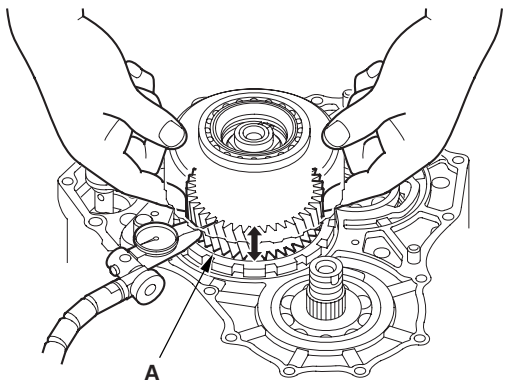
6. Set the dial indicator (A) to the countershaft 3rd gear (B).



7. Measure the countershaft 3rd gear axial clearance in at least three places, while moving the countershaft 3rd gear (A).
   Use the average as the actual clearance.

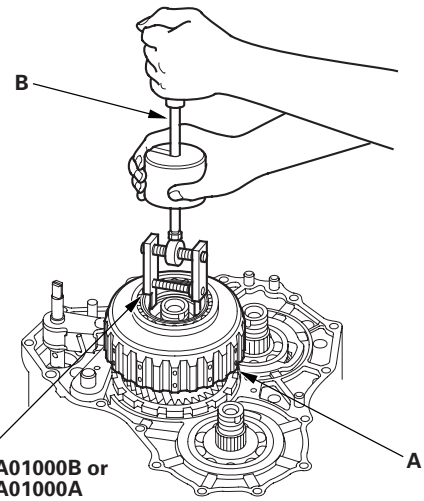
   If the clearance is out of standard, select the appropriate 31 x 63.5 mm splined washer in step 16.

   Standard: 0.015—0.045 mm (0.0006—0.0018 in.)



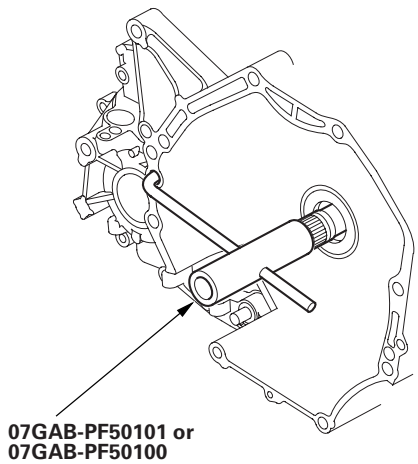
8. Remove the locknut and conical spring washer.

9. Remove the 3rd clutch assembly (A) with the special tool and a commercially available 3/8-16'' slide hammer (B).



10. Remove the parts that were installed in step 5.

11. Install the special tool onto the mainshaft.

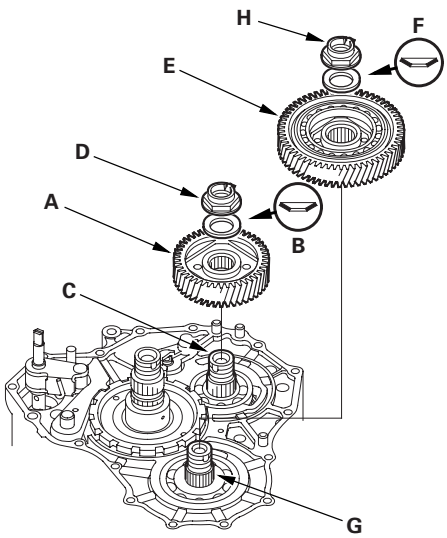


12. Lubricate the following parts with ATF:

    - Splines of the mainshaft 3rd gear and secondary shaft idler gear.
    - Threads of the mainshaft and secondary shaft.
    - Threads of the old mainshaft and secondary shaft locknuts.
    - Old conical spring washer.

13. Install the mainshaft 3rd gear (A) and the old conical spring washer (B) on the mainshaft (C). Tighten the old locknut (D) to seat the 3rd gear to 226 N·m (23.0 kgf·m, 166 lbf·ft).

    NOTE: Use a torque wrench to tighten the locknut. Do not use an impact wrench.

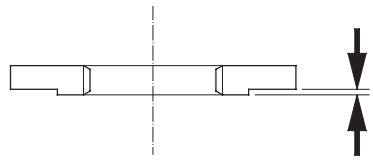


14. Install the secondary shaft idler gear (E) and the old conical spring washer (F) on the secondary shaft (G). Tighten the old locknut (H) to seat the secondary shaft idler gear to 226 N·m (23.0 kgf·m, 166 lbf·ft).

    NOTE:
    - Use a torque wrench to tighten the locknut. Do not use an impact wrench.
    - Secondary shaft locknut has left-hand threads.

15. Remove the old locknuts and old conical spring washers from the mainshaft and secondary shaft.

16. If the 3rd gear axial clearance is out of standard (measured in step 7), measure the difference of the 31 x 63.5 mm splined washer, and select the appropriate splined washer from the table.



SPLINED WASHER, 31 x 63.5 mm

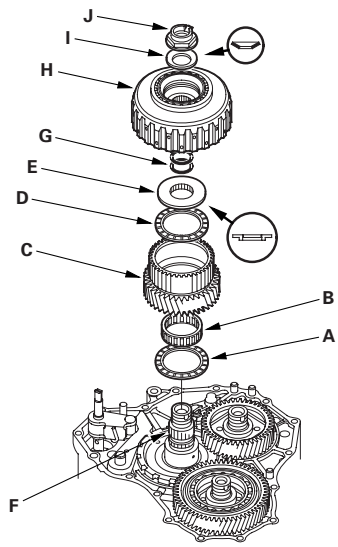
Mark	Part Number	Difference
A	90520-P7W-000	3.503 mm (0.1379 in.)
B	90521-P7W-000	3.490 mm (0.1374 in.)
C	90522-P7W-000	3.477 mm (0.1369 in.)
D	90523-P7W-000	3.464 mm (0.1364 in.)

17. Install the thrust needle bearing (A), needle bearing (B), 3rd gear (C), thrust needle bearing (D), and 31 x 63.5 mm splined washer (E) on the countershaft (F).

18. Wrap the shaft splines with tape to prevent O-ring damage, then install new O-rings (G).

19. Remove the tape, then install the 3rd clutch assembly (H), and old conical spring washer (I). Tighten the old locknut (J) to 226 N·m (23.0 kgf·m, 166 lbf·ft).

    NOTE: Use a torque wrench to tighten the locknut. Do not use an impact wrench.



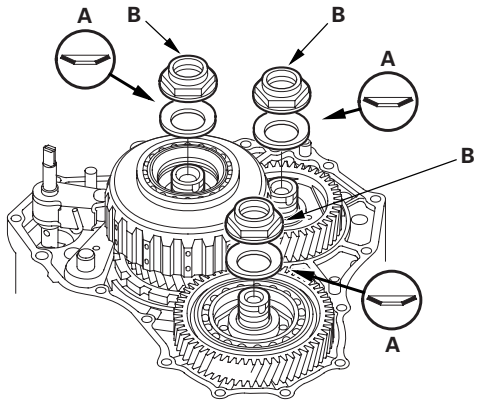
(cont'd)

End Cover, 3rd Gear, Idler Gear, and 3rd Clutch Installation (cont'd)

20. Remove the old locknut and old conical spring washer from the countershaft.

21. Lubricate the threads of each shaft, the new locknuts, and new conical spring washers with ATF.

22. Install the new conical spring washers (A) in the direction shown, and install the new locknuts (B).

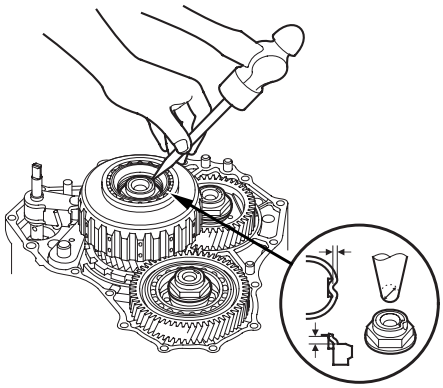


23. Tighten the locknuts to 167 N·m (17.0 kgf·m, 123 lbf·ft).

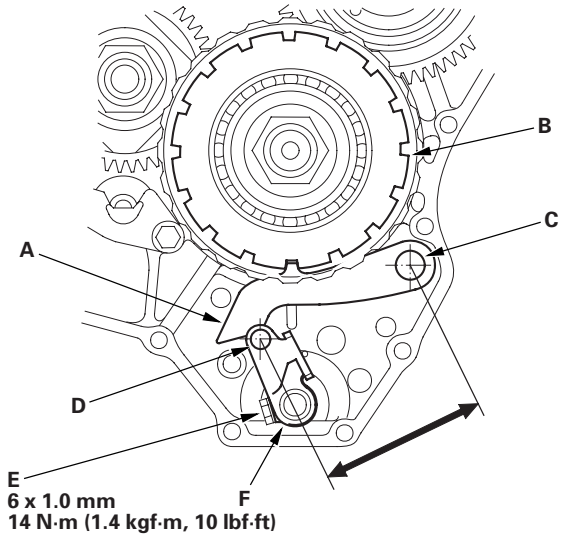
    NOTE:
    - Use a torque wrench to tighten the locknuts. Do not use an impact wrench.
    - Countershaft and secondary shaft locknuts have left-hand threads.

24. Remove the special tool from the mainshaft.

25. Stake each locknut into its shaft using 3.5 mm punch.



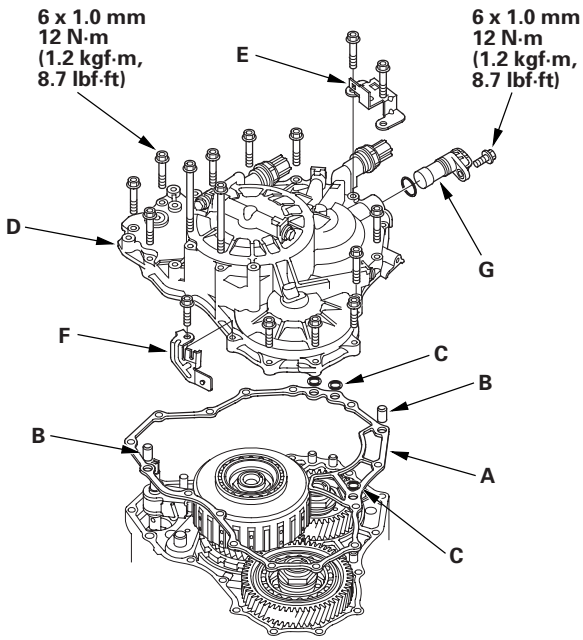
26. Set the park lever in P position, then verify that the park pawl (A) engages the park gear (B).



27. If the park pawl does not engage fully, check the distance between the pawl shaft (C) and the park lever roller pin (D) (see page 14-420).

28. Tighten the lock bolt (E), and bend the lock tab of the lock washer (F) against the lock bolt head.

29. Install the new gasket (A) on the transmission housing, and install the two dowel pins (B) and new O-rings (C) over the top of the ATF feed pipes.

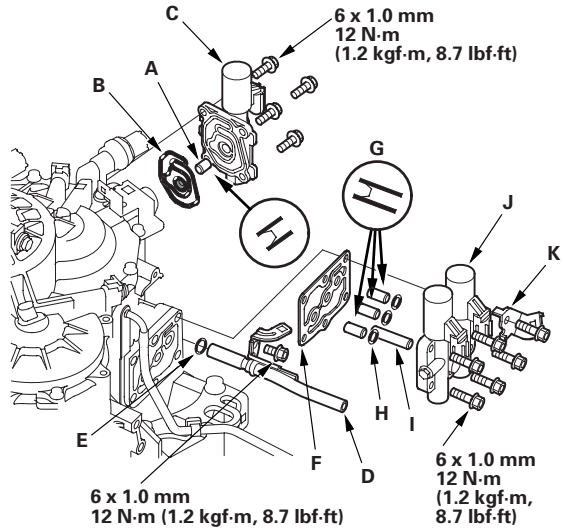


30. Install the end cover (D), and install the 13 bolts, connector bracket (E) and harness clamp bracket (F).

31. Tighten the bolts in two or more steps in a crisscross pattern.

32. Install the new O-ring on the input shaft (mainshaft) speed sensor, then install it in the end cover.

33. Install the 8 x 12 mm ATF feed pipe (A) with its filter side into the transmission housing.



34. Install the new gasket (B) in the mounting groove of the A/T clutch pressure control solenoid valve C body (C) properly, then install them on the transmission housing. Do not pinch the gasket.

35. Install the ATF dipstick guide pipe (D) with the new O-ring (E).

36. Place the new gasket (F) on the transmission housing, then install the 8 x 18 mm ATF feed pipes (G) with their filter side into the transmission housing.

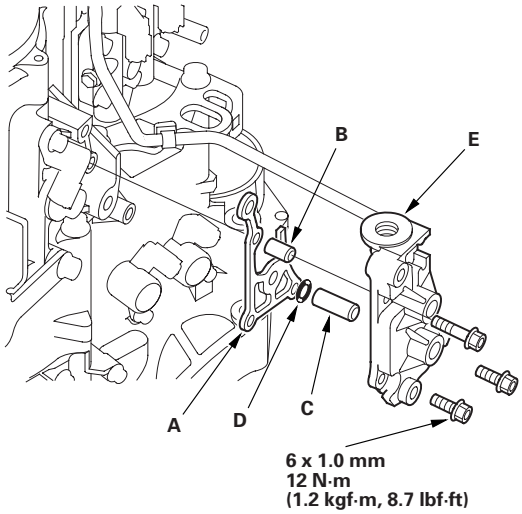
37. Install the new O-rings (H) over the feed pipes, and install the 8 x 40 mm ATF feed pipe (I).

38. Install the A/T clutch pressure control solenoid valves A and B (J) and the harness clamp bracket (K).

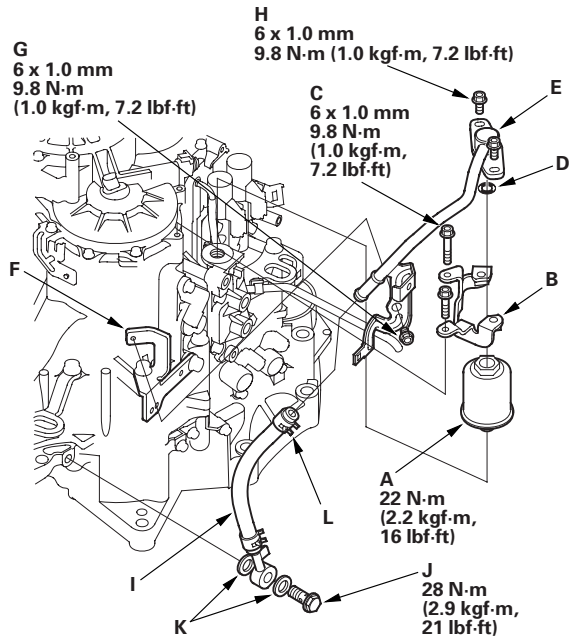
(cont'd)

End Cover, 3rd Gear, Idler Gear, and 3rd Clutch Installation (cont'd)

39. Place the new ATF passage body gasket (A) on the transmission housing, then install the 8 x 14 mm dowel pin (B) and the 10 x 25.5 mm ATF feed pipe (C) with the new O-ring (D). Install the ATF passage body (E) on the transmission housing, if it was removed.



40. Install the new ATF filter (A) on the transmission housing.



41. Install the filter line bracket (B) on the ATF filter, and loosely install the bolts (C).

42. Install the new O-ring (D) to the filter line (E), then install the filter line on the ATF filter.

43. Secure the end of the filter line on the bracket (F) with the bolt (G).

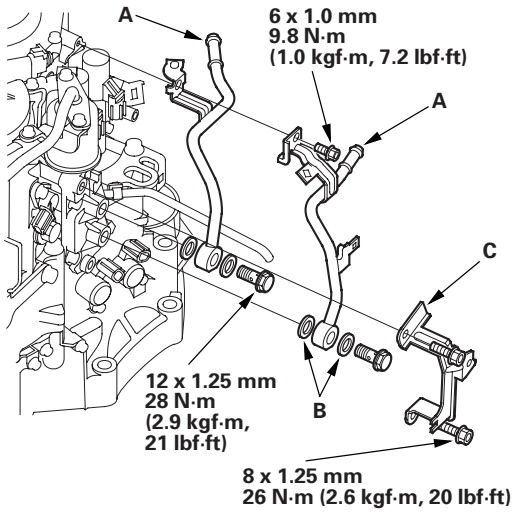
44. Secure the filter line on the filter line bracket with the bolts (H).

45. Tighten the bolts (C) on the filter line bracket to the specified torque.

46. Install the ATF hose (I) and line bolt (J) with the new sealing washers (K).

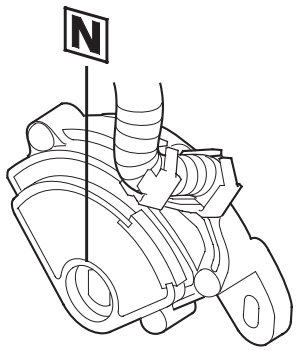
47. Connect the hose to the filter line, and secure it with the clip (L).

48. Install the ATF cooler lines (A) with the new sealing washers (B) and the line bolts, then install the harness clamp bracket (C).



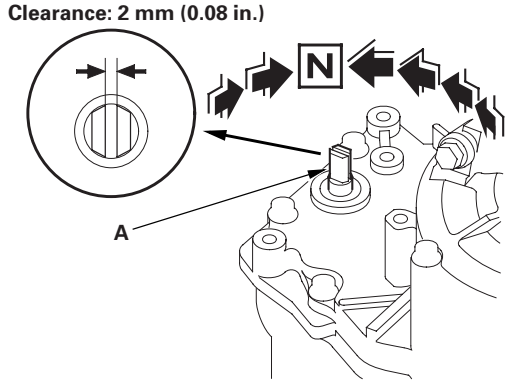
49. Set the transmission range switch to the N position.

    NOTE: The transmission range switch clicks in the N position.



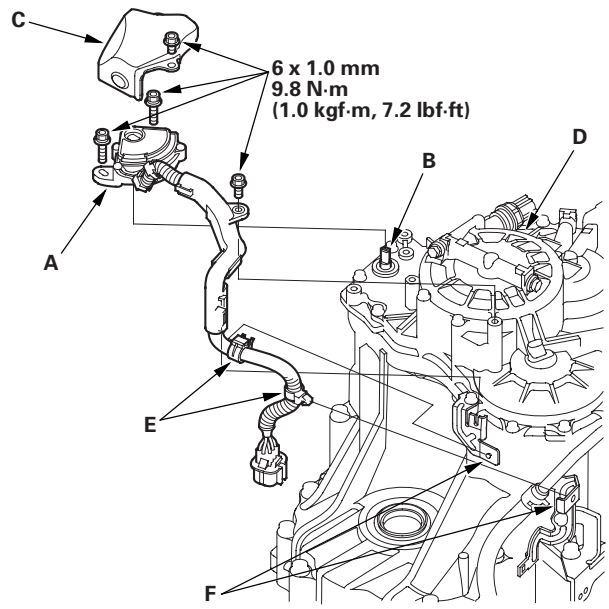
50. Set the control shaft (A) to the N position by turning it.

    NOTE: Be careful not to squeeze the end of the control shaft tips together when turning into position. If the tips are squeezed together it will cause a faulty signal or position due to the play between the control shaft and the switch.



51. Install the transmission range switch (A) gently on the control shaft (B). Do not move the transmission range switch when tightening its bolts.

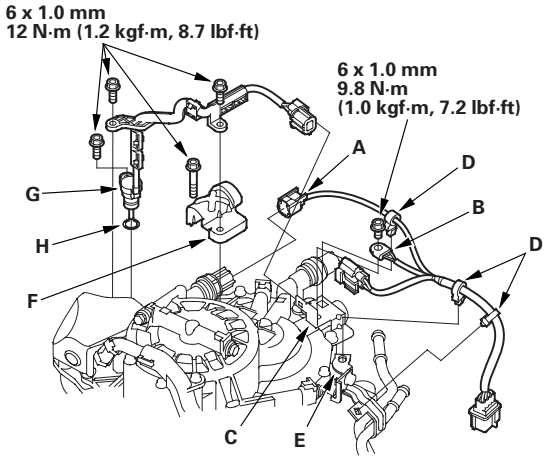
52. Install the transmission range switch cover (C); secure the harness with the bolt on the end cover (D); install the harness clips (E) on the brackets (F).



(cont'd)

End Cover, 3rd Gear, Idler Gear, and 3rd Clutch Installation (cont'd)

53. Connect the 3rd clutch pressure switch connector (A) and A/T wire harness ground terminal (B) on the connector bracket (C), then install the clips (D) on the bracket (E).

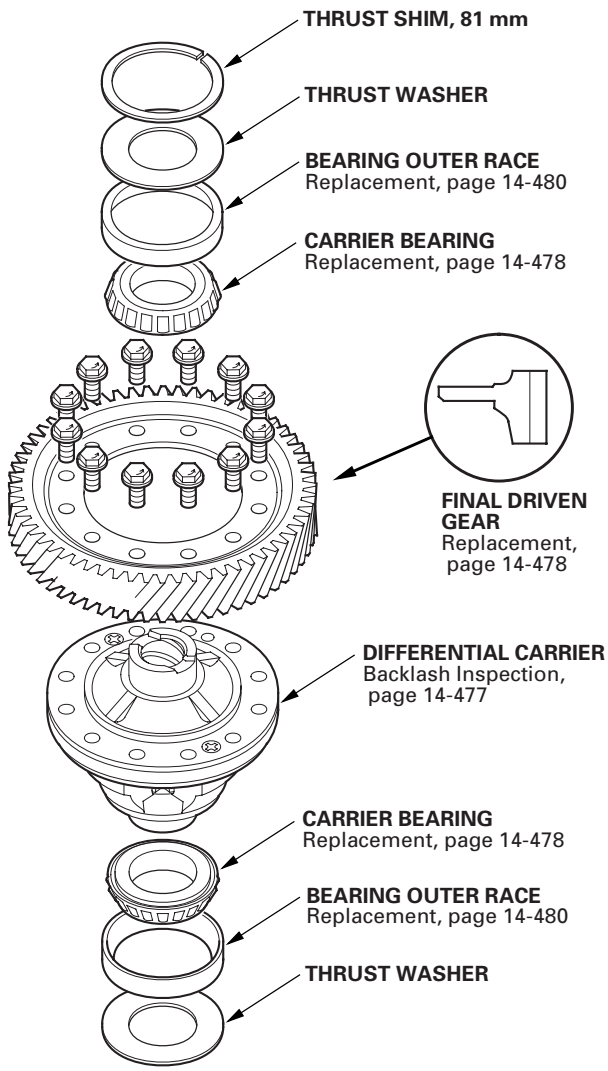


54. Install the switch cover (F).

55. Install the ATF temperature sensor (G) with the new O-ring (H), then secure the harness with the bolts. Connect the sensor connector to the A/T wire harness connector, then install it on the connector bracket (C).

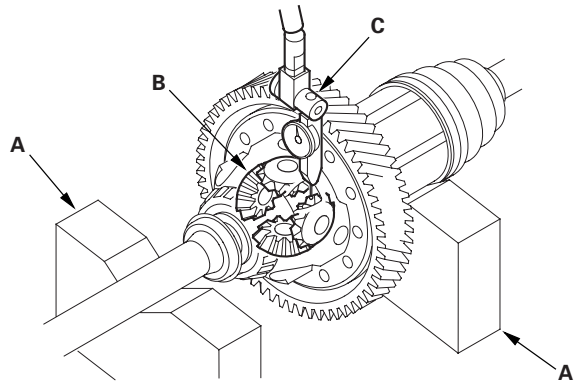
56. Install the dipstick.

Component Location Index



Backlash Inspection

1. Install both axles, and place the differential assembly on V-blocks (A).



2. Check the backlash of the pinion gears (B) with a dial indicator (C).

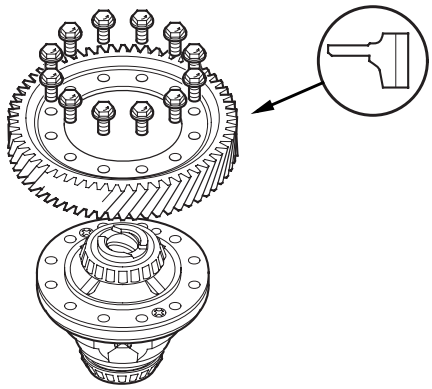
   Standard: 0.175—0.275 mm (0.007—0.011 in.)

3. If the backlash is out of standard, replace the differential carrier.

Differential Carrier, Final Driven Gear Replacement

1. Remove the final driven gear from the differential carrier.

   NOTE: The final driven gear bolts have left-hand threads.



2. Install the final driven gear with the chamfered side on the inner bore facing the differential carrier.

3. Tighten the bolts to the specified torque in a crisscross pattern.

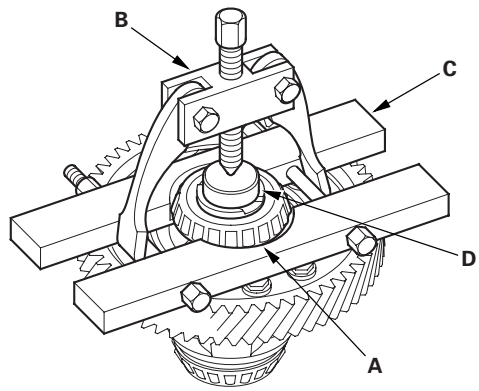
   Torque: 101 N·m (10.3 kgf·m, 74.5 lbf·ft)

Carrier Bearing Replacement

Special Tools Required
Attachment, 40 x 50 mm 07LAD-PW50601

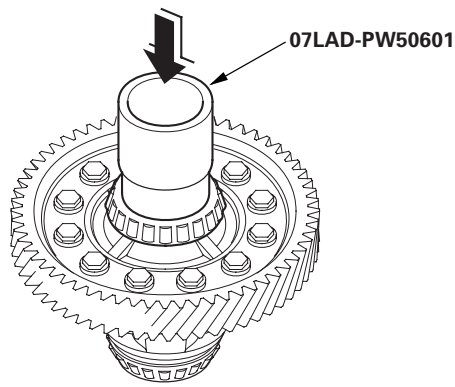
NOTE:
- The bearing and outer race should be replaced as a set.
- Inspect and adjust the bearing preload whenever bearing is replaced.
- Check the bearing for wear and rough rotation. If the bearing is OK, removal is not necessary.

1. Remove the carrier bearing (A) with a commercially available bearing puller (B), bearing separator (C), and stepped adapter (D).



2. Install the new carrier bearings with the special tool and a press.

   NOTE:
   - Press the bearing on until it bottoms.
   - Use the small end of the special tool to install the bearing.
   - Press the bearing on securely so there is no clearance between the bearing and the differential carrier.

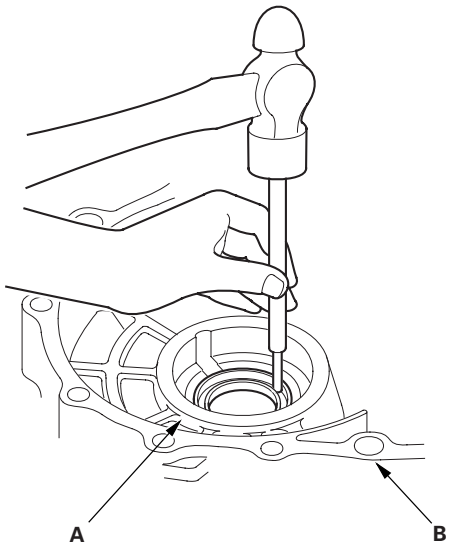


Oil Seal Replacement

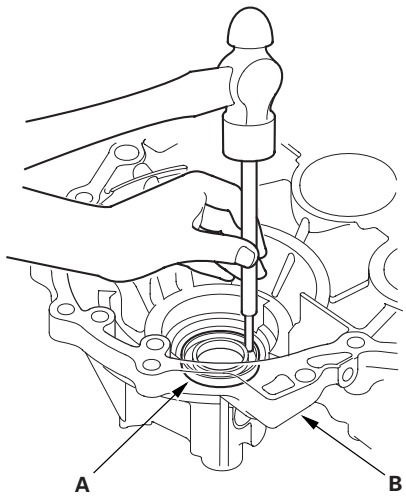
Special Tools Required
- Driver 07749-0010000
- Seal driver attachment
  07GAD-PG40101 or 07GAD-PG40100
- Oil seal driver attachment 07JAD-PH80101

1. Remove the differential assembly.

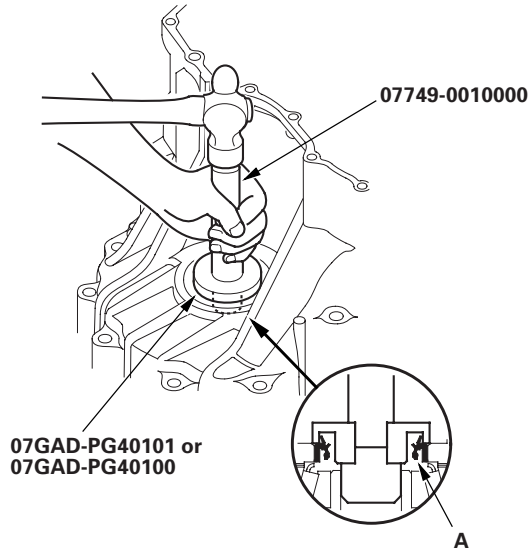
2. Remove the oil seal (A) from the transmission housing (B).



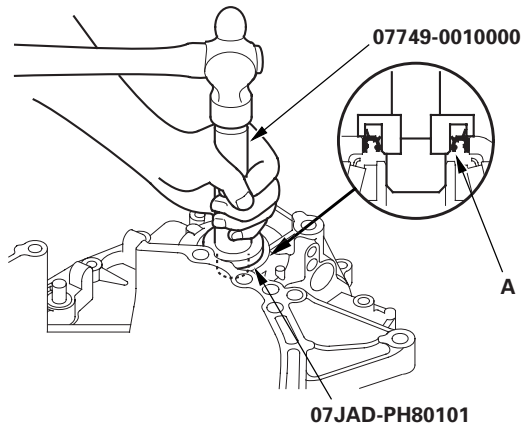
3. Remove the oil seal (A) from the torque converter housing (B).



4. Install the oil seal (A) in the transmission housing with the special tools.



5. Install the oil seal (A) in the torque converter housing with the special tools.



Carrier Bearing Outer Race Replacement

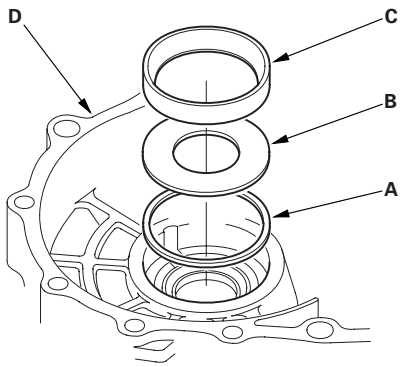
Special Tools Required
- Driver 07749-0010000
- Attachment, 78 x 80 mm 07NAD-PX40100

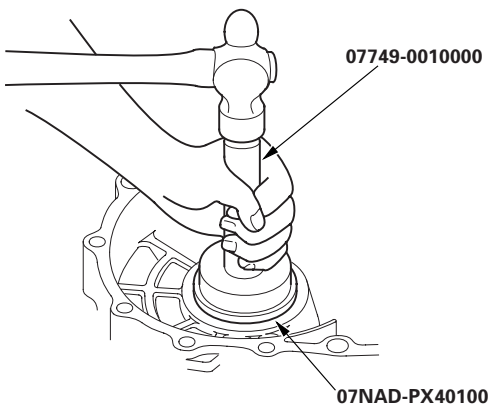
NOTE:
- Replace the bearing with a new one whenever the outer race is replaced.
- Do not use shim(s) on the torque converter housing side.
- Adjust preload after replacing the bearing and outer race.
- Coat all parts with ATF during installation.

1. Remove the bearing outer race from the transmission housing by heating the housing to about 212°F (100°C) with a heat gun. Do not heat the housing to more than 212°F (100°C).

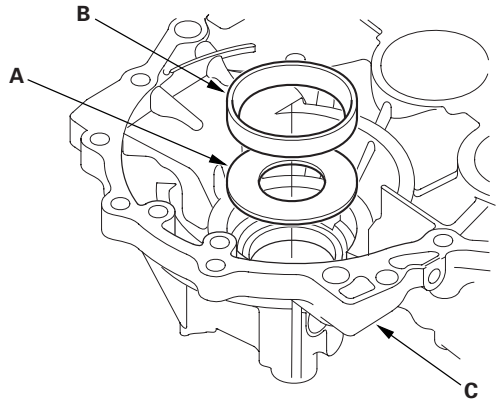
2. Remove the bearing outer race from the torque converter housing.

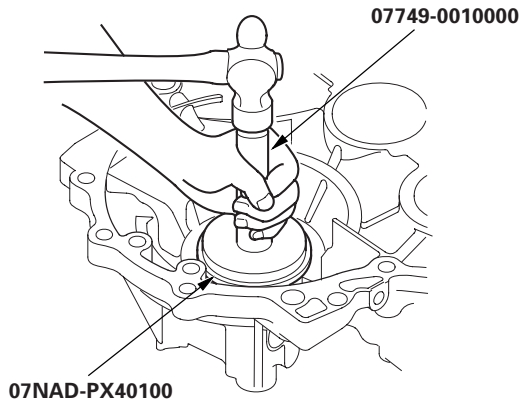
3. Install the thrust shim (A), thrust washer (B), and outer race (C) in the transmission housing (D) with the special tools.





4. Install the thrust washer (A) and outer race (B) in the torque converter housing (C), and use the special tools to make sure the outer race bottoms out in the housing.





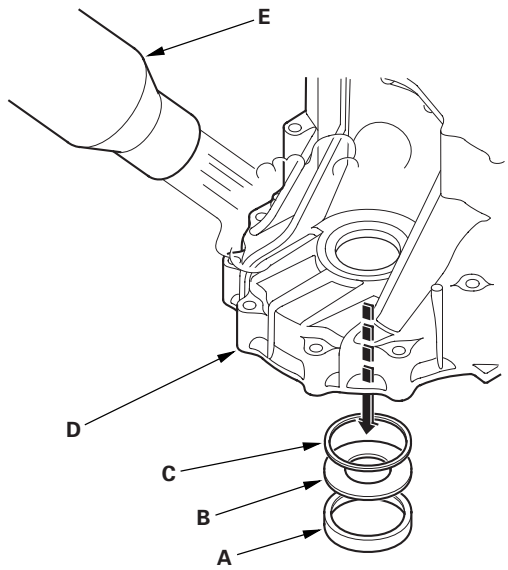
Carrier Bearing Preload Inspection

Special Tools Required
- Driver 07749-0010000
- Attachment, 78 x 80 mm 07NAD-PX40100
- Preload inspection tool 07YAJ-S3V0100

NOTE: If the transmission housing, torque converter housing, differential carrier, tapered roller bearing, outer race, or thrust shim were replaced, the bearing preload must be adjusted.

1. Remove the bearing outer race (A), thrust washer (B), and thrust shim (C) from the transmission housing (D) by heating the housing to about 212°F (100°C) with a heat gun (E). Do not heat the housing to more than of 212°F (100°C).

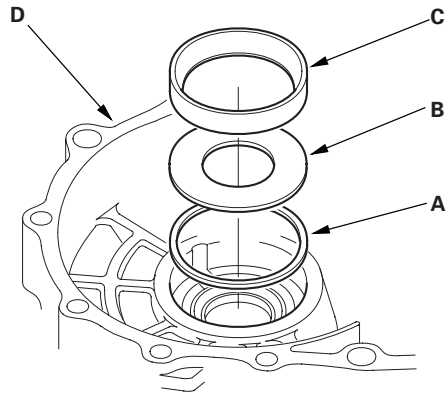
   NOTE: Let the transmission housing cool to room temperature before adjusting the bearing preload.



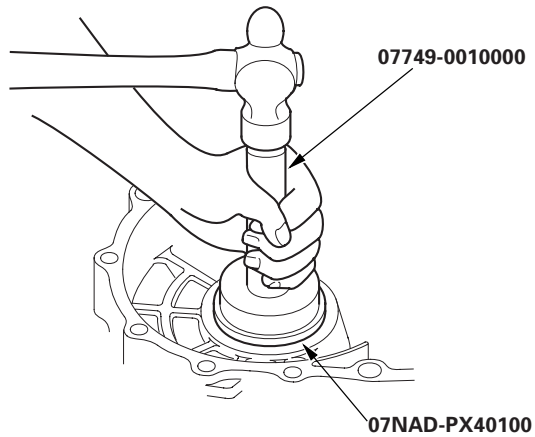
2. Replace the tapered roller bearing when the outer race is to be replaced.

3. Do not use a shim on the torque converter housing side.

4. Install the 81 mm thrust shim (A), thrust washer (B), and bearing outer race (C) in the transmission housing. If you replace the 81 mm thrust shim with a new one, use the same thickness shim as the old one.



5. Drive in the outer race with the special tools.

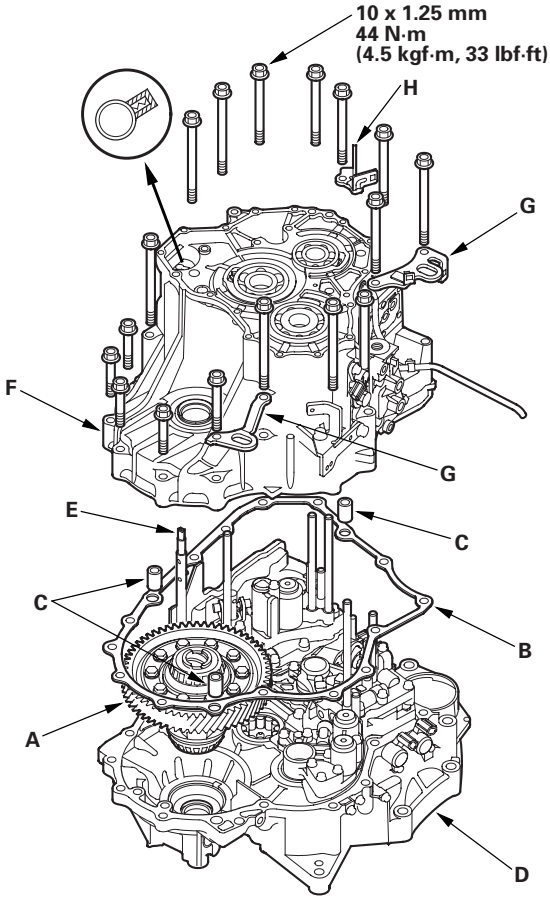


6. Check that there is no clearance between the thrust washer, outer race, shim, and transmission housing.

(cont'd)

Carrier Bearing Preload Inspection (cont'd)

7. Install the differential assembly (A), gasket (B), and dowel pins (C) on the torque converter housing (D). Align the spring pin on the control shaft (E) with the transmission housing groove.



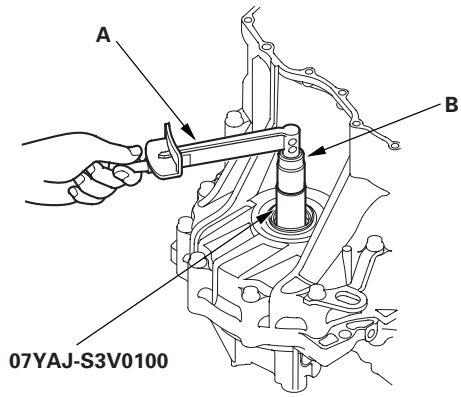
8. Install the transmission housing (F) with the transmission hangers (G) and harness clamp bracket (H), then tighten the bolts.

9. Rotate the differential assembly in both directions to seat the bearings.

10. Measure the starting torque of the differential assembly with the special tools, a torque wrench (A) and a socket (B). Measure the starting torque at normal room temperature in both directions.

Standard:

New bearing:	**2.7—3.9 N·m (28—40 kgf·cm, 24—35 lbf·in.)**
Reused bearings:	**2.5—3.6 N·m (25—37 kgf·cm, 22—32 lbf·in.)**



11. If the measurement is out of standard, remove the thrust shim and select the thrust shim from table. Install the new thrust shim and recheck. To increase the starting torque, increase the thickness of the thrust shim. To decrease the starting torque, decrease the thickness of the thrust shim. Changing the shim to the next size will increase or decrease starting torque about 0.3—0.4 N·m (3—4 kgf·cm, 2—3 lbf·in.).

THRUST SHIM, 81 mm

No.	Part Number	Thickness
A	41438-P7T-700	2.05 mm (0.081 in.)
AA	41438-PGH-000	2.075 mm (0.082 in.)
B	41439-P7T-700	2.10 mm (0.083 in.)
BB	41439-PGH-000	2.125 mm (0.084 in.)
C	41440-P7T-700	2.15 mm (0.085 in.)
CC	41440-PGH-000	2.175 mm (0.086 in.)
D	41441-P7T-000	2.20 mm (0.087 in.)
DD	41441-PGH-000	2.225 mm (0.088 in.)
E	41442-P7T-000	2.25 mm (0.089 in.)
EE	41442-PGH-000	2.275 mm (0.090 in.)
F	41443-P7T-000	2.30 mm (0.091 in.)
FF	41443-PGH-000	2.325 mm (0.092 in.)
G	41444-P7T-000	2.35 mm (0.093 in.)
GG	41444-PGH-000	2.375 mm (0.094 in.)
H	41445-P7T-000	2.40 mm (0.094 in.)
HH	41445-PGH-000	2.425 mm (0.095 in.)
I	41446-P7T-000	2.45 mm (0.096 in.)
II	41446-PGH-000	2.475 mm (0.097 in.)
J	41447-P7T-000	2.50 mm (0.098 in.)
JJ	41447-PGH-000	2.525 mm (0.099 in.)
K	41448-P7T-000	2.55 mm (0.100 in.)
KK	41448-PGH-000	2.575 mm (0.101 in.)
L	41449-P7T-000	2.60 mm (0.102 in.)
LL	41449-PGH-000	2.625 mm (0.103 in.)
M	41450-P7T-000	2.65 mm (0.104 in.)
MM	41450-PGH-000	2.675 mm (0.105 in.)
N	41451-P7T-000	2.70 mm (0.106 in.)
NN	41451-PGH-000	2.725 mm (0.107 in.)
O	41452-P7T-000	2.75 mm (0.108 in.)
OO	41452-PGH-000	2.775 mm (0.109 in.)
P	41453-P7T-000	2.80 mm (0.110 in.)
PP	41453-PGH-000	2.825 mm (0.111 in.)
Q	41454-P7T-000	2.85 mm (0.112 in.)
QQ	41454-PGH-000	2.875 mm (0.113 in.)
R	41455-P7T-000	2.90 mm (0.114 in.)
RR	41455-PGH-000	2.925 mm (0.115 in.)
S	41456-P7T-000	2.95 mm (0.116 in.)
SS	41456-PGH-000	2.975 mm (0.117 in.)
T	41457-P7T-000	3.00 mm (0.118 in.)
TT	41457-PGH-000	3.025 mm (0.119 in.)
U	41458-P7T-000	3.05 mm (0.120 in.)

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Transaxle

Driveline/Axle

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Intermediate Shaft Reassembly 16-19
Intermediate Shaft Installation 16-21

Driveline/Axle

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07AAF-SDAA100	Ball Joint Thread Protector	1
②	07JAD-PH80101	Oil Seal Driver Attachment	1
③	07LAF-SM40300	Support Base Attachment	1
④	07MAC-SL00100	Ball Joint Remover, 32 mm	1
⑤	07XAC-001020A	Threaded Adapter, 24 x 1.5 mm	1
⑥	07746-0010300	Attachment, 42 x 47 mm	1
⑦	07749-0010000	Driver	1
⑧	07947-4630100	Fork Seal Driver, 39.2 x 49.5 x 15 mm	1
⑨	07965-SD90100	Support Base	1

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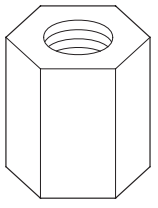

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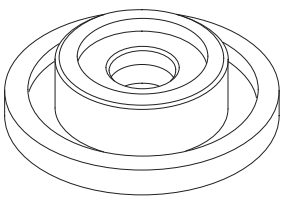

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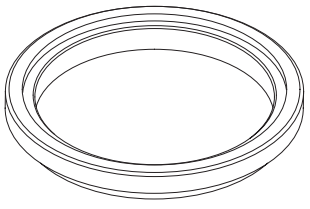

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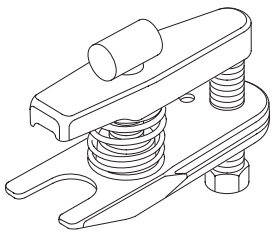

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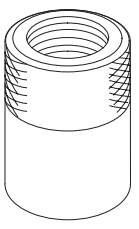

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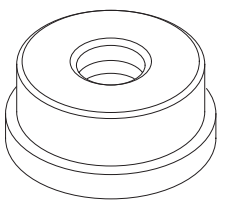

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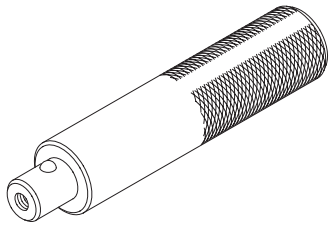

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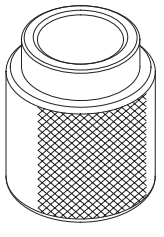

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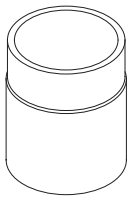
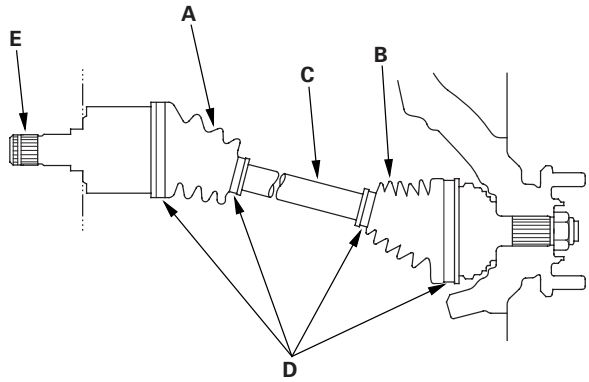


⑨

Driveshaft Inspection

1. Check the inboard boot (A) and the outboard boot (B) on the driveshaft (C) for cracks, damage, leaking grease, and loose boot bands (D). If any damage is found, replace the boot and boot bands.



2. Turn the driveshaft by hand, and make sure the splines (E) and joint are not excessively loose.

3. Make sure the driveshaft is not twisted or cracked; if it is, replace it.

Driveshaft Removal

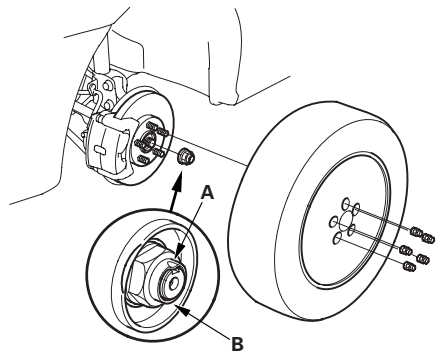
Special Tools Required
- Ball joint remover, 32 mm 07MAC-SL00100
- Ball joint thread protector 07AAF-SDAA100

1. Loosen the wheel nuts slightly.

2. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-15).

3. Remove the wheel nuts and front wheels.

4. Lift up the locking tab (A) on the spindle nut (B), then remove the nut.

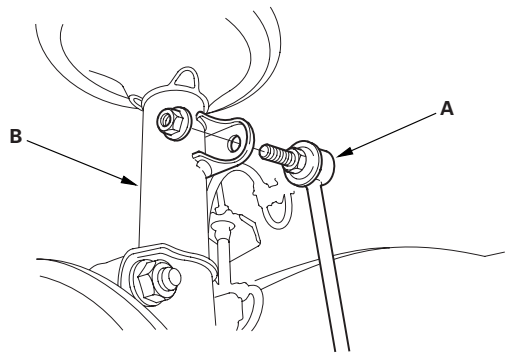


5. If the left driveshaft is removed, drain the transmission fluid:

   - 4-speed 1999-2001 automatic transmission (see page 14-137).
   - 5-speed 2002-2004 automatic transmission (see page 14-368).

   It is not necessary to drain the transmission fluid when the right driveshaft is removed.

6. Remove the stabilizer link (A) from the damper (B).

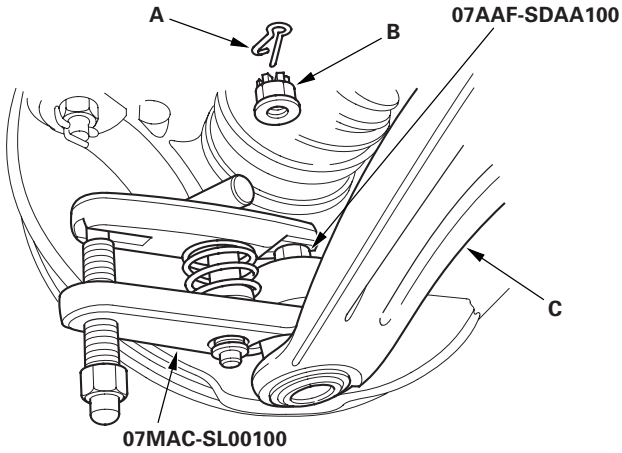


(cont'd)

Driveshaft Removal (cont'd)

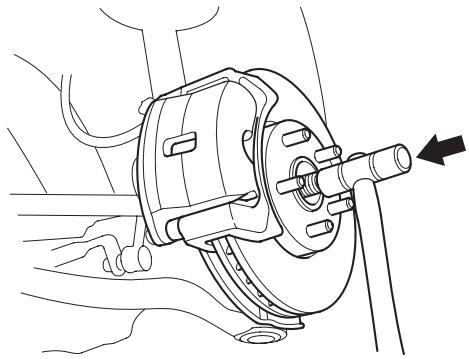
7. Remove the lock pin (A) from the lower arm ball joint castle nut (B), and remove the nut.

   NOTE:
   - Toavoid damaging the ball joint, install ball joint thread protector onto the threads of the ball joint.
   - Be careful not to damage the ball joint boot when installing the remover.



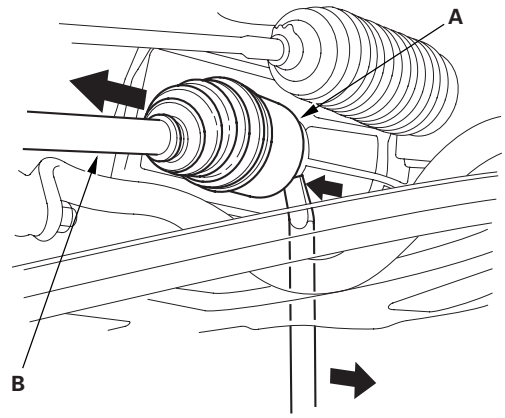
8. Separate the ball joint from the lower arm (C) with the special tool (see page 18-10).

9. Pull the knuckle outward, and remove the driveshaft outboard joint from the front wheel hub using a plastic hammer.

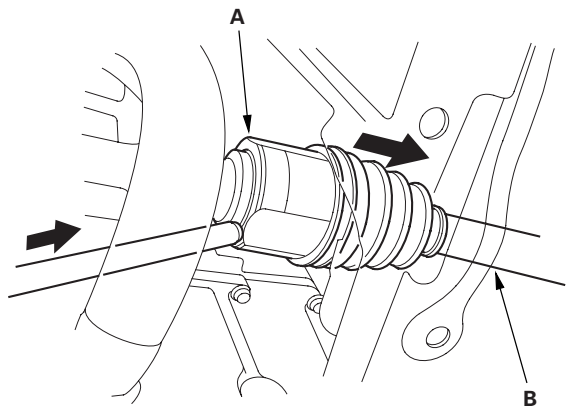


10. Pry (left driveshaft)/tap (right driveshaft) the inboard joint (A), and remove the driveshaft from the differential case or bearing support as an assembly. Do not pull on the driveshaft (B), the inboard joint may come apart. Pull the driveshaft straight out to avoid damaging the differential oil seal or the intermediate shaft outer seal.

Left driveshaft:



Right driveshaft:

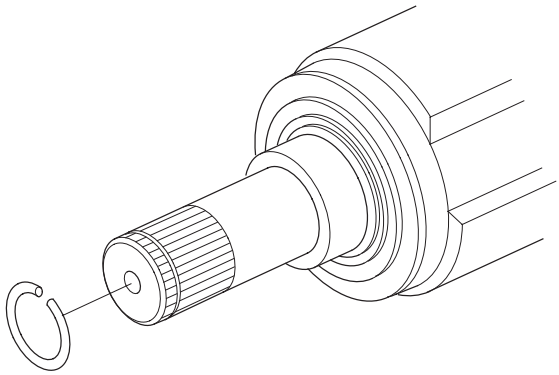


Driveshaft Disassembly

Special Tools Required
Threaded adapter, 24 x 1.5 mm 07XAC-001020A

Inboard Joint Side

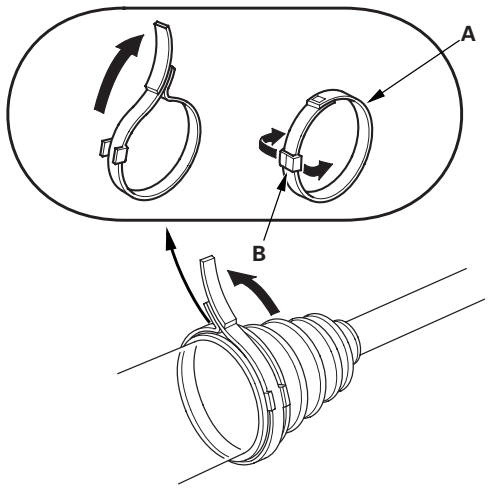
1. Remove the set ring from the inboard joint.



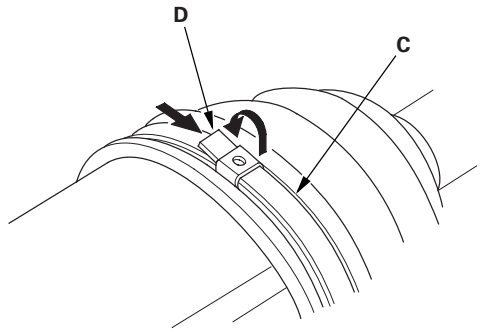
2. Remove the boot bands. Be careful not to damage the boot.

   - If the boot band is a locking tab type (A), pry up the locking tabs (B) with a screwdriver, and lift up the end of the band.
   - If the boot band is a double loop type (C), lift up the band end (D).

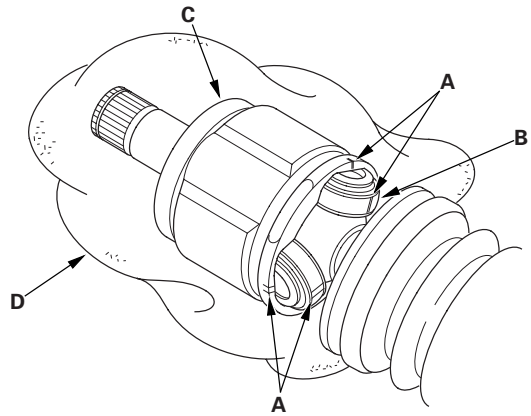
Locking tab type



Double loop type



3. Make a mark (A) on each roller (B) and inboard joint (C) to identify the locations of rollers and grooves in the inboard joint. Then remove the inboard joint on the shop towel (D). Be careful not to drop the rollers when separating them from the inboard joint.



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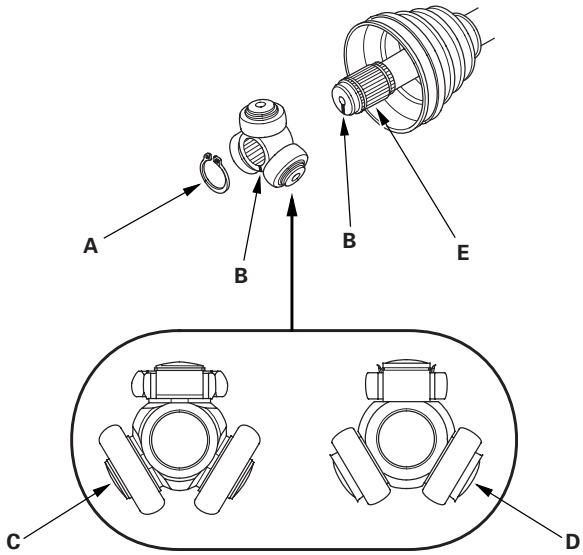
Driveshaft Disassembly (cont'd)

4. Remove the snap ring (A).

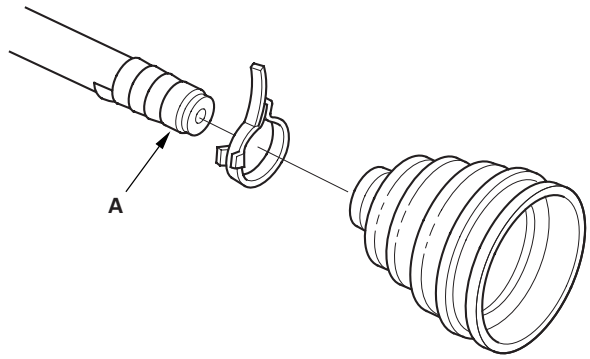


5. Make a mark (B) on the spider (C or D) and driveshaft (E) to identify the position of the spider on the shaft.

   NOTE: The spider (C) is left driveshaft; spider (D) is right driveshaft.

6. Remove the spider.

7. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damage to the boot.

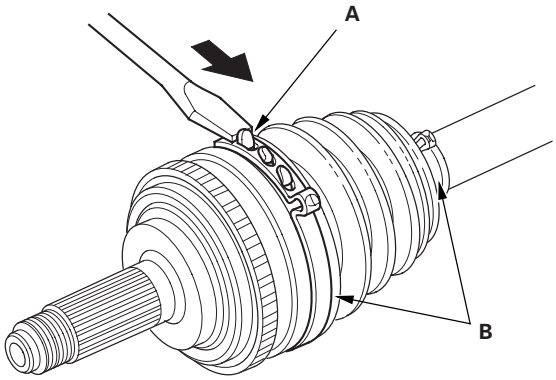


8. Remove the boot band and the inboard boot. Be careful not to damage the boot.

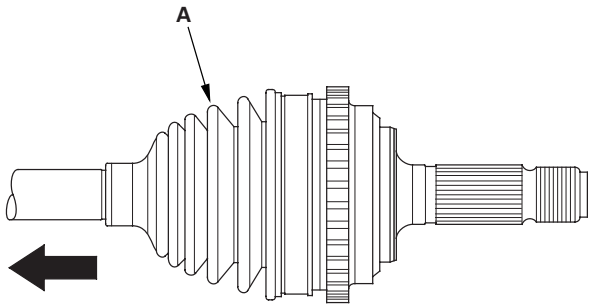
9. Remove the vinyl tape.

Outboard Joint Side

1. Remove the boot bands (A). Lift up the three tabs (B) with a screwdriver. Be careful not to damage the boot.

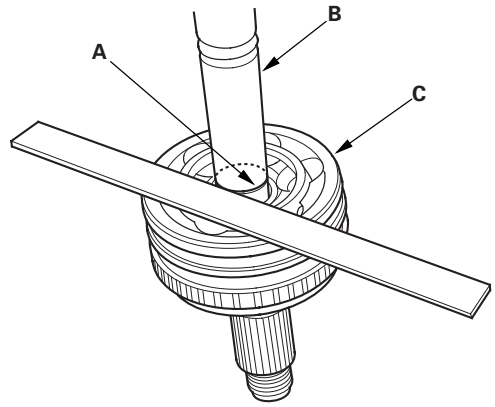


2. Slide the outboard boot (A) partially to the inboard joint side. Be careful not to damage the boot.

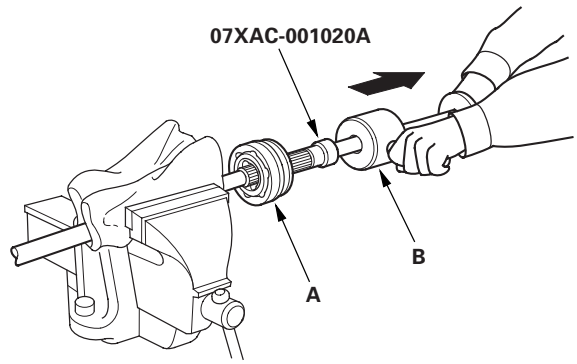


3. Wipe off the grease to expose the driveshaft and the outboard joint inner race.

4. Make a mark (A) on the driveshaft (B) at the same position of the outboard joint end (C).



5. Carefully clamp the driveshaft in a vise.



6. Remove the outboard joint (A) using the special tool and a commercially available 5/8'' slide hammer (B).

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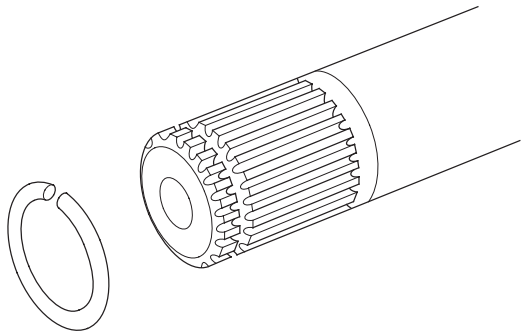
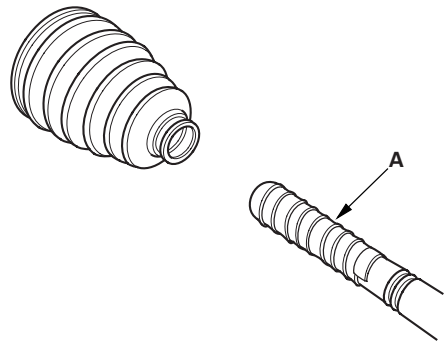
Driveshaft Disassembly (cont'd)

7. Remove the driveshaft from the vise.
8. Remove the circlip from the driveshaft.



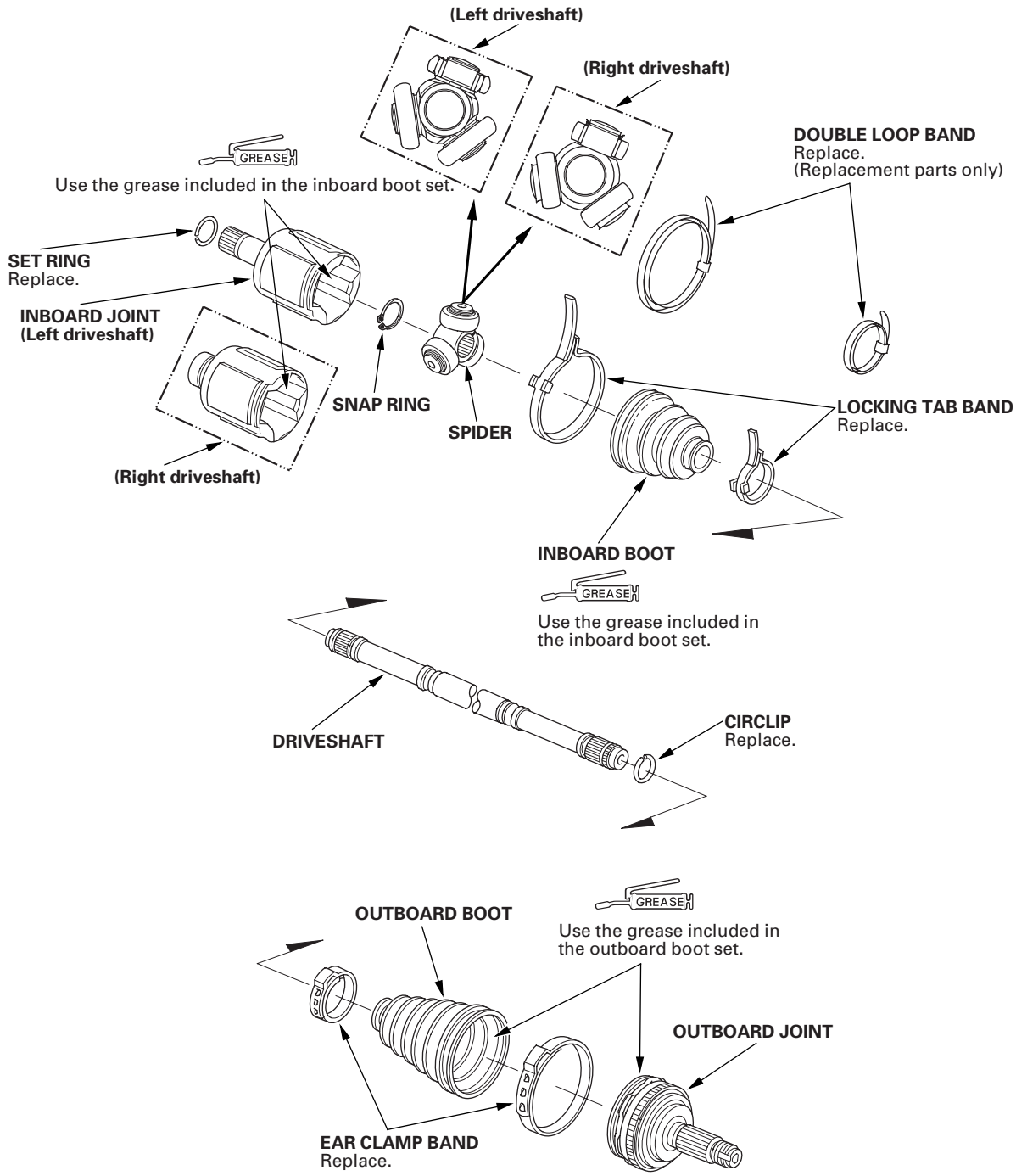
9. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damage to the boot.



10. Remove the outboard boot. Be careful not to damage the boot.
11. Remove the vinyl tape.

Driveshaft Reassembly

Exploded View



(cont'd)

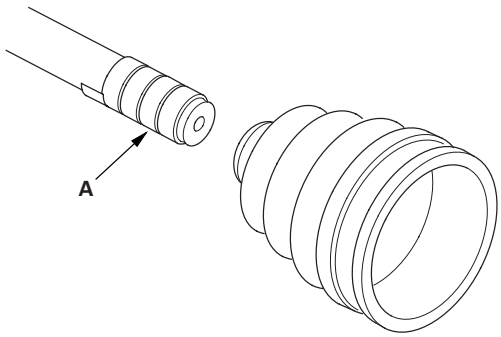
Driveshaft Reassembly (cont'd)

Special Tools Required
- Boot band tool, KD-3191 or equivalent, commercially available
- Boot band pincers, Kent-Moore J-35910 or equivalent, commercially available

NOTE: Refer to the Exploded View as needed during this procedure.

Inboard Joint Side

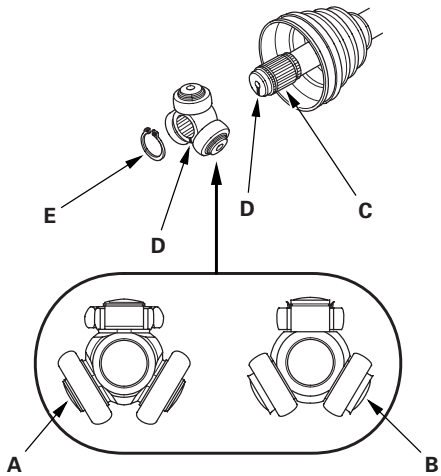
1. Wrap the splines with vinyl tape (A) to prevent damage to the inboard boot.



2. Install the inboard boot to the driveshaft, then remove the vinyl tape. Be careful not to damage the inboard boot.

3. Install the spider (A or B) onto the driveshaft (C) by aligning the marks (D) on the spider and the end of the driveshaft.

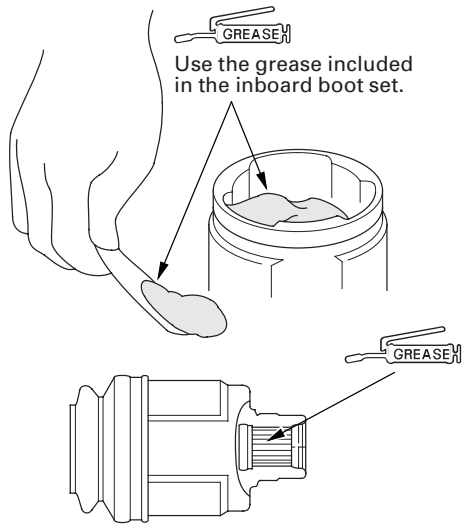
   NOTE: The spider (A) is for the left driveshaft; spider (B) is for the right driveshaft.



4. Install the snap ring (E).

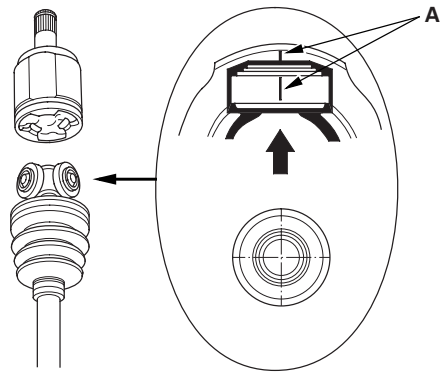
5. Pack the inboard joint with the joint grease included in the new driveshaft set.

   Grease quantity
   Inboard joint:
   Left Driveshaft: 180 — 200 g (6.3 — 7.1 oz)
   Right Driveshaft: 165 — 185 g (5.8 — 6.5 oz)



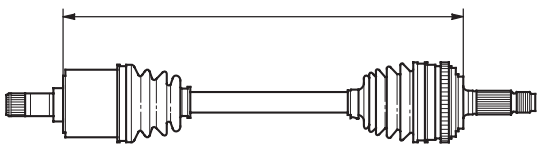
6. Fit the inboard joint onto the driveshaft, and note these items:

   - Reinstall the inboard joint onto the driveshaft by aligning the marks (A) on the inboard joint and the rollers.
   - Hold the driveshaft so the inboard joint points up to prevent it from falling off.

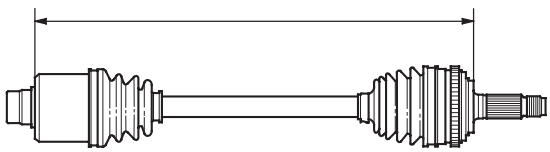


7. Adjust the length of the driveshafts to the figure as shown, then adjust the boots to halfway between full compression and full extension. Make sure the ends of the boots seat in the grooves of the driveshaft and joint.

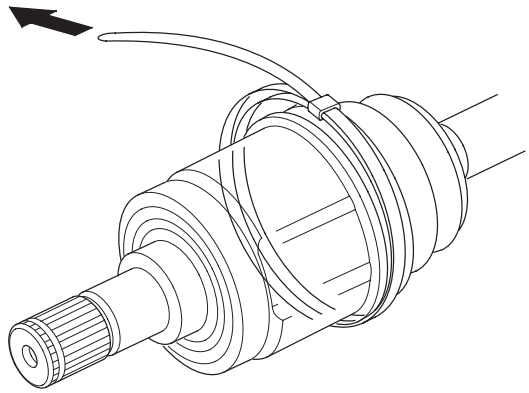
Left Driveshaft: 595.7—600.7 mm (23.5—23.6 in.)



Right Driveshaft: 555.8—560.8 mm (21.9—22.1 in.)

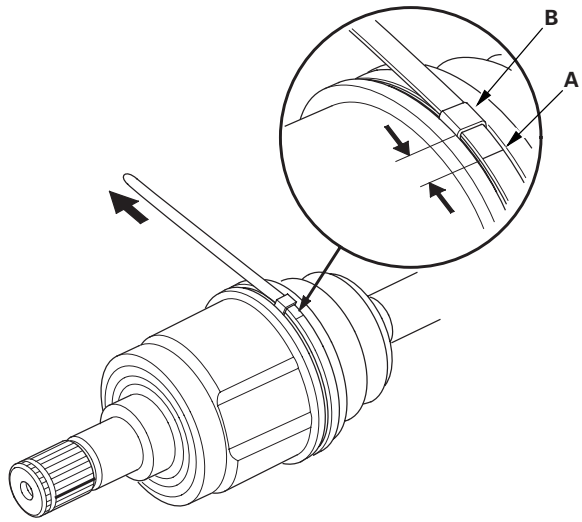


8. Fit the boot ends onto the driveshaft and the inboard joint, then install the boot band.



9. Pull up the slack in the band by hand.

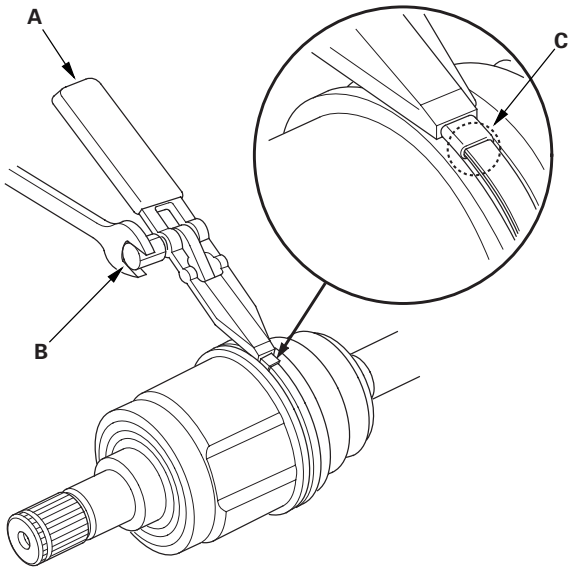
10. Mark a position (A) on the band 10—14 mm (0.4—0.6 in.) from the clip (B).



(cont'd)

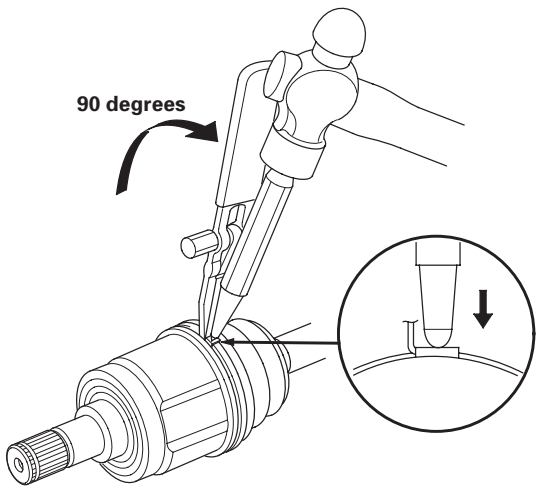
Driveshaft Reassembly (cont'd)

11. Thread the free end of the band through the nose section of a commercially available boot band tool KD-3191 or equivalent (A), and into the slot on the winding mandrel (B).

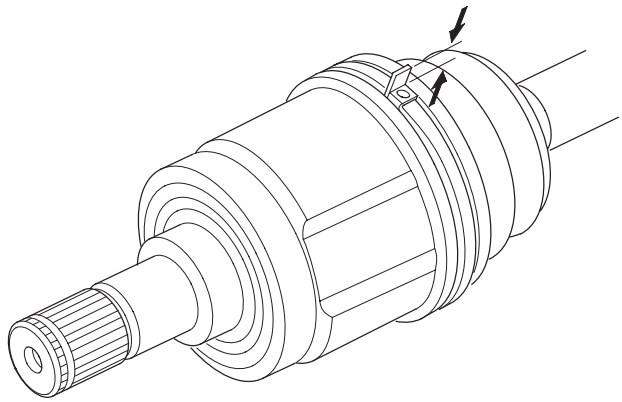


12. Place a wrench on the winding mandrel of the boot band tool, and tighten the band until the marked spot (C) on the band meets the edge of the clip.

13. Lift up the boot band tool to bend the free end of the band 90 degrees to the clip. Center-punch the clip, then fold over the remaining tail onto the clip.

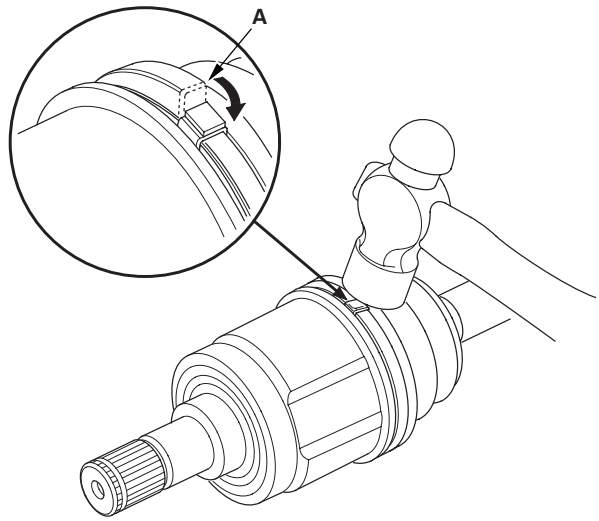


14. Unwind the boot band tool, and cut off the excess free end of the band to leave a 5—10 mm (0.2—0.4 in.) tail protruding from the clip.



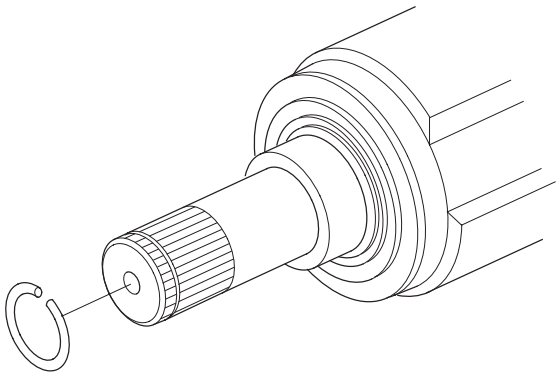
15. Bend the band end (A) by tapping it down with a hammer.

    NOTE:
    - Make sure the band and clip do not interfere with anything on the vehicle and the band does not move.
    - Remove any grease remaining on the surrounding surfaces.



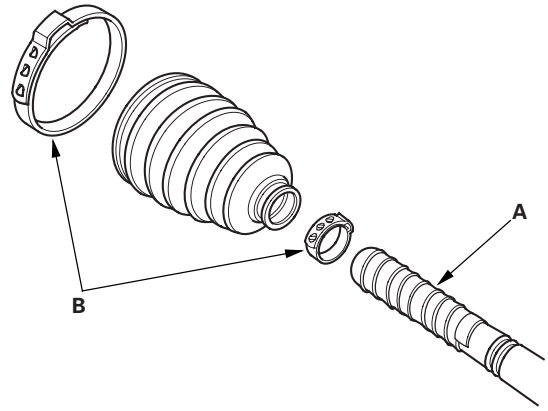
16. Repeat steps 9 through 15 for the band on the other end of the boot, then go to step 17.

17. Install the new set ring.



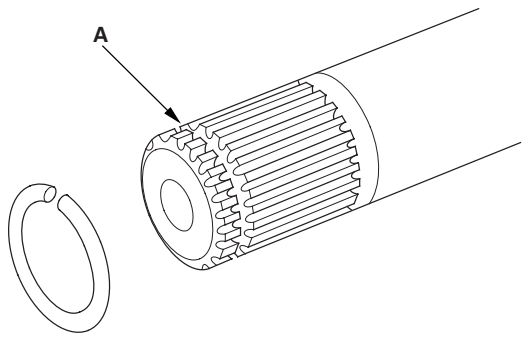
Outboard Joint Side

1. Wrap the splines with vinyl tape (A) to prevent damage to the outboard boot.



2. Install the new ear clamp bands (B) and outboard boot, then remove the vinyl tape. Be careful not to damage the boot.

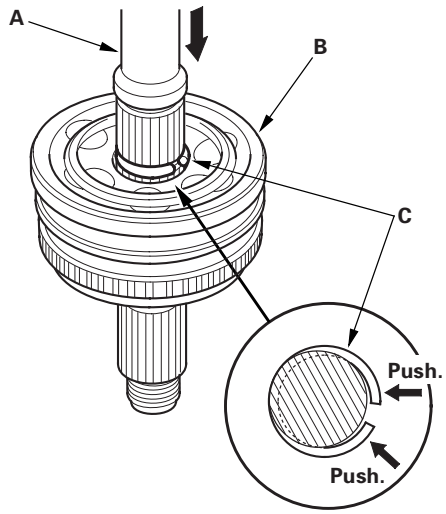
3. Install the new circlip into the driveshaft groove (A).



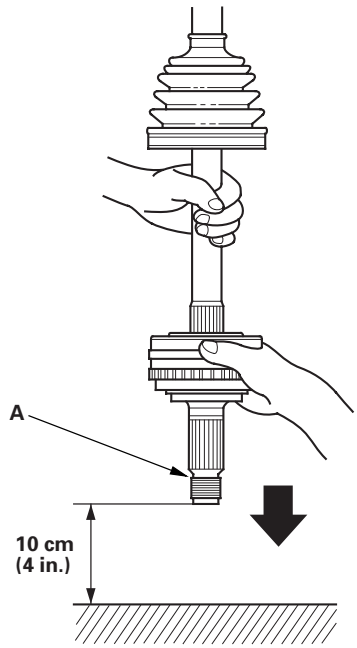
(cont'd)

Driveshaft Reassembly (cont'd)

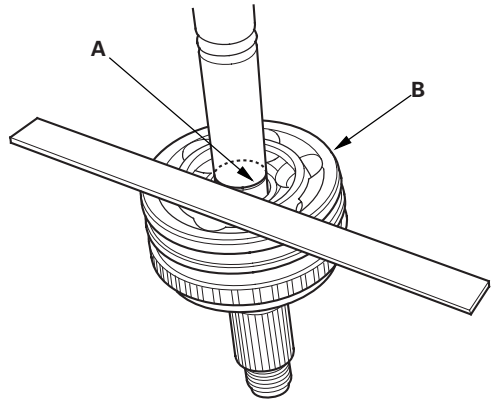
4. Insert the driveshaft (A) into the outboard joint (B) until the circlip (C) is closed.



5. To completely seat the outboard joint, pick up the driveshaft and joint, and tap it onto a hard surface from 10 cm (4 in.). Do not use a hammer as excessive force may damage the driveshaft. Be careful not to damage the threaded section (A) of the outboard joint.

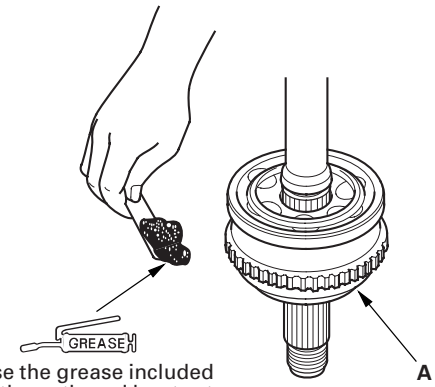


6. Check the alignment of the paint mark (A) with the outboard joint end (B).



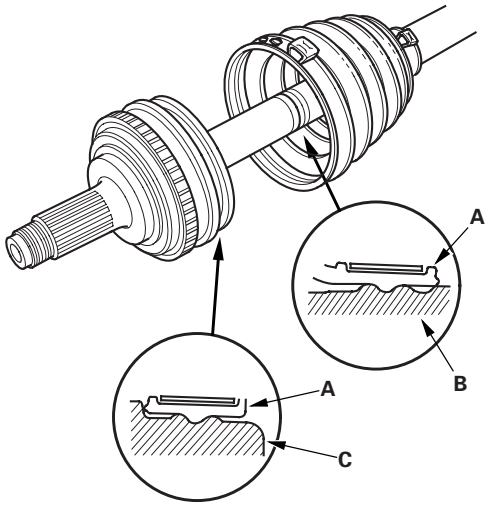
7. Pack the outboard joint (A) with the joint grease included in the new joint boot set.

Grease quantity
Outboard Joint: 110—130 g (3.9—4.6 oz)

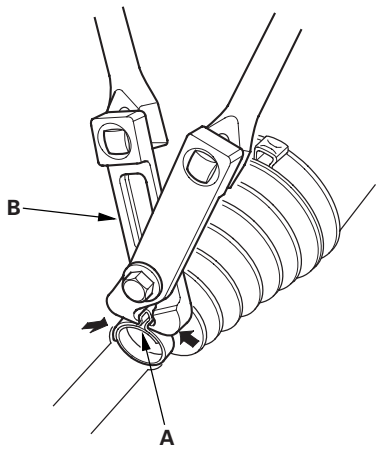


Use the grease included in the outboard boot set.

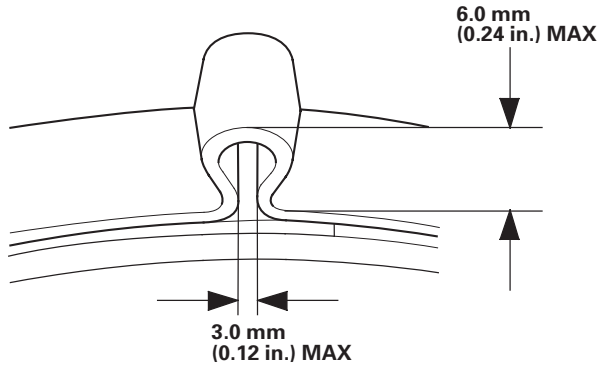
8. Fit the boot (A) ends onto the driveshaft (B) and outboard joint (C).



9. Close the ear portion (A) of the band with a commercially available boot band pincers Kent-Moore J-35910 or equivalent (B).



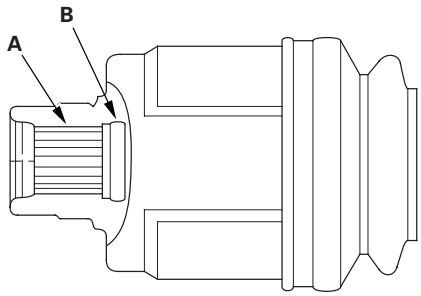
10. Check the clearance between the closed ear portion of the band. If the clearance is not within the standard, close the ear portion of the band farther.



11. Repeat steps 9 and 10 for the band on the other end of the boot.

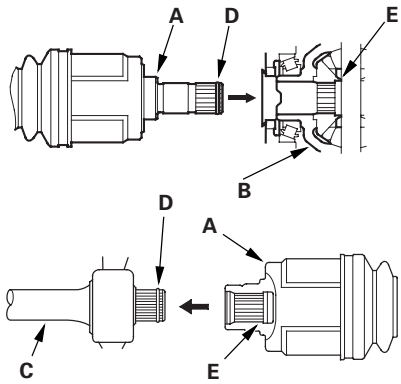
Driveshaft Installation

1. Apply 0.3—1.0 g (0.01—0.04 oz) '99-01 models, 0.5—1.0 g (0.02—0.04 oz) '02-04 models of specified grease to the whole splined surface (A) of the left driveshaft. After applying grease, remove the grease from the splined grooves at intervals of 2—3 splines and from the set ring groove (B) so that air can bleed from the intermediate shaft.

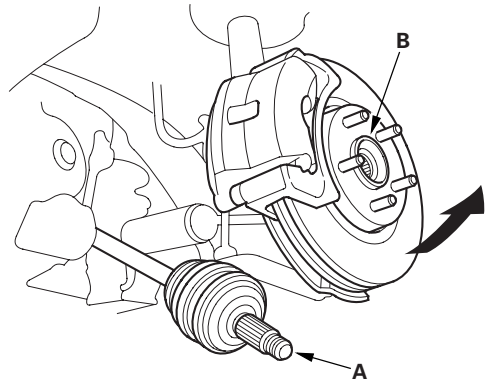


2. Install a new set ring into the set ring groove of the driveshaft (intermediate shaft).

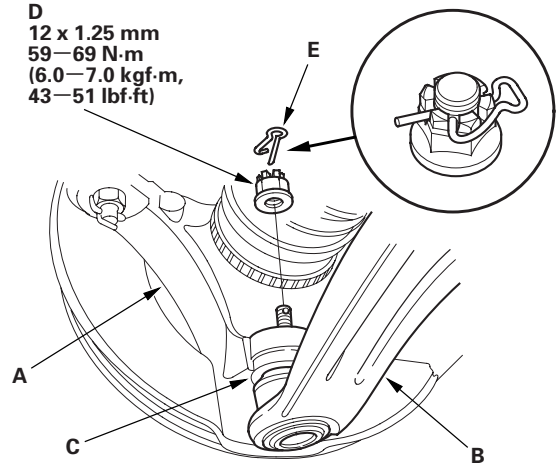
3. Clean the areas where the driveshaft contacts the differential thoroughly with solvent or brake cleaner, and dry with compressed air. Insert the inboard end (A) of the driveshaft into the differential (B) or intermediate shaft (C) until the set ring (D) locks in the groove (E).



4. Install the outboard joint (A) into the front hub (B).

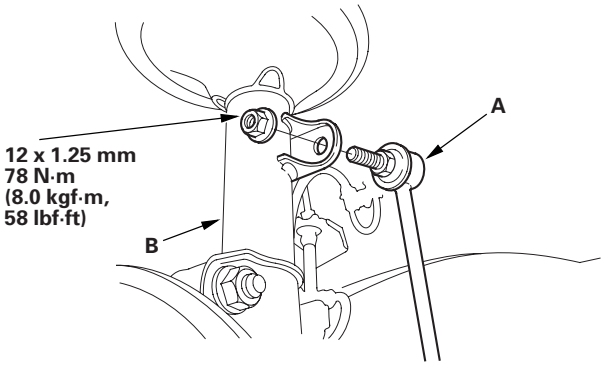


5. Install the knuckle (A) onto the lower arm (B). Be careful not to damage the ball joint boot (C). Wipe off the grease before tightening the nut at the ball joint. Torque the castle nut (D) to the lower torque specification, then tighten it only far enough to align the slot with the pin hole. Do not align the nut by loosening it.

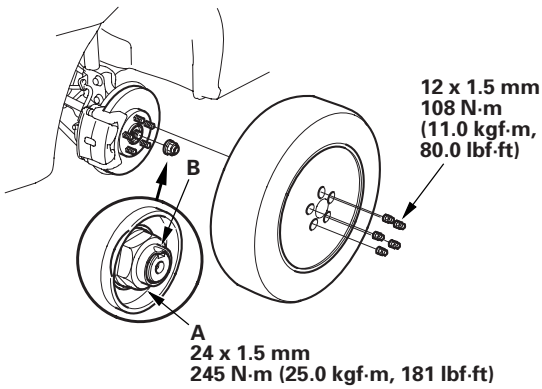


6. Install the new lock pin (E) into the pin hole as shown.

7. Install the stabilizer link (A) on the damper (B).



8. Install a new spindle nut (A), then tighten the nut. After tightening, use a drift to stake the spindle nut shoulder (B) against the driveshaft.



9. Clean the mating surfaces of the brake disc and the front wheel, then install the front wheel with the wheel nuts.

10. Turn the front wheel by hand, and make sure there is no interference between the driveshaft and surrounding parts.

11. Tighten the flange bolts and the self-locking nut with the vehicle's weight on the damper.

12. Refill the transmission with recommended fluid:

    - 4-speed 1999-2001 automatic transmission (see page 14-137).
    - 5-speed 2002-2004 automatic transmission (see page 14-368).

13. Check the front wheel alignment, and adjust it if necessary (see page 18-5).

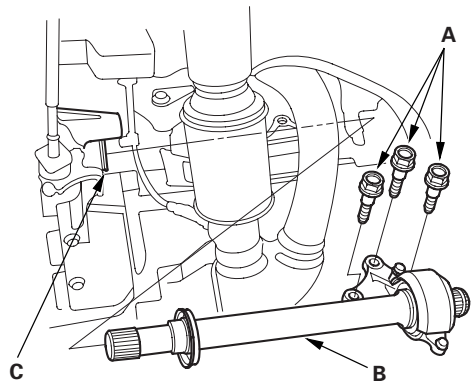
Intermediate Shaft Removal

1. Drain the transmission fluid:

    - 4-speed 1999-2001 automatic transmission (see page 14-137).
    - 5-speed 2002-2004 automatic transmission (see page 14-368).

2. Remove the right driveshaft (see page 16-3).

3. Remove the three dowel bolts (A).

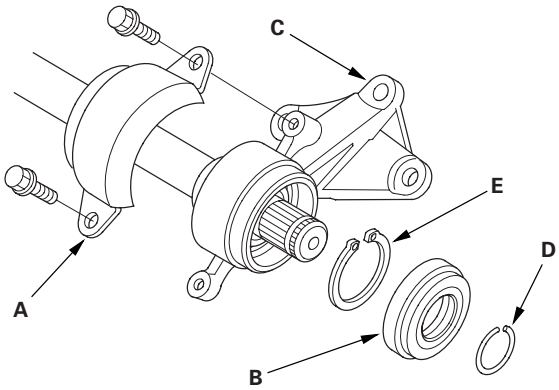


4. Remove the intermediate shaft (B) from the differential. Hold the intermediate shaft horizontal until it is clear of the differential to prevent damage to the differential oil seal (C).

Intermediate Shaft Disassembly

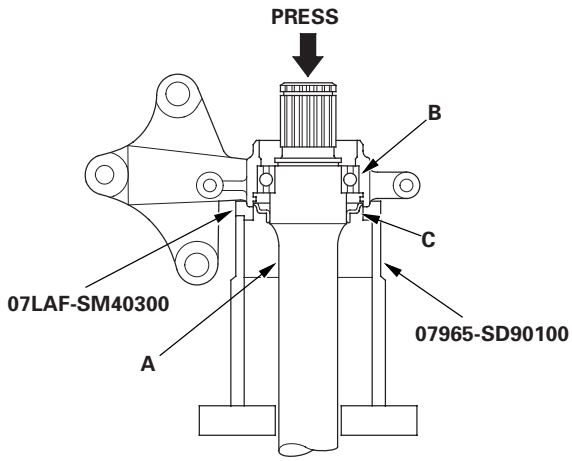
Special Tools Required
- Driver 07749-0010000
- Support base attachment 07LAF-SM40300
- Support base 07965-SD90100
- Attachment, 42 x 47 mm 07746-0010300

1. Remove the heat shield (A) and intermediate shaft outer seal (B) from the bearing support (C).

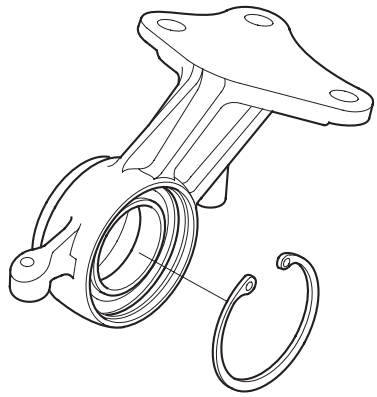


2. Remove the set ring (D) and the external snap ring (E).

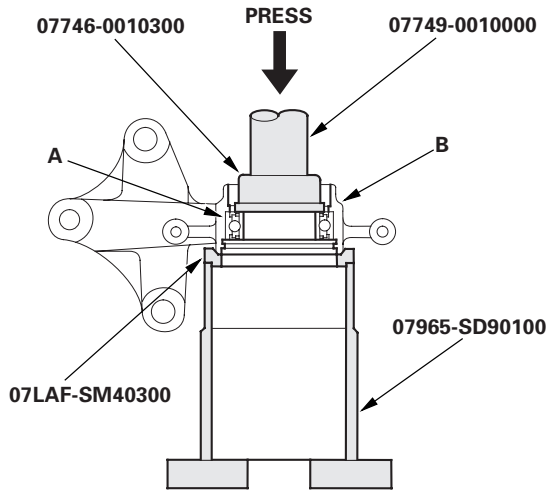
3. Press the intermediate shaft (A) out of the intermediate shaft bearing (B) using the special tools and a press. Be careful not to damage the metal rings (C) on the intermediate shaft during disassembly.



4. Remove the internal snap ring.

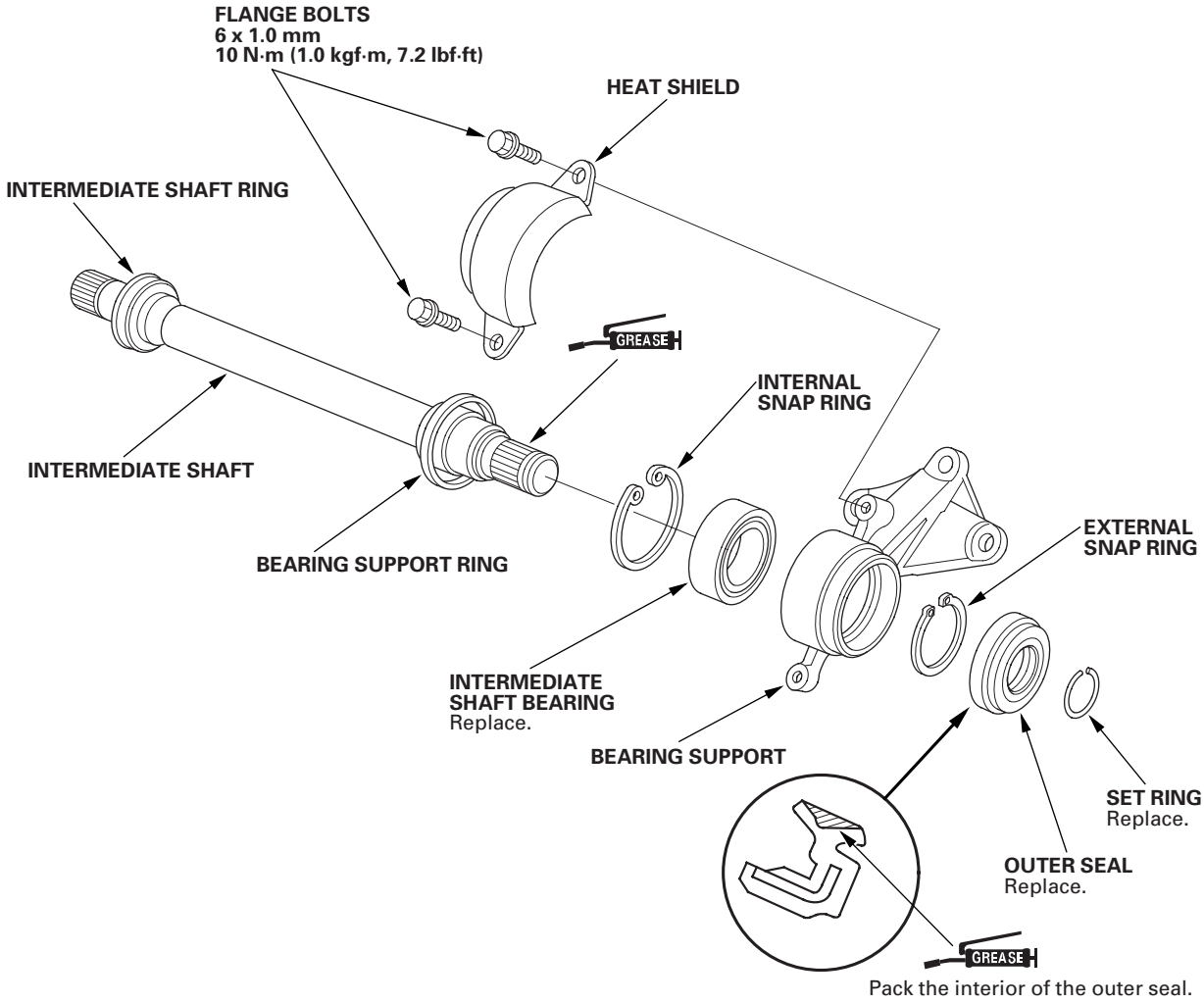


5. Press the intermediate shaft bearing (A) out of the bearing support (B) using the special tools and a press.



Intermediate Shaft Reassembly

Exploded View



(cont'd)

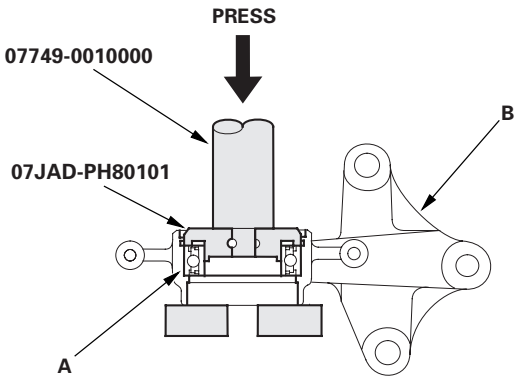
Intermediate Shaft Reassembly (cont'd)

Special Tools Required
- Driver 07749-0010000
- Support base attachment 07LAF-SM40300
- Support base 07965-SD90100
- Oil seal driver attachment 07JAD-PH80101
- Fork seal driver, 39.2 x 49.5 x 15 mm 07947-4630100

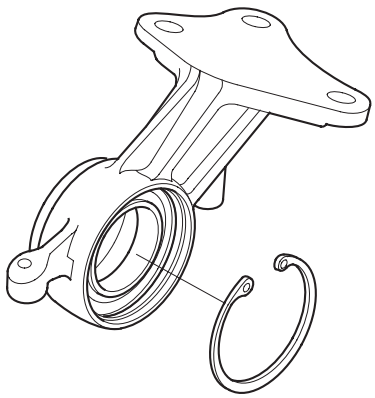
NOTE: Refer to the Exploded View as needed during this procedure.

1. Clean the disassembled parts with solvent, and dry them with compressed air. Do not wash the rubber parts with solvent.

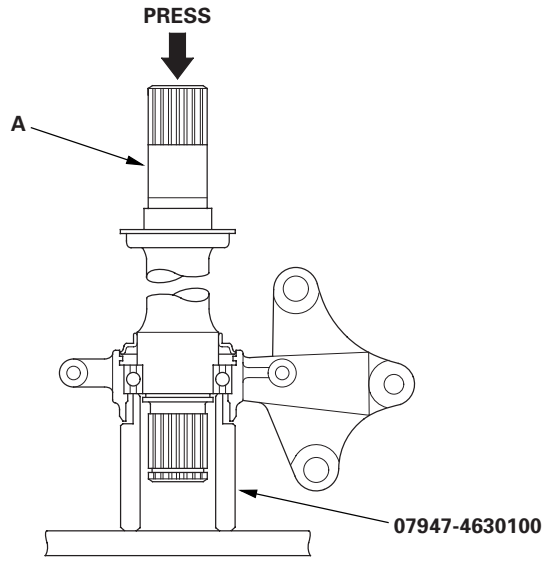
2. Press the intermediate shaft bearing (A) into the bearing support (B) using the special tools and a press.



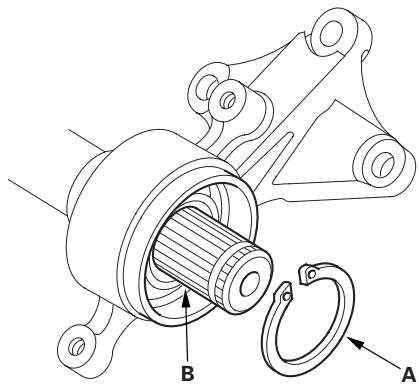
3. Install, then seat the internal snap ring in the groove of the bearing support.



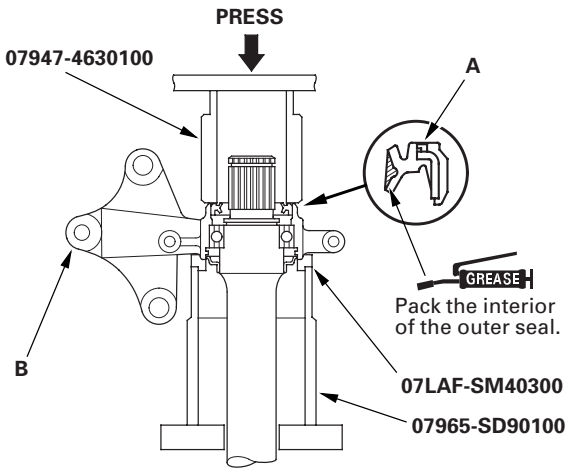
4. Press the intermediate shaft (A) into the shaft bearing using the special tool and a press.



5. Install, then seat the external snap ring (A) in the groove of the intermediate shaft (B).



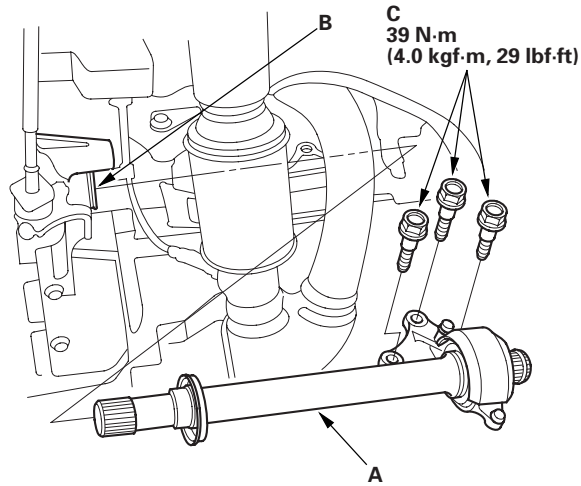
6. Install the outer seal (A) into the bearing support (B) using the special tools and a press.



7. Install the heat shield onto the bearing support.

Intermediate Shaft Installation

1. Use solvent or brake cleaner to thoroughly clean the areas where the intermediate shaft (A) contacts the transmission (differential) thoroughly with solvent or brake cleaner, and dry with compressed air. Insert the intermediate shaft assembly into the differential. Hold the intermediate shaft horizontal to prevent damage to the differential oil seal (B).



2. Install the three dowel bolts (C).

3. Install the right driveshaft (see page 16-16).

4. Refill the transmission fluid:

   - 4-speed 1999-2001 automatic transmission (see page 14-137).
   - 5-speed 2002-2004 automatic transmission (see page 14-368).

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Steering

Power Steering

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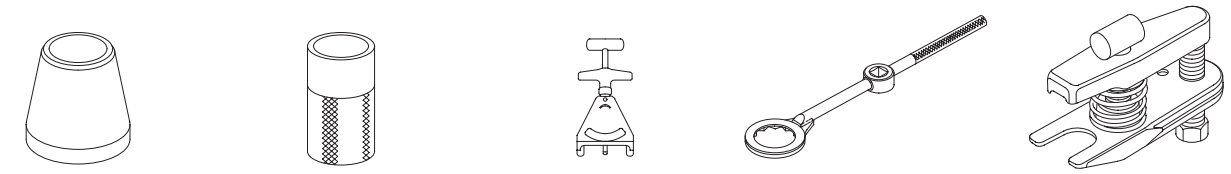
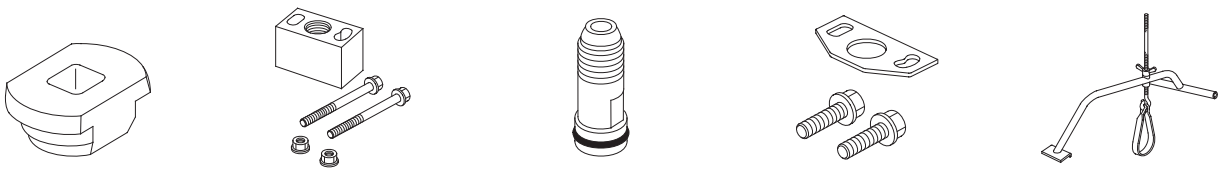
Power Steering

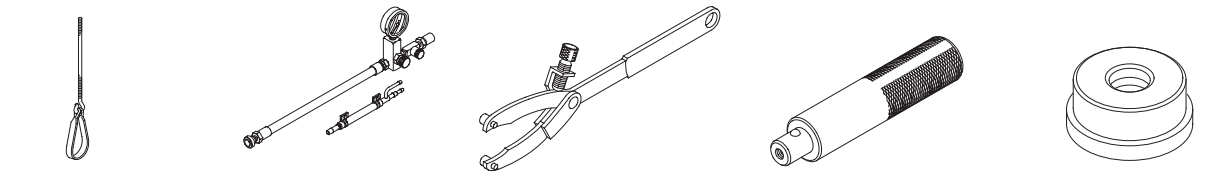
Special Tools

Ref.No.	Tool Number	Description	Qty
①	07LAG-SM40100 or 07LAG-SM4010A	Piston Seal Ring Guide	1
②	07LAG-SM40200 or 07LAG-SM4020A	Piston Seal Ring Sizing Tool	1
*③	07JGG-001010A	Belt Tension Gauge	1
④	07MAA-SL00200	Locknut Wrench, 43 mm	1
⑤	07MAC-SL00200	Ball Joint Remover, 28 mm	1
⑥	07TAF-SZ50100	Cylinder End Seal Remover Attachment	1
⑦	07RAK-S040122	P/S Joint Adaptor (Hose)	1
⑧	07VAK-P8A011A	P/S Joint Adaptor (Pump)	1
⑨	07VAK-P8A012B	P/S Joint Adaptor Plate (Pump)	1
⑩	07XAA-001030A	Engine Support Fixture	1
⑪	07ZAA-S0XA100	Cable Eyebolt Assembly	1
⑫	07406-0010001 or 07406-001000A	P/S Pressure Gauge	1
⑬	07725-0030000	Universal Holder	1
⑭	07749-0010000	Driver	1
⑮	07746-0010300	Attachment, 42 x 47 mm	1
⑯	07965-SA50500	Front Hub Dis/Assembly Tool	1

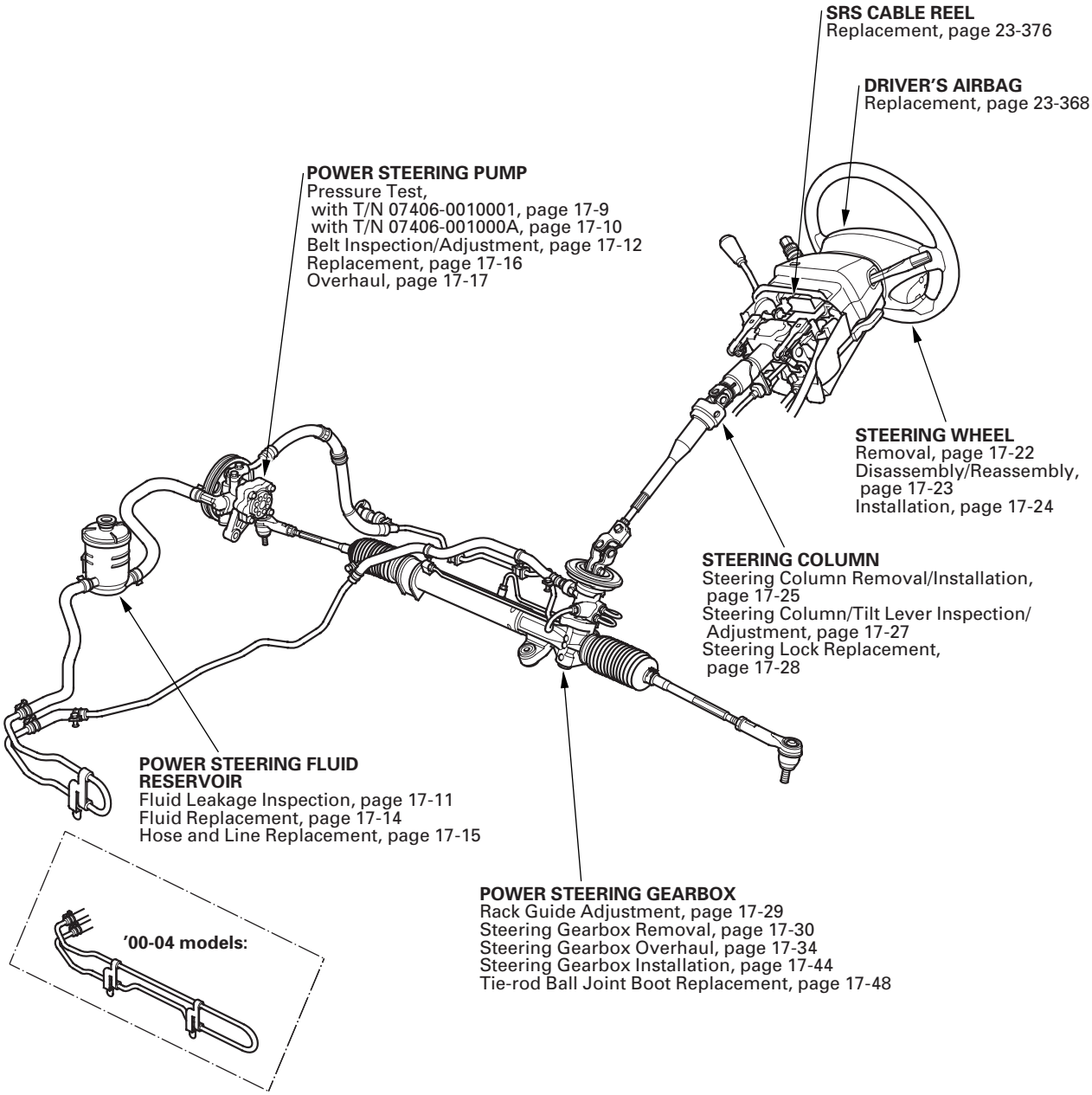
* Included in the Belt Tension Gauge Set, 07TGG-001000A.







Component Location Index



Symptom Troubleshooting Index

Find the symptom in the chart below, and do the related procedures in the order listed until you find the cause.

Symptom	Procedure(s)	Also check for:
Hard Steering	Troubleshoot the system (see page 17-6).	• Modified suspension • Tire sizes, tire varieties, and air pressure
Assist (excessively light steering at high speed)	Check the rack guide adjustment (see page 17-29).	• Front wheel alignment (see page 18-5). • Tire Pressure
Shock or vibration when the steering wheel is turned to full lock	1. Check the rack guide adjustment (see page 17-29). 2. Check the power steering pump belt for slippage and adjust as necessary (see page 17-12). 3. Replace the steering gearbox (see page 17-30). 4. Check the power steering fluid pressure with T/N 07406-0010001 (see page 17-9) or with T/N 074060-001000A (see page 17-10).	
Steering wheel will not return smoothly	1. Check cylinder lines A and B for deformation. 2. Check wheel alignment (see page 18-5). 3. Replace the steering gearbox (see page 17-30).	
Uneven or rough steering	1. Check the rack guide adjustment (see page 17-29). 2. Check power steering pump belt adjustment (see page 17-12). 3. Check for low or erratic engine idle speed (see page 11-201). 4. Check for air in the power steering system due to low fluid level or an air leak at the pump inlet hose. 5. Check for low fluid level in the power steering reservoir due to possible leaks in system. 6. Replace the steering gearbox (see page 17-30).	
Steering wheel kicks back during wide turns	1. Check power steering pump belt adjustment (see page 17-12). 2. Check the power steering pump fluid pressure with T/N 07406-0010001 (see page 17-9) or with T/N 07406-001000A (see page 17-10).	
Humming noise from the power steering system	1. Check when the noise occurs: • If the noise is heard 2—3 minutes after starting the engine in cold weather, this is normal. • If the noise is heard when the steering wheel is turned with the vehicle stopped, this is normal due to the fluid pulsation. 2. Check if the high-pressure hose is touching the sub-frame or body. 3. Check for air bubbles in the power steering fluid and leak on inlet side of pump. 4. Check for particle contamination of fluid and restricted filter in the reservoir.	Pump pressure

Power steering rack rattle or chattering	1. Check for loose steering components (tie-rod and ball joints). Tighten or replace as necessary. 2. Check the steering column shaft for wobbling. If the steering column wobbles, replace the steering column assembly (see page 17-25). 3. Check the rack guide adjustment (see page 17-29). Check the power steering pump pulley. • If the pulley is loose, tighten it (see step 33 on page 17-21). • If the pump shaft is loose, replace the pump (see page 17-16).	
Hissing noise/ foaming fluid in reservoir	• Check the fluid level. If low, fill the power steering reservoir to the proper level and check for leaks. • Check the reservoir for leaks. • Check for a damaged inlet hose or loose hose clamp allowing air into the suction side of the system. • Check the power steering pump shaft oil seal for leaks.	Air in the P/S fluid
Noise from the power steering pump	• Compare the pump noise at normal operating temperature to another alike vehicle, (pump noise up to 2—3 minutes after starting the engine in cold weather is normal). • Remove and inspect the power steering pump for wear and damage (see page 17-17).	• P/S pump pressure • Air in the P/S fluid
Squeaking from the power steering pump	Check the power steering pump belt tension and adjust as necessary (see page 17-12).	
Fluid Leaks from the steering gearbox	• Fluid leaks from the left tie-rod boot: Replace the valve body unit. Replace the cylinder end seal on the gearbox side. • Fluid leaks from the right tie-rod boot: Replace the cylinder end seal. • Fluid leaks from pinion shaft near the lower steering joint bolt: Replace the valve body unit.	
Fluid leaks from the power steering line	• Fluid leaks from the cylinder line A or B connections (flare nuts): Tighten the connection and retest. If it still leaks, replace the fitting O-rings. • Fluid leaks from a damaged cylinder line A or B: Replace the cylinder line. • Fluid leaks from the pump outlet hose or return line fitting on the valve body unit (flair nuts): Tighten the fitting and retest. If it still leaks, replace the hose, the line, or valve body unit as necessary.	
Fluid leaks from the power steering pump	• Fluid leaks from the front oil seal: Replace the front oil seal. • Fluid leaks from the power steering pump housing: Replace the leaking O-rings or seals (see page 17-17), and if necessary replace the power steering pump (see page 17-16).	
Fluid leaks from the power steering reservoir	• Fluid leaks from around the reservoir cap: Fluid level is too high: Drain the reservoir to the proper level. Aerated fluid: Check for an air leak on the inlet side of pump. • Fluid leaks from reservoir: Check for the reservoir for cracks and replace as necessary.	
Fluid leaks from the power steering pump outlet hose (high-pressure)	• Check the fitting for loose bolts. If the bolts are tight, replace the fitting O-ring. • Fluid leaks at the swagged joint: Replace the outlet hose.	
Fluid leaks from the power steering pump inlet hose (low-pressure)	Check the hose for damage, deterioration, or improper assembly. Replace or repair as necessary.	

Symptom Troubleshooting

Hard steering

1. Check the power assist (see page 17-7).

   Is the power assist more than 29 N (3.0 kgf, 6.6 lbf)?

   YES — Go to step 2.
   NO — Power assist is OK. ■

2. Measure steady-state fluid pressure from the pump at idle with T/N 07406-0010001 (see step 9 on page 17-9) or T/N 07406-001000A (see step 8 on page 17-10).

   Is the pressure 1,500 kPa (15 kgf/cm², 213 psi) or less?

   YES — Go to step 3.
   NO — Go to step 7.

3. Measure the pump relief pressure at idle with T/N 07406-0010001 (see step 10 on page 17-9) or T/N 07406-001000A (see step 9 on page 17-10).

   Is the pressure 8.300 — 8.800 kPa (85 — 90 kgf/cm², 1.210 — 1.280 psi) or less?

   YES — Go to step 4.
   NO — Go to step 8.

4. With a spring scale, measure the power assist in both directions, to the left and to the right.

   Are the two measurements within 5.0 N (0.51 kgf, 1.12 lbf) of each other?

   YES — Go to step 5.
   NO — Go to step 9.

5. Measure the fluid pressure with T/N 07406-0010001 (see step 11 on page 17-9) or T/N 07406-001000A (see step 10 on page 17-10) with both pressure gauge valves open (if so equipped), while turning the steering wheel fully to the left and fully to the right.

   Is the pressure 8.300 — 8.800 kPa (85 — 90 kgf/cm², 1.210 — 1.280 psi) or less?

   YES — Go to step 6.
   NO — Replace the gearbox. ■

6. Adjust the rack guide (see page 17-29), and retest.

   Is the steering OK?

   YES — Repair is completed. ■

   NO — Replace the gearbox. ■

7. Check for feed and return lines between the pump and the gearbox for clogging and deformation.

   Are the lines clogged or deformed?

   YES — Repair or replace the lines. ■

   NO — Replace the valve body unit. ■

8. Check the flow control valve (see page 17-17) for smooth movement and leaks.

   Is the flow control valve OK?

   YES — Replace the pump assembly. ■

   NO — Replace the flow control valve. ■

9. Check the cylinder lines A and B for deformation (see page 17-34).

   Are the A or B lines deformed?

   YES — Replace the lines. ■

   NO — Go to step 10.

10. Check for a bent rack shaft or misadjusted rack guide (too tight).

    Is the rack shaft bent or the rack guide adjusted too tight?

    YES — Replace the rack shaft or readjust the rack guide. ■

    NO — Replace the valve body unit. ■

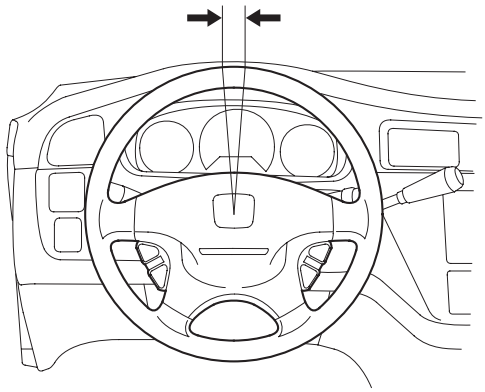
Steering Wheel Rotational Play Check

1. Turn the front wheels to the straight ahead position.

2. Measure how far you can turn the steering wheel left and light without moving the front wheels.

   - If the play is within the limit, the gearbox and steering linkages are OK.
   - If the play exceeds the limit, adjust the rack guide (see page 17-29). If the play is still excessive after rack guide adjustment, inspect the steering linkage and gearbox (see page 17-8).

ROTATIONAL PLAY: 0—10 mm (0—0.39 in.)



Power Assist Check

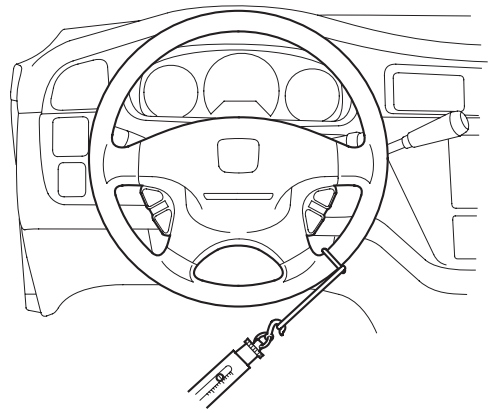
NOTE: This test should be done with original equipment tires and wheels at the correct tire pressure.

1. Check the power steering fluid level (see page 17-14) and pump belt tension (see page 17-12).

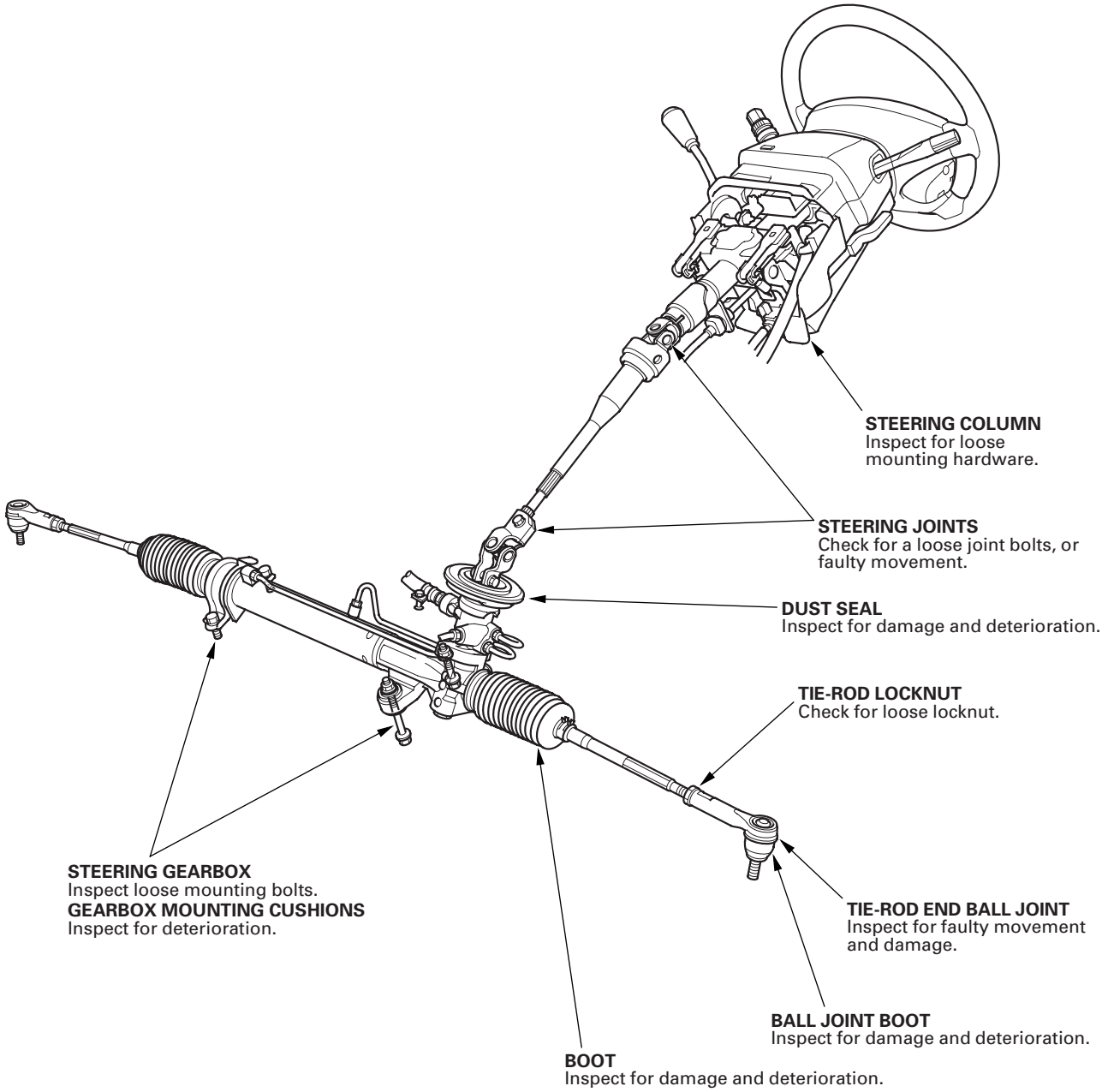
2. Start the engine, let it idle, and turn the steering wheel from lock-to-lock several times to warm up the fluid.

3. Attach a commercially available spring scale to the steering wheel. With the engine idling and the vehicle on a clean, dry floor, pull the scale as shown and read it as soon as the tires begin to turn.

   - If the scale reads no more than 30 N (3.1 kgf, 6.8 lbf) the gearbox and pump are OK.
   - If the scale reads more than 30 N (3.1 kgf, 6.8 lbf) go to hard steering troubleshooting (see page 17-6).



Steering Linkage and Gearbox Inspection



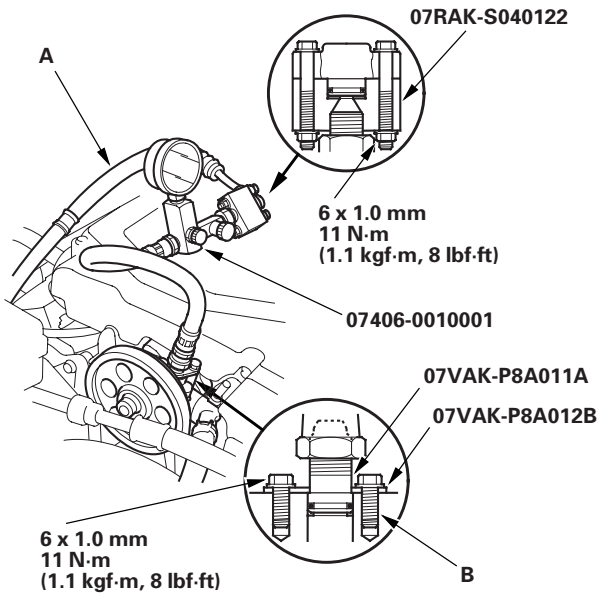
Pump Pressure Test with T/N 07406-0010001

Special Tools Required
- P/S joint adapter (pump) 07VAK-P8A011A
- P/S joint adapter plate (pump) 07VAK-P8A012B
- P/S joint adapter (hose) 07RAK-S040122
- P/S pressure gauge 07406-0010001

Check the fluid pressure as follows to determine whether the trouble is in the pump or gearbox.

1. Check the power steering fluid level (see page 17-14) and pump belt tension (see page 17-12).

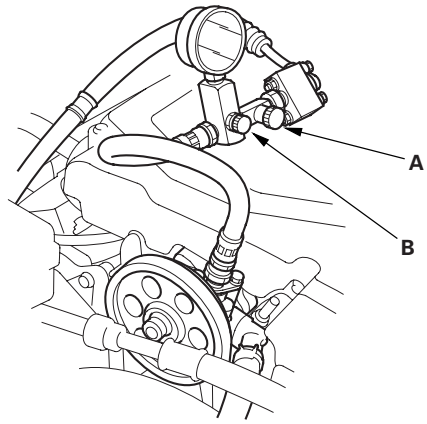
2. Disconnect the pump outlet hose (A) from the pump outlet with care so as not to spill the power steering fluid on the frame and other parts. Wipe off any spilled fluid at once. Install the P/S joint adapter (pump) on the pump outlet (B) with the P/S joint outlet plate.



3. Connect the P/S joint adapter (hose) to the P/S pressure gauge, then connect the pump outlet hose (A) to the P/S joint adapter (hose).

4. Install the P/S pressure gauge to the P/S joint adapter (pump).

5. Fully open the shut-off valve (A).



6. Fully open the pressure control valve (B).

7. Start the engine and let it idle.

8. Turn the steering wheel from lock-to-lock several times to warm the fluid to operating temperature at 158°F (70°C).

9. Measure steady-state fluid pressure while the engine is idling. If the pump is in good condition, the gauge should read less than 1,500 kPa (15 kgf/cm^2, 213 psi).
   If it reads high, check for:

   - Clogged of deformed feed of return line between the pump and gearbox.
   - Clogged valve body unit.

10. Close the shut-off valve, then close the pressure control valve gradually until the pressure gauge needle is stable. Read the pressure.

    NOTICE
    Do not keep the pressure control valve closed more than 5 seconds or the pump could be damaged by over-heating.

11. Immediately open the shut-off valve fully.
    If the pump is in good condition, the gauge should read at least 8,300－8,800 kPa (85－90 kgf/cm^2, 1,210－1,280 psi). A low reading means pump output is too low for full assist. Repair or replace the pump.

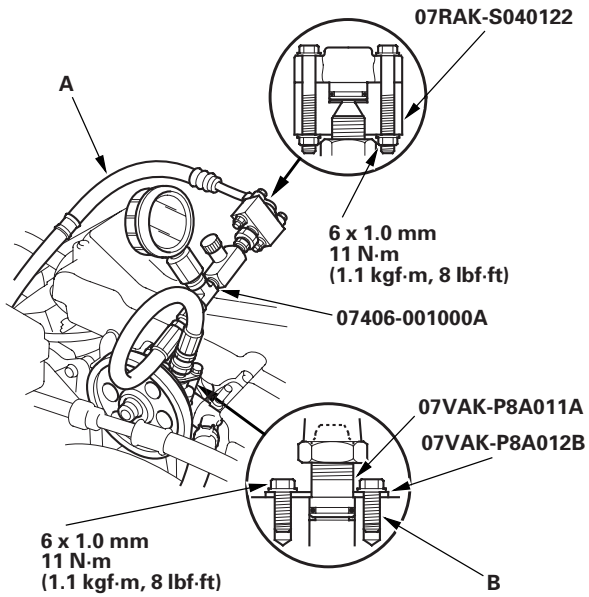
Pump Pressure Test with T/N 07406-001000A

Special Tools Required
- P/S joint adapter (pump) 07VAK-P8A011A
- P/S joint adapter plate (pump) 07VAK-P8A012B
- P/S joint adapter (hose) 07RAK-S040122
- P/S pressure gauge 07406-001000A

Check the fluid pressure as follows to determine whether the trouble is in the pump or gearbox.

1. Check the power steering fluid level (see page 17-14) and pump belt tension (see page 17-12).

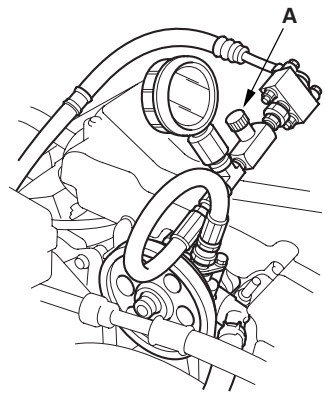
2. Disconnect the pump outlet hose (A) from the pump outlet with care so as not to spill the power steering fluid on the frame and other parts. Wipe off any spilled fluid at once. Install the P/S joint adapter (pump) on the pump outlet (B) with the P/S joint outlet plate.



3. Connect the P/S joint adapter (hose) to the P/S pressure gauge, then connect the pump outlet hose (A) to the P/S joint adapter (hose).

4. Install the P/S pressure gauge to the P/S joint adapter (pump).

5. Open the pressure control valve (A) fully.



6. Start the engine and let it idle.

7. Turn the steering wheel from lock-to-lock several times to warm the fluid to operating temperature at 158°F (70°C).

8. Measure steady-state fluid pressure while the engine is idling. If the pump is in good condition, the gauge should read less than 1,500 kPa (15 kgf/cm^2, 213 psi).
   If it reads high, check for:

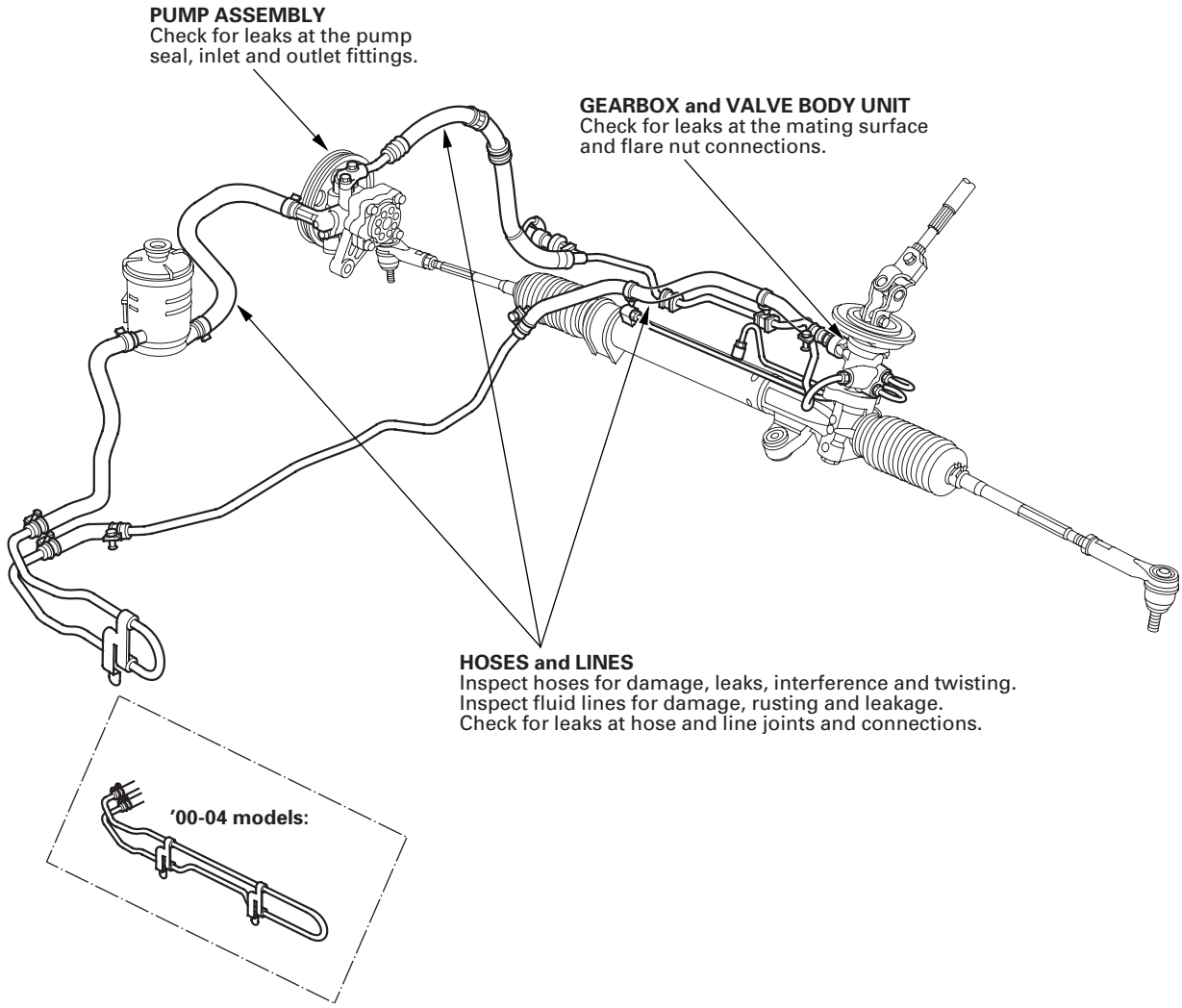
   - Clogged of deformed feed of return line between the pump and gearbox.
   - Clogged valve body unit.

9. Close the pressure control valve gradually and read the pressure.

   NOTICE
   Do not keep the pressure control valve closed more than 5 seconds or the pump could be damaged by over-heating.

10. Immediatery open the pressure control valve fully. If the pump is in good condition, the gauge should read at least 8,300－8,800 kPa (85－90 kgf/cm^2, 1,210－1,280 psi). A low reading means pump output is too low for full assist. Repair or replace the pump.

Fluid Leakage Inspection



Pump Belt Inspection and Adjustment

Special Tools Required
- Belt tension gauge set 07JGG-001000A
- Belt tension gauge 07JGG-001010A

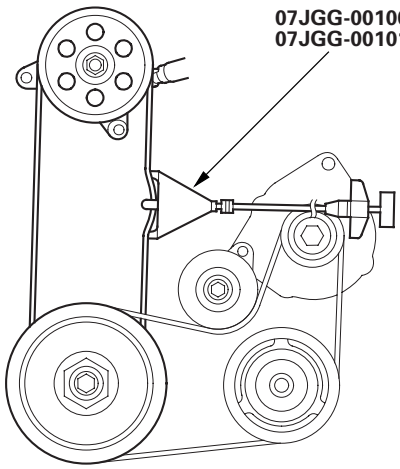
Belt Tension Gauge Method

Inspection

1. Attach the belt tension gauge to the belt with the gauge face toward the engine, and measure the tension of the belt. Follow the manufacture's instructions. If the belt is worn or damaged, replace it.

   NOTE: Remove the belt tension gauge carefully to avoid hitting the gauge reset lever.

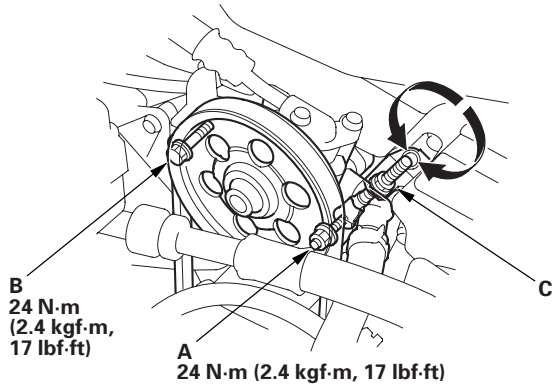
   Tension:
   Used Belt: 390—540 N (40—55 kgf, 88—120 lbf)
   New Belt: 740—880 N (75—90 kgf, 170—200 lbf)



2. If you installed a new belt, run the engine for 5 minutes, then readjust the belt to the used belt specifications.

Adjustment

3. Loosen the power steering pump mounting nut (A) and bolt (B).



4. Turn the adjusting nut (C) to get the proper belt tension, then retighten the mounting nut and bolt.

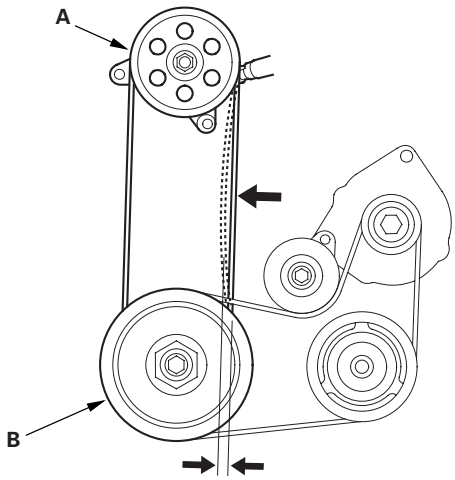
5. Start the engine and turn the steering wheel from lock-to-lock several times, then stop the engine and recheck the tension of the belt.

Deflection Method

Inspection

1. Apply a force of 98 N (10 kgf, 22 lbf) and measure the deflection between the power steering pump pulley (A) and the crankshaft pulley (B).

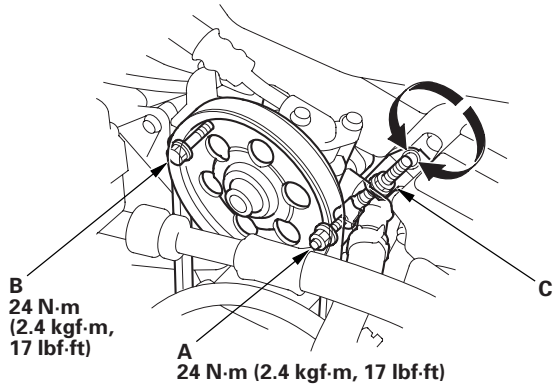
   Deflection:
   Used Belt: 13.0—16.5 mm (0.51—0.65 in.)
   New Belt: 8.5—11.0 mm (0.33—0.43 in.)



2. If you installed a new belt, run the engine for 5 minutes, then readjust the belt to the used belt specifications.

Adjustment

3. Loosen the power steering pump mounting nut (A) and bolt (B).



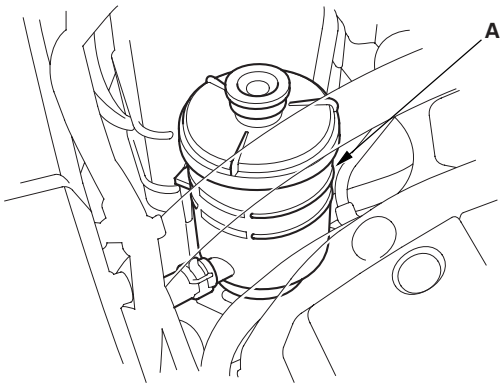
4. Turn the adjusting nut (C) to get the proper belt tension, then retighten the mounting nut and bolt.

5. Start the engine and turn the steering wheel from lock-to-lock several times, then stop the engine and recheck the tension of the belt.

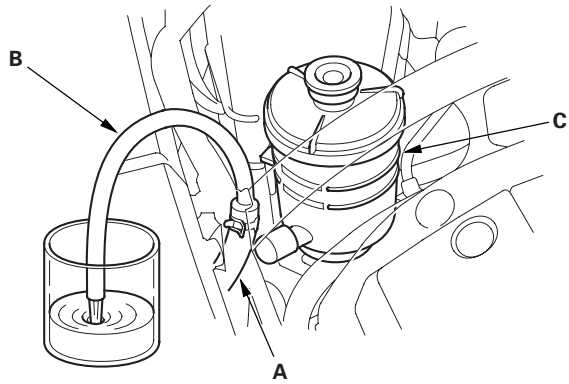
Fluid Replacement

Check the reservoir (A) at regular intervals, and add the recommended fluid as necessary. Always use Honda Power Steering Fluid. Using any other type of power steering fluid or automatic transmission fluid can cause increased wear and poor steering in cold weather.

SYSTEM CAPACITY:
1.1 ℓ (1.16 US. qt) at disassembly
RESERVOIR CAPACITY:
0.4 ℓ (0.42 US. qt)



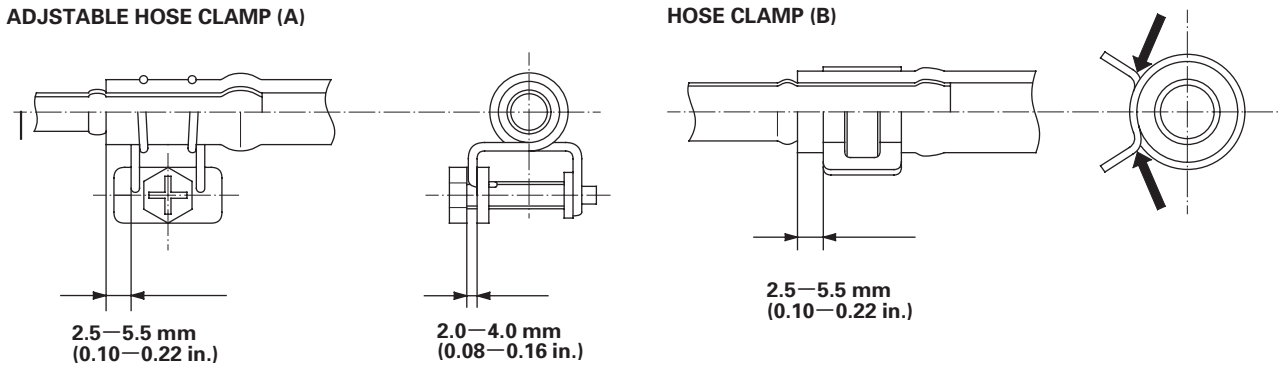
1. Raise the reservoir, then disconnect the return hose (A) to drain the reservoir. Take care not to spill the fluid on the body and parts. Wipe off any spilled fluid at once.

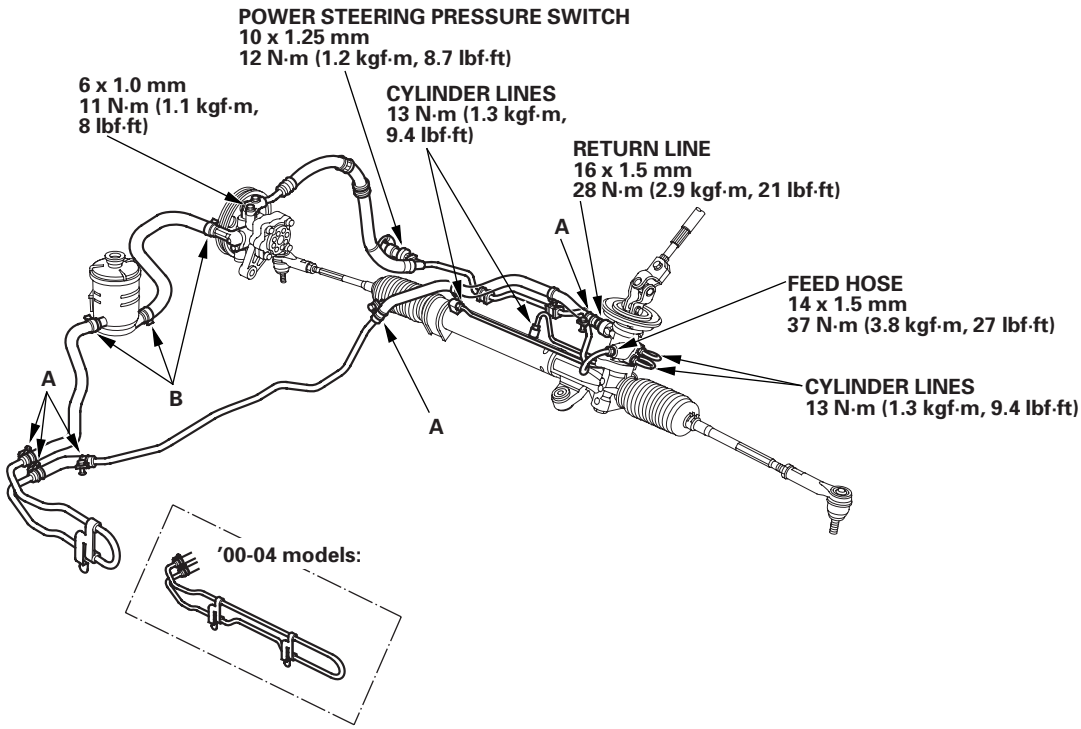


2. Connect a hose (B) of suitable diameter to the disconnected return hose, and put the hose end in a suitable container.
3. Start the engine, let it run at idle, and turn the steering wheel from lock-to-lock several times. When fluid stops running out of the hose, shut off the engine. Discard the fluid.
4. Reinstall the return hose on the reservoir.
5. Fill the reservoir to the upper level line (C).
6. Start the engine and run it at fast idle, then turn the steering from lock-to-lock several times to bleed air from the system.
7. Recheck the fluid level and add more if necessary. Do not fill the reservoir beyond the upper level line.
8. If the fluid is contaminated, dark, or discolored, repeat step 3 as necessary.

Power Steering Hose, Line, and Pressure Switch Replacement

Note these items during installation:
- Connect each hose to the corresponding line securely until it contacts the stop on the line. Install the clamp or adjustable clamp at the specified distance from the hose end as shown.
- Check all clamps for deterioration or deformation; replace with the clamps new ones if necessary.
- Add the recommended power steering fluid to the specified level on the reservoir and check for leaks.



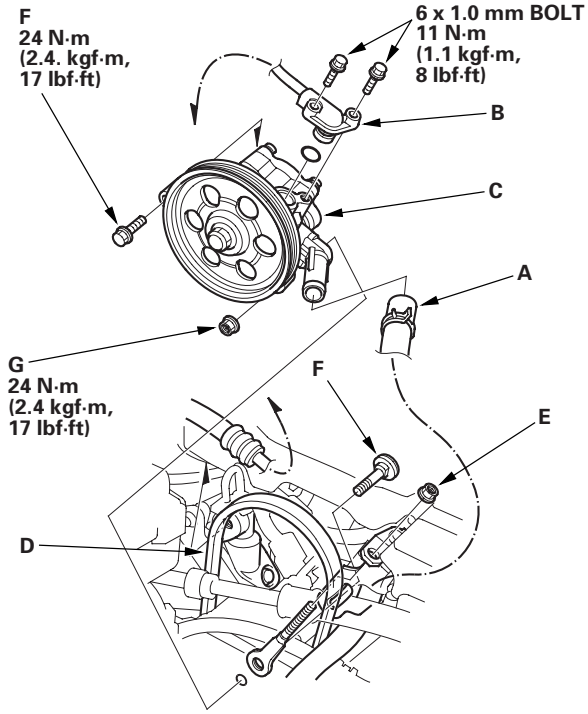


Pump Replacement

1. Place a suitable container under the vehicle.

2. Drain the power steering fluid from the reservoir.

3. Cover the crankshaft pulley with several shop towels to protect if from spilled power steering fluid. Disconnect the pump inlet hose (A) and pump outlet hose (B) from the pump (C), and plug them. Take care not to spill the fluid on the body or parts. Wipe off any spilled fluid at once.



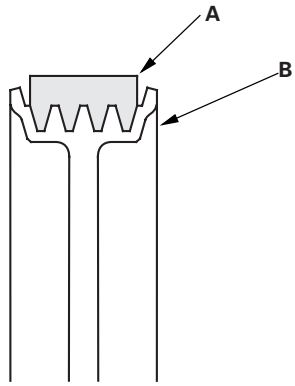
4. Remove the belt (D) by loosening the pump adjusting nut (E), then remove pump mounting bolts (F), nut (G) and pump. Do not turn the steering wheel with pump removed.

5. Connect the pump outlet hose and inlet hose to the new pump. Tighten the pump fittings securely.

6. Loosely install the new pump in the pump bracket with the mounting bolts and nut.

7. Install the pump belt (A) on the pulley (B).

   Note these items during belt installation:
   - Make sure that the power steering pump belt is properly positioned on the pulleys.
   - Do not get the power steering fluid or grease on the belt or pulley faces. Clean off any fluid or grease before installation.



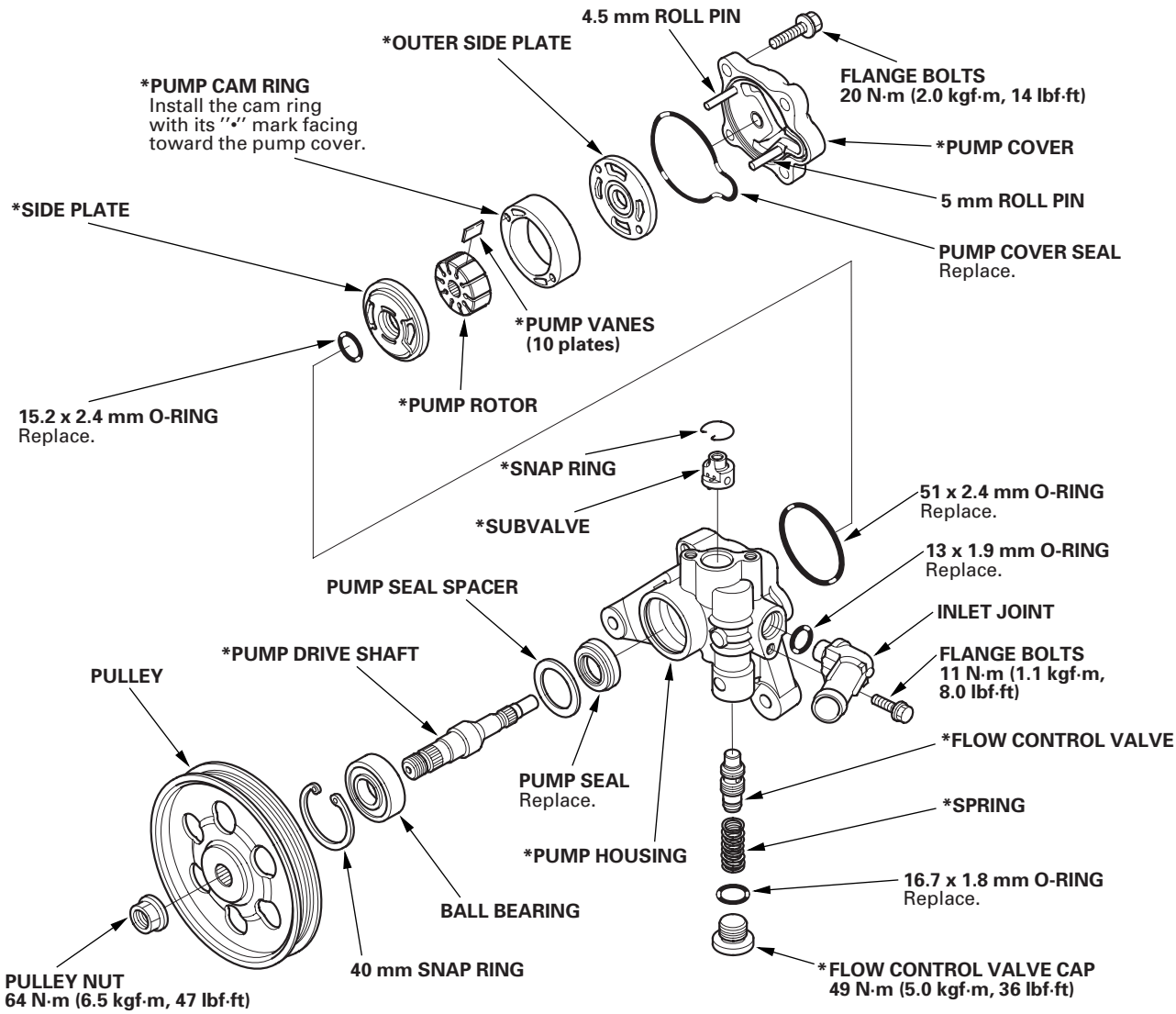
8. Adjust the pump belt adjustment (see page 17-12).

9. Fill the reservoir to the upper level line with the recommended power steering fluid (see page 17-14).

Pump Overhaul

Exploded View

Replace the pump as an assembly if the parts indicated with asterisk (*) are worn or damage.



(cont'd)

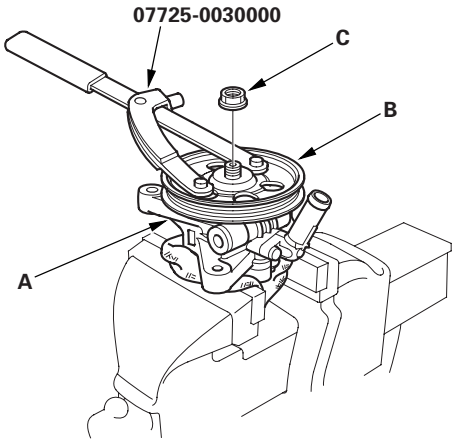
Pump Overhaul (cont'd)

Special Tools Required
Universal holder 07725-0030000

Disassembly

NOTE: Refer to the Exploded View as needed during the following procedure.

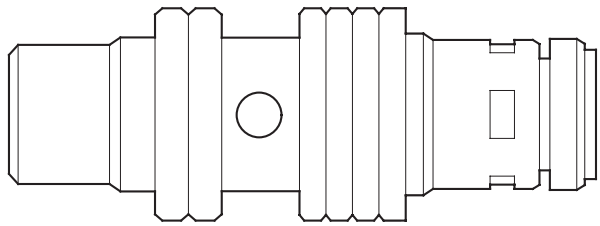
1. Drain the fluid from the pump (see page 17-14).
2. Remove the power steering pump (see page 17-16).
3. Hold the power steering pump (A) in a vise with soft jaws, hold the pulley (B) with the special tool, and remove the pulley nut (C) and pulley. Be careful not to damage the pump housing with the jaws of the vise.



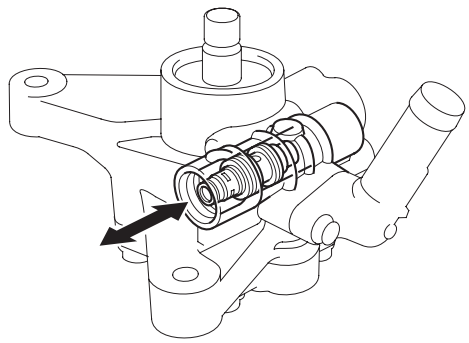
4. Loosen the flow control valve cap with a hex wrench, and remove it and the O-ring, flow control valve and spring.
5. Remove the pump cover and pump cover seal.
6. Remove the outer side plate, pump cam ring, pump rotor, pump vanes, side plate and O-rings.
7. Remove the snap ring, then remove the subvalve from the pump housing.
8. Remove the circlip, then remove the pump drive shaft by tapping the shaft end with the plastic hammer.
9. Remove the pump seal spacer and pump seal.

Inspection

10. Check the flow control valve for wear, burrs, and other damage to the edges of the grooves in the valve.

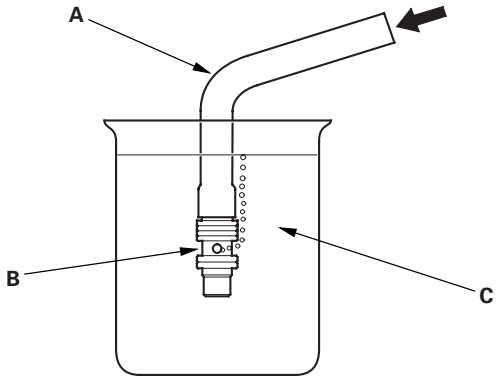


11. Inspect the bore of the flow control valve on the pump housing for scratches and wear.
12. Slip the flow control valve back in the pump housing, and check that it moves in and out smoothly. If OK, go to step 13; if not, replace the pump as an assembly. The flow control valve is not available separately.

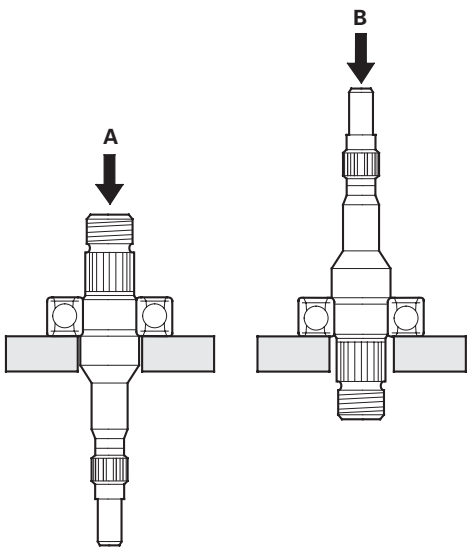


13. Attach a hose (A) to the end of the flow control valve (B) as shown. Then submerge the flow control valve in a container of power steering fluid or solvent (C), and blow in the hose.

    - If air bubbles leak through the valve at less than 98 kPa (1.0 kgf/cm^2, 14.2 psi), replace the pump as an assembly. The flow control valve is not available separately.
    - If the flow control valve tests OK, set it aside for reassembly later.



14. Inspect the ball bearing by rotating the outer race slowly. If you feel any play (axial or radial) or roughness remove the faulty ball bearing (A), and install a new one (B).

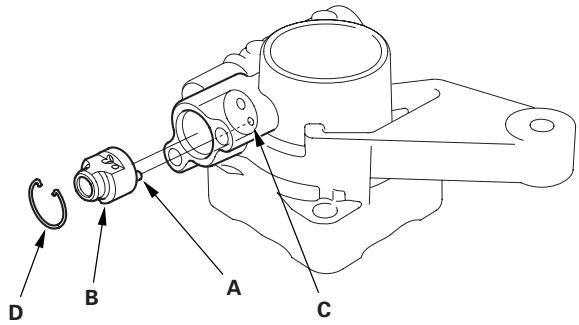


15. Inspect each part shown with an asterisk in the Exploded View; if any of them are worn or damaged, replace the pump as an assembly.

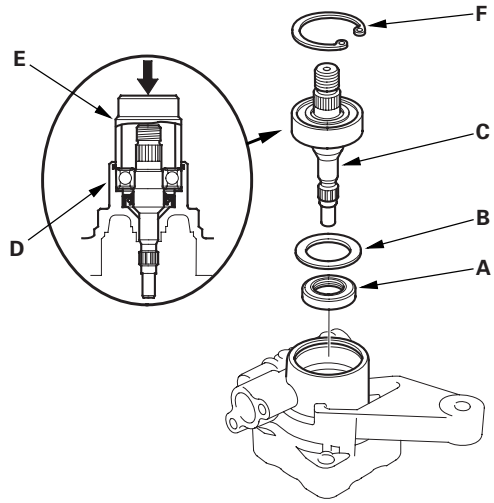
Reassembly

16. Clean the disassembled parts with solvent, and dry them with compressed air. Do not dip the rubber parts in solvent.

17. Align the pin (A) of the subvalve (B) with the oil passage (C) in the pump housing. Push the subvalve into place, then install the snap ring (D).



18. Install the new pump seal (A) (with its grooved side facing in) into the pump housing by hand, then install the pump seal spacer (B).



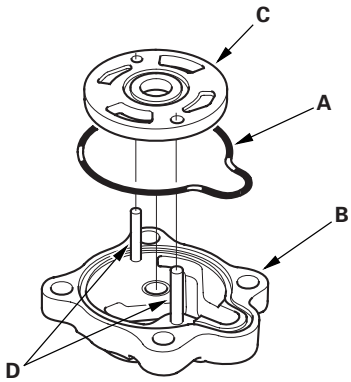
19. Position the pump drive shaft (C) in the pump housing (D), then drive it in using a 29 mm socket (E).

20. Install the 40 mm snap ring (F) with its radiused side facing out.

(cont'd)

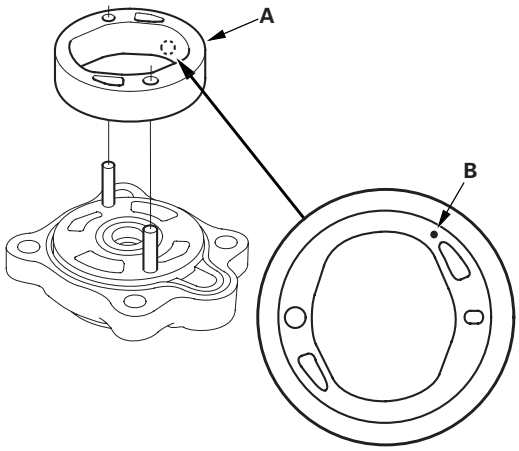
Pump Overhaul (cont'd)

21. Coat the new pump cover seal (A) with power steering fluid, and install it into the groove in the pump cover (B).

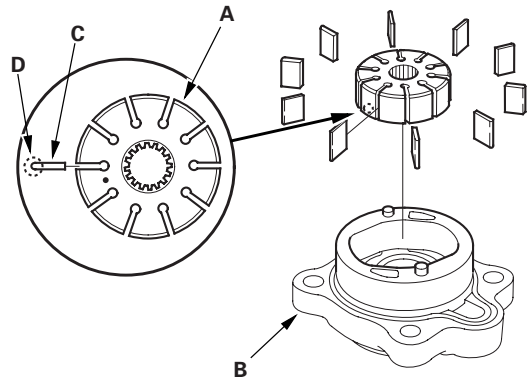


22. Install the outer side plate (C) over the two roll pins (D).

23. Set the pump cam ring (A) over the two roll pins with its "•" mark (B) facing down.

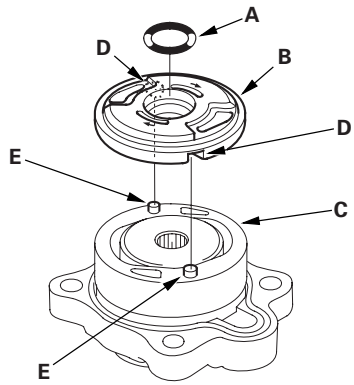


24. Assemble pump rotor (A) to the pump cover (B).



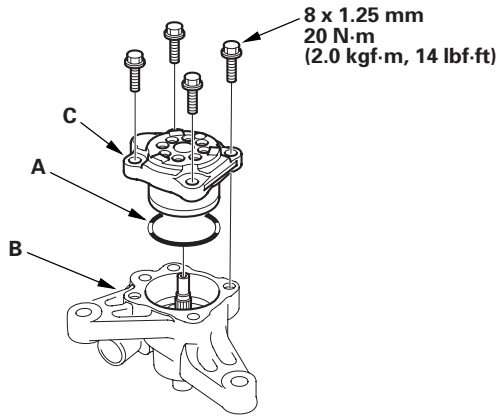
25. Set the 10 vanes (C) in the grooves in the rotor. Make sure that the round ends (D) of the vanes are in contact with the sliding surface of the cam ring.

26. Coat the new 15.2 mm O-ring (A) with power steering fluid, and install it into the groove in the side plate (B).



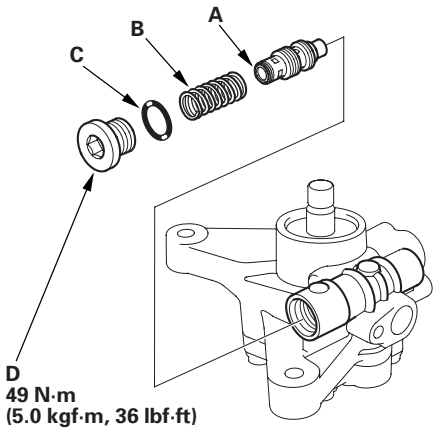
27. Install the side plate on the cam ring (C) by aligning the roll pins set holes (D) in the side plate with the roll pins (E).

28. Coat the new 51 mm O-ring (A) with power steering fluid, and position it in the bottom of the pump housing (B).



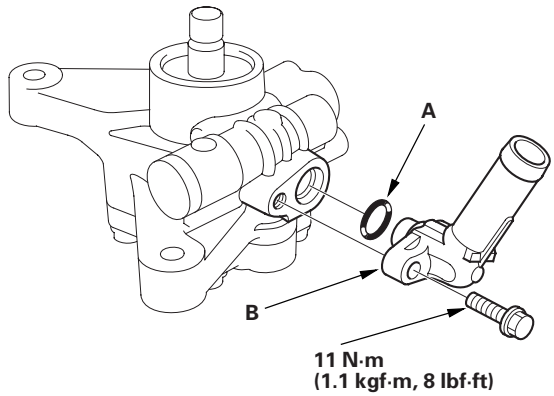
29. Install the pump cover assembly (C) in the pump housing.

30. Coat the flow control valve (A) with power steering fluid, then install it and the spring (B) in the pump housing.

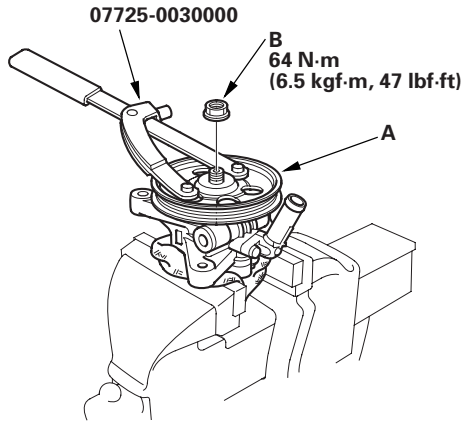


31. Coat the new 16.7 mm O-ring (C) with power steering fluid, and install it on the flow control valve cap (D), then install the cap on the pump housing, and tighten it.

32. Coat the new 13 mm O-ring (A) with power steering fluid, and install it on the inlet joint (B). Install the inlet joint on the pump housing, and tighten the flange bolt.



33. Install the pulley (A), then loosely install the pulley nut (B). Hold the steering pump in a vise with soft jaws. Be careful not to damage the pump housing with the jaws of the vise.



34. Hold the pulley with the special tool, and tighten the pulley nut.

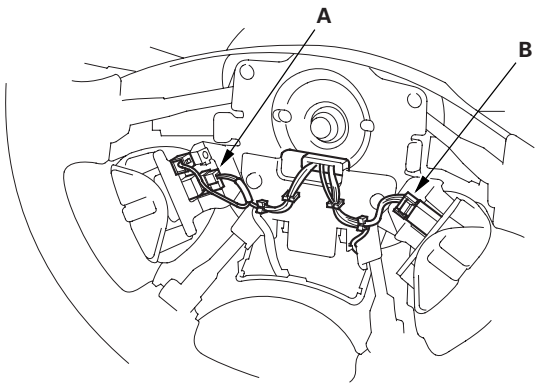
35. Check that the pump turns smoothly by turning the pulley by hand. If it turns hard, loosen the four flange bolts on the cover, then retighten them in the same manner as in step 28. Turn the pump again by hand.

Steering Wheel Removal

SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

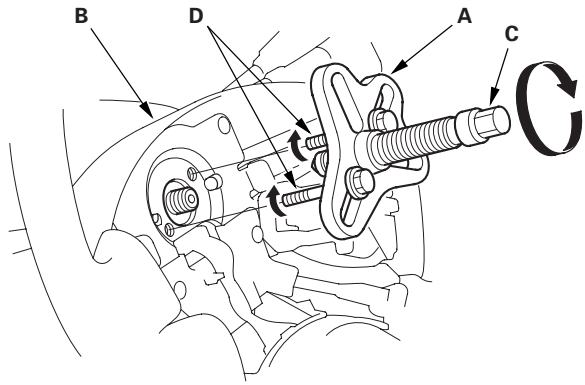
1. Align the front wheels straight ahead, then remove the driver's airbag assembly from the steering wheel (see page 23-368).

2. Disconnect the radio remote switch connectors (A) and cruise control switch connector (B).

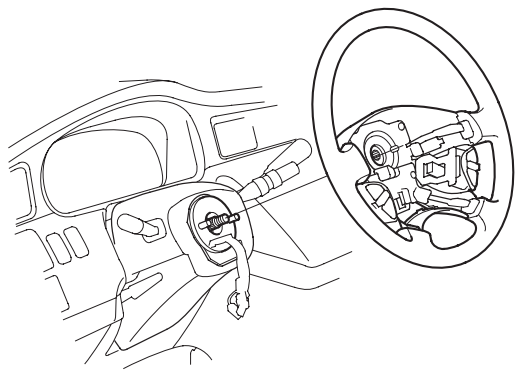


3. Remove the steering wheel nut ('99-01 models) or bolt ('02-04 models). Install a steering wheel puller (A) on the steering wheel (B). Free the steering wheel from the steering column by turning the pressure bolt (C) of the puller.

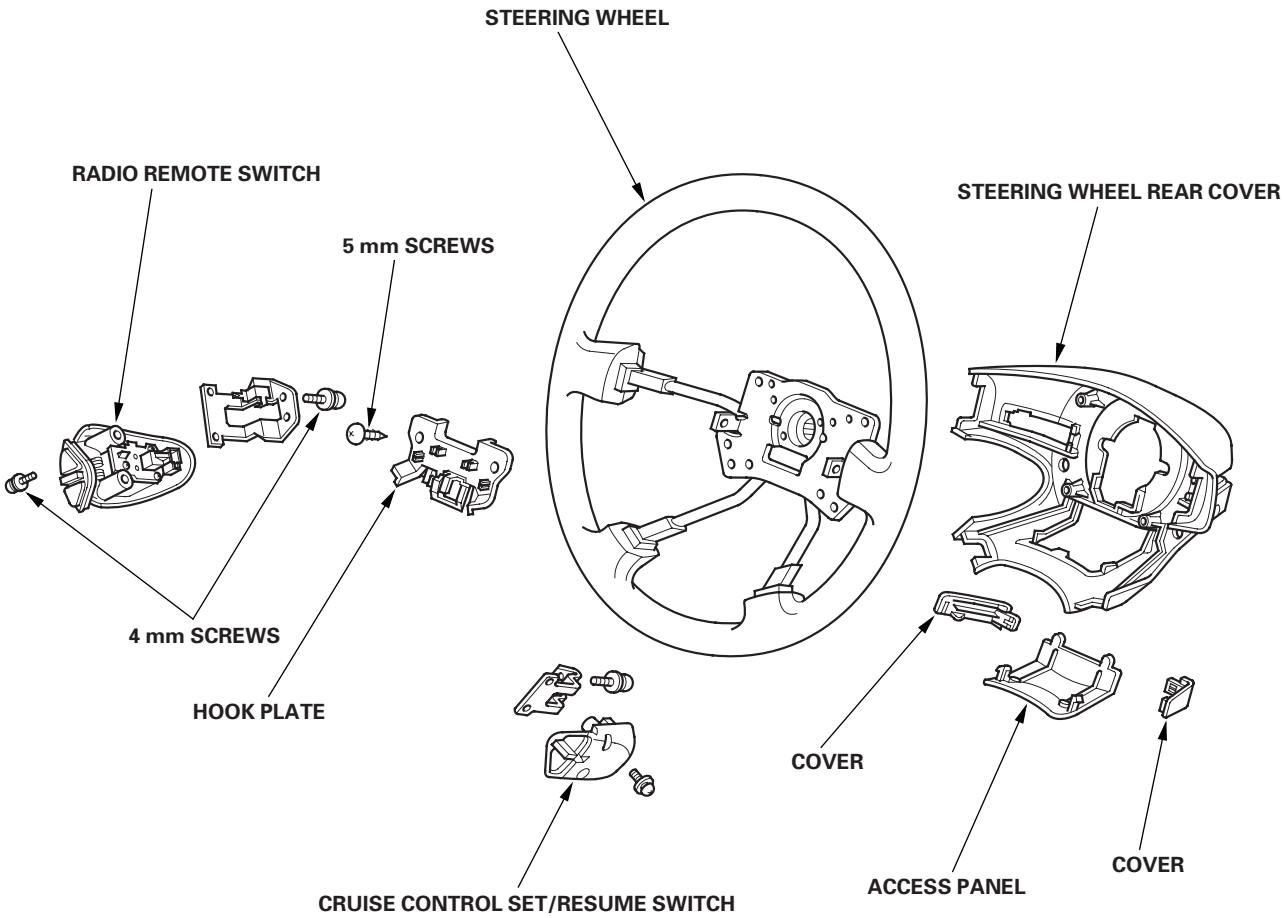
   Note these items when removing the steering wheel:
   - Do not tap on the steering wheel or the steering column shaft when removing the steering wheel.
   - If you thread the puller bolts (D) into the wheel hub more than five threads, the bolts will hit the cable reel and damage it. To prevent this, install a pair of jam nuts five threads up on each puller bolt.



4. Remove the steering wheel puller, then remove the steering wheel from the steering column.

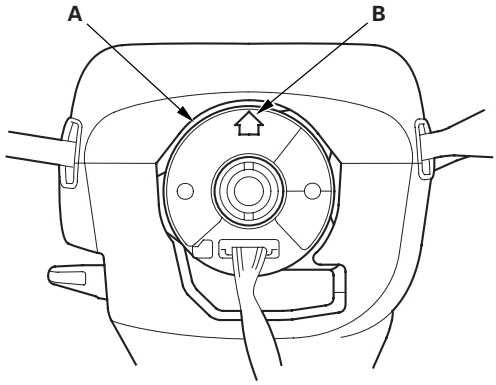


Steering Wheel Disassembly/Reassembly

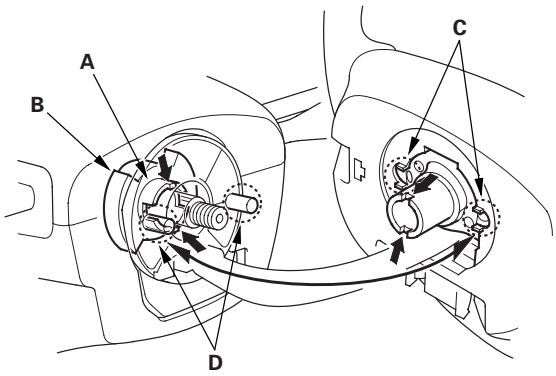


Steering Wheel Installation

1. Before installing the steering wheel, make sure the front wheels are aligned straight ahead, then center the cable reel (A). Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise about two and half turns. The arrow mark (B) on the cable reel should point straight up.



2. Position the two tabs (A) of the turn signal canceling sleeve (B) as shown, and install the steering wheel on to the steering column shaft, making sure the steering wheel hub (C) engages the pins (D) of the cable reel and tabs of the canceling sleeve. Do not tap on the steering wheel or steering column shaft when installing the steering wheel.



3. For '99-01 models; install a new steering wheel nut, and tighten it to 49 N·m (5.0 kgf·m, 36 lbf·ft).

4. For '02-04 models; install a new steering wheel bolt, and tighten it to 38 N·m (3.9 kgf·m, 28 lbf·ft).

5. Connect the radio remote switches connector and cruise control switch connector.

6. Install the driver's airbag, and confirm that the system is operating properly (see page 23-369).

7. Check the horn, radio remote switch, cruise control set/resume switch and turn signal canceling switch for proper operation.

8. Reconnect the battery and do the following.

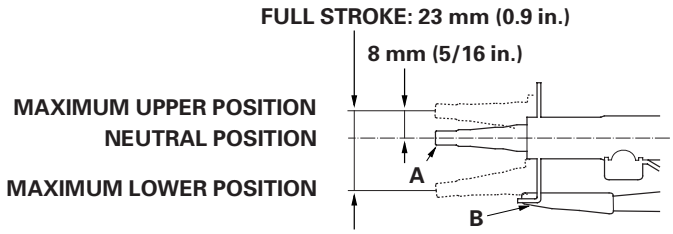
   - Power window control unit resetting procedure (see page 22-200).
   - PCM idle learn procedure (see page 11-202).
   - Set the clock.
   - Enter the radio anti-theft code.
   - Enter the navigation system anti-theft code.

Steering Column Removal and Installation

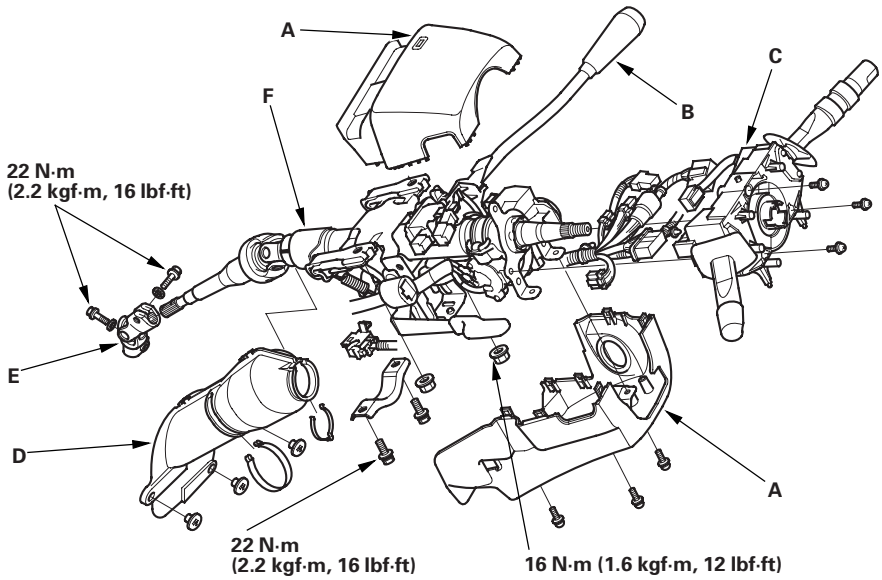
SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

Removal

1. Record the radio station presets, and disconnect the battery.
2. Remove the driver's airbag, steering wheel, and cable reel (see page 23-368).
3. Set the column shaft (A) in the neutral position by pulling up the steering column to uppermost position, then lower it 8 mm (0.31 in.). Tighten the tilt lever (B).



4. Remove the column covers (A).



5. Move the shift lever (B) to the N position, and remove the shift cable from the column, and set it aside.
6. Remove the combination switch assembly (C) from the steering column shaft by disconnecting the connectors and removing the screws.
7. Disconnect the ignition switch connectors and disconnect the harness clips.
8. Remove the steering joint cover (D).
9. Disconnect the steering joint (E), and remove it from the column shaft.
10. Remove the steering column (F) by removing the attaching nuts and bolts.

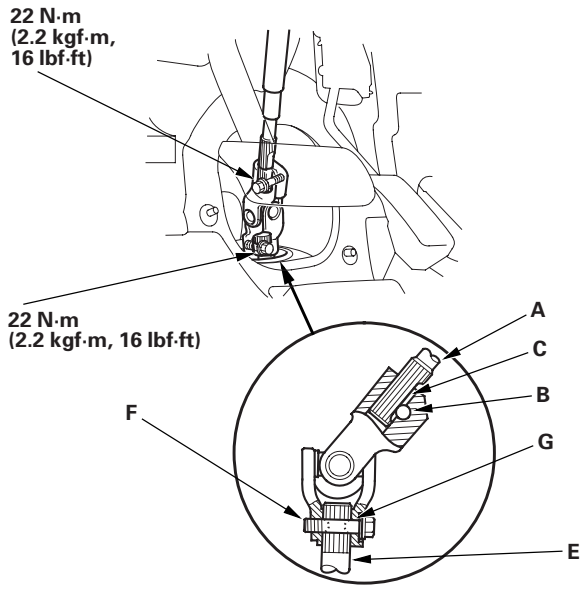
(cont'd)

Steering Column Removal and Installation (cont'd)

Installation

1. Install the steering column and make sure the wires are not caught or pinched by any parts.

2. Insert the upper end of the steering joint onto the steering shaft (A) (line up the bolt hole (B) with the flat portion (C) on the shaft).



3. Slip the lower end of the steering joint onto the pinion shaft (E) (line up the bolt hole (F) with the groove (G) around the shaft), and loosely install the lower joint bolt. Be sure that the lower joint bolt is securely in the groove in the pinion shaft.

4. Pull on the steering joint to make sure that the steering joint is fully seated. Then install the upper joint bolt and tighten it.

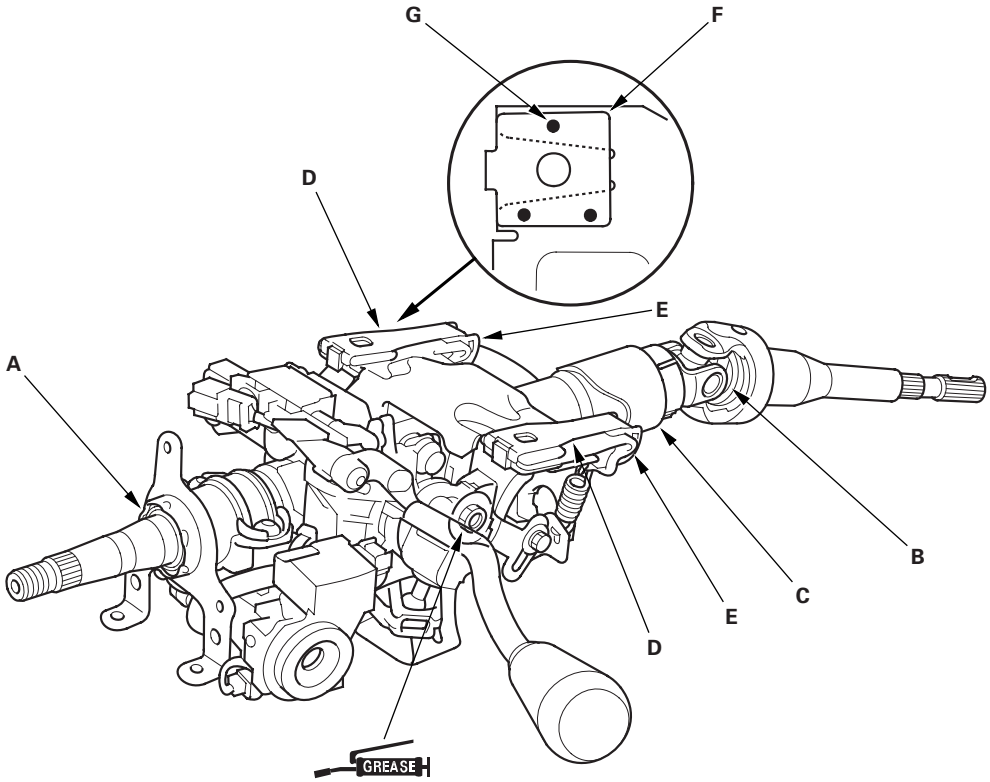
5. Tighten both the upper and lower joint bolts to the specified torque.

6. Finish the installation, and note these items:

   - Make sure the wire harness is routed and fastened properly.
   - Make sure the connectors are properly connected.
   - Reinstall the steering wheel (see page 17-24).
   - Reconnect the battery.
     – Do the PCM idle learn procedure (see page 11-202).
     – Do the power window control unit reset procedure (see page 22-200).
     – Set the clock.
     – Enter the anti-theft codes for the radio and the navigation system, then the customer's radio station presets.
   - Verify cruise control, horn, radio remote, and turn signal switch operation.
   - Check wheel alignment (see page 18-5).

Steering Column/Tilt Lever Inspection/Adjustment

- Check the steering column ball bearing (A) and the steering joint bearings (B) for play and proper movement. If any bearing is noisy or has excessive play, replace the steering column as an assembly.
- Check the retaining collar (C) for damage. If it is damaged, replace the steering column as an assembly.
- Check the absorbing plates (D), absorbing plate guides (E) and sliding capsules (F) for distortion or breakage. If there is distortion or breakage, replace the steering column as an assembly. The sliding capsule is attached to the column bracket with the plastic injections (G).

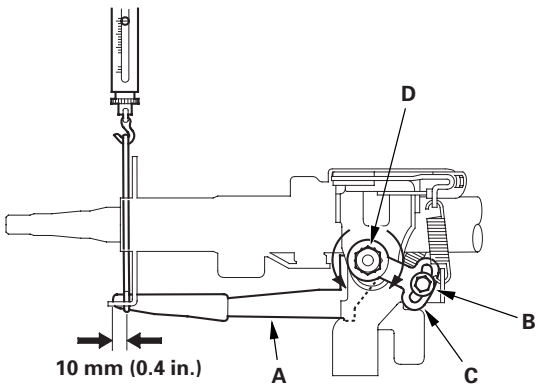


(cont'd)

Steering Column/Tilt Lever Inspection/Adjustment (cont'd)

1. Move the tilt lever (A) from the loose position to the lock position 3 to 5 times; then measure the tilt lever preload 10 mm (0.4 in.) from the end of the tilt lever.

   Preload: 70—90 N (7—9 kgf, 15—20 lbf)



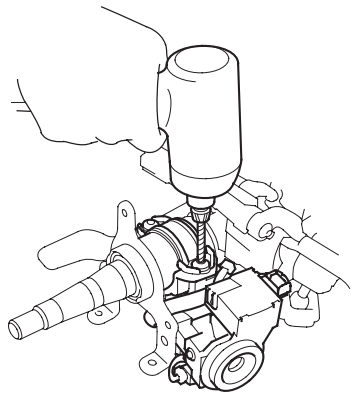
2. If the measurement is out of the specification, adjust the preload using the following procedures.

   - Loosen the tilt lever, and set the steering column in the neutral position.
   - Remove the 6 mm lock bolt (B), and remove the stop (C). Be careful not to loosen the tilt lever when installing the stop or tightening the 6 mm lock bolt.
   - Adjust the preload by turning the tilt lock bolt (D) left or right.
   - Pull up the tilt lever to the uppermost position, and install the stop. Check the preload again. If the measurement is still out of specification, repeat the above procedures to adjust.

Steering Lock Replacement

1. Remove the steering column (see page 17-25).

2. Center punch each of the two shear bolts, and drill their heads off with a 5 mm (3/16 in.) drill bit. Be careful not to damage the switch body when removing the shear bolts.



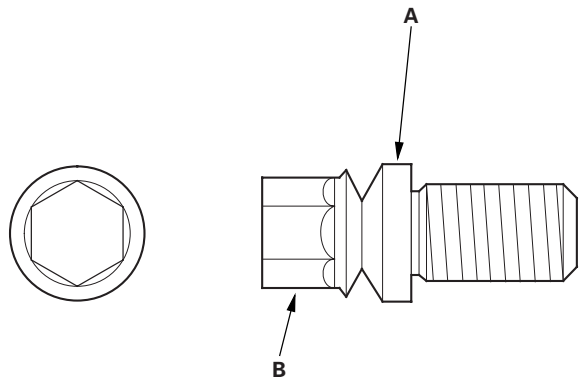
3. Remove the shear bolts from the switch body.

4. Install the switch body without the key inserted.

5. Loosely tighten the new shear bolts.

6. Insert the ignition key, and check for proper operation of the steering wheel lock and that the ignition key turns freely.

7. Tighten the shear bolts (A) until the hex heads (B) twist off.

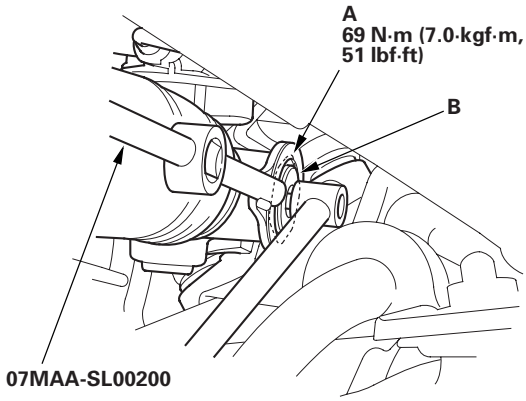


Rack Guide Adjustment

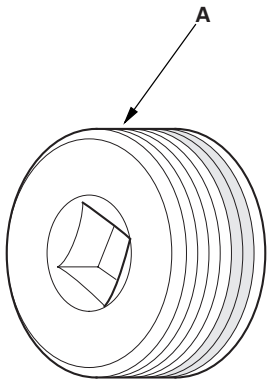
Special Tools Required
Locknut wrench, 43 mm 07MAA-SL00200

1. Set the wheels in the straight ahead position.

2. Loosen the rack guide screw locknut (A) with a special tool, then remove the rack guide screw (B).



3. Remove the old sealant from the rack guide screw threaded section, and apply new sealant around the first three threads (A). Loosely install the rack guide screw on the steering gearbox.



4. Tighten the rack guide screw to 25 N·m (2.5 kgf·m, 18 lbf·ft), then loosen it.

5. Retighten the rack guide screw to 3.9 N·m (0.4 kgf·m, 2.9 lbf·ft), then back it off to the specified angle.

   Specified Return Angle: 20°

6. Tighten the locknut while holding the rack guide screw.

7. Check for unusual steering effort through the complete turning travel.

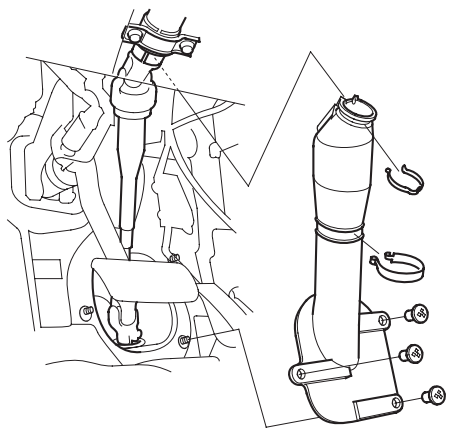
8. Check the steering wheel rotational play (see page 17-7) and power assist (see page 17-7).

Steering Gearbox Removal

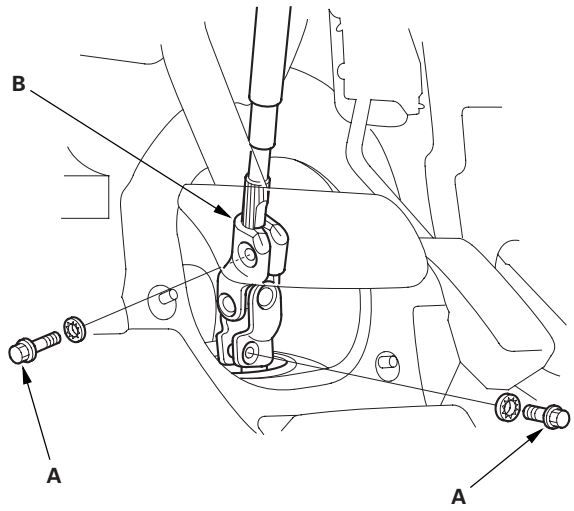
Special Tools Required
- Ball joint remover, 28 mm 07MAC-SL00200
- Engine support fixture 07XAA-001030A
- Cable eyebolt assembly 07ZAA-S0XA100

Note these items during removal:
- Using solvent and a brush, wash any oil and dirt off of the valve body unit its lines, and the end of the gearbox. Blow dry with compressed air.
- Make sure to remove the steering wheel before disconnecting the steering joint. Damage to the cable reel can occur.
- Lower the front subframe 30 mm (1.18 in.) from the body and remove/install the steering gearbox through the gap produced by lowering the front subframe.

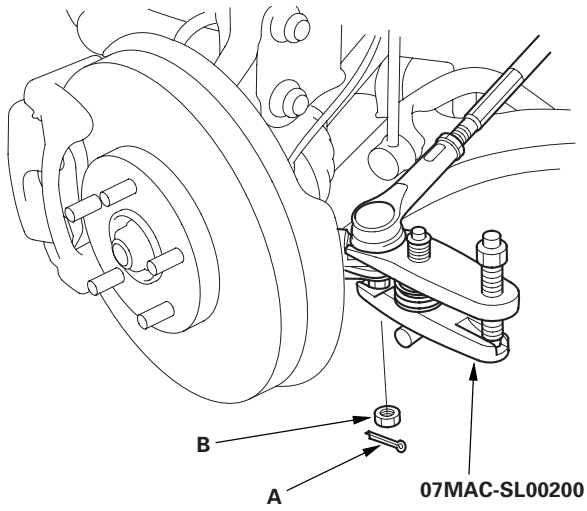
1. Drain the power steering fluid (see step 1 on page 17-14).
2. Record the custmer's radio station presets.
3. Remove the driver's airbag assembly (see page 23-368).
4. Remove the steering wheel (see page 17-22).
5. Remove the steering joint cover.



6. Remove the steering joint bolts (A) and disconnect the steering joint (B) by moving it toward the column.



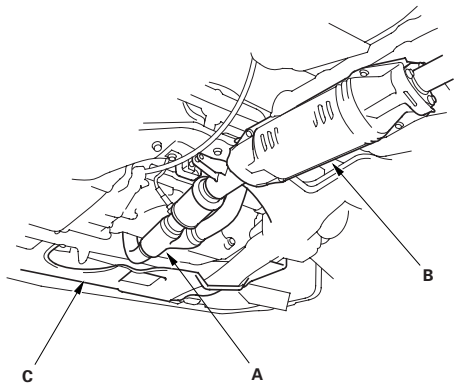
7. Raise the vehicle, and make sure it is securely supported.
8. Remove the front wheels.
9. Remove the cotter pin (A) from the 12 mm nut (B), and loosen the nut.



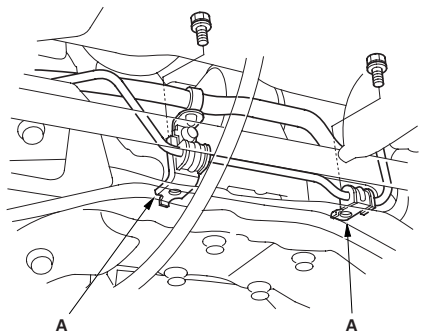
10. Separate the tie-rod ball joint and knuckle using the special tool (see page 18-10).

11. Remove the following parts.

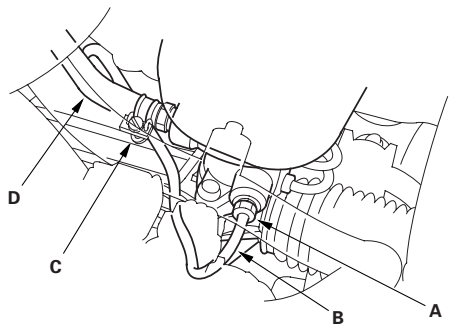
    - Exhaust pipe (A) (see page 9-11)
    - Three way catalytic converter (TWC) (B) (see page 9-11)
    - Splash shield (C)



12. Remove the feed line mounting brackets (A) from front subframe.



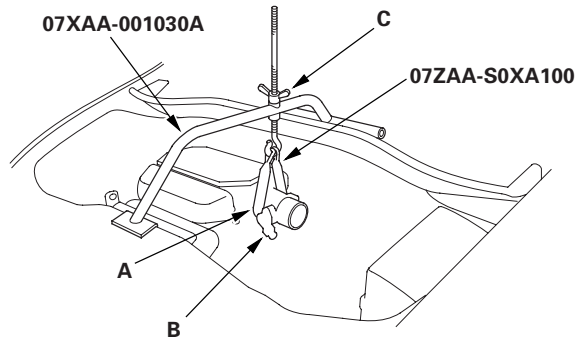
13. Loosen the 14 mm flare nut (A), and disconnect the feed line (B).



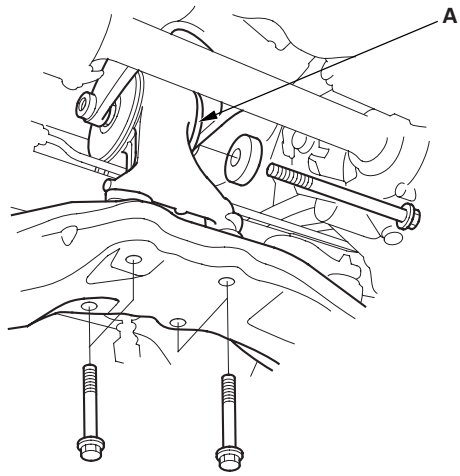
14. Loosen the adjustable hose clamp (C) and disconnect the return hose (D).

15. Lift and support the engine with the special tools. Position the tool over the hood latch. Loop the cable (A) around the throttle body (B), and tighten the wing nut (C) on the tool by hand until the cable is tight.

    NOTE: For '02-04 models, replace the cable eyebolt assembly (A) on the engine support fixture with 07ZAA-S0XA100.



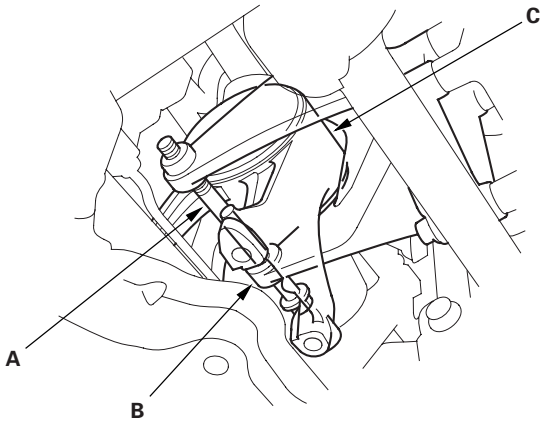
16. Remove the rear engine mount (A).



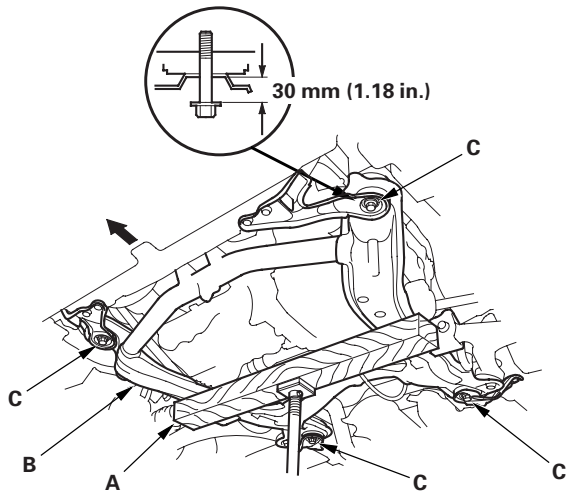
(cont'd)

Steering Gearbox Removal (cont'd)

17. Pass the removed 12 mm flange bolt (A) through the bolt hole of the mounting bracket (B), and hook the rear engine mount (C) removed in step 16 on the 12 mm flange bolt.

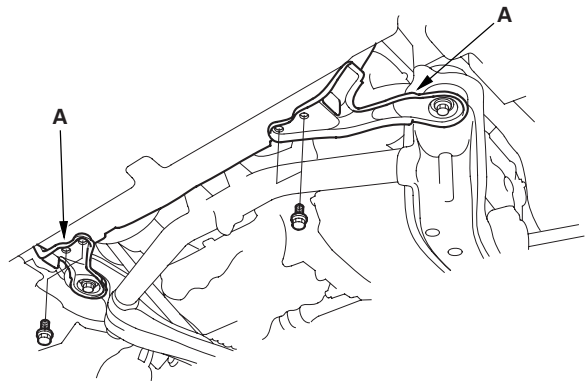


18. Attach a wood block (A) to the lower center of the front subframe (B). Attach a jack to the center of the wood block and support the front subframe securely by raising the jack.

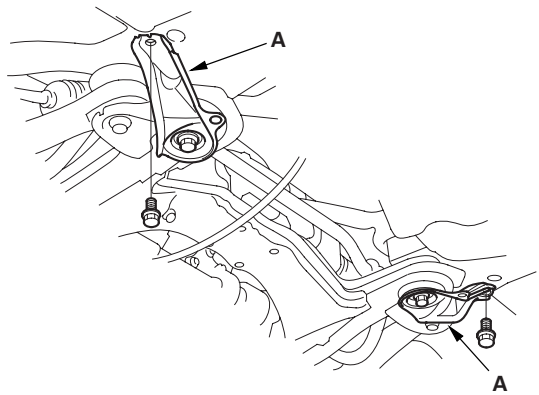


19. Loosen the four 14 mm special bolts (C) on the front subframe so they are 30 mm (1.18 in.) from the mounting surface (until the stepped part of each bolt can be seen). Do not loosen the 14 mm special bolts more than necessary.

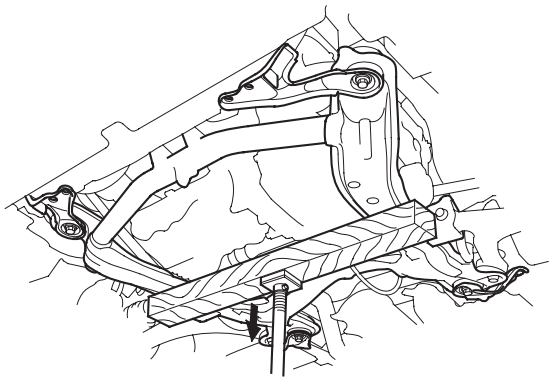
20. Remove the four 12 mm flange bolts from the front stiffener plates (A).



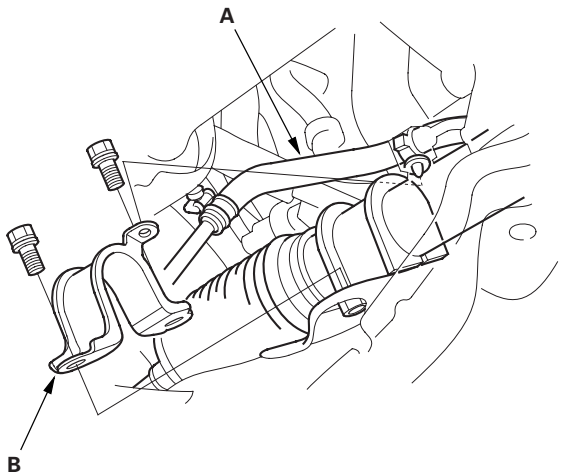
21. Remove the two 12 mm flange bolts from the rear stiffener plates (A).



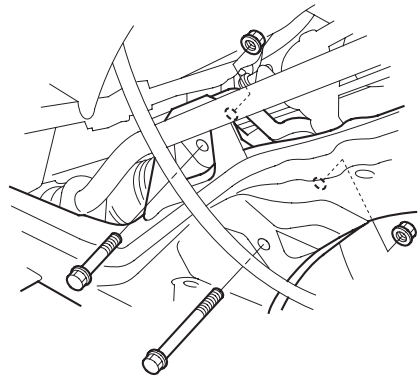
22. Lower the jack slowly until the front subframe is held with the 14 mm special bolts that were loosened in step 19.



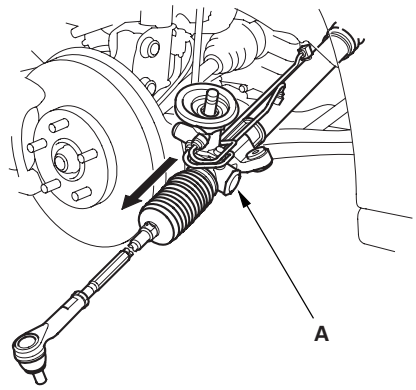
23. Remove the clamp for the feed line (A) from the right mounting bracket (B) of the steering gearbox.



24. Remove the two 10 mm mounting bolts from the left gearbox.

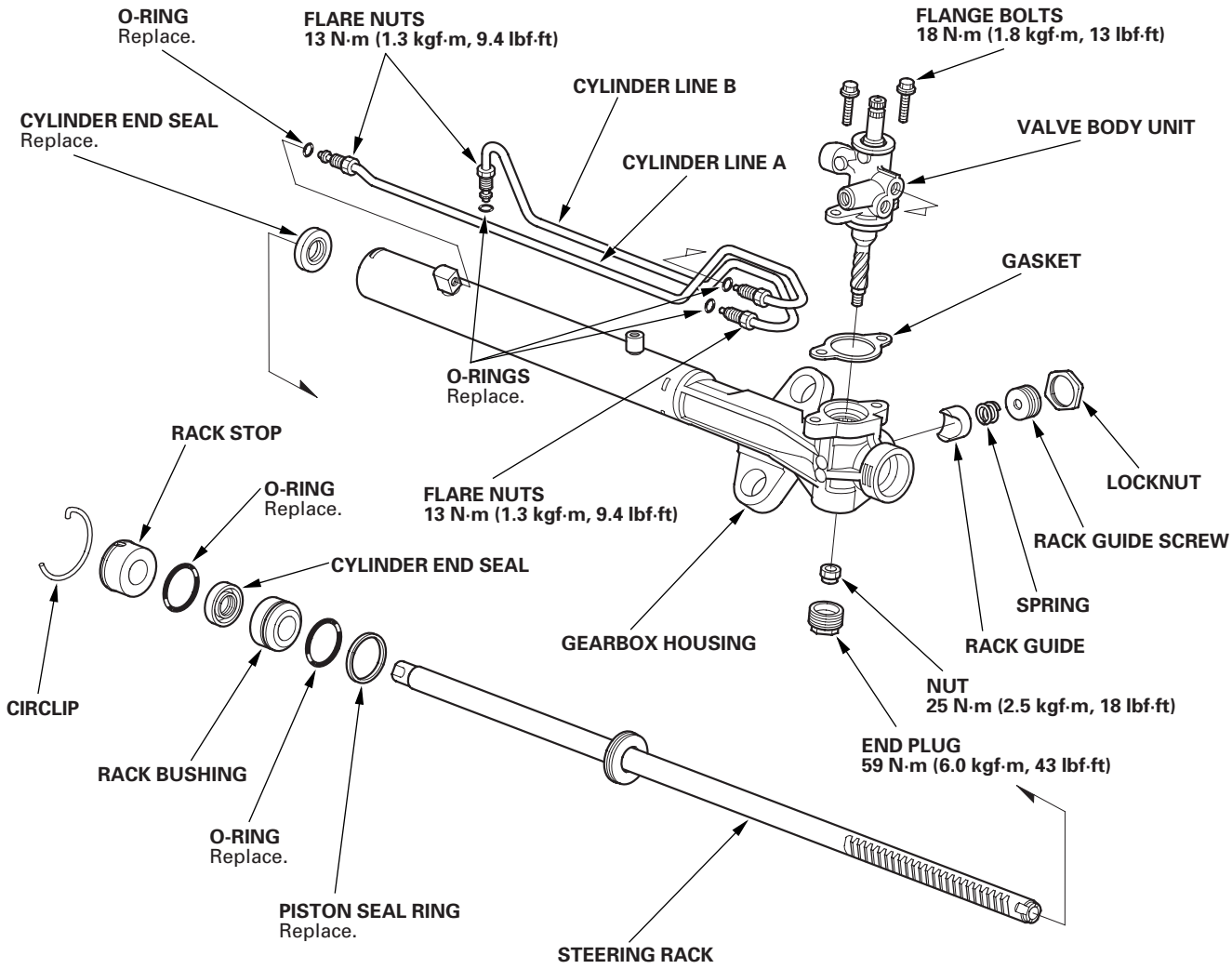


25. Move the steering gearbox (A) between the body and front subframe toward the left, and remove the steering gearbox.



Steering Gearbox Overhaul

Exploded View



Special Tools Required
- Cylinder end seal remover attachment 07TAF-SZ50100
- Driver 07749-0010000
- Attachment, 42 x 47 mm 07746-0010300
- Piston seal ring guide 07LAG-SM4010A or 07LAG-SM40100
- Piston seal ring sizing tool 07LAG-SM4020A or 07LAG-SM40200
- Pincer Oetiker 1098, or equivalent, commercially available

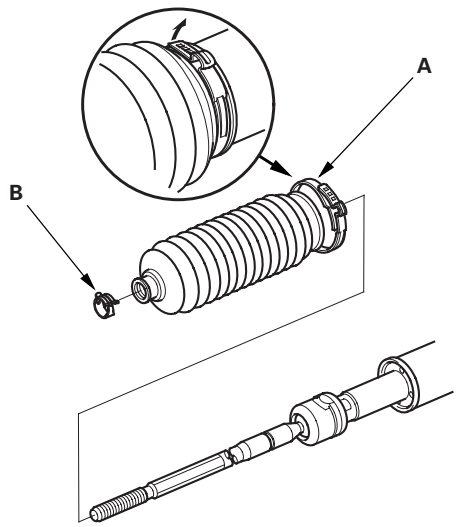
NOTE: Refer to the Exploded View as needed during the following procedure.

Removal

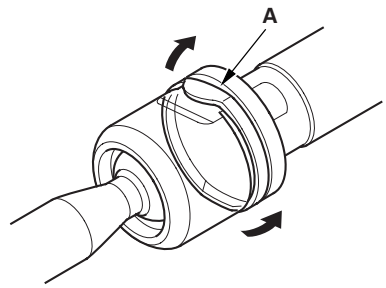
1. Remove the steering gearbox (see page 17-30).

Disassembly

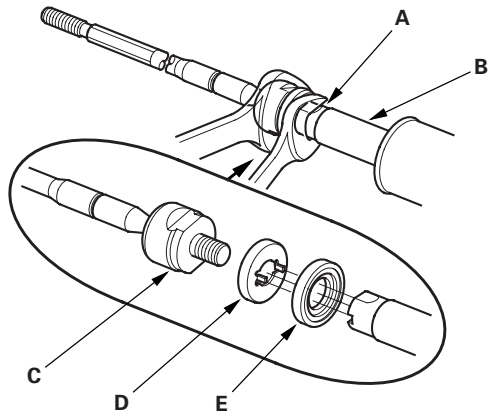
2. Remove the boot band (A) and tie-rod clips (B). Pull the boots away from the ends of the steering gearbox.



3. Unbend the lock washer (A).



4. Hold the flat surface sections (A) on the right side steering rack (B) with a wrench, and unscrew the both rack ends (C) with another wrench. Be careful not to damage the rack surface with the wrench. Remove the lock washer (D) and stop washer (E).



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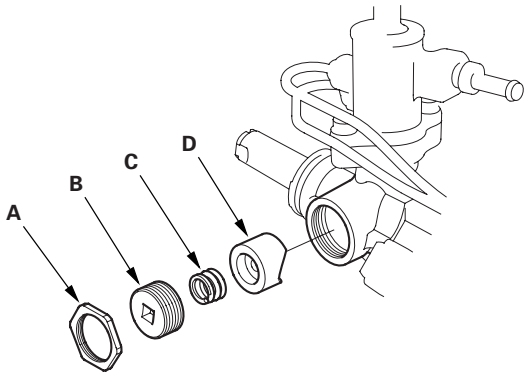
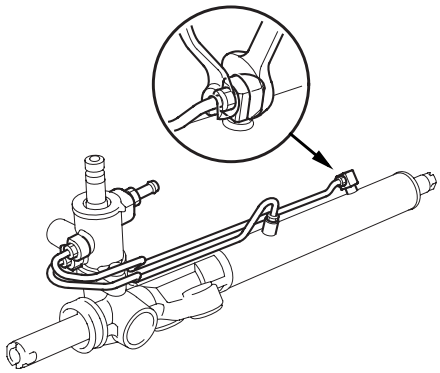
Steering Gearbox Overhaul (cont'd)

5. Loosen the locknut (A), then remove the rack guide screw (B).



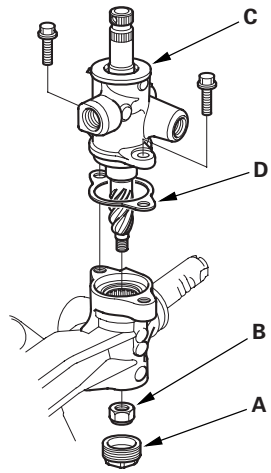
6. Remove the spring (C) and the rack guide (D) from the gearbox.

7. Remove the cylinder lines from the gearbox.



8. Drain the fluid from the cylinder fittings by slowly moving the steering rack back and forth.

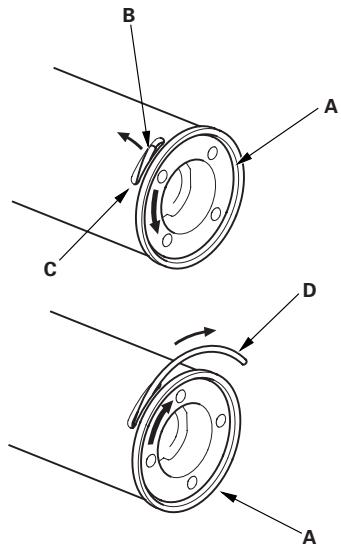
9. Remove the end plug (A) from the gearbox housing, then remove the nut (B) from the pinion shaft end.



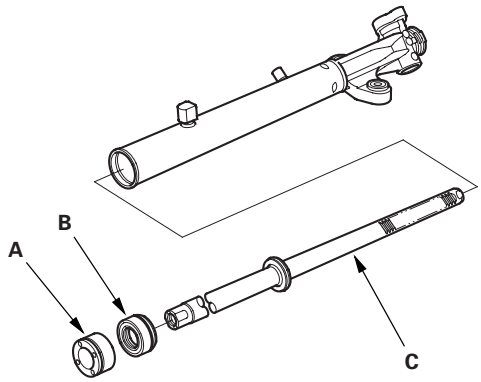
10. Remove the two flange bolts, the valve body unit (C) and gasket (D) from the gearbox. Check that the valve turns smoothly by turning the pinion shaft. If any play or roughness is felt, replace the valve body unit with a new part if necessary. Do not try to disassemble the valve body unit.

11. Slide the steering rack all the way to the left.

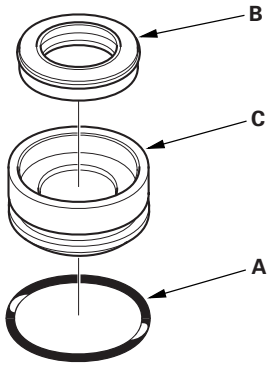
12. Turn the rack stop (A) counterclockwise until the end of the circlip (B) sticks out from the hole (C) in the rack stop. Then turn it clockwise to remove the circlip (D).



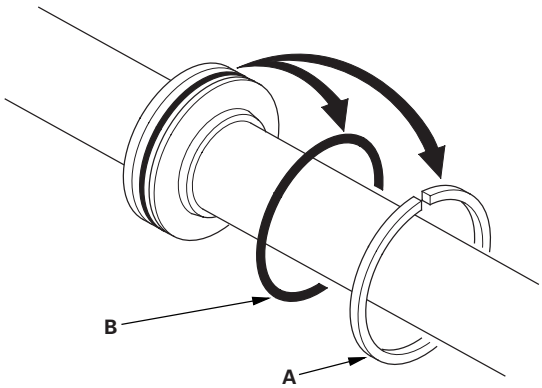
13. Remove the rack stop (A), rack bushing (B) and steering rack (C) from the steering gearbox.



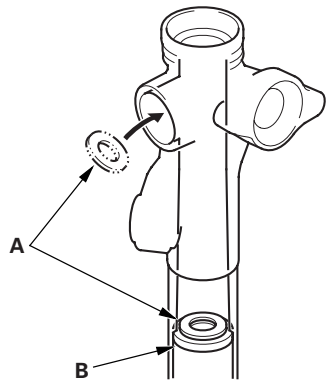
14. Remove the O-ring (A) and cylinder end seal (B) from the rack bushing (C).



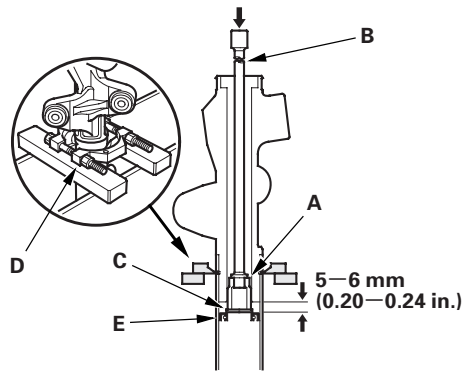
15. Carefully pry the piston seal ring (A) and O-ring (B) off the rack piston. Be careful not to damage the inside of seal ring groove and piston edges when removing the seal ring.



16. Install a washer (O.D. 27.5 mm, P/N 94103-10400) (A) so it will fit through the rack guide hole of the gearbox housing, then position the washer on the cylinder end seal (B). Make sure that the washer is securely positioned on the cylinder end seal edges.



17. Install the socket wrench with a 27.5 mm O.D. (A) onto the 24'' long 3/8'' drive extension (B), and carefully place it on the washer (C).



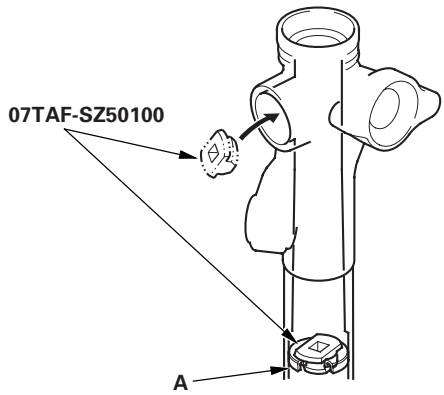
18. Install a commercially available bearing separator (D) on the gearbox housing. Set the steering gearbox in a press so the gearbox housing points upward, then push out the cylinder end seal (E) 5—6 mm (0.20—0.24 in.) by pressing on the 24'' long 3/8'' drive extension end.

19. Remove the steering gearbox from the press, and remove the washer from the gearbox.

(cont'd)

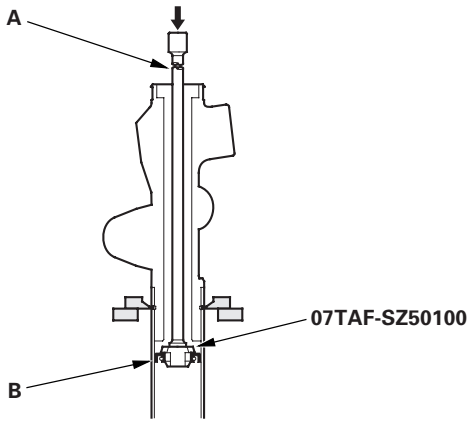
Steering Gearbox Overhaul (cont'd)

20. Turn the special tool so it will fit through the rack guide hole of the steering gearbox, then position the special tool on the cylinder end seal (A). Make sure that the special tool is securely positioned on the seal edges.



21. Insert a 24'' long 3/8'' drive extension (A), on the special tool. Place the steering gearbox in a press, then remove the cylinder end seal (B) from of the gearbox by pressing on the 24'' long 3/8'' drive extension.

    Note these items when pressing the cylinder end seal:
    - Keep the tool straight to avoid damaging the cylinder wall. Check the tool angle, and correct it if necessary, when removing the cylinder end seal.
    - Use a press to remove the cylinder end seal. Do not try to remove the seal by striking the tool; striking the tool would break the cylinder end seal, and the seal would remain in the gearbox.

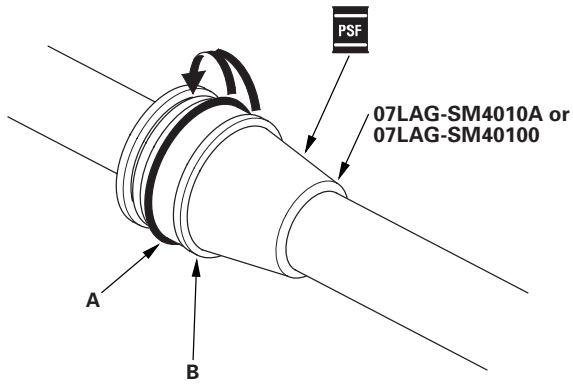


Reassembly

22. Coat the special tool with power steering fluid, then slide it onto the rack, big end first.

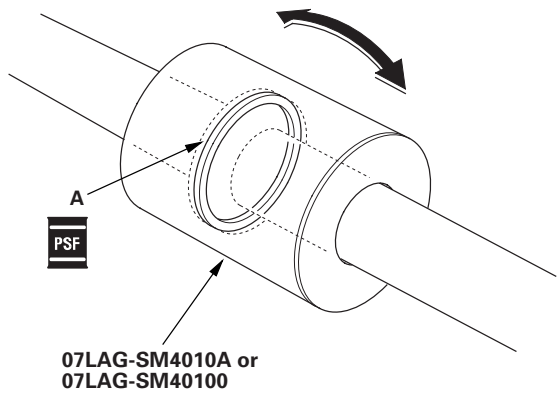
23. Position the new O-ring (A) and new piston seal ring (B) on the special tool, then slide them down toward the big end of the tool.

    Note these items during reassembly:
    - Do not over expand the resin seal rings. Install the resin seal rings with care so as not to damage them. After installation, make sure you contract the seal ring using the special sizing tool.
    - Replace the piston's O-ring and seal ring as a set.



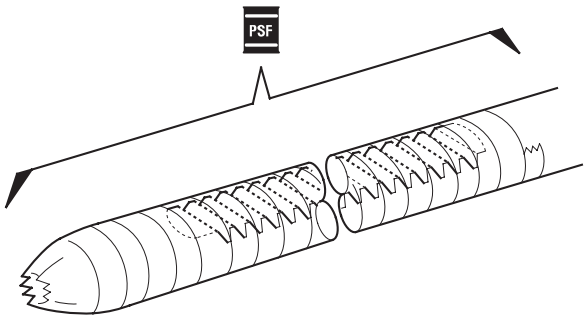
24. Pull the O-ring off into the piston groove, then pull the piston seal ring off into the piston groove on top of the O-ring.

25. Coat the piston seal ring (A) and the inside of the special tool with power steering fluid, then carefully slide the tool onto the rack and over the piston seal ring.

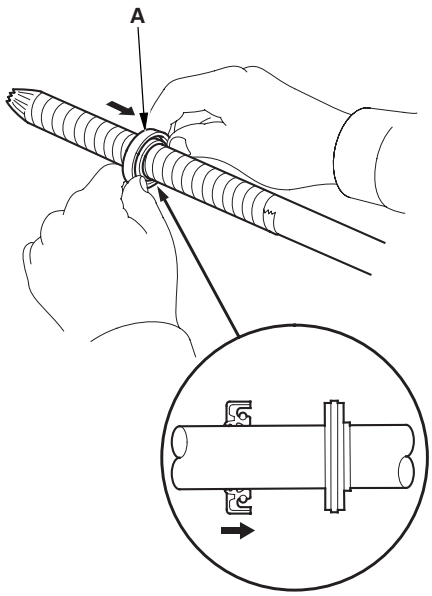


26. Move the special tool back and forth several times to make sure the piston seal ring fits snugly in the piston.

27. Wrap vinyl tape around the rack teeth and rack end edges, then coat the surface of the tape with power steering fluid. Make sure that the vinyl tape is wrapped carefully so that there is no stepped portion.

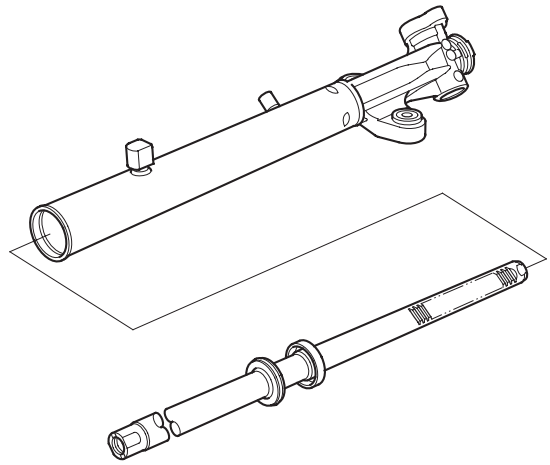


28. Coat the inside surface of the new cylinder end seal (A) with power steering fluid, then install it onto the steering rack with its grooved side toward the piston. When installing the cylinder end seal, be careful not damage the lip of the seal with the edges or teeth of the steering rack.

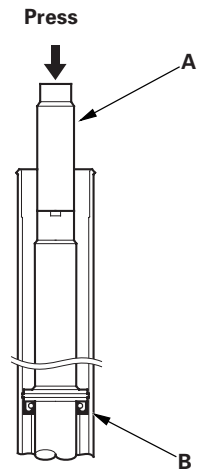


29. Remove the vinyl tape from the steering rack, then remove any adhesive residue.

30. Grease the steering rack teeth, then insert the steering rack into the gearbox housing. Be careful not to damage the inner surface of the cylinder wall with the rack edges.



31. Insert a deep socket wrench (A) onto the steering rack as shown.



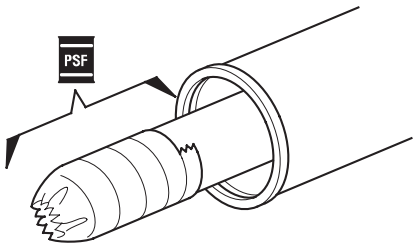
32. Install the cylinder end seal (B) into the bottom of the cylinder by pressing on the tool with a press. Do not push on the tool with excessive force as it may damage the cylinder end seal.

33. Remove the tool, and center the steering rack.

(cont'd)

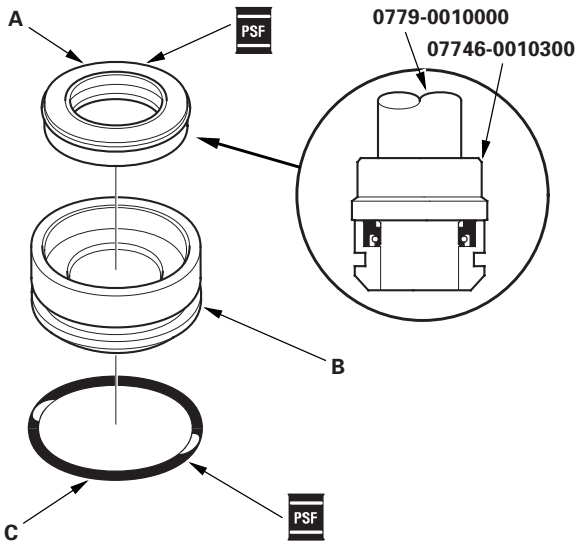
Steering Gearbox Overhaul (cont'd)

34. Wrap vinyl tape around the rack end edges, and coat the surface of the tape with power steering fluid. Make sure that the vinyl tape is wrapped carefully so there is no stepped portion.



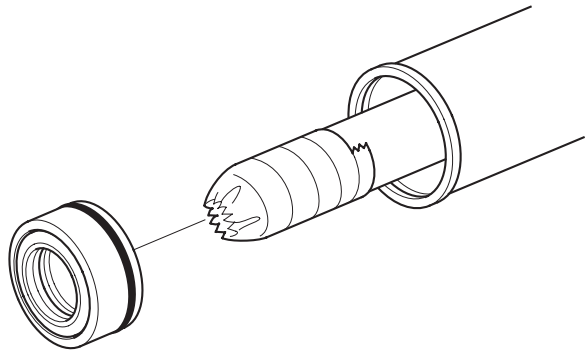
35. Coat the inside surface of the new cylinder end seal (A) with power steering fluid, then press it into the rack bushing (B) using the special tools.

    NOTE: The open end of the seal should be facing down.



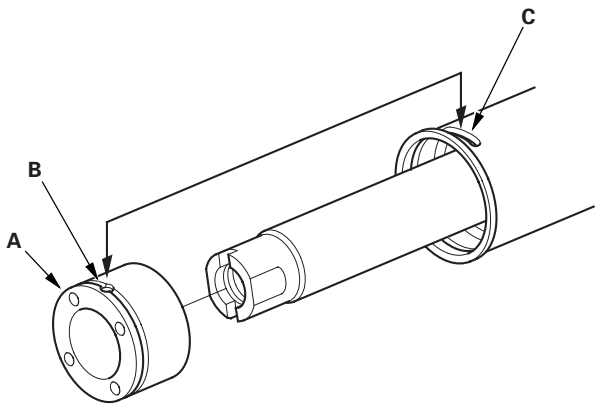
36. Coat the new O-ring (C) with power steering fluid, and carefully fit it in the groove of the rack bushing.

37. Install the rack bushing onto the steering rack with cylinder end seal grooved side toward the piston. Push in the rack bushing with your finger.

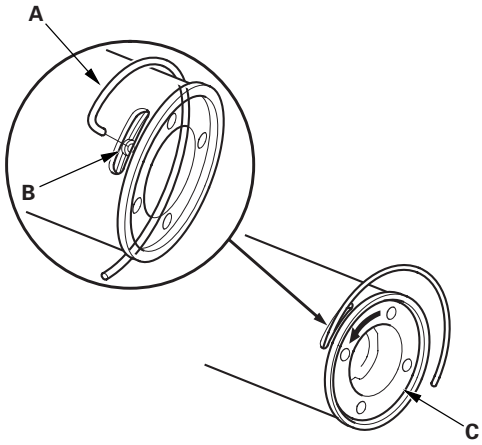


38. Remove the vinyl tape from the steering rack, then remove any adhesive residue.

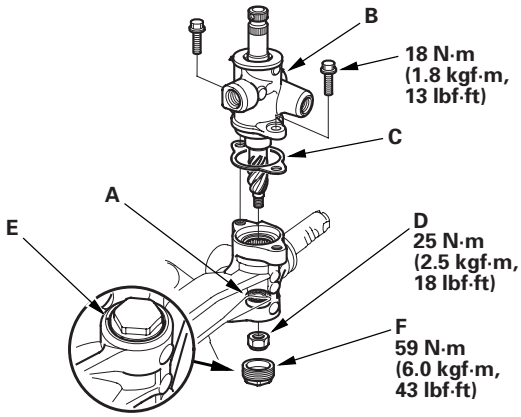
39. Install the rack stop (A) onto the steering rack so the hole (B) is aligned with the slot (C) on the steering rack.



40. Insert the end of the circlip (A) into the hole (B) of the rack stop (C). Turn the rack stop counterclockwise until the circlip is fully seated in the rack stop.



41. Apply grease to the bearing (A) in the gearbox housing, and install the valve body unit (B) and gasket (C) by engaging the gears. Note the valve body unit installation position (direction of line connections). Then loosely install the two flange bolts.



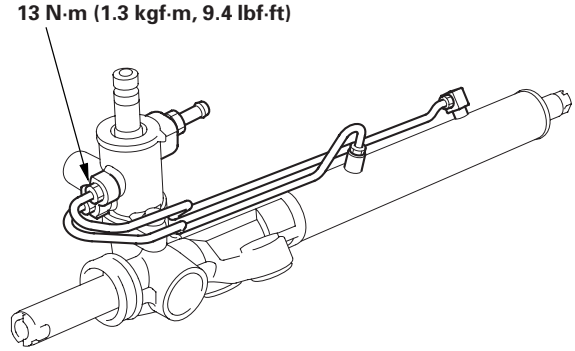
42. Install the nut (D) onto the pinion shaft end, and tighten to specified torque.

43. Install the plug end (F) onto the gearbox housing and tighten it to the specified torque. After tightening, use a drift to stake the plug shoulder (E) against the grearbox housing.

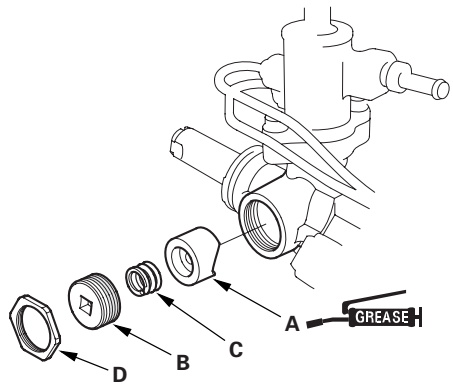
44. Tighten the flange bolts to the specified torque.

45. Before installing the cylinder lines, coat the new O-rings with power steering fluid, then install the lines.

    Note these items during reassembly:
    - Thoroughly clean the joints of the cylinder lines. The joints must be free of foreign material.
    - Install the cylinder lines by tightening the flare nuts by hand first, then tighten the flare nuts to the specified torque.



46. Grease the sliding surface of the rack guide (A) with multipurpose grease, and install it onto the gearbox housing.



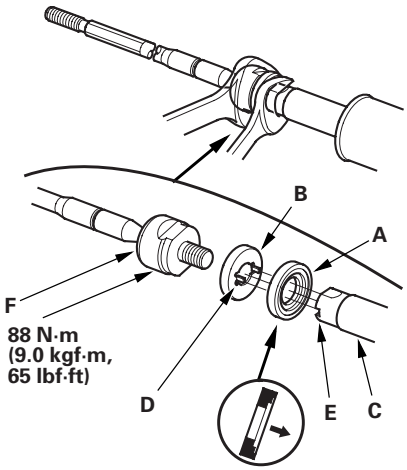
47. Apply new sealant to around the first three threads of the rack guide screw (B), then install the spring (C), rack guide screw and locknut (D).

48. Adjust the rack guide screw (see page 17-29). After adjusting, check that the rack moves smoothly by sliding it right and left.

(cont'd)

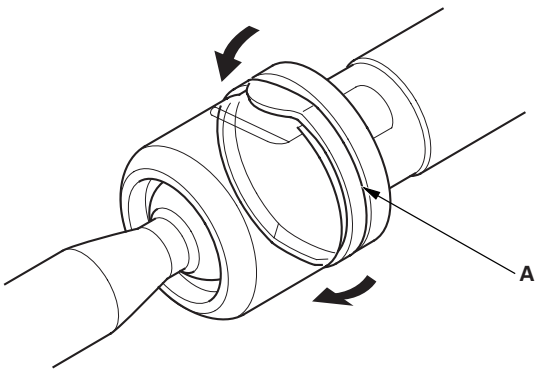
Steering Gearbox Overhaul (cont'd)

49. Install the stop washer (A) and the lock washer (B) on the rack (C). Align the lock washer tabs (D) with the slots (E) in the rack. Install the rack end (F) while holding with lock washer in place. Repeat this step for the other side of the rack.

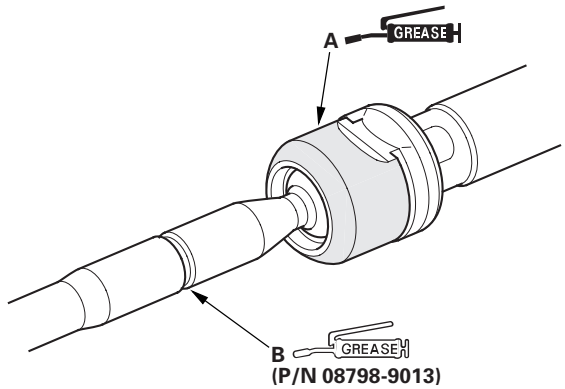


50. Hold the flat surface sections of the right side steering rack with a wrench, and tighten the both rack ends with another wrench. Be careful not to damage the rack surface with the wrench.

51. Bend the lock washer (A) back against the flat spots on the rack end joint housing.



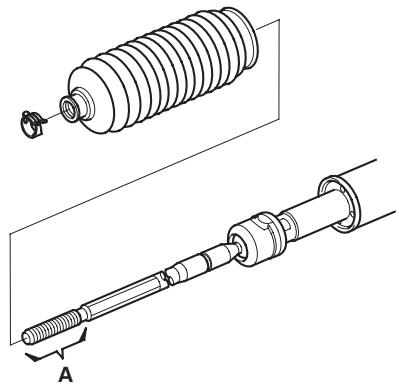
52. Apply multipurpose grease (A) to the circumference of the rack end joint housing.



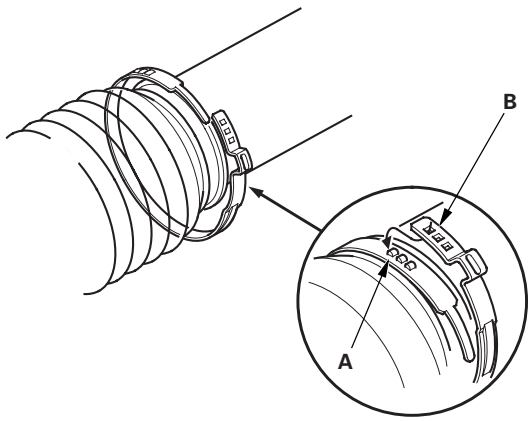
(P/N 08798-9013)

53. Apply a light coat of silicone grease to the boot grooves (B) of the rack ends.

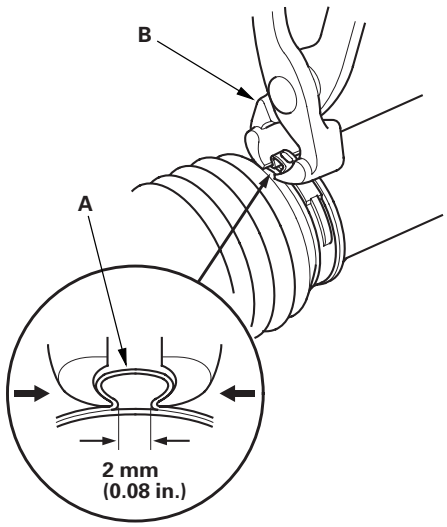
54. Center the steering rack within its stroke. Install the boots on the rack ends with the tie-rod clips. After installing the boots, wipe the grease off the threaded section (A) of the rack end.



55. Install the new boot bands by aligning the tabs (A) with the holes (B) of the band.



56. Close the ear portion (A) of the band with a commercially available pincers, Oetiker 1098 or equivalent (B).



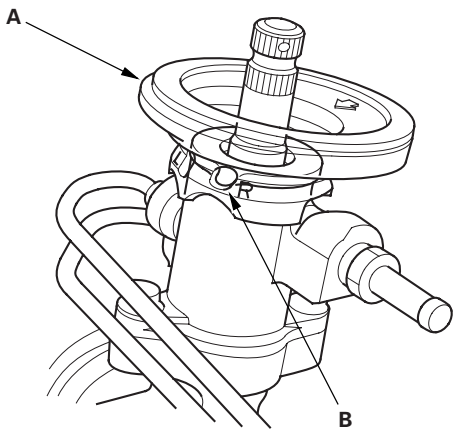
57. Slide the rack right and left to be certain that the boots are not deformed or twisted.

Installation

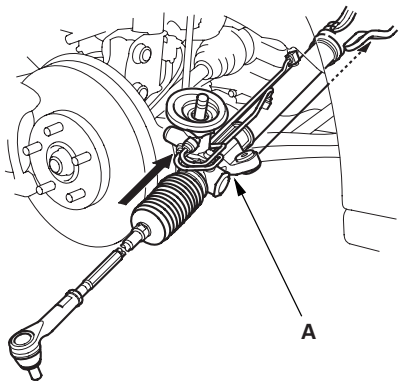
58. Install the steering gearbox (see page 17-44).

Steering Gearbox Installation

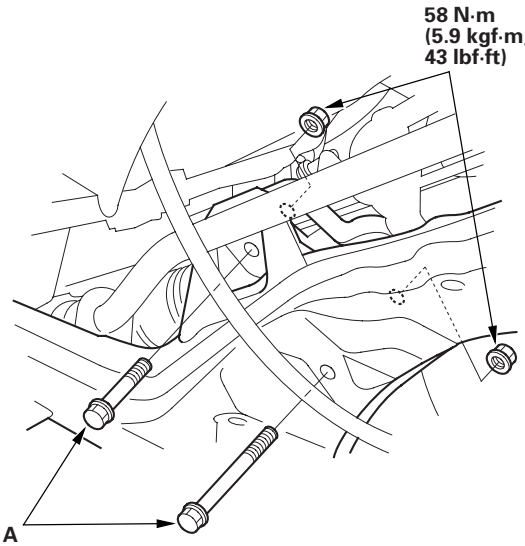
1. Install the pinion shaft grommet (A). Align the slot (B) in the pinion shaft grommet with the lug portion on the valve housing.



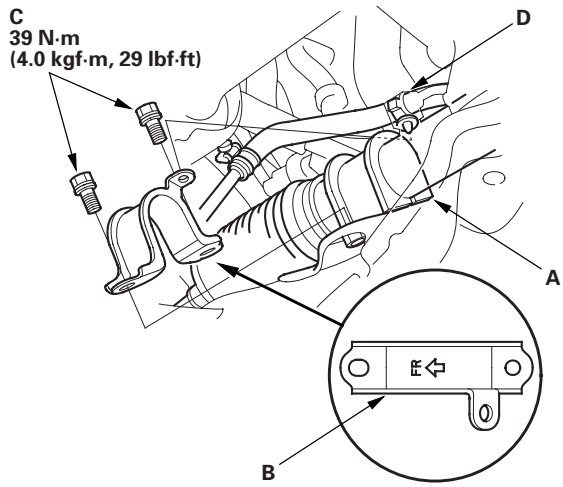
2. Pass the steering gearbox (A) between the front subframe and body from the driver's side. Place the gearbox in position on the subframe.



3. Loosely install the two 10 mm gearbox mounting bolts (A).



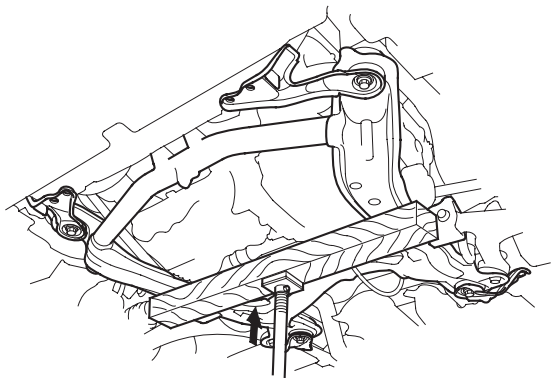
4. Install the mounting cushion (A) on the right side of the gearbox.



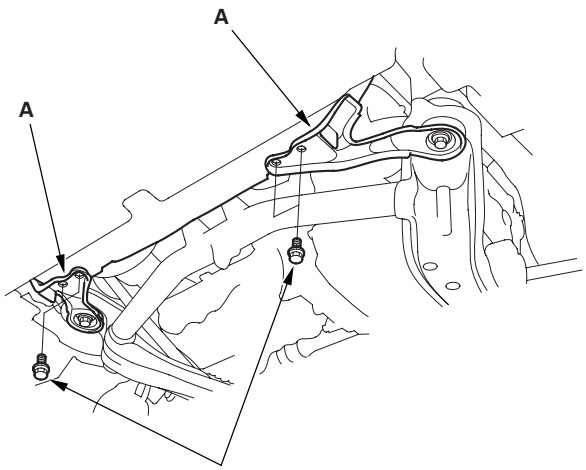
5. Install the mounting bracket (B) over the mounting cushion, then install the two 10 mm gearbox mounting bolts (C). Install the bolts loosely first, then tighten all four mountig bolts to the specified torque.

6. Install the clamp for the feed line (D) on the right mounting bracket.

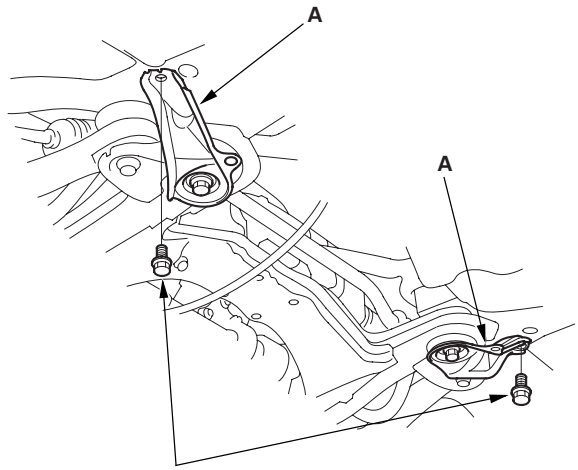
7. Carefully raise the front subframe with the jack.



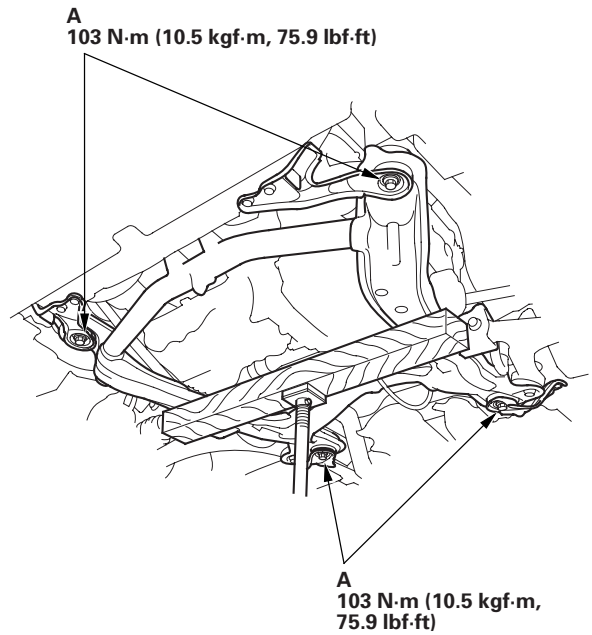
8. Install the front stiffener plates (A).



9. Install the rear stiffener plates (A) and tighten the mounting bolts to the specified torque.



10. Tighten the four 14 mm special bolts (A) to specified torque.

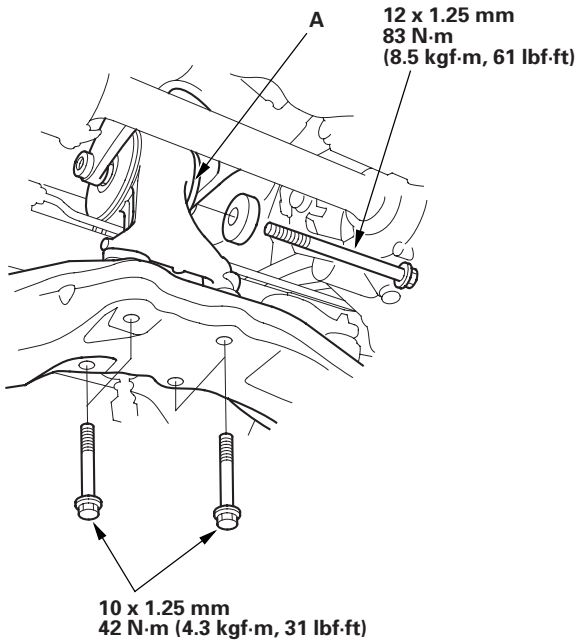


11. Lower the jack and remove the wood block.

(cont'd)

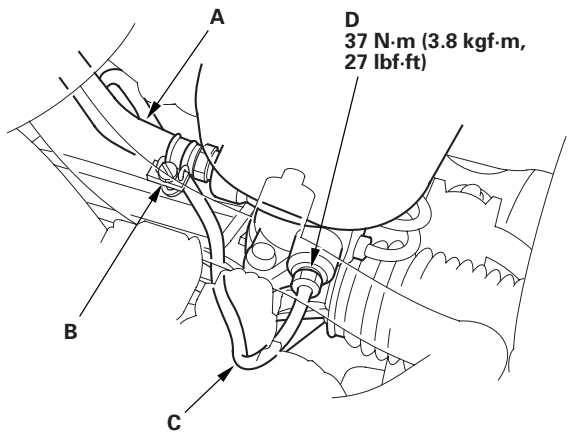
Steering Gearbox Installation (cont'd)

12. Install the rear engine mount (A).



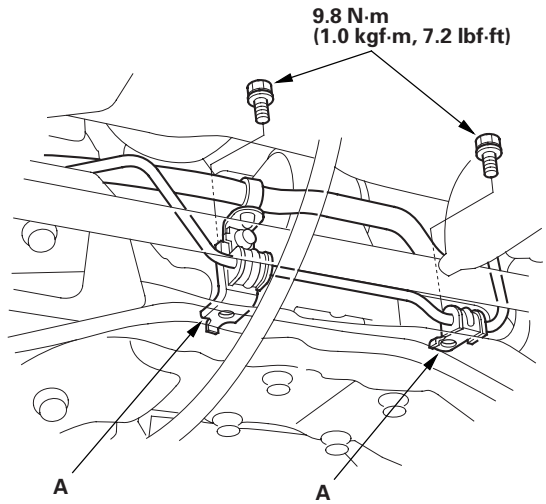
13. Remove the engine support fixture.

14. Connect the return hose (A) securely, and tighten the adjustable hose clamp (B).



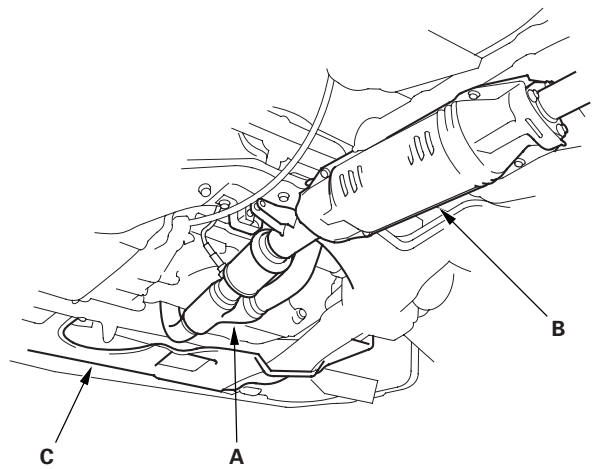
15. Connect the feed line (C), and tighten the 14 mm flare nut (D).

16. Install the feed line mounting brackets (A) on the front subframe.

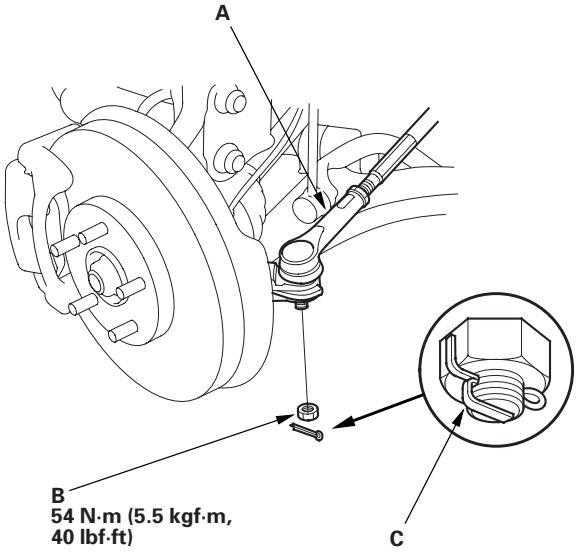


17. Install the following parts.

- Exhaust pipe (A) (see page 9-11)
- Three way catalytic converter (TWC) (B) (see page 9-11)
- Splash shield (C)



18. Wipe off any greese contamination from the ball joint tapered section and threads then reconnect tie rod ends (A) to the steering knuckles. Install the 12 mm nut (B) and tighten it.

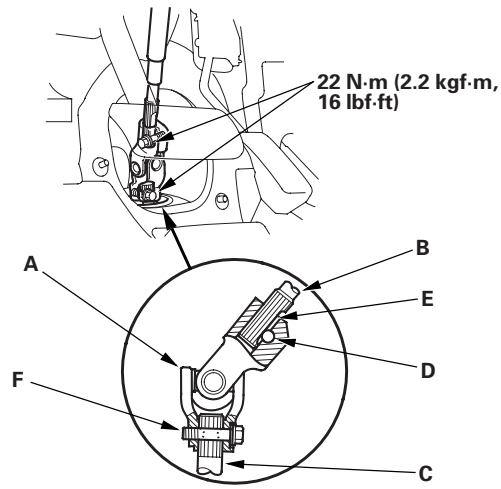


19. Install the new cotter pin (C) and bend it as shown.

20. Install the front wheels.

21. Install the steering joint (A), and reconnect the steering shaft (B) and pinion shaft (C). Make sure the steering joint is connected as follows:

    - Insert the upper end of the steering joint onto the steering shaft (line up the bolt hole (D) with the flat portion (E) on the shaft).
    - Slip the lower end of the steering joint onto the pinion shaft (line up the bolt hole (F) with the groove around the shaft), and loosely install the lower joint bolt. Be sure that the lower joint bolt is securely in the groove in the pinion shaft.
    - Pull on the steering joint to make sure that the steering joint is fully seated. Then install the upper joint bolt and tighten it.



22. Tighten bolts the upper and lower joint bolts to the specified torque.

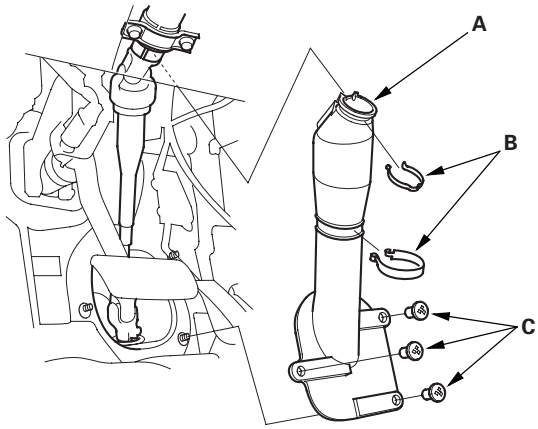
23. Center the cable reel by first rotating it clockwise until it stops. Then rotate it counterclockwise (about two and half turns) until the arrow mark on the label points straight up.

24. Reinstall the steering wheel (see page 17-24).

(cont'd)

Steering Gearbox Installation (cont'd)

25. Install the steering joint cover (A) with the clamps (B) and clips (C).



26. Fill the system with power steering fluid, and bleed air from the system (see page 17-14).

27. After installation, perform the following:

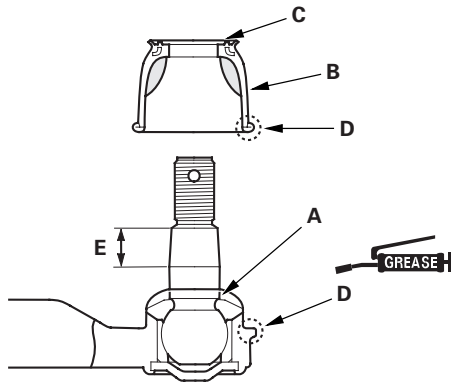
- Start the engine, allow it to idle, and turn the steering wheel from lock-to-lock several times to warm up the fluid. Check the gearbox for leaks (see page 17-11).
- Adjust the front toe (see step 1 on page 18-7).
- Check the steering wheel spoke angle. Adjust by turning the right and left tie-rods equally, if necessary.
- Do the PCM idle learn procedure (see page 11-202).
- Do the power window control unit reset procedure (see page 22-200).
- Set the clock.
- Enter the anti-theft codes for the radio and the navigation system, the custmer's radio station presets.

Tie-rod Ball Joint Boot Replacement

Special Tools Required
Front hub dis/assembly tool 07965-SA50500

1. Remove the boot from the tie-rod end, and wipe the old grease off the ball pin.

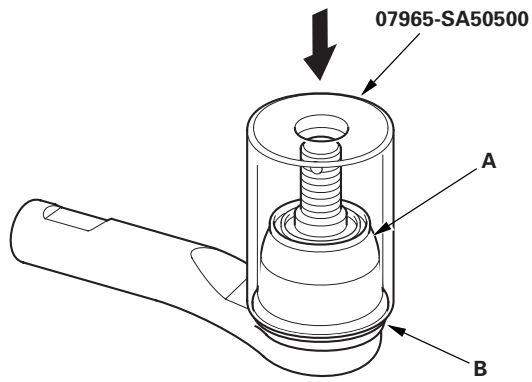
2. Pack the lower area of the ball pin (A) with multipurpose grease.



3. Pack the interior of the new boot (B) and lip (C) with multipurpose grease.

   Note these items when installing new grease:
   - Keep grease off the boot installation section (D) and the tapered section (E) if the ball pin.
   - Do not allow dust, dirt, or other foreign materials to enter the boot.

4. Install the new boot (A) using the special tool. The boot must not have a gap at the boot installation sections (B). After installing the boot, check the ball pin tapered section for grease contamination, and wipe it if necessary.



Suspension

Front and Rear Suspension

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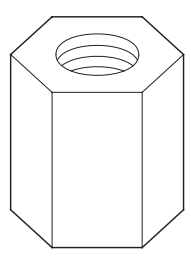
Spring/Bump Stop Replacement 18-32

Front and Rear Suspension

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07AAF-SDAA100	Ball Joint Thread Protector, 12 mm	1
②	07GAF-SE00100	Hub Dis/Assembly Tool	1
③	07MAC-SL00200	Ball Joint Remover, 28 mm	1
④	07746-0010500	Attachment, 62 x 68 mm	1
⑤	07749-0010000	Driver	1
⑥	07948-SB00101	Attachment, 96 mm	1
⑦	07965-SD90100	Support Base	1
⑧	07974-SA50700	Ball Joint Boot Clip Guide	1



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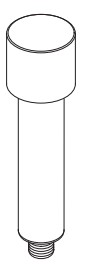

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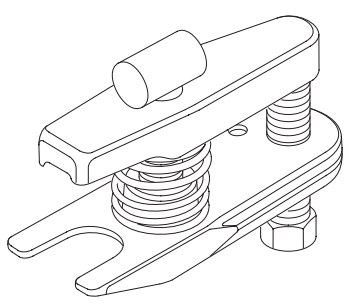

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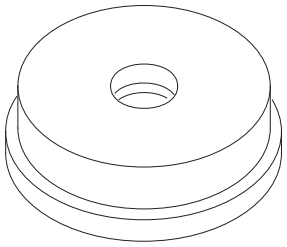

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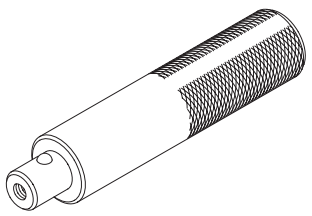

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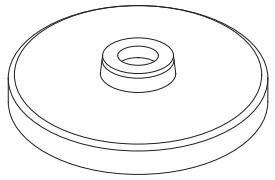

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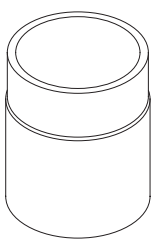

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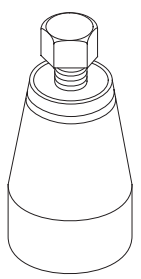
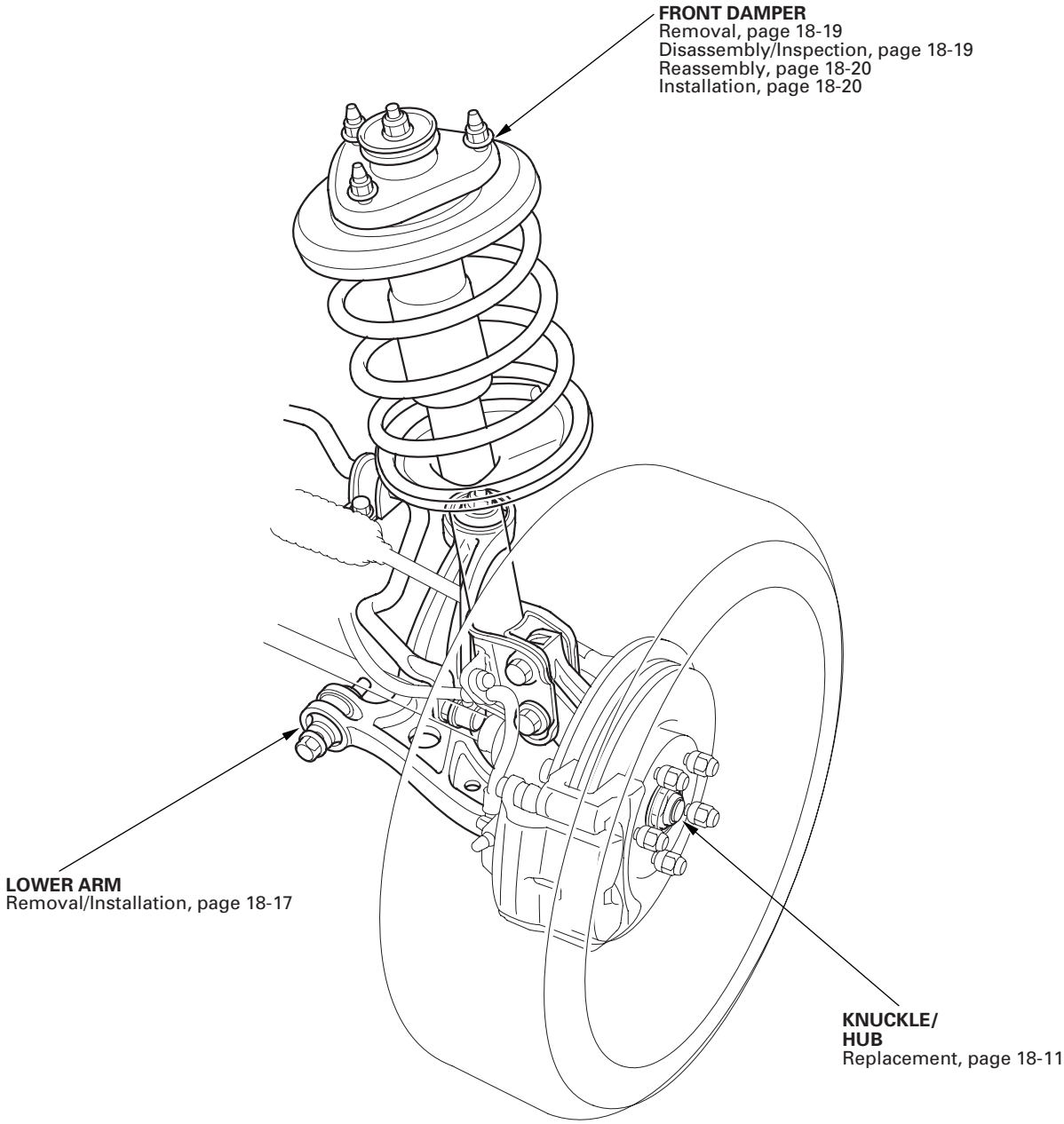


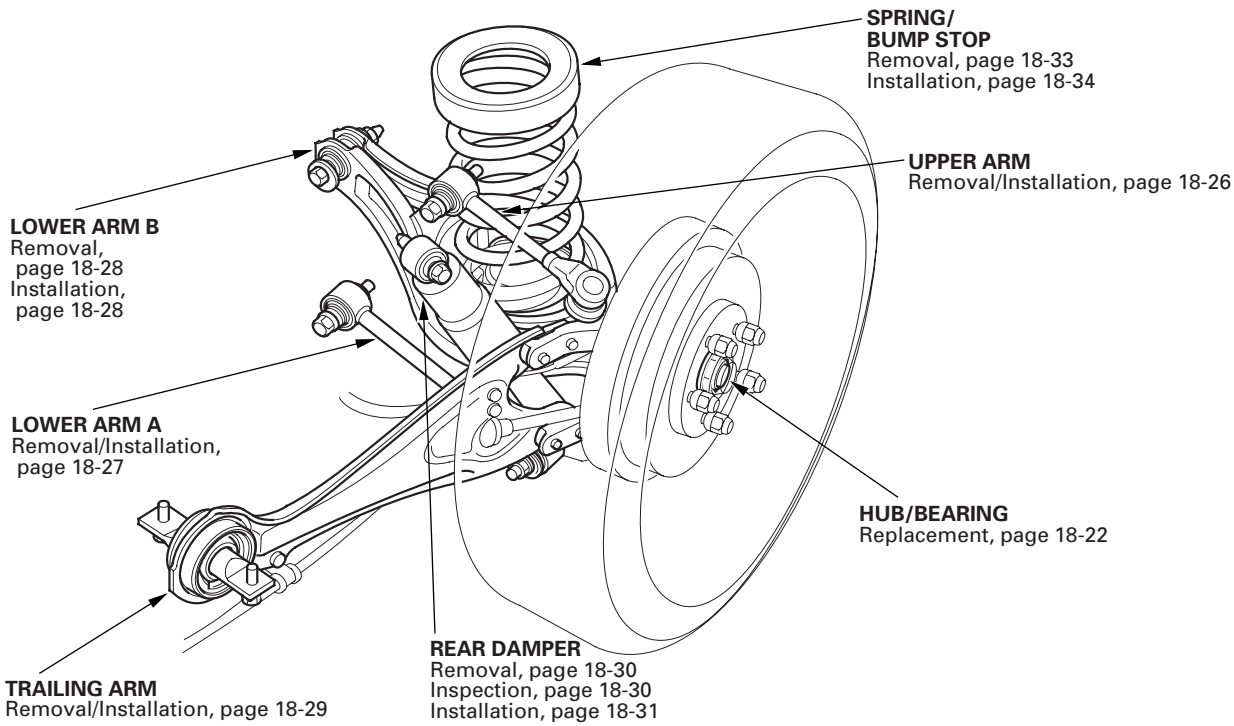
⑧

Component Location Index

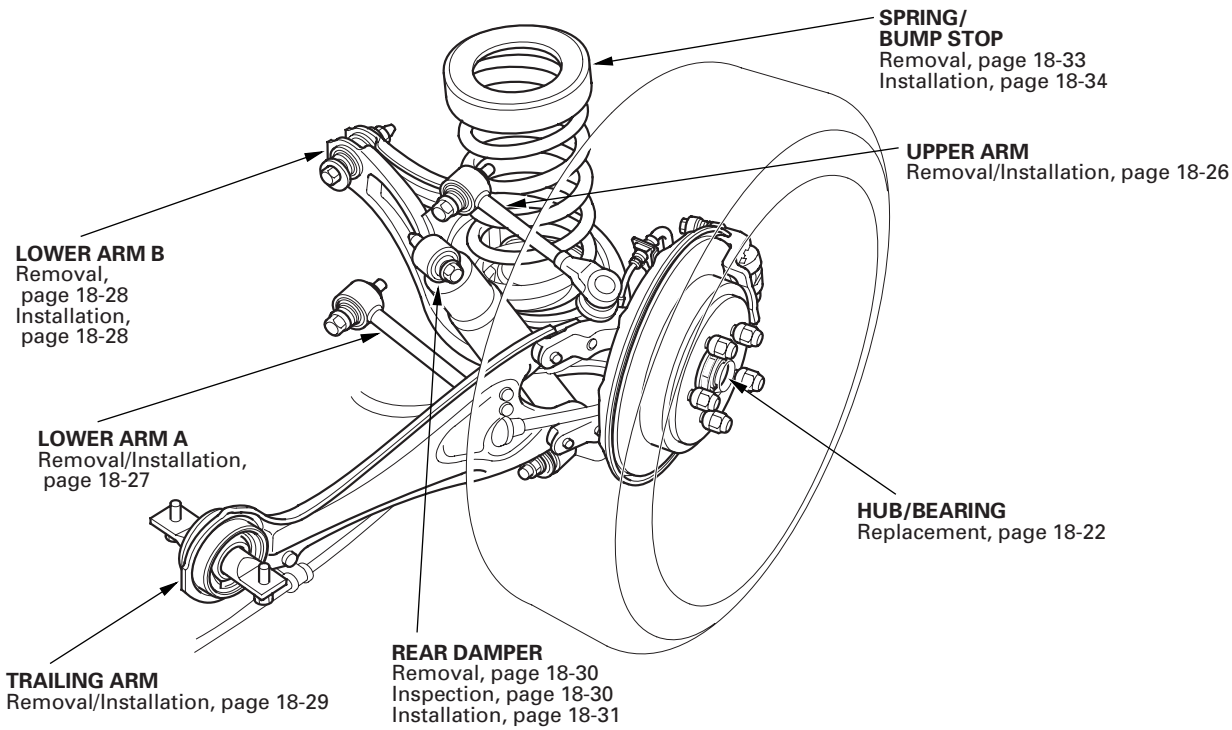


Component Location Index (cont'd)

REAR DRUM BRAKE TYPE: '99-01 models



REAR DISC BRAKE TYPE: '02-04 models

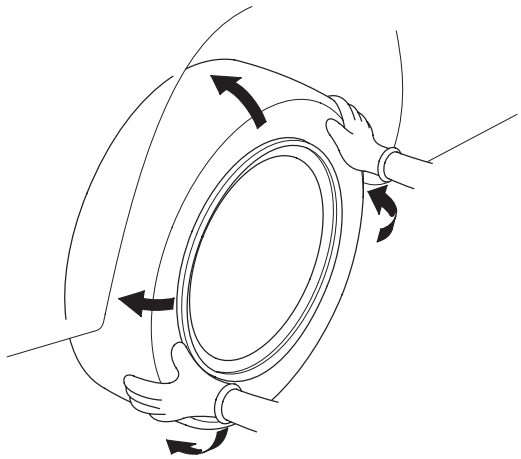


Wheel Alignment

Front Caster Inspection

For proper inspection/adjustment of the wheel alignment, check and adjust the following before checking the alignment:

- Check that the suspension is not modified.
- Check the tire size and tire pressure.
- Check the runout of the wheels and tires.
- Check the suspension ball joints. (Hold a wheel with your hands, and move it up and down and right and left to check for wobbling.)



Use commercially-available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Check the caster angle.

   Caster angle: 2° 07′ ±1°

2. If out of specification, check for bent or damaged suspension components.

Front Camber Inspection

Use commercially-available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Check the camber angle.

   Camber angle:
   Front: 0° 00′ ±1°
   Rear: −0° 30′ ±45′

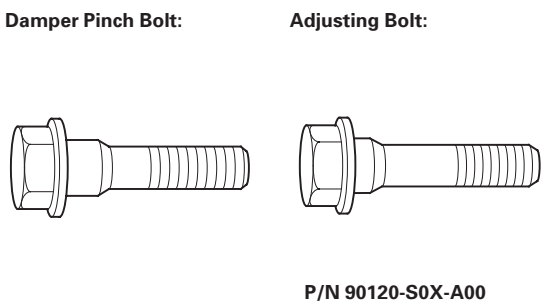
2. If out of specification, record the camber reading, then adjust the camber.

(cont'd)

Wheel Alignment (cont'd)

Front Camber Adjustment

The front camber can be adjusted by exchanging one or both of the damper pinch bolts with a smaller diameter adjusting bolt, P/N 90120-S0X-A00. The difference between the adjusting bolt diameter and the pinch bolt hole diameter allows for a small range of adjustment.



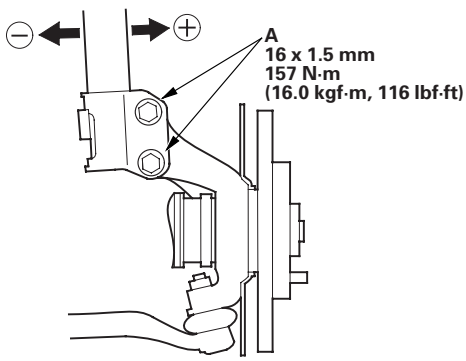
1. Measure the camber angle.

   Camber angle: 0° 00′ ±1°
   Maximum difference between the right and left side: 1° 00′

2. If the measurement is outside the specification, go to step 3, and adjust the camber angle.

3. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the front wheels.

4. Loosen the flange nuts (A), and adjust the camber by moving the bottom of the damper within the range of the damper pinch bolt free play. Tighten the flange nuts to the specified torque.



5. Reinstall the front wheels. Lower the front of the vehicle to the ground, and bounce the front of the vehicle several times to stabilize the suspension.

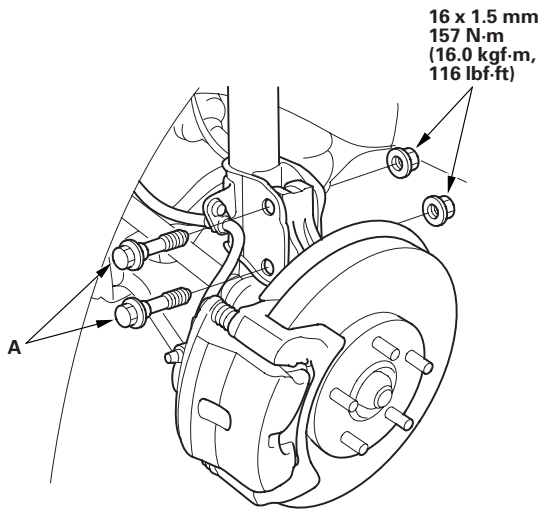
6. Measure the camber angle.

   - If the measurement is within specification, measure the toe-in.
   - If the measurement is not within specification, go to step 7.

7. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the front wheels.

8. Replace the damper pinch bolts with the adjusting bolts (A), and adjust the camber angle.

   NOTE: The camber angle can be adjusted up to ±30′ (center of tolerance) by replacing one damper pinch bolt with the adjusting bolt. The camber angle can be adjusted up to 1° 00′ by replacing both damper pinch bolts with the adjusting bolts.



9. Tighten the flange nuts to the specified torque values.

10. Install the front wheels, and torque the wheel nuts to 108 N·m (11.0 kgf·m, 79.6 lbf·ft).

11. Lower the vehicle to the ground, and bounce the front of the vehicle several times to stabilize the suspension.

12. Measure the camber angle. If the camber angle is not within specification, repeat steps 8 through 12 to readjust the camber angle. If the camber measurement is correct, measure toe-in, and adjust it if necessary.

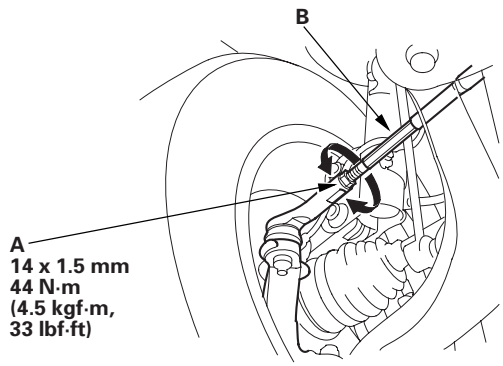
Front Toe Inspection/Adjustment

Use commercially-available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Check the tire pressure.
2. Center the steering wheel spokes.
3. Check the toe with the wheels pointed straight ahead.

   Front toe: 0±2 mm (0±1/16 in.)

   - If adjustment is required, go to step 4.
   - If no adjustment is required, remove the alignment equipment.
4. Loosen the tie-rod locknuts (A), and turn both tie-rods (B) in the same direction until the front wheels are pointing straight ahead.



5. Turn both tie-rods equally until the toe reading on the turning radius gauge is correct.
6. After adjusting, tighten the tie-rod locknuts. Reposition the tie-rod boot if it is twisted or displaced.

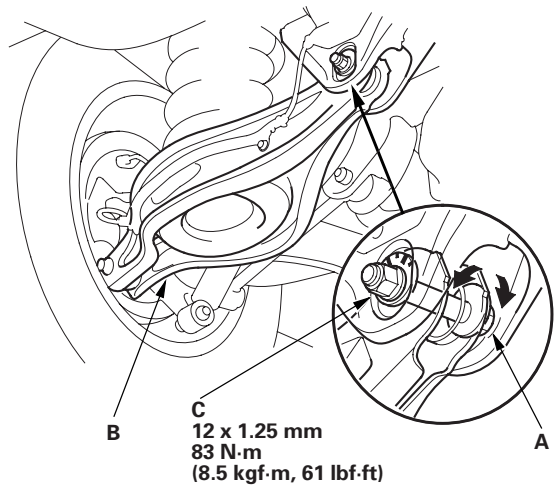
Rear Toe Inspection/Adjustment

Use commercially-available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Release the parking brake to avoid an incorrect measurement.
2. Check the toe.

   Rear toe: 0±2 mm (0±1/16 in.)

   - If adjustment is required, go to step 3.
   - If no adjustment is required, remove the alignment equipment.
3. Hold the adjusting bolt (A) on the rear lower arm B, and loosen the self-locking nut (C).



4. Adjust the rear toe by turning the adjusting bolt until the toe is correct.
5. Install the self-locking nut, and tighten it while holding the adjusting bolt.

(cont'd)

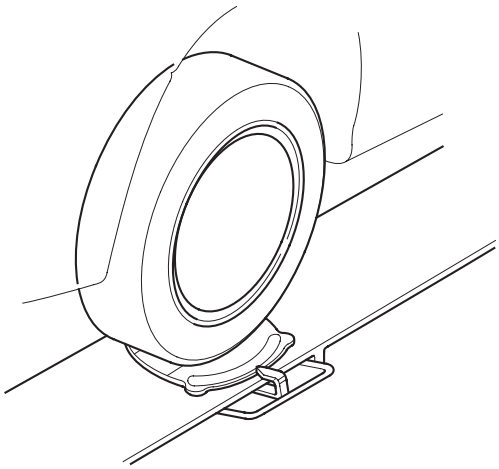
Wheel Alignment (cont'd)

Turning Angle Inspection

Use commercially-available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Turn the wheel right and left while applying the brake, and measure the turning angle of both wheels.

   Turning angle:
   Inward wheel: 41° 46′ ±2°
   Outward wheel: 33° 28′ (Reference)



2. If the turning angle is not within the specifications, check for bent or damaged suspension components.

Wheel Bearing End Play Inspection

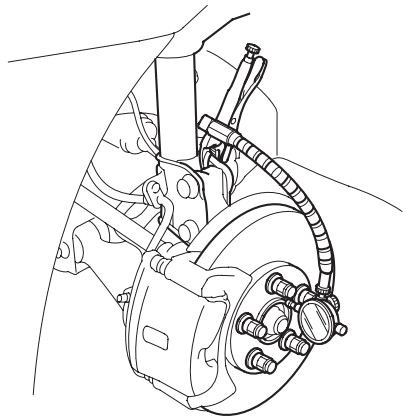
1. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-15).

2. Remove the wheels, then reinstall the wheel nuts.

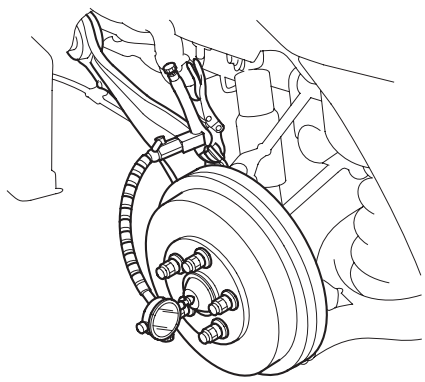
3. Attach the dial gauge. On the front, place the dial gauge against the hub flange. On the rear, place the dial gauge against the center of the hub cap.

   Front/Rear:
   Standard: 0 − 0.05 mm (0 − 0.002 in.)

   Front:



   Rear:



4. Measure the bearing end play by moving the disc or drum inward or outward.

5. If the bearing end play measurement is more than the standard, replace the wheel bearing.

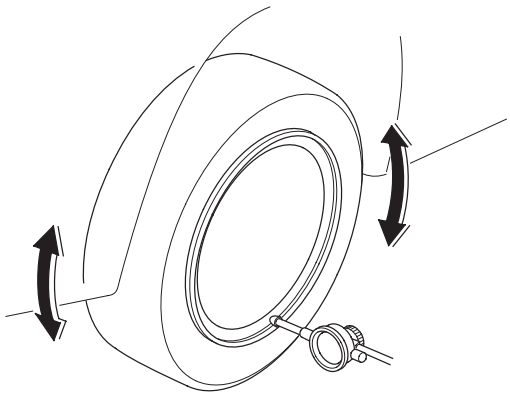
Wheel Runout Inspection

1. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-15).

2. Check for bent or deformed wheels.

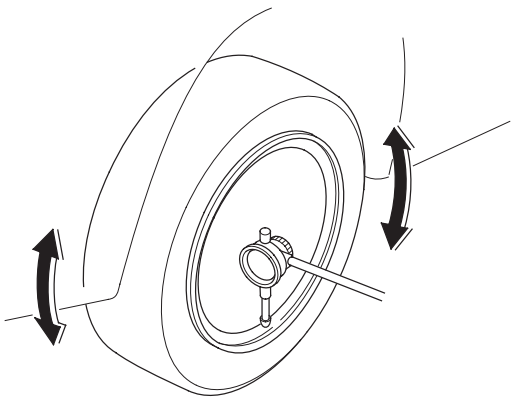
3. Set up the dial gauge as shown, and measure axial runout by turning the wheel.

   Front and Rear Wheel Axial Runout:
   Standard:
   Steel Wheel: 0—1.0 mm (0—0.04 in.)
   Aluminum Wheel: 0—0.7 mm (0—0.03 in.)
   Service Limit: 2.0 mm (0.08 in.)



4. Readjust the dial gauge to the position shown, and measure radial runout.

   Front and Rear Wheel Radial Runout:
   Standard:
   Steel Wheel: 0—1.0 mm (0—0.04 in.)
   Aluminum Wheel: 0—0.7 mm (0—0.03 in.)
   Service Limit: 1.5 mm (0.06 in.)

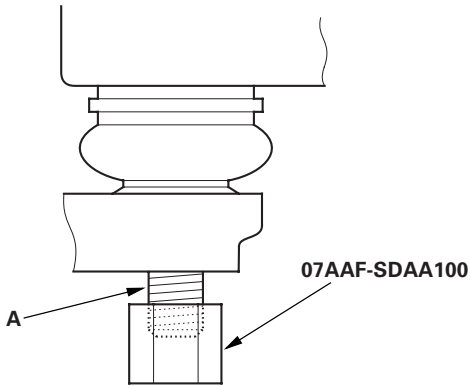


5. If the wheel runout is more than the service limit, replace the wheel.

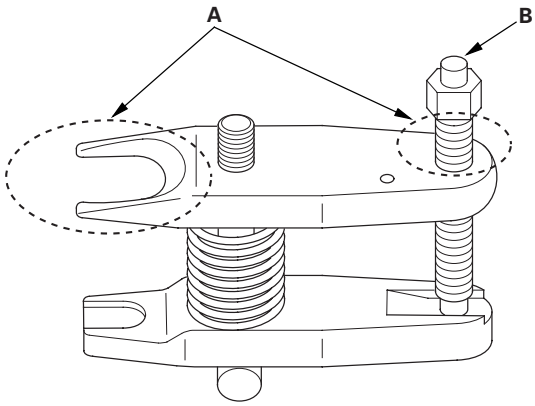
Ball Joint Removal

Special Tools Required
- Ball joint thread protector, 12 mm 07AAF-SDAA100
- Ball joint remover, 28 mm 07MAC-SL00200

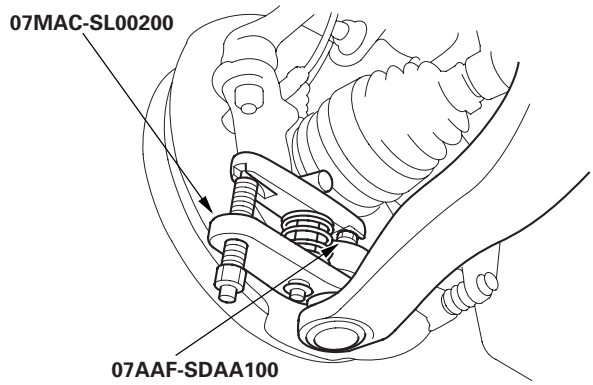
1. Install the special tool nut onto the threads of the ball joint (A). To prevent damage to the threaded end of the ball joint.



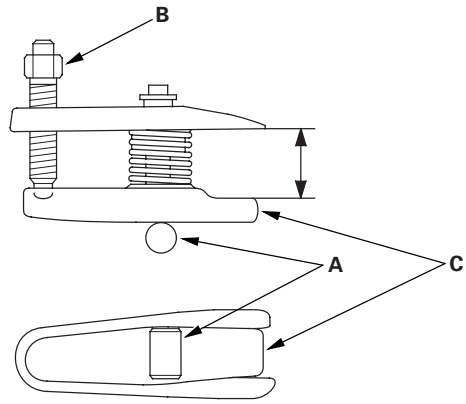
2. Apply grease (A) to the special tool on the areas shown. This will ease installation of the tool and prevent damage to the pressure bolt (B) threads.



3. Install the special tool as shown. Insert the jaws carefully, making sure you do not damage the ball joint boot. Adjust the jaw spacing by turning the pressure bolt.



4. Once the special tool is in place, turn the adjusting bolt (A) as necessary to make the jaws parallel. Then hand-tighten the pressure bolt (B), and recheck the jaws to make sure they are still parallel.



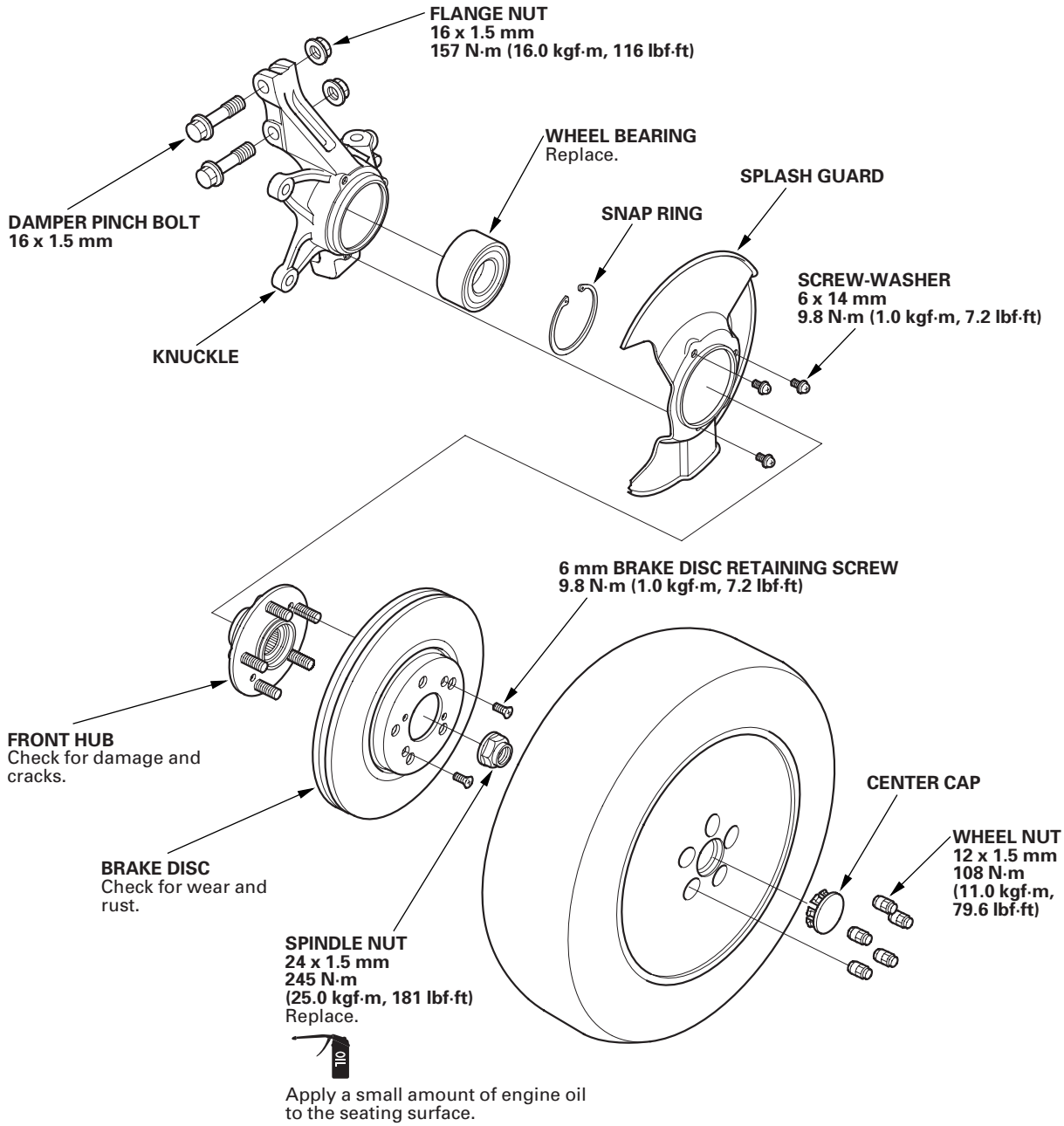
5. After making the adjustment to the adjusting bolt, make sure the head of the adjusting bolt is in this position to the allow the jaw (C) to pivot.

6. With a wrench, tighten the pressure bolt until the ball joint shaft pops loose from the steering suspension arm. If necessary, apply penetrating type lubricant to loosen the ball joint.

7. Remove the tool, then remove the ball joint thread protector from the end of the ball joint, and pull the ball joint out of the steering/suspension arm. Inspect the ball joint boot, and replace it if damaged.

Knuckle/Hub Replacement

Exploded View



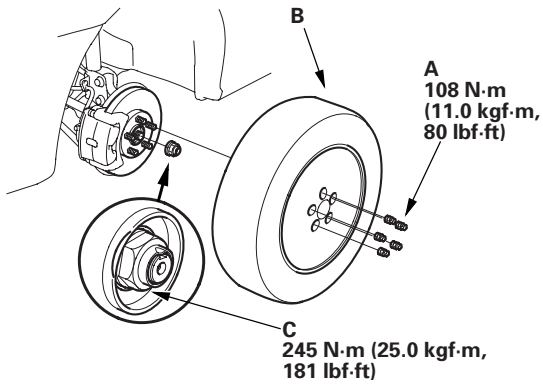
(cont'd)

Knuckle/Hub Replacement (cont'd)

Special Tools Required
- Ball joint remover, 28 mm 07MAC-SL00200
- Hub dis/assembly tool 07GAF-SE00100
- Attachment, 62 x 68 mm 07746-0010500
- Driver 07749-0010000
- Support base 07965-SD90100
- Attachment, 96 mm 07948-SB00101

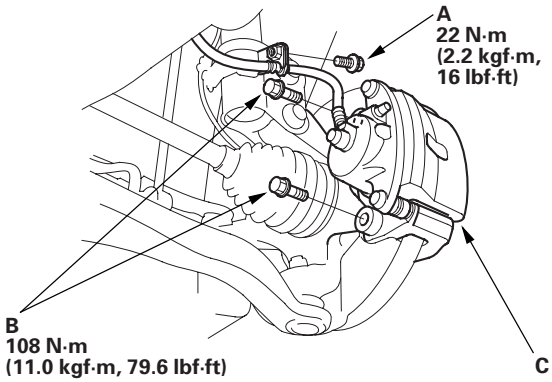
1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-15).

2. Remove the wheel nuts (A) and front wheel (B).



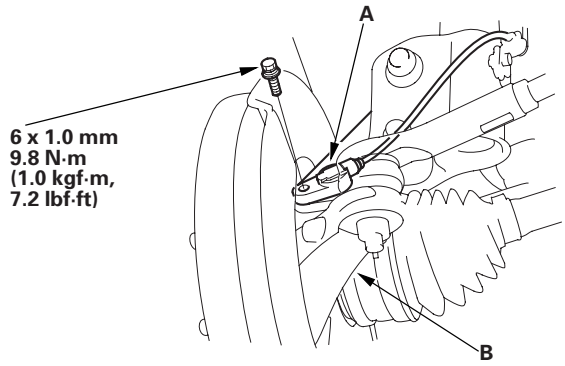
3. Raise the locking tab on the spindle nut (C), then remove the nut.

4. Remove the brake hose mounting bolt (A).

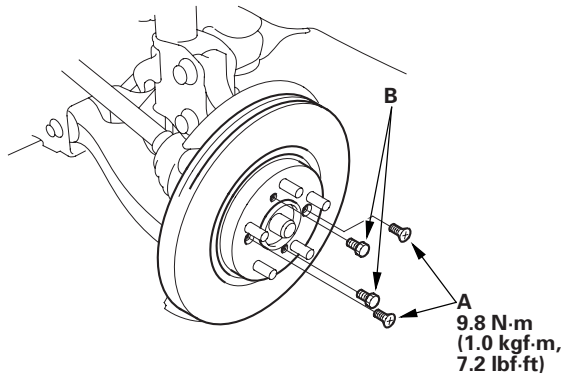


5. Remove the caliper mounting bolts (B), and hang the caliper assembly (C) to one side. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper from the undercarriage.

6. Remove the wheel sensor (A) from the knuckle (B). Do not disconnect the wheel sensor connector.



7. Remove the 6 mm brake disc retaining screws (A).

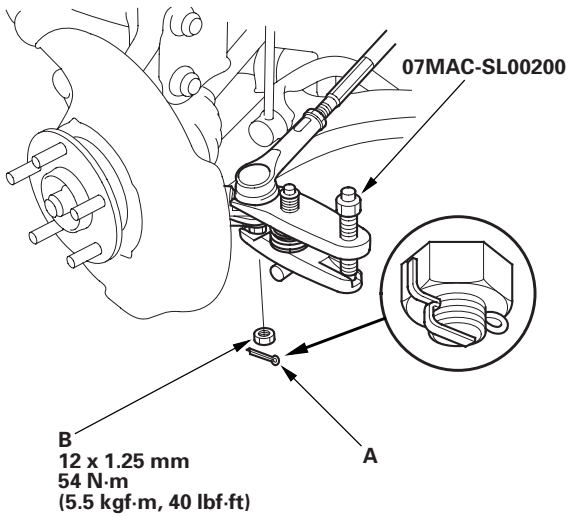


8. Screw two 8 x 1.25 mm bolts (B) into the disc to push it away from the hub. Turn each bolt two turns at a time to prevent cocking the disc excessively.

9. Remove the brake disc from the knuckle.

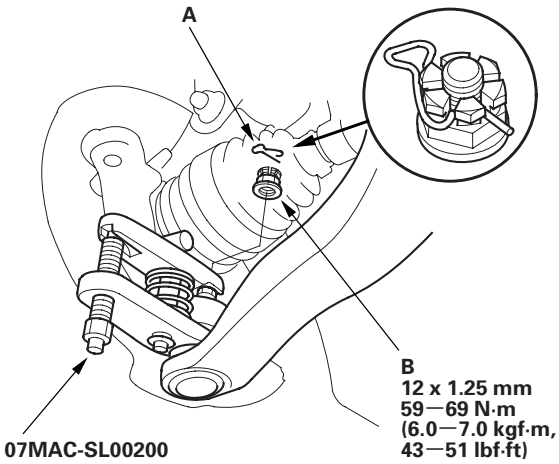
10. Check the front hub for damage and cracks.

11. Remove the cotter pin (A) from the tie-rod end ball joint, then loosen the nut (B).



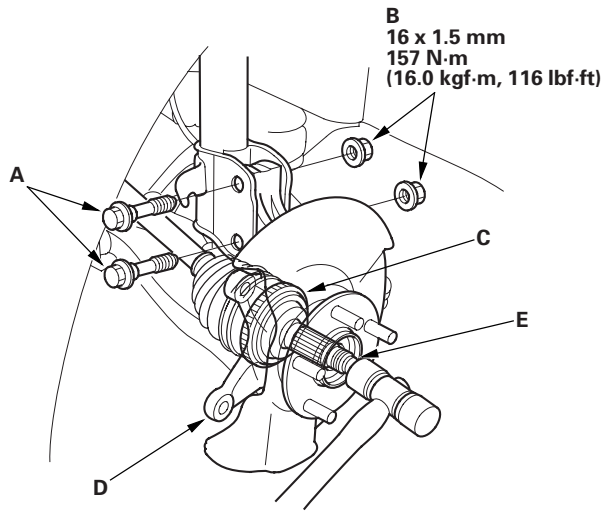
12. Remove the tie-rod ball joint from the knuckle using the special tool (see page 18-10).

13. Remove the lock pin (A) from the lower arm ball joint castle nut (B), and remove the nut.



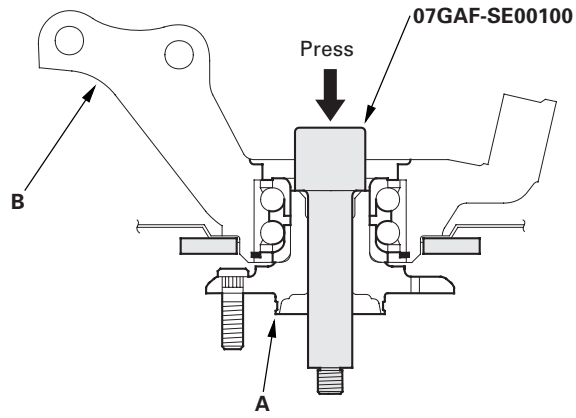
14. Remove the lower ball joint from the knuckle using the special tool (see page 18-10).

15. Remove the damper pinch bolts (A) and flange nuts (B) from the damper.



16. Pull the knuckle outward, and remove the driveshaft outboard joint (C) from the knuckle (D) by tapping the driveshaft end (E) with a plastic hammer, then remove the knuckle.

17. Separate the hub (A) from the knuckle (B) using the special tool and a hydraulic press. Be careful not to distort the splash guard. Hold onto the hub to keep it from falling when pressed clear.



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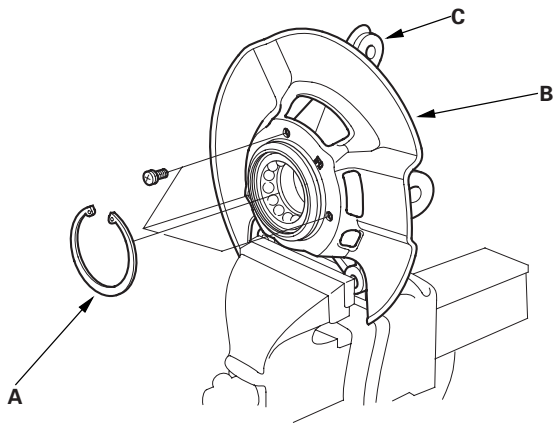
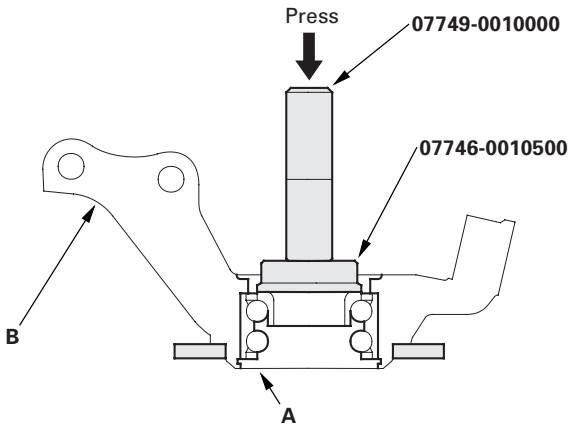
Knuckle/Hub Replacement (cont'd)

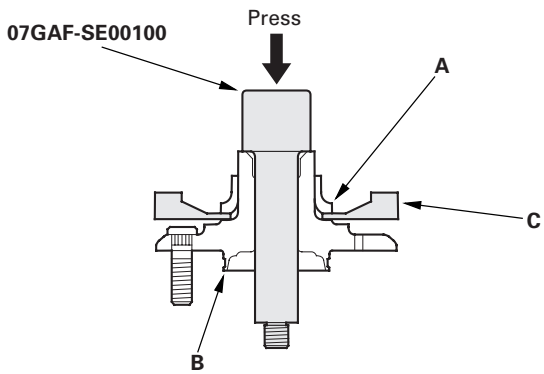
18. Remove the snap ring (A) and the splash guard (B) from the knuckle (C).



19. Press the wheel bearing (A) out of the knuckle (B) using the special tools and a press.

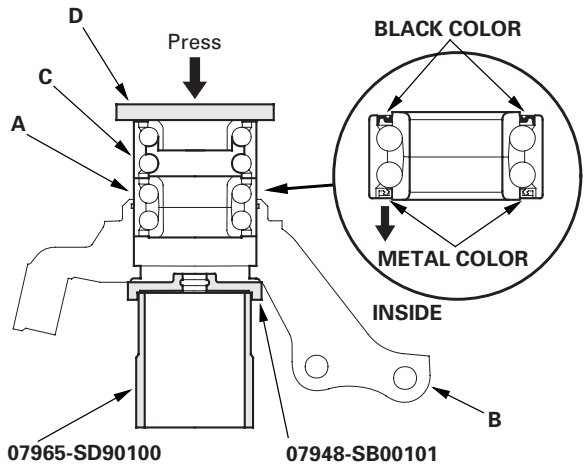


20. Press the wheel bearing inner race (A) from the hub (B) using the special tool, a commercially available bearing separator (C), and a press.

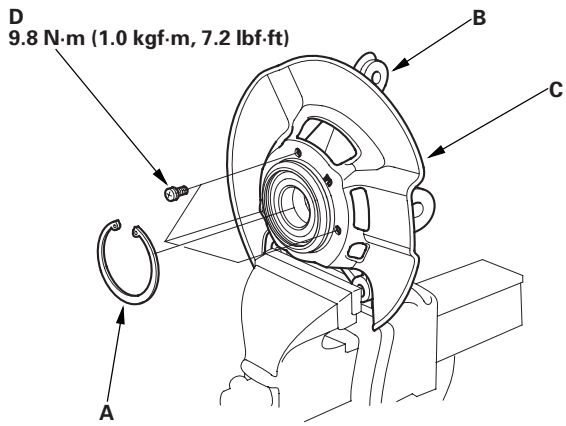


21. Wash the knuckle and hub thoroughly in high flash point solvent before reassembly.

22. Press a new wheel bearing (A) into the knuckle (B) using the old bearing (C), a steel plate (D), the special tool, and a press. Place the wheel bearing on the knuckle with the pack seal side facing (metal color) toward the inside. Be careful not to damage the sleeve of the pack seal.

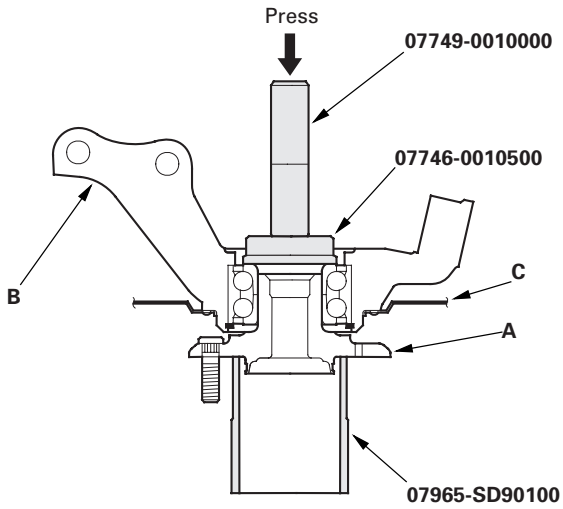


23. Install the snap ring (A) securely in the knuckle (B).



24. Install the splash guard (C), and tighten the screws (D).

25. Install the hub (A) onto the knuckle (B) using the special tools shown and a hydraulic press. Be careful not to distort the splash guard (C).



26. Install the knuckle in the reverse order of removal, and pay particular attention to the following items:

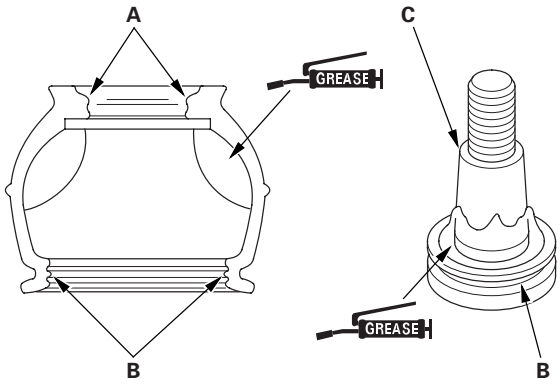
- Be careful not to damage the ball joint boots when installing the knuckle.
- Torque all mounting hardware to the specified torque values.
- Torque the castle nuts to the lower torque specifications, then tighten them only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
- Install new lock pins on the castle nuts after torquing.
- Raise the locking tab on the spindle nut, then remove the nut.
- Before installing the brake disc, clean the mating surface of the front hub and the inside of the brake disc.
- Before installing the new spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the driveshaft.
- Before installing the wheel, clean the mating surface of the brake disc and the inside of the wheel.
- Check the front wheel alignment, and adjust it if necessary (see page 18-5).

Ball Joint Boot Replacement

Special Tools Required
Ball joint boot clip guide 07974-SA50700

1. Remove the boot clip and the boot.

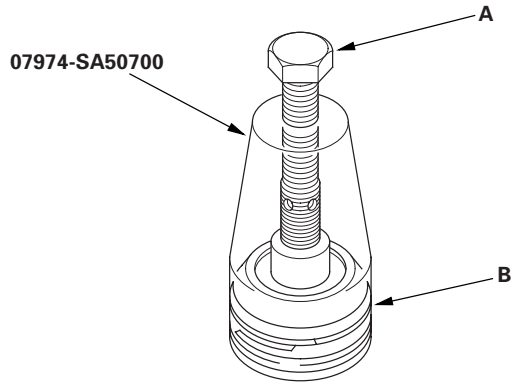
2. Pack the interior of the boot and lip (A) with grease. Do not contaminate the lower collar of the boot (B) with grease.



3. Wipe the grease off the tapered portion of the shaft (C), and pack fresh grease into the base. Do not let dirt or other foreign materials get into the boot.

4. Install the boot onto the ball joint, then squeeze it gently to force out any air.

5. For a lower ball joint, adjust the special tool with the adjusting bolt (A) until its base is just above the groove around the bottom of the boot. Then slide the clip (B) over the tool and into position on the boot.



6. For an upper ball joint, just hold the tool over the joint, then slide the clip over the tool and into position on the boot.

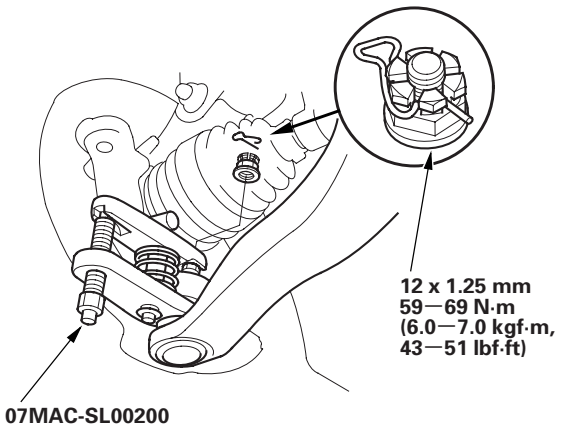
7. After installing a boot, wipe any grease off the exposed portion of the ball joint shaft.

Lower Arm Removal/Installation

Special Tools Required
Ball joint remover, 28 mm 07MAC-SL00200

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-15).

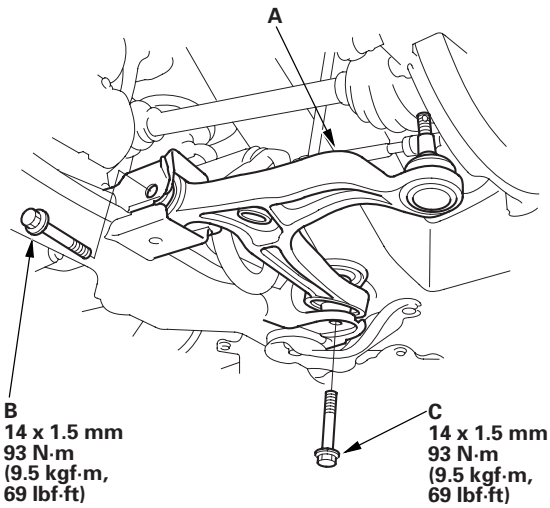
2. Remove the lock pin from the lower arm ball joint castle nut, and remove the nut.



3. Remove the lower ball joint from the knuckle using the special tool (see page 18-10).

4. Remove the lower arm (A).

   1. Remove the lower arm mounting bolt (B).
   2. Remove the lower arm mounting bolt (C).
   3. Remove the lower arm from the rear beam.

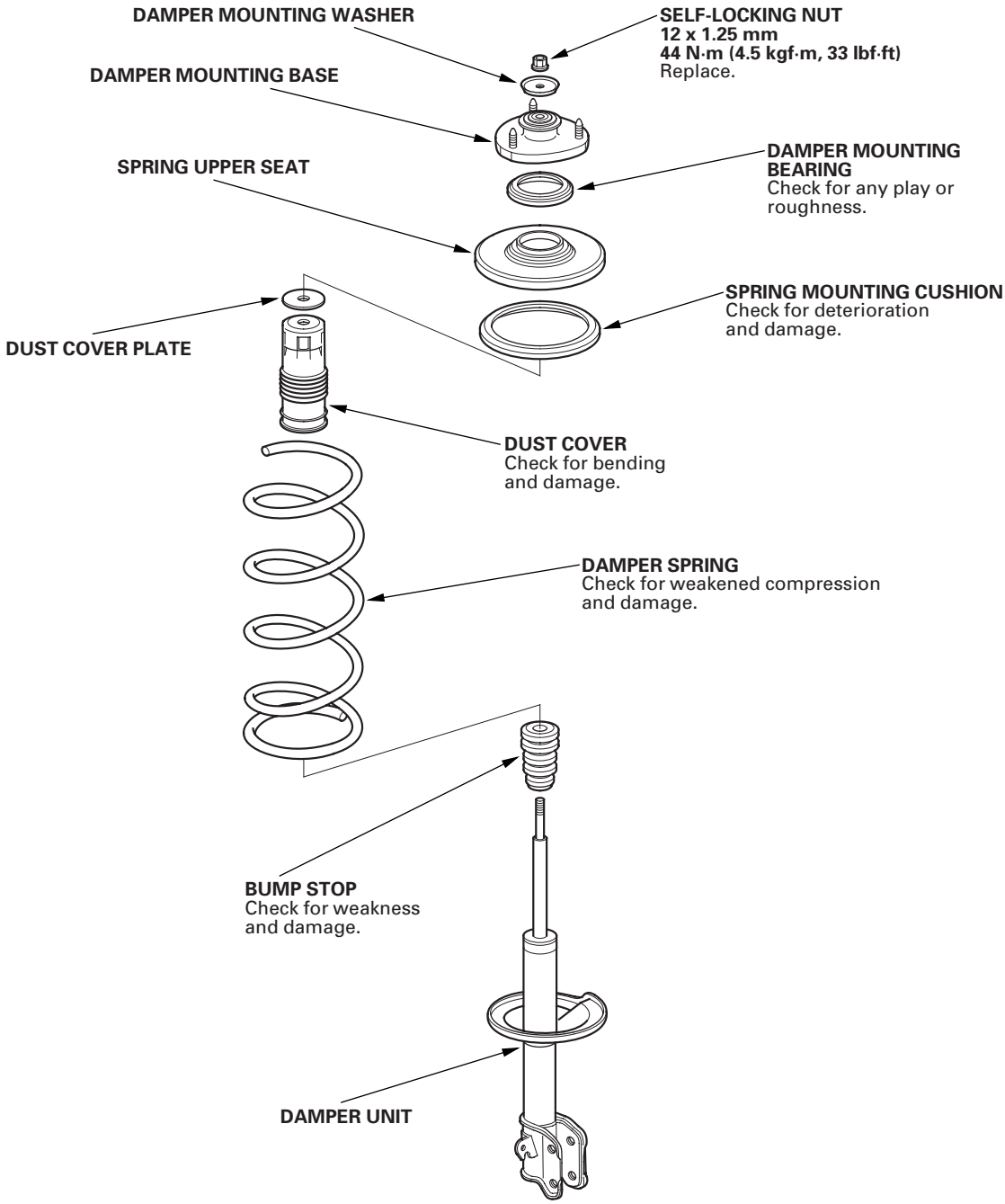


5. Install the lower arm in the reverse order of removal, and note these items:

   - Be careful not to damage the ball joint boot when connecting the lower arm to the knuckle.
   - Place a jack under the lower arm, and raise the lower arm to load the suspension with the vehicle's weight.
   - Tighten all mounting hardware to the specified torque values.
   - Tighten the castle nut to the lower torque value, then tighten it only far enough to align the slot with the hole in the stud. Do not align the castle nut by loosening it.
   - Use a new lock pin on the castle nut.
   - Before installing the wheel, clean the mating surfaces on the brake disc and the inside of the wheel.
   - Check the front wheel alignment, and adjust it if necessary (see page 18-5).

Damper/Spring Replacement

Exploded View



Special Tools Required
Strut spring compressor, Branick MST-580A or Model 7200, or equivalent, commercially available

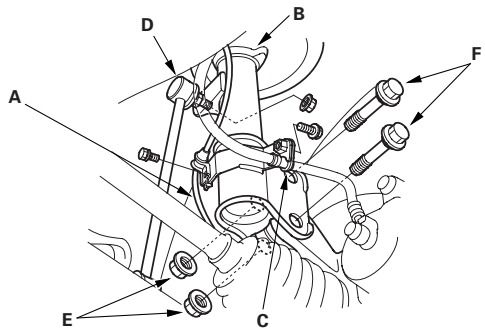
Removal

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-15).

2. Remove the front wheels.

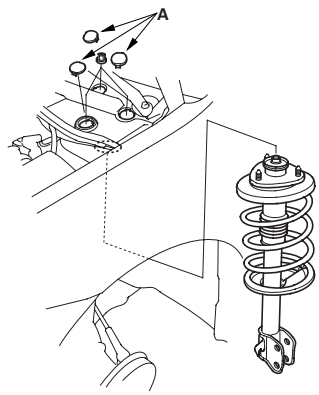
3. Remove the damper.

   –1 Remove the wheel sensor wire (A) from the damper (B). Do not disconnect the wheel sensor.
   –2 Remove the brake hose bracket (C) from the damper.
   –3 Separate the stabilizer link (D) from the damper.
   –4 Remove the flange nuts (E) and damper pinch bolts (F) from the damper.



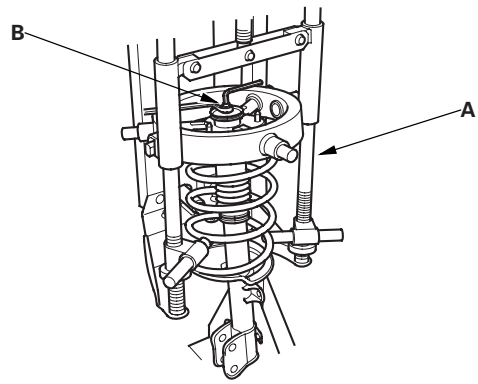
4. Remove the service caps (A), and remove the damper by removing the three flange nuts.

   NOTE: Damper springs are different, left and right. Mark the springs L and R before you continue.



Disassembly/Inspection

1. Compress the damper spring with a commercially available strut spring compressor (A) according to the manufacturer's instructions, then remove the self-locking nut (B). Do not compress the spring more than necessary to remove the nut.



2. Release the pressure from the strut spring compressor, then disassemble the damper as shown in the Exploded View.

3. Reassemble all parts, except for the spring.

4. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should move smoothly. If it does not (no compression or no extension), the gas is leaking, and the damper should be replaced.

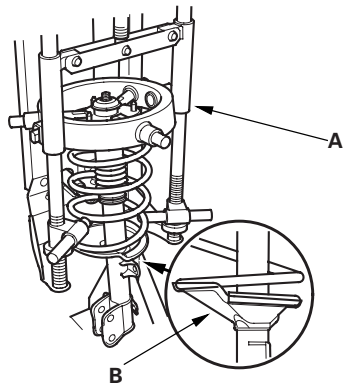
5. Check for oil leaks, abnormal noises, or binding during these tests.

(cont'd)

Damper/Spring Replacement (cont'd)

Reassembly

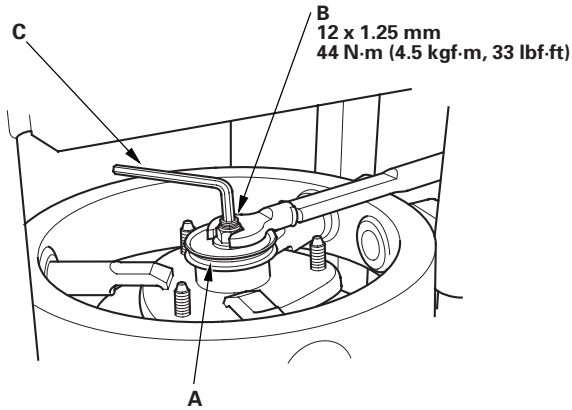
1. Install the damper unit on a commercially available strut spring compressor (A).



2. Assemble the damper in reverse order of removal except for the washer and self-locking nut. Align the bottom of the damper spring and the spring lower seat (B).

3. Compress the damper spring.

4. Install the damper mounting washer (A) and a new 12 mm self-locking nut (B).

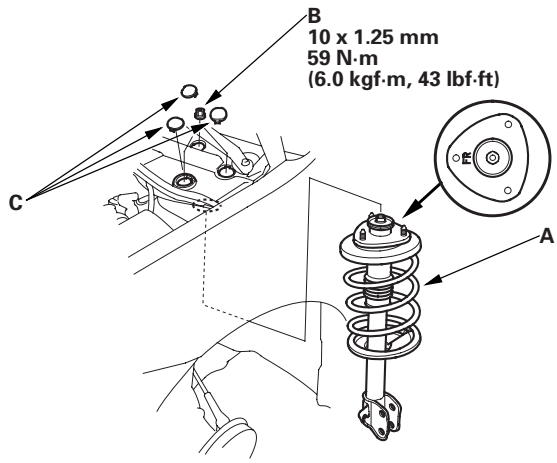


5. Hold the damper rod using a hex wrench (C), and tighten the 12 mm self-locking nut.

Installation

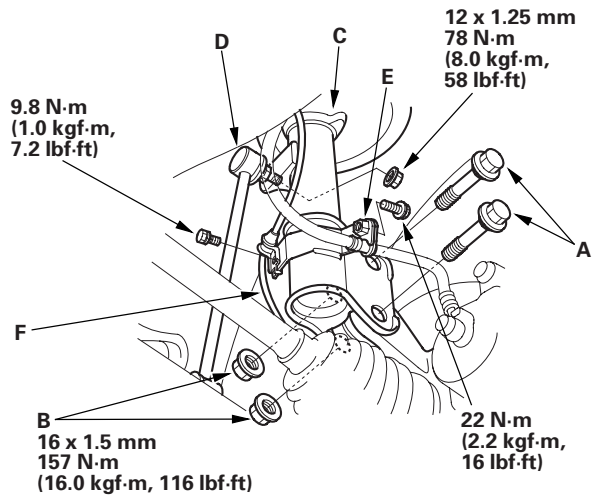
1. Loosely install the damper (A) onto the frame, then loosely install the three flange nuts (B).

   NOTE: At this stage, do not install the service cap (C).



2. Install the damper.

   –1 Loosely install the damper pinch bolts (A) and flange nuts (B) to the damper (C).
   –2 Loosely install the stabilizer link (D) to the damper.
   –3 Install the brake hose bracket (E) to the damper.
   –4 Install the wheel sensor wire (F) to the damper.



3. Raise the knuckle with a floor jack until the vehicle just lifts off the safety stands.

4. Tighten the damper pinch bolts and flange nuts.

5. Tighten the flange nuts on top of the damper to the specified torque value.

6. Install the service caps.

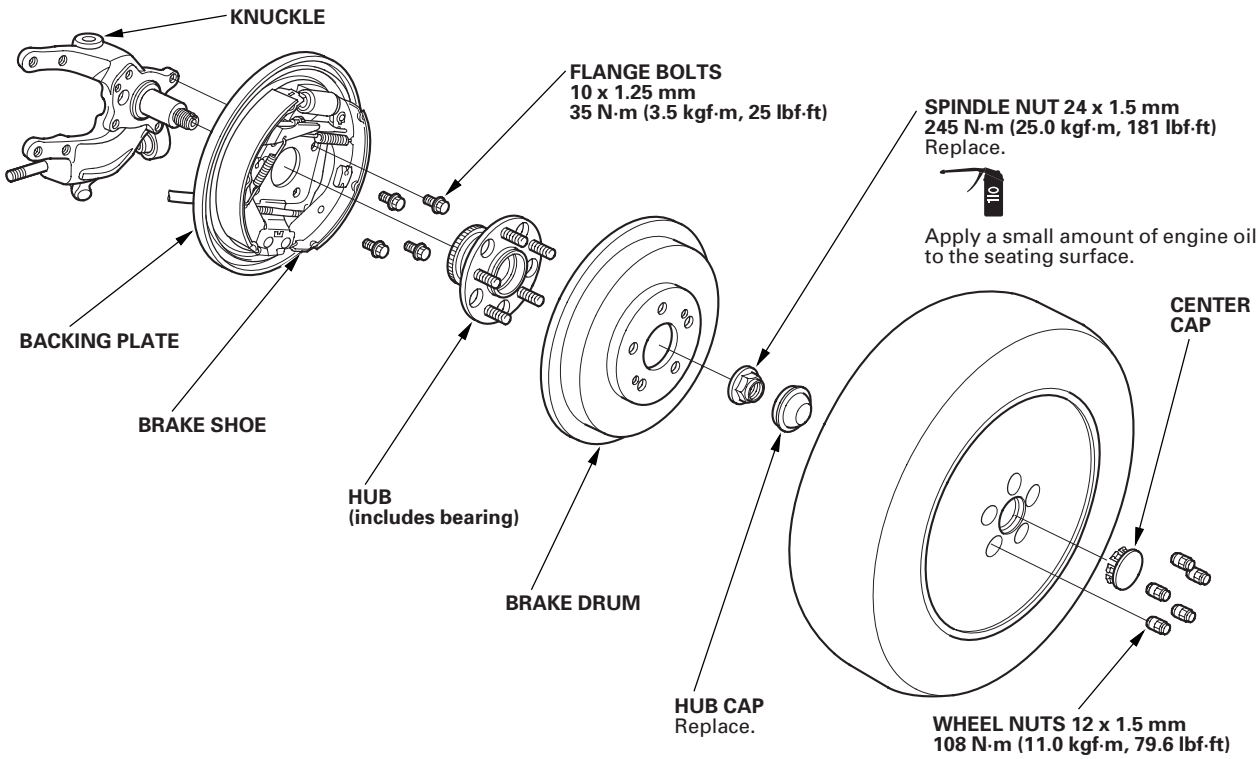
7. Install the front wheel.

8. Check the front wheel alignment, and adjust it if necessary (see page 18-5).

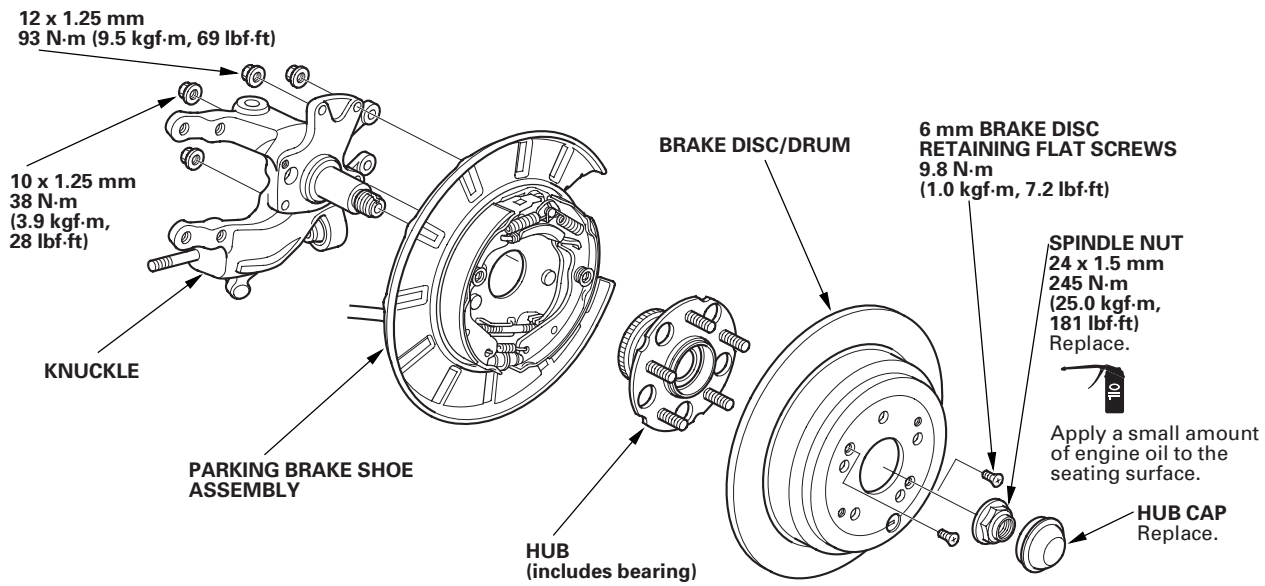
Hub/Bearing Replacement

Exploded View

REAR DRUM BRAKE TYPE: '99-01 models



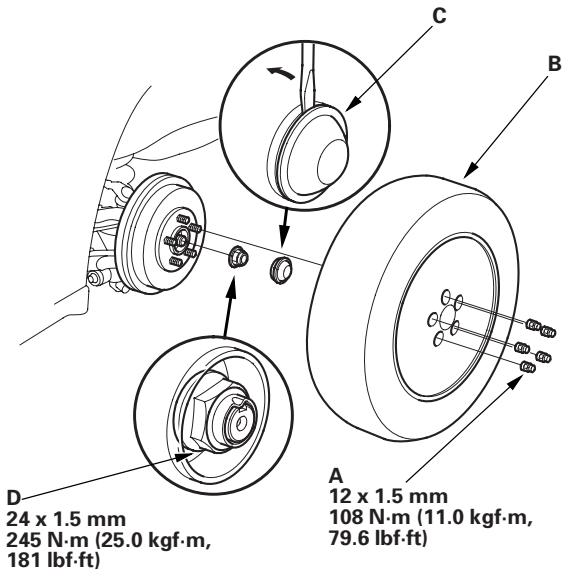
REAR DISC BRAKE TYPE: '02-04 models



REAR DRUM BRAKE TYPE: '99-01 models

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15).

2. Remove the wheel nuts (A) and rear wheel (B).



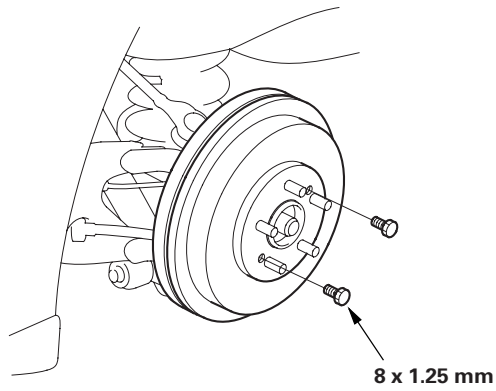
3. Press the parking brake pedal.

4. Remove the hub cap (C).

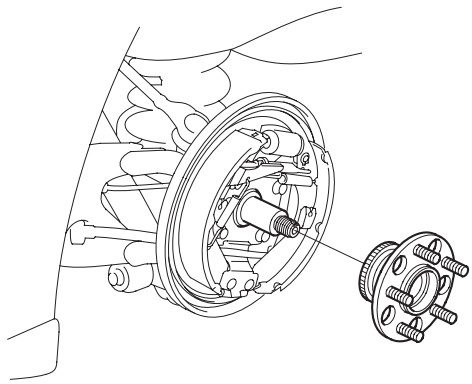
5. Raise the locking tab on the spindle nut (D), then remove the nut.

6. Release the parking brake pedal.

7. Screw two 8 x 1.25 mm bolts into the drum to push it away from the hub bearing unit. Turn each bolt two turns at a time to prevent cocking the brake drum excessively. Remove the brake drum from the hub bearing unit. If the drum does not come off easily, back off the brake adjuster one full turn (23 teeth).



8. Remove the hub bearing unit.



9. Install the hub bearing unit in the reverse order of removal, and pay particular attention to the following items:

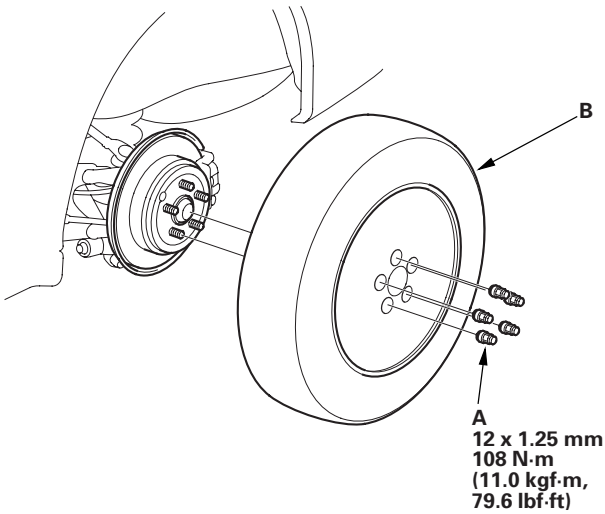
   - Wash the bearing and spindle thoroughly in high flash point solvent before reassembly.
   - Before installing the new spindle nut, apply a small amount of engine oil to the seating surface of the nut.
   - After tightening, use a drift to stake the spindle nut shoulder against the spindle.
   - Inspect the pulser teeth for any damage.

(cont'd)

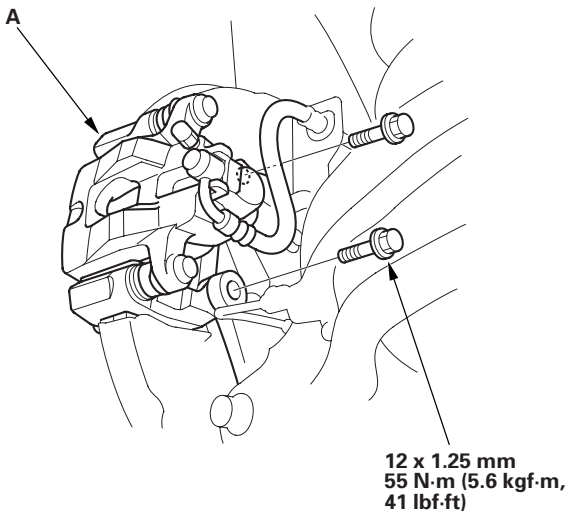
Hub/Bearing Replacement (cont'd)

REAR DISC BRAKE TYPE: '02-04 models

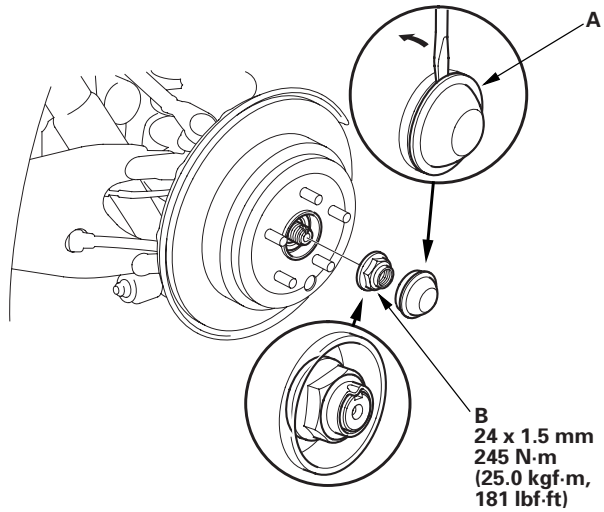
1. Loosen the wheel nuts slightly.
2. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15).
3. Remove the wheel nuts (A) and rear wheel (B).



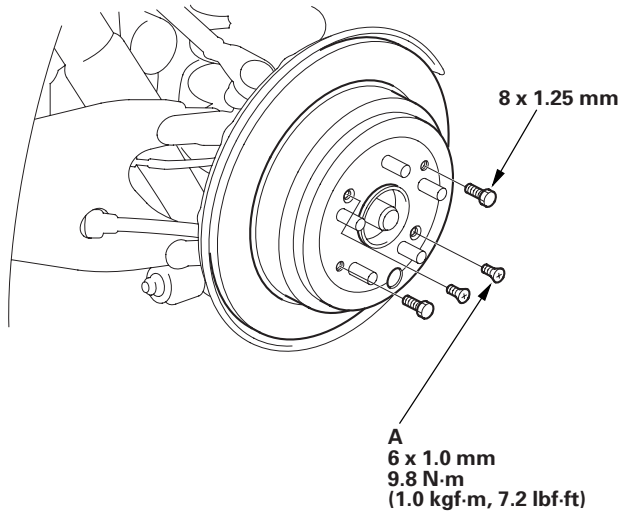
4. Remove the caliper mounting bolts, and hang the caliper assembly (A) to one side. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper from the undercarriage.



5. Press the parking brake pedal.
6. Remove the hub cap (A).

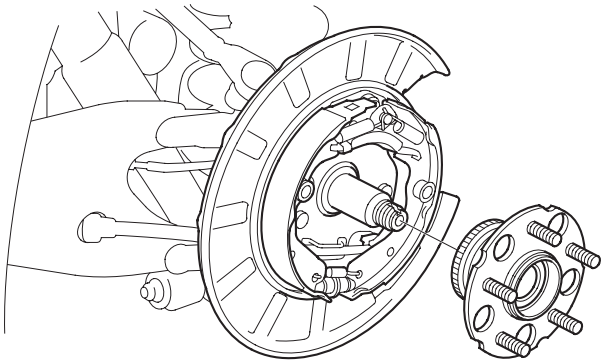


7. Raise the locking tab on the spindle nut (B), then remove the nut.
8. Remove the drum in brake disc retaining screws (A).



9. Release the parking brake pedal, and remove the drum in brake disc.
10. Screw two 8 x 1.25 mm bolts into the drum in brake disc to push it away from the hub. Turn each bolt two turns at a time to prevent cocking the drum in brake disc excessively.

11. Remove the hub bearing unit.



12. Check the rear hub for damage and cracks.

13. Install the hub bearing unit in the reverse order of removal, and pay particular attention to the following items:

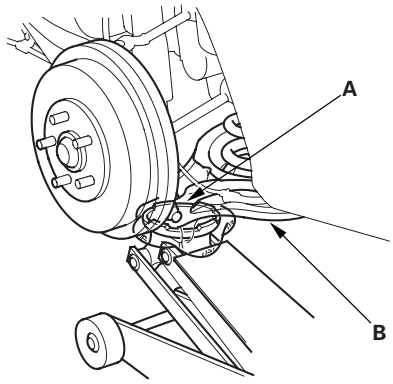
    - Wash the bearing and spindle thoroughly in high flash point solvent before reassembly.
    - Before installing the new spindle nut, apply a small amount of engine oil to the seating surface of the nut.
    - After tightening, use a drift to stake the spindle nut shoulder against the spindle.
    - Inspect the pulser teeth for any damage.

Upper Arm Removal/Installation

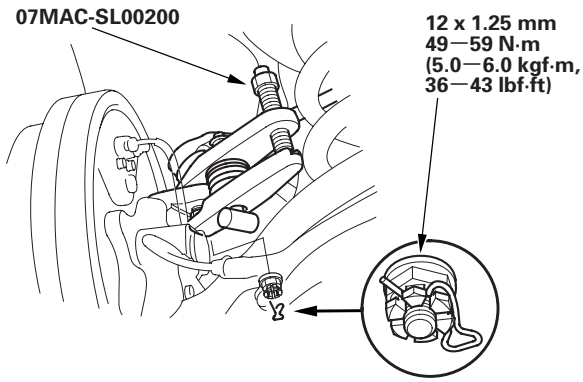
Special Tools Required
Ball joint remover, 28 mm 07MAC-SL00200

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the rear wheel.

2. Position a floor jack at the connecting point of the lower arm B and the knuckle (A).

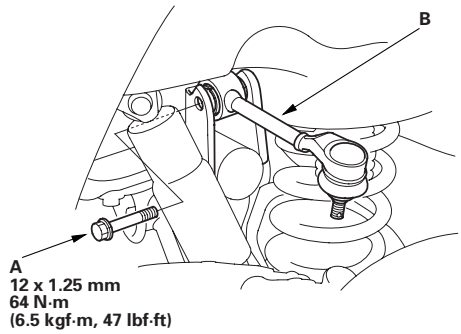


3. Remove the lock pin from the upper ball joint castle nut, and remove the nut.



4. Remove the upper ball joint from the knuckle using the special tool (see page 18-10).

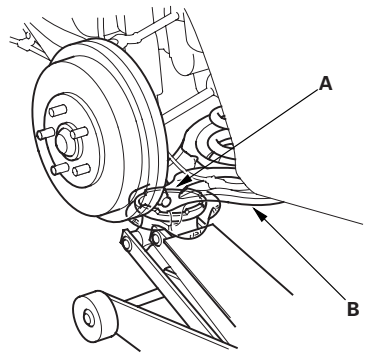
5. Remove the upper arm bolt (A). Remove the upper arm (B) from the vehicle.



6. Install the upper arm.

7. Install the upper arm bolt and castle nut. Tighten finger tight.

8. Position a floor jack at the connecting point of the lower arm B and the knuckle (A).



9. Raise the rear suspension with the floor jack until the vehicle just lifts off the safety stands.

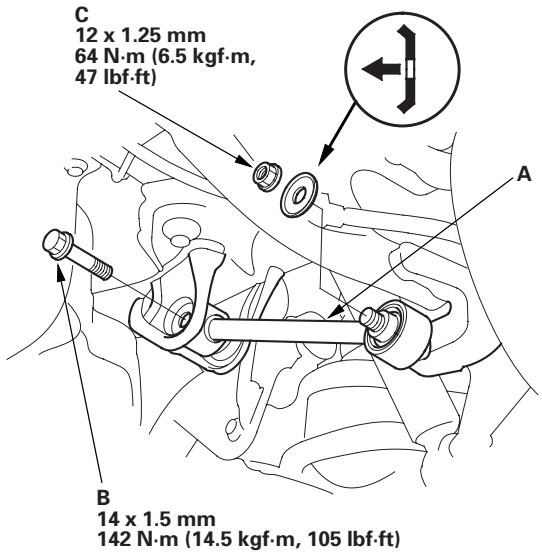
10. Tighten the upper arm bolt to the specific torque value, and note these items:

- Be careful not to damage the ball joint boot when connecting the upper arm to the knuckle.
- Tighten the castle nut to the lower torque specifications, then tighten it only far enough to align the slot with the hole in the stud. Do not align the castle nut by loosening it.
- Use a new lock pin in the castle nut.
- Before installing the wheel, clean the mating surfaces on the brake drum or the drum in brake disc and the inside of the wheel.
- Check the rear wheel alignment, and adjust it if necessary (see page 18-5).

Lower Arm A Removal/Installation

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the rear wheel.

2. Remove the lower arm A mounting bolt (B).



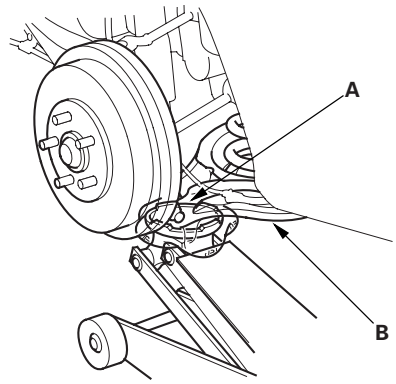
3. Remove the lower arm mounting nut (C).

4. Remove the lower arm A from the vehicle.

5. Install the lower arm A.

6. Hand tighten the mounting bolt and nut.

7. Position a floor jack at the connecting point of lower arm B and the knuckle (A).



8. Raise the rear suspension with the floor jack until the vehicle just lifts off the safety stands.

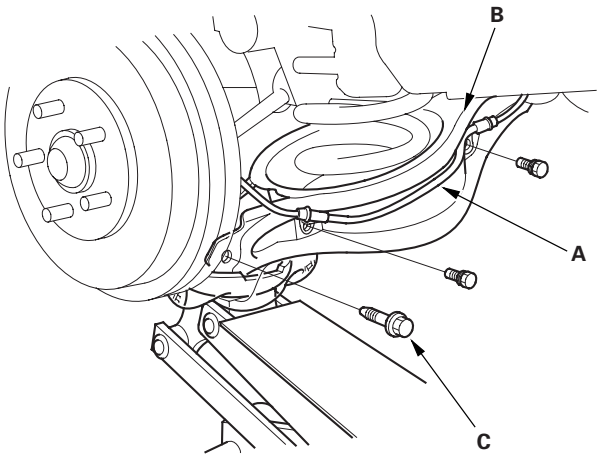
9. Tighten the mounting bolt and nut to the specified torque values, and note these items:

   - Before installing the wheel, clean the mating surfaces on the brake drum or the drum in brake disc and the inside of the wheel.
   - Check the rear wheel alignment, and adjust it if necessary (see page 18-5).

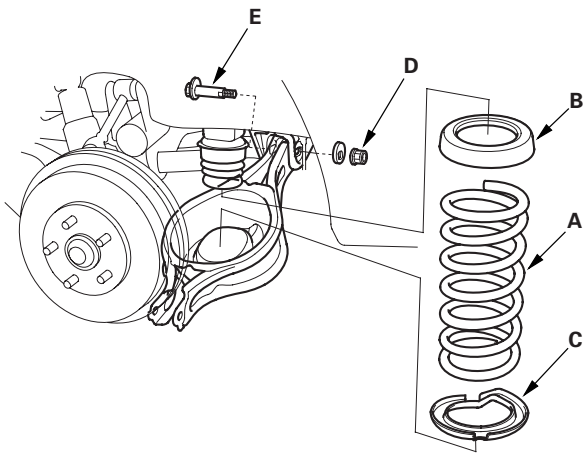
Lower Arm B Removal and Installation

Removal

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the rear wheel.
2. Position a floor jack at the connecting point of lower arm B and the knuckle.



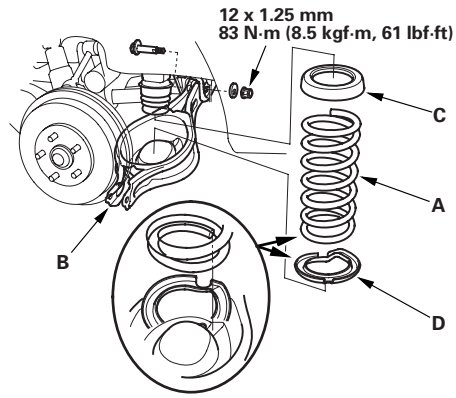
3. Remove the wheel sensor (A) from the lower arm B. Do not disconnect the wheel sensor connector.
4. Remove the flange bolt (C) that connects the lower arm B and the knuckle.
5. Lower the floor jack gradually.
6. Remove the spring (A), upper spring seat (B) and lower spring seat (C).



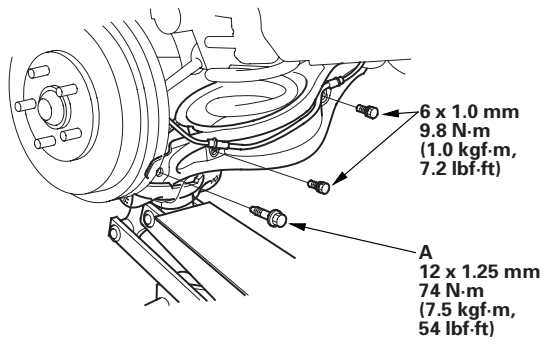
7. Remove the self-locking nut (D) and flange bolt (E).

Installation

1. Lower the rear suspension, position the lower arm B, and loosely install the self-locking nut.
2. Install the spring (A), and upper spring seat (C). Align the bottom of the spring and the lower spring seat (D) with the lower arm B as shown.



3. Position a floor jack at the connecting point of the lower arm B and the knuckle.
4. Align the bolt hole with the holes in the lower arm B and the knuckle by raising the flange bolt.
5. Raise the rear suspension with a floor jack until the vehicle just lifts off the safety stands.
6. Tighten the flange bolt (A) and self-locking nut.



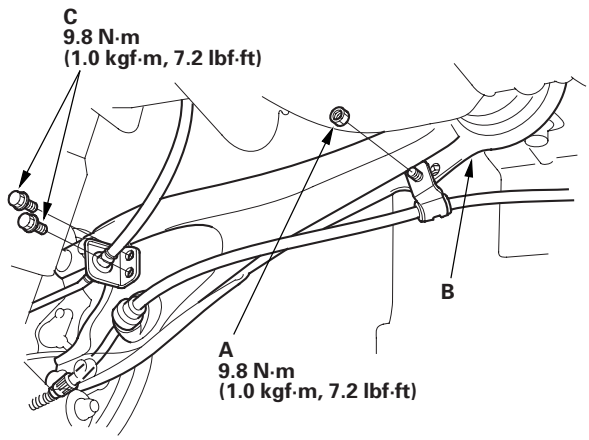
7. Install the wheel sensor.
8. Install the rear wheel.
9. Check the rear wheel alignment, and adjust it if necessary (see page 18-5).

Trailing Arm Removal/Installation

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15).

2. Remove the brake drum or brake disc/drum.
   Drum brake (see step 1 on page 18-23).
   Disc brake (see step 1 on page 18-24).

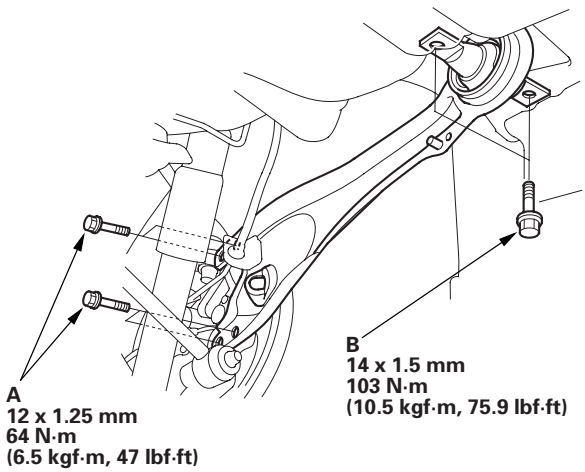
3. Remove the parking brake cable (A) from the trailing arm (B).



4. Remove the brake hose mounting bolts (C) from the trailing arm.

5. Position a floor jack at the connecting point of the lower arm and the knuckle.

6. Remove the flange bolts (A) and (B) from the trailing arm.



7. Install the trailing arm in the reverse order of removal, and note these items:

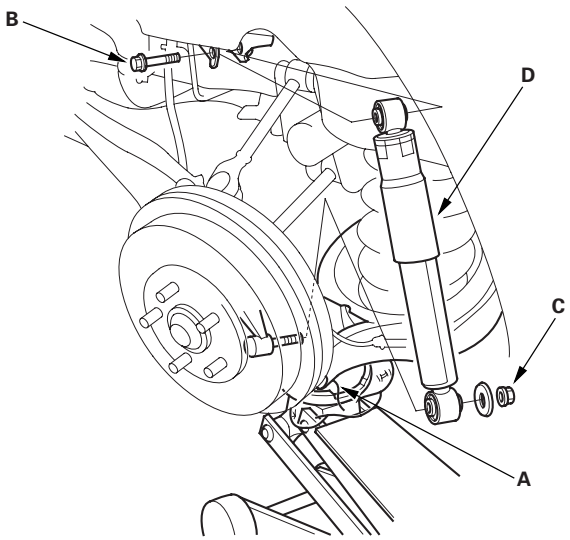
   - Tighten all mounting hardware to the specified torque values.
   - Check the brake hose and line joint for leaks, and tighten if necessary.
   - Check the brake hose for interference and twisting.
   - Before installing the wheel, clean the mating surfaces on the brake drum or the drum in brake disc and the inside of the wheel.
   - Fill up the brake reservoir, and bleed the brake system.
   - After installation, check for leaks at the line joint, and retighten if necessary. Check the rear wheel alignment, and adjust it if necessary (see page 18-5).

Damper Removal and Installation

Removal

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the rear wheel.

2. Position a floor jack at the connecting point of the lower control arm and knuckle (A). Raise the floor jack until the suspension begins to compress.



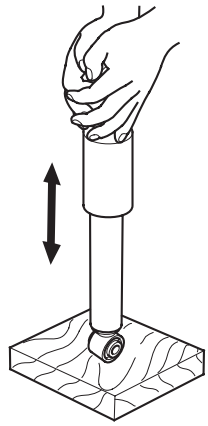
3. Remove the flange bolt (B) from the body.

4. Remove the self-locking nut (C) from the knuckle.

5. Compress the damper (D) by hand, and remove it from the vehicle.

Inspection

1. Push on the damper as shown.

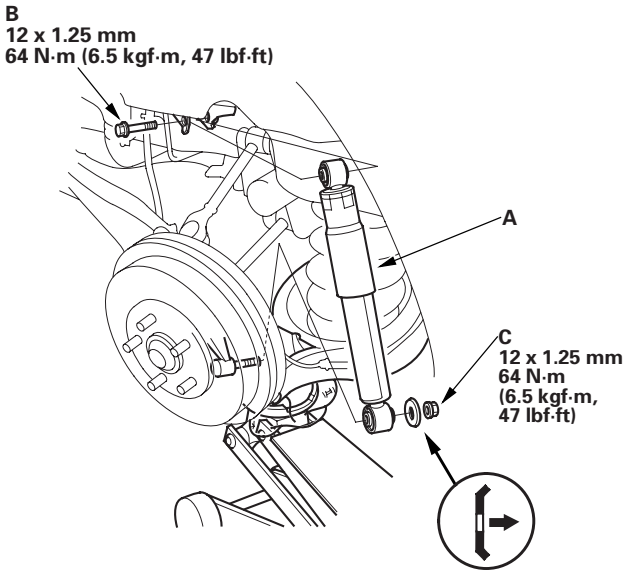


2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should move smoothly, if it does not (no compression or no extension), the gas is leaking, and the damper should be replaced.

3. Check for oil leaks, abnormal noises, or binding during these tests.

Installation

1. Lower the rear suspension. Compress the damper (A) by hand, and move it into position. Loosely install the flange bolt (B) and self-locking nut (C).



2. Raise the rear suspension with a floor jack until the vehicle just lifts off the safety stands.

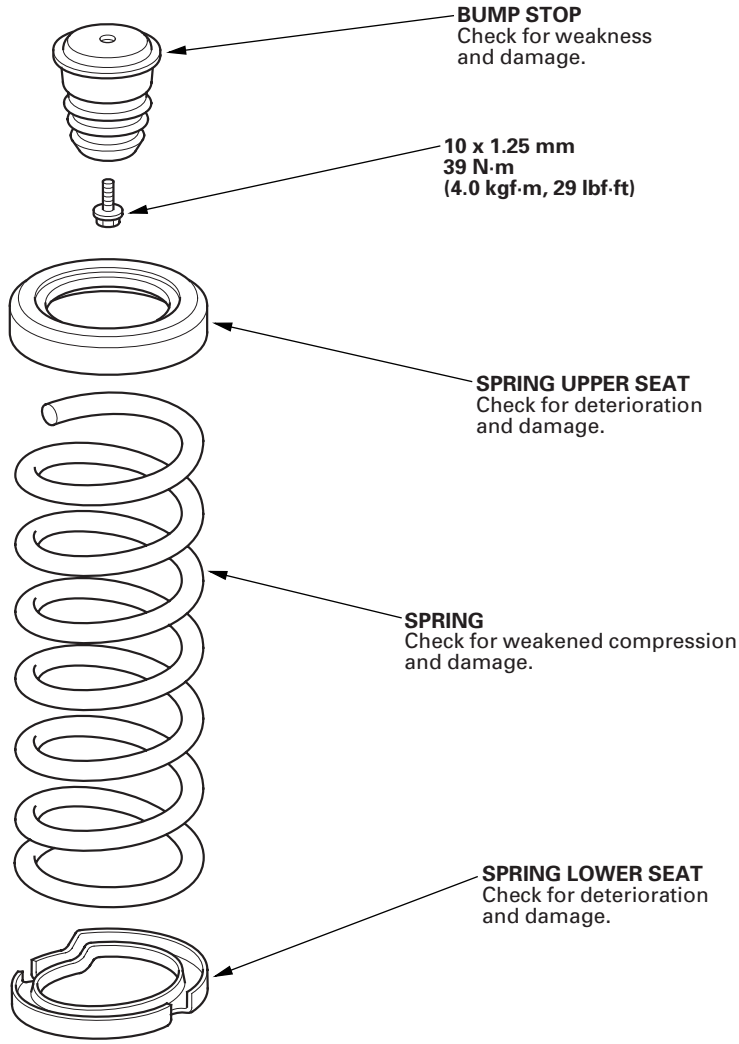
3. Tighten the flange bolt and self-locking nut on the bottom of the damper to the specified torque value.

4. Install the rear wheel.

5. Check the rear wheel alignment, and adjust it if necessary (see page 18-5).

Spring/Bump Stop Replacement

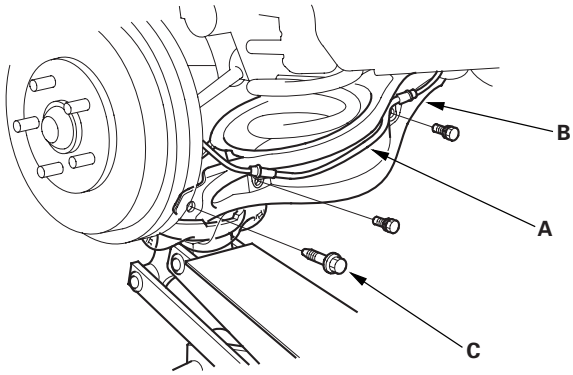
Exploded View



Removal

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the rear wheel.

2. Position a floor jack at the connecting point of the lower arm (B) and the knuckle.

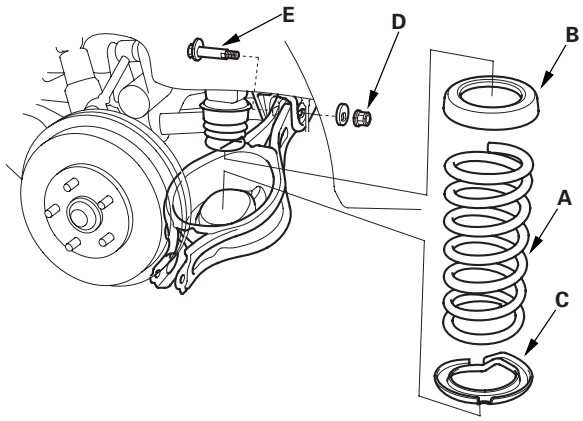


3. Remove the wheel sensor (A) from the lower arm B. Do not disconnect the wheel sensor connector.

4. Remove the flange bolt (C) that connects the lower arm B and the knuckle.

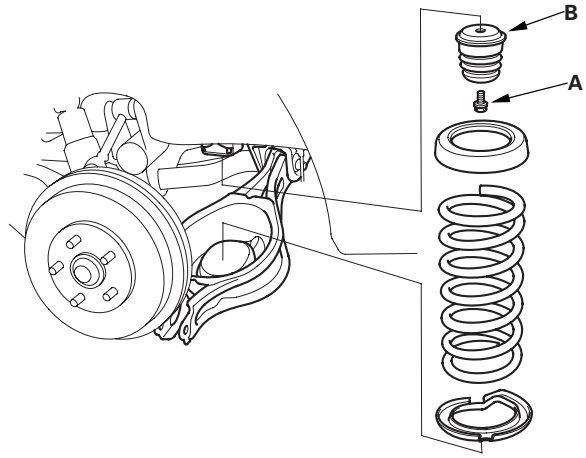
5. Lower the floor jack gradually.

6. Remove the spring (A), upper spring seat (B), and lower spring seat (C).



7. Remove the self-locking nut (D) and flange bolt(E).

8. Remove the flange bolt (A) that connects to the body, and remove the bump stop (B).

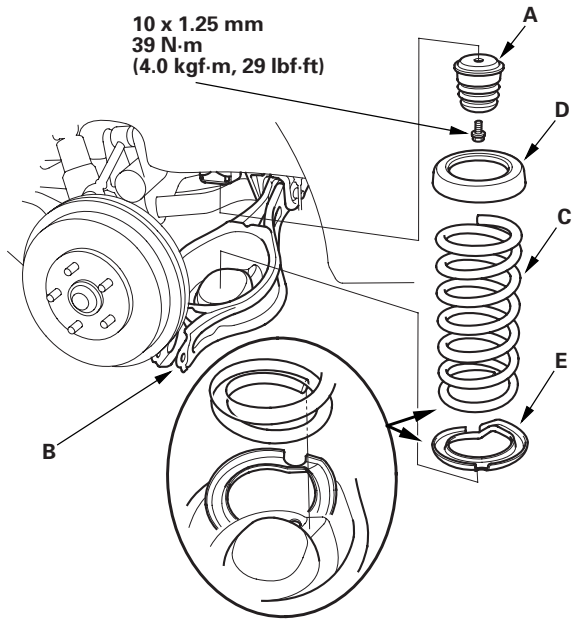


(cont'd)

Spring/Bump Stop Replacement (cont'd)

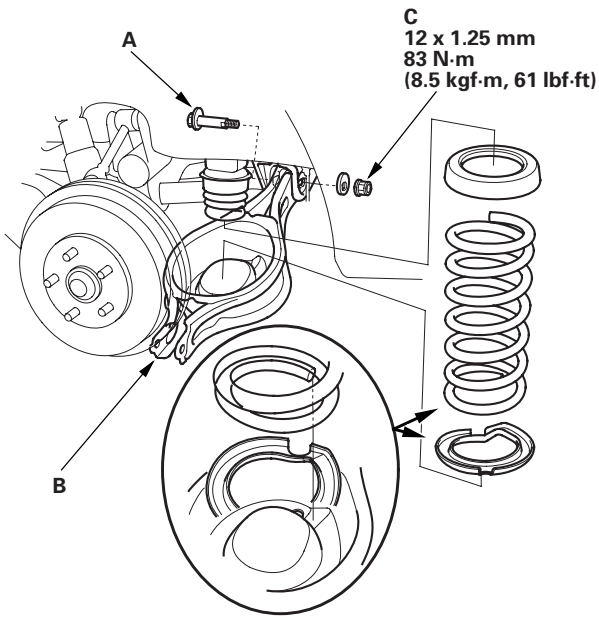
Installation

1. Install the bump stop (A).

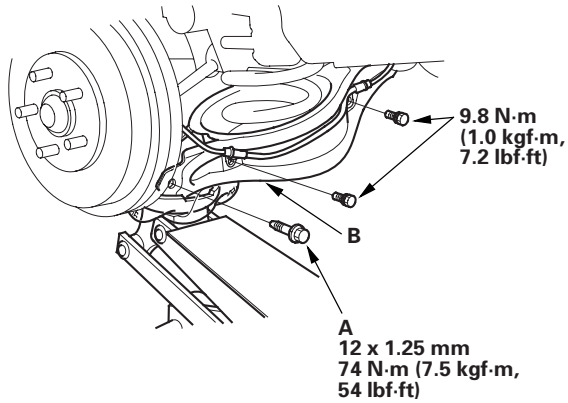


2. Install the spring (C), and the upper spring seat (D). Align the bottom of the spring and the lower spring seat (E) with the lower arm B as shown.

3. Lower the rear suspension. Position the lower arm B, and loosely install the flange bolt (A) and self-locking nut (C).



4. Position a floor jack at the connecting point of the lower arm B and the knuckle.



5. Slowly raise the jack until you can align the bolt hole with the holes in the lower arm B and the knuckle by raising the flange bolt.

6. Raise the rear suspension with a floor jack until the vehicle just lifts off the safety stands.

7. Tighten the self-locking nut.

8. Tighten the flange bolt (A).

9. Install the wheel sensor.

10. Install the rear wheel.

11. Check the rear wheel alignment, and adjust it if necessary (see page 18-5).

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Brakes

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Conventional Brake Components

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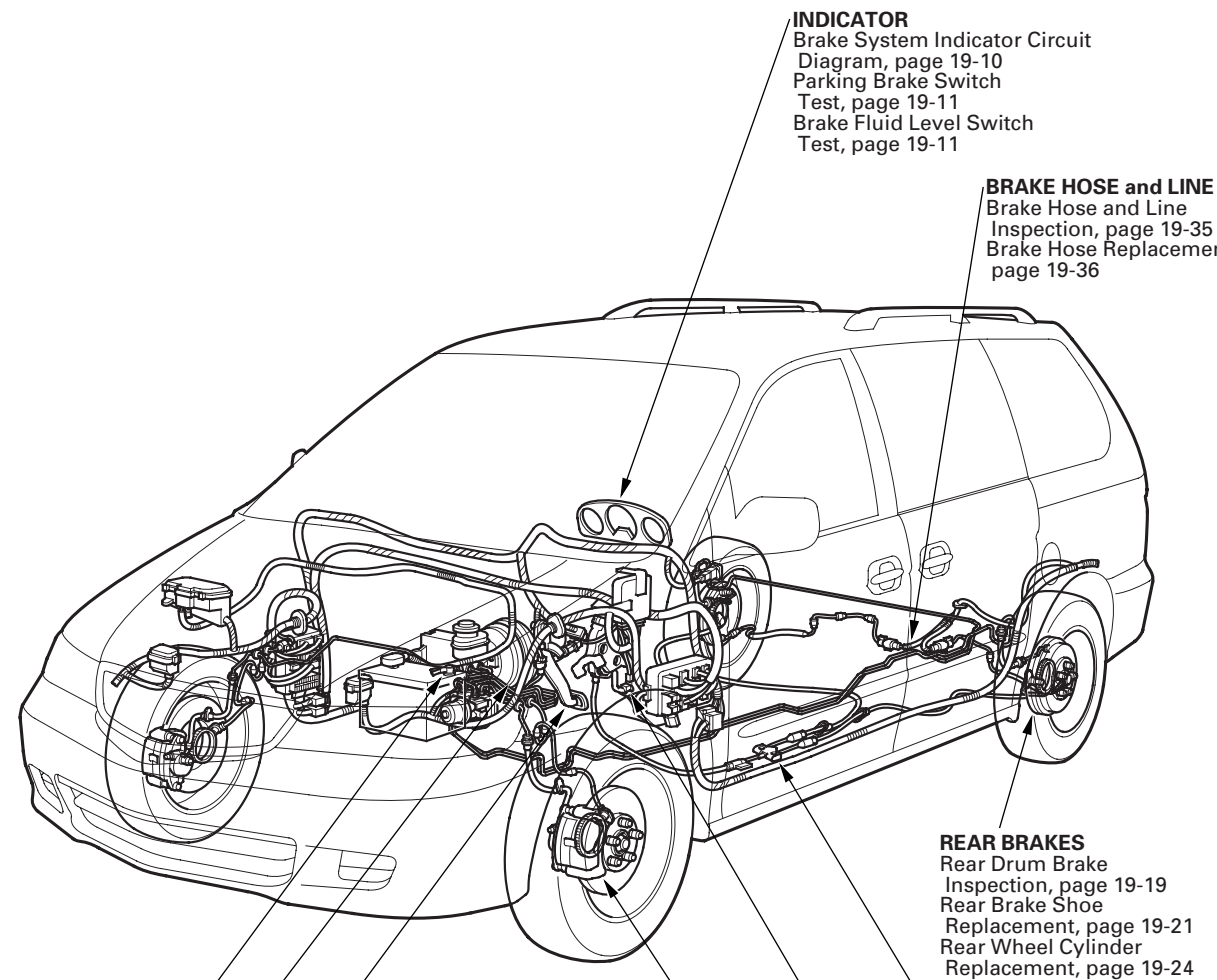
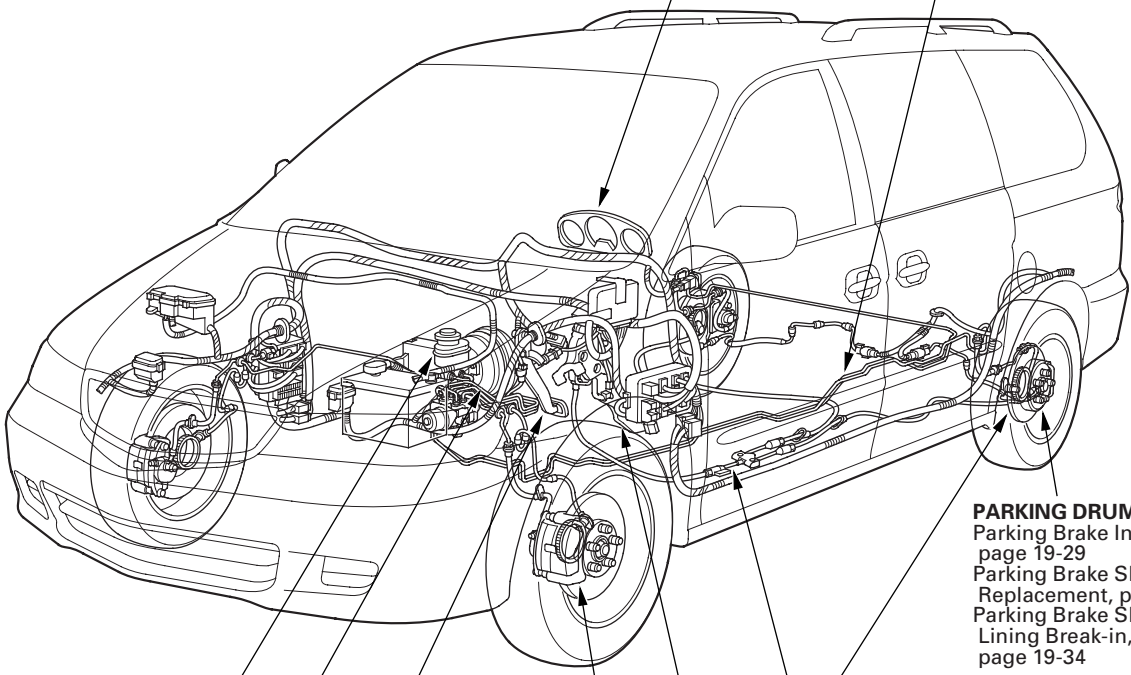
*01



REAR DISC BRAKE TYPE: '02-04 models



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Brake System Inspection and Test

Component Inspections:

Component	Procedure	Also check for:
Master Cylinder	Look for damage or signs of fluid leakage at: • Reservoir or reservoir grommets • Line joints • Between master cylinder and booster	
Brake Hoses	Look for damage or signs of fluid leakage at: • Line joints and banjo bolt connections • Hoses and lines, also inspect for twisting or damage	Bulging, twisted, or bent lines.
Caliper	Look for damage or signs of fluid leakage at: • Piston seal • Banjo bolt connections • Bleeder screw	Seized or sticking caliper pins.
ABS Modulator	Look for damage or signs of fluid leakage at: • Line joints • Modulator	

Brake System Test

Brake pedal sinks/fades when braking

1. Start the engine, and let it warm up to operating temperature.

2. Attach a 50 mm (2 in.) piece of masking tape along the bottom of the steering wheel, and draw a horizontal reference mark across it.

3. With the transmission in Neutral, press and hold the brake pedal lightly (about the same pressure needed to keep an A/T-equipped car from creeping). Then release the parking brake.

4. While still holding the brake pedal, hook the end of the tape measure behind it. Then, pull the tape up to the steering wheel, noting where the tape measure lines up with the reference mark you made on the masking tape.

5. Apply steady pressure to the brake pedal for 3 minutes.

6. Watch the tape measure.

   • If it moves less than 10 mm (0.4 in.), the master cylinder is OK.
   • If it moves greater than 10 mm (0.4 in.), replace the master cylinder.

Rapid brake pad wear, vehicle vibration (after a long drive), or high, hard brake pedal

1. Drive the vehicle until the brakes drag or until the pedal is high and hard. This can take 20 or more brake pedal applications during an extended test drive.

2. With the engine running, raise the vehicle on a lift, and spin all four wheels by hand.

   Is there brake drag at any of the wheels?

   YES—Go to step 3.

   NO—Look for other causes of the pad wear, high pedal, or vehicle vibration. ■

3. Turn the engine off, pump the brake pedal to deplete the vacuum in the brake booster, and then spin the wheels again to check for brake drag.

   Is there brake drag at any of the wheels?

   YES—Go to step 4.

   NO—Replace the brake booster. ■

4. Without removing the brake lines, unbolt and separate the master cylinder from the booster, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?

   YES—Go to step 5.

   NO—Check the brake pedal position switch adjustment and pedal free play. ■

5. Loosen the hydraulic lines at the master cylinder, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?

   YES—Go to step 6.

   NO—Replace the master cylinder. ■

6. Loosen the bleeder screws at each caliper, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?

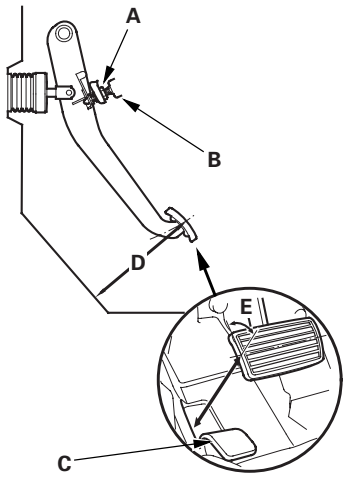
   YES—Disassemble and repair the caliper on the wheel(s) with brake drag. ■

   NO—Look for and replace any damaged brake lines. If all brake lines are OK, replace the ABS modulator. ■

Brake Pedal Height Check and Brake Pedal Position Switch Adjustment

Pedal Height

1. Disconnect the brake pedal position switch connector, loosen the brake pedal position switch locknut (A), and back off the brake pedal position switch (B) until it is no longer touching the brake pedal.



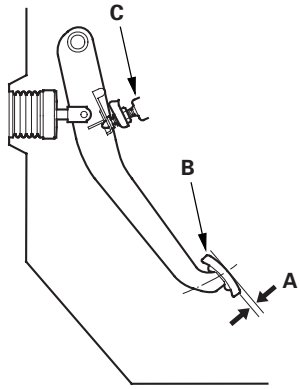
2. Pull back the carpet and the insulator cutout (C). Measure the pedal height (D) from the middle of the left side of the pedal pad (E).

   Standard Pedal Height (with carpet removed): 164 mm (6 7/16 in.)

Pedal Free Play

3. With the engine off, inspect the pedal free play (A) on the pedal pad (B) by pushing the brake pedal by hand.

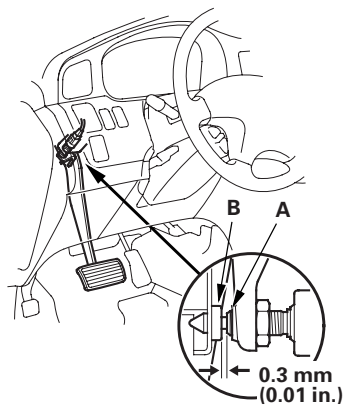
   Free Play: 1—5 mm (0.04—0.20 in.)



4. If the pedal free play is out of specification, adjust the brake pedal position switch (C). If the pedal free play is insufficient, it may result in excessive brake drag.

Brake Pedal Position Switch Clearance

5. Screw in the brake pedal position switch until its plunger is fully pressed (threaded end (A) touching the pad (B) on the pedal arm). Then back off the switch 3/4 turn to make 0.3 mm (0.01 in.) of clearance between the threaded end and pad. Tighten the locknut firmly.
   Connect the brake pedal position switch connector. Make sure that the brake lights go off when the pedal is released.



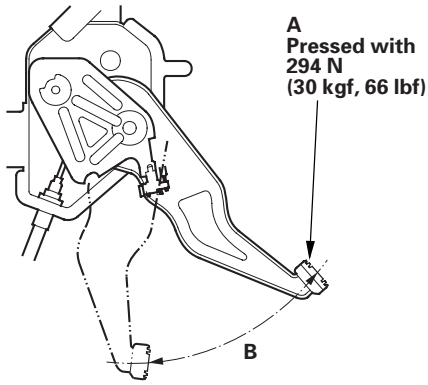
Parking Brake Check and Adjustment

Check

1. Press the parking brake pedal (A) with 294 N (30 kgf, 66 lbf) of force. The parking brake pedal should travel within the specified number of clicks (B).

   Pedal locked clicks:
   Rear drum brake type: 3 to 5
   Rear disc brake type: 4 to 6

   If the number of pedal clicks is excessive, adjust the parking brake.



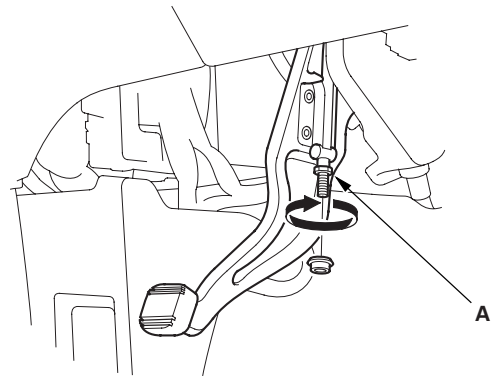
2. Check the rear brake shoe self adjuster, and make sure the brake shoes are properly adjusted.

Adjustment

Rear drum brake type: '99-01 models

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15).

2. Tighten the adjusting nut (A) until the parking brakes drag slightly when the rear wheels are turned.



3. With the parking brake pedal properly adjusted, the parking brake should be fully applied when the parking brake pedal is pressed 3—5 clicks.

(cont'd)

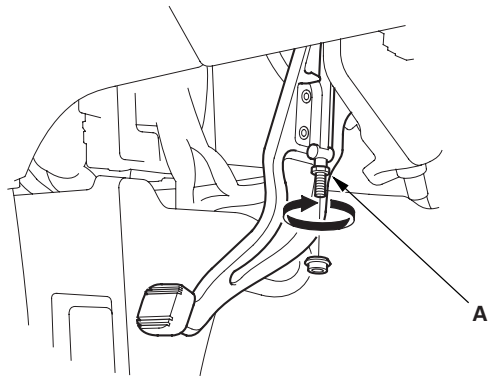
Parking Brake Check and Adjustment (cont'd)

Minor Adjustment

Rear disc brake type: '02-04 models

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15).

2. Tighten the adjusting nut (A) until the parking brakes drag slightly when the rear wheels are turned.



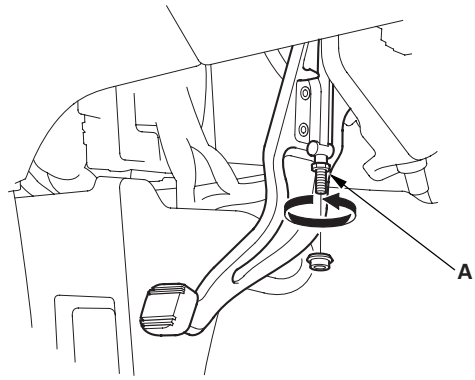
3. Back off the adjusting nut in half-turn increments, and check for proper adjustment (4—6 clicks) at a pedal force of 294 N (30 kgf, 66 lbf).

Major Adjustment (to be done when replacing parking brake shoe and after lining surface break-in)

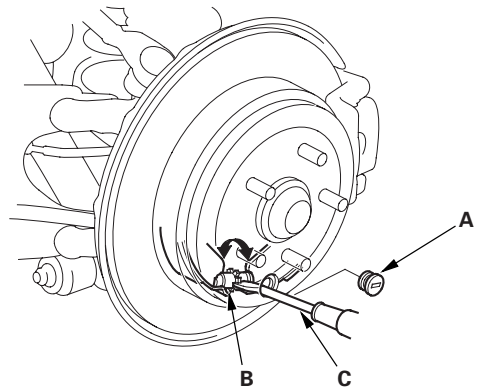
Rear disc brake type: '02-04 models

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the rear wheels.

2. Release the parking brake, and back off the adjusting nut (A).



3. Remove the access plug (A).



4. Turn up the ratchet teeth (B) or the adjuster assembly with a flat blade screwdriver (C) until the shoes lock against the drum. Then back off ten clicks, and install the access plug.

5. Do the minor adjustment procedure.

6. Install the rear wheels.

7. Do the parking brake shoe lining break-in procedure (see page 19-34).

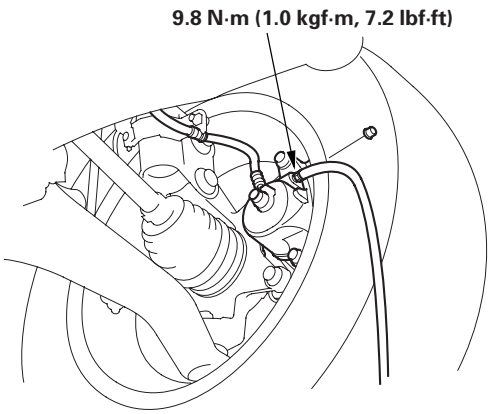
Brake System Bleeding

NOTE:
- Do not reuse the drained fluid.
- Always use Honda DOT 3 Brake Fluid. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Make sure no dirt or other foreign matter is allowed to contaminate the brake fluid.
- Do not spill brake fluid on the vehicle, it may damage the paint; if brake fluid does contact the paint, wash it off immediately with water.
- The reservoir on the master cylinder must be at the MAX (upper) level mark at the start of the bleeding procedure and checked after bleeding each brake caliper. Add fluid as required.

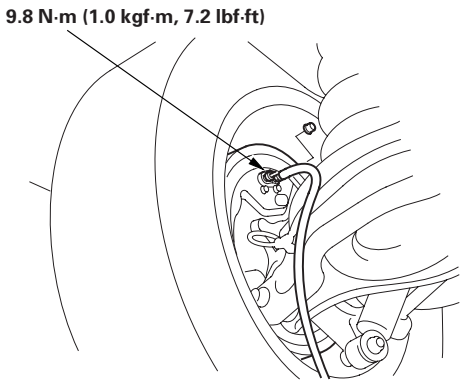
1. Make sure the brake fluid level in the reservoir is at the MAX (upper) level line.

2. Attach a length of clear drain tube to the bleed screw.

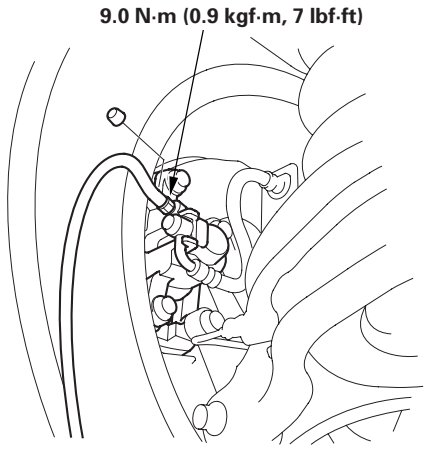
Front:



Rear drum brake: '99-01 models



Rear disc brake: '02-04 models

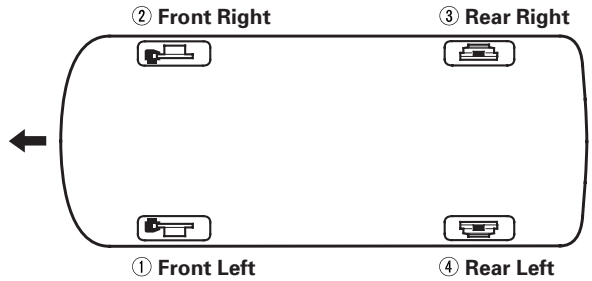


3. Have someone slowly pump the brake pedal several times, then apply steady pressure.

4. Loosen the left-front brake bleed screw to allow air to escape from the system. Then tighten the bleed screw securely.

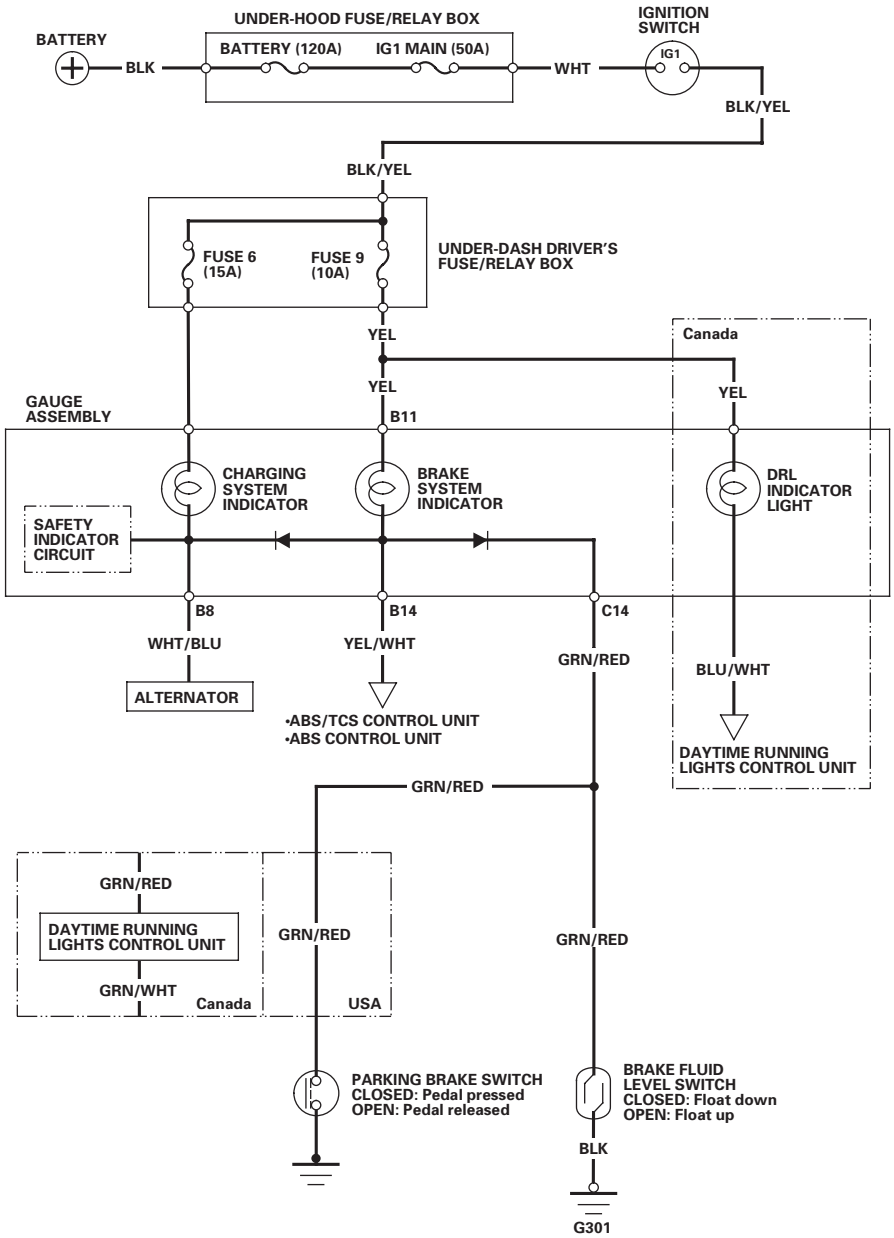
5. Repeat the procedure for each wheel in the sequence shown below until air bubbles no longer appear in the fluid.

BLEEDING SEQUENCE:



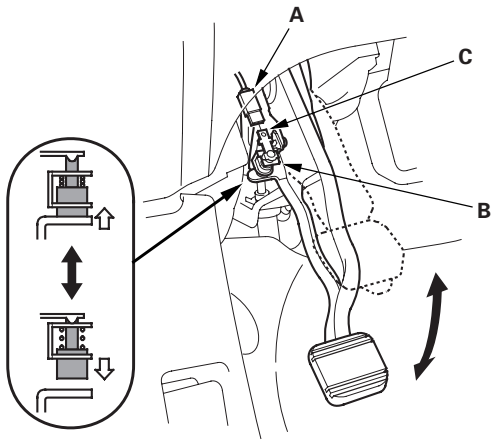
6. Refill the master cylinder reservoir to the MAX (upper) level line.

Brake System Indicator Circuit Diagram



Parking Brake Switch Test

1. Disconnect the parking brake switch connector (A) from the switch (B).



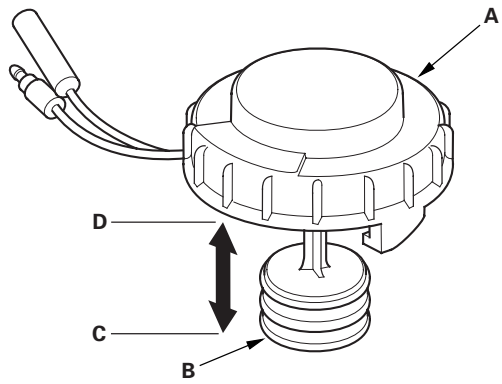
2. Check for continuity between the positive terminal (C) and body ground.

   - With the parking brake pedal pressed, there should be continuity.
   - With the parking brake pedal released, there should be no continuity.

   NOTE:
   - If both the ABS or TCS indicator and the brake system indicator come on at the same time, check the ABS (see page 19-41) or TCS (see page 19-81) first.
   - If the parking brake switch/fluid level switch is OK, but the brake system indicator does not function, check the ABS or TCS (For Canada model: do the input test for the daytime running lights control unit first.

Brake Fluid Level Switch Test

1. Remove the reservoir cap (A). Check that the float (B) moves up and down freely; if it does not, replace the reservoir cap assembly.



2. Check for continuity between the terminals with the float in the down position (C) and the up position (D):

   - With the float up, there should be no continuity.
   - With the float down, there should be continuity.

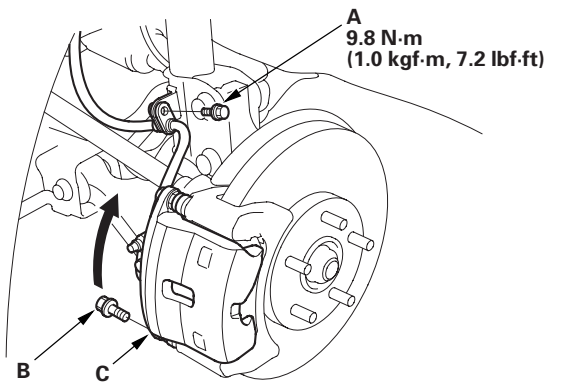
Front Brake Pad Inspection and Replacement

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

1. Loosen the front wheel nuts slightly. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the front wheels.

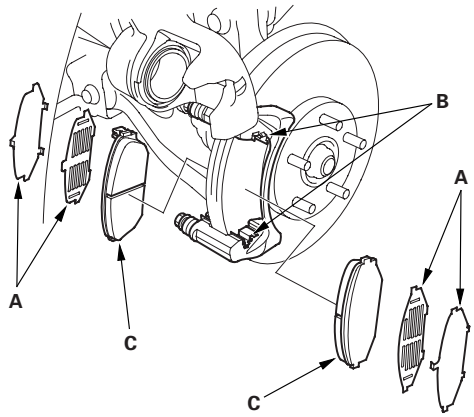
2. Remove the brake hose mounting bolt (A) from the knuckle.



3. Hold the caliper pin with a wrench, being careful not to damage the pin boot. Remove the caliper bolt (B) with another wrench.

4. Pivot the caliper (C) up out of the way. Check the brake hose and pin boots for damage and deterioration.

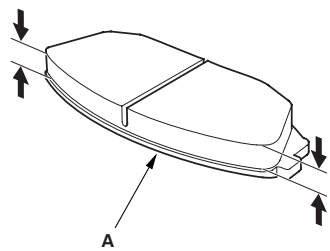
5. Remove the pad shims (A), pad retainers (B), and brake pads (C). '99-01 models have two pairs of the pad shim. '02-04 models have one pair of the pad shim.



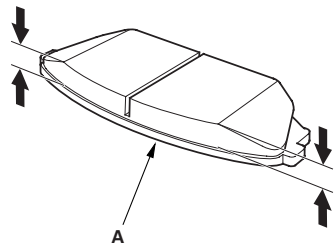
6. Using vernier calipers, measure the thickness of each brake pad lining. The measurement does not include pad backing plate (A) thickness.

Brake Pad Thickness:
Standard: 10.5—11.5 mm (0.41—0.45 in.)
Service Limit: 1.6 mm (0.06 in.)

'99 Model:



'00-04 Models:

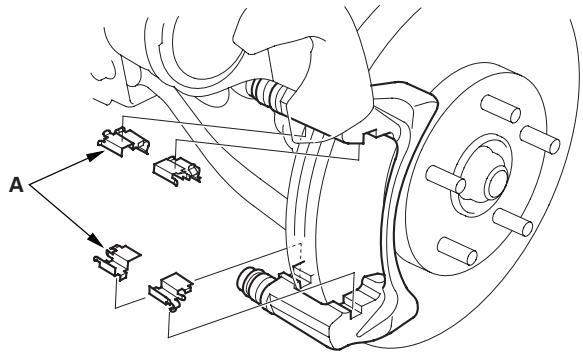


7. If the brake pad thickness is less than the service limit, replace the front pads as a set.

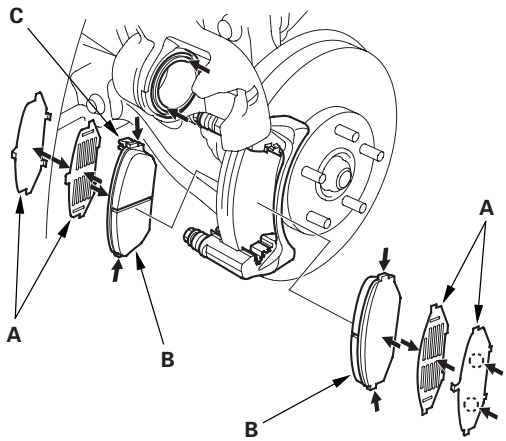
8. Clean the caliper thoroughly; remove any rust, and check for grooves and cracks.

9. Check the brake disc for damage and cracks.

10. Install the pad retainers (A).



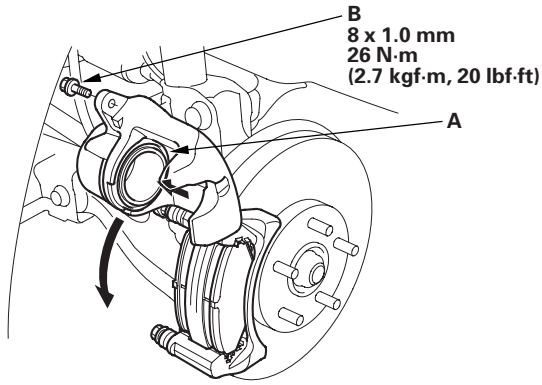
11. Apply Molykote M77 grease or Daikalub 528D grease to both sides of the pad shims (A) and the back of the brake pads (B). Wipe excess grease off the shim. Contaminated brake discs and pads reduce stopping ability. Keep grease off the discs and brake pads.



12. Install the brake pads and pad shims correctly. '99-01 models have two pairs of the pad shim. '02-04 models have one pair of the pad shim. Install the brake pad with the wear indicator (C) on the inside.

13. Push in the piston (A) so that the caliper will fit over the pads. Make sure that the piston boot is in position to prevent damaging it when pivoting the caliper down.

    NOTE: Check the brake fluid level, the brake fluid may overflow the reservoir if too full.



14. Pivot the caliper down into position. Hold the caliper pin with a wrench, being careful not to damage the pin boot. Install the caliper bolt (B), with another wrench, and tigthen it to proper specification.

15. Install the brake hose onto the knuckle.

16. Press the brake pedal several times to make sure the brakes work, then test-drive the vehicle.

    NOTE: Engagement of the brake may require a greater pedal stroke immediately after the brake pads have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stroke.

17. After installation, check for leaks at hose and line joints or connections, and retighten if necessary.

Front Brake Disc Inspection

Runout

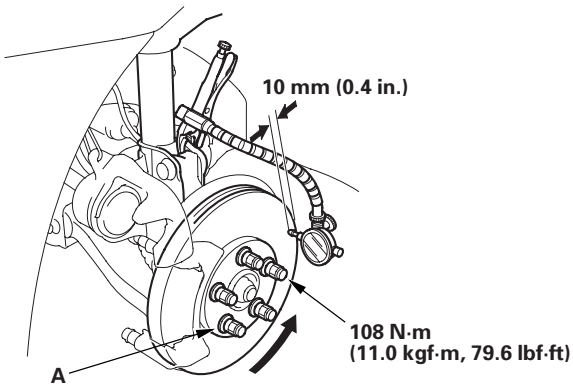
1. Loosen the front wheel nuts slightly. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the front wheels.

2. Remove the brake pads (see page 19-12).

3. Inspect the disc surface for damage and cracks. Clean the brake disc thoroughly and remove all rust.

4. Use wheel nuts and suitable flat washers (A) to hold the disc securely against the hub, then mount a dial indicator as shown, and measure the runout at 10 mm (0.4 in.) from the outer edge of the disc.

   Brake Disc Runout:
   Service Limit: 0.10 mm (0.004 in.)



5. If the brake disc is beyond the service limit, refinish the brake disc with an on-car brake lathe. The Kwik-Lathe produced by Kwik-way Manufacturing Co. and the ''Front Brake Disc Lathe'' offered by Snap-on Tools Co. are approved for this operation.

   Max. Refinish Limit: 26.0 mm (1.02 in.)

   NOTE:
   - If the brake disc is beyond the service limit for refinishing, replace it (see step 7 on page 18-12).
   - A new disc should be refinished if its runout is greater than 0.10 mm (0.004 in.).

Thickness and Parallelism

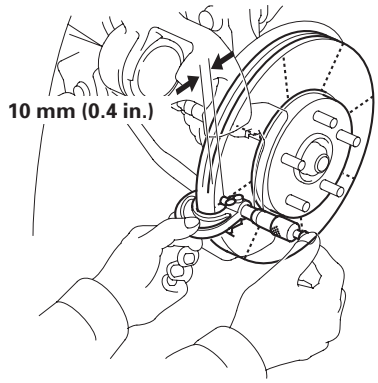
1. Loosen the front wheel nuts slightly. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the front wheels.

2. Remove the brake pads (see page 19-12).

3. Using a micrometer, measure brake disc thickness at eight points, approximately 45° apart and 10 mm (0.4 in.) in from the outer edge of the brake disc. Replace the brake disc if the smallest measurement is less than the max. refinishing limit.

   Brake Disc Thickness:
   Standard: 27.9—28.1 mm (1.10—1.11 in.)
   Max. Refinishing Limit: 26.0 mm (1.02 in.)
   Brake Disc Parallelism:
   0.015 mm (0.0006 in.) max.

   NOTE: This is the maximum allowable difference between the thickness measurements.



4. If the brake disc is beyond the service limit for parallelism, refinish the brake disc with an on-car brake lathe. The Kwik-Lathe produced by Kwik-way Manufacturing Co. and the ''Front Brake Disc Lathe'' offered by Snap-on Tools Co. are approved for this operation.

   NOTE: If the brake disc is beyond the service limit for refinishing, replace it (see step 7 on page 18-12).

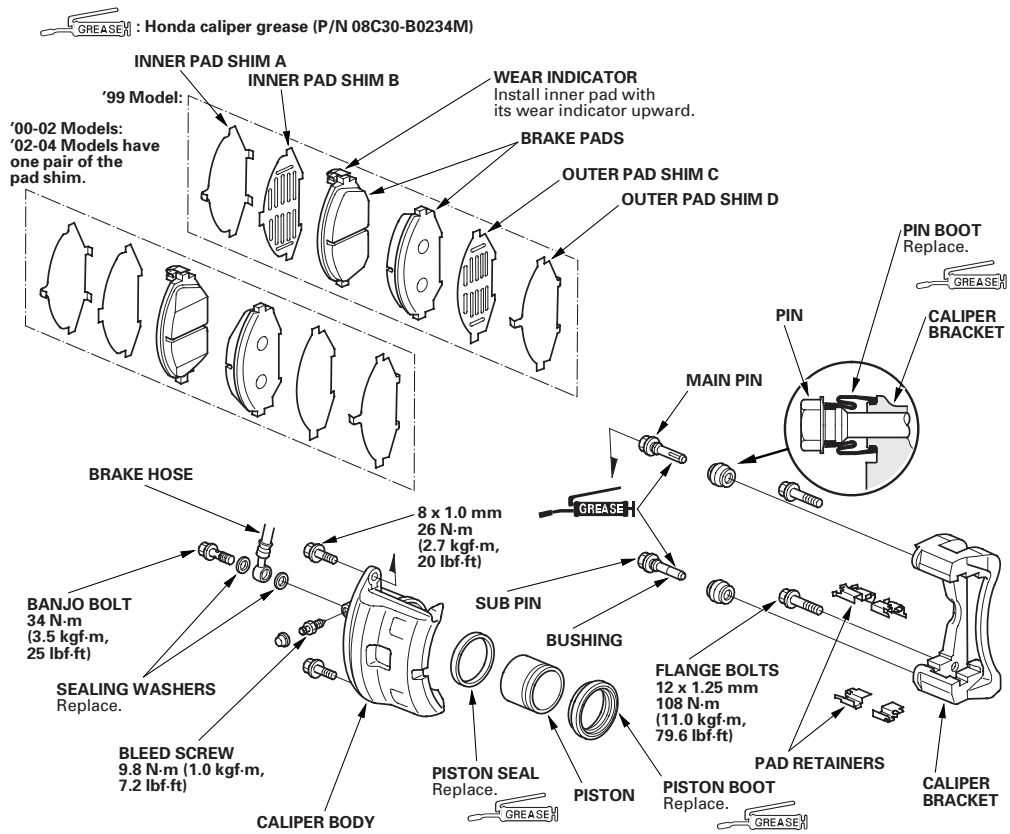
Front Brake Caliper Overhaul

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

Remove, disassemble, inspect, reassemble, and install the caliper, and note these items:

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- To prevent dripping brake fluid, cover disconnected hose joints with rags or shop towels.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all parts are free of dust and other foreign particles.
- Replace parts with new ones as specified in the illustration.
- Make sure no dirt or other foreign matter gets in the brake fluid.
- Make sure no grease or oil gets on the brake discs or pads.
- When reusing pads, always reinstall them in their original positions to prevent loss of braking efficiency.
- Do not reuse drained brake fluid. Use only clean Honda DOT 3 Brake Fluid. Non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Do not mix different brands of brake fluid as they may not be compatible.
- Coat the piston, piston seal groove, and caliper bore with clean brake fluid.
- Replace all rubber parts with new ones whenever disassembled.
- After installing the caliper, check the brake hose and line for leaks, interference, and twisting.

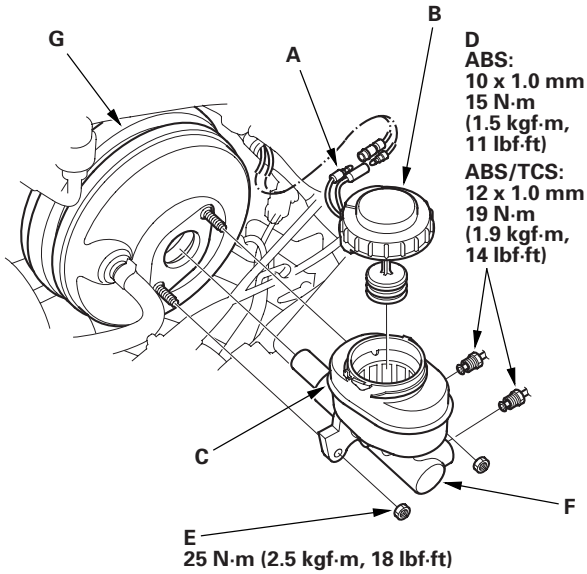


Master Cylinder Replacement

NOTICE

Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid does contact the paint, wash it off immediately with water.

1. Disconnect the brake fluid level switch connectors (A), and remove the reservoir cap (B).



2. Remove the brake fluid from the master cylinder reservoir (C) with a syringe.

3. Disconnect the brake lines (D) from the master cylinder. To prevent spills, cover the hose joints with rags or shop towels.

4. Remove the master cylinder mounting nuts (E).

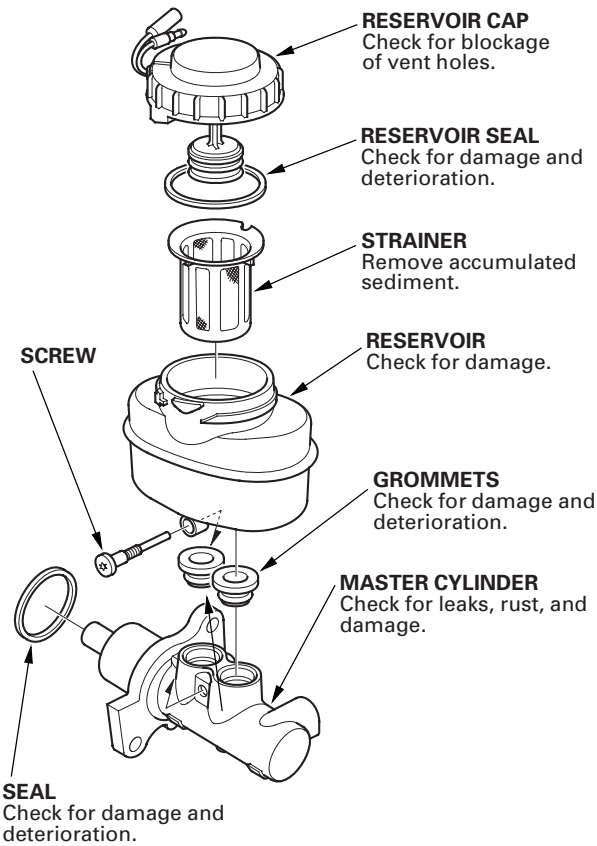
5. Remove the master cylinder (F) from the brake booster (G). Be careful not to bend or damage the brake lines when removing the master cylinder.

6. Install the master cylinder in the reverse order of removal.

Master Cylinder Inspection

NOTE:

- Before reassembling, check that all parts are free of dust and other foreign particles.
- Do not try to disassemble the master cylinder assembly. Replace the master cylinder assembly with a new part if necessary.
- Do not allow dirt or foreign matter to contaminate the brake fluid.



Brake Booster Test

Functional Test

1. With the engine stopped, press the brake pedal several times to deplete the vacuum reservoir, then press the brake pedal hard and hold it for 15 seconds. If the brake pedal sinks, either the master cylinder is bypassing internally, or the brake system (master cylinder, lines, modulator, or caliper) is leaking.

2. Start the engine with the brake pedal pressed. If the pedal sinks slightly, the vacuum booster is operating normally. If the pedal height does not vary, the booster or check valve is faulty.

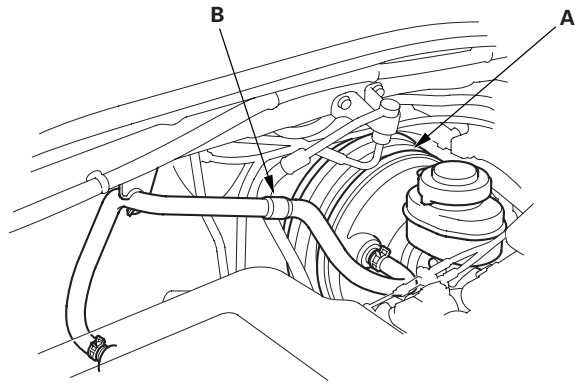
3. With the engine running, press the brake pedal lightly, and shift the transmission to the D position. Apply just enough pressure to hold back automatic transmission creep. If the brake pedal sinks more than 10 mm (3/8 in.) in 3 minutes, the master cylinder is faulty. A slight change in pedal height when the A/C compressor cycles on and off is normal. (The A/C compressor load changes the vacuum available to the booster.)

Leak Test

1. Press the brake pedal with the engine running, then stop the engine. If the pedal height does not vary while pressed for 30 seconds, the vacuum booster is OK. If the pedal rises, the booster is faulty.

2. Turn the engine off, and wait 30 seconds. Press the brake pedal several times using normal pressure. When the pedal is first pressed, it should be low. On consecutive applications, the pedal height should gradually rise. If the pedal position does not vary, check the booster check valve.

3. Disconnect the brake booster vacuum hose at the booster (A). The check valve (B) is built into the hose.



4. Start the engine, and let it idle. There should be vacuum available. If no vacuum is available, the check valve is not working properly. Replace the brake booster vacuum hose and check valve and retest.

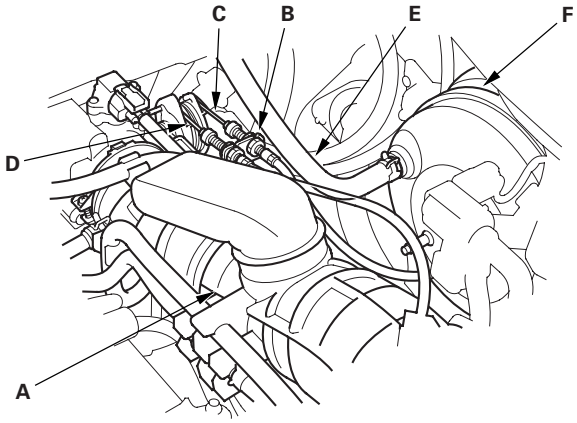
5. Start the engine, and then pinch the brake booster vacuum hose between the check valve, and the booster.

6. Turn the engine off, and wait 30 seconds. Press the brake pedal several times using normal pressure. When the brake pedal is first pressed, it should be low. On consecutive applications, the brake pedal height should gradually rise.

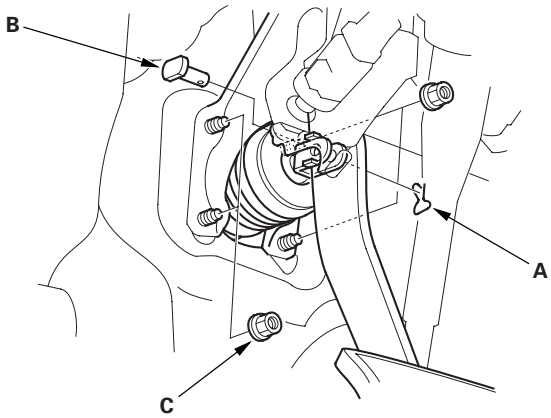
   - If the pedal position does not vary, replace the brake booster.
   - If the pedal position varies, replace the brake booster vacuum hose/check valve assembly.

Brake Booster Replacement

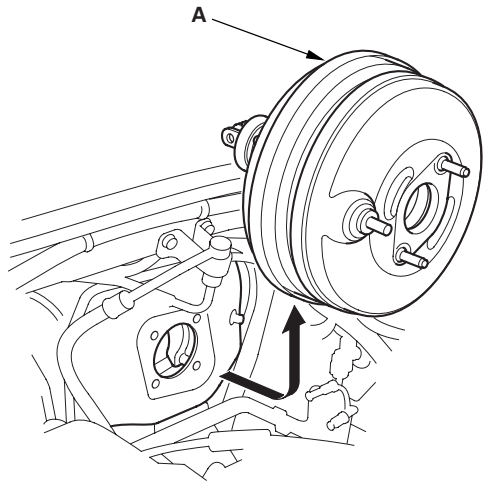
1. Remove the master cylinder (see page 19-16).
2. Remove the intake air duct (A) (see step 5 on page 5-3).



3. Remove the cable bracket (B) from the throttle body, then disconnect the throttle cable end (C) and actuator cable end (D) from the throttle linkage.
4. Disconnect the vacuum hose (E) from the brake booster (F).
5. Remove the lock pin (A) and joint pin (B).



6. Remove the 4 brake booster mounting nuts (C).
7. Pull the brake booster (A) forward, and remove it from the engine compartment.



8. Install the brake booster in the reverse order of removal, and note these items:
   - After installation, adjust brake pedal height and brake pedal free play (see page 19-6).
   - After installation, check for the cable free play, and adjust the actuator cable (see page 4-52) and the throttle cable (see page 11-242) if necessary.

Rear Drum Brake Inspection

'99-01 Models

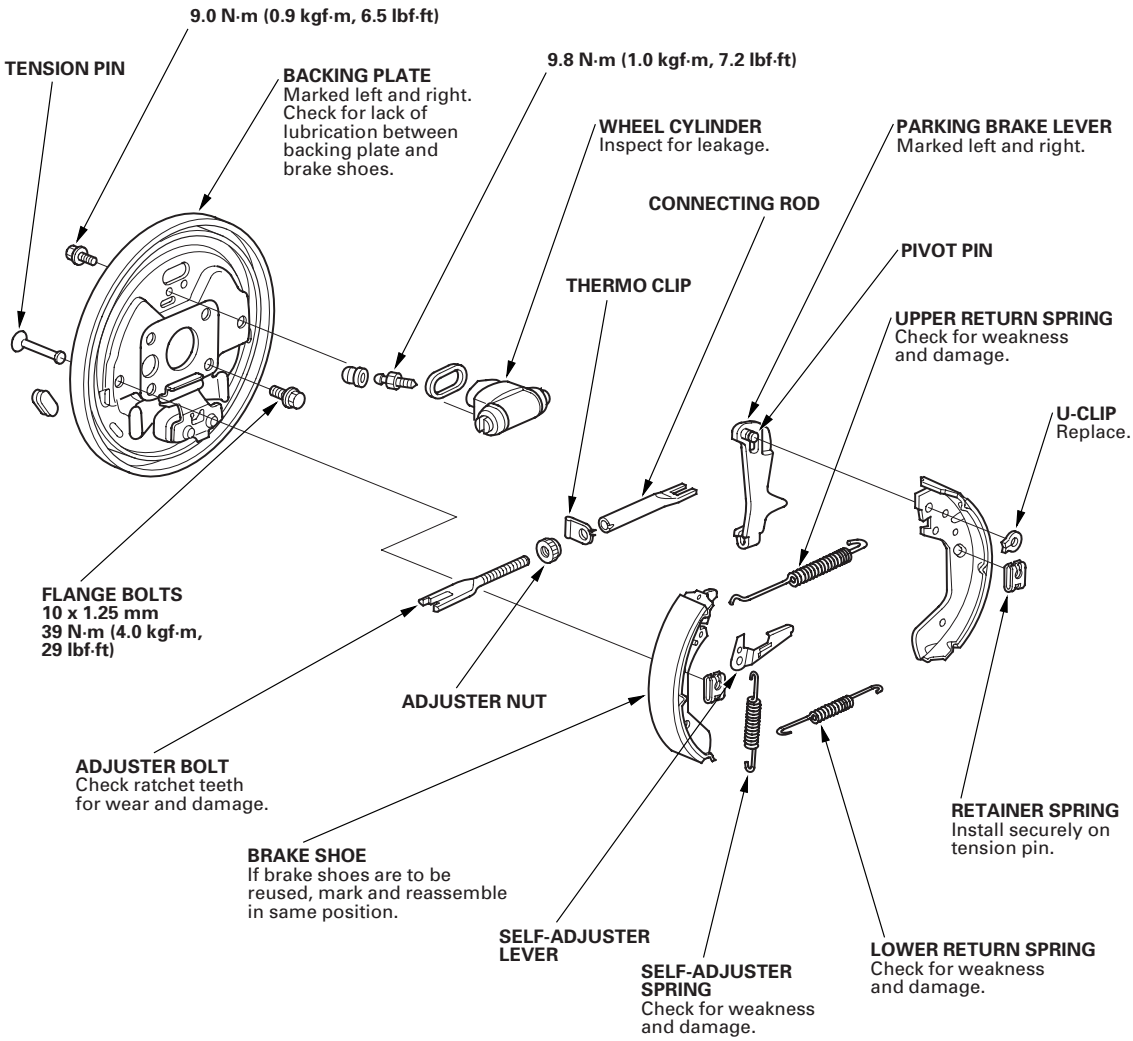
⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

NOTE:
- Contaminated brake linings or drums reduce stopping ability.
- Block the front wheels before raising the rear of the vehicle.

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15).

2. Release the parking brake, and remove the rear brake drum (see page 18-22).



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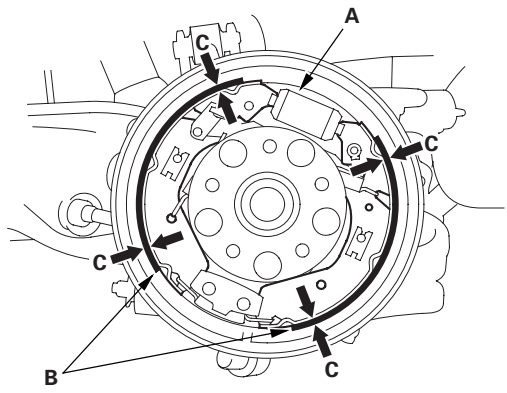
Rear Drum Brake Inspection (cont'd)

3. Check the wheel cylinder (A) for leakage.



4. Check the brake linings (B) for cracking, glazing, wear, and contamination.

5. Measure the brake lining thickness (C). Measurement does not include brake shoe thickness.

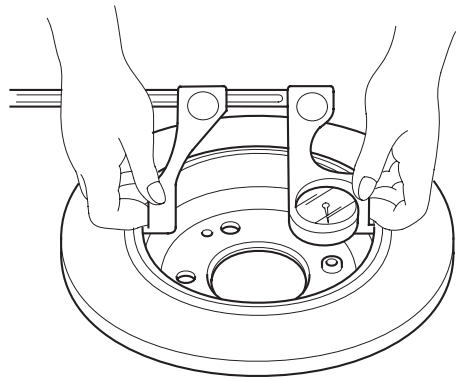
   Brake Lining Thickness:
   Standard: 4.5 mm (0.18 in.)
   Service Limit: 2.0 mm (0.08 in.)

6. If the brake lining thickness is less than the service limit, replace the brake shoes as a set.

7. Check the bearings in the hub unit for smooth operation; if the bearings require servicing (see step 2 on page 18-23).

8. Measure the inside diameter of the brake drum with inside vernier calipers.

   Drum Inside Diameter:
   Standard: 253.9—254.0 mm (9.996—10.000 in.)
   Service Limit: 255.0 mm (10.04 in.)



9. If the inside diameter of the brake drum is more than the service limit, replace the brake drum.

10. Check the brake drum for scoring, grooves, corrosion, and cracks.

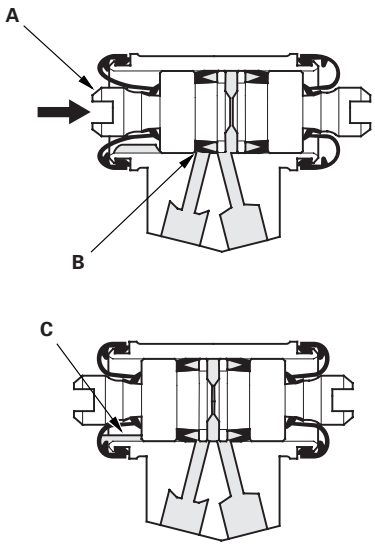
Rear Brake Shoe Replacement

'99-01 Models

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

NOTE: During rear brake shoe replacement, do not push either of the wheel cylinder pistons (A) into the cylinder too far. If you do, brake fluid could seep into the space behind the piston cup (B). When the piston returns to its normal position, a small amount of brake fluid (C) comes with it, which could be mistaken for a piston cup leak. To avoid this mistake, always inspect the wheel cylinder for leakage before removing the brake shoes.

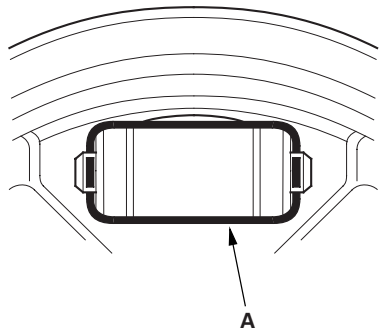


1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15).

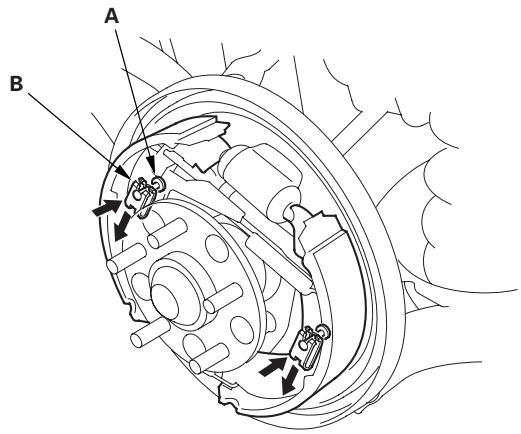
2. Release the parking brake, and remove the rear brake drum (see step 7 on page 18-23).

3. Before you touch the brake shoes, carefully pull back the bottom of the wheel cylinder boots, and check for brake fluid leakage. If the inside of the cylinder is wet with brake fluid, replace the wheel cylinder.

4. To keep the pistons from popping out or shifting to one end of the wheel cylinder, place a suitable elastic band (A) around the ends of both pistons.



5. Remove the tension pins (A). Compress each return spring (B), and then turn the pin so its flattened end lines up with the slot in the spring.



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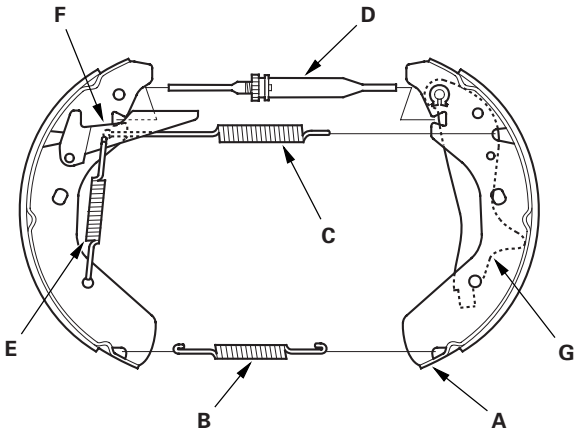
Rear Brake Shoe Replacement (cont'd)

6. Remove the brake shoe lower ends from the anchor by expanding the bottom ends of the brake shoes (A) equally.



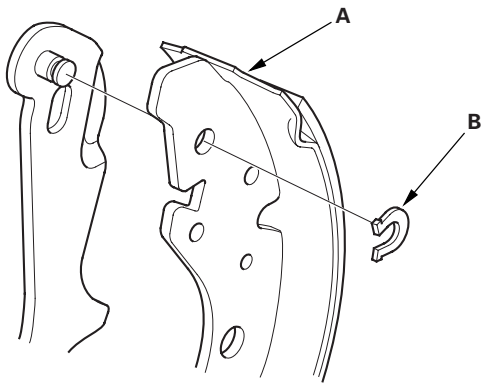
7. Remove the lower return spring (B).

8. Expand the top of the brake shoes equally, and remove them from the wheel cylinder. Do not let the piston push into the cylinder, and be careful not to damage the boots during removal.

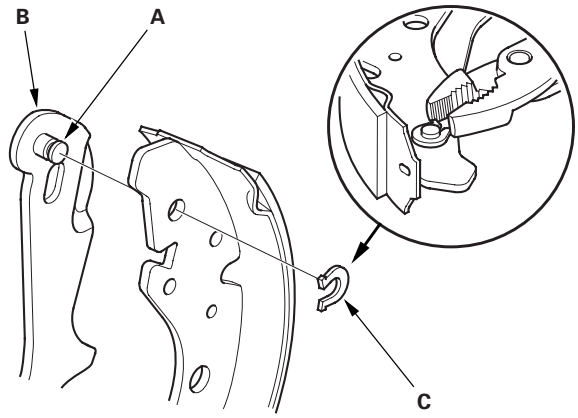
9. Remove the upper return spring (C), adjuster bolt (D), self-adjuster spring (E), and lever (F), and separate the brake shoes.

10. Disconnect the parking brake cable from the parking brake lever (G), and remove the brake shoes.

11. Remove the brake shoe (A) by removing the U-clip (B).

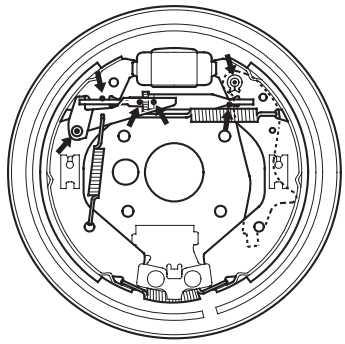


12. Apply Molykote 44MA grease to the sliding surface of the pivot pin (A), and insert the pin into the parking brake shoes.

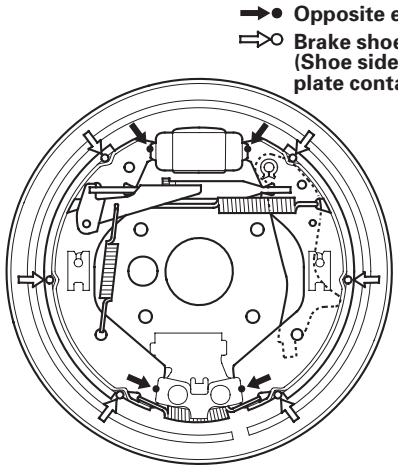


13. Install the parking brake lever (B) on the pivot pin, and secure with a new U-clip (C). Pinch the U-clip securely to prevent the pivot pin from coming out of the brake shoe.

14. Apply Molykote 44MA grease on each sliding surface shown. Wipe off any excess. Do not get grease on the brake linings.

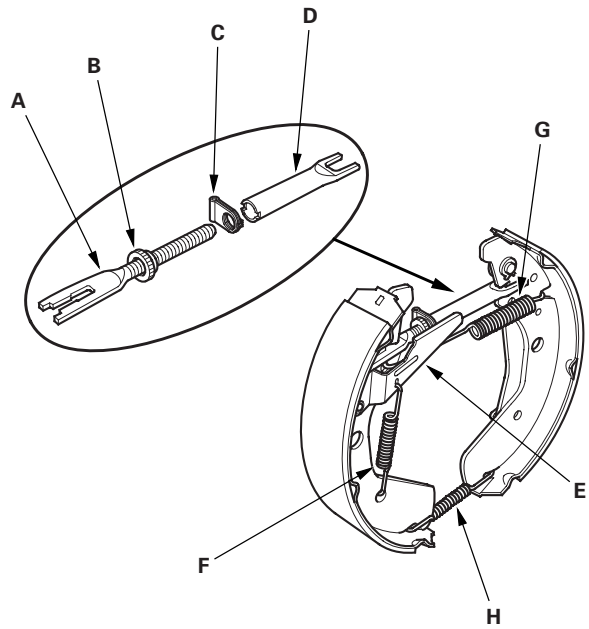


15. Apply Molykote 44MA grease to the brake shoe ends and opposite edges of the brake shoes shown. Wipe off any excess. Do not get grease on the brake lining.



16. Connect the parking brake cable to the parking brake lever.

17. Clean the threaded portions of the adjuster bolt (A) and nut (B), and coat the threads with grease. Install the adjuster nut, thermo clip (C), and connecting rod (D) on the adjuster bolt. To shorten the adjuster bolt, turn the adjuster nut.



18. Install the self-adjuster lever (E) on the brake shoe.

19. Hook the self-adjuster springs (F) to the lever first, then to the brake shoe.

20. Install the adjuster assembly between the brake shoe and parking brake lever. Note the installation direction.

21. Fit the top of the brake shoes on the wheel cylinder pistons. Connect the upper return spring (G). Note the installation direction.

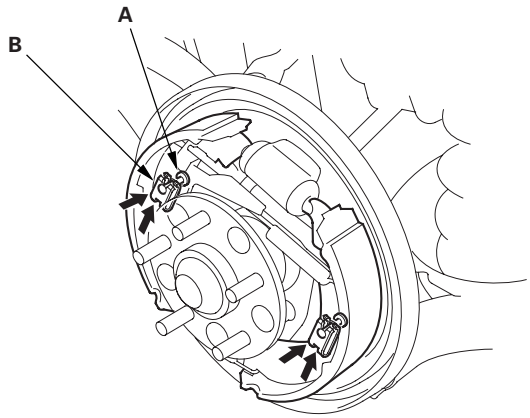
22. Hook the lower return spring (H) on the brake shoes.

(cont'd)

Rear Brake Shoe Replacement (cont'd)

23. Expand the bottom ends of the brake shoes equally, and securely fit the brake shoe lower ends on the anchor.

24. Reinstall the tension pins (A) and retainer springs (B).



25. Remove the elastic band from the wheel cylinder.

26. Carefully pull back the bottom of the wheel cylinder boots, and check whether the inside of the wheel cylinder is wet with brake fluid. Wipe inside the wheel cylinder if it is wet. Note that this leakage is not caused by a deteriorated cup.

27. Install the brake drum.

28. If the wheel cylinder has been removed, bleed the brake system (see page 19-9).

29. Press the brake pedal several times to set the self-adjusting brake.

30. Adjust the parking brake (see page 19-7).

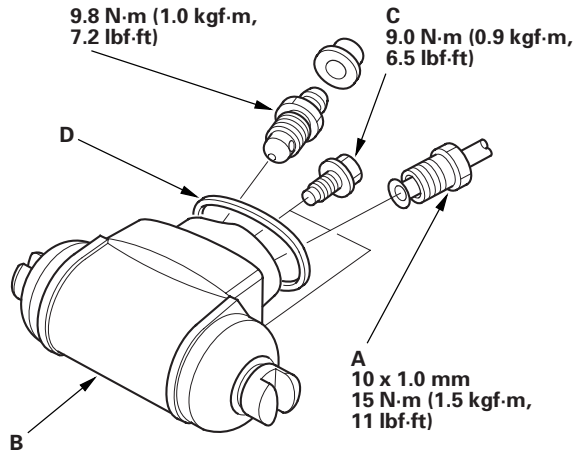
Rear Wheel Cylinder Replacement

'99-01 Models

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid does contact the paint, wash it off immediately with water.
- To prevent spills, cover the hose joints with rags or shop towels.
- Use only Honda wheel cylinder 6 mm special bolts.

1. Remove the brake shoes (see page 19-21).

2. Disconnect the brake line (A) from the wheel cylinder (B).



3. Remove the 6 mm special bolt (C) and the wheel cylinder from the backing plate.

4. Carefully fit the new seal (D) on the wheel cylinder housing.

5. Install the wheel cylinder on the backing plate with the 6 mm special bolt.

6. Install the removed parts in the reverse order of removal.

7. Fill the brake reservoir up, and bleed the brake system (see page 19-9).

8. After installation, check for a leak at the line joint, and retighten if necessary.

Rear Brake Pad Inspection and Replacement

'02-04 Models

⚠CAUTION

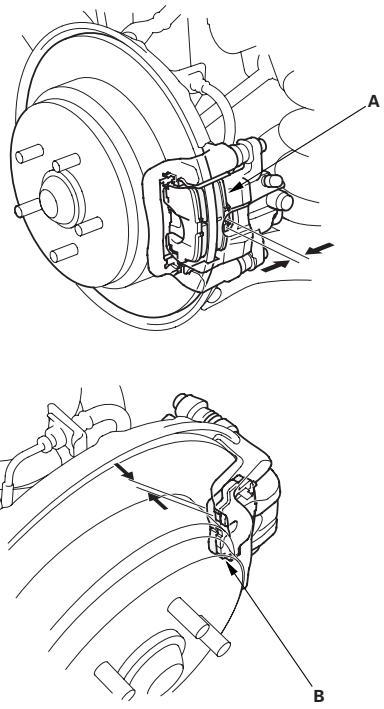
Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OHSA-approved vacuum cleaner.

Inspection

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the rear wheels.

2. Check the thickness of the inner pad (A) and outer pad (B). Do not include the thickness of the backing plate.

   Brake Pad Thickness:
   Standard: 9.5—10.5 mm (0.37—0.41 in.)
   Service Limit: 1.6 mm (0.06 in.)

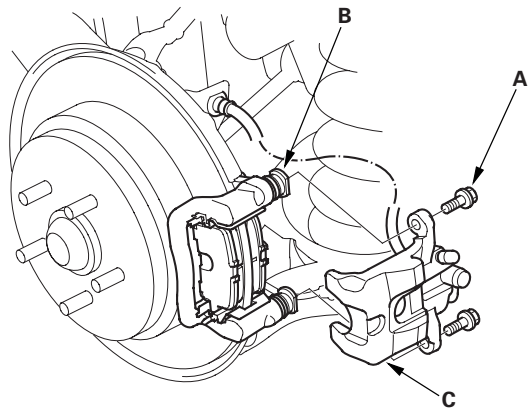


3. If the brake pad thickness is less than the service limit, replace all the brake pads as a set.

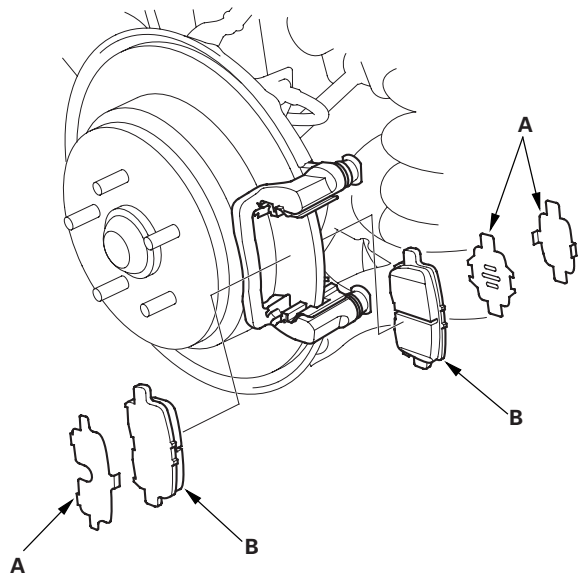
Replacement

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the rear wheels.

2. Remove the flange bolts (A) while holding the pins (B) with a wrench being careful not to damage the pin boot, and remove the caliper (C). Check the hose and pin boots for damage and deterioration. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper from the undercarriage.



3. Remove the pad shims (A) and pads (B).



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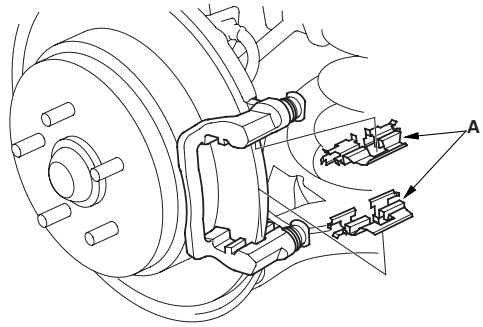
Rear Brake Pad Inspection and Replacement (cont'd)

4. Remove the pad retainers (A).

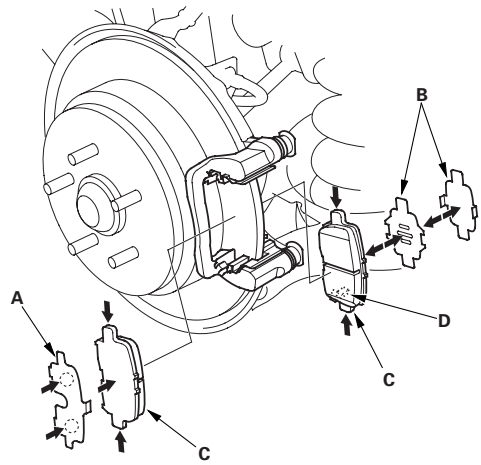


5. Clean the caliper thoroughly; remove any rust, and check for grooves and cracks.

6. Check the brake disc for damage and cracks.

7. Clean and install the pad retainers.

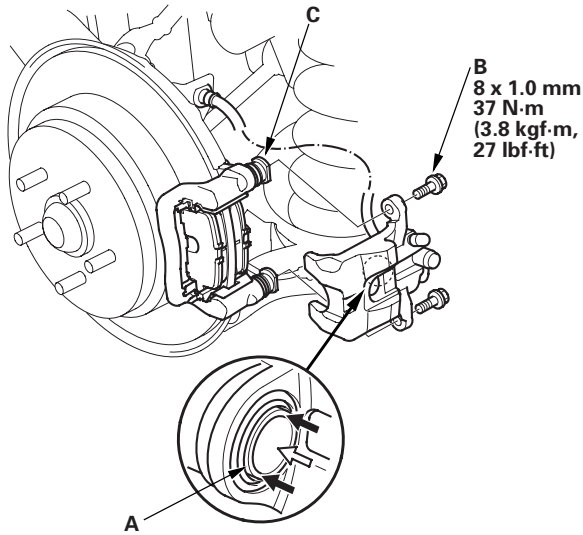
8. Apply Molykote M77 grease or Daikalub 528D grease to the pad side of the outer shims (A), both sides of the inner shim (B), the back of brake pads (C), and the other areas indicated by the arrows. Wipe excess grease off the pad shims and brake pads. Contaminated brake discs or pads reduce stopping ability. Keep grease off the brake discs and pads.



9. Install the brake pads and pad shims correctly. Install the brake pad with the wear indicator (D) on the inside.
   If you are reusing the brake pads, always reinstall the brake pads in their original positions to prevent a momentary loss of braking efficiency.

10. Push in the piston (A) so the caliper will fit over the brake pads. Make sure the piston boot is in position to prevent damaging it when installing the caliper.

    NOTE: Check the brake fluid level, the brake fluid may overflow the reservoir if too full.



11. Install the caliper into position. Install the flange bolts (B), and torque them to the specified torque while holding the pin (C) with a wrench being careful not to damage the pin boot.

12. Press the brake pedal several times to make sure the brakes work, then test-drive the vehicle.

    NOTE: Engagement of the brake may require a greater pedal stroke immediately after the brake pads have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stroke.

13. After installation, check for leaks at hose and line joints or connections, and retighten if necessary.

Rear Brake Disc Inspection

'02-04 Models

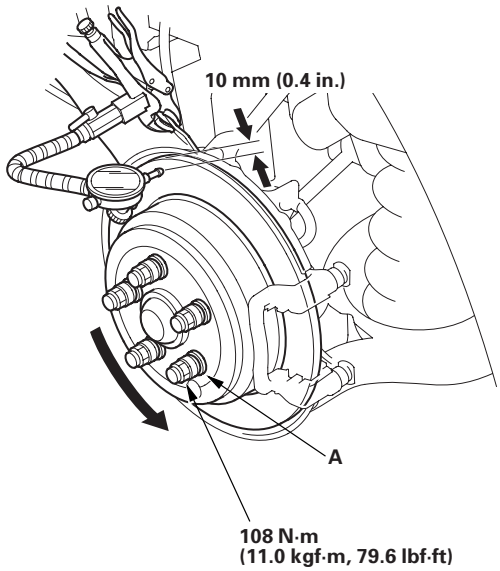
Runout

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the rear wheels.

2. Remove the brake pads (see page 19-25).

3. Inspect the brake disc surface for damage and cracks. Clean the disc thoroughly, and remove all rust.

4. Install suitable flat washers (A) and wheel nuts, and tighten the nuts to the specified torque to hold the brake disc securely against the hub.



5. Set up the dial gauge against the brake disc as shown, and measure the runout at 10 mm (0.4 in.) from the outer edge of the brake disc.

   Brake Disc Runout:
   Service Limit: 0.10 mm (0.004 in.)

6. If the brake disc is beyond the service limit, refinish the brake disc.

   Max. Refinish Limit: 9.0 mm (0.35 in.)

   NOTE:
   - If the brake disc is beyond the service limit for refinishing, replace it (see step 8 page 18-24).
   - A new disc should be refinished if its runout is greater than 0.10 mm (0.004 in.).

Thickness and Parallelism

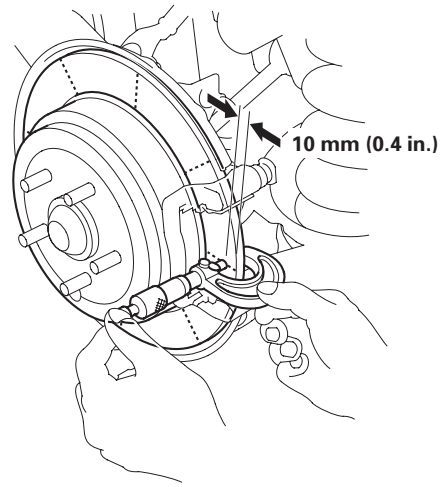
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the rear wheels.

2. Remove the brake pads (see page 19-25).

3. Using a micrometer, measure disc thickness at eight points, about 45° apart and 10 mm (0.4 in.) in from the outer edge of the brake disc. Replace the brake disc if the smallest measurement is less than the max. refinishing limit.

   Brake Disc Thickness:
   Standard: 10.9—11.1 mm (0.43—0.44 in.)
   Max. Refinishing Limit: 9.0 mm (0.35 in.)
   Brake Disc Parallelism:
   0.015 mm (0.0006 in.) max.

   NOTE: This is the maximum allowable difference between the thickness measurements.



4. If the brake disc is beyond the service limit for parallelism, refinish the brake disc.

   NOTE: If the brake disc is beyond the service limit for refinishing, replace it (see step 8 on page 18-24).

Rear Brake Caliper Overhaul

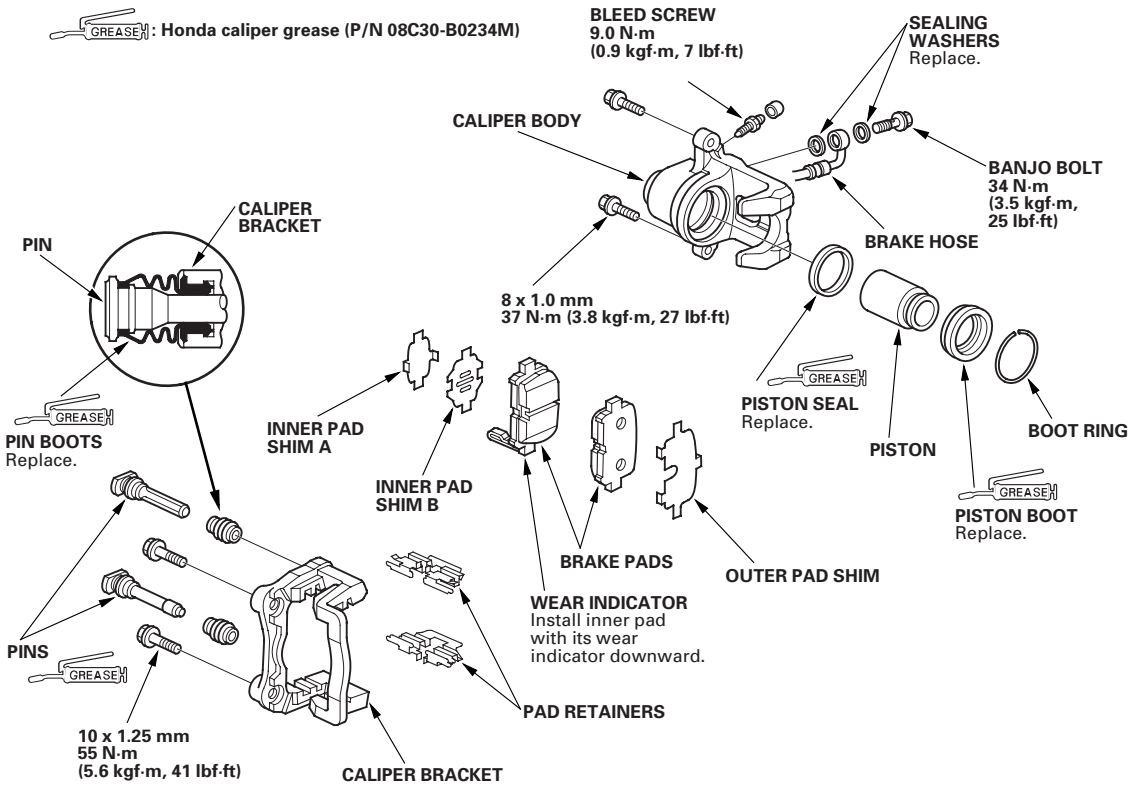
'02-04 Models

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

Remove, disassemble, inspect, reassemble, and install the caliper, and note these items:

- Do not spill brake fluid on the vehicle; it may damage the paint. If brake fluid gets on the paint, wash it off immediately with water.
- To prevent dripping brake fluid, cover disconnected hose joints with rags or shop towels.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones as specified in the illustration.
- Make sure no dirt or other foreign matter gets into the brake fluid.
- Make sure no grease or oil gets on the brake discs or pads.
- When reusing pads, always reinstall them in their original positions to prevent loss of braking efficiency.
- Do not reuse drained brake fluid. Use only clean Honda DOT 3 Brake Fluid. Non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Do not mix different brands of brake fluid as they may not be compatible.
- Coat the piston, piston seal groove, and caliper bore with clean brake fluid.
- Replace all rubber parts with new ones whenever disassembled.
- After installing the caliper, check the brake hose and line for leaks, interference, and twisting.



Parking Brake Inspection

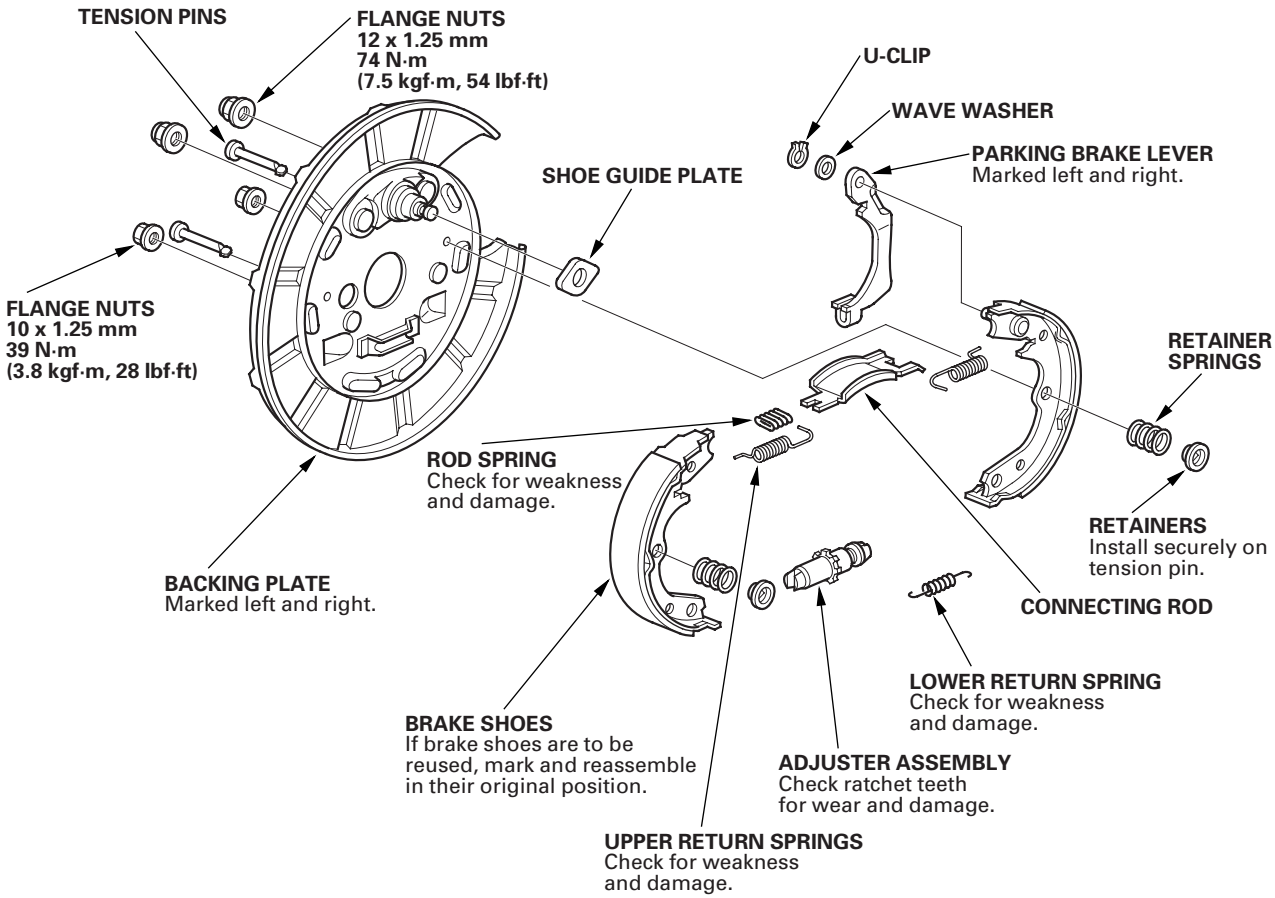
'02-04 Models

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the rear wheels.

2. Release the parking brake, and remove the rear caliper and brake disc/drum (see page 18-24).



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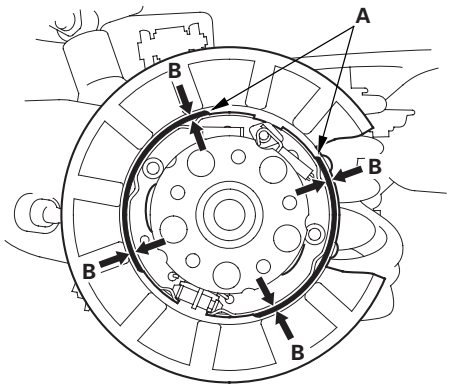
Parking Brake Inspection (cont'd)

3. Check the parking brake linings (A) for cracking, glazing, wear, and contamination.



4. Measure the parking brake lining thickness (B). Measurement does not include brake shoe thickness.

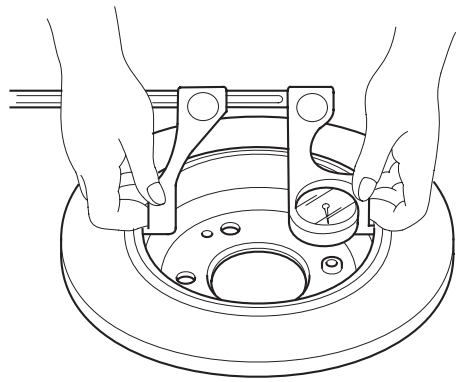
Parking Brake Lining Thickness:
Standard: 4.0 mm (0.16 in.)
Service limit: 1.0 mm (0.04 in.)

5. If the brake lining thickness is less than the service limit, replace all the parking brake shoes as a set.

6. Check the bearings in the hub unit for smooth operation.

7. Measure the inside diameter of the parking brake drum with inside vernier calipers.

Parking Brake Drum Inside Diameter:
Standard: 210.0—210.1 mm (8.268—8.272 in.)
Service limit: 211.0 mm (8.307 in.)



8. If the inside diameter of the parking brake drum is more than service limit, replace the rear brake disc/drum.

9. Check the parking brake drum for scoring, grooves, and cracks.

Parking Brake Shoe Replacement

'02-04 Models

⚠CAUTION

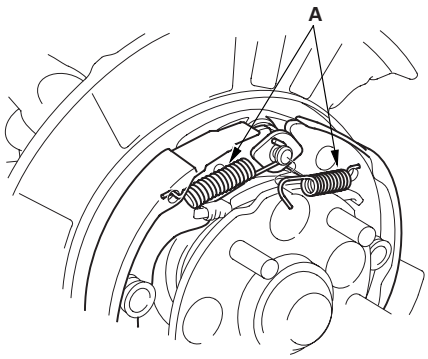
Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OHSA-approved vacuum cleaner.

Disassembly

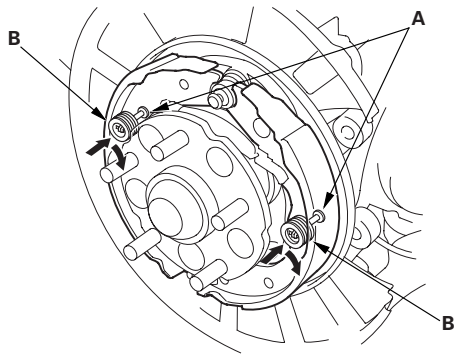
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-15). Remove the rear wheels.

2. Release the parking brake, and remove the rear brake caliper and brake disc/drum (see page 18-24).

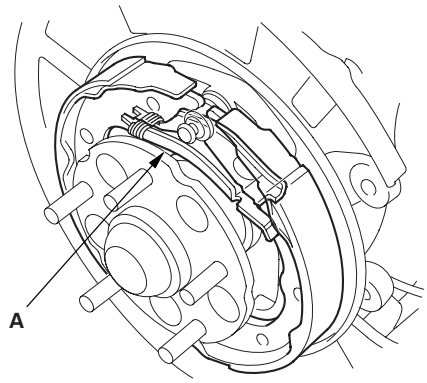
3. Disconnect and remove the upper return springs (A).



4. Remove the tension pins (A) by pushing and turning the retainers (B).

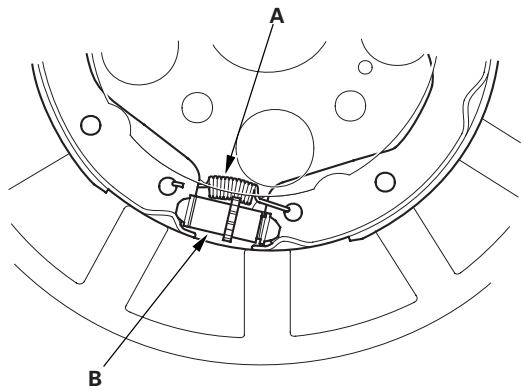


5. Remove the connecting rod (A).



6. Lower the parking brake shoe assembly.

7. Remove the forward brake shoe by removing the lower return spring (A) and adjuster assembly (B).



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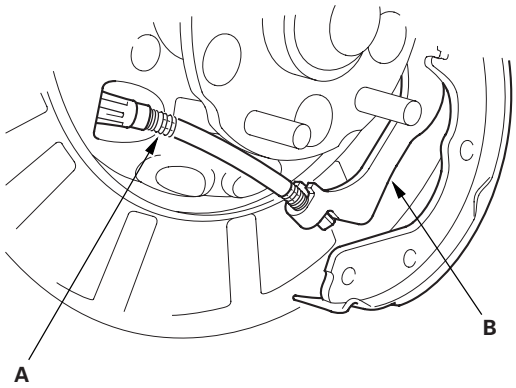
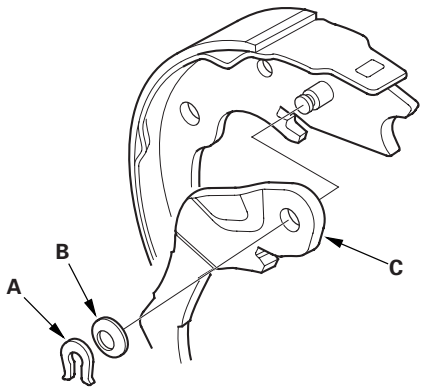
Parking Brake Shoe Replacement (cont'd)

8. Remove the rearward brake shoe by disconnecting the parking brake cable (A) from the parking brake lever (B).

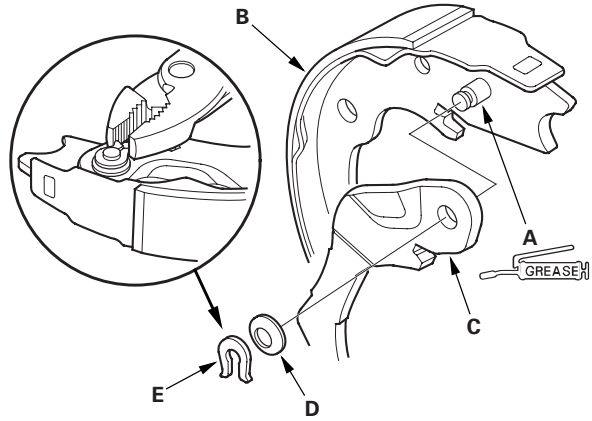


9. Remove the U-clip (A), wave washer (B), and parking brake lever (C) from the brake shoe.



Reassembly

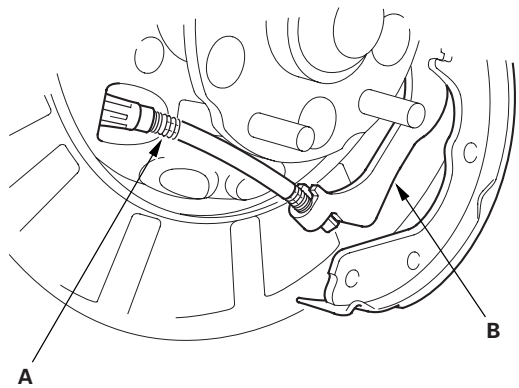
1. Apply Molykote 44 MA grease to the sliding surface of the pivot pin (A) of the rearward brake shoe (B).



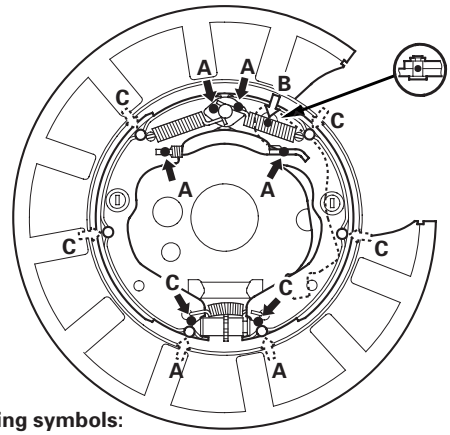
2. Install the parking brake lever (C) and wave washer (D) on the pivot pin, and secure with a new U-clip (E).

   - Install the wave washer with its convex side facing out.
   - Pinch the U-clip securely to prevent the parking brake lever from coming out from the brake shoe.

3. Connect the parking brake cable (A) to the parking brake lever (B).



4. Apply Molykote 44 MA grease to the shoe ends and connecting rod ends (A), sliding surfaces (B), and opposite edges of the parking brake shoe (C) as shown. Wipe off any excess grease Keep grease off the brake linings.



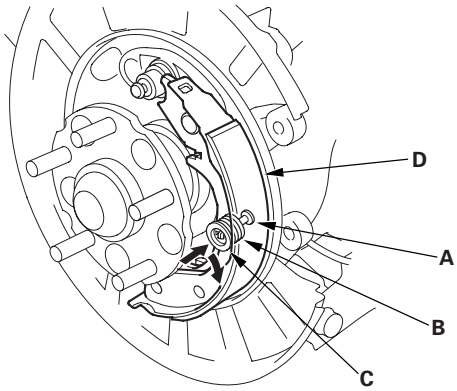
Greasing symbols:

➡● Brake shoe ends and connecting rod ends

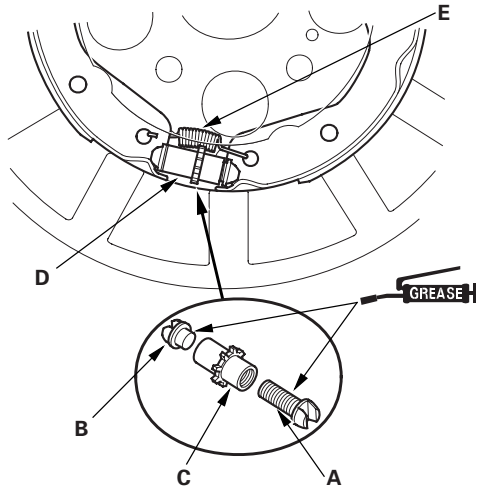
Opposite edge of the shoe

⇨● Sliding surface

5. Install the tension pin (A), retainer spring (B), and retainer (C) of the rearward brake shoe (D). Make sure the tension pin does not contact the parking brake lever.

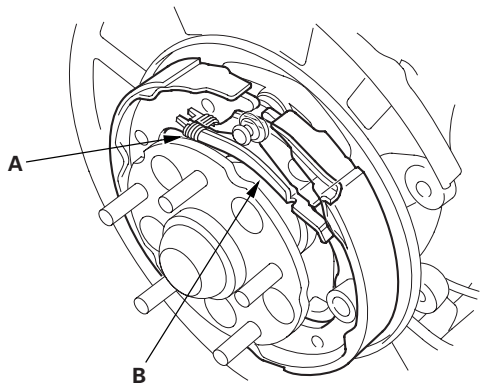


6. Clean the threaded portions of the clevis A, and coat the threads with multipurpose grease. Clean the sliding surface of the clevis B, and coat the sliding surface with multipurpose grease. Install the clevis A and B on the adjuster (C), and shorten the clevis A by turning the adjuster.



7. Reinstall the brake shoe adjuster assembly (D), and hook the lower return spring (E) on the parking brake shoes.

8. Install the rod spring (A) to the connecting rod (B) first. Then install the connecting rod on the parking brake shoes.



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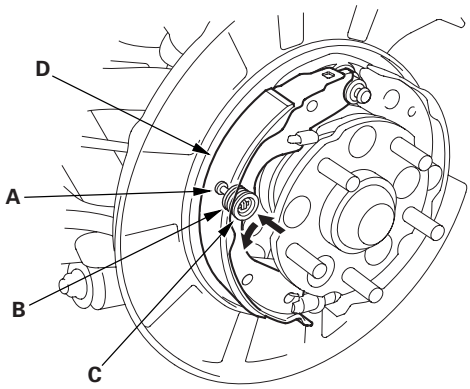
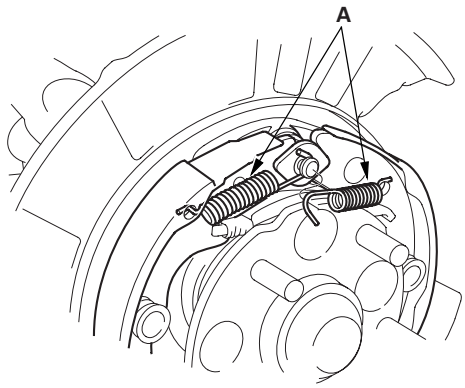
Parking Brake Shoe Replacement (cont'd)

9. Install the tension pin (A), retainer spring (B), and retainer (C) of the forward brake shoe (D).



10. Install the upper return springs (A).



11. Install the rear brake disc/drum and rear brake caliper.

12. Do the major parking adjustment brake (see step 1 on page 19-8).

Parking Brake Shoe Lining Break-in

'02-04 Models

NOTE: Do brake linings surface break-in when replacing shoes with new linings and/or new rear brake disc/drum.

⚠ WARNING

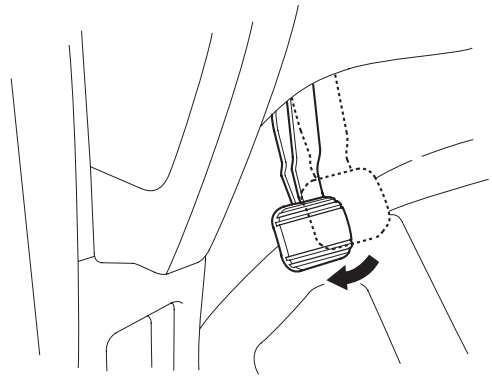
Perform this operation in a safe area.

1. Park the vehicle on a firm, level surface.

2. Do the major parking brake adjustment (see step 1 on page 19-8).

3. Do the minor parking brake adjustment (see step 1 on page 19-8).

4. Press the parking brake pedal two to four clicks.



5. Drive the vehicl for 400 m (1/4 mile) at no more than 31 mph (50 km/h).

6. Stop the vehicle, and release the parking brake for 5—10 minutes to allow the drums to cool.

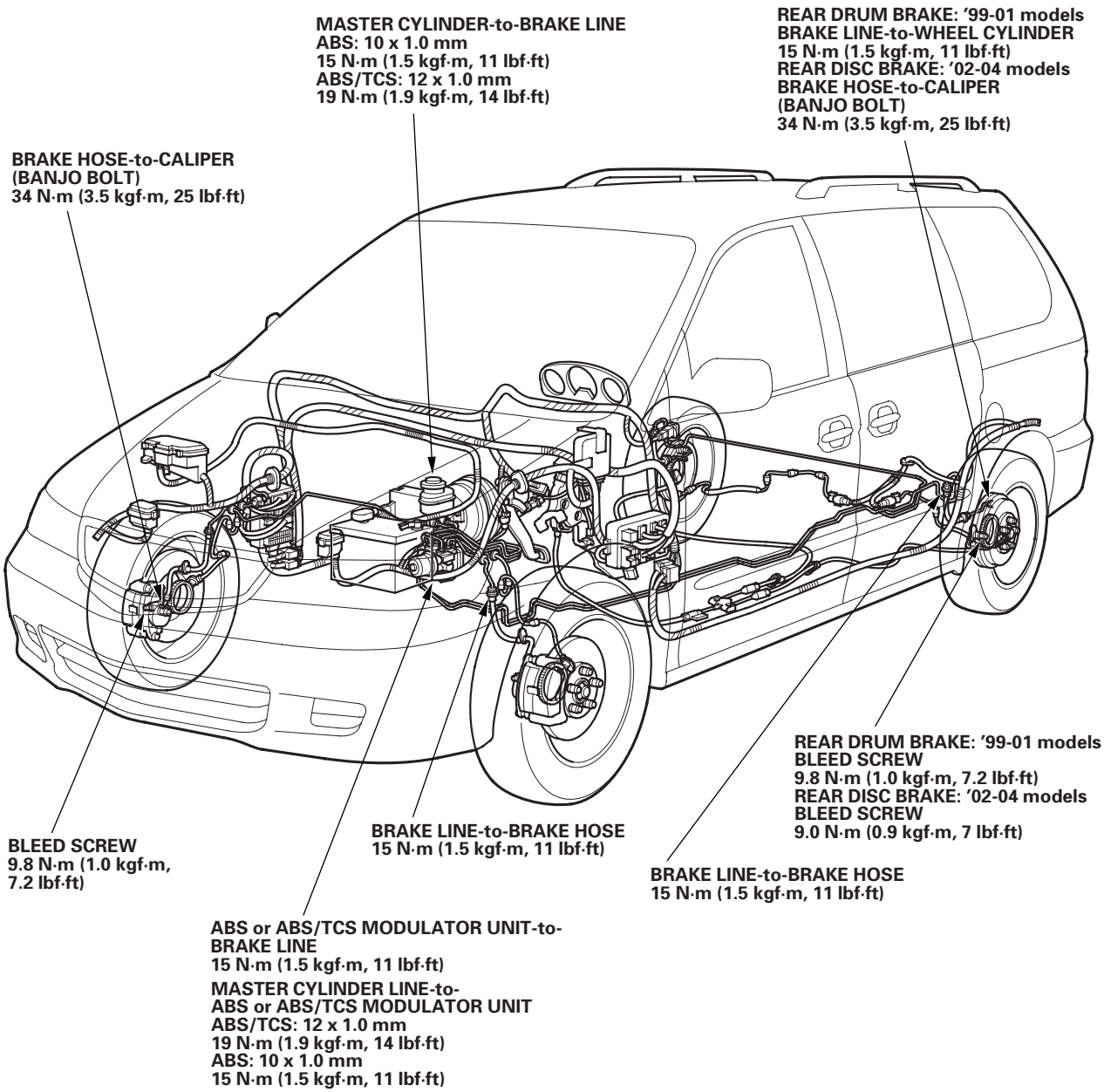
7. Repeat steps 4 through 6 three more times.

8. Check the parking brake pedal adjustment (see page 19-7).

Brake Hose and Line Inspection

1. Inspect the brake hoses for damage, cracks, leaks, interference, and twisting.
2. Check the brake lines for damage, rusting, and leakage. Also check for bent brake lines.
3. Check for leaks at hose and line joints or connections, and retighten if necessary.
4. Check the master cylinder and ABS or ABS/TCS modulator unit for damage and leakage.

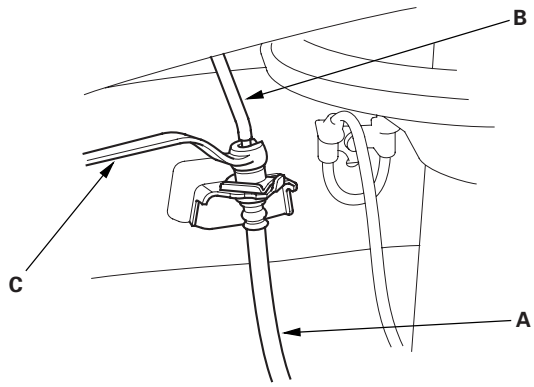
   NOTE: Replace the brake hose clip whenever the brake hose is serviced.



Brake Hose Replacement

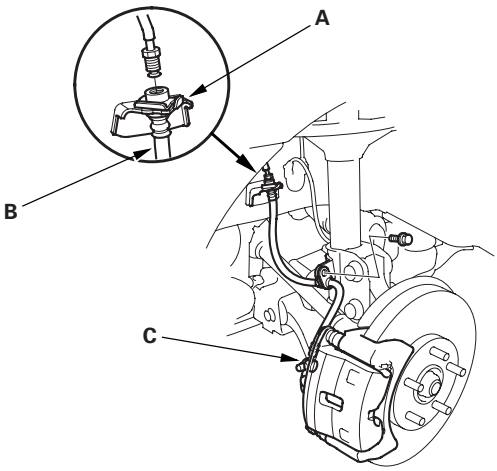
NOTE:
- Before reassembling, check that all parts are free of dust and other foreign particles.
- Replace parts with new ones whenever specified to do so.
- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.

1. Replace the brake hose (A) if the hose is twisted, cracked, or if it leaks.



2. Disconnect the brake hose from the brake line (B) using a 10 mm flare-nut wrench (C).

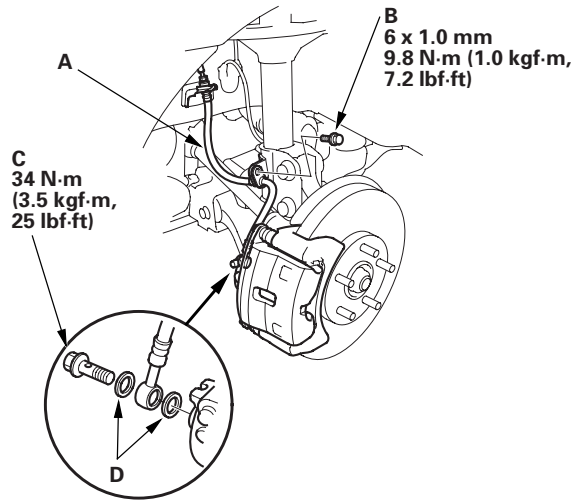
3. Remove and discard the brake hose clip (A) from the brake hose (B).



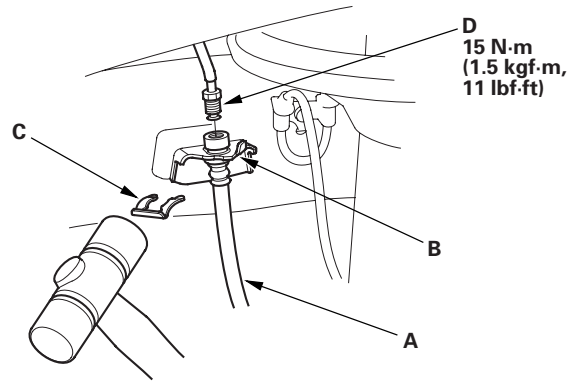
4. Remove the banjo bolt (C), and disconnect the brake hose from the caliper.

5. Remove the brake hose from the knuckle.

6. Install the brake hose (A) on the knuckle with a 6 mm flange bolt (B) first, then connect the brake hose to the caliper with the banjo bolt (C) and new sealing washers (D).



7. Install the brake hose (A) on the upper brake hose bracket (B) with a new brake hose clip (C).



8. Connect the brake line (D) to the brake hose.

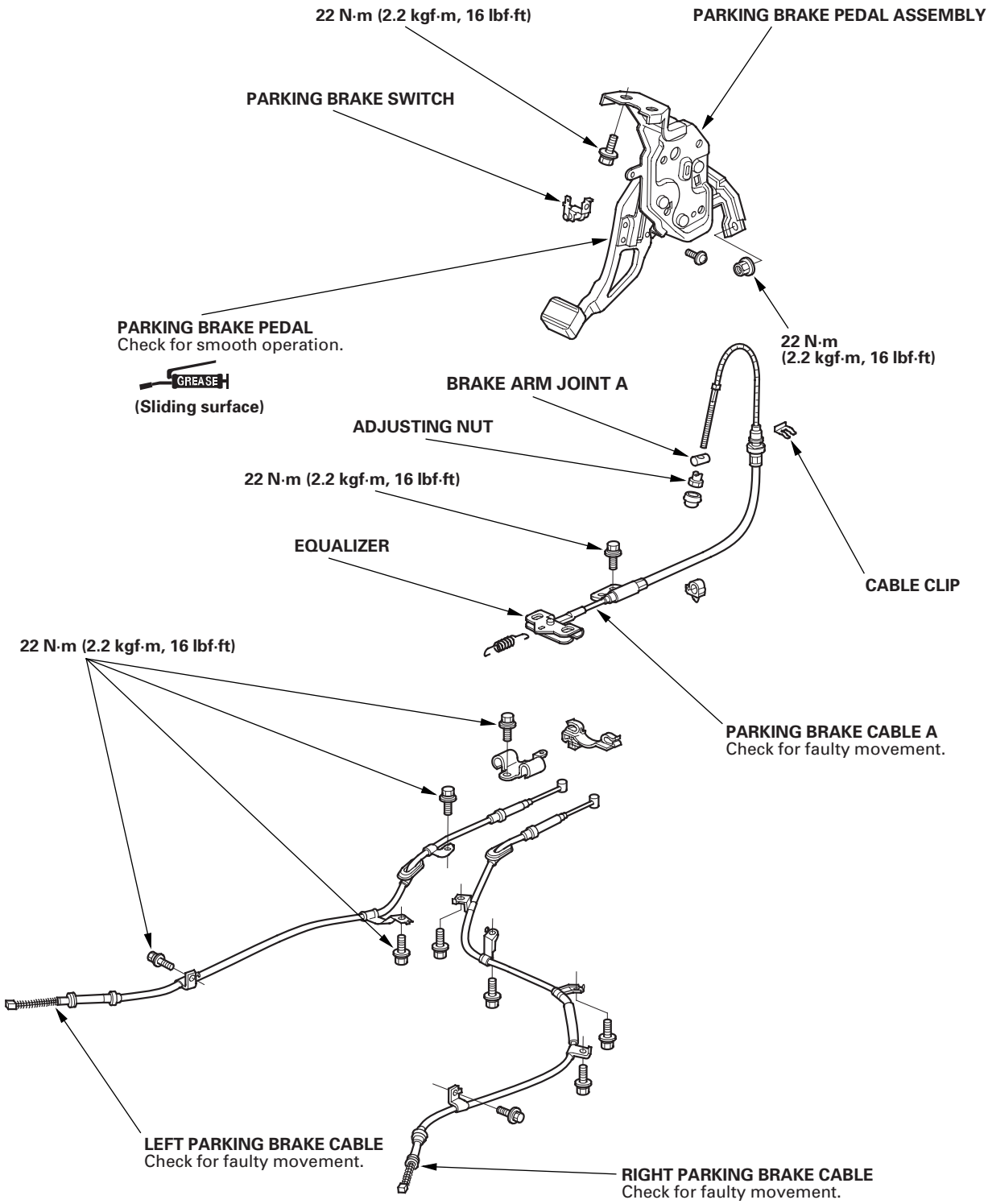
9. After installing the brake hose, bleed the brake system (see page 19-9).

10. Do the following checks:

    - Check the brake hose and line joint for leaks, and tighten if necessary.
    - Check the brake hoses for interference and twisting.

Parking Brake Cable Replacement

Exploded View



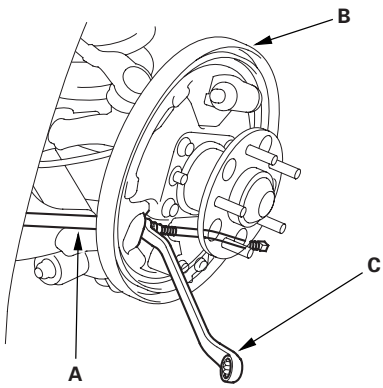
(cont'd)

Parking Brake Cable Replacement (cont'd)

NOTE:
- The parking brake cable must not be bent or distorted. This will lead to stiff operation and premature failure.
- Refer to the Exploded View as needed during this procedure.

Rear Drum Brake: '99-01 Models

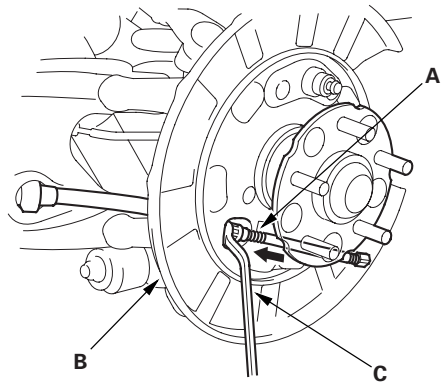
1. Release the parking brake pedal fully, and disconnect the parking brake cable from the pedal.
2. Remove the brake shoe assembly (see page 19-21).
3. Remove the parking brake cable mounting bolts.
4. Remove the parking brake cable (A) from the backing plate (B) using a 12 mm offset wrench (C).



5. Install the parking brake cable in the reverse order of removal.

Rear Disc Brake: '02-04 Models

1. Remove the parking brake shoes, and disconnect the parking brake cable from the brake shoe (see page 19-31).
2. Remove the parking brake cable (A) from the backing plate (B) using a 12 mm offset wrench (C).



3. Install the parking brake cable in the reverse order of removal, and adjust the parking brake (see page 19-7). Apply the parking brake firmly 10 times, then adjust it again.

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Brakes

Conventional Brake Components 19-1

ABS (Anti-lock Brake System) Components (1999-00 LX model)
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General Troubleshooting Information 19-41
DTC Troubleshooting Index 19-45
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ABS/TCS (Anti-lock Brake System/ Traction Control System) Components (1999-00 EX model, 2001-04 All models) 19-79

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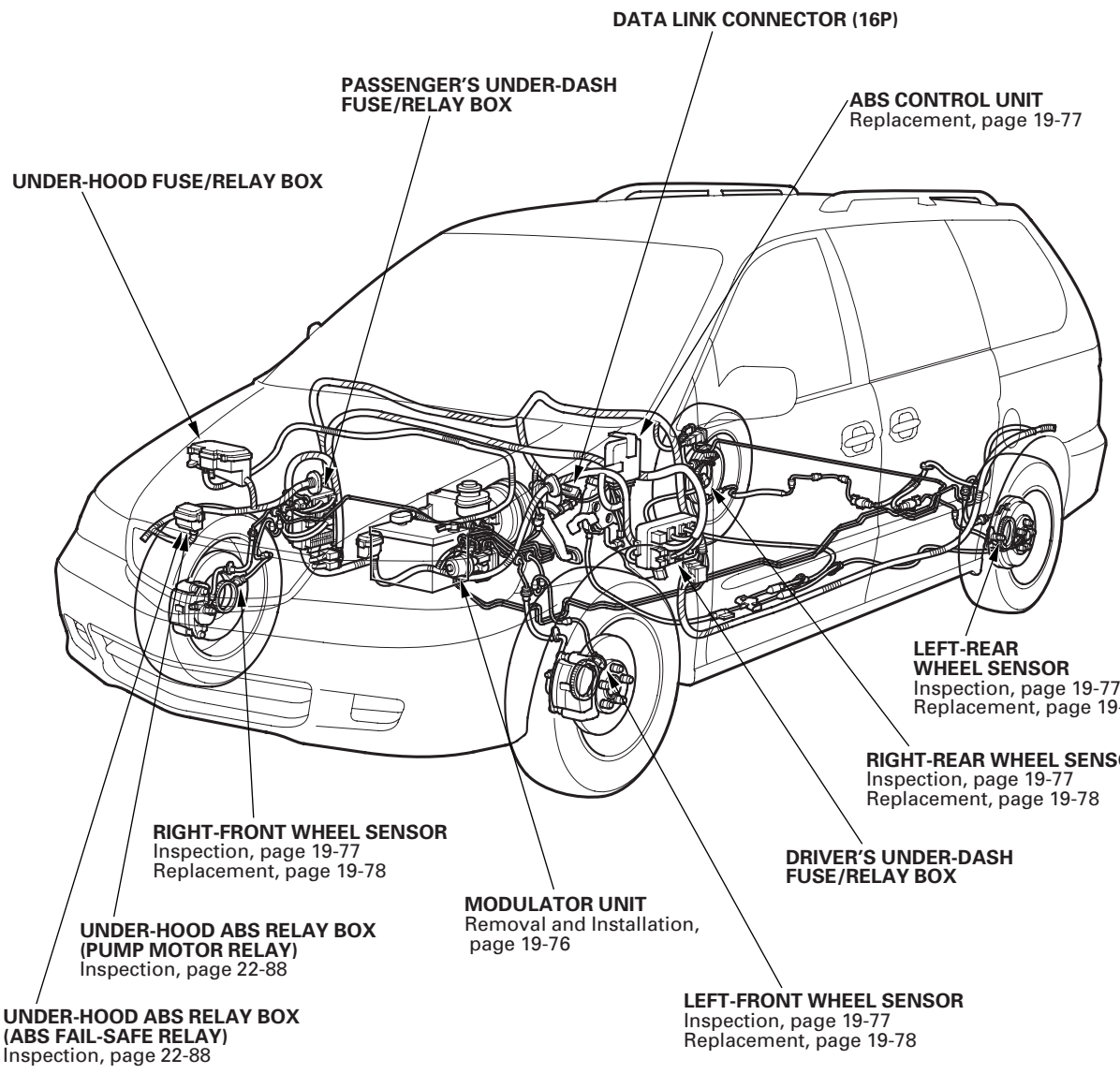
ABS Components

Component Location Index

0 1



General Troubleshooting Information

ABS Indicator

- If the system is OK, the ABS indicator goes off 2 seconds after turning the ignition switch ON (II) without starting the engine, and then comes on again and goes off 2 seconds later after starting the engine. This occurs because the ABS control unit is turned on by the IG2 power source.
- The ABS indicator comes on when the ABS control unit detects a problem in the system.

To determine the actual cause of the problem, question the customer about the problem, taking the above-listed conditions into consideration.

- When a problem is detected and the ABS indicator comes on, there are cases when the indicator stays on until the ignition switch is turned OFF, and cases when the indicator goes off automatically when the system returns to normal. For ABS DTCs 61 and 62, the indicator goes off automatically when the system returns to normal. For all other codes, the indicator stays on until the ignition switch is turned OFF.
- For ABS DTCs 12, 14, 16, 18, 21, 22, 23, 24, 51, 52 and 53, the ABS indicator goes off when the vehicle is driven again and the system is OK after the ignition switch is turned from OFF to ON (II). However, if the DTC is cleared, the CPU resets, and the indicator goes off right after the engine is started if the system is OK.

Diagnostic Trouble Code (DTC)

- If the CPU cannot be activated, or it fails, the ABS indicator comes on, but the DTC is not memorized.
- The memory can hold any number of DTCs. However, when the same DTC is detected more than once, the more recent DTC is written over the earlier one. Therefore, when the same problem is detected repeatedly, it is memorized as a single DTC.
- The DTCs are indicated in ascending number order, not in the order that they occur.
- The DTCs are memorized in the EEPROM (non-volatile memory). Therefore, the memorized DTCs cannot be canceled by disconnecting the battery. Do the specified procedures to clear the DTCs.

Self-diagnosis

- Self-diagnosis can be classified into two categories:
  – Initial diagnosis:
    Done right after the engine starts and until the ABS indicator goes off.
  – Regular diagnosis:
    Done right after the initial diagnosis until the ignition switch is turned OFF.
- When a problem is detected by self-diagnosis, the system shifts to fail-safe mode (see step 1 on page 19-52).

Kickback

The pump motor operates when the ABS is functioning, and the fluid in the reservoir is forced out to the master cylinder, causing kickback at the brake pedal.

Pump Motor

- The pump motor operates when the ABS is functioning.
- The ABS control unit checks the pump motor operation during initial diagnosis when the vehicle is started. You may hear the motor operate at this time, but it is normal.

(cont'd)

General Troubleshooting Information (cont'd)

How to Troubleshoot DTCs

The troubleshooting flowchart procedures assume that the cause of the problem is still present and the ABS indicator is still on. Following the flowchart when the ABS indicator does not come on can result in incorrect diagnosis.
The connector illustrations show the female terminal connectors with a single outline and the male terminal connectors with a double outline.

1. Question the customer about the conditions when the problem occured, and try to reproduce the same conditions for troubleshooting. Find out when the ABS indicator came on, such as during ABS control, after ABS control, when the vehicle was at a certain speed, etc.

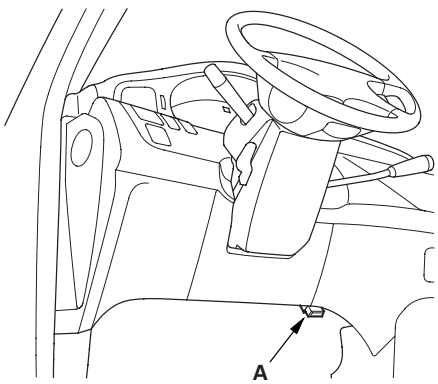
2. When the ABS indicator does not come on during the test-drive, but troubleshooting is done based on the DTC, check for loose connectors, poor terminal contact, etc., before you start troubleshooting.

3. After troubleshooting, clear the DTC and test-drive the vehicle. Make sure the ABS indicator do not come on.

How to Retrieve DTCs

HDS (Honda Diagnostic System) Method

1. With the ignition OFF, connect the HDS to the 16P data link connector (DLC) (A) located under the driver's side of the dashboard.

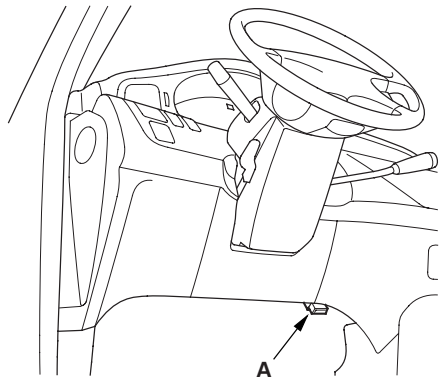


2. Turn the ignition ON (II), and follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC Troubleshooting Index.

   NOTE: See the HDS help menu for specific instructions.

Service Check Signal (SCS) Circuit Method

1. With the ignition switch OFF, connect the HDS to the 16P data link connector (DLC) (A) under the driver's side of the dashboard.



2. Short the SCS circuit to body ground using the HDS.

3. Turn the ignition switch ON (II) without pressing the brake pedal.

   NOTE: If the brake pedal is pressed when turning the ignition switch ON (II), the system shifts to the DTC clearing mode.

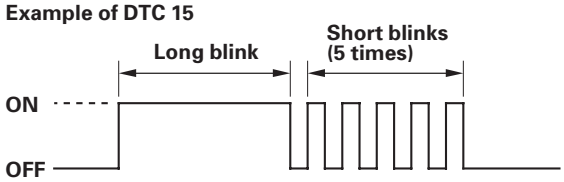
4. The blinking frenquency indicates the DTC. DTCs are indicated by a series of long and short blinks. One long blink equals 10 short blinks. Add the long and short blinks together to determine the DTC. After determining the DTC, refer to the DTC Troubleshooting Index.

   NOTE: If the DTC is not memorized, the ABS indicator will go off for 3.6 seconds, and then come back on.

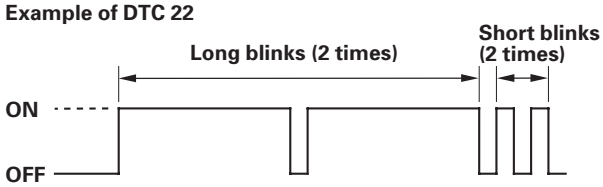
   The system will not indicate the DTC unless these conditions are met:

   - The brake pedal is not pressed.
   - The ignition switch is turned ON (II).
   - The engine is stopped.
   - The SCS circuit is shorted to body ground before the ignition switch is turned ON (II).

Example of DTC 15



Example of DTC 22



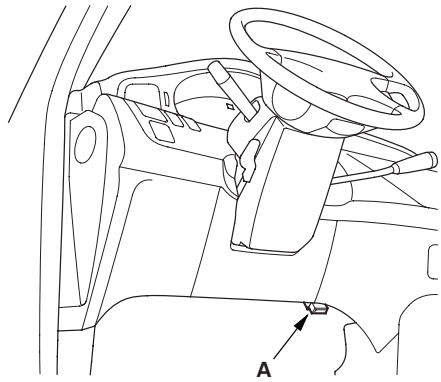
5. Turn the ignition switch OFF.

6. Disconnect the HDS from the DLC.

How to Clear DTCs

HDS (Honda Diagnostic System) Method

1. With the ignition switch OFF, connect the HDS to the 16P data link connector (DLC) (A) under the driver's side of the dashboard.

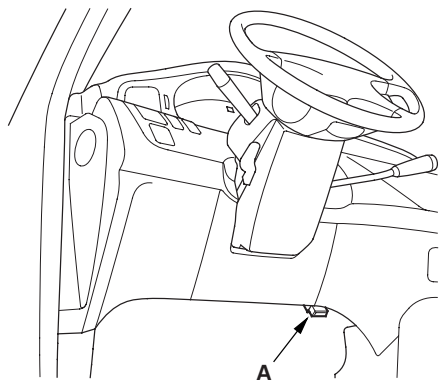


2. Turn the ignition switch ON (II), and clear the DTC(s) by following the screen prompts on the HDS.

   NOTE: See the HDS help menu for specific instructions.

Service Check Signal (SCS) Circuit Method

1. With the ignition switch OFF, connect the HDS to the 16P data link connector (DLC) (A) under the driver's side of the dashboard.



2. Short the SCS circuit to body ground using the HDS.

3. Press the brake pedal.

(cont'd)

General Troubleshooting Information (cont'd)

4. Turn the ignition switch ON (II) while keeping the brake pedal pressed.

5. After the ABS indicator goes off, release the brake pedal.

6. After the ABS indicator comes on, press the brake pedal again.

7. After the ABS indicator goes off, release the brake pedal again.

   You cannot clear the DTC unless these conditions are met:

   - The vehicle speed is 6 mph (10 km/h) or less.
   - The SCS circuit is shorted to body ground before the ignition switch is turned ON (II).
   - The brake pedal is pressed before the ignition switch is turned ON (II).

8. After a few seconds, the ABS indicator blinks twice and the DTC is cleared. If the indicator does not blink twice, repeat steps 1 thru 7. If the ABS indicator stays on after it blinks twice, check the DTC, because a problem was detected during initial diagnosis before shifting to DTC clearing mode.

9. Turn the ignition switch OFF.

10. Disconnect the HDS from the DLC.

DTC Troubleshooting Index

DTC	Detection Item	Note
DTC 11	Right-front wheel sensor (open/short to body ground/short to power)	(see page 19-58)
DTC 12	Right-front wheel sensor (electrical noise/intermittent interruption)	(see page 19-59)
DTC 13	Left-front wheel sensor (open/short to body ground/short to power)	(see page 19-58)
DTC 14	Left-front wheel sensor (electrical noise/intermittent interruption)	(see page 19-59)
DTC 15	Right-rear wheel sensor (open/short to body ground/short to power)	(see page 19-58)
DTC 16	Right-rear wheel sensor (electrical noise/intermittent interruption)	(see page 19-59)
DTC 17	Left-rear wheel sensor (open/short to body ground/short to power)	(see page 19-58)
DTC 18	Left-rear wheel sensor (electrical noise/intermittent interruption)	(see page 19-59)
DTC 21	Right-front pulser	(see page 19-60)
DTC 22	Left-front pulser	(see page 19-60)
DTC 23	Right-rear pulser	(see page 19-60)
DTC 24	Left-rear pulser	(see page 19-60)
DTC 31	Right-front inlet solenoid	(see page 19-61)
DTC 32	Right-front outlet solenoid	(see page 19-61)
DTC 33	Left-front inlet solenoid	(see page 19-61)
DTC 34	Left-front outlet solenoid	(see page 19-61)
DTC 35	Right-rear inlet solenoid	(see page 19-61)
DTC 36	Right-rear outlet solenoid	(see page 19-61)
DTC 37	Left-rear inlet solenoid	(see page 19-61)
DTC 38	Left-rear outlet solenoid	(see page 19-61)
DTC 41	Right-front wheel lock	(see page 19-64)
DTC 42	Left-front wheel lock	(see page 19-64)
DTC 43	Right-rear wheel lock	(see page 19-64)
DTC 44	Left-rear wheel lock	(see page 19-64)
DTC 51	Motor lock	(see page 19-65)
DTC 52	Motor stuck OFF	(see page 19-65)
DTC 53	Motor stuck ON	(see page 19-67)
DTC 54	ABS fail-safe relay	(see page 19-69)
DTC 61	Low battery voltage	(see page 19-71)
DTC 62	High battery voltage	(see page 19-71)
DTC 71	Different diameter tire	(see page 19-72)
DTC 81	Central Processing Unit (CPU) diagnosis, and ROM/RAM diagnosis	(see page 19-72)

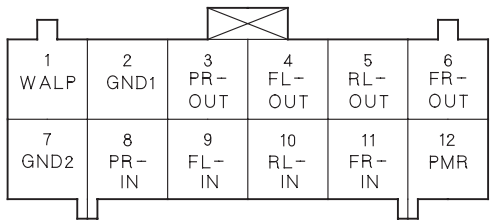
Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
ABS indicator does not come on	ABS Indicator Circuit Troubleshooting (see page 19-73)	
ABS indicator does not go off, and no DTCs are stored	ABS Indicator Circuit Troubleshooting (see page 19-73)	
Brake system indicator does not come on	Brake System Indicator Circuit Troubleshooting (see page 19-75)	
Brake system indicator does not go off and no DTCs are stored	Brake System Indicator Circuit Troubleshooting (see page 19-75)	

System Description

ABS Control Unit Inputs and Outputs for Connector B (12P)

ABS CONTROL UNIT CONNECTOR B (12P)



Wire side of female terminals

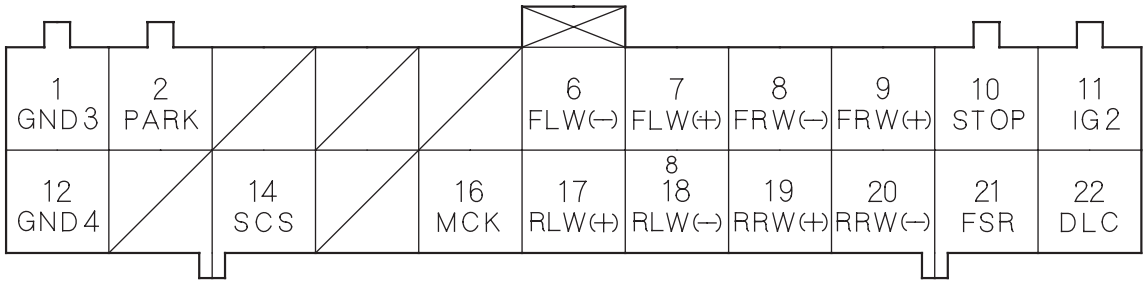
Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement				
				Terminal	Conditions (Ignition switch ON (II))			Voltage
1	BLU/WHT	WALP (Warning lamp)	Drives ABS indicator light (Turns the indicator light drive transistor to ON, then turns off the indicator light)	1—GND	ABS indicator	ON		4—6 V
						OFF		Below 0.3 V
2	BLK	GND1 (Ground 1)	Ground	2—GND	———			Below 0.3 V
3	YEL/WHT	RR-OUT (Rear-right outlet solenoid valve	Drives right-rear outlet solenoid valve	3—GND	ABS indicator	OFF		Battery Voltage
4	YEL/BLU	FL-OUT (Front-left outlet)	Drives left-front outlet solenoid valve	4—GND				
5	YEL/GRN	RL-OUT (Rear-left outlet)	Drives left-rear outlet solenoid valve	5—GND		ON (Disconnect connector A to turn light on)		Below 0.3 V
6	YEL/BLK	FR-OUT (Front-right outlet)	Drives right-front outlet solenoid valve	6—GND				
7	BLK	GND2 (Ground 2)	Ground	7—GND	———			Below 0.3 V
8	RED/WHT	RR-IN (Rear-right inlet)	Drives right-rear inlet solenoid valve	8—GND	ABS indicator	OFF		Battery Voltage
9	RED/BLU	FL-IN (Front-left inlet)	Drives left-front inlet solenoid valve	9—GND				
10	RED/GRN	RL-IN (Rear-left inlet)	Drives left-rear inlet solenoid valve	10—GND		ON (Disconnect connector A to turn light on)		Below 0.3 V
11	RED/BLK	FR-IN (Front-right inlet)	Drives right-front inlet solenoid valve	11—GND				
12	YEL/RED	PMR (Pump motor relay)	Drives pump motor relay	12—GND	ABS indicator	OFF	Pump motor ON	Below 1.0 V
							Pump motor OFF	Battery Voltage
						ON		Below 0.3 V

(cont'd)

System Description (cont'd)

ABS Control Unit Inputs and Outputs for Connector A (22P)

ABS CONTROL UNIT CONNECTOR A (22P)



Wire side of female terminals

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement			
				Terminal	Conditions (Ignition switch ON (II))		Voltage
1	BLK	GND3 (Ground 3)	Ground	1 – GND	———		Below 0.3 V
2	YEL/ WHT	PARK (Parking)	Detects parking brake switch signal	2 – GND	Engine running, Parking brake	Pulled	Below 0.3 V
						Release	Battery Voltage
6	BRN	FLW (–) (Front-left wheel negative)	Detects left-front wheel sensor signal	6 – 7	Wheel	Turn wheel at 1 turn/ second	AC: 0.053 V or above (Reference) Oscilloscope: 0.15 Vp-p or above
7	GRN/ BLU	FLW (+) (Front-left wheel positive)					
8	GRN	FRW (–) (Front-right wheel negative)	Detects right-front wheel sensor signal	8 – 9			
9	GRN/ BLK	FRW (+) (Front-right wheel positive)				Stopped	0.25 V – 1.15 V
10	WHT/ BLK	STOP	Detects brake switch signal	10 – GND	Brake pedal	Pressed	Battery Voltage
						Released	Below 0.3 V
11	YEL/ BLK	IG2 (Ignition 2)	Power source for activating the system	11 – GND	Ignition switch	ON (II)	Battery Voltage
						Start (III)	Below 0.3 V

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement			
				Terminal	Conditions (Ignition switch ON (II))		Voltage
12	BLK	GND4 (Ground 4)	Ground	12 — GND	———		Below 0.3 V
14	BRN	SCS (Service check signal)	Detects service check connector signal (DTC indication or DTC clearing)	14 — GND	SCS circuit	Shorted	Below 0.3 V
						Opened	About 5 V
16	GRN	MCK (Motor check)	Detects pump motor drive signal	16 — GND	Pump motor	ON	Battery Voltage
						OFF	Below 0.3 V
					Remove MCK fuse		About 10 V
17	LT BLU	RLW (+) (Rear-left wheel positive)	Detects left-rear wheel sensor signal	17 — 18	Wheel	Turn wheel at 1 turn/ second	AC: 0.053 V or above (Reference) Oscilloscope: 0.15 Vp-p or above
18	GRY	RLW (−) (Rear-left wheel positive)					
19	GRN/ YEL	RRW (+) (Rear-right wheel positive)	Detects right-rear wheel sensor signal	19 — 20			
20	BLU/ YEL	RRW (−) (Rear-right wheel negative)				Stopped	0.25 V — 1.15 V
21	YEL/ GRN	FSR (Fail-safe relay)	Drives ABS fail-safe relay (ABS fail-safe relay is turned OFF to shut off the power source to the solenoid and pump motor relay when a problem occurs.)	21 — GND	ABS (SCS circuit must be open)	Warning	Below 0.3 V
						Normal	About 11 V
22	LT BLU	DLC (Data link connector)	Communicates with the HDS	22 — GND	———		———

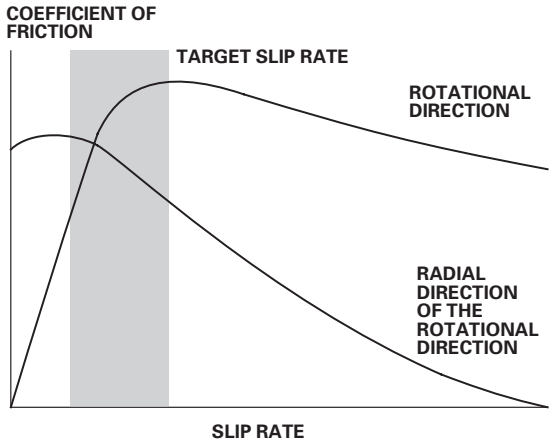
(cont'd)

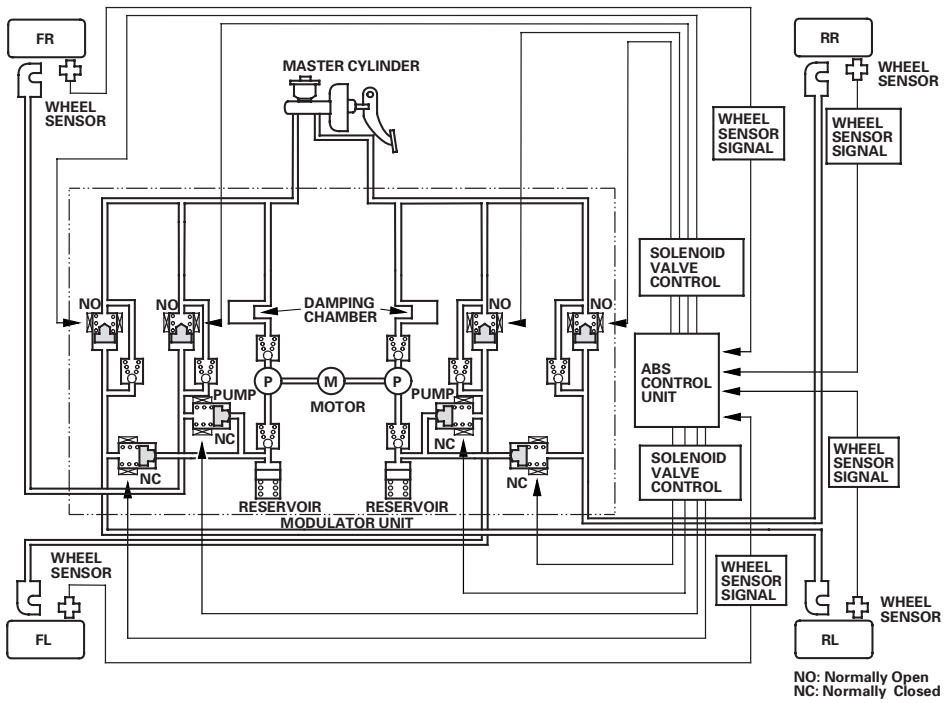
System Description (cont'd)

Features

When the brake pedal is pressed during driving, the wheels can lock before the vehicle comes to a stop. In such an event, the maneuverability of the vehicle is reduced if the front wheels are locked, and the stability of the vehicle is reduced if the rear wheels are locked, creating an extremely unstable condition. The ABS precisely controls the slip rate of the wheels to ensure maximum grip force from the tires, and it thereby ensures maneuverability and stability of the vehicle.
The ABS calculates the slip rate of the wheels based on the vehicle speed and the wheel speed, then it controls the brake fluid pressure to reach the target slip rate.

Grip Force of Tire and Road Surface





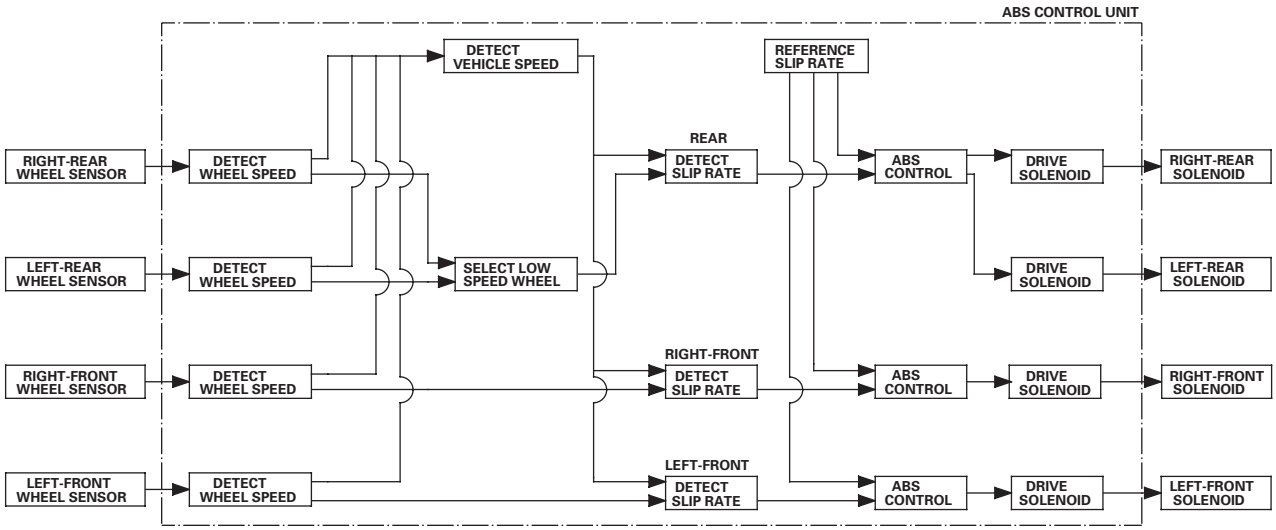
ABS Control Unit

Main Control

The ABS control unit detects the wheel speed based on the wheel sensor signal it received, then it calculates the vehicle speed based on the detected wheel speed. The control unit detects the vehicle speed during deceleration based on the rate of deceleration.

The ABS control unit calculates the slip rate of each wheel, and it transmits the control signal to the modulator unit solenoid valve when the slip rate is high.

The pressure reduction control has three modes: pressure reducing, pressure retaining, and pressure intensifying.



Electronic Brake Distribution (EBD) Control

The electronic brake distribution (EBD) function helps control vehicle braking by adjusting the rear brake force before the ABS operates. Based on wheel sensor signals, the ABS control unit uses the modulator to control the rear brakes individually. When the rear wheel speed is less than the front wheel speed, the ABS control unit retains the current rear brake fluid pressure by closing the inlet valve in the modulator. As the rear wheel speed increases and approaches the front wheel speed, the control unit increases the rear brake fluid pressure by momentarily opening the inlet valve. This whole process is repeated very rapidly.

(cont'd)

System Description (cont'd)

Self-diagnosis

1. The ABS control unit is equipped with a main CPU and a sub-CPU. Each CPU checks the other for problems.
2. The CPUs check the circuit of the system.
3. Self-diagnosis can be classifield into 2 categories:
   - Initial diagnosis: Done right after the engine starts and until the ABS indicator goes off.
   - Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned OFF.
4. When a problem is detected by self-diagnosis, the system shifts to fail-safe mode.

Self-diagnosis Table

Diagnostic Trouble Code (DTC)	Detection Item	Detection Timing		Fail-safe Mode
		Initial Diagnosis	Regular Diagnosis	
11, 13, 15, 17*	Wheel sensor (open/short to body ground/short to power)	○	○	A2
12, 14, 16, 18*	Wheel sensor (electrical noise/intermittent interruption)		○	A2, A2 and L2
21－24*	Pulser		○	A2 and L2
31－38	Solenoid (short to body ground/short to wire)	○	○	S, A1
41－44	Wheel lock		○	A2 and L2
51	Motor lock		○	A2 and L2
52	Motor stuck OFF		○	A2 and L2
53	Motor stuck ON	○	○	A2 and L2
54	ABS fail-safe relay	○	○	S
61	Low ignition voltage		○	B1, B2
62	High ignition voltage		○	B1, B2
71	Different diameter tire		○	S
81	Central Processing Unit (CPU) diagnosis, and ROM/RAM diagnosis	○	○	S, A1

NOTE:
- At the DTCs with '' * '' mark, there are cases that the ABS control unit shifts to fail-safe mode A1, L1 when the ABS control unit detects more than one DTC and for different wheel.
- If the ABS control unit detects the DTCs which have different fail-safe mode individually, the control unit take priority the large number mode.

Operation Mode Table

Operation Mode	Description	ABS Indicator	Brake System Indicator
Regular operation	Operation in normal condition.	OFF	OFF
Fail-safe mode-S	The ABS control unit turns the system off (turns the ABS fail-safe relay off) when the control unit detects a problem.	ON	ON
Fail-safe mode-A1	If the ABS control unit detects a malfunction during ABS or EBD operation, it will turn off the malfunctioning component, and continue to modulate the rest of the ABS or EBD until completing the ABS or EBD operation. At that time, the entire system will be turned off until the problem goes away.	ON	ON
Fail-safe mode-A2	If the ABS control unit detects a malfunction during ABS or EBD operation, it will turn off the malfunctioning component, and continue to modulate the rest of the ABS or EBD until completing the ABS or EBD operation. At that time, the entire system will be turned off until the problem goes away.	ON	OFF
Fail-safe mode-L1	The ABS control unit stores a DTC in back-up memory when it detects a problem. If a problem is detected when the ignition switch is turned ON (II), the ABS control unit will turn the ABS and EBD system off. If the problem goes away, the ABS control unit will turn the system on again.	ON	ON
Fail-safe mode-L2	The ABS control unit stores a DTC in back-up memory when it detects a problem. If a problem is detected when the ignition switch is turned ON (II), the ABS control unit will turn the ABS and EBD system off. If the problem goes away, the ABS control unit will turn the system on again.	ON	OFF
Fail-safe mode-B1	The ABS control unit will turn the ABS and EBD system off if the ignition voltage drops, and will turn them on again when the ignition voltage returns to normal.	ON	ON
Fail-safe mode-B2	The ABS control unit will turn the ABS and EBD system off if the ignition voltage drops, and will turn them on again when the ignition voltage returns to normal.	ON	OFF

On-board Diagnosis Function

The ABS can be diagnosed with the HDS.

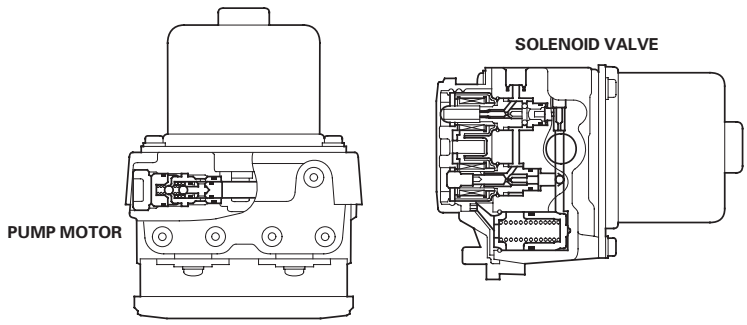
The ALB Checker cannot be used with this system. For air bleeding, and checking wheel sensor signals, use the HDS. See the HDS help menu for specific operating instructions.

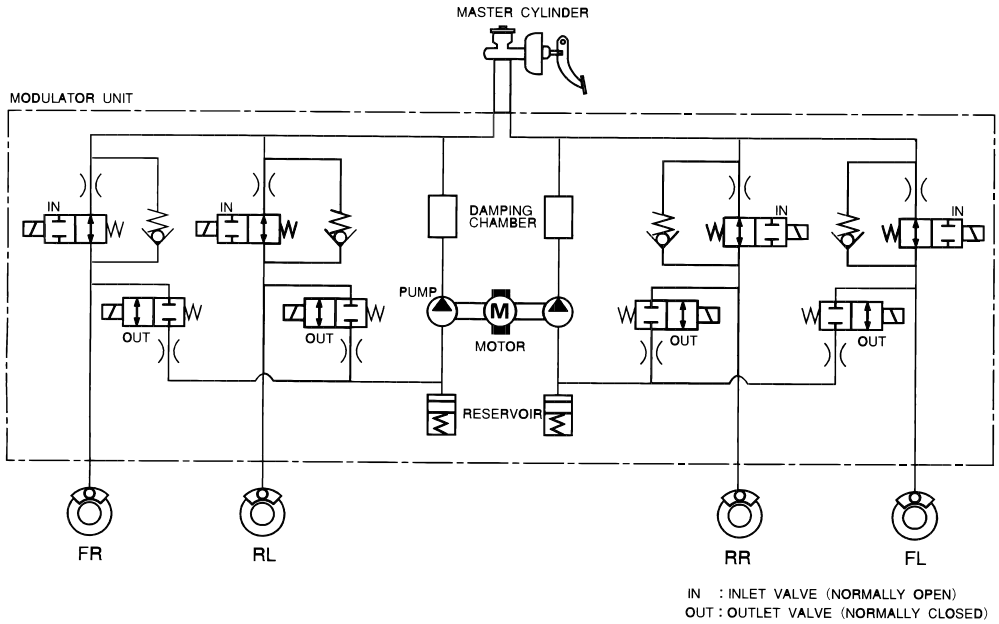
(cont'd)

System Description (cont'd)

ABS Modulator

The ABS modulator consists of the inlet solenoid valve, outlet solenoid valve, reservoir, pump, pump motor, and the damping chamber. The modulator reduces the caliper fluid pressure directly. It is a circulating-type modulator because the brake fluid circulates through the caliper, reservoir, and the master cylinder. The hydraulic control has three modes: pressure intensifying, pressure retaining, and pressure reducing. The hydraulic circuit is an independent four channel-type, one channel for each wheel.





Pressure intensifying mode: Inlet valve open, outlet valve closed
Master cylinder fluid is pumped out to the caliper.

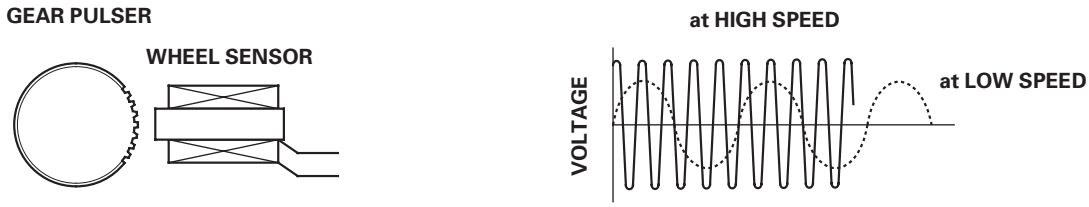
Pressure retaining mode: Inlet valve closed, outlet valve closed
Caliper fluid is retained by the inlet valve and outlet valve.

Pressure reducing mode: Inlet valve closed, outlet valve open
Caliper fluid flows through the outlet valve to the reservoir.

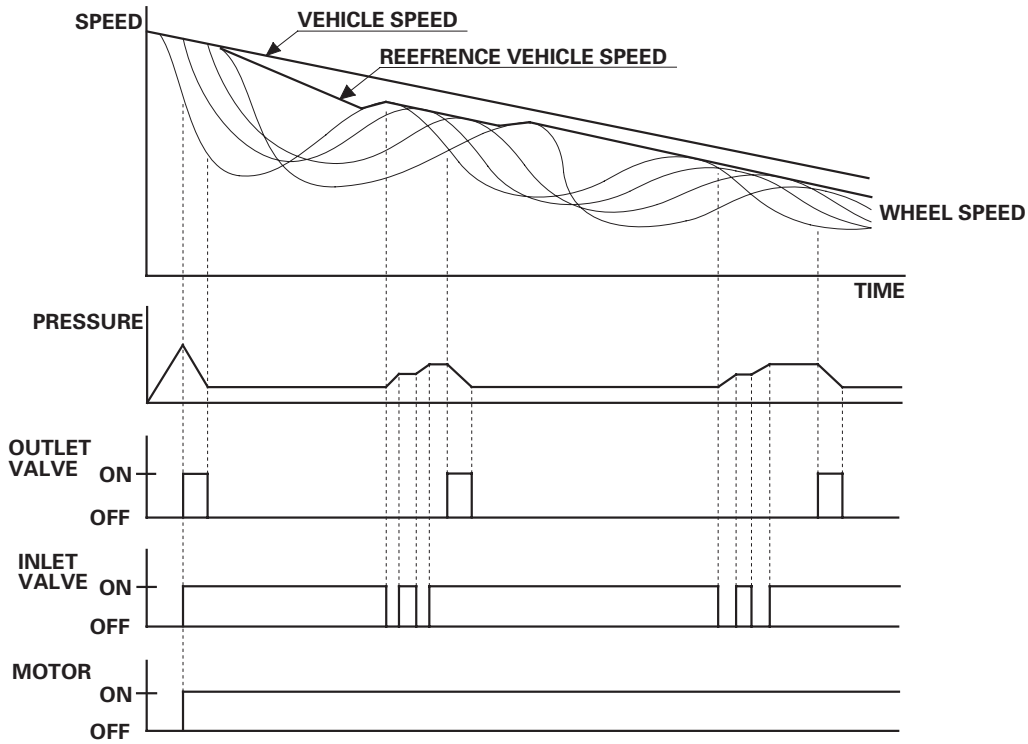
Motor operation mode: When starting the pressure reducing mode, the pump motor is ON.
When stopping ABS operation, the pump motor is OFF.
The caliper fluid is pumped out by the pump, through the damping chamber, to the master cylinder.

Wheel Sensors

The wheel sensors are the magnetic contactless type. As the gear pulser teeth rotate past the wheel sensor's magnetic coil, AC current is generated. The AC frequency changes in accordance with the wheel speed. The ABS control unit detects the wheel sensor signal frequency and thereby detects the wheel speed.

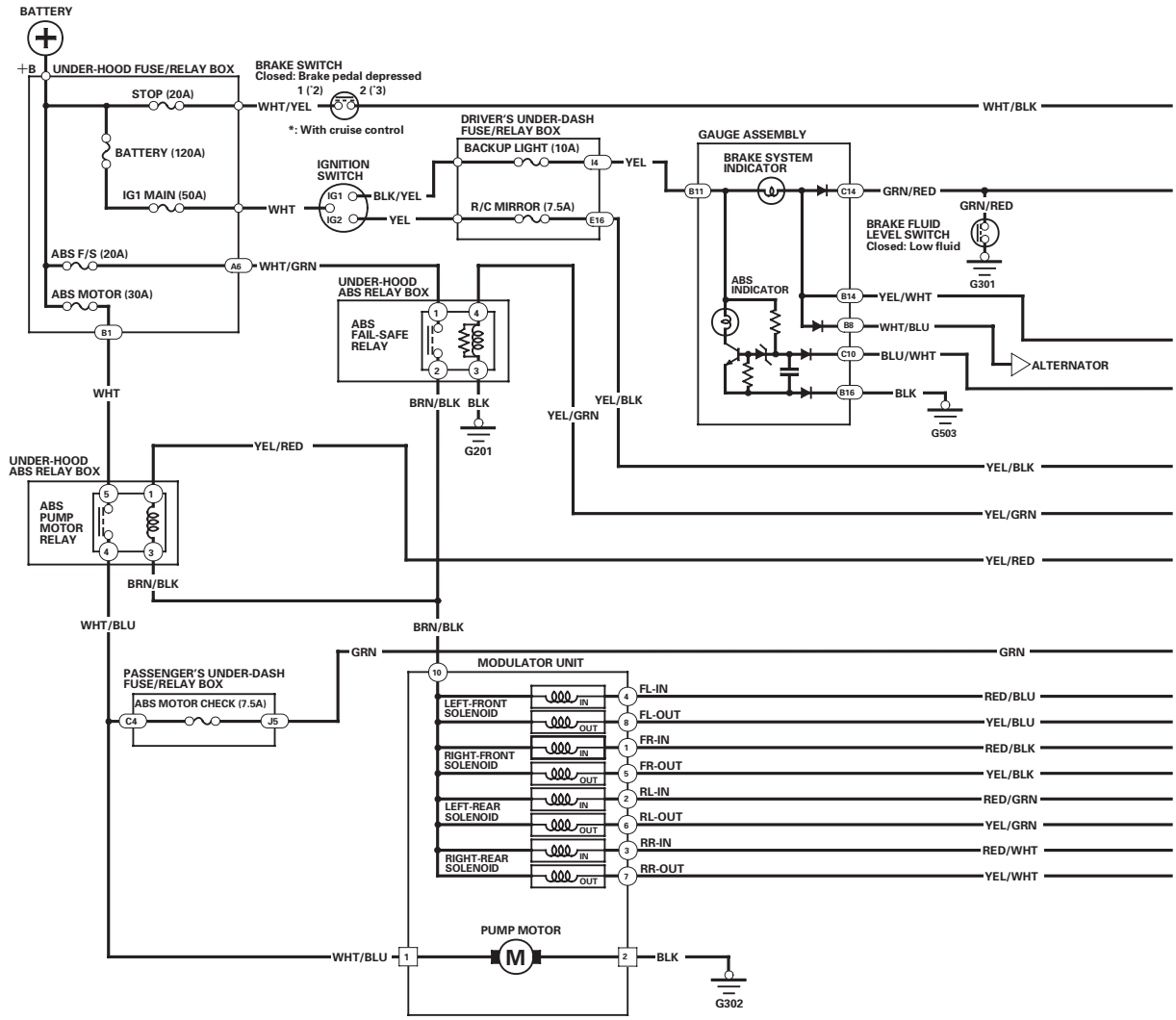


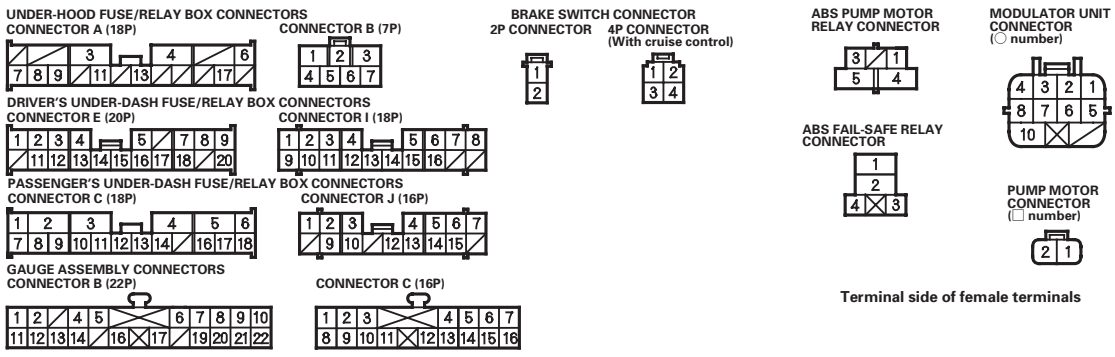
Wheel Speed and Modulator Control

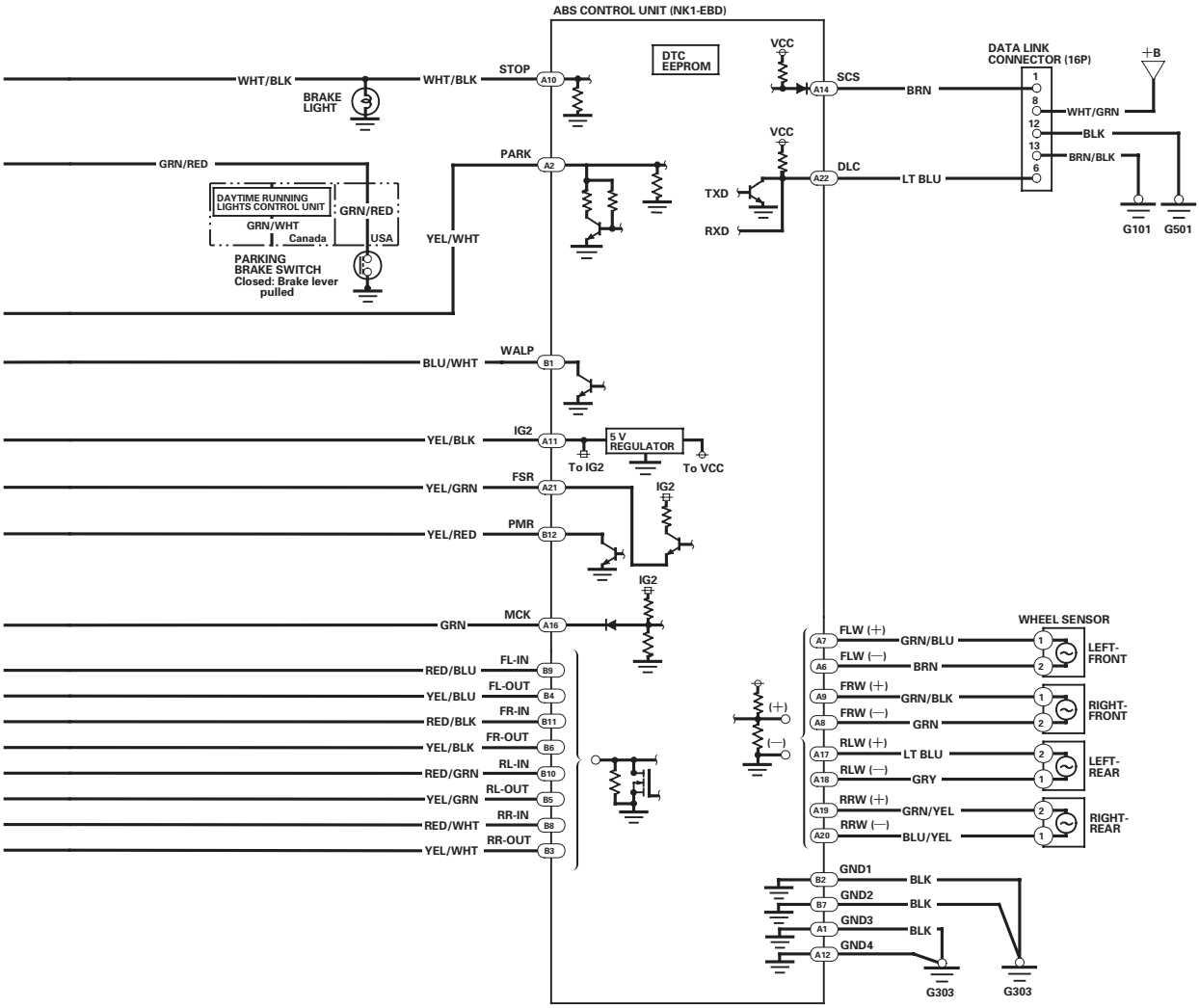


When the wheel speed drops sharply below the vehicle speed, the inlet valve closes and if necessary the outlet valve opens momentarily to reduce the caliper fluid pressure. The pump motor starts at this time. As the wheel speed is restored, the outlet valve closes, and the inlet valve opens momentarily to increase the caliper fluid pressure.

Circuit Diagram

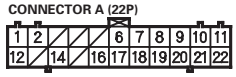




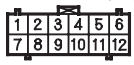


ABS CONTROL UNIT CONNECTORS

CONNECTOR A (22P)



CONNECTOR B (12P)



Wire side of female terminals

DATA LINK CONNECTOR (16P)

WHEEL SENSOR CONNECTOR

FRONT

Terminal side of male terminals

REAR

Wire side of female terminals

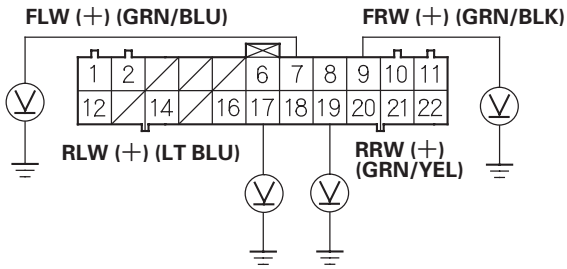
DTC Troubleshooting

DTC 11, 13, 15, 17: Wheel Sensor (Open/ Short to Body Ground/Short to Power)

1. Disconnect the ABS control unit connector A (22P).
2. Start the engine.
3. Measure the voltage between the appropriate wheel sensor (+) circuit terminal and body ground (see table).

DTC	Appropriate Terminal
11 (Right-front)	No. 9: FRW (+)
13 (Left-front)	No. 7: FLW (+)
15 (Right-rear)	No. 19: RRW (+)
17 (Left-rear)	No. 17: RLW (+)

ABS CONTROL UNIT CONNECTOR A (22P)



Wire side of female terminals

Is there 2 V or more?

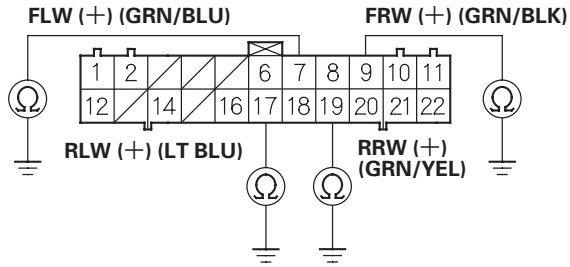
YES—Repair short to power in the (+) circuit wire between the ABS control unit and the appropriate wheel sensor. ■

NO—Go to step 4.

4. Check for continuity between the appropriate wheel sensor (+) circuit terminal and body ground (see table).

DTC	Appropriate Terminal
11 (Right-front)	No. 9: FRW (+)
13 (Left-front)	No. 7: FLW (+)
15 (Right-rear)	No. 19: RRW (+)
17 (Left-rear)	No. 17: RLW (+)

ABS CONTROL UNIT CONNECTOR A (22P)



Wire side of female terminals

Is there continuity?

YES—Go to step 5.

NO—Go to step 6.

5. Disconnect the harness 2P connector from the appropriate wheel sensor, then check for continuity between the (+) and (−) terminals of the harness and body ground.

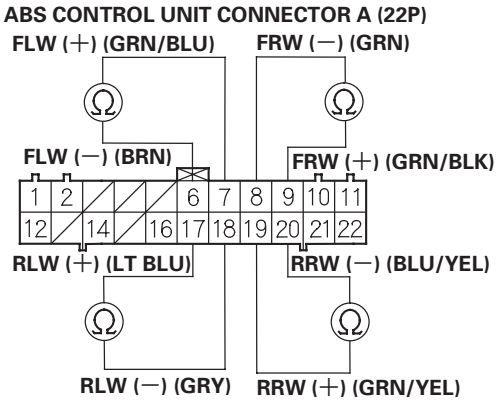
Is there continuity?

YES—Repair short to body ground in the (+) or (−) circuit wire between the ABS control unit and the wheel sensor. ■

NO—Replace the wheel sensor. ■

6. Check the resistance between the appropriate wheel sensor (+) and (−) circuit terminals (see table).

DTC	Appropriate Terminal	
	(+) Side	(−) Side
11 (Right-front)	No. 9: FRW (+)	No. 8: FRW (−)
13 (Left-front)	No. 7: FLW (+)	No. 6: FLW (−)
15 (Right-rear)	No. 19: RRW (+)	No. 20: RRW (−)
17 (Left-rear)	No. 17: RLW (+)	No. 18: RLW (−)



Is the resistance between 450−2,000 Ω ?

YES−Check for loose ABS control unit connectors. If necessary, substitute a known-good ABS control unit, and recheck. ■

NO−Go to step 7.

7. Disconnect the harness 2P connector from the appropriate wheel sensor, and check the resistance between the (+) and (−) terminals of the wheel sensor.

Is the resistance between 450−2,000 Ω ?

YES−Repair open in the (+) or (−) circuit wire, or short beween the (+) circuit wire and the (−) circuit wire between the ABS control unit and the wheel sensor. ■

NO−Replace the wheel sensor. ■

DTC 12, 14, 16, 18: Wheel Sensor (Electrical Noise/Intermittent Interruption)

NOTE: If the ABS indicator comes on because of electrical noise, the indicator goes off when you test-drive the vehicle at 19 mph (30 km/h).

1. Visually check for appropriate wheel sensor and pulser installation (see table).

DTC	Appropriate Wheel Sensor
12	Right-front
14	Left-front
16	Right-rear
18	Left-rear

Are they installed correctly?

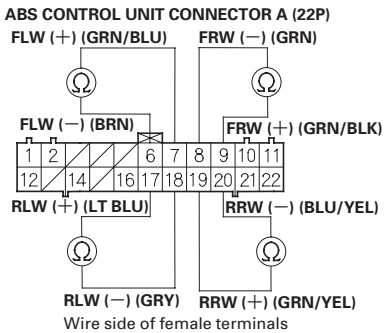
YES−Go to step 2.

NO−Reinstall or replace the appropriate wheel sensor or pulser. ■

2. Disconnect the ABS control unit connector A (22P).

3. Measure the resistance between the appropriate wheel sensor (+) and (−) circuit terminals (see table).

DTC	Appropriate Terminal	
	(+) Side	(−) Side
12 (Right-front)	No. 9: FRW (+)	No. 8: FRW (−)
14 (Left-front)	No. 7: FLW (+)	No. 6: FLW (−)
16 (Right-rear)	No. 19: RRW (+)	No. 20: RRW (−)
18 (Left-rear)	No. 17: RLW (+)	No. 18: RLW (−)



Is there less than 450 Ω ?

YES−Repair a short in the wires between the appropriate wheel sensor (+) and (−) circuits. ■

NO−Go to step 4.

(cont'd)

DTC Troubleshooting (cont'd)

4. Check for continuity between the appropriate wheel sensor (+) circuit terminal and other wheel sensor (+) circuit terminals (see table).

DTC	Appropriate Terminal	Other Terminal		
12	No. 9: FRW (+)	No. 7: FLW (+)	No. 19: RRW (+)	No. 17: RLW (+)
14	No. 7: FLW (+)	No. 9: FRW (+)	No. 19: RRW (+)	No. 17: RLW (+)
16	No. 19: RRW (+)	No. 9: FRW (+)	No. 7: FLW (+)	No. 17: RLW (+)
18	No. 17: RLW (+)	No. 9: FRW (+)	No. 7: FLW (+)	No. 19: RRW (+)

Is there continuity?

YES—Repair a short in the wires between the appropriate wheel sensor and the other wheel sensor. ■

NO—Clear the DTC, and test-drive the vehicle. If the ABS indicator comes on and the same DTC is indicated, replace the ABS control unit. ■

DTC 21, 22, 23, 24: Pulser

1. Clear the DTC (see step 1 on page 19-43).

2. Test-drive the vehicle at 19 mph (30 km/h) or more.

   Does the ABS indicator come on and are DTCs 21, 22, 23, 24 indicated?

   YES—Go to step 3.

   NO—The system is OK at this time. ■

3. Check the appropriate pulser gears for a chipped tooth (see table).

DTC	Appropriate Pulser
21	Right-front
22	Left-front
23	Right-rear
24	Left-rear

   Are the pulser gears OK?

   YES—Check for loose terminals in the ABS control unit connectors. If necessary, substitute a known-good ABS control unit, and recheck. ■

   NO—Replace the driveshaft or the hub unit with the chipped tooth on the pulser gear. ■

DTC 31, 32, 33, 34, 35, 36, 37, 38: Solenoid

1. Verify the DTC.

   Is DTC 54 indicated?

   YES—Do the appropriate troubleshooting for DTC 54. ■

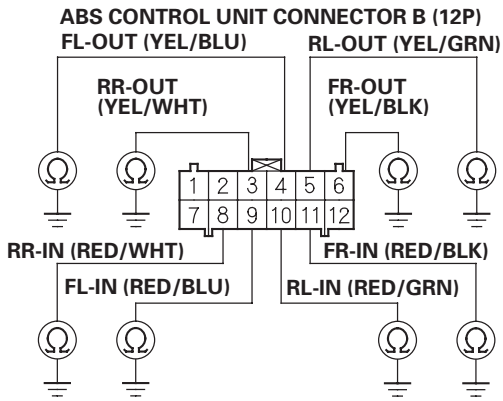
   NO—Go to step 2.

2. Turn the ignition switch OFF.

3. Disconnect the modulator unit connector and the ABS control unit connector B (12P).

4. Check for continuity between the appropriate ABS control unit connector B (12P) solenoid circuit terminal and body ground (see table).

DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 6
33: FL-IN	No. 9
34: FL-OUT	No. 4
35: RR-IN	No. 8
36: RR-OUT	No. 3
37: RL-IN	No. 10
38: RL-OUT	No. 5



Wire side of female terminals

Is there continuity?

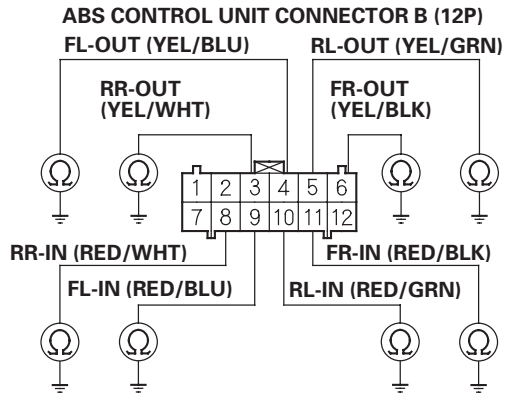
YES—Repair short to body ground in the appropriate solenoid circuit wire between the ABS control and the modulator unit. ■

NO—Go to step 5.

5. Connect the modulator unit connector.

6. Check for continuity between the appropriate ABS control unit connector B (12P) solenoid circuit terminal and body ground (see table).

DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 6
33: FL-IN	No. 9
34: FL-OUT	No. 4
35: RR-IN	No. 8
36: RR-OUT	No. 3
37: RL-IN	No. 10
38: RL-OUT	No. 5



Wire side of female terminals

Is there continuity?

YES—Replace the modulator unit. ■

NO—Go to step 7.

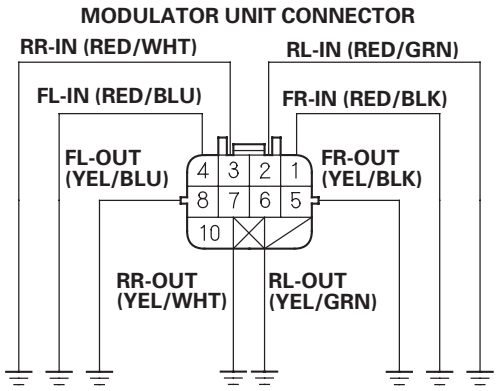
7. Disconnect the modulator unit connector.

(cont'd)

DTC Troubleshooting (cont'd)

8. Connect the appropriate modulator unit connector solenoid circuit terminal to body ground with a jumper wire (see table).

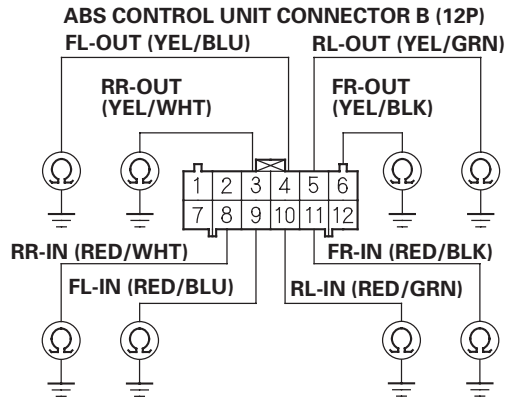
DTC	Appropriate Terminal
31: FR-IN	No. 1
32: FR-OUT	No. 5
33: FL-IN	No. 4
34: FL-OUT	No. 8
35: RR-IN	No. 3
36: RR-OUT	No. 7
37: RL-IN	No. 2
38: RL-OUT	No. 6



Terminal side of female terminals

9. Check for continuity between the appropriate ABS control unit connector B (12P) solenoid circuit terminal and body ground (see table).

DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 6
33: FL-IN	No. 9
34: FL-OUT	No. 4
35: RR-IN	No. 8
36: RR-OUT	No. 3
37: RL-IN	No. 10
38: RL-OUT	No. 5



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the appropriate solenoid circuit wire between the ABS control unit and the modulator unit. ■

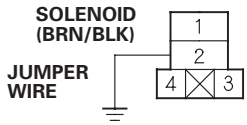
10. Remove the jumper wire from the modulator unit connector.

11. Connect the modulator unit connector.

12. Connect the ABS fail-safe relay connector terminal No. 2 to body ground with a jumper wire.

    NOTE: The wire colors of the ABS fail-safe relay connector; are WHT/GRN, BRN/BLK, BLK, YEL/GRN.

ABS FAIL-SAFE RELAY CONNECTOR

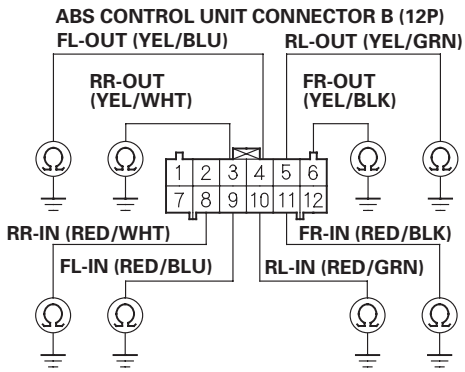


Terminal side of female terminals

13. Check the resistance between the appropriate ABS control unit connector B (12P) terminal and body ground (see table).
    IN: 8 — 10 Ω (at 20℃, 68℉)
    OUT: 3 — 5 Ω (at 20℃, 68℉)

DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 6
33: FL-IN	No. 9
34: FL-OUT	No. 4
35: RR-IN	No. 8
36: RR-OUT	No. 3
37: RL-IN	No. 10
38: RL-OUT	No. 5

ABS CONTROL UNIT CONNECTOR B (12P)



Wire side of female terminals

Is the resistance OK?

YES — Go to step 14.

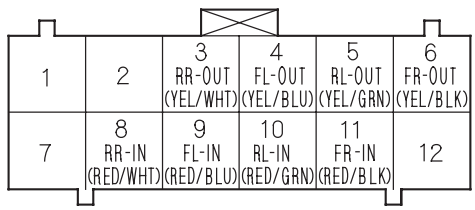
NO — Replace the modulator unit. ■

14. Disconnect the modulator unit connector, and remove the jumper wire from the ABS fail-safe relay connector terminal.

15. Check for continuity between the appropriate ABS control unit connector B (12P) terminal and all other solenoid circuit terminals (see table).

DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 6
33: FL-IN	No. 9
34: FL-OUT	No. 4
35: RR-IN	No. 8
36: RR-OUT	No. 3
37: RL-IN	No. 10
38: RL-OUT	No. 5

ABS CONTROL UNIT CONNECTOR B (12P)



Wire side of female terminals

Is there continuity?

YES — Repair the short in the appropriate wires between the ABS control unit and the modulator unit. ■

NO — Go to step 16.

(cont'd)

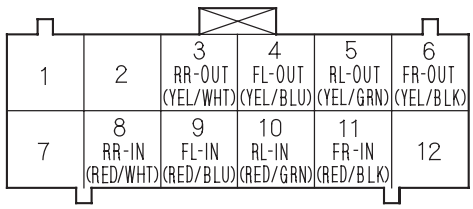
DTC Troubleshooting (cont'd)

16. Connect the modulator unit connector.

17. Check for continuity between the appropriate ABS control unit connector B (12P) terminal and all other solenoid circuit terminals (see table).

DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 6
33: FL-IN	No. 9
34: FL-OUT	No. 4
35: RR-IN	No. 8
36: RR-OUT	No. 3
37: RL-IN	No. 10
38: RL-OUT	No. 5

ABS CONTROL UNIT CONNECTOR B (12P)



Wire side of female terminals

Is there less than 3 Ω ?

YES—Replace the modulator unit. ■

NO—Check for loose ABS control unit connectors. If necessary, substitute a known-good ABS control unit, and recheck. ■

DTC 41, 42, 43, 44: Wheel Lock

1. Test-drive the vehicle, and apply the brakes several times to raise the brake temperature.

2. Raise the vehicle on a hoist, and check for excessive brake drag.

   Is there excessive brake drag?

   YES—Repair the cause of brake drag. ■

   NO—Go to step 3.

3. Check the installation of the appropriate wheel sensor (see table).

DTC	Appropriate Wheel Sensor
41	Right-front
42	Left-front
43	Right-rear
44	Left-rear

Is it installed correctly?

YES—The probable cause was the vehicle spun during cornering. If the problem recurs, check the modulator unit using the HDS. ■

NO—Reinstall the wheel sensor correctly. ■

DTC 51: Motor Lock

1. Clear the DTC.
2. Test-drive the vehicle at 6 mph (10 km/h) or more.

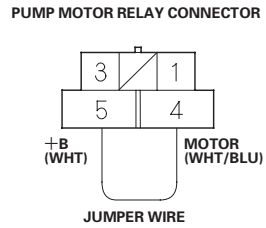
   Does the ABS indicator come on, and is DTC 51 indicated?

   YES—Replace the modulator unit. ■

   NO—The system is OK at this time. ■

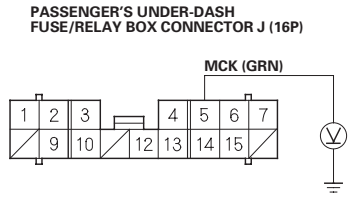
DTC 52: Motor Stuck OFF

1. Check the ABS MOTOR (30A) fuse in the under-hood fuse/relay box, and reinstall the fuse if it is OK.
   Is the fuse OK?
   YES—Go to step 3.
   NO—Replace the fuse, and go to step 2.
2. Connect the pump motor relay connector terminal No. 4 to No. 5 with a jumper wire for a moment, and check the fuse.



Terminal side of female terminals

   Is the fuse blown?
   YES—Check for a short to body ground in the motor power source circuit. ■
   NO—Go to step 3.
3. Remove the ABS MOTOR CHECK (7.5A) fuse in the passenger's under-dash fuse/relay box.
   Is the fuse OK?
   YES—Remove the fuse, and go to step 4.
   NO—Replace the fuse, and recheck. ■
4. Turn the ignition switch ON (II).
5. Measure the voltage between the passenger's under-dash fuse/relay box connector J (16P) terminal No. 5 and body ground.



Wire side of female terminals

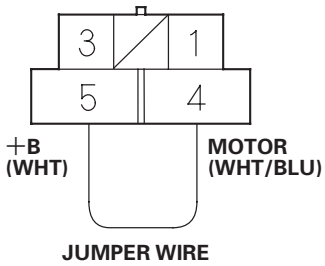
   Is there about 10 V?
   YES—Go to step 6.
   NO—Repair open in the wire between the passenger's under-dash fuse/relay box and the ABS control unit. ■

(cont'd)

DTC Troubleshooting (cont'd)

6. Connect the pump motor relay connector terminal No. 4 to No. 5 with a jumper wire for a moment, and check the fuse.

PUMP MOTOR RELAY CONNECTOR



Terminal side of female terminals

Is the fuse blown?

YES — Check for a short to body ground in the MCK circuit. ■

NO — Go to step 7.

7. Check the pump motor relay in the under-hood ABS relay box (see page 22-88).

Is the relay OK?

YES — Go to step 8.

NO — Replace the pump motor relay. ■

8. Connect the pump motor relay connector terminal No. 4 to No. 5 with a jumper wire for a moment.

Does the pump motor operate?

YES — Go to step 13.

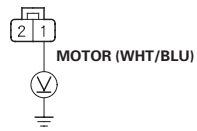
NO — Go to step 9.

9. Disconnect the pump motor connector.

10. Connect the pump motor relay connector terminal No. 4 to No. 5 with a jumper wire.

11. Measure the voltage between the pump motor connector terminal No. 1 and body ground.

PUMP MOTOR CONNECTOR



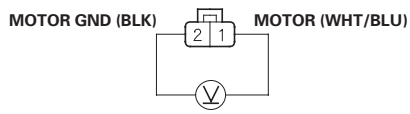
Terminal side of female terminals

Is there battery voltage?

YES — Go to step 12.
NO — Repair open in the wire between the ABS relay box and pump motor. ■

12. Measure the voltage between the pump motor connector terminal No. 1 and No. 2.

PUMP MOTOR CONNECTOR



Terminal side of female terminals

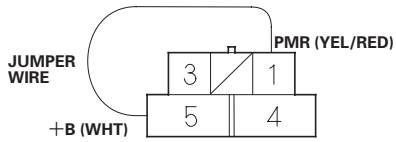
Is there battery voltage?

YES — Replace the modulator unit. ■
NO — Repair open in the wire between the pump motor and body ground (G302). ■

13. Disconnect the pump motor connector.

14. Connect the pump motor relay connector terminal No. 1 to No. 5 with a jumper wire.

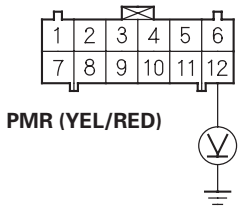
PUMP MOTOR RELAY CONNECTOR



Terminal side of female terminals

15. Measure the voltage between the ABS control unit connector B (12P) terminal No. 12 and body ground.

ABS CONTROL UNIT CONNECTOR B (12P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 16.

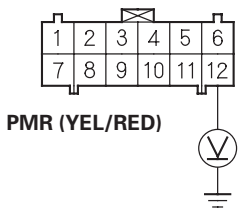
NO—Repair open in the wire between the under-hood ABS relay box and the ABS control unit.■

16. Remove the jumper wire from the pump motor relay connector.

17. Start the engine.

18. Measure the voltage between the ABS control unit connector B (12P) terminal No. 12 and body ground.

ABS CONTROL UNIT CONNECTOR B (12P)



Wire side of female terminals

Is there battery voltage?

YES—Repair a short to power in the wire between the under-hood ABS relay box and the ABS control unit.■

NO—If the problem recurs, replace the ABS control unit.■

DTC 53: Motor Stuck ON

1. Check that the pump motor operates with the ignition switch OFF.

Does the pump motor operate?

YES—Go to step 12.

NO—Go to step 2.

2. Remove the ABS MOTOR CHECK (7.5A) fuse in the passenger's under-dash fuse/relay box.

Is the fuse OK?

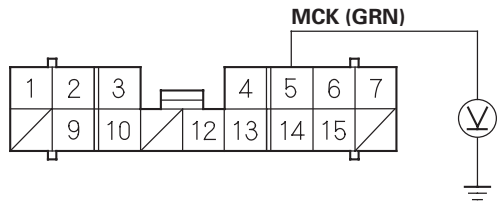
YES—Remove the fuse, and go to step 3.

NO—Replace the fuse, and recheck.■

3. Turn the ignition switch ON (II).

4. Measure the voltage between the passenger's under-dash fuse/relay box connector J (16P) terminal No. 5 and body ground.

PASSENGER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR J (16P)



Wire side of female terminals

Is there about 10 V?

YES—Go to step 5.

NO—Repair open in the wire between the passenger's under-dash fuse/relay box and the ABS control unit.■

5. Reinstall the ABS MOTOR CHECK (7.5A) fuse in the passenger's under-dash fuse/relay box.

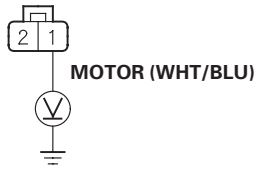
6. Disconnect the pump motor connector.

(cont'd)

DTC Troubleshooting (cont'd)

7. Measure the voltage between terminal No. 1 and body ground.

PUMP MOTOR CONNECTOR



Terminal side of female terminals

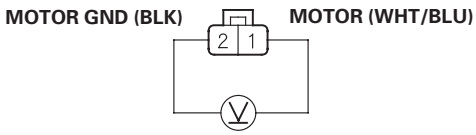
Is there about 10 V?

YES — Go to step 8.

NO — Repair open in the wire between the under-hood ABS relay box and the pump motor. ■

8. Measure the voltage between the pump motor connector terminal No. 1 and No. 2.

PUMP MOTOR CONNECTOR



Terminal side of female terminals

Is there about 10 V?

YES — Go to step 9.

NO — Repair open in the wire between the pump motor and body ground (G302). ■

9. Remove the pump motor relay, then connect relay terminals No. 4 and No. 5 together with a jumper wire.

Does the pump motor run?

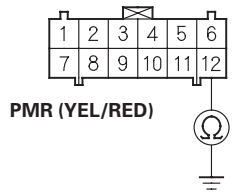
YES — Go to step 10.

NO — Replace the pump motor. ■

10. Disconnect the ABS control unit connector B (12P).

11. Check for continuity between terminal No. 12 and body ground.

ABS CONTROL UNIT CONNECTOR B (12P)



Wire side of female terminals

Is there continuity?

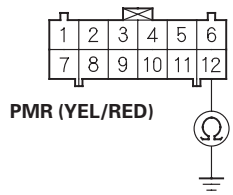
YES — Repair short to body ground in the wire between the under-hood ABS relay box and the ABS control unit. ■

NO — If the problem recurs, replace the ABS control unit. ■

12. Disconnect the ABS control unit connector B (12P).

13. Check for continuity between terminal No. 12 and body ground.

ABS CONTROL UNIT CONNECTOR B (12P)



Wire side of female terminals

Is there continuity?

YES — Repair short to body ground in the wire between the under-hood ABS relay box and the ABS control unit. ■

NO — Replace the pump motor relay (Pump motor relay stuck ON). ■

DTC 54: ABS Fail-safe Relay

1. Check the ABS F/S (20A) fuse in the under-hood fuse/relay box, and reinstall the fuse if it is OK.

   Is the fuse OK?

   YES—Go to step 2.

   NO—Replace the fuse, and recheck. ■

2. Reinstall the fuse, and turn the ignition switch ON (II).

   Does the fuse blow?

   YES—Repair short to body ground in the wire between the ABS fail-safe relay, pump motor relay, and modulator unit. ■

   NO—Go to step 3.

3. Check the ABS fail-safe relay in the multi-relay box (see page 22-88). The wire colors of the ABS fail-safe relay connector are WHT/GRN, BRN/BLK, BLK, and YEL/GRN.

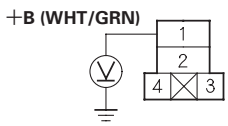
   Is the relay OK?

   YES—Leave the ABS fail-safe relay removed, and go to step 4.

   NO—Replace the ABS fail-safe relay. ■

4. Measure the voltage between the ABS fail-safe relay connector terminal No. 1 and body ground.

   ABS FAIL-SAFE RELAY CONNECTOR



Terminal side of female terminals

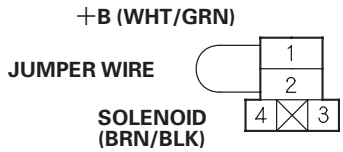
   Is there battery voltage?

   YES—Go to step 5.

   NO—Repair open in the wire between the under-hood fuse/relay box and the ABS fail-safe relay. ■

5. Connect the ABS fail-safe relay connector terminal No. 1 to No. 2 with a jumper wire.

   ABS FAIL-SAFE RELAY CONNECTOR

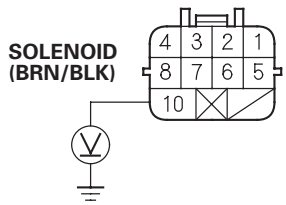


Terminal side of female terminals

6. Disconnect the modulator unit connector.

7. Measure the voltage between terminal No. 10 and body ground.

   MODULATOR UNIT CONNECTOR



Terminal side of female terminals

   Is there battery voltage?

   YES—Go to step 8.

   NO—Repair open in the wire between the ABS fail-safe relay and the modulator unit. ■

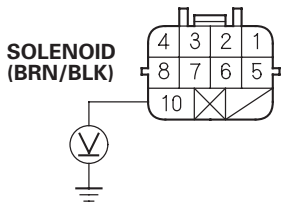
8. Remove the jumper wire from the ABS fail-safe relay connector.

(cont'd)

DTC Troubleshooting (cont'd)

9. Measure the voltage between the modulator unit connector terminal No. 10 and body ground.

MODULATOR UNIT CONNECTOR



Terminal side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the ABS fail-safe relay, modulator unit, and ABS relay box. ■

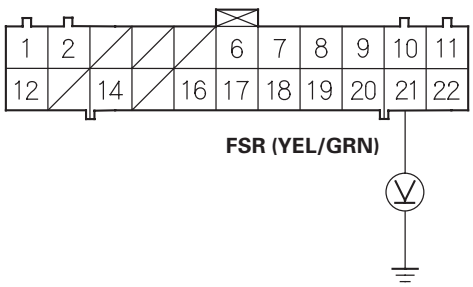
NO—Go to step 10.

10. Disconnect the ABS control unit connector A (22P).

11. Turn the ignition switch ON (II).

12. Measure the voltage between terminal No. 21 and body ground.

ABS CONTROL UNIT CONNECTOR A (22P)



Wire side of female terminals

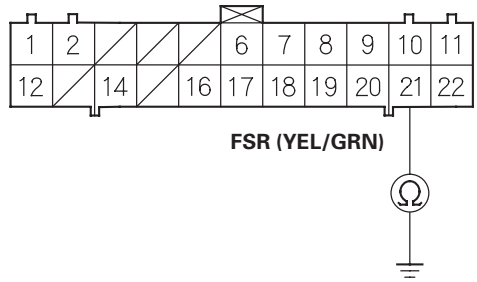
Is there battery voltage?

YES—Repair short to power in the wire between the ABS control unit and the ABS fail-safe relay. ■

NO—Go to step 13.

13. Check for continuity between the ABS control unit connector terminal No. 21 and body ground.

ABS CONTROL UNIT CONNECTOR A (22P)



Wire side of female terminals

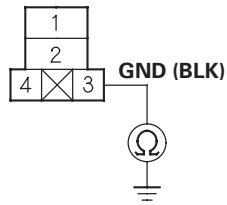
Is there continuity?

YES—Repair short to body ground in the wire between the ABS control unit and the ABS fail-safe relay. ■

NO—Go to step 14.

14. Check for continuity between the ABS fail-safe relay connector terminal No. 3 and body ground.

ABS FAIL-SAFE RELAY CONNECTOR



Terminal side of female terminals

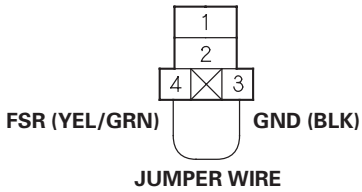
Is there continuity?

YES—Go to step 15.

NO—Check for an open in the wire between the ABS fail-safe relay and body ground. If the wire is OK, check for poor ground at G201. ■

15. Connect the ABS fail-safe relay connector terminals No. 3 and No. 4 with a jumper wire.

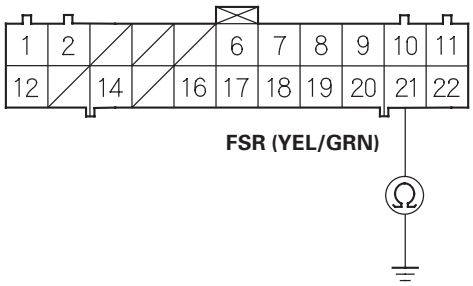
ABS FAIL-SAFE RELAY CONNECTOR



Wire side of female terminals

16. Check for continuity between the ABS control unit connector terminal No. 21 and body ground.

ABS CONTROL UNIT CONNECTOR A (22P)



Wire side of female terminals

Is there continuity?

YES—If the problem recurs, replace the ABS control unit. ■

NO—Repair open in the wire between the ABS control unit and the ABS fail-safe relay. ■

DTC 61, 62: Battery Voltage

1. Clear the DTC (see step 1 on page 19-43).
2. Test-drive the vehicle at 6 mph (10 km/h) or more.

   Does the ABS indicator come on?

   YES—Go to step 3.

   NO—The system is OK at this time. ■
3. Verify the DTC.

   Is DTC 61 or 62 indicated?

   YES—Check the charging system. ■

   NO—Do the appropriate troubleshooting for the code. ■

DTC Troubleshooting (cont'd)

DTC 71: Different Diameter Tire

1. Clear the DTC (see step 1 on page 19-43).
2. Test-drive the vehicle.

   Does the ABS indicator come on, and is DTC 71 indicated?

   YES—Make sure all four tires are the specified size. ■

   NO—Intermittent failure; the vehicle is OK at this time. ■

DTC 81: Central Processing Unit (CPU) Diagnosis, and ROM/RAM Diagnosis

1. Clear the DTC (see step 1 on page 19-43).
2. Test-drive the vehicle.

   Does the ABS indicator come on, and is DTC 81 indicated?

   YES—Replace the ABS control unit. ■

   NO—Intermittent failure; the vehicle is OK at this time. ■

ABS Indicator Circuit Troubleshooting

1. Turn the ignition switch ON (II), and watch the ABS indicator.

   Does the ABS indicator come on?

   YES—If the ABS indicator comes on and goes off, It's OK. If the ABS indicator stays on, go to step 13.

   NO—Go to step 2.

2. Turn the ignition switch OFF then ON (II) again.

   Does the brake system indicator come on?

   YES—Go to step 3.

   NO—Repair open in the indicator power source circuit. ■

   - Blown BACKUP LIGHT (7.5A) fuse.
   - Open in the wire between the BACKUP LIGHT (7.5A) fuse and the gauge assembly.
   - Open circuit inside the fuse box.

3. Turn the ignition switch OFF.

4. Disconnect the ABS control unit connector A (12P).

5. Turn the ignition switch ON (II).

   Does the ABS indicator come on?

   YES—Check for loose ABS control unit connectors. If necessary, substitute a known-good ABS control unit, and recheck. ■

   NO—Go to step 6.

6. Check the ABS indicator bulb in the gauge assembly.

   Is the bulb OK?

   YES—Go to step 7.

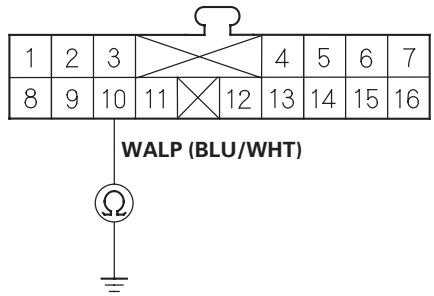
   NO—Replace the ABS indicator bulb. ■

7. Turn the ignition switch OFF.

8. Disconnect the gauge assembly connector C (16P).

9. Check for continuity between the gauge assembly connector C (16P) terminal No. 10 and body ground.

GAUGE ASSEMBLY CONNECTOR C (16P)



Wire side of female terminals

Is there continuity?

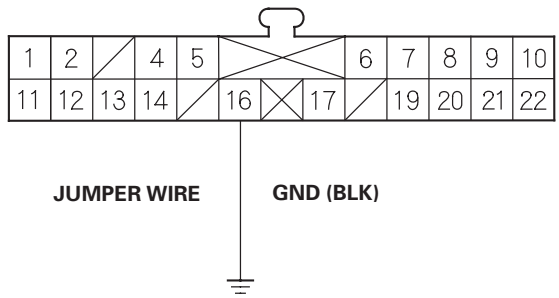
YES—Repair short to body ground in the wire between the gauge assembly and the ABS control unit. ■

NO—Go to step 10.

10. Connect the gauge assembly connector C (16P).

11. Connect the gauge assembly connector B (22P) terminal No. 16 to body ground with a jumper wire.

GAUGE ASSEMBLY CONNECTOR B (22P)



Wire side of female terminals

12. Turn the ignition switch ON (II).

    Does the ABS indicator come on?

    YES—Repair open in the wire between the gauge assembly and body ground (G503). ■

    NO—Replace the printed circuit board in the gauge assembly. ■

(cont'd)

ABS Indicator Circuit Troubleshooting (cont'd)

13. Check the R/C MIRROR (7.5A) fuse in the driver's under-dash fuse/relay box, and reinstall the fuse if it is OK.

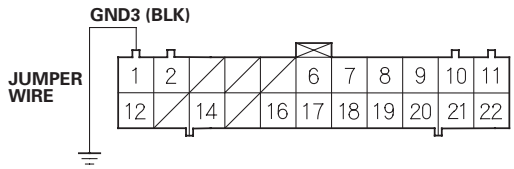
    Is the fuse OK?

    YES—Go to step 14.

    NO—Replace the fuse, and recheck. ■

14. Connect the ABS control unit connector A (22P) terminal No. 1 to body ground with a jumper wire.

ABS CONTROL UNIT CONNECTOR A (22P)



Wire side of female terminals

15. Turn the ignition switch ON (II).

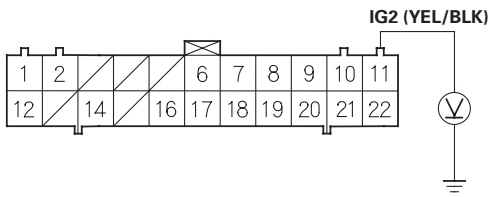
    Does the ABS indicator go off?

    YES—Repair open in the wire between the ABS control unit and body ground (G303). ■

    NO—Go to step 16.

16. Measure the voltage between the ABS control unit connector A (22P) terminal No. 11 and body ground.

ABS CONTROL UNIT CONNECTOR A (22P)



Wire side of female terminals

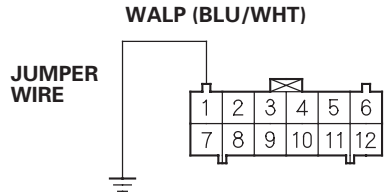
Is there battery voltage?

YES—Go to step 17.

NO—Repair open in the wire between the R/C MIRROR (7.5A) fuse and the ABS control unit. ■

17. Connect the ABS control unit connector B (12P) terminal No. 1 to body ground with a jumper wire.

ABS CONTROL UNIT CONNECTOR B (12P)



Wire side of female terminals

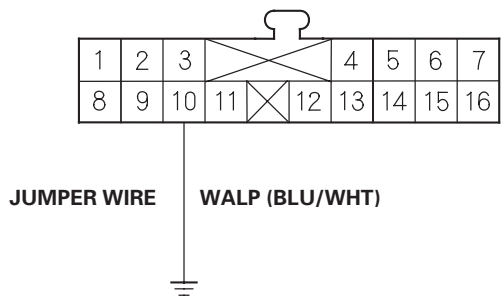
Does the ABS indicator go off?

YES—Check for loose ABS control unit connectors. If necessary, substitute a known-good ABS control unit, and recheck. ■

NO—Go to step 18.

18. Connect the gauge assembly connector C (16P) terminal No. 10 to body ground with a jumper wire.

GAUGE ASSEMBLY CONNECTOR C (16P)



Wire side of female terminals

Does the ABS indicator go off?

YES—Repair open in the wire between the gauge assembly and the ABS control unit. ■

NO—Replace the printed circuit board in the gauge assembly. ■

Brake System Indicator Circuit Troubleshooting

1. Release the parking brake.

2. Turn the ignition switch ON (II), and check the brake system indicator for the following conditions:

   - Brake system indicator does not come on at all, go to step 3.
   - Brake system indicator stays on all the time, go to step 5.
   - Brake system indicator comes on for 2 seconds, then turns off. Repair open in the wire between No. 3 terminal of the ALT 4P connector and B8 terminal of the gauge assembly. ■

3. Turn the ignition switch OFF then ON (II) again.

   Does the ABS indicator come on?

   YES — Go to step 4.

   NO — Repair open in the indicator power source circuit. ■

   - Blown BACKUP LIGHT (10A) fuse.
   - Open in the wire between the BACKUP LIGHT (10A) fuse and the gauge assembly.
   - Open circuit inside the fuse box.

4. Check the brake system indicator bulb in the gauge assembly.

   Is the bulb OK?

   YES — Repair open in the brake system indicator circuit. ■

   NO — Replace the brake system indicator bulb. ■

5. Start the engine.

   Does the brake system indicator turn off?

   YES — System is OK at this time. ■

   NO — Go to step 6.

6. Check the ABS indicator.

   Does the ABS indicator come on?

   YES — Read the ABS DTC's (see page 19-42), and do the applicable troubleshooting. ■

   NO — Go to step 7.

7. Turn the ignition switch OFF.

8. Disconnect the ABS control unit connector A (22P).

9. Start the engine, and check the brake system indicator.

   Does the brake system indicator turn off?

   YES — Replace the ABS control unit. ■

   NO — Check the brake system indicator circuit (short to body ground between No. 3 terminal of the ALT 4P connector and B8 terminal of the gauge assembly), parking brake switch (stuck ON), and brake fluid level switch (stuck ON). ■

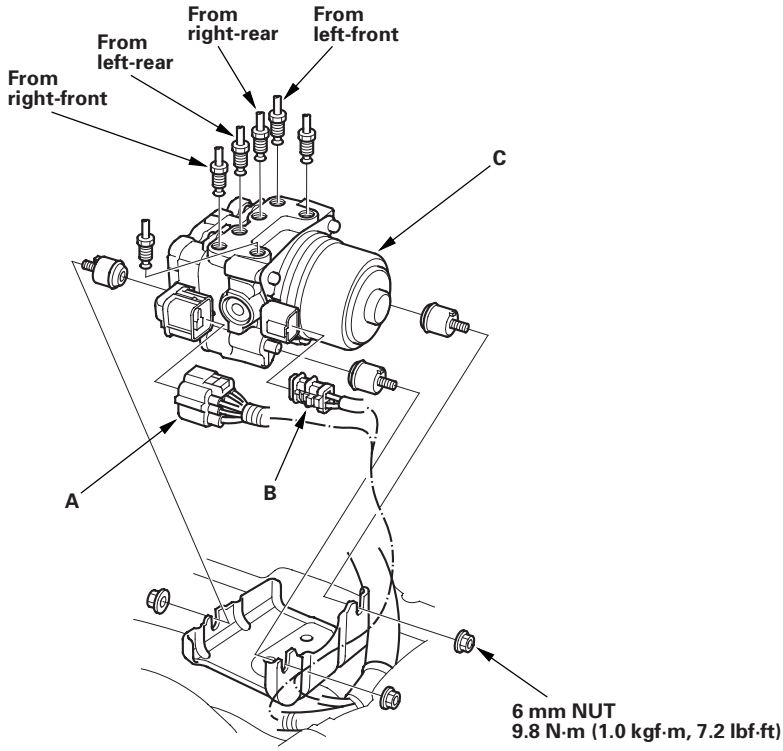
Modulator Unit Removal and Installation

NOTE:
- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- Take care not to damage or deform the brake lines during removal and installation.
- To prevent the brake fluid from flowing, plug and cover the hose ends and joints with a shop towel or equivalent material.

Removal

1. Remove the intake air duct (see step 6 on page 5-3).

2. Disconnect the modulator unit connector (A) and the pump motor connector (B).



3. Disconnect the brake lines, then remove the modulator unit (C).

Installation

1. Install the modulator unit, then connect the brake lines. Tighten the flare nuts to 15 N·m (1.5 kgf·m, 11 lbf·ft).

2. Connect the modulator unit connector and the pump motor connector.

3. Bleed the brake system, starting with the front wheels.

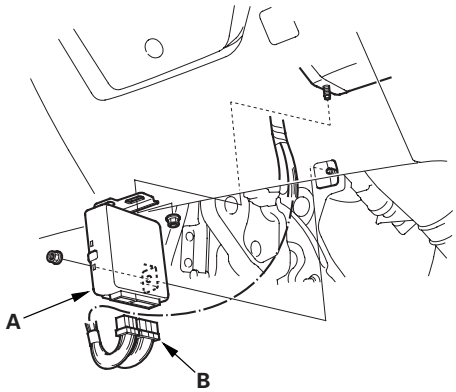
4. Reinstall the intake air duct (see step 48 on page 5-20).

5. Start the engine, and check that the ABS indicator goes off.

6. Test-drive the vehicle, and check that the ABS indicator does not come on.

ABS Control Unit Replacement

1. Remove the ABS control unit (A) on the driver's side under the dash.



2. Disconnect the ABS control unit connectors (B).

3. Install the ABS control unit in the reverse order of removal.

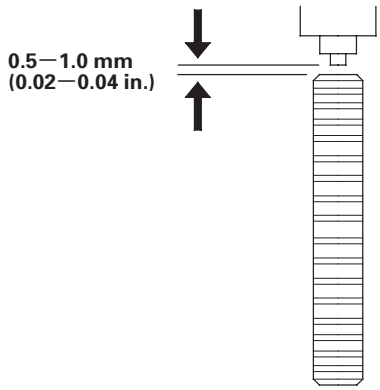
Wheel Sensor Inspection

1. Inspect the front and rear pulsers for chipped or damaged teeth.

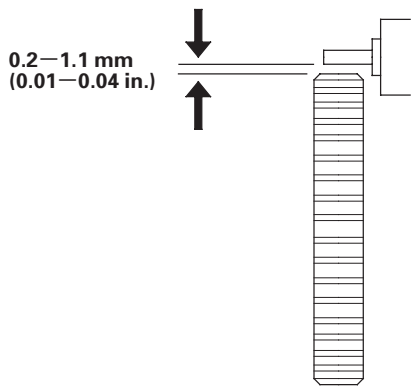
2. Measure the air gap between the wheel sensor and pulser all the way around while rotating the pulser. Remove the rear brake disc to measure the gap on the rear wheel sensor. If the gap exceeds 1.0 mm (0.04 in.), check for a bent suspension arm.

Standard:
Front: 0.5—1.0 mm (0.02—0.04 in.)
Rear: 0.2—1.1 mm (0.01—0.04 in.)

Front



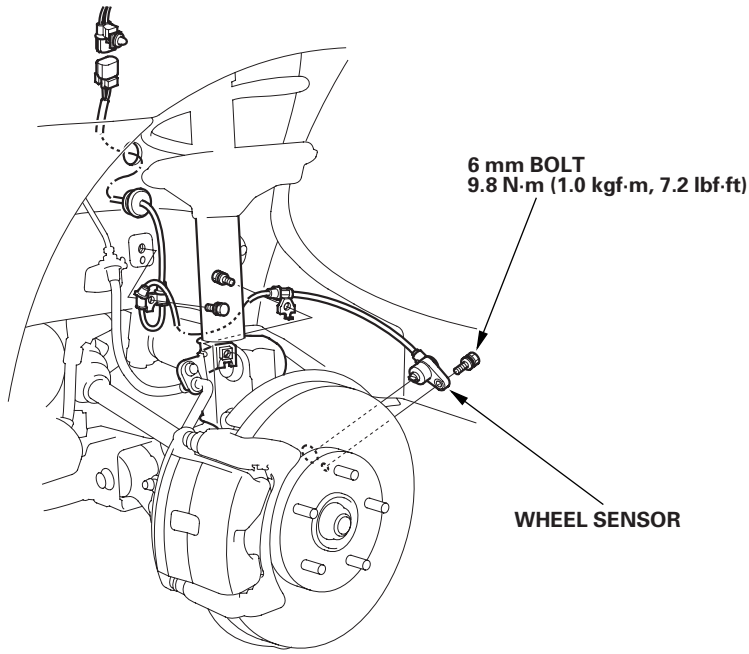
Rear



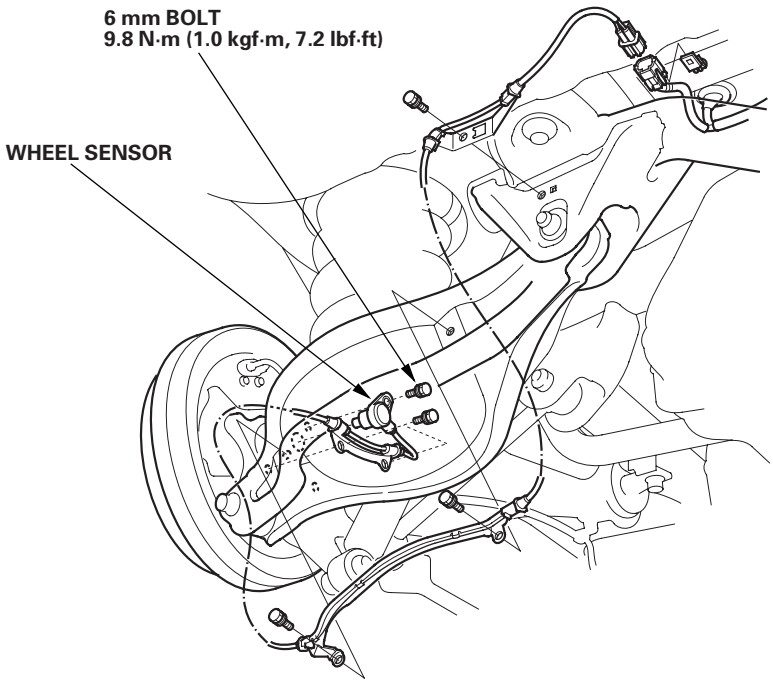
Wheel Sensor Replacement

Install the sensors carefully to avoid twisting the wires.

Front



Rear



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Brakes

Conventional Brake Components 19-1

ABS (Anti-Lock Brake System) Components (1999-00 LX model) 19-39

ABS/TCS (Anti-Lock Brake System/ Traction Control System) Components (1999-00 EX model, 2001-04 All models)

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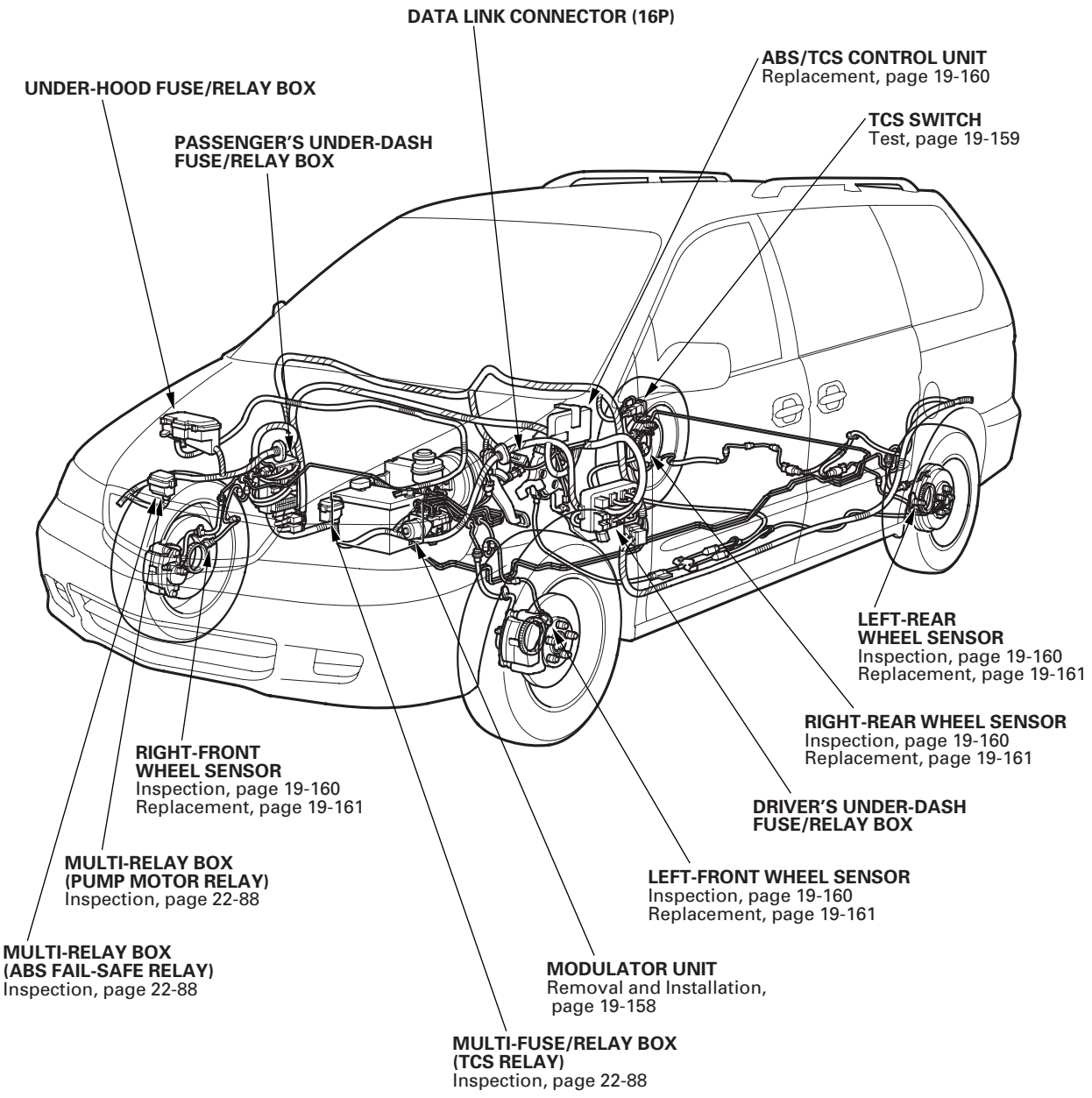
ABS/TCS Components

Component Location Index

*01



General Troubleshooting Information

ABS/TCS Indicators

- If the system is OK, the ABS indicator goes off once after turning the ignition switch ON (II) without starting the engine, and then comes on again and goes off several seconds later after starting the engine. This occurs because the ABS/TCS control unit is turned on by the IG2 power source.
- The TCS or ABS indicator comes on when the ABS/TCS control unit detects a problem in the system. However, even though the system is operating properly, the TCS or ABS indicator will come on, under the following conditions:
- **For ABS or TCS Indicator:**
  – Only drive wheels rotate
  – One drive wheel is stuck
  – The vehicle goes into a spin
  – The ABS continues to operate for a long time
  – The vehicle is subjected to an electrical signal disturbance
- **For TCS Indicator:**
  – The TCS operated when the front brake pad temperature rises excessively
  – The TCS switch is OFF
  – One or more of these components are faulty: Heated oxygen sensor, Manifold absolute pressure sensor, Crankshaft position sensor, Engine coolant temperature sensor, Throttle position sensor, Top dead center sensor 1, Top dead center sensor 2, Intake air temperature sensor, Exhaust gas recirculation, Barometric pressure sensor, Idle air control valve, VTEC pressure switch, Knock sensor, Fuel supply system, Automatic transaxle, Misfire detection system of the PGM-FI system

To determine the actual cause of the problem, question the customer about the problem, taking the above-listed conditions into consideration:

- When a problem is detected and the ABS or TCS indicator comes on, there are cases when the indicator stays on until the ignition switch is turned OFF, and cases when the indicator goes off automatically when the system returns to normal. For ABS DTCs 61 and 62, the indicator goes off automatically when the system returns to normal. For all other codes, the indicator stays on until the ignition switch is turned OFF.
- For ABS DTCs 12, 14, 16, 18, 21, 22, 23, 24, 51, 52 and 53, the ABS indicator goes off when the vehicle is driven again and the system is OK after the ignition switch is turned from OFF to ON (II). However, if the DTC is cleared, the CPU resets and the indicator goes off right after the engine is started if the system is OK.
- The ABS is not operational when the ABS indicator is ON; the TCS is not operational when the TCS indicator is ON.
- When the ABS and TCS indicators are both ON, troubleshoot the ABS first.
- When the TCS indicator and MIL are both ON, troubleshoot the PGM-FI system first.

Diagnostic Trouble Code (DTC)

- The memory can hold any number of DTCs. However, when the same DTC is detected more than once, the more recent DTC is written over the earlier one. Therefore, when the same problem is detected repeatedly it is memorized as a single DTC.
- The DTCs are indicated in ascending number order, not in the order that they occur.
- The DTCs are memorized in the EEPROM (non-volatile memory). Therefore, the memorized DTCs cannot be canceled by disconnecting the battery. Do the specified procedures to clear the DTCs.

Self-diagnosis

- Self-diagnosis can be classified into two categories:
  – Initial diagnosis: Done right after the engine starts and until the ABS or TCS indicator goes off
  – Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned OFF
- When a problem is detected by self-diagnosis, the ABS/TCS control unit shifts to fail-safe mode.

Kickback

The pump motor operates when the ABS is functioning, and the fluid in the reservoir is forced out to the master cylinder, causing kickback at the brake pedal.

Pump Motor

- The pump motor operates when the ABS is functioning.
- The ABS/TCS control unit checks the pump motor operation during initial diagnosis when the vehicle is started. You may hear the motor operate at this time, but it is normal.

Brake Fluid Replacement/Air Bleeding

Brake fluid replacement and air bleeding procedures are identical to the procedures used on vehicles not equipped with ABS/TCS. To ease bleeding, start with the front wheels.

(cont'd)

General Troubleshooting Information (cont'd)

How to Troubleshoot DTCs

The troubleshooting flowchart procedures assume that the cause of the problem is still present and the ABS and/or TCS indicator is still on. Following the flowchart when the ABS and/or TCS indicator does not come on can result in incorrect diagnosis.
The connector illustrations show the female terminal connectors with a single outline and the male terminal connectors with a double outline.

1. Question the customer about the conditions when the problem occured, and try to reproduce the same conditions for troubleshooting. Find out when the ABS and/or TCS indicator came on, such as during ABS control, after ABS control, when vehicle speed was at a certain speed, etc.

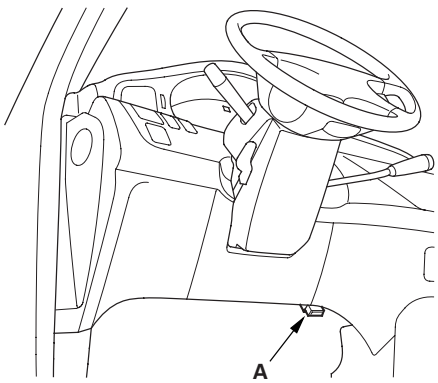
2. When the ABS or TCS indicator does not come on during the test-drive, but troubleshooting is done based on the DTC, check for loose connectors, poor contact of the terminals, etc., before you start troubleshooting.

3. After troubleshooting or repairs are done, clear the DTC, and test-drive the vehicle. Make sure the ABS and TCS indicators do not come on.

How to Retrieve DTCs

HDS (Honda Diagnostic System) Method

1. With the ignition switch OFF, connect the HDS to the 16P Data Link Connector (DLC) (A) under the driver's side of the dashboard.

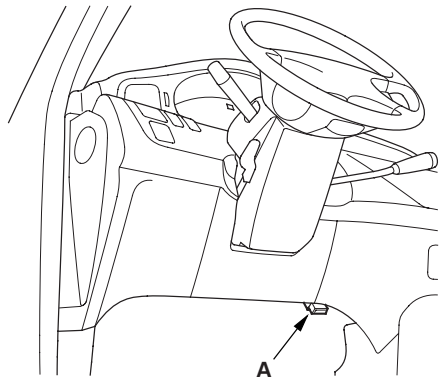


2. Turn the ignition switch ON (II), and follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC Troubleshooting Index.

   NOTE: See the HDS help menu for specific instructions.

Service Check Signal (SCS) Circuit Method

1. With the ignition switch OFF, connect the HDS to the 16P Data Link Connector (DLC) (A) under the driver's side of the dashboard.



2. Short the SCS circuit to body ground using the HDS.

3. Turn the ignition switch ON (II) without pressing the brake pedal.

   NOTE: If the brake pedal is pressed when turning the ignition switch ON (II), the system shifts to the DTC clearing mode.

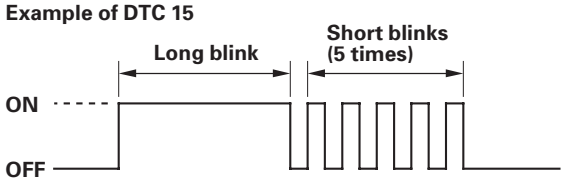
4. The blinking frequency indicates the DTC. DTCs are indicated by a series of long and short blinks. One long blink equals 10 short blinks. Add the long and short blinks together to determine the DTC. After determining the DTC, refer to the DTC Troubleshooting Index.

   NOTE: If the DTC is not memorized, the ABS or TCS indicator will go off for 3.6 seconds, and then come back on.

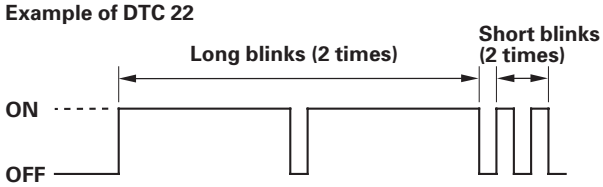
   The system will not indicate the DTC unless these conditions are met:

   - The TCS switch is not pushed.
   - The brake pedal is not pressed.
   - The ignition switch is turned ON (II).
   - The engine is stopped.
   - The SCS circuit is shorted to body ground before the ignition switch is turned ON (II).

Example of DTC 15



Example of DTC 22



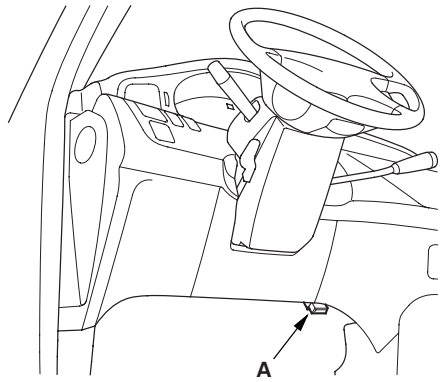
5. Turn the ignition switch OFF.

6. Disconnect the HDS from the DLC.

How to Clear ABS DTCs

HDS (Honda Diagnostic System) Method

1. With the ignition switch OFF, connect the HDS to the 16P Data Link Connector (DLC) (A) under the driver's side of the dashboard.

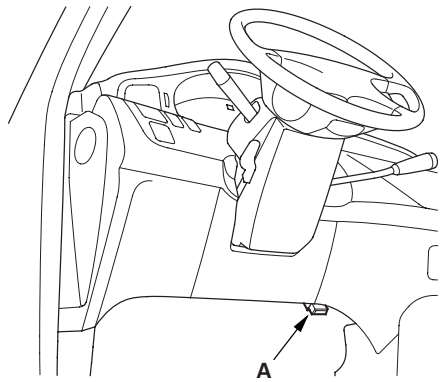


2. Turn the ignition switch ON (II), and clear the DTC(s) by following the screen prompts on the HDS.

   NOTE: See the HDS help menu for specific instructions.

Service Check Signal (SCS) Circuit Method

1. With the ignition switch OFF, connect the HDS to the 16P Data Link Connector (DLC) (A) under the driver's side of the dashboard.



2. Short the SCS circuit to body ground using the HDS.

(cont'd)

General Troubleshooting Information (cont'd)

3. Press the brake pedal.
4. Turn the ignition switch ON (II) while keeping the brake pedal pressed.
5. After the ABS indicator goes off, release the brake pedal.
6. After the ABS indicator comes on, press the brake pedal again.
7. After the ABS indicator goes off, release the brake pedal again.

   You cannot clear the DTC unless these conditions are met:

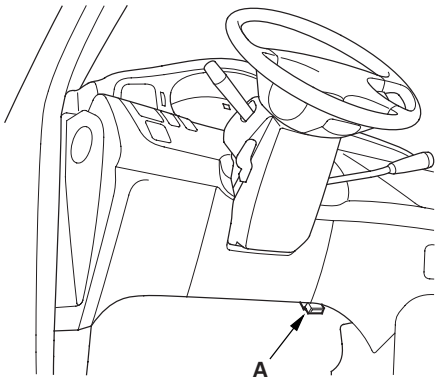
   - The vehicle speed at 6 mph (10 km/h) or less.
   - The SCS circuit is shorted to body ground before the ignition switch is turned ON (II).
   - The brake pedal is pressed before the ignition switch is turned ON (II).

8. After a few seconds, the ABS indicator blinks twice and the DTC is cleared. If the indicator does not blink twice, repeat steps 1 through 7. If the indicator stays on after the indicator blinks twice, check the DTC because a problem was detected during initial diagnosis before shifting to DTC clearing mode.
9. Turn the ignition switch OFF.
10. Disconnect the HDS from the DLC.

How to Clear TCS DTCs

With the HDS (Honda Diagnostic System)

1. With the ignition switch OFF, connect the HDS to the 16P Data Link Connector (DLC) (A) under the driver's side of the dashboard.

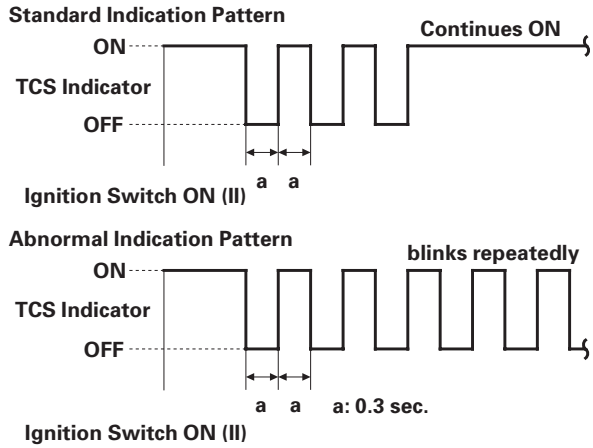


2. Turn the ignition switch ON (II), and clear the DTC(s) by following the screen prompts on the HDS.

   NOTE: See the HDS help menu for specific instructions.

Without the HDS (Honda Diagnostic System)

1. Press the parking brake pedal with the SCS circuit opened. Keep the pedal pressed during the entire DTC clearing procedure.
2. Press and hold the TCS switch, then turn the ignition switch ON (II) without starting the engine.
3. Continue to hold the TCS switch for 4 seconds, then turn the ignition switch OFF.
4. Within 6 seconds, turn the ignition switch back ON (II) for at least 4 seconds, then release the TCS switch, and watch the TCS indicator.
5. After a few seconds, the TCS indicator will come on after blinking to indicate that the DTC is cleared. If the indicator blinks repeatedly, repeat steps 1 through 4.
6. Turn the ignition switch OFF.



DTC Troubleshooting Index

ABS DTCs

DTC	Detection Item	Note
DTC 11	Right-front wheel sensor (open/short to body ground/short to power)	(see page 19-112)
DTC 12	Right-front wheel sensor (electrical noise/intermittent interruption)	(see page 19-113)
DTC 13	Left-front wheel sensor (open/short to body ground/short to power)	(see page 19-112)
DTC 14	Left-front wheel sensor (electrical noise/intermittent interruption)	(see page 19-113)
DTC 15	Right-rear wheel sensor (open/short to body ground/short to power)	(see page 19-112)
DTC 16	Right-rear wheel sensor (electrical noise/intermittent interruption)	(see page 19-113)
DTC 17	Left-rear wheel sensor (open/short to body ground/short to power)	(see page 19-112)
DTC 18	Left-rear wheel sensor (electrical noise/intermittent interruption)	(see page 19-113)
DTC 21	Right-front pulser	(see page 19-114)
DTC 22	Left-front pulser	(see page 19-114)
DTC 23	Right-rear pulser	(see page 19-114)
DTC 24	Left-rear pulser	(see page 19-114)
DTC 31	Right-front inlet solenoid	(see page 19-115)
DTC 32	Right-front outlet solenoid	(see page 19-115)
DTC 33	Left-front inlet solenoid	(see page 19-115)
DTC 34	Left-front outlet solenoid	(see page 19-115)
DTC 35	Right-rear inlet solenoid	(see page 19-115)
DTC 36	Right-rear outlet solenoid	(see page 19-115)
DTC 37	Left-rear inlet solenoid	(see page 19-115)
DTC 38	Left-rear outlet solenoid	(see page 19-115)
DTC 41	Right-front wheel lock	(see page 19-118)
DTC 42	Left-front wheel lock	(see page 19-118)
DTC 43	Right-rear wheel lock	(see page 19-118)
DTC 44	Left-rear wheel lock	(see page 19-118)
DTC 51	Motor lock	(see page 19-119)
DTC 52	Motor stuck OFF	(see page 19-119)
DTC 53	Motor stuck ON	(see page 19-121)
DTC 54	ABS fail-safe relay	(see page 19-123)
DTC 61	Low battery voltage	(see page 19-126)
DTC 62	High battery voltage	(see page 19-126)
DTC 71	Different diameter tire	(see page 19-126)
DTC 81	Central Processing Unit (CPU) diagnosis, and ROM/RAM diagnosis	(see page 19-127)

TCS DTCs

DTC	Detection Item	Note
DTC 24	RF TCS NO solenoid	(see page 19-127)
DTC 25	RF TCS NC solenoid	(see page 19-127)
DTC 26	LF TCS NO solenoid	(see page 19-127)
DTC 27	LF TCS NC solenoid	(see page 19-127)
DTC 28	TCS relay	(see page 19-131)
DTC31 *1	Engine retard command (PFINH) signal	(see page 19-134)
DTC 32 *1	Engine speed (NEP) signal	(see page 19-136)
DTC 34 *1	Reference voltage (VREF) signal	(see page 19-137)
DTC 36 *1	Throttle position sensor output (THLOUT) signal	(see page 19-138)
DTC 61 *1	A/T shift position (ATSFTP) signal	(see page 19-139)
DTC 31 *2	Engine retard command (PFINH) signal	(see page 19-140)
DTC 32 *2	Engine speed (NEP) signal	(see page 19-142)
DTC 34 *2	Reference voltage (VREF) signal	(see page 19-143)
DTC 36 *2	Throttle position sensor output (THLOUT) signal	(see page 19-144)
DTC 61 *2	A/T shift position (ATSFTP) signal	(see page 19-145)
DTC 31 *3	Engine retard command (PFINH) signal	(see page 19-146)
DTC 32 *3	Engine speed (NEP) signal	(see page 19-148)
DTC 34 *3	Reference voltage (VREF) signal	(see page 19-149)
DTC 36 *3	Throttle position sensor output (THLOUT) signal	(see page 19-150)
DTC 61 *3	A/T shift position (ATSFTP) signal	(see page 19-151)
DTC 81	Continuous TCS operation	(see page 19-152)

* 1: '99-00 models
* 2: '01 model
* 3: '02-04 models

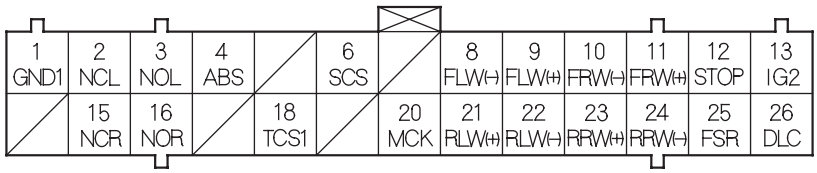
Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
ABS indicator does not come on	ABS Indicator Circuit Troubleshooting (see page 19-153)	
ABS indicator does not go off, and no DTCs are stored	ABS Indicator Circuit Troubleshooting (see page 19-153)	
ABS indicator came on once, but it is OK now	The vehicle is OK at this time (see page 19-81)	
TCS indicator does not come on	TCS Indicator Circuit Troubleshooting (see page 19-155)	
TCS indicator does not go off, and no DTCs are stored	TCS Indicator Circuit Troubleshooting (see page 19-155)	
TCS indicator came on once, but it is OK now	The vehicle is OK at this time (see page 19-81)	
Brake system indicator does not come on	Brake System Indicator Circuit Troubleshooting (see page 19-157)	
Brake system indicator does not go off, and no DTCs are stored	Brake System Indicator Circuit Troubleshooting (see page 19-157)	

System Description

ABS/TCS Control Unit Inputs and Outputs for Connector A (26P)

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

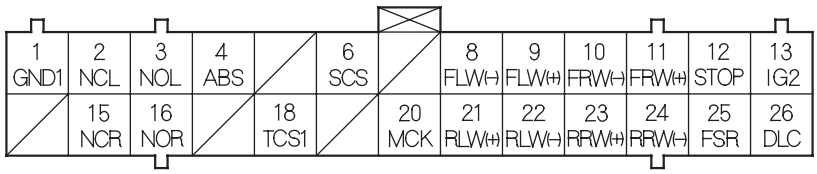
Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement			
				Terminal	Conditions (Ignition switch ON (II))		Voltage
1	BLK	GND1 (Ground 1)	Ground	1−GND	———		Below 0.3 V
2	YEL/GRN	NCL (Normally closed left)	Drives left TCS normally closed solenoid valve	2−GND	TCS indicator	OFF	Battery Voltage
3	RED/GRN	NOL (Normally open left)	Drives left TCS normally open solenoid valve	3−GND		ON (Disconnect 16P connector to turn indicator on)	Below 0.3 V
4	BLU/WHT	ABS	Drives ABS indicator (Turns the indicator drive transistor to ON, then turns off the indicator)	4−GND	ABS indicator	ON	4−6 V
						OFF	Below 0.3 V
6	BRN	SCS (Service check signal)	Detects service check connector signal (Use for DTC indication)	6−GND	SCS circuit	Shorted	Below 0.3 V
						Opened	About 5 V
8	BRN	FLW (−) (Front-left wheel negative)	Detects left-front wheel sensor signal	8−9	Wheel	Turn wheel at 1 turn/second	AC: 0. 053 V or above (Reference) Oscilloscope: 0.15 Vp-p or above
9	GRN/BLU	FLW (+) (Front-left wheel positive)					
10	GRN	FRW (−) (Front-right wheel negative)	Detects right-front wheel sensor signal	10−11			
11	GRN/BLK	FRW (+) (Front-right wheel positive)				Stopped	0.25 V− 1.15 V
12	WHT/BLK	STOP	Detects brake switch signal	12−GND	Brake pedal	Pressed	Battery Voltage
						Released	Below 0.3 V
13	YEL/BLK	IG2 (Ignition 2)	Power source for activating the system	13−GND	Ignition switch	ON (II)	Battery Voltage
						Start (III)	Below 0.3 V

(cont'd)

System Description (cont'd)

ABS/TCS Control Unit Inputs and Outputs for Connector A (26P) (cont'd)

ABS/TCS CONTROL UNIT CONNECTOR A (26P)

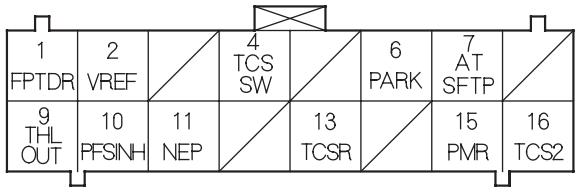


Wire side of female terminals

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement			
				Terminal	Conditions (Ignition switch ON (II))		Voltage
15	GRY	NCR (Normally closed right)	Drives right TCS normally closed solenoid valve	15 − GND	TCS indicator	OFF	Battery Voltage
16	LT/BLU	NOR (Normally opened right)	Drives right TCS normally open solenoid valve	16 − GND		ON (Disconnect 16P connector to turn indicator on)	Below 0.3 V
18	RED/WHT	TCS1	Drives TCS indicator (Turns the indicator drive transistor to ON, then turns off the indicator)	18 − GND	TCS indicator	OFF	Battery Voltage
						ON	About 2 V
20	GRN	MCK (Motor check)	Detects pump motor drive signal	20 − GND	Pump motor	ON	Battery Voltage
						OFF	Below 0.3 V
					Remove MCK fuse		About 10 V
21	LT BLU	RLW (+) (Rear-left wheel positive)	Detects left-rear wheel sensor signal	21 − 22	Wheel	Turn wheel at 1 turn/second	AC: 0. 053 V or above (Reference) Oscilloscope: 0.15 Vp-p or above
22	GRY	RLW (−) (Rear-left wheel positive)					
23	GRN/YEL	RRW (+) (Rear-right wheel positive)	Detects right-rear wheel sensor signal	23 − 24			
24	BLU/YEL	RRW (−) (Rear-right wheel negative)				Stopped	0.25 V − 1.15 V
25	YEL/GRN	FSR (Fail-safe relay)	Drives ABS fail-safe relay (ABS fail-safe relay is turned OFF to shut off the power source to the solenoid and pump motor relay when a problem occurs.)	25 − GND	ABS (SCS circuit must be open)	Warning	Below 0.3 V
						Normal	About 11 V
26	LT BLU	DLC (Data link connector)	Communicates with the HDS	———	———		———

ABS/TCS Control Unit Inputs and Outputs for Connector B (16P)

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

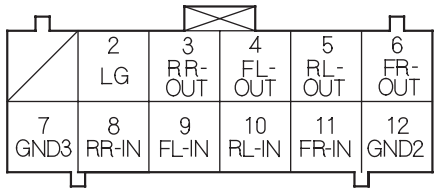
Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement			
				Terminal	Conditions (Ignition switch ON (II))		Voltage
1	PNK/BLK	FPTDR (Frame to powertrain torque down request)	Outputs engine retard request signal	1—GND	TCS	Not operating	About 2.5 V (5 V, duty 50)
						Operating	About 5 V
2	WHT/RED	VREF (Voltage reference)	Reference voltage for the sensors of the PGM-FI system	2—GND			About 5 V
4	BLU/ORN	TCS SW (TCS switch)	Detects TCS switch signal	4—GND	TCS switch	ON (TCS indicator is OFF)	Battery Voltage
						OFF (TCS indicator is ON)	0 V
6	YEL/WHT	PARK (Parking)	Detects parking brake switch signal and drives brake system indicator	6—GND	With engine running, parking brake	Pressed	Below 0.3 V
						Released	Battery Voltage
7	LT GRN	ATSFTP (AT shift position)	Detects A/T shift position signal	7—GND	Shift the transmission to P position, then start the engine.		About 4 V
9	RED/BLK	THLOUT (Throttle out)	Detects throttle position sensor signal	9—GND	Throttle valve	Fully closed	About 0.5 V
						Fully opened	About 4.8 V
10	LT GRN/ RED	PFINH (Powertrain to frame inhibition)	Detects TCS operation permission signal	10—GND	Permission (normal)		About 2.5 V (5 V, duty 50)
					Inhibition (the coolant temperature is 0℃ or below)		About 5 V
					Failure (TCS and/or PCM has failed)		About 0 V
11	BLU	NEP (Engine speed pulse)	Detects engine speed signal	11—GND	Engine idling		About 6 V
13	GRN/YEL	TCSR (TCS relay)	Drives TCS relay (TCS relay is turned OFF to shut off the power source to the TCS solenoid and pump motor relay when a problem occurs)	13—GND	TCS (SCS circuit must be opened)	Warning	Below 0.3 V
						Normal	About 11 V
15	YEL/RED	PMR (Pump motor relay)	Drives pump motor relay	15—GND	ABS indicator	OFF — Pump motor — ON	Below 1.0 V
						OFF — Pump motor — OFF	Battery Voltage
						ON	Below 0.3 V
16	RED/WHT	TCS2	Drives TCS indicator (Turns the indicator drive transistor to ON, then turns off the indicator)	16—GND	TCS indicator	OFF	Battery Voltage
						ON	About 2 V

(cont'd)

System Description (cont'd)

ABS/TCS Control Unit Inputs and Outputs for Connector C (12P)

ABS/TCS CONTROL UNIT CONNECTOR C (12P)



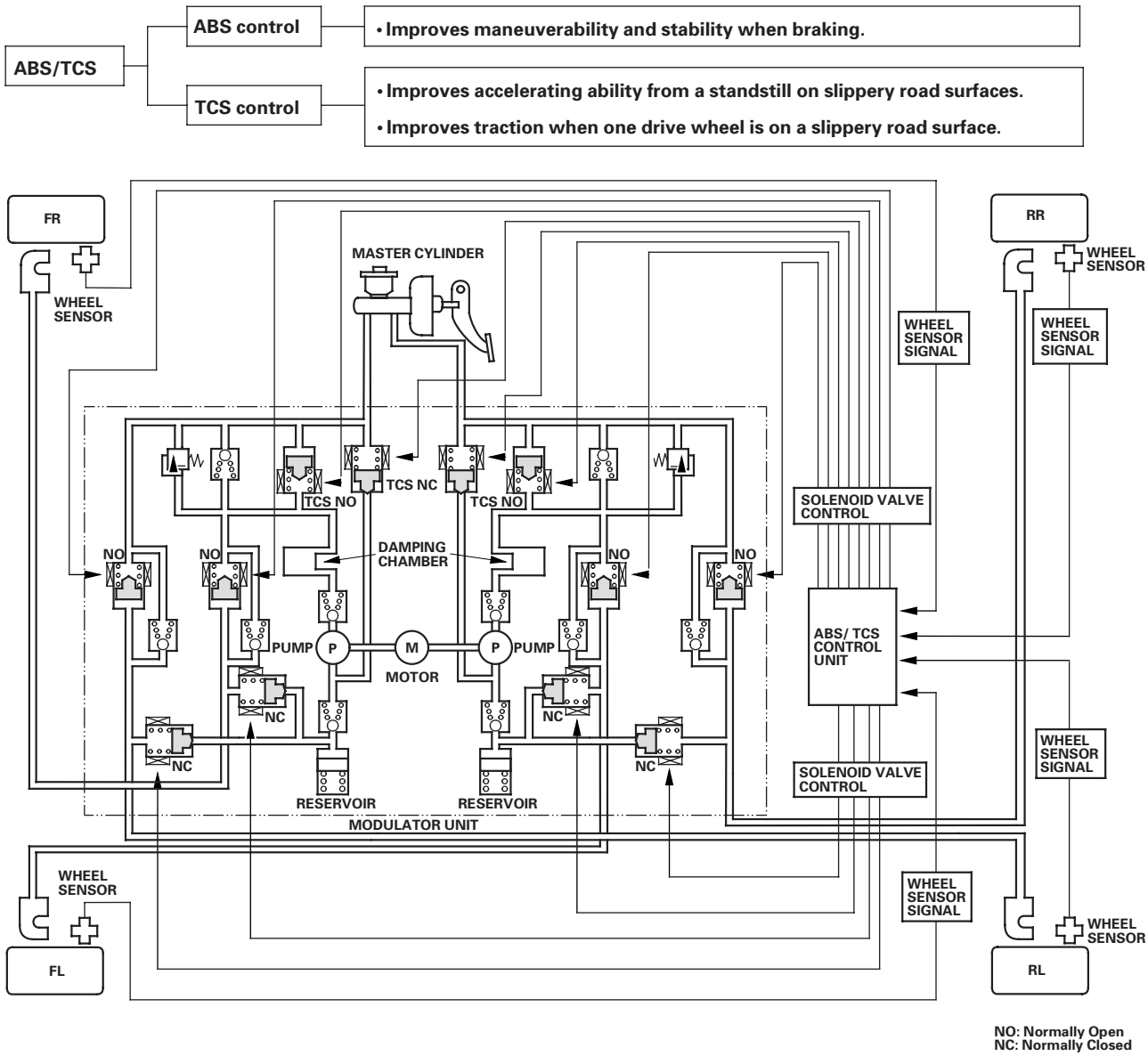
Wire side of female terminals

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement			
				Terminal	Conditions (Ignition switch ON (II))		Voltage
2	BRN/YEL BRN/BLK*	LG (Logic ground)	Ground for logic circuit	2—GND	———		Below 0.3 V
3	YEL/WHT	RR-OUT (Rear-right outlet)	Drives right-rear outlet solenoid valve	3—GND	ABS indicator	OFF	Battery Voltage
4	YEL/BLU	FL-OUT (Front-left outlet)	Drives left-front outlet solenoid valve	4—GND			
5	YEL/GRN	RL-OUT (Rear-left outlet)	Drives left-rear outlet solenoid valve	5—GND		ON (Disconnect 16P connector to turn indicator on)	Below 0.3 V
6	YEL/BLK	FR-OUT (Front-right outlet)	Drives right-front outlet solenoid valve	6—GND			
7	BLK	GND3 (Ground 3)	Ground	7—GND	———		Below 0.3 V
8	RED/WHT	RR-IN (Rear-right inlet)	Drives right-rear inlet solenoid valve	8—GND	ABS indicator	OFF	Battery Voltage
9	RED/BLU	FL-IN (Front-left inlet)	Drives left-front inlet solenoid valve	9—GND			
10	RED/GRN	RL-IN (Rear-left inlet)	Drives left-rear inlet solenoid valve	10—GND		ON (Disconnect 16P connector to turn indicator on)	Below 0.3 V
11	RED/BLK	FR-IN (Front-right inlet)	Drives right-front inlet solenoid valve	11—GND			
12	BLK	GND2 (Ground 2)	Ground	12—GND	———		Below 0.3 V

* '99-01 models

Outline

This system consists of the ABS/TCS control unit, the modulator unit, four wheel sensors, and the PCM. The system integrates the ABS (Anti-lock Brake System) and the TCS (Traction Control System) and controls both systems using the brakes.

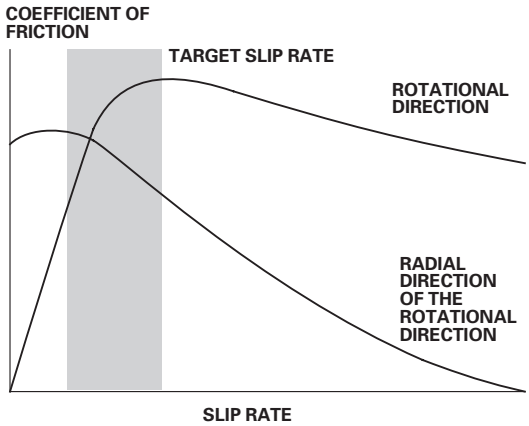


(cont'd)

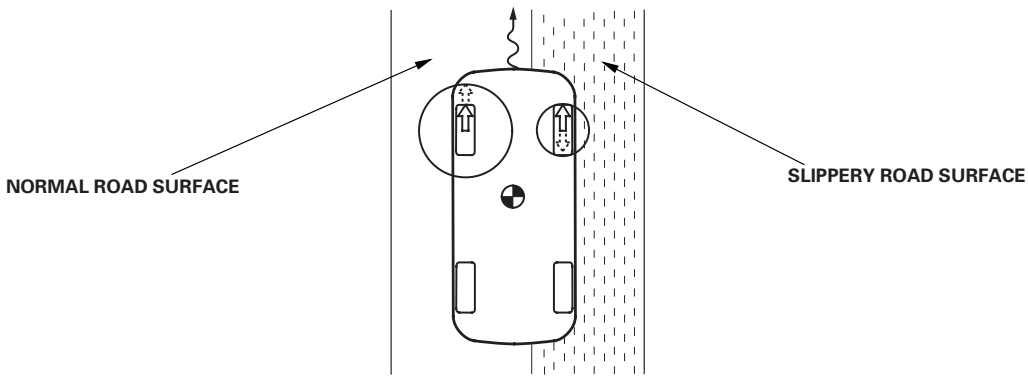
System Description (cont'd)

ABS Features
When the brake pedal is pressed while driving, the wheels can lock before the vehicle comes to a stop. In such an event, the maneuverability of the vehicle is reduced if the front wheels are locked, and the stability of the vehicle is reduced if the rear wheels are locked, creating an extremely unstable condition. The ABS precisely controls the slip rate of the wheels to ensure maximum grip force from the tires, and it thereby ensures maneuverability and stability of the vehicle.
The ABS calculates the slip rate of the wheels based on the vehicle speed and the wheel speed, then it controls the brake fluid pressure to reach the target slip rate.

Grip Force of Tire and Road Surface



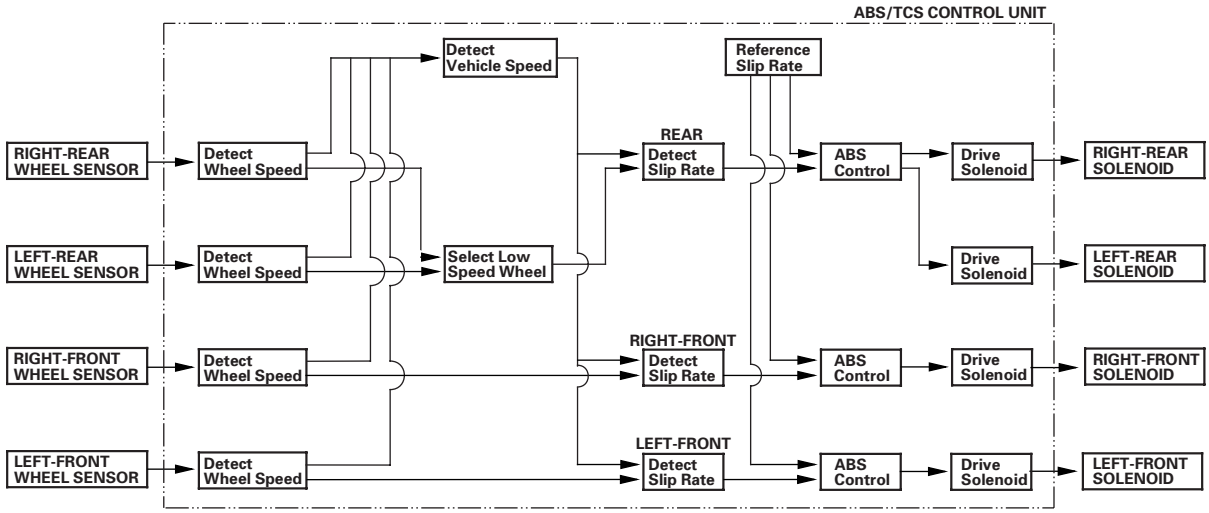
TCS Features
The TCS provides low-speed traction. When a drive wheel loses traction on a slipperly road surface and starts to spin, the ABS/TCS control unit sends a brake signal to the modulator unit, which applies brake pressure to slow the spinning wheel. At that time, the ABS/TCS control unit sends an engine retard signal to the PCM to prevent damage to the transmission.



Electronic Brake Distribution (EBD) Features
The electronic brake distribution (EBD) function helps control vehicle braking by adjusting the rear brake force before the ABS operates, based on wheel sensor signals, the ABS control unit uses the modulator to control the rear brakes individually. When the rear wheel speed is less than the front wheel speed, the ABS control unit retains the current rear brake fluid pressure by closing the inlet valve in the modulator. As the rear wheel speed increases and approaches the front wheel speed, the control unit increases the rear brake fluid pressure by momentarily opening the inlet valve. This whole process is repeated very rapidly.

ABS Main Control

The ABS/TCS control unit detects the wheel speed based on the wheel sensor signal it received, then it calculates the vehicle speed based on the detected wheel speed. The control unit detects the vehicle speed during deceleration based on the rate of deceleration.
The ABS/TCS control unit calculates the slip rate of each wheel, and it transmits the control signal to the modulator unit solenoid valve when the slip rate is high.
The pressure reduction control has three modes: pressure intensifying, pressure retaining, and pressure reducing.

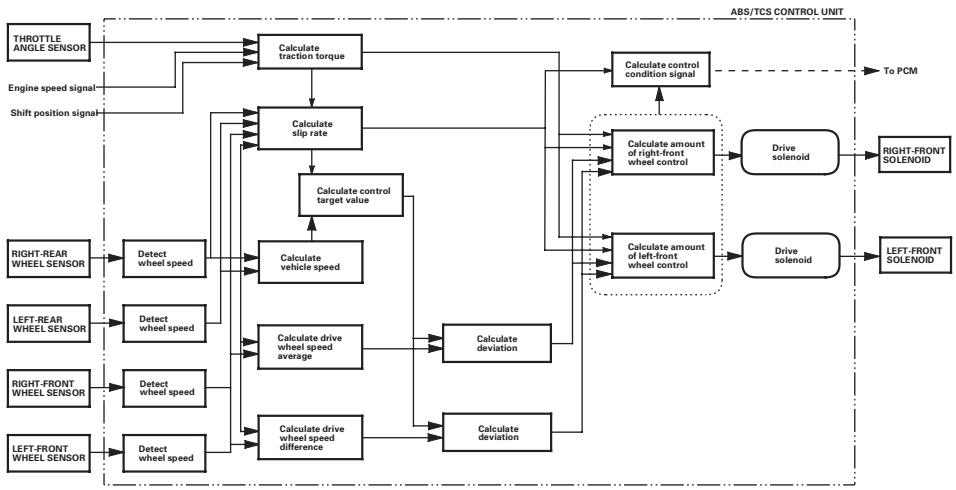


(cont'd)

System Description (cont'd)

TCS Main Control

The ABS/TCS control unit controls the TCS based on signal inputs from the throttle position sensor, engine speed sensor, shift position sensor, and the wheel sensors. In addition, the ABS/TCS control unit sends an engine retard request signal to the PCM if necessary. The ABS/TCS control unit uses the modulator unit to control the TCS. The pressure intensifying control has three modes: pressure intensifying, pressure retaining, and pressure reducing.



ABS Self-Diagnosis

- The ABS/TCS control unit is equipped with a main CPU and a sub-CPU. Each CPU checks the other for problems.
- The CPUs check the circuit of the system.
- Self-diagnosis can be classified into two categories:
  – Initial diagnosis: Done right after the engine starts and until the ABS or TCS indicator goes off
  – Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned OFF
- When a problem is detected by self-diagnosis, the ABS/TCS control unit shifts to fail-safe mode.

ABS Self-diagnosis Table

Diagnostic Trouble Code (DTC)	Detection Item	Detection Timing		Fail-safe Mode
		Initial Diagnosis	Regular Diagnosis	
11, 13, 15, 17	Wheel sensor (open/short to body ground/short to power)	○	○	A0
12, 14, 16, 18	Wheel sensor (electrical noise/intermittent interruption)		○	A0, L0
21－24	Pulser		○	A0, L0
31－38	Solenoid (short to body ground/short to wire)	○	○	S1
41－44	Wheel lock		○	A0, L0
51	Motor lock		○	A0, L0
52	Motor stuck OFF		○	A0, L0
53	Motor stuck ON	○	○	A0, L0
54	ABS fail-safe relay	○	○	S1
61	Low ignition voltage		○	B0, B1
62	High ignition voltage		○	B0
71	Different diameter tire		○	S1
81	Central Processing Unit (CPU), ROM/RAM	○	○	S1, A1

NOTE:
- At the DTCs with '' * '' mark, there are cases that the ABS/TCS control unit shifts to fail-safe mode A1, L1 when the ABS/TCS control unit detects more than one DTC and for different wheel.
- If the ABS/TCS control unit detects the DTCs which have different fail-safe mode individually, the ABS/TCS control unit take priority the large number mode.

(cont'd)

System Description (cont'd)

ABS Operation Mode Table

Operation Mode	Description	ABS Indicator	TCS Indicator	Brake System Indicator
Regular operation	Operation in normal condition.	OFF	OFF	OFF
EBD Operation	Electronic Brake Distribution (EBD) operation.	OFF	OFF	OFF
Fail-safe mode-S1	The ABS/TCS control unit turns the system off (ABS fail-safe relay off) when the control unit detects a problem.	ON	ON	ON
Fail-safe mode-A1	If the ABS/TCS control unit detects a malfunction while the ABS, TCS, or EBD is operating, it will turn off the malfunctioning component, and continue to modulate the rest of the ABS system until completing the ABS, TCS, or EBD operation. At that time, the entire system will be turned off until the problem goes away.	ON	ON	ON
Fail-safe mode-A0	If the ABS/TCS control unit detects a malfunction while the ABS, TCS, or EBD is operating, it will turn off the malfunctioning component, and continue to modulate the rest of the ABS system until completing the ABS, TCS, or EBD operation. At that time, the entire system will be turned off until the problem goes away.	ON	ON	OFF
Fail-safe mode-L1	The ABS/TCS control unit stores a DTC in back-up memory when it detects a problem. If a problem is detected when the ignition switch is turned ON (II), the ABS/TCS control unit will turn the system off. If the problem goes away, the ABS/TCS control unit will turn the system on again.	ON	ON	ON
Fail-safe mode-L0	The ABS/TCS control unit stores a DTC in back-up memory when it detects a problem. If a problem is detected when the ignition switch is turned ON (II), the ABS/TCS control unit will turn only the ABS system off. If the problem goes away, the ABS/TCS control unit will turn the ABS system on again.	ON	ON	OFF
Fail-safe mode-B1	The ABS/TCS control unit will turn the system off, if the ignition voltage drops, and will turn it on again when the ignition voltage returns to normal.	ON	ON	ON
Fail-safe mode-B0	The ABS/TCS control unit will turn only the ABS system off, if the ignition voltage drops, and will turn it on again when the ignition voltage returns to normal.	ON	ON	OFF

On-board Diagnosis Function

The ABS can be diagnosed with the HDS.

The ALB Checker cannot be used with this system. For air bleeding, and checking wheel sensor signals, use the HDS. See the HDS help menu for specific operating instructions.

TCS Self-diagnosis

- The ABS/TCS control unit is equipped with a main CPU and a sub-CPU. Each CPU checks the other for problems.
- The CPUs check the circuit of the system.
- Self-diagnosis can be classified into two categories:
  – Initial diagnosis: Done right after the engine starts and until the ABS or TCS indicator goes off
  – Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned OFF
- When a problem is detected by self-diagnosis, the ABS/TCS control unit shifts to fail-safe mode.

TCS Self-diagnosis Table

Diagnostic Trouble Code (DTC)	Detection Item	Detection Timing		Fail-safe Mode
		Initial Diagnosis	Regular Diagnosis	
24 – 27	TCS solenoid (short to body ground/short to wire)	○	○	S1
28	TCS relay	○		S1
31	Engine retard command (PFINH) signal (open/short to body ground)		○	A2
32	Engine speed (NEP) signal (open/short to body ground)		○	A2
34	Reference voltage (VREF) signal (open/short to body ground)	○	○	A2
36	Throttle position sensor output (THLOUT) signal (open/short to body ground)	○	○	A2
61	A/T shift position (ATSFTP) signal (open/short to body ground)		○	A2
81	Continuous TCS operation		○	A2

(cont'd)

System Description (cont'd)

TCS Operation Mode Table

Operation Mode	Description	ABS Indicator	TCS Indicator	Brake System Indicator
Regular operation	Operation in normal condition.	OFF	OFF	OFF
Fail-safe mode-S1	The ABS/TCS control unit turns the system off (ABS fail-safe relay off) when the control unit detects a problem.	ON	ON	ON
Fail-safe mode-A2	If the ABS/TCS control unit detects a malfunction while the TCS is operating, it will turn off the malfunctioning component, and continue to modulate the rest of the TCS system until completing the TCS operation. At that time, the TCS system will be turned off.	OFF	ON	OFF
TCS deactivate mode	If the front brake pad temperature rises excessively, the ABS/TCS control unit stops the TCS system and turns the TCS indicator on. When the brake pad temperature lowers, the ABS/TCS control unit turns off the TCS indicator and restarts the TCS system.	OFF	Comes ON when the front brake pad temperature rises excessively.	OFF
TCS OFF mode	The ABS/TCS control unit cancels the TCS system under these conditions: • If the ABS/TCS control unit detects a problem with the PGM-FI communication circuit. • The ABS system is faulty. • The TCS system is OFF. If these conditions return to normal, the ABS/TCS control unit restarts the TCS system.	ON or OFF (ON: When the ABS system is faulty)	ON	ON or OFF (ON: When the EBD system is faulty)

On-board Diagnosis Function

The TCS can be diagnosed with the HDS.

The ALB Checker cannot be used with this system. For air bleeding, and checking wheel sensor signals, use the HDS. See the HDS help menu for specific operating instructions.

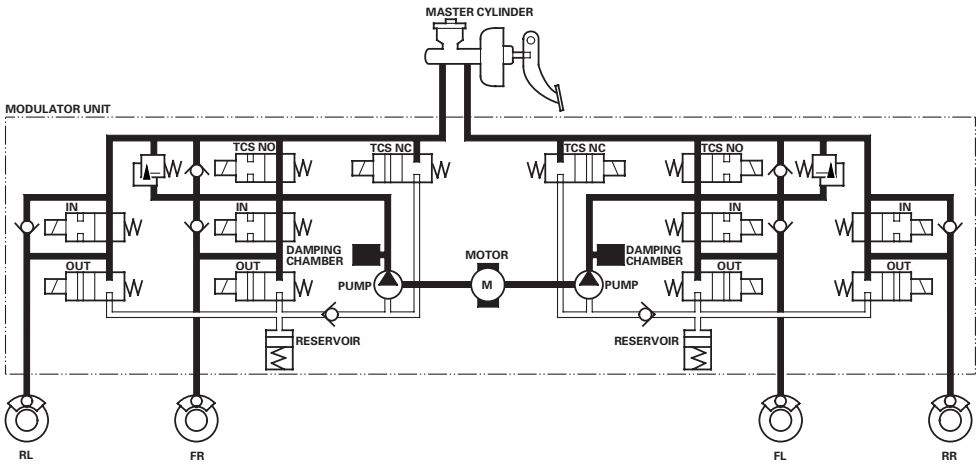
Modulator Unit

The modulator unit consists of the inlet solenoid valve, outlet solenoid valve, TCS normally open (NO) solenoid valve, TCS normally closed (NC) solenoid valve, reservoir, pump, pump motor, and the damping chamber.
The modulator controls the caliper fluid pressure directly. It is a circulating-type modulator because the brake fluid circulates through the caliper, the reservoir, and the master cylinder.
The hydraulic control has three modes: pressure intensifying, pressure retaining, and pressure reducing.
The hydraulic circuit is an independent four channel type, one channel for each wheel.

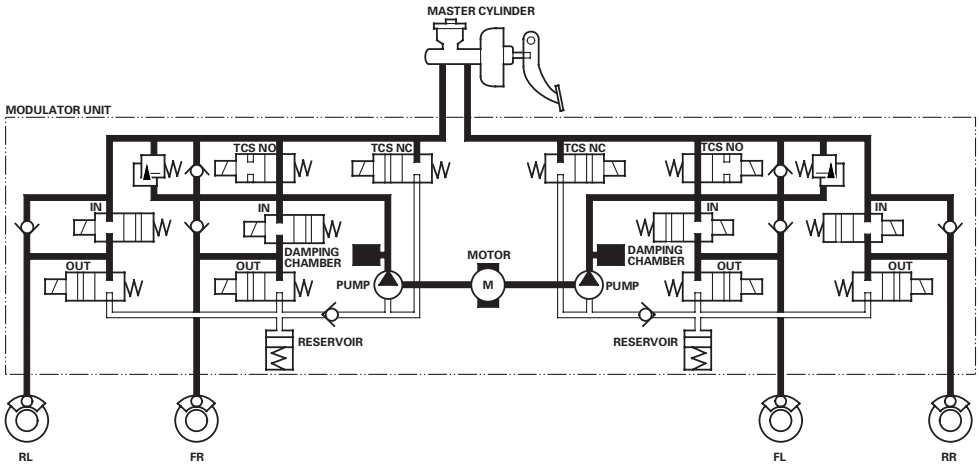
ABS Control

Pressure intensifying mode
TCS NO valve open, TCS NC valve closed, inlet valve open, outlet valve closed.
Master cylinder fluid is pumped out to the caliper.

Pump Motor
When starting the pressure reducing mode, the pump motor is ON. When stopping ABS operation, the pump motor is OFF.
The reservoir fluid is pumped out by the pump, through the damping chamber, to the master cylinder.



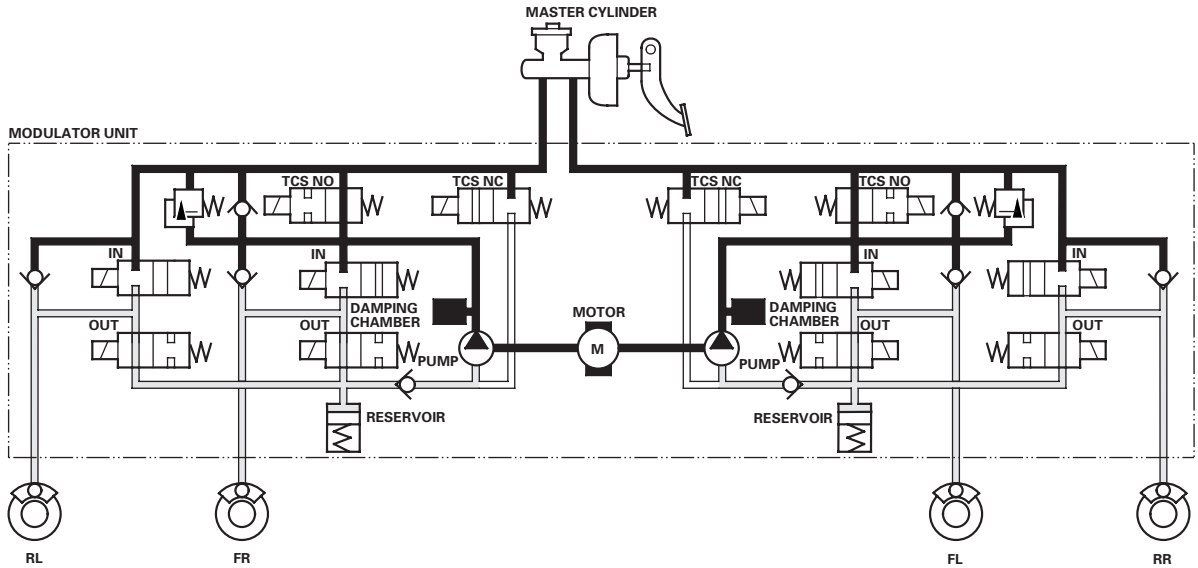
Pressure retaining mode
TCS NO valve open, TCS NC valve closed, inlet valve closed, outlet valve closed.
Caliper fluid is retained by the inlet valve and outlet valve.



(cont'd)

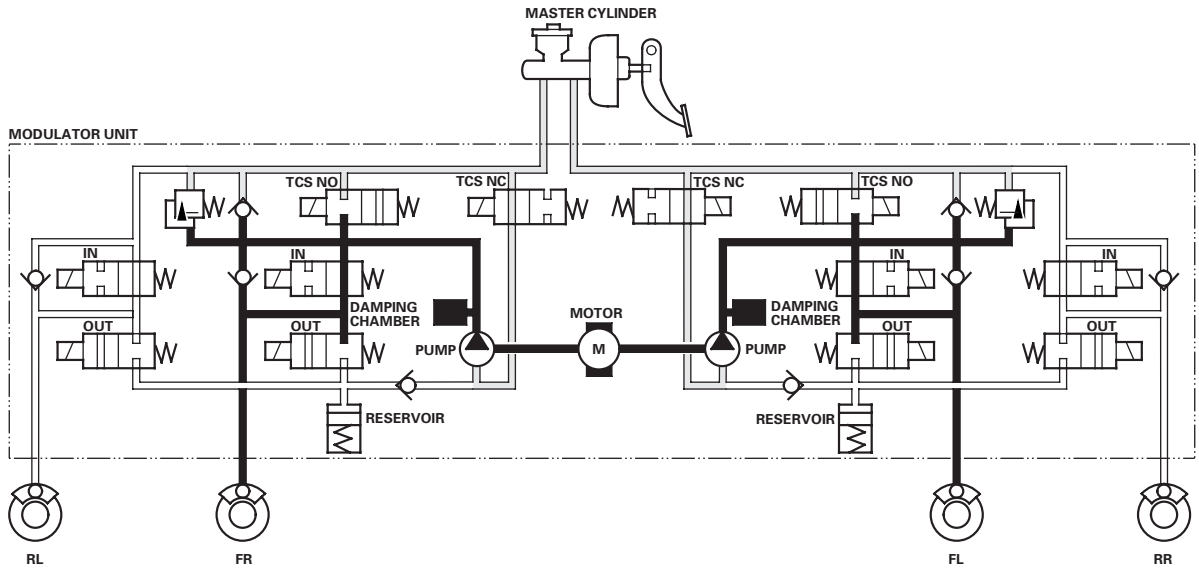
System Description (cont'd)

Pressure reducing mode
TCS NO valve open, TCS NC valve closed, inlet valve closed, outlet valve open.
Caliper fluid flows through the outlet valve to the reservoir.



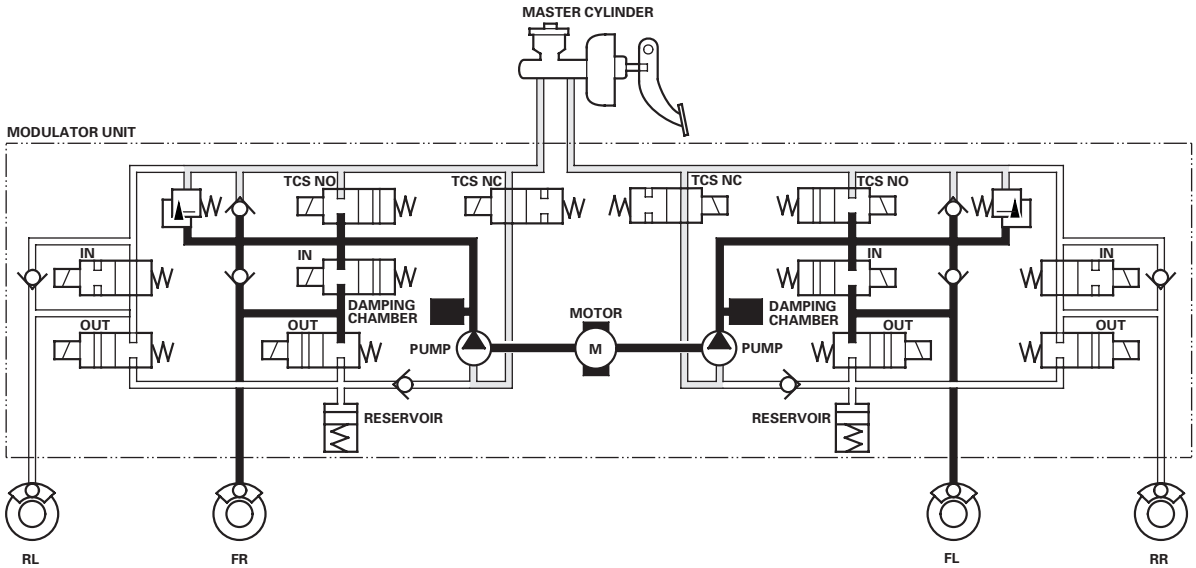
TCS Control

Pressure intensifying mode
TCS NO valve closed, TCS NC valve open, inlet valve open, outlet valve closed, pump motor ON.
The reservoir and master cylinder fluid is pumped out by the pump, through the damping chamber, to the front caliper.



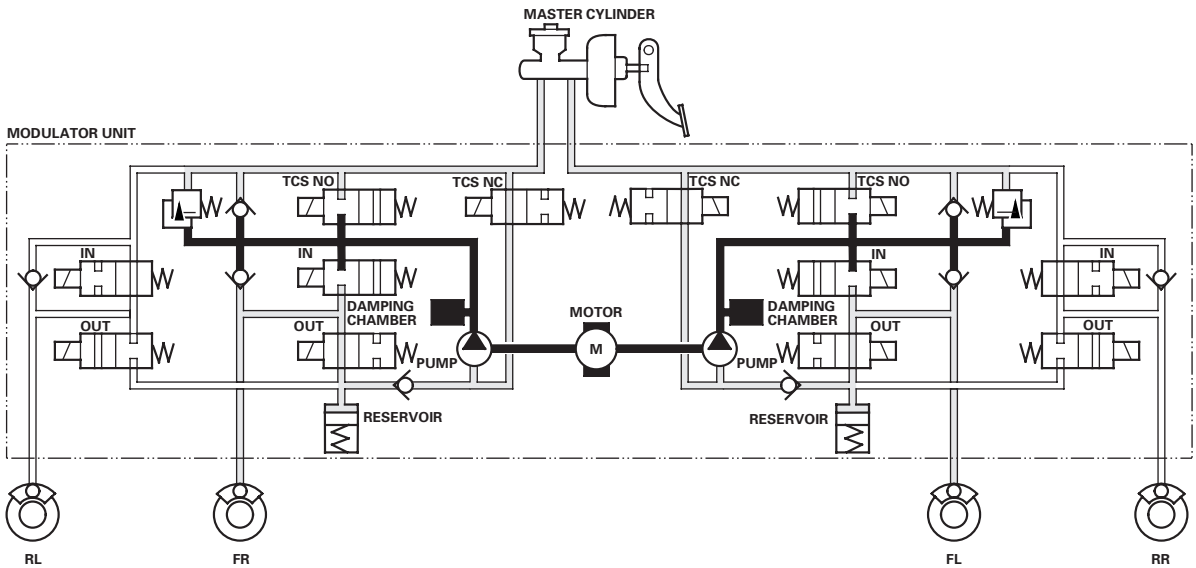
Pressure retaining mode

TCS NO valve closed, TCS NC valve open, inlet valve closed, outlet valve closed, pump motor ON.
Front caliper fluid is retained by the inlet valve and outlet valve.



Pressure reducing mode

TCS NO valve closed, TCS NC valve open, front inlet valve closed, front outlet valve open, pump motor ON.
Caliper fluid flows through the outlet valve to the reservoir.



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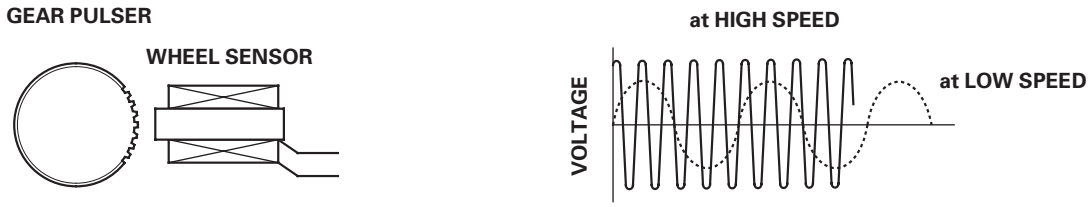
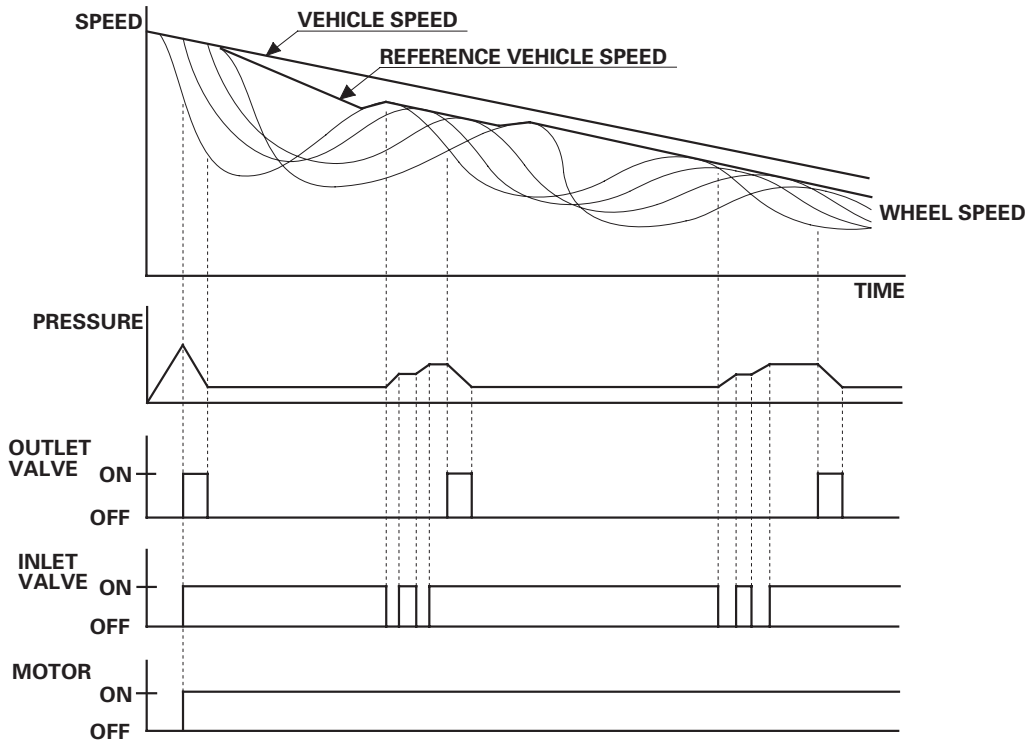
System Description (cont'd)

Wheel Sensor

The wheel sensors are the magnetic contactless type. As the gear pulser teeth rotate past the wheel sensor's magnetic coil, AC current is generated. The AC frequency changes in accordance with the wheel speed. The ABS/TCS control unit detects the wheel sensor signal frequency and thereby detects the wheel speed.

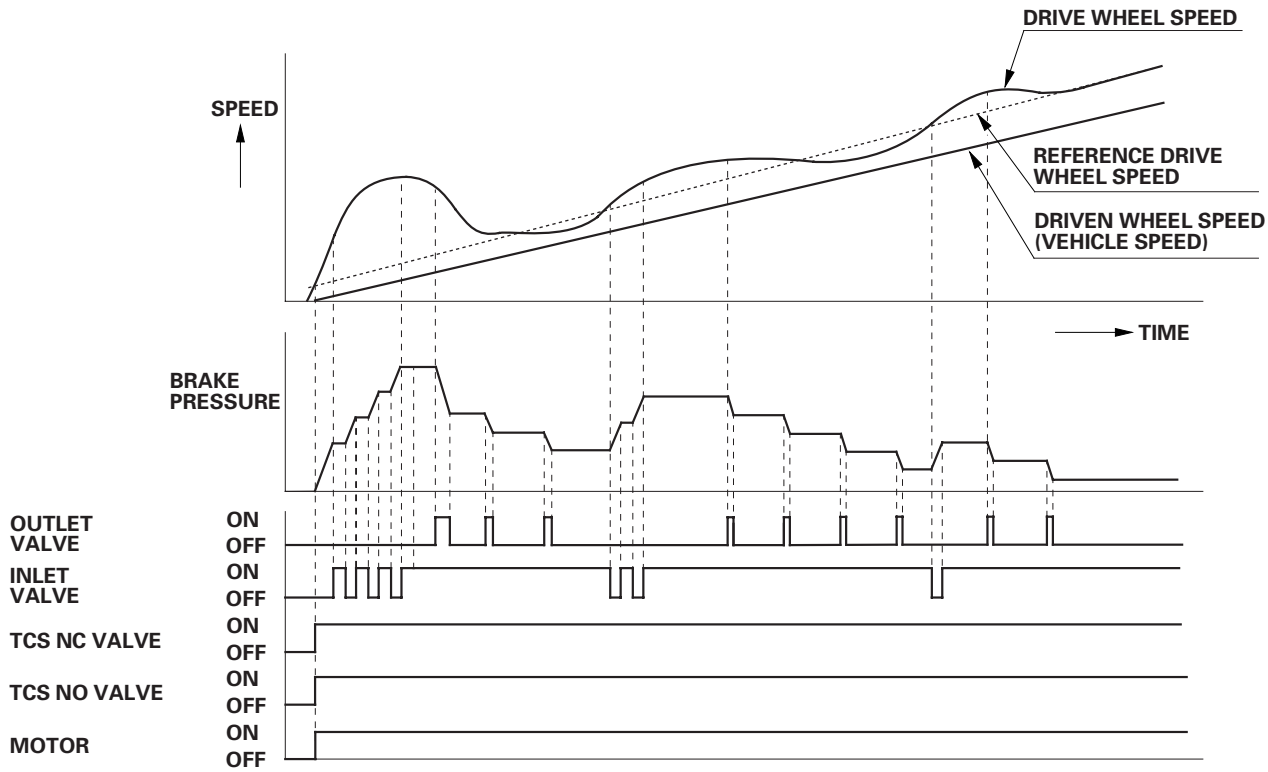


Wheel Speed and Modulator Control (ABS)



When the wheel speed drops sharply below the vehicle speed, the outlet valve opens momentarily to reduce the caliper fluid pressure. The pump motor starts at this time. As the wheel speed is restored, the inlet valve opens momentarily to increase the caliper fluid pressure.

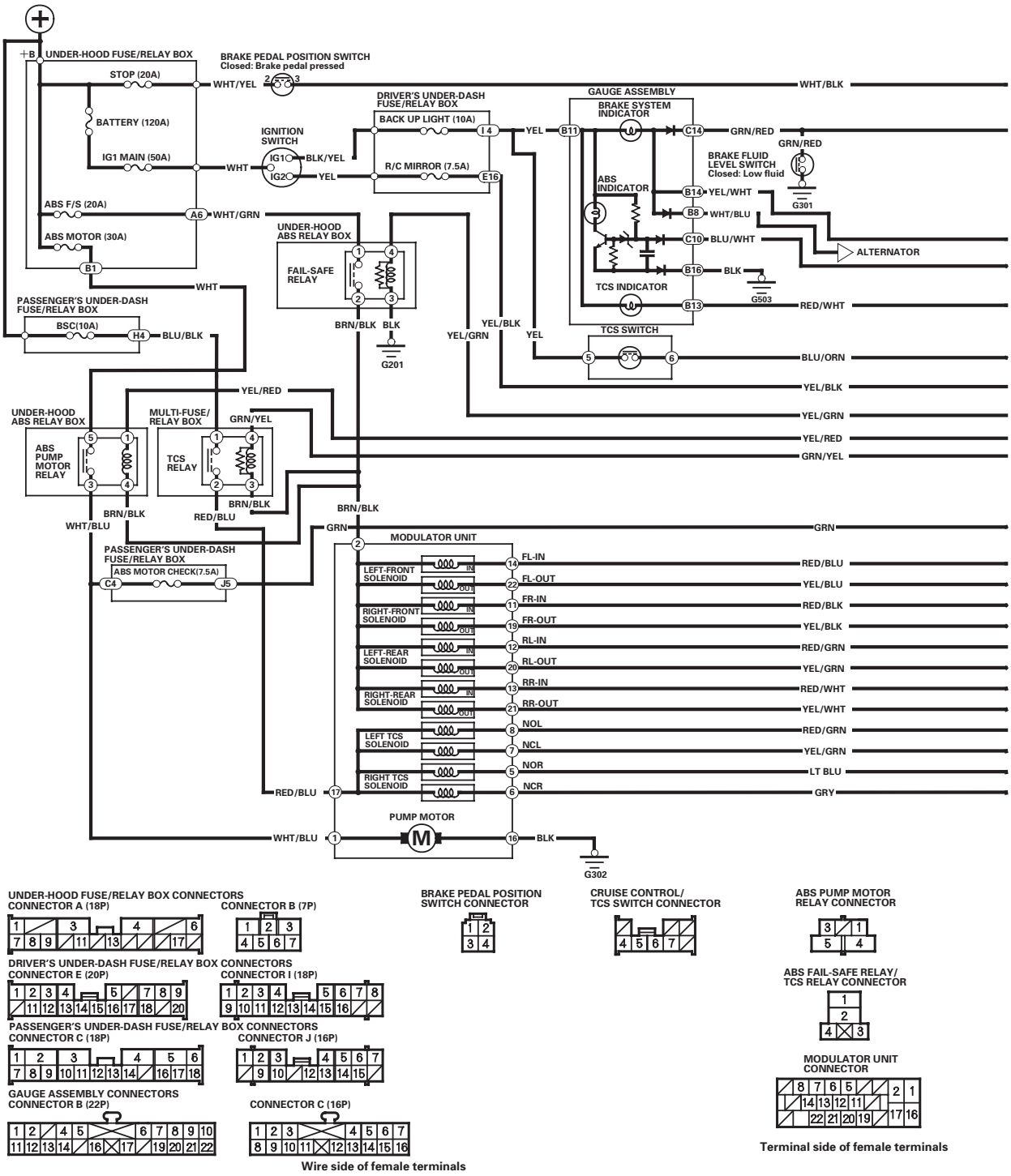
Wheel Speed and Modulator Control (TCS)

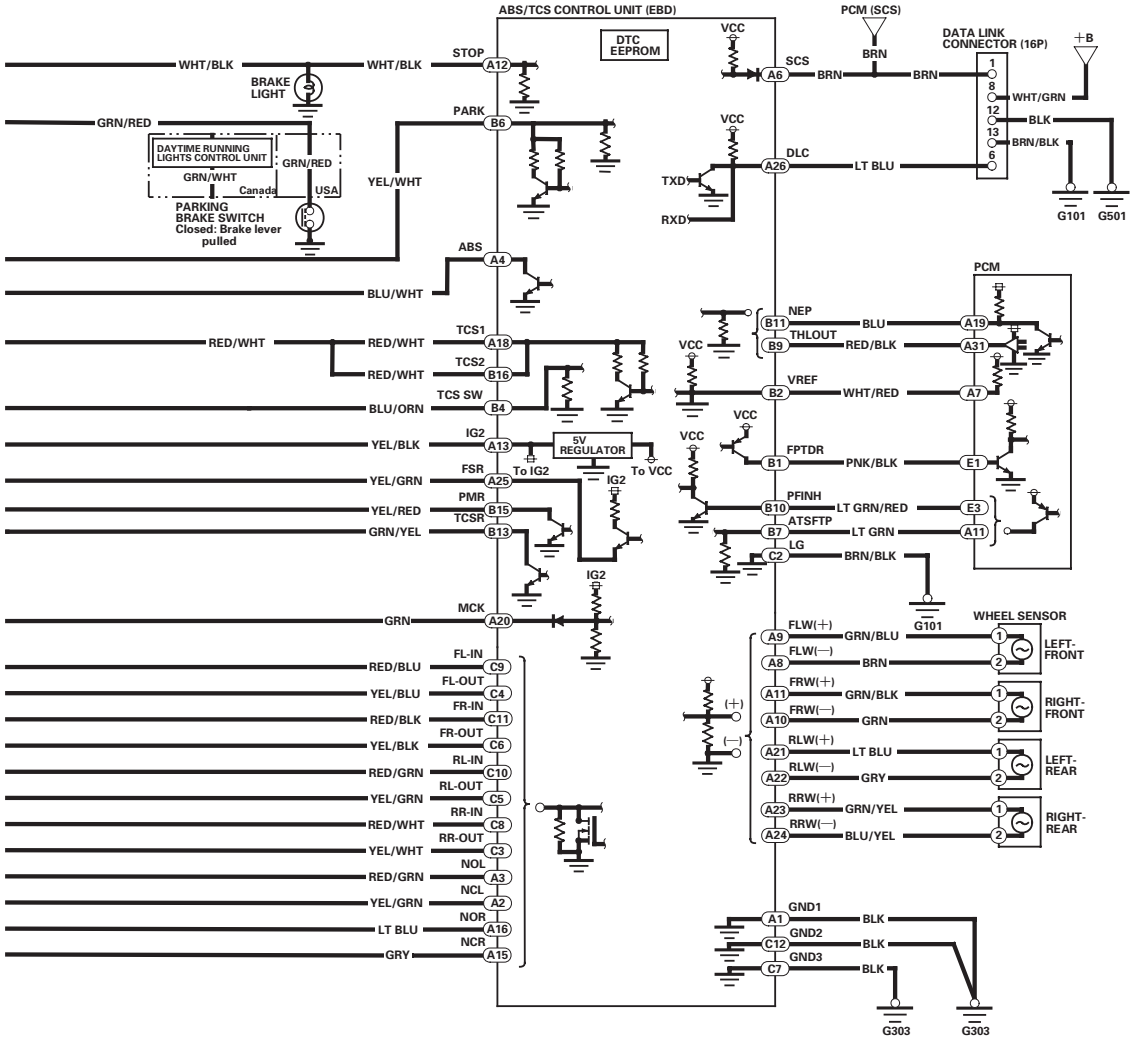


When the front wheel speed rises sharply above the vehicle speed, the TCS NC valve opens, the TCS NO valve closes, and the pump motor starts to intensify the front caliper fluid pressure. When the wheel speed drops, the front inlet valve closes momentarity to retain the front caliper fluid pressure. When the wheel speed drops further, the front outlet valve opens momentarily to reduce the front caliper fluid pressure.

Circuit Diagram

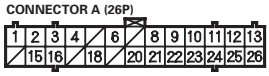
'99-00 models



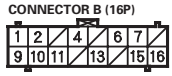


ABS/TCS CONTROL UNIT CONNECTORS

CONNECTOR A (26P)



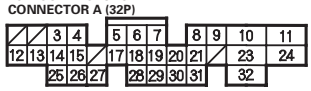
CONNECTOR B (16P)



CONNECTOR C (12P)

PCM CONNECTORS

CONNECTOR A (32P)



CONNECTOR E (12P)

DATA LINK CONNECTOR (16P)

Wire side of female terminals

WHEEL SENSOR CONNECTOR

FRONT

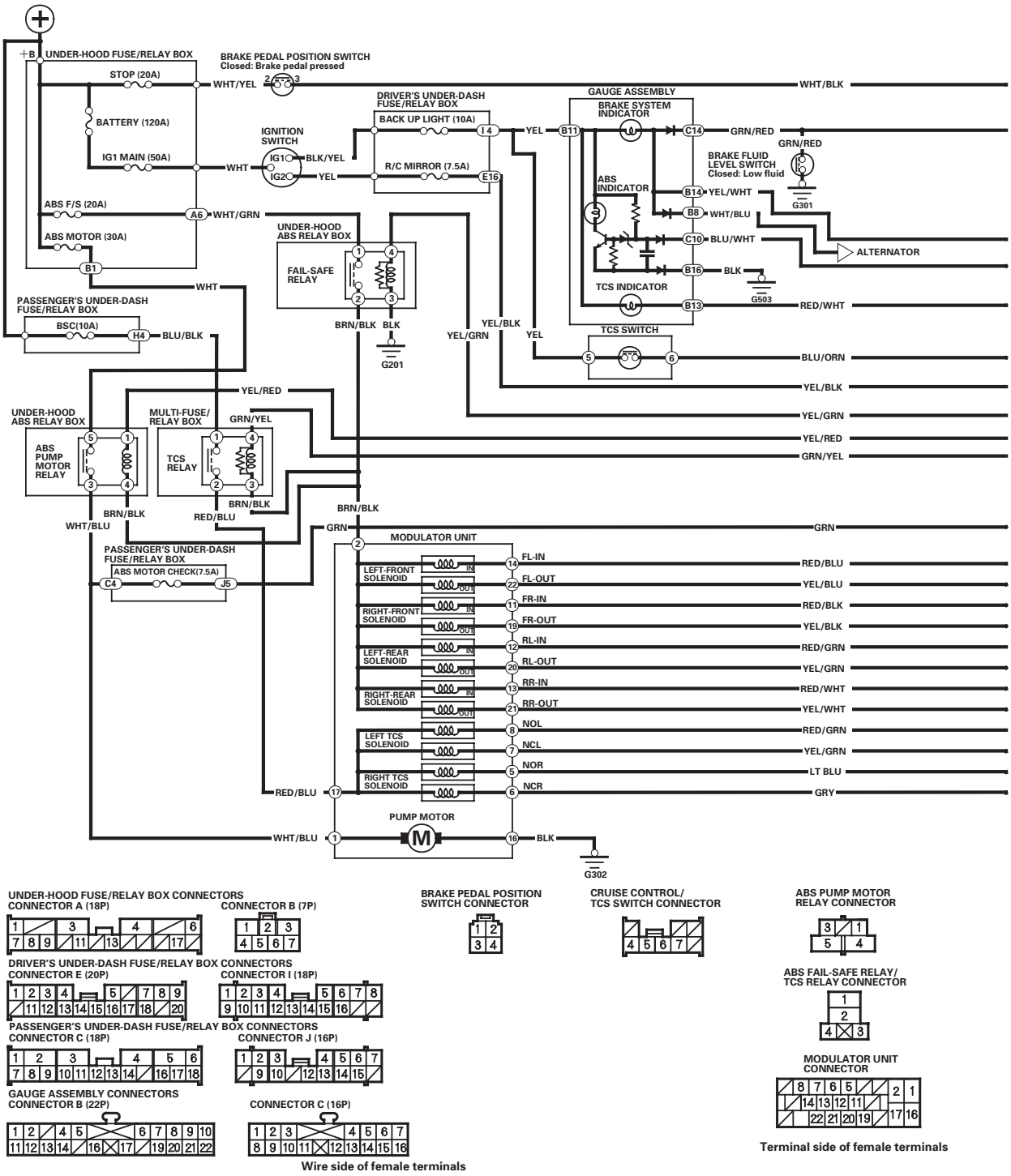
Terminal side of male terminals

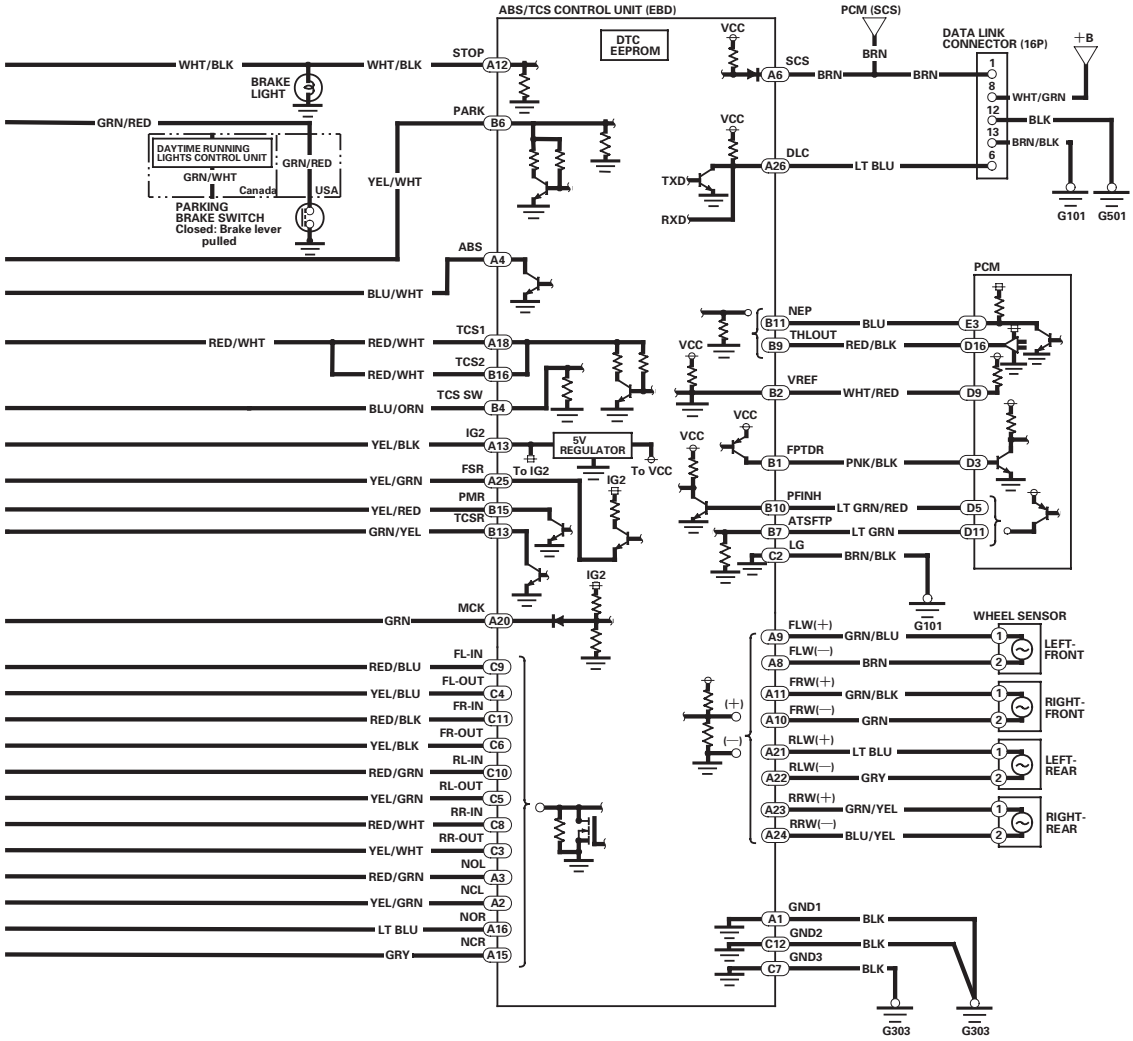
REAR

Wire side of female terminals

Circuit Diagram (cont'd)

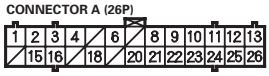
'01 model



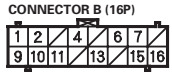


ABS/TCS CONTROL UNIT CONNECTORS

CONNECTOR A (26P)



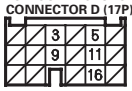
CONNECTOR B (16P)



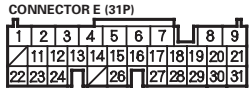
CONNECTOR C (12P)

PCM CONNECTORS

CONNECTOR D (17P)



CONNECTOR E (31P)



DATA LINK CONNECTOR (16P)

Wire side of female terminals

WHEEL SENSOR CONNECTOR

FRONT

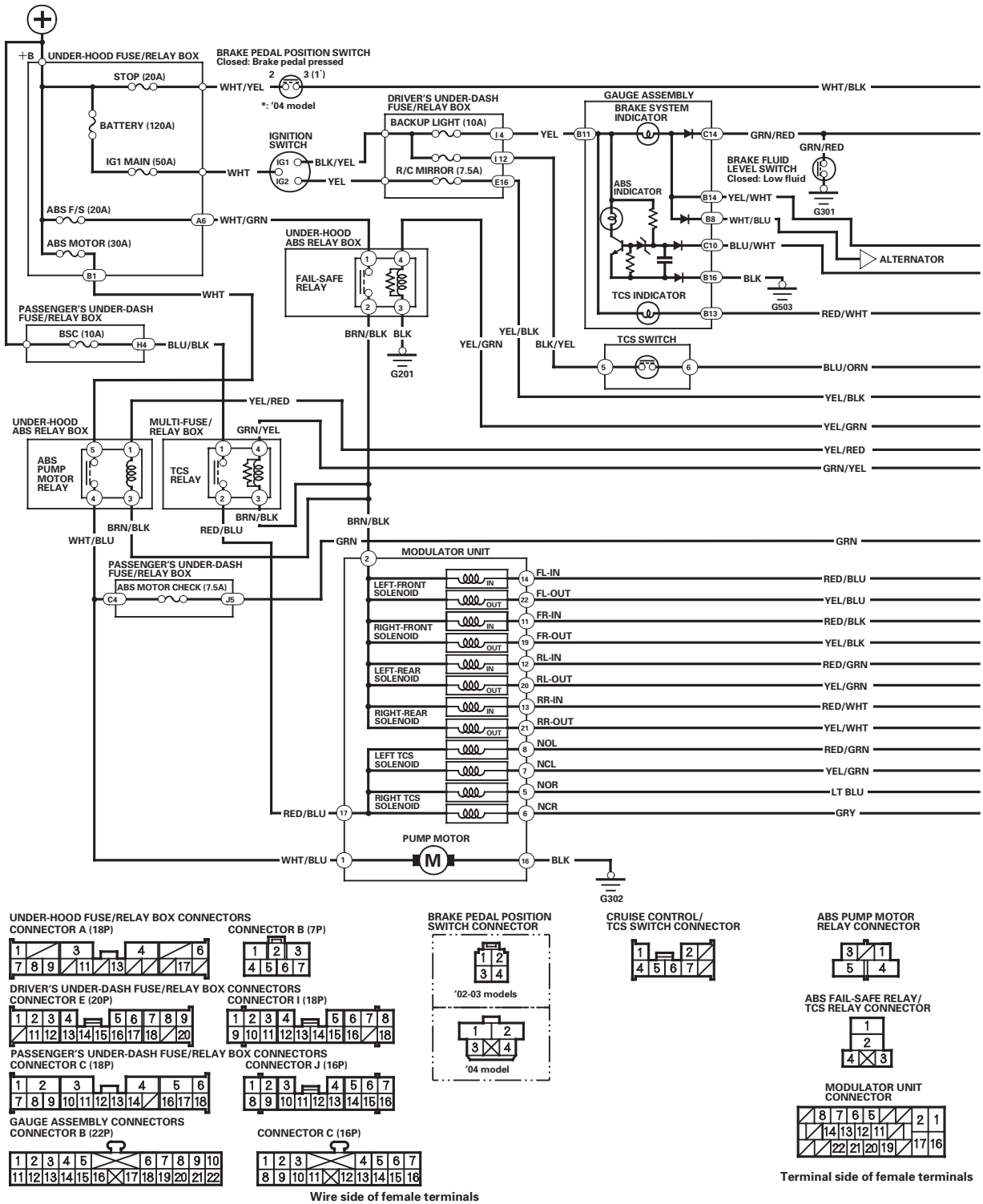
Terminal side of male terminals

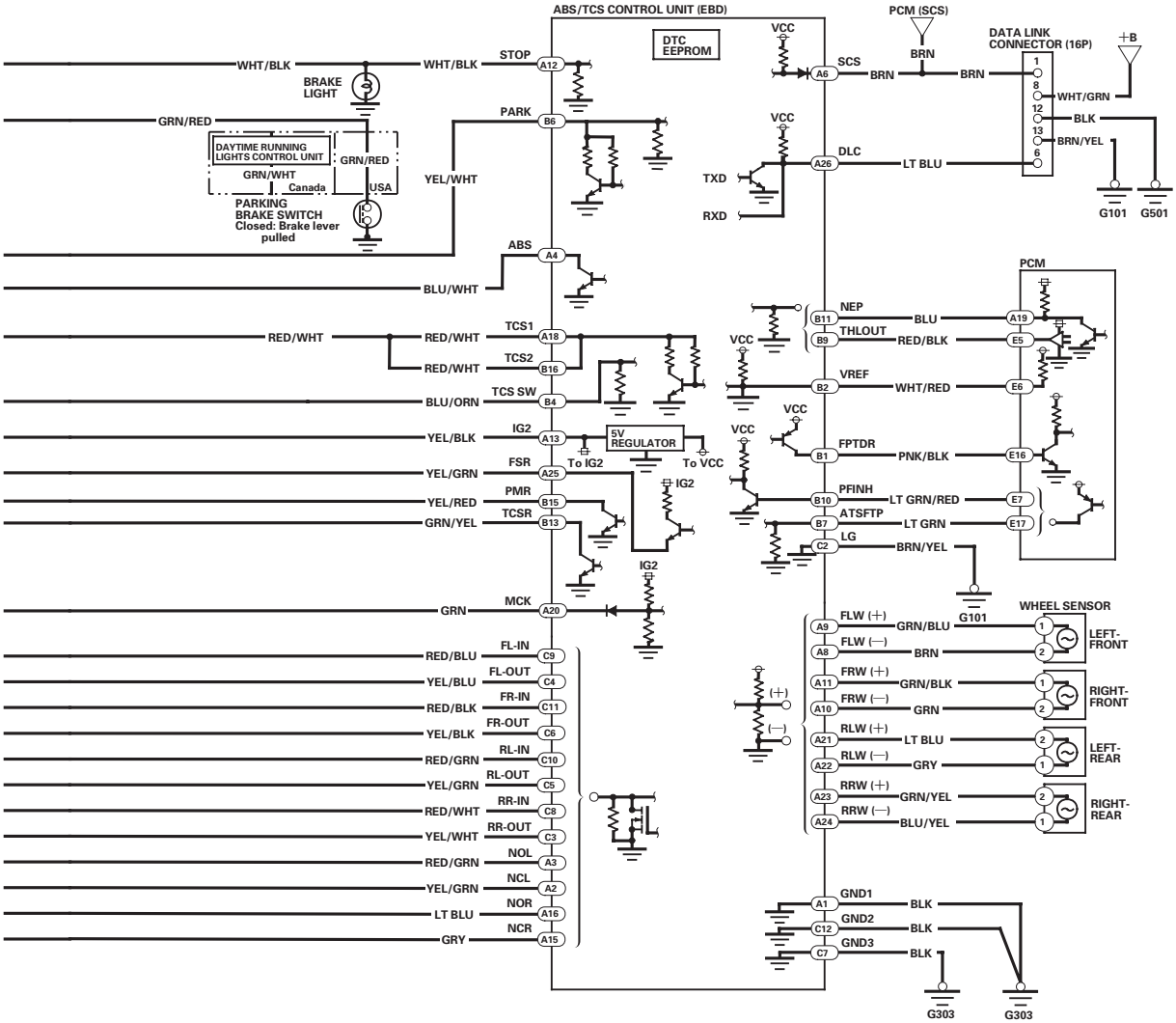
REAR

Wire side of female terminals

Circuit Diagram (cont'd)

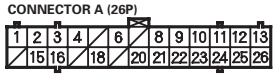
'02-04 models





ABS/TCS CONTROL UNIT CONNECTORS

CONNECTOR A (26P)



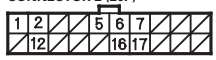
CONNECTOR B (16P)

CONNECTOR C (12P)

PCM CONNECTORS

CONNECTOR A (32P)

CONNECTOR E (20P)



DATA LINK CONNECTOR (16P)

Wire side of female terminals

WHEEL SENSOR CONNECTOR

FRONT

Terminal side of male terminals

REAR

Wire side of female terminals

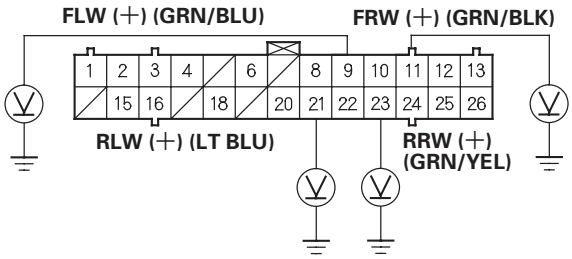
DTC Troubleshooting

ABS DTC 11, 13, 15, 17: Wheel Sensor (Open/Short to Body Ground/Short to Power)

1. Disconnect the ABS/TCS control unit connector A (26P).
2. Start the engine.
3. Measure the voltage between the appropriate wheel sensor (+) circuit terminal and body ground (see table).

DTC	Appropriate Terminal
11 (Right-front)	No. 11 : FRW (+)
13 (Left-front)	No. 9 : FLW (+)
15 (Right-rear)	No. 23 : RRW (+)
17 (Left-rear)	No. 21 : RLW (+)

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

Is there 2 V or more?

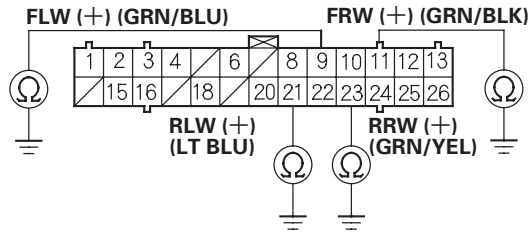
YES—Repair short to power in the (+) circuit wire between the ABS/TCS control unit and the appropriate wheel sensor.

NO—Go to step 4.

4. Check for continuity between the appropriate wheel sensor (+) circuit terminal and body ground (see table).

DTC	Appropriate Terminal
11 (Right-front)	No. 11 : FRW (+)
13 (Left-front)	No. 9 : FLW (+)
15 (Right-rear)	No. 23 : RRW (+)
17 (Left-rear)	No. 21 : RLW (+)

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

Is there continuity?

YES—Go to step 5.

NO—Go to step 6.

5. Disconnect the harness 2P connector from the appropriate wheel sensor, then check for continuity between the (+) and (−) terminals of the harness and body ground.

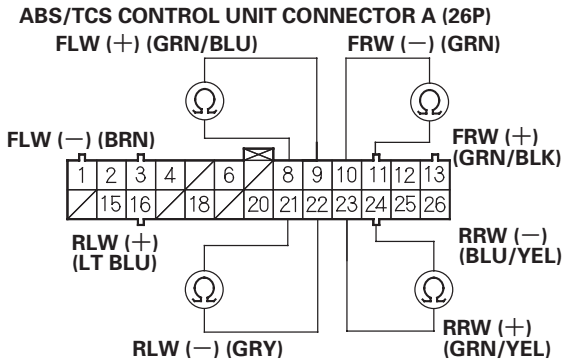
Is there continuity?

YES—Repair short to body ground in the (+) or (−) circuit wire between the ABS/TCS control unit and the wheel sensor. ■

NO—Replace the wheel sensor. ■

6. Check the resistance between the appropriate wheel sensor (+) and (−) circuit terminals (see table).

DTC	Appropriate Terminal	
	(+) Side	(−) Side
11 (Right-front)	No. 11 : FRW (+)	No. 10 : FRW (−)
13 (Left-front)	No. 9 : FLW (+)	No. 8 : FLW (−)
15 (Right-rear)	No. 23 : RRW (+)	No. 24 : RRW (−)
17 (Left-rear)	No. 21 : RLW (+)	No. 22 : RLW (−)



Wire side of female terminals

Is the resistance between 450−2,000 Ω ?

YES−Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

NO−Go to step 7.

7. Disconnect the harness 2P connector from the appropriate wheel sensor, and check the resistance between the (+) and (−) terminals of the wheel sensor.

Is the resistance between 450−2,000 Ω ?

YES−Repair open in the (+) or (−) circuit wire, or short between the (+) circuit wire and the (−) circuit wire between the ABS/TCS control unit and the wheel sensor. ■

NO−Replace the wheel sensor. ■

ABS DTC 12, 14, 16, 18: Wheel Sensor (Electrical Noise/Intermittent Interruption)

NOTE: If the ABS indicator comes on because of electrical noise, the indicator goes off when you test-drive the vehicle at 19 mph (30 km/h).

1. Visually check for appropriate wheel sensor and pulser installation (see table).

DTC	Appropriate Wheel Sensor
12	Right-front
14	Left-front
16	Right-rear
18	Left-rear

Are they installed correctly?

YES−Go to step 2.

NO−Reinstall or replace the appropriate wheel sensor or pulser. ■

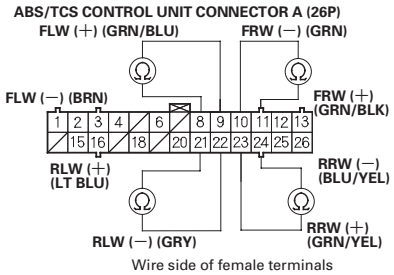
2. Disconnect the ABS/TCS control unit connector A (26P).

(cont'd)

DTC Troubleshooting (cont'd)

3. Measure the resistance between the appropriate wheel sensor (+) and (−) circuit terminals (see table).

DTC	Appropriate Terminal	
	(+) Side	(−) Side
12 (Right-front)	No. 11 : FRW (+)	No. 10 : FRW (−)
14 (Left-front)	No. 9 : FLW (+)	No. 8 : FLW (−)
16 (Right-rear)	No. 23 : RRW (+)	No. 24 : RRW (−)
18 (Left-rear)	No. 21 : RLW (+)	No. 22 : RLW (−)



Is there less than 450 Ω ?

YES—Repair short to wire between the appropriate wheel sensor (+) and (−) circuits. ■

NO—Go to step 4.

4. Check for continuity between the appropriate wheel sensor (+) circuit terminal and other wheel sensor (+) circuit terminals (see table).

DTC	Appropriate Terminal	Other Terminal		
12	No. 11 : FRW (+)	No. 9 : FLW (+)	No. 23 : RRW (+)	No. 21 : RLW (+)
14	No. 9 : FLW (+)	No. 11 : FRW (+)	No. 23 : RRW (+)	No. 21 : RLW (+)
16	No. 23 : RRW (+)	No. 11 : FRW (+)	No. 9 : FLW (+)	No. 21 : RLW (+)
18	No. 21 : RLW (+)	No. 11 : FRW (+)	No. 9 : FLW (+)	No. 23 : RRW (+)

Is there continuity?

YES—Repair short to wire between the appropriate wheel sensor and the other wheel sensor. ■

NO—Clear the DTC, and test-drive the vehicle. If the ABS indicator comes on and the same DTC is indicated, replace the ABS/TCS control unit. ■

ABS DTC 21, 22, 23, 24: Pulser

1. Clear the DTC (see step 1 on page 19-83).

2. Test-drive the vehicle at 19 mph (30 km/h) or more.

Does the ABS indicator come on and are DTCs 21, 22, 23 or 24 indicated?

YES—Go to step 3.

NO—The system is OK at this time. ■

3. Check the appropriate pulser gear for a chipped tooth (see table).

DTC	Appropriate Pulser
21	Right-front
22	Left-front
23	Right-rear
24	Left-rear

Is the pulser OK?

YES—Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

NO—Replace the driveshaft or the hub unit (Chipped tooth on pulser gear). ■

ABS DTC 31, 32, 33, 34, 35, 36, 37, 38: Solenoid

1. Verify the DTC.

   Is DTC 54 indicated?

   YES—Do the appropriate troubleshooting for DTC 54. ■

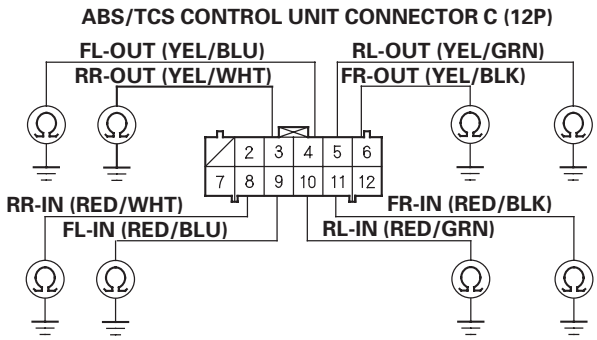
   NO—Go to step 2.

2. Turn the ignition switch OFF.

3. Disconnect the modulator unit connector and ABS/TCS control unit connector C (12P).

4. Check for continuity between appropriate ABS/TCS control unit connector C (12P) solenoid circuit terminal and body ground (see table).

DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 6
33: FL-IN	No. 9
34: FL-OUT	No. 4
35: RR-IN	No. 8
36: RR-OUT	No. 3
37: RL-IN	No. 10
38: RL-OUT	No. 5



Wire side of female terminals

Is there continuity?

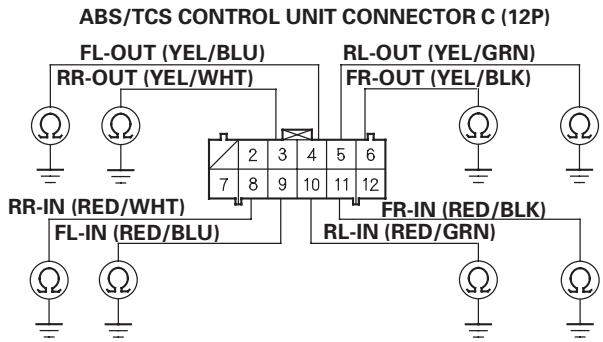
YES—Repair short to body ground in the appropriate solenoid circuit wire between the ABS/TCS control unit and the modulator unit. ■

NO—Go to step 5.

5. Connect the modulator unit connector.

6. Check for continuity between appropriate ABS/TCS control unit connector C (12P) solenoid circuit terminal and body ground (see table).

DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 6
33: FL-IN	No. 9
34: FL-OUT	No. 4
35: RR-IN	No. 8
36: RR-OUT	No. 3
37: RL-IN	No. 10
38: RL-OUT	No. 5



Wire side of female terminals

Is there continuity?

YES—Replace the modulator unit. ■

NO—Go to step 7.

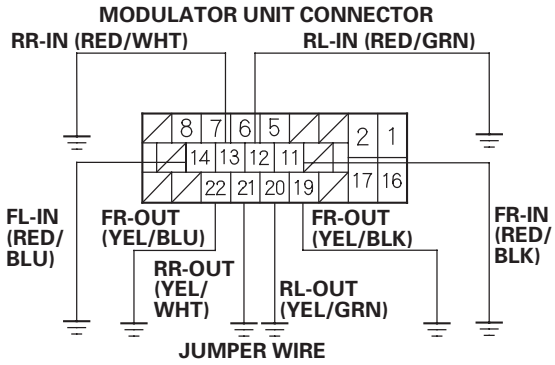
7. Disconnect the modulator unit connector.

(cont'd)

DTC Troubleshooting (cont'd)

8. Connect the appropriate modulator unit connector solenoid circuit terminal to body ground with a jumper wire (see table).

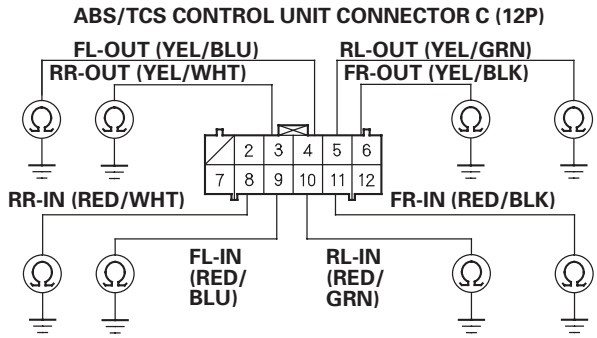
DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 19
33: FL-IN	No. 14
34: FL-OUT	No. 22
35: RR-IN	No. 13
36: RR-OUT	No. 21
37: RL-IN	No. 12
38: RL-OUT	No. 20



Terminal side of female terminals

9. Check for continuity between the appropriate ABS/TCS control unit connector C (12P) solenoid circuit terminal and body ground (see table).

DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 6
33: FL-IN	No. 9
34: FL-OUT	No. 4
35: RR-IN	No. 8
36: RR-OUT	No. 3
37: RL-IN	No. 10
38: RL-OUT	No. 5



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

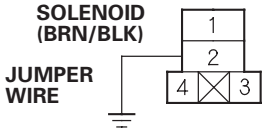
NO—Repair open in the appropriate solenoid circuit wire between the ABS/TCS control unit and the modulator unit. ■

10. Remove the jumper wire from the modulator unit connector.

11. Connect the modulator unit connector.

12. Connect ABS fail-safe relay connector terminal No. 2 to body ground with a jumper wire. The wire colors of the ABS fail-safe relay connector are WHT /GRN, BRN/BLK, BLK, and YEL/GRN.

ABS FAIL-SAFE RELAY CONNECTOR

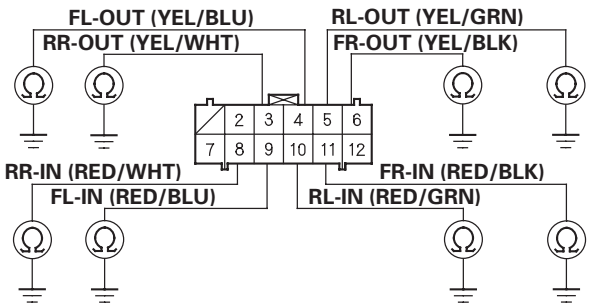


Terminal side of female terminals

13. Check resistance between appropriate ABS/TCS control unit connector C (12P) terminal and body ground (see table).
IN: 8—10 Ω (at 68℉, 20℃)
OUT: 3—5 Ω (at 68℉, 20℃)

DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 6
33: FL-IN	No. 9
34: FL-OUT	No. 4
35: RR-IN	No. 8
36: RR-OUT	No. 3
37: RL-IN	No. 10
38: RL-OUT	No. 5

ABS/TCS CONTROL UNIT CONNECTOR C (12P)



Wire side of female terminals

Is the resistance OK?

YES—Go to step 14.

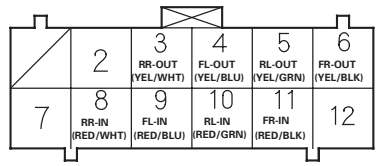
NO—Replace the modulator unit. ■

14. Disconnect the modulator unit connector, and remove the jumper wire from the ABS fail-safe relay connector terminal.

15. Check for continuity between appropriate ABS/TCS control unit connector C (12P) terminal and all other ABS and TCS solenoid circuit terminals (see table).

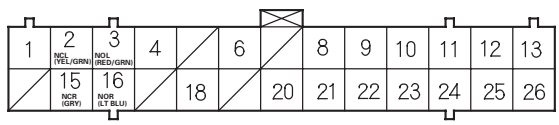
DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 6
33: FL-IN	No. 9
34: FL-OUT	No. 4
35: RR-IN	No. 8
36: RR-OUT	No. 3
37: RL-IN	No. 10
38: RL-OUT	No. 5

ABS/TCS CONTROL UNIT CONNECTOR C (12P)



Wire side of female terminals

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the appropriate wires between the ABS/TCS control unit and the modulator unit. ■

NO—Go to step 16.

(cont'd)

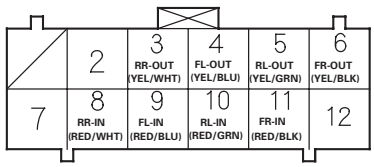
DTC Troubleshooting (cont'd)

16. Connect the modulator unit connector.

17. Check for continuity between appropriate ABS/TCS control unit connector C (12P) terminal and all other ABS and TCS solenoid circuit terminals (see table).

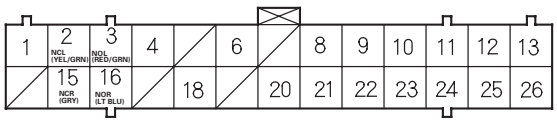
DTC	Appropriate Terminal
31: FR-IN	No. 11
32: FR-OUT	No. 6
33: FL-IN	No. 9
34: FL-OUT	No. 4
35: RR-IN	No. 8
36: RR-OUT	No. 3
37: RL-IN	No. 10
38: RL-OUT	No. 5

ABS/TCS CONTROL UNIT CONNECTOR C (12P)



Wire side of female terminals

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

Is there less than 3 Ω ?

YES—Replace the modulator unit. ■

NO—Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

ABS DTC 41, 42, 43, 44: Wheel Lock

1. Test-drive the vehicle, and apply the brake several times to raise the brake temperature.

2. Raise the vehicle on a hoist, and check for excessive brake drag.

   Is there excessive brake drag?

   YES—Repair the cause of brake drag. ■

   NO—Go to step 3.

3. Check the installation of the appropriate wheel sensor (see table).

DTC	Appropriate Wheel Sensor
41	Right-front
42	Left-front
43	Right-rear
44	Left-rear

Is it installed correctly?

YES—The probable cause was the vehicle spun during cornering. If the problem recurs, check the modulator unit using the HDS. ■

NO—Reinstall the wheel sensor correctly. ■

ABS DTC 51: Motor Lock

1. Clear the DTC (see step 1 on page 19-83).

2. Test-drive the vehicle at 6 mph (10 km/h) or more.

   Does the ABS indicator come on and is DTC 51 indicated?

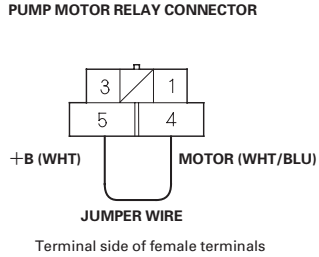
   YES—Replace the modulator unit. ■

   NO—The system is OK at this time. ■

ABS DTC 52: Motor Stuck OFF

1. Check the ABS MOTOR (30A) fuse in the under-hood fuse/relay box, and reinstall the fuse if it is OK.
   Is the fuse OK?
   YES—Go to step 3.
   NO—Replace the fuse, and go to step 2.

2. Remove the pump motor relay from the under-hood relay box. Connect pump motor relay connector terminal No. 4 to No. 5 with a jumper wire for a moment, and check the fuse.



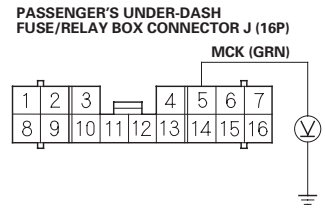
Terminal side of female terminals

   Is the fuse blown?
   YES—Check for a short to body ground in the motor power source circuit. ■
   NO—Go to step 3.

3. Remove the ABS MOTOR CHECK (7.5A) fuse in the passenger's under-dash fuse/relay box.
   Is the fuse OK?
   YES—Remove the fuse, and go to step 4.
   NO—Replace the fuse, and recheck. ■

4. Turn the ignition switch ON (II).

5. Measure the voltage between the passenger's under-dash fuse/relay box connector J (16P) terminal No. 5 and body ground.



Wire side of female terminals

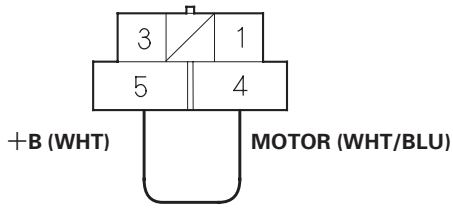
   Is there about 10 V?
   YES—Go to step 6.
   NO—Repair open in the wire between the passenger's under-dash fuse/relay box and the ABS/TCS control unit. ■

(cont'd)

DTC Troubleshooting (cont'd)

6. Connect pump motor relay connector terminal No. 4 to No. 5 with a jumper wire for a moment, and check the fuse.

PUMP MOTOR RELAY CONNECTOR



Terminal side of female terminals

Is the fuse blown?

YES – Check for a short to body ground in the MCK circuit. ■

NO – Go to step 7.

7. Check the pump motor relay in the under-hood ABS relay box (see page 22-88).

Is the relay OK?

YES – Go to step 8.

NO – Replace the pump motor relay. ■

8. Connect the pump motor relay connector terminal No. 4 to No. 5 with a jumper wire for a moment.

Does the pump motor operate?

YES – Go to step 13.

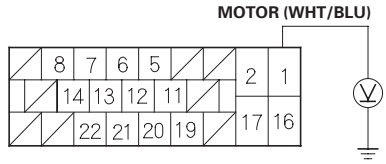
NO – Go to step 9.

9. Disconnect the modulator unit connector.

10. Connect pump motor relay connector terminal No. 4 to No. 5 with a jumper wire.

11. Measure the voltage between modulator unit connector terminal No. 1 and body ground.

MODULATOR UNIT CONNNECTOR



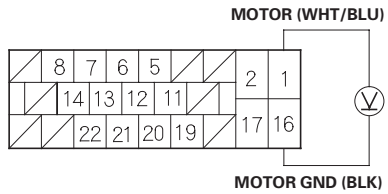
Terminal side of female terminals

Is there battery voltage?

YES – Go to step 12.
NO – Repair open in the wire between the under-hood ABS relay box and pump motor. ■

12. Measure the voltage between modulator unit connector terminal No. 1 and No. 16.

MODULATOR UNIT CONNNECTOR



Terminal side of female terminals

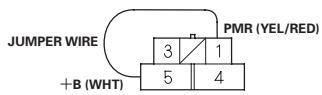
Is there battery voltage?

YES – Replace the modulator unit. ■
NO – Repair open in the wire between the pump motor and body ground (G303). ■

13. Disconnect ABS/TCS control unit connector B (16P).

14. Connect pump motor relay connector terminal No. 1 to No. 5 with a jumper wire.

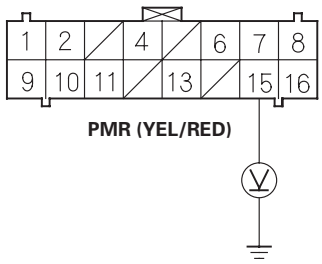
PUMP MOTOR RELAY CONNNECTOR



Terminal side of female terminals

15. Measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 15 and body ground.

ABS/TCS CONTROL UNIT CONNNECTOR B (16P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 16.

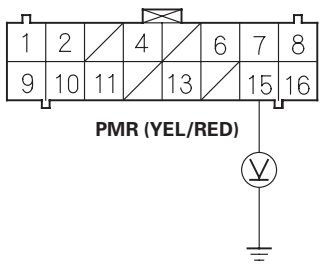
NO—Repair open in the wire between the under-hood ABS relay box and the ABS/TCS control unit. ■

16. Remove the jumper wire from the pump motor relay connector.

17. Start the engine.

18. Measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 15 and body ground.

ABS/TCS CONTROL UNIT CONNNECTOR B (16P)



Wire side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the under-hood ABS relay box and the ABS/TCS control unit. ■

NO—If the problem recurs, replace the ABS/TCS control unit. ■

ABS DTC 53: Motor Stuck ON

1. Check that the pump motor operates with the ignition switch OFF.

Does the pump motor operate?

YES—Go to step 12.

NO—Go to step 2.

2. Remove the ABS MOTOR CHECK (7.5A) fuse in the passenger's under-dash fuse/relay box.

Is the fuse OK?

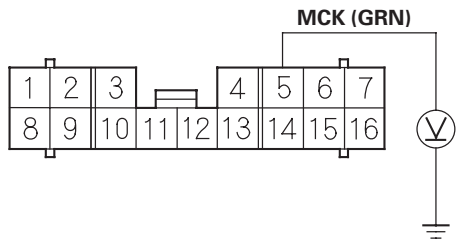
YES—Remove the fuse, and go to step 3.

NO—Replace the fuse, and recheck. ■

3. Turn the ignition switch ON (II).

4. Measure the voltage between the passenger's under-dash fuse/relay box connector J (16P) terminal No. 5 and body ground.

PASSENGER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR J (16P)



Wire side of female terminals

Is there about 10 V?

YES—Go to step 5.

NO—Repair open in the wire between the passenger's under-dash fuse/relay box and the ABS/TCS control unit. ■

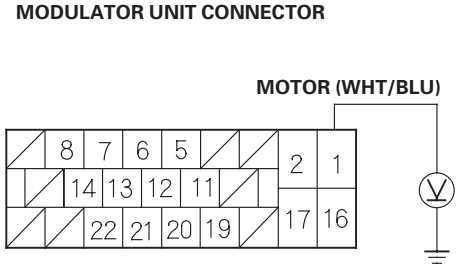
5. Reinstall the ABS MOTOR CHECK (7.5A) fuse in the passenger's under-dash fuse/relay box.

6. Disconnect the modulator unit connector.

(cont'd)

DTC Troubleshooting (cont'd)

7. Measure the voltage between terminal No. 1 and body ground.



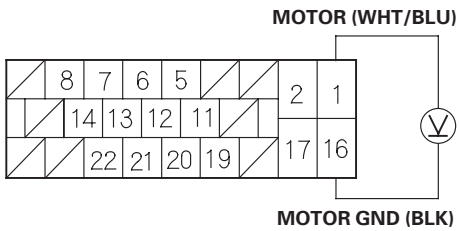
Terminal side of female terminals

Is there about 10 V?

YES — Go to step 8.

NO — Repair open in the wire between the under-hood ABS relay box and the pump motor. ■

8. Measure the voltage between the modulator unit connector terminal No. 1 and No. 16.



Terminal side of female terminals

Is there about 10 V?

YES — Go to step 9.

NO — Repair open in the wire between the pump motor and body ground (G302). ■

9. Remove the pump motor relay, then connect relay terminals No. 4 and No. 5 together with a jumper wire.

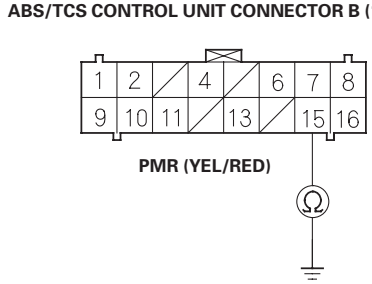
Does the pump motor run?

YES — Go to step 10.

NO — Replace the pump motor. ■

10. Disconnect the ABS/TCS control unit connector B (16P).

11. Check for continuity between terminal No. 15 and body ground.



Wire side of female terminals

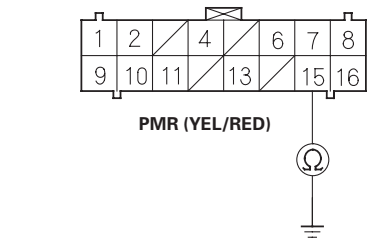
Is there continuity?

YES — Repair short to body ground in the wire between the ABS relay box and the ABS/TCS control unit. ■

NO — If the problem recurs, replace the ABS/TCS control unit. ■

12. Disconnect the ABS/TCS control unit connector B (16P).

13. Check for continuity between terminal No. 15 and body ground.



Wire side of female terminals

Is there continuity?

YES — Repair short to body ground in the wire between the under-hood ABS relay box and the ABS/TCS control unit. ■

NO — Replace the pump motor relay (The pump motor relay is stuck ON). ■

ABS DTC 54: ABS Fail-safe Relay

NOTE: Before doing this troubleshooting procedure, check for TCS or PGM-FI DTCs, and repair the cause of the DTCs.

1. Check the ABS F/S (20A) fuse in the under-hood fuse/relay box, and reinstall the fuse if it is OK.

   Is the fuse OK?

   YES—Go to step 2.

   NO—Replace the fuse, and recheck. ■

2. Turn the ignition switch ON (II).

   Does the fuse blow?

   YES—Repair short to body ground in the wire between the ABS fail-safe relay, TCS relay, pump motor relay, and modulator unit. ■

   NO—Go to step 3.

3. Check the ABS fail-safe relay in the ABS relay box (see page 22-88). The wire colors of the ABS fail-safe relay connector are WHT/GRN, BRN/BLK, BLK, and YEL/GRN.

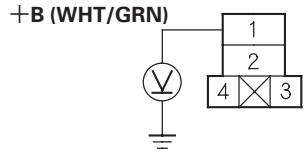
   Is the relay OK?

   YES—Leave the ABS fail-safe relay removed, and go to step 4.

   NO—Replace the ABS fail-safe relay. ■

4. Measure the voltage between the ABS fail-safe relay connector terminal No. 1 and body ground.

   ABS FAIL-SAFE RELAY CONNECTOR



   Terminal side of female terminals

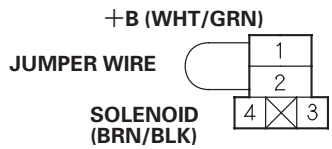
   Is there battery voltage?

   YES—Go to step 5.

   NO—Repair open in the wire between the under-hood fuse/relay box and the ABS fail-safe relay. ■

5. Connect ABS fail-safe relay connector terminal No. 1 to No. 2 with a jumper wire.

   ABS FAIL-SAFE RELAY CONNECTOR



   Terminal side of female terminals

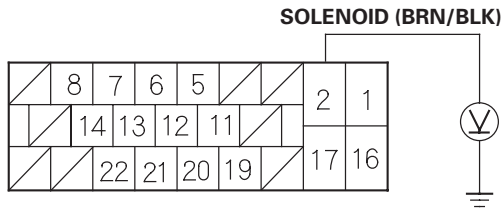
6. Disconnect the modulator unit connector.

(cont'd)

DTC Troubleshooting (cont'd)

7. Measure the voltage between terminal No. 2 and body ground.

MODULATOR UNIT CONNECTOR



Terminal side of female terminals

Is there battery voltage?

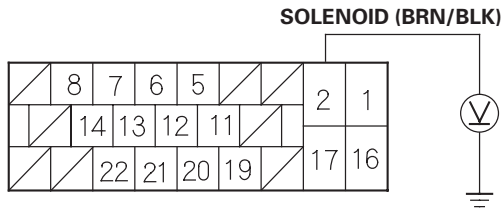
YES—Go to step 8.

NO—Repair open in the wire between the ABS fail-safe relay and the modulator unit. ■

8. Remove the jumper wire from the ABS fail-safe relay connector.

9. Measure the voltage between the modulator unit connector terminal No. 2 and body ground.

MODULATOR UNIT CONNECTOR



Terminal side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the ABS fail-safe relay, TCS relay, modulator unit, and under-hood ABS relay box. ■

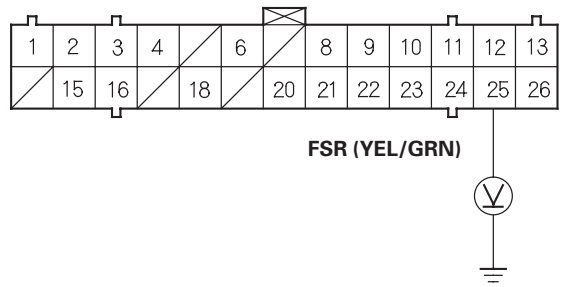
NO—Go to step 10.

10. Disconnect the ABS/TCS control unit connector A (26P).

11. Turn the ignition switch ON (II).

12. Measure the voltage between terminal No. 25 and body ground.

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

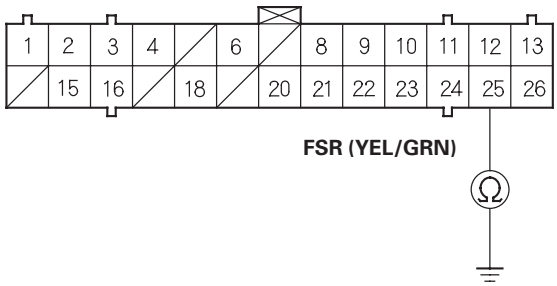
Is there battery voltage?

YES—Repair short to power in the wire between the ABS/TCS control unit and the ABS fail-safe relay. ■

NO—Go to step 13.

13. Check for continuity between the ABS/TCS control unit connector A (26P) terminal No. 25 and body ground.

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

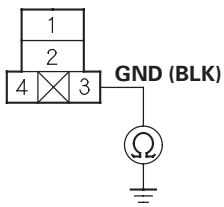
Is there continuity?

YES—Repair short to body ground in the wire between the ABS/TCS control unit and the ABS fail-safe relay. ■

NO—Go to step 14.

14. Check for continuity between the ABS fail-safe relay connector terminal No. 3 and body ground.

ABS FAIL-SAFE RELAY CONNECTOR



Terminal side of female terminals

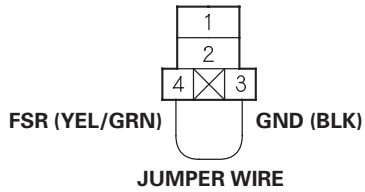
Is there continuity?

YES—Go to step 15.

NO—Check for an open in the wire between the ABS fail-safe relay and body ground. If the wire is OK, check for poor ground at G201. ■

15. Connect the ABS fail-safe relay connector terminals No. 3 and No. 4 with a jumper wire.

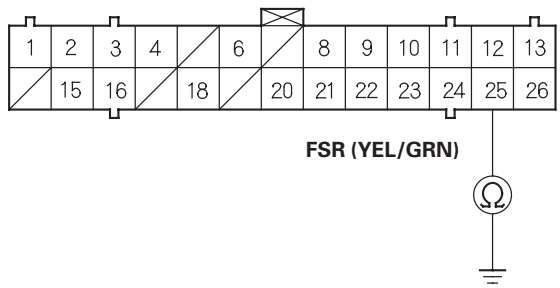
ABS FAIL-SAFE RELAY CONNECTOR



Terminal side of female terminals

16. Check for continuity between the ABS/TCS control unit connector A (26P) terminal No. 25 and body ground.

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

Is there continuity?

YES—If the problem recurs, replace the ABS/TCS control unit. ■

NO—Repair open in the wire between the ABS/TCS control unit and the ABS fail-safe relay. ■

DTC Troubleshooting (cont'd)

ABS DTC 61, 62: Battery Voltage

1. Clear the DTC (see step 1 on page 19-83).
2. Test-drive the vehicle at 6 mph (10 km/h) or more.

   Does the ABS indicator come on?

   YES—Go to step 3.

   NO—The system is OK at this time. ■
3. Verify the DTC.

   Is DTC 61 or 62 indicated?

   YES—Check the charging system. ■

   NO—Do the appropriate troubleshooting for the DTC. ■

ABS DTC 71: Different Diameter Tire

1. Clear the DTC (see step 1 on page 19-83).
2. Test-drive the vehicle.

   Does the ABS indicator come on and is DTC 71 indicated?

   YES—Make sure all four tires are the specified size. ■

   NO—Intermittent failure; the vehicle is OK at this time. ■

ABS DTC 81: Central Processing Unit (CPU) Diagnosis, and ROM/RAM Diagnosis

1. Clear the DTC (see step 1 on page 19-83).
2. Test-drive the vehicle.

   Does the ABS indicator come on and is DTC 81 indicated?

   YES—Replace the ABS/TCS control unit. ■

   NO—Intermittent failure; the vehicle is OK at this time. ■

TCS DTC 24, 25, 26, 27: TCS Solenoid

1. Verify the TCS DTC.

   Is TCS DTC 28 indicated?

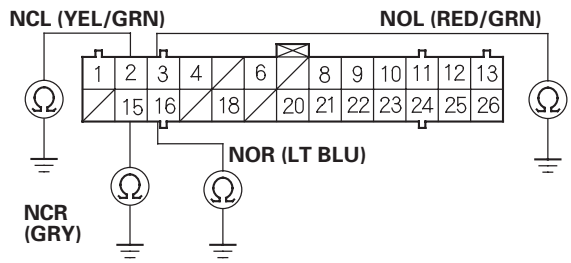
   YES—Do the appropriate troubleshooting for DTC 28. ■

   NO—Go to step 2.

2. Turn the ignition switch OFF.
3. Disconnect the modulator unit connector and the ABS/TCS control unit connector A (26P).
4. Check for continuity between the appropriate ABS/TCS control unit connector A (26P) TCS solenoid circuit terminal and body ground (see table).

TCS DTC	Appropriate Terminal
24: NOR	No. 16
25: NCR	No. 15
26: NOL	No. 3
27: NCL	No. 2

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the appropriate solenoid circuit wire between the ABS/TCS control unit and the modulator unit. ■

NO—Go to step 5.

(cont'd)

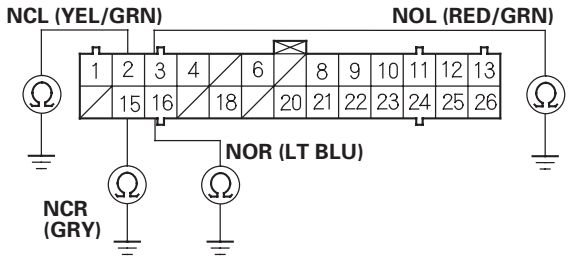
DTC Troubleshooting (cont'd)

5. Connect the modulator unit connector.

6. Check for continuity between the appropriate ABS/TCS control unit connector A (26P) solenoid circuit terminal and body ground (see table).

TCS DTC	Appropriate Terminal
24: NOR	No. 16
25: NCR	No. 15
26: NOL	No. 3
27: NCL	No. 2

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

Is there continuity?

YES—Replace the modulator unit. ■

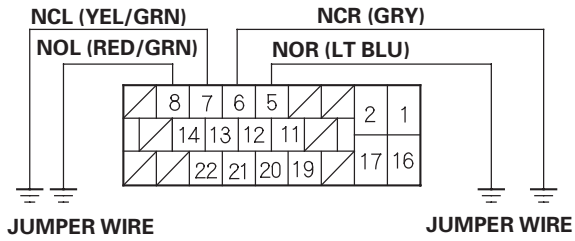
NO—Go to step 7.

7. Disconnect the modulator unit connector.

8. Connect the appropriate modulator unit connector TCS solenoid circuit terminals to body ground with a jumper wires (see table).

TCS DTC	Appropriate Terminal
24: NOR	No. 5
25: NCR	No. 6
26: NOL	No. 8
27: NCL	No. 7

MODULATOR UNIT CONNECTOR

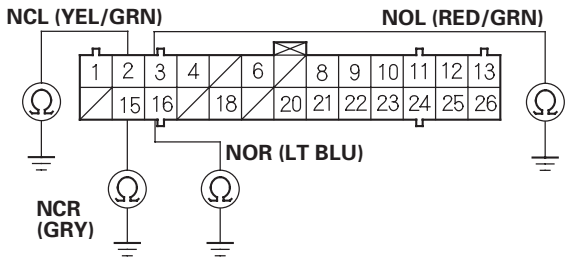


Terminal side of female terminals

9. Check for continuity between the appropriate ABS/TCS control unit connector A (26P) solenoid circuit terminal and body ground (see table).

TCS DTC	Appropriate Terminal
24: NOR	No. 16
25: NCR	No. 15
26: NOL	No. 3
27: NCL	No. 2

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

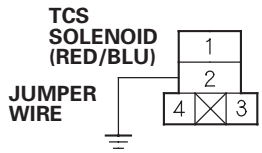
NO—Repair open in the appropriate TCS solenoid circuit wire between the ABS/TCS control unit and the modulator unit. ■

10. Remove the jumper wires from the modulator unit connector.

11. Connect the modulator unit connector.

12. Remove the TCS relay, and connect the ABS fail-safe relay connector terminal No. 2 to body ground with a jumper wire. The wire colors of the ABS fail-safe relay connector are BLU, RED/BLU, BRN/BLK, and GRN/YEL.

TCS RELAY CONNECTOR

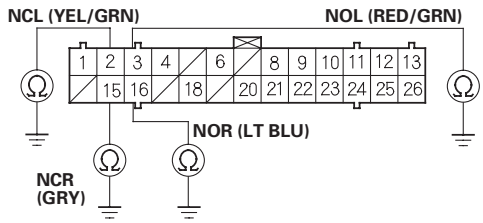


Terminal side of female terminals

13. Check the resistance between the appropriate ABS/TCS control unit connector A (26P) terminal and body ground (see table).
NOR, NOL, NCR, NCL: 8—10 Ω (at 68°F, 20°C)

TCS DTC	Appropriate Terminal
24: NOR	No. 16
25: NCR	No. 15
26: NOL	No. 3
27: NCL	No. 2

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

Is the resistance OK?

YES—Go to step 16.

NO—Go to step 14.

(cont'd)

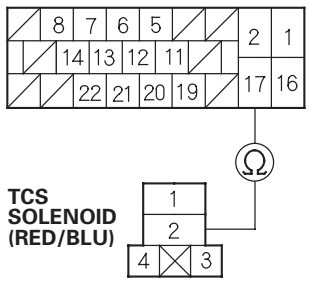
DTC Troubleshooting (cont'd)

14. Disconnect the modulator unit connector, and remove the jumper wire from the TCS relay connector terminal.

15. Check for continuity between the modulator unit connector terminal No. 17 and the TCS relay terminal No. 2.

MODULATOR UNIT CONNECTOR

Terminal side of female terminals



TCS RELAY CONNECTOR

Terminal side of female terminals

Is there continuity?

YES—Replace the modulator unit. ■

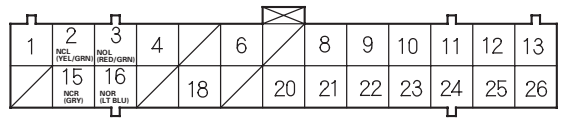
NO—Repair open in the wire between the modulator unit and the TCS relay. ■

16. Disconnect the modulator unit connector, and remove the jumper wire from the TCS relay connector terminal.

17. Check for continuity between the appropriate ABS/TCS control unit connector A (26P) terminal and all other ABS and TCS solenoid circuit terminals (see table).

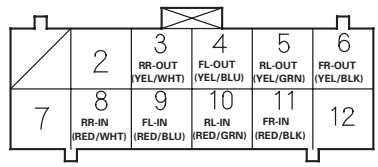
TCS DTC	Appropriate Terminal
24: NOR	No. 16
25: NCR	No. 15
26: NOL	No. 3
27: NCL	No. 2

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

ABS/TCS CONTROL UNIT CONNECTOR C (12P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the appropriate wires between the ABS/TCS control unit and the modulator unit. ■

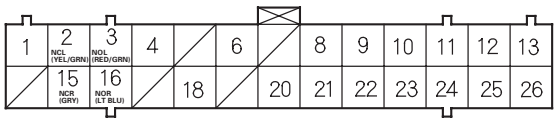
NO—Go to step 18.

18. Connect the modulator unit connector.

19. Check for continuity between the appropriate ABS/TCS control unit connector A (26P) terminal and all other ABS and TCS solenoid circuit terminals (see table).

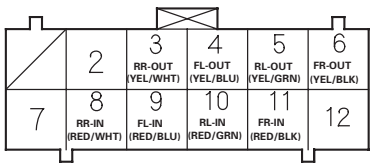
TCS DTC	Appropriate Terminal
24: NOR	No. 16
25: NCR	No. 15
26: NOL	No. 3
27: NCL	No. 2

ABS/TCS CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

ABS/TCS CONTROL UNIT CONNECTOR C (12P)



Wire side of female terminals

Is there less than 3 Ω ?

YES—Replace the modulator unit. ■

NO—Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

TCS DTC 28: TCS Relay

1. Check the TCS (10A) fuse in the passenger's under-dash fuse/relay box, and reinstall the fuse if it is OK.

   Is the fuse OK?

   YES—Go to step 2.

   NO—Replace the fuse, and recheck. ■

2. Turn the ignition switch ON (II).

   Does the fuse blow?

   YES—Repair short to body ground in the wire between the TCS relay and modulator unit. ■

   NO—Go to step 3.

3. Check the TCS relay in the under-hood multi-fuse/relay box (see page 22-88). The wire colors of the TCS relay connector are BLU/BLK, RED/BLU, BRN/BLK, and GRN/YEL.

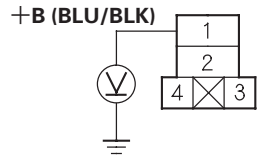
   Is the relay OK?

   YES—Do not reinstall the TCS relay, and go to step 4.

   NO—Replace the TCS relay. ■

4. Measure the voltage between the TCS relay connector terminal No. 1 and body ground.

TCS RELAY CONNECTOR



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 5.

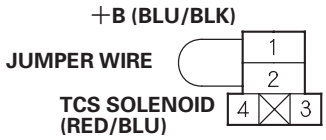
NO—Repair open in the wire between the under-hood fuse/relay box and the TCS relay. ■

(cont'd)

DTC Troubleshooting (cont'd)

5. Connect the TCS relay connector terminal No. 1 to No. 2 with a jumper wire.

TCS RELAY CONNECTOR

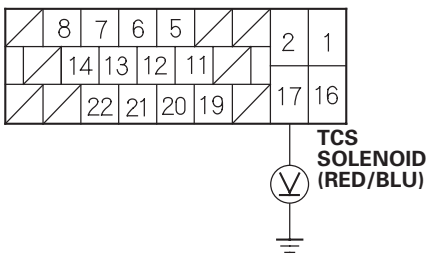


Terminal side of female terminals

6. Disconnect the modulator unit connector.

7. Measure the voltage between terminal No. 17 and body ground.

MODULATOR UNIT CONNECTOR



Terminal side of female terminals

Is there battery voltage?

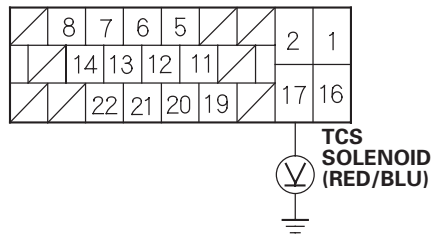
YES—Go to step 8.

NO—Repair open in the wire between the TCS relay and the modulator unit. ■

8. Remove the jumper wire from the TCS relay connector.

9. Measure the voltage between the modulator unit connector terminal No. 17 and body ground.

MODULATOR UNIT CONNECTOR



Terminal side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the TCS relay and the modulator unit. ■

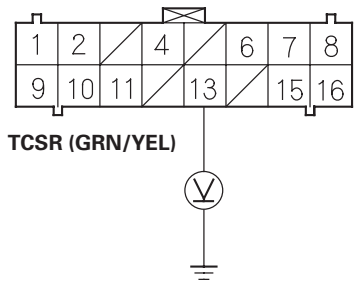
NO—Go to step 10.

10. Disconnect the ABS/TCS control unit connector B (16P).

11. Turn the ignition switch ON (II).

12. Measure the voltage between terminal No. 13 and body ground.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

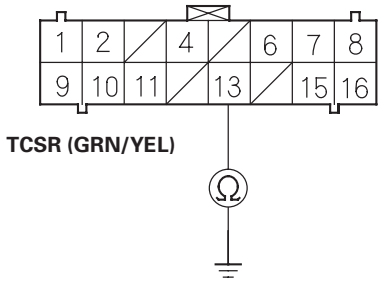
Is there battery voltage?

YES—Repair short to power in the wire between the ABS/TCS control unit and the TCS relay. ■

NO—Go to step 13.

13. Check for continuity between the ABS/TCS control unit connector B (16P) terminal No. 13 and body ground.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the ABS/TCS control unit and the TCS relay. ■

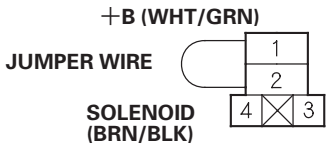
NO—Go to step 14.

14. Turn the ignition switch OFF.

15. Remove the ABS fail-safe relay. The wire colors of the ABS fail-safe relay connector are WHT/GRN, BRN/BLK, BLK, and YEL/GRN.

16. Connect the ABS fail-safe relay connector terminal No. 1 and No. 2 with a jumper wire.

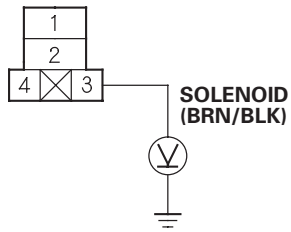
ABS FAIL-SAFE RELAY CONNECTOR



Terminal side of female terminals

17. Measure the voltage between the TCS relay connector terminal No. 3 and body ground.

TCS RELAY CONNECTOR



Terminal side of female terminals

Is there battery voltage?

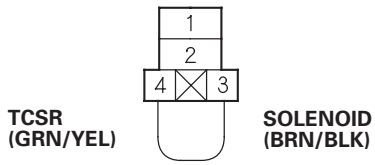
YES—Go to step 18.

NO—Repair open in the wire between the ABS fail-safe relay and the TCS relay. ■

18. Connect the TCS relay connector No. 3 and No. 4 with a jumper wire.

NOTE: Make sure the ABS/TCS control unit connector B (16P) is disconnected.

TCS RELAY CONNECTOR



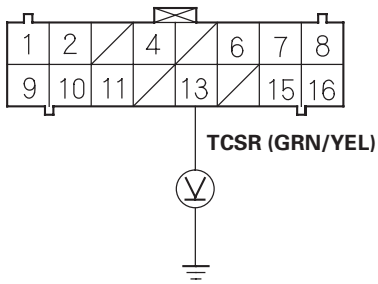
Terminal side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)

19. Measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 13 and body ground.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there battery voltage?

YES—If the problem recurs, replace the ABS/TCS control unit. ■

NO—Repair open in the wire between the TCS relay and the ABS/TCS control unit. ■

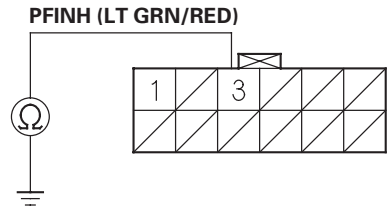
TCS DTC 31: Engine Retard Command (PFINH) Signal ('99-00 models)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect PCM connector E (12P) and the ABS/TCS control unit connector B (16P).

2. Check for continuity between the PCM connector E (12P) terminal No. 3 and body ground.

PCM CONNECTOR E (12P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

NO—Go to step 3.

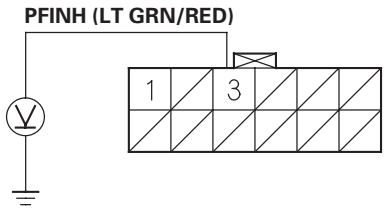
3. Connect the PCM connector E (12P).

4. Start the engine.

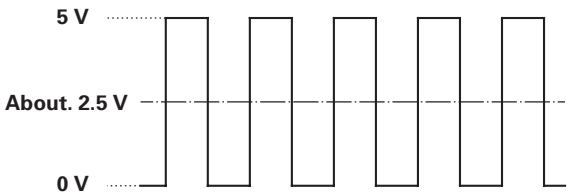
5. Measure the voltage between the PCM connector E (12P) terminal No. 3 and body ground.

   NOTE: Use the 10 V range or similar range in an analog tester.

PCM CONNECTOR E (12P)



Wire side of female terminals



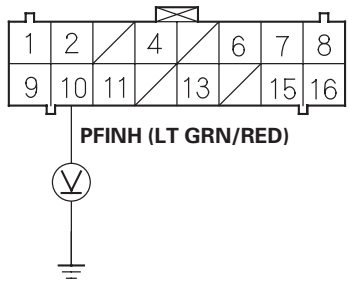
Is there about 2.5 V?

YES — Go to step 6.

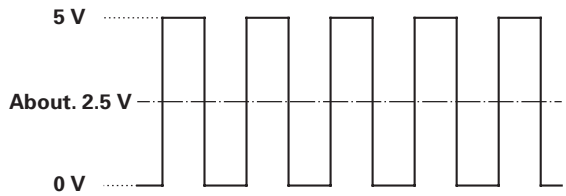
NO — Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

6. With an analog voltmeter set to the 10 V or similar range, measure the voltage between ABS/TCS control unit connector B (16P) terminal No. 10 and body ground.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals



Is there about 2.5 V?

YES — Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

NO — Repair open in the wire between the PCM and the ABS/TCS control unit. ■

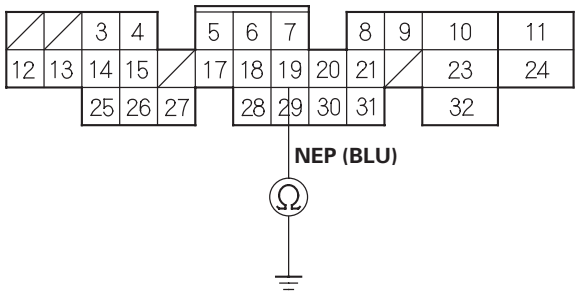
DTC Troubleshooting (cont'd)

TCS DTC 32: Engine Speed (NEP) Signal ('99-00 models)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector A (32P), the ABS/TCS control unit connector B (16P) and the gauge assembly connector B (22P).
2. Check for continuity between the PCM connector A (32P) terminal No. 19 and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals

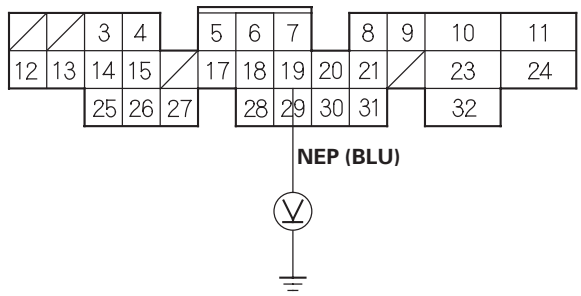
Is there continuity?

YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

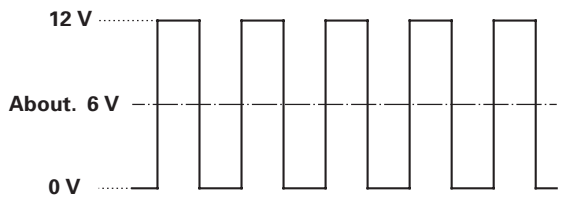
NO—Go to step 3.

3. Connect PCM connector A (32P).
4. Start the engine, warm it up to normal operating temperature, and let it idle.
5. With an analog voltmeter set to the 10 V or similar range, measure the voltage between the PCM connector A (32P) terminal No. 19 and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals



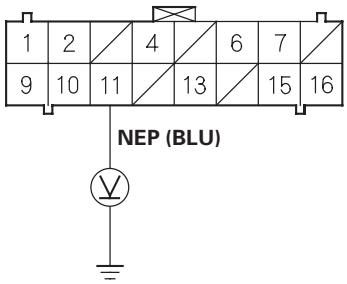
Is there about 6 V?

YES—Go to step 6.

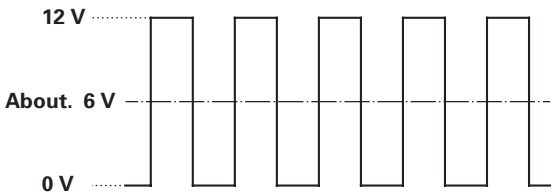
NO—Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

6. With the engine still idling, measure the voltage between ABS/TCS control unit connector B (16P) terminal No. 11 and body ground with the analog voltmeter again.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals



Is there about 6 V?

YES—The system is OK at this time. If the problem recurs, replace the ABS/TCS control unit. ■

NO—Repair open in the wire between the PCM and the ABS/TCS control unit. ■

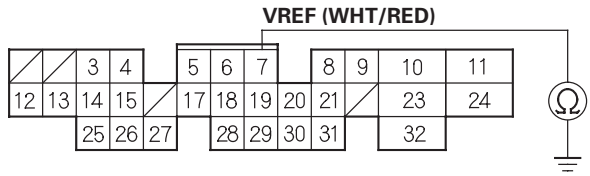
TCS DTC 34: Reference Voltage (VREF) Signal ('99-00 models)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector A (32P) and the ABS/TCS control unit connector B (16P).

2. Check for continuity between the PCM connector A (32P) terminal No. 7 and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

NO—Go to step 3.

3. Connect the PCM connector A (32P).

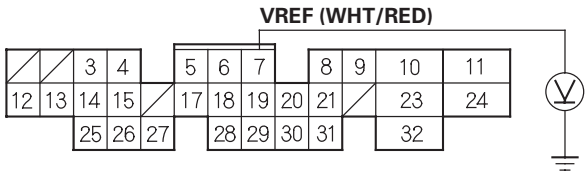
4. Turn the ignition switch ON (II).

(cont'd)

DTC Troubleshooting (cont'd)

5. Measure the voltage between the PCM connector A (32P) terminal No. 7 and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals

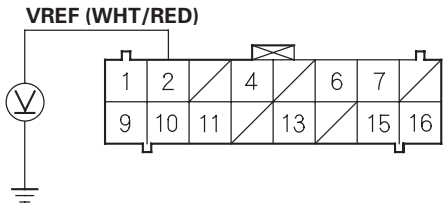
Is there about 5 V?

YES—Go to step 6.

NO—Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

6. Measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 2 and body grond.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there about 5 V?

YES—The system is OK at this time. If the problem recurs, replace the ABS/TCS control unit. ■

NO—Repair open in the wire between the PCM and the ABS/TCS control unit. ■

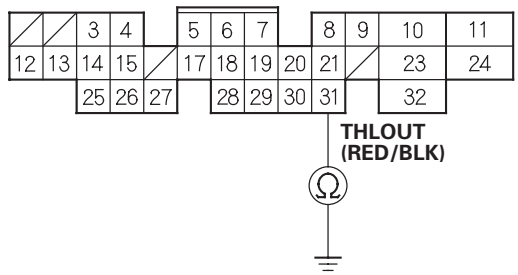
TCS DTC 36: Throttle Position Sensor Output (THLOUT) Signal ('99-00 models)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector A (32P) and the ABS/TCS control unit connector B(16P).

2. Check for continuity between the PCM connector A (32P) terminal No. 31 and body gound.

PCM CONNECTOR A (32P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

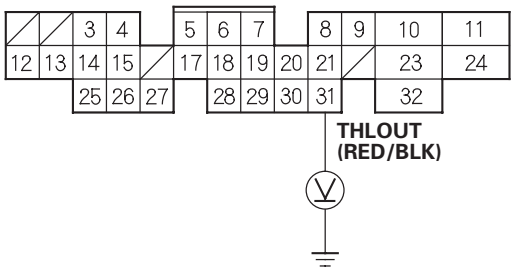
NO—Go to step 3.

3. Connect the PCM connector A (32P).

4. Start the engine.

5. Measure the voltage between the PCM connector A (32P) terminal No. 31 and body ground with the throttle fully opened and fully closed. There should be a smooth transition from approx. 0.5 V to 4.5 V.

PCM CONNECTOR A (32P)



Wire side of female terminals

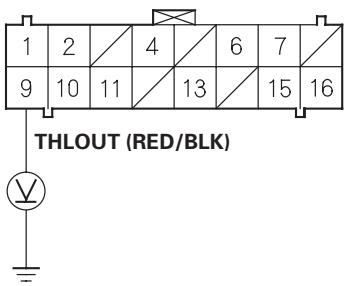
Is the voltage as specified?

YES — Go to step 6.

NO — Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

6. Measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 9 and body ground with the throttle fully closed.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there about 0.5 V?

YES — The system is OK at this time. If the problem recurs, replace the ABS/TCS control unit. ■

NO — Repair open in the wire between the PCM and the ABS/TCS control unit. ■

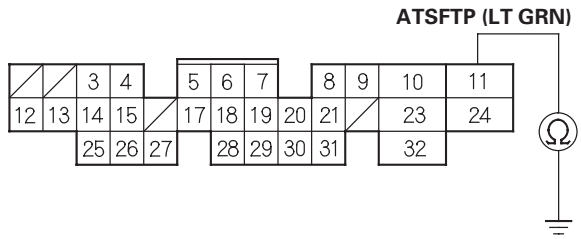
TCS DTC 61: A/T Shift Position (ATSFTP) Signal ('99-00 models)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector A (32P) and the ABS/TCS control unit connector B (16P).

2. Check for continuity between the PCM connector A (32P) terminal No. 11 and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals

Is there continuity?

YES — Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

NO — Go to step 3.

3. Connect the PCM connector A (32P).

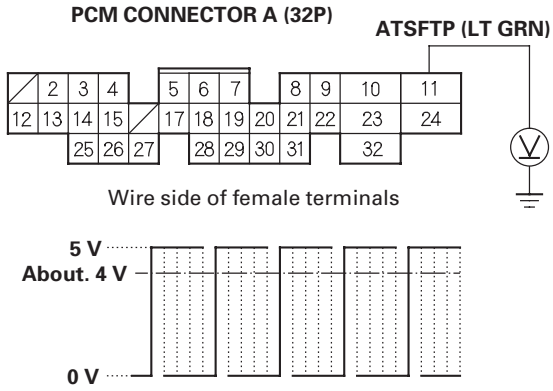
4. Shift the transmission to P position.

5. Start the engine.

(cont'd)

DTC Troubleshooting (cont'd)

6. With an analog voltmeter set to the 10 V or similar range, measure the voltage between PCM connector A (32P) terminal No. 11 and body ground.

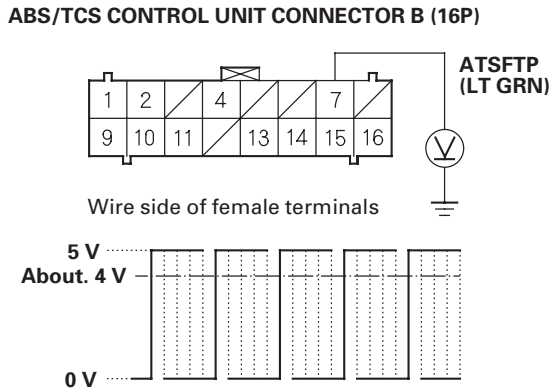


Is there about 4 V?

YES—Go to step 7.

NO—Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

7. With an analog voltmeter set to the 10 V or similar range, measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 7 and body ground.



Is there about 4 V?

YES—Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

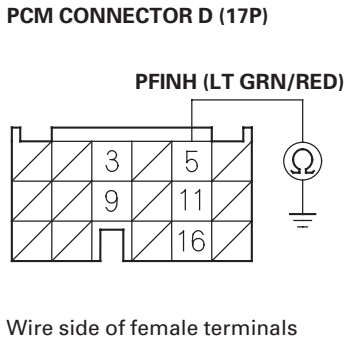
NO—Repair open in the wire between the PCM and the ABS/TCS control unit. ■

TCS DTC 31: Engine Retard Command (PFINH) Signal ('01 model)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector D (17P) and the ABS/TCS control unit connector B (16P).

2. Check for continuity between the PCM connector D (17P) terminal No. 5 and body ground.



Is there continuity?

YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

NO—Go to step 3.

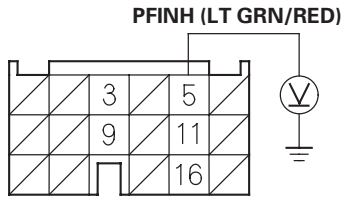
3. Connect the PCM connector D (17P).

4. Start the engine.

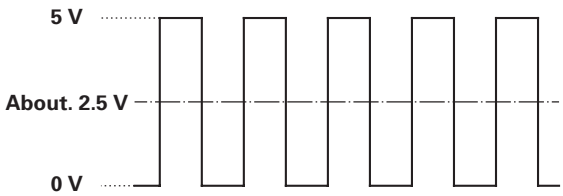
5. Measure the voltage between the PCM connector D (17P) terminal No. 5 and body ground.

   NOTE: Use the 10 V range or similar range in an analog tester.

PCM CONNECTOR D (17P)



Wire side of female terminals



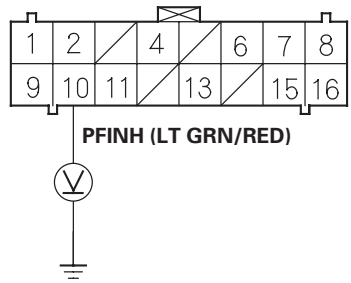
Is there about 2.5 V?

YES — Go to step 6.

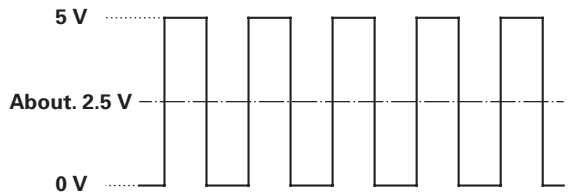
NO — Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

6. With an analog voltmeter set to the 10 V or similar range, measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 10 and body ground.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals



Is there about 2.5 V?

YES — Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

NO — Repair open in the wire between the PCM and the ABS/TCS control unit. ■

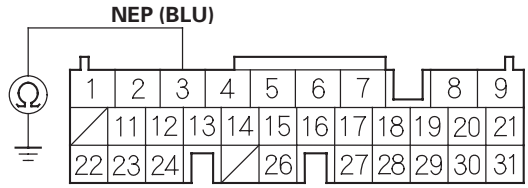
DTC Troubleshooting (cont'd)

TCS DTC 32: Engine Speed (NEP) Signal ('01 model)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the gauge assembly connector B (22P), the PCM connector E (31P), and the ABS/TCS control unit connector B (16P).
2. Check for continuity between the PCM connector E (31P) terminal No. 3 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals

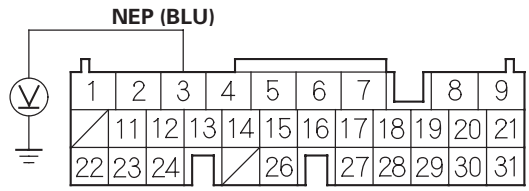
Is there continuity?

YES—Repair short to body ground in the wire between the PCM, the gauge assembly, and the ABS/TCS control unit.

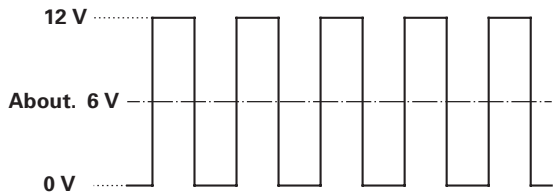
NO—Go to step 3.

3. Connect the PCM connector E (31P).
4. Start the engine, warm it up to normal operating temperature, and let it idle.
5. With an analog voltmeter set to the 10 V or similar range, measure the voltage between the PCM connector E (31P) terminal No. 3 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals



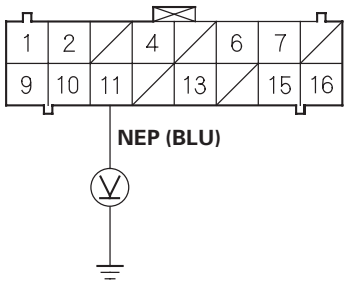
Is there about 6 V?

YES—Go to step 6.

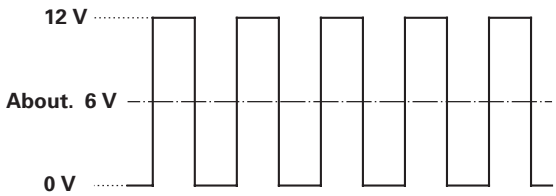
NO—Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

6. With the engine still idling, measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 11 and body ground with the analog voltmeter again.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals



Is there about 6 V?

YES—The system is OK at this time. If the problem recurs, replace the ABS/TCS control unit. ■

NO—Repair open in the wire between the PCM and the ABS/TCS control unit. ■

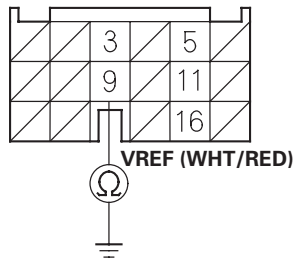
TCS DTC 34: Reference Voltage (VREF) Signal ('01 model)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector D (17P) and the ABS/TCS control unit connector B (16P).

2. Check for continuity between the PCM connector D (17P) terminal No. 9 and body ground.

PCM CONNECTOR D (17P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

NO—Go to step 3.

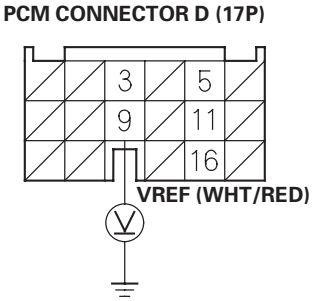
3. Connect the PCM connector D (17P).

4. Turn the ignition switch ON (II).

(cont'd)

DTC Troubleshooting (cont'd)

5. Measure the voltage between the PCM connector D (17P) terminal No. 9 and body ground.



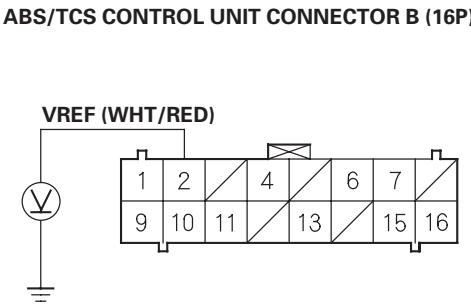
Wire side of female terminals

Is there about 5 V?

YES—Go to step 6.

NO—Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

6. Measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 2 and body ground.



Wire side of female terminals

Is there about 5 V?

YES—The system is OK at this time. If the problem recurs, replace the ABS/TCS control unit. ■

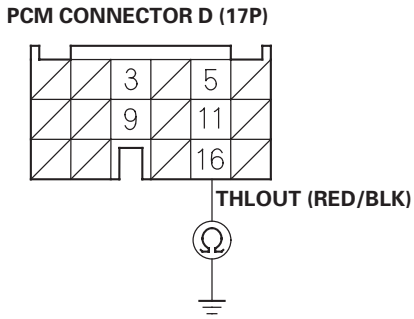
NO—Repair open in the wire between the PCM and the ABS/TCS control unit. ■

TCS DTC 36: Throttle Position Sensor Output (THLOUT) Signal ('01 model)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector D (17P) and the ABS/TCS control unit connector B(16P).

2. Check for continuity between the PCM connector D (17P) terminal No. 16 and body ground.



Wire side of female terminals

Is there continuity?

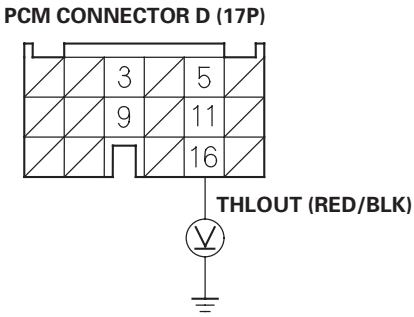
YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

NO—Go to step 3.

3. Connect the PCM connector D (17P).

4. Start the engine.

5. Measure the voltage between the PCM connector D (17P) terminal No. 16 and body ground with the throttle fully opened and fully closed. There should be a smooth transition from about 0.5 V to 4.5 V.

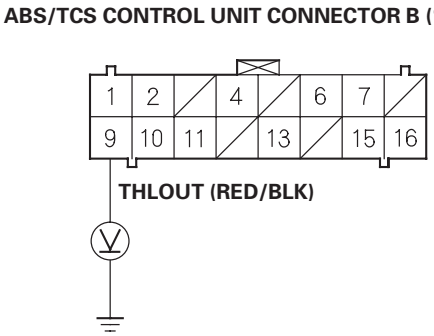


Is the voltage as specified?

YES—Go to step 6.

NO—Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

6. Measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 9 and body ground with the throttle fully closed.



Is there about 0.5 V?

YES—The system is OK at this time. If the problem recurs, replace the ABS/TCS control unit. ■

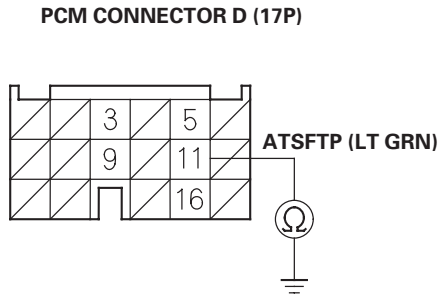
NO—Repair open in the wire between the PCM and the ABS/TCS control unit. ■

TCS DTC 61: A/T Shift Position (ATSFTP) Signal ('01 model)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector D (17P) and the ABS/TCS control unit connector B (16P).

2. Check for continuity between the PCM connector D (17P) terminal No. 11 and body ground.



Is there continuity?

YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

NO—Go to step 3.

3. Connect the PCM connector D (17P).

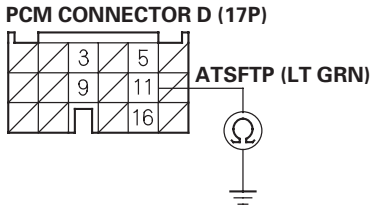
4. Shift the transmission to P position.

5. Start the engine.

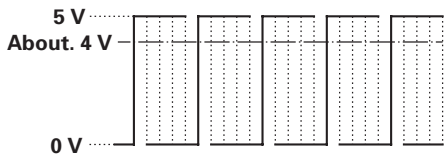
(cont'd)

DTC Troubleshooting (cont'd)

6. With an analog voltmeter set to the 10 V or similar range, measure the voltage between the PCM connector D (17P) terminal No. 11 and body ground.



Wire side of female terminals



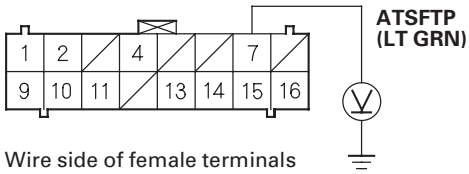
Is there about 4 V?

YES—Go to step 7.

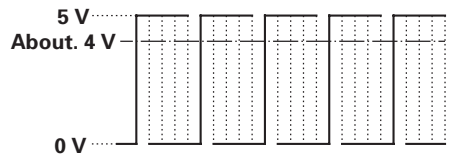
NO—Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

7. With an analog voltmeter set to the 10 V or similar range, measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 7 and body ground.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals



Is there about 4 V?

YES—Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

NO—Repair open in the wire between the PCM and the ABS/TCS control unit. ■

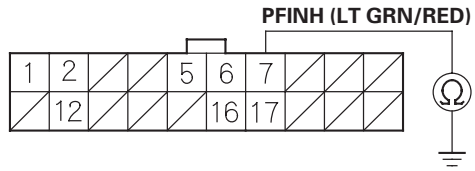
TCS DTC 31: Engine Retard Command (PFINH) Signal ('02-04 models)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector E (20P) and the ABS/TCS control unit connector B (16P).

2. Check for continuity between the PCM connector E (20P) terminal No. 7 and body ground.

PCM CONNECTOR E (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

NO—Go to step 3.

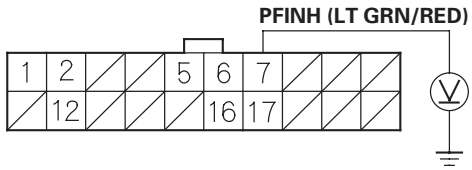
3. Connect the PCM connector E (20P).

4. Start the engine.

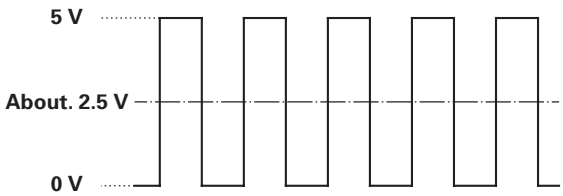
5. Measure the voltage between the PCM connector E (20P) terminal No. 7 and body ground.

   NOTE: Use the 10 V range or similar range in an analog tester.

PCM CONNECTOR E (20P)



Wire side of female terminals



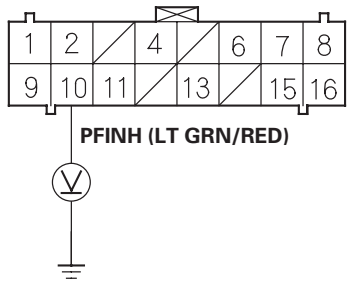
Is there about 2.5 V?

YES — Go to step 6.

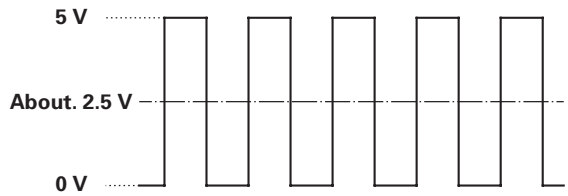
NO — Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

6. With an analog voltmeter set to the 10 V or similar range, measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 10 and body ground.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals



Is there about 2.5 V?

YES — Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

NO — Repair open in the wire between the PCM and the ABS/TCS control unit. ■

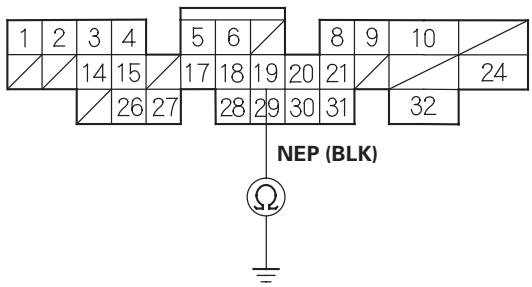
DTC Troubleshooting (cont'd)

TCS DTC 32: Engine Speed (NEP) Signal ('02-04 models)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector A (32P), the ABS/TCS control unit connector B (16P), and the gauge assembly connector A (30P).
2. Check for continuity between the PCM connector A (32P) terminal No. 19 and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals

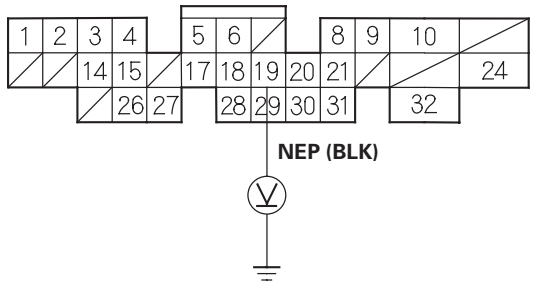
Is there continuity?

YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit.

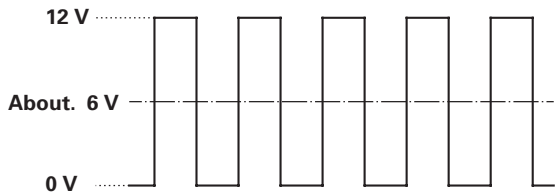
NO—Go to step 3.

3. Connect the PCM connector A (32P).
4. Start the engine, warm it up to normal operating temperature, and let it idle.
5. With an analog voltmeter set to the 10 V or similar range, measure the voltage between the PCM connector A (32P) terminal No. 19 and body ground.

PCM CONNECTOR A (32P)



Wire side of female terminals



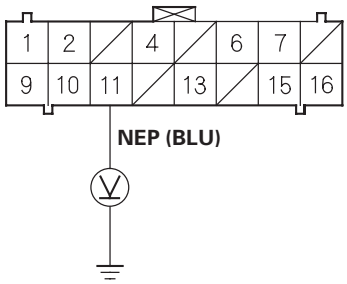
Is there about 6 V?

YES—Go to step 6.

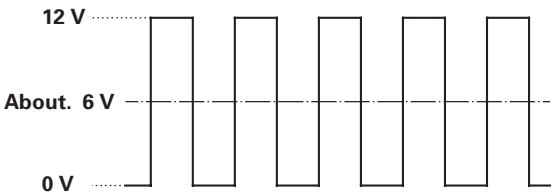
NO—Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

6. With the engine still idling, measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 11 and body ground with the analog voltmeter again.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals



Is there about 6 V?

YES—The system is OK at this time. If the problem recurs, replace the ABS/TCS control unit. ■

NO—Repair open in the wire between the PCM and ABS/TCS control unit. ■

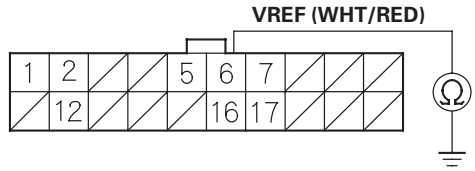
TCS DTC 34: Reference Voltage (VREF) Signal ('02-04 models)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector E (20P) and the ABS/TCS control unit connector B (16P).

2. Check for continuity between the PCM connector E (20P) terminal No. 6 and body ground.

PCM CONNECTOR E (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

NO—Go to step 3.

3. Connect the PCM connector E (20P).

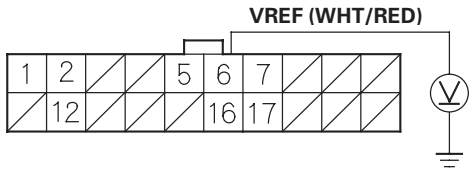
4. Turn the ignition switch ON (II).

(cont'd)

DTC Troubleshooting (cont'd)

5. Measure the voltage between the PCM connector terminal No. 6 and body ground.

PCM CONNECTOR E (20P)



Wire side of female terminals

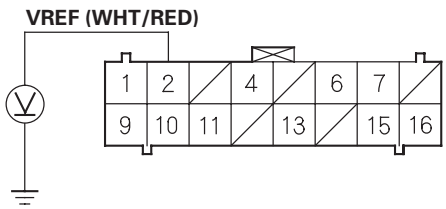
Is there about 5 V?

YES—Go to step 6.

NO—Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

6. Measure the voltage between the ABS/TCS control unit connector B(16P) terminal No. 2 and body ground.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there about 5 V?

YES—The system is OK at this time. If the problem recurs, replace the ABS/TCS control unit. ■

NO—Repair open in the wire between the PCM and the ABS/TCS control unit. ■

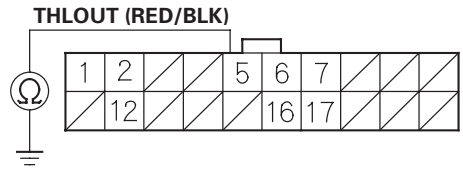
TCS DTC 36: Throttle Position Sensor Output (THLOUT) Signal ('02-04 models)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector E (20P) and the ABS/TCS control unit connector B(16P).

2. Check for continuity between the PCM connector E (20P) terminal No. 5 and body gound.

PCM CONNECTOR E (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

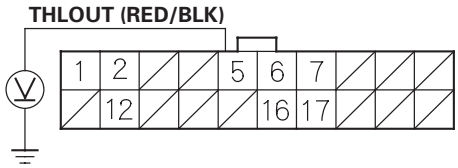
NO—Go to step 3.

3. Connect the PCM connector E (20P).

4. Start the engine.

5. Measure the voltage between the PCM connector E (20P) terminal No. 31 and body ground with the throttle fully opened and fully closed. There should be a smooth transition from approx. 0.5 V to 4.5 V.

PCM CONNECTOR E (20P)



Wire side of female terminals

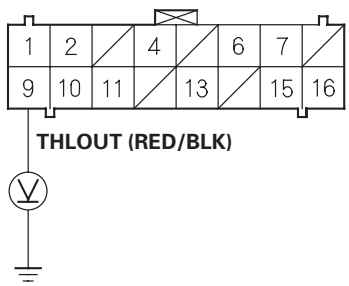
Is the voltage as specified?

YES—Go to step 6.

NO—Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

6. Measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 9 and body ground with the throttle fully closed.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there about 0.5 V?

YES—The system is OK at this time. If the problem recurs, replace the ABS/TCS control unit. ■

NO—Repair open in the wire between the PCM and the ABS/TCS control unit. ■

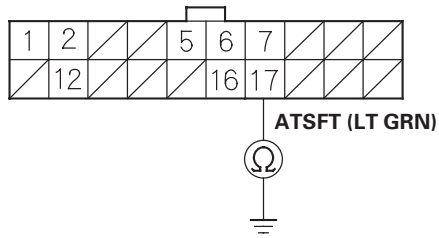
TCS DTC 61: A/T Shift Position (ATSFTP) Signal ('02-04 models)

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Disconnect the PCM connector E (20P) and the ABS/TCS control unit connector B (16P).

2. Check for continuity between the PCM connector E (20P) terminal No. 17 and body ground.

PCM CONNECTOR E (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the PCM and the ABS/TCS control unit. ■

NO—Go to step 3.

3. Connect the PCM connector E (20P).

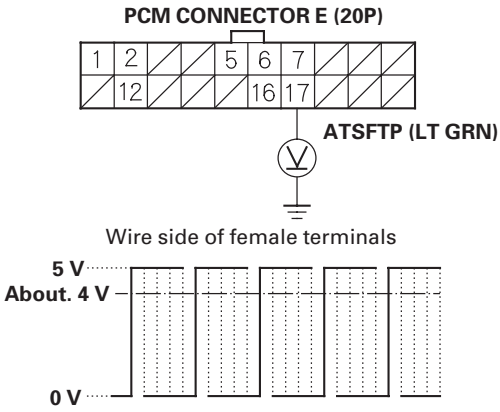
4. Shift the transmission to P position.

5. Start the engine.

(cont'd)

DTC Troubleshooting (cont'd)

6. With an analog voltmeter set to the 10 V or similar range, measure the voltage between the PCM connector E (20P) terminal No. 17 and body ground.

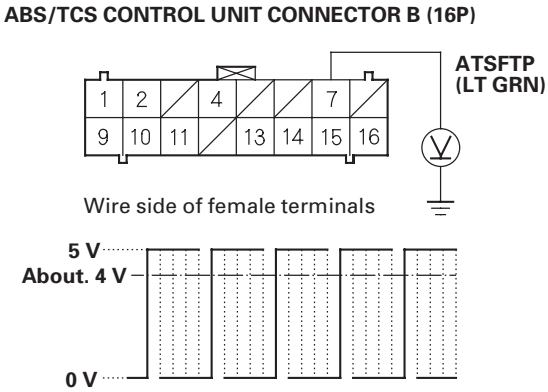


Is there about 4 V?

YES—Go to step 7.

NO—Check for loose PCM connectors. If necessary, substitute a known-good PCM, and recheck. ■

7. With an analog voltmeter set to the 10 V or similar range, measure the voltage between the ABS/TCS control unit connector B (16P) terminal No. 7 and body ground.



Is there about 4 V?

YES—Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

NO—Repair open in the wire between the PCM and the ABS/TCS control unit. ■

TCS DTC 81: Continuous TCS Operation

NOTE: If the MIL or ABS indicator is ON, troubleshoot the PGM-FI or ABS first.

1. Clear the DTC (see step 1 on page 19-83).

2. Test-drive the vehicle.

   Does the TCS indicator come on, and is DTC 81 indicated?

   YES—Replace the ABS/TCS control unit. ■

   NO—Intermittent failure; the vehicle is OK at this time. ■

ABS Indicator Circuit Troubleshooting

1. Turn the ignition switch ON (II), and watch the TCS indicator.

   Does the TCS indicator come on?

   YES—If the TCS indicator comes on and goes off, it's OK. If the TCS indicator stays on, go to step 13.

   NO—Go to step 2.

2. Turn the ignition switch OFF then ON (II) again.

   Does the brake system indicator come on?

   YES—Go to step 3.

   NO—Repair open in the brake system indicator circuit.

   - Blown BACKUP LIGHT (7.5A) fuse.
   - Open in the wire between the BACKUP LIGHT (7.5A) fuse and the gauge assembly.
   - Open circuit inside the fuse box.

3. Turn the ignition switch OFF.

4. Disconnect the ABS/TCS control unit connector A (26P).

5. Turn the ignition switch ON (II).

   Does the ABS indicator come on?

   YES—Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

   NO—Go to step 6.

6. Check the ABS indicator bulb in the gauge assembly.

   Is the bulb OK?

   YES—Go to step 7.

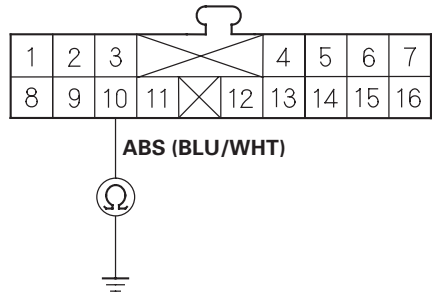
   NO—Replace the ABS indicator bulb. ■

7. Turn the ignition switch OFF.

8. Disconnect the gauge assembly connector C (16P).

9. Check for continuity between the gauge assembly connector C (16P) terminal No. 10 and body ground.

GAUGE ASSEMBLY CONNECTOR C (16P)



Wire side of female terminals

Is there continuity?

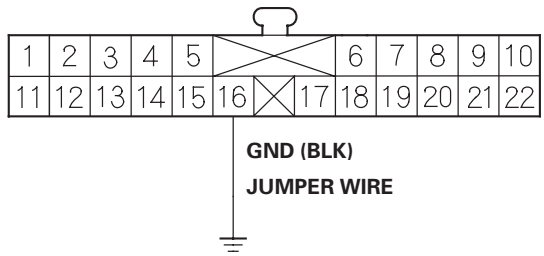
YES—Repair short to body ground in the wire between the gauge assembly and the ABS/TCS control unit. ■

NO—Go to step 10.

10. Connect the gauge assembly connector C (16P).

11. Connect the gauge assembly connector B (22P) terminal No. 16 to body ground with a jumper wire.

GAUGE ASSEMBLY CONNECTOR B (22P)



Wire side of female terminals

12. Turn the ignition switch ON (II).

    Does the ABS indicator come on?

    YES—Repair open in the wire between the gauge assembly and body ground (G501). ■

    NO—Replace the printed circuit board in the gauge assembly. ■

(cont'd)

ABS Indicator Circuit Troubleshooting (cont'd)

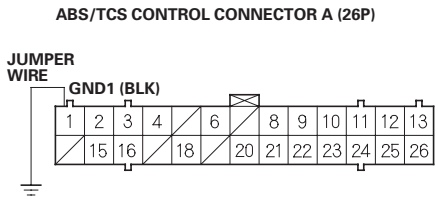
13. Check the R/C MIRROR (7.5A) fuse in the driver's under-dash fuse/relay box, and reinstall the fuse if it is OK.

    Is the fuse OK?

    YES—Go to step 14.

    NO—Replace the fuse, and recheck. ■

14. Connect the ABS/TCS control unit connector A (26P) terminal No. 1 to body ground with a jumper wire.



Wire side of female terminals

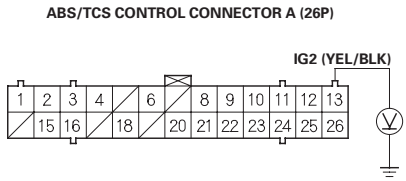
15. Turn the ignition switch ON (II).

    Does the ABS indicator go off?

    YES—Repair open in the wire between the ABS/TCS control unit and body ground (G303). ■

    NO—Go to step 16.

16. Measure the voltage between the ABS/TCS control unit connector A (26P) terminal No. 13 and body ground.



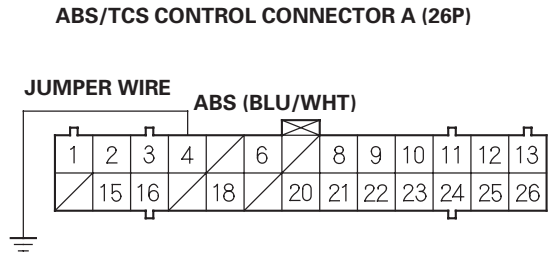
Wire side of female terminals

    Is there battery voltage?

    YES—Go to step 17.

    NO—Repair open in the wire between the R/C MIRROR (7.5A) fuse and the ABS/TCS control unit. ■

17. Connect the ABS/TCS control unit connector A (26P) terminal No. 4 to body ground with a jumper wire.



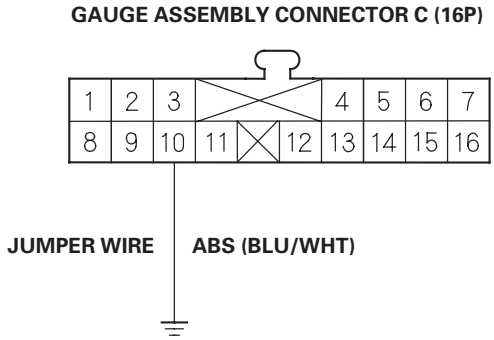
Wire side of female terminals

    Does the ABS indicator go off?

    YES—Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

    NO—Go to step 18.

18. Connect the gauge assembly connector C (16P) terminal No. 10 to body ground with a jumper wire.



Wire side of female terminals

    Does the ABS indicator go off?

    YES—Repair open in the wire between the gauge assembly and the ABS/TCS control unit. ■

    NO—Replace the printed circuit board in the gauge assembly. ■

TCS Indicator Circuit Troubleshooting

1. Turn the ignition switch ON (II), and watch the TCS indicator.

   Does the TCS indicator come on?

   YES — If the TCS indicator comes on and goes off, it's OK. If the TCS indicator stays on, go to step 7.

   NO — Go to step 2.

2. Turn the ignition switch OFF, then ON (II) again.

   Does the brake system indicator come on?

   YES — Go to step 3.

   NO — Repair open in the brake system indicator circuit. ■

   - Blown BACKUP LIGHT (7.5A) fuse.
   - Open in the wire between the BACKUP LIGHT (7.5A) fuse and the gauge assembly.
   - Open circuit inside the fuse box.

3. Check the TCS indicator bulb in the gauge assembly.

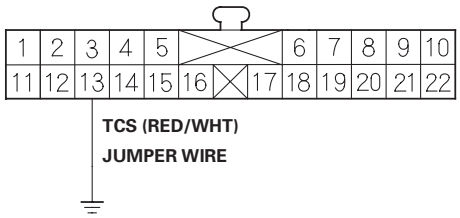
   Is the bulb OK?

   YES — Go to step 4.

   NO — Replace the TCS indicator bulb. ■

4. Connect the gauge assembly connector B (22P) terminal No. 13 and body ground with a jumper wire.

GAUGE ASSEMBLY CONNECTOR B (22P)



Wire side of female terminals

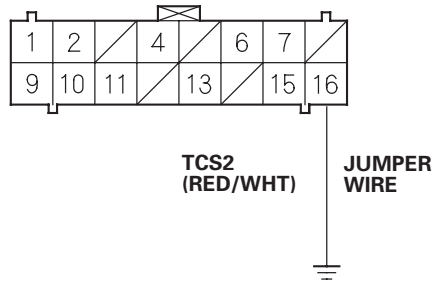
   Does the TCS indicator come on?

   YES — Go to step 5.

   NO — Replace the printed circuit board in the gauge assembly. ■

5. Remove the jumper wire at the gauge assembly, and connect the ABS/TCS control unit connector B (16P) terminal No. 16 and body ground with a jumper wire.

ABS/TCS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

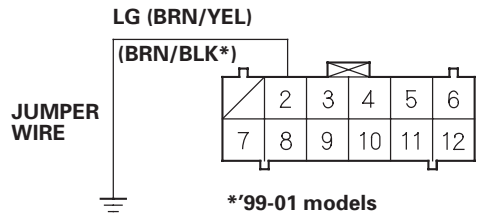
   Does the TCS indicator come on?

   YES — Go to step 6.

   NO — Repair open in the wire between the gauge assembly and the ABS/TCS control unit. ■

6. Connect the ABS/TCS control unit connector C (12P) terminal No. 2 and body ground with a jumper wire.

ABS/TCS CONTROL UNIT CONNECTOR C (12P)



Wire side of female terminals

   Does the TCS indicator come on?

   YES — Repair open in the wire between the ABS/TCS control unit and body ground (G101). ■

   NO — Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

(cont'd)

TCS Indicator Circuit Troubleshooting (cont'd)

7. Check the R/C MIRROR (7.5A) fuse in the driver's under-dash fuse/relay box, and reinstall the fuse if it is OK.

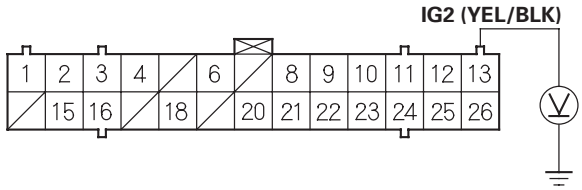
   Is the fuse OK?

   YES—Go to step 8.

   NO—Replace the fuse, and recheck. ■

8. Measure the voltage between the ABS/TCS control unit connector A (26P) terminal No. 13 and body ground.

ABS/TCS CONTROL CONNECTOR A (26P)



Wire side of female terminals

   Is there battery voltage?

   YES—Go to step 9.

   NO—Repair open in the wire between the driver's under-dash fuse/relay box and the ABS/TCS control unit. ■

9. Turn the ignition switch OFF.

10. Disconnect the ABS/TCS control unit connector A (26P) and connector B (16P).

11. Turn the ignition switch ON(II).

    Does the TCS indicator go off?

    YES—Repair short to body ground in the wire between the gauge assembly and the ABS/TCS control unit. ■

    NO—Check for loose ABS/TCS control unit connectors. If necessary, substitute a known-good ABS/TCS control unit, and recheck. ■

Brake System Indicator Circuit Troubleshooting

1. Release the parking brake.

2. Turn the ignition switch ON (II), and check the brake system indicator for the following conditions:

   - Brake system indicator does not come on at all, go to step 3.
   - Brake system indicator stays on all the time, go to step 5.
   - Brake system indicator comes on for 2 seconds, then goes off. Repair open in the wire between terminal No. 3 of the ALT 4P connector and terminal B8 of the gauge assembly. ■

3. Turn the ignition switch OFF then ON (II) again.

   Does the ABS indicator come on?

   YES — Go to step 4.

   NO — Repair open in the indicator power source circuit. ■

   - Blown BACKUP LIGHT (10A) fuse.
   - Open in the wire between the BACKUP LIGHT (10A) fuse and the gauge assembly.
   - Open circuit inside the fuse box.

4. Check the brake system indicator bulb in the gauge assembly.

   Is the bulb OK?

   YES — Repair open in the brake system indicator circuit. ■

   NO — Replace the brake system indicator bulb. ■

5. Start the engine.

   Does the brake system indicator go off?

   YES — System is OK at this time. ■

   NO — Go to step 6.

6. Check the ABS indicator.

   Does the ABS indicator come on?

   YES — Read the ABS DTC's (see page 19-82), and do the applicable troubleshooting. ■

   NO — Go to step 7.

7. Turn the ignition switch OFF.

8. Disconnect the ABS/TCS control unit connector B (16P).

9. Start the engine, and check the brake system indicator.

   Does the brake system indicator go off?

   YES — Replace the ABS/TCS control unit. ■

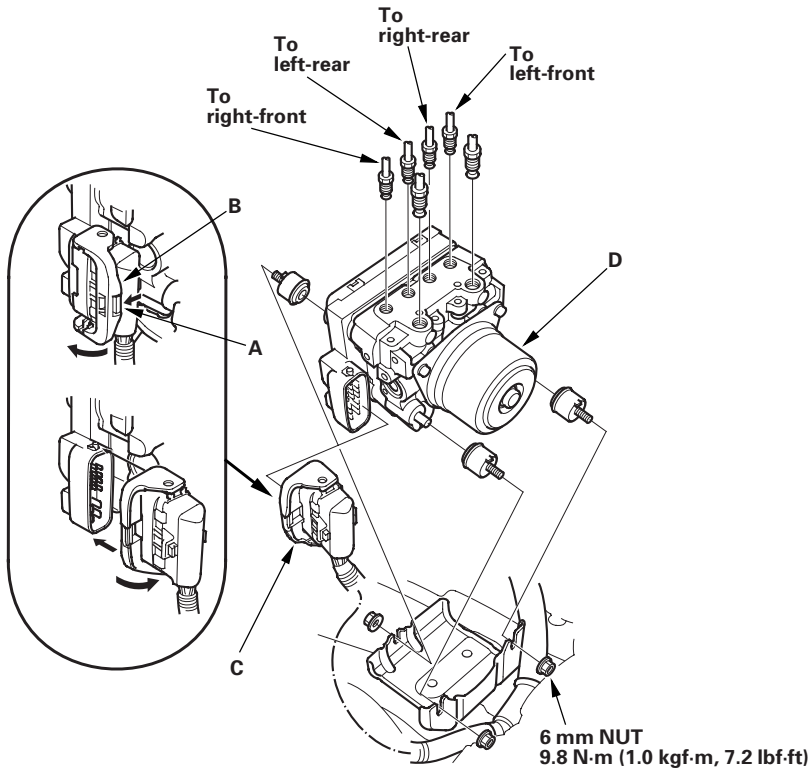
   NO — Check the brake system indicator circuit (short to body ground between terminal No. 3 of the ALT 4P connector and terminal B8 of the gauge assembly), parking brake switch (stuck ON) and brake fluid level switch (stuck ON). ■

Modulator Unit Removal and Installation

NOTE:
- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- Be careful not to damage or deform the brake lines during removal and installation.
- To prevent the brake fluid from flowing, plug and cover the hose ends and joints with a shop towel or equivalent material.

Removal

1. Remove the intake air duct (see step 6 on page 5-3).
2. Push the modulator unit connector lock (A), and turn the connector lever (B).



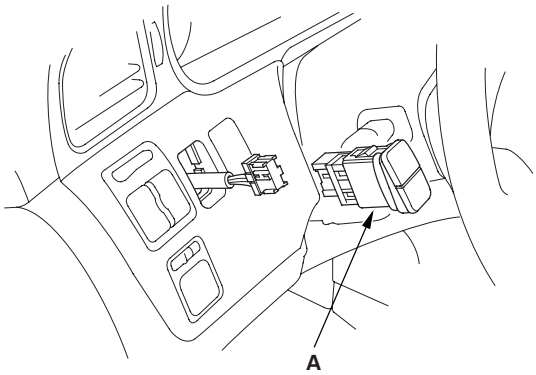
3. Disconnect the modulator unit connector (C).
4. Disconnect the brake lines, then remove the modulator unit (D).

Installation

1. Install the modulator unit, then connect the brake lines. Tighten the flare nuts to 15 N·m (1.5 kgf·m, 11 lbf·ft).
2. Bleed the brake system, starting with the front wheels.
3. Reinstall the intake air duct (see step 48 on page 5-20).
4. Start the engine, and check that the ABS indicator and TCS indicator go off.
5. Test-drive the vehicle, and check that the ABS indicator and TCS indicator do not come on.

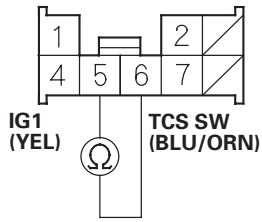
TCS Switch Test

1. Remove the TCS switch (A) from the switch panel.



2. Check for continuity between terminal No. 5 and No. 6. There should be continuity when the TCS switch is pushed.

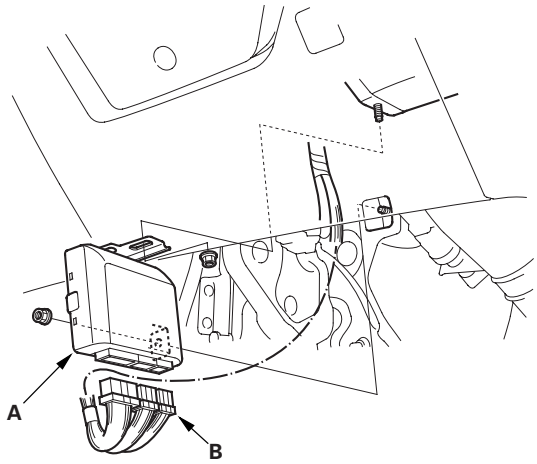
TCS SWITCH CONNECTOR



Wire side of female terminals

ABS/TCS Control Unit Replacement

1. Remove the ABS/TCS control unit (A) on the driver's side under the dash.



2. Disconnect the ABS/TCS control unit connectors (B).

3. Install the ABS/TCS control unit in the reverse order of removal.

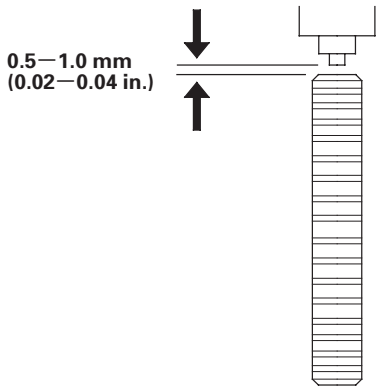
Wheel Sensor Inspection

1. Inspect the front and rear pulsers for chipped or damaged teeth.

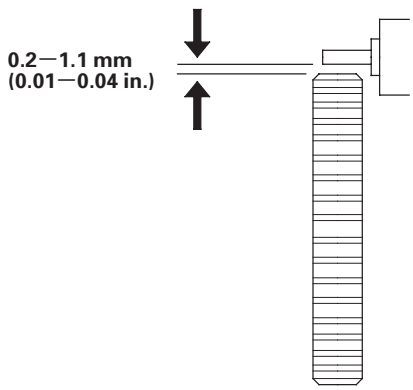
2. Measure the air gap between the wheel sensor and pulser all the way around while rotating the pulser. Remove the rear brake disc to measure the gap on the rear wheel sensor. If the gap exceeds 1.0 mm (0.04 in.), check for a bent suspension arm.

Standard:
Front: 0.5—1.0 mm (0.02—0.04 in.)
Rear: 0.2—1.1 mm (0.01—0.04 in.)

Front



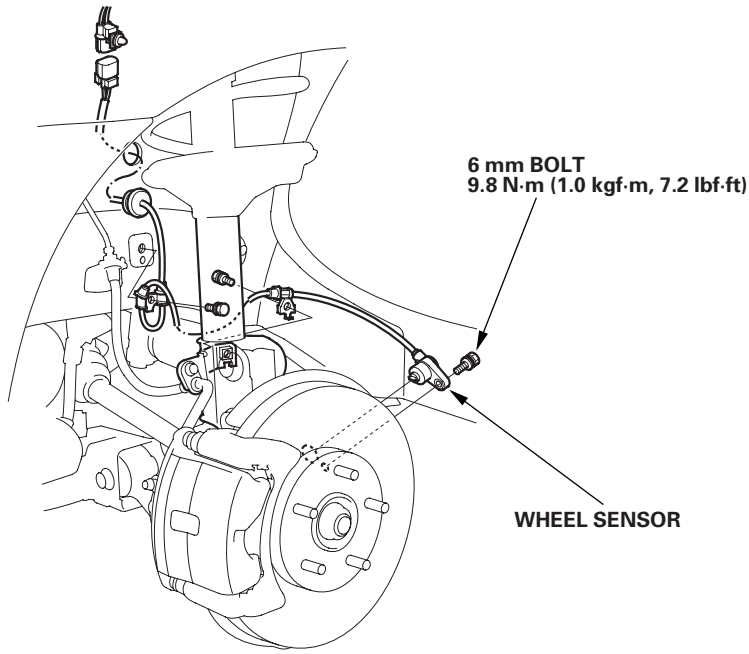
Rear



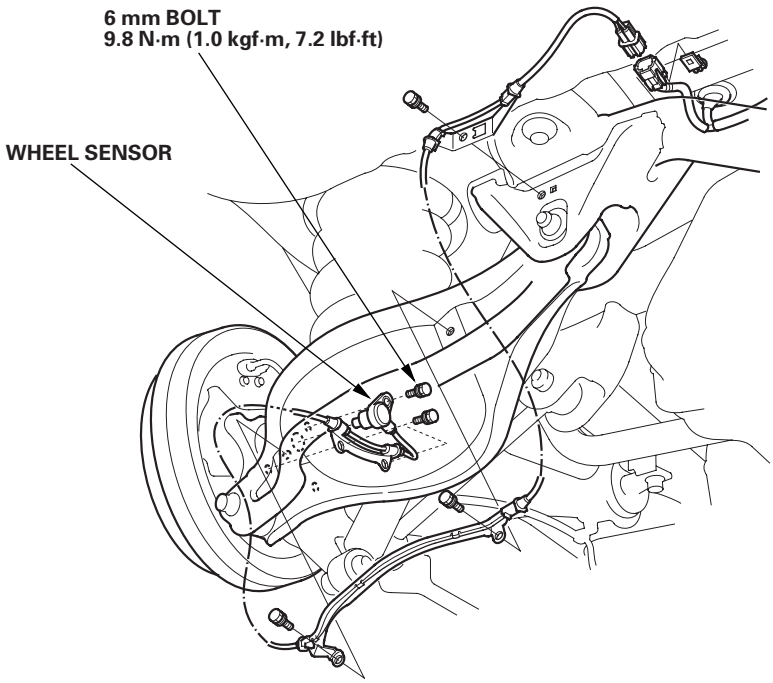
Wheel Sensor Replacement

Install the sensors carefully to avoid twisting wires.

Front



Rear



SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If body maintenance is required)

The Odyssey SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done only by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work must be performed by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump the SRS unit. Otherwise, the system may fail in a collision, or airbags may deploy if the ignition switch is ON (II).
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, and around the floor. Do not use electrical test equipment on these circuits.

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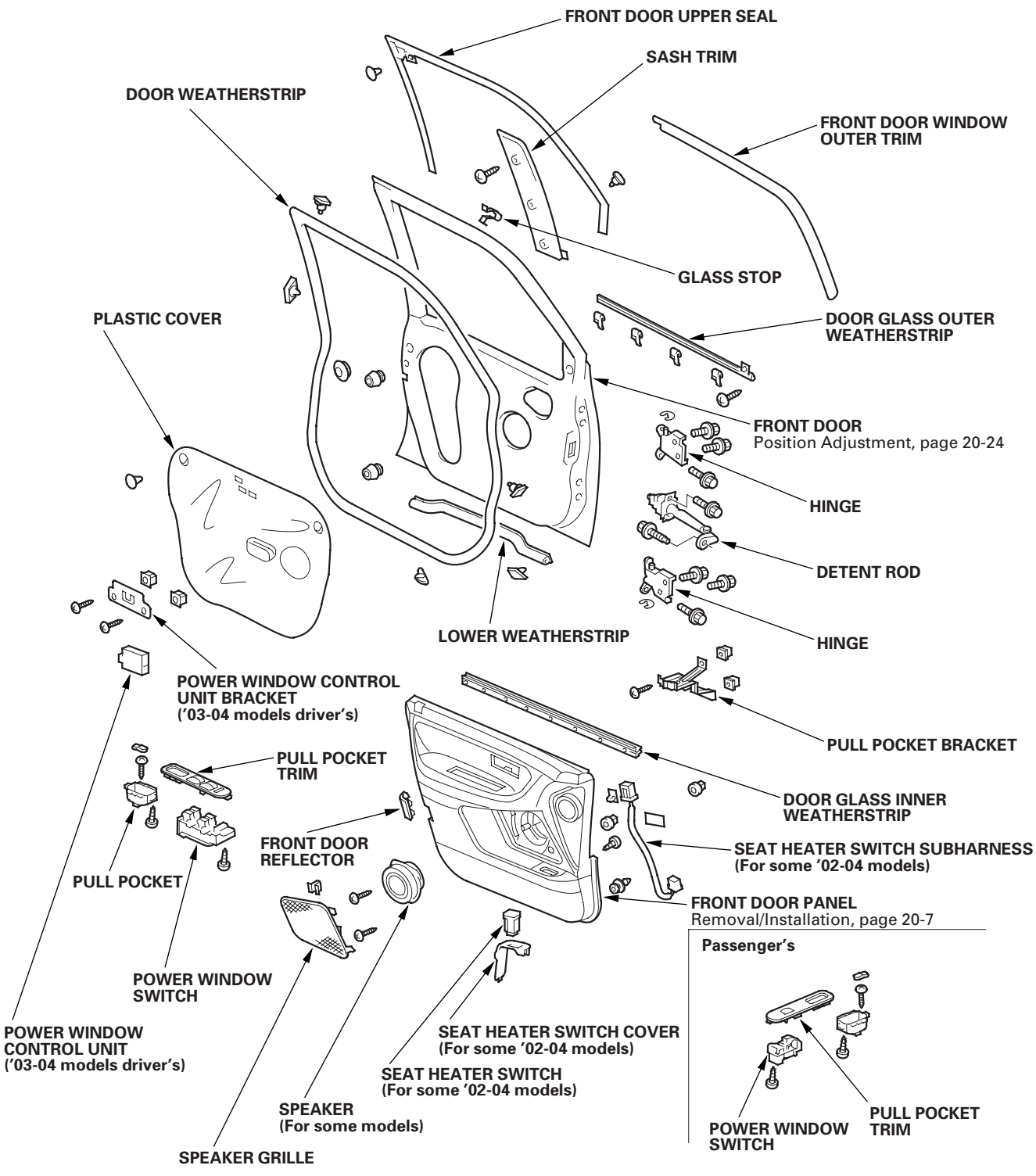
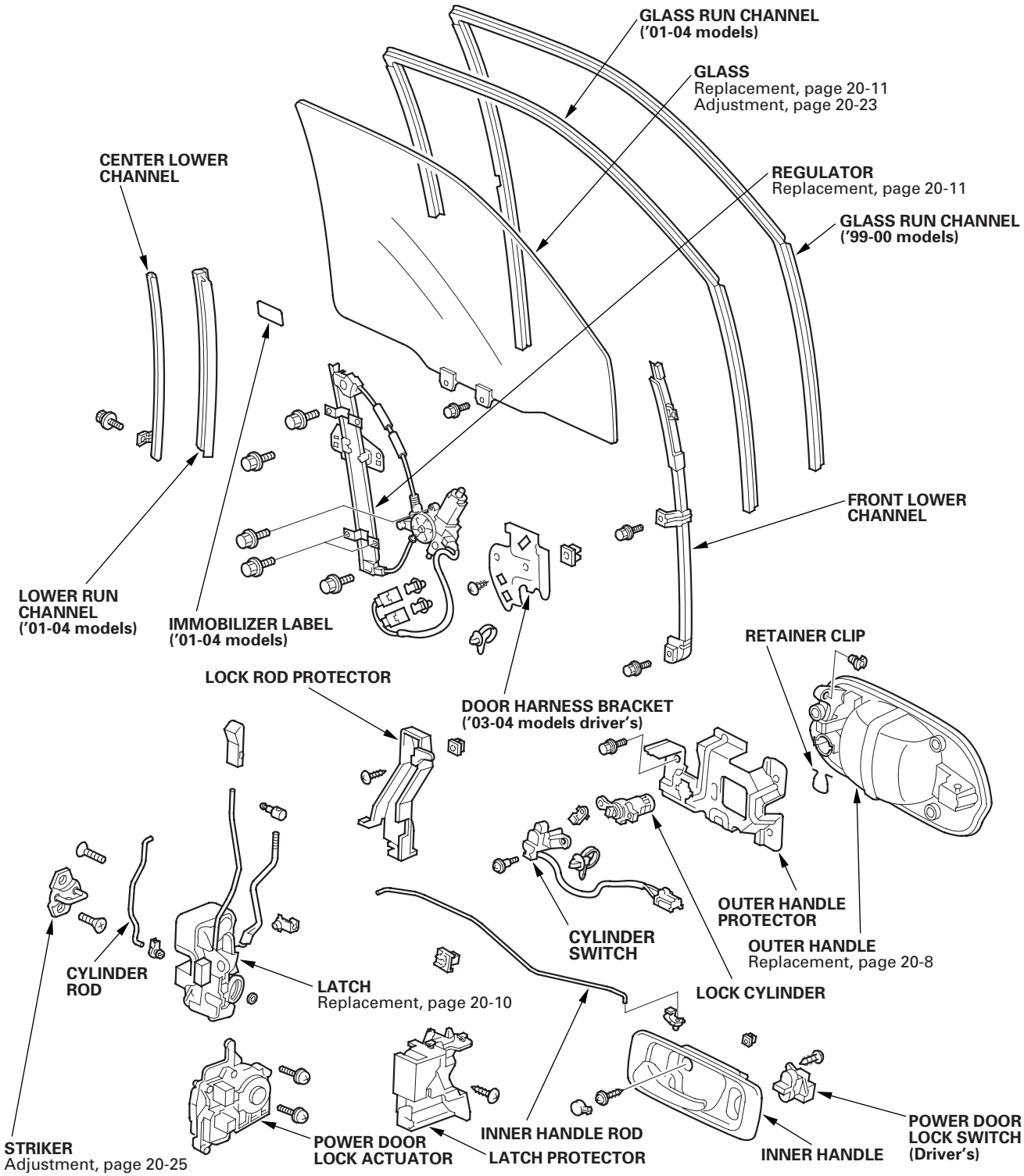
*01

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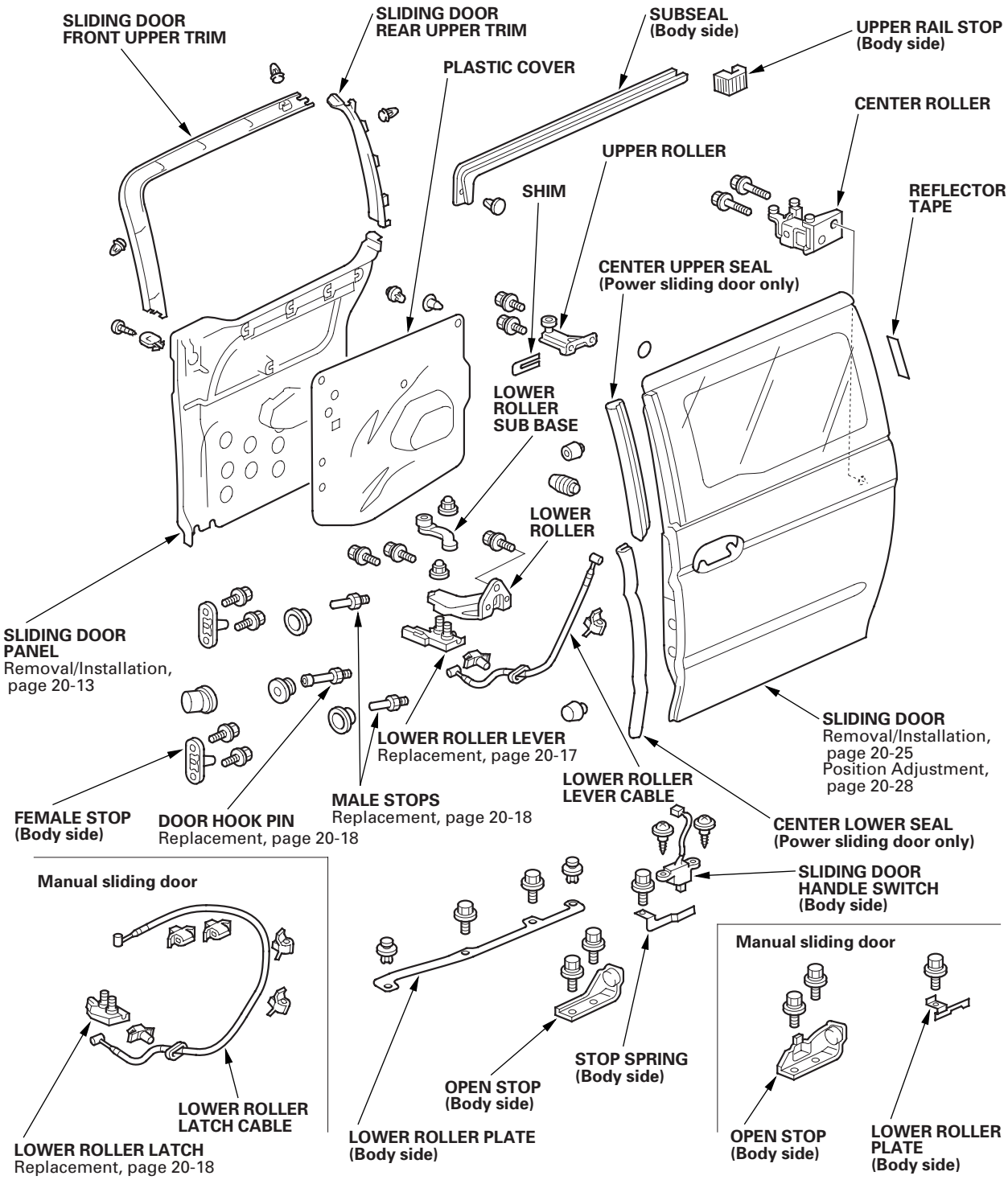
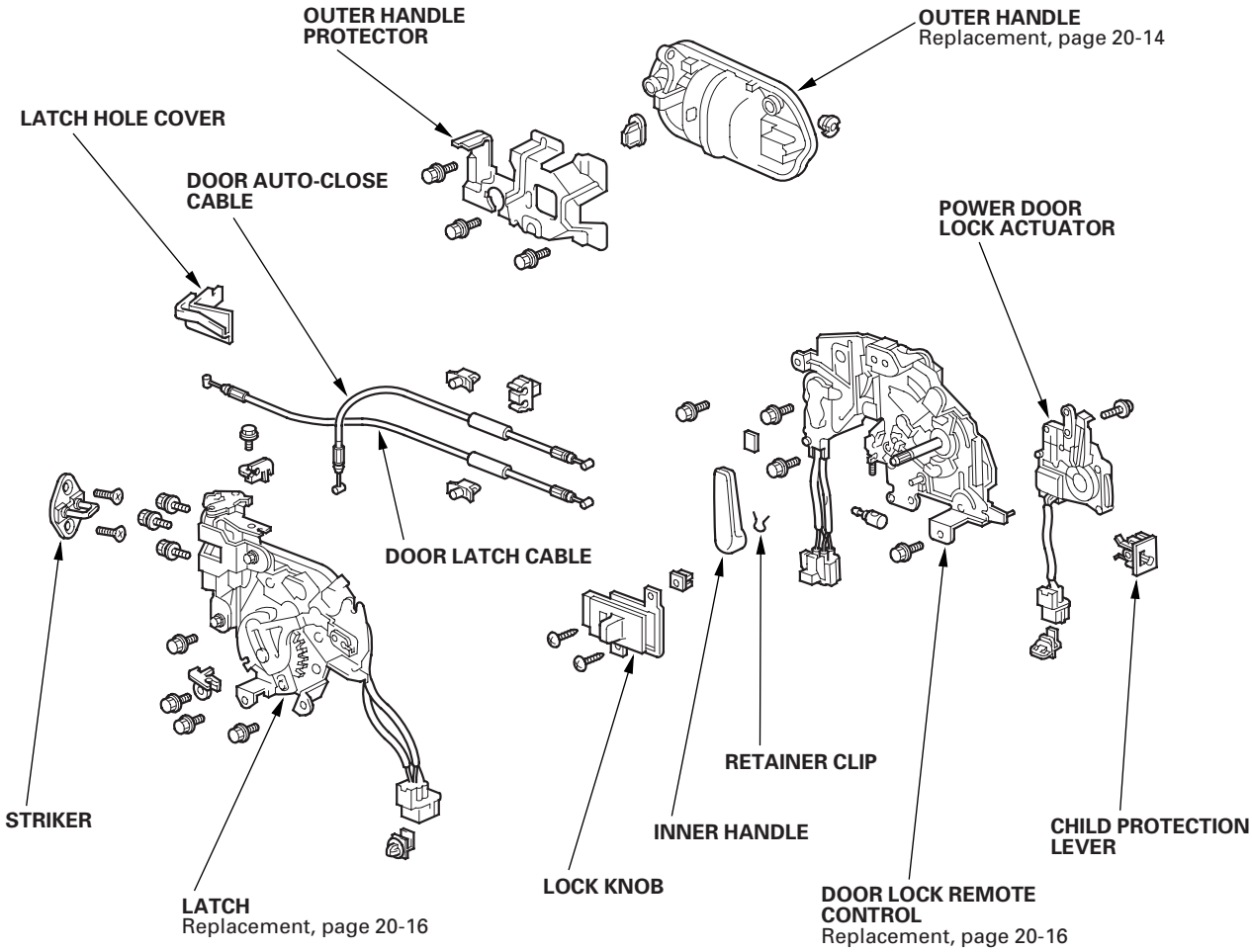
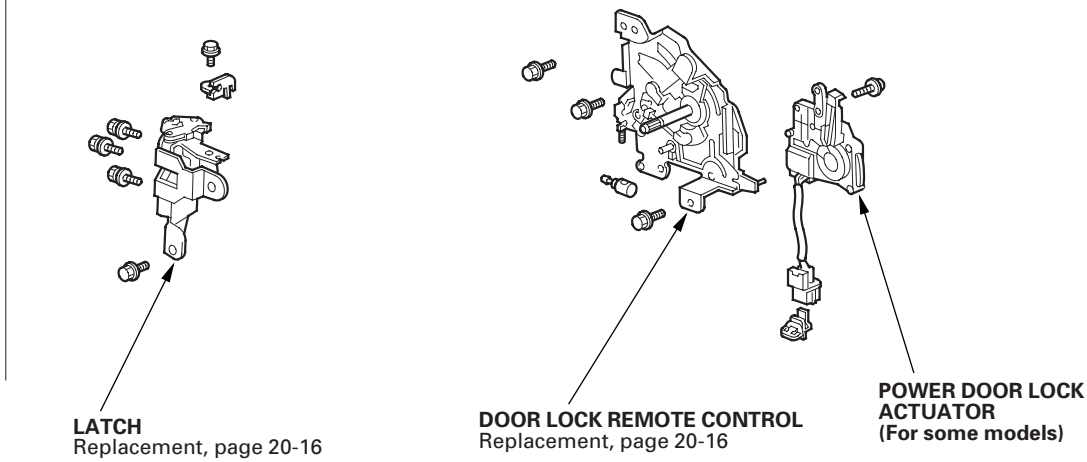




Manual sliding door



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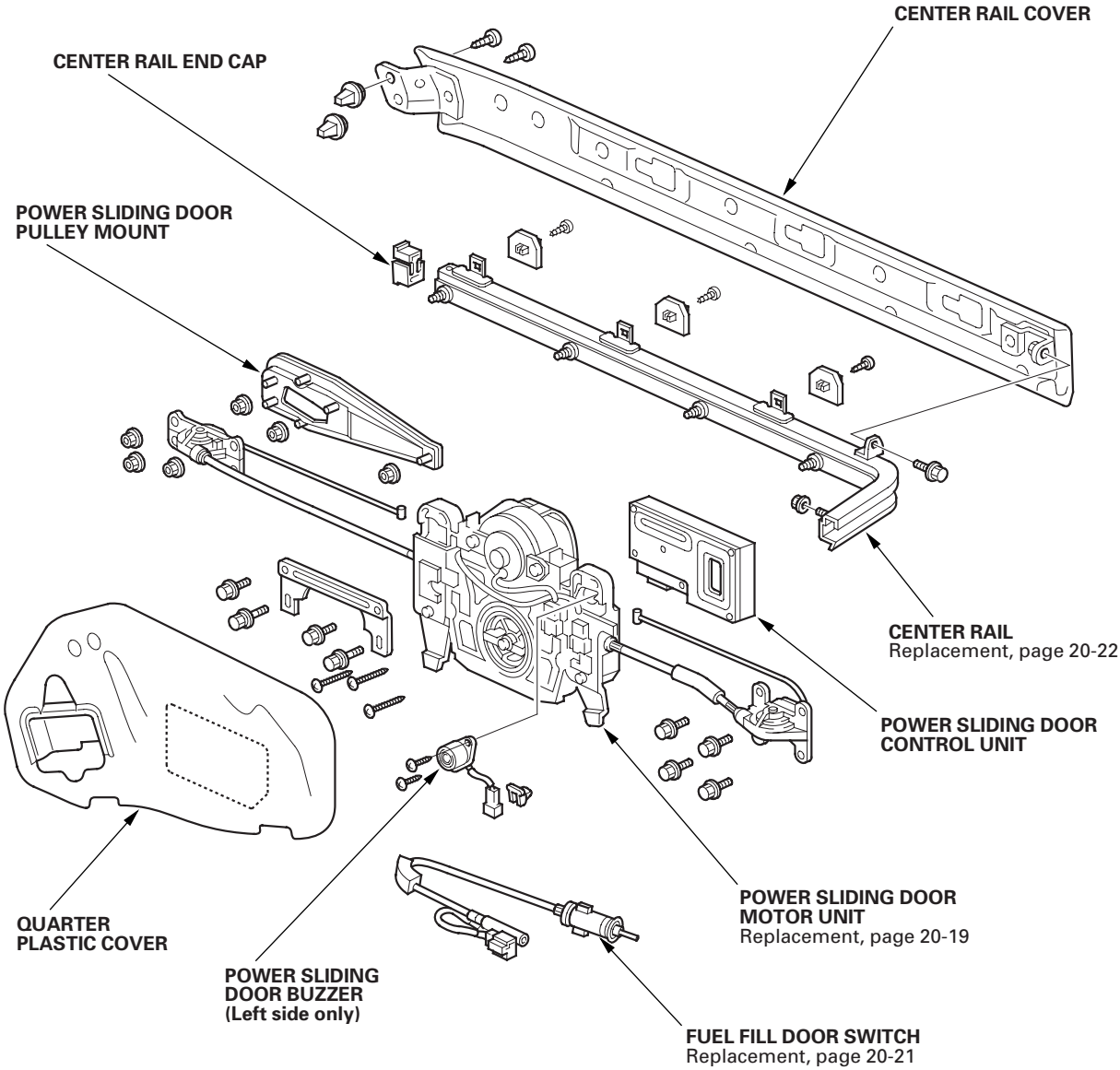
Component Location Index - Sliding Door (cont'd)



Front Door Panel Removal/Installation

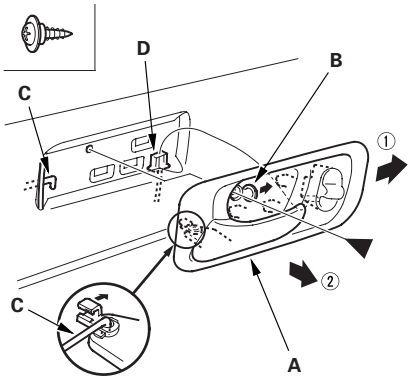
Special Tools Required
Trim pad remover, Snap-on A177A, or equivalent, commercially available.

1. Remove the mirror mount cover, power mirror (see step 2 on page 20-33), manual mirror (see step 2 on page 20-34). Take care not to scratch the door panel.

2. Remove the inner handle (A). Take care not to scratch the door panel.

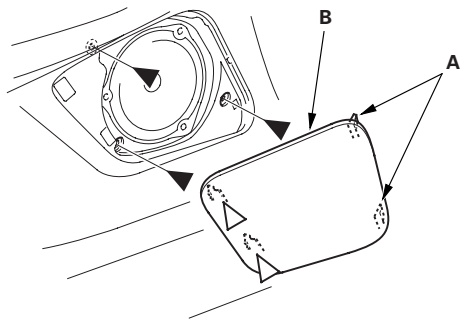
   –1 Pry out the cap (B), and remove the screw.
   –2 Pull the inner handle forward and out half-way.
   –3 Disconnect the inner handle rod (C) and power door lock switch connector (D) (for some models).

Fastener Location
▶ : Screw, 1



3. Detach the clips and hooks (A), then remove the speaker grille (B). Remove the screws.

Fastener Locations
▶ : Screw, 3 **▷ : Clip, 2**

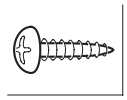


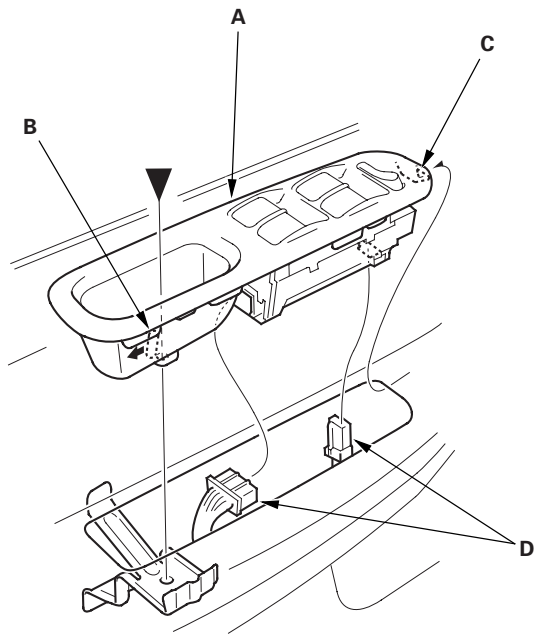
4. Remove the pull pocket panel (A). Take care not to scratch the door panel.

   –1 Pry out the cap (B), and remove the screw.
   –2 Release the hook (C), and disconnect the power window switch connectors (D).

Driver's

Fastener Location
▶ : Screw, 1

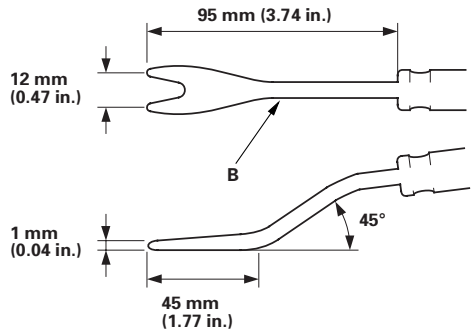




(cont'd)

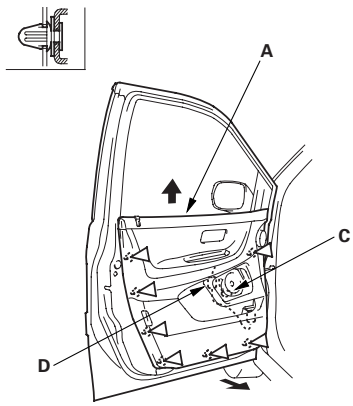
Front Door Panel Removal/ Installation (cont'd)

5. Release the clips that hold the door panel (A) with a commercially available trim pad remover (B), then remove the door panel by pulling it upward.
   Disconnect the speaker connector (C).
   For '02-04 models: If equipped with a seat heater, disconnect the seat heater switch subharness connector (D).
   Remove the door panel with as little bending as possible to avoid creasing or breaking it.



Fasterner Locations

▷: **Clip, 7**



6. Install the door panel in the reverse order of removal, and note these items:

   - Replace any damaged clips.
   - Push the clips into place securely.
   - Make sure the connectors are plugged in properly, and the inner handle rod is connected properly.
   - For '03-04 models: Reset the power window control unit (see page 22-200).
   - Check the window and power door lock operations.
   - For '02-04 models: If equipped with a seat heaters, check for proper operation.

Front Door Outer Handle Replacement

NOTE : Put on gloves to protect your hands.

1. Raise the glass fully.

2. Remove these items:

   - Mirror mount cover, power mirror (see step 2 on page 20-33), manual mirror (see step 2 on page 20-34)
   - Door panel (see page 20-7)
   - Plastic cover, as necessary (see page 20-2)

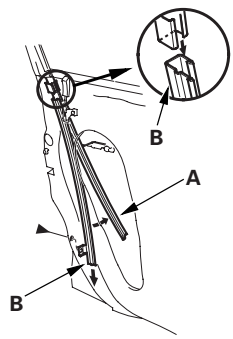
3. Remove the bolt, and pull the glass run channel (A) away as necessary for '99-00 models, then remove the center lower channel (B) by pulling it downward.
   For '01-04 models: Remove it with center lower glass run channel (C).

Fasterner Location

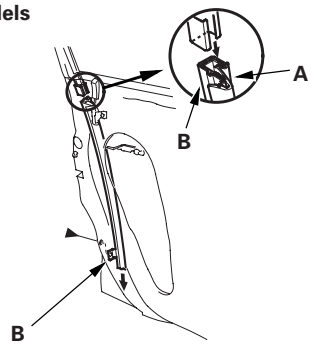
▶: **Bolt, 1**

6 x 1.0 mm
8 N·m
(0.8 kgf·m,
6 lbf·ft)

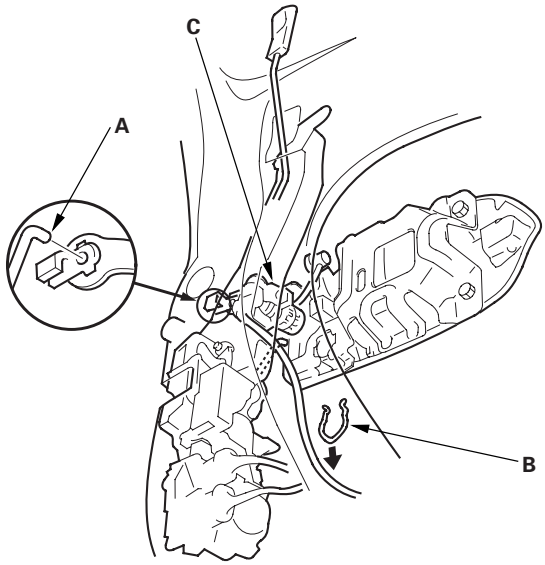
'99-00 models



'01-04 models



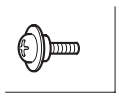
4. Disconnect the cylinder rod (A). Release the retainer clip (B), then remove the lock cylinder (C).

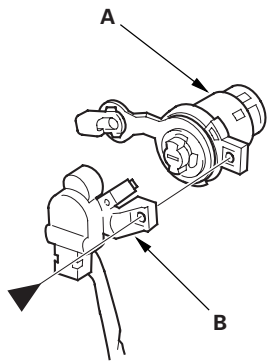


5. Remove the screw, then separate the lock cylinder (A) and cylinder switch (B).

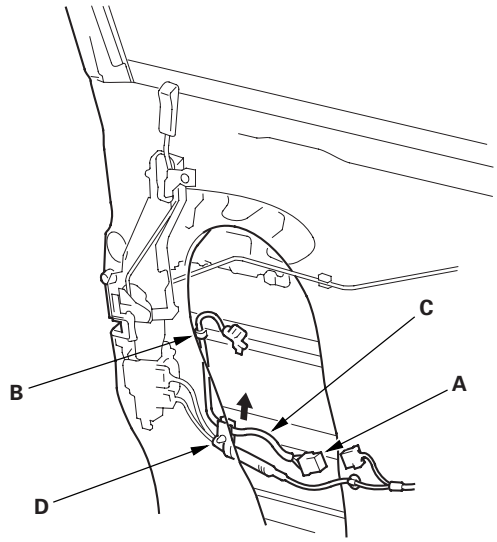
Fastener Location

▶ : Screw, 1





6. Disconnect the cylinder switch connector (A), and detach the harness clip (B), and release the cylinder switch harness (C) from the harness clip (D).

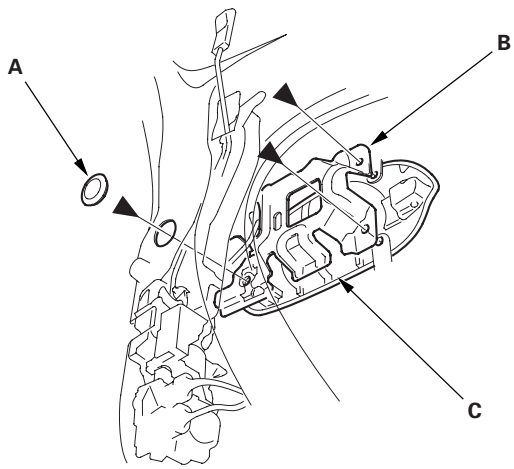


7. Remove the access cap (A), and remove the bolts securing the outer handle protector (B) and outer handle (C).

Fastener Locations

▶ : Bolt, 3

6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)

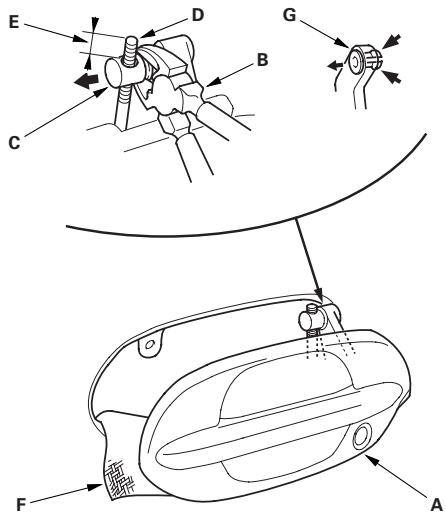


(cont'd)

Front Door Outer Handle Replacement (cont'd)

8. Pull the outer handle (A) away from the door. Use diagonal cutters (B) to pry the joint (C) out of the arm on the outer handle, and then remove the outer handle rod (D) from the joint.

   NOTE:
   - To ease reassembly, note the distance (E) of the outer handle rod on the joint before disconnecting it.
   - Take care not to bend the outer handle rod.
   - Use a shop towel (F) to protect the opening in the door.



9. Replace the bushing (G) on the outer handle.

10. Install the outer handle in the reverse order of removal, and note these items:

    - Make sure the cylinder switch harness is routed properly.
    - Make sure the connector is plugged in properly, and each rod is connected securely.
    - Make sure the door locks and opens properly.
    - When installing the lock cylinder, leave the outer door handle bolts loose so the inner protector does not interfere with the lock cylinder installation, then tighten the handle bolts.
    - Install the lock cylinder retaining clip on the handle, then install the lock cylinder. Be sure the clip is fully seated in the slot on the lock cylinder.
    - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its perimeter.
    - For '03-04 models: Reset the power window control unit (see page 22-200).

Front Door Latch Replacement

NOTE: Put on gloves to protect your hands.

1. Raise the glass fully.

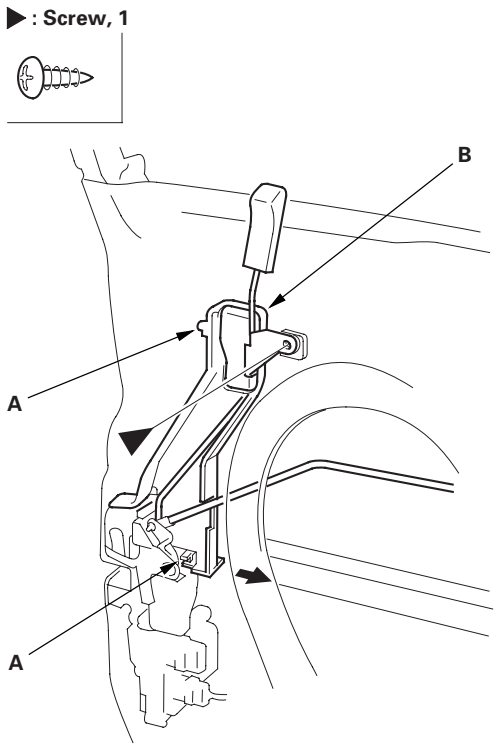
2. Remove these items:

   - Door panel (see page 20-7)
   - Plastic cover, as necessary (see page 20-2)
   - Outer handle (see page 20-8)

3. Remove the screw and detach the hooks (A), then remove the lock rod protector (B).

Fastener Location

▶ : Screw, 1

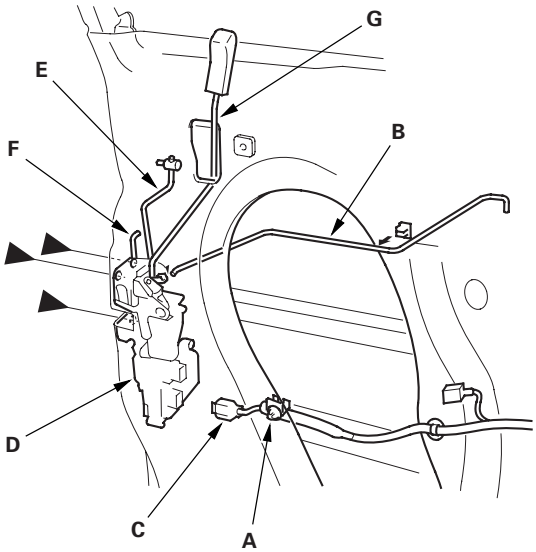


4. Detach the harness clip (A) and inner handle rod (B), and disconnect the actuator connector (C).

Fastener Locations

▶ : Screw, 3

6 x 1.0 mm
6 N·m
(0.6 kgf·m,
4 lbf·ft)



5. Remove the screws, then remove the latch (D) through the hole in the door. Take care not to bend the outer handle rod (E), cylinder rod (F), lock rod (G) and inner handle rod (B).

6. Install the latch in the reverse order of removal, and note these items:

   - Make sure the actuator connectors are plugged in properly, and each rod is connected securely.
   - Make sure the door locks and opens properly.
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its perimeter.
   - For '03-04 models: Reset the power window control unit (see page 22-200).

Front Door Glass and Regulator Replacement

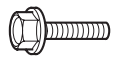
1. Remove these items:

   - Door panel (see page 20-7)
   - Pull pocket bracket (see page 20-2)
   - Power window control unit bracket, '03-04 models driver's door (see page 20-2)
   - Plastic cover (see page 20-2)

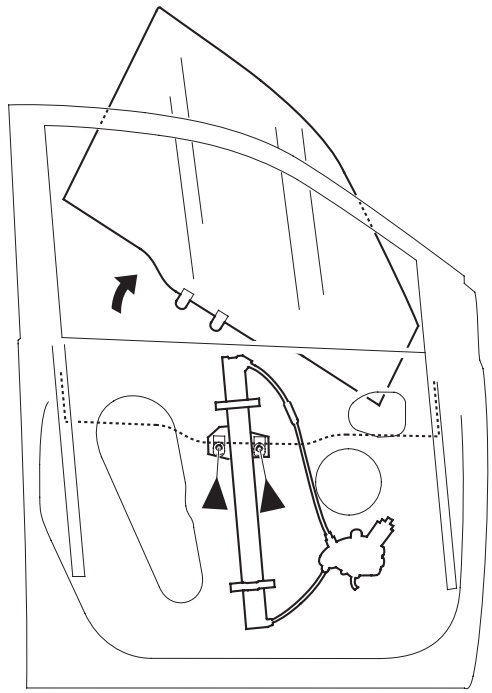
2. Carefully raise the glass until you can see the bolts, then remove them. Carefully pull the glass out through the window slot. Take care not to drop the glass inside the door.

Fastener Locations

▶ : Bolt, 2



6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)



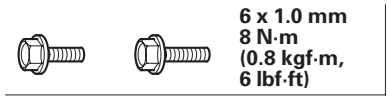
(cont'd)

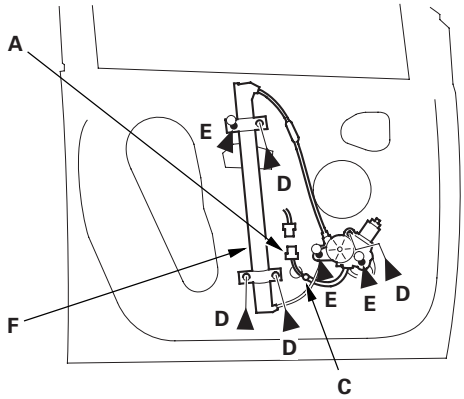
Front Door Glass and Regulator Replacement (cont'd)

3. Disconnect and detach the connectors (A), and for '03-04 models driver's door, detach the connectors from the door harness bracket (B). Detach the harness clip (C) from the door. Remove the bolts (D) and loosen the bolts (E), then remove the regulator (F) through the hole in the door.

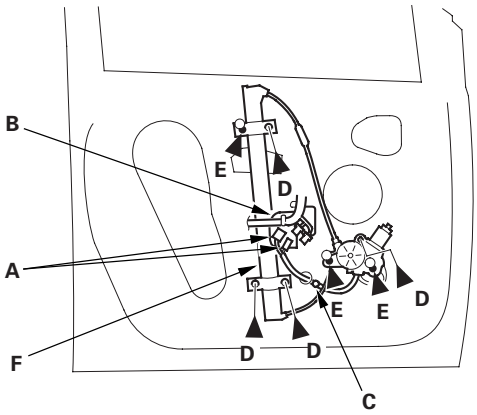
Fastener Locations

D ▶ : Bolt, 4 E ▶ : Bolt, 3

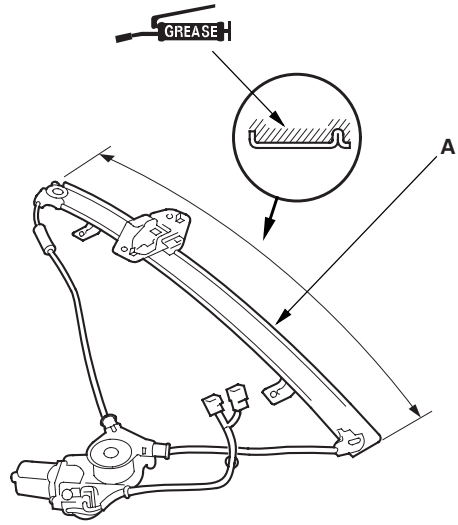




'03-04 models driver's



4. Apply multipurpose grease to all the sliding surfaces of the regulator (A) where shown.



5. Install the glass and regulator in the reverse order of removal, and note these items:

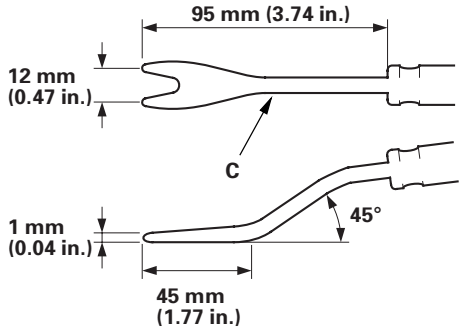
- Roll the glass up and down to see if it moves freely without binding.
- Make sure that there is no clearance between the glass and glass run channel when the glass is closed.
- Adjust the position of the glass as necessary (see page 20-23).
- Check for water leaks (see step 7 on page 20-23).
- For '03-04 models: Reset the power window control unit (see page 22-200).
- Test-drive and check for wind noise and rattles.
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its perimeter.

Sliding Door Panel Removal/Installation

Special Tools Required
Trim pad remover, Snap-on A177A, or equivalent, commercially available.

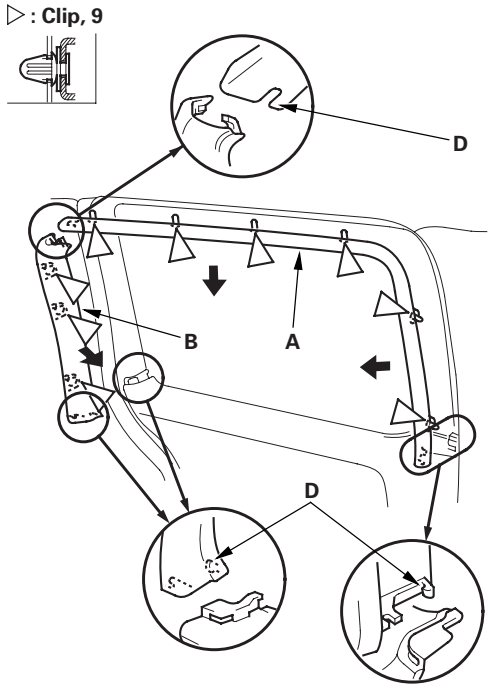
1. For EX and EX-L models: Disable the power sliding doors by turning off the main switch.

2. Release the clips that hold the front and rear upper trim (A, B) with a commercially available trim pad remover (C), release the hooks (D), and remove the trim. Remove the trim pieces with as little bending as possible to avoid creasing or breaking them.

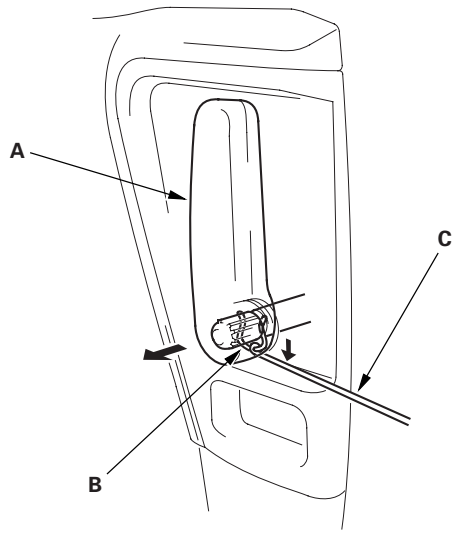


Fastener Locations

▷: Clip, 9



3. Remove the inner handle (A) by pulling the clip (B) out with a wire hook (C).



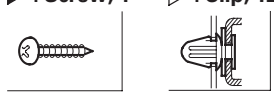
(cont'd)

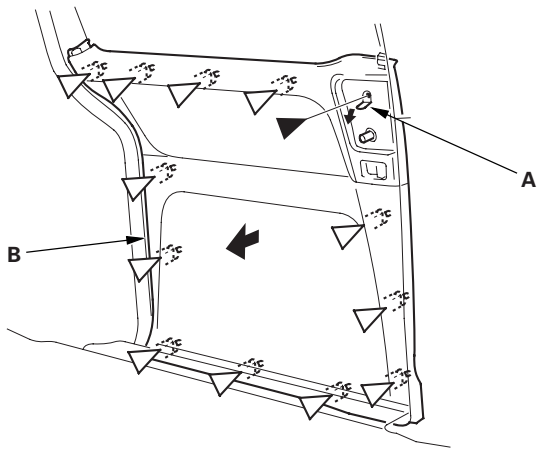
Sliding Door Panel Removal/ Installation (cont'd)

4. Pry out the cap (A), and remove the screw. Release the clips that hold the door panel (B) with the trim pad remover used in step 1, then remove the door panel. Remove the door panel with as little bending as possible to avoid creasing or breaking it.

Fastener Locations

▶ : Screw, 1 **▷ : Clip, 12**





5. Install the door panel in the reverse order of removal, and note these items:

   - Replace any damaged clips.
   - Push the clips into place securely.

6. For EX and EX-L models: Re-home the power sliding doors (see page 22-291).

Sliding Door Outer Handle Replacement

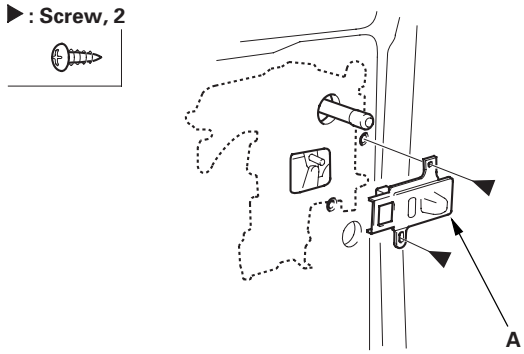
NOTE: Put on gloves to protect your hands.

1. Remove the door panel (see page 20-13).

2. Remove the screws, then remove the lock knob (A).

Fastener Locations

▶ : Screw, 2



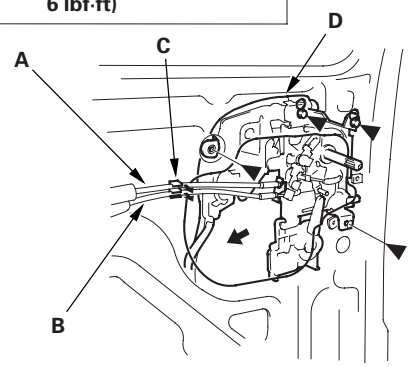
3. Pull the plastic cover back as necessary (see page 20-4).

4. Remove the lower bolt(s) and loosen the upper bolts, release the door latch cable (A) and door auto close cable or lower roller lock cable (B) from the cable holder (C), then move the door lock remote control (D) by sliding it up and rearward. Do not remove the door lock remote control at this time. Take care not to bend any of the cables.

Fastener Locations

▶ : Bolt
Power sliding door, 4
Manual sliding door, 3

6 x 1.0 mm
8 N·m (0.8 kgf·m, 6 lbf·ft)

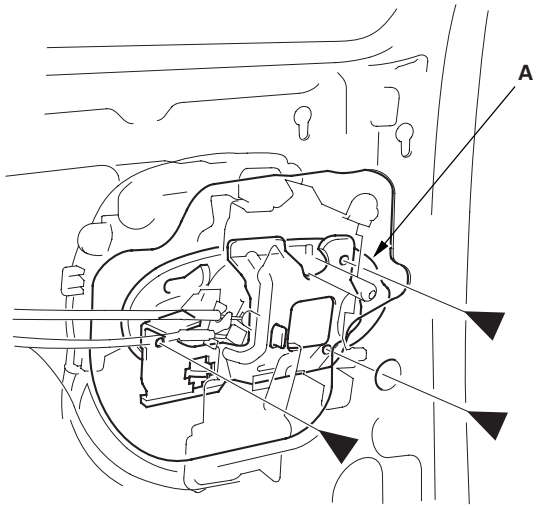


5. Remove the bolts securing the outer handle (A).

Fastener Locations

▶ : Bolt, 3

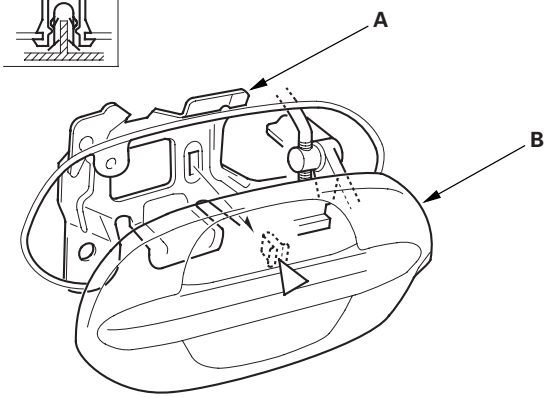
6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)



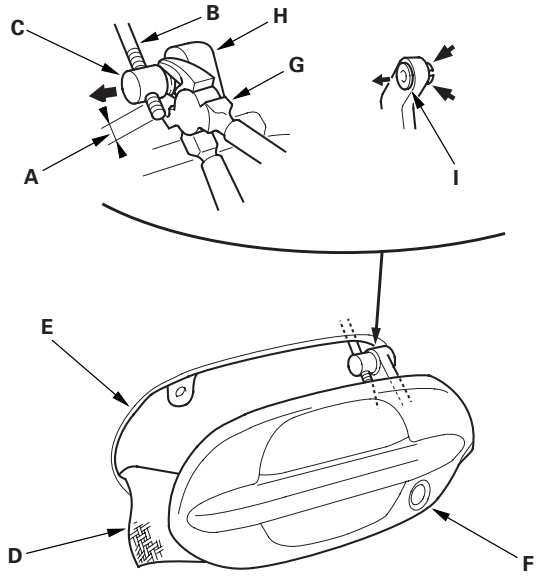
6. While holding the outer handle protector (A), release the clip by pulling out on the outer handle (B), then remove the outer handle protector from the door.

Fastener Location

▷ : Clip, 1



7. Note the distance (A) that the outer handle rod (B) extends from the joint (C). Put a shop towel (D) between the door opening (E) and the outer handle (F), and use diagonal cutters (G) to pry the joint out of the arm on the outer handle (H). Remove the outer handle rod from the joint.



8. Replace the outer handle bushing (I).

9. Install the outer handle in the reverse order of removal, and note these items:

   - Make sure the door locks and opens properly.
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its perimeter.

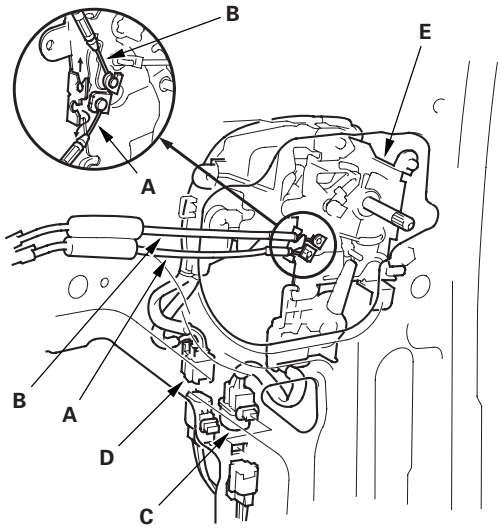
10. For EX and EX-L models: Re-home the power sliding doors (see page 22-291).

Sliding Door Lock Remote Control Replacement

NOTE: Put on gloves to protect your hands.

1. Remove the sliding door outer handle (see page 20-14).

2. Disconnect the door latch cable (A) and door auto-close cable or lower roller latch cable (B). If equipped, disconnect the door lock actuator connector (C) and power release actuator connector (D). Then remove the door lock remote control (E) through the hole in the door. Take care not to bend any of the cables.



3. Install the door lock remote control in the reverse order of removal, and note these items:

   - Make sure the actuator connector(s) are plugged in properly, and each cable is connected securely.
   - Make sure the door locks and opens properly.
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its perimeter.

4. For EX and EX-L models: Re-home the power sliding doors (see page 22-291).

Sliding Door Latch Replacement

NOTE: Put on gloves to protect your hands.

1. Remove these items:

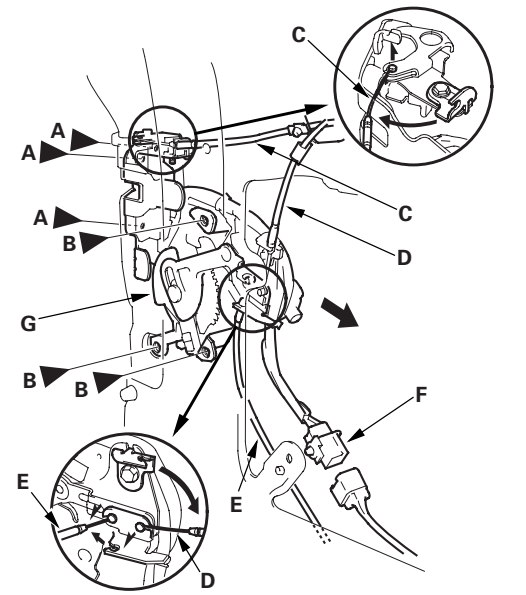
   - Door panel (see page 20-13)
   - Plastic cover, as necessary (see page 20-4)

2. Remove the bolts (A) and the bolts (B). Disconnect the door latch cable (C). If equipped, disconnect the auto-close cable (D), lower roller lever cable (E), and power door closer connector (F). Then remove the latch (G) through the hole in the door.

Fastener Locations

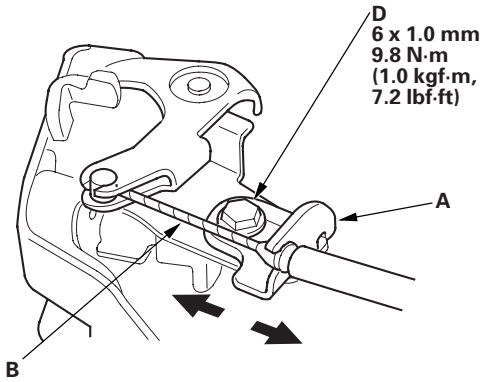
A ▶ : Bolt, 3 **B ▶ : Bolt, 3**

'99-00 models **'01-04 models** **6 x 1.0 mm 8 N·m (0.8 kgf·m, 6 lbf·ft)**

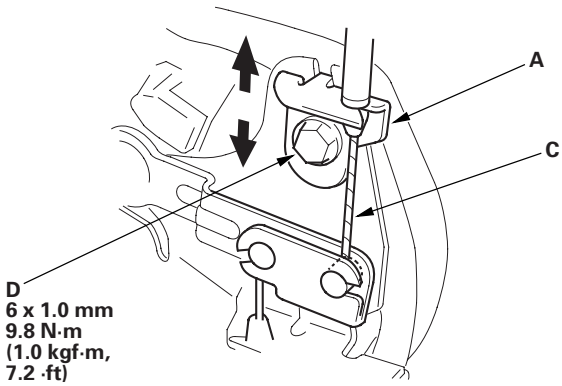


3. Install the latch in the reverse order of removal, and note these items:

   - Make sure the door locks and opens properly.
   - If necessary, move the adjusting plate (A) to adjust the door latch cable (B) and the auto-close cable (C).
   - Apply liquid thread lock to the adjusting plate mounting bolt (D) before reinstallation.
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its perimeter.



Power sliding door



4. For EX and EX-L models: Re-home the power sliding doors (see page 22-291).

Sliding Door Lower Roller Lever Replacement

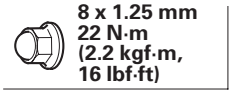
Power Sliding Door

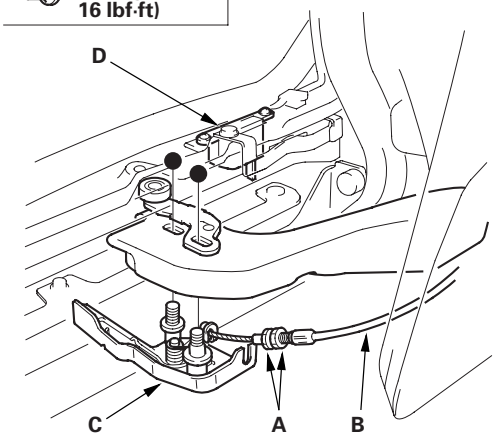
1. For EX and EX-L models: Disable the power sliding doors by turning off the main switch.

2. Remove the nuts, then loosen the cable adjusting nuts (A) and disconnect the lower roller lever cable (B) from the lower roller lever (C). Take care not to bend the cable.

Fastener Locations

● : Nut, 2





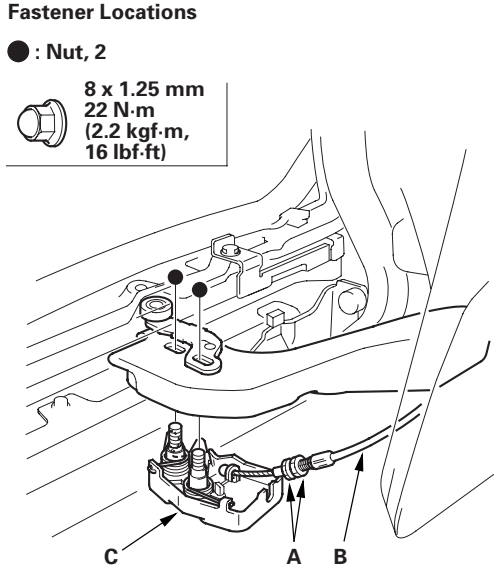
3. Install the lower roller lever in the reverse order of removal, and note these items:

   - Make sure the lower roller cable is connected properly.
   - With the door fully open, make sure the power sliding door handle switch (D) makes a clicking sound as soon as the inner or outer door handle is pulled. If necessary, adjust the cable adjusting nuts.
   - Check the sliding door operation. Make sure the sliding door operates properly when the outside handle is pulled (sliding door in the open position; the sliding door closes fully).

Sliding Door Lower Roller Latch Replacement

Manual Sliding Door

1. Remove the nuts, then loosen the cable adjusting nuts (A) and disconnect the lower roller latch cable (B) from the lower roller latch (C). Take care not to bend the cable.

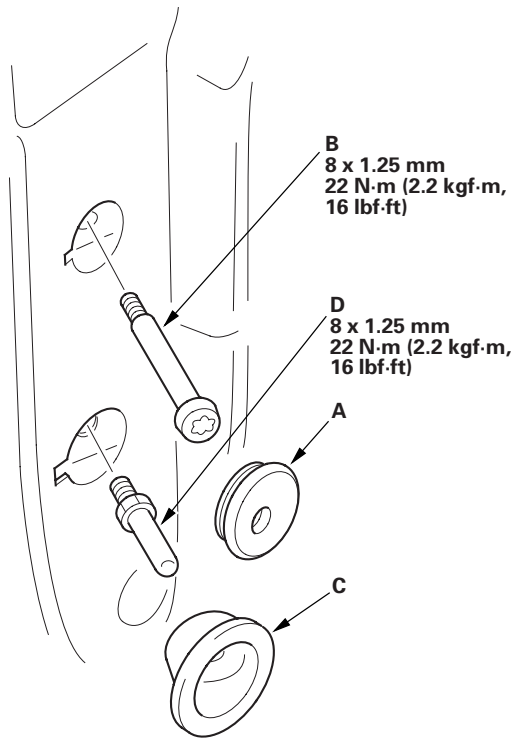


2. Install the lower roller latch in the reverse order of removal, and note these items:

   - Make sure the lower roller latch cable is connected properly.
   - Make sure the door locks and opens properly. If necessary, adjust the lower roller lever cable adjusting nuts.

Sliding Door Hook Pin and Male Stop Replacement

1. Remove the hook cover (A), then remove the sliding door hook pin (B) using a Torx T50 bit.



2. Remove the male stop cover (C), then remove the sliding door male stop (D).

3. Install the hook pin and male stop in the reverse order of removal. Apply thread liquid lock to the sliding door hook pin and male stop before reinstallation.

Power Sliding Door Motor Unit Replacement

NOTE:
- Be sure to disable the power sliding door by turning the main switch off.
- Have an assistant help you when removing and installing the power sliding door motor unit.
- Use seat covers to avoid damaging any surfaces.
- Take care not to scratch the center rail and body.
- Take care not to drop and damage the door.
- Put on gloves to protect your hands.

1. Place the vehicle on a firm, level surface when removing and installing the door.

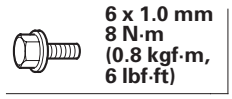
2. Remove these items:

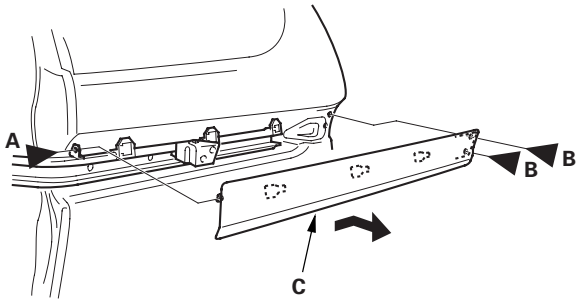
   - Taillight (see page 22-132)
   - Sliding door (see page 20-25)
   - Rear side trim panel (see page 20-60)

3. Remove the bolt (A) and screws (B), slide the center rail cover (C) back and remove it.

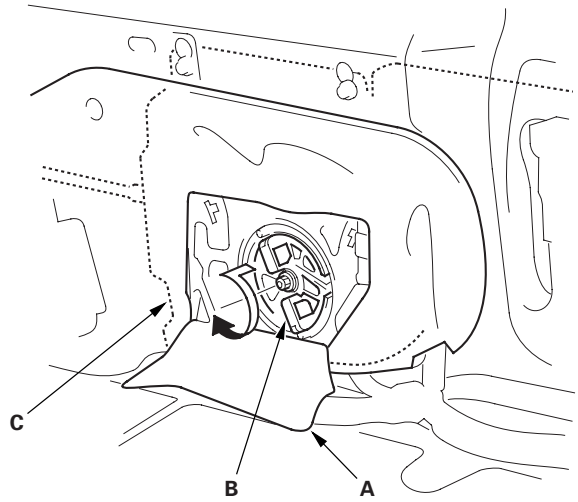
Fastener Locations

A ▶ : Bolt, 1 **B▶ : Screw, 2**





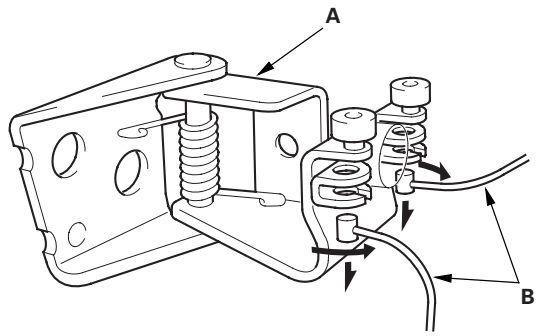
4. Cut the quarter plastic cover (A) along the guide line, as shown.



5. If equipped, pull and turn the adjusting pulley (B) of the power sliding door motor unit (C) clockwise to unfasten the power sliding door motor unit cable.

6. Remove the center roller (A) from the center rail.

7. If equipped, disconnect the power sliding door motor unit cable (B) from the center roller. Take care not to kink the cable.



(cont'd)

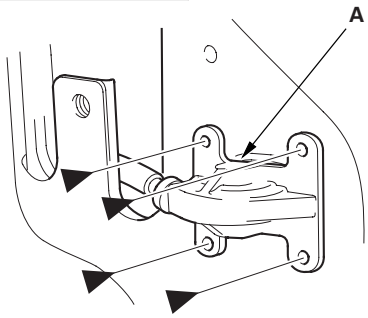
Power Sliding Door Motor Unit Replacement (cont'd)

8. Remove the bolts securing the front pulley (A).

Fastener Locations

▶ : Bolt, 4

6 x 1.0 mm
8 N·m
(0.8 kgf·m,
6 lbf ft)

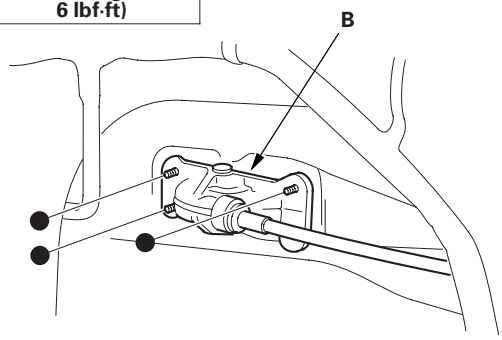


9. Remove the nuts securing the rear pulley (B).

Fastener Locations

● : Nut, 3

6 x 1.0 mm
8 N·m
(0.8 kgf·m,
6 lbf·ft)



10. Remove the bolts (A), loosen the bolts (B, C) and move the bracket (D) upward. Disconnect the motor unit connectors (E) and control unit connectors (F). On the left door, disconnect the buzzer connector (G). Remove the motor unit (H) through the body opening. Take care not to kink the power sliding door motor unit cable (I).

Fastener Locations

A ▶ : Bolt, 2

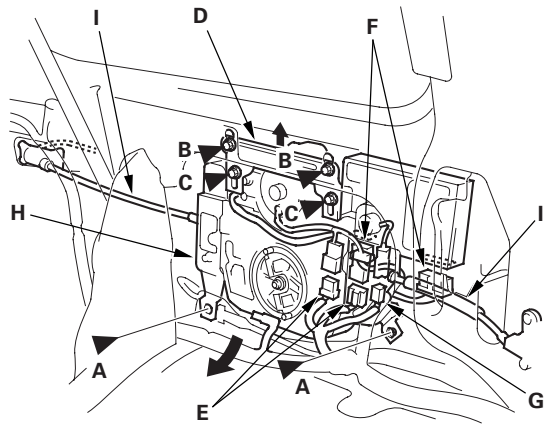
6 x 1.0 mm
8 N·m
(0.8 kgf·m,
6 lbf·ft)

B ▶ : Bolt, 2

6 x 1.0 mm
8 N·m
(0.8 kgf·m,
6 lbf·ft)

C ▶ : Bolt, 2

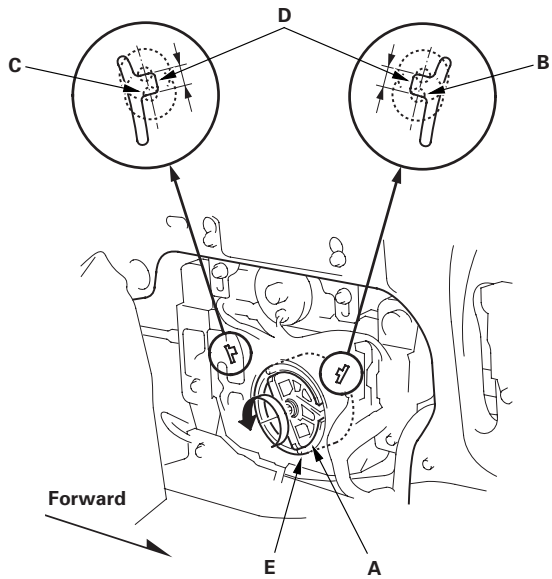
6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)



11. Install the motor unit in the reverse order of removal, and note these items:

    • Make sure the connectors are plugged in properly, and the power sliding door cable is routed properly.
    • After setting the center roller on the center rail, make sure the sliding door is open fully, and adjust the tension to the power sliding door motor unit cable in this sequence:

    –1 Turn the adjusting pulley (A) counterclockwise (left side), or clockwise (right side) until you can see the front set mark (B) and rear set mark (C) in the set position windows (D). Be sure the set mark is within the set position window area.
    –2 If you cannot see the rear set mark, turn the drum (E) clockwise (left side), or counterclockwise (right side) gradually until you can see the rear set mark.
    –3 Repeat steps 1 and 2 until the front and rear set marks are within their windows at the same time.
    –4 After setting the tension, turn on the power door master switch and operate the sliding door once with the power sliding door switch.
    –5 Turn off the master power door switch and recheck the positions of the front and rear set marks. Readjust and test as necessary.
    –6 Reseal the quarter plastic cover as necessary.



12. Re-home the power sliding doors (see page 22-291).

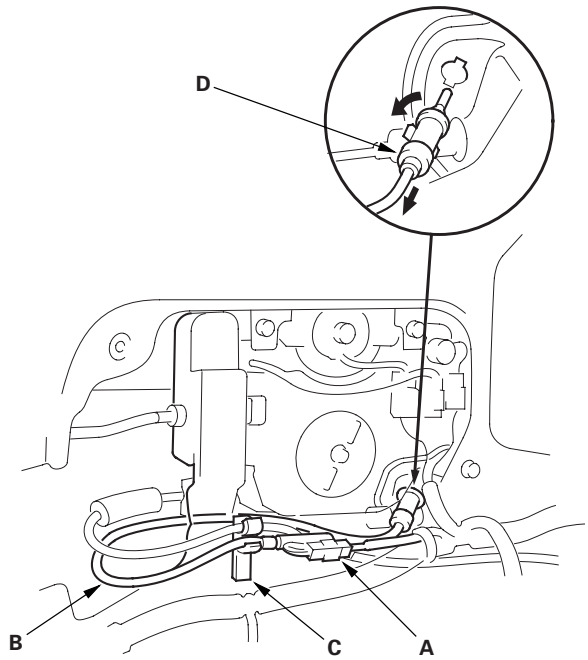
Fuel Fill Door Switch Replacement

NOTE: Put on gloves to protect your hands.

1. Remove these items:

    • Third row seat belt retractor (see step 3 on page 23-11)
    • Quarter plastic cover, as necessary (see page 20-6)

2. Disconnect the fuel fill door switch connector (A), release the cable (B) from the cable clip (C), turn the switch (D) 90°, and remove it.



3. Install the switch in the reverse order of removal, and make sure the connector is plugged in properly.

Sliding Door Center Rail Replacement

NOTE: Take care not to scratch the center rail and body.

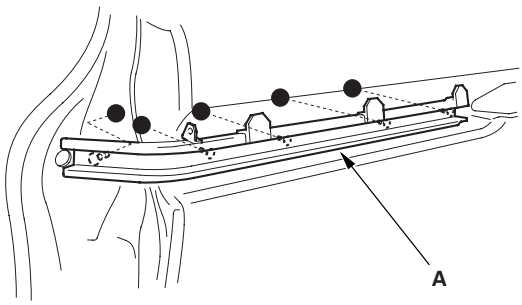
1. Remove these items:
   - Sliding door (see page 20-25)
   - Rear side trim panel (see page 20-60)
2. If equipped, pull and turn the adjusting pulley of the power sliding door motor unit clockwise to unfasten the power sliding door motor unit cable (see step 5 on page 20-19).
3. Remove the center roller from the center rail.
4. If equipped, disconnect the power sliding door motor unit cable from the center roller (see step 7 on page 20-19). Take care not to bend the cable.
5. If equipped, remove the bolts and nuts securing the power sliding door motor unit (see step 10 on page 20-20), then move the unit as necessary.
6. Remove the nuts securing the center rail (A) from inside of the vehicle, then remove the center rail.

   NOTE: Take care not to drop the nuts inside the body.

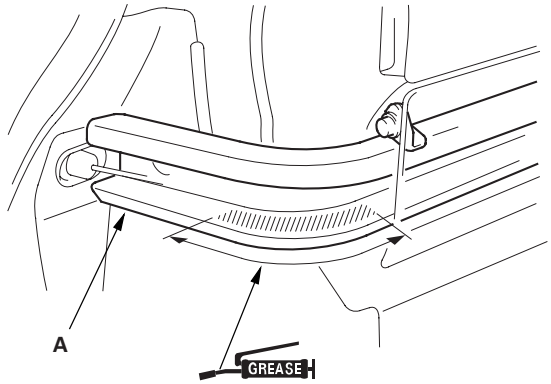
Fastener Locations

● : Nut, 5

	6 x 1.0 mm 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)



7. Install the center rail in the reverse order of removal. Clean the groove portion of the center rail (A) and if equipped with power sliding door, apply multipurpose grease to the corner portion of the sliding door, as shown.



Front Door Glass Adjustment

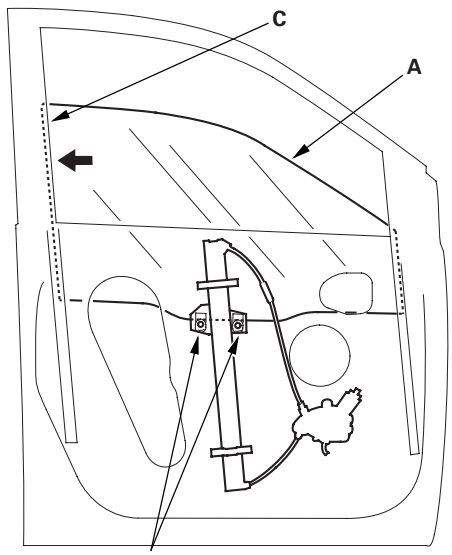
NOTE:
- Check the weatherstrips and glass run channel for damage or deterioration, and replace them if necessary.
- Wipe the run channel clean with a shop towel.
- Lubricate the run channel with Shin-Etsu grease P/N 08798-9013.

1. Place the vehicle on a firm, level surface.

2. Remove these items:

   - Door panel (see page 20-7)
   - Pull pocket bracket (see page 20-2)
   - Power window control unit bracket, '03-04 models driver's door (see page 20-2)
   - Plastic cover (see page 20-2)

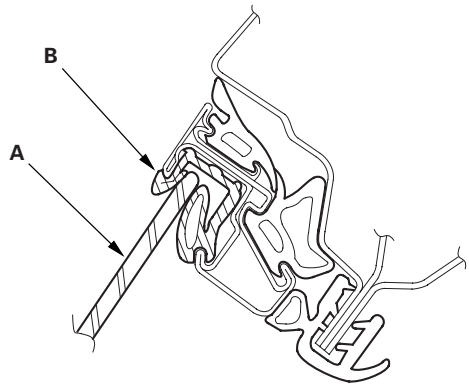
3. Carefully lower the glass (A) until you can see the glass mounting bolts (B), then loosen them.



4. Push the glass (A) against the center channel (C), then tighten the glass mounting bolts.

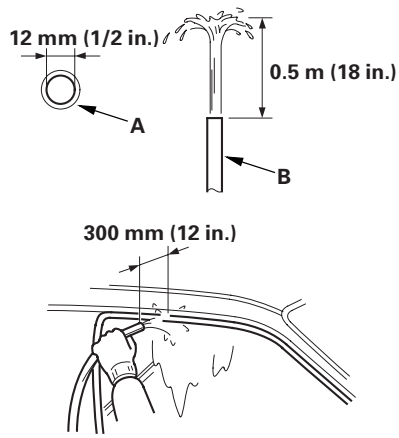
5. Check that the glass moves smoothly.

6. Raise the glass fully, and check for gaps. Check that the glass (A) contacts the glass run channel (B) evenly.



7. Check for water leaks. Run water over the roof and on the sealing area as shown, and note these items:

   - Use a 12 mm (1/2 in.) diameter hose (A).
   - Adjust the rate of water flow as shown (B).
   - Do not use a nozzle.
   - Hold the hose about 300 mm (12 in.) away from the door.



8. Attach the plastic cover, and install the door panel (see page 20-7).

9. Test-drive and check for wind noise.

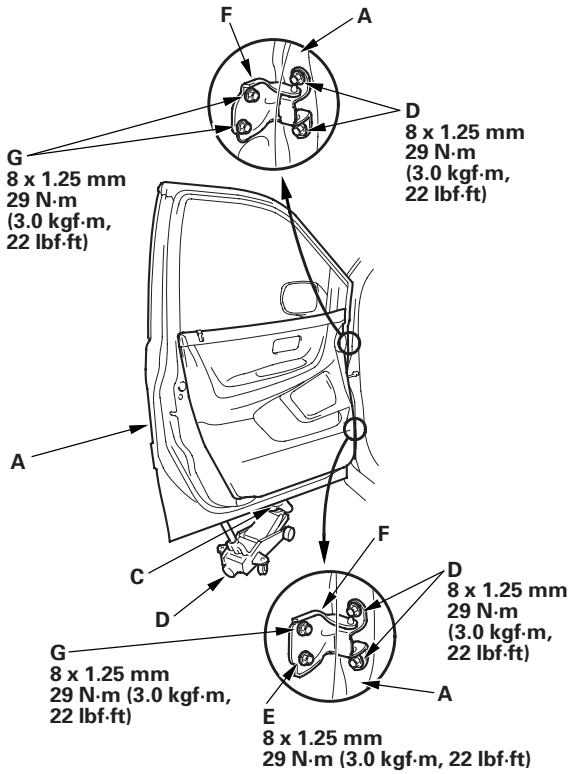
Front Door Position Adjustment

NOTE: Check for a flush fit with the body, then check for equal gaps between the front, rear, and bottom door edges and the body. Check that the door and body edges are parallel.

1. Place the vehicle on a firm, level surface when adjusting the doors.

2. Adjust the door (A):

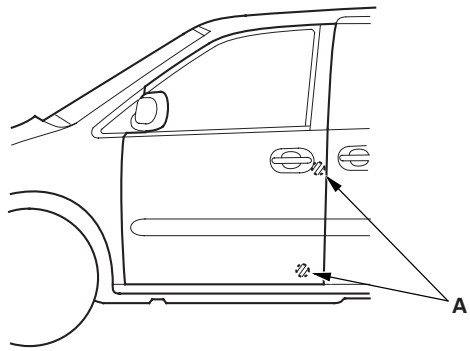
   - Support the door with a jack (B) that is padded with a shop towel (C).
   - Loosen the door mounting bolts (D), and move the door up or down as necessary to equalize the gaps, and in or out until it's flush with the body.

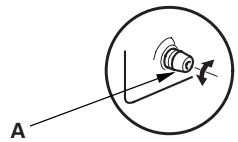


3. If necessary, replace the hinge mounting bolt (E) with the adjusting bolt (P/N 90101-SZ3-000) made specifically for door adjustment, then adjust at the hinges (F):

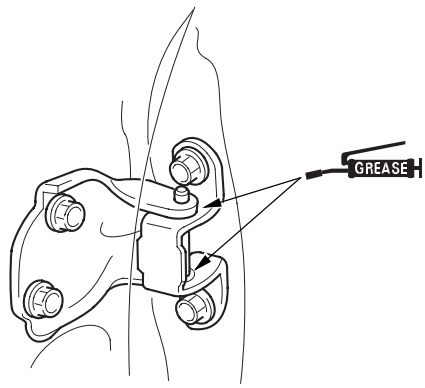
   Loosen the hinge mounting bolts (E, G) slightly, and move the door backward or forward, up or down as necessary to equalize the gaps.

4. Check that the door and body edges are parallel. If necessary, adjust the door cushions (A) to make the rear of the door flush with the body.





5. Apply multipurpose grease to the pivot portions of the hinges indicated by the arrows.



6. Apply touch-up paint to the hinge mounting bolts, and around the hinges.

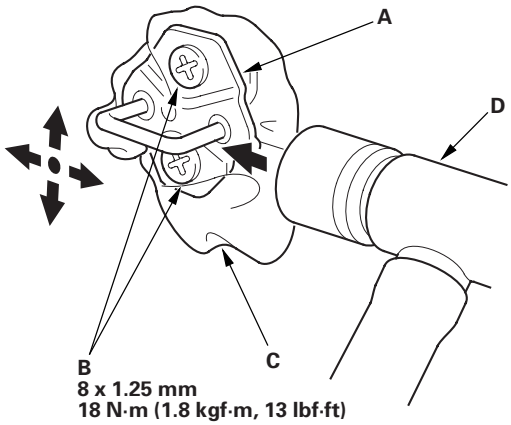
7. Check for water leaks (see step 7 on page 20-23).

8. Test-drive and check for wind noise.

Front Door Striker Adjustment

Make sure the door latches securely without slamming it. If necessary, adjust the striker (A): The striker nuts are fixed, but the striker can be adjusted slightly up or down, and in or out.

1. Loosen the screws (B), then insert a shop towel (C) between the body and striker.



2. Lightly tighten the screws.
3. Wrap the striker with a shop towel, then adjust the striker by tapping it with a plastic hammer (D). Do not tap the striker too hard.
4. Loosen the screws, and remove the shop towel.
5. Lightly tighten the screws.
6. Hold the outer handle out, and push the door against the body to be sure the striker allows a flush fit. If the door latches properly, tighten the screws and recheck.

Sliding Door Removal/Installation

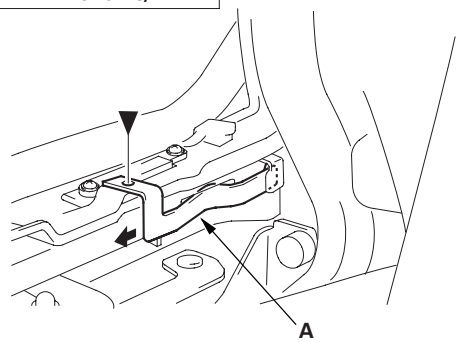
NOTE:
- Have an assistant help you when removing and installing the door.
- Use seat covers to avoid damaging any surfaces.
- Take care not to scratch the center rail and body.
- Take care not to drop and damage the door.
- Put on gloves to protect your hands.

1. Place the vehicle on a firm, level surface when removing and installing the door.
2. Remove the sliding door sill trim (see page 20-58).
3. Remove the bolt, and remove the lower roller plate (A) (manual sliding door) or stop spring (A) (power sliding door).

Fasterner Location

▶ : Bolt, 1

6 x 1.0 mm
8 N·m
(0.8 kgf·m,
6 lbf·ft)



4. Pull the sliding door backward fully.

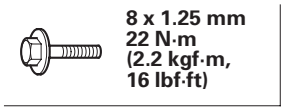
(cont'd)

Sliding Door Removal/Installation (cont'd)

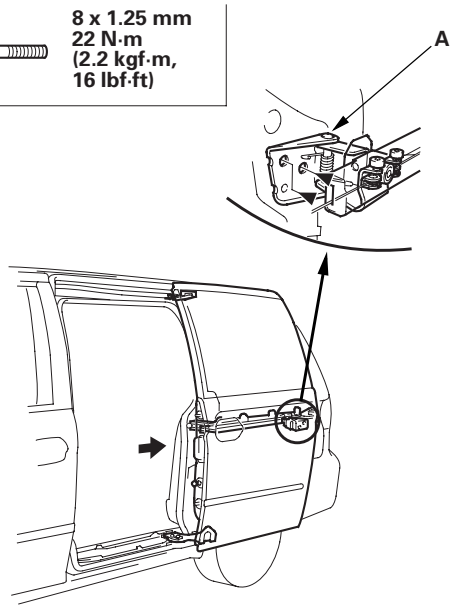
5. Remove the bolts securing the center roller (A) while holding the sliding door.

Fasterner Locations

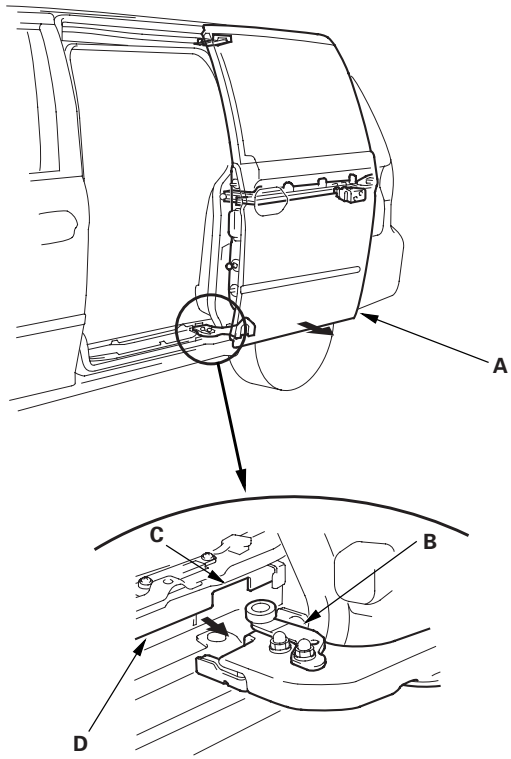
▶ : Bolt, 2



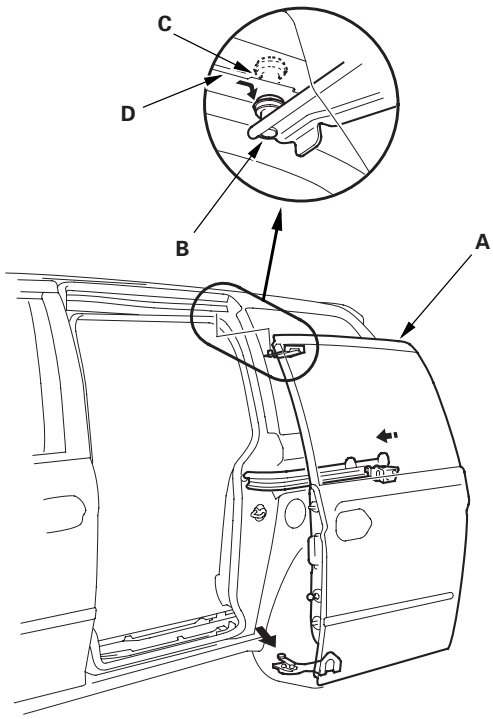
8 x 1.25 mm
22 N·m
(2.2 kgf·m,
16 lbf·ft)



6. Move the door (A) slightly until the lower roller subbase (B) lines up with the notch (C) in the lower rail (D). While holding the door, remove the lower roller subbase from the lower rail through the notch.



7. Hold the bottom of the door (A) away from the body, and gently slide it forward until the upper roller (B) lines up with the notch (C) in the upper rail (D). While holding the door, remove the upper roller from the upper rail through the notch.

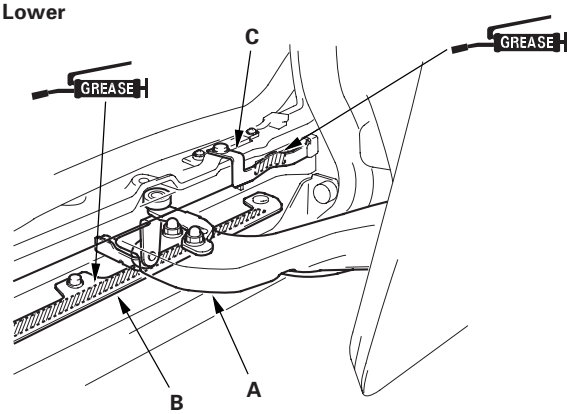


8. Remove the sliding door. Take care not to drop the door.

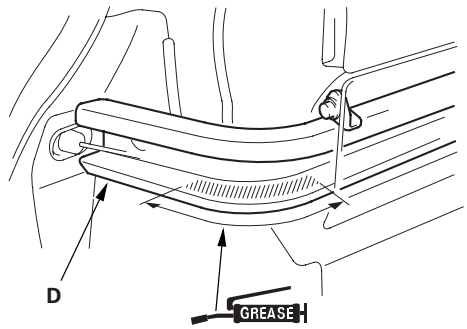
9. Install the door in the reverse order of removal, and note these items:

   - Clean the groove portion of each rail, and apply multipurpose grease to the lower roller (A) moving portion of the lower roller plate (B) and stop spring (C). If equipped with the power sliding door, apply multipurpose grease to the corner portion of the center rail (D), as shown.
   - Apply multipurpose grease evenly along the entire length of the lower roller plate (B).
   - Make sure the door opens properly and locks securely.
   - Check the door alignment, and if necessary, adjust it (see page 20-28).
   - Check for water leaks (see step 7 on page 20-23).

Lower



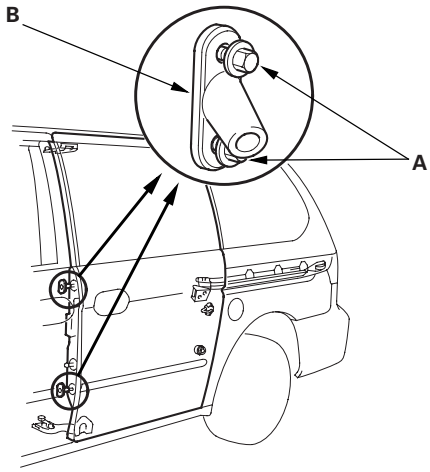
Center



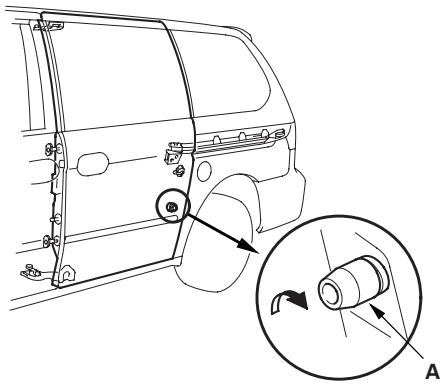
Sliding Door Position Adjustment

NOTE: For EX models, be sure to disable the power sliding door by turning the main switch off.

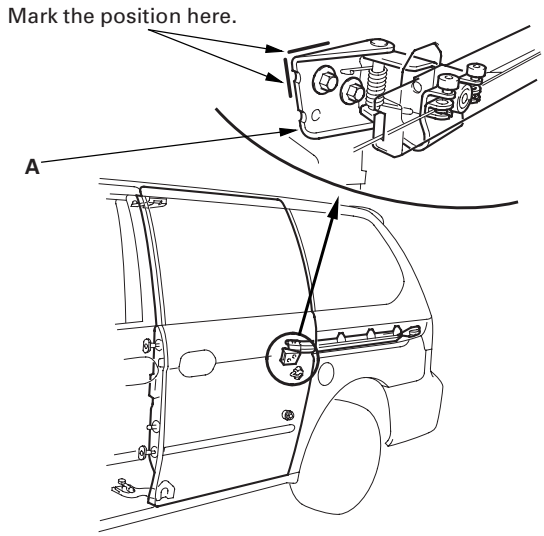
1. Loosen the bolts (A) on the door's female stops (B) enough to move the stops.



2. Turn the door cushion (A) clockwise as far as it will go.

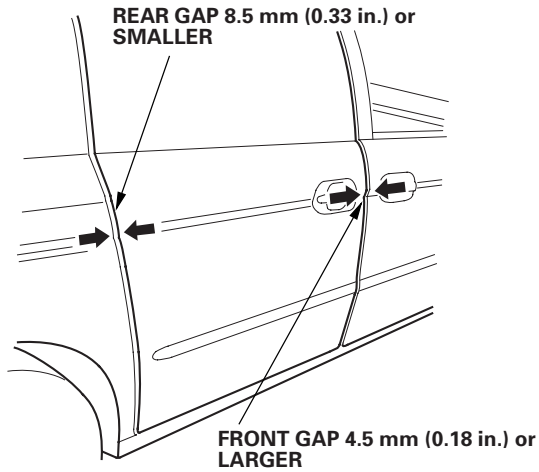


3. Mark the position of the center roller (A) with a permanent marker. This will help you gauge the amount of adjustment needed for the roller.

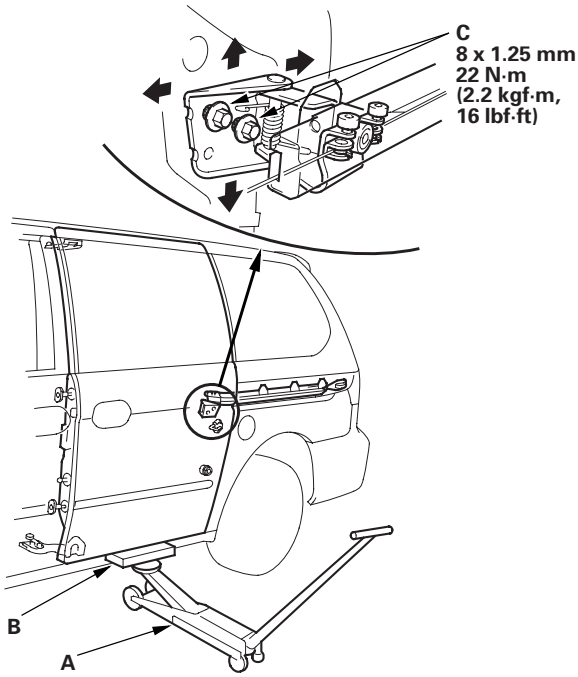


4. Close the sliding door fully, then inspect the gaps at the front and rear of the door. Also inspect the top to bottom position of the rear of the door, using the center body line as a reference.

   NOTE: For best junction switch contact, make the gap at the front of the door smaller than the rear gap. But don't make the front gap smaller than 4.5 mm (0.18 in.) or the rear gap larger then 8.5 mm (0.33 in.).

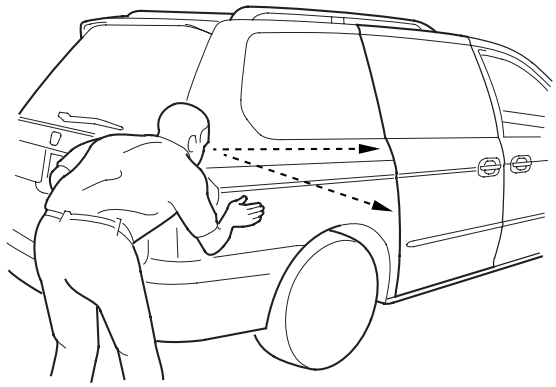


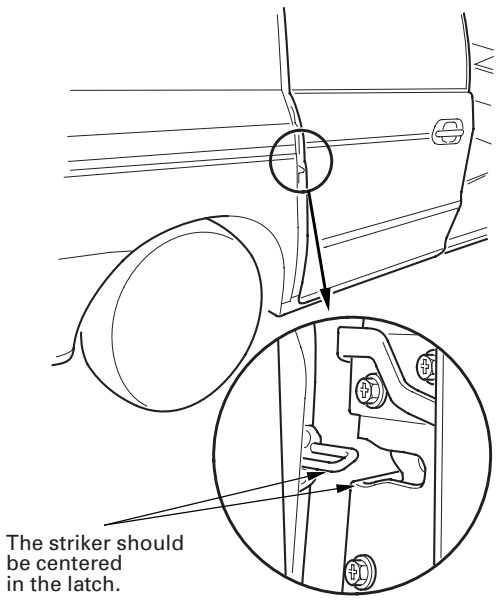
5. Support the door with a floor jack (A) and a block of wood (B), then loosen the center roller bolts (C).



6. To equalize the gaps between the door and the body, move the door forward or backward and up or down while keeping the center roller level. When you're finished with this adjustment, torque the center roller bolts.

7. Inspect the rear of the door for in or out overhang from the rear panel; it should overhang the panel about 0.5 mm (0.02 in.). Also inspect the position of the striker in the latch opening while you close the door; it should be centered up and down.

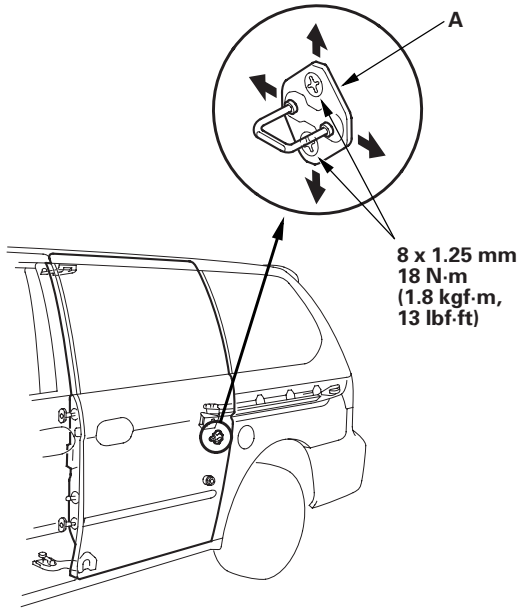




(cont'd)

Sliding Door Position Adjustment (cont'd)

8. Loosen the striker screws.

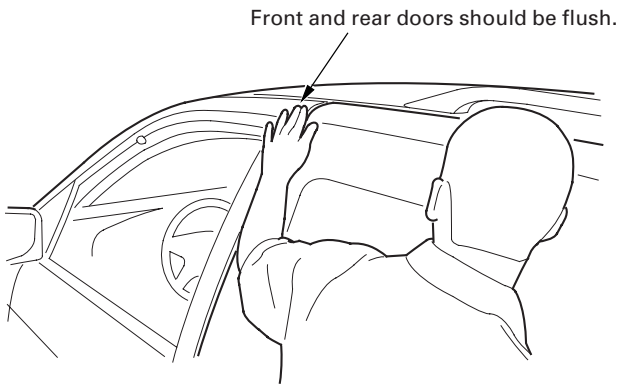


9. Adjust the striker (A) in or out to make the rear of the door overhang the rear panel about 0.5 mm (0.02 in.) (but not more than 1 mm (0.04 in.)). Then adjust the striker up or down to center it in the latch when the door closes. When you're finished with this adjustment, torque the striker screws to 18 N·m (1.8 kgf·m, 13 lbf·ft).

   NOTE: Make sure the striker is level after your adjustments.

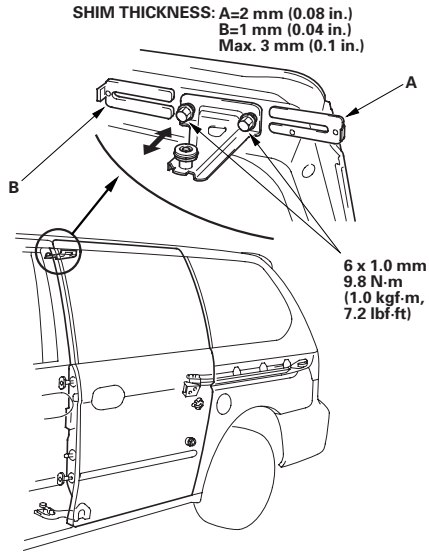
10. Close the sliding door, then check if it is flush with the front door.

    - If the sliding door is flush, go to step 12.
    - If the sliding door is not flush, go to step 11.



11. Loosen the upper roller bolts, then add or remove shims under the upper roller to make the sliding door flush with the body and the front door. Do not shim the door more than 3 mm. When you're finished with this adjustment, torque the upper roller bolts.

    NOTE: Adding or removing shims will change door flushness only at the upper front corner.



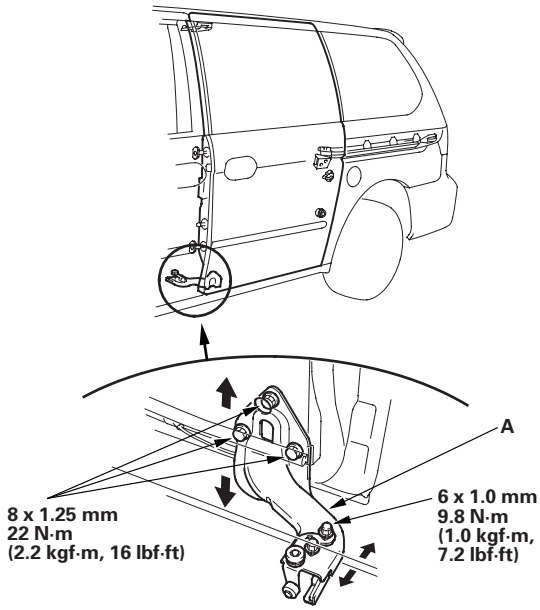
12. Open the front door on the side you're working on.

13. Check the tightness of the sliding door by vigorously pulling in and out on the leading edge, about 1/3 of the way up from the bottom. The door should fit tightly against the seals. Also inspect the top to bottom position at the front of the sliding door, using the center body line as a reference to the front door.

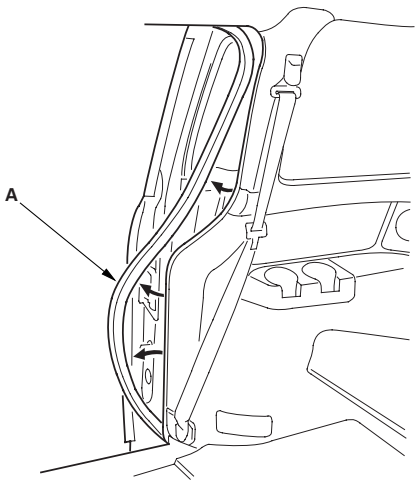
    - If the door does not fit tightly, go to step 14.
    - If the door fits tightly, go to step 15.

14. Loosen the three bolts on the lower roller (A). Move the door up or down to align the body lines and to provide good junction switch contact. Loosen the lower roller bottom nut to adjust the door in or out until the door is held tightly against the seals. When you're finished with this adjustment, torque the three top bolts, and torque the bottom nut.

    NOTE: For best junction switch contact, make sure there is minimal in and out movement at the front of the door while keeping the door flush to the body.

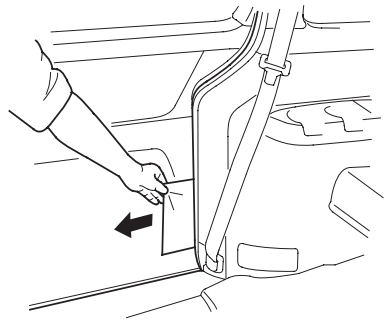


15. Remove the weatherstrip (A) from the rear edge of the door opening.



16. Turn on the power sliding door main switch.

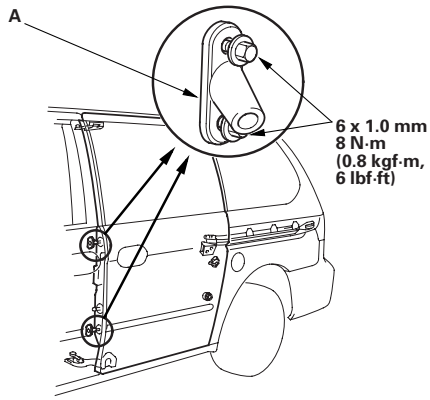
17. Hold a piece of paper over the door cushion, then close the door with the paper trapped between the cushion and the door. Make sure not to pinch the weatherstrip.



18. Pull out the paper.

    - If the paper is held tight, but you can pull it out without ripping it, go to step 19.
    - If the paper rips or is not held tight, adjust the door cushion until the paper is held tight but you can pull it out without ripping it. Then go to step 19.

19. Tighten the bolts on the female stops (A) to the point where the stops can move but will still hold their position.

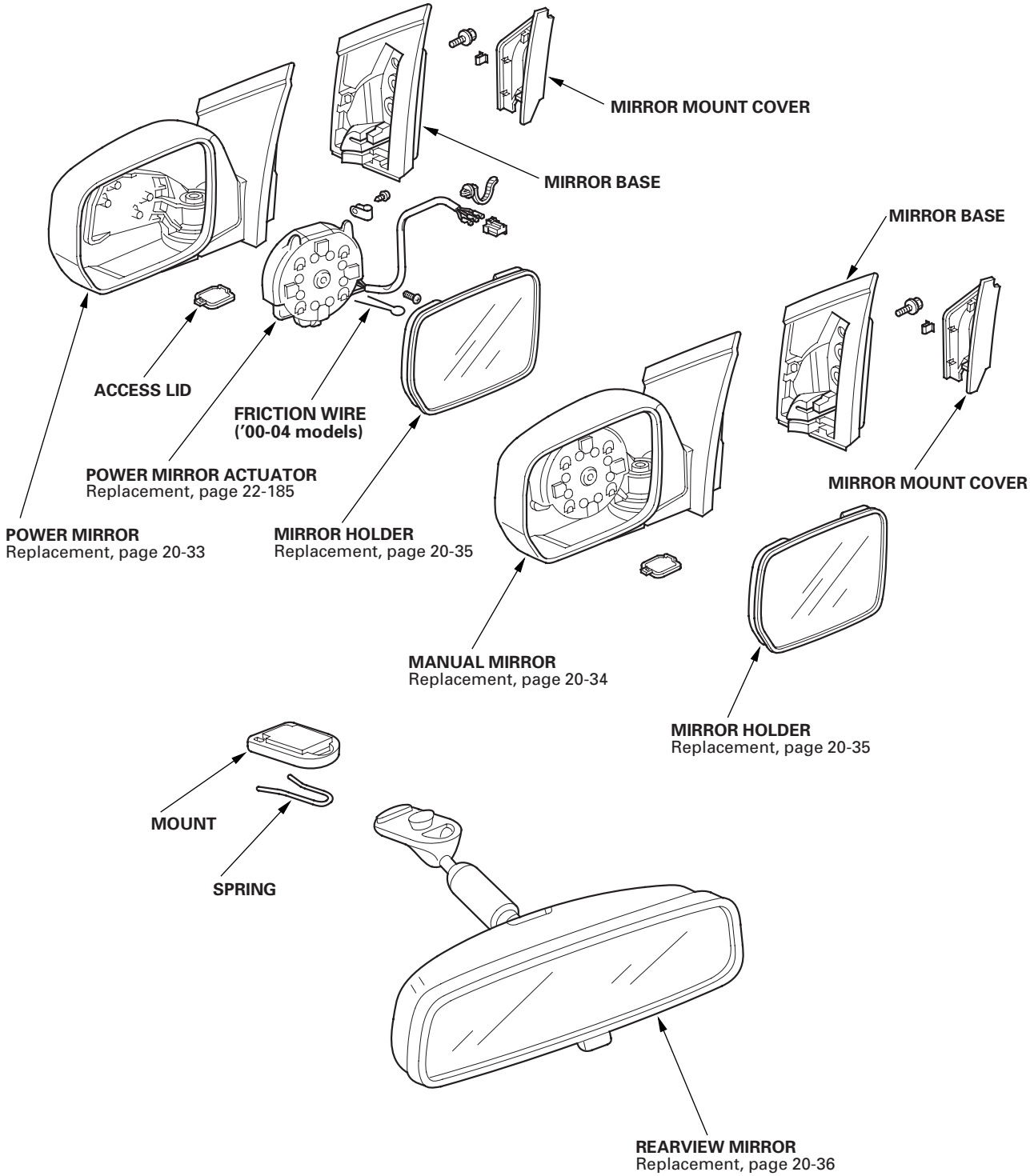


20. Close the sliding door, then open it.

21. Carefully tighten the stop bolts, alternating between the top and the bottom bolt, until all four bolts are torqued.

    NOTE: The stop will pivot if you apply too much torque to one bolt while the other is loose.

Component Location Index

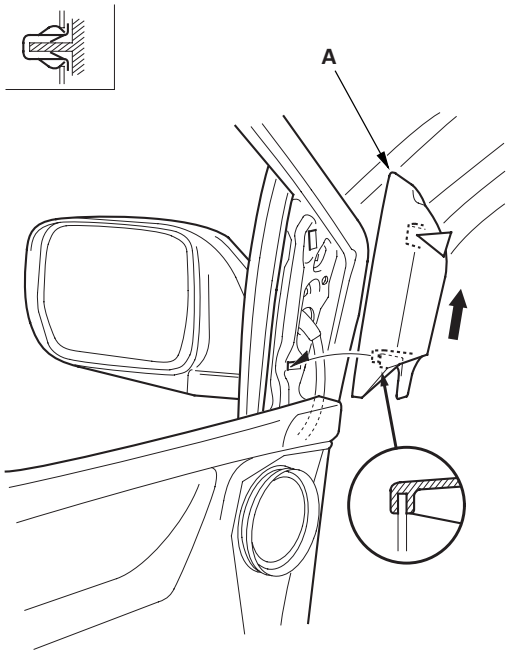


Power Mirror Replacement

1. Lower the door glass fully.
2. Carefully pry out the mirror mount cover (A) by hand as shown.

Fastener Location

▷ : Clip, 1

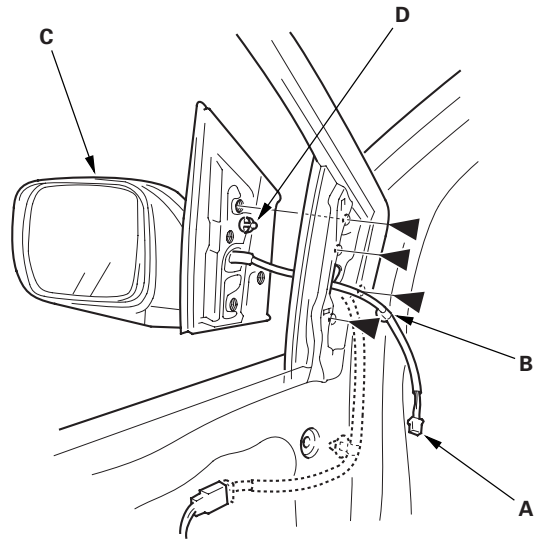


3. Remove the door panel (see page 20-7).
4. Disconnect the connector (A), and detach the harness clip (B), then remove the bolts securing the mirror. While holding the mirror (C), push out the clip (D), and remove the mirror. Take care not to scratch the door.

Fastener Locations

▶ : Bolt, 4

6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)



5. Install the power mirror in the reverse order of removal, and note these items:

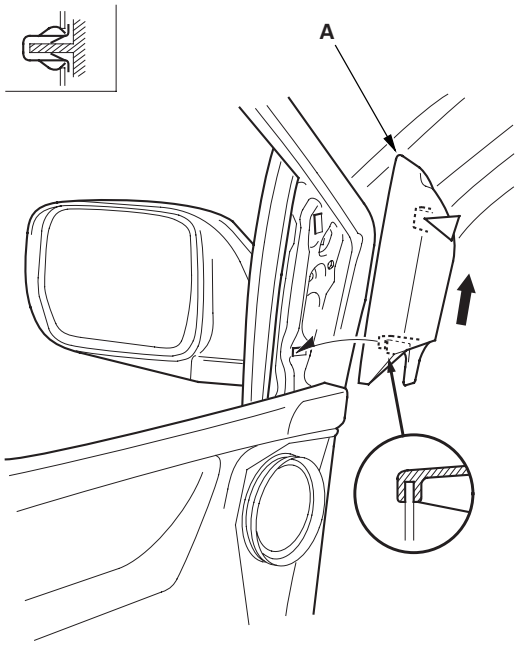
- Make sure the connector is plugged in properly.
- Attach the harness clip.
- Push the cover clip into place securely.

Manual Mirror Replacement

1. Lower the door glass fully.
2. Carefully pry out the mirror mount cover (A) by hand as shown.

Fastener Location

▷ : Clip, 1

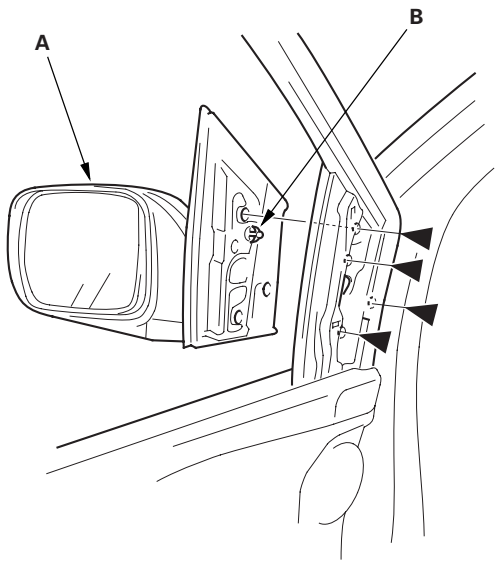


3. Remove the bolts securing the mirror. While holding the mirror (A), push out the clip (B), and remove the mirror. Take care not to scratch the door.

Fastener Locations

▶ : Bolt, 4

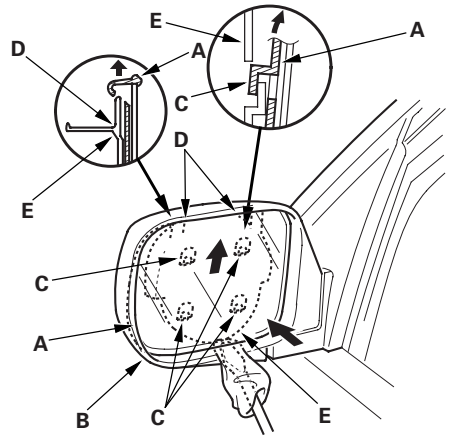
6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)



4. Install the manual mirror in the reverse order of removal, and push the cover clip into place securely.

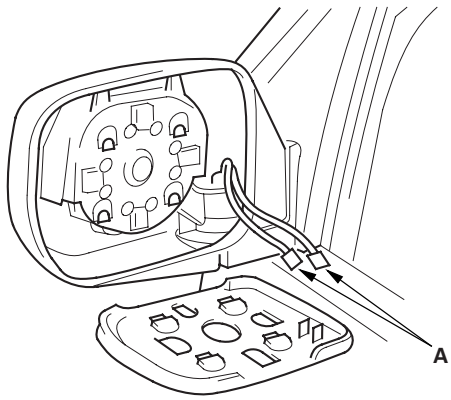
Mirror Holder Replacement

1. Push in the bottom of the mirror holder (A).



2. Insert a flat-tip screwdriver wrapped with a shop towel at the bottom gap between the mirror holder and mirror (B). Push the mirror holder upward to release the hooks (C, D) from the actuator adapter plate (E) while holding the mirror holder.

3. If equipped, disconnect the mirror defogger terminals (A).

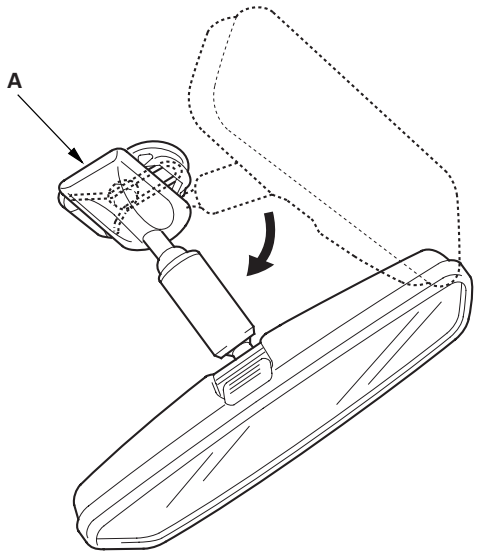


4. Install the mirror holder in the reverse of the removal, and note these items:

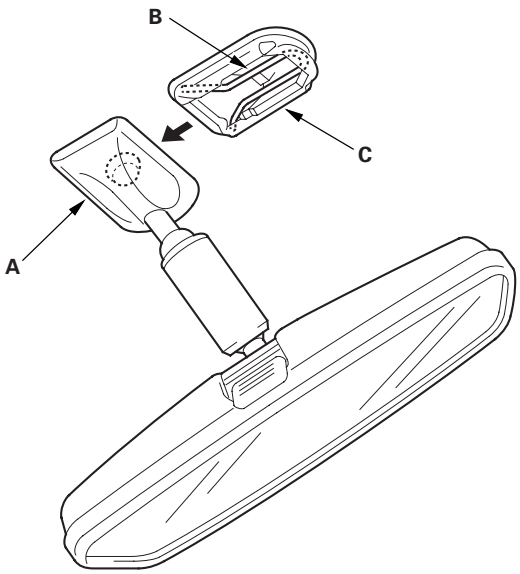
   - If equipped, make sure the terminals are plugged in properly.
   - Push the mirror holder downward to lock in the hooks.
   - Push in the bottom of the mirror fully before you push on the mirror holder.
   - Check the operation of the actuator.

Rearview Mirror Replacement

1. Turn the rearview mirror base (A) 90°.

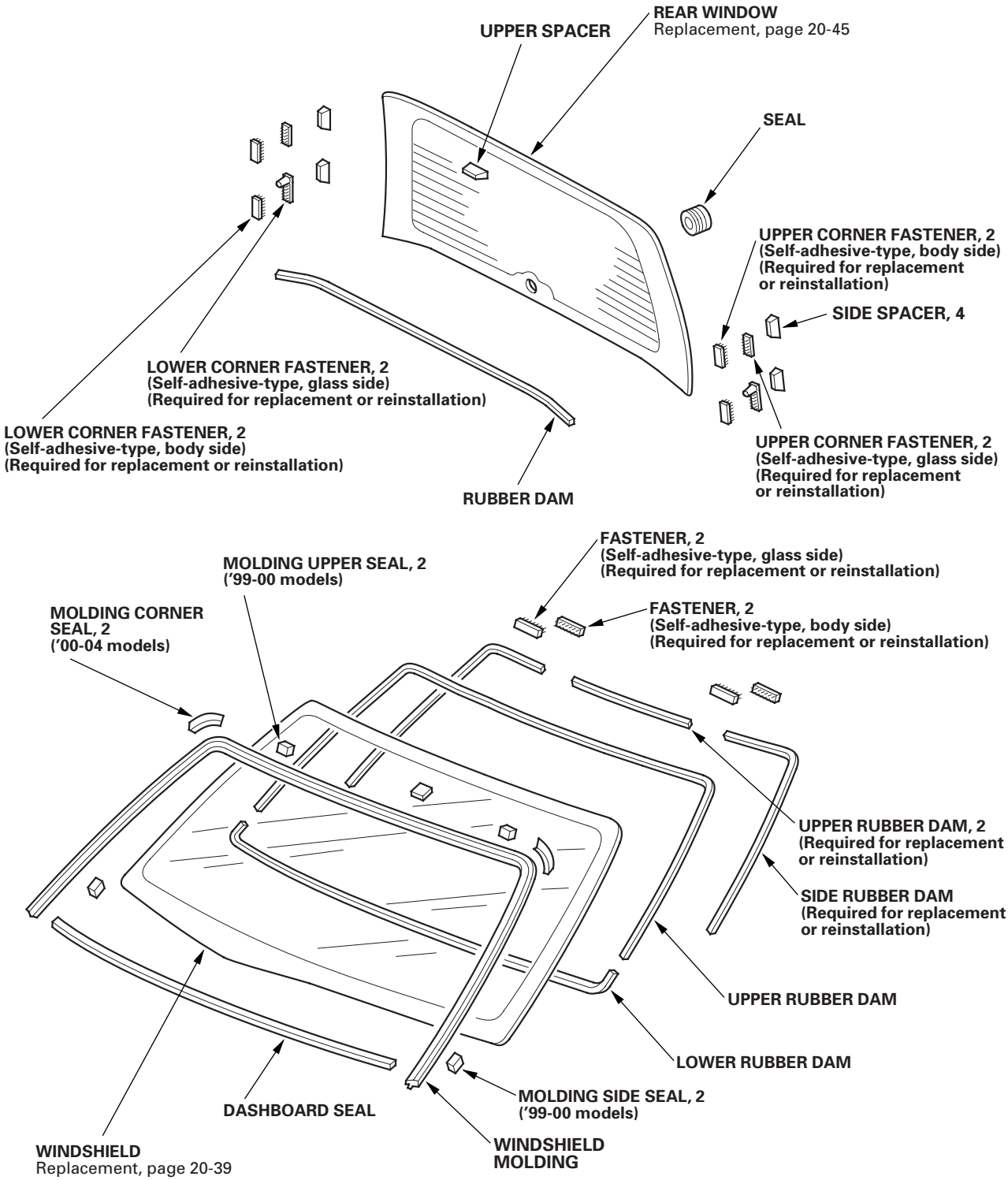


2. Slide the rearview mirror (A) down toward the bottom of the windshield to detach it from the spring (B) in the mount (C).

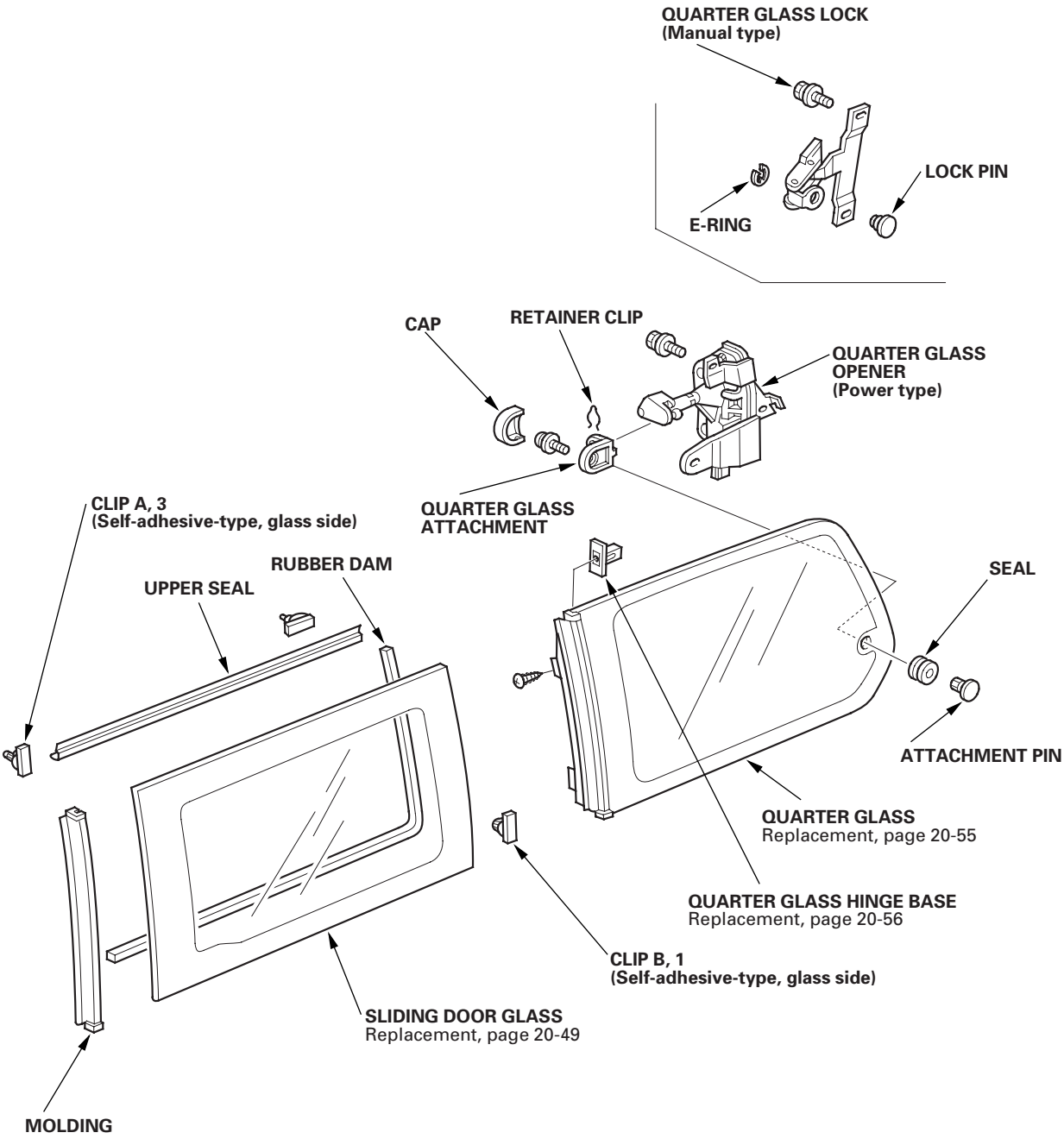


3. If necessary, remove the spring from the mount.
4. Install the rearview mirror in the reverse order of removal.

Component Location Index - Windshield-Rear Window



Component Location Index - Sliding Door Glass-Quarter Glass

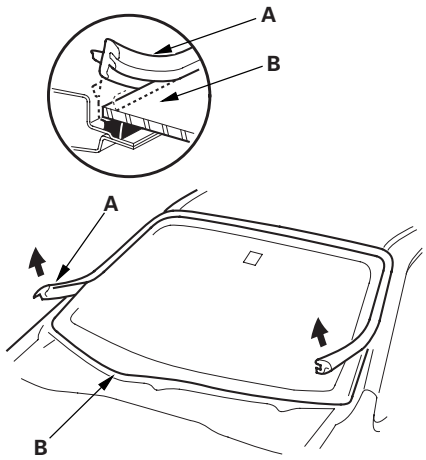


Windshield Replacement

NOTE:
- Put on gloves to protect your hands.
- Use seat covers to avoid damaging any surfaces.
- Wear eye protection while cutting the glass adhesive with piano wire.

1. Remove these items:
   - Rearview mirror (see page 20-36)
   - Windshield wiper arms and cowl cover (see page 22-231)

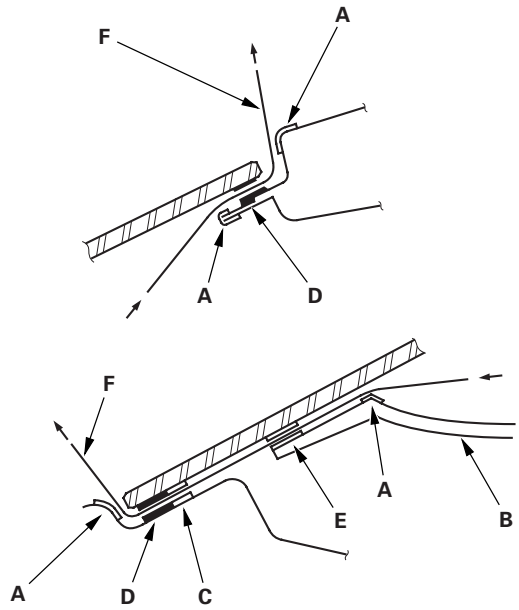
2. Remove the molding (A) from the edge of the windshield (B). If necessary, cut the molding with a utility knife.



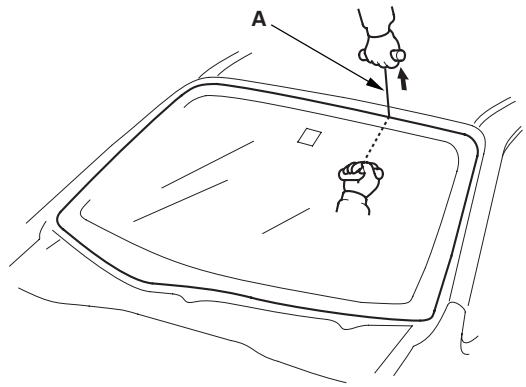
3. If the old windshield will be reinstalled, make alignment marks across the glass and body with a grease pencil.

4. Pull down the front portion of the headliner (see page 20-62). Take care not to bend the headliner excessively, or you may crease or break it.

5. Apply protective tape (A) along the edge of the dashboard (B) and body as shown. Using an awl, make a hole through the rubber dam (C), adhesive (D), and dashboard seal (E) from inside the vehicle. Push a piece of piano wire (F) through the hole, and wrap each end around a piece of wood.



6. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the windshield as possible to prevent damage to the body and dashboard. Carefully cut through the rubber dam and adhesive around the entire windshield.



7. Carefully remove the windshield.

(cont'd)

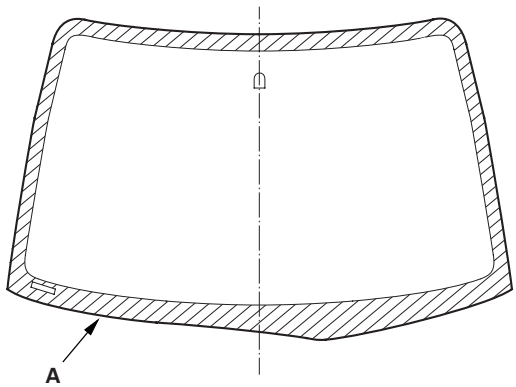
Windshield Replacement (cont'd)

8. With a knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire windshield opening flange:

   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove the rubber dam and fasteners from the body.

9. Clean the body bonding surface with a sponge dampened in alcohol. After cleaning, keep oil, grease and water from getting on the clean surface.

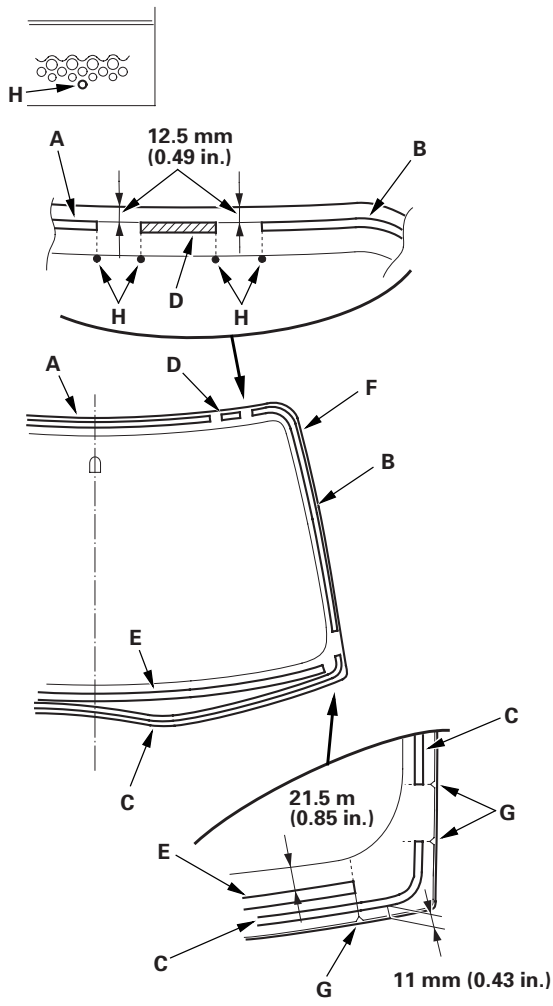
10. If the old windshield will be reinstalled, use a putty knife to scrape off all of the old adhesive, the rubber dam and the dashboard seal, from the windshield. Clean the shaded portion of the windshield (A) with alcohol where new adhesive will be applied. Make sure the bonding surface is kept free of water, oil and grease.



11. Attach the upper rubber dam (A), side rubber dam (B), and lower rubber dam (C) with adhesive tape (NITTO 501M, or equivalent). Attach the fasteners (D) with adhesive tape (3M 4215, or equivalent) and dashboard seal (E) to the inside face of the windshield (F) as shown:

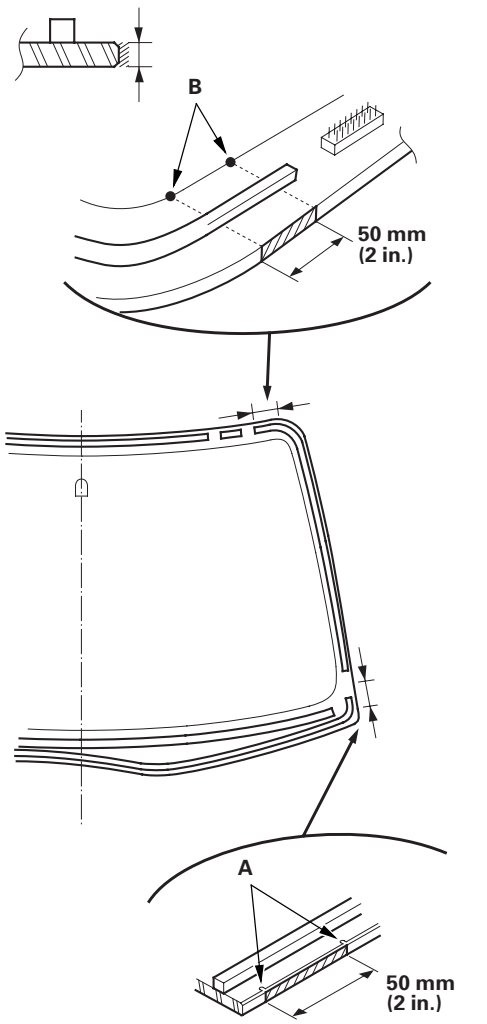
    - Be sure the side rubber dam, lower rubber dam and dashboard seal line up with the alignment marks (G).
    - Be sure the fasteners, upper rubber dam and the upper side of the side rubber dam line up with the alignment dots (H).
    - Be careful not to touch the windshield where adhesive will be applied.

Alignment dot location



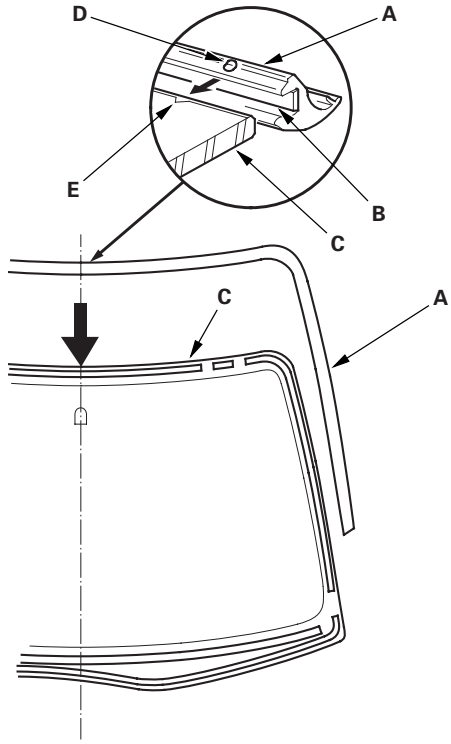
12. Apply primer (3M N-200, or equivalent) to the areas between the alignment marks (A) and alignment dots (B) to the edge of the windshield. Be careful not to touch the windshield where adhesive will be applied.

: **Apply primer here.**



13. Attach the molding (A) with adhesive tape (B) (3M 4212, or equivalent) to the edge of the windshield (C):

- Be sure the alignment mark (D) of the molding lines up with the alignment mark (E) of the windshield.
- Be careful not to touch the windshield where adhesive will be applied.

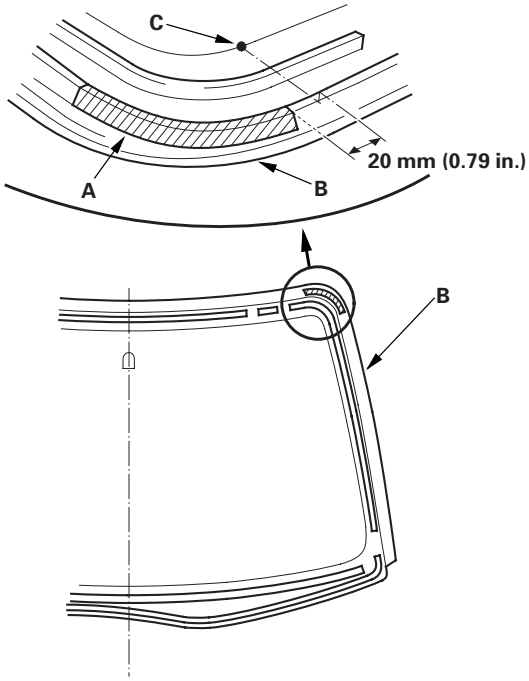


(cont'd)

Windshield Replacement (cont'd)

14. Attach the molding corner seal (A) to the inside surface of the molding (B) as shown:

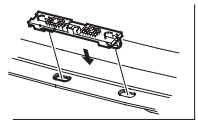
    - Be sure the molding upper seal and molding side seal line up with the alignment dots (C).
    - Be careful not to touch the windshield where adhesive will be applied.

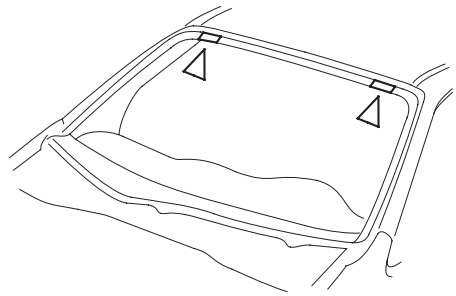


15. Install the fasteners to the body.

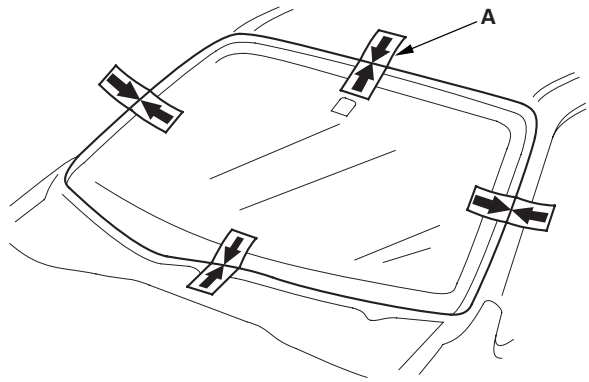
Fastener Locations

▷ : **Fastener, 2**





16. Set the windshield in the opening, and center it. Make alignment marks (A) across the windshield and body with a grease pencil at the four points shown. Be careful not to touch the windshield where adhesive will be applied.

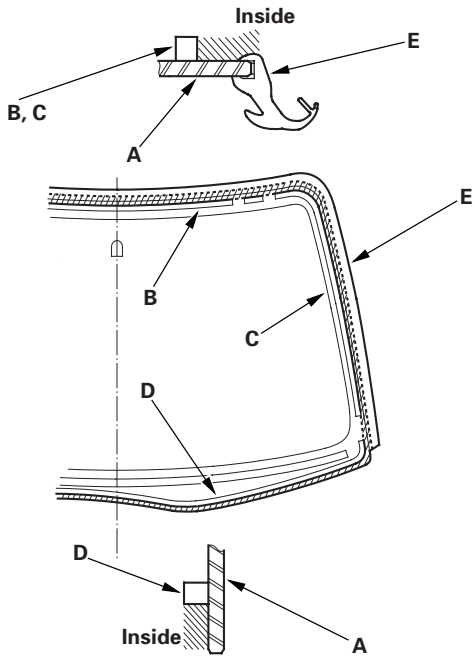


17. Remove the windshield.

18. With a sponge, apply a light coat of glass primer around the edge of the windshield (A) between the upper rubber dam (B), side rubber dam (C), lower rubber dam (D) and molding (E) as shown, then lightly wipe it off with gauze or cheesecloth:

    - Apply glass primer to the molding.
    - Do not apply body primer to the windshield, and do not get body and glass primer sponges mixed up.
    - Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the windshield properly, causing a leak after the windshield is installed.
    - Keep water, dust, and abrasive materials away from the primed surface.

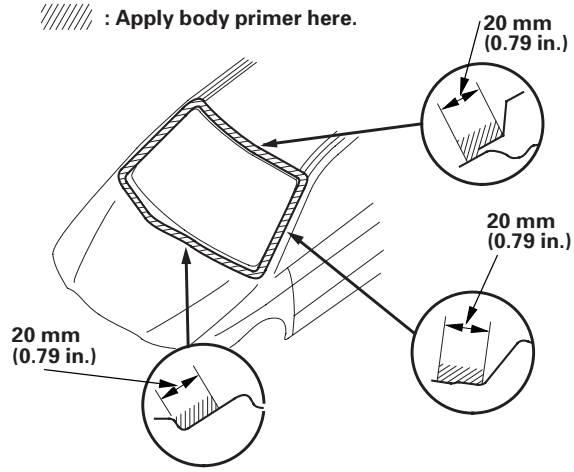
    : **Apply glass primer here.**



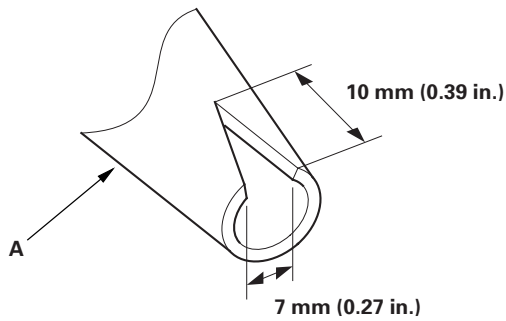
19. With a sponge, apply a light coat of body primer to the original adhesive remaining around the windshield opening flange. Let the body primer dry for at least 10 minutes:

    - Do not apply glass primer to the body, and be careful not to mix up glass and body primer sponges.
    - Never touch the primed surfaces with your hands.
    - Mask off the dashboard before priming the flange.

    : **Apply body primer here.**



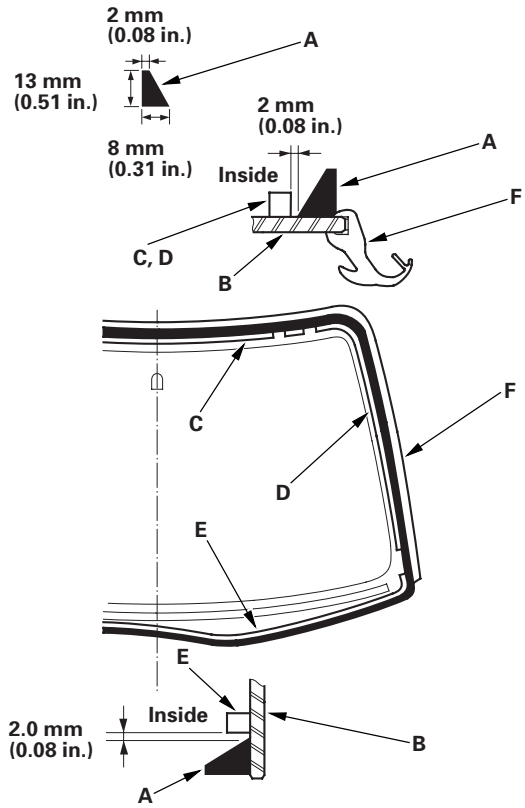
20. Before filling a cartridge with adhesive, cut a ''V'' in the end of the nozzle (A) as shown.



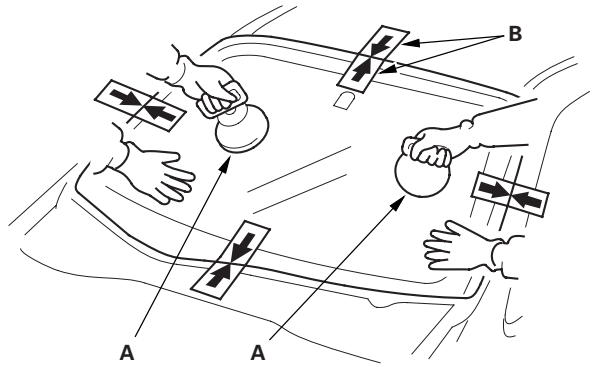
(cont'd)

Windshield Replacement (cont'd)

21. Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of adhesive (A) around the edge of the windshield (B) between the upper rubber dam (C), side rubber dam (D), lower rubber dam (E) and molding (F) as shown. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.



22. Use suction cups (A) to hold the windshield over the opening, align it with the alignment marks (B) made in step 16, and set it down on the adhesive. Lightly push on the windshield until its edges are fully seated on the adhesive all the way around. Do not open or close the doors until the adhesive is dry.



23. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the windshield, wipe with a soft shop towel dampened with alcohol.

24. Let the adhesive dry for at least 1 hour, then spray water over the windshield and check for leaks. Mark leaking areas, and let the windshield dry, then seal with sealant:

    - Let the vehicle stand for at least 4 hours after windshield installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.
    - Keep the windshield dry for the first hour after installation.

25. Reinstall all remaining removed parts. Install the rearview mirror after the adhesive has dried thoroughly.

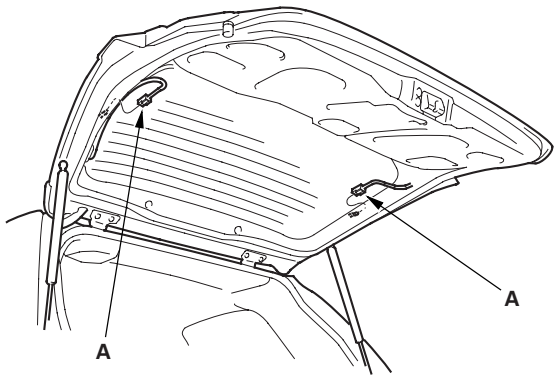
    NOTE: Advise the customer not to do the following things for 2 to 3 days:
    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

Rear Window Replacement

NOTE:
- Put on gloves to protect your hands.
- Use seat covers to avoid damaging any surfaces.
- Wear eye protection while cutting the glass adhesive with piano wire.
- Do not damage the rear window defogger grid lines and terminals.

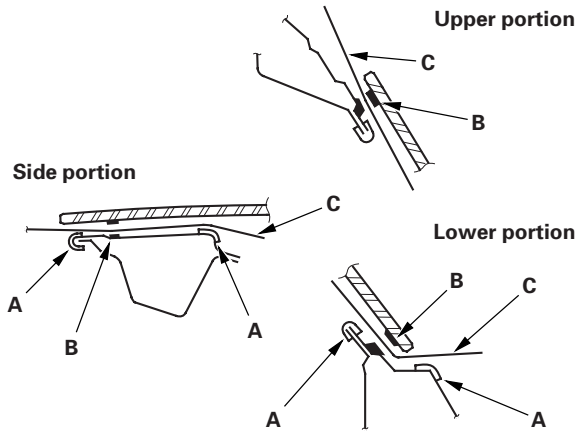
1. Remove these items:
   - Tailgate trim panel (see page 20-61)
   - Tailgate spoiler (see page 20-140)
   - Rear window wiper motor (see page 22-232)

2. Disconnect the rear window defogger connectors (A).

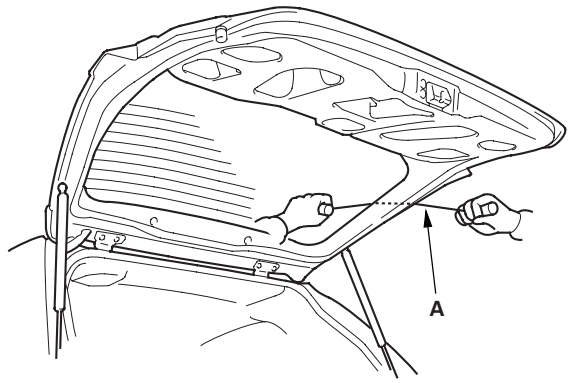


3. If the old rear window will be reinstalled, make alignment marks across the glass and body with a grease pencil.

4. Apply protective tape (A) along the inside and outside edges of the tailgate as shown. Using an awl, make a hole through the adhesive (B) from inside the vehicle. Push the piano wire (C) through the hole, and wrap each end around a piece of wood.



5. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the rear window as possible to prevent damage to the tailgate, and carefully cut through the adhesive around the entire rear window.



6. Carefully remove the rear window.

(cont'd)

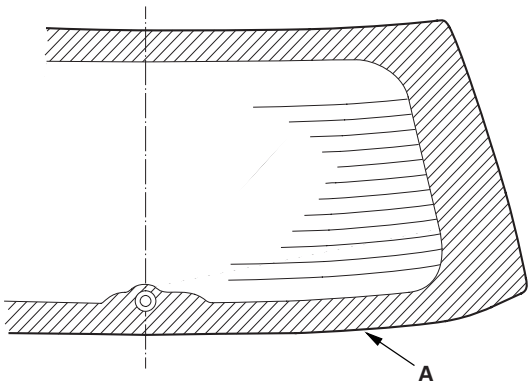
Rear Window Replacement (cont'd)

7. With a putty knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire rear window opening flange:

   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove the fasteners from the tailgate.

8. Clean the tailgate bonding surface with a sponge dampened in alcohol. After cleaning, keep oil, grease and water from getting on the surface.

9. If the old rear window will be reinstalled, use a putty knife to scrape off all of the old adhesive and rubber dam from the rear window. Clean the shaded portion of the rear window (A) with alcohol where new adhesive is to be applied. Make sure the bonding surface is kept free of water, oil and grease.

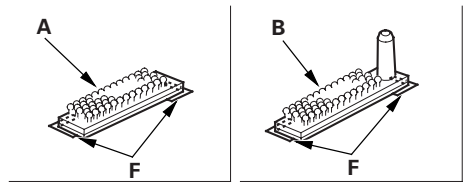


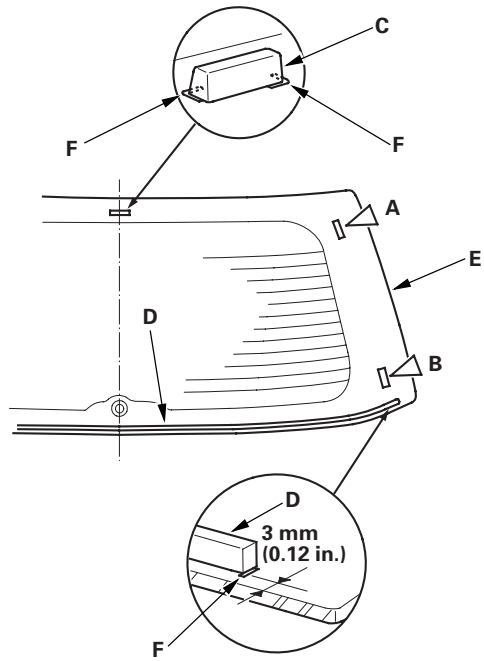
10. Attach the upper corner fasteners (A) and lower corner fasteners (B) with adhesive tape (3M 5312, or equivalent). Attach the upper spacer (C) and lower rubber dam (D) with adhesive tape (NITTO 501M, or equivalent) to the inside surface of the rear window (E) as shown:

   - Be sure the fasteners, upper spacer and rubber dam line up with alignment marks (F).
   - Be careful not to touch the rear window where adhesive will be applied.

Fastener Locations

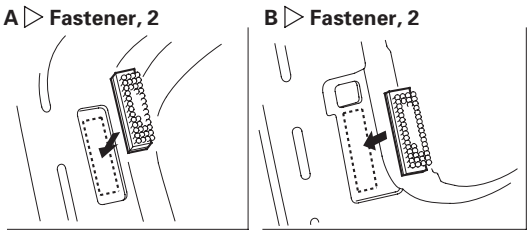
A ▷ : Fastener, 2 **B ▷ : Fastener, 2**

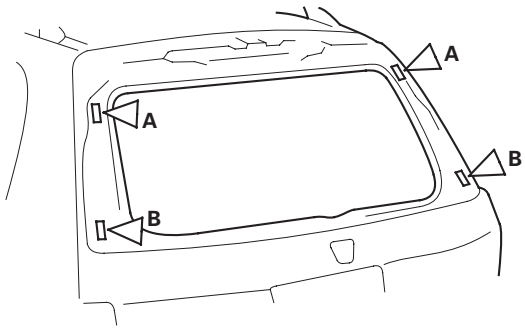




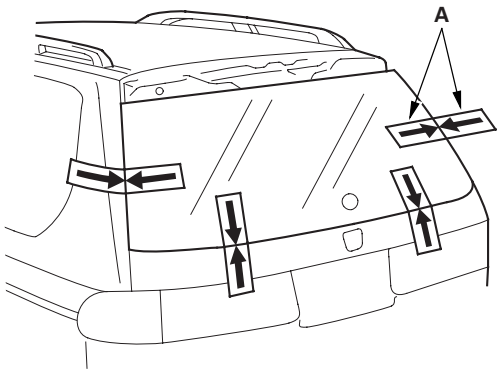
11. Attach the upper corner fasteners (A) and lower corner fasteners (B) with adhesive tape (3M 5312, or equivalent) to the tailgate as shown.

Fastener Locations





12. Set the rear window in the opening, and center it. Make alignment marks (A) across the rear window, tailgate and body with a grease pencil at the four points shown. Be careful not to touch the rear window where adhesive will be applied.

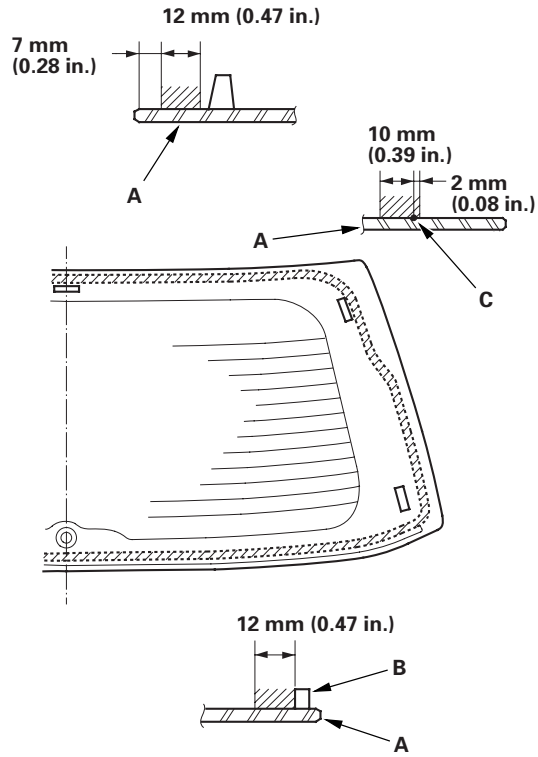


13. Remove the rear window.

14. With a sponge, apply a light coat of glass primer along the edge of the rear window (A) lower rubber dam (B) as shown, then lightly wipe it off with gauze or cheesecloth:

- With the printed dots (C) on the rear window as a guide, apply the glass primer to both side portions of the rear window.
- Do not apply body primer to the rear window, and do not get tailgate and glass primer sponges mixed up.
- Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the rear window properly, causing a leak after the rear window is installed.
- Keep water, dust, and abrasive materials away from the primed surface.

: **Apply glass primer here.**



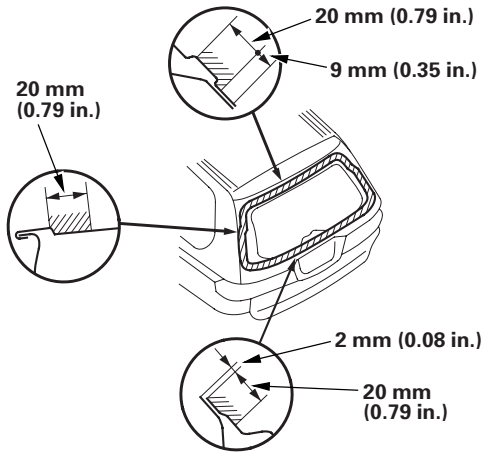
(cont'd)

Rear Window Replacement (cont'd)

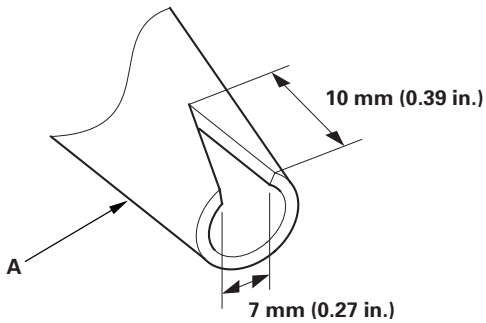
15. With a sponge, apply a light coat of body primer to the original adhesive remaining around the rear window opening flange. Let the body primer dry for at least 10 minutes:

    - Do not apply glass primer to the body, and be careful not to mix up glass and body primer sponges.
    - Never touch the primed surfaces with your hands.

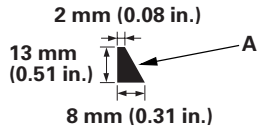
    : **Apply body primer here.**

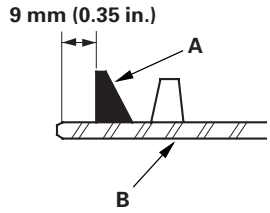


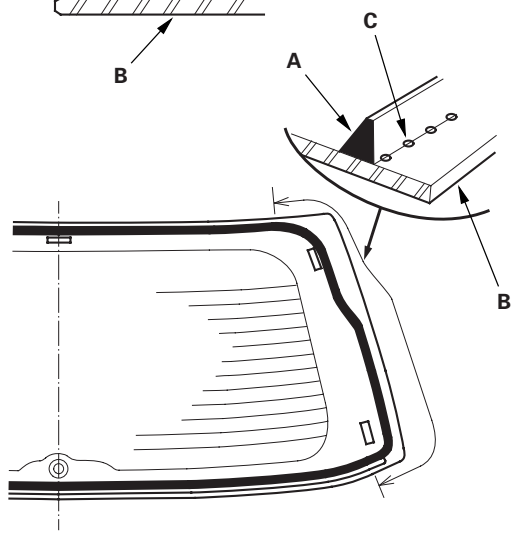
16. Before filling a cartridge with adhesive, cut a ''V'' in the end of the nozzle (A) as shown.

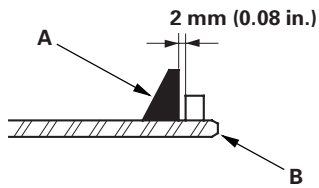


17. Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of adhesive (A) around the edge of the rear window (B) as shown. With the printed dots (C) on the rear window as a guide, apply the adhesive to both side portions of the rear window.
    Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.

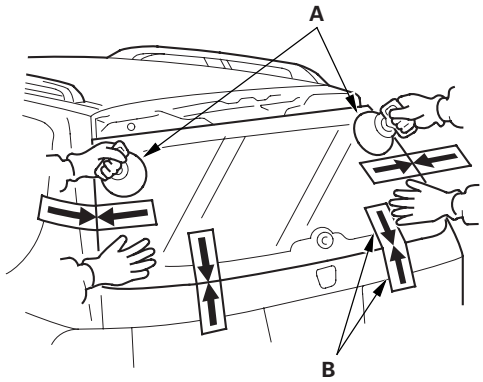








18. Use suction cups (A) to hold the rear window over the opening, align it with the alignment marks (B) you made in step 12, and set it down on the adhesive. Lightly push on the rear window until its edges are fully seated on the adhesive all the way around. Do not open or close the doors until the adhesive is dry.



19. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the rear window, use a soft shop towel dampened with alcohol.

20. Let the adhesive dry for at least 1 hour, then spray water over the rear window and check for leaks. Mark the leaking areas, let the rear window dry, then seal with sealant. Let the vehicle stand for at least 4 hours after rear window installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.

21. Reinstall all remaining removed parts.

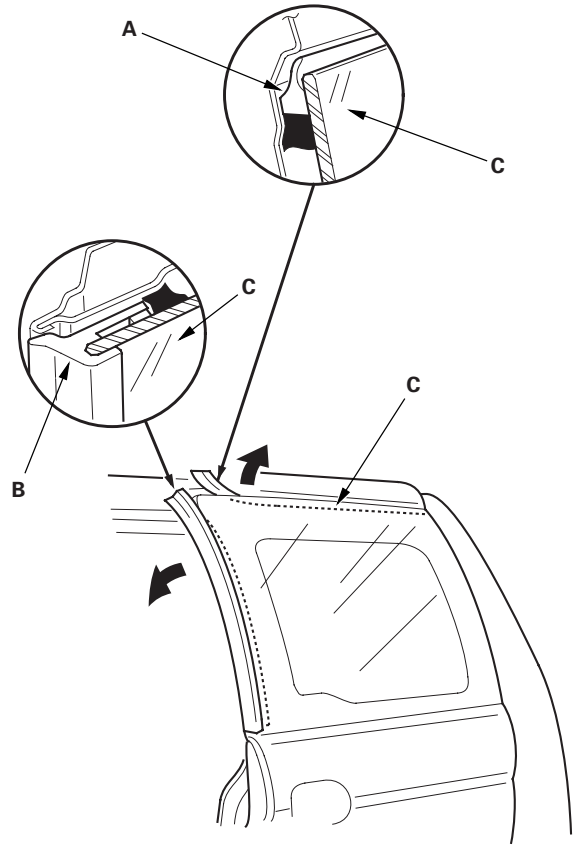
    NOTE: Advise the customer not to do the following things for 2 to 3 days:
    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

Sliding Door Glass Replacement

NOTE:
- Put on gloves to protect your hands.
- Use seat covers to avoid damaging any surfaces.
- Wear eye protection while cutting the glass adhesive with piano wire.

1. Remove the sliding door panel (see page 20-13).

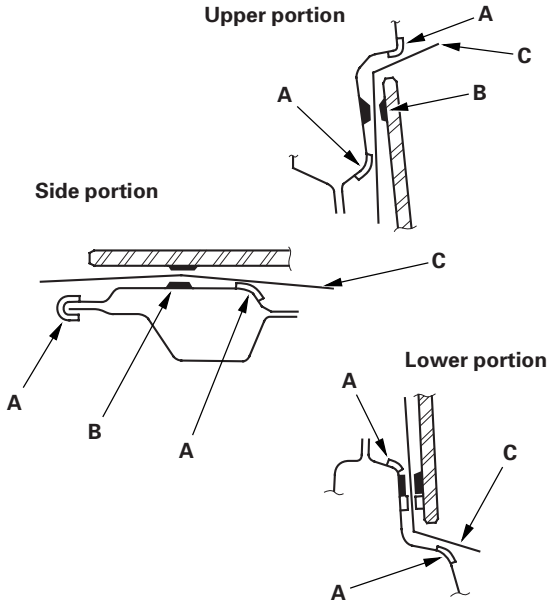
2. Remove the upper seal (A) and molding (B) from the edge of the glass (C). If necessary, cut the upper seal and molding with a utility knife.



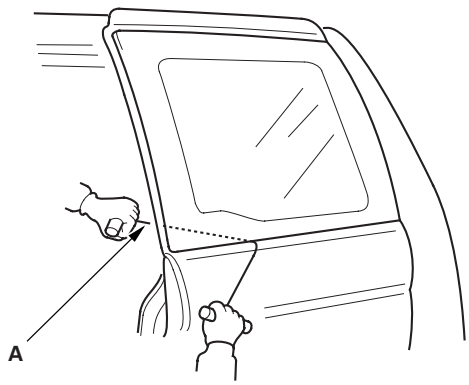
(cont'd)

Sliding Door Glass Replacement (cont'd)

3. Apply protective tape (A) along the inside and outside edges of the sliding door as shown. Using an awl, make a hole through the adhesive (B) from inside the vehicle. Push a piece of piano wire (C) through the hole, and wrap each end around a piece of wood.



4. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the sliding door glass as possible to prevent damage to the sliding door, and carefully cut through the adhesive around the entire sliding door glass.



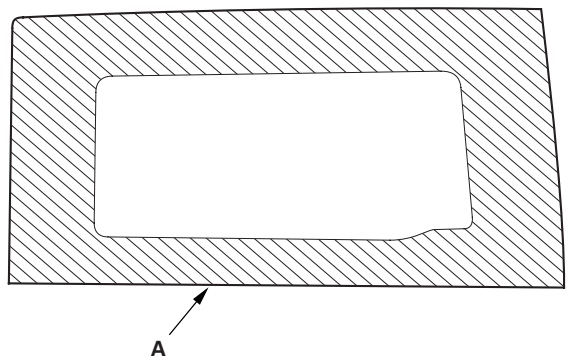
5. Carefully remove the sliding door glass.

6. With a putty knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire sliding door glass opening flange:

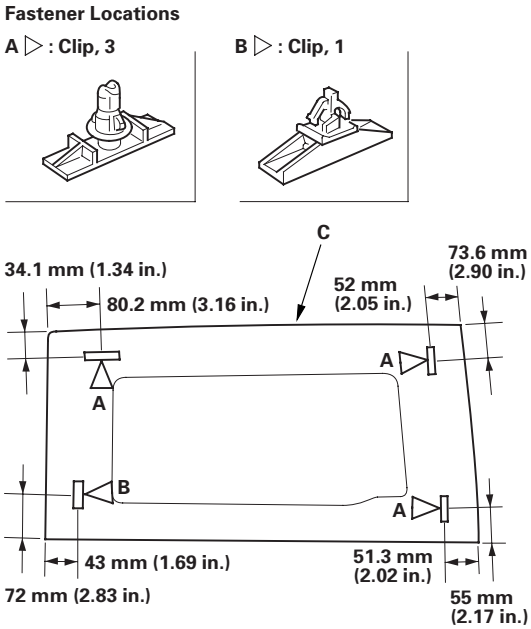
   - Do not scrape down to the painted surface of the sliding door; damaged paint will interfere with proper bonding.
   - Remove the fasteners from the sliding door.

7. Clean the sliding door bonding surface with a sponge dampened in alcohol. After cleaning, keep oil, grease and water from getting on the surface.

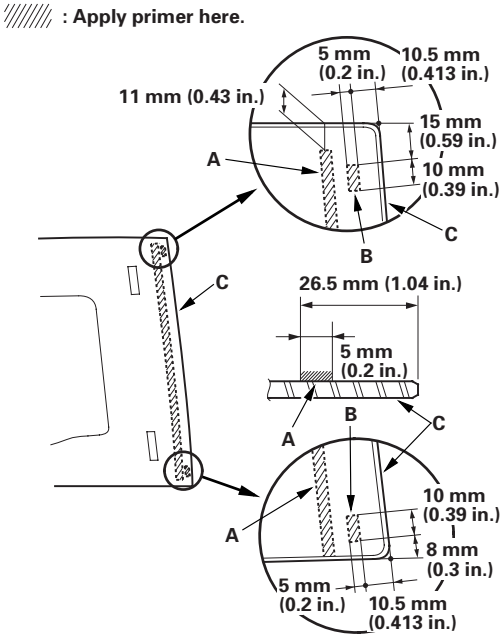
8. If the old door glass will be reinstalled, use a putty knife to scrape off all of the old adhesive and the rubber dam from the glass. Clean the shaded portion of the glass (A) with alcohol where new adhesive will be applied. Make sure the bonding surface is kept free of water, oil and grease.



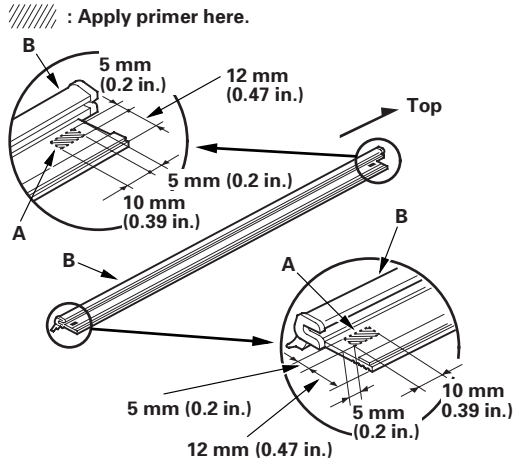
9. Attach the clip (A) and clip (B) with adhesive tape (3M 4215, or equivalent) to the inside surface of the glass (C) as shown. Be careful not to touch the glass where adhesive will be applied.



10. Apply primer (3M C-100, or equivalent) to the molding tape area (A) and glass primer to the adhesive areas (B) on the inside surface of the glass (C) as shown.

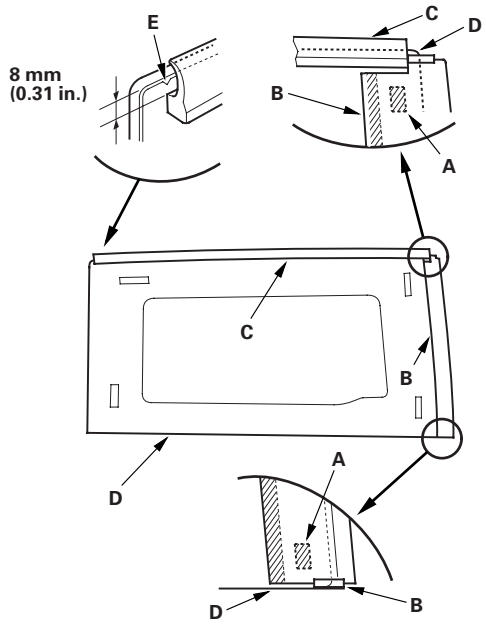


11. Apply primer to the areas (A) on each end of the molding (B).



12. Apply adhesive to the primed areas (A) on the inside surface of the glass, then attach the molding (B) with adhesive tape (3M 4211, or equivalent), and attach upper seal (C) with adhesive tape (NITTO 501M, or equivalent) to the inside surface of the glass (D) as shown:

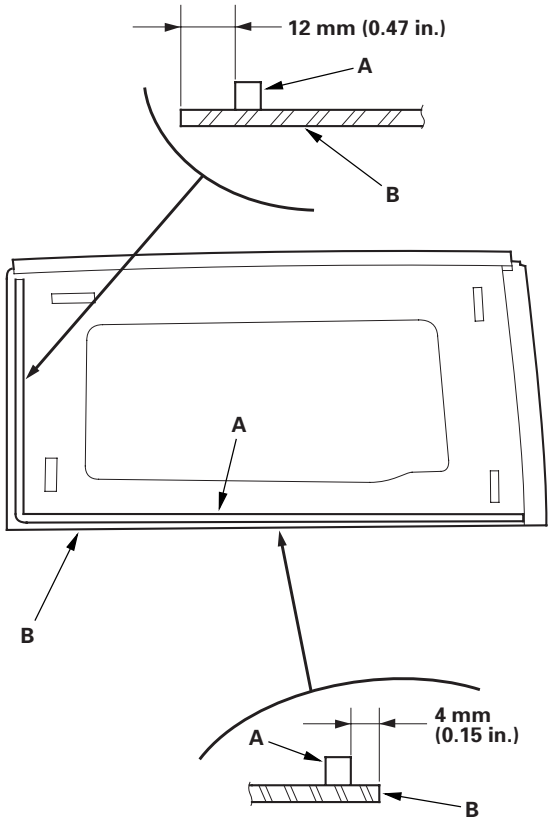
- Be sure the glass and molding line up with the lower edge, and the upper seal lines up the alignment mark (E).
- Be careful not to touch the glass where adhesive will be applied.



(cont'd)

Sliding Door Glass Replacement (cont'd)

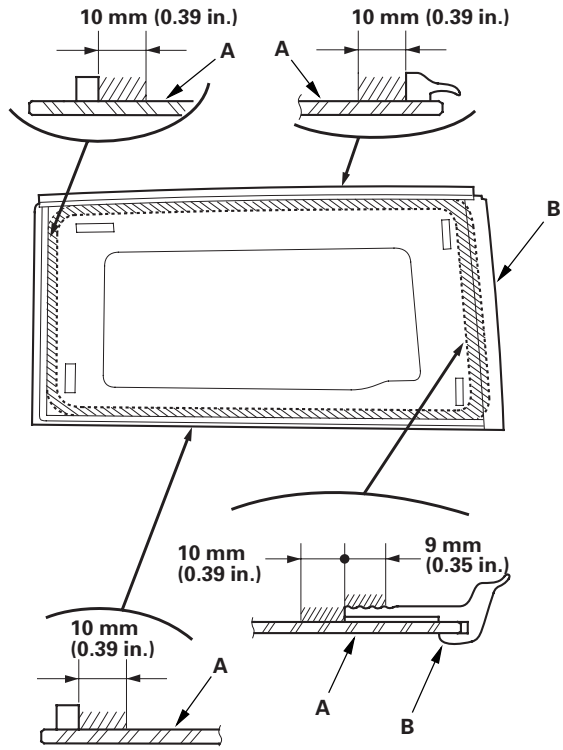
13. Attach the rubber dam (A) with adhesive tape (NITTO 501M, or equivalent) to the inside surface of the glass (B) as shown. Be careful not to touch the glass where adhesive will be applied.



14. With a sponge, apply a light coat of glass primer along the edge of the glass (A) and molding (B) as shown, then lightly wipe it off with gauze or cheesecloth:

- Do not apply body primer to the sliding door glass, and do not get body and glass primer sponges mixed up.
- Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the sliding door glass properly, causing a leak after the sliding door glass is installed.
- Keep water, dust, and abrasive materials away from the primed surface.

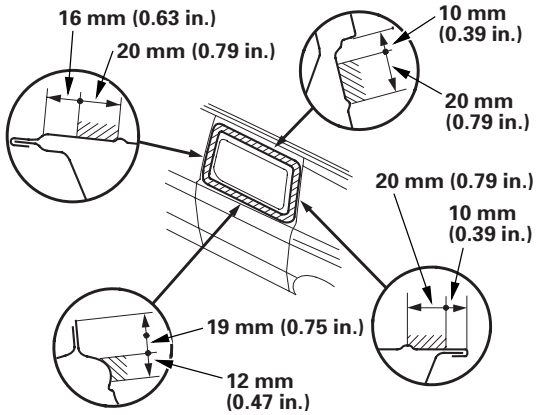
: **Apply glass primer here.**



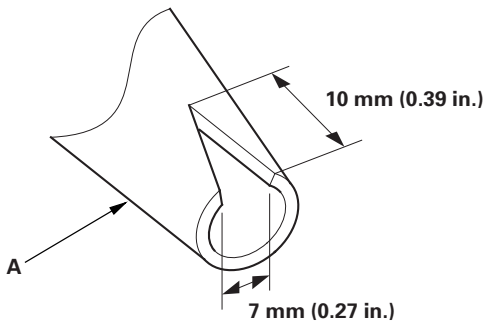
15. With a sponge, apply a light coat of body primer to the original adhesive remaining around the sliding door glass opening flange. Let the body primer dry for at least 10 minutes:

    - Do not apply glass primer to the body, and be careful not to mix up glass and body primer sponges.
    - Never touch the primed surfaces with your hands.

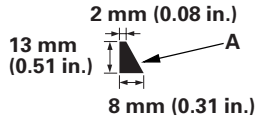
    : **Apply body primer here.**

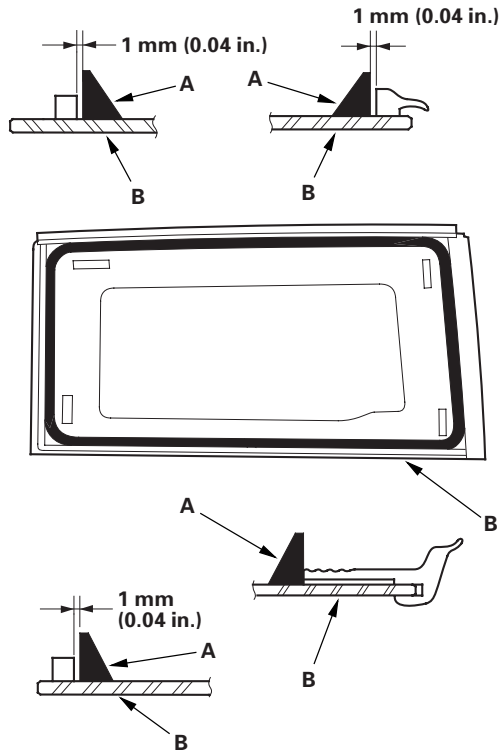


16. Before filling a cartridge with adhesive, cut a ''V'' in the end of the nozzle (A) as shown.



17. Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of adhesive (A) around the edge of the glass (B) as shown. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.

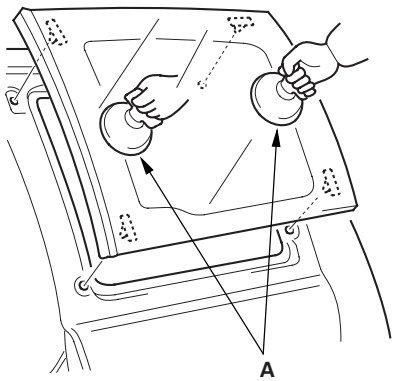




(cont'd)

Sliding Door Glass Replacement (cont'd)

18. Use suction cups (A) to hold the sliding door glass over the opening, align it and set it down on the adhesive. Lightly push on the sliding door glass until its edges are fully seated on the adhesive all the way around. Do not open or close the doors until the adhesive is dry.



19. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the rear window, use a soft shop towel dampened with alcohol.

20. Let the adhesive dry for at least 1 hour, then spray water over the sliding door glass and check for leaks. Mark any leaking areas, let the sliding door glass dry, then seal with sealant. Let the vehicle stand for at least 4 hours after sliding door glass installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.

21. Reinstall all remaining removed parts.

    NOTE: Advise the customer not to do the following things for 2 to 3 days:
    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

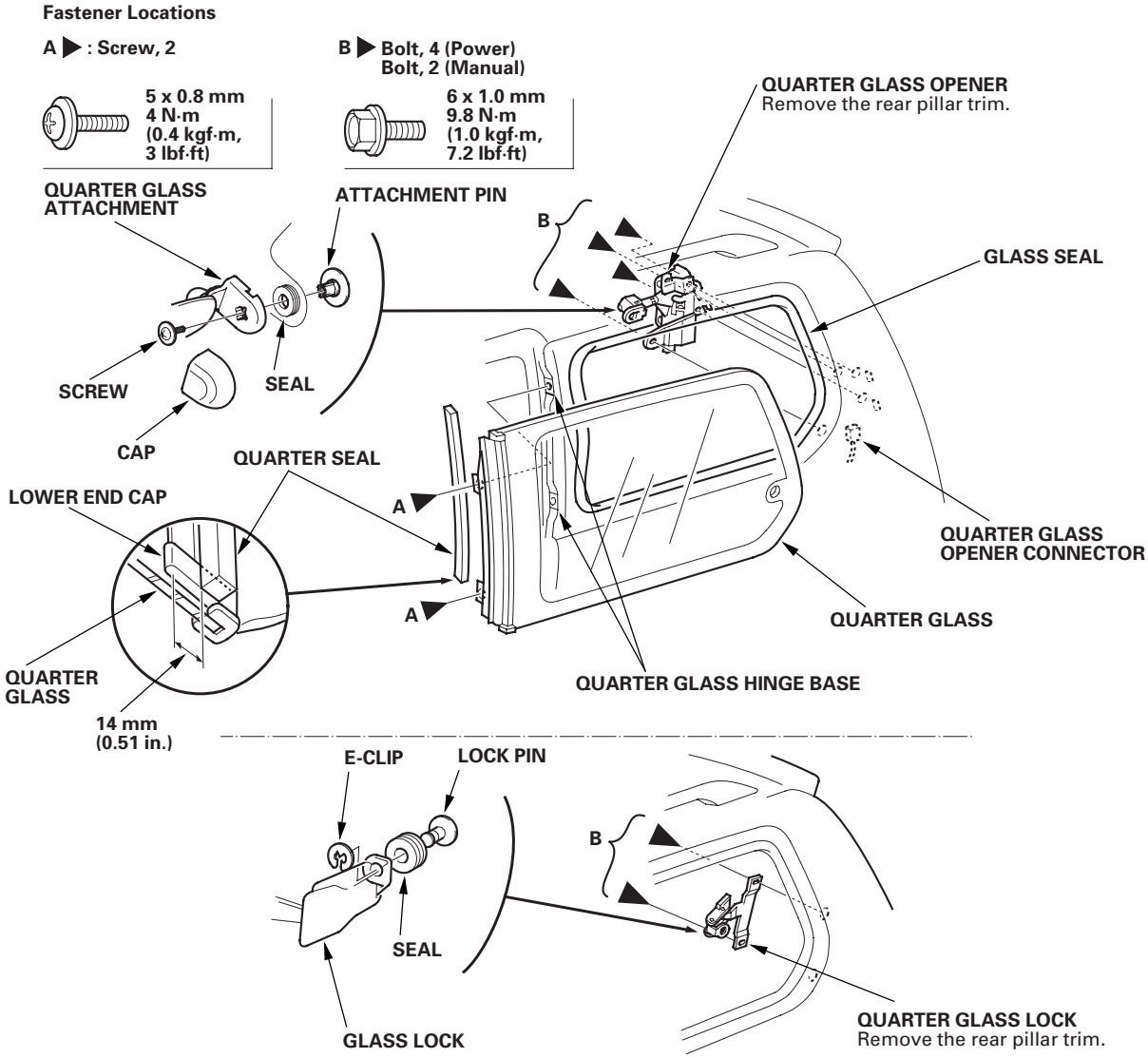
Quarter Glass and Regulator Replacement

NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape, and apply protective tape around the related parts, to prevent damage.
- Put on gloves to protect your hands.

1. Remove the quarter glass and the quarter glass opener or the quarter glass lock as shown.

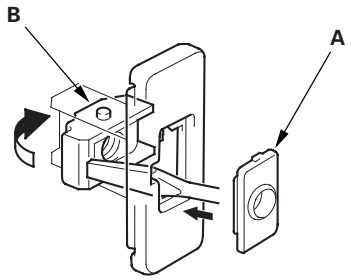
2. Install the quarter glass and the opener or the lock in the reverse order of the removal, and note these items:

   - If necessary, replace the quarter glass seal.
   - The glass and body edges should be parallel.
   - Make sure the glass locks properly. If necessary adjust the quarter glass opener or quarter glass lock mount position.
   - Check for water leaks.

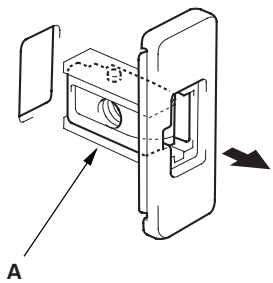


Quarter Glass Hinge Base Replacement

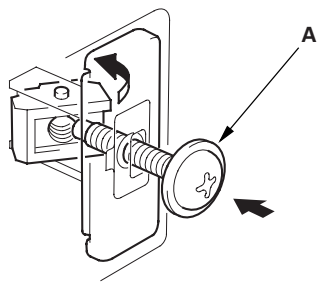
1. Remove the plate (A), and turn the nut (B) as shown.



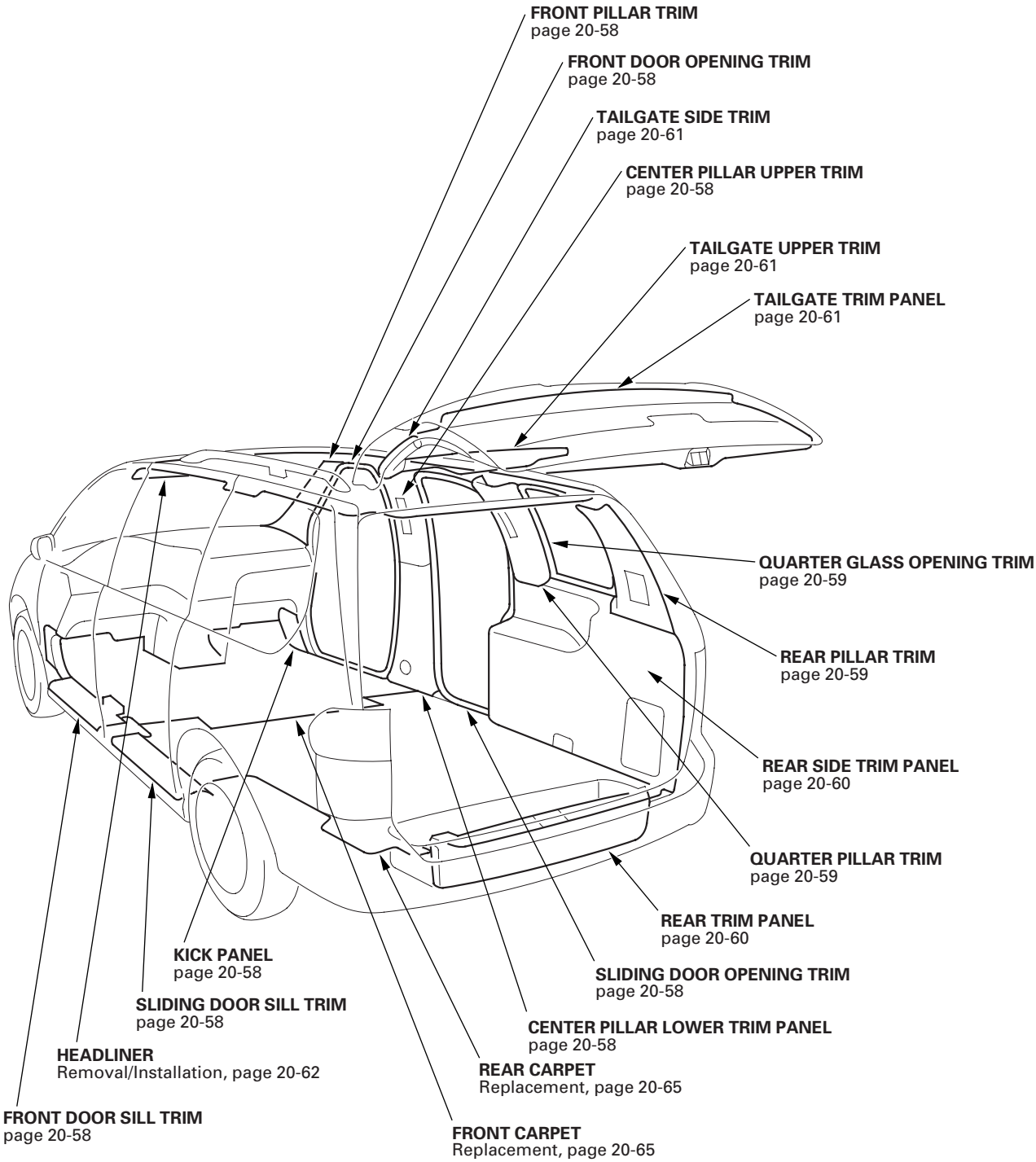
2. Pull out the quarter glass hinge base (A).



3. Install the quarter glass hinge base on the body, then set the quarter glass and install the screw (A).



Component Location Index



Trim Removal/Installation - Door Area

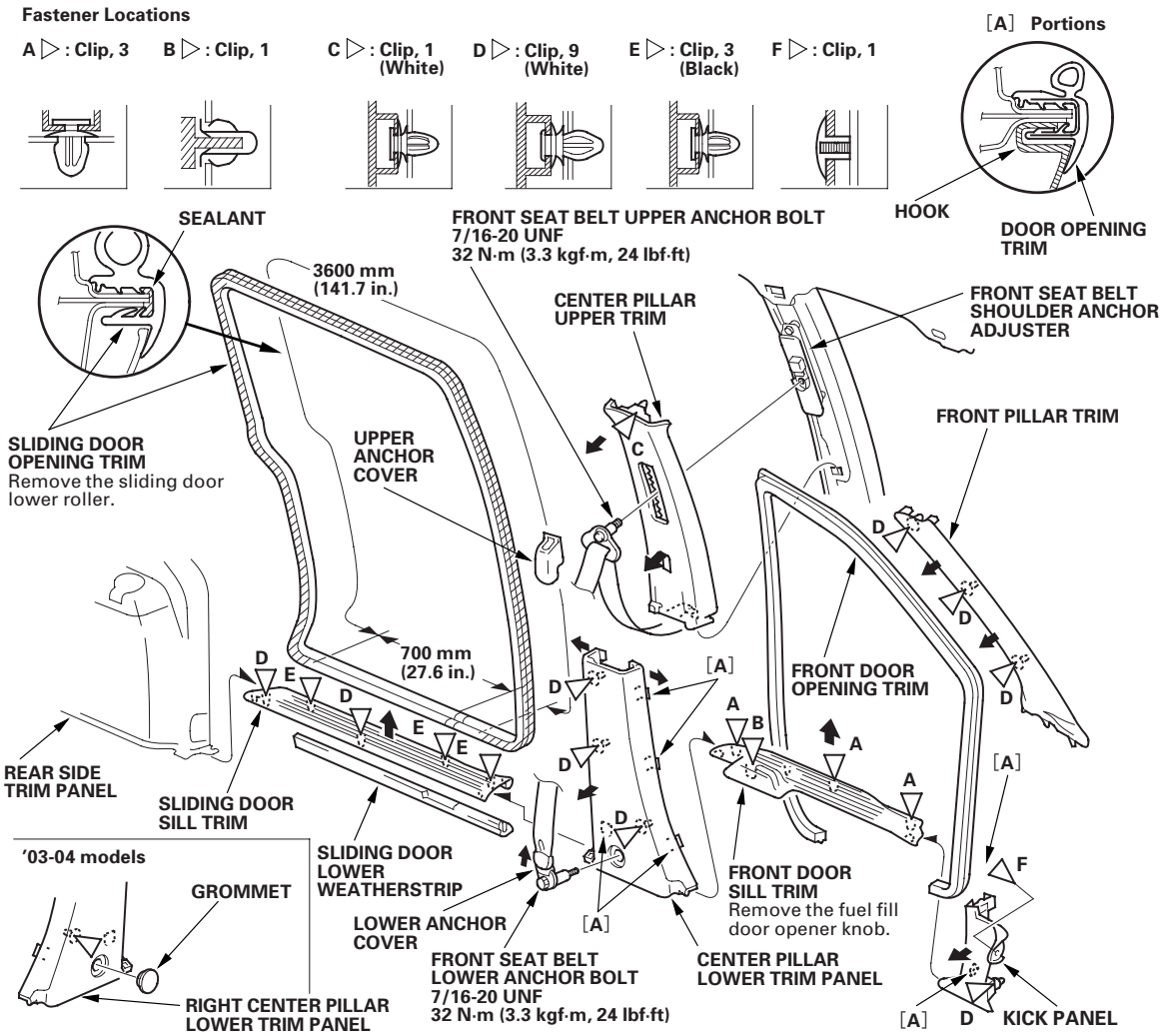
NOTE:
- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to bend or scratch the trim and panels.

1. Remove the trim as shown.

2. Install the trim in the reverse order of removal, and note these items:

   - Replace any damaged clips.
   - Push the clips into place securely.
   - Apply liquid thread lock to the anchor bolts before reinstallation.
   - Before installing the anchor bolts, make sure there are no twists or kinks in the seat belts.
   - Before installing the sliding door opening trim, fill the bottom of the channel with clear sealant in the area indicated by the arrow.

   Sealant: Cemedine P/N 08712-0004, or equivalent



Trim Removal/Installation - Rear Side Upper Area

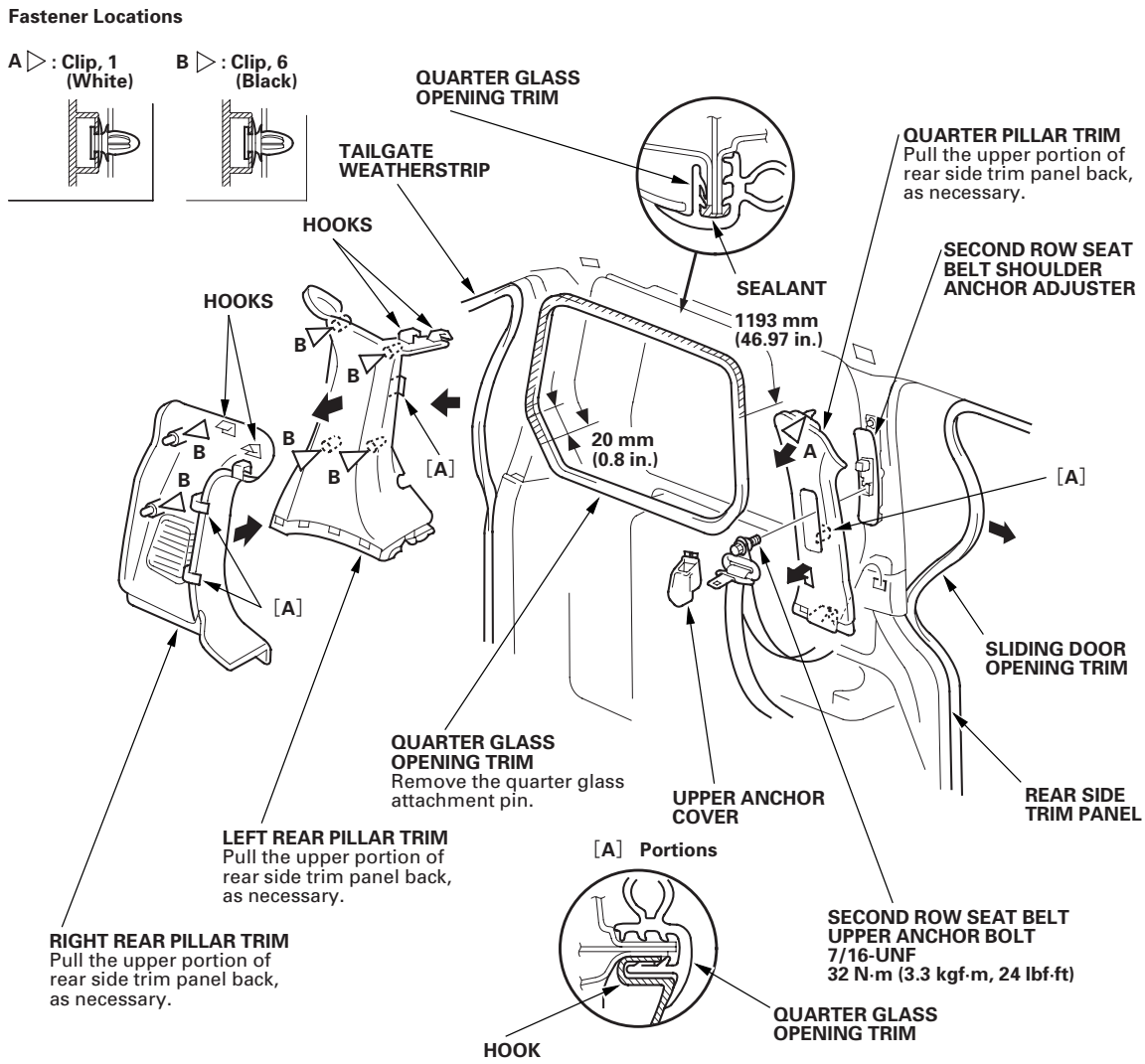
NOTE:
- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to bend or scratch the trim and panels.

1. Remove the trim as shown.

2. Install the trim in the reverse order of removal, and note these items:

   - Replace any damaged clips.
   - Push the clips into place securely.
   - Apply liquid thread lock to the anchor bolt before reinstallation.
   - Before installing the anchor bolt, make sure there are no twists or kinks in the seat belt.
   - Before installing the quarter glass opening trim, fill the bottom of the channel with clear sealant in the area indicated by the arrows.

   Sealant: Cemedine P/N 08712-0004, or equivalent



Trim Removal/Installation - Rear Side Lower Area

NOTE:
- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to bend or scratch the trim and panels.

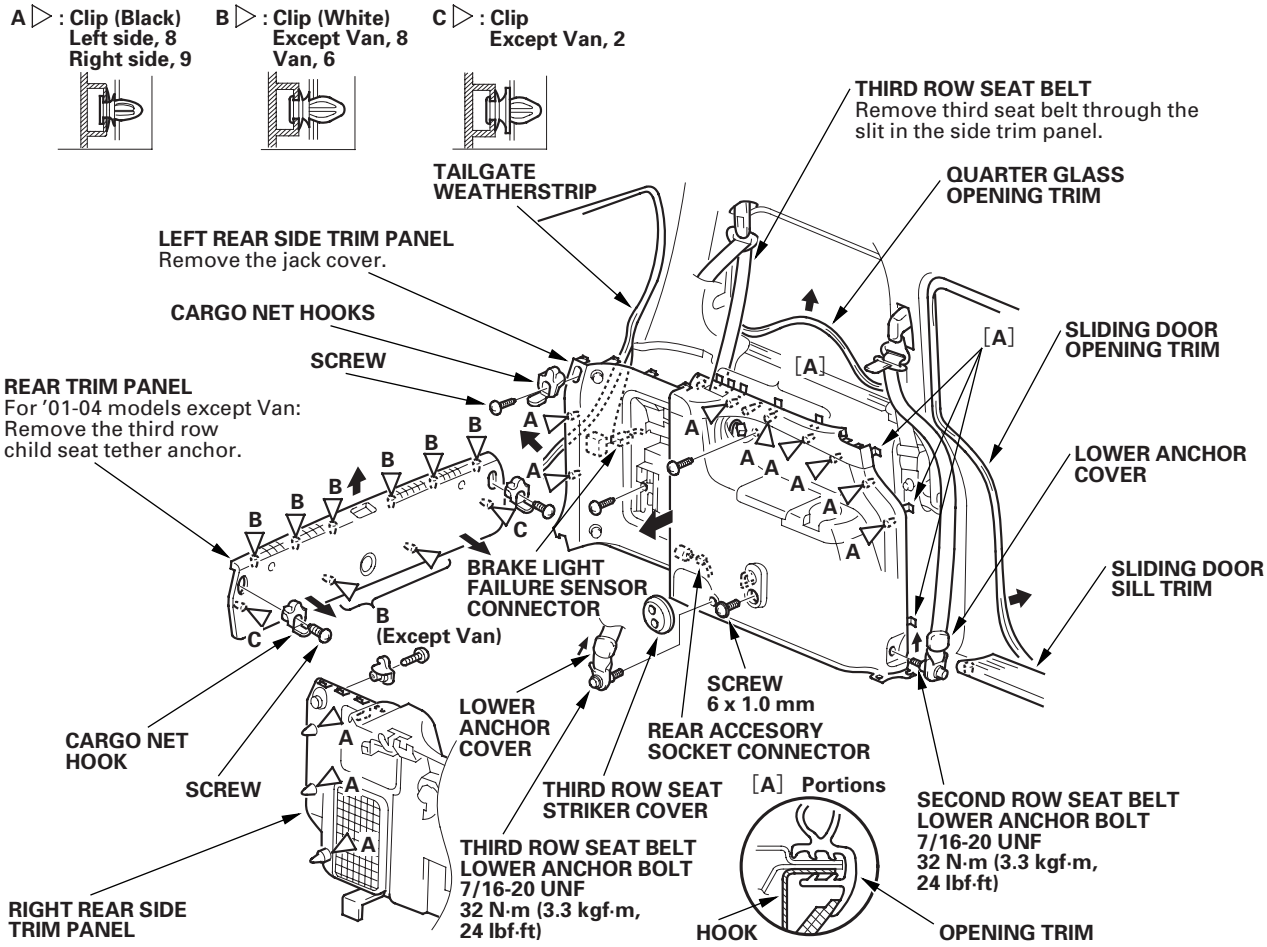
1. Remove the trim as shown.

   - To remove the rear side trim panel, remove the speaker grille and rear speaker (see page 22-161).
   - When removing the side trim panels, be sure to remove the mounting screws behind the rear speakers.
   - Be sure to disconnect the rear accessory socket and brake light failure sensor connectors when removing the left rear trim panel.

2. Install the trim in the reverse order of removal, and note these items:

   - Replace any damaged clips.
   - Push the clips into place securely.
   - Apply liquid thread lock to the anchor bolts before reinstallation.
   - Before installing the anchor bolts, make sure there are no twists or kinks in the seat belts.

Fastener Locations



Trim Removal/Installation - Tailgate

NOTE:
- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to bend or scratch the trim and panels.
- Take care not to bend the lock rod.

1. Remove the trim in the sequence shown.

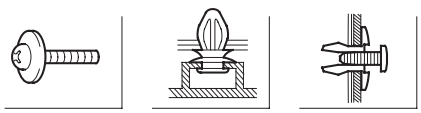
   - Tailgate upper trim
   - Left tailgate side trim
   - Right tailgate side trim
   - Grab handle
   - Tailgate trim panel

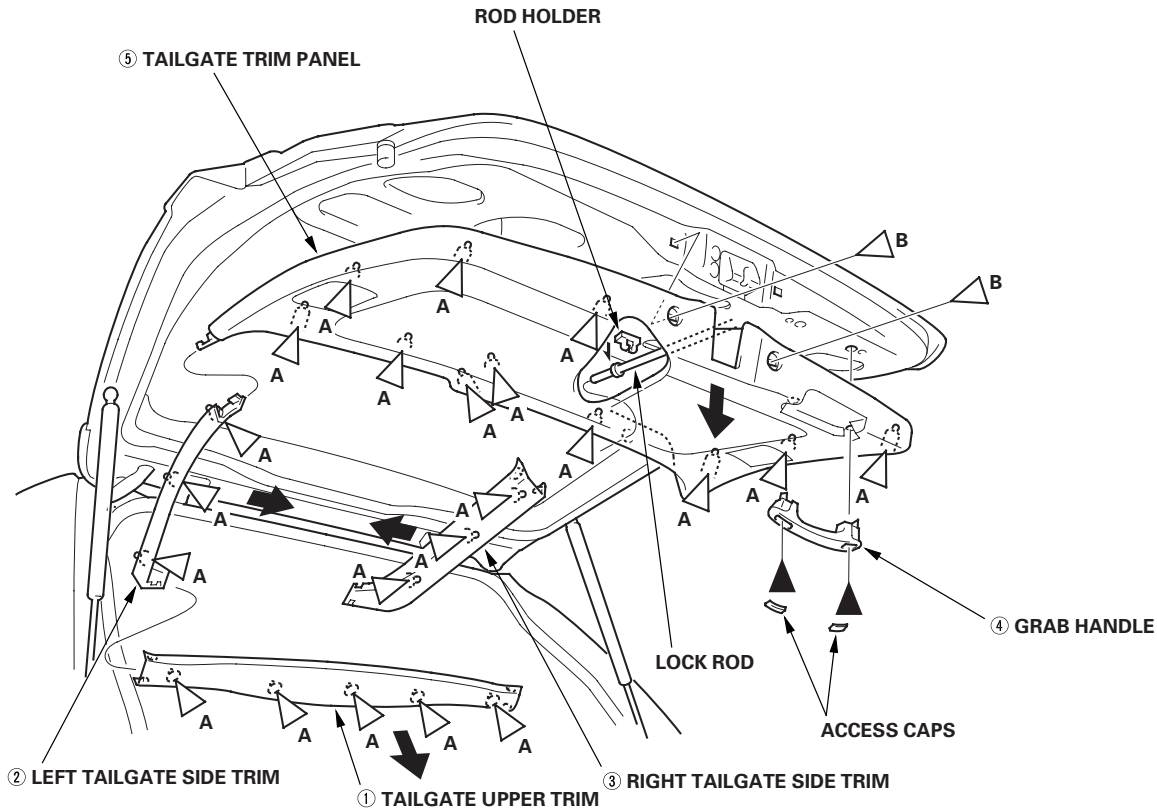
2. Install the trim in the reverse order of removal, and note these items:

   - Make sure the top of the lock rod passes through the hole in the trim panel.
   - Replace any damaged clips.
   - Push the clips into place securely.

Fastener Locations

▶ : Screw, 2 **A ▷ : Clip, 22** **B ▷ : Clip, 2**





Headliner Removal/Installation

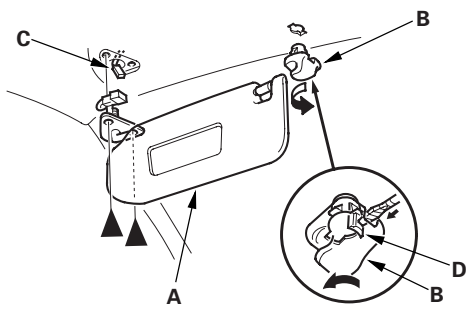
NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to bend or scratch the headliner.
- Be careful not to damage the dashboard or other interior trim.

1. Remove these items (see page 20-58):
   - Front door opening trim, both sides as necessary
   - Front pillar trim, both sides
   - Sliding door opening trim, both sides as necessary
   - Front seat belt upper anchor bolt, both sides
2. Remove these items (see page 20-59):
   - Quarter pillar trim, both sides
   - Quarter glass opening trim, both sides as necessary
   - Rear pillar trim, both sides
3. Third row seat belt retractor cover, for some models (see step 1 on page 23-13).
4. Remove the sunvisor (A) and holder (B) from both sides.
   1. Remove the ET screws.
   2. Remove the sunvisor from the body and holder.
   3. Disconnect the vanity mirror light connector (C).
   4. Using a flat-tip screwdriver, push the hook (D), and turn the holder 90°, then pull it out.

Fastener Locations

▶ : ET screw, 4

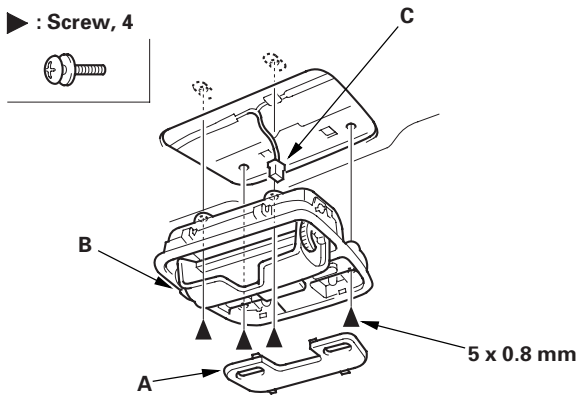
5 x 0.8 mm
4 N·m
(0.4 kgf·m,
3 lbf·ft)



5. If equipped, remove the roof console.
   1. Remove the lens (A).
   2. Remove the screws.
   3. Pull out the roof console (B), and disconnect the front individual map light connector (C).

Fastener Locations

▶ : Screw, 4

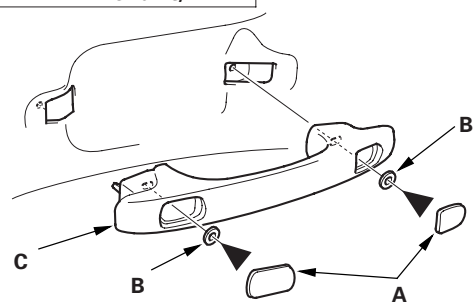


6. Remove the caps (A), and remove the ET screws and washers (B), then remove the grab handles (C) (driver's and front passenger's).

Fastener Locations

▶ : ET screw, 4

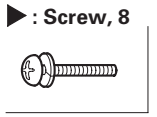
5 x 0.8 mm
4 N·m
(0.4 kgf·m,
3 lbf·ft)

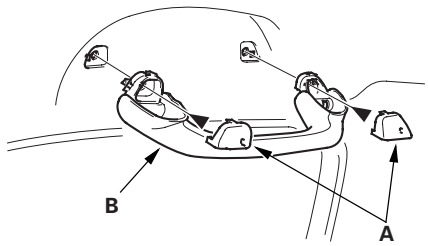


7. For '02-04 models: Remove the caps (A), and remove the screws, then remove the grab handles (B) (second row passenger's).

Fastener Locations

▶ : Screw, 8





8. Remove these items:

   - Ceiling light, for some models (see page 22-150)
   - Cargo area light (see page 22-151)

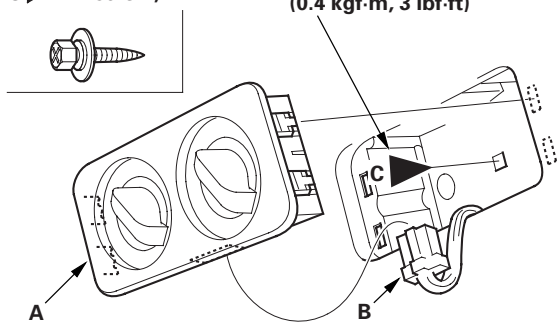
9. For some '02-04 models: Remove the rear controller and screen cover (see page 22-343).

10. Remove the rear A/C passenger control panel (A) from the headliner and disconnect the connector (B), then remove the ET screw (C).

Fastener Location

C ▶ : ET screw, 1

6 x 1.0 mm
4 N·m
(0.4 kgf·m, 3 lbf·ft)

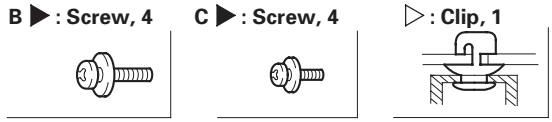


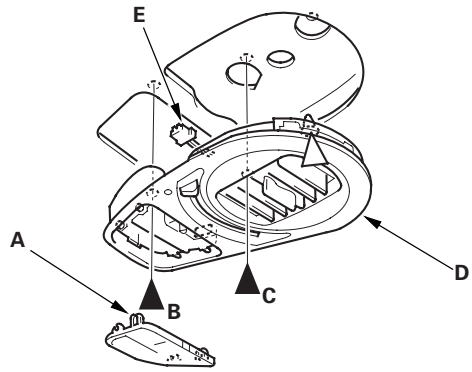
11. If equipped, remove the rear ceiling vents:

   1. Remove the lens (A).
   2. Remove the screws (B, C).
   3. Pull out the rear ceiling vents (D), and disconnect the individual map light connector (E).

Fastener Locations

B ▶ : Screw, 4 **C ▶ : Screw, 4** **▷ : Clip, 1**

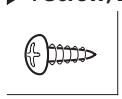


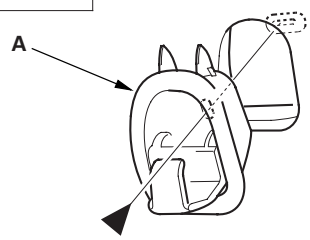


12. Remove the screws, then remove the coat hangers (A).

Fastener Locations

▶ : Screw, 2





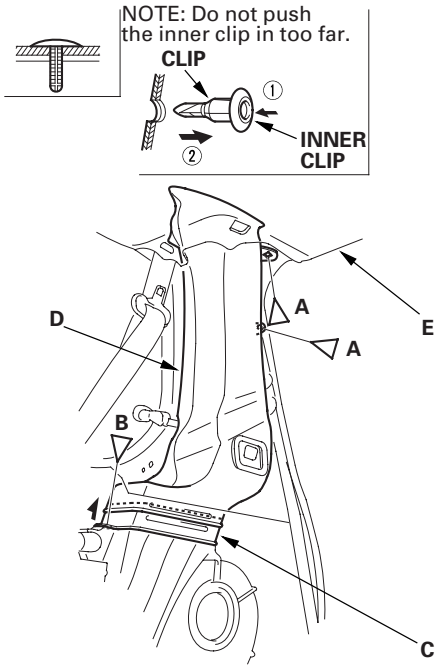
(cont'd)

Headliner Removal/Installation (cont'd)

13. Detach the clips (A). If applicable, detach the clip (B) and pull up the joint (C). Remove the rear pillar duct (D) from the headliner (E).

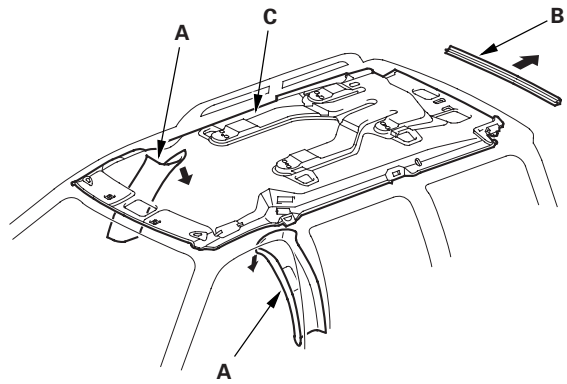
Fastener Locations

A ▷ : Clip, 2 **B ▷ : Clip, 1**



14. Remove the headliner:

–1 Remove the upper portion of the center p illar trim (A) from each side (see page 20-58).
–2 Remove the rear roof trim (B).
–3 Remove the headliner (C) through the tailgate opening.



15. Install the headliner in the reverse order of removal, and note these items:

- When reinstalling the headliner through the tailgate opening, be careful not to fold or bend it. Also, be careful not to scratch the body.
- If the threads on a visor, grab handle, or headliner (rear A/C passenger control panel opening) mounting ET screws are worn out, use an oversized ET screw made specifically for this application.

  Visor or grab handle mounting ET screw:
  P/N 90137-S30-0030

  Headliner mounting ET screw:
  P/N 90133-SZ4-0030

- Check that both sides of the headliner are securely attached to the trim.

Carpet Replacement

SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.

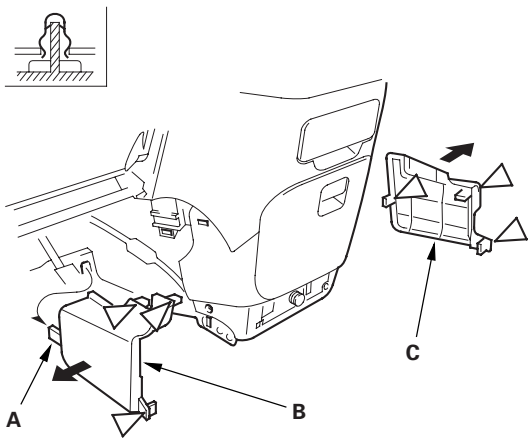
NOTE:
- Put on gloves to protect your hands.
- Take care not to damage, wrinkle or twist the carpet.
- Be careful not to damage the dashboard or other interior trim pieces.

1. Remove these items:
   - Front seats, both sides (see page 20-81)
   - Center lower trim (see page 20-67)
   - Second row seats
   - Center pillar lower trim panel, both sides (see page 20-58)
   - Kick panel, both sides (see page 20-58)
   - Rear side trim panel, both sides (see page 20-60)

2. From under the dash, detach the clips, release the hook (A) (driver's side), then remove the driver's heater lower cover (B) and passenger's heater lower cover (C).

Fastener Locations

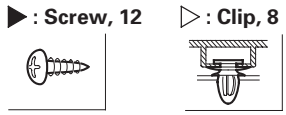
▷ : **Clip, 6**

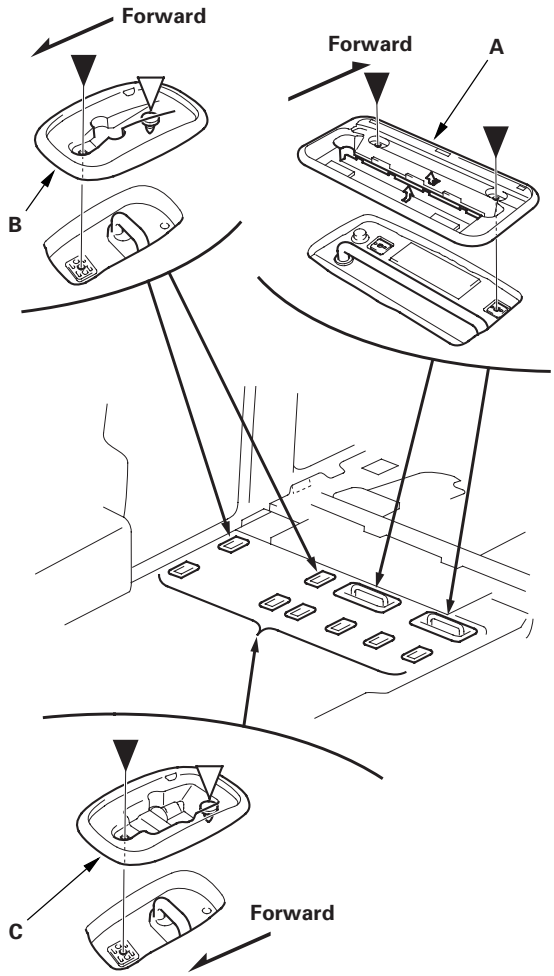


3. For except Van: Remove the screws and detach the clips, then remove the second seat striker covers (A, B, C).

Fastener Locations

▶ : **Screw, 12** ▷ : **Clip, 8**





(cont'd)

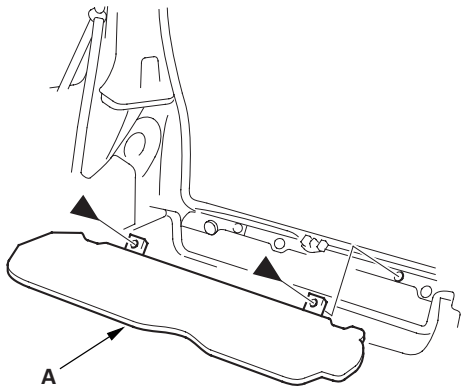
Carpet Replacement (cont'd)

4. For Van: Remove the bolts and remove the floor recess lid (A).

Fastener Locations

▶ : Bolt, 2

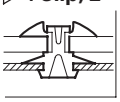
8 x 1.25 mm
22 N·m
(2.2 kgf·m,
16 lbf·ft)

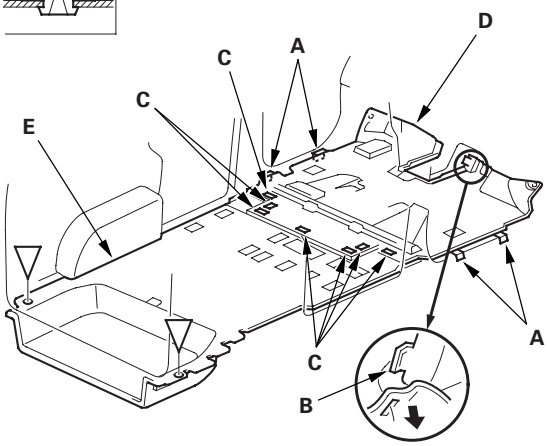


5. Remove the clips and release the retainers (A), hook (B) and fasteners (C), then remove the front carpet (D) and rear carpet (E). Put on gloves to protect your hands.

Fastener Locations

▷ : Clip, 2





6. Install the carpet in the reverse order of removal, and note these items:

- Take care not to damage, wrinkle or twist the carpet.
- Make sure the seat harness is routed correctly.
- Slip the slits in the carpet over the hooks.
- Replace any damaged clips.
- Push the clips into place securely.

Center Lower Pocket Removal/Installation

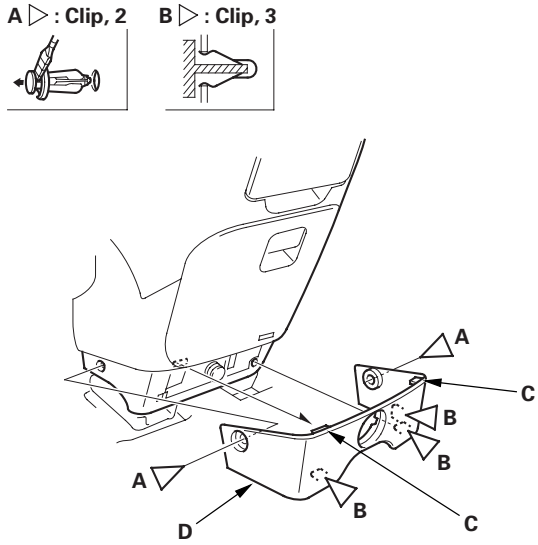
SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.

NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape, and apply protective tape around the related parts, to prevent damage.
- Take care not to scratch the dashboard and related parts.

1. Remove the clips (A), and detach the clips (B) and tabs (C), then remove the center lower trim (D).

Fastener Locations

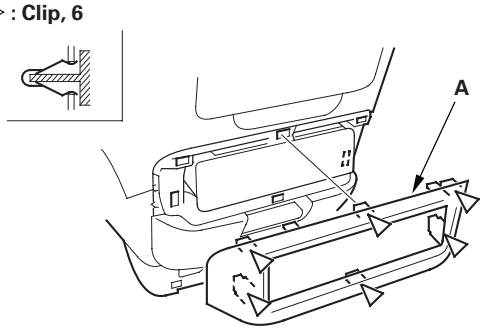
A ▷ : Clip, 2 **B ▷ : Clip, 3**



2. For '02-04 models with navigation system: Detach the clips, then remove the DVD panel (A).

Fastener Locations

▷ : Clip, 6

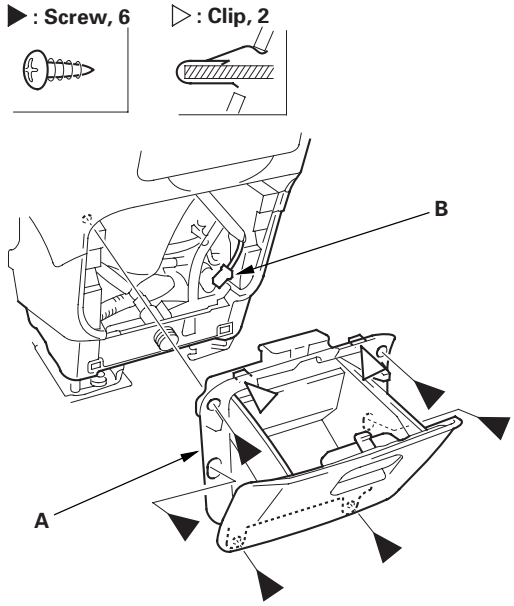


3. Remove the center lower pocket (A).

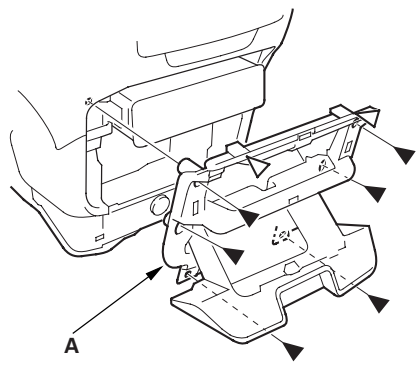
–1 Remove the screws.
–2 Gently pull out along the top of the center lower pocket to release the clips.
–3 Disconnect the center lower pocket light connector (B) (except '02-04 models with navigation system).

Fastener Locations

▶ : Screw, 6 **▷ : Clip, 2**



'02-04 models with navigation system



4. Install the pocket in the reverse order of removal, and note these items:

- Replace any damaged clips.
- Make sure the center lower pocket light connector is plugged in properly.
- Push the clips into place securely.

Center Lower Console Removal/Installation

SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.

NOTE: Take care not to scratch the dashboard and related parts.

1. Remove the center lower pocket (see page 20-67).

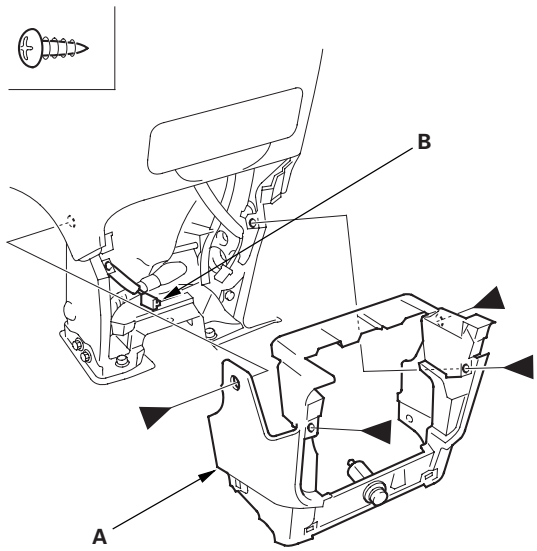
2. For some '02-04 models: Remove the DVD player unit (see page 22-342).

3. Remove the center lower console (A).

   –1 Remove the screws.
   –2 Gently pull out the console.
   –3 Disconnect the accessory socket connector (B), and remove the console.

Fastener Locations

▶ **Screw, 4**



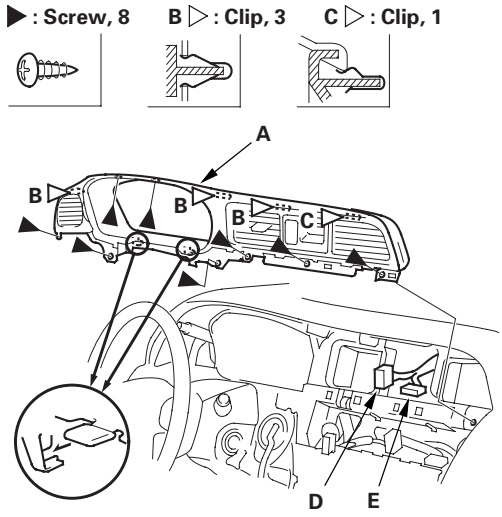
4. Install the console in the reverse order of removal, and make sure the accessory socket connector is plugged in properly.

Instrument Panel Removal/ Installation

NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape, and apply protective tape around the related parts, to prevent damage.
- Take care not to scratch the dashboard and related parts.

1. Remove these items:
   - Driver's switch panel (see page 20-70)
   - Center panel (see page 20-70)
2. Tilt the steering column down.
3. Remove the instrument panel (A).
   - 1 Remove the screws.
   - 2 Gently pull out along the top to release the clips (B, C).
   - 3 Disconnect the hazard warning switch connector (D) and clock connector (E). With navigation system, disconnect the climate control unit connector.

Fastener Locations



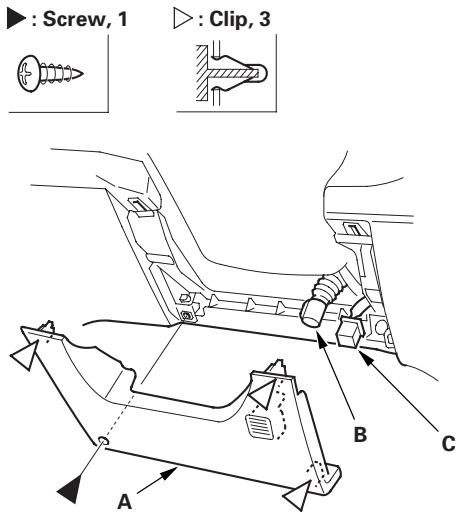
4. Install the instrument panel in the reverse order of removal, and note these items:
   - Make sure each connector is plugged in properly.
   - Push the clips into place securely.

Dashboard Lower Cover Removal/ Installation

NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape, and apply protective tape around the related parts, to prevent damage.
- Take care not to scratch the dashboard and related parts.

1. Remove the dashboard lower cover (A).
   - 1 Remove the screw.
   - 2 Gently pull down on the lower cover to release the clips.
   - 3 If equipped, disconnect the air hose (B) and in-car temperature sensor connector (C), then remove the cover.

Fastener Locations



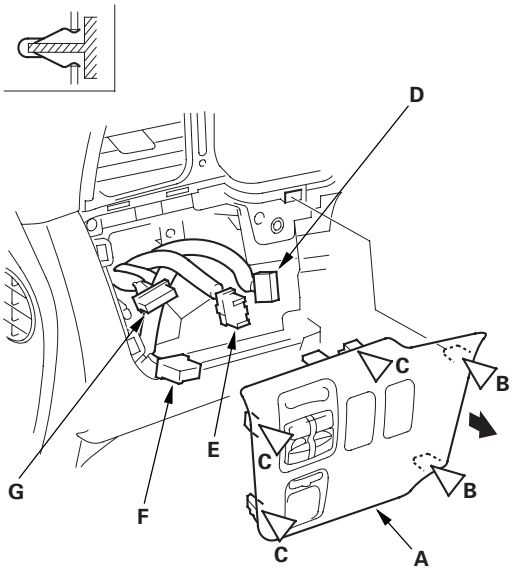
2. Install the lower cover in the reverse order of removal, and note these items:
   - Make sure the in-car temperature sensor connector is plugged in properly, and the air hose is connected properly (for some models).
   - Push the clips into place securely.

Driver's Switch Panel Removal/ Installation

NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape, and apply protective tape around the related parts, to prevent damage.
- Take care not to scratch the dashboard and related parts.

1. Gently pull out on the driver's switch panel (A) to release the right clips (B), then detach the remaining clips (C). If equipped, disconnect the cruise control main switch connector (D), TCS switch connector (E), power mirror switch connector (F) and power sliding door switch connector (G), then remove the panel.

Fastener Locations
B, C ▷ : Clip, 5



2. Install the panel in the reverse order of removal, and note these items:

   - Make sure each connector is plugged in properly (if equipped).
   - Push the clips into place securely.

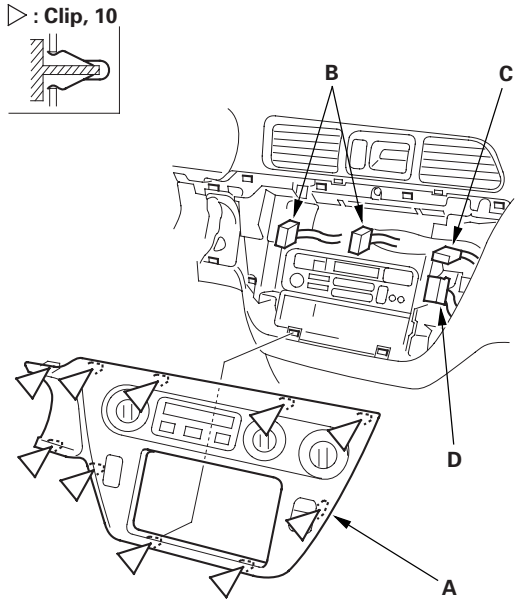
Center Panel Removal/Installation

NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape, and apply protective tape around the related parts, to prevent damage.
- Take care not to scratch the dashboard and related parts.

1. Remove the steering column covers (see step 4 on page 17-25).

2. Carefully detach the clips, then remove the center panel (A). Disconnect the heater control panel connectors (B) or climate control unit connectors, rear A/C control dial (C) (for some models) and interior light switch connector (D). With navigation system, disconnect the hazard warning switch connector, rear A/C control dial, and interior light switch connector. For '03-04 models: Disconnect the passenger's airbag off indicator connector.

Fastener Locations
▷ : Clip, 10



3. Install the panel in the reverse order of removal, and note these items:

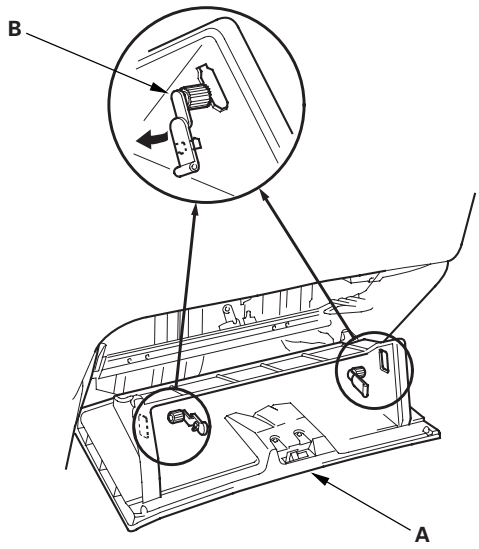
   - Make sure each connector is plugged in properly.
   - Push the clips into place securely.

Glove Box Removal/Installation

SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.

NOTE:
- Take care not to scratch the dashboard and related parts.
- If the glove box swings down without any support, the hinges can be overextended and damaged. To prevent damage to the glove box hinge, use a piece of foam or a bundle of shop towels to support it.

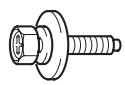
1. While holding the glove box (A), remove the glove box stop (B) on each side.



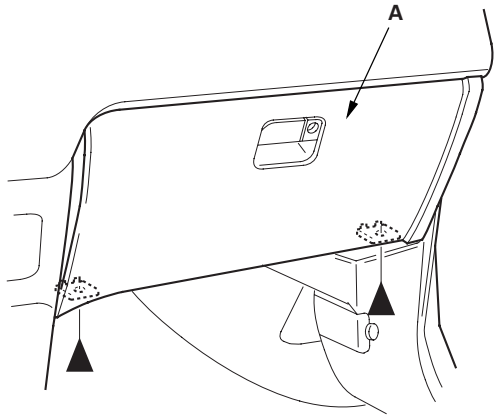
2. Remove the bolts, then remove the glove box (A).

Fastener Locations

▶ : Bolt, 2



5 x 0.8 mm
9 N·m
(0.9 kgf·m,
7 lbf·ft)



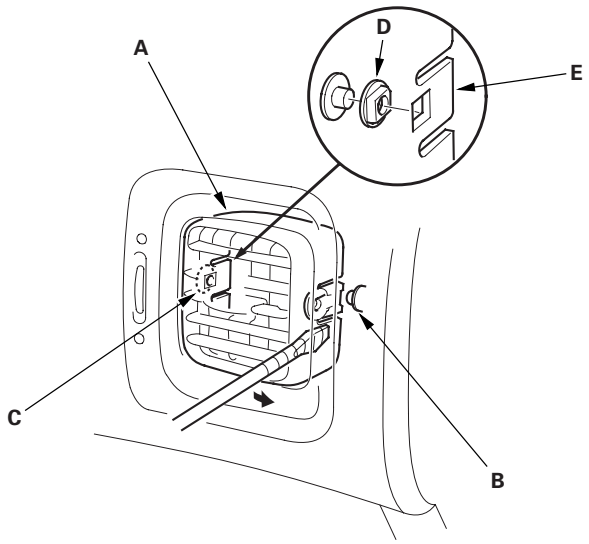
3. Install the glove box in the reverse order of removal.

Passenger's Side Vent Removal/ Installation

NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape, and apply protective tape around the related parts to prevent damage.
- Take care not to scratch the dashboard and related parts.

1. Remove the passenger's side vent (A).

   –1 Carefully insert a flat-tip screwdriver next to the right pivot (B).
   –2 Release the pivot by prying on the vent.
   –3 Remove the vent by releasing the left pivot portion (C).



2. Before reinstalling, make sure the left pivot bushing (D) is installed on the side vent housing (E) securely.

3. Reinstall the left pivot portion of the vent to the bushing first, then push the right pivot portion into place securely.

Beverage Holder Base Removal/ Installation

NOTE:
- Take care not to scratch the dashboard and related parts.
- Put on gloves to protect your hands.

1. Make sure you have the anti-theft codes for the radio and the navigation system, then write down the frequencies for the preset buttons.

2. Remove these items:

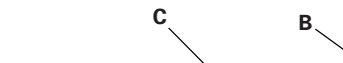
   - Center lower console (see page 20-68)
   - Center panel (see page 20-70)
   - Audio unit (see page 22-159)
   - Display unit (with navigation system) (see page 22-385)

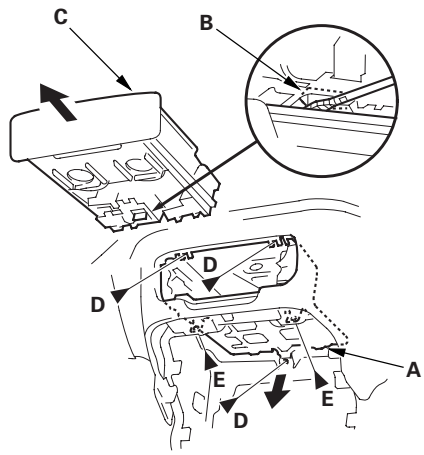
3. Remove the beverage holder base (A).

   –1 Detach the hook (B) from under the beverage holder (C).
   –2 Pull the beverage holder out.
   –3 Remove the screws (D, E).
   –4 Remove the beverage holder base from the center lower console opening.

Fastener Locations

D ▶: Screw, 3 **E ▶: Screw, 2**





4. Install the beverage holder base in the reverse order of removal, and enter the anti-theft code for the radio and the navigation system, then enter the customer's radio station presets.

Dashboard Removal/Installation

SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.

NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape, and apply protective tape around the related parts to prevent damage.
- Have an assistant help you when removing and installing the dashboard.
- Take care not to scratch the dashboard, body or other related parts.
- Put on gloves to protect your hands.

1. Make sure you have the anti-theft codes for the radio and the navigation system, then write down the frequencies for the preset buttons.

2. Disconnect the negative battery cable, and wait at least 3 minutes before beginning work.

3. Remove these items:

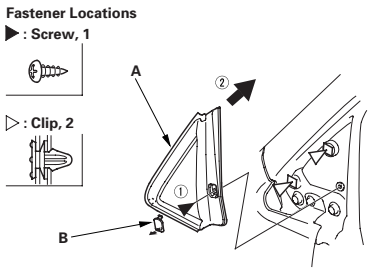
   - Dashboard lower cover (see page 20-69)
   - Steering column (see page 17-25)
   - Center lower pocket (see page 20-67)
   - Heater lower cover, both sides (see step 2 on page 20-65)
   - Glove box (see page 20-71)

4. Remove these items (see page 20-58):

   - Front door opening trim, both sides
   - Kick panel, both sides
   - Front pillar trim, both sides

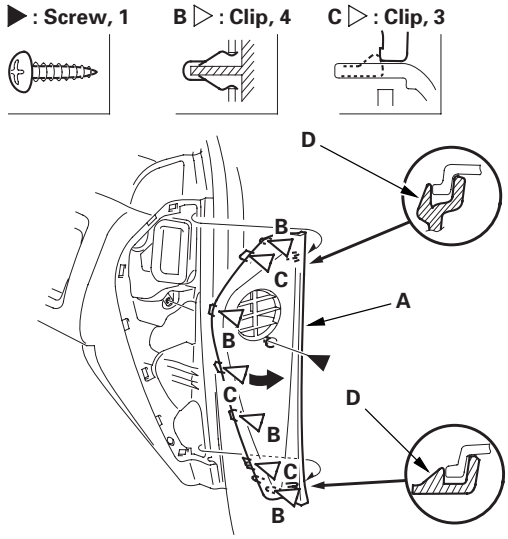
5. Open the driver's door, and remove the front pillar corner trim (A).

   –1 Pry out the cap (B), and remove the screw.
   –2 Slide the trim upward along the front pillar to remove it.
   –3 Remove the remaining clips from the body.

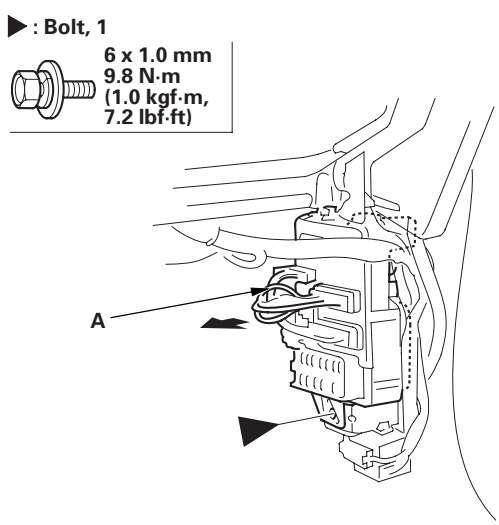


6. Open the passenger's door, and remove the dashboard side cover (A).

   –1 Remove the screw.
   –2 Gently pull out along the rear edge to release the clips (B, C).
   –3 Gently pull out on the side cover to release the clips (B) and the tabs (D), then remove the side cover.



7. From under the passenger's dash, remove the bolt, and pull out the fuse/relay box (A).



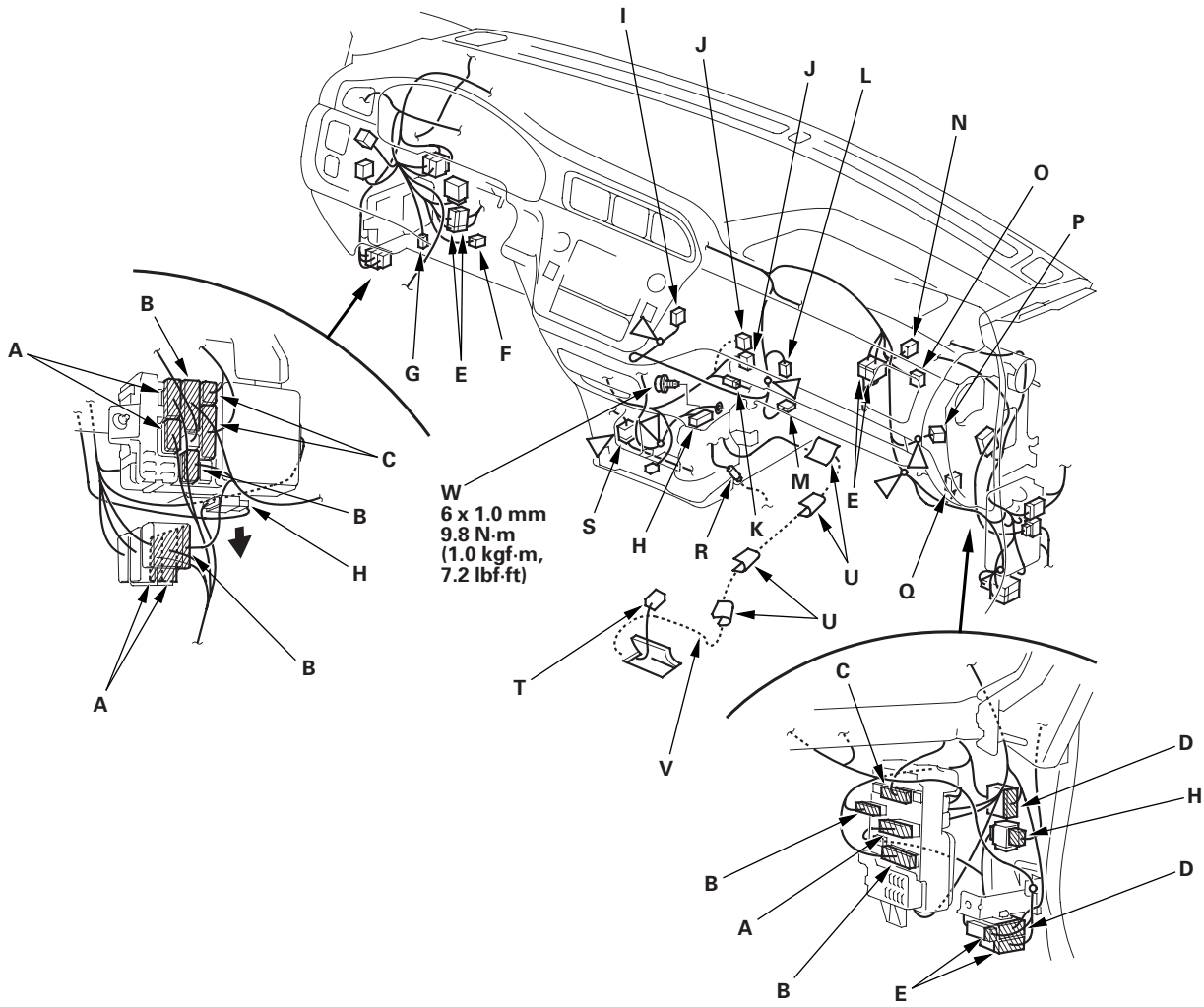
(cont'd)

Dashboard Removal/Installation (cont'd)

8. Disconnect the side wire harness connectors (A), engine compartment wire harness connectors (B), door wire harness connectors (C), dashboard wire harness connectors (D), steering hanger beam wire harness connectors (E), brake switch connectors (F), parking brake switch connector (G), SRS wire harness connector (H), mode motor connector (I), ECM/PCM connector ('99-00 models) or connectors ('01-04 models) (J), PCM subharness connector (K) ('99-00 models), evaporator temperature sensor connector (L), air mix control motor connector (M), recirculation control motor connector (N), blower relay connector (O) power transistor connector (P), blower motor connector (Q) and antenna lead (R). For '00-04 models with navigation system: Disconnect the navigation unit harness connector (S) and GPS antenna connector (T).

Fastener Locations

▷: **Harness clip and connector clip**



9. For '00-04 models with navigation system: Pull the carpet back as necessary (see page 20-65), and remove the harness cushions (U), then pull the GPS antenna harness (V) out.

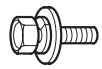
10. Using a Torx, T30 bit, remove the ground bolt (W) at the SRS control unit.

11. Detach all of the harness and connector clips.

12. Remove the bolts (A, B, C, D), and lift up on the dashboard (E) to release the dashboard and steering hanger beam (F) from the guide pins (G).

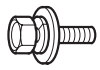
Fastener Locations

A ▶ : Bolt, 2

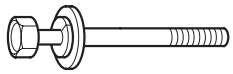


6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)

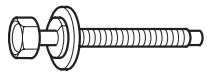
B ▶ : Bolt, 7



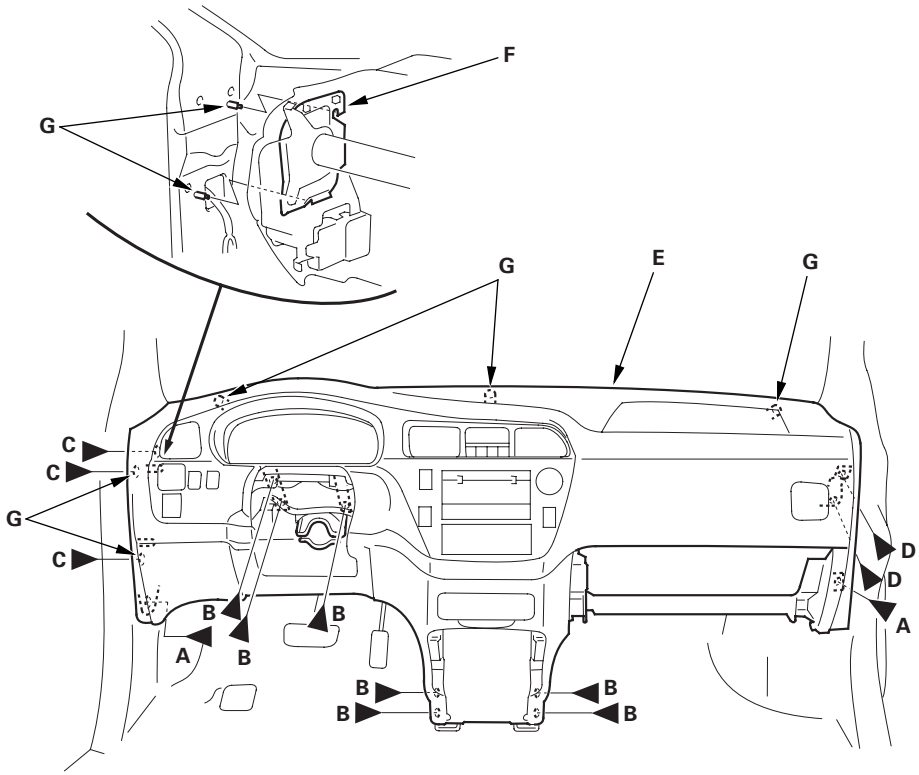
C ▶ : Bolt, 3



D ▶ : Bolt, 2



8 x 1.25 mm
22 N·m
(2.2 kgf·m,
16 lbf·ft)



13. Carefully remove the dashboard through the front door opening:

14. Install the dashboard in the reverse order of removal, and note these items:

- Make sure the dashboard fits onto the guide pins correctly.
- Before tightening the bolts, make sure the dashboard wire harness and steering hanger beam wire harness are not pinched.
- Make sure the connectors are plugged in properly, and the antenna lead is connected properly.
- Reconnect the negative cable to battery.
- Enter the anti-theft code for the radio and the navigation system, then enter the customer's radio station presets.
- Reset the clock.
- Do the PCM idle learn procedure (see page 11-202), and the power window control unit reset procedure ('03-04 models) (see page 22-200).

Steering Hanger Beam Replacement

NOTE:
- Have an assistant help you when removing and installing the steering hanger beam.
- Take care not to scratch the dashboard.
- Put on gloves to protect your hands.

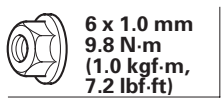
1. Remove the dashboard (see page 20-73).

2. Remove the following parts from the dashboard:
   - Instrument panel (see page 20-69)
   - Gauge assembly (see page 22-100)
   - Center lower console (see page 20-68)
   - Audio unit (see page 22-159)
   - Display unit (with navigation system) (see page 22-385)

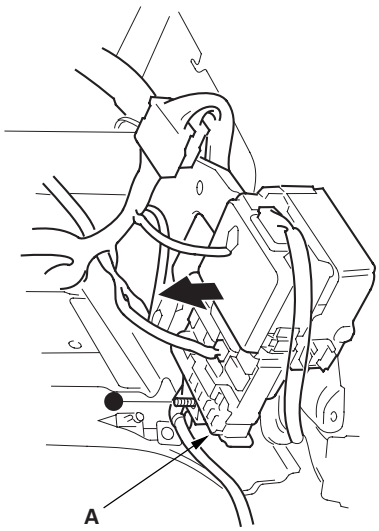
3. From under the dashboard on the driver's side, remove the nut, and pull out the fuse/relay box (A).

Fastener Location

● : Nut, 1



6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)

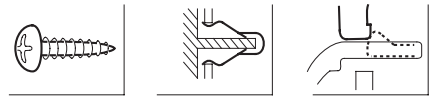


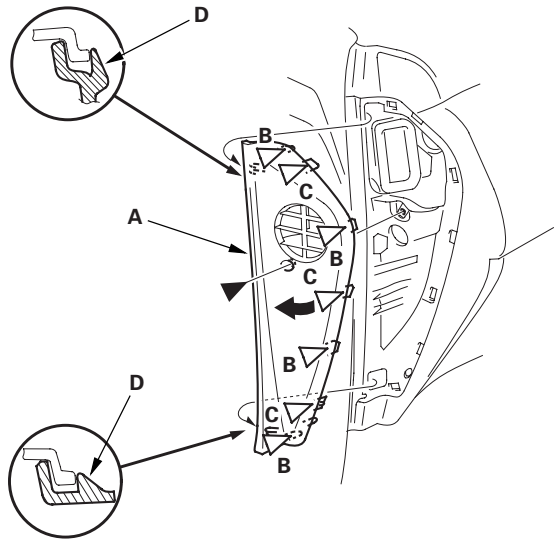
4. Open the driver's side door, and remove the dashboard side cover (A).

–1 Remove the screw.
–2 Gently pull out along the rear edge to release the clips (B, C).
–3 Gently pry out on the side cover to release the clips (B) and the tabs (D), then remove the side cover.

Fastener Locations

▶ : Srew, 1 **B ▷ : Clip, 4** **C ▷ : Clip, 3**

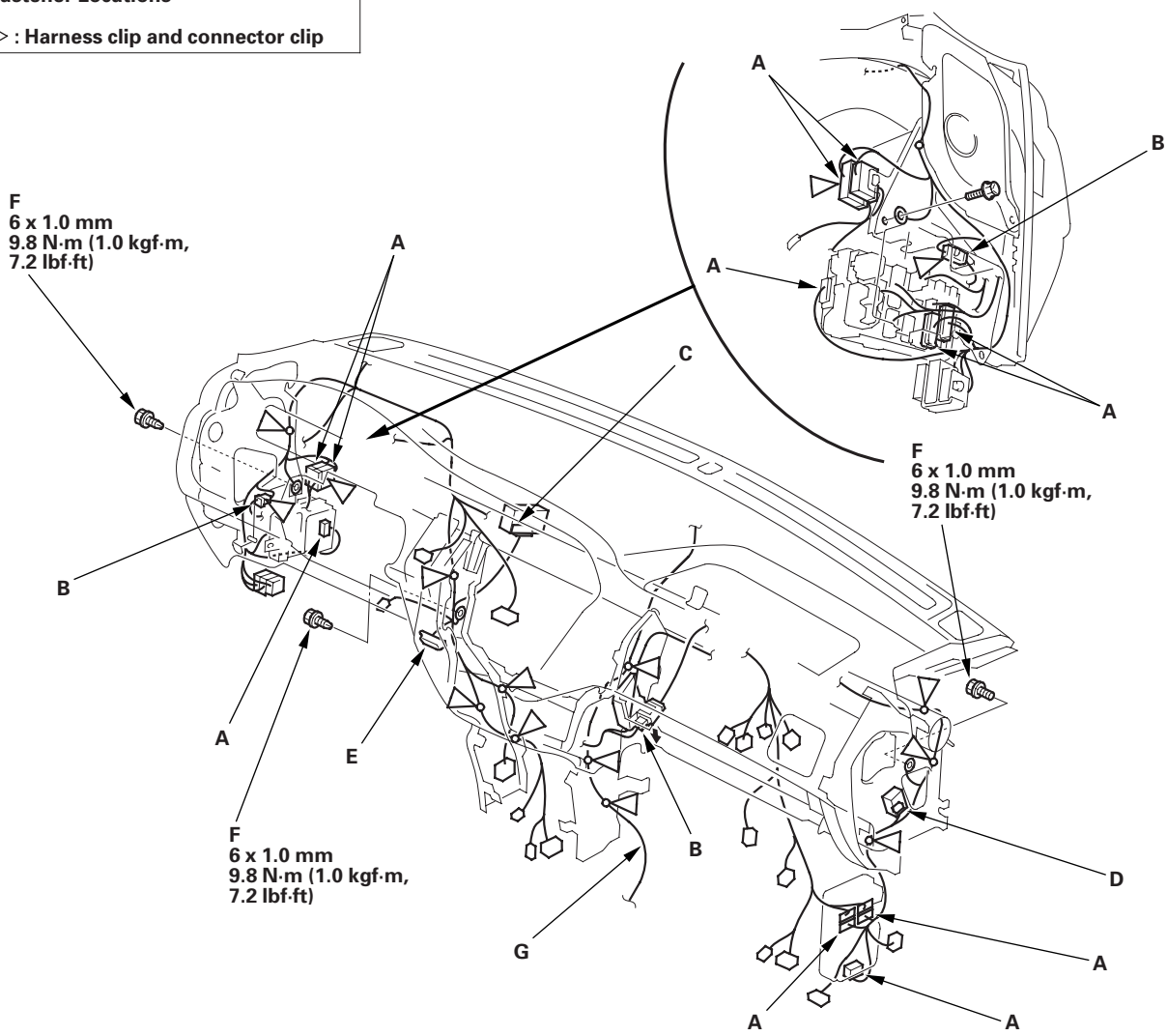




5. Disconnect the dashboard wire harness connectors (A), SRS wire harness connector (B) cruise control connector (C) and keyless entry control unit connector (D). Remove the data link connector (DLC) (E) from the steering hanger beam.

Fastener Locations

▷ : **Harness clip and connector clip**



6. Remove the ground bolts (F).

7. Detach all of the harness and connector clips. With navigation system, remove the GPS antenna harness (G) from the steering hanger beam.

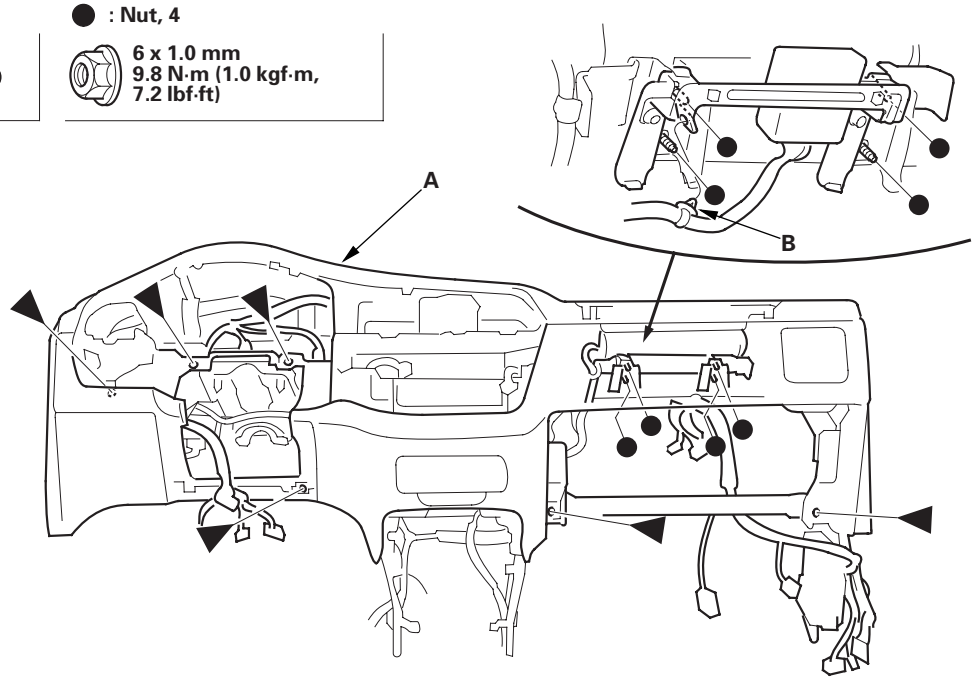
(cont'd)

Steering Hanger Beam Replacement (cont'd)

8. From the front of the dashboard (A), remove the screws on the driver's side, and the front passenger's airbag mounting nuts. For Canadian models, remove the nuts after detaching the harness clip (B).

Fastener Locations

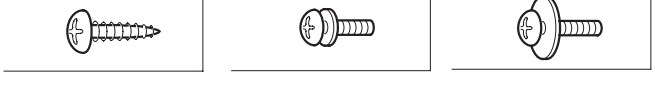
▶ : Screw, 6 ● : Nut, 4

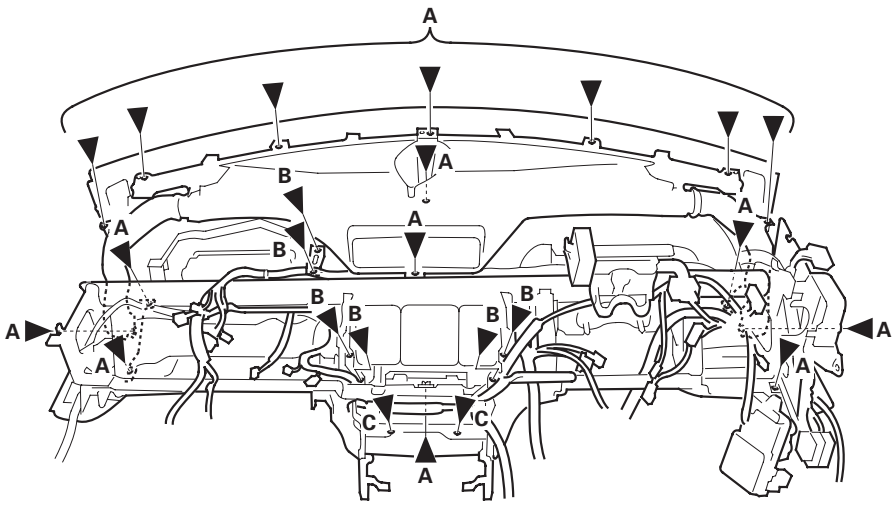


9. From the back of the dashboard, remove the screws.

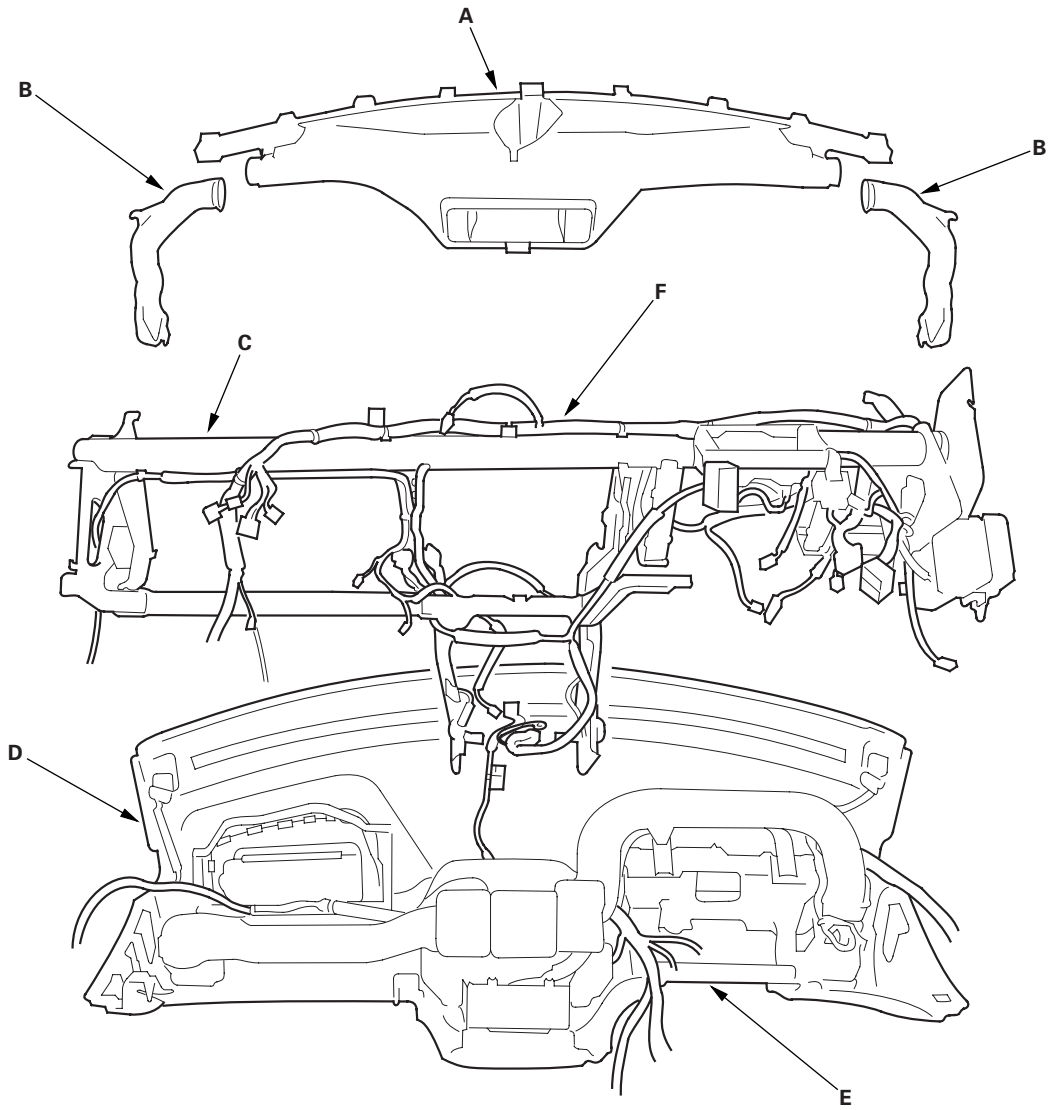
Fastener Locations

A ▶ : Screw, 16 B ▶ : Screw, 6 C ▶ : Screw, 2





10. Separate the center defogger duct (A), side defogger ducts (B), steering hanger beam (C) and dashboard (D).



11. Install the steering hanger beam in the reverse order of removal, and note these items:

- Make sure the dashboard wire harness (E) and steering hanger beam wire harness (F) are not pinched.
- Make sure the connectors are plugged in properly.

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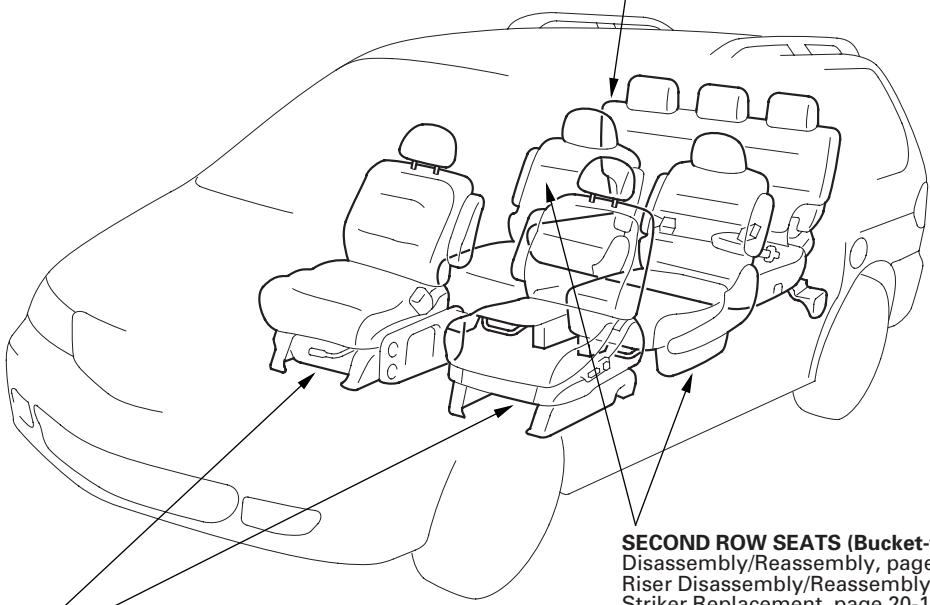
Seat Cushion Latch/Cable Replacement, page 20-122
Seat-back Recline Cable Replacement, page 20-123
Seat Cover Replacement, page 20-124



SECOND ROW SEATS (Bucket-type)
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FRONT SEATS
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Disassembly/Reassembly-8-Way Power With Side Airbag, page 20-87
Disassembly/Reassembly-Manual Height Adjustable Without Side Airbag, page 20-88
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Passenger's Seat Riser Disassembly/Reassembly, page 20-99
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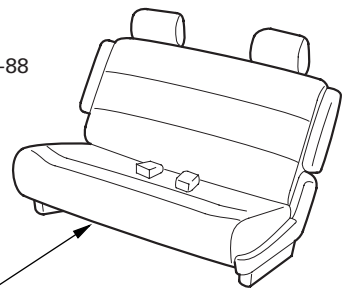

SECOND ROW SEAT (Bench-type)
Disassembly/Reassembly, page 20-109
Riser Disassembly/Reassembly, page 20-111
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Front Seat Removal/Installation

For '02-04 models: SRS components are located in this area. Review the SRS component locations, '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.

NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to scratch the body or tear the seat covers.
- Put on gloves to protect your hands.

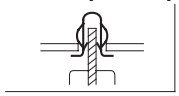
1. For '02-04 models with side airbag: Make sure you have the anti-theft codes for the radio and navigation system, then write down the frequencies for the radio preset buttons.

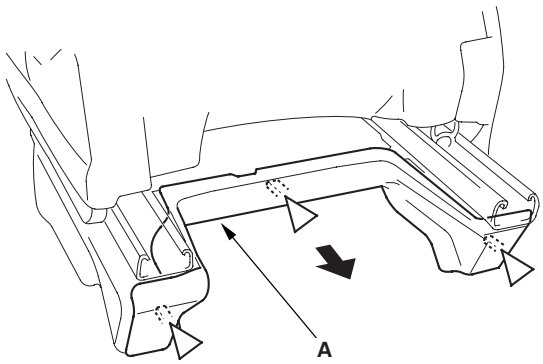
2. Slide the seat all the way forward to access the rear riser cover.

3. For '99-02 models: On the 8-way power seat, detach the side and center clips. On the manual seat and the manual height adjustable seat, detach both side clips. Then remove the rear riser cover (A).

Fastener Locations

▷: **Clip**
8-way power seat, 3
Except 8-way power seat, 2

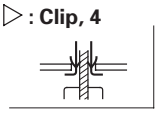




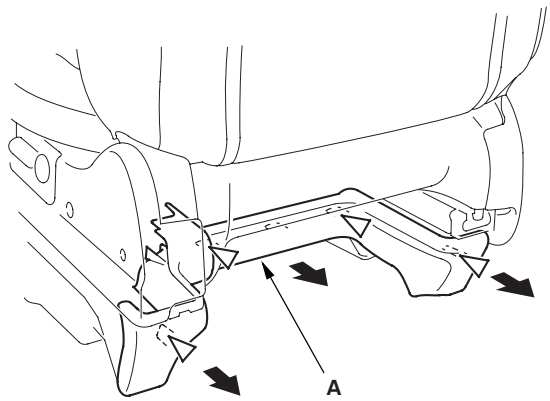
4. For '03-04 models driver's seat: Detach the clips, then remove the rear riser cover (A).

Fastener Locations

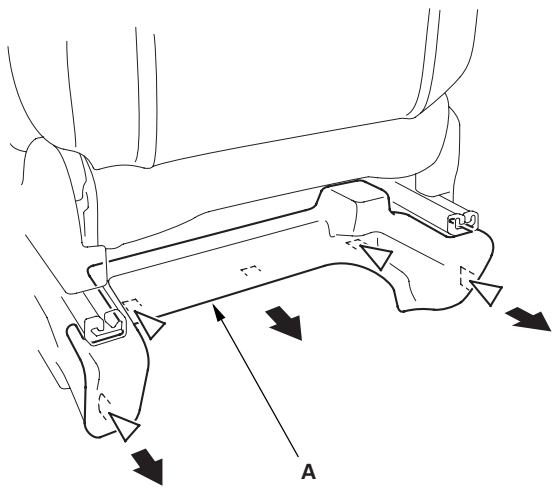
▷: **Clip, 4**



8-way power seat



Manual height adjustable seat

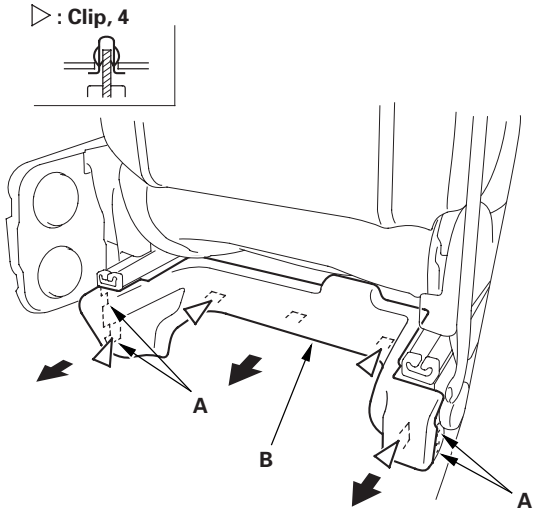


(cont'd)

Front Seat Removal/Installation (cont'd)

5. For '03-04 models passenger's seat: Release the tabs (A), and detach the clips, then remove the rear riser cover (B).

Fastener Locations
▷ : **Clip, 4**

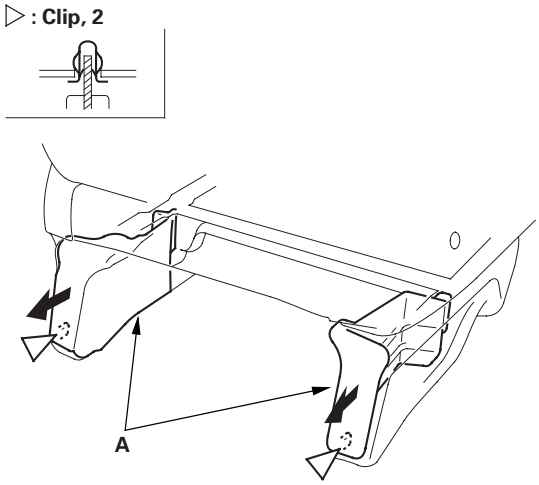


6. For '03-04 models passenger's seat: Remove the front seat belt lower anchor bracket from the front seat outer weight sensor (see step 6 on page 23-4).

7. Slide the seat about halfway to the rear to access the front riser cover. If equipped with an 8-way power seat, fully raise the seat.

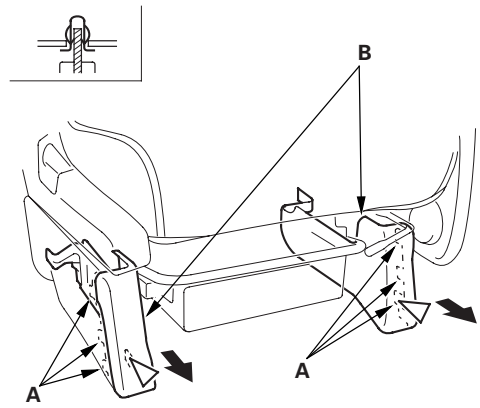
8. For '99-02 models and '03-04 models driver's seat: Detach the clips, and remove the front riser cover (A) from both sides.

Fastener Locations
▷ : **Clip, 2**



9. For '03-04 models passenger's seat: Release the tabs (A), and detach the clips, then remove the front riser cover (B) from both sides.

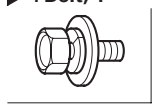
Fastener Locations
▷ : **Clip, 2**

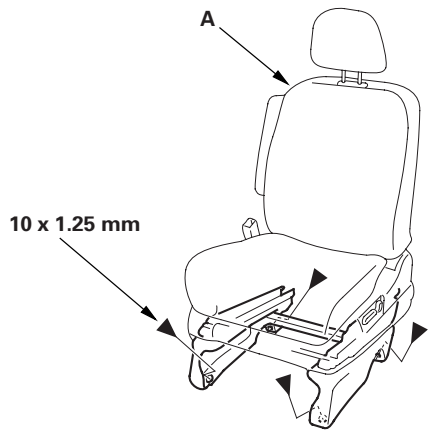


10. For '02-04 models with side airbag: Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.

11. Remove the bolts securing the front seat (A).

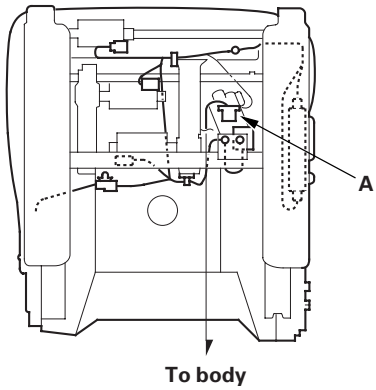
Fastener Locations
▶ : **Bolt, 4**



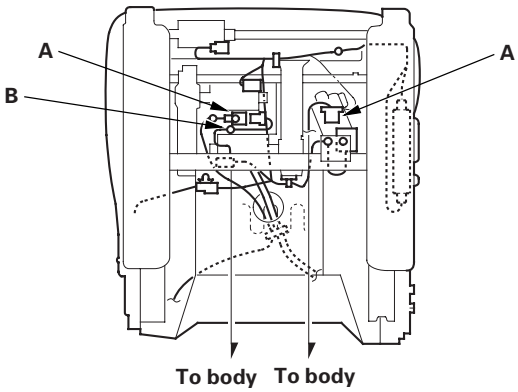


12. Lift up the front seat, then disconnect the seat harness connector (A) and detach the harness clip (B).

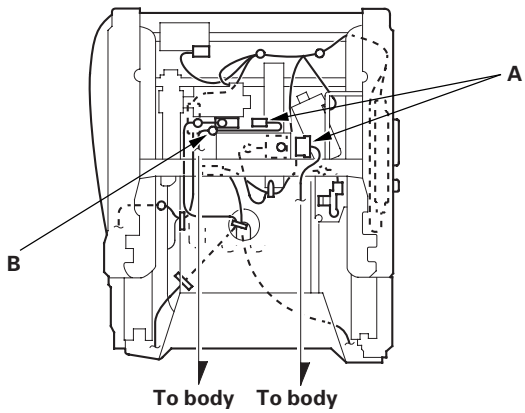
8-way power seat ('99-01 models)



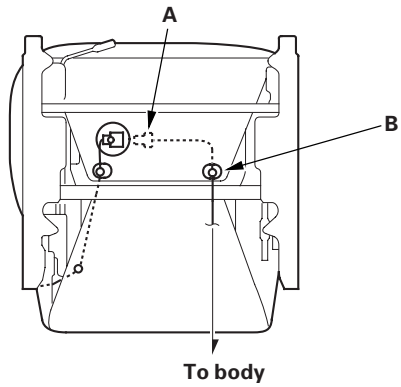
8-way power seat ('02 model)



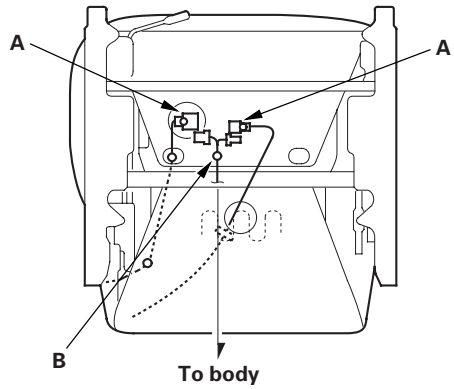
8-way power seat ('03-04 models)



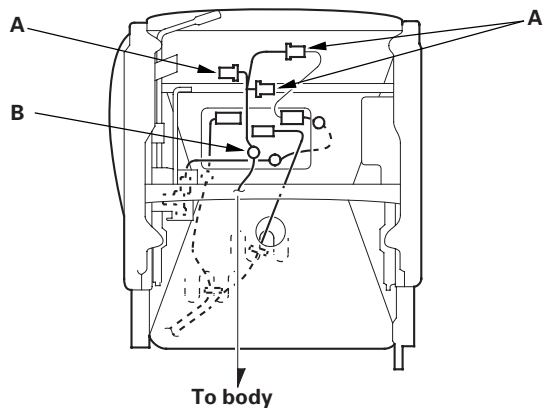
Manual height adjustable seat ('01 model)



Manual height adjustable seat ('02 model)



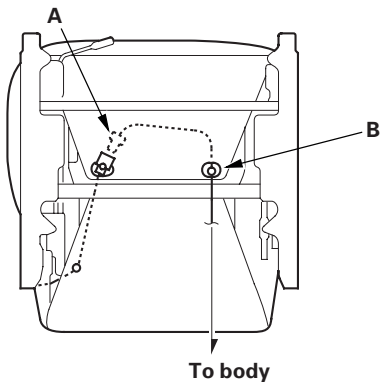
Manual height adjustable seat ('03-04 models with side airbag)



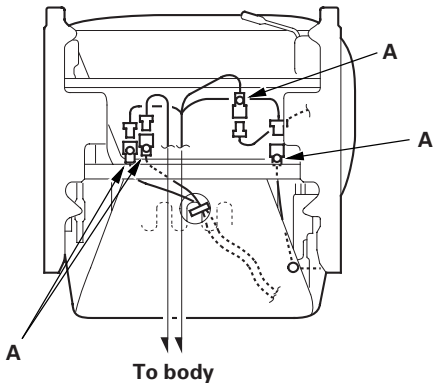
(cont'd)

Front Seat Removal/Installation (cont'd)

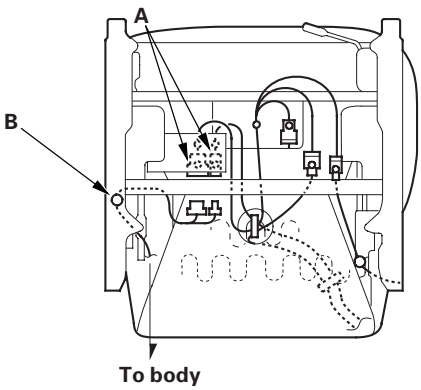
Manual seat ('99-02 models driver's seat)



Manual seat ('02 model passenger's seat with side airbag) - Without under seat storage tray

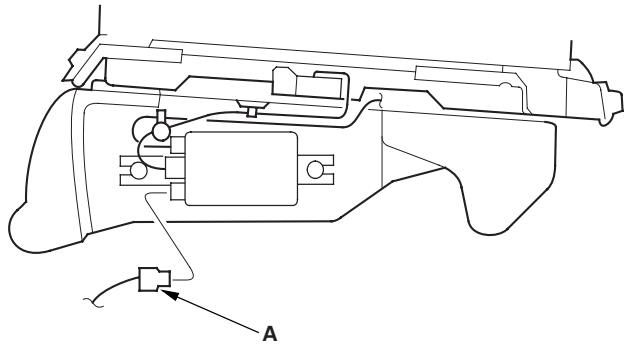


Manual seat ('02 model passenger's seat with side airbag) - With under seat storage tray

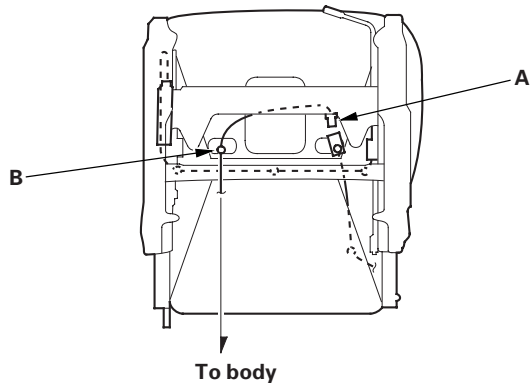


Manual seat (all '03-04 models passenger's seat)

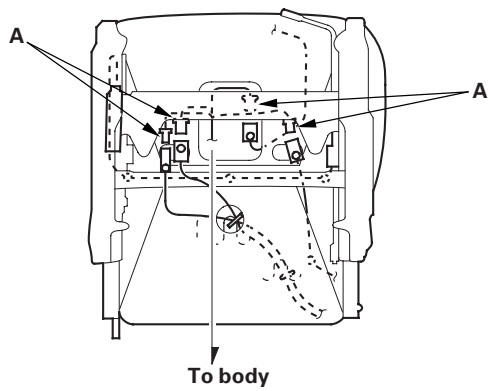
Inside view of the seat riser



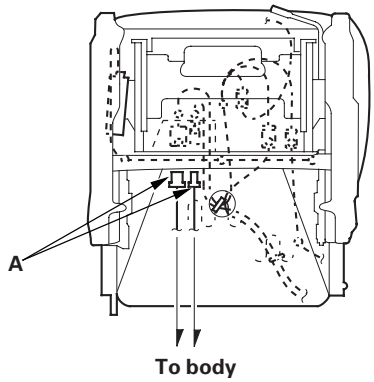
Manual seat ('03-04 models passenger's seat without side airbag)



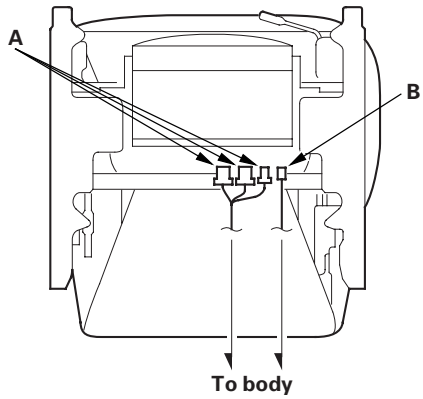
Manual seat ('03-04 models passenger's seat with side airbag) - Without under seat storage tray (with seat cushion heater for some models)



Manual seat ('03-04 models passenger's seat with side airbag) - With under seat storage tray (with seat cushion heater for some models)



13. For some '00-04 models: Disconnect the navigation unit connectors (A) and GPS antenna connector (B) from under the passenger's seat.



14. Remove the headrest.

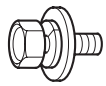
15. With the help of an assistant, carefully remove the front seat through the front door opening.

16. Install the seat in the reverse order of removal, and note these items:

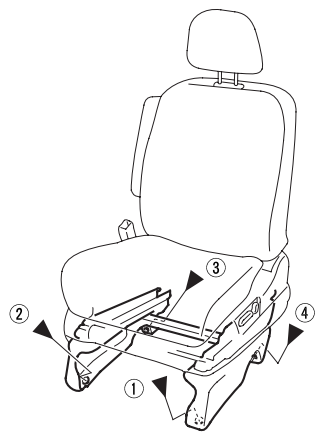
- Replace any damaged clips.
- Make sure each connector is plugged in properly.
- Apply liquid thread lock to the seat mounting bolts before reinstallation.
- Tighten the seat mounting bolts to the specified torque in the sequence shown. Slide the seat all the way back and tighten ① and ②, then slide it forward and tighten ③ and ④.
- Push the cover clips into place securely.
- For '02-04 models with side airbag: Reconnect the negative cable to the battery.
- For '02-04 models with side airbag: Enter the anti-theft code for the radio and navigation system, then enter the customer's radio station presets.
- For '02-04 models with side airbag: Do the PCM idle learn procedure (see page 11-202).
- For '02-04 models with side airbag: Do the power window control unit reset procedure (see page 22-200).

Fastener Locations

▶ : Bolt, 4



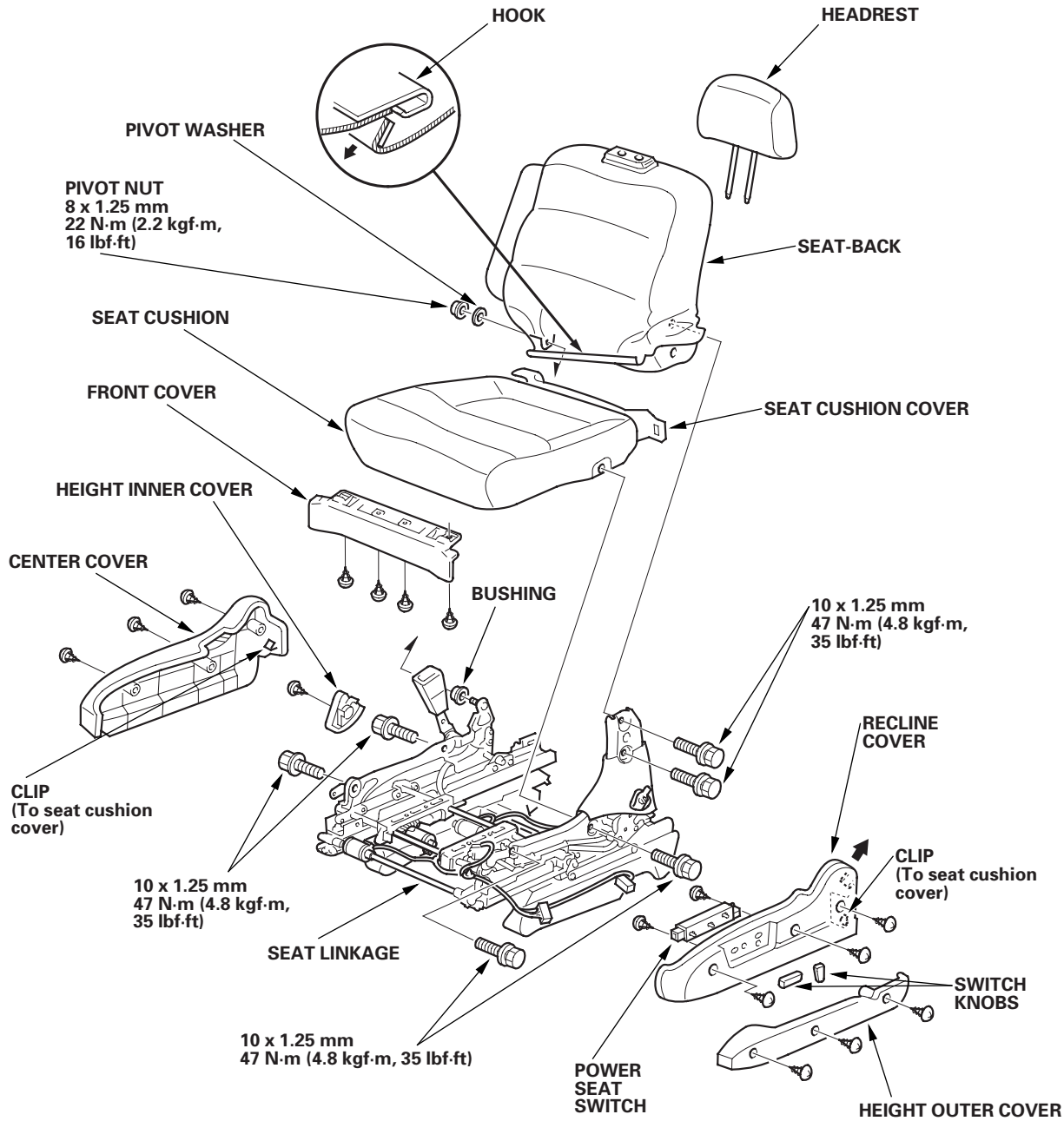
10 x 1.25 mm
47 N·m (4.8 kgf·m, 35 lbf·ft)



Front Seat Disassembly/Reassembly - 8-Way Power

'99-01 models Without Side Airbag

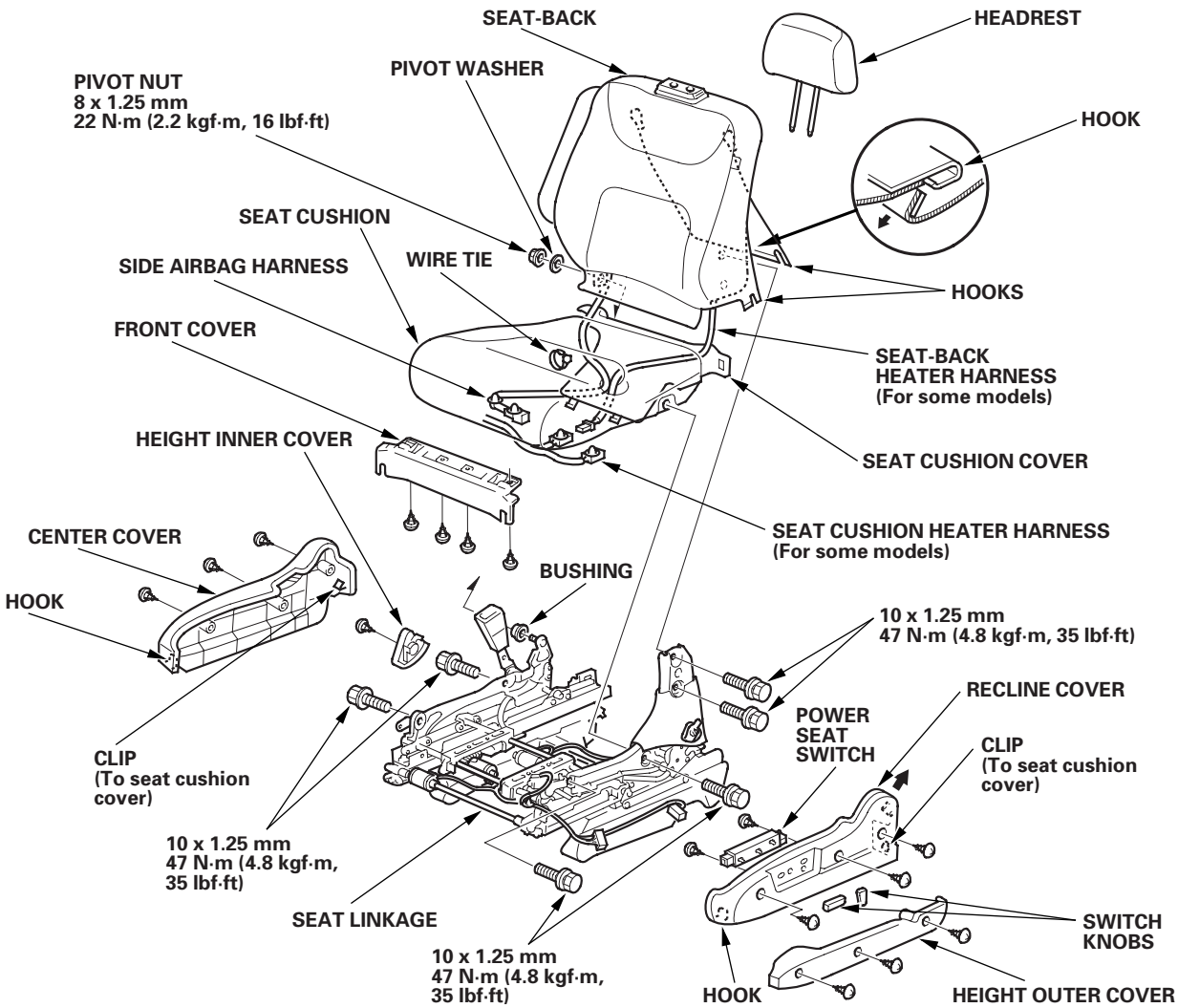
NOTE:
- Route the seat wire harness correctly (see page 20-94).
- Make sure the bushing and pivot washer are installed correctly.
- Apply multipurpose grease to the moving portion of the seat track.
- To prevent wrinkles in the seat-back cover, stretch the material evenly over the pad.



’02-04 models With Side Airbag

- SRS components are located in this area. Review the SRS component locations, ’02 model (see page 23-19), ’03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.
- For ’03-04 models: The operation of the driver’s seat position sensor must be checked after any of these actions (see page 23-47):
  – Driver’s seat position sensor replacement
  – Cover plate (front side of driver’s seat slide rail) replacement

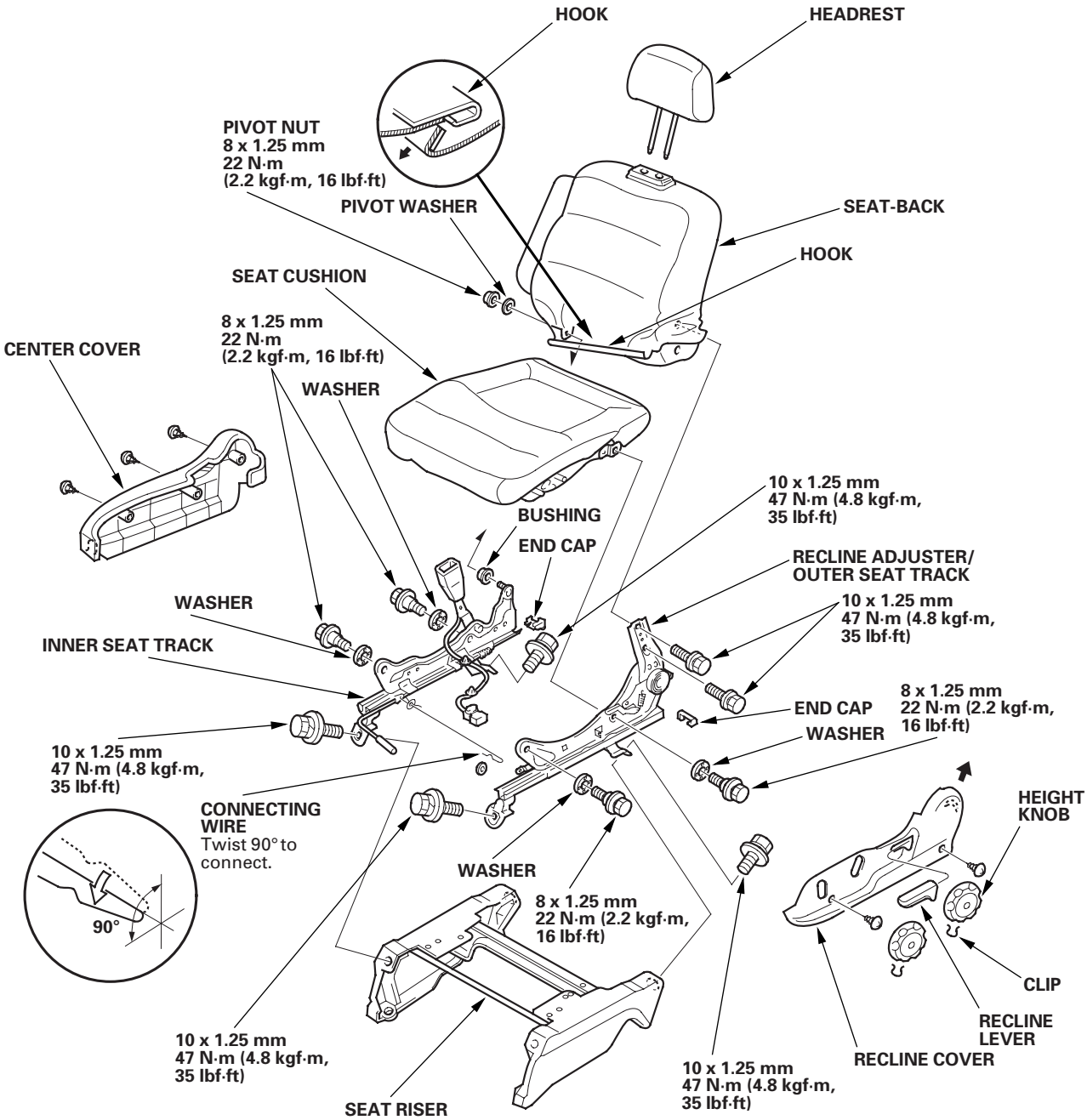
NOTE:
- Route the seat wire harness correctly (see page 20-94).
- Make sure the bushing and pivot washer are installed correctly.
- Apply multipurpose grease to the moving portion of the seat track.
- To prevent wrinkles in the seat-back cover, stretch the material evenly over the pad.
- Replace the back panel clips with new ones.



Front Seat Disassembly/Reassembly - Manual Height Adjustable

'01 model Without Side Airbag

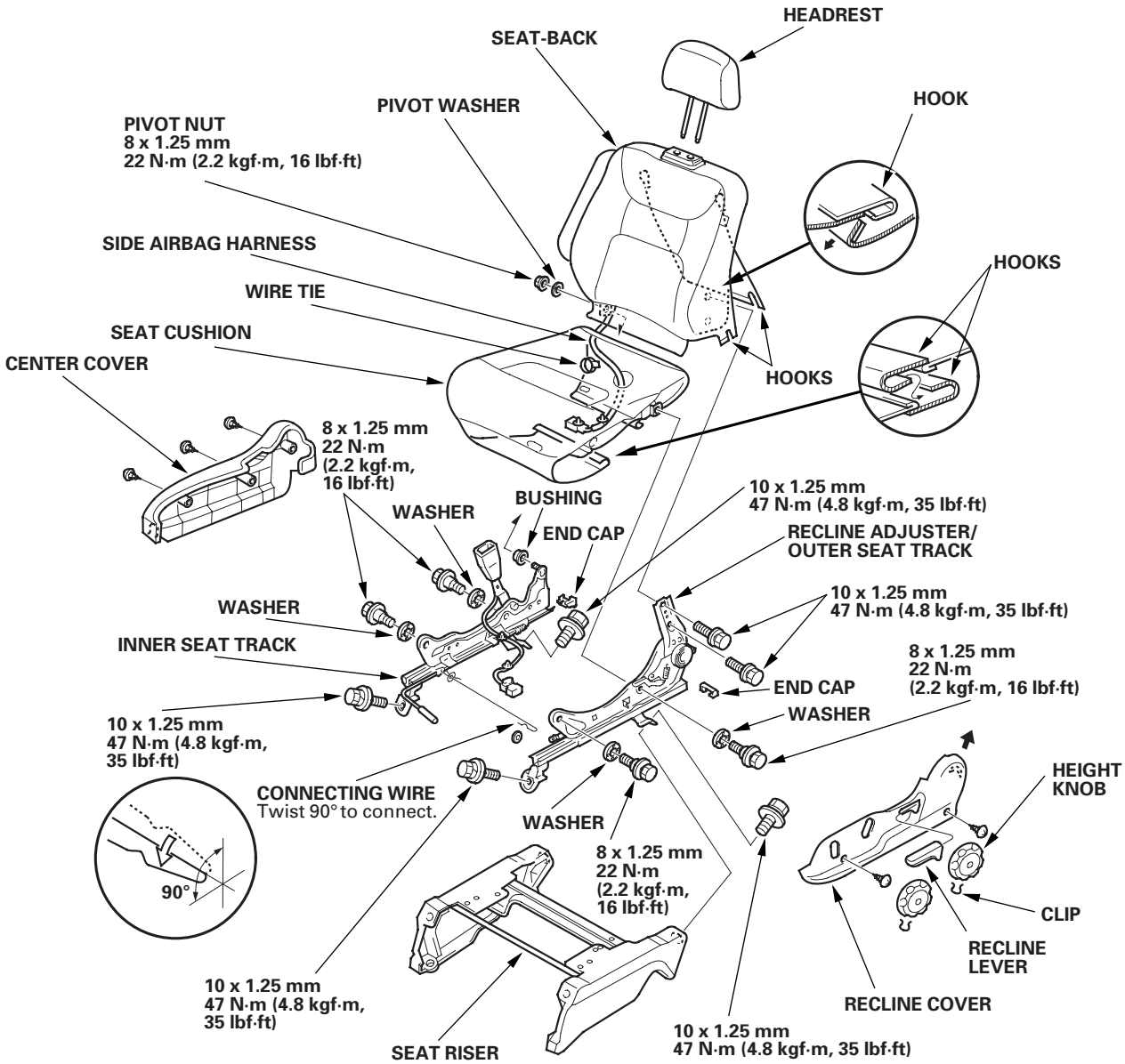
NOTE:
- Route the seat wire harness correctly (see page 20-94).
- Make sure the bushing and pivot washer are installed correctly.
- Apply multipurpose grease to the moving portion of the seat track.
- To prevent wrinkles in the seat-back cover, stretch the material evenly over the pad.



’02 model With Side Airbag

SRS components are located in this area. Review the SRS component locations (see page 23-19), and the precautions and procedures (see page 23-21) before performing repairs or service.

NOTE:
- Route the seat wire harness correctly (see page 20-94).
- Make sure the bushing and pivot washer are installed correctly.
- Apply multipurpose grease to the moving portion of the seat track.
- To prevent wrinkles in the seat-back cover, stretch the material evenly over the pad.

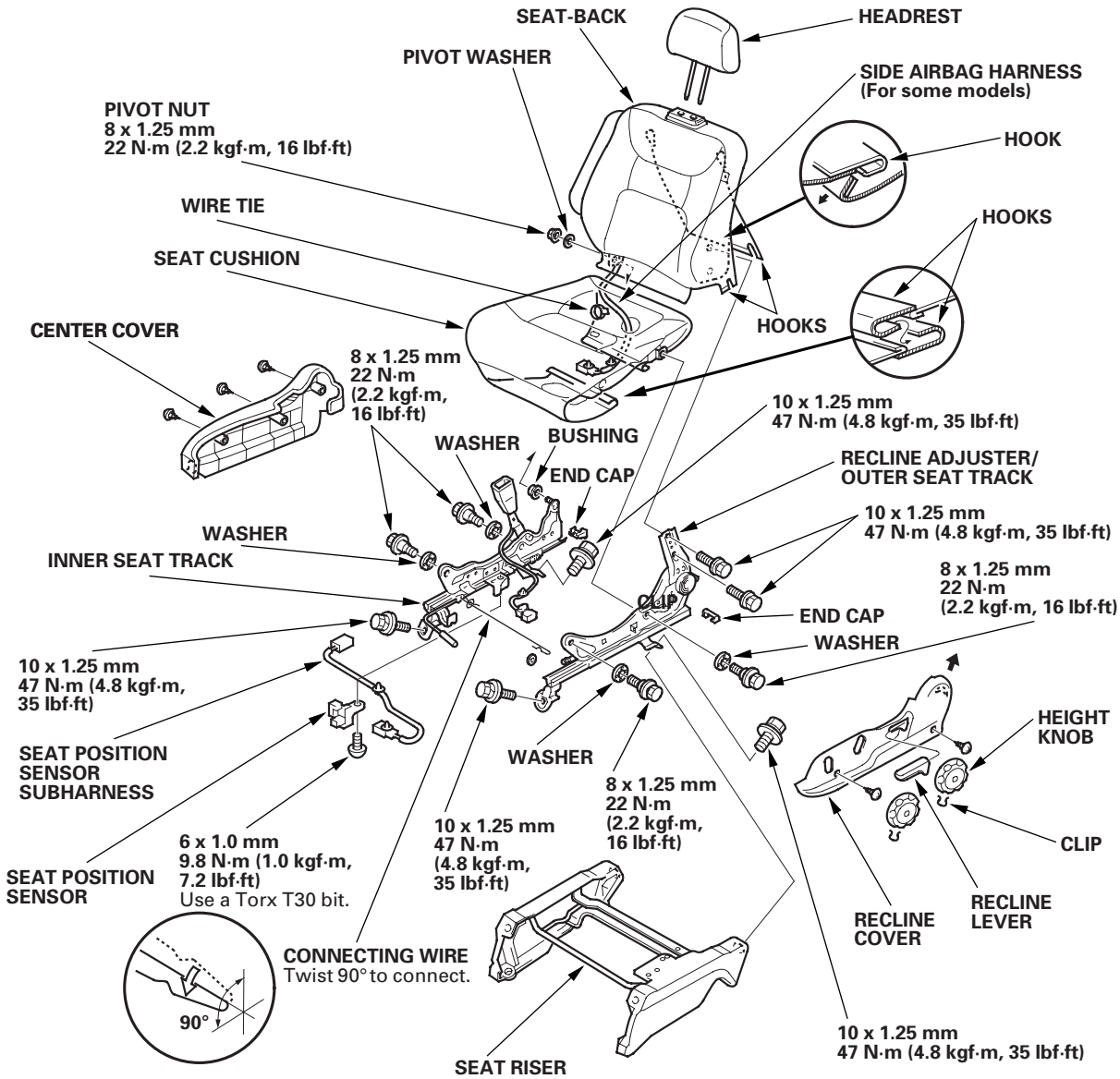


Front Seat Disassembly/Reassembly - Manual Height Adjustable (cont'd)

'03-04 models

- For some models: SRS components are located in this area. Review the SRS component locations (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.
- The operation of the driver's seat position sensor must be checked after any of these actions (see page 23-47):
  – Driver's seat position sensor replacement
  – Cover plate (front side of driver's seat slide rail) replacement

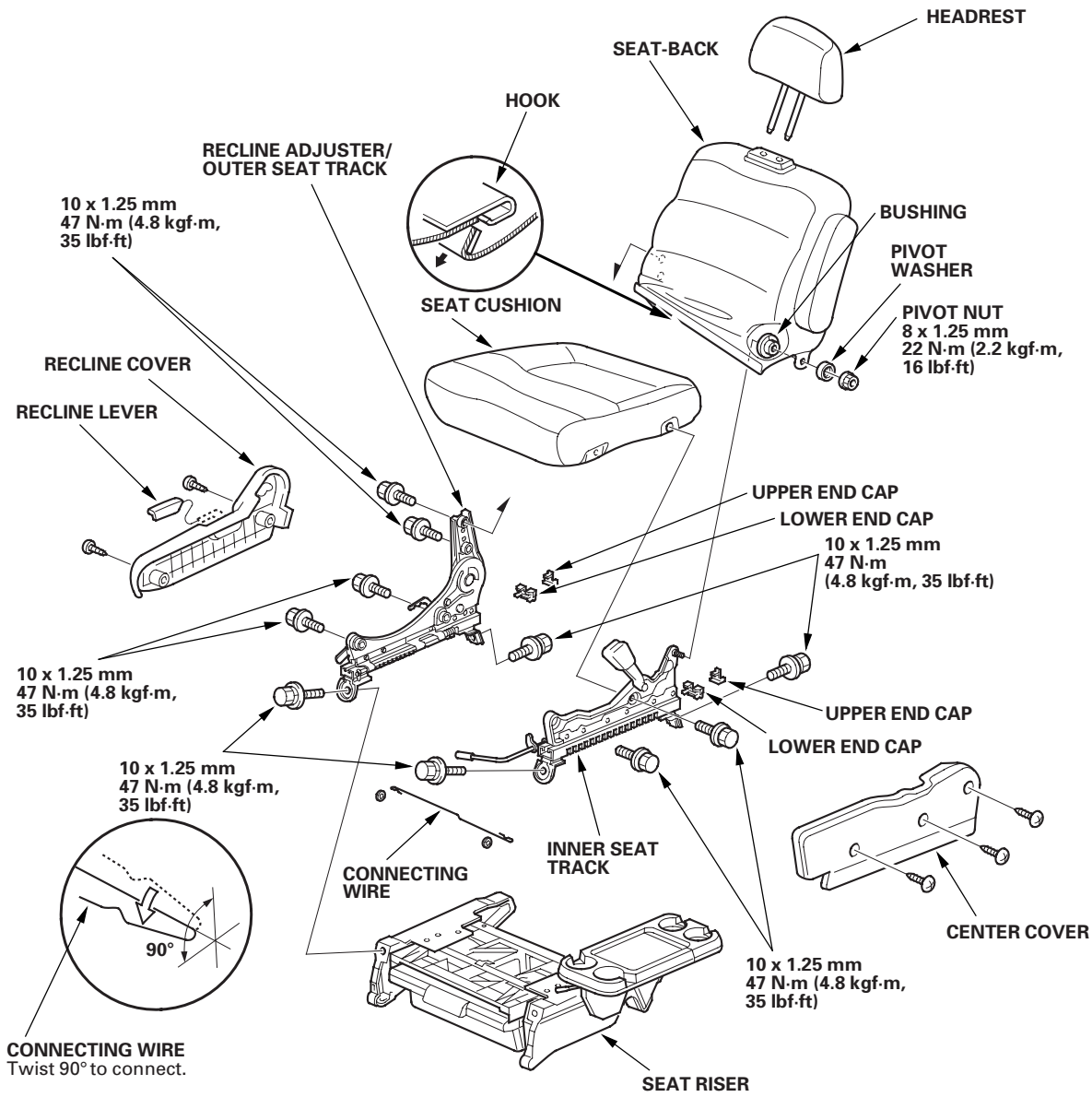
NOTE:
- Route the seat wire harness correctly (see page 20-94).
- Make sure the bushing and pivot washer are installed correctly.
- Apply multipurpose grease to the moving portion of the seat track.
- To prevent wrinkles in the seat-back cover, stretch the material evenly over the pad.



Front Seat Disassembly/Reassembly - Manual

'99-02 models Without Side Airbag

NOTE:
- The passenger's seat is shown, the driver's seat is similar except that it has a seat belt switch harness and doesn't have a center table, under seat storage tray, and navigation unit (for some models).
- Route the seat wire harness correctly (see page 20-94).
- Make sure the bushing and pivot washer are installed correctly.
- Apply multipurpose grease to the moving portion of the seat track.
- To prevent wrinkles in the seat-back cover, stretch the material evenly over the pad.

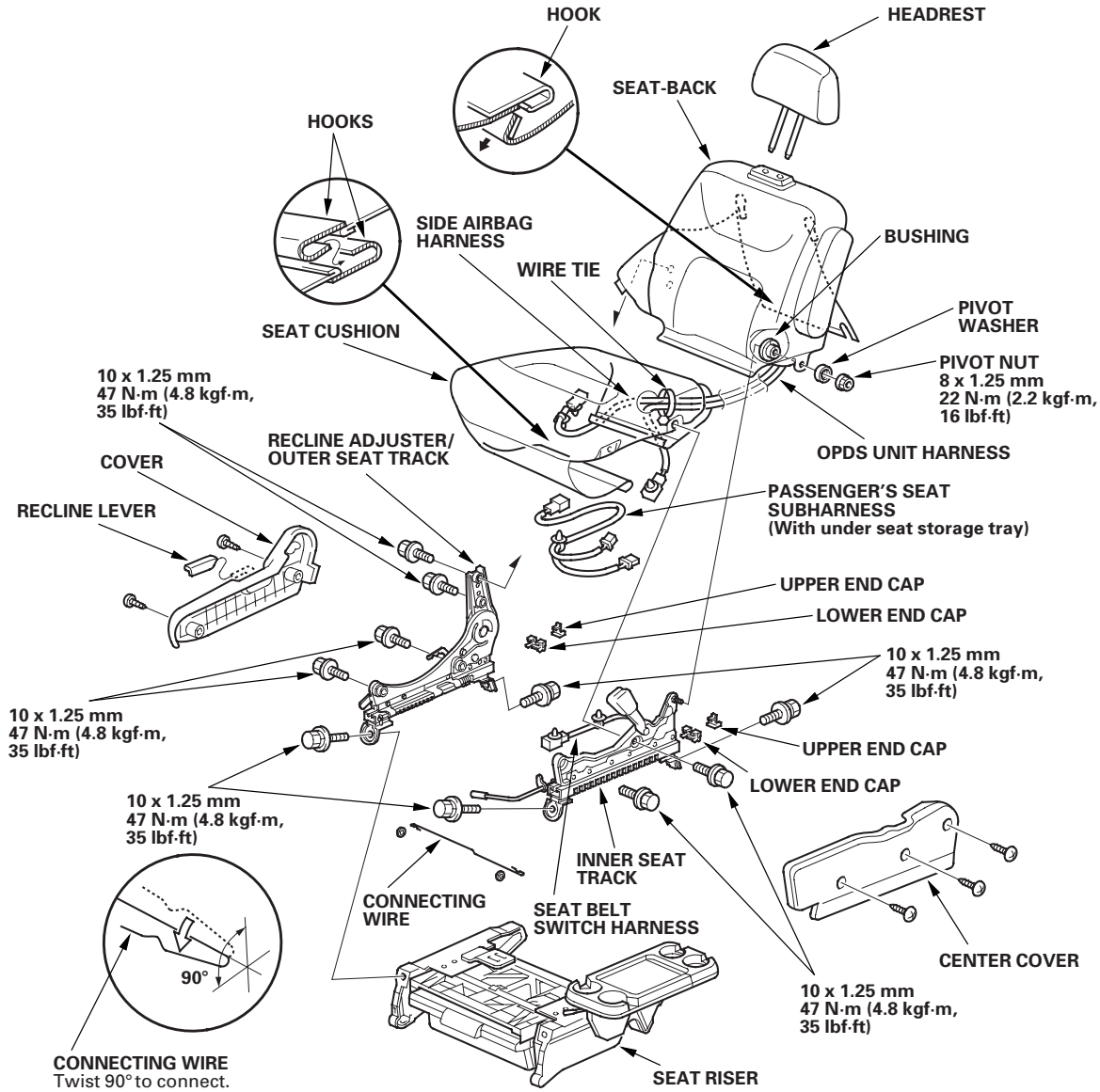


Front Seat Disassembly/Reassembly - Manual (cont'd)

'02 model With Side Airbag

SRS components are located in this area. Review the SRS component locations (see page 23-19), and the precautions and procedures (see page 23-21) before performing repairs or service.

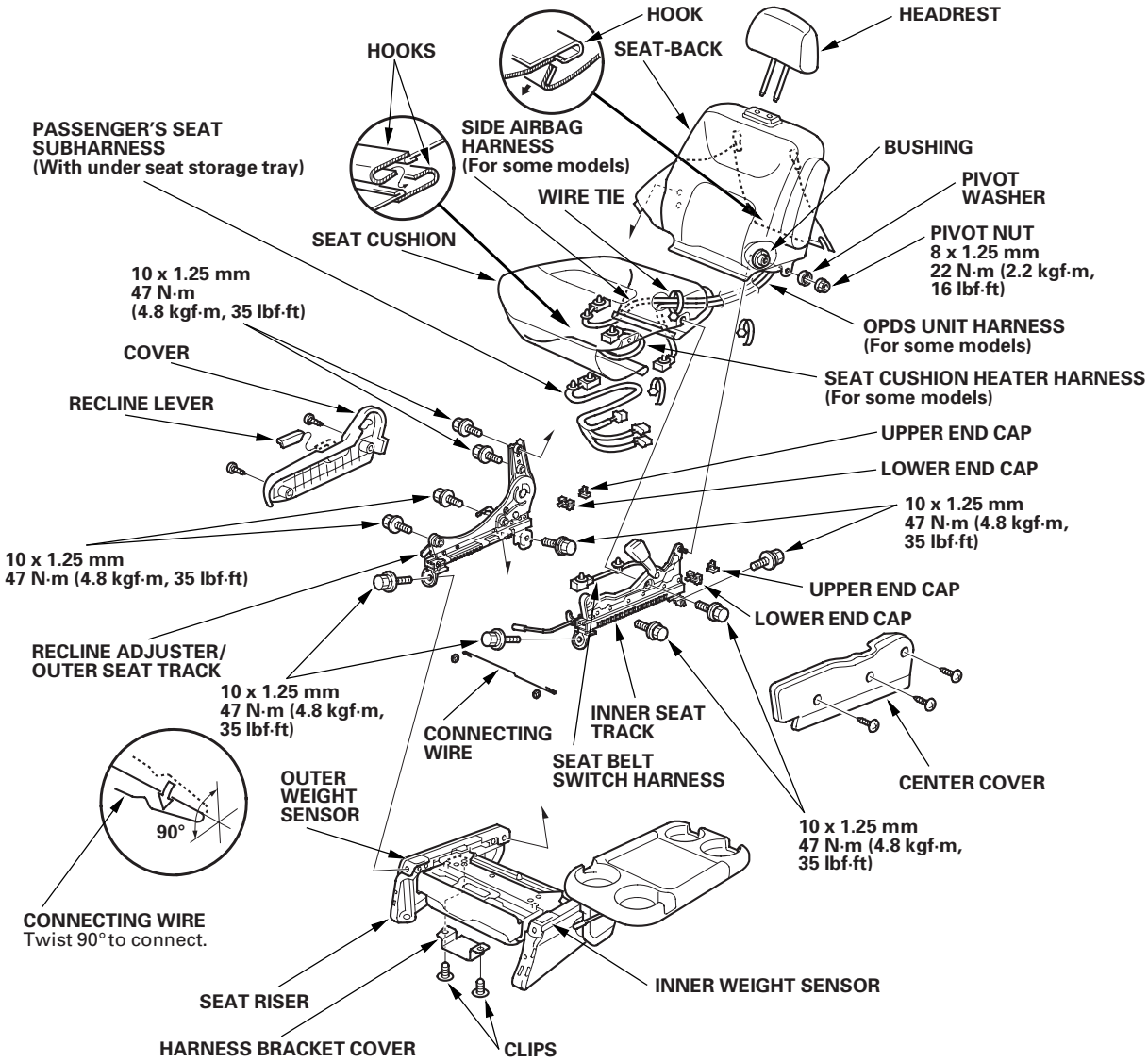
NOTE:
- The passenger's seat with under seat storage tray is shown, the driver's seat is similar except that it doesn't have the OPDS unit, center table, under seat storage tray, and navigation unit (for some models), and the passenger's seat without under seat storage tray has no passenger subharness (see page 20-94).
- Route the seat wire harness correctly (see page 20-94).
- Make sure the bushing and pivot washer are installed correctly.
- Apply multipurpose grease to the moving portion of the seat track.
- To prevent wrinkles in the seat-back cover, stretch the material evenly over the pad.



’03-04 models

- SRS components are located in this area. Review the SRS component locations (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.
- The front passenger’s weight sensor (SWS) unit must be calibrated after any of these actions (see page 23-42):
  – Front passenger’s seat replacement (including any seat components)
  – Replacement of the seat weight sensors
  – Replacement of the seat weight sensor unit

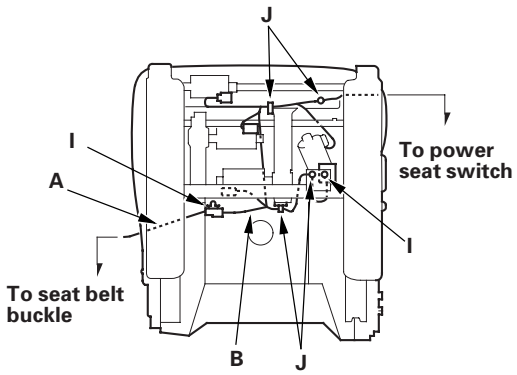
NOTE:
- Route the seat wire harness correctly (see page 20-94).
- Make sure the bushing and pivot washer are installed correctly.
- Apply multipurpose grease to the moving portion of the seat track.
- To prevent wrinkles in the seat-back cover, stretch the material evenly over the pad.



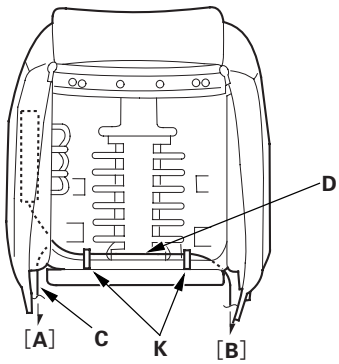
Front Seat Wiring Harness Installation

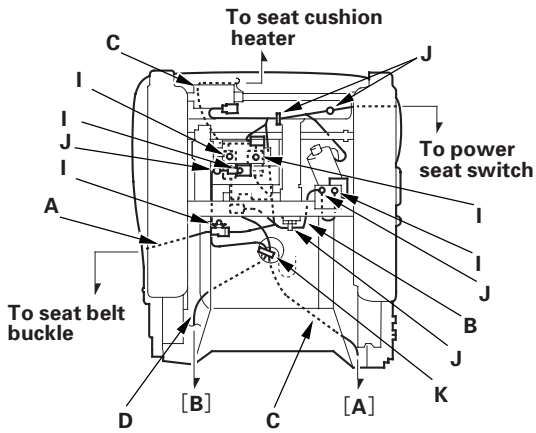
When assembling the front seat, make sure the seat belt switch harness (A), seat harness (B), seat heater harnesses (C), side airbag harness ('02-04 models) (D), seat position sensor subharness ('03-04 models) (E), OPDS unit harness ('02-04 models) (F), weight sensor harness ('03-04 models) (G), passenger's seat subharness (H), connector clips (I), wire harness clips (J), and wire ties (K) are fastened correctly.

8-way power seat ('99-01 models)

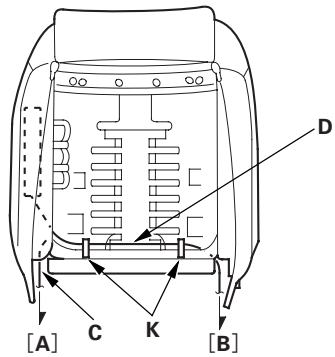


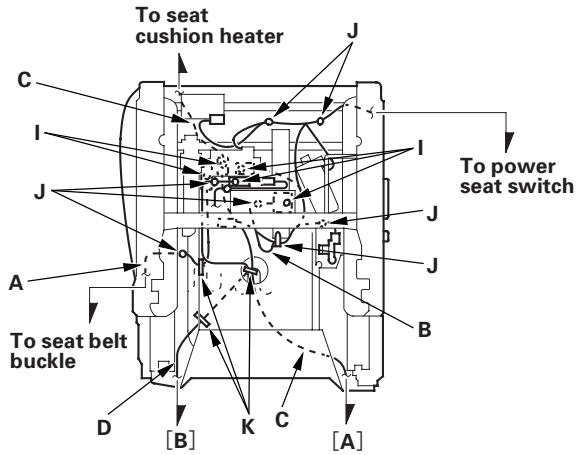
8-way power seat ('02 model with seat heater)



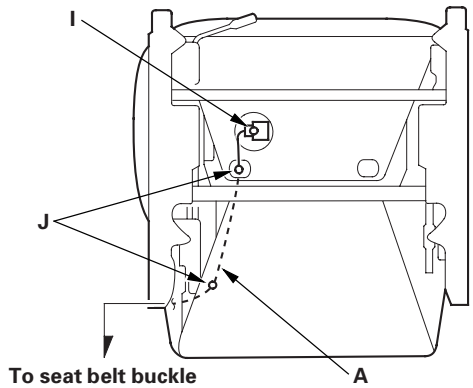


8-way power seat ('03-04 models with seat heater)

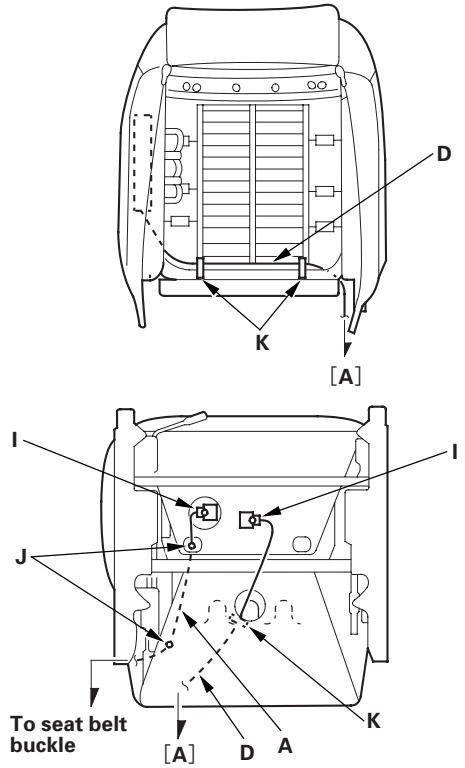




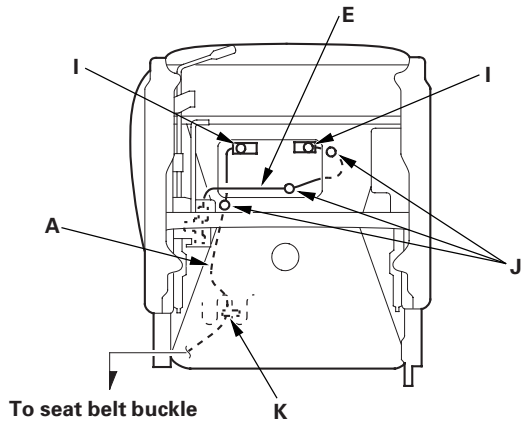
Manual height adjustable seat ('01 model)



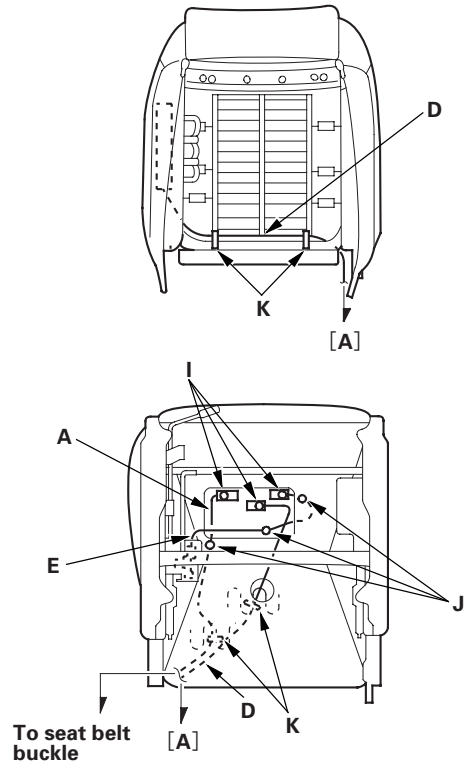
Manual height adjustable seat ('02 model with side airbag)



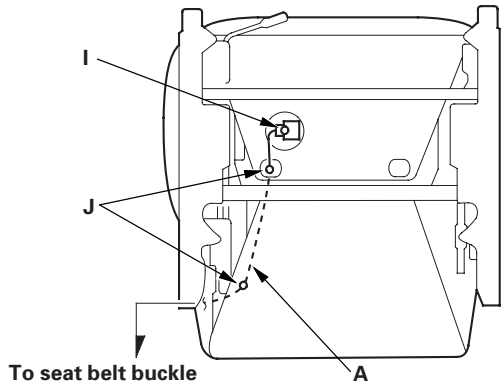
Manual height adjustable seat ('03-04 models without side airbag)



Manual height adjustable seat ('03-04 models with side airbag)



Manual seat ('99-02 models driver's seat)



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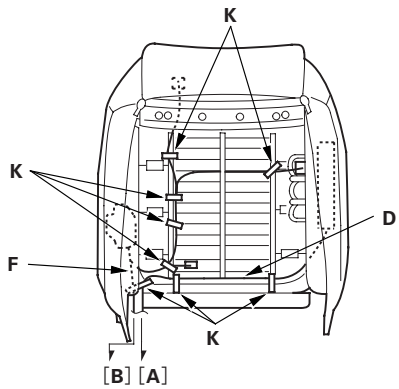
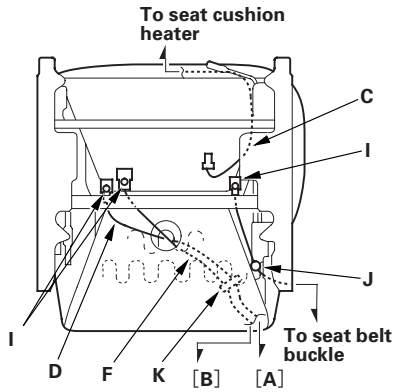
Front Seat Wiring Harness Installation (cont'd)

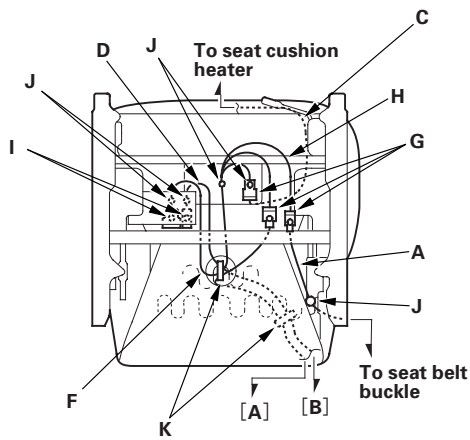
Manual seat ('02 model passenger's seat with side airbag)



Seat cushion: Manual seat ('02 model passenger's seat with side airbag but no under seat storage tray)

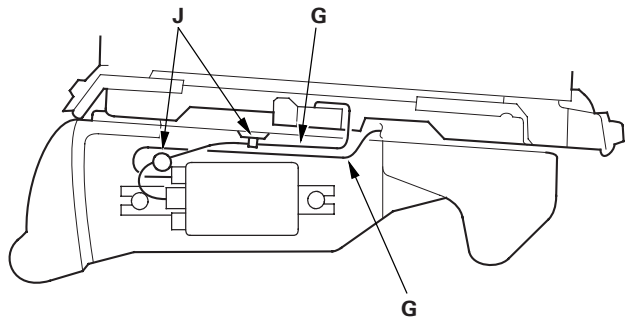


Seat cushion: Manual seat ('02 model passenger's seat with side airbag and under seat storage tray)

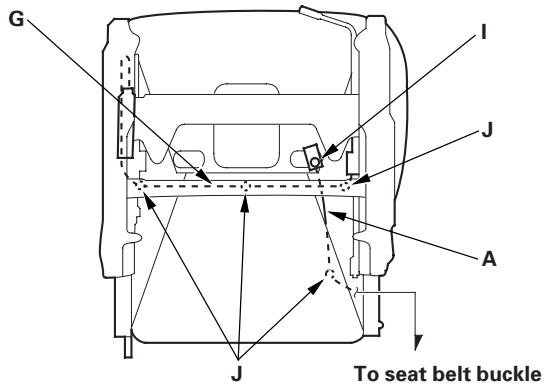


Manual seat (all '03-04 models passenger's seat)

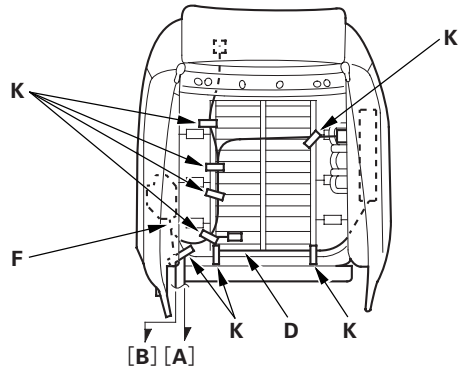
Inside view of the seat riser



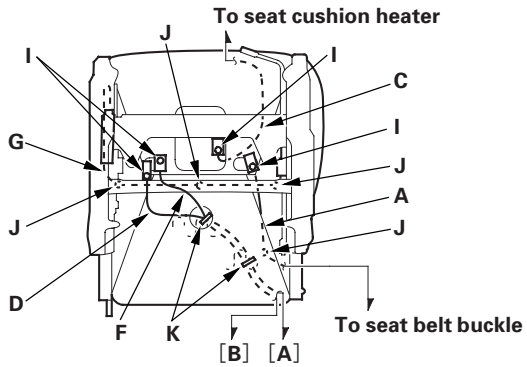
Manual seat ('03-04 models passenger's seat without side airbag)



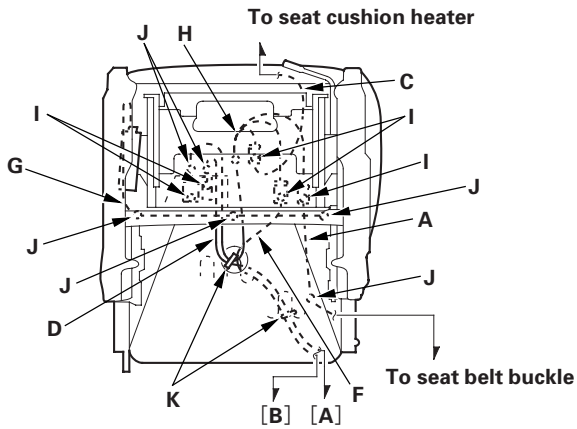
Manual seat ('03-04 models passenger's seat with side airbag)



Seat cushion: Manual seat ('03-04 models passenger's seat with side airbag but no under seat storage tray)



Seat cushion: Manual seat ('03-04 models passenger's seat with side airbag and under seat storage tray)

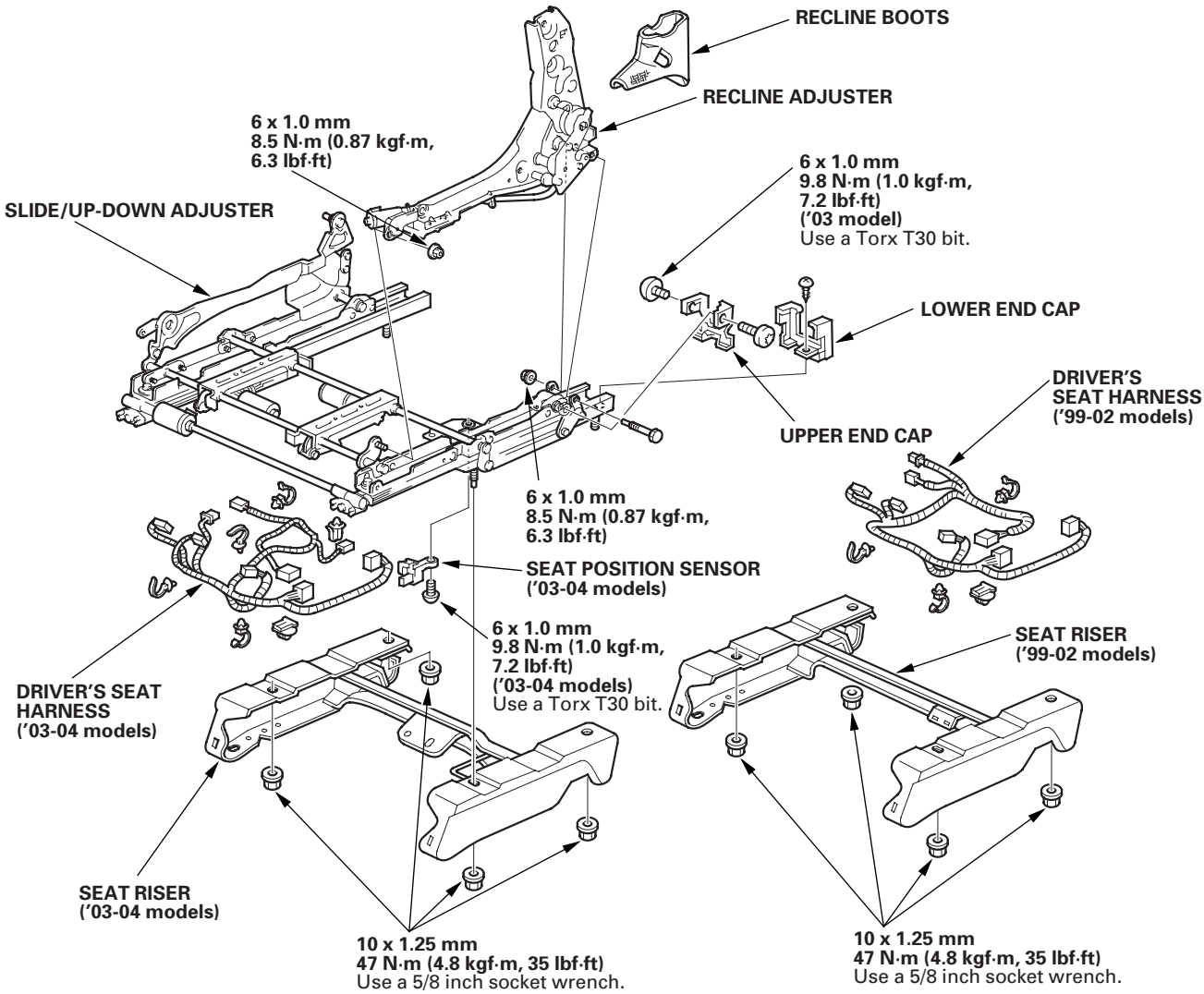


Front Seat Linkage Disassembly/Reassembly - 8-Way Power

For '03-04 models: The operation of the driver's seat position sensor must be checked after any of these actions (see page 23-47):

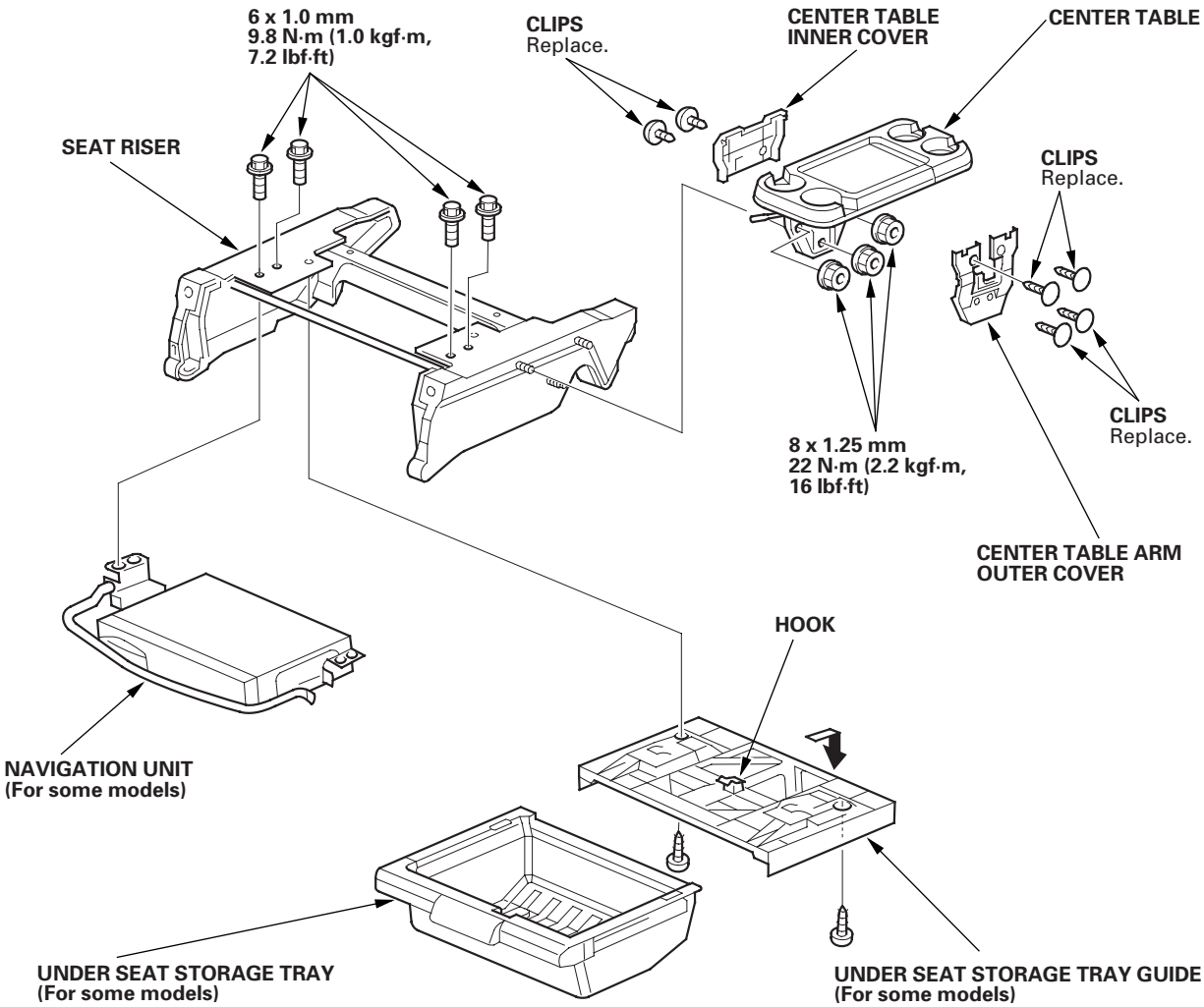
- Driver's seat position sensor replacement.
- Cover plate (front side of driver's seat slide rail) replacement.

NOTE:
- Replace the bushings with new ones.
- Apply multipurpose grease to the sliding and pivot portions.
- Check operation of the recline adjuster and slide/up-down adjuster.



Front Passenger's Seat Riser Disassembly/Reassembly

'99-02 models



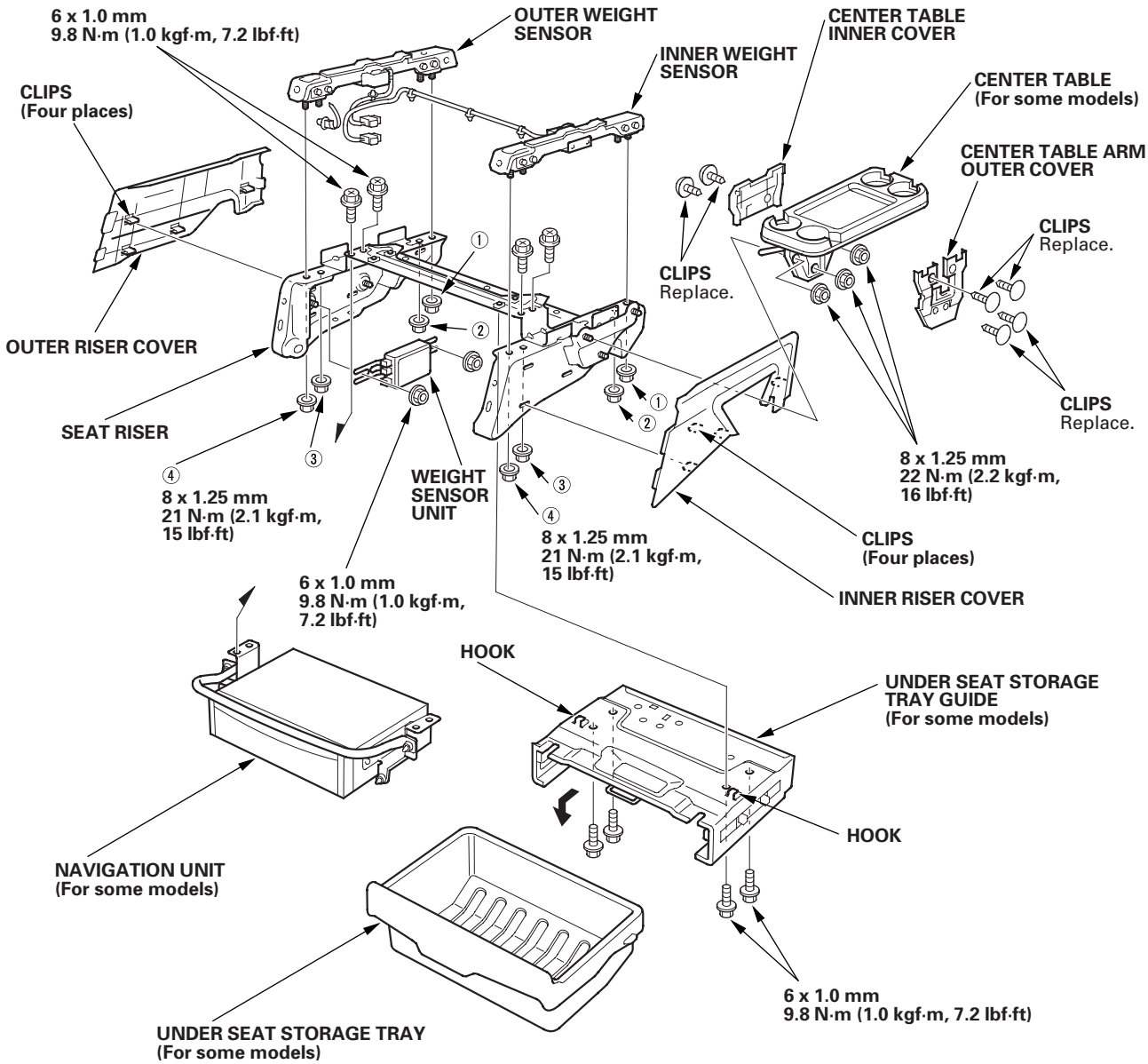
Front Passenger's Seat Riser Disassembly/Reassembly (cont'd)

'03-04 models

The front passenger's weight sensor (SWS) unit must be calibrated after any of these actions (see page 23-42):

- Front passenger's seat replacement (including any seat components)
- Replacement of the seat weight sensors
- Replacement of the seat weight sensor unit

NOTE:
- When tightening the weight sensor mounting nuts, starting at the rear, tighten the nuts in the sequence shown.
- Make sure the weight sensor unit connectors are plugged in properly.



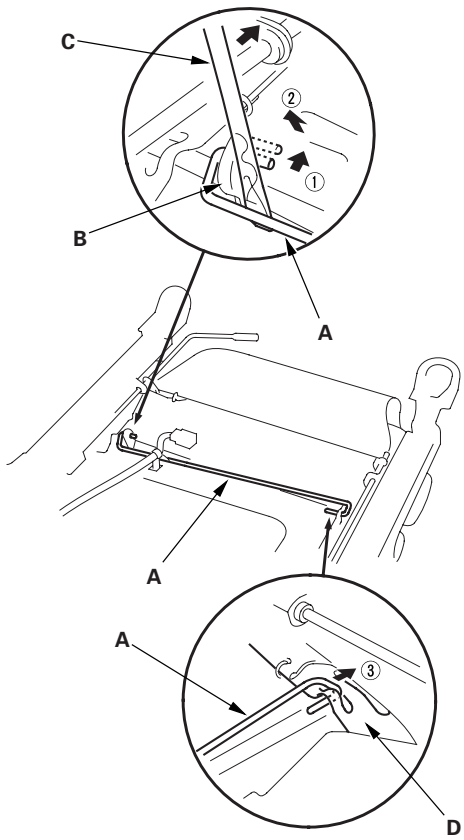
Front Seat Torsion Bar Replacement - Manual Height Adjustable

NOTE: Take care not to tear the seams or damage the seat covers.

1. Remove the front seat (see page 20-81).

2. Release the hooks from under the seat cushion, then turn over the seat cushion cover as necessary (see page 20-106).

3. Put on gloves to protect your hands. Remove the torsion bar (A) from the hook (B) with a flat-tip screwdriver (C), then pull out the torsion bar from the seat cushion frame (D).



4. Install the torsion bar in the reverse order of removal.

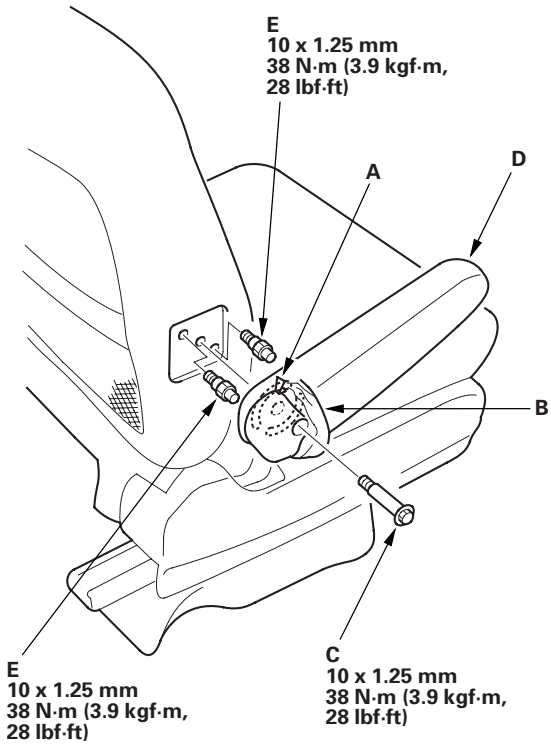
Front Seat Cover Replacement

- For '02-04 models: SRS components are located in this area. Review the SRS component locations, '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.
- For '03-04 models: The operation of the driver's seat position sensor must be checked after any of these actions (see page 23-47):
  – Driver's seat position sensor replacement
  – Cover plate (front side of driver's seat slide rail) replacement
- For '03-04 models: The front passenger's weight sensor (SWS) unit must be calibrated after any of the these actions (see page 23-42):
  – Front passenger's seat replacement (including any seat components)
  – Replacement of the seat weight sensors
  – Replacement of the seat weight sensor unit

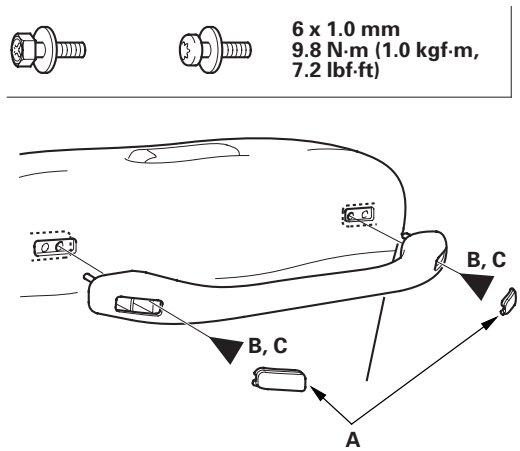
NOTE:
- With side airbag ('02-04 models): Seats with a side airbag have a ''Side Airbag'' label on the seat-back. Because the component parts (seat-back cover, cushion, etc.) of seats with and without airbags are different, make sure you install only the correct replacement parts.
- With side airbag ('02-04 models): Do not repair any tears or frayed spots of the seat-back cover. If necessary, replace the seat-back cover.
- Take care not to tear the seams or damage the seat covers.
- With side airbag ('02-04 models): Do not touch the OPDS sensor in the seat-back pad. Keep the sensor free from grease, oils and moisture, as they can damage the sensor. Oils can corrode the sensor, and cause it to malfunction.
- Put on gloves to protect your hands.

Seat-back Cover

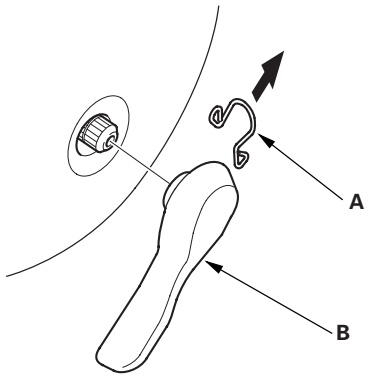
1. Release the zipper (A) and pull back the armrest cover (B). Remove the armrest center pin (C), armrest (D), and armrest pins (E).



2. Pry off the caps (A) and remove the screws (B or C) using a Torx T30 bit. Then remove the grab handle.

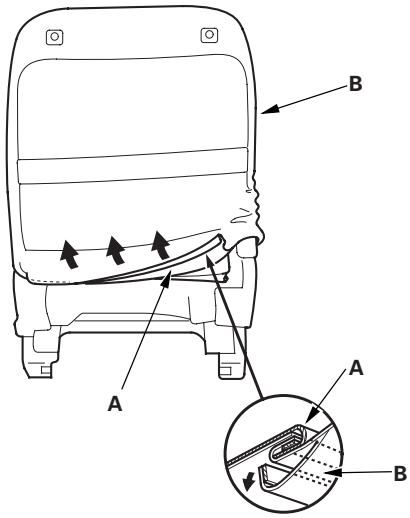


3. If equipped, remove the clip (A), then remove the lumbar support knob (B).

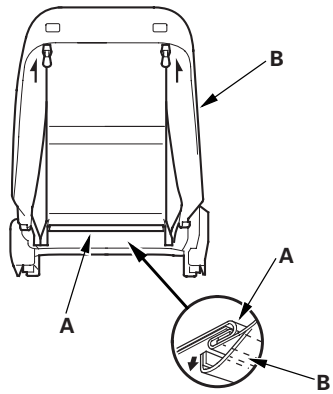


4. Fold the seat-back forward.

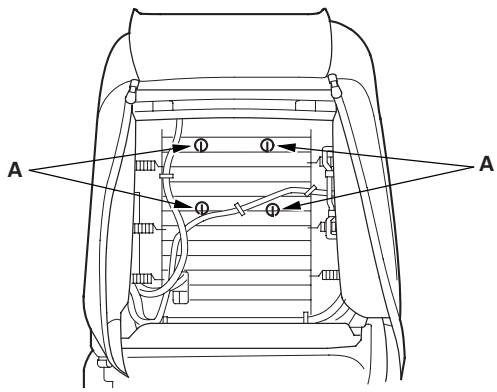
5. For '99-01 models: Release the hook (A), and fold back the edge of the seat-back cover (B) all the way around.



6. For '02-04 models: Release the hook (A), and unzip the seat-back cover (B), then fold it back.



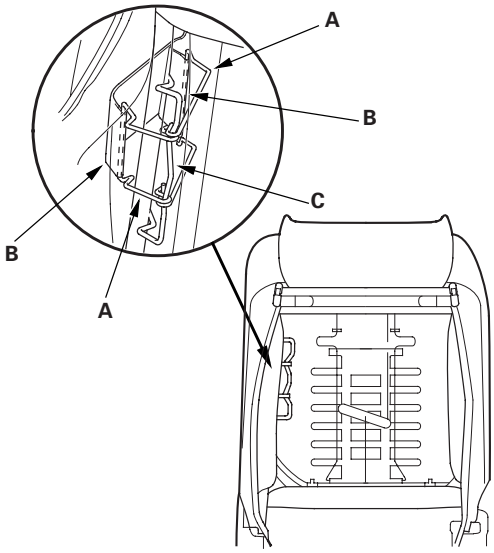
7. For '02-04 models: On the passenger's seat, release all of the inside springs (A).



(cont'd)

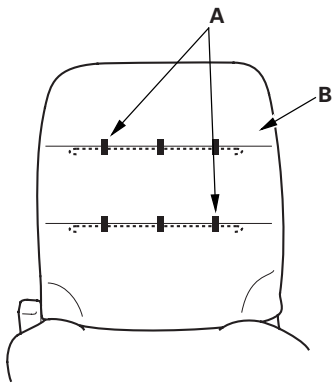
Front Seat Cover Replacement (cont'd)

8. For some '02-04 models: If equipped with side airbag, release the hooks (A) of the reinforcing cloth (B) from the seat-back frame (C).

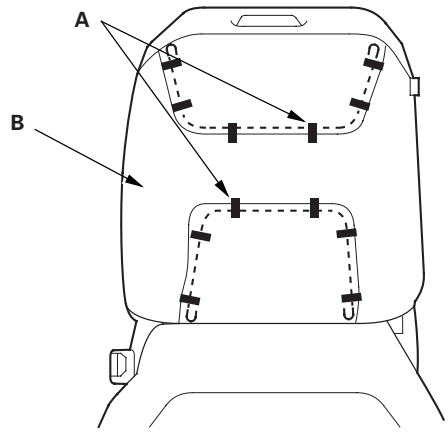


9. Fold back the edge of the seat-back cover (A) all the way around, then release the clips (A).

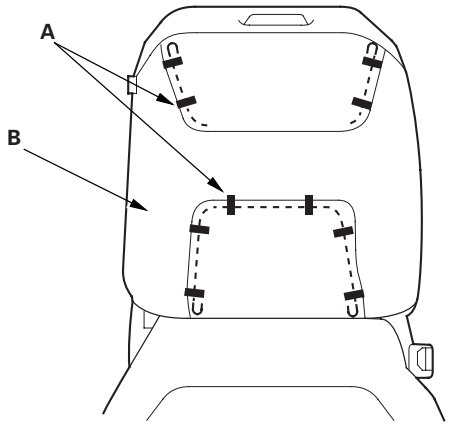
'99-01 models



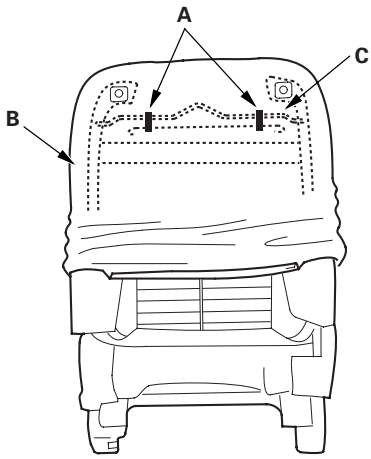
'02-04 models (driver's)



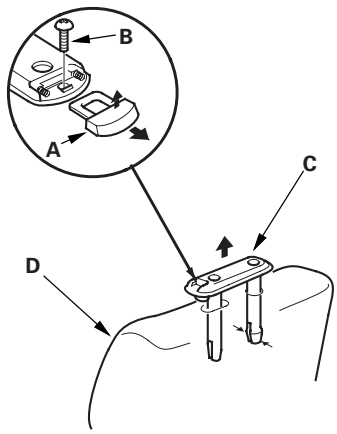
'02-04 models (passenger's)



10. For '99-01 models: Release all the clips (A) fastening the seat-back cover (B) and frame wire (C).



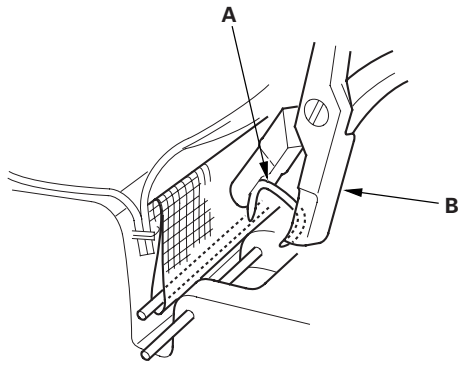
11. Lift and pull out the release button (A), and remove the screw (B), then remove the headrest guide (C).



12. Remove the seat back cover (D).

13. Install the cover in the reverse order of removal, and note these items:

- To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the hook, clips and inside springs.
- Replace any clips (A) you removed with new ones using commercially available upholstery ring pliers (B).
- With side airbag ('02-04 models): Use only original Honda replacement seat-back covers.



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Front Seat Cover Replacement (cont'd)

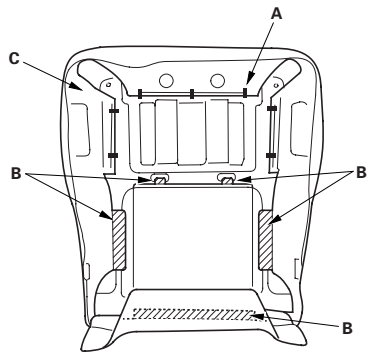
Seat Cushion Cover

1. Remove the front seat (see page 20-81).

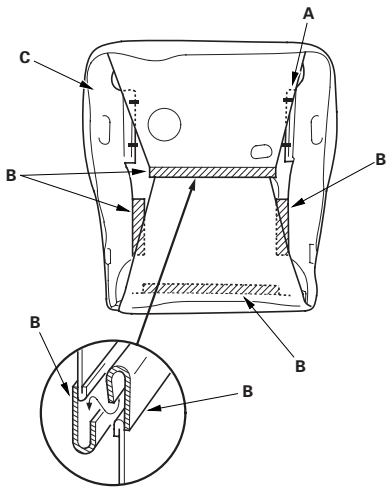
2. Remove the seat cushion, 8-way power without side airbag (see page 20-86), 8-way power with side airbag (see page 20-87), manual height adjustable without side airbag ('01 model) (see page 20-88), manual height adjustable with side airbag ('02 model) (see page 20-89), manual height adjustable ('03-04 models) (see page 20-90), manual without side airbag (see page 20-91), manual with side airbag (see page 20-92), manual ('03-04 models) (see page 20-93).

3. Release the clips (A) and hooks (B) from under the seat cushion, then loosen the seat cushion cover (C).

8-way power seat

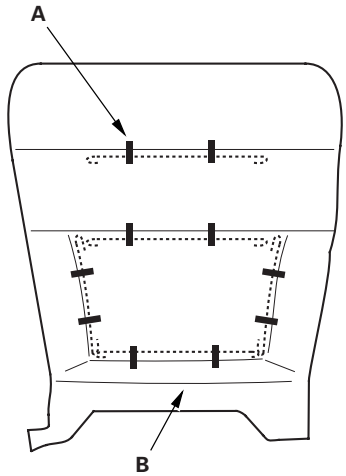


All except 8-way power seat

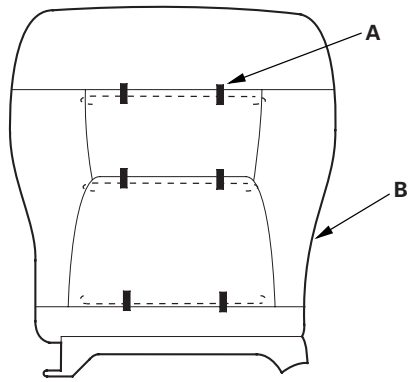


4. Pull back the edge of the seat cushion cover all the way around, and release the clips (A), then remove the seat cushion cover (B).

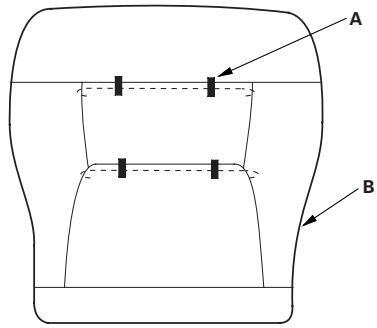
'99-01 models



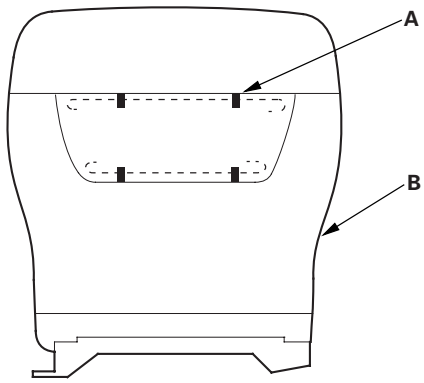
'02-04 models (8-way power/manual except leather seat cover)



'02-04 models (manual height adjustable)

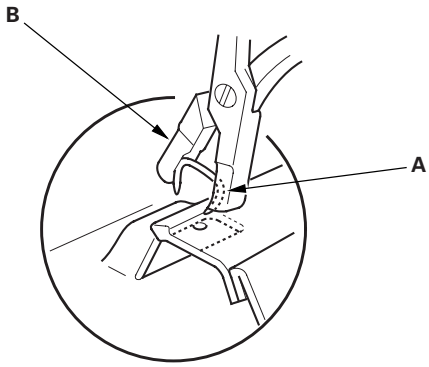


'02-04 models (leather seat cover)



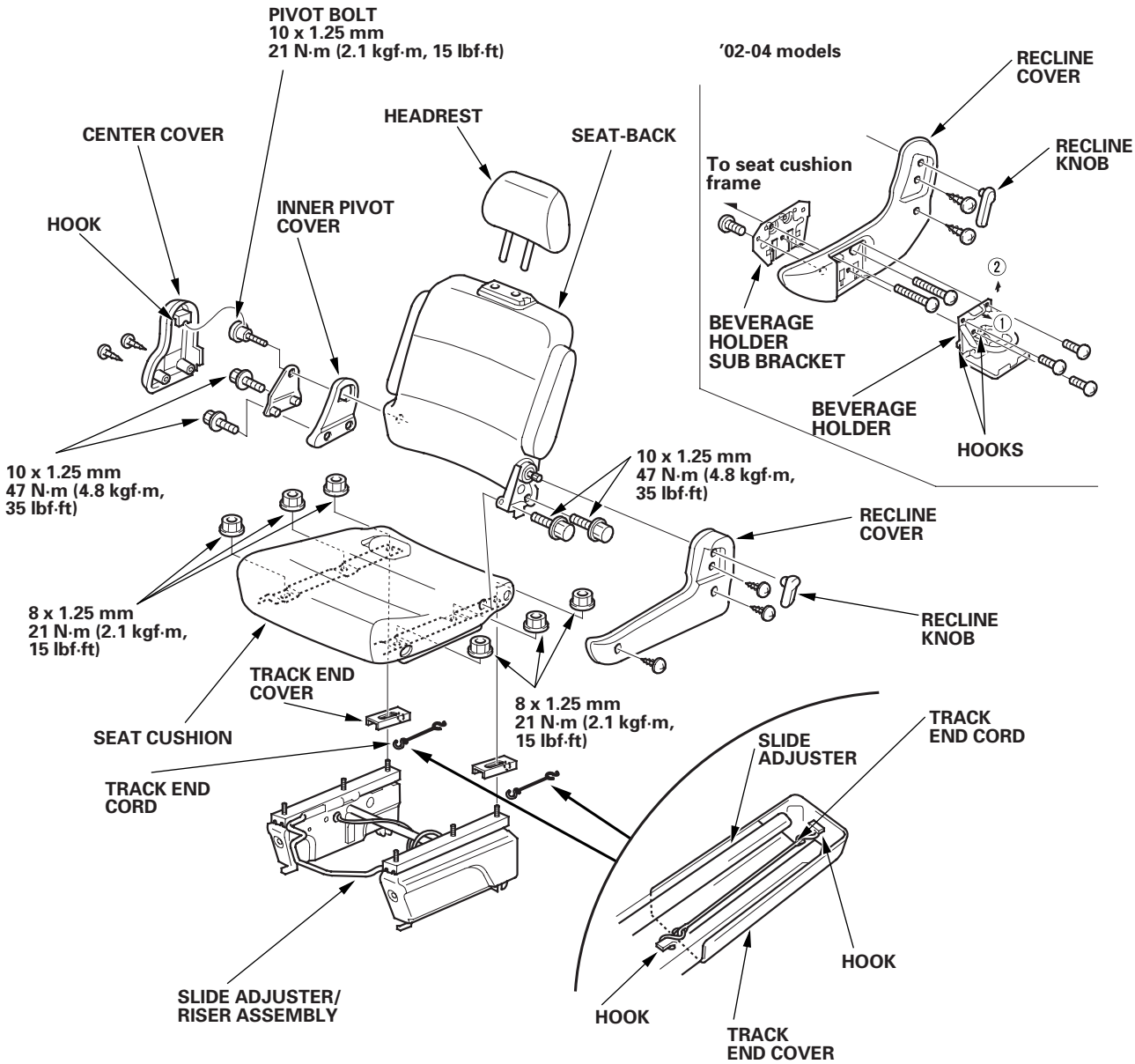
5. Install the cover in the reverse order of removal, and note these items:

   - To prevent wrinkles when installing a seat cushion cover, make sure the material is stretched evenly over the pad before securing the clips and hooks.
   - Replace any clips (A) you removed with new ones using commercially available upholstery ring pliers (B).



Second Row Seat Disassembly/Reassembly - Bucket-type

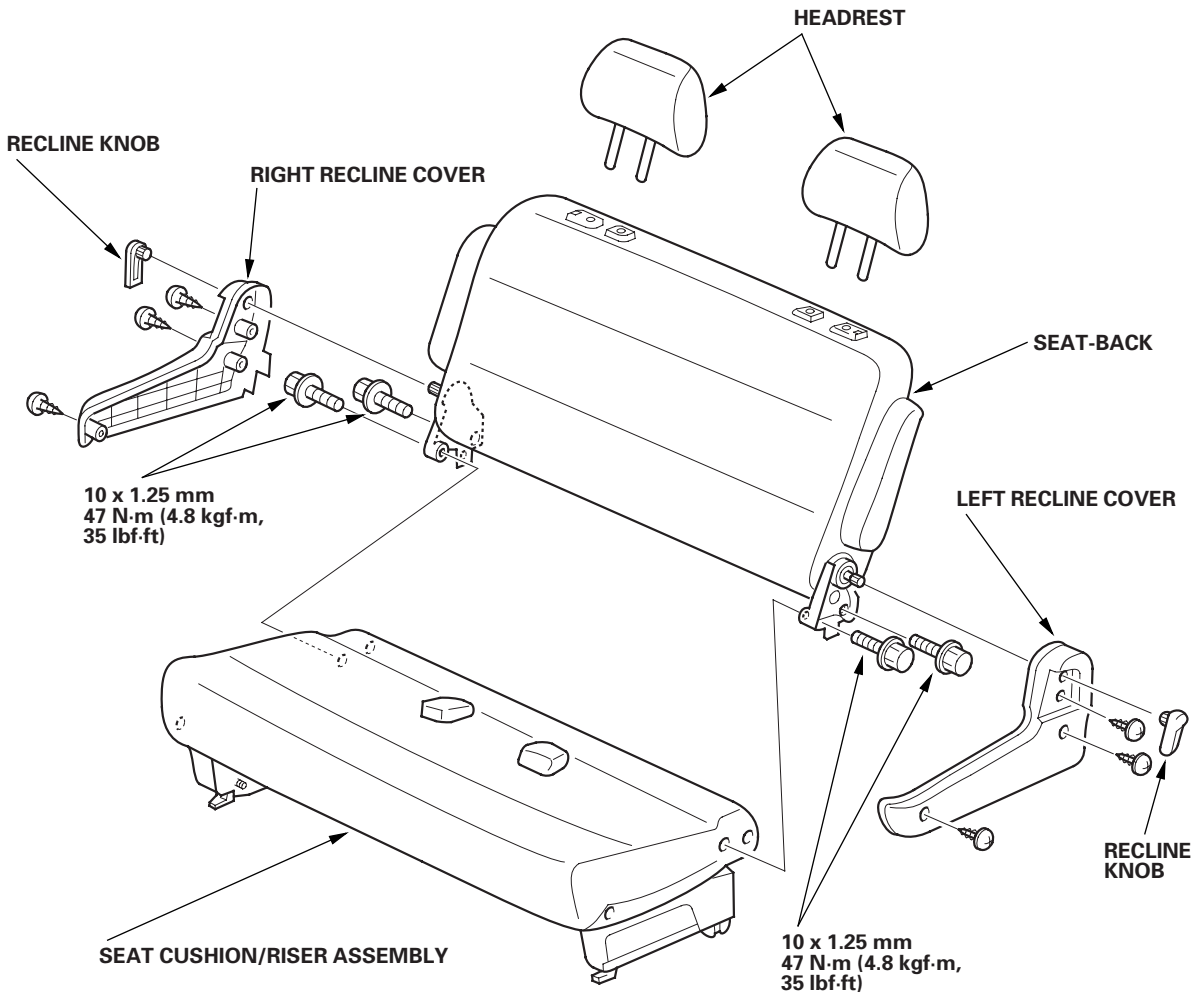
NOTE: Apply liquid thread lock to the bolts securing the seat-back and seat cushion.



Second Row Seat Disassembly/Reassembly - Bench-type

For some '99-01 models

NOTE: Apply liquid thread lock to the bolts securing the seat-back and seat cushion.

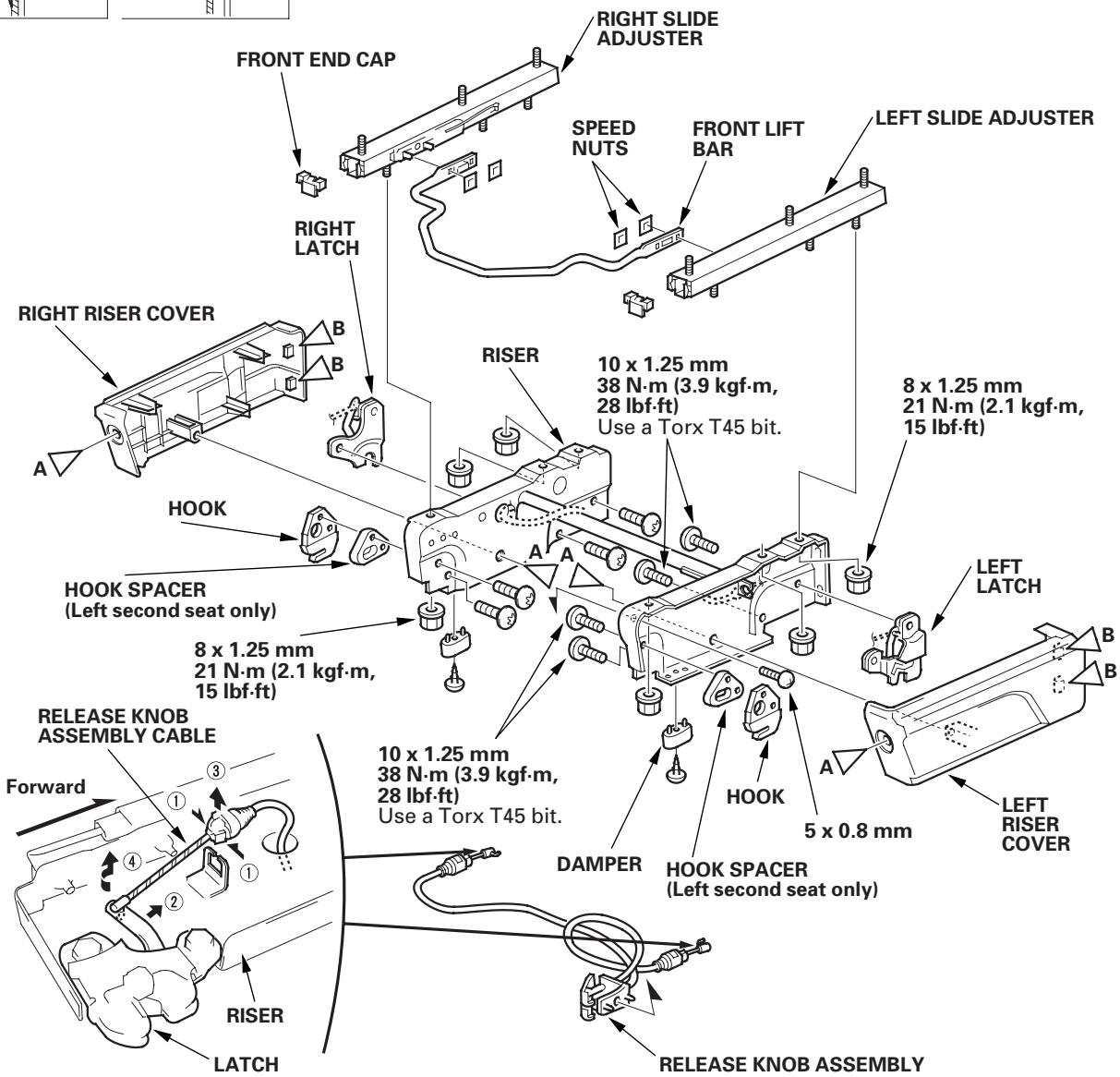


Second Row Seat Riser Disassembly/Reassembly - Bucket-type

NOTE:
- Take care not to kink the release knob assembly cable.
- Put on gloves to protect your hands.
- Replace any damaged clips with new ones.
- Apply liquid thread lock to the hook and latch mounting bolts.
- Apply multipurpose grease to the sliding portions of the slide adjuster.

Fastener Locations

A ▷ : Clip, 4 **B ▷ : Clip, 4**



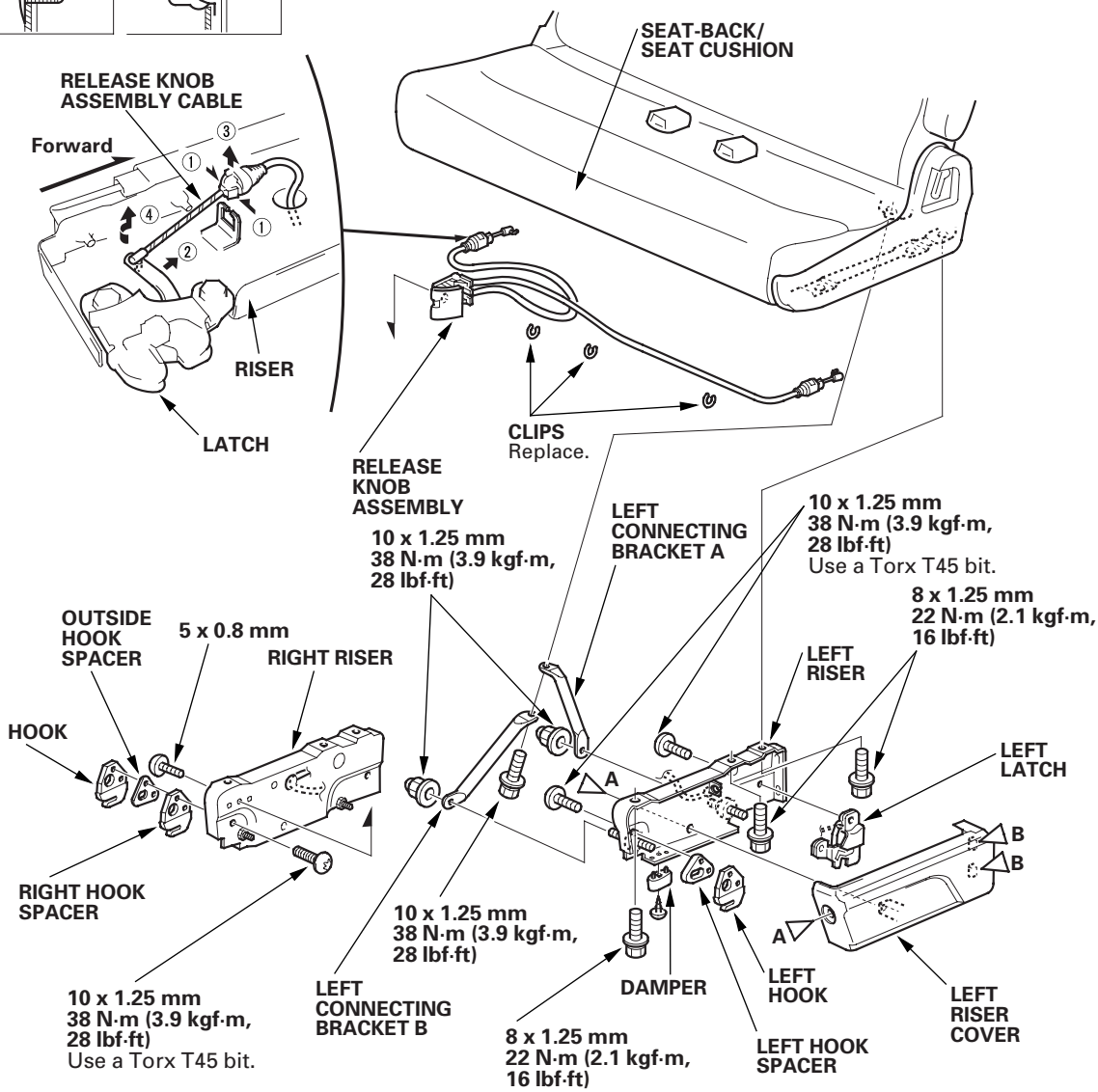
Second Row Seat Riser Disassembly/Reassembly - Bench-type

For some '99-01 models

NOTE:
- Take care not to kink the release knob assembly cable.
- Put on gloves to protect your hands.
- The right riser disassembly/Reassembly is similar to the left except for any additional parts shown.
- Replace any damaged clips with new ones.
- Apply liquid thread lock to the hook and latch mounting bolts.

Fastener Locations

A ▷ : Clip, 2 **B ▷ : Clip, 2**



Second Row Seat Striker Replacement

NOTE: Take care not to bend or scratch the interior trim and body.

1. Remove these items:
   - Second row seat
   - Right center pillar lower trim panel (see page 20-58)
   - Rear carpet, as necessary (see page 20-65)

2. Remove the bolts and nut(s), then remove the striker (A).

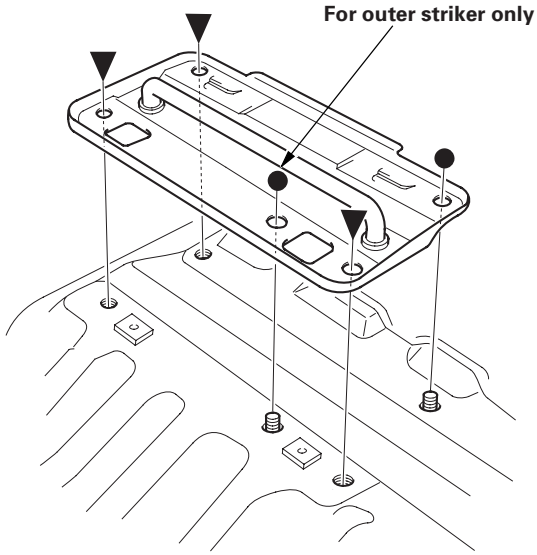
Fastener Locations

▶: Bolt, 3

10 x 1.25 mm
47 N·m
(4.8 kgf·m,
35 lbf·ft)

●: Nut
Outer striker, 2
Inner striker, 1

10 x 1.25 mm
47 N·m
(4.8 kgf·m,
35 lbf·ft)



3. Install the striker in the reverse order of removal.

Second Row Seat Cover Replacement - Bucket-type

NOTE:
- Take care not to tear the seams or damage the seat covers.
- Put on gloves to protect your hands.

Seat-back Cover

1. Fold the seat-back foward.

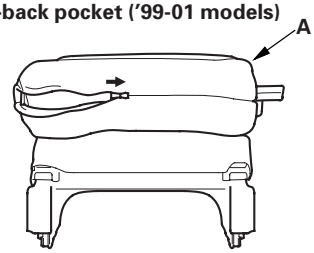
2. Remove the second row seat.

3. Remove these items (see page 20-108):
   - Center cover
   - Recline cover

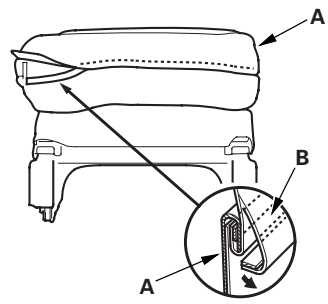
4. Remove these items (see page 20-102):
   - Armrest, both sides
   - Grab handle

5. Unzip the bottom of the seat-back cover (A) or release the hook in the bottom of the seat-back cover (A). Then raise the seat-back and fold back the edge of the seat-back cover all the way around.

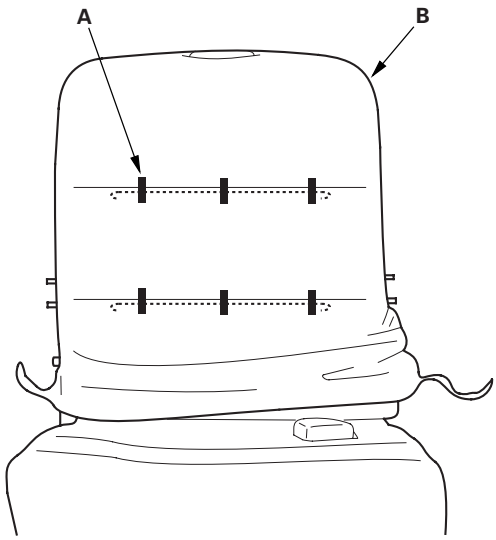
With seat-back pocket ('99-01 models)



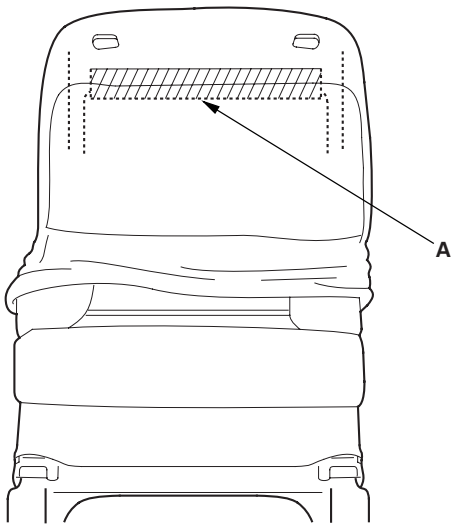
Without seat-back pocket ('99-04 models)



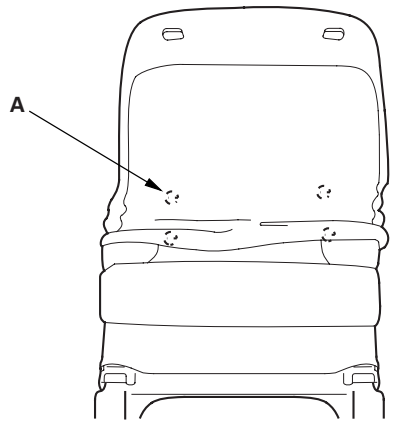
6. For '99-01 models: Release the clips (A), and fold back the seat-back cover (B).



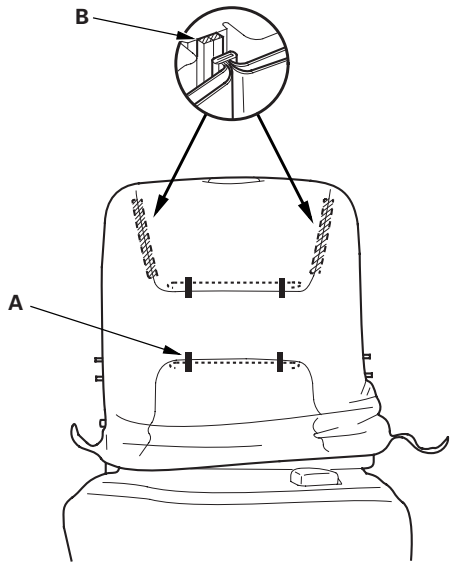
7. For '99-01 models: Release the hook (A) from behind the seat-back.



8. For '02-04 models: Release the inside springs (A) from behind the seat-back.



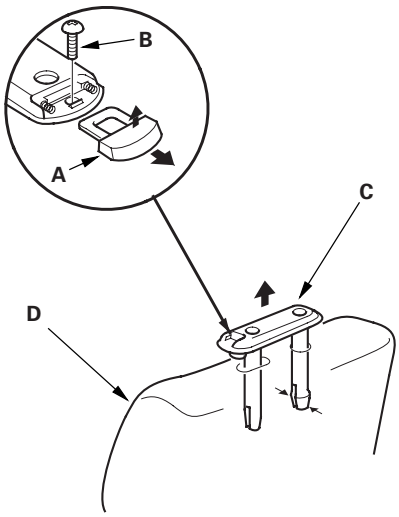
9. For '02-04 models: Release the clips (A) and fasteners (B), and fold back the seat-back cover. The leather seat is shown, the non-leather is similar.



(cont'd)

Second Row Seat Cover Replacement - Bucket-type (cont'd)

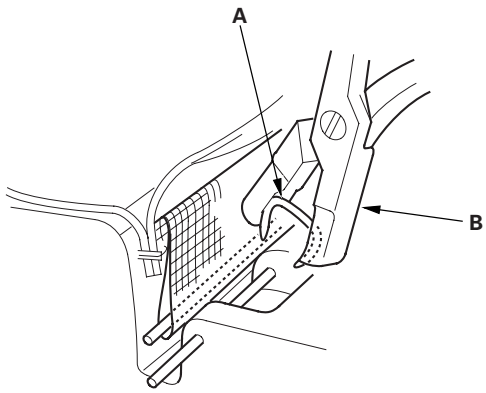
10. Lift and pull out the release button (A), and remove the screw (B), then remove the headrest guide (C).



11. Remove the seat-back cover (D).

12. Install the cover in the reverse order of removal, and note these items:

    - To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the fasteners and inside springs ('02-04 models), clips, and hook.
    - Replace any clips (A) you removed with new ones using commercially available upholstery ring pliers (B).



Seat Cushion Cover

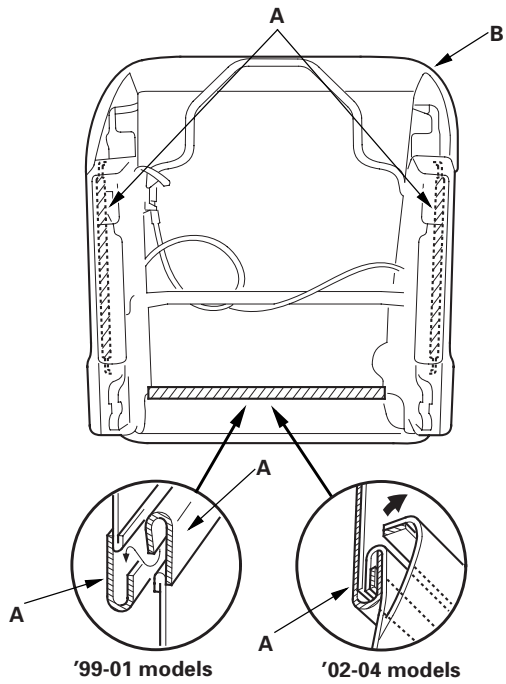
1. Remove the second row seat.

2. Remove these items (see page 20-108):

    - Recline cover
    - Center cover

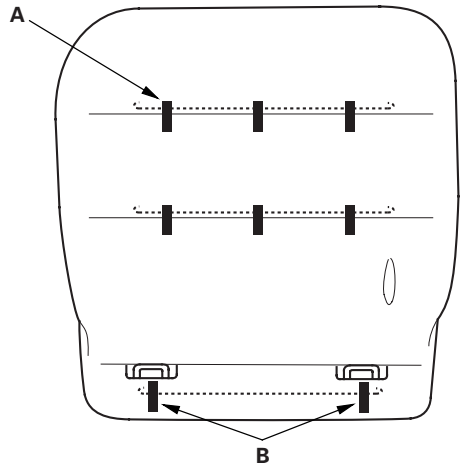
3. Remove the seat belt buckle (see step 3 on page 23-10).

4. Release the hooks (A) from under the seat cushion, then loosen the seat cushion cover (B).

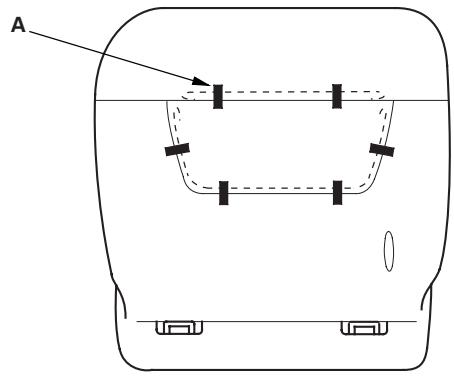


5. Pull back the edge of the seat cushion cover all the way around, and release the clips (A). On some '01 model seat cushions, there are two additional clips (B) that must be released near the child seat tether anchors. Then remove the seat cushion cover (C).

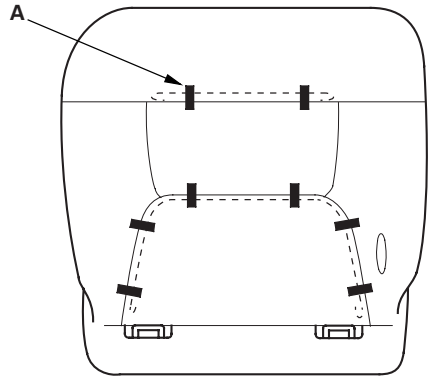
'99-01 models



'02-04 models (Leather seat)

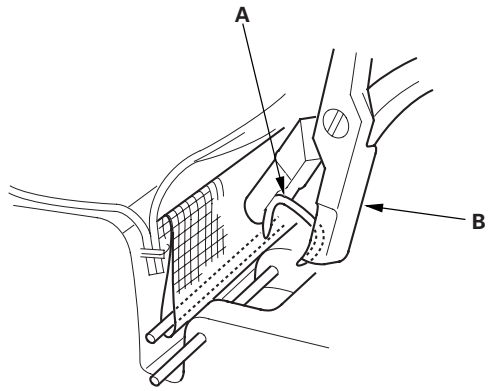


'02-04 models (Non-leather seat)



6. Install the cover in the reverse order of removal, and note these items:

   - To prevent wrinkles when installing a seat cushion cover, make sure the material is stretched evenly over the pad before securing the clips and hooks.
   - Replace any clips (A) you removed with new ones (A) using commercially available upholstery ring pliers (B).



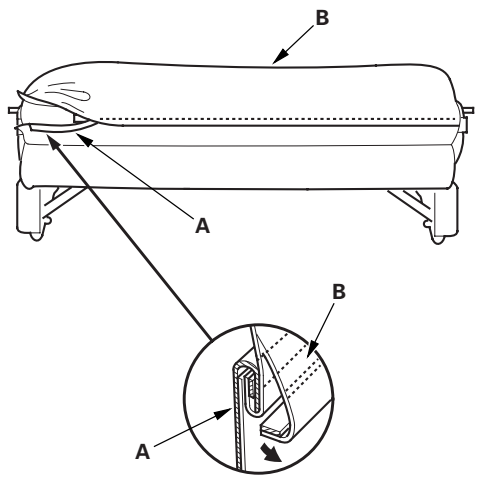
Second Row Seat Cover Replacement - Bench-type

For some '99-01 models

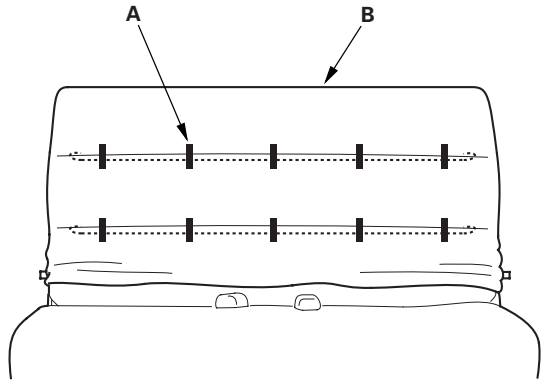
NOTE:
- Take care not to tear the seams or damage the seat covers.
- Put on gloves to protect your hands.

Seat-back Cover

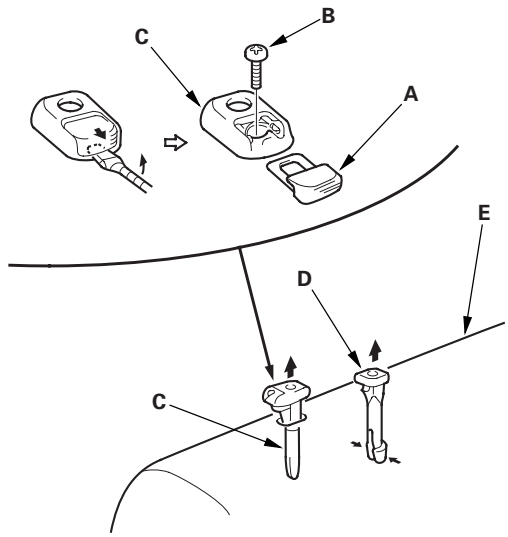
1. Fold the seat-back forward.
2. Remove the second row seat.
3. Remove these items:
   - Recline cover, both sides (see page 20-109)
   - Armrest and armrest pins, both sides (see step 1 on page 20-102)
4. Release the hook (A) in the bottom of the seat-back cover (B), then raise the seat-back and fold back the edge of the seat-back cover all the way around.



5. Release the clips (A), and fold back the seat-back cover (B).



6. Lift and pull out the release buttons (A), and remove the screws (B), then remove all the headrest guides (C, D).



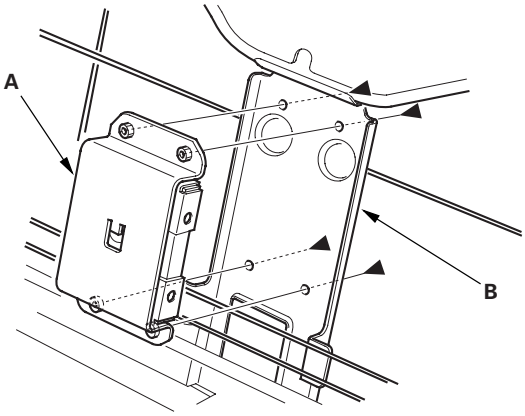
7. Remove the seat-back cover (E).

8. If necessary, remove the seat-back pad, then remove the seat-back damper (A) from the seat-back frame (B).

Fastener Locations

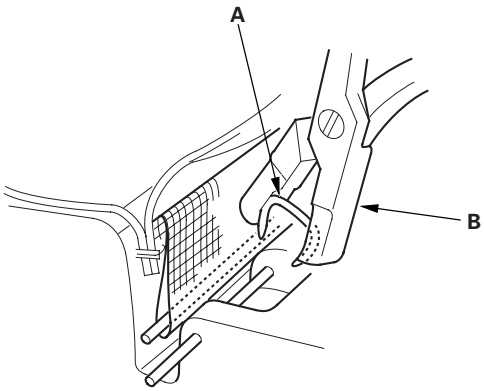
▶: Bolt, 4

6 x 1.0 mm
9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)



9. Install the cover in the reverse order of removal, and note these items:

   - To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the hook and clips.
   - Replace any clips (A) you removed with new ones using commercially available upholstery ring pliers (B).

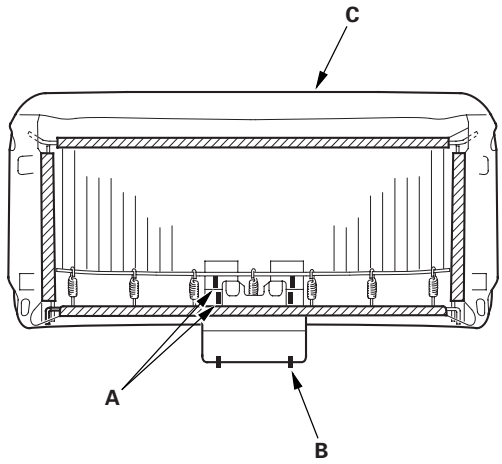


Seat Cushion Cover

1. Remove the second row seat.

2. Remove the recline cover, both sides (see page 20-109).

3. Release the clips (A) and hooks (B) from under the seat cushion, then loosen the seat cushion cover (C).

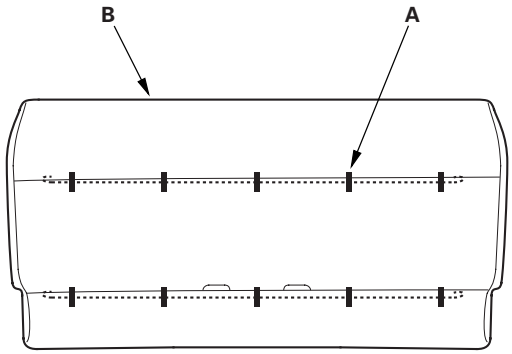


4. Remove the seat belt buckles (see step 4 on page 23-10).

(cont'd)

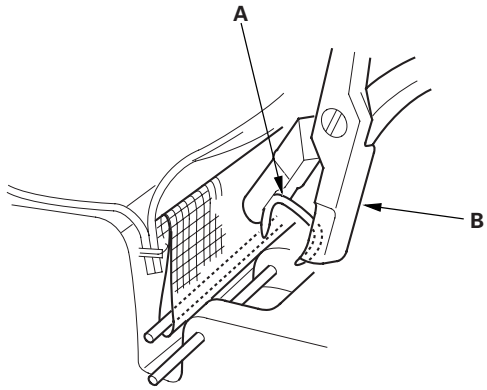
Second Row Seat Cover Replacement - Bench-type (cont'd)

5. Pull back the edge of the seat cushion cover all the way around, and release the clips (A), then remove the seat cushion cover (B).



6. Install the cover in the reverse order of removal, and note these items:

   - To prevent wrinkles when installing a seat cushion cover, make sure the material is stretched evenly over the pad before securing the clips and hooks.
   - Replace any clips you removed with new ones (A) using commercially available upholstery ring pliers (B).



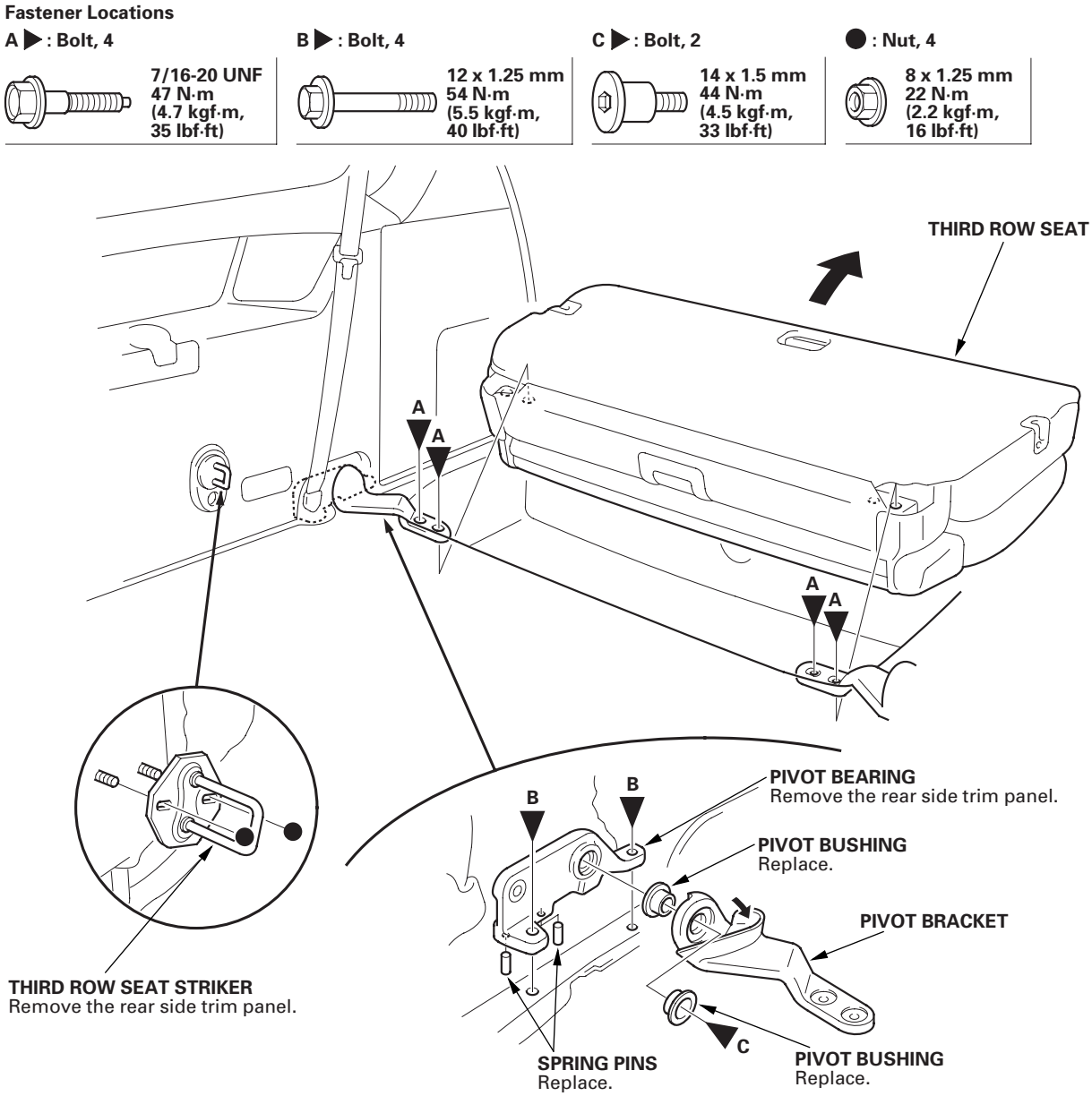
Third Row Seat Removal/Installation

NOTE: Take care not to scratch the interior trim and body or tear the seat covers.

1. Remove the third row seat as shown.

2. Install the seat in the reverse order of removal and note these items:

   - After disassembling the pivot bracket, replace the pivot bushings.
   - Make sure the third row seat latches and unlatches properly, and if necessary, adjust the third row seat striker forward or rearward.



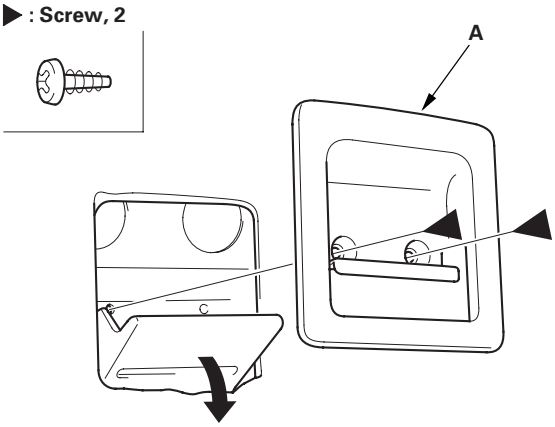
Third Row Seat-back Recline Lever Replacement

NOTE:
- Take care not to scratch the interior trim.
- Take care not to tear the seams or damage the seat covers.
- Take care not to kink the recline cables.
- Put on gloves to protect your hands.

1. Remove the screws, and remove the recline lever trim (A) from behind the seat-back.

Fastener Locations

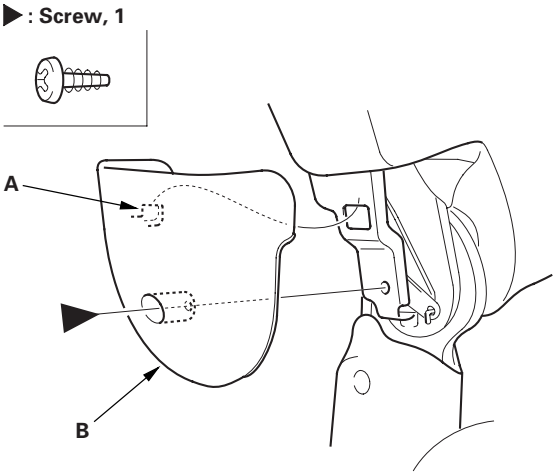
▶ : Screw, 2



2. Remove the screw and release the hook (A), then remove the recline upper cover (B) from each side.

Fastener Location

▶ : Screw, 1

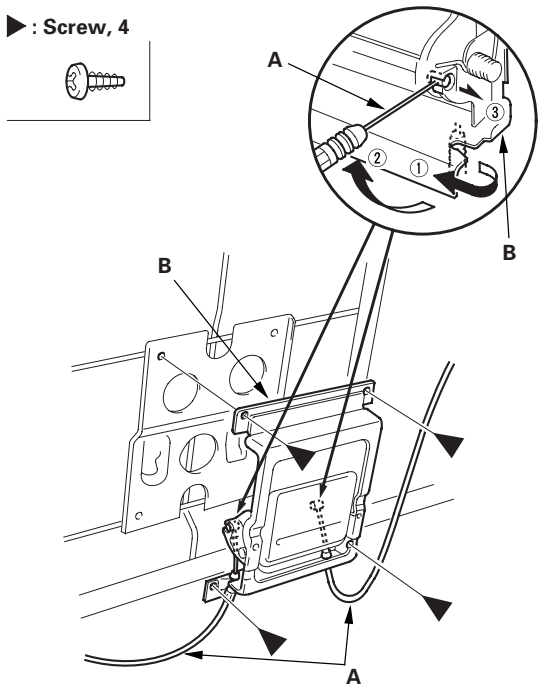


3. Remove the seat-back cover, as necessary (see page 20-124).

4. Remove the screws and disconnect the recline cables (A) from the recline lever (B), then remove it.

Fastener Locations

▶ : Screw, 4



5. Install the lever in the reverse order of removal, and make sure the recline cables are connected securely.

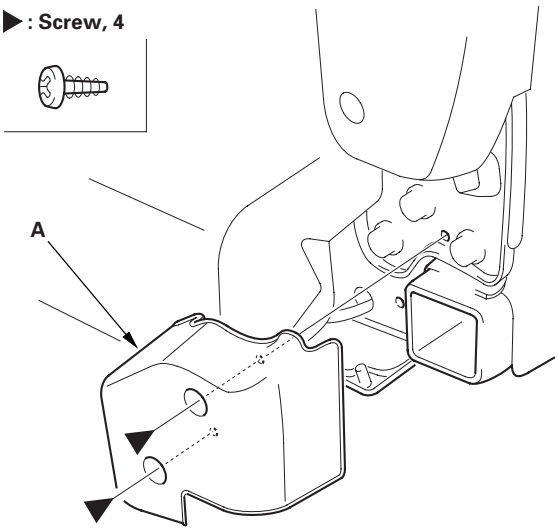
Third Row Seat Cushion Latch Lever Replacement

NOTE:
- Take care not to tear the seams or damage the seat covers.
- Take care not to kink the cushion latch cables.
- Put on gloves to protect your hands.

1. Remove the third row seat through the tailgate opening (see page 20-119).

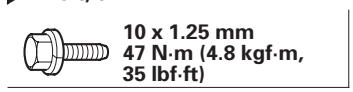
2. Remove the screws, then remove the recline cover (A) from each side.

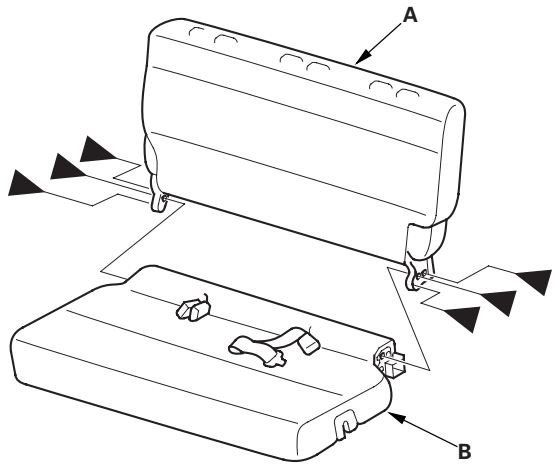
Fastener Locations
▶ : Screw, 4



3. Remove the bolts, then separate the seat-back (A) and seat cushion (B).

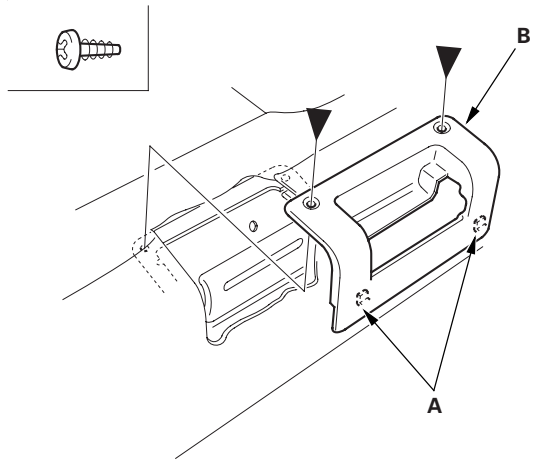
Fastener Locations
▶ : Bolt, 6





4. Remove the screws and release the hooks (A), then remove the cushion latch lever trim (B).

Fastener Locations
▶ : Screw, 2

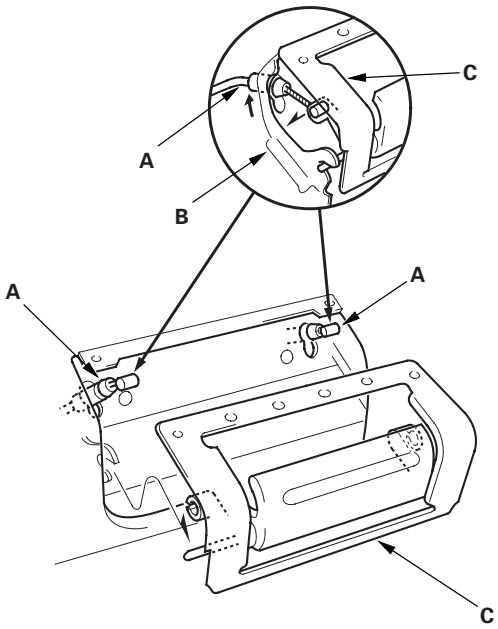


(cont'd)

Third Row Seat Cushion Latch Lever Replacement (cont'd)

5. Remove the cushion cover, as necessary (see step 5 on page 20-126).

6. Detach the cushion latch cables (A) from the cushion frame (B). Disconnect the cable from the cushion latch lever (C), and remove the cushion latch lever.



7. Install the cushion latch lever in the reverse order of removal, and note these items:

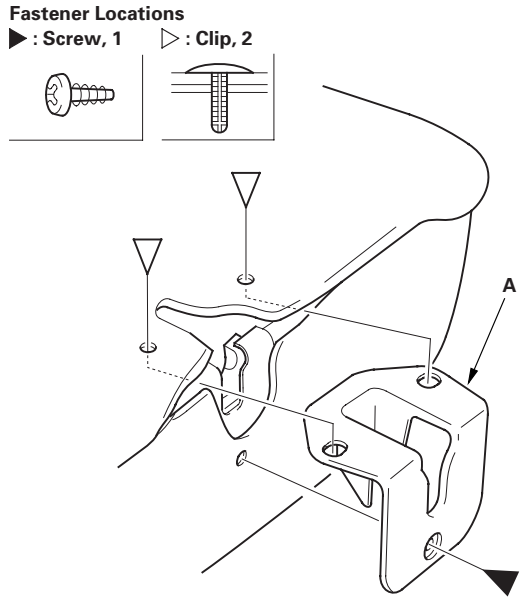
   - Make sure the cushion latch cables are connected securely.
   - Make sure the third row seat latches and unlatches properly.

Third Row Seat Cushion Latch/ Cable Replacement

NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to kink the cushion latch cables.
- Put on gloves to protect your hands.

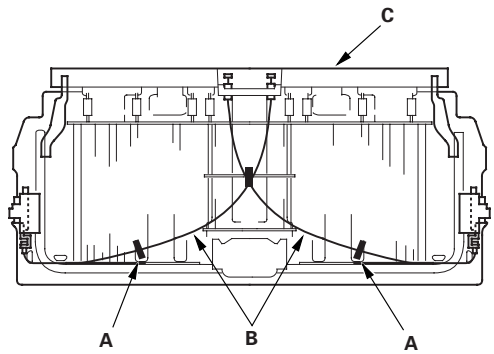
1. Remove the cushion latch lever (see page 20-121).

2. Remove the screw and detach the clips, then remove the cushion latch cover (A).



3. Remove the cushion cover and pad (see step 3 on page 20-126).

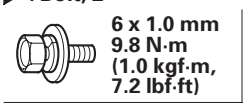
4. Remove the clips (A), and remove the cushion latch cables (B) from the cushion frame (C).



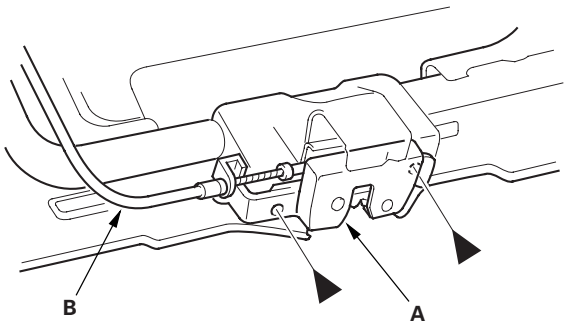
5. Remove the bolts and remove the cushion latch (A) with the cushion latch cable (B).

Fastener Locations

▶ : Bolt, 2

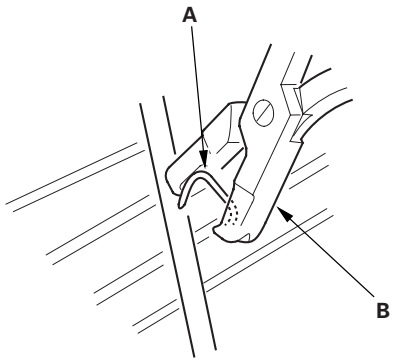


6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)



6. Install the lever/cable in the reverse order of removal, and note these items:

   - Make sure the cushion latch cables are routed properly and connected securely.
   - Make sure the third seat latches and unlatches properly.
   - Replace any clips (A) you removed with new ones using commercially available upholstery ring pliers (B).



Third Row Seat-back Recline Cable Replacement

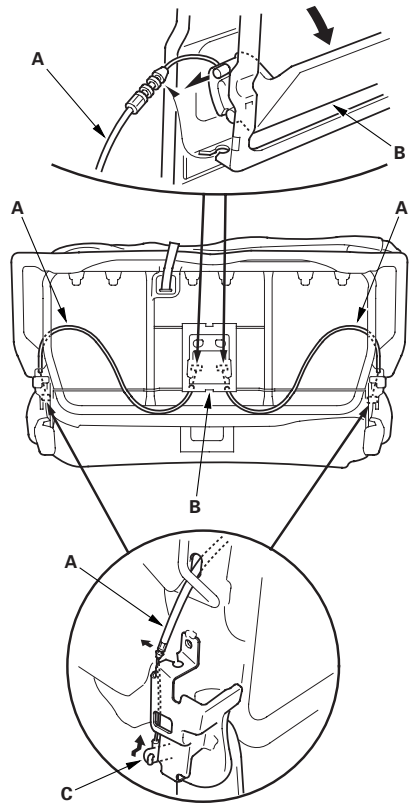
NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to bend the cables.
- Take care not to kink or scratch the interior trim.
- Put on gloves to protect your hands.

1. Remove these items:

   - Recline lever trim (see step 1 on page 20-120)
   - Recline upper cover (see step 2 on page 20-120)

2. Remove the seat-back cover as necessary (see page 20-124).

3. Disconnect and detach the seat-back recline cable (A) from the seat-back recline lever (B) and the link plates (C) on both sides. Then remove the seat-back recline cable.



4. Install the cable in the reverse order of removal, and make sure the recline cables are routed properly and connected securely.

Third Row Seat Cover Replacement

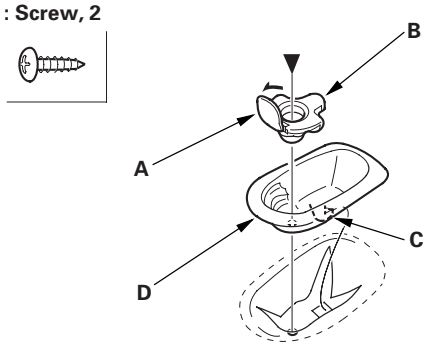
NOTE:
- Take care not to scratch the interior trim.
- Take care not to tear the seams or damage the seat covers.
- Put on gloves to protect your hands.

Seat-back Cover

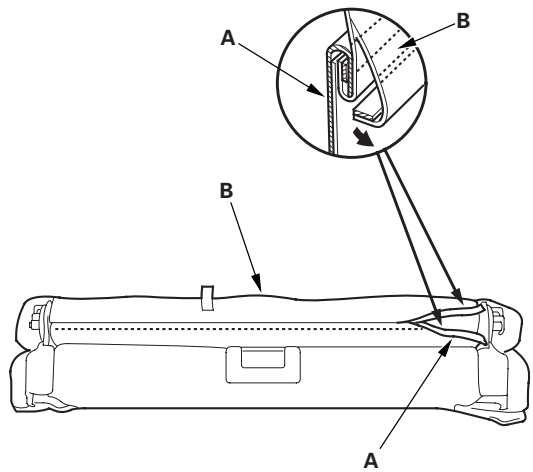
1. Remove these items:
   - Recline lever trim (see page 20-120)
   - Recline upper cover (see step 2 on page 20-120)

2. For '02-04 models: From both sides, pry up the cap (A), and remove the screws, then remove the cushion hooks (B). Release the hook (C), then remove the cushion hook trim (D).

Fastener Locations
▶ : Screw, 2



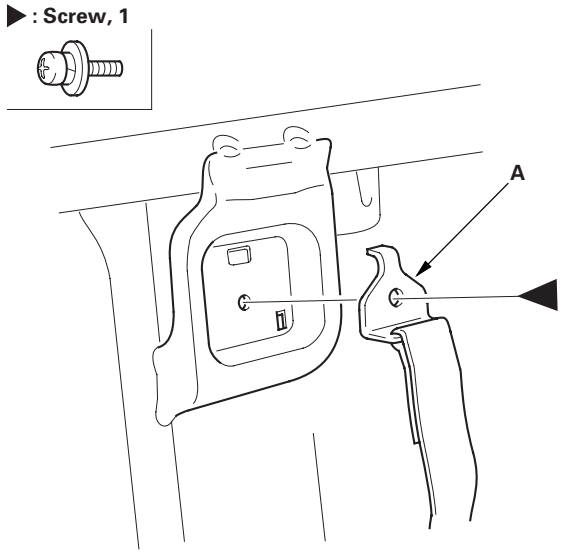
3. Fold the seat back forward and release the hook (A) in the bottom of the seat-back cover (B).



4. Raise the seat-back and fold back the edge of the seat-back cover all the way around.

5. If necessary, remove the screw and remove the strap (A).

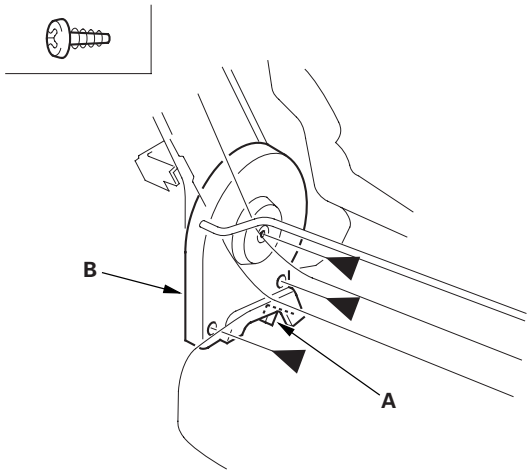
Fastener Location
▶ : Screw, 1



6. If necessary, remove the screw and release the hook (A), then remove the recline inner cover (B) from each side.

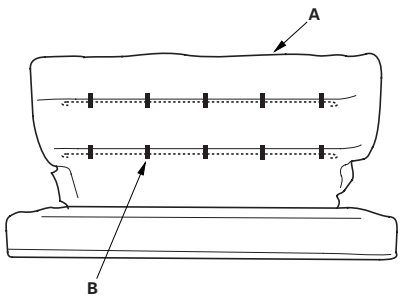
Fastener Locations

▶ : Screw, 6

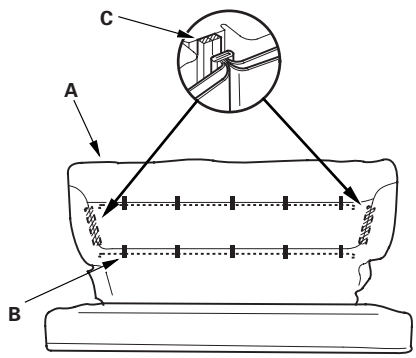


7. Pull back the edge of the seat-back cover (A) all the way around, and release the clips (B) and fasteners (C) ('02-04 models leather seat).

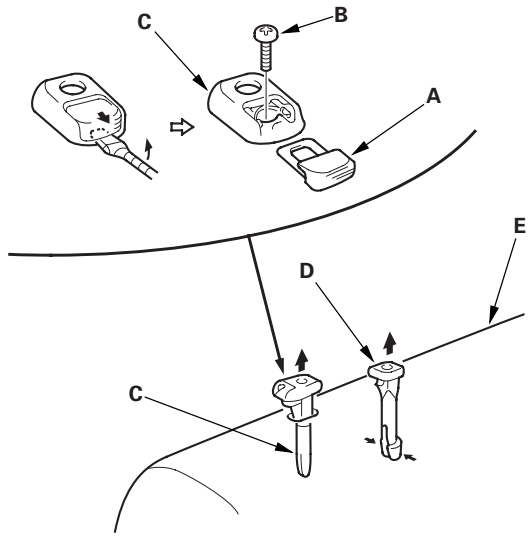
'99-04 models (Non-leather seat)



'02-04 models (Leather seat)



8. Lift and pull out the release buttons (A), and remove the screws (B), then remove all the headrest guide (C, D).



9. Remove the seat-back cover (E).

10. Install the cover in the reverse order of removal, and note these items:

    - To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing all the clips and fasteners ('02-04 models leather seat).
    - Replace the any clips you removed with new ones.

(cont'd)

Third Row Seat Cover Replacement (cont'd)

Seat Cushion Cover

1. Separate the seat-back and seat cushion (see page 20-121).

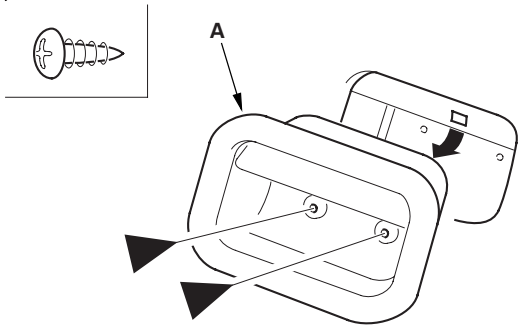
2. Remove these items:

   - Cushion latch cover (see step 2 on page 20-122)
   - Cushion latch lever trim (see page 20-121)

3. Remove the screws, then remove the grab handle (A) from the cushion frame.

Fastener Locations

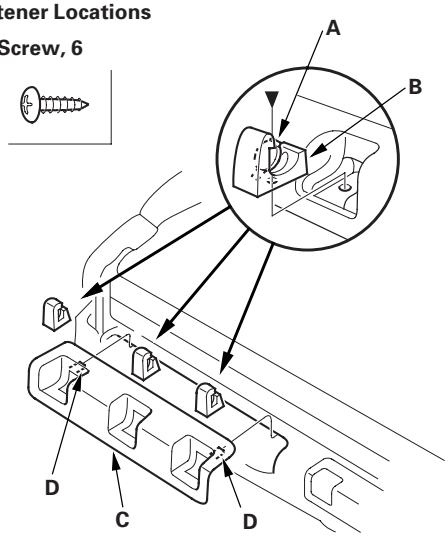
▶: Screw, 2



4. For '02-04 models: Pry up the caps (A) and remove the screws, then remove all of the cushion hooks (B) from both cushion hook trim (C). Release the hooks (D) then remove the trim.

Fastener Locations

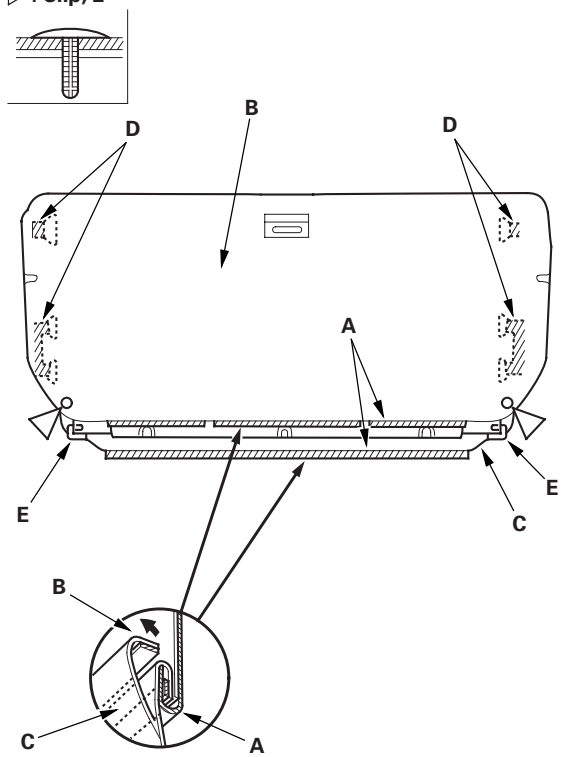
▶: Screw, 6



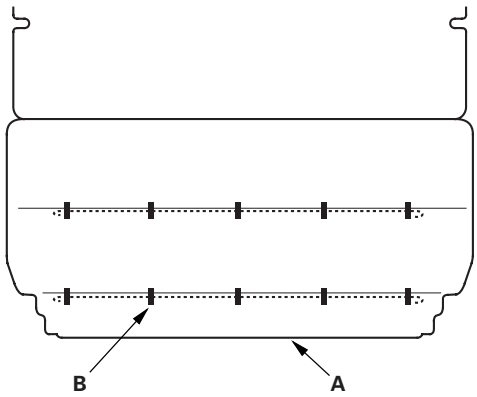
5. Release the hook (A) and clips. Turn over the seat cushion mat (B) and the cushion cover (C), then release the hooks (D, E) from the cushion frame.

Fastener Locations

▷: Clip, 2

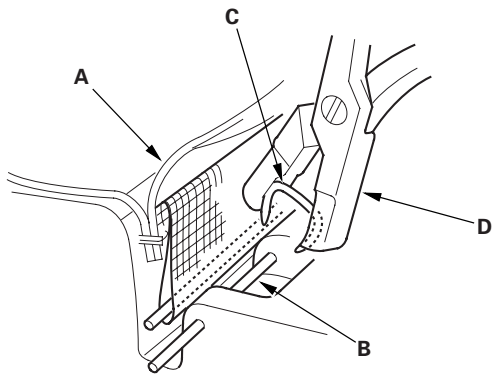


6. Pull back the edge of the seat cushion cover (A) all the way around, and release the clips (B), then remove the seat cushion cover.



7. Install the cover in the reverse order of removal, and note these items:

   - To prevent wrinkles, make sure the material is stretched evenly over the pad before securing all the clips.
   - Replace the clips fastening the seat cushion mat and the cushion frame with new ones.
   - Replace the clips fastening the seat-back cover (A) and pad wire (B) with new ones (C) using commercially available upholstery ring pliers (D).



Front Bumper Removal/Installation

NOTE:
- Have an assistant help you when removing the front bumper.
- Take care not to scratch the front bumper and body.
- Put on gloves to protect your hands.

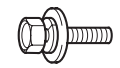
1. Remove the front bulkhead cover (see page 20-142).

2. Remove the front bumper (A):

–1 Remove the bolts (B) and clips (C) securing the front bumper, inner fender (D) and splash shield (E).
–2 Remove the screws (F), then pull both side wheel arch portions of the bumper outward to detach them from the side clips (G).
–3 With the help of an assistant, pull the front bumper forward to release the hooks (H) from both corner upper beams (I), then remove the front bumper.

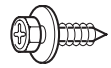
Fastener Locations

B ▶ : Bolt, 2

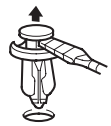


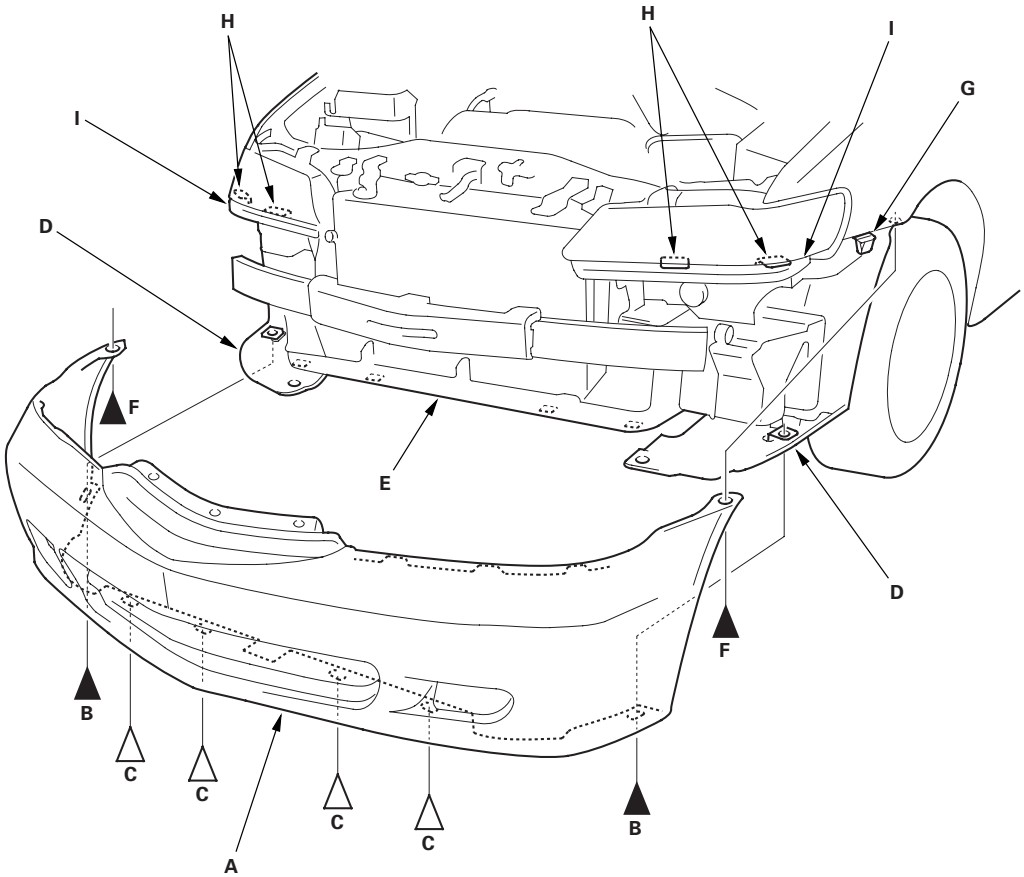
6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)

F ▶ : Screw, 2



C ▷ : Clip, 4

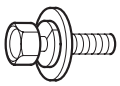




3. Remove the bolts (A, B), then remove the front bumper beam (C) and both corner upper beams (D). If necessary, remove the absorber (E).

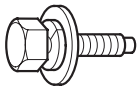
Fastener Locations

A ▶ : Bolt, 6

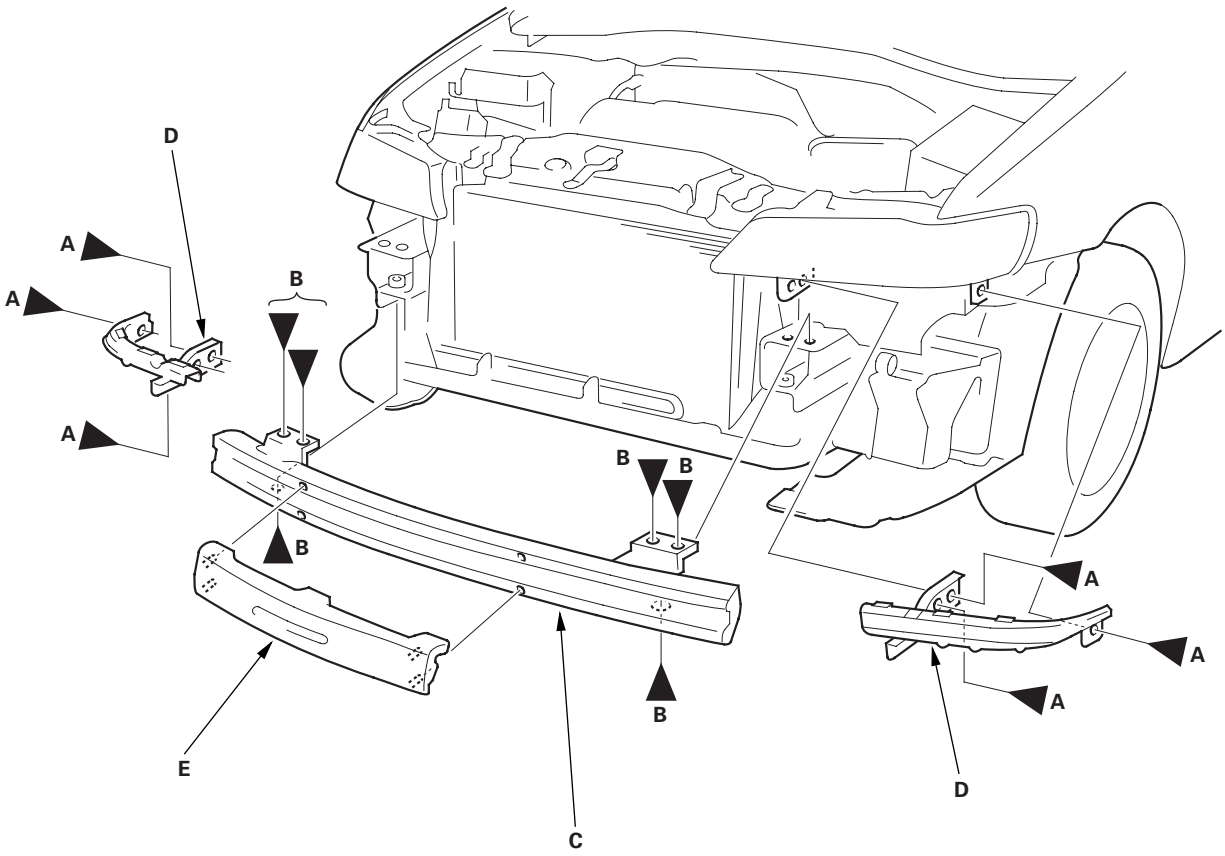


6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)

B ▶ : Bolt, 6



8 x 1.25 mm
22 N·m
(2.2 kgf·m,
16 lbf·ft)



4. Install the front bumper in the reverse order of removal, and note these items:

- Make sure the front bumper engages the side clips, and the hooks (of the center and corner upper beams) on each side securely.
- Replace any damaged clips.
- Push the clips into place securely.

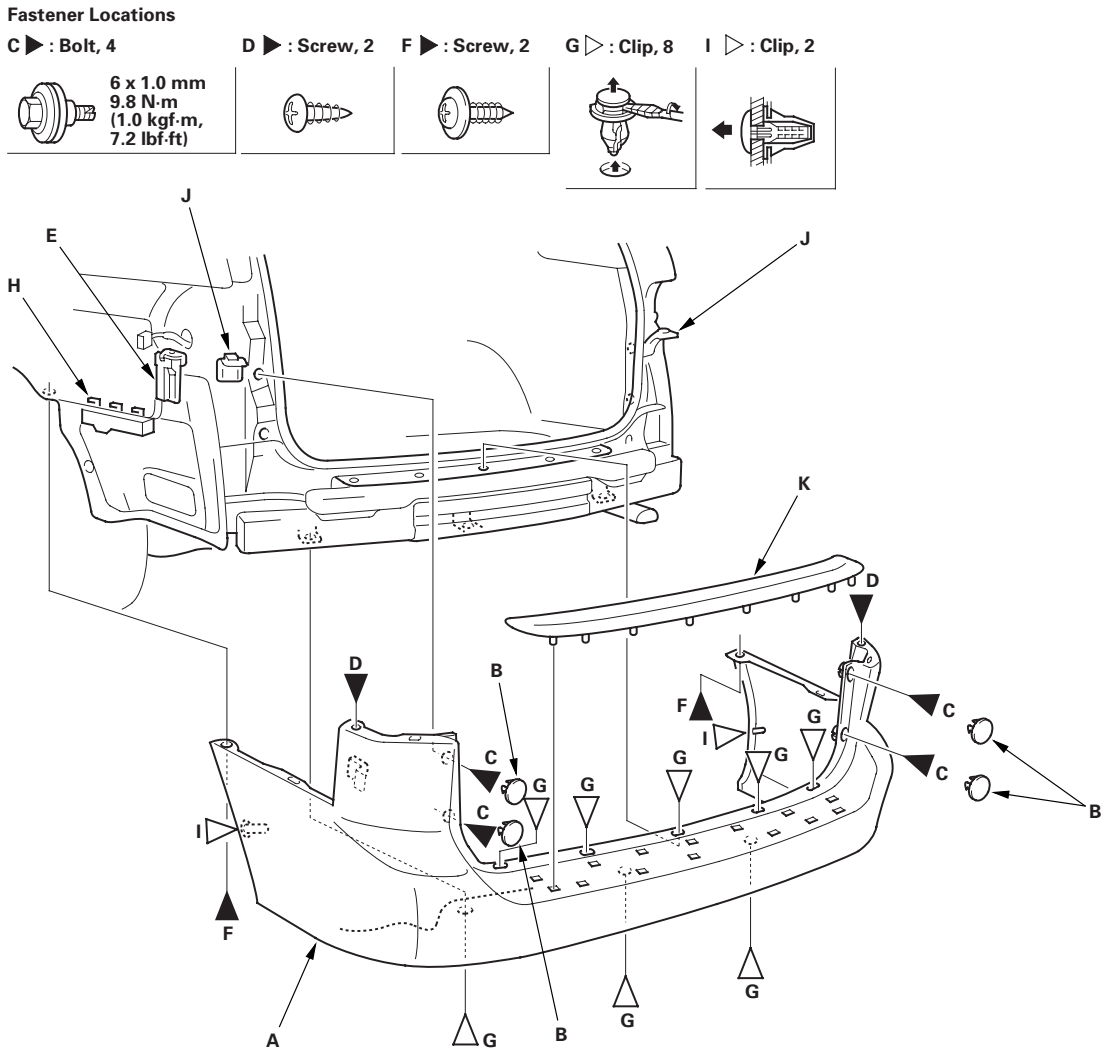
Rear Bumper Removal/Installation

NOTE:
- Have an assistant help you when removing the rear bumper.
- Take care not to scratch the rear bumper and body.
- Put on gloves to protect your hands.

1. Remove the taillights (see page 22-132).

2. Remove the rear bumper (A):

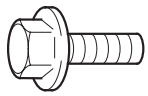
   –1 Pry out the caps (B), and remove the bolts (C) from each side.
   –2 Remove the screws (D) securing the rear bumper and rear clip (E) from each side.
   –3 Remove the screws (F) and clips (G) securing the bumper to the body.
   –4 With the help of an assistant, pull both side wheel arch portions of the bumper outward to detach the side clips (H), and pull them forward to detach the clips (I).
   –5 Remove the rear bumper from the hooks (J) and rear clips (E) by pu lling it rearward.

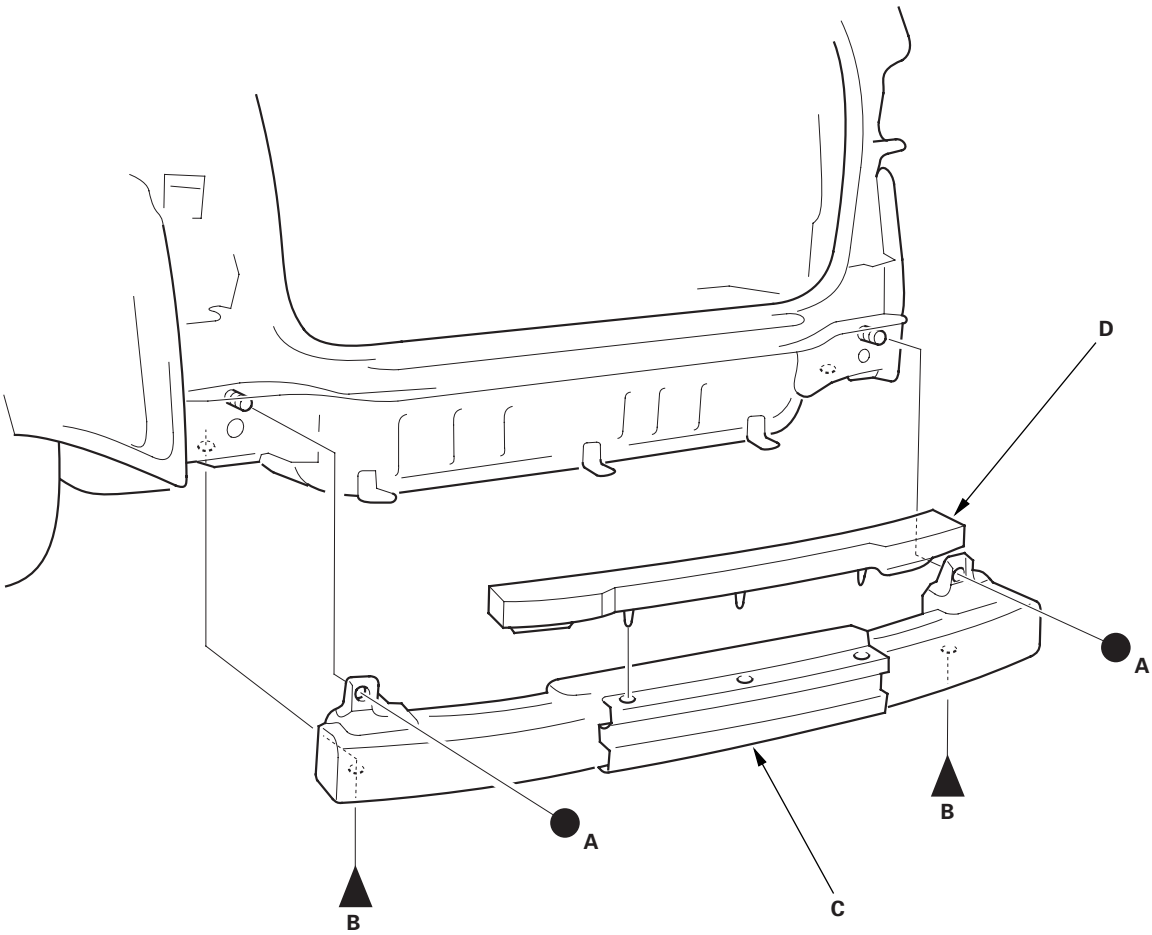


3. If necessary, detach the rear bumper step (K).

4. Remove the nuts (A) and bolts (B), then remove the rear bumper beam (C). If necessary, remove the absorber (D).

Fastener Locations

A ● : Nut, 2	B ▶ : Bolt, 2
10 x 1.25 mm 38 N·m (3.9 kgf·m, 28 lbf·ft)	 12 x 1.25 mm 54 N·m (5.5 kgf·m, 40 lbf·ft)



5. Install the rear bumper in the reverse order of removal, and note these items:

- Make sure the rear bumper engages the side clips and the hooks (under the taillight) on each side securely.
- Replace any damaged clips.
- Push the clips into place securely.

Replacement

NOTE:
- Have an assistant help you when removing and installing the hood.
- Take care not to damage the hood and body.

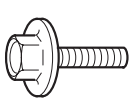
1. Remove the hood as shown. For '02-04 models, remove the hood insulator, as necessary (see page 20-134).

2. Install the hood in the reverse order of removal, and note these items:

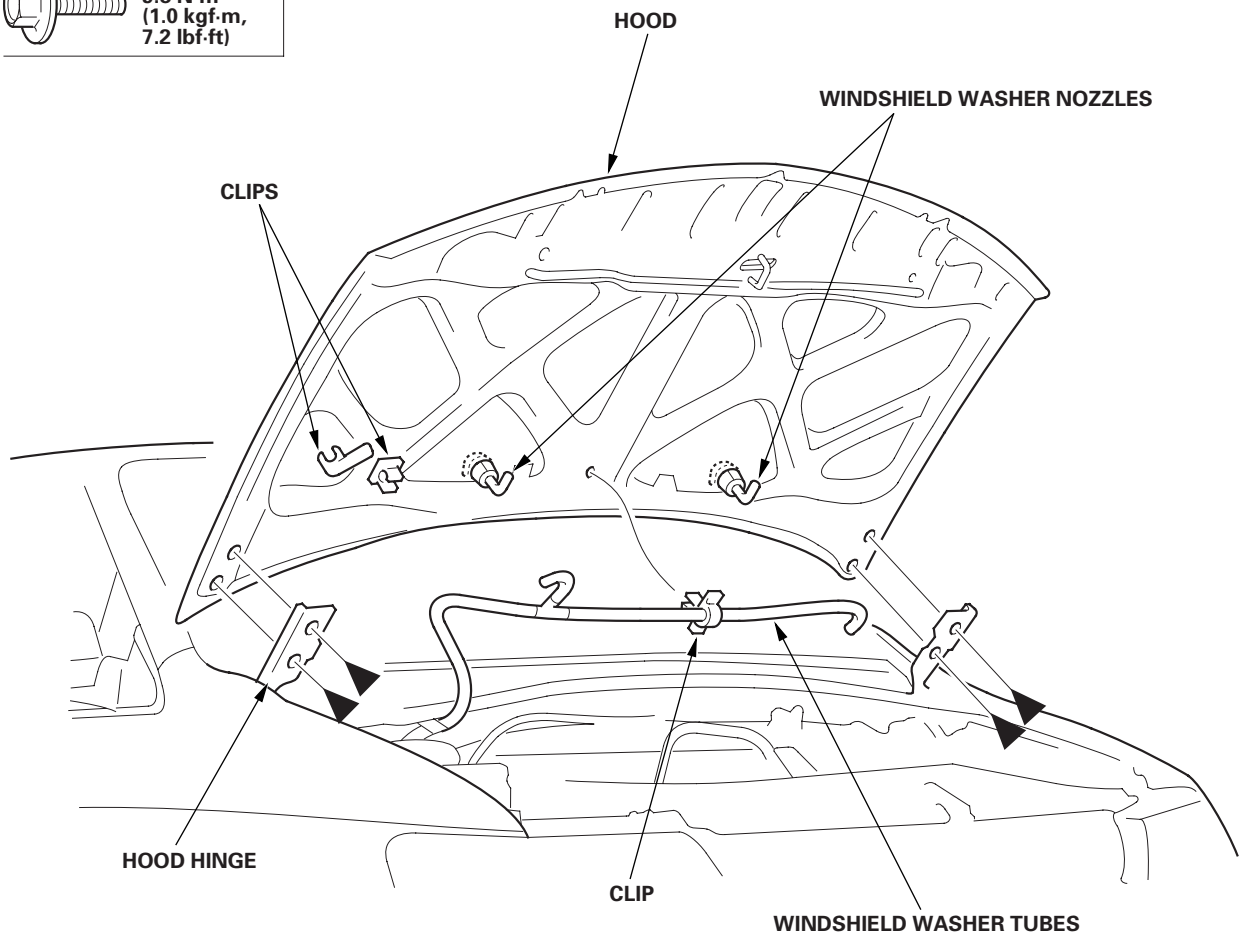
   - Make sure the windshield washer tubes are connected properly.
   - Make sure the hood opens properly and locks securely.
   - Adjust the hood alignment.

Fastener Locations

▶ : Bolt, 4



6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)

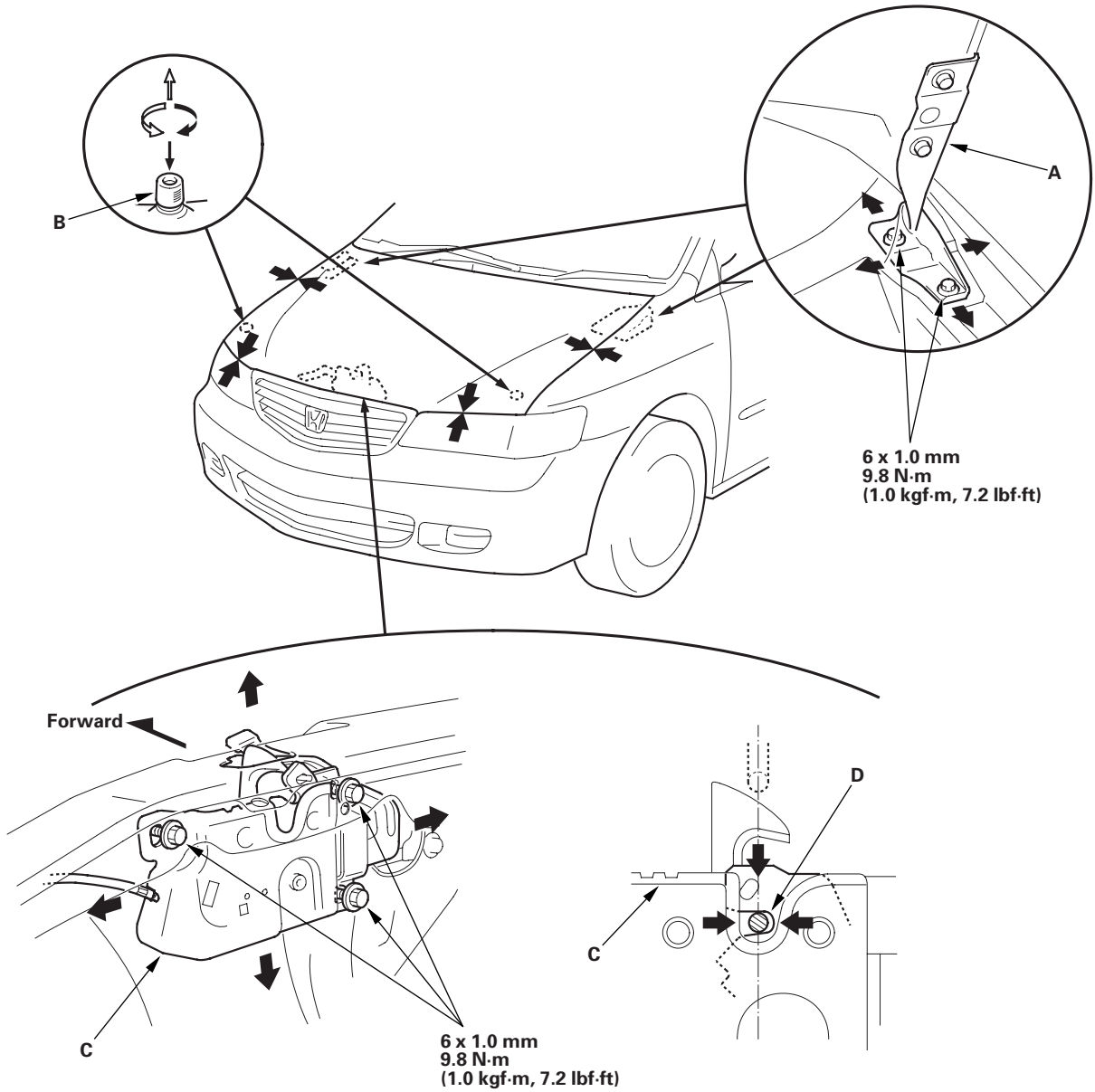


Adjustment

1. Slightly loosen each hood hinge bolt.

2. Adjust the hood alignment in this sequence:

   - Adjust the hood right and left, as well as forward and rearward, by using the elongated holes on the hood hinge (A).
   - Turn the hood edge cushions (B), as necessary, to make the hood fit flush with the body at front and side edges.

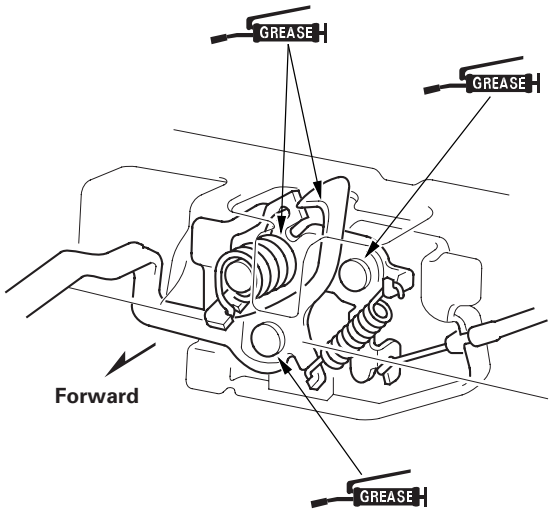


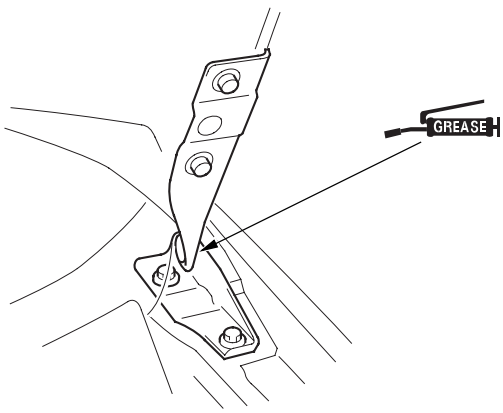
3. Adjust the hood latch (C) to obtain the proper height at the forward edge, and move the hood latch right or left until the striker (D) is centered in the hood latch.

(cont'd)

Adjustment (cont'd)

4. Tighten each bolt securely.
5. Check that the hood opens properly and locks securely.
6. Apply touch-up paint to the hinge mounting bolts and around the hinges.
7. Remove the front bulkhead cover (see page 20-142), and Apply multipurpose grease to the hood latch and hood hinge as indicated by the arrows.





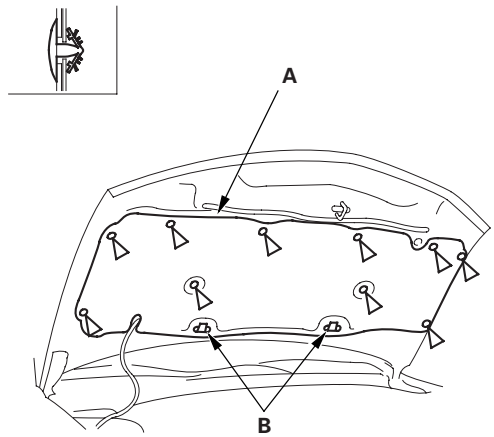
Hood Insulator Replacement

'02-04 models

1. Using a clip remover, detach the clips, then release the hood insulator (A) from the hooks (B). Take care not to bend the insulator and not to scratch the hood.

Fastener Locations

▷: Clip, 10



2. Install the insulator in the reverse order of removal, and note thses items:

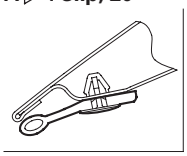
- Replace any damaged clips.
- Push the clips into place securely.

Hood Seal and Hood Molding Replacement

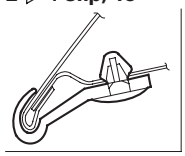
1. Using a clip remover, detach the clips (A, B), then remove the hood seal (C) and hood sub-seal (D). On Canadian models, detach the clips (E), then remove the hood molding (F). Take care not to scratch the hood.

Fastener Locations

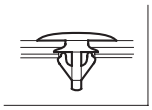
A ▷ : Clip, 20

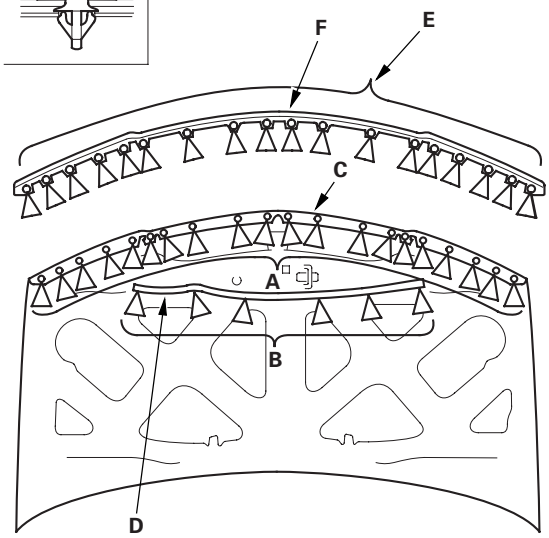


E ▷ : Clip, 18



B ▷ : Clip, 6





2. Install the seal and molding in the reverse order of removal, and note these items:

   - Replace any damaged clips.
   - Push the clips into place securely.

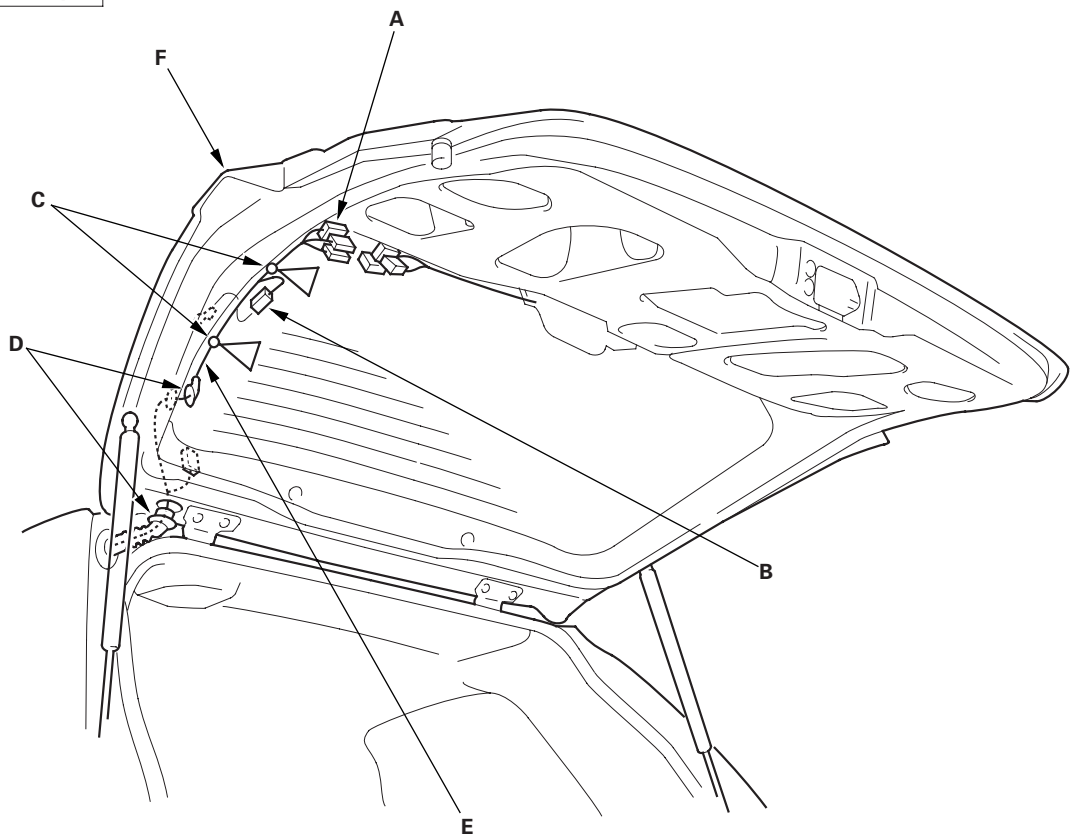
Replacement

NOTE: Put on gloves to protect your hands.

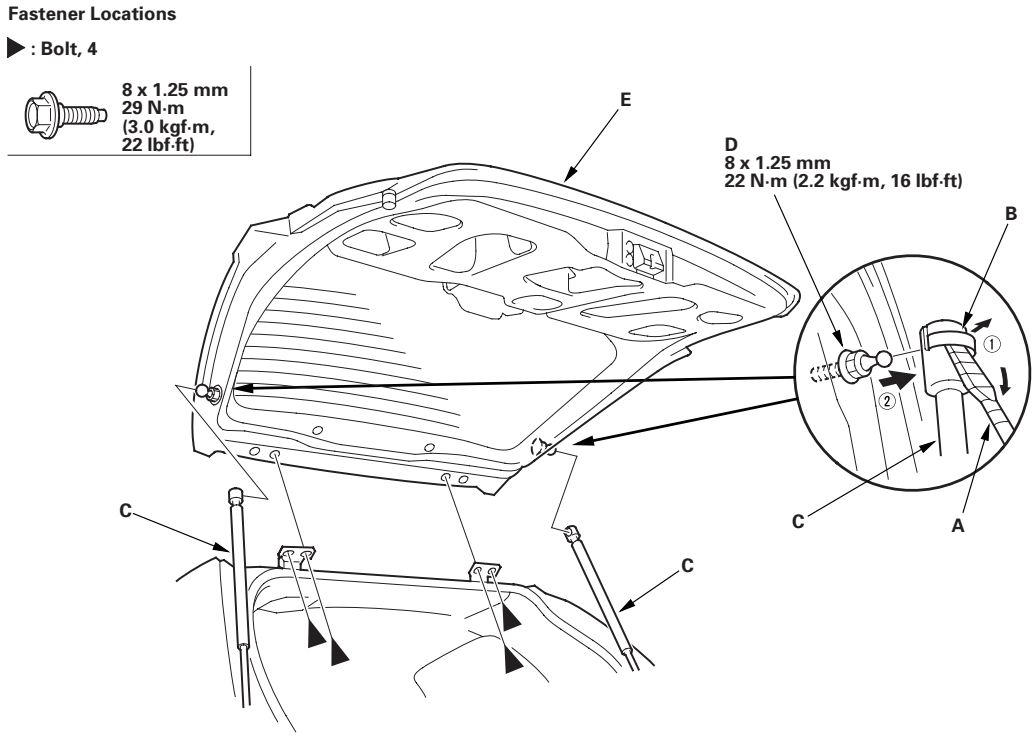
1. Remove the tailgate trim panel (see page 20-61).
2. Remove the tailgate spoiler (see page 20-140).
3. Disconnect the tailgate harness connectors (A), and rear window defogger connector (B). Detach the harness clips (C), and remove the grommets (D), then remove the wire harness (E) from the tailgate (F).

Fastener Locations

▷ : **Harness clip**



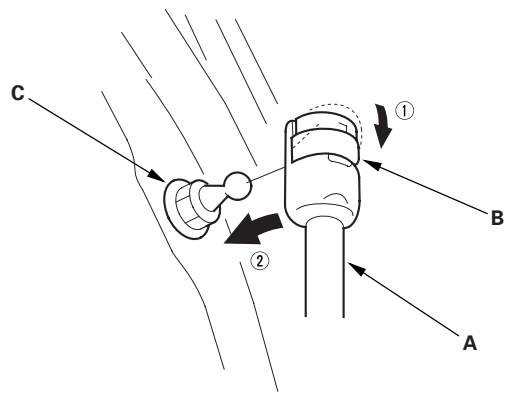
4. With a flat-tip screwdriver (A), pry the support strut clips (B) away from each of the support struts (C), but do not remove the clips. With the help of an assistant, release the support struts from the pivot bolts (D).



5. With the help of an assistant, remove the bolts, then remove the tailgate (E). Take care not to damage the tailgate and body.

6. Install the tailgate in the reverse order of removal, and note these items:

   - Before reattaching the support struts, adjust the tailgate alignment (see page 20-138).
   - Make sure the tailgate opens properly and locks securely.
   - Make sure the connectors are connected properly, and the wire harness is routed properly.
   - When reattaching the support struts (A), set the clips (B) to their original position, then push the support struts onto the pivot bolts (C).



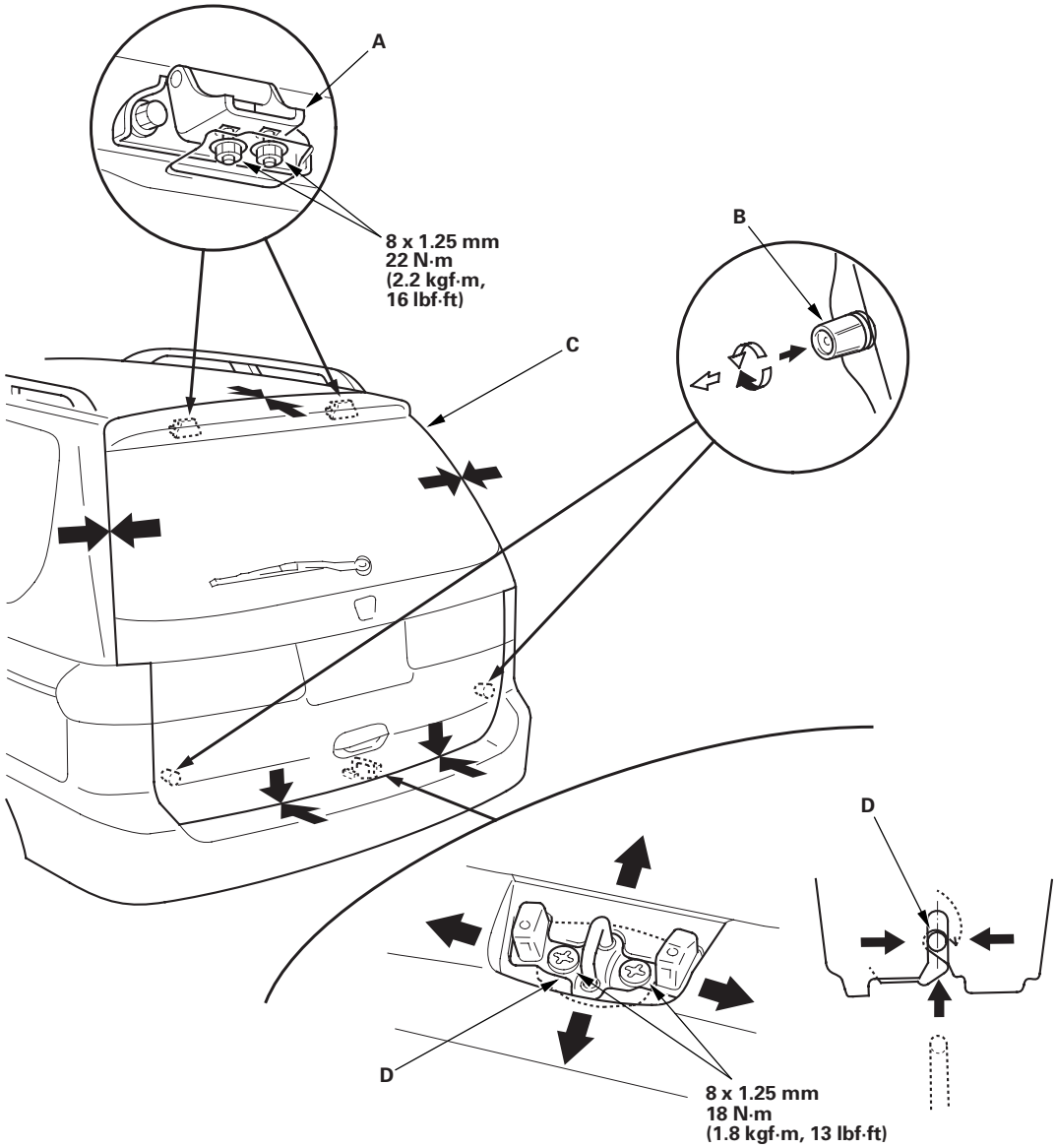
Adjustment

1. Remove the support strut from each side (see page 20-139).

2. Slightly loosen each bolt and nut.

3. Adjust the tailgate alignment in the following sequence:

   - Pull down the rear portion of the headliner (see page 20-62). Take care not to bend the headliner excessively. Adjust the tailgate hinges (A) right and left, as well as forward and rearward, using the elongated holes.
   - Turn the tailgate edge cushions (B), in or out as necessary, to make the tailgate (C), fit flush with the body at the side edges.
   - Adjust the fit between the tailgate and tailgate opening by moving the striker (D).



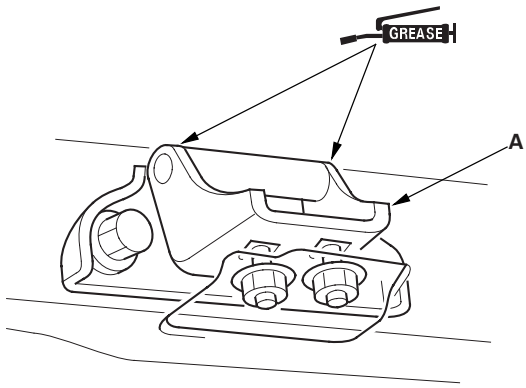
4. Tighten each bolt and nut securely.

5. Check that the tailgate opens properly and locks securely.

6. Reinstall the support struts securely.

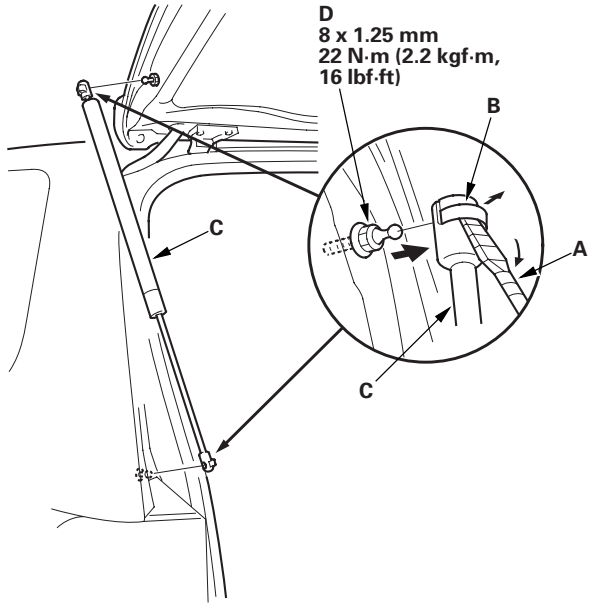
7. Apply touch-up paint to the hinge mounting nuts and around the hinges.

8. Apply multipurpose grease to the pivot portion of the tailgate hinges (A) as indicated by the arrows.

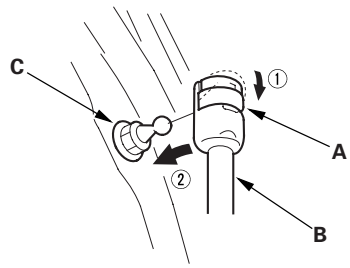


Tailgate Support Strut Replacement

1. With the help of an assistant, use a flat-tip screwdriver (A) to pry the support strut clips (B) from each end of the support strut (C) at the tailgate and body, then release the support strut from the pivot bolts (D). Do not remove the clips from the support strut.



2. Set the clips (A) to their original position, then reattach the support struts (B) by pushing them onto the pivot bolts (C).



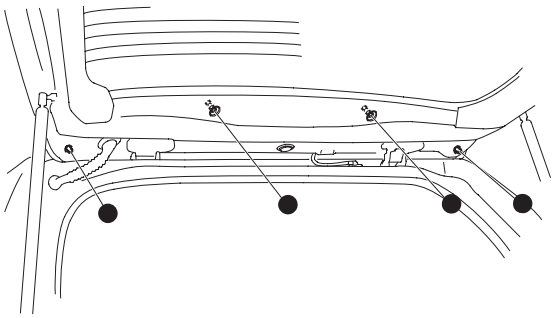
Tailgate Spoiler Replacement

1. Remove the nuts from the tailgate spoiler.

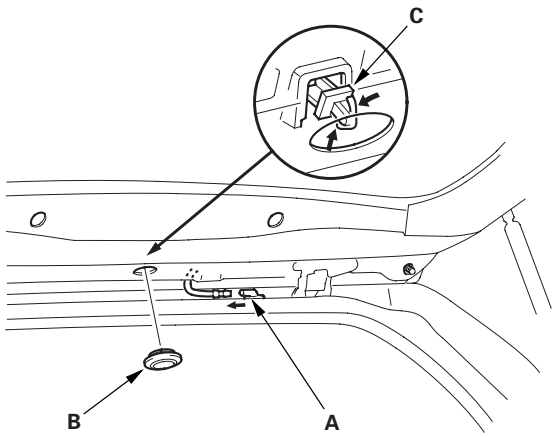
Fastener Locations

● : Nut, 4

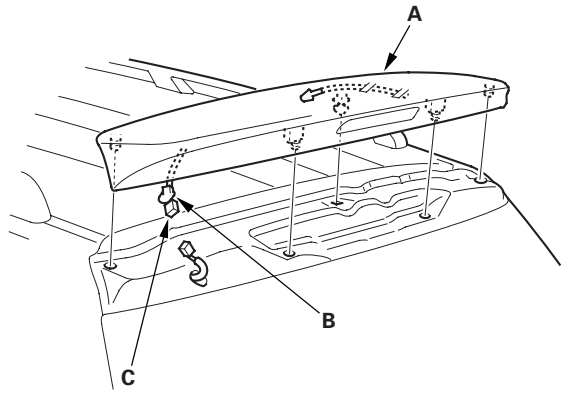
6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)



2. Disconnect the rear window washer tube (A). Remove the access cap (B) from the tailgate, and detach the clip (C).



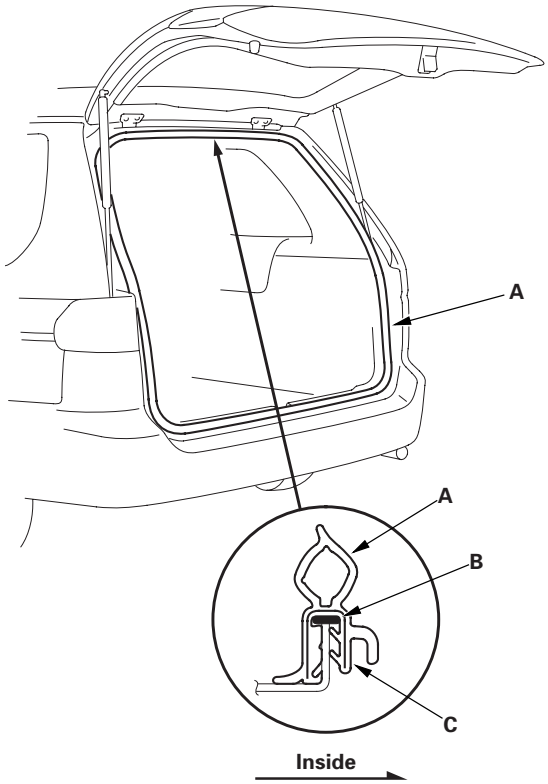
3. Gently close the tailgate, and lift up on the tailgate spoiler (A). Remove the high mount brake light connector grommet (B) from the tailgate, and disconnect the high mount brake light connector (C), then remove the tailgate spoiler. Take care not to scratch the tailgate and body.



4. Install the spoiler in the reverse order of removal, and make sure the connector is plugged in properly and the washer tube is connected properly.

Tailgate Weatherstrip Replacement

1. Remove the tailgate weatherstrip (A) by pulling out on it.



2. Apply clear sealant (B) into the channel of the tailgate weatherstrip all the way around.

   Sealant: Cemedine P/N 08712-0004, or equivalent

3. Locate the painted alignment mark (C) on the tailgate weatherstrip. Align the painted mark with the alignment tab in the the center of the tailgate opening, and install the tailgate weatherstrip all the way around in the direction shown. Make sure there are no wrinkles in the weatherstrip.

4. Check for water leaks.

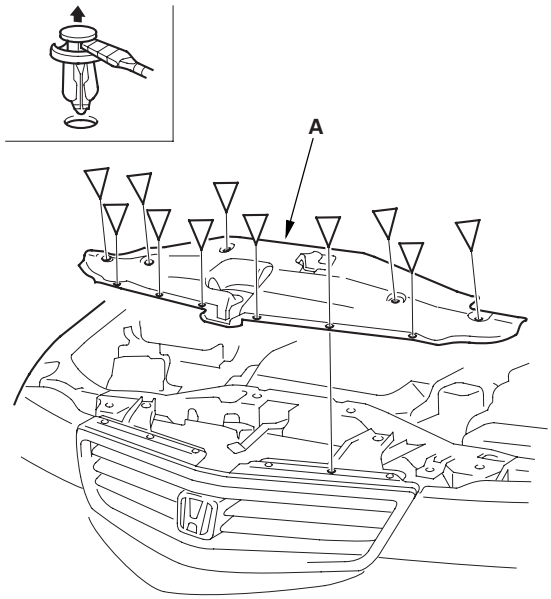
Front Grille Replacement

NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to scratch the front bulkhead cover and front grille.

1. Detach the clips, then remove the front bulkhead cover (A).

Fastener Locations

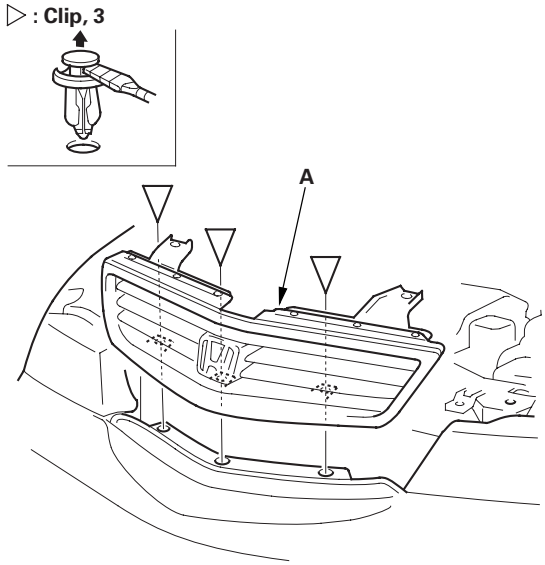
▷ : Clip, 11



2. Detach the clips, then remove the front grille (A).

Fastener Locations

▷ : Clip, 3



3. Install the front grille in the reverse order of removal, and note these items:

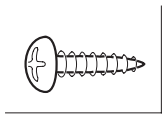
   - Replace any damaged clips.
   - Push the clips into place securely.

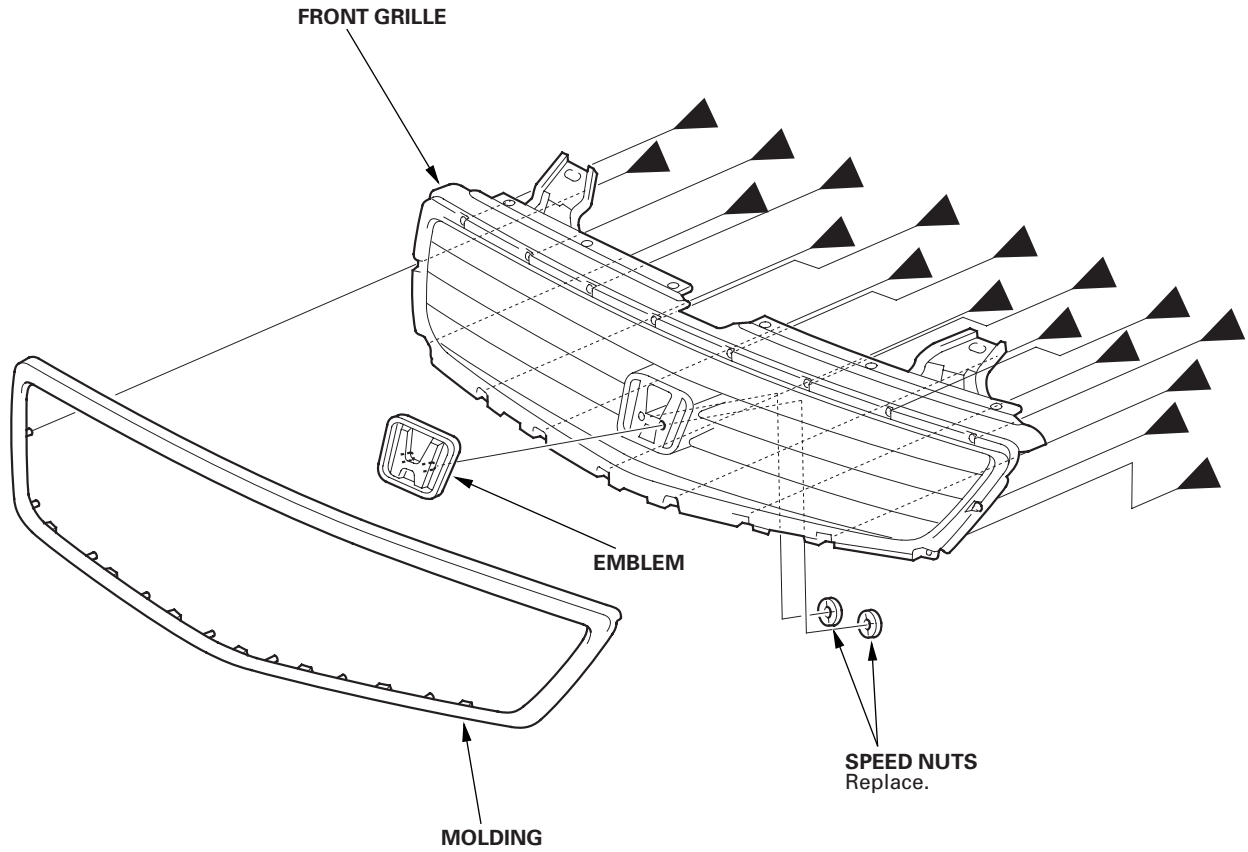
Front Grille Disassembly/Reassembly

NOTE: Take care not to scratch the front grille and molding.

Fastener Locations

▶ : Screw, 18



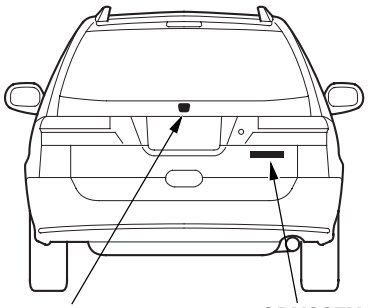


Emblem Replacement

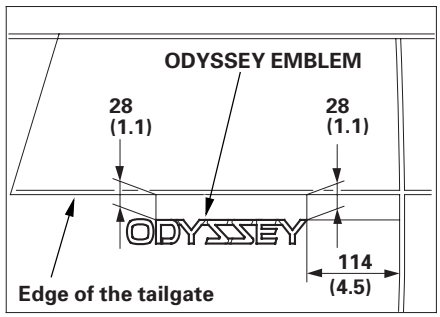
NOTE: When removing the emblems, take care not to scratch the tailgate. Use dental floss to cut the adhesive safely.

Apply the emblems where shown, and note these items:

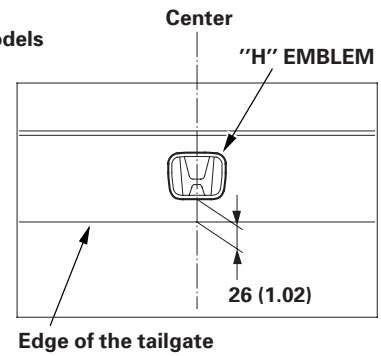
- Clean the tailgate surface with a sponge dampened in alcohol.
- After cleaning, keep oil, grease and water from getting on the surface.



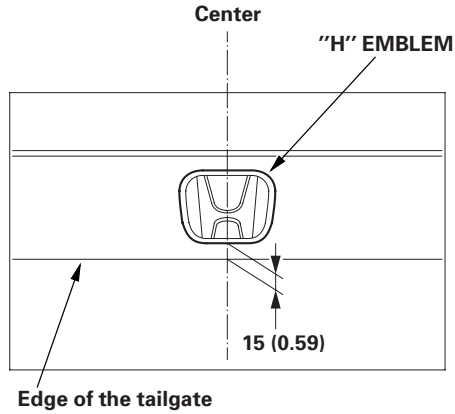
Unit: mm (in.)



'99-01 models



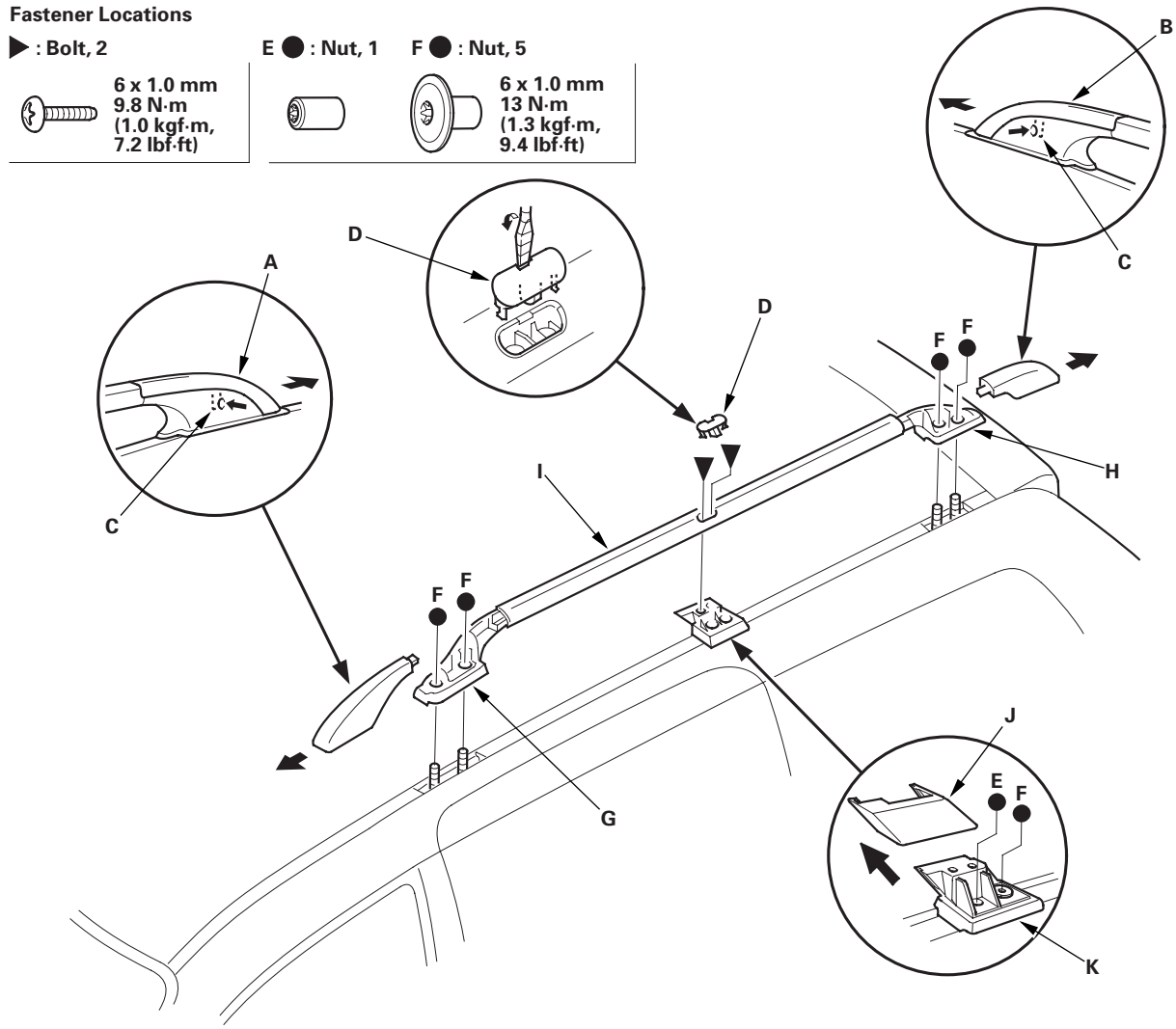
'02-04 models



Roof Rail Replacement

NOTE:
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to scratch the covers, roof rail and body.

1. Remove the front cover (A) and rear cover (B) by sliding them in the direction shown while pushing the spring plate (C) through the hole on each bracket with a flat-tip screwdriver. Remove the center cap (D), then with a Torx T30 bit, remove the nuts (F) from the front bracket (G) and rear bracket (H).



2. Remove the roof rail (I). Do not remove the rubber pads from the brackets.

3. Remove the center cover (J). Using a Torx T30 bit, remove the nuts (E, F) and the center bracket (K). Do not remove the rubber pad from the center bracket.

4. Install the roof rail in the reverse order of removal. Make sure the front and rear covers are snapped tightly into place.

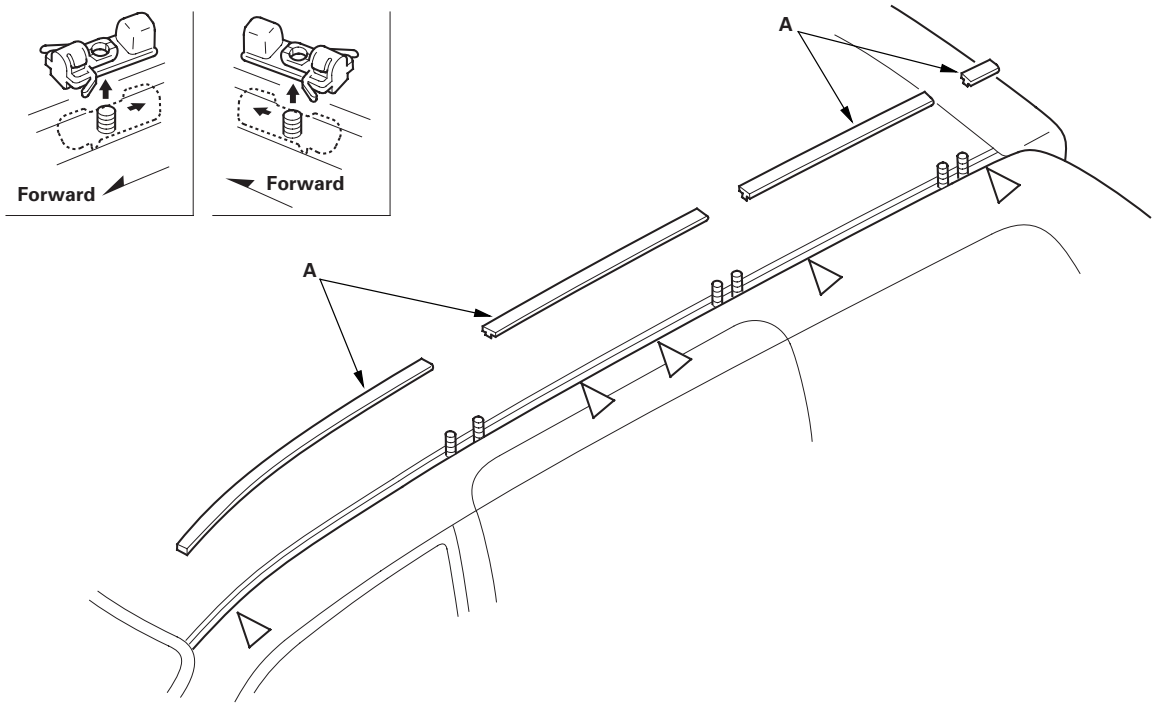
Roof Molding Replacement

NOTE:
- Take care not to scratch the body.
- The steel core in the roof molding cannot be restored to it original shape once it is bent. Replace the roof molding when the steel core is bent.

1. Remove the roof rail and center bracket (see page 20-145).

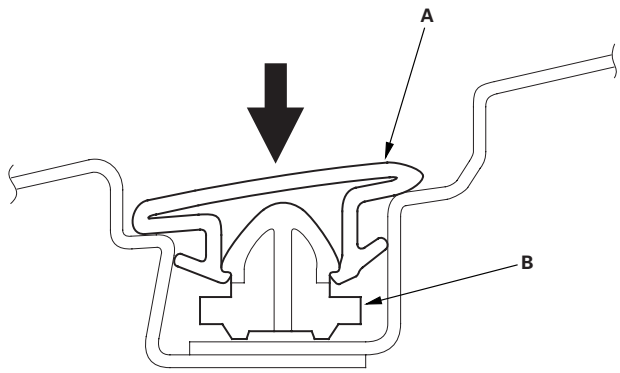
2. Using a flat-tip screwdriver wrapped with protective tape and a shop towel on the body, detach the clips by prying up the roof moldings (A).

Fastener Locations
▷: Clip, 5



3. Install the molding in the reverse order of removal, and note these items:

   - Replace any damaged clips.
   - Make sure the roof moldings (A) are installed on the clips (B) securely.



Door Molding Replacement

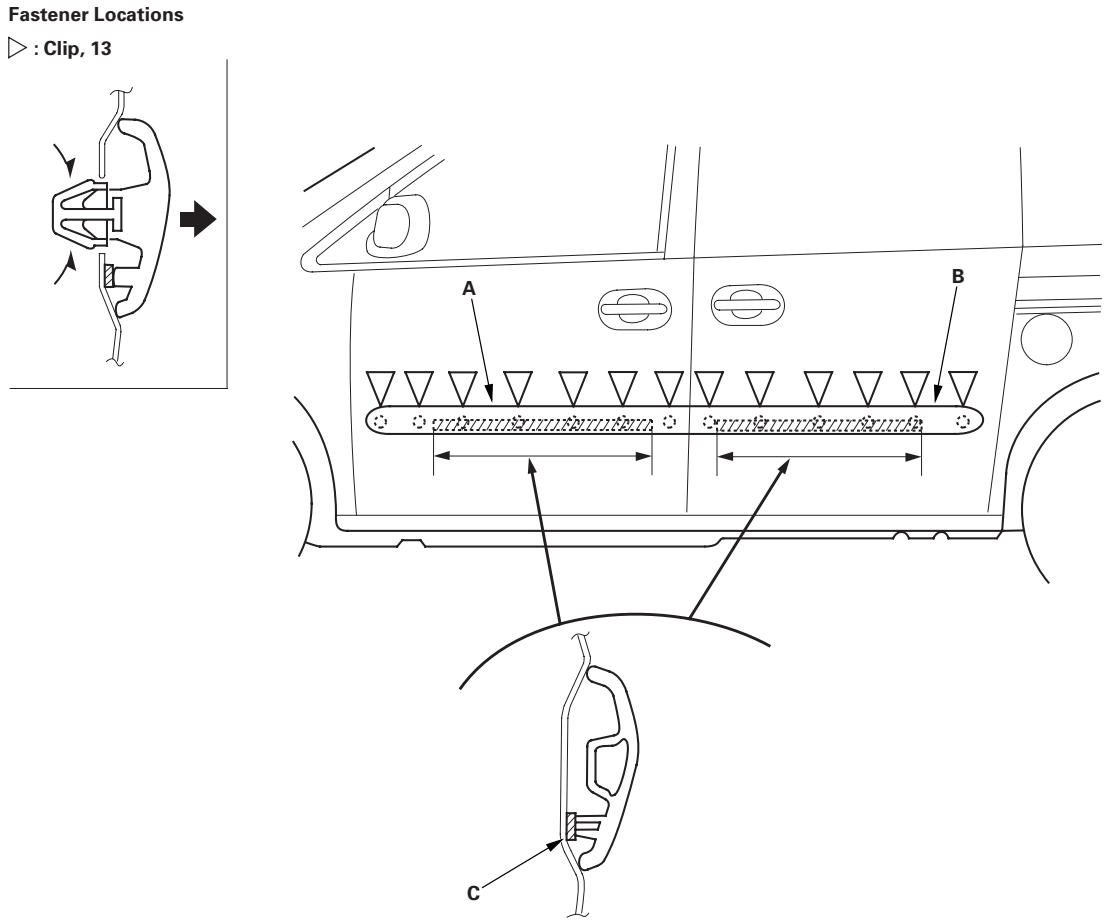
NOTE:
- Wrap the blade of your putty knife or flat-tip screwdriver with protective tape to prevent damage to the door.
- Be careful not to pry too far or you may bend the molding.
- Put on gloves to protect your hands.

1. Prepare to release the molding clips from inside the vehicle.

   - To remove the front door molding, remove the front door panel and plastic cover (see page 20-7).
   - To remove the sliding door molding, remove the sliding door panel and plastic cover (see page 20-13).

2. Release the clips, and gently pry the front door molding (A) or sliding door molding (B) away from the door while removing the adhesive tape (C).

   Adhesive tape: 3M 5311, or equivalent
   Thickness 1.2 mm (0.047 in.) Width 5 mm (0.2 in.)



3. Install the moldings in the reverse order of removal, and note these items:

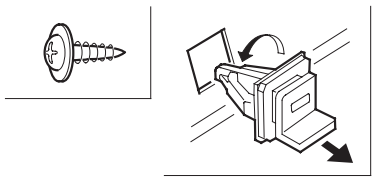
   - Replace any damaged clips and adhesive tape.
   - Push the clips and adhesive tape into place securely.

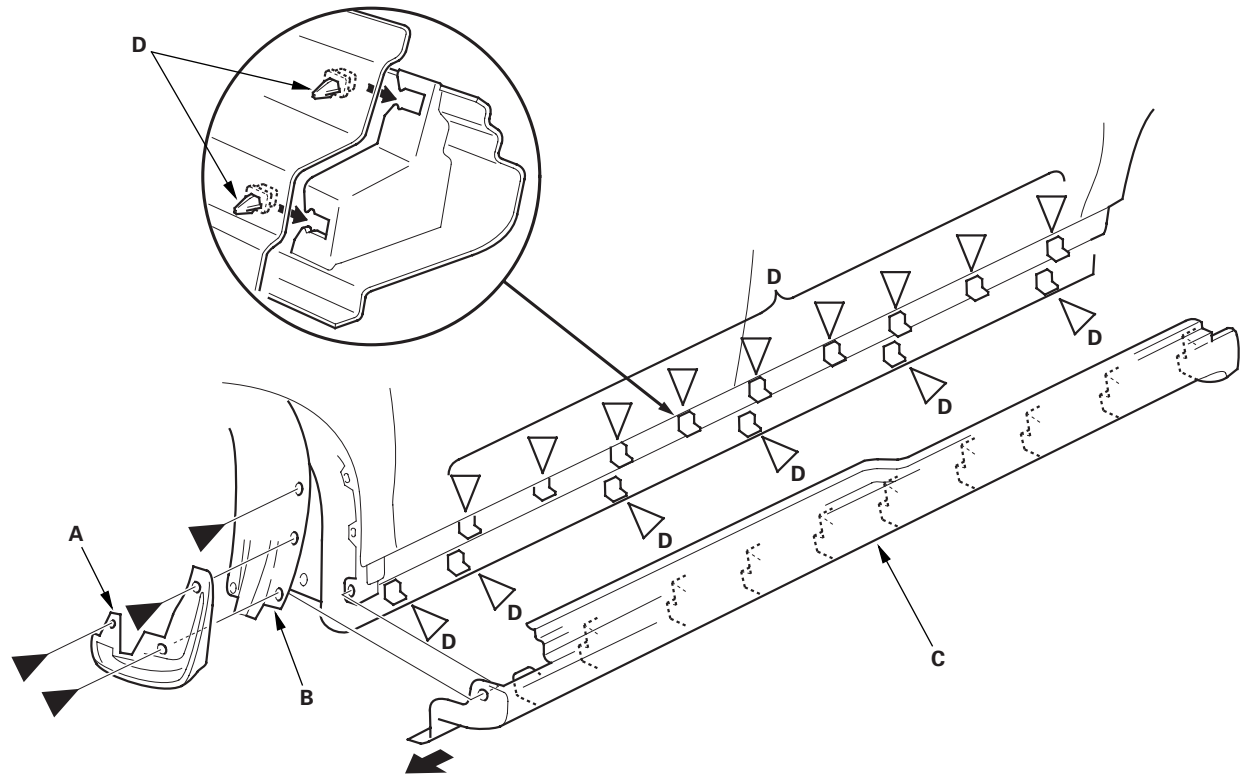
Side Sill Panel Replacement

1. Remove the side sill panel.

   –1 If equipped, remove the front splash guard (A).
   –2 Pull the inner fender (B) back as necessary.
   –3 Slide the side sill panel (C) forward and remove it. Side clips (D) will stay in the body.
   –4 Remove the side clips from the body.

Fastener Locations
▶ : Screw, 4 D ▷ : Clip, 15





2. Replace any damaged clips.

3. Install the side clips on the side sill panel.

4. Hold the panel up, and fit all the side clips into the holes in the body, then push on the panel until the clips snap into place.

5. Reinstall the inner fender and front splash guard (if equipped).

Inner Fender Replacement

NOTE: Take care not to scratch the body.

1. Remove the inner fender as shown.

2. Install the inner fender in the reverse order of removal, and note these items:

   - Replace any damaged clips.
   - Push the clips into place securely.

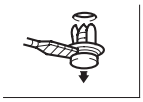
Fastener Locations

A ▶ : Bolt, 1

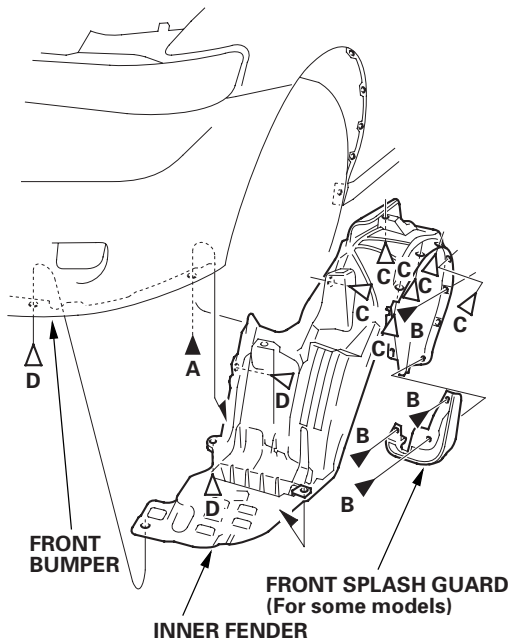
6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)

B ▶ : Screw, 4

C ▷ : Clip, 6



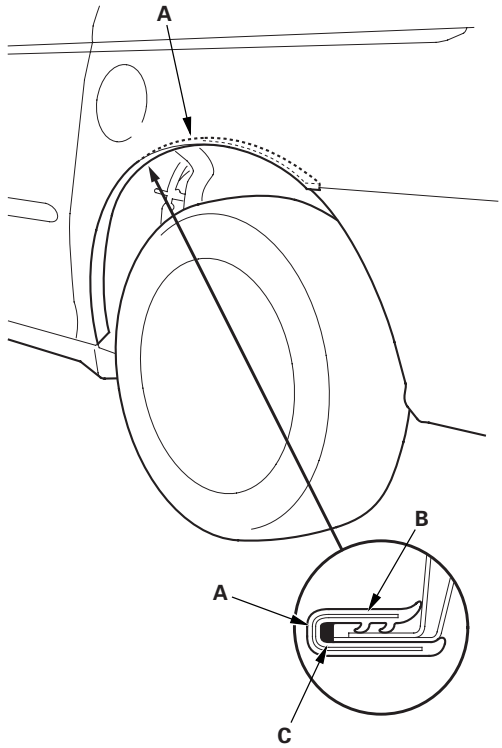
D ▷ : Clip, 3



Fenderwell Trim Replacement

1. Remove the fenderwell trim (A) by carefully pulling it out.

   NOTE: The steel core (B) in the fenderwell trim cannot be restored to it original shape once it is bent. Replace the fenderwell trim when the steel core is bent.



2. Clean the body bonding surface with a sponge dampened in alcohol. After cleaning, keep oil, grease and water from getting on the clean surface.

3. Apply clear sealant (C) into the channel of the fenderwell trim from end to end.

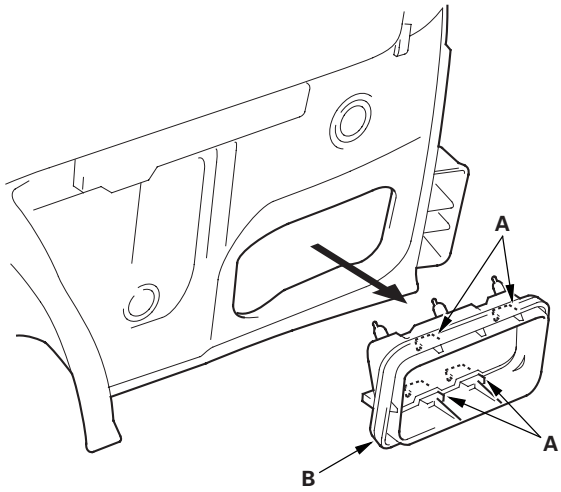
   Sealant: Cemedine P/N 08712-0004, or equivalent

4. Install the fenderwell trim.

5. Scrape or wipe the excess sealant off with a towel. To remove sealant from a painted surface, wipe with a soft shop towel dampened in alcohol.

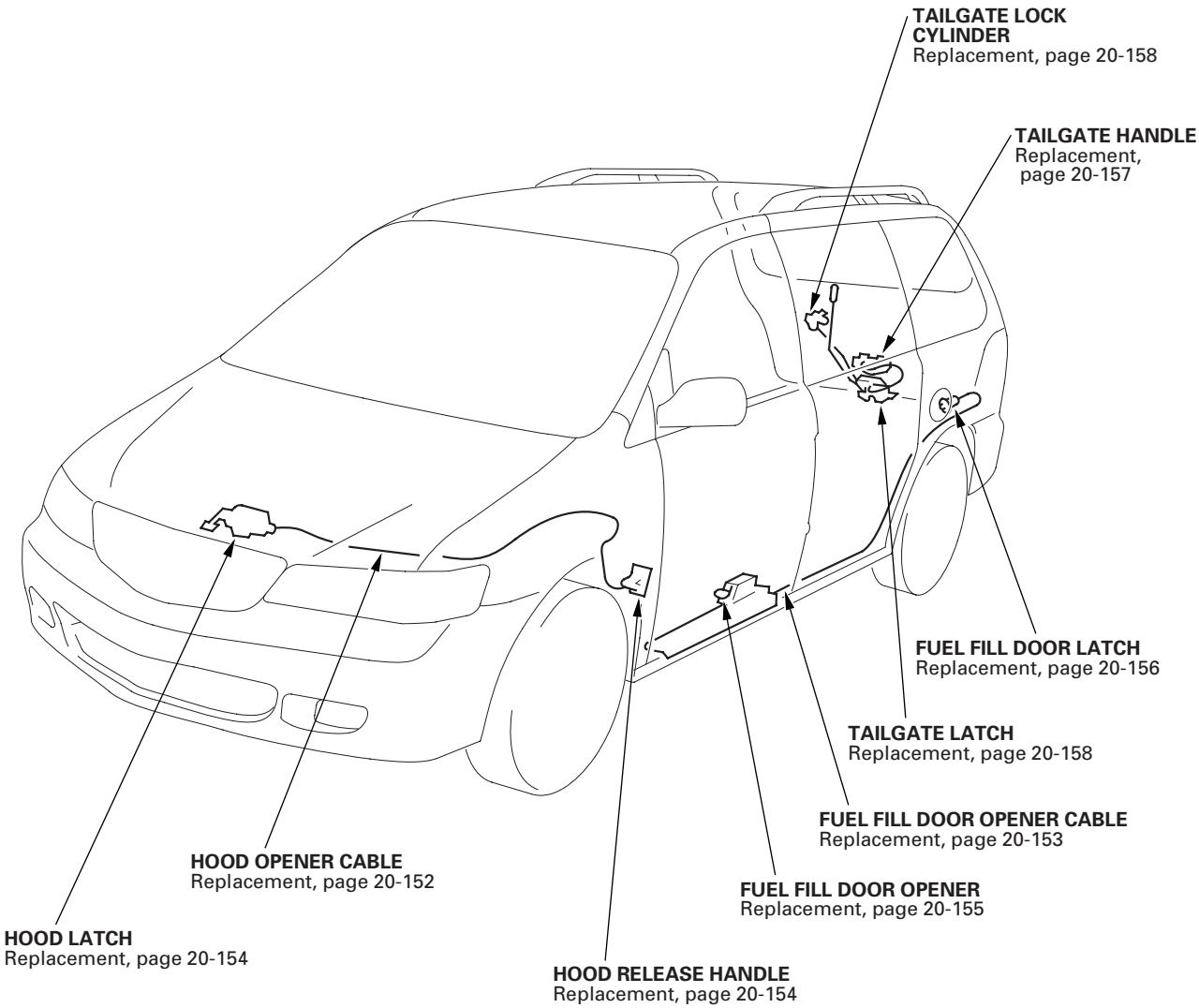
Rear Air Outlet Replacement

1. Remove the rear bumper (see page 20-130).
2. Detach the hooks (A), then remove the rear air outlet (B). Take care not to scratch the body.



3. Install the air outlet in the reverse order of removal.

Component Location Index



Hood Opener Cable Replacement

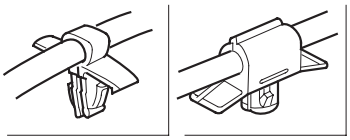
1. Remove the following parts from the left side of the vehicle:

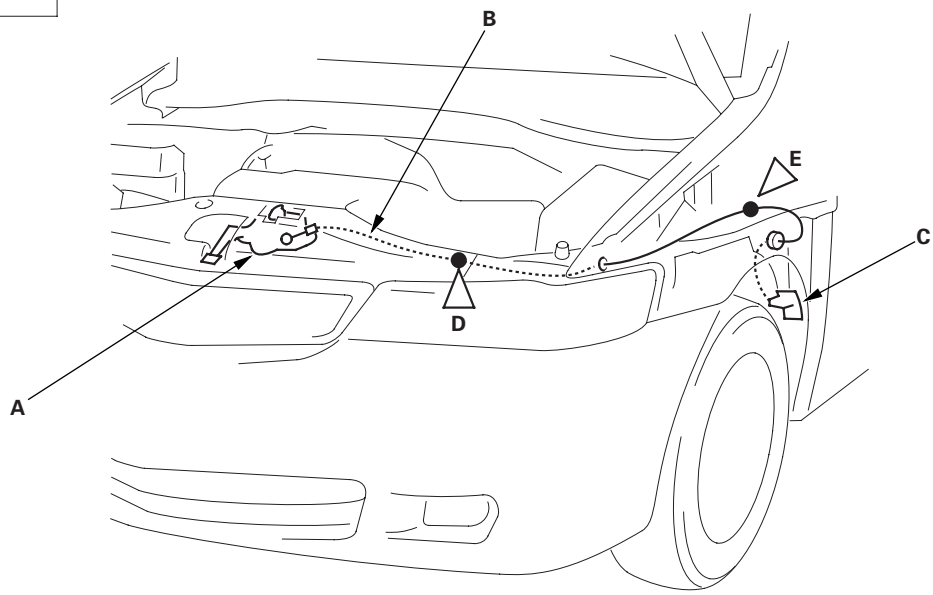
   - Inner fender (see page 20-149)
   - Kick panel (see page 20-58)

2. Remove the hood latch (A) (see page 20-154), and disconnect the hood opener (B).

Fastener Locations

D ▷ : Clip, 1 **E ▷ : Clip, 1**





3. Remove the hood release handle (C) (see page 20-154), and disconnect the hood opener cable.

4. Using a clip remover, detach the clips (D, E) from the body, then remove the hood opener cable from the vehicle. Take care not to kink the cable.

5. Install the cable in the reverse order of removal, and replace any damaged clips.

Fuel Fill Door Opener Cable Replacement

For '02-04 models: SRS components are located in this area. Review the SRS component locations, '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.

1. Remove these items:

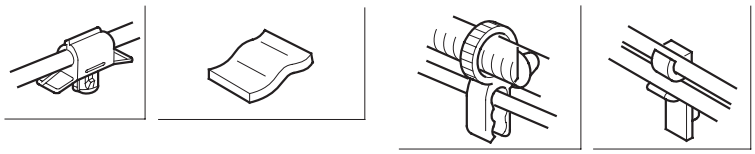
   - Front door sill trim, left side (see page 20-58)
   - Sliding door sill trim, left side (see page 20-58)
   - Rear side trim panel (see page 20-60)
   - Third row seat belt retractor (see page 23-11)
   - Quarter plastic cover (see page 20-6)

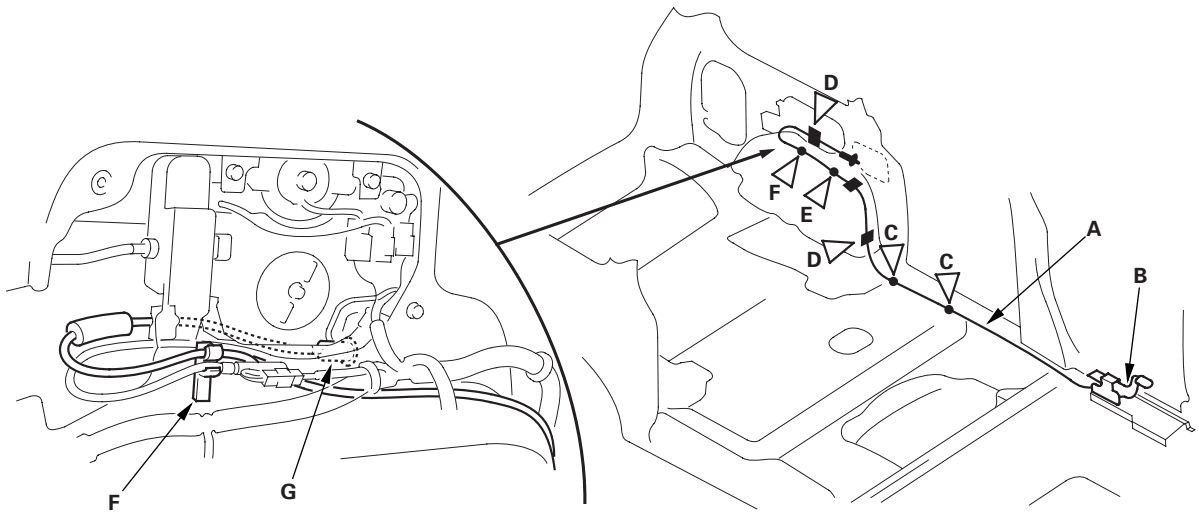
2. Pull the carpet back as necessary (see page 20-65).

3. Disconnect the fuel fill door opener cable (A) from the opener (B) (see step 4 on page 20-156).

Fastener Locations

C ▷ : Clip, 2 **D ▷ : Cushion tape, 2** **E ▷ : Clip, 1** **F ▷ : Clip, 1**





4. Release the opener cable from the clips (C, E, F) and remove the cable cushion (D), then remove the fuel fill door latch (G) from the body.

5. Install the cable in the reverse order of removal, and replace any damaged clips.

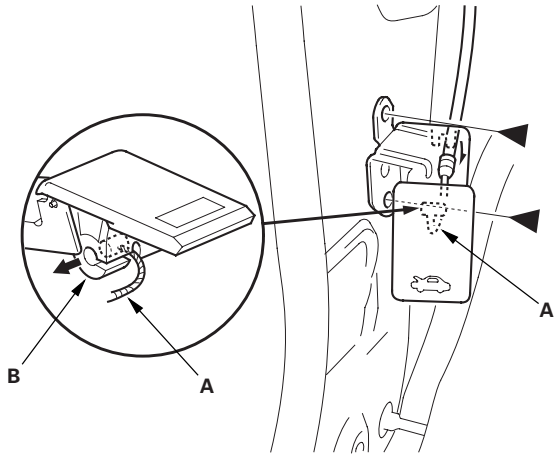
6. Check the operation of the sliding door; verify that the left sliding door locks when the fuel filler door release is pulled.

Hood Release Handle Replacement

1. Remove the left kick panel (see page 20-58).
2. Remove the bolts, then remove the hood release handle.

Fastener Locations
▶ : Bolt, 2

6 x 1.0 mm
9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)



3. Disconnect the hood opener cable (A) from the hood release handle (B). Take care not to kink the cable.
4. Install the handle in the reverse order of removal, and note there items:
   - Make sure the hood opener cable is connected properly.
   - Make sure the hood opens properly.

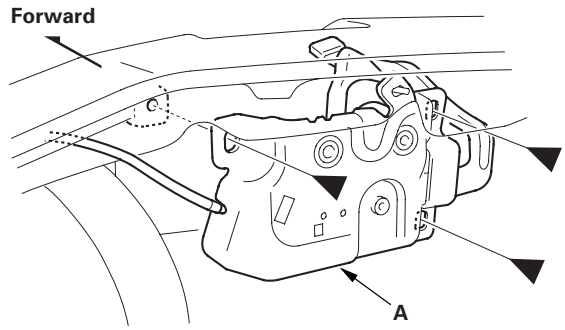
Hood Latch Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the body.

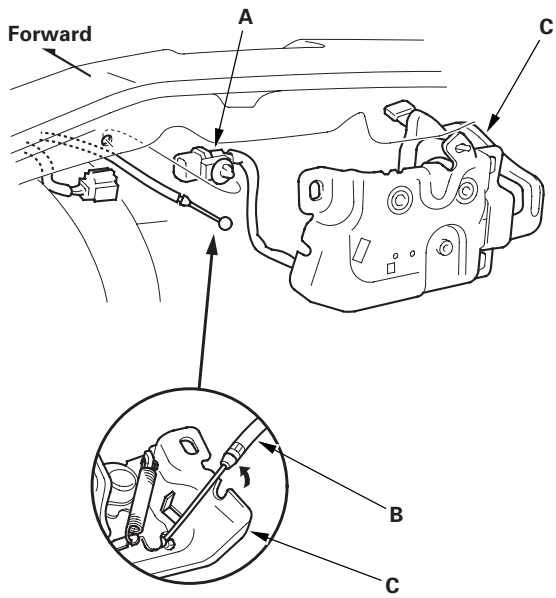
1. Remove the bolts, then remove the hood latch (A) from the body.

Fastener Locations
▶ : Bolt, 3

6 x 1.0 mm
9.8 N·m (1.0 kgf·m,
7.2 lbf·ft)

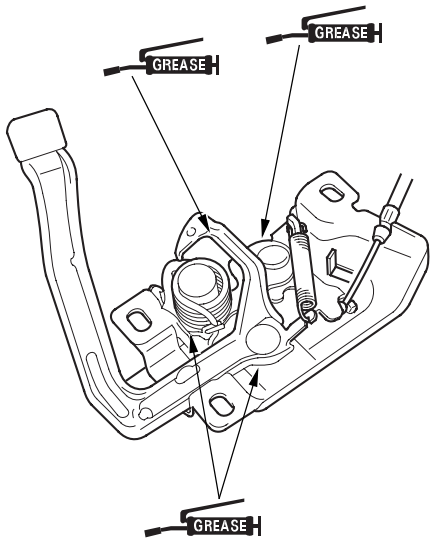


2. For some '01-04 models, detach the hood latch switch connector (A) from the body. Disconnect the hood opener cable (B) from the hood latch (C), and if equipped, disconnect the hood latch switch connector. Take care not to bend the cable.



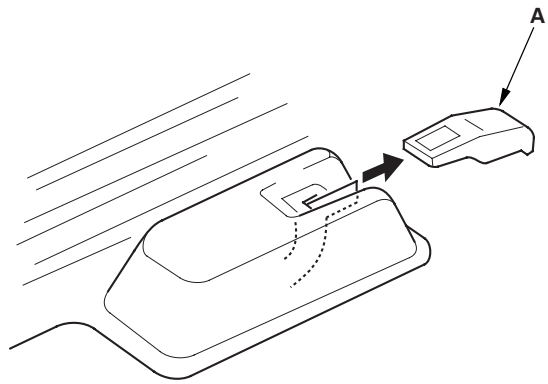
3. Install the latch in the reverse order of removal, and note these items:

   - Apply multipurpose grease to each location indicated by the arrows.
   - Make sure the hood opener cable is connected properly and the hood latch switch connector is properly connected.
   - Make sure the cable actuates the latch before you close the hood.
   - Adjust the hood latch alignment (see step 3 on page 20-133).
   - Make sure the hood locks securely.
   - Security system-equipped models: Verify that the system arms and that the alarm sounds when the hood is opened.



Fuel Fill Door Opener Replacement

1. Remove the opener knob (A).

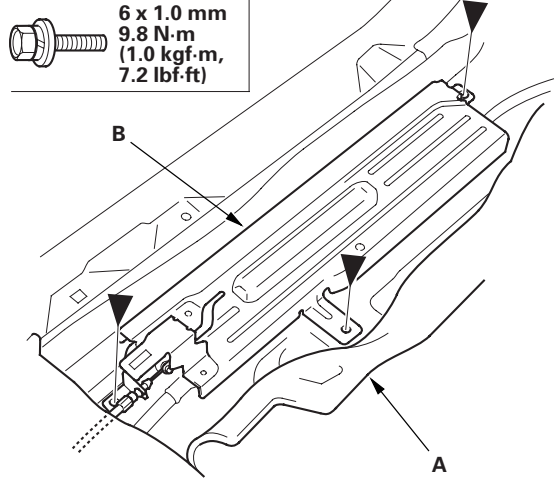


2. Remove the front door sill trim (see page 20-58).

3. Turn over the carpet (A) and remove the bolts, then remove the fuel fill door opener (B) from the floor.

Fastener Locations

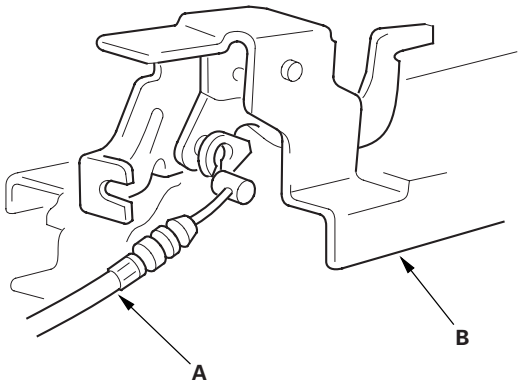
▶ : Bolt, 3



(cont'd)

Fuel Fill Door Opener Replacement (cont'd)

4. Disconnect the fuel fill door opener cable (A), then remove the fuel fill door opener (B).



5. Install the opener in the reverse order of removal, and note these items:

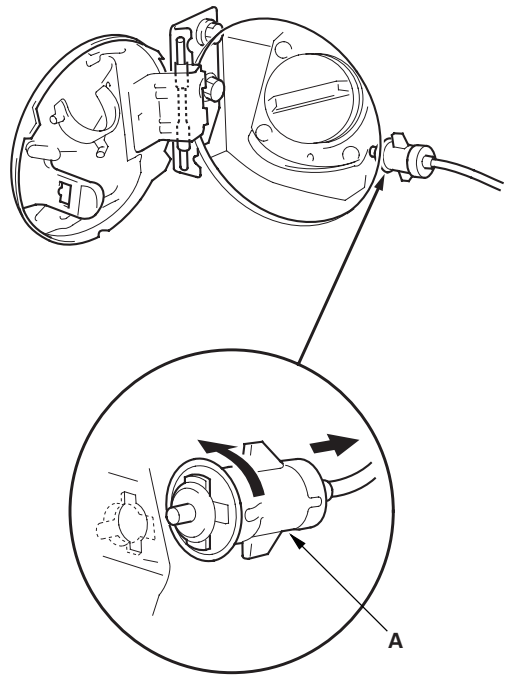
   - Make sure the opener cable is connected properly.
   - Make sure the fuel fill door opens properly.
   - Check the operation of the sliding door; verify that the left sliding door locks when the fuel filler door release is pulled.

Fuel Fill Door Latch Replacement

1. Remove these items:

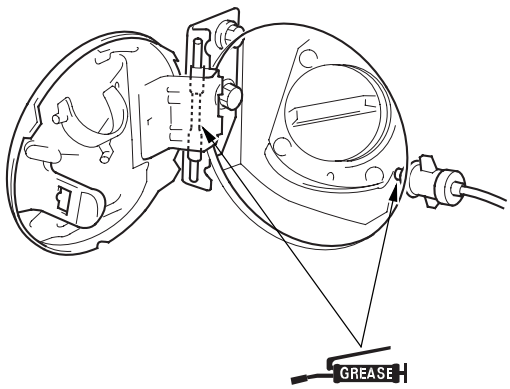
   - Rear side trim panel (see page 20-60)
   - Third row seat belt retractor, with power sliding door (see page 23-11)
   - Quarter plastic cover, as necessary (see page 20-6)

2. Turn the fuel fill door latch (A) 90°, and remove it.



3. Install the latch in the reverse order of removal, and note these items:

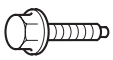
   - Apply multipurpose grease to each location indicated by the arrows.
   - Make sure the fuel fill door opens properly and locks securely.
   - Check the operation of the sliding door; verify that the left sliding door locks when the fuel filler door release is pulled.



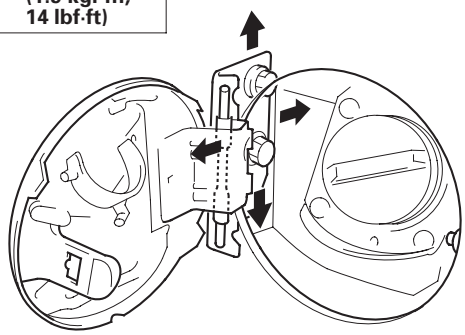
4. Check that the fuel fill door fits flush against the body. If necessary, adjust it.

Fastener Locations

▶ : Bolt, 2



6 x 1.0 mm
19 N·m
(1.9 kgf·m,
14 lbf·ft)



5. Apply touch-up paint to the hinge mounting bolts and around the hinges.

Tailgate Handle Replacement

NOTE: Put on gloves to protect your hands.

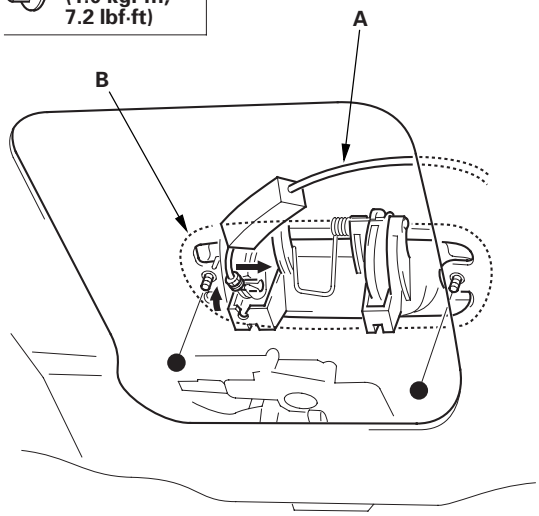
1. Remove the tailgate trim panel (see page 20-61).

2. Disconnect the handle cable (A) from the tailgate handle (B).

Fastener Locations

● : Nut, 2

6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)



3. Remove the nuts, then remove the tailgate handle.

4. Install the tailgate handle in the reverse order of removal, and note these items:

   - Make sure the handle cable is connected securely.
   - Make sure the tailgate opens properly.

Tailgate Latch Replacement

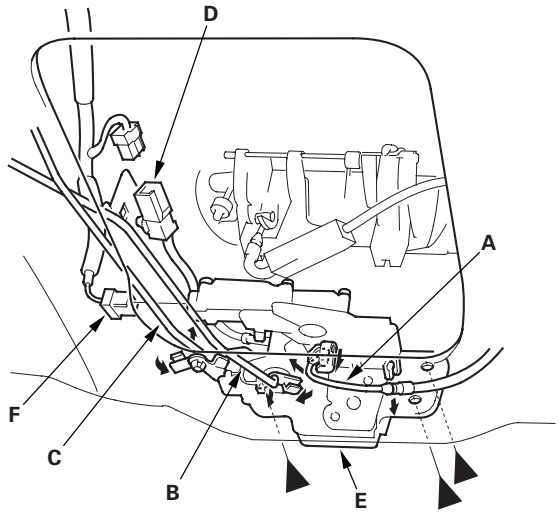
NOTE: Put on gloves to protect your hands.

1. Remove the tailgate trim panel (see page 20-61).
2. Disconnect the handle cable (A), cylinder rod (B), lock rod (C) and tailgate latch switch connector (D), and detach the connector.

Fastener Locations

▶ : Bolt, 3

6 x 1.0 mm
9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)

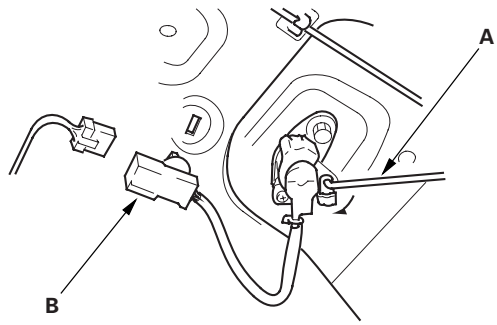


3. Remove the bolts, then pull the tailgate latch (E) out.
4. Disconnect the tailgate latch actuator connector (F), then remove the tailgate latch.
5. Install the latch in the reverse order of removal, and note these items:
   - Make sure the connectors are plugged in properly and the each rod is connected properly.
   - Make sure the cable actuates the latch before you close the tailgate.
   - Make sure the tailgate opens properly and locks securely.

Tailgate Lock Cylinder Replacement

NOTE: Put on gloves to protect your hands.

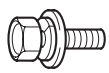
1. Remove the tailgate trim panel (see page 20-61).
2. Disconnect the cylinder rod (A) and lock cylinder switch connector (B) (if applicable), then detach the lock cylinder switch connector from the tailgate.



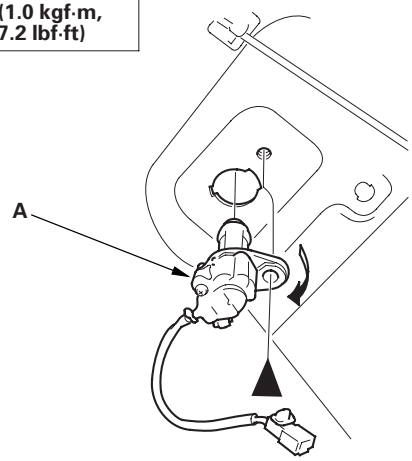
3. Remove the bolt securing the lock cylinder (A). Then turn the tailgate lock cylinder 45°, and remove it.

Fastener Location

▶ : Bolt, 1



6 x 1.0 mm
9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)



4. Install the lock cylinder in the reverse order of removal, and note these items:
   - Make sure the connector is plugged in properly.
   - Make sure the tailgate opens properly and locks securely.
   - Check the operation of the tailgate lock cylinder.

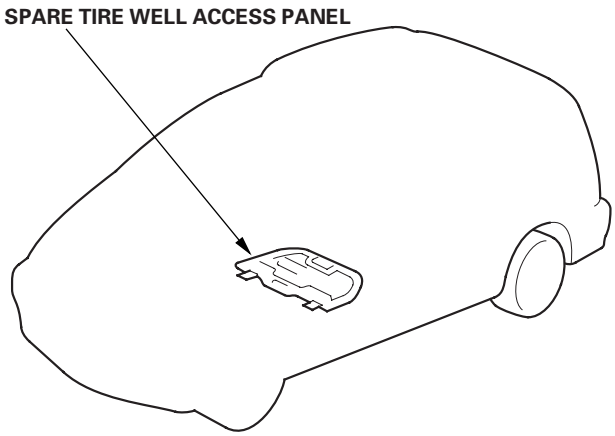
Spare Tire Well Access Panel Replacement

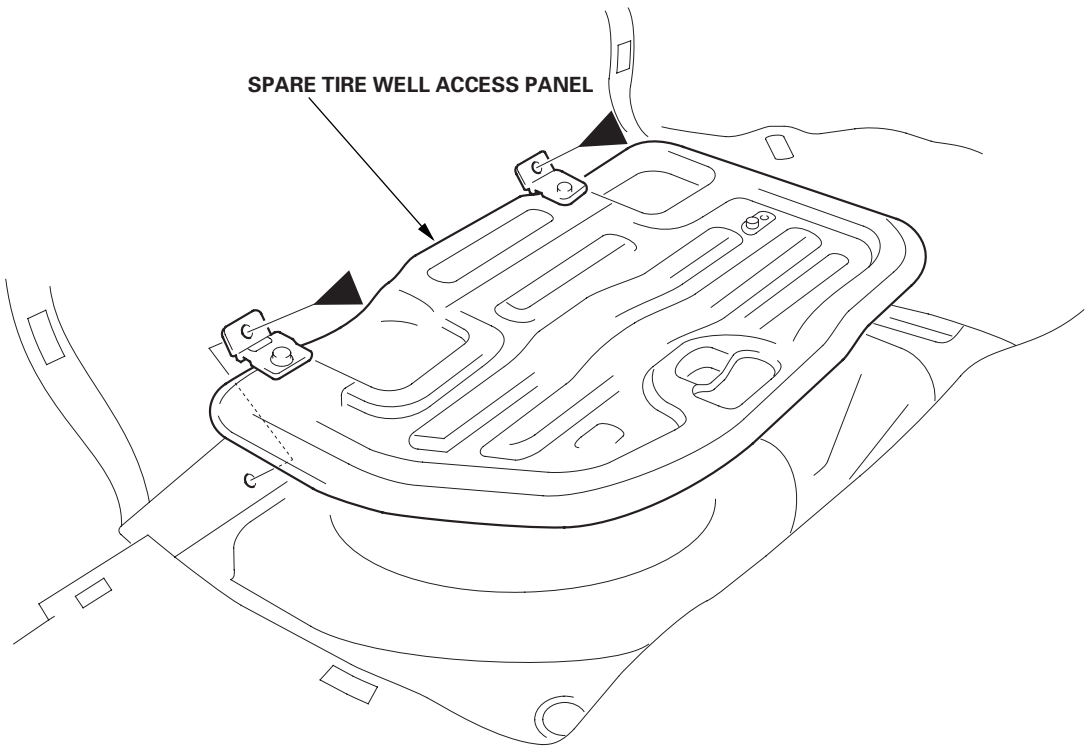
1. Remove the spare tire well access panel as shown.
2. Install the access panel in the reverse order of removal.

Fastener Locations

▶ : Bolt, 2

6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)

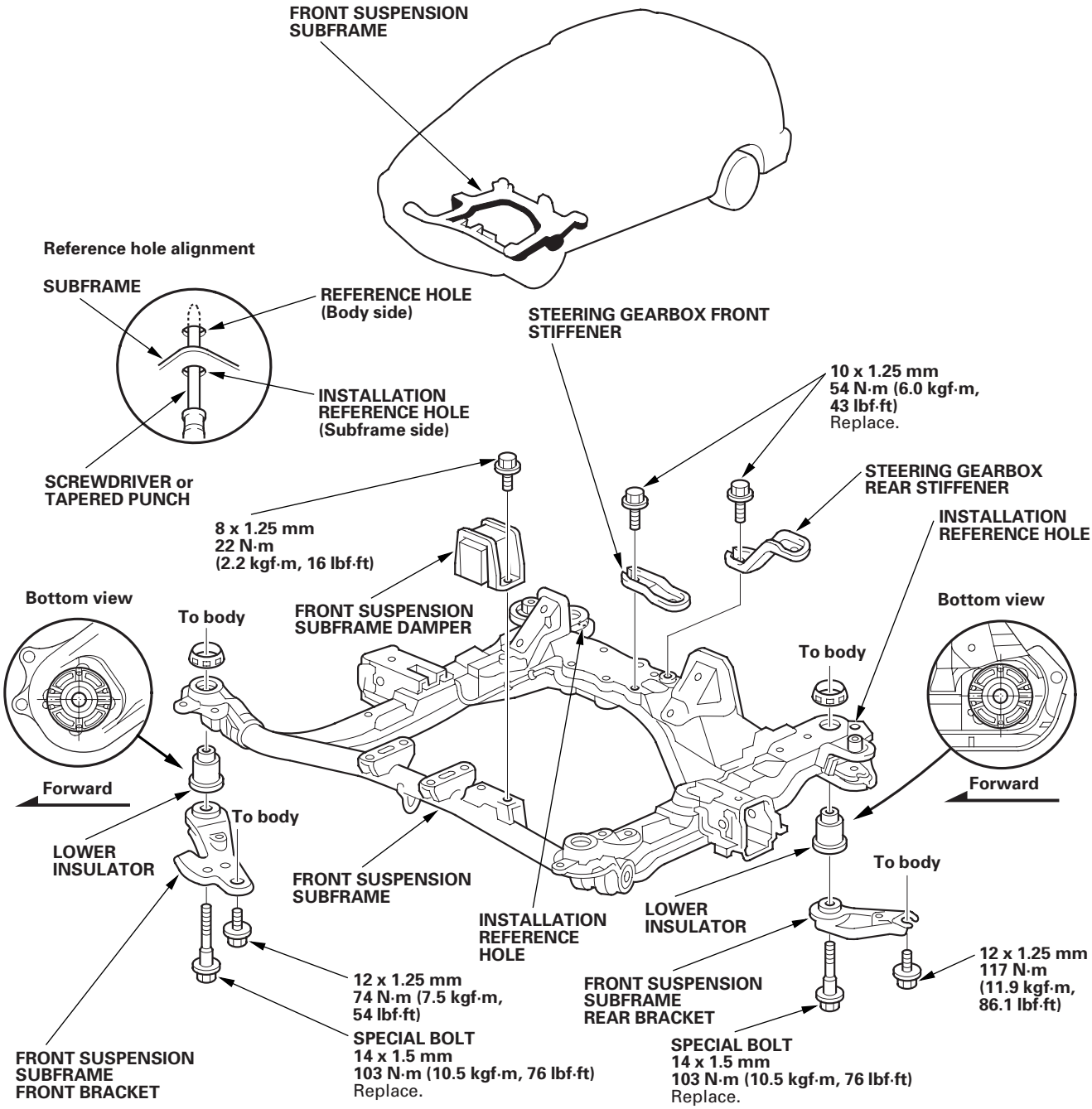




Front Subframe Replacement

Subframe Torque

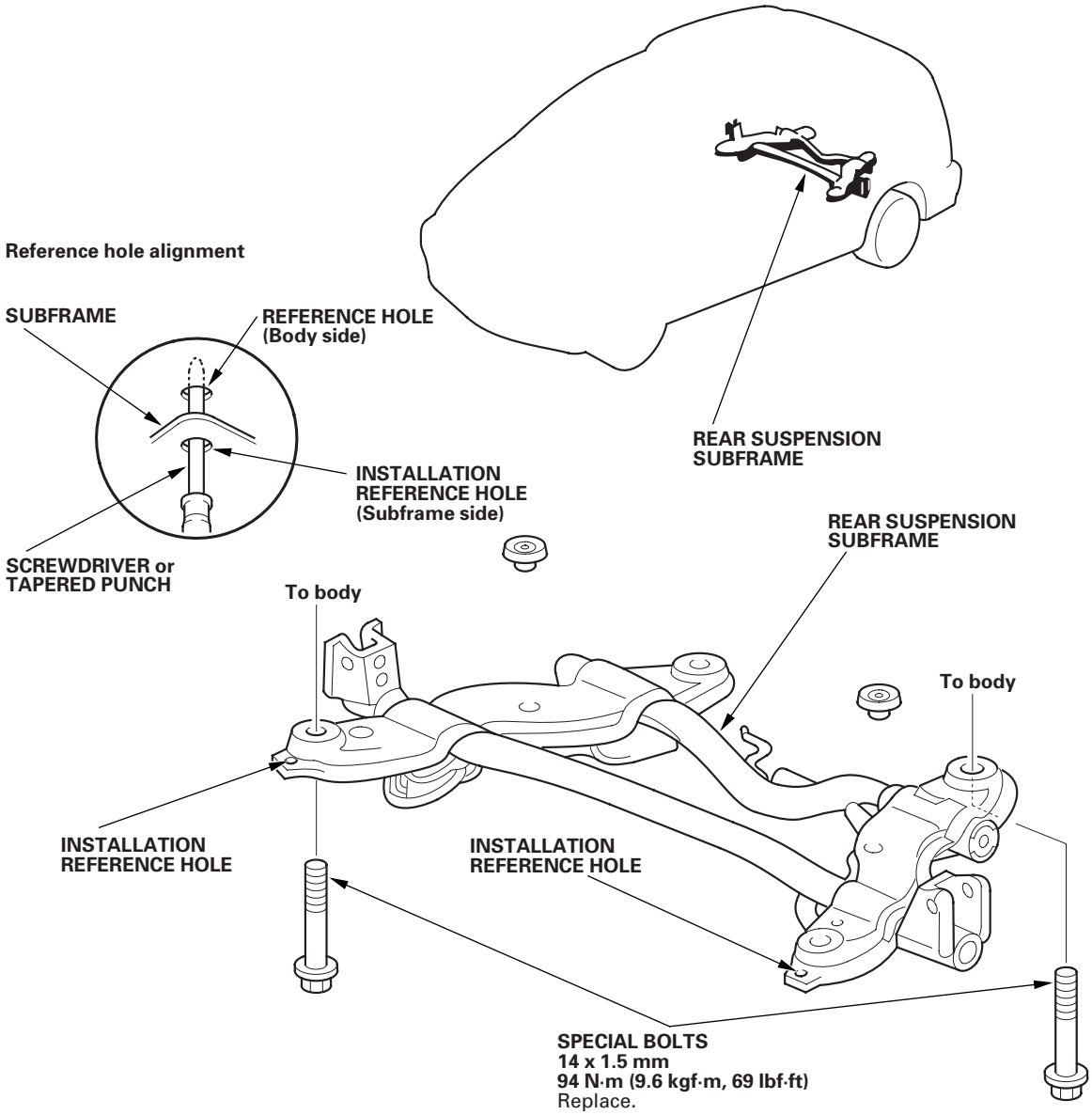
After removing the subframe mounting bolts and steering gearbox stiffener mounting bolts, be sure to replace them with new ones.



Rear Subframe Replacement

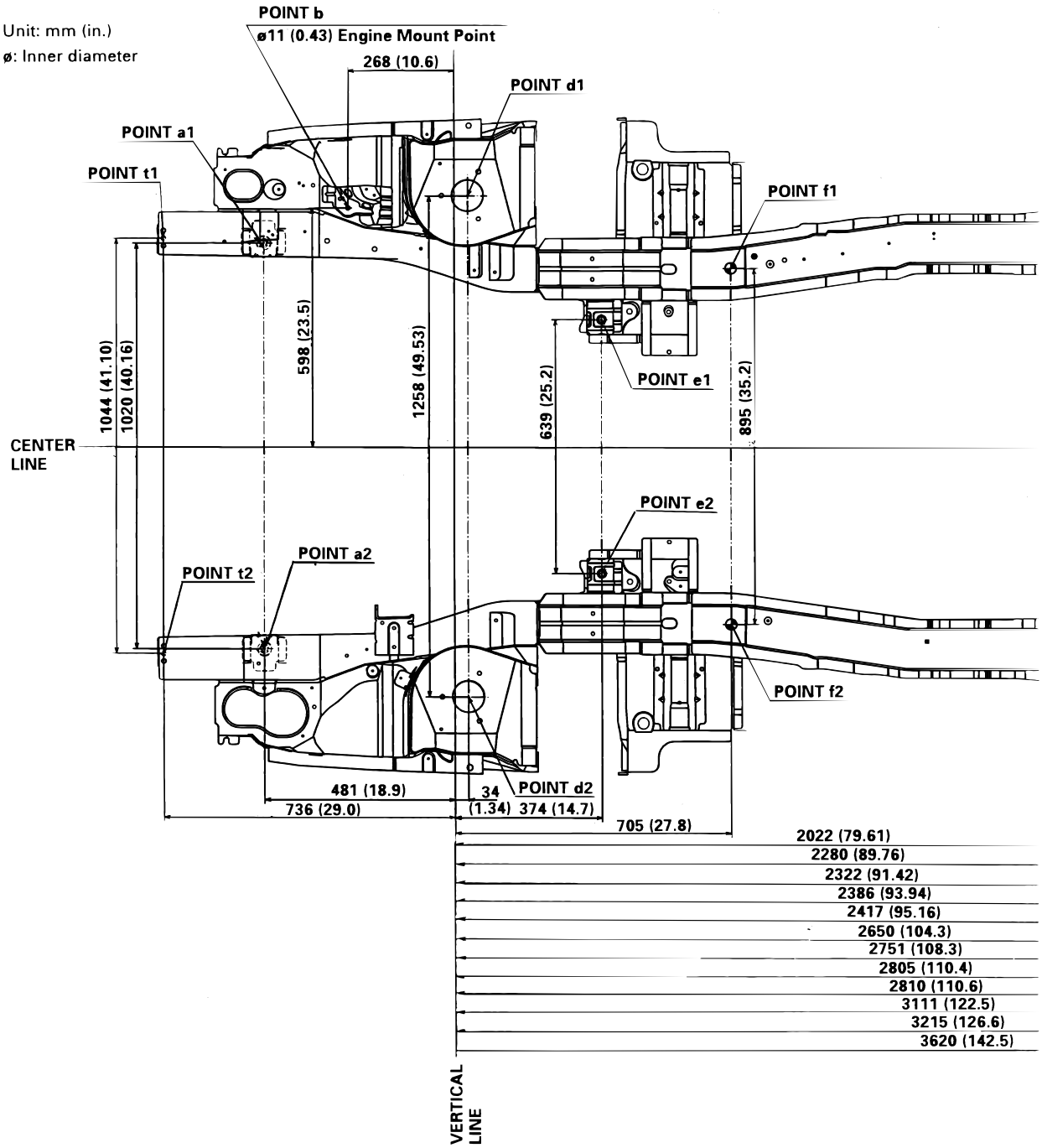
Subframe Torque

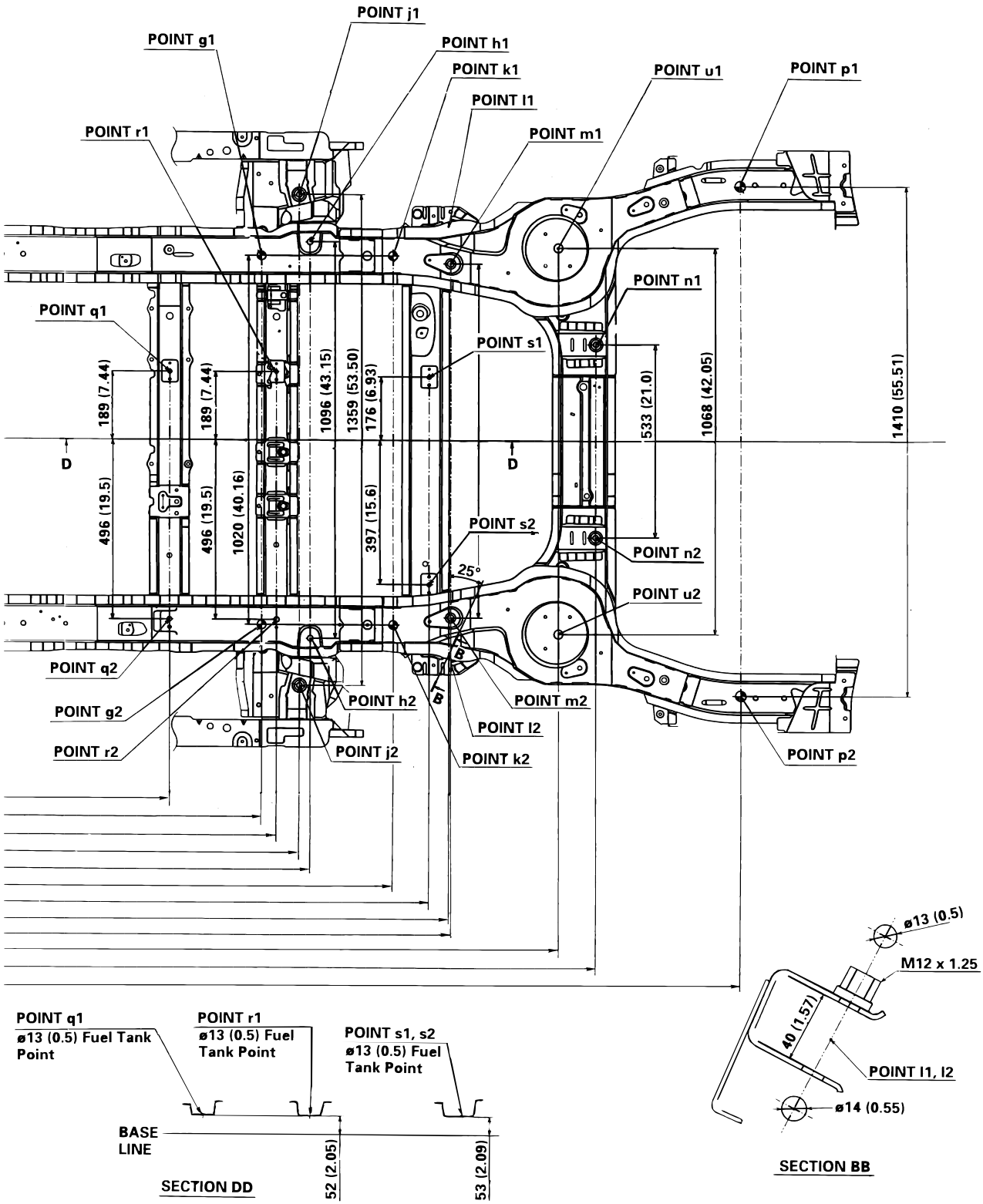
After removing the subframe mounting bolts, be sure to replace them with new ones.



Frame Repair Chart

Top View



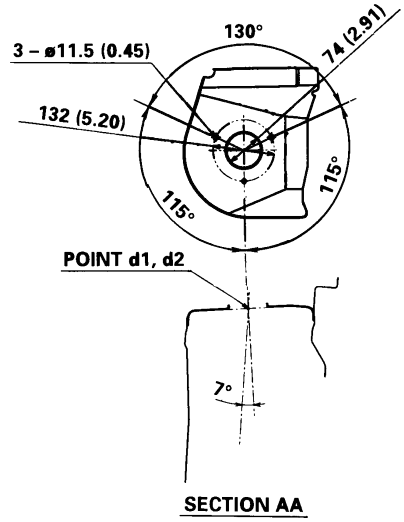

POINT j1
POINT g1
POINT h1
POINT k1
POINT u1
POINT p1
POINT l1
POINT r1
POINT m1
POINT n1
POINT q1
POINT s1
189 (7.44)
189 (7.44)
1096 (43.15)
1359 (53.50)
176 (6.93)
533 (21.0)
1068 (42.05)
1410 (55.51)
D
D
496 (19.5)
496 (19.5)
1020 (40.16)
397 (15.6)
POINT s2
POINT n2
25°
POINT u2
POINT q2
POINT g2
POINT h2
POINT m2
POINT l2
POINT r2
POINT j2
POINT k2
POINT p2
B
B
POINT q1
ø13 (0.5) Fuel Tank Point
POINT r1
ø13 (0.5) Fuel Tank Point
POINT s1, s2
ø13 (0.5) Fuel Tank Point
BASE LINE
52 (2.05)
53 (2.09)
SECTION DD
ø13 (0.5)
M12 x 1.25
40 (1.57)
POINT l1, l2
ø14 (0.55)
SECTION BB

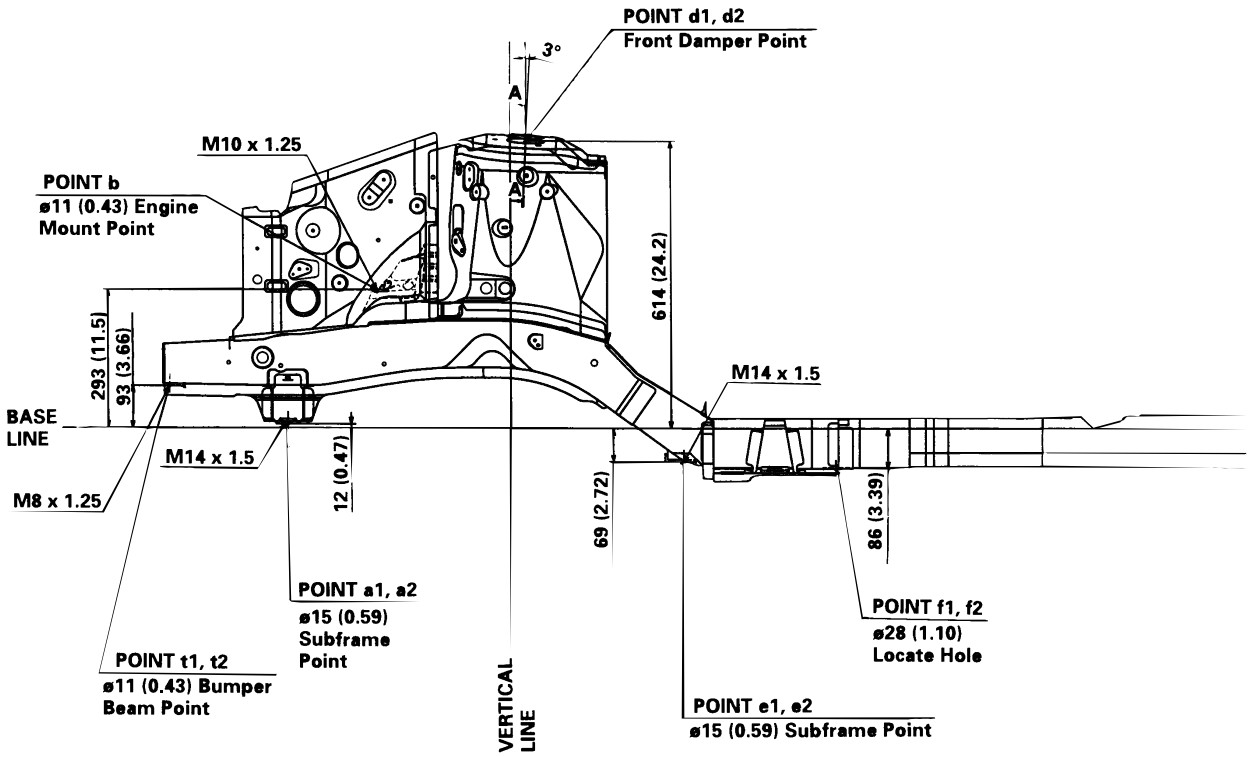
(cont'd)

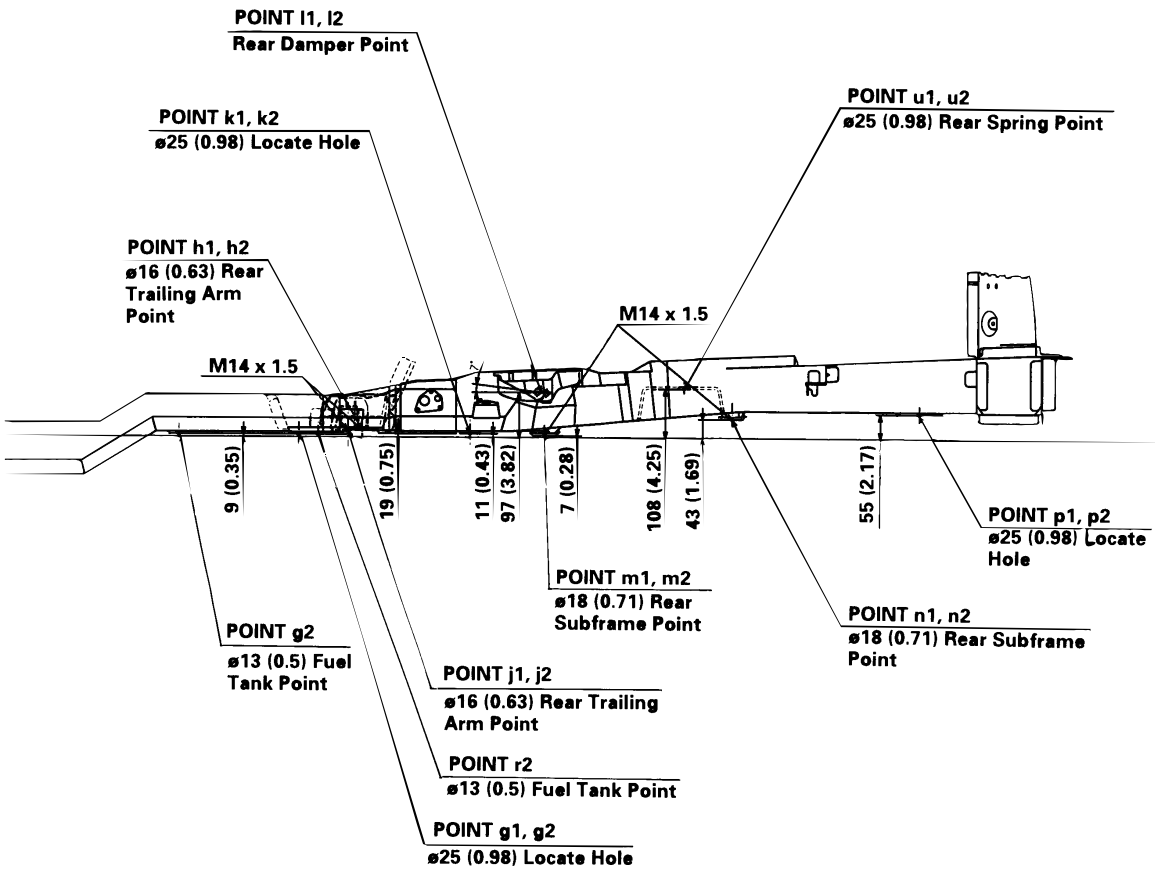
Frame Repair Chart (cont'd)

Side View

Unit: mm (in.)
ø: Inner diameter






POINT l1, l2
Rear Damper Point
POINT k1, k2
ø25 (0.98) Locate Hole
POINT h1, h2
ø16 (0.63) Rear Trailing Arm Point
M14 x 1.5
M14 x 1.5
POINT u1, u2
ø25 (0.98) Rear Spring Point
9 (0.35)
19 (0.75)
11 (0.43)
97 (3.82)
7 (0.28)
108 (4.25)
43 (1.69)
55 (2.17)
POINT p1, p2
ø25 (0.98) Locate Hole
POINT m1, m2
ø18 (0.71) Rear Subframe Point
POINT n1, n2
ø18 (0.71) Rear Subframe Point
POINT g2
ø13 (0.5) Fuel Tank Point
POINT j1, j2
ø16 (0.63) Rear Trailing Arm Point
POINT r2
ø13 (0.5) Fuel Tank Point
POINT g1, g2
ø25 (0.98) Locate Hole

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If HVAC maintenance is required)

The Odyssey SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done only by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work must be performed by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump the SRS unit. Otherwise, the system may fail in a collision, or airbags may deploy if the ignition switch is ON (II).
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, and around the floor. Do not use electrical test equipment on these circuits.

03/07/29 10:09:36 61S0X050_210_0002

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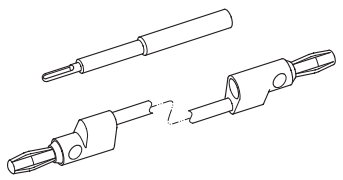
HVAC (Heating, Ventilation, and Air Conditioning)

Special Tools

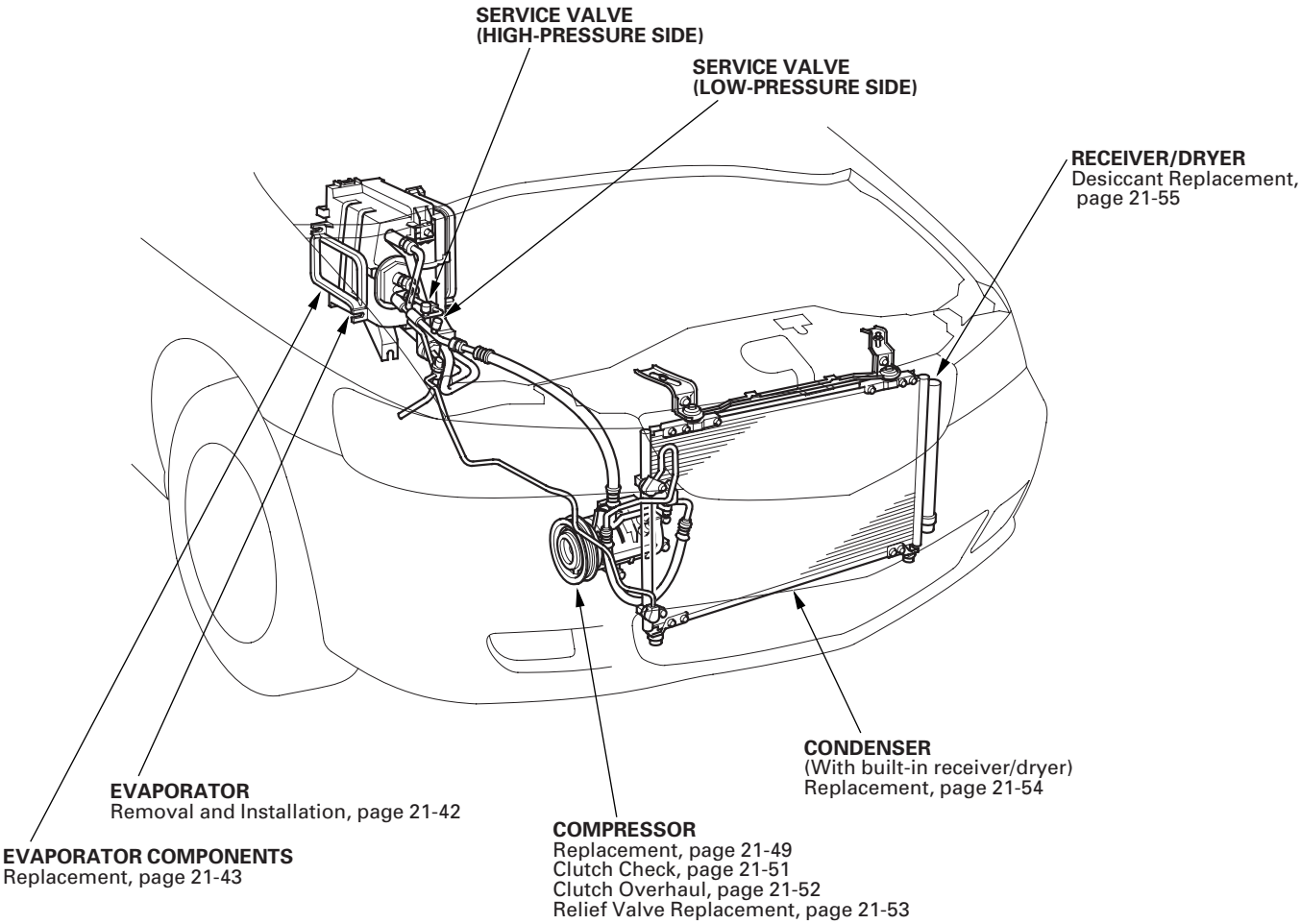
Ref.No.	Tool Number	Description	Qty
①	07SAZ-001000A	Backprobe Set	2

0 1



①

Component Location Index



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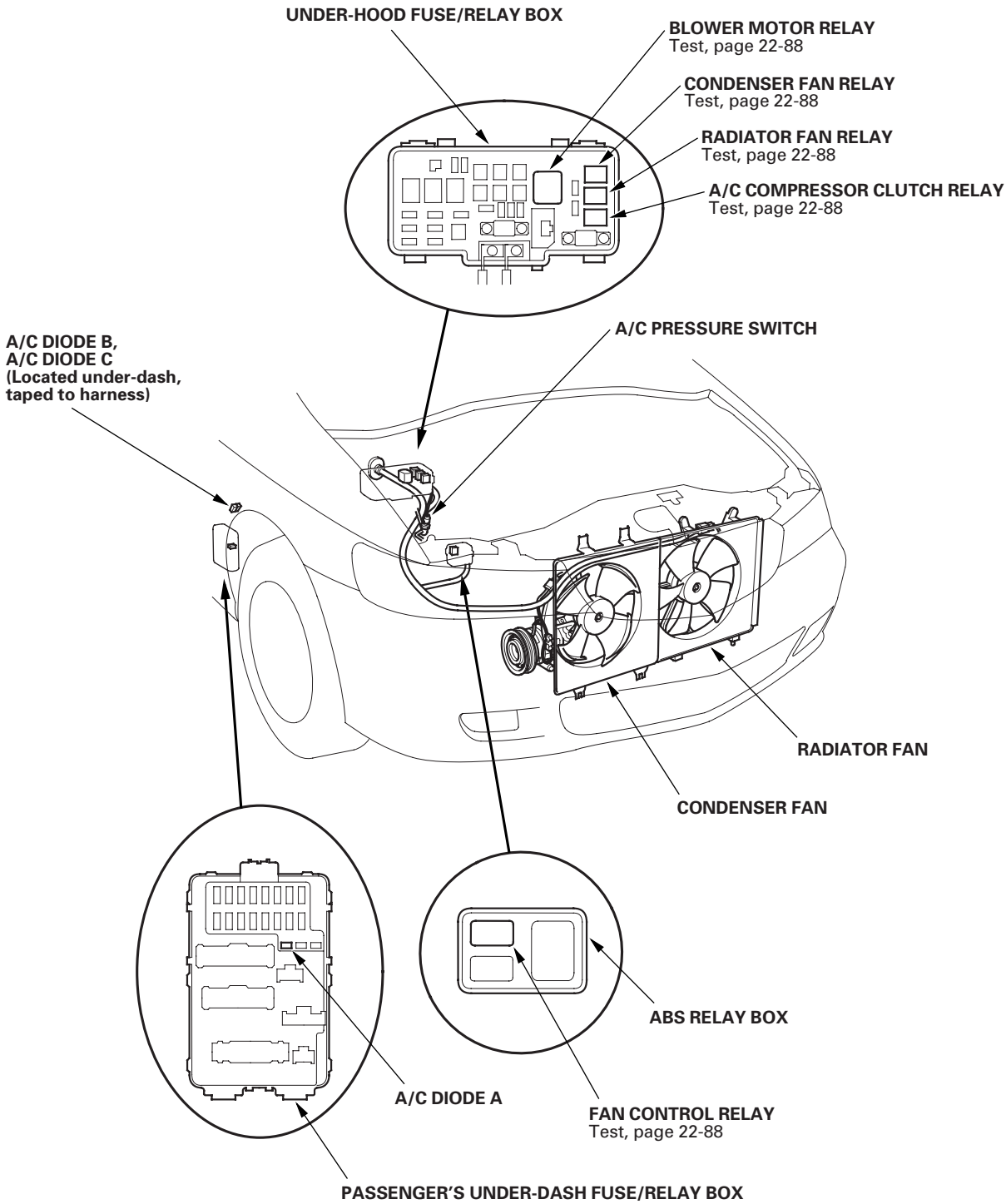
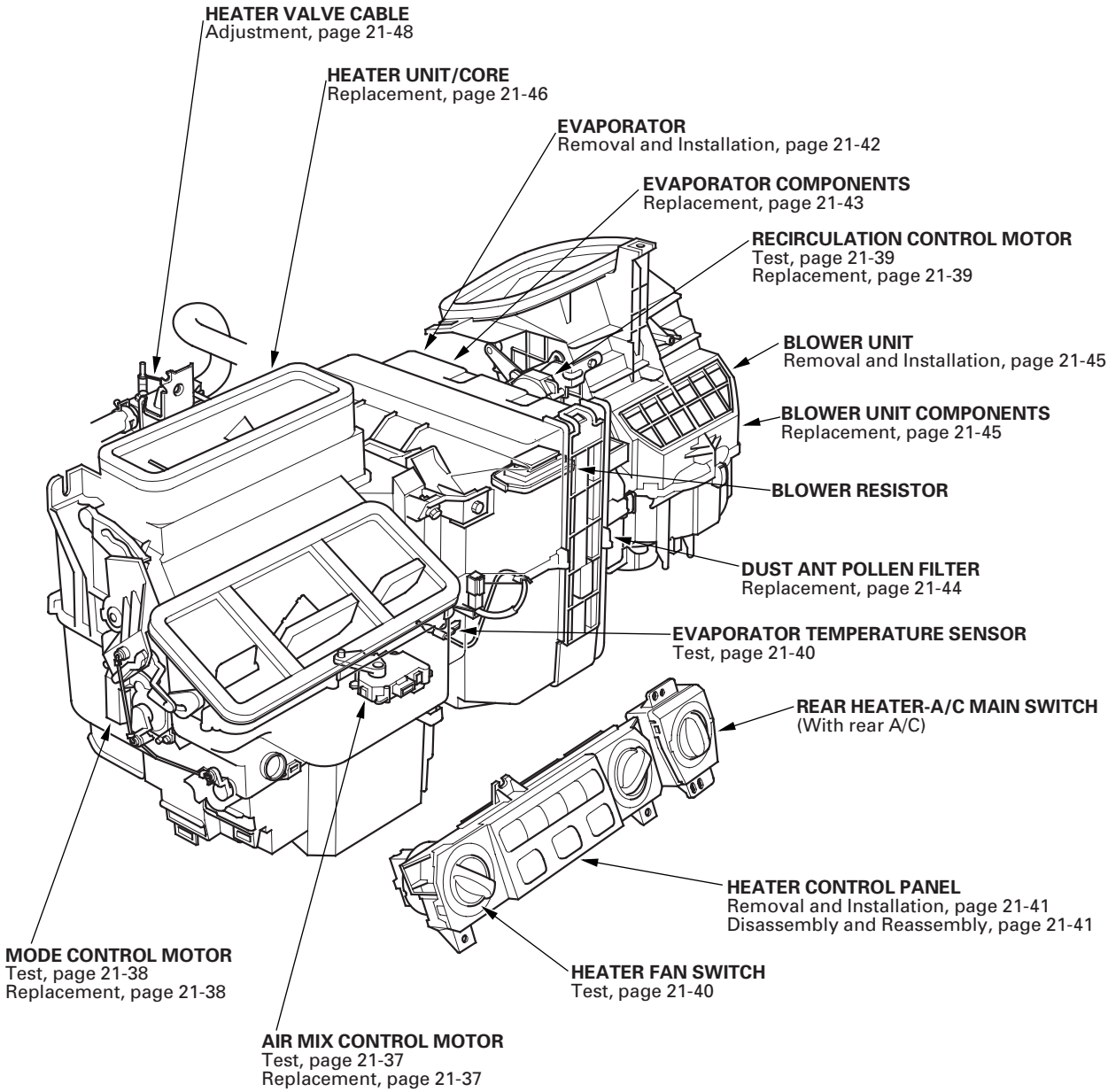
Component Location Index (cont'd)

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MODE CONTROL MOTOR
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Replacement, page 21-37

A/C Service Tips and Precautions

⚠ WARNING

- Compressed air mixed with R-134a forms a combustible vapor.
- The vapor can burn or explode causing serious injury.
- Never use compressed air to pressure test R-134a service equipment or vehicle air conditioning systems.

⚠ CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

The air conditioning system uses HFC-134a (R-134a) refrigerant and polyalkyleneglycol (PAG) refrigerant oil, which are not compatible with CFC-12 (R-12) refrigerant and mineral oil. Do not use R-12 refrigerant or mineral oil in this system, and do not attempt to use R-12 servicing equipment; damage to the air conditioning system or your servicing equipment will result.
Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove R-134a from the air conditioning system.

If accidental system discharge occurs, ventilate work area before resuming service.

R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

- Always disconnect the negative cable from the battery whenever replacing air conditioning parts.
- Keep moisture and dirt out of the system. When disconnecting any lines, plug or cap the fittings immediately; don't remove the caps or plugs until just before you reconnect each line.
- Before connecting any hose or line, apply a few drops of refrigerant oil to the O-ring.
- When tightening or loosening a fitting, use a second wrench to support the matching fitting.
- When discharging the system, use a R-134a refrigerant recovery/recycling/charging station; don't release refrigerant into the atmosphere.

A/C Refrigerant Oil Replacement

Recommended PAG oil: DENSO ND-OIL 8:

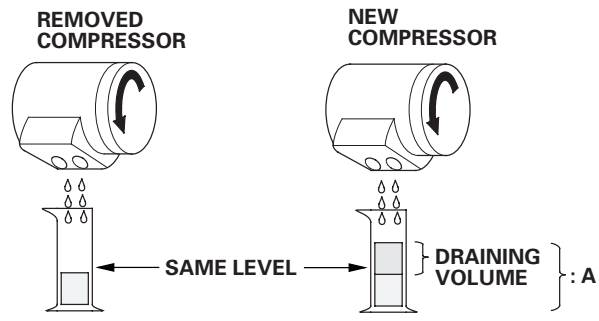
- P/N 38897-PR7-A01AH: 120 mℓ (4 fl·oz)
- P/N 38899-PR7-A01: 40 mℓ (1 1/3 fl·oz)

Add the recommended refrigerant oil in the amount listed if you replace any of the following parts.

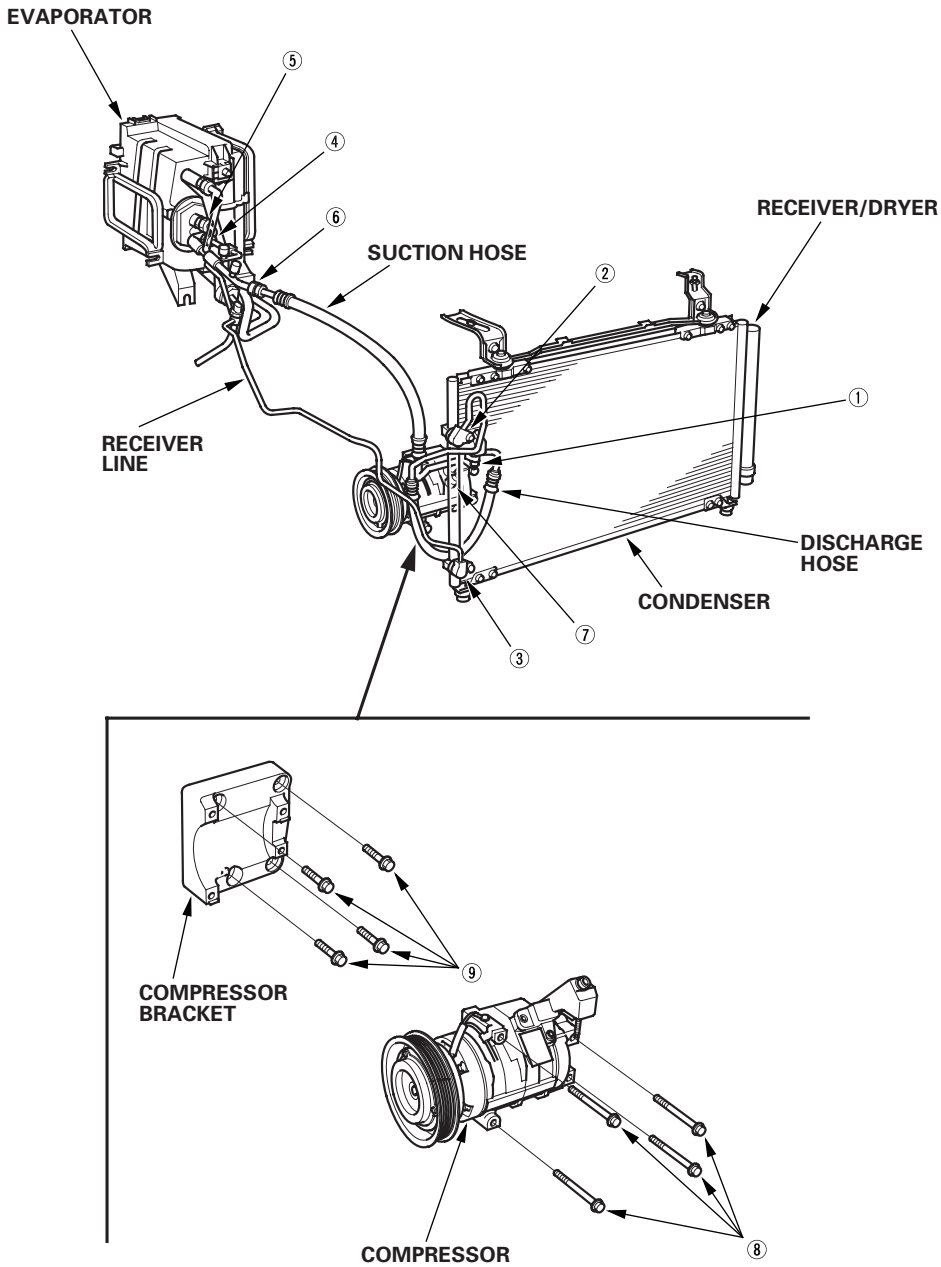
- To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint; if it gets on the paint, wash it off immediately.

Condenser .....35 mℓ (1 1/6 fl·oz)
Evaporator .....40 mℓ (1 1/3 fl·oz)
Line or hose .....10 mℓ (1/3 fl·oz)
Leakage repair .....25 mℓ (5/6 fl·oz)
Compressor .....For compressor replacement, subtract the volume of oil drained from the removed compressor from 210 mℓ (7 fl·oz), and drain the calculated volume of oil from the new compressor: 210 mℓ (7 fl·oz) − Volume of removed compressor = Volume to drain from new compressor.

NOTE: Even if no oil is drained from the removed compressor, don't drain more than 50 mℓ (1 2/3 fl·oz) from the new compressor.



A: 210 mℓ (7 fl·oz)



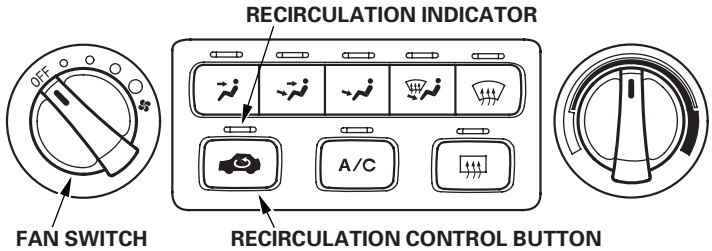
① Discharge hose to the compressor (6 x 1.0 mm) : 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
② Discharge hose to the condenser (6 x 1.0 mm) : 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
③ Receiver line to the condenser (6 x 1.0 mm) : 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
④ Receiver line to the evaporator : 13 N·m (1.3 kgf·m, 9.4 lbf·ft)
⑤ Suction line to the evaporator : 31 N·m (3.2 kgf·m, 23 lbf·ft)
⑥ Suction hose to the suction line : 31 N·m (3.2 kgf·m, 23 lbf·ft)
⑦ Suction hose to the compressor (6 x 1.0 mm) : 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
⑧ Compressor to the compressor bracket (8 x 1.25 mm) : 22 N·m (2.2 kgf·m, 16 lbf·ft)
⑨ Compressor bracket to the engine block (10 x 1.25 mm) : 44 N·m (4.5 kgf·m, 33 lbf·ft)

General Troubleshooting Information

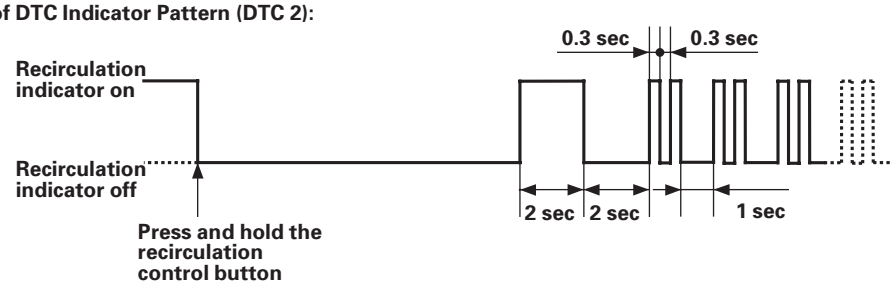
How to Retrieve a DTC

The heater control panel has a self-diagnosis function. To run the self-diagnosis function, do the following:

1. Turn the ignition switch ON (II).
2. Turn the fan switch OFF.
3. Press the recirculation control button to select Recirculation (recirculation indicator comes on).
4. Press and hold the recirculation control button to select Fresh (recirculation indicator goes off). Continue to hold the button until the recirculation indicator comes on for 2 seconds, and then goes off.
   - If the system is OK, the recirculation indicator stays off.
   - If any trouble is found, the recirculation indicator blinks the diagnostic trouble code (DTC) to indicate faulty circuit or component.



Example of DTC Indicator Pattern (DTC 2):



Cancelling the Self-diagnosis Function

5. Turn the ignition switch OFF to cancel the self-diagnosis function. After completing repair work, run the self-diagnosis function again to make sure that there are no other malfunctions.

DTC Troubleshooting Index

DTC (Recirculation Indicator Blinks)	Detection Item	Page
1	A problem in the air mix control motor circuit	(see page 21-16)
2	A problem in the mode control motor circuit	(see page 21-17)
3	A problem in the evaporator temperature sensor circuit	(see page 21-19)

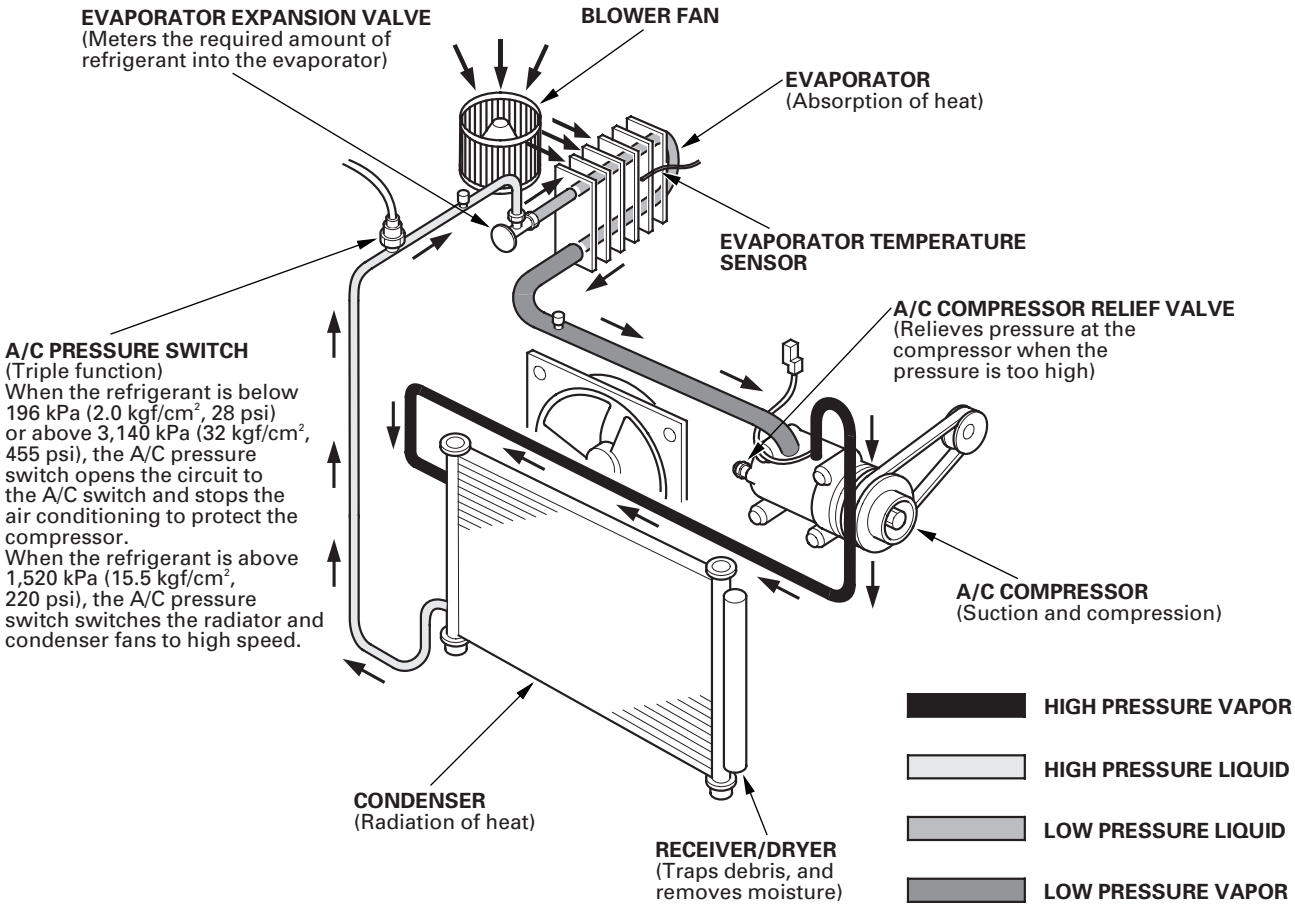
- In case of multiple problems, the recirculation indicator will indicate only the DTC with the least number of blinks.
- In case of an intermittent failure, the heater control panel will store the DTC unit the ignition is turned off.

Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Recirculation control doors do not change between Fresh and Recirculate.	Recirculation control motor circuit troubleshooting (see page 21-21)	• HVAC DTCs (see page 21-8) • Blown fuse No. 3 (7.5A) in the driver's under-dash fuse/relay box • Cleanliness and tightness of all connectors
Blower motor runs, but one or more speeds do not work.	Blower motor circuit troubleshooting (see page 21-22)	• HVAC DTCs (see page 21-8) • Blown fuse No. 56 (40A) in the under-hood fuse/relay box, and No. 3 (7.5A) in the driver's under-dash fuse/relay box • Poor ground at G201 and G401 • Cleanliness and tightness of all connectors
Blower motor does not run at all.	Blower motor circuit troubleshooting (see page 21-22)	• HVAC DTCs (see page 21-8) • Blown fuse No. 56 (40A) in the under-hood fuse/relay box, and No. 3 (7.5A) in the driver's under-dash fuse/relay box • Poor ground at G201 and G401 • Cleanliness and tightness of all connectors
Blower, heater controls, and A/C do not work.	Heater control power and ground circuit troubleshooting (see page 21-26)	• HVAC DTCs (see page 21-8) • Blown fuse No. 54 (40A) in the under-hood fuse/relay box, No. 3 (7.5A) in the driver's under-dash fuse/relay box, and No. 13 (7.5A) in the passenger's under-dash fuse/relay box • Poor ground at G401 • Cleanliness and tightness of all connectors
Both fans do not run at low speed with the A/C on when the refrigerant pressure is below 1,520 kPa (15.5 kgf/cm^2, 220 psi).	Radiator and condenser fan low speed circuit troubleshooting (see page 21-27)	• HVAC DTCs (see page 21-8) • Blown fuse No. 58 (30A) in the under-hood fuse/relay box, and No. 3 (7.5A) in the driver's under-dash fuse/relay box • Poor ground at G201 • Cleanliness and tightness of all connectors
Condenser fan does not run at high speed when the engine coolant temperature is above 210°F (99°C) or the refrigerant pressure is above 1,520 kPa (15.5 kgf/cm^2, 220 psi) with the A/C on.	Condenser fan high speed circuit troubleshooting (see page 21-30)	• HVAC DTCs (see page 21-8) • Blown fuse No. 3 (7.5A) in the driver's under-dash fuse/relay box • Poor ground at G201 • Cleanliness and tightness of all connectors
Both fans do not run at high speed with the A/C on when the refrigerant pressure is above 1,520 kPa (15.5 kgf/cm^2, 220 psi).	Radiator and condenser fan high speed circuit troubleshooting (see page 21-31)	• HVAC DTCs (see page 21-8) • Cleanliness and tightness of all connectors
Compressor clutch does not engage. (but both fans run with the A/C on)	Compressor clutch circuit troubleshooting (see page 21-32)	• HVAC DTCs (see page 21-8) • Blown fuse No. 59 (7.5A) in the under-hood fuse/relay box, and No. 3 (7.5A) in the driver's under-dash fuse/relay box • Cleanliness and tightness of all connectors
A/C system does not come on (both fans and compressor do not work); heater is OK.	A/C pressure switch circuit troubleshooting (see page 21-35)	• HVAC DTCs (see page 21-8) • Cleanliness and tightness of all connectors

System Description

The air conditioning system removes heat from the passenger compartment by circulating refrigerant through the system as shown below.



This vehicle uses HFC-134a (R-134a) refrigerant which does not contain chlorofluorocarbons. Pay attention to the following service items:

- Do not mix refrigerants CFC-12 (R-12) and HFC-134a (R-134a). They are not compatible.
- Use only the recommended polyalkyleneglycol (PAG) refrigerant oil (DENSO ND-OIL 8) designed for the R-134a compressor. Intermixing the recommended (PAG) refrigerant oil with any other refrigerant oil will result in compressor failure.
- All A/C system parts (compressor, discharge line, suction line, evaporator, condenser, receiver/dryer, expansion valve, O-rings for joints) are designed for refrigerant R-134a. Do not exchange with R-12 parts.
- Use a halogen gas leak detector designed for refrigerant R-134a.
- R-12 and R-134a refrigerant servicing equipment are not interchangeable. Use only a recovery/recycling/charging station that is U.L.-listed and is certified to meet the requirements of SAE J2210 to service R-134a air conditioning system.
- Always recover the refrigerant R-134a with an approved recovery/recycling/charging station before disconnecting any A/C fitting.

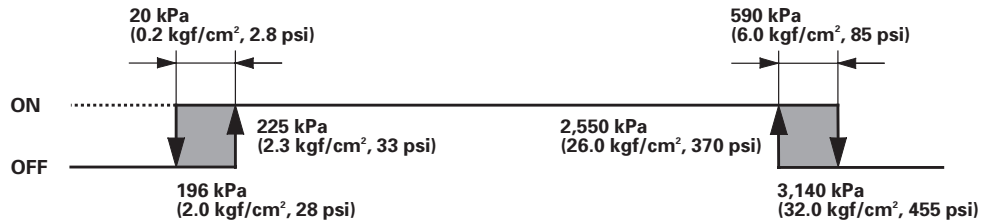
(cont'd)

System Description (cont'd)

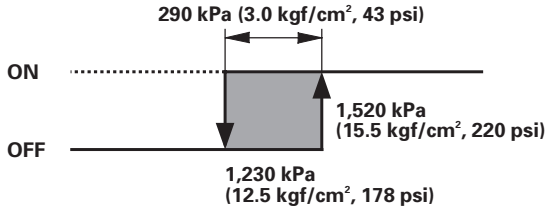
A/C Pressure Switch

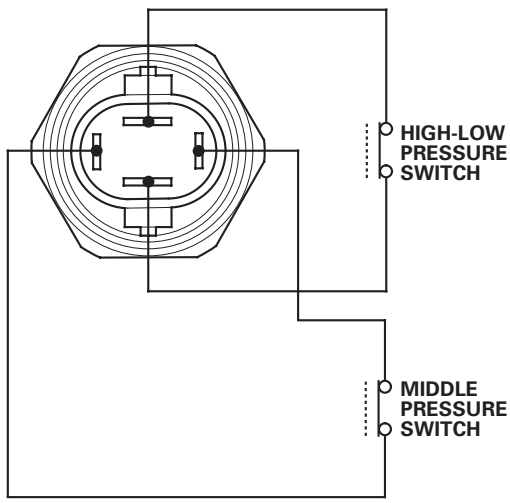
The A/C pressure switch consists of a high-low pressure switch (A/C pressure switch A) and a middle pressure switch (A/C pressure switch B).

- High-Low pressure switch
  If the refrigerant pressure becomes too high (due to blockage or lack of airflow at the condenser), or too low (due to leakage), the A/C pressure switch stops the A/C request a signal to the PCM and the compressor stops operating.



- Middle pressure switch
  If the refrigerant pressure goes above or below 1,520 kPa (15.5 kgf/cm², 220 psi), the A/C pressure switch opens or closes to signal the PCM to change the speed of the condenser fan and radiator fan (high-low).

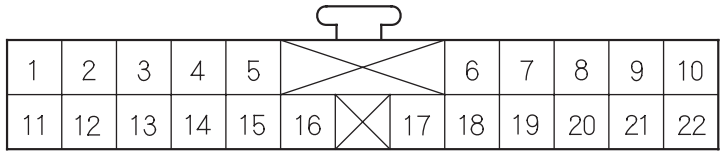




Heater Control Panel Inputs and Outputs

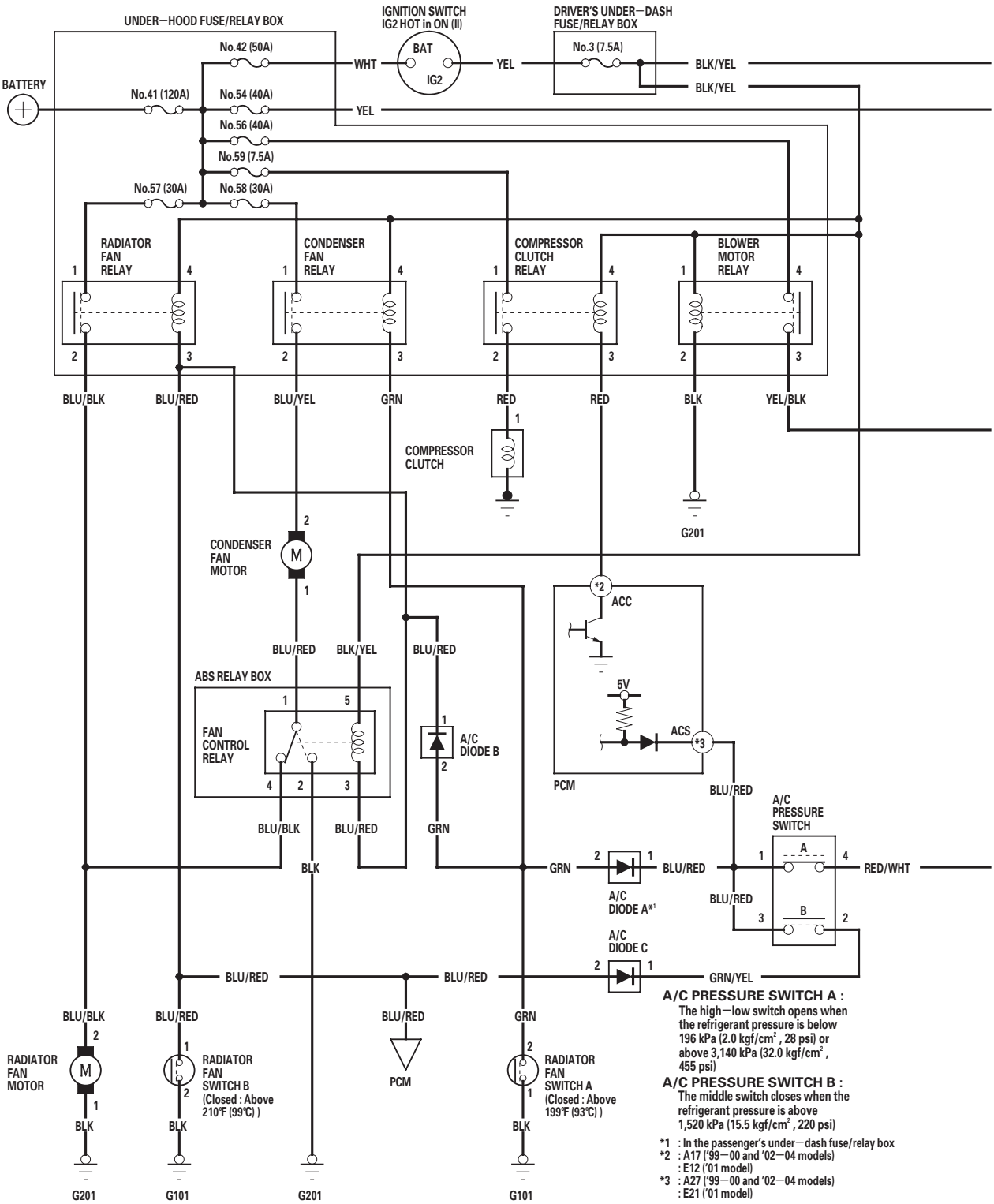
HEATER CONTROL PANEL 22P CONNECTOR

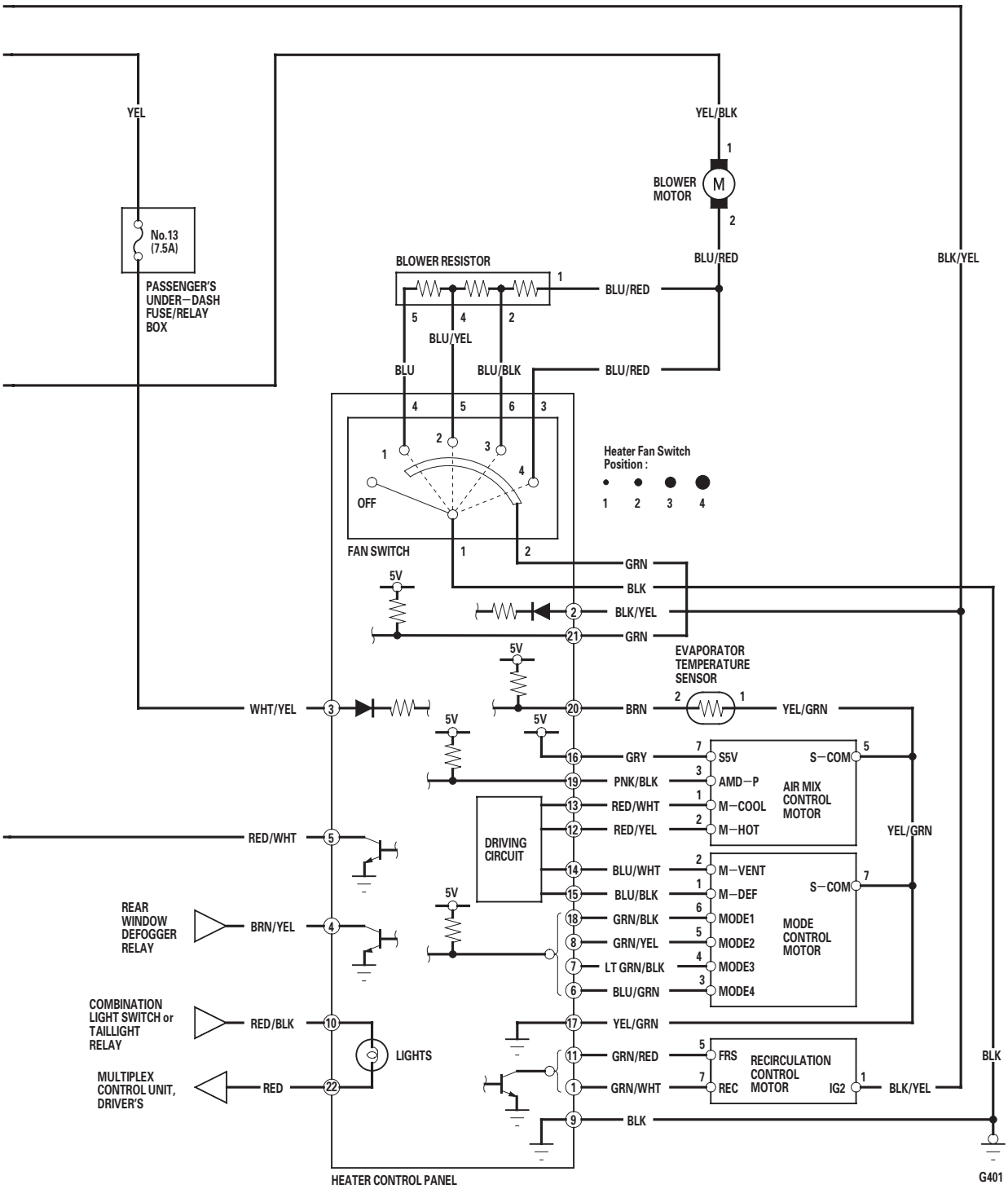
Wire side of female terminals



Cavity	Wire color	Signal	
1	GRN/WHT	RECIRCULATE	OUTPUT
2	BLK/YEL	IG2 (Power)	INPUT
3	WHT/YEL	+B (Power)	INPUT
4	BRN/YEL	REAR WINDOW DEFOGGER RELAY	OUTPUT
5	RED/WHT	A/C PRESSURE SWITCH	OUTPUT
6	BLU/GRN	MODE 4	INPUT
7	LT GRN/BLK	MODE 3	INPUT
8	GRN/YEL	MODE 2	INPUT
9	BLK	GROUND (G401)	INPUT
10	RED/BLK	COMBINATION LIGHT SWITCH or TAILLIGHT RELAY	INPUT
11	GRN/RED	FRESH	OUTPUT
12	RED/YEL	AIR MIX HOT	OUTPUT
13	RED/WHT	AIR MIX COOL	OUTPUT
14	BLU/WHT	MODE VENT	OUTPUT
15	BLU/BLK	MODE DEF	OUTPUT
16	GRY	AIR MIX POTENTIAL +5 V	OUTPUT
17	YEL/GRN	SENSOR COMMON GROUND	OUTPUT
18	GRN/BLK	MODE 1	INPUT
19	PNK/BLK	AIR MIX POTENTIAL	INPUT
20	BRN	EVAPORATOR TEMPERATURE SENSOR	INPUT
21	GRN	FAN SWITCH	OUTPUT
22	RED	MULTIPLEX CONTROL UNIT (DRIVER'S)	OUTPUT

Circuit Diagram




YEL
YEL/BLK
1
BLOWER MOTOR
M
2
No.13 (7.5A)
PASSENGER'S UNDER−DASH FUSE/RELAY BOX
BLOWER RESISTOR
BLU/RED
BLK/YEL
BLU/YEL
BLU
BLU/BLK
Heater Fan Switch Position :
OFF
FAN SWITCH
GRN
BLK
BLK/YEL
5V
EVAPORATOR TEMPERATURE SENSOR
WHT/YEL
BRN
YEL/GRN
GRY
S5V
S−COM
PNK/BLK
AMD−P
AIR MIX CONTROL MOTOR
RED/WHT
M−COOL
M−HOT
DRIVING CIRCUIT
BLU/WHT
M−VENT
BLU/BLK
M−DEF
MODE CONTROL MOTOR
GRN/BLK
MODE1
GRN/YEL
MODE2
LT GRN/BLK
MODE3
BLU/GRN
MODE4
REAR WINDOW DEFOGGER RELAY
BRN/YEL
COMBINATION LIGHT SWITCH or TAILLIGHT RELAY
RED/BLK
LIGHTS
MULTIPLEX CONTROL UNIT, DRIVER'S
RED
GRN/RED
FRS
RECIRCULATION CONTROL MOTOR
GRN/WHT
REC
IG2
HEATER CONTROL PANEL
G401

DTC Troubleshooting

DTC 1: A Problem in the Air Mix Control Motor Circuit

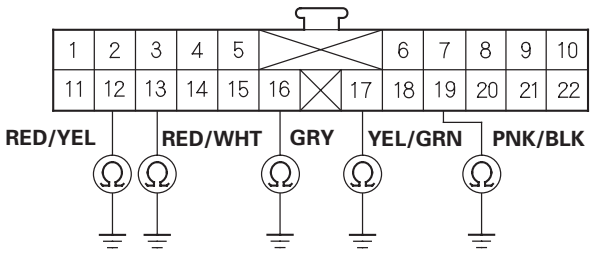
1. Disconnect the air mix control motor 7P connector.
2. Test the air mix control motor (see page 21-37).

   Is the air mix control motor OK?

   YES—Go to step 3.

   NO—Go to step 8.
3. Disconnect the heater control panel 22P connector.
4. Check for continuity between body ground and the heater control panel 22P connector terminals No. 12, 13, 16, 17 and 19 individually.

HEATER CONTROL PANEL 22P CONNECTOR



Wire side of female terminals

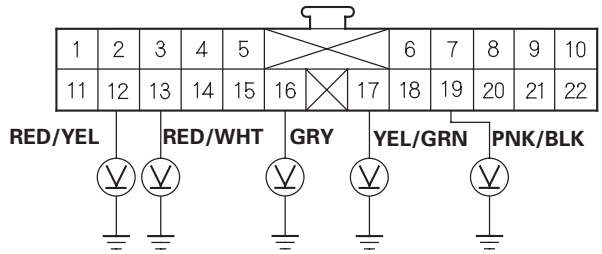
Is there continuity?

YES—Repair any short to body ground in the wire(s) between the heater control panel and the air mix control motor. ■

NO—Go to step 5.

5. Turn the ignition switch ON (II), and check the same terminals for voltage.

HEATER CONTROL PANEL 22P CONNECTOR



Wire side of female terminals

Is there any voltage?

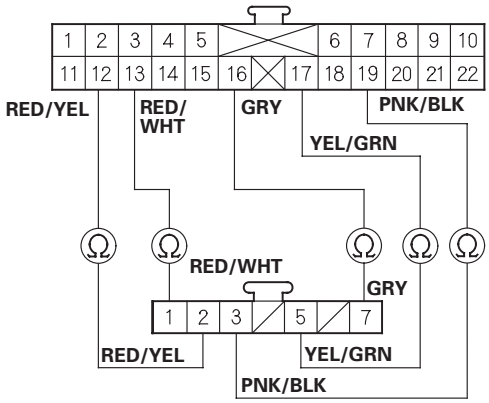
YES—Repair any short to power in the wire(s) between the heater control panel and the air mix control motor. This short may also damage the heater control panel. Repair the short to power before replacing the heater control panel. ■

NO—Go to step 6.

6. Turn the ignition switch off.

7. Check for continuity between following terminals of the heater control panel 22P connector and the air mix control motor 7P connector.
   22P: 7P:
   No. 12 No. 2
   No. 13 No. 1
   No. 16 No. 7
   No. 17 No. 5
   No. 19 No. 3

HEATER CONTROL PANEL 22P CONNECTOR
Wire side of female terminals



AIR MIX CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at the heater control panel 22P connector and at the air mix control motor 7P connector. If the connections are good, substitute a known-good heater control panel, and recheck. If the symptom/ indication goes away, replace the original heater control panel. ■

NO—Repair any open in the wire(s) between the heater control panel and the air mix control motor. ■

8. Remove the air mix control motor (see page 21-37).

9. Check the air mix control linkage and door for smooth movement.

   Do the air mix control linkage and door move smoothly?

   YES—Replace the air mix control motor. ■

   NO—Repair the air mix control linkage or door. ■

DTC 2: A Problem in the Mode Control Motor Circuit

1. Disconnect the mode control motor 7P connector.

2. Test the mode control motor (see page 21-38).

   Is the mode control motor OK?

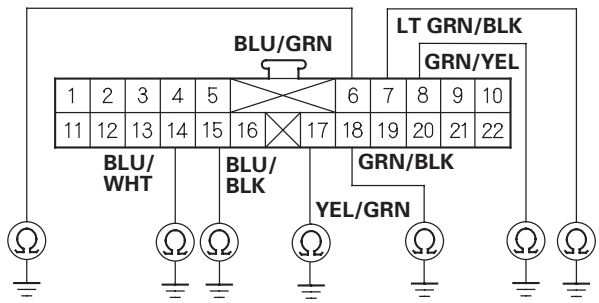
   YES—Go to step 3.

   NO—Go to step 8.

3. Disconnect the heater control panel 22P connector.

4. Check for continuity between body ground and the heater control panel 22P connector terminals No. 6, 7, 8, 14, 15, 17 and 18 individually.

HEATER CONTROL PANEL 22P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair any short to body ground in the wire(s) between the heater control panel and the mode control motor. ■

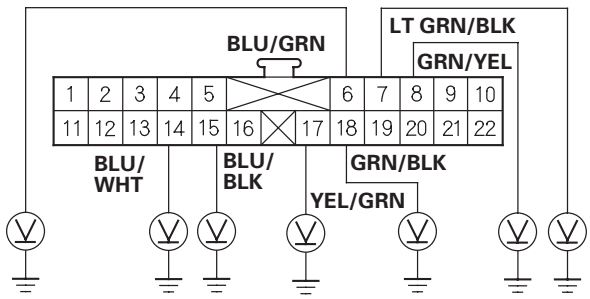
NO—Go to step 5.

(cont'd)

DTC Troubleshooting (cont'd)

5. Turn the ignition switch ON (II), and check the same terminals for voltage

HEATER CONTROL PANEL 22P CONNECTOR



Wire side of female terminals

Is there any voltage?

YES—Repair any short to power in the wire(s) between the heater control panel and the mode control motor. This short may also damage the heater control panel. Repair the short to power before replacing the heater control panel. ■

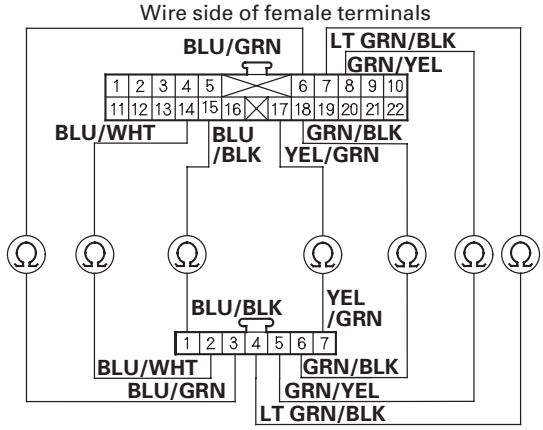
NO—Go to step 6.

6. Turn the ignition switch off.

7. Check for continuity between following terminals of the heater control panel 22P connector and the mode control motor 7P connector.

22P:	7P:
No. 6	No. 3
No. 7	No. 4
No. 8	No. 5
No. 14	No. 2
No. 15	No. 1
No. 17	No. 7
No. 18	No. 6

HEATER CONTROL PANEL 22P CONNECTOR
Wire side of female terminals



MODE CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at the heater control panel 22P connector and at the mode control motor 7P connector. If the connections are good, substitute a known-good heater control panel, and recheck. If the symptom/ indication goes away, replace the original heater control panel. ■

NO—Repair any open in the wire(s) between the heater control panel and mode control motor. ■

8. Remove the mode control motor (see page 21-38).

9. Check the mode control linkage and doors for smooth movement.

   Do the mode control linkage and doors move smoothly?

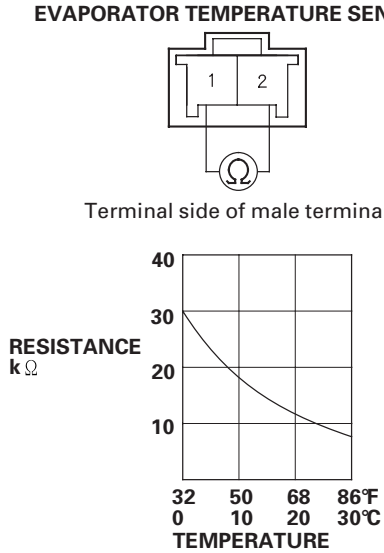
   YES—Replace the mode control motor. ■

   NO—Repair the mode control linkage or doors. ■

DTC 3: A Problem in the Evaporator Temperature Sensor Circuit

1. Disconnect the evaporator temperature sensor 2P connector.

2. Measure the resistance between the No. 1 and No. 2 terminals of the evaporator temperature sensor.



   Is the resistance within the specifications shown on the graph?

   YES—Go to step 3.

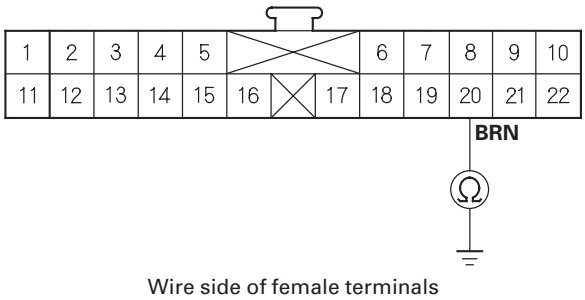
   NO—Replace the evaporator temperature sensor. ■

3. Disconnect the heater control panel 22P connector.

(cont'd)

DTC Troubleshooting (cont'd)

4. Check for continuity between the No. 20 terminal of the heater control panel 22P connector and body ground.

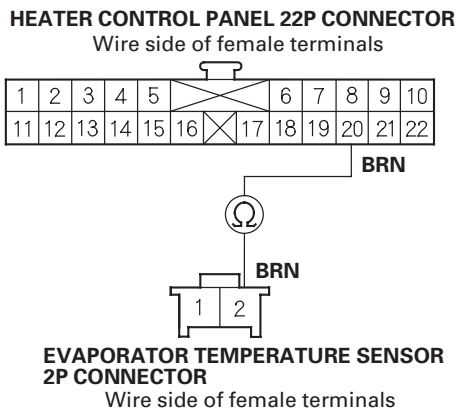


Is there continuity?

YES—Repair short to body ground in the wire between the heater control panel and the evaporator temperature sensor. ■

NO—Go to step 5.

5. Check for continuity between the No. 20 terminal of the heater control panel 22P connector and the No. 2 terminal of the evaporator temperature sensor 2P connector.

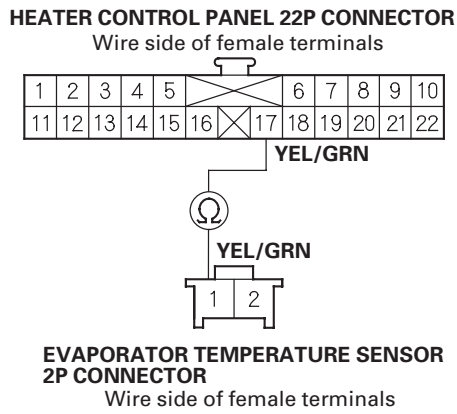


Is there continuity?

YES—Go to step 6.

NO—Repair open in the wire between the heater control panel and the evaporator temperature sensor. ■

6. Check for continuity between the No. 17 terminal of the heater control panel 22P connector and the No. 1 terminal of the evaporator temperature sensor 2P connector.



Is there continuity?

YES—Check for loose wires or poor connections at the heater control panel 22P connector and at the evaporator temperature sensor 2P connector. If the connections are good, substitute a known-good heater control panel, and recheck. If the symptom/indication goes away, replace the original heater control panel. ■

NO—Repair open in the wire between the heater control panel and the evaporator temperature sensor. ■

Recirculation Control Motor Circuit Troubleshooting

1. Check the No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 2.

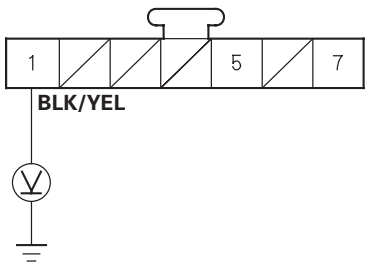
   NO—Replace the fuse, and recheck. ■

2. Disconnect the recirculation control motor 7P connector.

3. Turn the ignition switch ON (II).

4. Measure the voltage between the No. 1 terminal of the recirculation control motor 7P connector and body ground.

RECIRCULATION CONTROL MOTOR 7P CONNECTOR



Wire side of female terminals

   Is there battery voltage?

   YES—Go to step 5.

   NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the recirculation control motor. ■

5. Turn the ignition switch OFF.

6. Test the recirculation control motor (see page 21-39).

   Is the recirculation control motor OK?

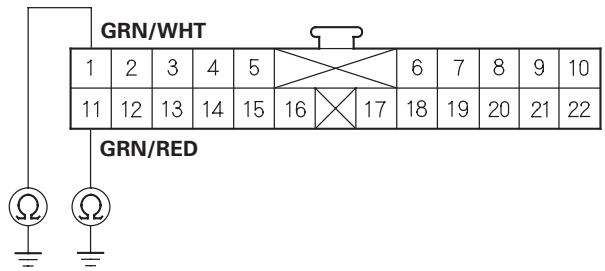
   YES—Go to step 7.

   NO—Go to step 12.

7. Disconnect the heater control panel 22P connector.

8. Check for continuity between the No. 1 and No. 11 terminals of the heater control panel 22P connector and body ground individually.

HEATER CONTROL PANEL 22P CONNECTOR



Wire side of female terminals

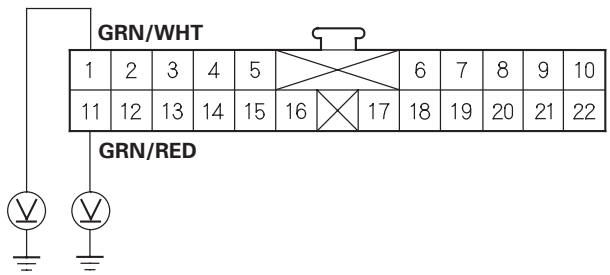
   Is there continuity?

   YES—Repair any short to body ground in the wire(s) between the heater control panel and the recirculation control motor. ■

   NO—Go to step 9.

9. Turn the ignition switch ON (II), and check the same terminals for voltage.

HEATER CONTROL PANEL 22P CONNECTOR



Wire side of female terminals

   Is there any voltage?

   YES—Repair any short to power in the wire(s) between the heater control panel and the recirculation control motor. This short may also damage the heater control panel. Repair the short to power before replacing the heater control panel. ■

   NO—Go to step 10.

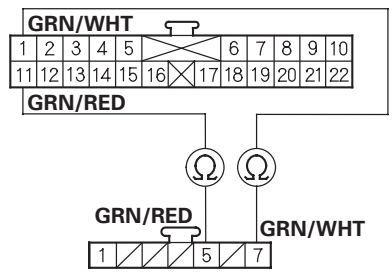
(cont'd)

Recirculation Control Motor Circuit Troubleshooting (cont'd)

10. Turn the ignition switch off.

11. Check for continuity between the following terminals of the heater control panel 22P connector and the recirculation control motor 7P connector.
    22P: 7P:
    No. 1 No. 7
    No. 11 No. 5

HEATER CONTROL PANEL 22P CONNECTOR
Wire side of female terminals



RECIRCULATION CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at the heater control panel 22P connector and at recirculation control motor 7P connector. If the connections are good, substitute a known-good heater control panel, and recheck. If the symptom/indication goes away, replace the original heater control panel. ■

NO—Repair any open in the wire(s) between the heater control panel and the recirculation control motor. ■

12. Remove the recirculation control motor (see page 21-39).

13. Check the recirculation control linkage and doors for smooth movement.

    Do the recirculation control linkage and doors move smoothly?

    YES—Replace the recirculation control motor. ■

    NO—Repair the recirculation control linkage or doors. ■

Blower Motor Circuit Troubleshooting

1. Turn the ignition switch ON (II) and the heater fan switch ON.

   Does the blower run?

   YES—Go to step 2.

   NO—Go to step 16.

2. Turn the heater fan switch OFF.

3. Make sure the ignition switch is ON (II).

   Does the blower motor run?

   YES—Go to step 4.

   NO—Go to step 9.

4. Turn the ignition switch OFF.

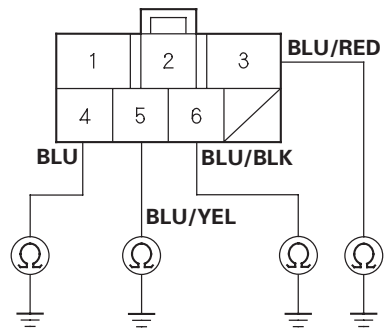
5. Disconnect the blower motor 2P connector.

6. Disconnect the blower resistor 5P connector.

7. Disconnect the heater fan switch 7P connector.

8. Check for continuity between the No. 3, 4, 5 and 6 terminals of the heater fan switch 7P connector and body ground individually.

HEATER FAN SWITCH 7P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair any short to body ground in the wire(s) between the blower motor, the blower resistor and the heater fan switch. ■

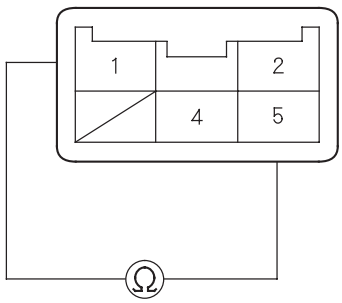
NO—Replace the heater fan switch. ■

9. Turn the ignition switch OFF.

10. Disconnect the blower resistor 5P connector.

11. Measure the resistance between the No. 1 and No. 5 terminals of the blower resistor.

BLOWER RESISTOR



Is there about 3—3.5 Ω ?

YES—Go to step 12.

NO—Replace the blower resistor. ■

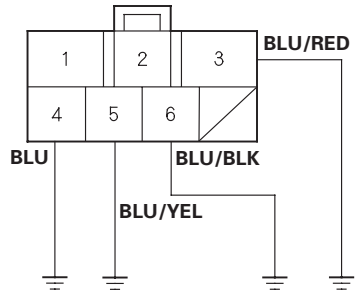
12. Reconnect the blower resistor 5P connector.

13. Disconnect the heater fan switch 7P connector.

14. Turn the ignition switch ON (II).

15. Ground each of the heater fan switch 7P connector terminals individually in the following order: No. 3, 4, 5 and 6.

HEATER FAN SWITCH 7P CONNECTOR



Wire side of female terminals

Does the blower motor run at progressively higher speeds?

YES—Replace the heater fan switch. ■

NO—Repair any open or cause of excessive resistance in the appropriate wire(s) between the blower resistor and the heater fan switch. ■

16. Turn the heater fan switch OFF and the ignition switch OFF.

17. Check the No. 56 (40A) fuse in the under-hood fuse/relay box, and the No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box.

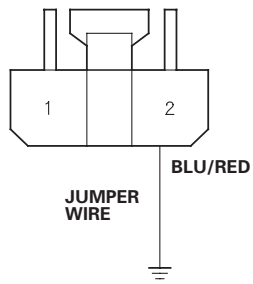
Are the fuses OK?

YES—Go to step 18.

NO—Replace the fuse(s), and recheck. ■

18. Connect the No. 2 terminal of the blower motor 2P connector to body ground with a jumper wire.

BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

(cont'd)

Blower Motor Circuit Troubleshooting (cont'd)

19. Turn the ignition switch ON (II).

    Does the blower motor run?

    YES—Go to step 20.

    NO—Go to step 27.

20. Turn the ignition switch OFF.

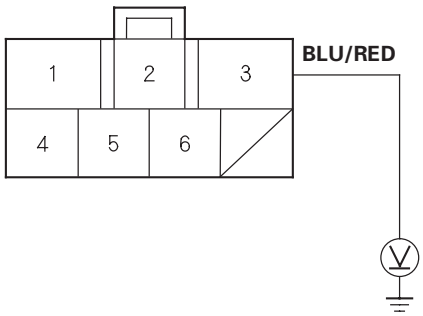
21. Disconnect the jumper wire.

22. Disconnect the heater fan switch 7P connector.

23. Turn the ignition switch ON (II).

24. Measure the voltage between the No. 3 terminal of the heater fan switch 7P connector and body ground.

HEATER FAN SWITCH 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

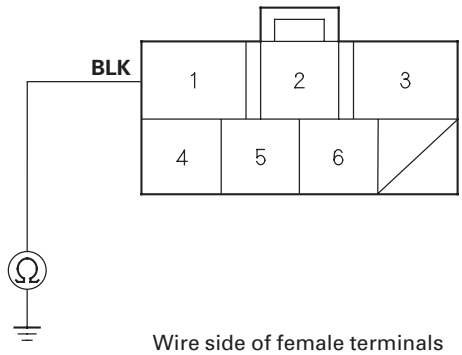
YES—Go to step 25.

NO—Repair open in the wire between the blower motor and the heater fan switch. ■

25. Turn the ignition switch OFF.

26. Check for continuity between the No. 1 terminal of the heater fan switch 7P connector and body ground.

HEATER FAN SWITCH 7P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the heater fan switch. ■

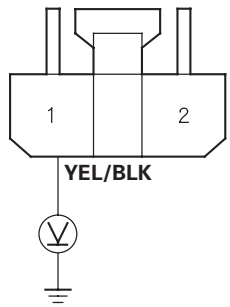
NO—Check for an open in the wire between the heater fan switch and body ground. If the wire is OK, check for poor ground at G401. ■

27. Disconnect the jumper wire.

28. Disconnect the blower motor 2P connector.

29. Measure the voltage between the No. 1 terminal of the blower motor 2P connector and body ground.

BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Replace the blower motor. ■

NO—Go to step 30.

30. Turn the ignition switch OFF.

31. Remove the blower motor relay from the under-hood fuse/relay box, and test it (see page 22-88).

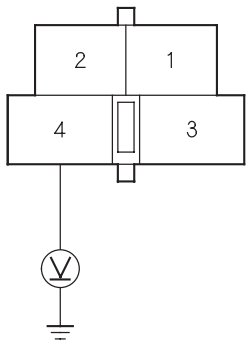
    Is the relay OK?

    YES—Go to step 32.

    NO—Replace the blower motor relay. ■

32. Measure the voltage between the No. 4 terminal of the blower motor relay 4P socket and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Is there battery voltage?

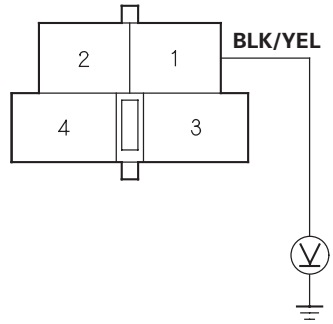
YES—Go to step 33.

NO—Replace the under-hood fuse/relay box. ■

33. Turn the ignition switch ON (II).

34. Measure the voltage between the No. 1 terminal of the blower motor relay 4P socket and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Is there battery voltage?

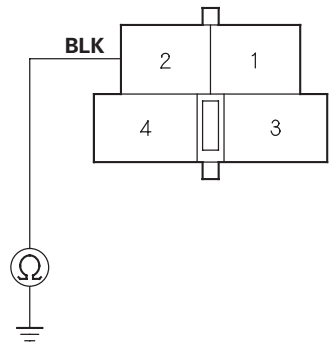
YES—Go to step 35.

NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the blower motor relay. ■

35. Turn the ignition switch OFF.

36. Check for continuity between the No. 2 terminal of the blower motor relay 4P socket and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Is there continuity?

YES—Repair open in the YEL/BLK wire between the blower motor relay and the blower motor. ■

NO—Check for an open in the wire between the blower motor relay and body ground. If the wire is OK, check for poor ground at G201. ■

Heater Control Power and Ground Circuit Troubleshooting

1. Check the No. 54 (40A) fuse in the under-hood fuse/relay box, the No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box, and the No. 13 (7.5A) fuse in the passenger's under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

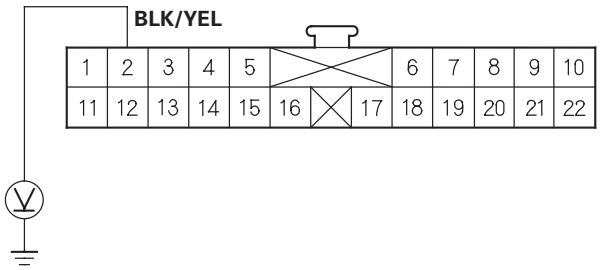
   NO—Replace the fuse(s), and recheck. ■

2. Disconnect the heater control panel 22P connector.

3. Turn the ignition switch ON (II).

4. Measure the voltage between the No. 2 terminal of the heater control panel 22P connector and body ground.

   HEATER CONTROL PANEL 22P CONNECTOR



   Wire side of female terminals

   Is there battery voltage?

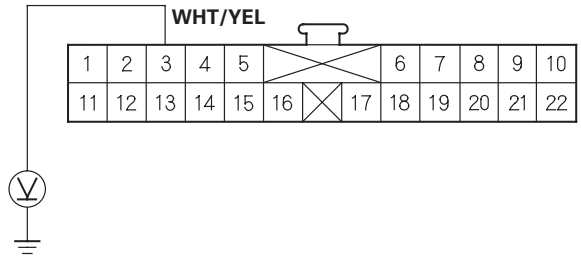
   YES—Go to step 5.

   NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the heater control panel. ■

5. Turn the ignition switch OFF.

6. Measure the voltage between the No. 3 terminal of the heater control panel 22P connector and body ground.

   HEATER CONTROL PANEL 22P CONNECTOR



   Wire side of female terminals

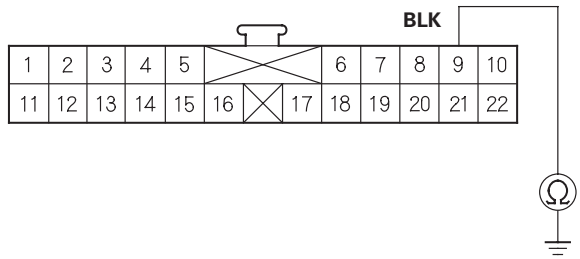
   Is there battery voltage?

   YES—Go to step 7.

   NO—Repair open in the wire between the No. 13 fuse in the passenger's under-dash fuse/relay box and the heater control panel. ■

7. Check for continuity between the No. 9 terminal of the heater control panel 22P connector and body ground.

   HEATER CONTROL PANEL 22P CONNECTOR



   Wire side of female terminals

   Is there continuity?

   YES—Check for loose wires or poor connections at the heater control panel 22P connector. If the connections are good, substitute a known-good heater control panel, and recheck. If the symptom/indication goes away, replace the original heater control panel. ■

   NO—Check for an open in the wire between the heater control panel and body ground. If the wire is OK, check for poor ground at G401. ■

Radiator and Condenser Fan Low Speed Circuit Troubleshooting

NOTE:
- Do not use this troubleshooting procedure if the compressor is inoperative. Refer to the symptom troubleshooting index.
- Before performing symptom troubleshooting, check for powertrain DTCs (see page 11-3).

1. Check the No. 58 (30A) fuse in the under-hood fuse/relay box, and the No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

   NO—Replace the fuse(s), and recheck. ■

2. Remove the condenser fan relay from the under-hood fuse/relay box, and test it (see page 22-88).

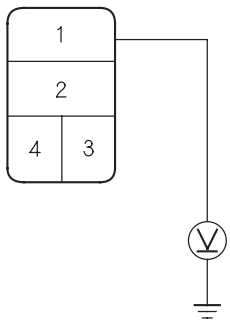
   Is the relay OK?

   YES—Go to step 3.

   NO—Replace the condenser fan relay. ■

3. Measure the voltage between the No. 1 terminal of the condenser fan relay 4P socket and body ground.

   CONDENSER FAN RELAY 4P SOCKET



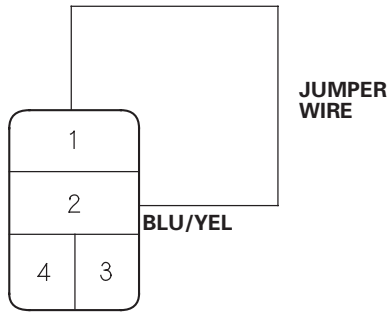
   Is there battery voltage?

   YES—Go to step 4.

   NO—Replace the under-hood fuse/relay box. ■

4. Connect the No. 1 and No. 2 terminals of the condenser fan relay 4P socket with a jumper wire.

   CONDENSER FAN RELAY 4P SOCKET



   Does the condenser fan run?

   YES—Go to step 5.

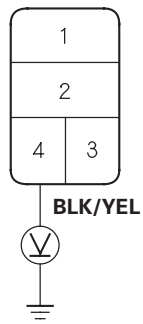
   NO—Go to step 13.

5. Disconnect the jumper wire.

6. Turn the ignition switch ON (II).

7. Measure the voltage between the No. 4 terminal of the condenser fan relay 4P socket and body ground.

   CONDENSER FAN RELAY 4P SOCKET



   Is there battery voltage?

   YES—Go to step 8.

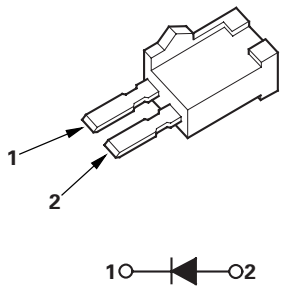
   NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the condenser fan relay. ■

(cont'd)

Radiator and Condenser Fan Low Speed Circuit Troubleshooting (cont'd)

8. Reinstall the condenser fan relay.
9. Remove A/C diode A from the passenger's under-dash fuse/relay box.
10. Check for current flow in both directions between the No. 1 and No. 2 terminals of A/C diode A.

A/C DIODE A



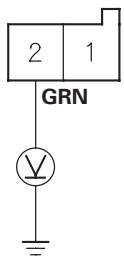
Is there current flow in only one direction?

YES—Go to step 11.

NO—Replace A/C diode A. ■

11. Turn the ignition switch ON (II).
12. Measure the voltage between the No. 2 terminal of A/C diode A 2P socket and body ground.

A/C DIODE A 2P SOCKET



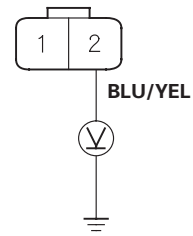
Is there battery voltage?

YES—Repair open in the wire between A/C diode A and the A/C pressure switch. ■

NO—Repair open in the wire between the condenser fan relay and A/C diode A. ■

13. Disconnect the jumper wire.
14. Reinstall the condenser fan relay.
15. Disconnect the condenser fan 2P connector.
16. Turn the ignition switch ON (II), then turn the A/C and fan switches ON.
17. Measure the voltage between the No. 2 terminal of the condenser fan 2P connector and body ground.

CONDENSER FAN 2P CONNECTOR



Wire side of female terminals

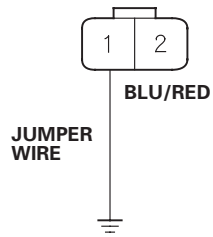
Is there battery voltage?

YES—Go to step 18.

NO—Repair open in the wire between the condenser fan relay and the condenser fan. ■

18. Turn the A/C and fan switches OFF, then turn the ignition switch OFF.
19. Reconnect the condenser fan 2P connector.
20. Connect the No.1 terminal of the condenser fan 2P connector to body ground with jumper wire.

CONDENSER FAN 2P CONNECTOR



Wire side of female terminals

21. Turn the ignition switch ON (II), then turn the A/C and fan switches ON.

    Does the condenser fan run?

    YES — Go to step 22.

    NO — Replace the condenser fan motor. ■

22. Turn the A/C and fan switches OFF, then turn the ignition switch OFF.

23. Disconnect the jumper wire.

24. Remove the fan control relay from the ABS relay box, and test it (see page 22-88).

    Is the relay OK?

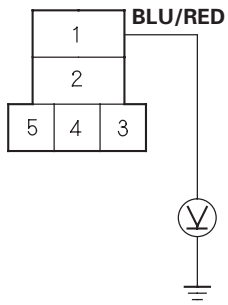
    YES — Go to step 25.

    NO — Replace the fan control relay. ■

25. Turn the ignition switch ON (II), then turn the A/C and fan switches ON.

26. Measure the voltage between the No. 1 terminal of the fan control relay 5P socket and body ground.

FAN CONTROL RELAY 5P SOCKET



    Is there battery voltage?

    YES — Go to step 27.

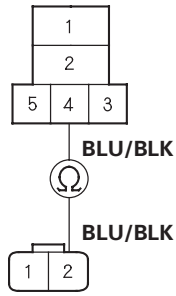
    NO — Repair open in the wire between the condenser fan and the fan control relay. ■

27. Turn the A/C and fan switches OFF, then turn the ignition switch OFF.

28. Disconnect the radiator fan 2P connector.

29. Check for continuity between the No. 4 terminal of the fan control relay 5P socket and the No. 2 terminal of the radiator fan 2P connector.

FAN CONTROL RELAY 5P SOCKET



RADIATOR FAN 2P CONNECTOR
Wire side of female terminals

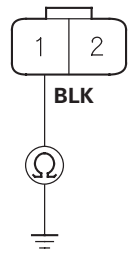
    Is there continuity?

    YES — Go to step 30.

    NO — Repair open in the wire between the fan control relay and the radiator fan. ■

30. Check for continuity between the No. 1 terminal of the radiator fan 2P connector and body ground.

RADIATOR FAN 2P CONNECTOR



Wire side of female terminals

    Is there continuity?

    YES — Replace the radiator fan motor. ■

    NO — Check for an open in the wire between the radiator fan and body ground. If the wire is OK, check for poor ground at G201. ■

Condenser Fan High Speed Circuit Troubleshooting

NOTE:
- Do not use this troubleshooting procedure if the radiator fan and/or the compressor is inoperative. Refer to the symptom troubleshooting index.
- Before performing symptom troubleshooting, check for powertrain DTCs (see page 11-3).

1. Check the No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 2.

   NO—Replace the fuse, and recheck. ■

2. Remove the fan control relay from the ABS relay box, and test it (see page 22-88).

   Is the relay OK?

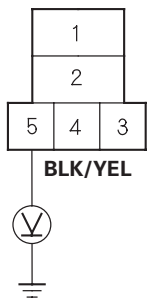
   YES—Go to step 3.

   NO—Replace the fan control relay. ■

3. Turn the ignition switch ON (II).

4. Measure the voltage between the No. 5 terminal of the fan control relay 5P socket and body ground.

FAN CONTROL RELAY 5P SOCKET



   Is there battery voltage?

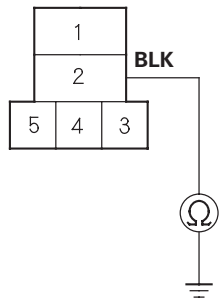
   YES—Go to step 5.

   NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the fan control relay. ■

5. Turn the ignition switch OFF.

6. Check for continuity between the No. 2 terminal of the fan control relay 5P socket and body ground.

FAN CONTROL RELAY 5P SOCKET



   Is there continuity?

   YES—Repair open in the wire between the fan control relay and the radiator fan relay. ■

   NO—Check for an open in the wire between the fan control relay and body ground. If the wire is OK, check for poor ground at G201. ■

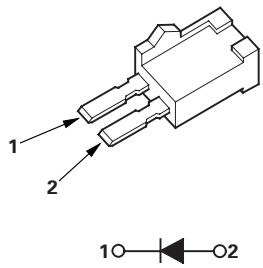
Radiator and Condenser Fan High Speed Circuit Troubleshooting

NOTE:
- Do not use this troubleshooting procedure if only one fan is inoperative, or if the compressor is inoperative. Refer to the symptom troubleshooting index.
- Before performing symptom troubleshooting, check for powertrain DTCs (see page 11-3).

1. Remove A/C diode C from the right side of dash.

2. Check for current flow in both directions between the No. 1 and No. 2 terminals of A/C diode C.

A/C DIODE C



Is there current flow in only one direction?

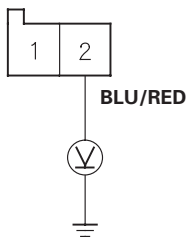
YES — Go to step 3.

NO — Replace A/C diode C. ■

3. Turn the ignition switch ON (II).

4. Measure the voltage between the No. 2 terminal of A/C diode C 2P socket and body ground.

A/C DIODE C 2P SOCKET



Wire side of female terminals

Is there battery voltage?

YES — Go to step 5.

NO — Repair open in the wire between the radiator fan relay and A/C diode C. ■

5. Turn the ignition switch OFF.

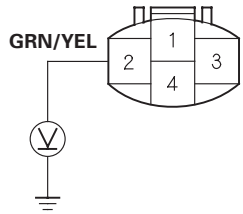
6. Reinstall A/C diode C.

7. Disconnect the A/C pressure switch 4P connector.

8. Turn the ignition switch ON (II).

9. Measure the voltage between the No. 2 terminal of the A/C pressure switch 4P connector and body ground.

A/C PRESSURE SWITCH 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

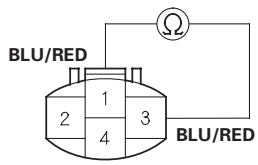
YES — Go to step 10.

NO — Repair open in the wire between A/C diode C and the A/C pressure switch. ■

10. Turn the ignition switch OFF

11. Check for continuity between the No. 1 and No. 3 terminals of the A/C pressure switch 4P connector.

A/C PRESSURE SWITCH 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES — Replace the A/C pressure switch. ■

NO — Repair open in the wire between the A/C pressure switches A and B. ■

Compressor Clutch Circuit Troubleshooting

NOTE:
- Do not use this troubleshooting procedure if the fans are also inoperative with the A/C on. Refer to the symptom troubleshooting index.
- Before performing symptom troubleshooting, check for powertrain DTCs (see page 11-3).

1. Check the No. 59 (7.5A) fuse in the under-hood fuse /relay box, and the No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

   NO—Replace the fuse(s), and recheck. ■

2. Check the engine coolant temperature, throttle position, and idle speed (Use the HDS PGM-FI data list if possible).

Sensor	'99-01 models:	163—194°F (73—90°C)
	'02-04 models:	169—194°F (76—90°C)
TPS	About 0.5 V	
RPM	More than 730	

   Is the coolant temperature, throttle position, and idle speed OK?

   YES—Go to step 3.

   NO—Troubleshoot and repair cause of high engine coolant temperature, low idle, or excessively high throttle position sensor reading. ■

3. Remove the compressor clutch relay from the under-hood fuse/relay box, and test it (see page 22-88).

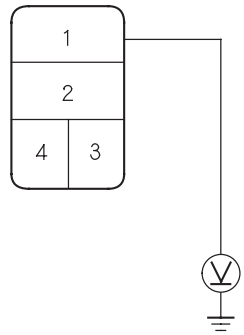
   Is the relay OK?

   YES—Go to step 4.

   NO—Replace the compressor clutch relay. ■

4. Measure the voltage between the No.1 terminal of the compressor clutch relay 4P socket and body ground.

   COMPRESSOR CLUTCH RELAY 4P SOCKET



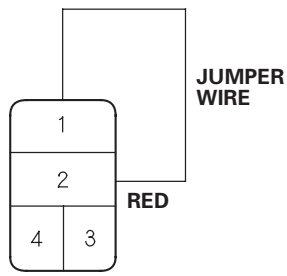
   Is there battery voltage?

   YES—Go to step 5.

   NO—Replace the under-hood fuse/relay box. ■

5. Connect the No. 1 and No. 2 terminals of the compressor clutch relay 4P socket with a jumper wire.

   COMPRESSOR CLUTCH RELAY 4P SOCKET



   Does the compressor clutch click ?

   YES—Go to step 6.

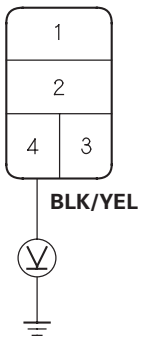
   NO—Go to step 15.

6. Disconnect the jumper wire.

7. Turn the ignition switch ON (II).

8. Measure the voltage between the No. 4 terminal of the compressor clutch relay 4P socket and body ground.

COMPRESSOR CLUTCH RELAY 4P SOCKET



Is there battery voltage?

YES—Go to step 9.

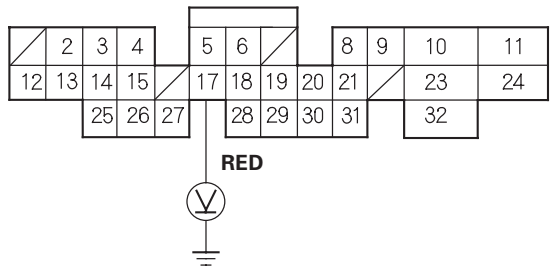
NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the compressor clutch relay. ■

9. Turn the ignition switch OFF.
10. Reinstall the compressor clutch relay.
11. Make sure the A/C switch is OFF.
12. Turn the ignition switch ON (II).

13. '99-00 and '02-04 models: Using the Backprobe Set, measure the voltage between the No. 17 terminal of PCM connector A (32P) and body ground with the PCM connectors connected.
'01 model: Using the Backprobe Set, measure the voltage between the No. 12 terminal of PCM connector E (31P) and body ground with the PCM connector connected.

'99-00 and '02-04 models:

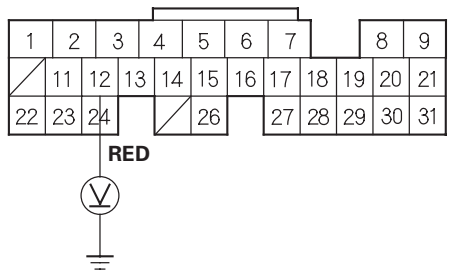
PCM CONNECTOR A (32P)



Wire side of female terminals

'01 model:

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 14.

NO—Repair open in the wire between the compressor clutch relay and the PCM. ■

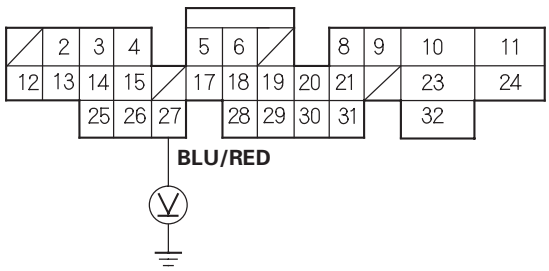
(cont'd)

Compressor Clutch Circuit Troubleshooting (cont'd)

14. '99-00 and '02-04 models: Using the Backprobe Set, measure the voltage between the No. 27 terminal of PCM connector A (32P) and body ground with the PCM connectors connected.
'01 model: Using the Backprobe Set, measure the voltage between the No. 21 terminal of PCM connector E (31P) and body ground with the PCM connector connected.

'99-00 and '02-04 models:

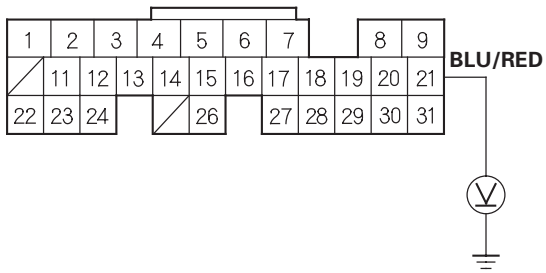
PCM CONNECTOR A (32P)



Wire side of female terminals

'01 model:

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there battery voltage?

YES—Check for loose wires or poor connections at PCM connector A (32P) or E (31P). If the connections are good, substitute a known-good PCM, and recheck. If the symptom/indication goes away, replace the original PCM. ■

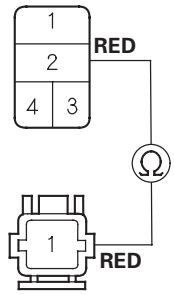
NO—Repair open in the wire between the PCM and the A/C pressure switch. ■

15. Disconnect the jumper wire.

16. Disconnect the compressor clutch 1P connector.

17. Check for continuity between the No. 2 terminal of the compressor clutch relay 4P socket and the No. 1 terminal of the compressor clutch 1P connector.

COMPRESSOR CLUTCH RELAY 4P SOCKET



COMPRESSOR CLUTCH 1P CONNECTOR
Terminal side of male terminals

Is there continuity?

YES—Check the compressor clutch clearance and the compressor clutch field coil (see page 21-51). Repair as needed. ■

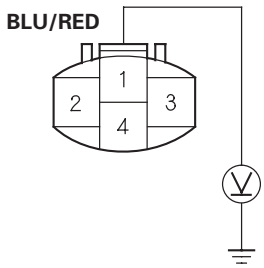
NO—Repair open in the wire between the compressor clutch relay and the compressor clutch. ■

A/C Pressure Switch Circuit Troubleshooting

NOTE:
- Do not use this troubleshooting procedure if any of the following items are operative; condenser fan, radiator fan, A/C compressor, or if the heater is inoperative. Refer to the symptom troubleshooting index.
- Before performing symptom troubleshooting, check for powertrain DTCs (see page 11-3).

1. Disconnect the A/C pressure switch 4P connector.
2. Turn the ignition switch ON (II).
3. Measure the voltage between the No. 1 terminal of the A/C pressure switch 4P connector and body ground.

A/C PRESSURE SWITCH 4P CONNECTOR



Wire side of female terminals

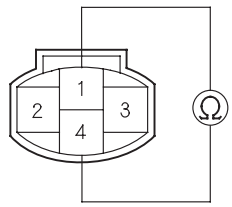
Is there battery voltage?

YES—Go to step 4.

NO—Repair open in the wire between A/C diode A, the PCM and the A/C pressure switch. ■

4. Turn the ignition switch OFF.
5. Check for continuity between the No. 1 and No. 4 terminals of the A/C pressure switch.

A/C PRESSURE SWITCH



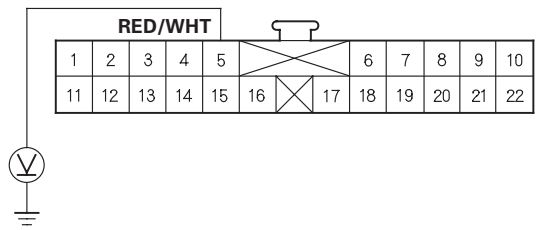
Is there continuity?

YES—Go to step 6.

NO—Go to step 16.

6. Reconnect the A/C pressure switch 4P connector.
7. Disconnect the heater control panel 22P connector.
8. Turn the ignition switch ON (II).
9. Measure the voltage between the No. 5 terminal of the heater control panel 22P connector and body ground.

HEATER CONTROL PANEL 22P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 10.

NO—Repair open in the wire between the heater control panel and the A/C pressure switch. ■

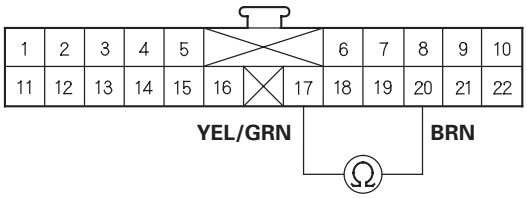
10. Turn the ignition switch OFF.

(cont'd)

A/C Pressure Switch Circuit Troubleshooting (cont'd)

11. Measure the resistance between the No. 17 and No.20 terminals of the heater control panel 22P connector.

HEATER CONTROL PANEL 22P CONNECTOR



Wire side of female terminals

Is the resistance less than 24 k ohms?

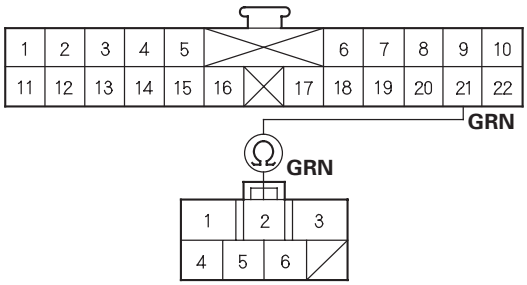
YES—Go to step 12.

NO—Repair cause of high resistance in the evaporator temperature circuit. ■

12. Disconnect the heater fan switch 7P connector.

13. Check for continuity between the No. 21 terminal of the heater control panel 22P connector and the No. 2 terminal of the heater fan switch 7P connector.

HEATER CONTROL PANEL 22P CONNECTOR
Wire side of female terminals



HEATER FAN SWITCH 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 14.

NO—Repair open in the wire between the heater control panel and the heater fan switch. ■

14. Test the heater fan switch (see page 21-40).

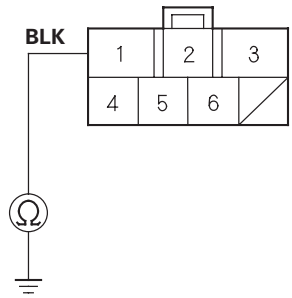
Is the heater fan switch OK?

YES—Go to step 15.

NO—Replace the heater fan switch. ■

15. Check for continuity between the No. 1 terminal of the heater fan switch 7P connector and body ground.

HEATER FAN SWITCH 7P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Check for loose wire or poor connections at the heater control panel 22P connector, the heater fan switch 7P connector and at the A/C pressure switch 4P connector. If the connections are good, substitute a known-good heater control panel, and recheck. If the symptom/indication goes away, replace the original heater control panel. ■

NO—Check for an open in the wire between the heater fan switch and body ground. If the wire is OK, check for poor ground at G401. ■

16. Check for proper A/C system pressure.

Is the pressure within specifications?

YES—Replace the A/C pressure switch. ■

NO—Repair the A/C pressure problem. ■

Air Mix Control Motor Test

1. Disconnect the 7P connector from the air mix control motor.

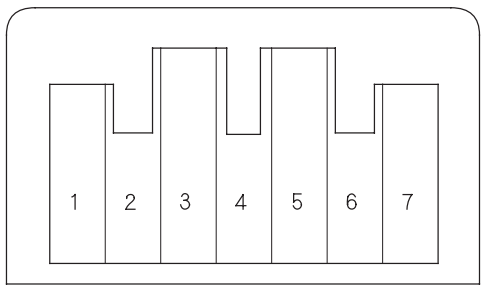
   NOTICE
   Incorrectly applying power and ground to the air mix control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the air mix control motor, and ground the No. 2 terminal; the air mix control motor should run, and stop at Max Cool. If it doesn't, reverse the connections; the air mix control motor should run, and stop at Max Hot.

3. If the air mix control motor did not run in step 2, remove it, then check the air mix control linkage and doors for smooth movement.

   - If the linkage and door move smoothly, replace the air mix control motor.
   - If the linkage or door sticks or binds, repair them as needed.
   - If the air mix control motor runs smoothly, go to step 4.

AIR MIX CONTROL MOTOR



4. Measure the resistance between the No. 5 and No. 7 terminals. It should be between 4.2 to 7.8 kΩ.

5. Reconnect the air mix control motor 7P connector, then turn the ignition switch ON(II).

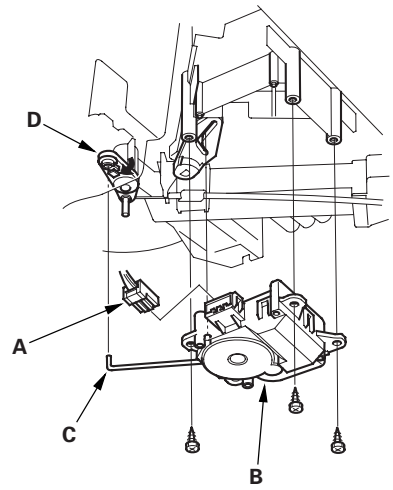
6. Using the backprobe set, measure the voltage between the No. 3 and No. 5 terminals.

   Max Cool – about 0.7 V
   Max Hot – about 4.2 V

7. If either the resistance or voltage readings are not as specified, replace the air mix control motor.

Air Mix Control Motor Replacement

1. Disconnect the 7P connector (A) from the air mix control motor (B). Remove the rod (C) of the air mix control motor from the air mix control linkage (D). Remove the self-tapping screws and the air mix control motor from the heater unit.



2. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

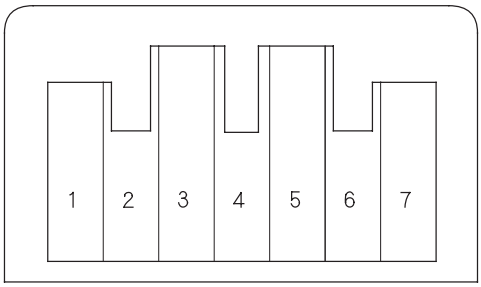
Mode Control Motor Test

1. Disconnect the 7P connector from the mode control motor.

   NOTICE
   Incorrectly applying power and ground to the mode control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the mode control motor, and ground the No. 2 terminal; the mode control motor should run smoothly, and stop at Defrost. If it doesn't, reverse the connections; the mode control motor should run smoothly, and stop at Vent. When the mode control motor stops running, disconnect battery power immediately.

MODE CONTROL MOTOR



3. If the mode control motor did not run in step 2, remove it, then check the mode control linkage and doors for smooth movement.

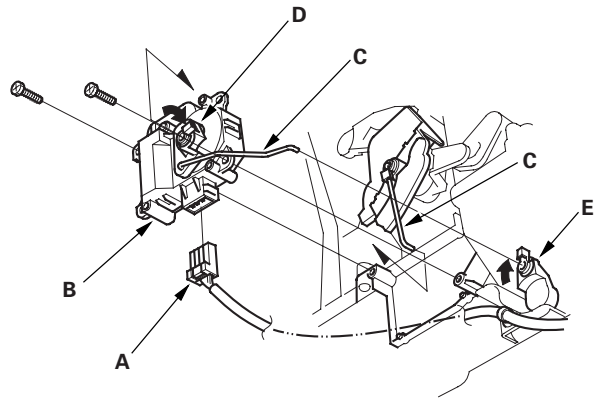
   - If the linkage and doors move smoothly, replace the mode control motor.
   - If the linkage or doors stick or bind, repair them as needed.
   - If the mode control motor runs smoothly, go to step 4.

4. Use a digital multimeter with an output of 1 mA or less at the 20 kΩ range. With the mode control motor running as in step 2, check for continuity between the No. 3, 4, 5, and 6 terminals and the No. 7 terminal individually. There should be continuity for a moment at each terminal as the motor moves past the switch's terminal.

5. If there is no continuity for a moment at each terminal, replace the mode control motor.

Mode Control Motor Replacement

1. Disconnect the 7P connector (A) from the mode control motor (B). Remove the rods (C) of the mode control motor from the mode control motor linkage (D) and the mode control linkage (E). Remove the self-tapping screws and the mode control motor from the heater unit.



2. Install the motor in the reverse order of removal. After installation, make sure the motor runs smoothly.

Recirculation Control Motor Test

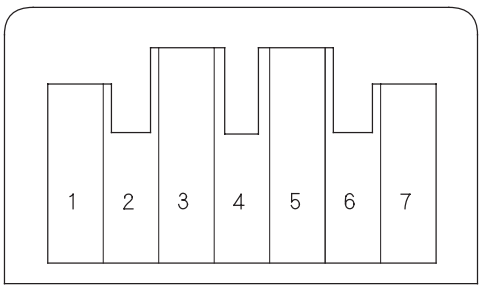
1. Disconnect the 7P connector from the recirculation control motor.

   NOTICE

   Incorrectly applying power and ground to the recirculation control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the recirculation control motor, and ground the No. 5 or No. 7 terminals; the recirculation control motor should run smoothly. To avoid damaging the recirculation control motor, do not reverse power and ground. Disconnect the No. 5 or No. 7 terminals from ground; the recirculation control motor should stop at Fresh (when the No. 7 terminal is disconnected) or Recirculate (when the No. 5 terminal is disconnected). Don't cycle the recirculation control motor for a long time.

RECIRCULATION CONTROL MOTOR



3. If the recirculation control motor did not run in step 2, remove it, then check the recirculation control linkage and doors for smooth movement.

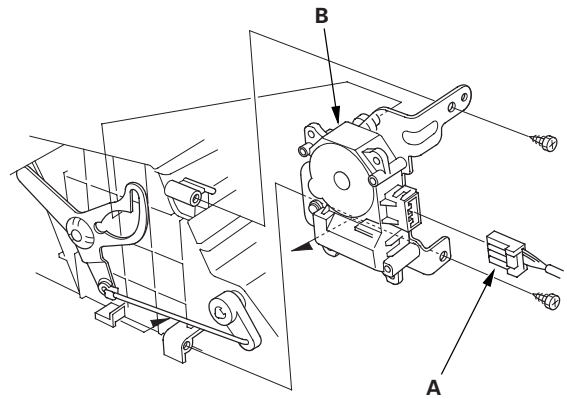
   - If the linkage and doors move smoothly, replace the recirculation control motor.
   - If the linkage or doors stick or bind, repair them as needed.

Recirculation Control Motor Replacement

1. Remove the glove box stops, and let the glove box hang down (see page 20-71).

2. Remove the wire harness connectors from the evaporator.

3. Disconnect the 7P connector (A) from the recirculation control motor (B). Remove the self-tapping screws and the recirculation control motor from the blower unit.

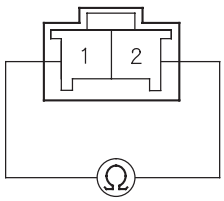


4. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

Evaporator Temperature Sensor Test

1. Dip the sensor in ice water, and measure the resistance between its terminals.

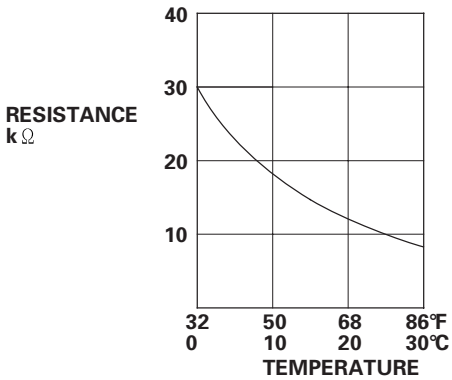
EVAPORATOR TEMPERATURE SENSOR



Terminal side of male terminals

2. Then pour warm water on the sensor, and check for a change in resistance.

3. Compare the resistance readings with the specifications shown in the graph; the resistance should be within the specifications.

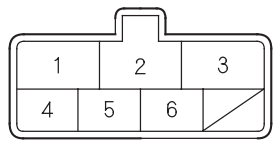


Heater Fan Switch Test

Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal	1	2	3	4	5	6
OFF						
1	○	○		○		
2	○	○			○	
3	○	○				○
4	○	○	○			

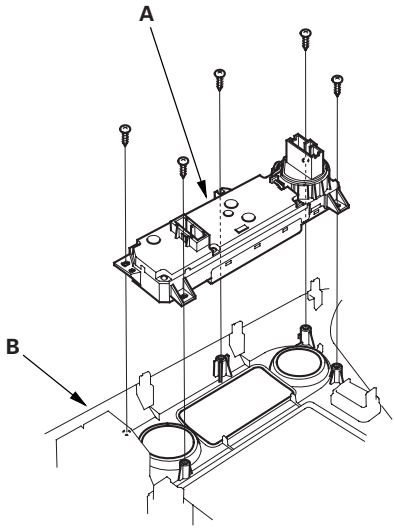
HEATER FAN SWITCH



Heater Control Panel Removal and Installation

1. Remove the center panel with the heater control panel (see page 20-70).

2. Remove the self-tapping screws and the heater control panel (A) from the center panel (B).

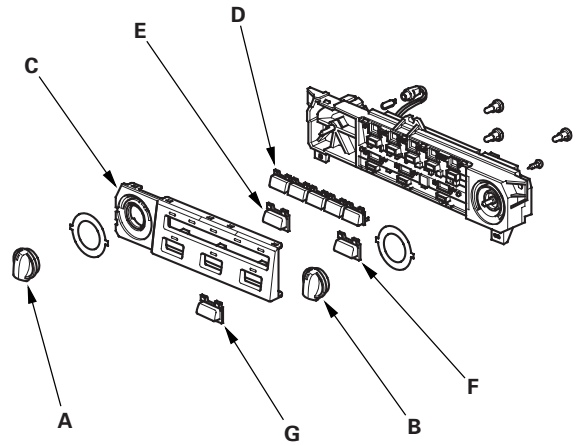


3. Install the control panel in the reverse order of removal. After installation, operate the control panel controls to see whether it works properly.

4. Run the self-diagnosis function to confirm that there are no problems in the system (see page 21-8).

Heater Control Panel Disassembly and Reassembly

1. Remove the fan switch (A) and temperature control dial (B), then remove the front panel (C). Remove the mode control switch (D), recirculation control switch (E), rear defogger switch (F) and A/C switch (G) buttons.

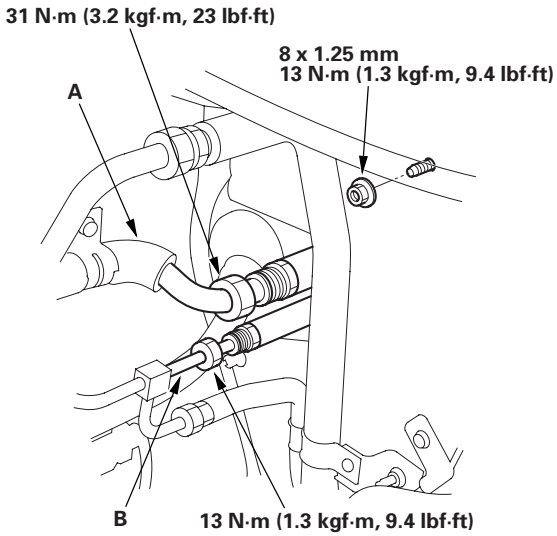


2. Reassemble the control panel in the reverse order of removal.

Evaporator Removal and Installation

1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-56).

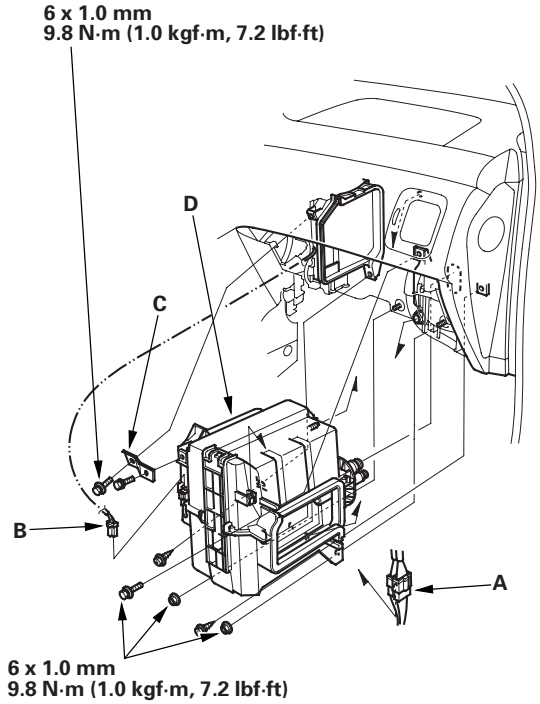
2. Disconnect the suction line (A) and reciver line (B) from the evaporator. Remove the mounting nut. Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.



3. Remove the glove box (see page 20-71).

4. Remove the plastic cross brace, then remove the glove box frame (see page 21-44).

5. Remove the wire harness connectors (A). Disconnect the evaporator temperature sensor connector (B). Remove the self-tapping screws, the mounting nuts, the mounting bolts, the bracket (C), and the evaporator (D).

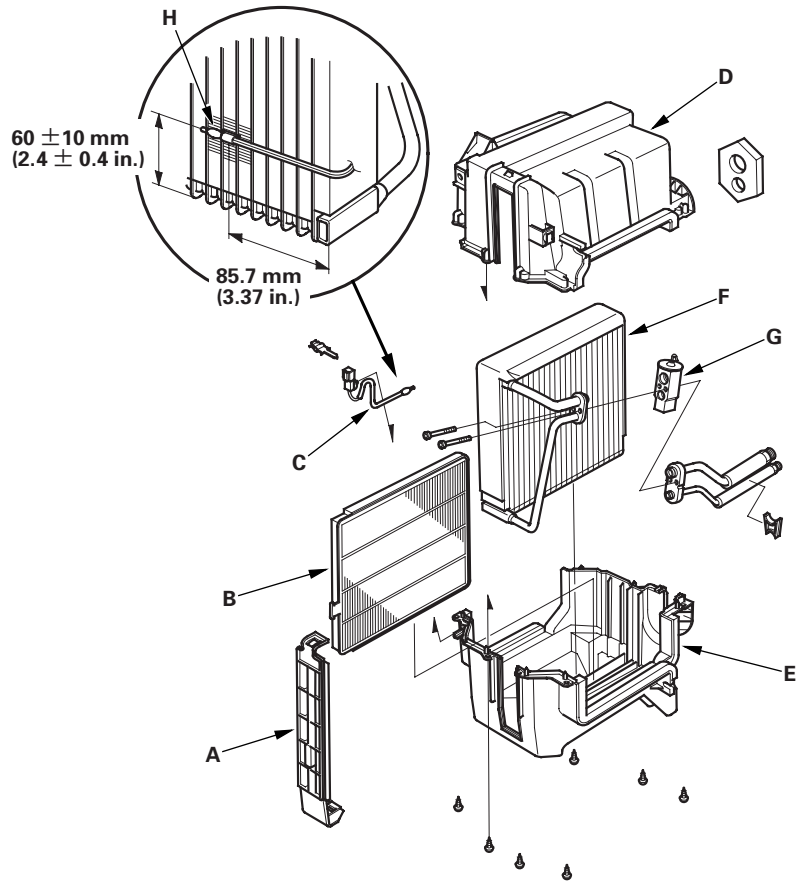


6. Install the evaporator in the reverse order of removal, and note these items.

   - If you're installing a new evaporator, add refrigerant oil (DENSO ND-OIL 8) (see page 21-6).
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Immediately after using oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Do not spill the refrigerant oil on the vehicle; it may damage the paint. If the refrigerant oil contacts the paint, wash it off immediately.
   - Make sure that there is no air leakage.
   - Charge the system (see page 21-58).

Evaporator Component Replacement

1. Remove the filter lid (A), then pull out the dust and pollen filter (B).



2. Pull out the evaporator temperature sensor (C) from the evaporator fins.

3. Remove the screws, carefully separate the upper housing (D) from the lower housing (E), then remove the evaporator core (F).

4. If necessary, remove the expansion valve (G).

5. Reassemble the evaporator in the reverse order of disassembly, and note these items:

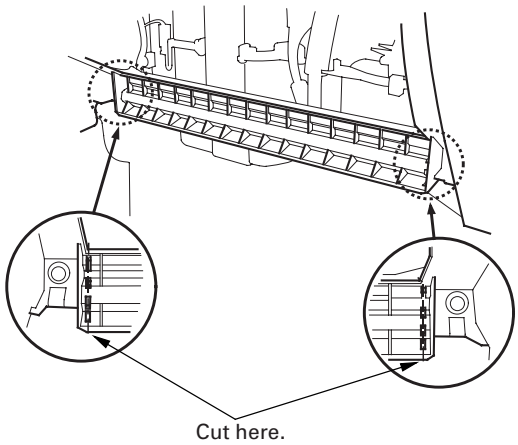
   - Replace all O-rings with new ones at each fitting and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Reinstall the evaporator temperature sensor bulb (H) and clip in their original location.
   - Make sure no air is leaking from the upper housing and the lower housing fitting.

Dust and Pollen Filter Replacement

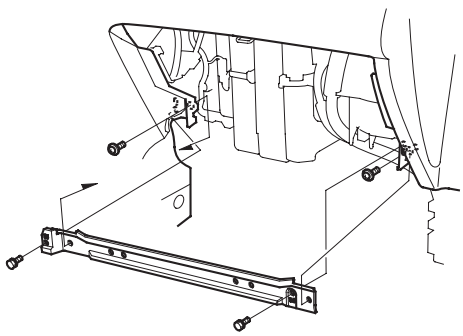
The dust and pollen filter should be replaced every 30,000 miles (48,000 km) or 24 months whichever comes first. Replace the filter more often if the airflow is less than usual.

1. Remove the glove box (see page 20-71).

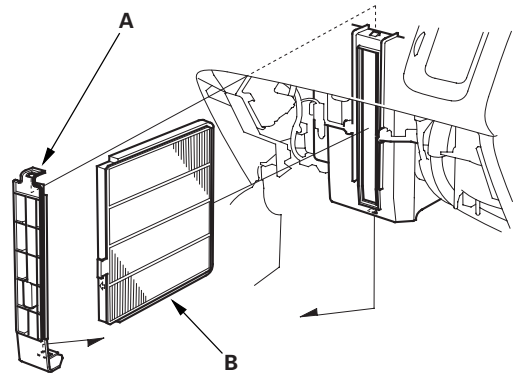
2. Cut the plastic cross brace in the glove box opening with diagonal cutters in the area shown, and discard it.



3. Remove the bolts, the screws and the glove box frame.



4. Remove the filter lid (A) from the evaporator, then pull out the dust and pollen filter (B).



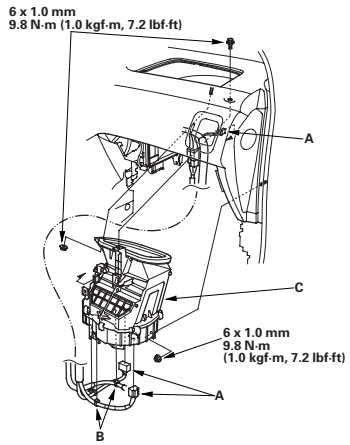
5. Install the filter in the reverse order of removal. Make sure that there is no air leaking out of the evaporator.

6. Install the glove box frame and glove box in the reverse order of removal.

Blower Unit Removal and Installation

SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.

1. Make sure you have the anti-theft code for the radio and the navigation system, then write down the frequencies for the radio's preset buttons.
2. Disconnect the negative cable from the battery.
3. Remove the evaporator (see page 21-42).
4. Remove the front passenger's airbag (see page 23-370).
5. Disconnect the connectors (A) from the blower motor, the blower resister and the recirculation control motor, then remove the wire harness clips (B). Remove the mounting nuts, the mounting bolt and the blower unit (C).

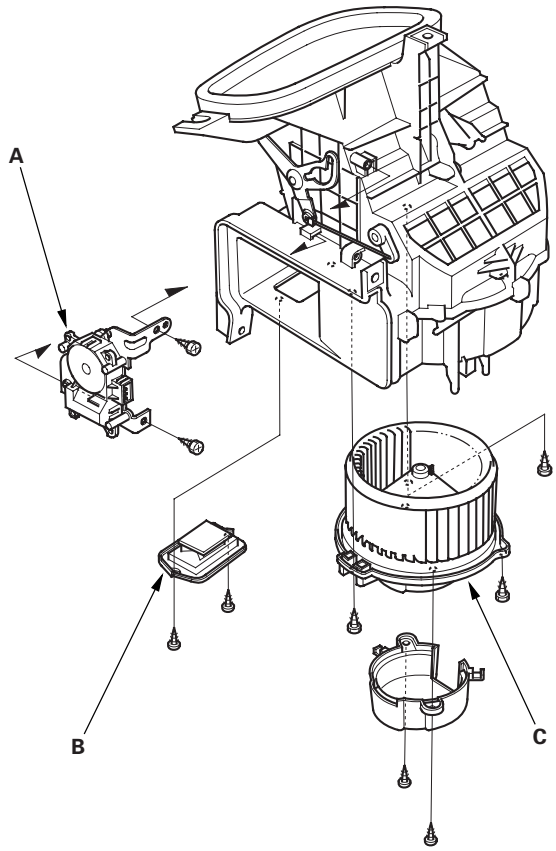


6. Install the unit in the reverse order of removal, and note these items:
   - Make sure that there is no air leakage.
   - For evaporator and A/C-related infomation, refer to evaporator removal and installation (see page 21-42).
   - Do the PCM idle learn procedure (see page 11-202).
   - Do the power window control unit resetting procedure (see page 22-200).
   - Enter the anti-theft code for the radio and the navigation system, then enter the customer's radio station presents.

Blower Unit Component Replacement

Note these items when overhauling the blower unit:

- The recirculation control motor (A), the blower resistor or power transistor (B) and the blower motor (C) can be replaced without removing the blower unit.
- Before reassembly, make sure that the recirculation control linkage and doors move smoothly without binding.
- After reassembly, make sure the recirculation control motor runs smoothly (see page 21-39).



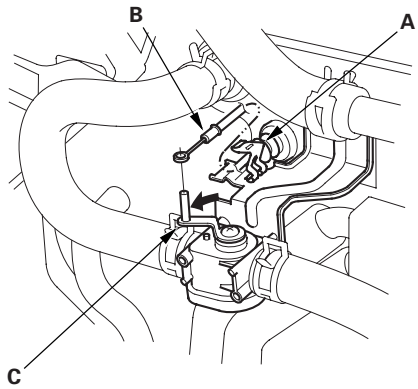
Heater Unit/Core Replacement

SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.

1. Make sure you have the anti-theft code for the radio and the navigation system, then write down the frequencies for the radio's preset buttons.

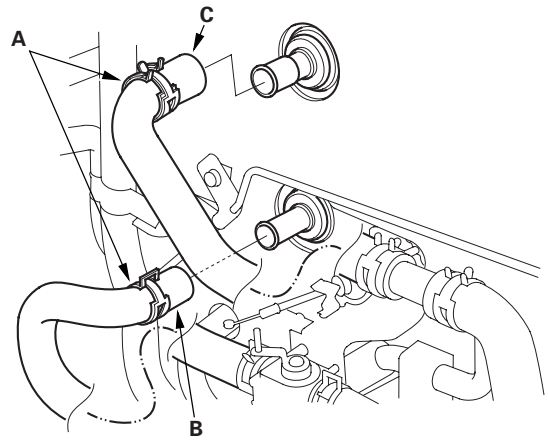
2. Disconnect the negative cable from the battery.

3. From under the hood, open the cable clamp (A), then disconnect the heater valve cable (B) from the heater valve arm (C). Turn the heater valve arm to the fully opened position as shown.

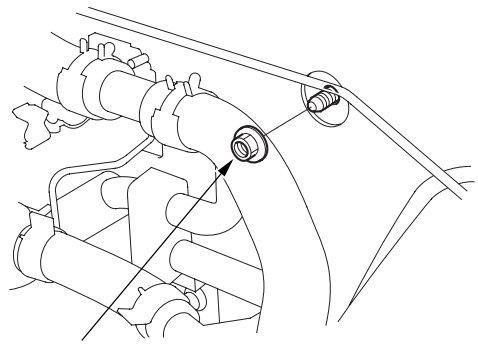


4. When the engine is cool, drain the engine coolant from the radiator (see page 10-13).

5. Slide the hose clamps (A) back, then disconnect the inlet heater hose (B) and the outlet heater hose (C) from the heater unit. Engine coolant will run out when the hoses are disconnected; drain it into a clean drip pan. Be sure not to let coolant spill on the electrical parts or the painted surfaces. If any coolant spills, rinse it off immediately.



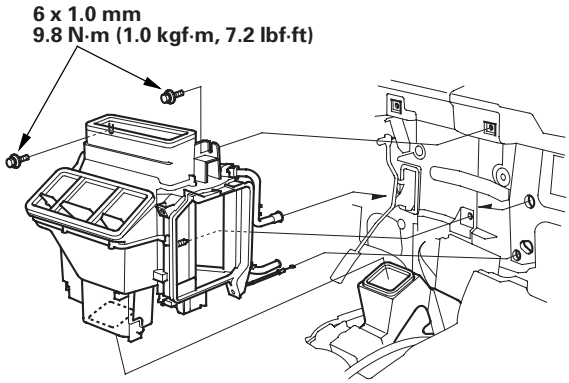
6. Remove the mounting nut from the heater unit. Take care not to damage or bend the fuel lines and the brake lines, etc.



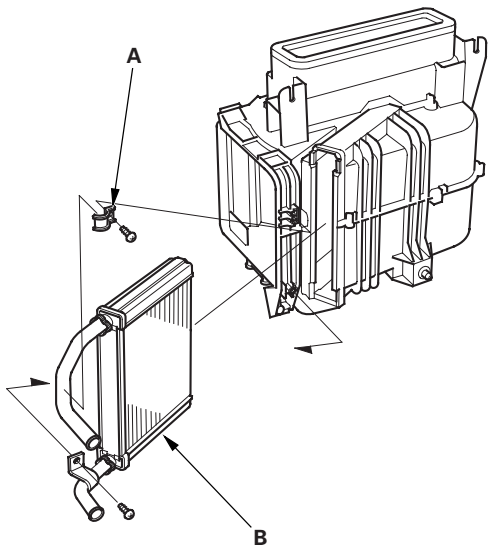
7. Remove the dashboard (see page 20-69).

8. Remove the evaporator (see page 21-42).

9. Remove the mounting bolts and the heater unit.



10. Remove the self-tapping screws and the clamp (A), then carefully pull out the heater core (B) so you don't bend the inlet and outlet pipes.



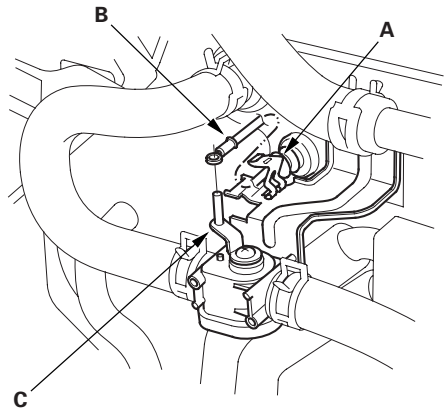
11. Install the heater core in the reverse order of removal.

12. Install the heater unit in the reverse order of removal, and note these items:

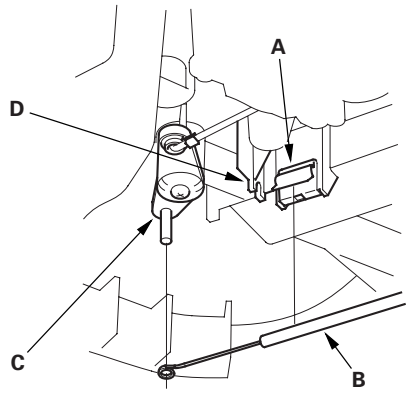
- Do not interchange the inlet and outlet heater hoses, and install the hose clamps securely.
- Refill the cooling system with engine coolant (see page 10-13).
- Adjust the heater valve cable (see page 21-48).
- Make sure that there is no coolant leakage.
- Make sure that there is no air leakage.
- For evaporator and A/C-related information, refer to evaporator remove and installation (see page 21-42).
- Do the PCM idle learn procedure (see page 11-202).
- Do the power window control unit resetting procedure (see page 22-200).
- Enter the anti-theft code for the radio and the navigation system, then enter the customer's radio station presets.

Heater Valve Cable Adjustment

1. From under the hood, open the cable clamp (A), then disconnect the heater valve cable (B) from the heater valve arm (C).



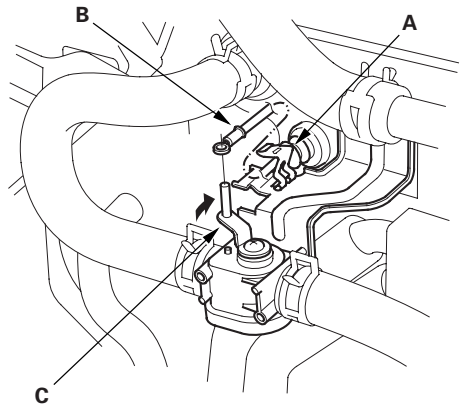
2. From under the dash, disconnect the heater valve cable housing from the cable clamp (A), and disconnect the heater valve cable (B) from the air mix control linkage (C).



3. Set the temperature control dial or button on Max Cool (60°F or 18°C) with the ignition switch ON (II).

4. Attach the heater valve cable (B) to the air mix control linkage (C) as shown step 2. Hold the end of the heater valve cable housing against the stop (D), then snap the heater valve cable housing into the cable clamp (A).

5. From under the hood, turn the heater valve arm (C) to the fully closed position as shown, and hold it. Attach the heater valve cable (B) to the heater valve arm, and gently pull on the heater valve cable housing to take up any slack, then install the heater valve cable housing into the cable clamp (A).



Compressor Replacement

1. If the compressor is marginally operable, run the engine at idle speed, and let the air conditioning work for a few minutes, then shut the engine off.

2. Make sure you have the anti-theft code for the radio and the navigation system, then write down the frequencies for the radio's preset buttons.

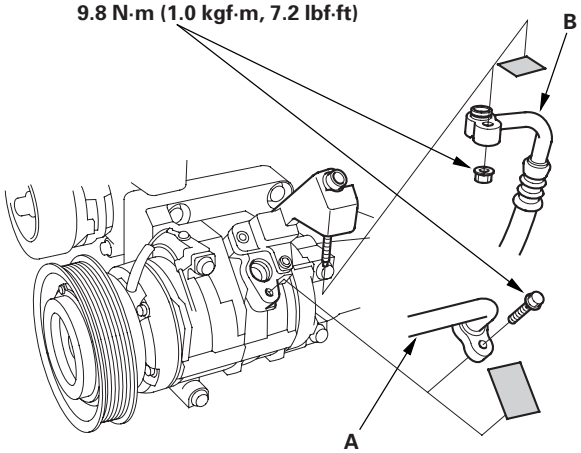
3. Disconnect the negative cable from the battery.

4. Recover the refrigerant with a recovery/recycling/charging station (see page 21-56).

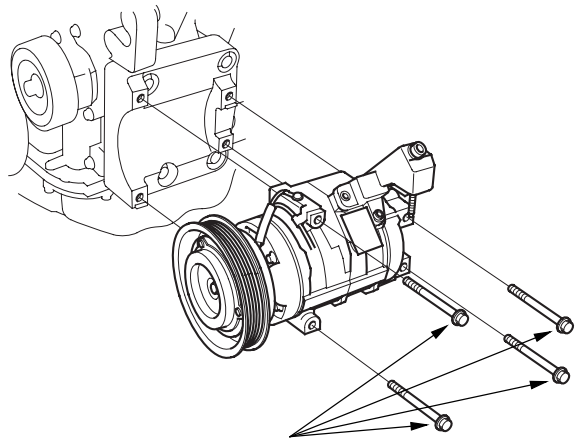
5. Remove the alternator (see page 4-27).

6. Remove the splash shield (see step 28 on page 5-6).

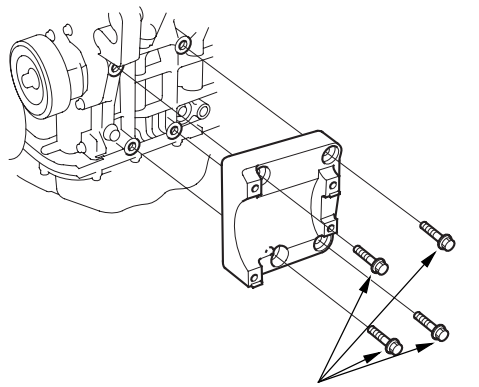
7. Remove the bolt and the nuts, then disconnect the suction line (A) and discharge line (B) from the compressor. Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.



8. Disconnect the compressor clutch connector, then remove the mounting bolts and the compressor.



9. If necessary, remove the mounting bolts and the compressor bracket.



(cont'd)

Compressor Replacement (cont'd)

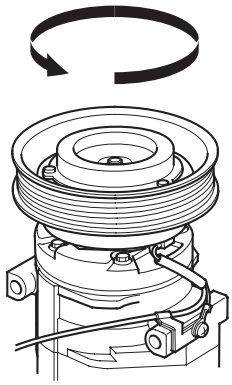
10. Install the compressor in the reverse order of removal, and note these items:

    - If you're installing a new compressor, you must calculate the amount of refrigerant oil to be removed from it (see page 21-6).
    - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
    - Use refrigerant oil (DENSO ND-OIL 8) for HFC-134a DENSO piston type compressor only.
    - To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
    - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
    - Do not spill the refrigerant oil on the vehicle; it may damage the paint. If the refrigerant oil contacts the paint, wash it off immediately.
    - Charge the system (see page 21-58).
    - Do the PCM idle learn procedure (see page 11-202).
    - Do the power window control unit resetting procedure (see page 22-200).
    - Enter the anti-theft code for the radio and the navigation system, then enter the customer's radio station presets.

Compressor Clutch Check

1. Check the pressure plate for discoloration, peeling or other damage. If there is damage, replace the clutch set (see page 21-52).

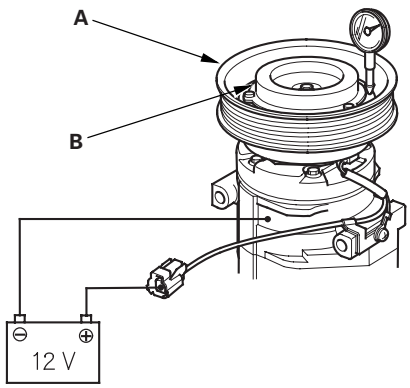
2. Check the pulley bearing play and drag by rotating the pulley by hand. Replace the clutch set with a new one if it is noisy or has excessive play/drag (see page 21-52).



3. Measure the clearance betweenn the pulley (A) and the pressure plate (B) with a dial indicator. Zero out the indicator, then apply battery voltage to the compressor clutch. Measure the movement of the pressure plate when the voltage is applied. If the clearance is not within the specified limits, the pressure plate must be reshimed (see page 21-52).

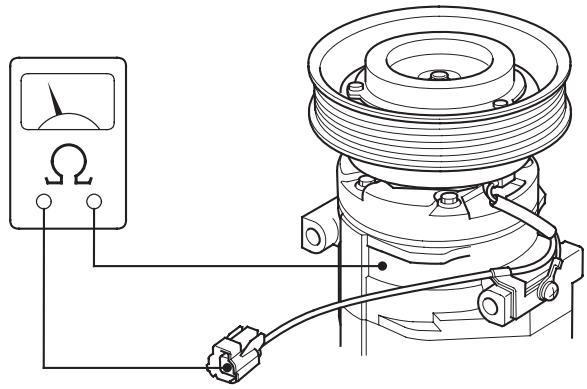
   Clearance: 0.5±0.15 mm (0.020±0.006 in.)

   NOTE: The shims are available in four thicknesses: 0.1 mm, 0.3 mm, 0.5 mm, and 1.5mm.



4. Check resistance of the field coil. If resistance is not within specifications, replace the field coil (see page 21-52).

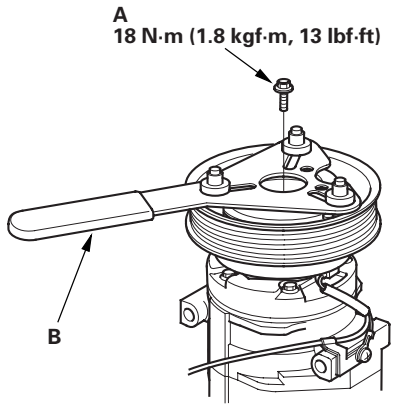
   Field Coil Resistance: 3.4−3.8 ohms at 68°F (20°C)



Compressor Clutch Overhaul

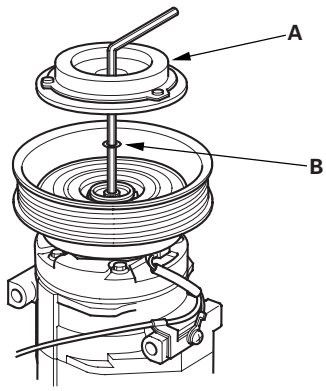
Special Tools Required
A/C clutch holder, Robinair 10204 or Kent-Moore J37872, or Honda Tool and Equipment KMT-J33939, commercially available

1. Remove the center bolt (A) while holding the pressure plate with a commercially available A/C clutch holder (B).

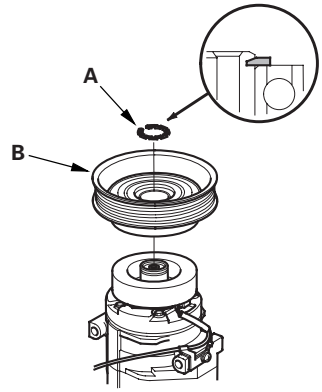


2. Remove the pressure plate (A) and shim(s) (B), taking care not to lose the shim(s). If the clutch needs adjustment, increase or decrease the number and thickness of shims as necessary, then reinstall the pressure plate, and recheck its clearance (see page 21-51).

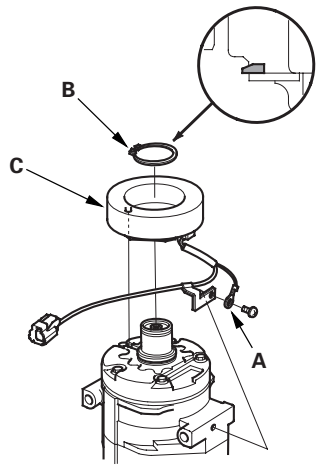
   NOTE: The shims are available in four thicknesses: 0.1 mm, 0.3 mm, 0.5 mm, and 1.5 mm.



3. If you are replacing the field coil, remove the snap ring (A) with snap ring pliers, then remove the pulley (B). Be careful not to damage the pulley or the compressor.



4. Remove the screw from the field coil ground terminal (A). Remove the snap ring (B) with snap ring pliers, then remove the field coil (C). Be careful not to damage the field coil or the compressor.



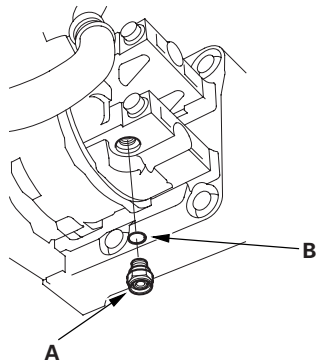
5. Reassemble the clutch in the reverse order of disassembly, and note these items:

   - Install the field coil with the wire side facing down, and align the boss on the field coil with the hole in the compressor.
   - Clean the pulley and compressor sliding surfaces with contact cleaner or other non-petroleum solvent.
   - Install new snap rings, note the installation direction, and make sure they are fully seated in the groove.
   - Make sure that the pulley turns smoothly after it's reassembled.
   - Route and clamp the wires properly or they can be damaged by the rotor pulley.

Compressor Relief Valve Replacement

1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-56).

2. Remove the relief valve (A) and the O-ring (B). Plug the opening to keep foreign matter from entering the system and the compressor oil from running out.



13.2 N·m (1.35 kgf·m, 9.76 lbf·ft)

3. Clean the mating surfaces.

4. Replace the O-ring with a new one at the relief valve, and apply a thin coat of refrigerant oil before installing it.

5. Remove the plug, and install and tighten the relief valve.

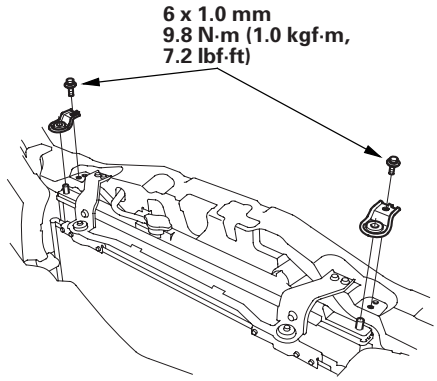
6. Charge the system (see page 21-58).

Condenser Replacement

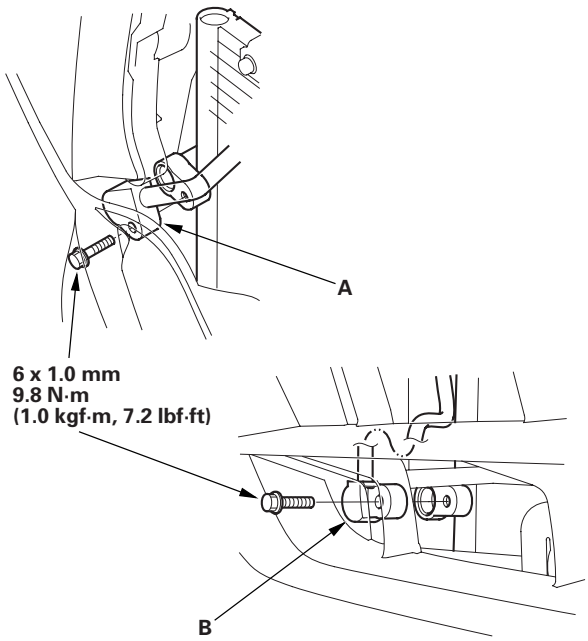
1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-56).

2. Remove the front grille (see page 20-142) and the hood latch (see page 20-154).

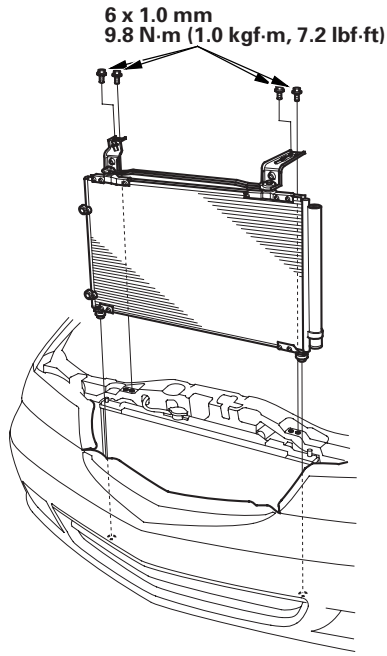
3. Remove the bolts and the radiator upper brackets.



4. Remove the bolts, then disconnect the discharge line (A) and receiver line (B) from the condenser. Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.



5. Remove the bolts, then remove the condenser by lifting it up. Be careful not to damage the radiator or the condenser fins when removing the condenser.



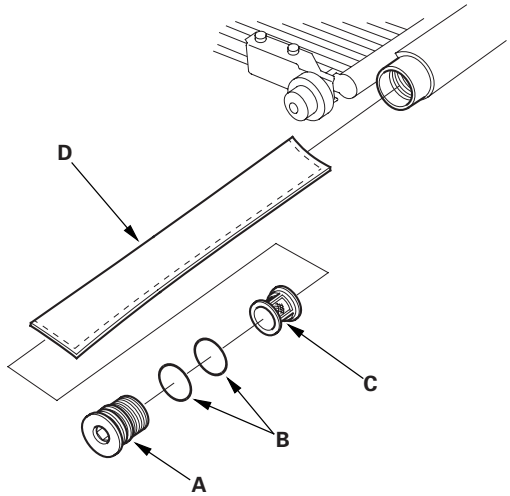
6. Install the condenser in the reverse order of removal, and note these items:

   - If you're installing a new condenser, add refrigerant oil (DENSO ND-OIL 8) (see page 21-6).
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Do not spill the refrigerant oil on the vehicle; it may damage the paint. If the refrigerant oil contacts the paint, wash it off immediately.
   - Be careful not to damage the radiator or the condenser fins when installing the condenser.
   - Charge the system (see page 21-58).

Receiver/Dryer Desiccant Replacement

1. Remove the condensor (see page 21-54).

2. Remove the cap (A) from the bottom of the condenser, then remove the O-rings (B), the filter (C) and the desiccant (D).



3. Install the desiccant in the reverse order of removal. Replace the O-rings with new ones, and apply a thin coat of refrigarent oil (DENSO ND-OIL 8) before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.

Refrigerant Recovery

⚠CAUTION

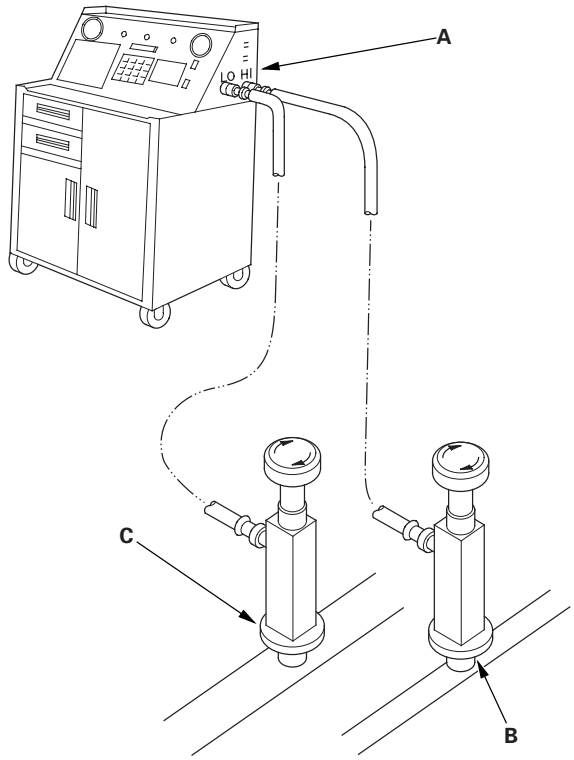
- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a (R-134a) from the air conditioning system.

If accidental system discharge occurs, ventilate work area before resuming service.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect a R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.



2. Measure the amount of refrigerant oil removed from the A/C system after the recovery process is completed. Be sure to put the same amount of new refrigerant oil back into the A/C system before charging.

System Evacuation

⚠CAUTION

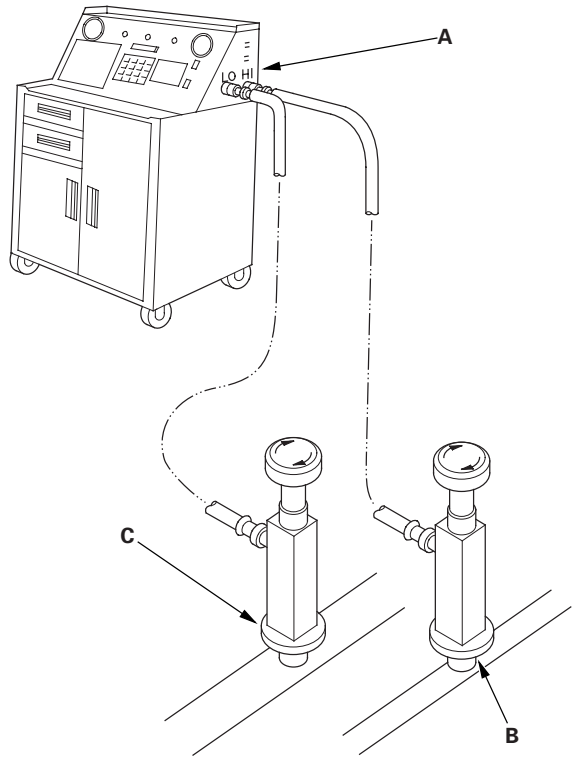
- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a (R-134a) from the air conditioning system.

If accidental system discharge occurs, ventilate work area before resuming service.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. When an A/C System has been opened to the atmosphere, such as during installation or repair, it must be evacuated using a R-134a refrigerant recovery/recycling/charging station (If the system has been open for several days, the receiver/dryer should be replaced, and the system should be evacuated for several hours.)
2. Connect a R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions. Evacuate the system.



3. If the low-pressure does not reach more than 93.3 kPa (700 mmHg, 27.6 in.Hg) in 15 minutes, there is probably a leak in the system. Partially charge the system, and check for leaks (see step 3 on page 21-59).

System Charging

⚠CAUTION

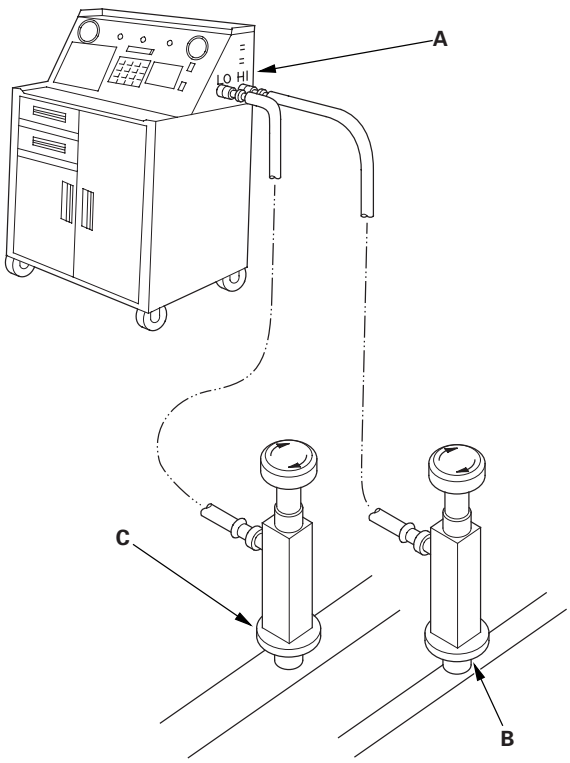
- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a (R-134a) from the air conditioning system.

If accidental system discharge occurs, ventilate work area before resuming service.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect a R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.



2. Evacuate the system (see page 21-57).

3. Add the same amount of new refrigerant oil to the system that was removed during recovery. Use only DENSO ND-OIL 8 refrigerant oil.

4. Charge the system with the specified amount of R-134a refrigerant. Do not overcharge the system; the compressor will be damaged.

   Select the appropriate units of measure for your refrigerant charging station.

   Refrigerant capacity with rear A/C:
   850 to 900 g
   0.85 to 0.90 kg
   1.8 to 1.9 lbs
   30.0 to 31.7 oz

   Refrigerant capacity without rear A/C:
   600 to 650 g
   0.60 to 0.65 kg
   1.3 to 1.4 lbs
   21.2 to 22.9 oz

5. Check for refrigerant leaks (see page 21-59).

6. Check for system performance (see page 21-60).

Refrigerant Leak Test

Special Tools Required
Leak detector, Honda Tool and Equipment YGK-H-10PM commercially available

⚠WARNING

- Compressed air mixed with R-134a forms a combustible vapor.
- The vapor can burn or explode causing serious injury.
- Never use compressed air to pressure test R-134a service equipment or vehicle air conditioning system.

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

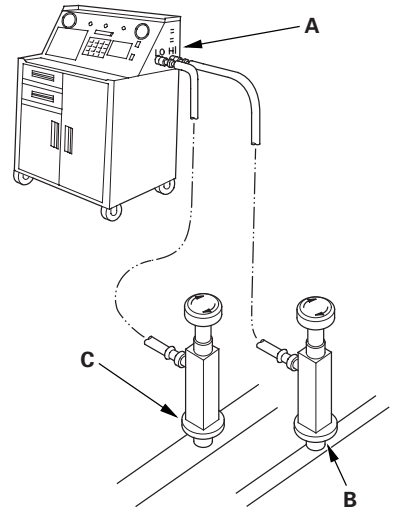
Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a (R-134a) from the air conditioning system.

If accidental system discharge occurs, ventilate work area before resuming service.

R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect a R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.



2. Open high pressure valve to charge the system to the specified capacity, then close the supply valve, and disconnect the charging station fittings.

   Select the appropriate units of measure for your refrigerant charging station.

   Refrigerant capacity with rear A/C:
   850 to 900 g
   0.85 to 0.90 kg
   1.8 to 1.9 lbs
   30.0 to 31.7 oz

   Refrigerant capacity without rear A/C:
   600 to 650 g
   0.60 to 0.65 kg
   1.3 to 1.4 lbs
   21.2 to 22.9 oz

3. Check the system for leaks using a R-134a refrigerant leak detector with an accuracy of 14 g (0.5 oz) per year or better.

4. If you find leaks that require the system to be opened (to repair or replace hoses, fittings, etc.), recover the system.

5. After checking and repairing leaks, the system must be evacuated.

A/C System Test

Performance Test

⚠ WARNING

- Compressed air mixed with R-134a forms a combustible vapor.
- The vapor can burn or explode causing serious injury.
- Never use compressed air to pressure test R-134a service equipment or vehicle air conditioning systems.

⚠ CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

The performance test will help determine if the air conditioner system is operating within specifications.

Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a (R-134a) from the air conditioning system.

If accidental system discharge occurs, ventilate work area before resuming service.

R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.

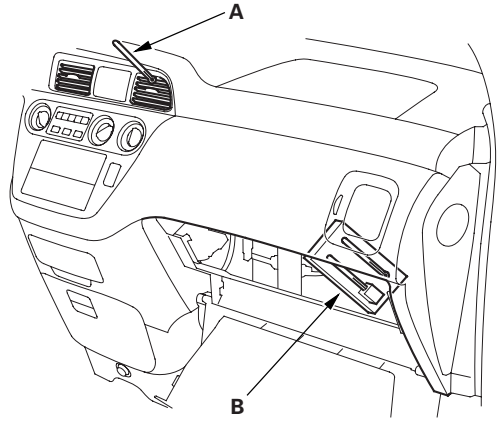
Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect a R-134a refrigerant recovery/recycling/charging station to the high-pressure service port and the low-pressure service port, as shown, following the equipment manufacturer's instructions.

2. Determine the relative humidity and air temperature.

3. Remove the glove box stop, and let the glove box hang down (see page 20-71).

4. Insert a thermometer (A) in the center vent.



5. Place a thermometer (B) near the blower unit.

6. Test conditions:

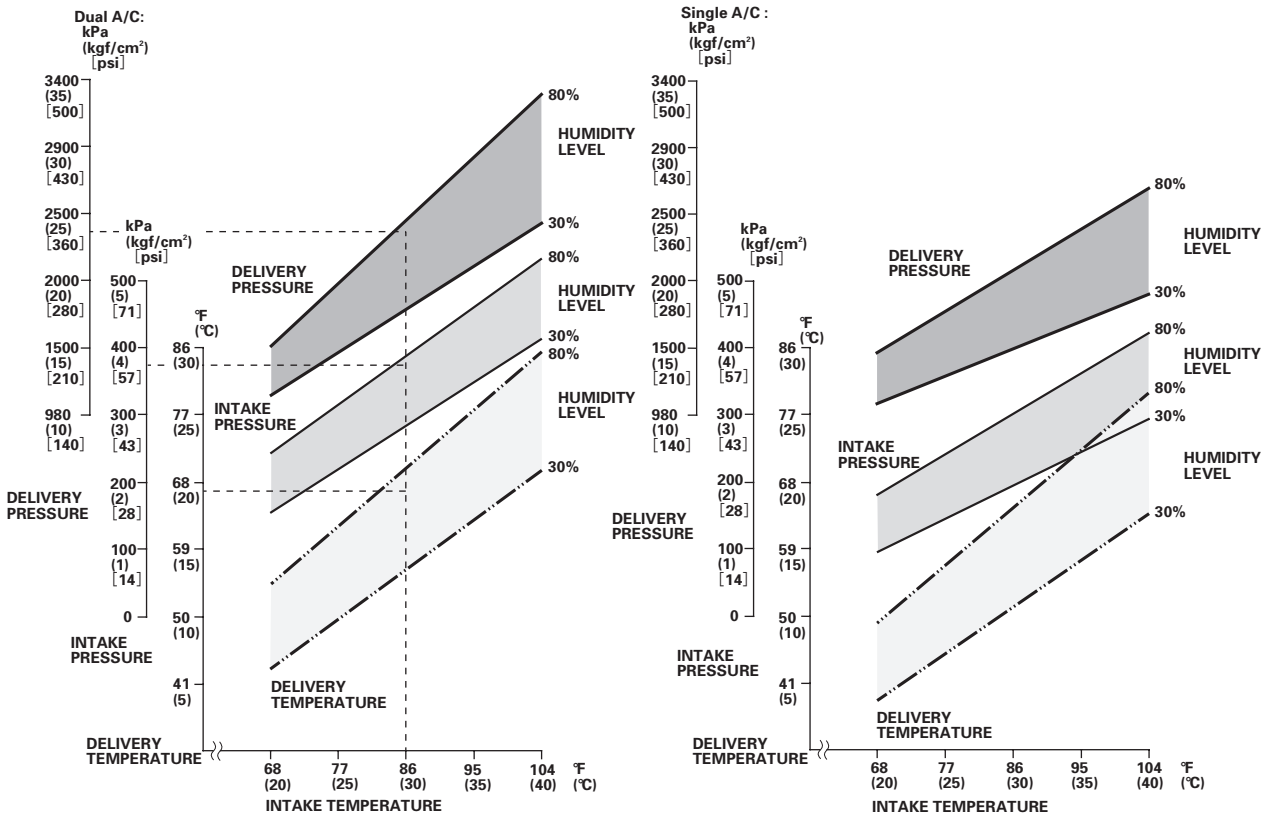
   - Avoid direct sunlight.
   - Open hood.
   - Open front doors.
   - Set the temperature control dial or button on Max Cool (60℉ or 18℃), the mode control switch on Vent and the recirculation control switch on Recirculate.
   - Turn the A/C switch on and the fan switch on Max.
   - Run the engine at 1,500 rpm.
   - No driver or passengers in vehicle.

7. After running the air conditioning for 10 minutes under the above test conditions, read the delivery temperature from the thermometer in the center vent, the intake temperature near the blower unit, and the high and low system pressure from the A/C gauges.

8. To complete the charts:

- Mark the delivery temperature along the vertical line.
- Mark the intake temperature (ambient air temperature) along the bottom line.
- Draw a line straight up from the air temperature to the humidity.
- Mark a point 10 % above and 10 % below the humidity level.
- From each point, draw a horizontal line across the delivery temperature.
- The delivery temperature should fall between the 2 lines.
- Complete the low-side pressure test and high-side pressure test in the same way.
- Any measurements outside the line may indicate the need for further inspection.

Example	Intake temperature (dry):	86℉ (30℃) Humidity level 70 %
	Intake temperature (wet):	77.9℉ (25.5℃)
	Intake pressure:	360 kPa (3.67 kgf/cm^2) (52.2 psi)
	Delivery temperature:	67.3℉ (19.6℃)
	Delivery pressure:	2295 kPa (23.4 kgf/cm^2) (332.8 psi)
Results:	Within normal range	



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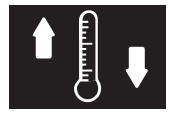
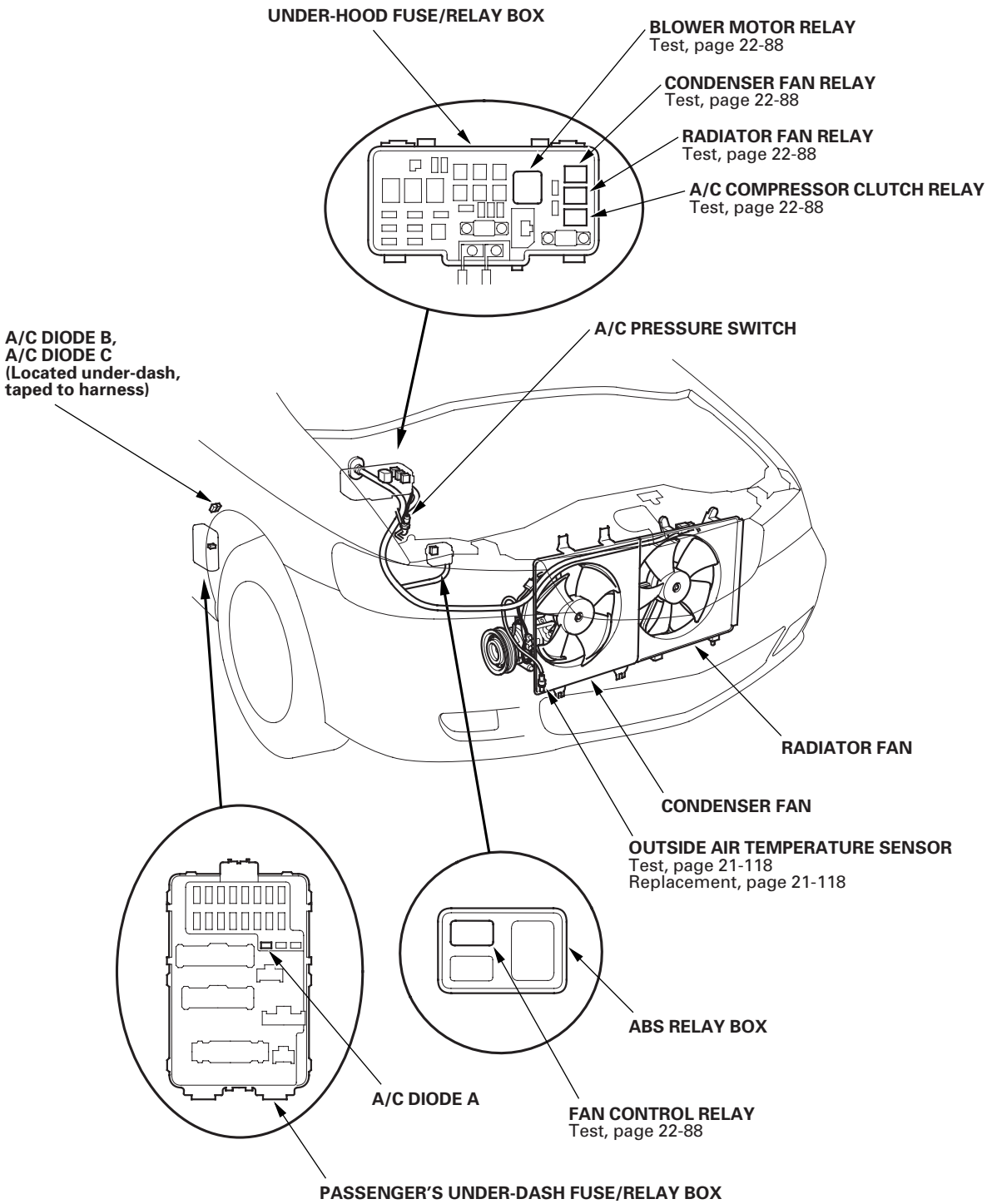
A/C System Test (cont'd)

Pressure Test

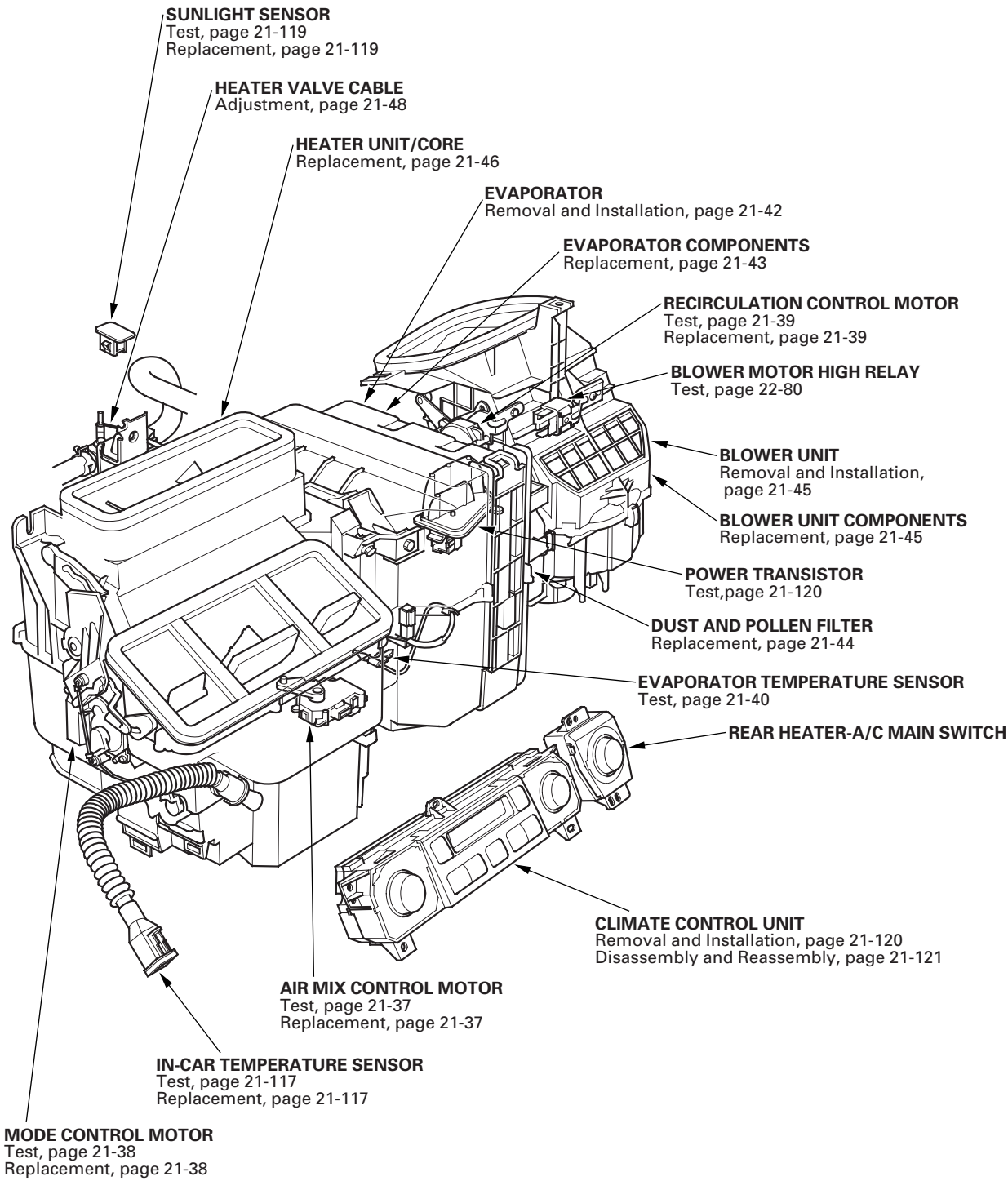
Test results	Related symptoms	Probable cause	Remedy
Discharge (high) pressure abnormally high	After stopping compressor, pressure drops to about 196 kPa (2.0 kgf/cm^2, 28 psi) quickly, and then falls gradually.	Air in system	Recover, evacuate (see page 21-57), and recharge with specified amount (see page 21-58).
	Reduced or no airflow through condenser	• Clogged condenser or radiator fins • Condenser or radiator fan not working properly	• Clean • Check voltage and fan rpm. • Check fan direction.
	Line to condenser is excessively hot.	Restricted flow of refrigerant in system	Restricted lines
Discharge pressure abnormally low	High and low pressures are balanced soon after stopping compressor. Low side is higher than normal.	• Faulty compressor discharge valve • Faulty compressor seal	Replace the compressor.
	Outlet of expansion valve is not frosted, low-pressure gauge indicates vacuum.	• Faulty expansion valve • Moisture in system	• Replace • Recover, evacuate, and recharge with specified amount.
Suction (low) pressure abnormally low	Expansion valve is not frosted, and low-pressure line is not cold. Low-pressure gauge indicates vacuum.	• Frozen expansion valve (Moisture in system) • Faulty expansion valve	• Recover, evacuate, and recharge with specified amount. • Replace the expansion valve.
	Discharge temperature is low, and the airflow from vents is restricted.	Frozen evaporator	Run the fan with compressor off, then check evaporator temperature sensor.
	Expansion valve is frosted.	Clogged expansion valve	Clean or replace.
Suction pressure abnormally high	Low-pressure hose and check joint are cooler than the temperature around evaporator.	Expansion valve open too long	Repair or replace.
	Suction pressure is lowered when condenser is cooled by water.	Excessive refrigerant in system	Recover, evacuate, and recharge with specified amount.
	High and low-pressure are equalized as soon as the compressor is stopped, and both gauges fluctuate while running.	• Faulty gasket • Faulty high-pressure valve • Foreign particle stuck in high-pressure valve	Replace the compressor.
Suction and discharge pressures abnormally high	Reduced airflow through condenser.	• Clogged condenser or radiator fins • Condenser or radiator fan not working properly	• Clean • Check voltage and fan rpm. • Check fan direction.
Suction and discharge pressure abnormally low	Low-pressure hose and metal end areas are cooler than evaporator.	Clogged or kinked low-pressure hose parts	Repair or replace.
	Temperature around expansion valve is too low compared with that around receiver/dryer.	Clogged high-pressure line	Repair or replace.
Refrigerant leaks	Compressor clutch is dirty.	Compressor shaft seal leaking	Replace the compressor.
	Compressor bolt(s) are dirty.	Leaking around bolt(s)	Tighten bolt(s) or replace compressor.
	Compressor gasket is wet with oil.	Gasket leaking	Replace the compressor.



Component Location Index



(Without Navigation System)



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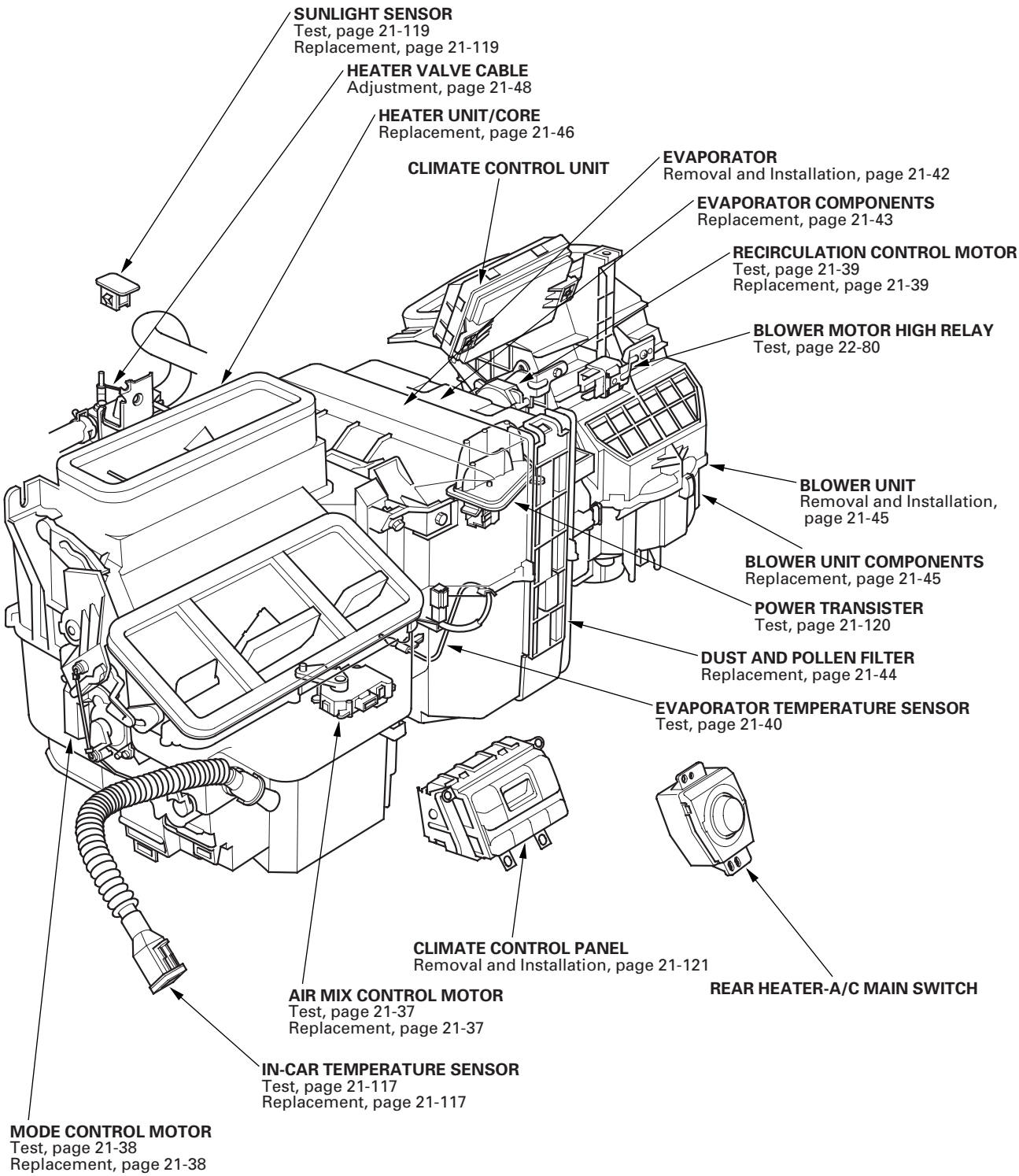
Component Location Index (cont'd)

(With Navigation System)

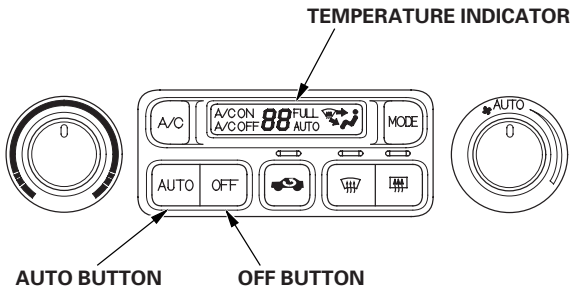


General Troubleshooting Information

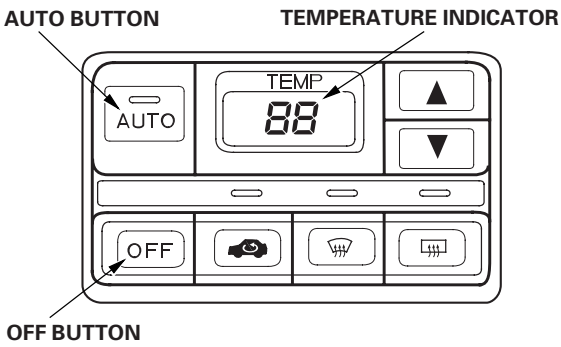
How to Retrieve a DTC

The climate control unit has a self-diagnosis function. To run the self-diagnosis function, do the following:

Without Navigation System



With Navigation System



1. Turn the Ignition switch ON (II).

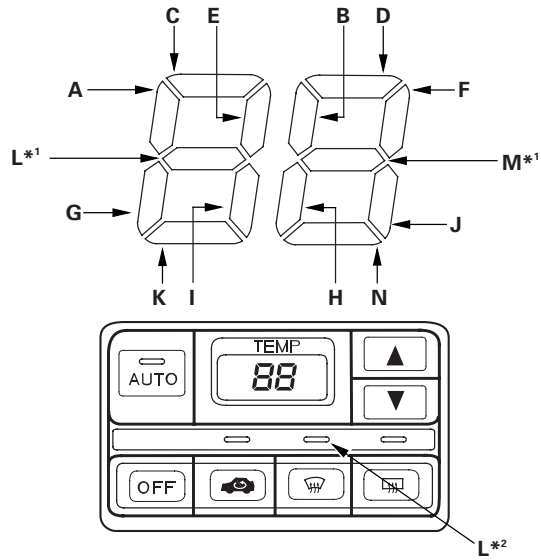
2. Press the AUTO button and then press the OFF button. Continue to hold both buttons down for 1 minute.

If there is any abnormality in the system, the temperature Indicator will light up the segment (A through N) corresponding to the error. The temperature indicator will then alternate every second between displaying ''88'' (all segments lit) and the error code segment (A through N).

NOTE: The system will only display the DTC when the AUTO and OFF buttons are pressed. If you release the buttons, the display will go blank. To return the display, simply press the AUTO then the OFF buttons again.

To determine the meaning of the DTC, refer to the DTC Troubleshooting Index. If there is no abnormality, the segment will not light up.

TEMPERATURE INDICATOR



* 1: Without Navigation System
* 2: With Navigation System

Cancelling the Self-diagnosis Function

3. Turn the ignition switch OFF to cancel the self-diagnosis function. After completing repair work, run the self-diagnosis function again to make sure that there are no other malfunctions.

(cont'd)

General Troubleshooting Information (cont'd)

Displaying Sensor Inputs at the Climate Control Unit

The climate control unit has a mode that displays sensor inputs it receives. This mode shows you what the climate control unit is receiving from each of the sensors, one at a time, and it can help you determine if a sensor is faulty.

Check these items before using the sensor input display mode

1. Turn the ignition switch ON (II), and check the recirculation door function; press the recirculation button to switch from FRESH to RECIRC. The air volume and sound should change slightly.

2. Set the temperature control knob to the desired test temperature. When selecting the test temperatures, note these items:

   - ''Lo'' temperature setting will default to MAX COOL, VENT, and RECIRC.
   - ''Hi'' temperature setting will default to MAX HOT, FLOOR, and FRESH.
   - 61 through 89°F settings will use the automatic climate control logic.

3. Turn the ignition switch OFF.

To run the sensor input display mode, follow these steps

1. Turn the ignition switch OFF.

2. Press and hold both the AUTO and RECIRC buttons, then start the engine.

3. After the engine starts, release the buttons. The climate control display will flash the sensor number and then the value for that sensor. Record the value displayed.

4. To advance to the next sensor, press the rear window defogger button.

With navigation system:

Sensor	Item	Displayed Value
1	In-car Temperature Sensor	℃
2	Ambient Temperature	℃
3	Solar Radiation Sensor Value: Dark = 00, Flashlight = 04, Cloudy =10, Sunny =65	Kcal/m2·h
4	Engine coolant Temperature	℃
5	Evaporator Outlet Air Temperature	℃
6	Air Mix Opening (Low value indicates cooler air distribution, higher value indicates warmer air distribution)	% of opening
7	Vent Temperature Air Out (TAO)	℃

Without navigation system:

Sensor	Item	Displayed Value
1	Mode Motor Position	See mode motor position display
2	In-car Temperature Sensor	℃
3	Ambient Temperature	℃
4	Solar Radiation Sensor Value: Dark = 00, Flashlight = 04, Cloudy =10, Sunny =65	Kcal/m2·h
5	Engine coolant Temperature	℃
6	Evaporator Outlet Air Temperature	℃
7	Air Mix Opening (Low value indicates cooler air distribution, higher value indicates warmer air distribution)	% of opening
8	Vent Temperature Air Out (TAO)	℃

NOTE:
- The sensor values will be displayed in degrees Celsius (℃) or an alphanumeric code. Use the chart to convert the value to degrees Fahrenheit (℉).
- If the sensor value displays ''Er'' this indicates there is an open or short in the circuit or sensor. Run the self-diagnosis function to check for a DTC.
- If necessary, compare the sensor input display to an alike, known-good vehicle under the same test conditions.
- If the sensor is out of the normal range, substitute the sensor with a known-good, and recheck.

5. To cancel the sensor input display mode, press the AUTO button, or turn the ignition off.

(cont'd)

General Troubleshooting Information (cont'd)

Celsius to Fahrenheit Conversion Table

℃	℉	℃	℉	℃	℉	℃	℉	℃	℉
0	32	10	50	20	68	30	86	40	104
1	34	11	52	21	70	31	88	41	106
2	36	12	54	22	72	32	90	42	108
3	37	13	55	23	73	33	91	43	109
4	39	14	57	24	75	34	93	44	111
5	41	15	59	25	77	35	95	45	113
6	43	16	61	26	79	36	97	46	115
7	45	17	63	27	81	37	99	47	117
8	46	18	64	28	82	38	100	48	118
9	48	19	66	29	84	39	102	49	120

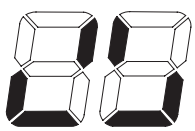
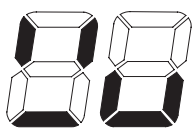
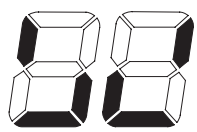
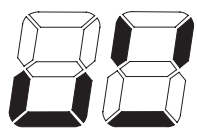
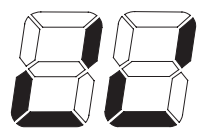
Celsius to Fahrenheit Conversion Table

℃	℉	℃	℉	℃	℉	℃	℉	℃	℉
50	122	60	140	70	158	80	176	90	194
51	124	61	142	71	160	81	178	91	196
52	126	62	144	72	162	82	180	92	198
53	127	63	145	73	163	83	181	93	199
54	128	64	147	74	165	84	183	94	201
55	131	65	149	75	167	85	185	95	203
56	133	66	151	76	169	86	187	96	205
57	135	67	152	77	170	87	188	97	207
58	136	68	154	78	172	88	190	98	208
59	139	69	158	79	174	89	192	99	210

Alphanumeric Conversion Table

Display Reading (Alphanumeric)	℃	℉	%
A1 thru A9	−1 thru −9	30 thru 16	−1 thru −9
B0 thru B9	−10 thru −19	14 thru −2	−10 thru −19
C0 thru C9	−20 thru −29	−4 thru −20	−20 thru −29
D0 thru D9	−30 thru −39	−22 thru −38	−30 thru −39
E0 thru E9	−40 thru −49	−40 thru −58	−
F0 thru F9	−50 thru −59	−58 thru −74	+100 thru +109

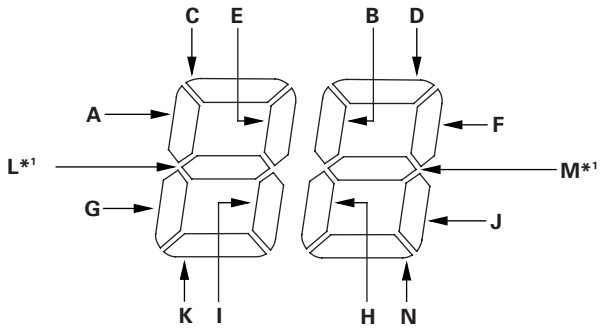
Mode Motor Position Display (Without navigation system)

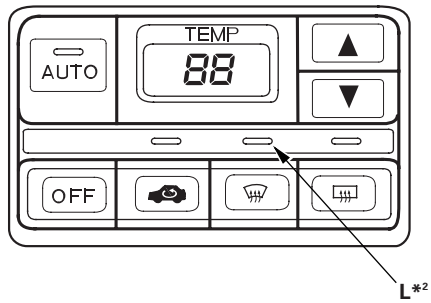
VENT	HEAT/VENT	HEAT	HEAT/DEF	DEF
				

DTC Troubleshooting Index

To retrieve the DTC , you must run the self-diagnosis function (see page 21-67). In the case of multiple problems, the respective Indicator segments will come on. If Indicator segments A, C, E, G, I, and L come on at the same time, there may be an open circuit in the common ground wire of the sensors.

TEMPERATURE INDICATOR





DTC (Temperature Indicator Segment)	Detection Item	Page
A	An open in the in-car temperature sensor circuit	(see page 21-80)
B	A short in the in-car temperature sensor circuit	(see page 21-81)
C	An open in the outside air temperature sensor circuit	(see page 21-82)
D	A short in the outside air temperature sensor circuit	(see page 21-85)
E	An open in the sunlight sensor circuit	(see page 21-86)
F	A short in the sunlight sensor circuit	(see page 21-88)
G	An open in the evaporator temperature sensor circuit	(see page 21-89)
H	A short in the evaporator temperature sensor circuit	(see page 21-91)
I	An open in the air mix control motor circuit	(see page 21-92)
J	A short in the air mix control motor circuit	(see page 21-93)
K	A problem in the air mix control linkage, door, or motor	(see page 21-95)
L*1	An open or short in the mode control motor circuit	(see page 21-96)
L*2	A problem in the mode control motor circuit	(see page 21-97)
M*1	A problem in the mode control linkage, doors, or motor	(see page 21-99)
N	A problem in the blower motor circuit	(see page 21-99)

* 1: Without Navigation System
* 2: With Navigation System

Symptom Troubleshooting Index

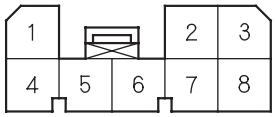
Symptom	Diagnostic procedure	Also check for
The blower motor does not run immediately even through the engine is fully warmed up.	NOTE: The temperature control dial must be set between 60°F (18°C) and 90°F (32°C). ECT sensor circuit troubleshooting (see page 21-106)	• Cleanliness and tightness of all connectors
Recirculation control doors do not change between Fresh and Recirculate.	Recircuration control motor circuit troubleshooting (see page 21-107)	• HVAC DTCs (see page 21-67) • Blown fuse No. 3 (7.5A) in the driver's under-dash fuse/relay box • Cleanliness and tightness of all connectors
Blower, heater controls, and A/C do not work.	Climate control power and ground circuit troubleshooting (see page 21-112)	• HVAC DTCs (see page 21-67) • Blown fuse No. 54 (40A) in the under-hood fuse/relay box, No. 3 (7.5A) in the driver's under-dash fuse/relay box, and No. 13 (7.5A) in the passenger's under-dash fuse/relay box • Poor ground at G401 • Cleanliness and tightness of all connectors
The climate control panel display does not work.	Climate control panel troubleshooting (see page 21-114)	• HVAC DTCs (see page 21-67) • Cleanliness and tightness of all connectors
The manual switch (With navigation system) does not work.	Manual switch (With navigation system) troubleshooting (see page 21-116)	• HVAC DTCs (see page 21-67) • Cleanliness and tightness of all connectors
Both fans do not run at low speed with the A/C on when the refrigerant pressure is below 1,520 kPa (15.5 kgf/cm^2, 220 psi).	Radiator and condenser fan low speed circuit troubleshooting (see page 21-27)	• HVAC DTCs (see page 21-67) • Blown fuse No. 58 (30A) in the under-hood fuse/relay box, and No. 3 (7.5A) in the driver's under-dash fuse/relay box • Poor ground at G201 • Cleanliness and tightness of all connectors
Condenser fans does not run at high speed when the engine coolant temperature is above 210°F (99°C) or the refrigerant pressure is above 1,520 kPa (15.5 kgf/cm^2, 220 psi) with the A/C on.	Condenser fan high speed circuit troubleshooting (see page 21-30)	• HVAC DTCs (see page 21-67) • Blown fuse No. 3 (7.5A) in the driver's under-dash fuse/relay box • Poor ground at G201 • Cleanliness and tightness of all connectors
Both fans do not run at high speed with the A/C on when the refrigerant pressure is above 1,520 kPa (15.5 kgf/cm^2, 220 psi).	Radiator and condenser fan high speed circuit troubleshooting (see page 21-31)	• HVAC DTCs (see page 21-67) • Cleanliness and tightness of all connectors
Compressor clutch does not engage. (but both fans run with the A/C on)	Compressor clutch circuit troubleshooting (see page 21-32)	• HVAC DTCs (see page 21-67) • Blown fuse No. 59 (7.5A) in the under-hood fuse/relay box, and No. 3 (7.5A) in the driver's under-dash fuse/relay box • Cleanliness and tightness of all connectors
A/C system does not come on (both fans and compressor do not work); heater is OK	A/C pressure switch circuit troubleshooting (see page 21-110)	• HVAC DTCs (see page 21-67) • Cleanliness and tightness of all connectors

System Description

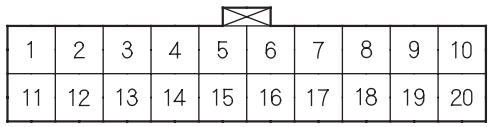
Climate Control Unit Inputs and Outputs (Without Navigation System)

CLIMATE CONTROL UNIT CONNECTORS

CONNECTOR A (8P)



CONNECTOR B (20P)



Wire side of female terminals

CONNECTOR A (□ on Circuit Diagram)

Cavity	Wire color	Signal	
1	BLK/YEL	IG2 (Power)	INPUT
2	WHT/YEL	+B (Power)	INPUT
3	RED/WHT	ENGINE COOLANT TEMPERATURE (ECT) SENSOR	INPUT
4	BLU/ORN	BLOWER MOTOR HIGH RELAY	INPUT
5	ORN/BLK	POWER TRANSISTOR CONTROL	OUTPUT
6	BLU/RED	BLOWER FEEDBACK	INPUT
7	BRN/YEL	REAR WINDOW DEFOGGER RELAY	OUTPUT
8	BLK	GROUND (G401)	INPUT

CONNECTOR B (○ on Circuit Diagram)

Cavity	Wire color	Signal	
1	PNK/BLK	AIR MIX POTENTIAL	INPUT
2	RED/WHT	A/C PRESSURE SWITCH	OUTPUT
3	GRN/RED	FRESH	OUTPUT
4	GRN/WHT	RECIRCULATE	OUTPUT
5	BLU/BLK	MODE DEF	OUTPUT
6	BLU/WHT	MODE VENT	OUTPUT
7	RED/YEL	AIR MIX HOT	OUTPUT
8	RED/BLK	COMBINATION LIGHT SWITCH or TAILLIGHT RELAY	INPUT
9	RED/WHT	AIR MIX COOL	OUTPUT
10	RED	MULTIPLEX CONTROL UNIT (DRIVER'S)	INPUT
11	YEL/GRN	SENSOR COMMON GROUND	OUTPUT
12	WHT/RED	SUNLIGHT SENSOR	INPUT
13	GRY	AIR MIX POTENTIAL +5 V	OUTPUT
14	BRN	EVAPORATOR TEMPERATURE SENSOR	INPUT
15	BRN/WHT	OUTSIDE AIR TEMPERATURE SENSOR	INPUT
16	YEL/RED	IN-CAR TEMPERATURE SENSOR	INPUT
17	BLU/GRN	MODE 4	INPUT
18	LT GRN/BLK	MODE 3	INPUT
19	GRN/YEL	MODE 2	INPUT
20	GRN/BLK	MODE 1	INPUT

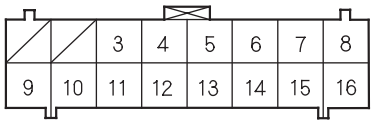
(cont'd)

System Description (cont'd)

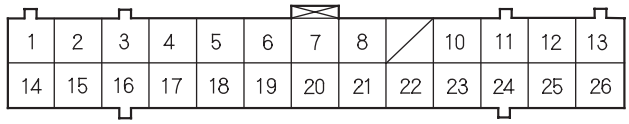
Climate Control Unit Inputs and Outputs (With Navigation System)

CLIMATE CONTROL UNIT CONNECTORS

CONNECTOR A (16P)



CONNECTOR B (26P)



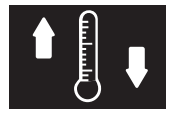
Wire side of female terminals

CONNECTOR A (□ on Circuit Diagram)

Cavity	Wire color	Signal	
1	———	———	———
2	———	———	———
3	WHT/RED	DS0	INPUT
4	WHT/YEL	DS1	INPUT
5	LT BLU	DS2	INPUT
6	WHT/BLK	D2	OUTPUT
7	WHT/BLU	D1	OUTPUT
8	BRN	D0	OUTPUT
9	BLU/ORN	BLOWER MOTOR HIGH RELAY	INPUT
10	BRN/YEL	REAR WINDOW DEFOGGER RELAY	OUTPUT
11	YEL/GRN	LATCH	INPUT
12	YEL/WHT	DATA	INPUT
13	YEL/BLK	CLK1	INPUT
14	GRN/ORN	SI	INPUT
15	YEL/BLU	CLK2	OUTPUT
16	RED/GRN	SO	OUTPUT

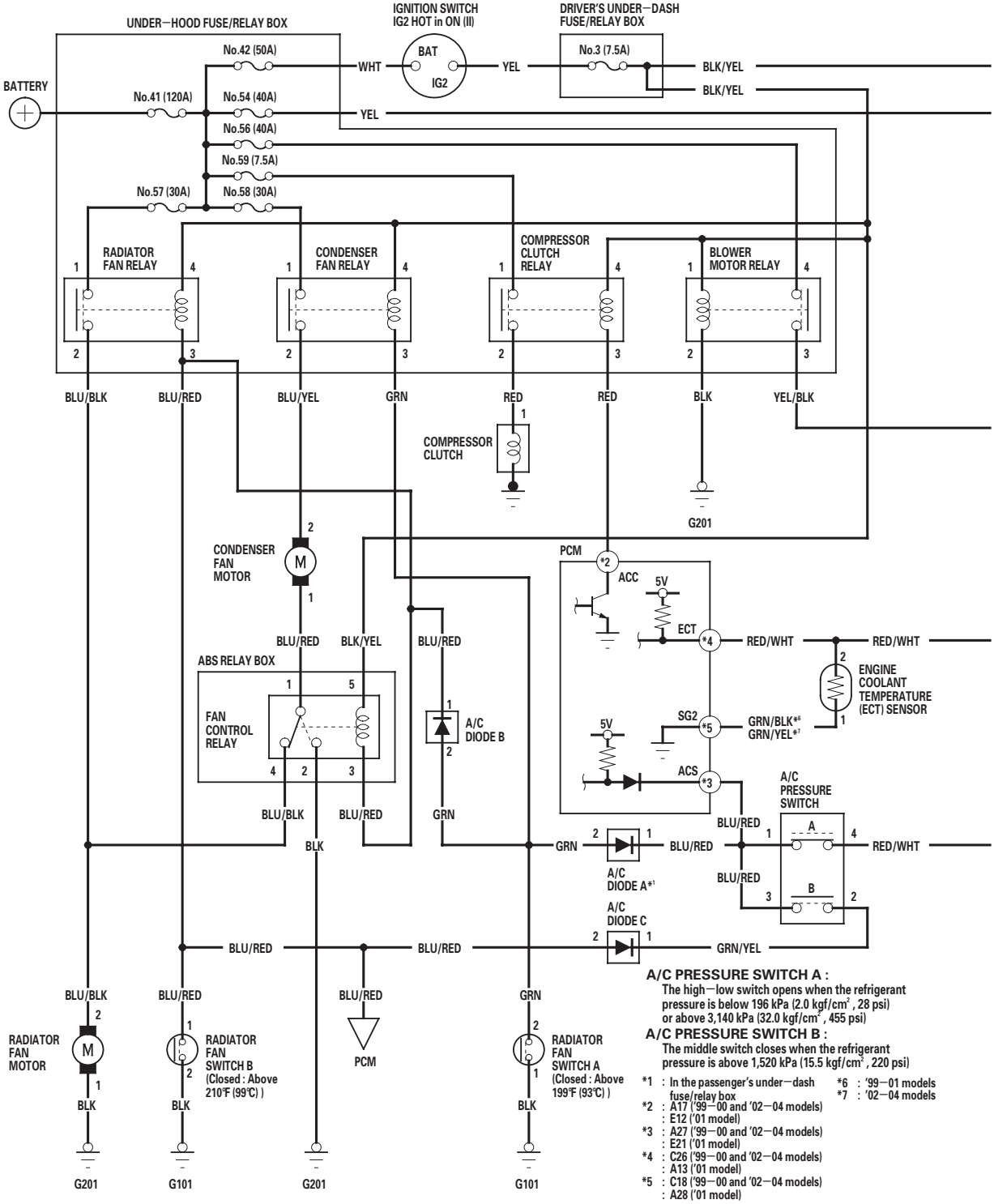
CONNECTOR B (○ on Circuit Diagram)

Cavity	Wire color	Signal	
1	YEL/GRN	SENSOR COMMON GROUND	OUTPUT
2	GRN/WHT	FL+	OUTPUT
3	GRY	AIR MIX POTENTIAL +5 V	OUTPUT
4	RED/WHT	A/C PRESSURE SWITCH	OUTPUT
5	GRN/BLK	MODE 1	INPUT
6	GRN/YEL	MODE 2	INPUT
7	LT GRN/BLK	MODE 3	INPUT
8	BLU/GRN	MODE 4	INPUT
9	———	———	———
10	BLU/WHT	MODE VENT	OUTPUT
11	BLU/BLK	MODE DEF	OUTPUT
12	ORN/BLK	POWER TRANSISTOR CONTROL	OUTPUT
13	BLK/YEL	IG2 (Power)	INPUT
14	BLU/RED	BLOWER FEEDBACK	INPUT
15	BLK	GROUND (G401)	INPUT
16	BLK/WHT	PANEL GROUND	INPUT
17	YEL/RED	IN-CAR TEMPERATURE SENSOR	INPUT
18	BRN/WHT	OUTSIDE AIR TEMPERATURE SENSOR	INPUT
19	WHT/RED	SUNLIGHT SENSOR	INPUT
20	BRN	EVAPORATOR TEMPERATURE SENSOR	INPUT
21	PNK/BLK	AIR MIX POTENTIAL	INPUT
22	RED/WHT	ENGINE COOLANT TEMPERATURE (ECT) SENSOR	INPUT
23	GRN/RED	FRESH	OUTPUT
24	GRN/WHT	RECIRCULATE	OUTPUT
25	RED/YEL	AIR MIX HOT	OUTPUT
26	RED/WHT	AIR MIX COOL	OUTPUT



Circuit Diagram

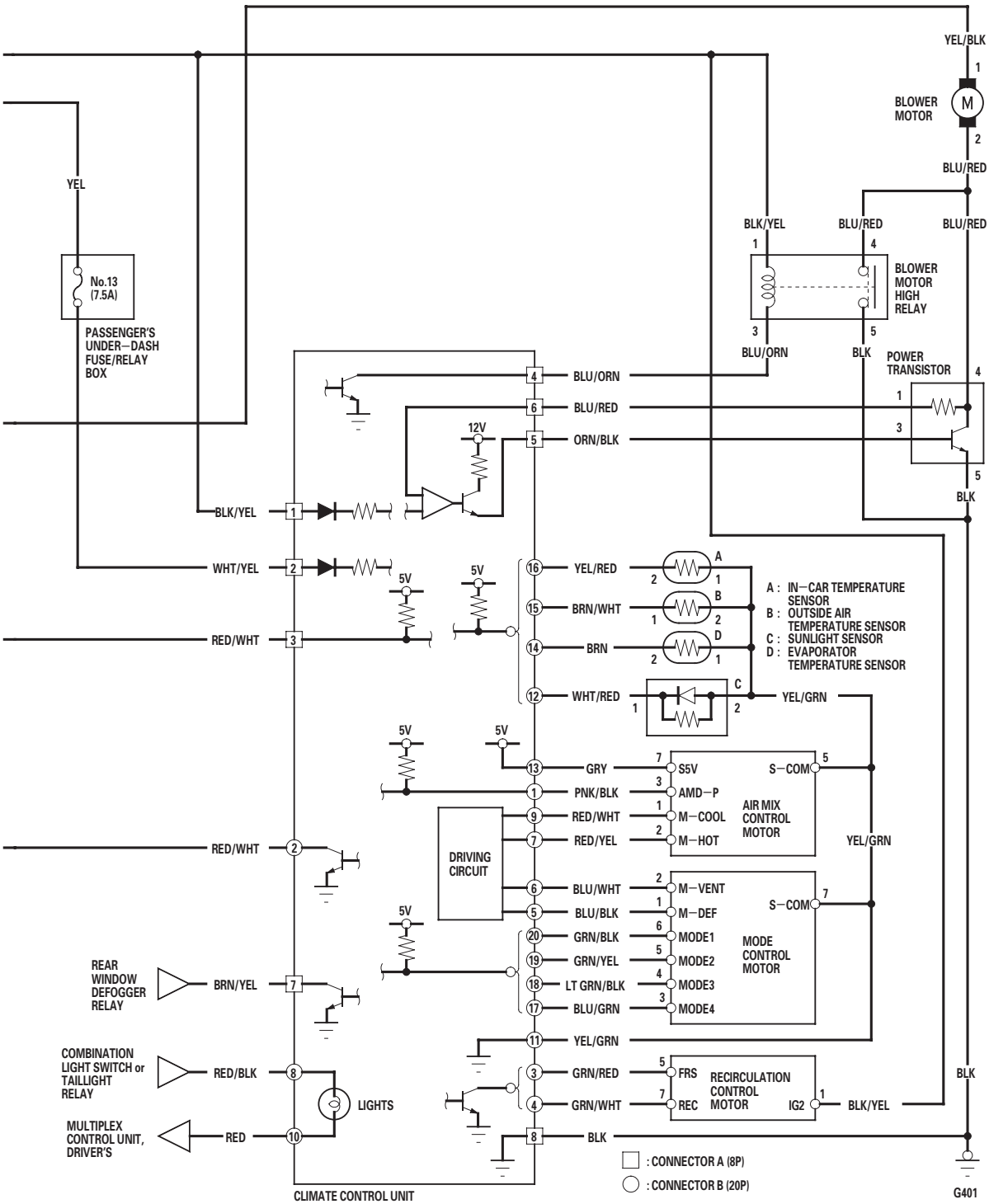
Without Navigation System



A/C PRESSURE SWITCH A :
The high—low switch opens when the refrigerant pressure is below 196 kPa (2.0 kgf/cm², 28 psi) or above 3,140 kPa (32.0 kgf/cm², 455 psi)

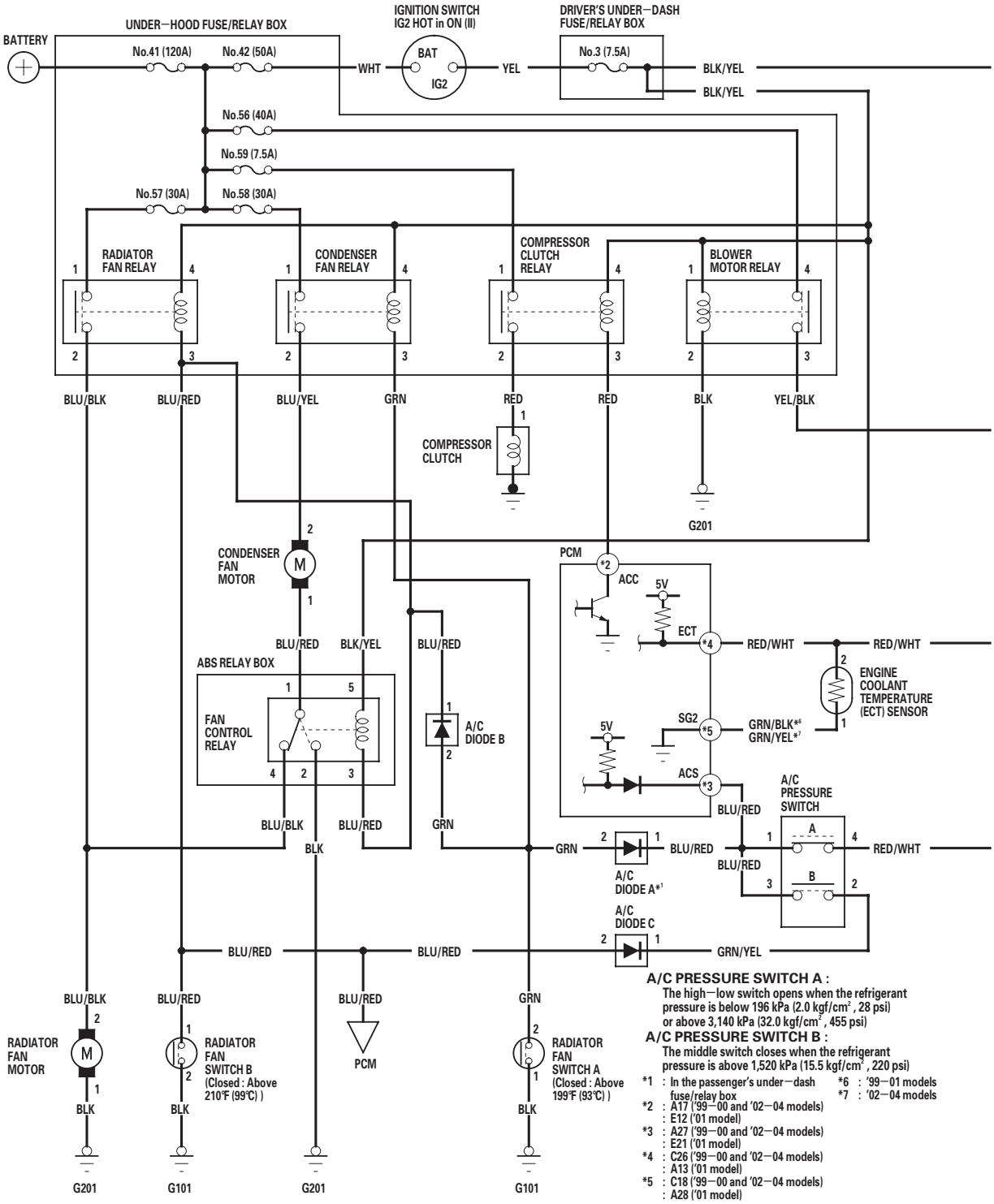
A/C PRESSURE SWITCH B :
The middle switch closes when the refrigerant pressure is above 1,520 kPa (15.5 kgf/cm², 220 psi)

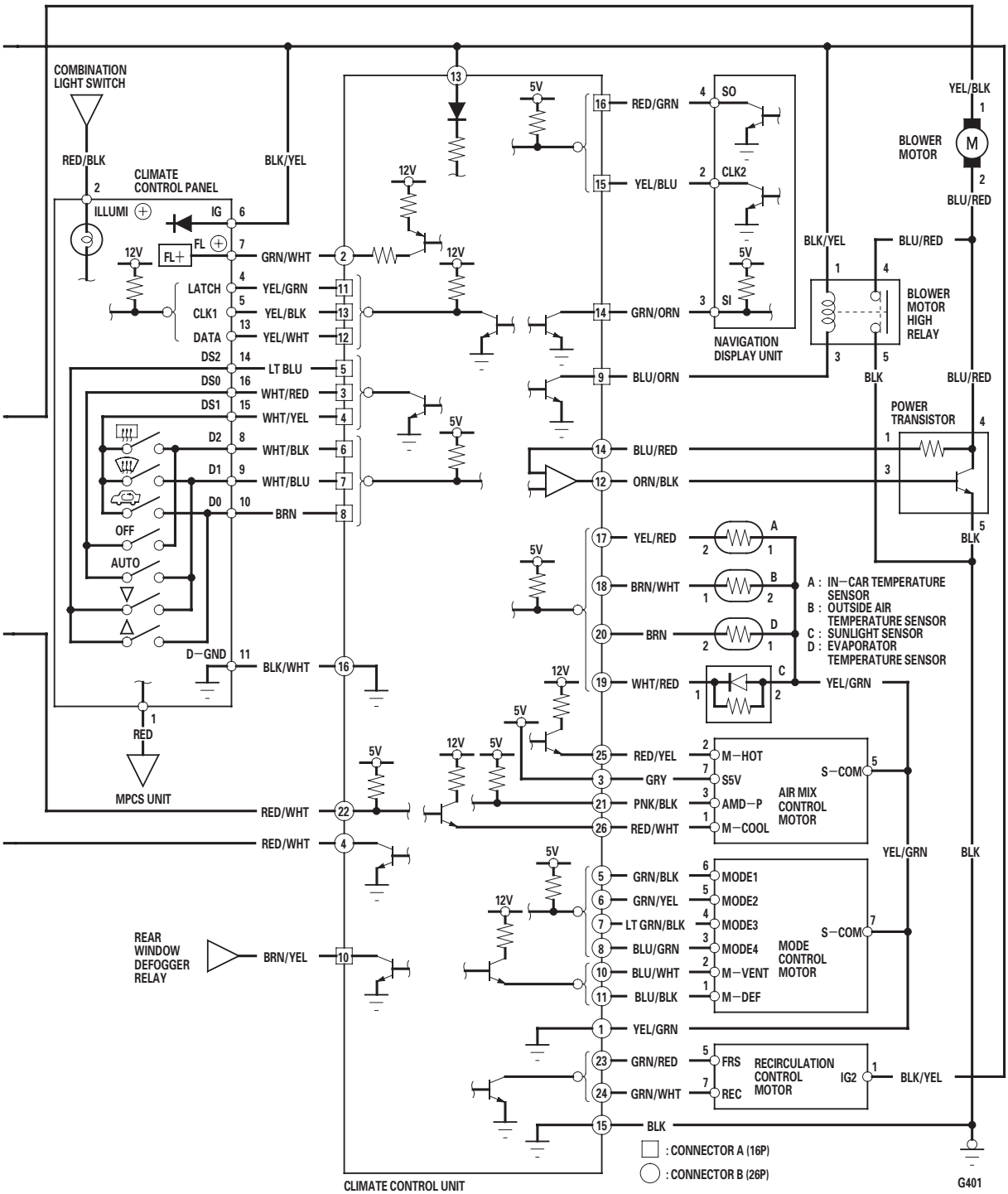
*1 : In the passenger's under—dash fuse/relay box
*2 : A17 ('99—00 and '02—04 models)
: E12 ('01 model)
*3 : A27 ('99—00 and '02—04 models)
: E21 ('01 model)
*4 : C26 ('99—00 and '02—04 models)
: A13 ('01 model)
*5 : C18 ('99—00 and '02—04 models)
: A28 ('01 model)
*6 : '99—01 models
*7 : '02—04 models


YEL/BLK
BLOWER MOTOR
BLU/RED
YEL
No.13 (7.5A)
PASSENGER'S UNDER—DASH FUSE/RELAY BOX
BLK/YEL
BLU/RED
BLU/RED
BLOWER MOTOR HIGH RELAY
BLU/ORN
BLK
POWER TRANSISTOR
BLU/ORN
BLU/RED
ORN/BLK
12V
BLK
BLK/YEL
WHT/YEL
RED/WHT
5V
5V
YEL/RED
BRN/WHT
BRN
WHT/RED
A : IN—CAR TEMPERATURE SENSOR
B : OUTSIDE AIR TEMPERATURE SENSOR
C : SUNLIGHT SENSOR
D : EVAPORATOR TEMPERATURE SENSOR
YEL/GRN
5V
5V
GRY
PNK/BLK
RED/WHT
RED/YEL
S5V
AMD—P
M—COOL
M—HOT
AIR MIX CONTROL MOTOR
S—COM
YEL/GRN
RED/WHT
DRIVING CIRCUIT
BLU/WHT
BLU/BLK
GRN/BLK
GRN/YEL
LT GRN/BLK
BLU/GRN
M—VENT
M—DEF
MODE1
MODE2
MODE3
MODE4
MODE CONTROL MOTOR
S—COM
5V
REAR WINDOW DEFOGGER RELAY
BRN/YEL
YEL/GRN
COMBINATION LIGHT SWITCH or TAILLIGHT RELAY
RED/BLK
LIGHTS
GRN/RED
GRN/WHT
FRS
REC
RECIRCULATION CONTROL MOTOR
IG2
BLK/YEL
BLK
MULTIPLEX CONTROL UNIT, DRIVER'S
RED
BLK
: CONNECTOR A (8P)
: CONNECTOR B (20P)
CLIMATE CONTROL UNIT
G401

Circuit Diagram (cont'd)

With Navigation System




COMBINATION LIGHT SWITCH
RED/BLK
BLK/YEL
CLIMATE CONTROL PANEL
ILLUMI
IG
FL
FL+
12V
GRN/WHT
LATCH
YEL/GRN
CLK1
YEL/BLK
DATA
YEL/WHT
DS2
LT BLU
DS0
WHT/RED
DS1
WHT/YEL
D2
WHT/BLK
D1
WHT/BLU
D0
BRN
OFF
AUTO
D−GND
BLK/WHT
RED
MPCS UNIT
RED/WHT
RED/WHT
REAR WINDOW DEFOGGER RELAY
BRN/YEL
5V
RED/GRN
YEL/BLU
GRN/ORN
BLU/ORN
BLU/RED
ORN/BLK
YEL/RED
BRN/WHT
BRN
WHT/RED
YEL/GRN
RED/YEL
GRY
PNK/BLK
RED/WHT
M−HOT
S5V
AMD−P
M−COOL
S−COM
AIR MIX CONTROL MOTOR
GRN/BLK
GRN/YEL
LT GRN/BLK
BLU/GRN
BLU/WHT
BLU/BLK
MODE1
MODE2
MODE3
MODE4
M−VENT
M−DEF
MODE CONTROL MOTOR
YEL/GRN
GRN/RED
GRN/WHT
FRS
REC
RECIRCULATION CONTROL MOTOR
IG2
BLK
SO
CLK2
SI
NAVIGATION DISPLAY UNIT
YEL/BLK
BLOWER MOTOR
BLU/RED
BLK/YEL
BLOWER MOTOR HIGH RELAY
POWER TRANSISTOR
A : IN−CAR TEMPERATURE SENSOR
B : OUTSIDE AIR TEMPERATURE SENSOR
C : SUNLIGHT SENSOR
D : EVAPORATOR TEMPERATURE SENSOR
: CONNECTOR A (16P)
: CONNECTOR B (26P)
CLIMATE CONTROL UNIT
G401

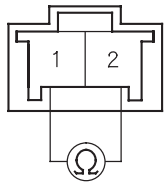
DTC Troubleshooting

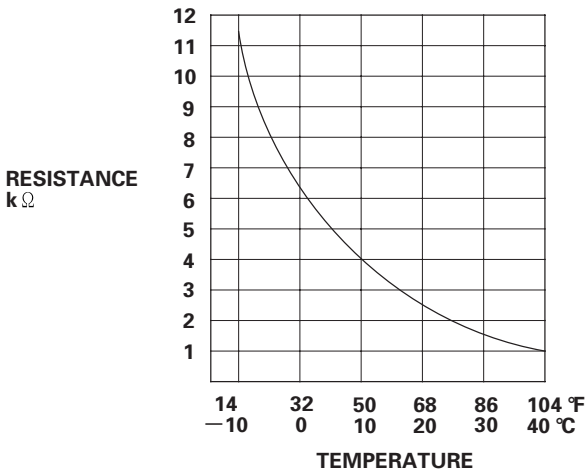
DTC indicator A: An Open in the In-car Temperature Sensor Circuit

1. Remove the in-car temperature sensor (see page 21-117).

2. Measure the resistance between the No. 1 and No. 2 terminals of the in-car temperature sensor.
   * Check for a change in resistance by heating or cooling the sensor with a hair drier.

IN-CAR TEMPERATURE SENSOR





** Is the resistance within the specifications shown on the graph?*

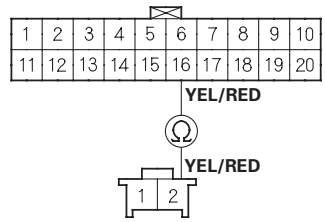
YES—
- Without Navigation System: Go to step 3.
- With Navigation System: Go to step 6.

NO—Replace the in-car temperature sensor. ■

3. Disconnect climate control unit connector B (20P).

4. Check for continuity between the No. 16 terminal of climate control unit connector B (20P) and the No. 2 terminal of the in-car temperature sensor 2P connector.

CLIMATE CONTROL UNIT CONNECTOR B (20P)
Wire side of female terminals



IN-CAR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

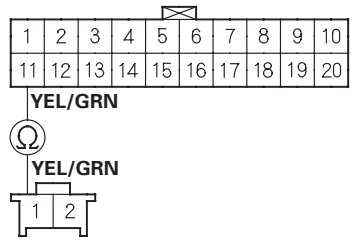
Is there continuity?

YES—Go to step 5.

NO—Repair open in the wire between the climate control unit and the in-car temperature sensor. ■

5. Check for continuity between the No. 11 terminal of climate control unit connector B (20P) and the No. 1 terminal of the in-car temperature sensor 2P connector.

CLIMATE CONTROL UNIT CONNECTOR B (20P)
Wire side of female terminals



IN-CAR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

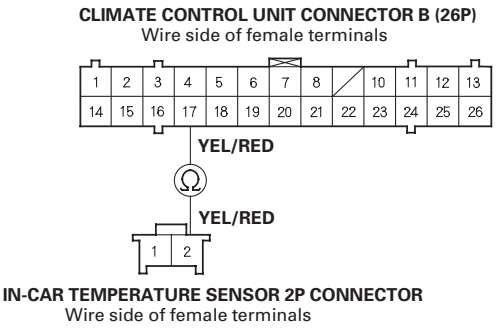
Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector B (20P) and at the in-car temperature sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the in-car temperature sensor. ■

6. Disconnect climate control connector B (26P).

7. Check for continuity between the No. 17 terminal of climate control unit connector B (26P) and the No. 2 terminal of the in-car temperature sensor 2P connector.

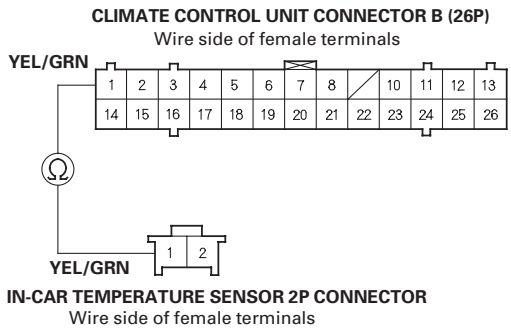


Is there continuity?

YES—Go to step 8.

NO—Repair open in the wire between the climate control unit and the in-car temperature sensor. ■

8. Check for continuity between the No. 1 terminal of climate control unit connector B (26P) and the No. 1 terminal of the in-car temperature sensor 2P connector.



Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector B (26P) and at the in-car temperature sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the in-car temperature sensor. ■

DTC indicator B: A Short in the In-car Temperature Sensor Circuit

1. Remove the in-car temperature sensor (see page 21-117).

2. Test the in-car temperature sensor (see page 21-117).

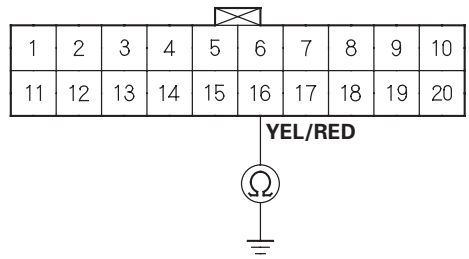
Is the resistance within the specifications shown on the graph?

YES—
- Without Navigation System: Go to step 3.
- With Navigation System: Go to step 5.

NO—Replace the in-car temperature sensor. ■

3. Disconnect climate control unit connector B (20P).

4. Check for continuity between the No. 16 terminal of climate control unit connector B (20P) and body ground.



Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the in-car temperature sensor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

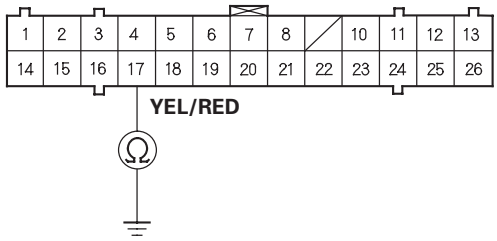
(cont'd)

DTC Troubleshooting (cont'd)

5. Disconnect climate control unit connector B (26P).

6. Check for continuity between the No. 17 terminal of climate control unit connector B (26P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the in-car temperature sensor. ■

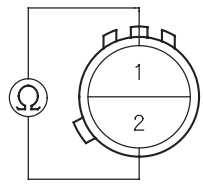
NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

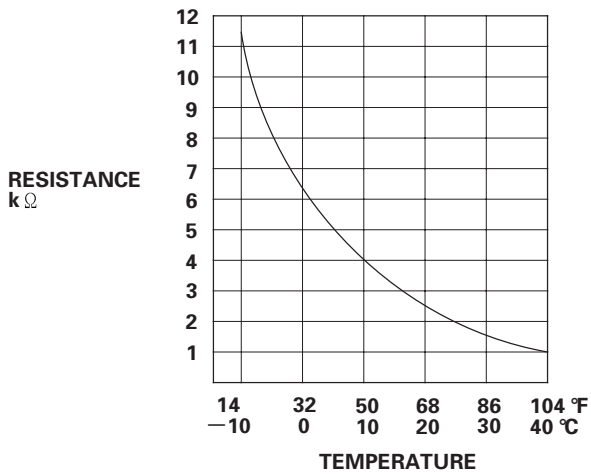
DTC indicator C: An Open in the Outside Air Temperature Sensor Circuit

1. Remove the outside air temperature sensor (see page 21-118).

2. Measure the resistance between the No. 1 and No. 2 terminals of the outside air temperature sensor.
   * Dip the sensor in ice water, and measure the resistance. Then pour hot water on the sensor, and check for a change in resistance.

OUTSIDE AIR TEMPERATURE SENSOR





** Is the resistance within the specifications shown on the graph?*

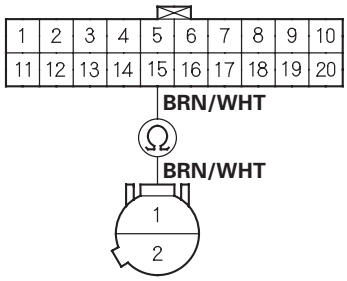
YES—
- Without Navigation System: Go to step 3.
- With Navigation System: Go to step 6.

NO—Replace the outside air temperature sensor. ■

3. Disconnect climate control unit connector B (20P).

4. Check for continuity between the No. 15 terminal of climate control unit connector B (20P) and the No. 1 terminal of the outside air temperature sensor 2P connector.

CLIMATE CONTROL UNIT CONNECTOR B (20P)
Wire side of female terminals



OUTSIDE AIR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

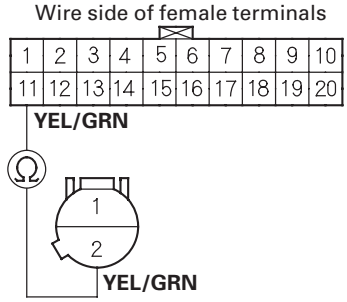
Is there continuity?

YES—Go to step 5.

NO—Repair open in the wire between the climate control unit and the outside air temperature sensor. ■

5. Check for continuity between the No. 11 terminal of climate control unit connector B (20P) and the No. 2 terminal of the outside air temperature sensor 2P connector.

CLIMATE CONTROL UNIT CONNECTOR B (20P)
Wire side of female terminals



OUTSIDE AIR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector B (20P) and at the outside air temperature sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the outside air temperature sensor. ■

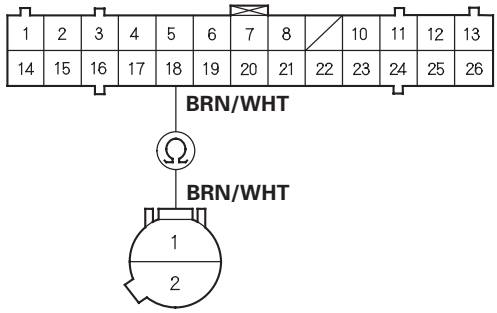
(cont'd)

DTC Troubleshooting (cont'd)

6. Disconnect climate control unit connector B (26P).

7. Check for continuity between the No. 18 terminal of climate control unit connector B (26P) and the No. 1 terminal of the outside air temperature sensor 2P connector.

CLIMATE CONTROL UNIT CONNECTOR B (26P)
Wire side of female terminals



OUTSIDE AIR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

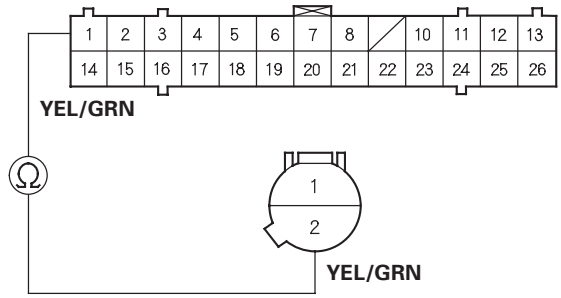
Is there continuity?

YES—Go to step 8.

NO—Repair open in the wire between the climate control unit and the outside air temperature sensor. ■

8. Check for continuity between the No. 1 terminal of climate control unit connector B (26P) and the No. 2 terminal of the outside air temperature sensor 2P connector.

CLIMATE CONTROL UNIT CONNECTOR B (26P)
Wire side of female terminals



OUTSIDE AIR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector B (26P) and at the outside air temperature sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the outside air temperature sensor. ■

DTC indicator D: A Short in the Outside Air Temperature Sensor Circuit

1. Remove the outside air temperature sensor (see page 21-118).

2. Test the outside air temperature sensor (see page 21-118).

   Is the resistance within the specifications shown on the graph?

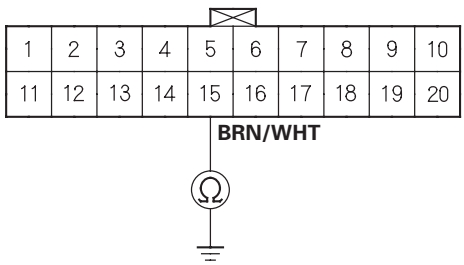
   YES—
   - Without Navigation System: Go to step 3.
   - With Navigation System: Go to step 5.

   NO—Replace the outside air temperature sensor. ■

3. Disconnect climate control unit connector B (20P).

4. Check for continuity between the No. 15 terminal of climate control unit connector B (20P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there continuity?

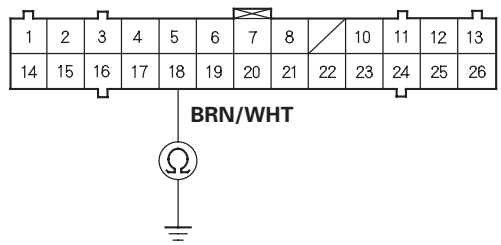
YES—Repair short to body ground in the wire between the climate control unit and the outside air temperature sensor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

5. Disconnect climate control unit connector B (26P).

6. Check for continuity between the No. 18 terminal of climate control unit connector B (26P) and body ground.

CLIMAE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the outside air temperature sensor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

DTC Troubleshooting (cont'd)

DTC indicator E: An Open in the Sunlight Sensor Circuit

1. Disconnect the sunlight sensor 2P connector.

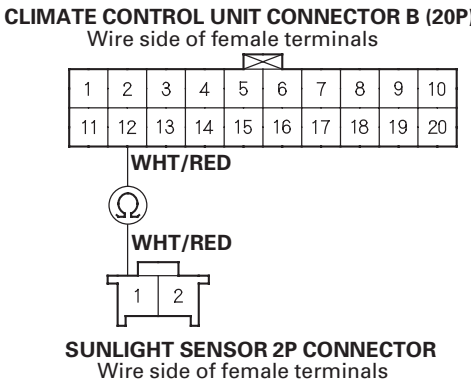
   Does the vehicle have a Navigation System?

   YES—Go to step 8.

   NO—Go to step 2.

2. Disconnect climate control unit connector B (20P).

3. Check for continuity between the No. 12 terminal of climate control unit connector B (20P) and the No. 1 terminal of the sunlight sensor 2P connector.

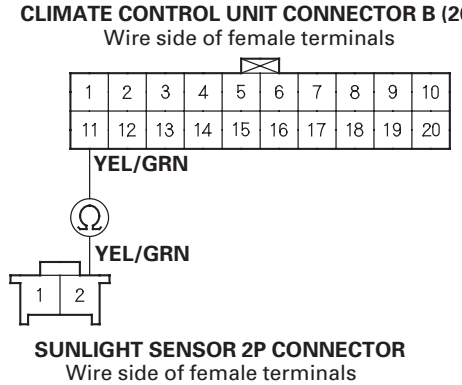


   Is there continuity?

   YES—Go to step 4.

   NO—Repair open in the wire between the climate control unit and the sunlight sensor. ■

4. Check for continuity between the No. 11 terminal of climate control unit connector B (20P) and the No. 2 terminal of the sunlight sensor 2P connector.



   Is there continuity?

   YES—Go to step 5.

   NO—Repair open in the wire between the climate control unit and the outside air temperature sensor. ■

5. Reconnect the sunlight sensor 2P connector.

6. Reconnect climate control unit connector B (20P).

7. Test the sunlight sensor (see page 21-119).

   Is the sunlight sensor OK?

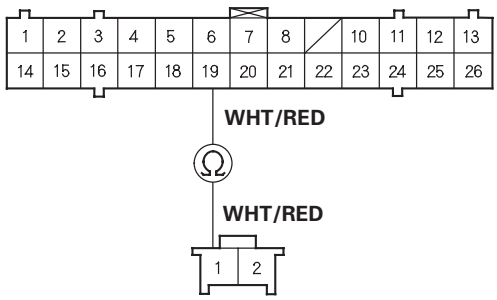
   YES—Check for loose wires or poor connections at climate control unit connector B (20P) and at the sunlight sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

   NO—Replace the sunlight sensor. ■

8. Disconnect climate control unit connector B (26P).

9. Check for continuity between the No. 19 terminal of climate control unit connector B (26P) and the No. 1 terminal of the sunlight sensor 2P connector.

CLIMATE CONTROL UNIT CONNECTOR B (26P)
Wire side of female terminals



SUNLIGHT SENSOR 2P CONNECTOR
Wire side of female terminals

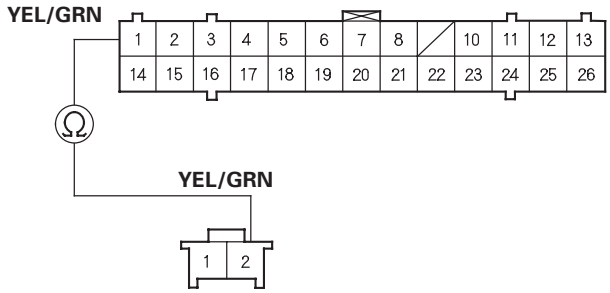
Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the climate control unit and the sunlight sensor. ■

10. Check for continuity between the No. 1 terminal of climate control unit connector B (26P) and the No. 2 terminal of the sunlight sensor 2P connector.

CLIMATE CONTROL UNIT CONNECTOR B (26P)
Wire side of female terminals



SUNLIGHT SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the climate control unit and the outside air temperature sensor. ■

11. Reconnect the sunlight sensor 2P connector.

12. Reconnect climate control unit connector B (26P).

13. Test the sunlight sensor (see page 21-119).

Is the sunlight sensor OK?

YES—Check for loose wires or poor connections at climate control unit connector B (26P) and at the sunlight sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Replace the sunlight sensor. ■

DTC Troubleshooting (cont'd)

DTC indicator F: A Short in the Sunlight Sensor Circuit

1. Disconnect the sunlight sensor 2P connector.

   Does the vehicle have a Navigation System?

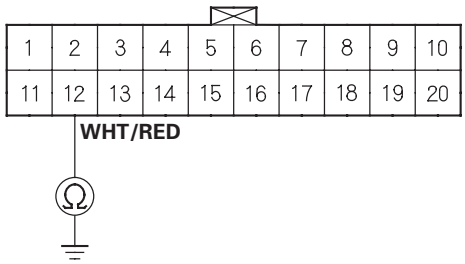
   YES—Go to step 7.

   NO—Go to step 2.

2. Disconnect climate control unit connector B (20P).

3. Check for continuity between the No. 12 terminal of climate control unit connector B (20P) and body ground.

   CLIMATE CONTROL UNIT CONNECTOR B (20P)



   Wire side of female terminals

   Is there continuity?

   YES—Repair short to body ground in the wire between the climate control unit and the sunlight sensor. ■

   NO—Go to step 4.

4. Reconnect the sunlight sensor 2P connector.

5. Reconnect climate control unit connector B (20P).

6. Test the sunlight sensor (see page 21-119).

   Is the sunlight sensor OK?

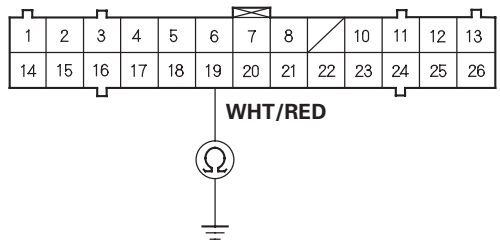
   YES—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

   NO—Replace the sunlight sensor. ■

7. Disconnect climate control unit connector B (26P).

8. Check for continuity between the No. 19 terminal of climate control unit connector B (26P) and body ground.

   CLIMATE CONTROL UNIT CONNECTOR B (26P)



   Wire side of female terminals

   Is there continuity?

   YES—Repair short to body ground in the wire between the climate control unit and the sunlight sensor. ■

   NO—Go to step 9.

9. Reconnect the sunlight sensor 2P connector.

10. Reconnect climate control unit connector B (26P).

11. Test the sunlight sensor (see page 21-119).

    Is the sunlight sensor OK?

    YES—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

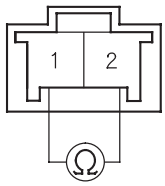
    NO—Replace the sunlight sensor. ■

DTC indicator G: An Open in the Evaporator Temperature Sensor Circuit

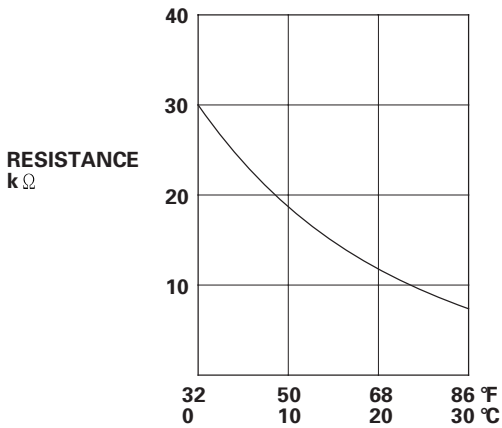
1. Disconnect the evaporator temperature sensor 2P connector.

2. Measure the resistance between the No. 1 and No. 2 terminals of the evaporator temperature sensor.

EVAPORATOR TEMPERATURE SENSOR



Terminal side of male terminals



Is the resistance within the specifications shown on the graph?

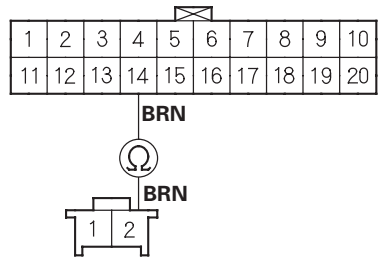
YES—
- Without Navigation System: Go to step 3.
- With Navigation System: Go to step 6.

NO—Replace the evaporator temperature sensor. ■

3. Disconnect climate control unit connector B (20P).

4. Check for continuity between the No. 14 terminal of climate control unit connector B (20P) and the No. 2 terminal of the evaporator temperature sensor 2P connector.

CLIMATE CONTROL UNIT CONNECTOR B (20P)
Wire side of female terminals



EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 5.

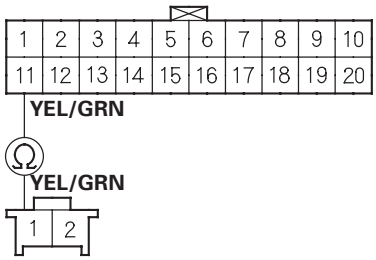
NO—Repair open in the wire between the climate control unit and the evaporator temperature sensor. ■

(cont'd)

DTC Troubleshooting (cont'd)

5. Check for continuity between the No. 11 terminal of climate control unit connector B (20P) and the No. 1 terminal of the evaporator temperature sensor 2P connector.

CLIMATE CONTROL UNIT CONNECTOR B (20P)
Wire side of female terminals



EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

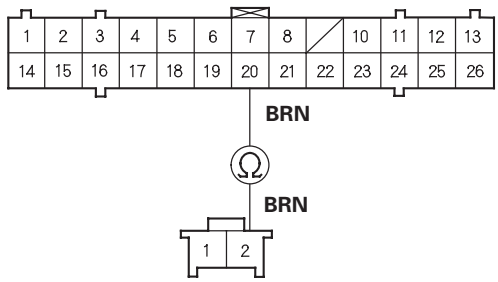
YES—Check for loose wires or poor connections at climate control unit connector B (20P) and at the evaporator temperature sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the evaporator temperature sensor. ■

6. Disconnect climate control unit connector B (26P).

7. Check for continuity between the No. 20 terminal of climate control unit connector B (26P) and the No. 2 terminal of the evaporator temperature sensor 2P connector.

CLIMATE CONTROL UNIT CONNECTOR B (26P)
Wire side of female terminals



EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

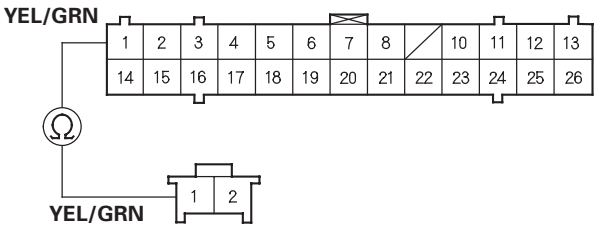
Is there continuity?

YES—Go to step 8.

NO—Repair open in the wire between the climate control unit and the evaporator temperature sensor. ■

8. Check for continuity between the No. 1 terminal of climate control unit connector B (26P) and the No. 1 terminal of the evaporator temperature sensor 2P connector.

CLIMATE CONTROL UNIT CONNECTOR B (26P)
Wire side of female terminals



EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector B (26P) and at the evaporator temperature sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the evaporator temperature sensor. ■

DTC indicator H: A Short in the Evaporator Temperature Sensor Circuit

1. Disconnect the evaporator temperature sensor 2P connector.

2. Test the evaporator temperature sensor (see page 21-40).

   Is the resistance within the specifications shown on the graph?

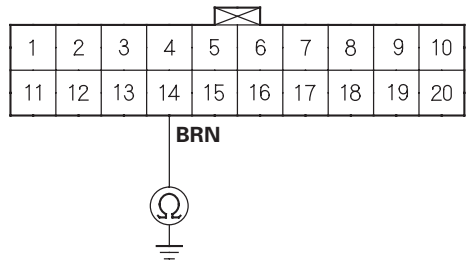
   YES—
   • Without Navigation System: Go to step 3.
   • With Navigation System: Go to step 5.

   NO—Replace the evaporator temperature sensor. ■

3. Disconnect climate control unit connector B (20P).

4. Check for continuity between the No. 14 terminal of climate control unit connector B (20P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the evaporator temperature sensor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

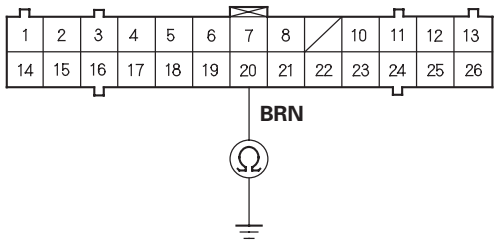
(cont'd)

DTC Troubleshooting (cont'd)

5. Disconnect climate control unit connector B (26P).

6. Check for continuity between the No. 20 terminal of climate control unit connector B (26P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the evaporator temperature sensor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

DTC indicator I: An Open in the Air Mix Control Motor Circuit

1. Disconnect the air mix control motor 7P connector.

Does the vehicle have a Navigation System?

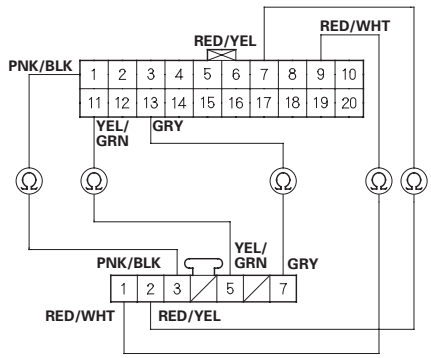
YES—Go to step 4.
NO—Go to step 2.

2. Disconnect climate control unit connector B (20P).

3. Check for continuity between following terminals of climate control unit connector B (20P) and the air mix control motor 7P connector.

20P:	7P:
No. 1	No. 3
No. 7	No. 2
No. 9	No. 1
No. 11	No. 5
No. 13	No. 7

CLIMATE CONTROL UNIT CONNECTOR B (20P)
Wire side of female terminals



AIR MIX CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

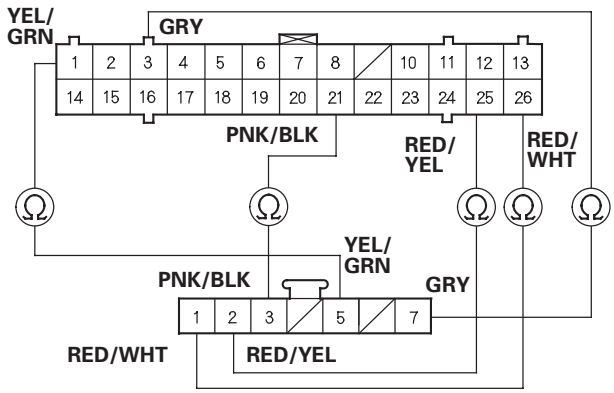
YES—Check for loose wires or poor connections at climate control unit connector B (20P) and at the air mix control motor 7P connector. If the connections are good, substitute a known-good air mix control motor, and recheck. If the symptom/indication goes away, replace the original air mix control motor. If the symptom/indication continues, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit.
NO—Repair any open in the wire(s) between the climate control unit and the air mix control motor. ■

4. Disconnect climate control unit connector B (26P).

5. Check for continuity between following terminals of climate control unit connector B (26P) and the air mix control motor 7P connector.

26P:	7P:
No. 1	No. 5
No. 3	No. 7
No. 21	No. 3
No. 25	No. 2
No. 26	No. 1

CLIMATE CONTROL UNIT CONNECTOR B (26P)
Wire side of female terminals



AIR MIX CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector B (26P) and at the air mix control motor 7P connector. If the connections are good, substitute a known-good air mix control motor, and recheck. If the symptom/indication goes away, replace the original air mix control motor. If the symptom/indication continues, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair any open in the wire(s) between the climate control unit and the air mix control motor. ■

DTC indicator J: A Short in the Air Mix Control Motor Circuit

1. Disconnect the air mix control motor 7P connector.

   Does the vehicle have a Navigation System?

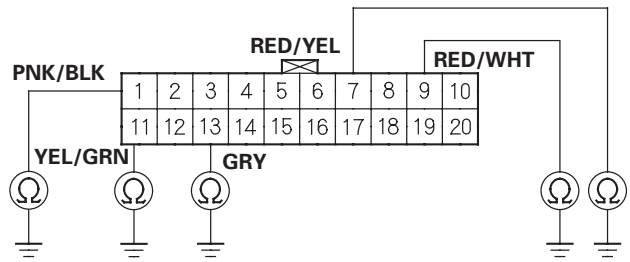
   YES—Go to step 5.

   NO—Go to step 2.

2. Disconnect climate control unit connector B (20P).

3. Check for continuity between body ground and climate control unit connector B (20P) terminals No. 1, 7, 9, 11 and 13 individually.

CLIMATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there continuity?

YES—Repair any short to body ground in the wire(s) between the climate control unit and the air mix control motor. ■

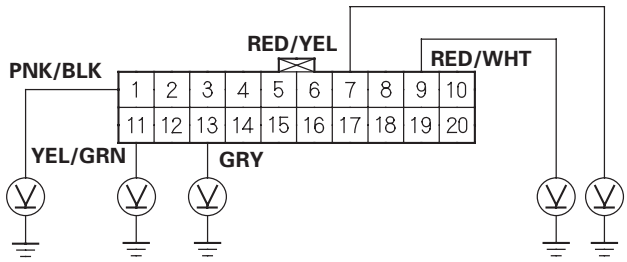
NO—Go to step 4.

(cont'd)

DTC Troubleshooting (cont'd)

4. Turn the ignition switch ON (II), and check the same terminals for voltage.

CLIMATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there any voltage?

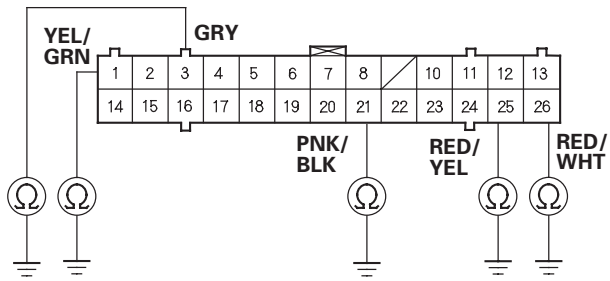
YES—Repair any short to power in the wire(s) between the climate control unit and the air mix control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Substitute a known-good air mix control motor, and recheck. If the symptom/indication goes away, replace the original air mix control motor. If the symptom/indication continues, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

5. Disconnect climate control unit connector B (26P).

6. Check for continuity between body ground and climate control unit connector B (26P) terminals No. 1, 3, 21, 25 and 26 individually.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

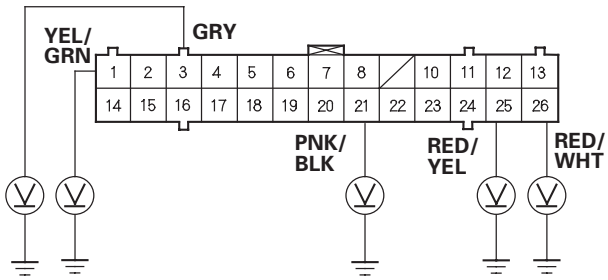
Is there continuity?

YES—Repair any short to body ground in the wire(s) between the climate control unit and the air mix control motor. ■

NO—Go to step 7.

7. Turn the ignition switch ON (II), and check the same terminals for voltage.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there any voltage?

YES—Repair any short to power in the wire(s) between the climate control unit and the air mix control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Substitute a known-good air mix control motor, and recheck. If the symptom/indication goes away, replace the original air mix control motor. If the symptom/indication continues, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

DTC indicator K: A Problem in the Air Mix Control Linkage, Door, or Motor

1. Test the air mix control motor (see page 21-37).

   Is the air mix control motor OK?

   YES—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

   NO—Go to step 2.

2. Remove the air mix control motor (see page 21-37).

3. Check the air mix control linkage and door for smooth movement.

   Do the air mix control linkage and door move smoothly?

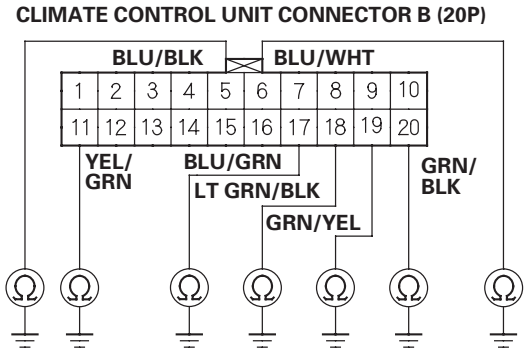
   YES—Replace the air mix control motor. ■

   NO—Repair the air mix control linkage or door. ■

DTC Troubleshooting (cont'd)

DTC indicator L: An Open or Short in the Mode Control Motor Circuit

1. Disconnect the mode control motor 7P connector.
2. Disconnect climate control unit connector B (20P).
3. Check for continuity between body ground and climate control unit connector B (20P) terminals No. 5, 6, 11, 17, 18, 19 and 20 individually.



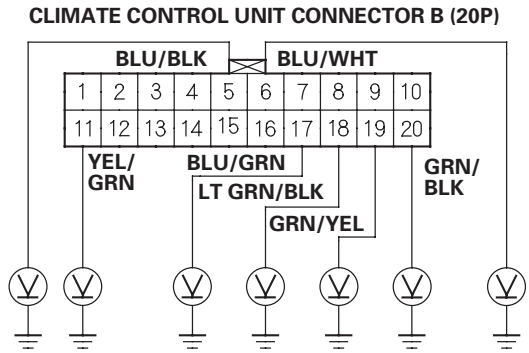
Wire side of female terminals

Is there continuity?

YES—Repair any short to body ground in the wire(s) between the climate control unit and the mode control motor. ■

NO—Go to step 4.

4. Turn the ignition switch ON (II), and check the same terminals for voltage.



Wire side of female terminals

Is there any voltage?

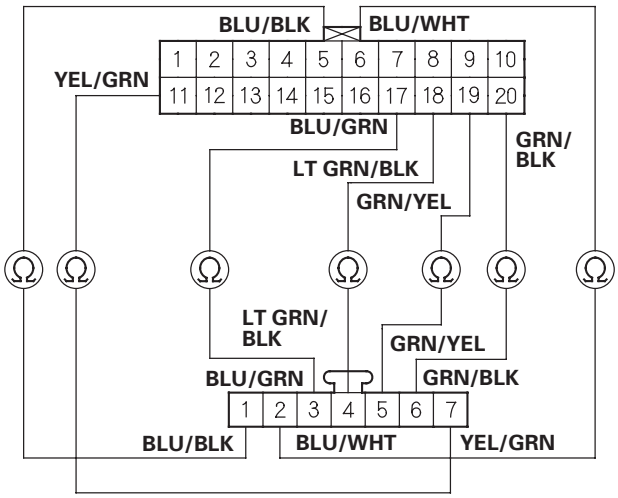
YES—Repair any short to power in the wire(s) between the climate control unit and the mode control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Go to step 5.

5. Turn the ignition switch OFF, and check for continuity between following terminals of climate control unit connector B (20P) and the mode control motor 7P connector.

20P:	7P:
No. 5	No. 1
No. 6	No. 2
No. 11	No. 7
No. 17	No. 3
No. 18	No. 4
No. 19	No. 5
No. 20	No. 6

CLIMATE CONTROL UNIT CONNECTOR B (20P)
Wire side of female terminals



MODE CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector B (20P) and at the mode control motor 7P connector. If the connections are good, substitute a known-good mode control motor, and recheck. If the symptom/indication goes away, replace the original mode control motor. If the symptom/indication continues, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair any open in the wire(s) between the climate control unit and the mode control motor. ■

DTC indicator L: A Problem in the Mode Control Motor Circuit

1. Disconnect the mode control motor 7P connector.
2. Test the mode control motor (see page 21-38).

   Is the mode control motor OK?

   YES—Go to step 5.

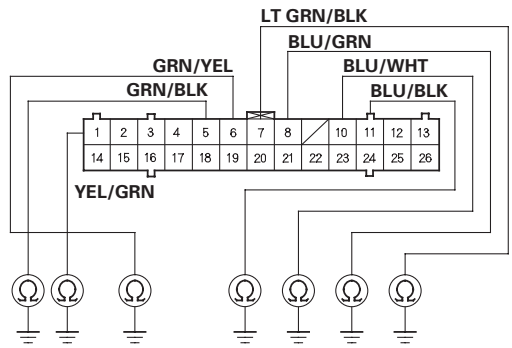
   NO—Go to step 3.
3. Remove the mode control motor (see page 21-38).
4. Check the mode control linkage and doors for smooth movement.

   Do the mode control linkage and doors move smoothly?

   YES—Replace the mode control motor. ■

   NO—Repair the mode control linkage or doors. ■
5. Disconnect climate control unit connector B (26P).
6. Check for continuity between body ground and climate control unit connector B (26P) terminals No. 1, 5, 6, 7, 8, 10 and 11 individually.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there continuity?

YES—Repair any short to body ground in the wire(s) between the climate control unit and the mode control motor. ■

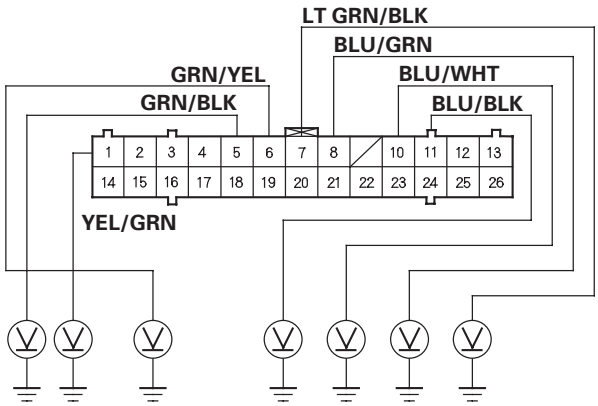
NO—Go to step 7.

(cont'd)

DTC Troubleshooting (cont'd)

7. Turn the ignition switch ON (II), and check the same terminals for voltage.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there any voltage?

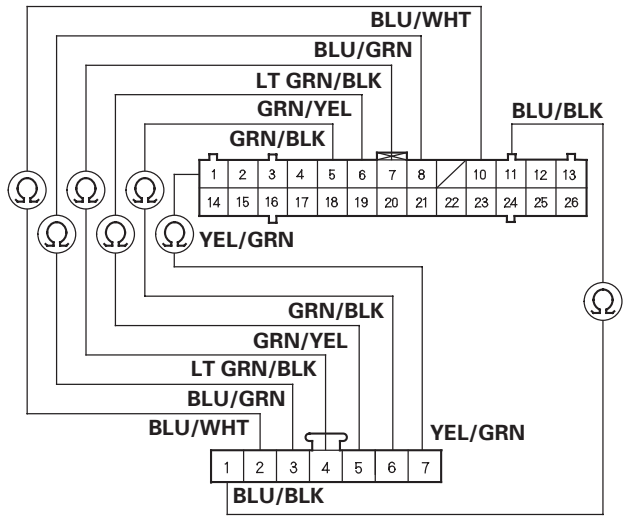
YES—Repair any short to power in the wire(s) between the climate control unit and the mode control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Go to step 8.

8. Turn the ignition switch OFF, and check for continuity between following terminals of climate control unit connector B (26P) and the mode control motor 7P connector.

26P:	7P:
No. 1	No. 7
No. 5	No. 6
No. 6	No. 5
No. 7	No. 4
No. 8	No. 3
No. 10	No. 2
No. 11	No. 1

CLIMATE CONTROL UNIT CONNECTOR B (26P)
Wire side of female terminals



MODE CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector B (26P) and at the mode control motor 7P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair any open in the wire(s) between the climate control unit and the mode control motor. ■

DTC indicator M: A Problem in the Mode Control Linkage, Doors, or Motor

1. Test the mode control motor (see page 21-38).

   Is the mode control motor OK?

   YES—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

   NO—Go to step 2.

2. Remove the mode control motor (see page 21-38).

3. Check the mode control linkage and doors for smooth movement.

   Do the mode control linkage and doors move smoothly?

   YES—Replace the mode control motor. ■

   NO—Repair the mode control linkage or doors. ■

DTC indicator N: A Problem in the Blower Motor Circuit

1. Turn the ignition switch ON (II) and turn the blower fan speed knob to HIGH.

   Does the blower motor run?

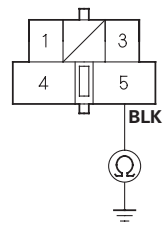
   YES—Go to step 2.

   NO—Go to step 20.

2. Turn the ignition switch OFF, then disconnect the power transistor 5P connector.

3. Check for continuity between the No. 5 terminal of the power transistor 5P connector and body ground.

POWER TRANSISTOR 5P CONNECTOR



Wire side of female terminals

   Is there continuity?

   YES—Go to step 4.

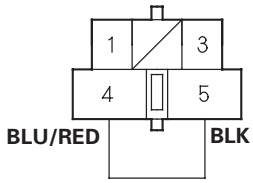
   NO—Check for an open in the wire between the power transistor and body ground. If the wire is OK, check for poor ground at G401. ■

(cont'd)

DTC Troubleshooting (cont'd)

4. Connect the No. 4 and No. 5 terminals of the power transistor 5P connector with a jumper wire.

POWER TRANSISTOR 5P CONNECTOR



JUMPER WIRE

Wire side of female terminals

5. Turn the ignition switch ON (II).

   Does the blower motor run at high speed?

   YES — Go to step 6.

   NO — Repair open in the wire between the power transistor and the blower motor. ■

6. Turn the ignition switch OFF.

7. Disconnect the jumper wire.

   Does the vehicle have a Navigation System?

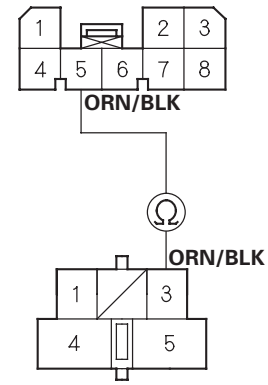
   YES — Go to step 13.

   NO — Go to step 8.

8. Disconnect climate control unit connector A (8P).

9. Check for continuity between the No. 5 terminal of climate control unit connector A (8P) and the No. 3 terminal of the power transistor 5P connector.

CLIMATE CONTROL UNIT CONNECTOR A (8P)
Wire side of female terminals



POWER TRANSISTOR 5P CONNECTOR
Wire side of female terminals

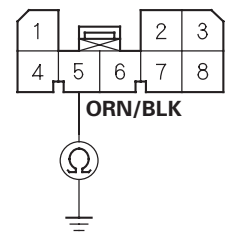
Is there continuity?

YES — Go to step 10.

NO — Repair open in the wire between the climate control unit and the power transistor. ■

10. Check for continuity between the No. 5 terminal of climate control unit connector A (8P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (8P)



Wire side of female terminals

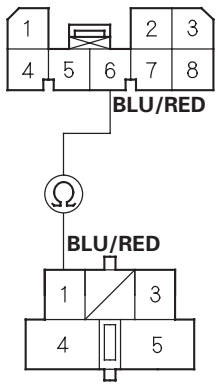
Is there continuity?

YES — Repair short to body ground in the wire between the climate control unit and the power transistor. ■

NO — Go to step 11.

11. Check for continuity between the No. 6 terminal of climate control unit connector A (8P) and the No. 1 terminal of the power transistor 5P connector.

CLIMATE CONTROL UNIT CONNECTOR A (8P)
Wire side of female terminals



POWER TRANSISTOR 5P CONNECTOR
Wire side of female terminals

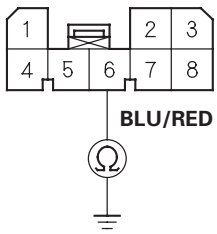
Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the climate control unit and the power transistor. ■

12. Check for continuity between the No. 6 terminal of climate control unit connector A (8P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (8P)



Wire side of female terminals

Is there continuity?

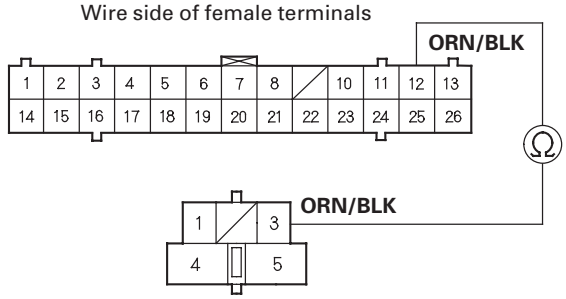
YES—Repair short to body ground in the wire between the climate control unit and the power transistor. ■

NO—Go to step 18.

13. Disconnect climate control unit connector B (26P).

14. Check for continuity between the No. 12 terminal of climate control unit connector B (26P) and the No. 3 terminal of the power transistor 5P connector.

CLIMATE CONTROL UNIT CONNECTOR B (26P)
Wire side of female terminals



POWER TRANSISTOR 5P CONNECTOR
Wire side of female terminals

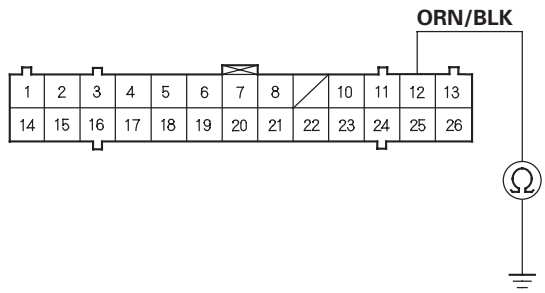
Is there continuity?

YES—Go to step 15.

NO—Repair open in the wire between the climate control unit and the power transistor. ■

15. Check for continuity between the No. 12 terminal of climate control unit connector B (26P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the power transistor. ■

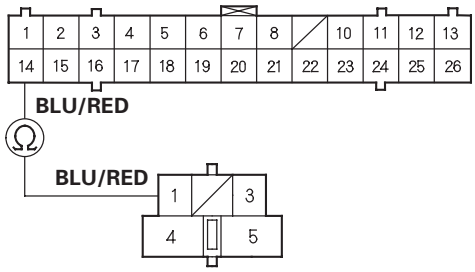
NO—Go to step 16.

(cont'd)

DTC Troubleshooting (cont'd)

16. Check for continuity between the No. 14 terminal of climate control unit connector B (26P) and the No. 1 terminal of the power transistor 5P connector.

CLIMATE CONTROL UNIT CONNECTOR B (26P)
Wire side of female terminals



POWER TRANSISTOR 5P CONNECTOR
Wire side of female terminals

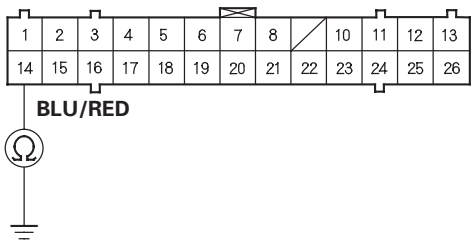
Is there continuity?

YES—Go to step 17.

NO—Repair open in the wire between the climate control unit and the power transistor. ■

17. Check for continuity between the No. 14 terminal of climate control unit connector B (26P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the power transistor. ■

NO—Go to step 18.

18. Reconnect climate control unit connector A (8P) or B (26P).

19. Test the power transistor (see page 21-120).

Is the power transistor OK?

YES—Check for loose wires or poor connections at climate control unit connector A (8P) or B (26P) and at the power transistor 5P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Replace the power transistor. ■

20. Turn the ignition switch OFF, and check the No. 56 (40A) fuse in the under-hood fuse/relay box, and No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box.

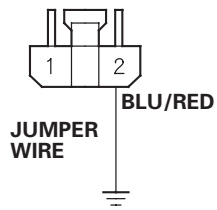
Are the fuses OK?

YES—Go to step 21.

NO—Replace the fuse(s), and recheck. ■

21. Connect the No. 2 terminal of the blower motor 2P connector to body ground with a jumper wire.

BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

22. Turn the ignition switch ON (II).

Does the blower motor run?

YES—Go to step 23.

NO—Go to step 38.

23. Turn the ignition switch OFF.

24. Disconnect the jumper wire.

25. Remove the blower motor high relay, and test it (see page 22-88).

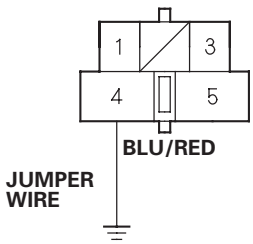
    Is the relay OK?

    YES—Go to step 26.

    NO—Replace the blower motor high relay. ■

26. Connect the No. 4 terminal of the blower motor high relay 5P connector to body ground with a jumper wire.

BLOWER MOTOR HIGH RELAY 5P CONNECTOR



Wire side of female terminals

27. Turn the ignition switch ON (II).

    Does the blower motor run?

    YES—Go to step 28.

    NO—Repair open in the wire between the blower motor high relay and the blower motor. ■

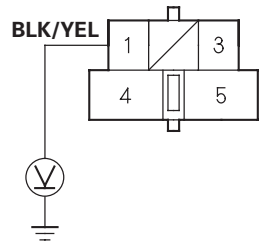
28. Turn the ignition switch OFF.

29. Disconnect the jumper wire.

30. Turn the ignition switch ON (II).

31. Measure the voltage between the No. 1 terminal of the blower motor high relay 5P connector and body ground.

BLOWER MOTOR HIGH RELAY 5P CONNECTOR



Wire side of female terminals

    Is there battey voltage?

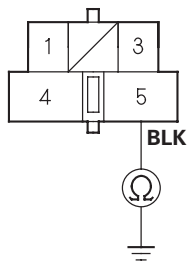
    YES—Go to step 32.

    NO—Repair the open in the wire between the blower motor high relay and the No. 3 fuse in the driver's under-dash fuse/relay box. ■

32. Turn the ignition switch OFF.

33. Check for continuity between the No. 5 terminal of the blower motor high relay 5P connector and body ground.

BLOWER MOTOR HIGH RELAY 5P CONNECTOR



Wire side of female terminals

    Is there continuity?

    YES—
    • Without Navigation System: Go to step 34.
    • With Navigation System: Go to step 36.

    NO—Check for an open in the wire between the blower motor high relay and body ground. If the wire is OK, check for poor ground at G401. ■

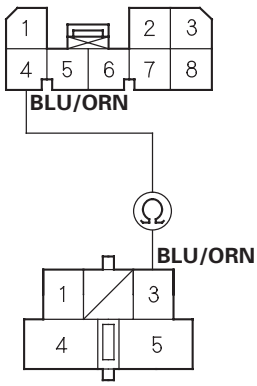
(cont'd)

DTC Troubleshooting (cont'd)

34. Disconnect climate control unit connector A (8P).

35. Check for continuity between the No. 4 terminal of climate control unit connector A (8P) and the No. 3 terminal of the blower motor high relay 5P connector.

CLIMATE CONTROL UNIT CONNECTOR A (8P)
Wire side of female terminals



BLOWER MOTOR HIGH RELAY 5P CONNECTOR
Wire side of female terminals

Is there continuity?

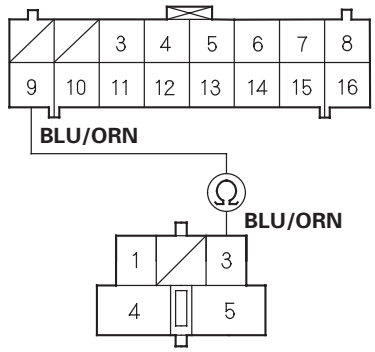
YES—Check for loose wires or poor connections at climate control unit connector A (8P) and at the blower motor high relay 5P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the blower motor high relay. ■

36. Disconnect climate control unit connector A (16P).

37. Check for continuity between the No. 9 terminal of climate control unit connector A (16P) and the No. 3 terminal of the blower motor high relay 5P connector.

CLIMATE CONTROL UNIT CONNECTOR A (16P)
Wire side of female terminals



BLOWER MOTOR HIGH RELAY 5P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector A (16P) and at the blower motor high relay 5P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

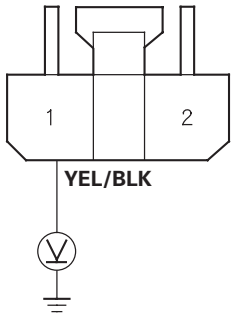
NO—Repair open in the wire between the climate control unit and the blower motor high relay. ■

38. Disconnect the jumper wire.

39. Disconnect the blower motor 2P connector.

40. Measure the voltage between the No. 1 terminal of the blower motor 2P connector and body ground.

BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

Is there battey voltage?

YES—Replace the blower motor. ■

NO—Go to step 41.

41. Turn the ignition switch OFF.

42. Remove the blower motor relay from the under-hood fuse/relay box, and test it (see page 22-88).

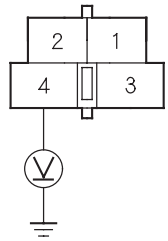
Is the relay OK?

YES—Go to step 43.

NO—Replace the blower motor relay. ■

43. Measure the voltage between the No. 4 terminal of the blower motor relay 4P socket and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Is there battery voltage?

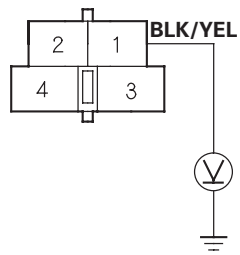
YES—Go to step 44.

NO—Replace the under-hood fuse/relay box. ■

44. Turn the ignition switch ON (II).

45. Measure the voltage between the No. 1 terminal of the blower motor relay 4P socket and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Is there battery voltage?

YES—Go to step 46.

NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the blower motor relay. ■

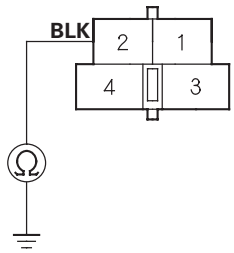
(cont'd)

DTC Troubleshooting (cont'd)

46. Turn the ignition switch OFF.

47. Check for continuity between the No. 2 terminal of the blower motor relay 4P socket and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Is there continuity?

YES—Repair open in the YEL/BLK wire between the blower motor relay and the blower motor. ■

NO—Check for an open in the wire between the blower motor relay and body ground. If the wire is OK, check for poor ground at G201. ■

ECT Sensor Circuit Troubleshooting

NOTE: Before performing symptom troubleshooting, check for powertrain DTCs (see page 11-3).

1. Check the malfunction indicator lamp (MIL).

   Does the malfunction indicator lamp come on?

   YES—Refer to the powertrain DTCs (see page 11-3). ■

   NO—
   - Without Navigation System: Go to step 2.
   - With Navigation System: Go to step 7.

2. Turn the ignition switch OFF.

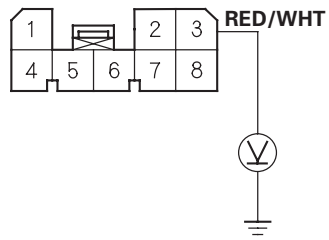
3. Disconnect the ECT sensor 2P connector.

4. Disconnect climate control unit connector A (8P).

5. Turn the ignition switch ON (II).

6. Measure the voltage between the No. 3 terminal of climate control unit connector A (8P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (8P)



Wire side of female terminals

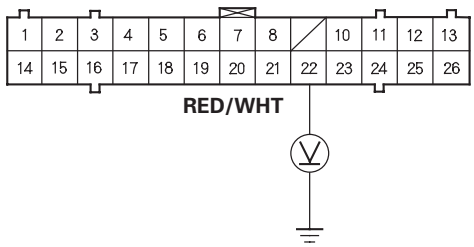
Is there about 5 V?

YES—Check for loose wires or poor connections at climate control unit connector A (8P) and at the ECT sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the ECT sensor. ■

7. Turn the ignition switch OFF.
8. Disconnect the ECT sensor 2P connector.
9. Disconnect climate control unit connector B (26P).
10. Turn the ignition switch ON (II).
11. Measure the voltage between the No. 22 terminal of climate control unit connector B (26P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there about 5 V?

YES—Check for loose wires or poor connections at climate control unit connector B (26P) and at the ECT sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the ECT sensor. ■

Recirculation Control Motor Circuit Troubleshooting

1. Check the No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box.

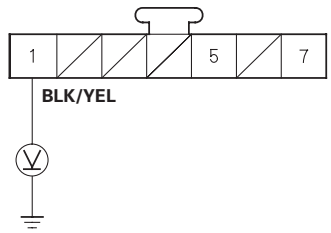
   Is the fuse OK?

   YES—Go to step 2.

   NO—Replace the fuse, and recheck. ■

2. Disconnect the recirculation control motor 7P connector.
3. Turn the ignition switch ON (II).
4. Measure the voltage between the No. 1 terminal of the recirculation control motor 7P connector and body ground.

RECIRCULATION CONTROL MOTOR 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 5.

NO—Repair open in the wire between the recirculation control motor and the No. 3 fuse in the driver's under-dash fuse/relay box. ■

5. Turn the ignition switch OFF.
6. Test the recirculation control motor (see page 21-39).

   Is the recirculation control motor OK?

   YES—
   - Without Navigation System: Go to step 7.
   - With Navigation System: Go to step 12.

   NO—Go to step 17.

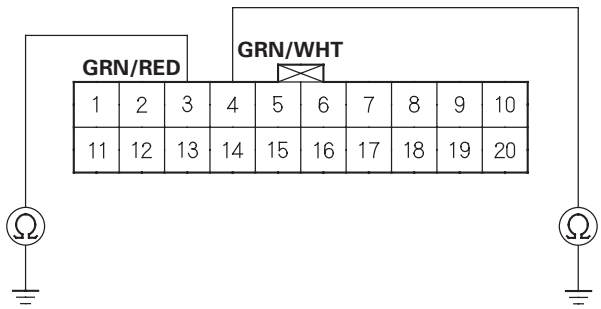
7. Disconnect climate control unit connector B (20P).

(cont'd)

Recirculation Control Motor Circuit Troubleshooting (cont'd)

8. Check for continuity between the No. 3 and No. 4 terminals of climate control unit connector B (20P) and body ground individually.

CLIMATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

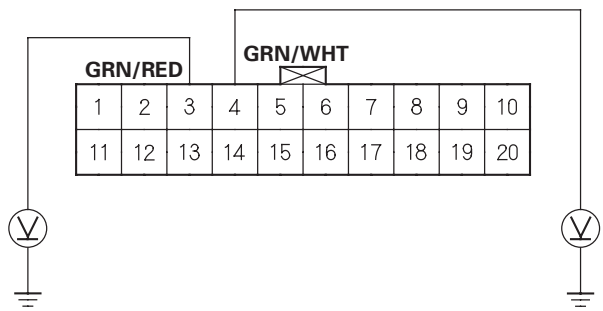
Is there continuity?

YES—Repair any short to body ground in the wire (s) between the climate control unit and the recirculation control motor. ■

NO—Go to step 9.

9. Turn the ignition switch ON (II), and check the same terminals for voltage.

CLIMATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there any voltage?

YES—Repair any short to power in the wire(s) between the climate control unit and the recirculation control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

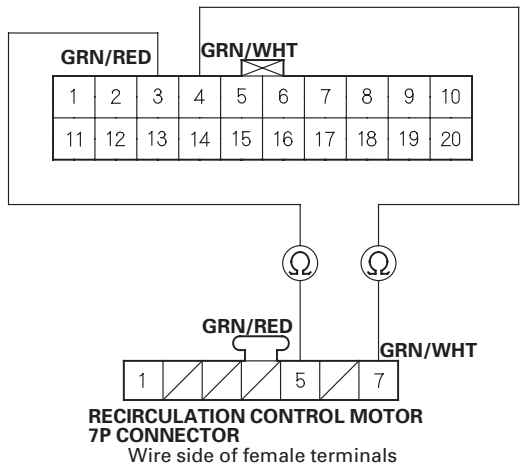
NO—Go to step 10.

10. Turn the ignition switch off.

11. Check for continuity between the following terminals of climate control unit connector B (20P) and the recirculation control motor 7P connector.

20P:	7P:
No. 3	No. 5
No. 4	No. 7

CLIMATE CONTROL UNIT CONNECTOR B (20P)
Wire side of female terminals



RECIRCULATION CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

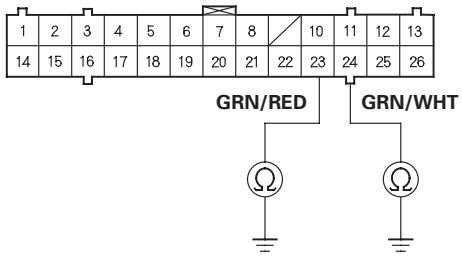
YES—Check for loose wires or poor connections at climate control unit connector B (20P) and at the recirculation control motor 7P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/ indication goes away, replace the original climate control unit. ■

NO—Repair any open in the wire(s) between the climate control unit and the recirculation control motor. ■

12. Disconnect climate control unit connector B (26P).

13. Check for continuity between the No. 23 and No. 24 terminals of climate control unit connector B (26P) and body ground individually.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

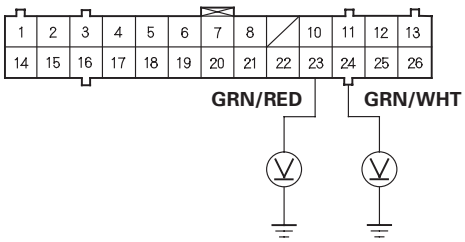
Is there continuity?

YES—Repair any short to body ground in the wire (s) between the climate control unit and the recirculation control motor. ■

NO—Go to step 14.

14. Turn the ignition switch ON (II), and check the same terminals for voltage.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there any voltage?

YES—Repair any short to power in the wire between the climate control unit and the recirculation control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

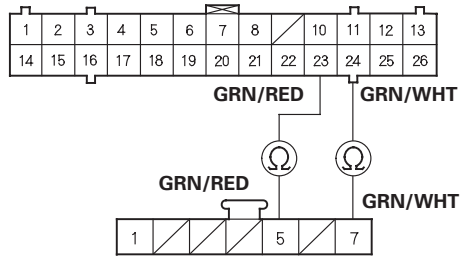
NO—Go to step 15.

15. Turn the ignition switch OFF.

16. Check for continuity between the following terminals of climate control unit connector B (26P) and the recirculation control motor 7P connector.

26P:	7P:
No. 23	No. 5
No. 24	No. 7

CLIMATE CONTROL UNIT CONNECTOR B (26P)
Wire side of female terminals



RECIRCULATION CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector B (26P) and at the recirculation control motor 7P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair any open in the wire(s) between the climate control unit and the recirculation control motor. ■

17. Remove the recirculation contol motor (see page 21-39).

18. Check the recirculation control linkage and doors for smooth movement.

Do the recirculation control linkage and doors move smoothly?

YES—Replace the recirculation control motor. ■

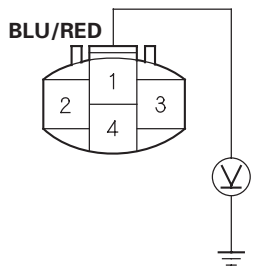
NO—Repair the recirculation control linkage or doors. ■

A/C Pressure Switch Circuit Troubleshooting

NOTE:
- Do not use this troubleshooting procedure if any of the following items are operative; condenser fan, radiator fan, A/C compressor, or if the heater is inoperative. Refer to the symptom troubleshooting index.
- Before performing symptom troubleshooting, check for powertrain DTCs (see page 11-3).

1. Disconnect the A/C pressure switch 4P connector.
2. Turn the ignition switch ON (II).
3. Measure the voltage between the No. 1 terminal of the A/C presure switch 4P connector and body ground.

A/C PRESSURE SWITCH 4P CONNECTOR



Wire side of female terminals

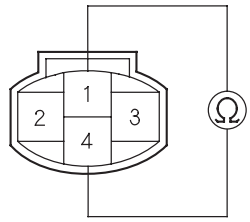
Is there battery voltage?

YES—Go to step 4.

NO—Repair open in the wire between the A/C diode A, the PCM and the A/C pressure switch. ■

4. Turn the ignition switch OFF.
5. Check for continuity between the No. 1 and No. 4 terminals of the A/C pressure switch.

A/C PRESSURE SWITCH



Is there continuity?

YES—Go to step 6.

NO—Go to step 13.

6. Reconnect the A/C pressure switch 4P connector.

Does the vehicle have a Navigation System?

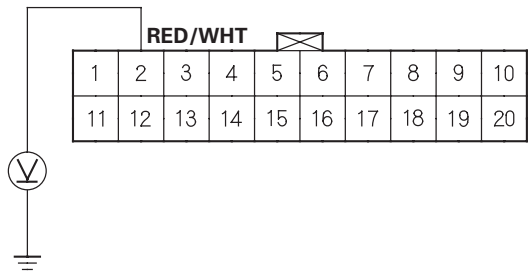
YES—Go to step 10.

NO—Go to step 7.

7. Disconnect climate control unit connector B (20P).
8. Turn the ignition switch ON (II).

9. Measure the voltage between the No. 2 terminal of climate control unit connector B (20P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there battery voltage?

YES—Check for loose wires or poor connections at climate control unit connector B (20P) and at the A/C pressure switch 4P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

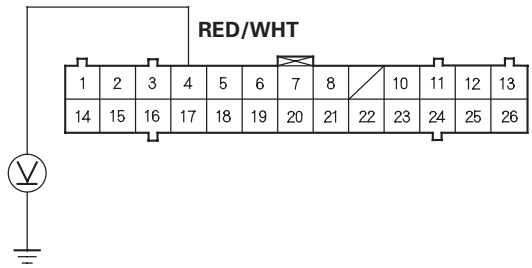
NO—Repair open in the wire between the climate control unit and the A/C pressure switch. ■

10. Disconnect climate control unit connector B (26P).

11. Turn the ignition switch ON (II).

12. Measure the voltage between the No. 4 terminal of climate control unit connector B (26P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there battery voltage?

YES—Check for loose wires or poor connections at climate control unit connector B (26P) and at the A/C pressure switch 4P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the A/C pressure switch. ■

13. Check for proper A/C system pressure.

Is the pressure within specifications?

YES—Replace the A/C pressure switch. ■

NO—Repair the A/C pressure problem. ■

Climate Control Power and Ground Circuit Troubleshooting

1. Check the No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box, and the No. 13 (7.5A) fuse in the passenger's under-dash fuse/relay box.

   Are the fuses OK?

   YES—
   - Without Navigation System: Go to step 2.
   - With Navigation System: Go to step 8.

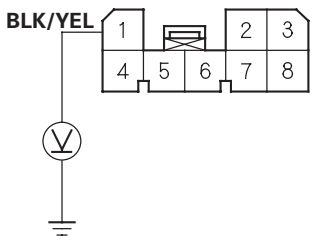
   NO—Replace the fuse(s), and recheck. ■

2. Disconnect climate control unit connector A (8P).

3. Turn the ignition switch ON (II).

4. Measure the voltage between the No. 1 terminal of climate control unit connector A (8P) and body ground.

   CLIMATE CONTROL UNIT CONNECTOR A (8P)



   Wire side of female terminals

   Is there battery voltage?

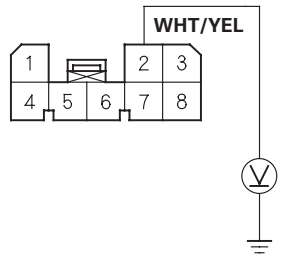
   YES—Go to step 5.

   NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the climate control unit. ■

5. Turn the ignition switch OFF.

6. Measure the voltage between the No. 2 terminal of climate control unit connector A (8P) and body ground.

   CLIMATE CONTROL UNIT CONNECTOR A (8P)



   Wire side of female terminals

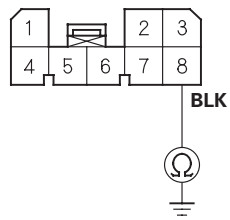
   Is there battery voltage?

   YES—Go to step 7.

   NO—Repair open in the wire between the No. 13 fuse in the passenger's under-dash fuse/relay box and the climate control unit. ■

7. Check for continuity between the No. 8 terminal of climate control unit connector A (8P) and body ground.

   CLIMATE CONTROL UNIT CONNECTOR A (8P)



   Wire side of female terminals

   Is there continuity?

   YES—Check for loose wires or poor connections at climate control unit connector A (8P). If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

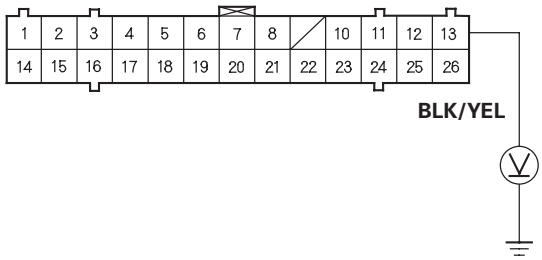
   NO—Check for an open in the wire between the climate control unit and body ground. If the wire is OK, check for poor ground at G401. ■

8. Disconnect climate control unit connector B (26P).

9. Turn the ignition switch ON (II).

10. Measure the voltage between the No. 13 terminal of climate control unit connector B (26P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there battery voltage?

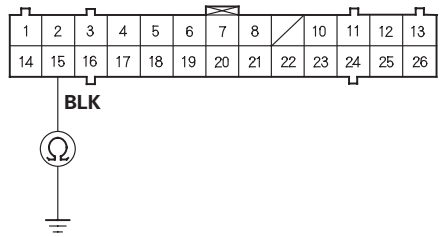
YES—Go to step 11.

NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the climate control unit. ■

11. Turn the ignition switch OFF.

12. Check for continuity between the No. 15 terminal of climate control unit connector B (26P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (26P)



Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector B (26P). If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Check for an open in the wire between the climate control unit and body ground. If the wire is OK, check for poor ground at G401. ■

Climate Control Panel Troubleshooting

With Navigation System

1. Check the No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 2.

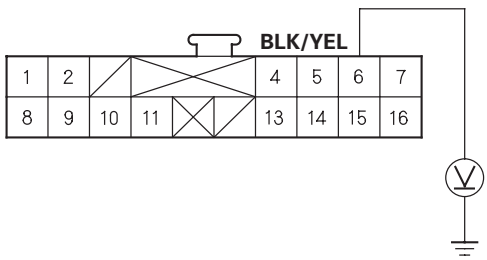
   NO—Replace the fuse and recheck. ■

2. Disconnect the climate control panel 16P connector.

3. Turn the ignition switch ON (II).

4. Measure the voltage between the No. 6 terminal of the climate control panel 16P connector and body ground.

CLIMATE CONTROL PANEL 16P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 5.

NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the climate control panel. ■

5. Turn the ignition switch OFF.

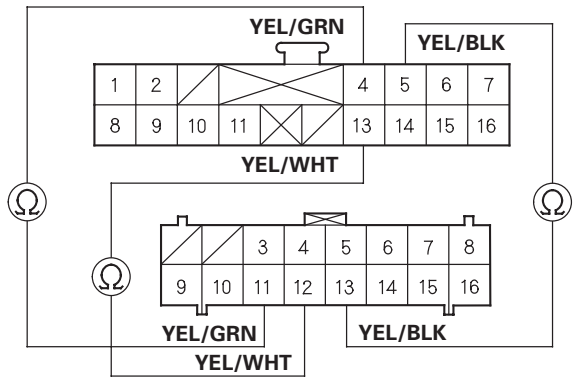
6. Disconnect climate control unit connectors A (16P) and B (26P).

7. Check for continuity between the following terminals of climate control panel 16P connector, and climate control unit connectors A (16P) and B (26P).

PANEL 16P	UNIT 16P
No. 4	No. 11
No. 5	No. 13
No. 13	No. 12

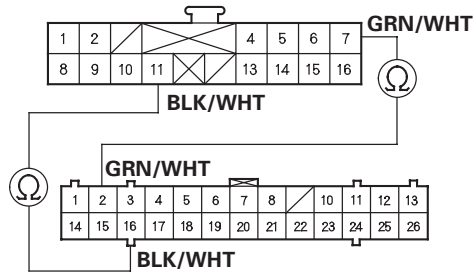
PANEL 16P	UNIT 26P
No. 7	No. 2
No. 11	No. 16

CLIMATE CONTROL PANEL 16P CONNECTOR
Wire side of female terminals



CLIMATE CONTROL UNIT CONNECTOR A (16P)
Wire side of female terminals

CLIMATE CONTROL PANEL 16P CONNECTOR
Wire side of female terminals



CLIMATE CONTROL UNIT CONNECTOR B (26P)
Wire side of female terminals

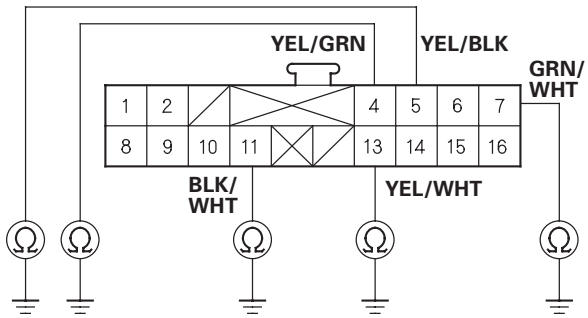
Is there continuity?

YES—Go to step 8

NO—Repair any open in the wire(s) between the climate control panel and climate control unit. ■

8. Check for continuity between the No. 4, 5, 7, 11 and 13 terminals of the climate control panel 16P connector and body ground individually.

CLIMATE CONTROL PANEL 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair any short to body ground in the wire(s) between the climate control panel and the climate control unit. ■

NO—Check for loose wires or poor connections at the climate control panel 16P connector. If the connections are good, substitute a known-good climate control panel and go to step 9.

9. Reconnect the climate control panel 16P connector.

10. Reconnect climate control unit connectors A (16P) and B (26P).

11. Turn the ignition switch ON (II), and check the climate control panel display.

Does the climate control panel display work?

YES—Repair is complete. ■

NO—Check for loose wires or poor connections at climate control unit connectors A (16P) and B (26P). If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

Manual Switch (Navigation System Display) Troubleshooting

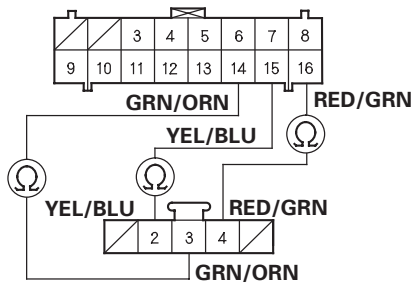
1. Disconnect navigation system display unit connector A (5P).

2. Disconnect climate control unit connector A (16P).

3. Check for continuity between the following terminals of climate control unit connector A (16P) and navigation system display unit connector A (5P).

16P	5P
No. 14	No. 3
No. 15	No. 2
No. 16	No. 4

CLIMATE CONTROL UNIT CONNECTOR A (16P)
Wire side of female terminals



NAVIGATION SYSTEM DISPLAY UNIT CONNECTOR A (5P)
Wire side of female terminals

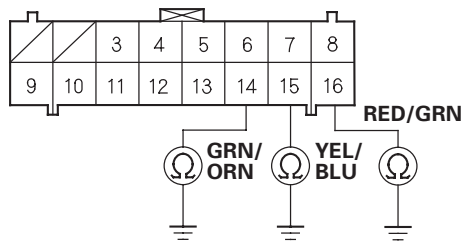
Is there continuity?

YES—Go to step 4.

NO—Repair any open in the wire(s) between the climate control unit and the navigation display unit. ■

4. Check for continuity between the No. 14, 15 and 16 terminals of climate control unit connector A (16P) and the body ground individually.

CLIMATE CONTROL UNIT CONNECTOR A (16P)



Wire side of female terminals

Is there continuity?

YES—Repair any short to body ground in the wire(s) between the climate control unit and the navigation system display unit. ■

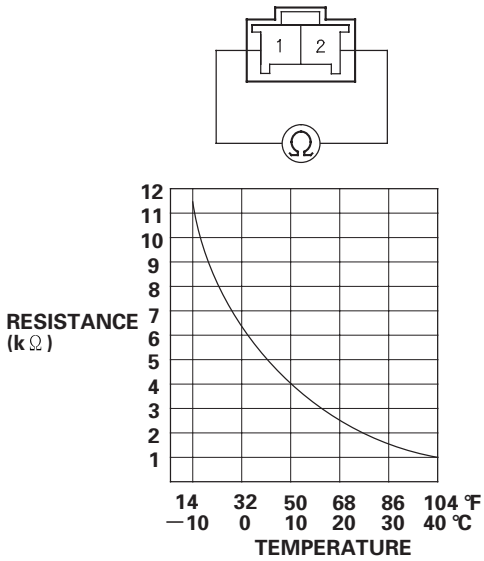
NO—Check for loose wires or poor connections at climate control unit connector A (16P) and at navigation system display unit connector A (5P). If the connections are good, substitute a known-good climate control unit, and recheck. If the problem still exists, replace the navigation system display unit. ■

In-car Temperature Sensor Test

Check for a change in resistance by heating or cooling the sensor with a hair drier.

Compare the resistance reading between the No. 1 and No. 2 terminals of the in-car temperature sensor with the specifications shown in the graph; the resistance should be within the specifications.

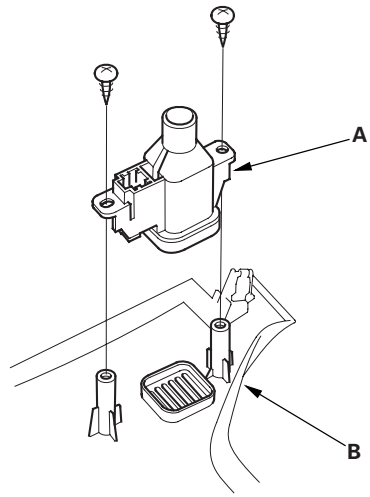
IN-CAR TEMPERATURE SENSOR



In-car Temperature Sensor Replacement

1. Remove the dashboard lower cover (see page 20-69).

2. Remove the self-tapping screws and the in-car temperature sensor (A) from the dashboard lower cover (B).

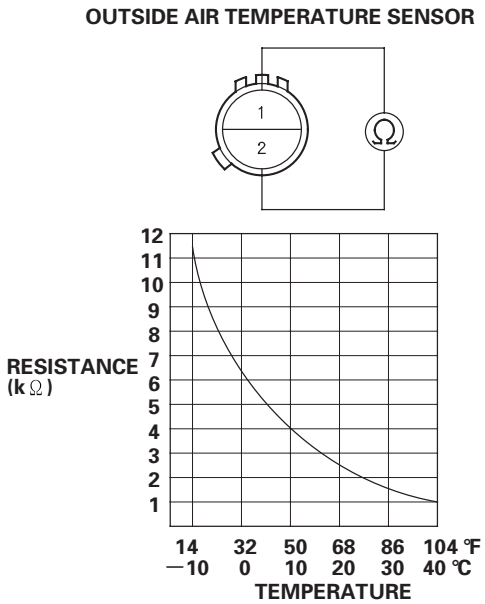


3. Install the sensor in the reverse order of removal. Be sure to connect the air hose securely.

Outside Air Temperature Sensor Test

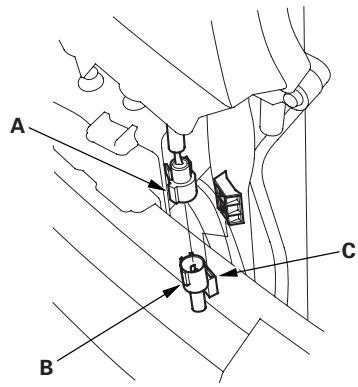
Dip the sensor in ice water, and measure the resistance. Then pour hot water on the sensor, and check for a change in resistance.

Compare the resistance reading between the No. 1 and No. 2 terminals of the outside air temperature sensor with the specifications shown in the graph; the resistance should be within the specifications.



Outside Air Temperature Sensor Replacement

1. Remove the front grille (see page 20-142).
2. Disconnect the 2P connector (A) from the outside air temperature sensor (B). Lift the tab (C) to release the lock, and remove the outside air temperature sensor.

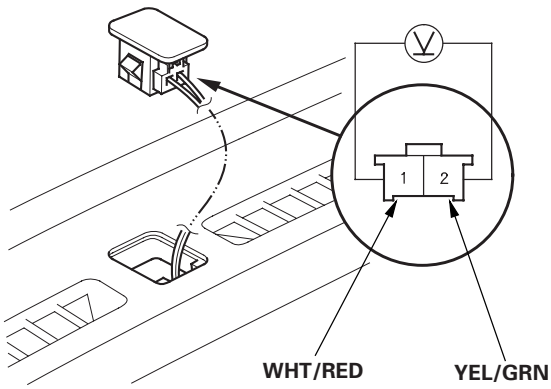


3. Install the sensor in the reverse order of removal.

Sunlight Sensor Test

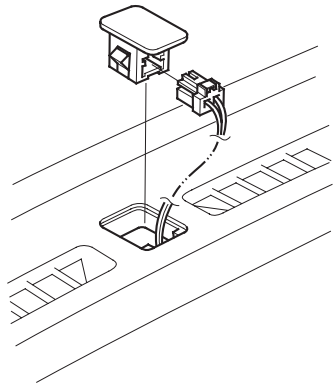
Turn the ignition switch ON (II). Measure the voltage between the terminals with the (+) probe on the No. 1 terminal and the (−) probe on the No. 2 terminal with the 2P connector connected. The voltage reading will not change under the light of a flashlight or a fluorescent lamp. Voltage should be:

- 3.6−3.7 V or more with the sensor out of direct sunlight.
- 3.3−3.5 V or less with the sensor in direct sunlight.



Sunlight Sensor Replacement

1. Remove the sunlight sensor from the dashboard, then disconnect the 2P connector. Be careful not to damage the sensor or the dashboard.



2. Install the sensor in the reverse order of removal.

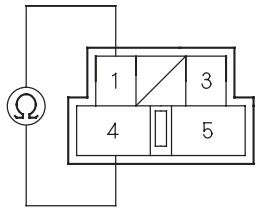
Power Transistor Test

1. Disconnect the 5P connector from the power transistor.

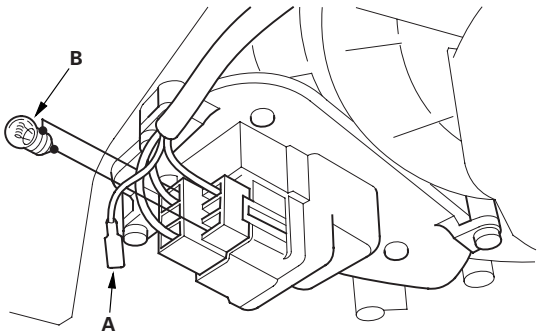
2. Measure the resistance between the No. 1 and No. 4 terminals of the power transistor. It should be approximately 1.4—1.5 kΩ.

   - If the resistance is within the specifications, go to step 3.
   - If the resistance is not within the specifications, replace the power transistor.

POWER TRANSISTOR



3. Carefully release the lock tab on the No. 3 terminal (ORN/BLK) (A) in the 5P connector, then remove the terminal and insulate it from body ground.



4. Connect a 1.2—3.4 W bulb (B) between the No. 3 and the No. 4 cavity on the 5P connector.

5. Reconnect the 5P connector to the power transistor.

6. Turn the ignition switch ON (II), and check that the blower motor runs.

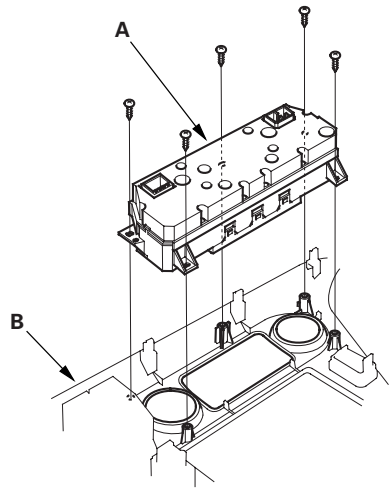
   - If the blower motor does not run, replace the power transistor.
   - If the blower motor runs, replace the climate control unit.

Climate Control Unit Removal and Installation

Without Navigation System

1. Remove the center panel with the climate control unit (see page 20-70).

2. Remove the self-tapping screws and the climate control unit (A) from the center panel (B).



3. Install the control unit in the reverse order of removal. After installation, operate the control unit controls to see whether it works properly.

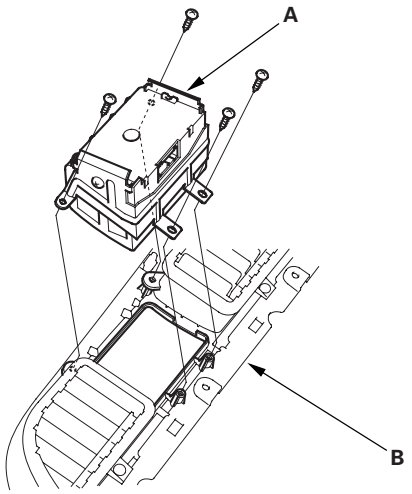
4. Run the self-diagnosis function to confirm that there are no problems in the system (see page 21-67).

Climate Control Panel Removal and Installation

With Navigation System

1. Remove the instrument panel with the climate control panel (see page 20-70).

2. Remove the self-tapping screws and the climate control panel (A) from the instrument panel (B).



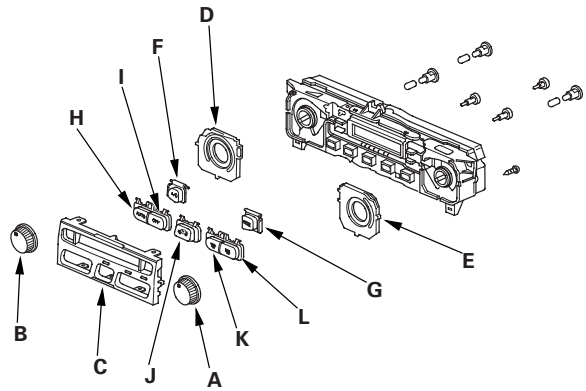
3. Install the control panel in the reverse order of removal. After installation, operate the climate control panel to see whether it works properly.

4. Run the self-diagnosis function to confirm that there are no problems in the system (see page 21-67).

Climate Control Unit Disassembly and Reassembly

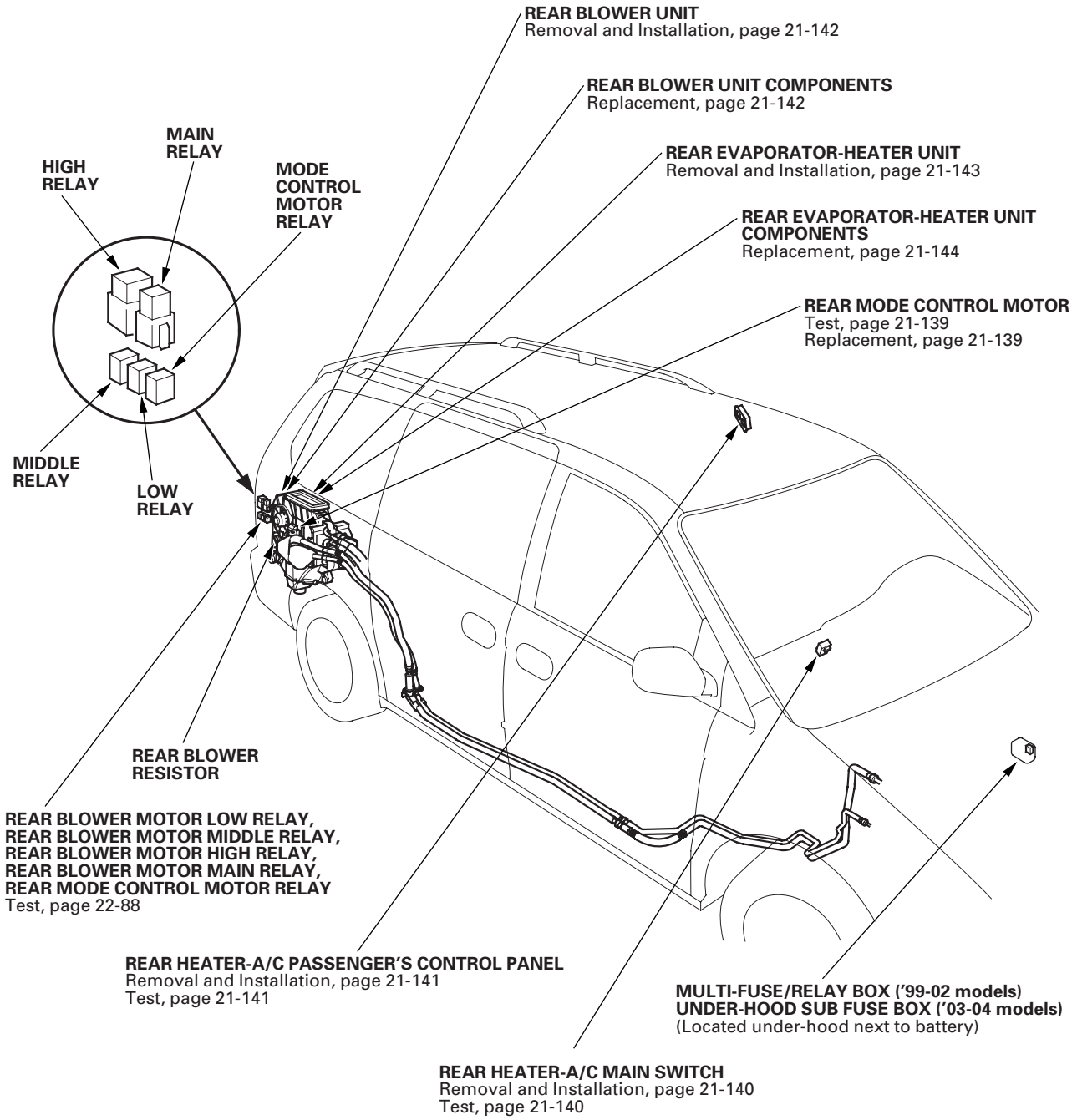
Without Navigation System

1. Remove the fan switch (A) and temperature control dials (B), then remove the front (C), temperature control (D) and fan switch (E) panels. Remove the A/C switch (F), MODE control switch (G), AUTO switch (H), OFF switch (I), recirculation control switch (J), front defroster switch (K) and rear defogger switch (L) buttons.



2. Reassemble the control unit in the reverse order of removal.

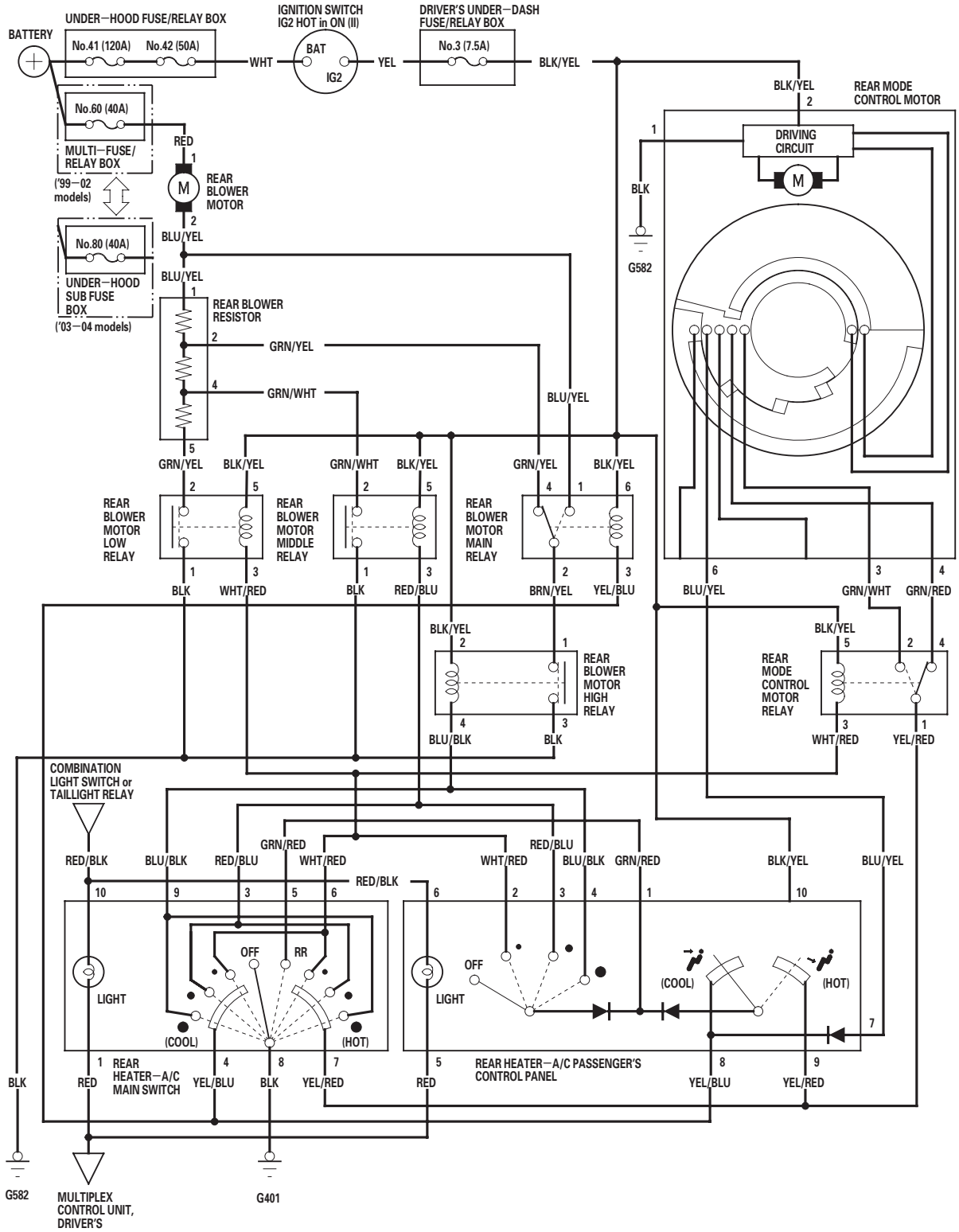
Component Location Index



Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Rear blower motor does not run at all.	Rear blower motor circuit troubleshooting (see page 21-125)	• Blown fuse No. 60 (40A) in the multi-fuse/relay box ('99-02 models), or the No. 80 (40A) fuse in the under-hood sub huse box (03'-04 models) located under-hood next to battery, and No. 3 (7.5A) in the driver's under-dash fuse/relay box • Poor ground at G401 and G582 • Cleanliness and tightness of all connectors
Rear blower motor does not run at low speed position.	Rear blower motor low speed circuit troubleshooting (see page 21-127)	• Faulty rear blower motor low relay • Faulty rear blower resistor • Open in the wire • Poor ground at G582 • Cleanliness and tightness of all connectors
Rear blower motor does not run at middle speed position.	Rear blower motor middle speed circuit troubleshooting (see page 21-129)	• Faulty rear blower motor middle relay • Faulty rear blower resistor • Open in the wire • Poor ground at G582 • Cleanliness and tightness of all connectors
Rear blower motor does not run on low, middle, and high for heating, but runs on high for cooling.	Rear blower motor high speed circuit troubleshooting hot and/or cold (see page 21-131)	• Faulty rear blower motor main relay • Open in the wire • Poor ground at G582 • Cleanliness and tightness of all connectors
Rear blower motor does not run at high speed position for heating.	Rear blower motor high speed circuit troubleshooting hot and/or cold (see page 21-131)	• Faulty rear blower motor main relay • Faulty rear blower motor high relay • Faulty rear blower resistor • Open in the wire • Poor ground at G582 • Cleanliness and tightness of all connectors
Rear mode control doors do not change between ceiling vents (cool) and floor vents (hot).	Rear mode control motor circuit troubleshooting (see page 21-134)	• Blown fuse No. 3 (7.5A) in the driver's under-dash fuse/relay box • Faulty rear heater-A/C passenger's mode control motor relay • Faulty rear heater-A/C passenger's control panel • Open in the wire • Poor ground at G582 • Cleanliness and tightness of all connectors

Circuit Diagram



Rear Blower Motor Circuit Troubleshooting

1. Check the No. 60 (40A) fuse in the multi-fuse/relay box ('99-02 models), or the No. 80 (40A) fuse in the under-hood sub fuse box ('03-04 models), and the No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box.

   Are the fuses OK?

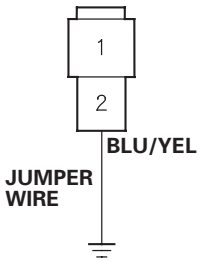
   YES—Go to step 2.

   NO—Replace the fuse(s), and recheck. ■

2. Remove the rear blower unit (see page 21-142).

3. Connect the No. 2 terminal of the rear blower motor 2P connector to body ground with a jumper wire.

REAR BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

   Does the rear blower motor run?

   YES—Go to step 4.

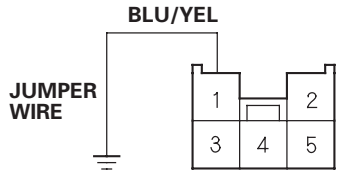
   NO—Go to step 15.

4. Disconnect the jumper wire.

5. Disconnect the rear blower resistor 5P connector.

6. Connect the No. 1 terminal of the rear blower resistor 5P connector to body ground with a jumper wire.

REAR BLOWER RESISTOR 5P CONNECTOR



Wire side of female terminals

   Does the blower motor run?

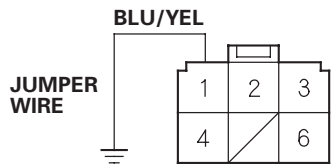
   YES—Go to step 7.

   NO—Repair open in the wire between the rear blower motor and the rear blower resistor. ■

7. Disconnect the rear blower motor main relay 6P connector.

8. Connect the No. 1 terminal of the rear blower motor main relay 6P connector to body ground with a jumper wire.

REAR BLOWER MOTOR MAIN RELAY 6P CONNECTOR



Wire side of female terminals

   Does the blower motor run?

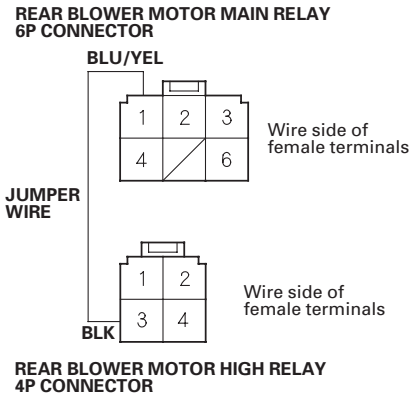
   YES—Go to step 9.

   NO—Repair open in the wire between the rear blower motor and the rear blower motor main relay. ■

(cont'd)

Rear Blower Motor Circuit Troubleshooting (cont'd)

9. Connect the No. 1 terminal of the rear blower motor main relay 6P connector to the No. 3 terminal of the rear blower motor high relay 4P connector with a jumper wire.



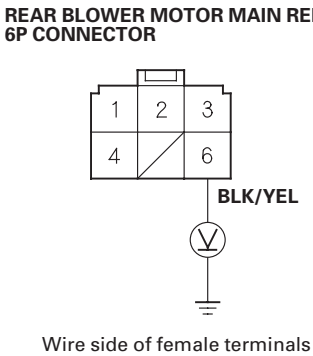
Does the blower motor run?

YES—Go to step 10.

NO—Repair open in the BLK wire between the rear blower motor low, middle, and high relays or poor ground at G582. ■

10. Turn the ignition switch ON (II).

11. Measure the voltage between the No. 6 terminal of the rear blower motor main relay 6P connector and body ground.



Wire side of female terminals

Is there battery voltage?

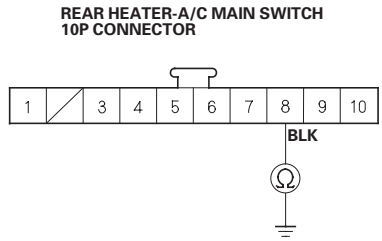
YES—Go to step 12.

NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the rear blower motor main relay. ■

12. Turn the ignition switch OFF.

13. Disconnect the rear heater-A/C main switch 10P connector.

14. Check for continuity between the No. 8 terminal of the rear heater-A/C main switch 10P connector and body ground.



Wire side of female terminals

Is there continuity?

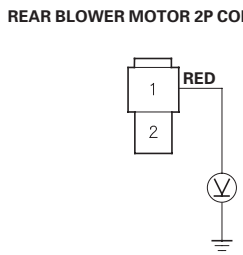
YES—Test the rear heater-A/C main switch (see page 21-140) and the rear heater-A/C passenger's control panel (see page 21-141). ■

NO—Check for an open in the wire between the rear heater-A/C main switch and body ground. If the wire is OK, check for poor ground at G401. ■

15. Disconnect the jumper wire.

16. Disconnect the rear blower motor 2P connector.

17. Measure the voltage between the No. 1 terminal of the rear blower motor 2P connector and body ground.



Wire side of female terminals

Is there battery voltage?

YES—Replace the rear blower motor. ■

NO—Repair open in the wire between the No. 60 fuse in the multi-fuse/relay box ('99-02 models), or the No. 80 fuse in the under-hood sub fuse box ('03-04 models) and the rear blower motor. ■

Rear Blower Motor Low Speed Circuit Troubleshooting

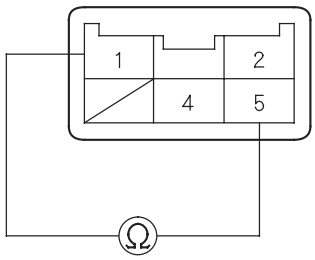
1. Remove the rear blower unit (see page 21-142).
2. Remove the rear blower motor low relay, and test it (see page 22-88).

   Is the relay OK?

   YES—Go to step 3.

   NO—Replace the rear blower motor low relay. ■
3. Disconnect the rear blower resistor.
4. Measure the resistance between the No. 1 and No. 5 terminals of the rear blower resistor.

REAR BLOWER RESISTOR



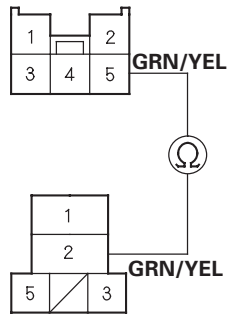
Is there about 2—3 Ω?

YES—Go to step 5.

NO—Replace the rear blower resistor. ■

5. Check for continuity between the No. 5 terminal of the rear blower resistor 5P connector and the No. 2 terminal of the rear blower motor low relay 5P socket.

REAR BLOWER RESISTOR 5P CONNECTOR
Wire side of female terminals



REAR BLOWER MOTOR LOW RELAY 5P SOCKET

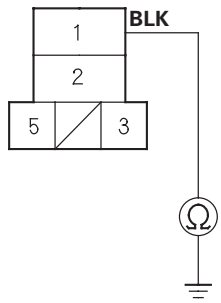
Is there continuity?

YES—Go to step 6.

NO—Repair open in the wire between the rear blower resistor and the rear blower motor low relay. ■

6. Check for continuity between the No.1 terminal of the rear blower motor low relay 5P socket and body ground.

REAR BLOWER MOTOR LOW RELAY 5P SOCKET



Is there continuity?

YES—Go to step 7.

NO—Check for an open in the wire between the rear blower motor low relay and body ground. If the wire is OK, check for poor ground at G582. ■

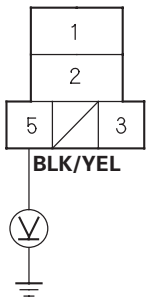
(cont'd)

Rear Blower Motor Low Speed Circuit Troubleshooting (cont'd)

7. Turn the ignition switch ON (II).

8. Measure the voltage between the No. 5 terminal of the rear blower motor low relay 5P socket and body ground.

REAR BLOWER MOTOR LOW RELAY 5P SOCKET



Is there battery voltage?

YES — Go to step 9.

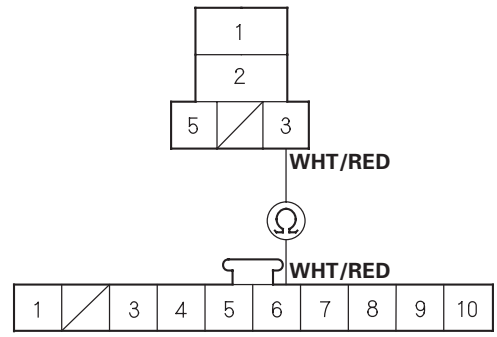
NO — Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the rear blower motor low relay. ■

9. Turn the ignition switch OFF.

10. Disconnect the rear heater-A/C main switch 10P connector and the rear heater-A/C passenger's control panel 10P connector.

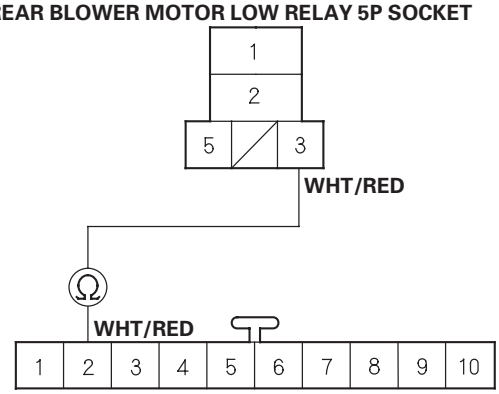
11. Check for continuity between the No. 3 terminal of the rear blower motor low relay 5P socket and the No. 6 terminal of the rear heater-A/C main switch 10P connector, and between the No. 3 terminal of the rear blower motor low relay 5P socket and the No. 2 terminal of the rear heater-A/C passenger's control panel 10P connector.

REAR BLOWER MOTOR LOW RELAY 5P SOCKET



REAR HEATER-A/C MAIN SWITCH 10P CONNECTOR
Wire side of female terminals

REAR BLOWER MOTOR LOW RELAY 5P SOCKET



REAR HEATER-A/C PASSENGER'S CONTROL PANEL 10P CONNECTOR
Wire side of female terminals

Is there continuity?

YES — Test the rear heater-A/C main switch (see page 21-140) and the rear heater-A/C passenger's control panel (see page 21-141). Replace the switch as needed. ■

NO — Repair open in the wire between the rear blower motor low relay and the rear heater-A/C main switch, or between the rear blower motor low relay and the rear heater-A/C passenger's control panel. ■

Rear Blower Motor Middle Speed Circuit Troubleshooting

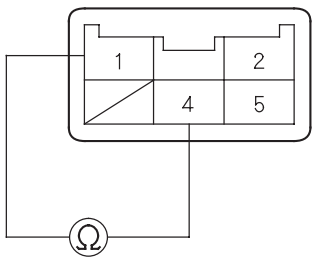
1. Remove the rear blower unit (see page 21-142).
2. Remove the rear blower motor middle relay, and test it (see page 22-88).

   Is the relay OK?

   YES—Go to step 3.

   NO—Replace the rear blower motor middle relay. ■
3. Disconnect the rear blower resistor.
4. Measure the resistance between the No. 1 and No. 4 terminals of the rear blower resistor.

REAR BLOWER RESISTOR

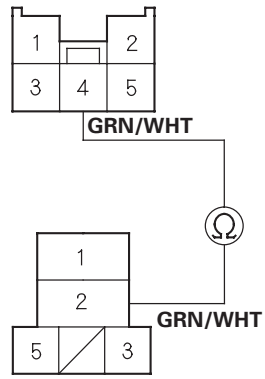


   Is there about 1.4 Ω ?

   YES—Go to step 5.

   NO—Replace the rear blower resistor. ■
5. Check for continuity between the No. 4 terminal of the rear blower resistor 5P connector and the No. 2 terminal of the rear blower motor middle relay 5P socket.

REAR BLOWER RESISTOR 5P CONNECTOR
Wire side of female terminals



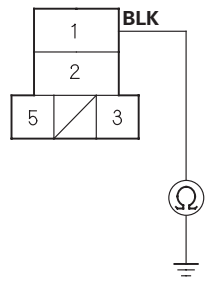
REAR BLOWER MOTOR MIDDLE RELAY 5P SOCKET

   Is there continuity?

   YES—Go to step 6.

   NO—Repair open in the wire between the rear blower resistor and the rear blower motor middle relay. ■
6. Check for continuity between the No. 1 terminal of the rear blower motor middle relay 5P socket and body ground.

REAR BLOWER MOTOR MIDDLE RELAY 5P SOCKET



   Is there continuity?

   YES—Go to step 7.

   NO—Check for an open in the wire between the rear blower motor middle relay and body ground. If the wire is OK, check for poor ground at G582. ■

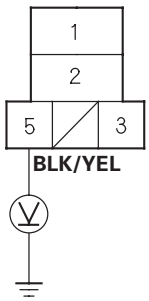
(cont'd)

Rear Blower Motor Middle Speed Circuit Troubleshooting (cont'd)

7. Turn the ignition switch ON (II).

8. Measure the voltage between the No. 5 terminal of the rear blower motor middle relay 5P socket and body ground.

REAR BLOWER MOTOR MIDDLE RELAY 5P SOCKET



Is there battery voltage?

YES—Go to step 9.

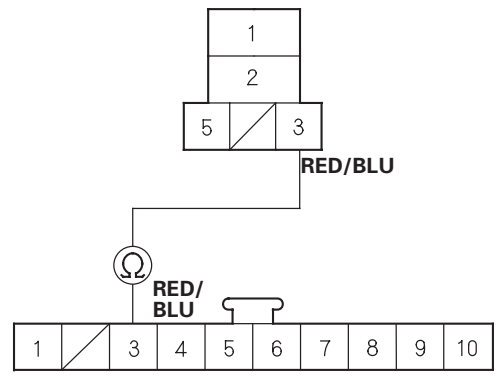
NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the rear blower motor middle relay. ■

9. Turn the ignition switch OFF.

10. Disconnect the rear heater-A/C main switch 10P connector and the rear heater-A/C passenger's control panel 10P connector.

11. Check for continuity between the No. 3 terminal of the rear blower motor middle relay 5P socket and the No. 3 terminal of the rear heater-A/C main switch 10P connector, and between the No. 3 terminal of the rear blower motor middle relay 5P socket and the No. 3 terminal of the rear heater-A/C passenger's control panel 10P connector.

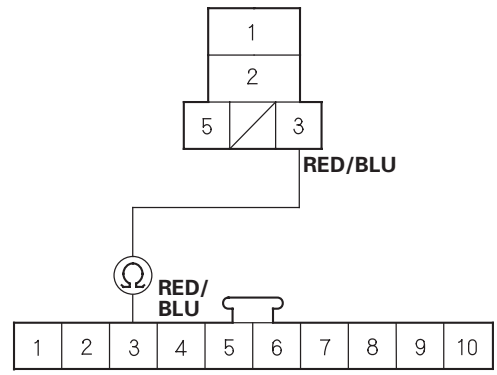
REAR BLOWER MOTOR MIDDLE RELAY 5P SOCKET



REAR HEATER-A/C MAIN SWITCH 10P CONNECTOR

Wire side of female terminals

REAR BLOWER MOTOR MIDDLE RELAY 5P SOCKET



REAR HEATER-A/C PASSENGER'S CONTROL PANEL 10P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Test the rear heater-A/C main switch (see page 21-140) and the rear heater-A/C passenger's control panel (see page 21-141). Replace the switch as needed. ■

NO—Repair open in the wire between the rear blower motor middle relay and the rear heater-A/C main switch, or between the rear blower motor middle relay and the rear heater-A/C passenger's control panel. ■

Rear Blower Motor High Speed Circuit Troubleshooting - Hot and/or Cold

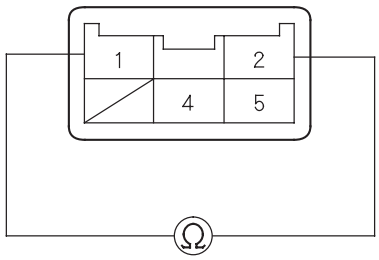
1. Remove the rear blower unit (see page 21-142).
2. Remove the rear blower motor main relay, and test it (see page 22-88).

   Is the relay OK?

   YES—Go to step 3.

   NO—Replace the rear blower motor main relay. ■
3. Disconnect the rear blower resistor.
4. Measure the resistance between the No. 1 and No. 2 terminals of the rear blower resistor.

REAR BLOWER RESISTOR



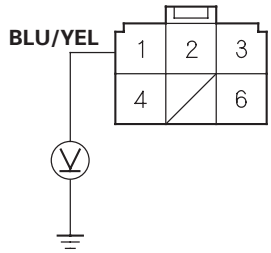
Is there about 0.6 Ω ?

YES—Go to step 5.

NO—Replace the rear blower resistor. ■

5. Measure the voltage between the No. 1 terminal of the rear blower motor main relay 6P connector and body ground.

REAR BLOWER MOTOR MAIN RELAY 6P CONNECTOR



Wire side of female terminals

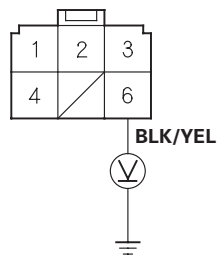
Is there battery voltage?

YES—Go to step 6.

NO—Repair open in the wire between the rear blower motor and the rear blower motor main relay. ■

6. Turn the ignition switch ON (II).
7. Measure the voltage between the No. 6 terminal of the rear blower motor main relay 6P connector and body ground.

REAR BLOWER MOTOR MAIN RELAY 6P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 8.

NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the rear blower motor main relay. ■

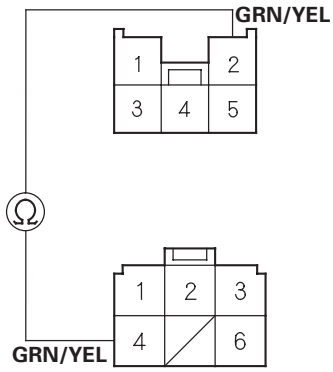
8. Turn the ignition switch OFF.

(cont'd)

Rear Blower Motor High Speed Circuit Troubleshooting - Hot and/or Cold (cont'd)

9. Check for continuity between the No. 2 terminal of the rear blower resistor 5P connector and the No. 4 terminal of the rear blower motor main relay 6P connector.

REAR BLOWER RESISTOR 5P CONNECTOR
Wire side of female terminals



REAR BLOWER MOTOR MAIN RELAY 6P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the rear blower resistor and the rear blower motor main relay. ■

10. Remove the rear blower motor high relay, and test it (see page 22-88).

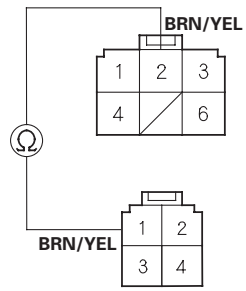
Is the relay OK?

YES—Go to step 11.

NO—Replace the rear blower motor high relay. ■

11. Check for continuity between the No. 2 terminal of the rear blower motor main relay 6P connector and the No. 1 terminal of the rear blower motor high relay 4P connector.

REAR BLOWER MOTOR MAIN RELAY 6P CONNECTOR
Wire side of female terminals



REAR BLOWER MOTOR HIGH RELAY 4P CONNECTOR
Wire side of female terminals

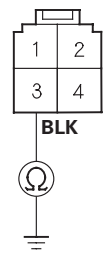
Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the rear blower motor main relay and the rear blower motor high relay. ■

12. Check for continuity between the No. 3 terminal of the rear blower motor high relay 4P connector and body ground.

REAR BLOWER MOTOR HIGH RELAY 4P CONNECTOR



Wire side of female terminals

Is there continuity?

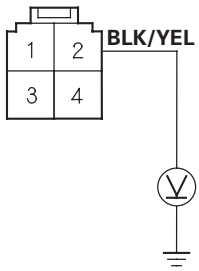
YES—Go to step 13.

NO—Check for an open in the wire between the rear blower motor high relay and body ground. If the wire is OK, check for poor ground at G582. ■

13. Turn the ignition switch ON (II).

14. Measure the voltage between the No. 2 terminal of the rear blower motor high relay 4P connector and body ground.

REAR BLOWER MOTOR HIGH RELAY 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES — Go to step 15.

NO — Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the rear blower motor high relay. ■

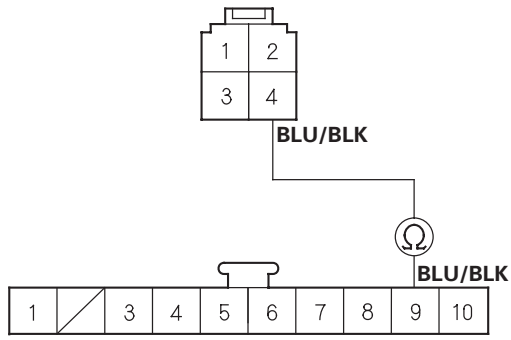
15. Turn the ignition switch OFF.

16. Disconnect the rear heater-A/C main switch 10P connector and the rear heater-A/C passenger's control panel 10P connector.

17. Check for continuity between the No. 4 terminal of the rear blower motor high relay 4P connector and the No. 9 terminal of the rear heater-A/C main switch 10P connector, and between the No. 4 terminal of the rear blower motor high relay 4P connector and the No. 4 terminal of the rear heater-A/C passenger's control panel 10P connector.

REAR BLOWER MOTOR HIGH RELAY 4P CONNECTOR

Wire side of female terminals

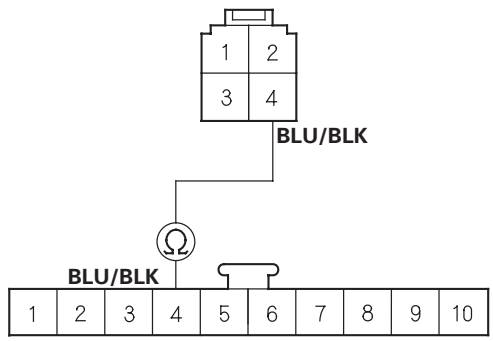


REAR HEATER-A/C MAIN SWITCH 10P CONNECTOR

Wire side of female terminals

REAR BLOWER MOTOR HIGH RELAY 4P CONNECTOR

Wire side of female terminals



REAR HEATER-A/C PASSENGER'S CONTROL PANEL 10P CONNECTOR

Wire side of female terminals

Is there continuity?

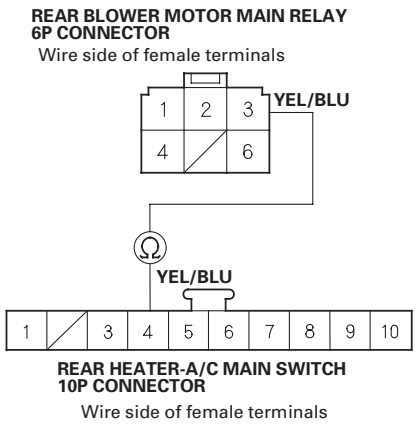
YES — Go to step 18.

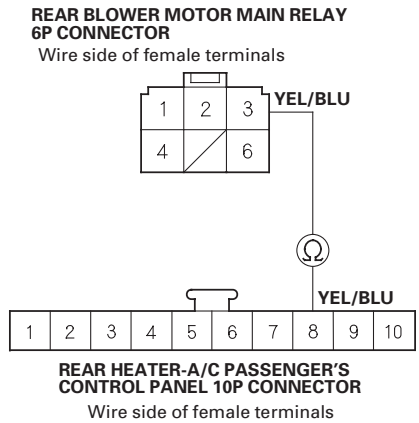
NO — Repair open in the wire between the rear blower motor high relay and the rear heater-A/C main switch, or between the rear blower motor high relay and the rear heater-A/C passenger's control panel. ■

(cont'd)

Rear Blower Motor High Speed Circuit Troubleshooting - Hot and/or Cold (cont'd)

18. Check for continuity between the No. 3 terminal of the rear blower motor main relay 6P connector and the No. 4 terminal of the rear heater-A/C main switch 10P connector, and between the No. 3 terminal of the rear blower motor main relay 6P connector and the No. 8 terminal of the rear heater-A/C passenger's control panel 10P connector.





Is there continuity?

YES—Test the rear heater-A/C main switch (see page 21-140) and the rear heater-A/C passenger's control panel (see page 21-141). Replace the switch as needed. ■

NO—Repair open in the wire between the rear blower motor main relay and the rear heater-A/C main switch, or between the rear blower motor main relay and the rear heater-A/C passenger's control panel. ■

Rear Mode Control Motor Circuit Troubleshooting

1. Check the No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 2.

   NO—Replace the fuse and recheck. ■

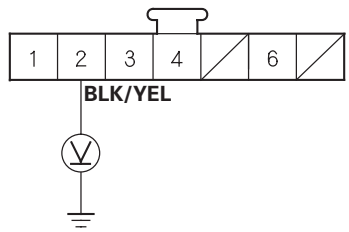
2. Remove the rear blower unit (see page 21-142).

3. Disconnect the rear mode control motor 7P connector.

4. Turn the ignition switch ON (II).

5. Measure the voltage between the No. 2 terminal of the rear mode control motor 7P connector and body ground.

REAR MODE CONTROL MOTOR 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

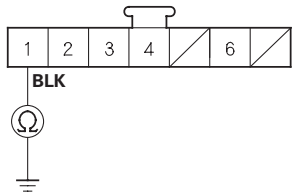
YES—Go to step 6.

NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the rear mode control motor. ■

6. Turn the ignition switch OFF.

7. Check for continuity between the No. 1 terminal of the rear mode control motor 7P connector and body ground.

REAR MODE CONTROL MOTOR 7P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

NO—Check for an open in the wire between the rear mode control motor and body ground. If the wire is OK, check for ground at G582. ■

8. Test the rear mode control motor (see page 21-139).

Is the rear mode control motor OK?

YES—Go to step 11.

NO—Go to step 9.

9. Remove the rear mode control motor (see page 21-139).

10. Check the rear mode control linkage and doors for smooth movement.

Do the rear mode control linkage and doors move smoothly?

YES—Replace the rear mode control motor. ■

NO—Repair the rear mode control linkage or doors. ■

11. Remove the rear mode control motor relay, and test it (see page 22-88).

Is the relay OK?

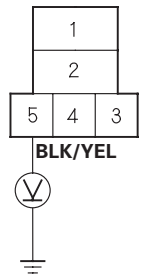
YES—Go to step 12.

NO—Replace the rear mode control motor relay. ■

12. Turn the ignition switch ON (II).

13. Measure the voltage between the No. 5 terminal of the rear mode control motor relay 5P socket and body ground.

REAR MODE CONTROL MOTOR RELAY 5P SOCKET



Is there battery voltage?

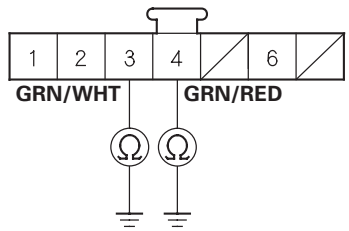
YES—Go to step 14.

NO—Repair open in the wire between the No. 3 fuse in the driver's under-dash fuse/relay box and the rear mode control motor relay. ■

14. Turn the ignition switch OFF.

15. Check for continuity between the No. 3 and No. 4 terminals of the rear mode control motor 7P connector and body ground individually.

REAR MODE CONTROL MOTOR 7P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair any short to body ground in the wire (s) between the rear mode control motor and the rear mode control motor relay. ■

NO—Go to step 16.

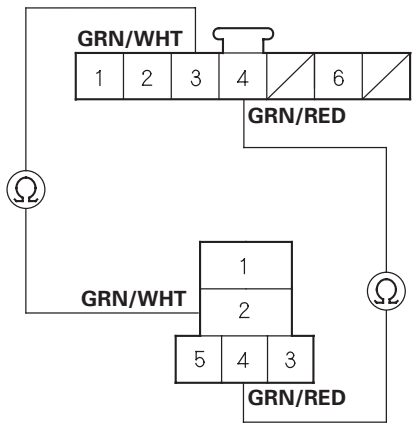
(cont'd)

Rear Mode Control Motor Circuit Troubleshooting (cont'd)

16. Check for continuity between the following terminals of the rear mode control motor 7P connector and the rear mode control motor relay 5P socket.

7P:	5P:
No. 3	No. 2
No. 4	No. 4

REAR MODE CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals



REAR MODE CONTROL MOTOR RELAY 5P SOCKET

Is there continuity?

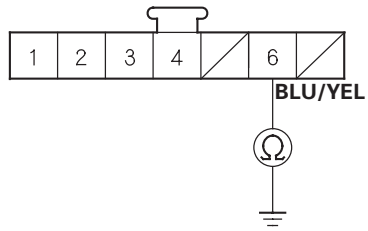
YES—Go to step 17.

NO—Repair any open in the wire(s) between the rear mode control motor and the rear mode control motor relay. ■

17. Disconnect the rear heater-A/C passenger's control panel 10P connector.

18. Check for continuity between the No. 6 terminal of the rear mode control motor 7P connector and body ground.

REAR MODE CONTROL MOTOR 7P CONNECTOR



Wire side of female terminals

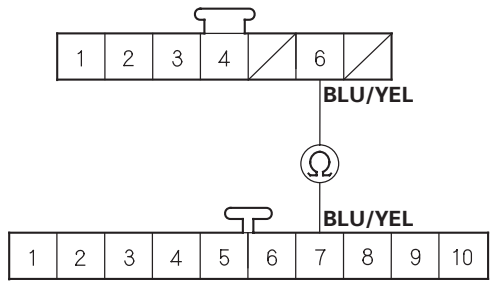
Is there continuity?

YES—Repair short to body ground in the wire between the rear mode control motor and the rear heater-A/C passenger's control panel. ■

NO—Go to step 19.

19. Check for continuity between the No. 6 terminal of the rear mode control motor 7P connector and the No. 7 terminal of the rear heater-A/C passenger's control panel 10P connector.

REAR MODE CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals



REAR HEATER-A/C PASSENGER'S CONTROL PANEL 10P CONNECTOR
Wire side of female terminals

Is there continuity?

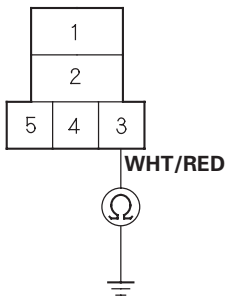
YES—Go to step 20.

NO—Repair open in the wire between the rear mode control motor and the rear heater-A/C passenger's control panel. ■

20. Disconnect the rear heater-A/C main switch 10P connector.

21. Check for continuity between the No. 3 terminal of the rear mode control motor relay 5P socket and body ground.

REAR MODE CONTROL MOTOR RELAY 5P SOCKET



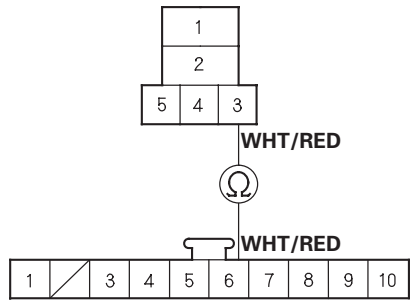
Is there continuity?

YES—Repair short to body ground in the wire between the rear mode control motor relay, the rear heater-A/C main switch and the rear heater-A/C passenger's control panel. ■

NO—Go to step 22.

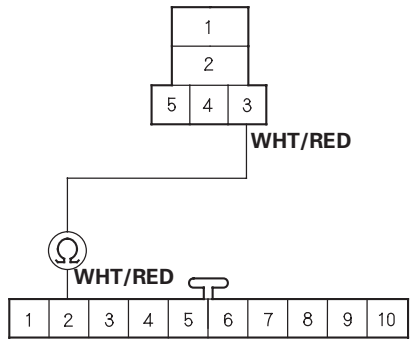
22. Check for continuity between the No. 3 terminal of the rear mode control motor relay 5P socket and the No. 6 terminal of the rear heater-A/C main switch 10P connector, and between the No. 3 terminal of the rear mode control motor relay 5P socket and the No. 2 terminal of the rear heater-A/C passenger's control panel 10P connector.

REAR MODE CONTROL MOTOR RELAY 5P SOCKET



REAR HEATER-A/C MAIN SWITCH 10P CONNECTOR
Wire side of female terminals

REAR MODE CONTROL MOTOR RELAY 5P SOCKET



REAR HEATER-A/C PASSENGER'S CONTROL PANEL 10P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 23.

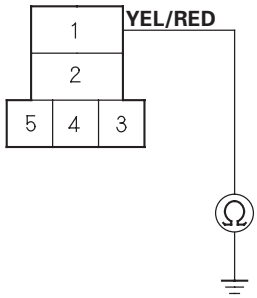
NO—Repair open in the wire between the rear mode control motor relay and the rear heater-A/C main switch, or between the rear mode control motor relay and the rear heater-A/C passenger's control panel. ■

(cont'd)

Rear Mode Control Motor Circuit Troubleshooting (cont'd)

23. Check for continuity between the No. 1 terminal of the rear mode control motor relay 5P socket and body ground.

REAR MODE CONTROL MOTOR RELAY 5P SOCKET



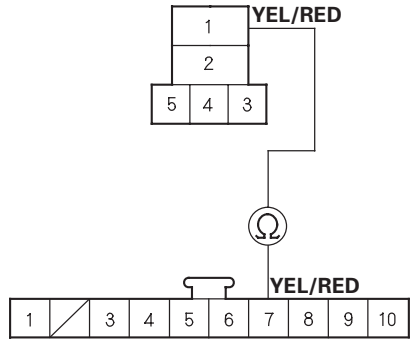
Is there continuity?

YES—Repair short to body ground in the wire between the rear mode control motor relay, the rear heater-A/C main switch and the rear heater-A/C passenger's control panel. ■

NO—Go to step 24.

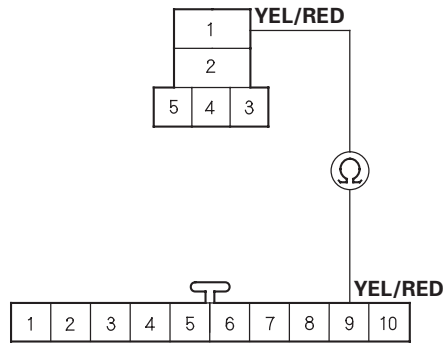
24. Check for continuity between the No. 1 terminal of the rear mode control motor relay 5P socket and the No. 7 terminal of the rear heater-A/C main switch 10P connector, and between the No. 1 terminal of the rear mode control motor relay 5P socket and the No. 9 terminal of the rear heater-A/C passenger's control panel 10P connector.

REAR MODE CONTROL MOTOR RELAY 5P SOCKET



REAR HEATER-A/C MAIN SWITCH 10P CONNECTOR
Wire side of female terminals

REAR MODE CONTROL MOTOR RELAY 5P SOCKET



REAR HEATER-A/C PASSENGER'S CONTROL PANEL 10P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Test the rear heater-A/C main switch (see page 21-140) and the rear heater-A/C passenger's control panel (see page 21-141). Replace the switch as needed. ■

NO—Repair open in the wire between the rear mode control motor relay and the rear heater-A/C main switch, or between the rear mode control motor relay and the rear heater-A/C passenger's control panel. ■

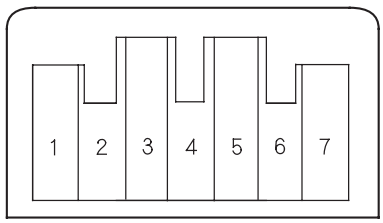
Rear Mode Control Motor Test

1. Disconnect the 7P connector from the rear mode control motor.

   NOTICE
   Incorrectly applying power and ground to the rear mode control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 2 terminal of the rear mode control motor, and ground the No. 1 terminal. To avoid damaging the rear mode control motor, do not reverse power and ground.

REAR MODE CONTROL MOTOR



3. Using a jumper wire, connect the No. 1 terminal individually to the No. 3, 4 and 6 terminals in that order. Each time the connection is made, the rear mode control motor should run smoothly and stop. If the rear mode control motor does not run when jumping the first terminal, jump that terminal again after jumping the other terminals. The rear mode control motor is OK if it runs when jumping the first terminal again.

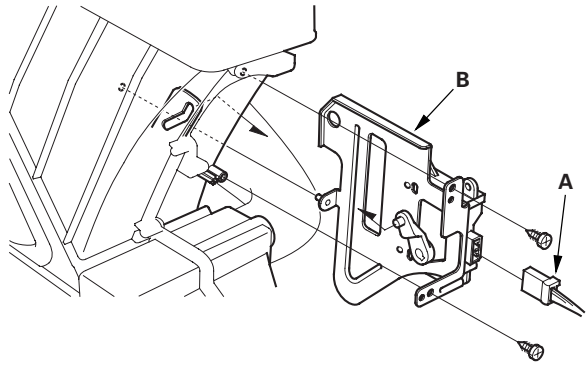
4. If the rear mode control motor does not run in step 3, remove it, then check the rear mode control linkage and doors for smooth movement.

   - If the linkage and doors move smoothly, replace the rear mode control motor.
   - If the linkage or doors stick or bind, repair them as needed.

Rear Mode Control Motor Replacement

1. Remove the rear blower unit (see page 21-142).

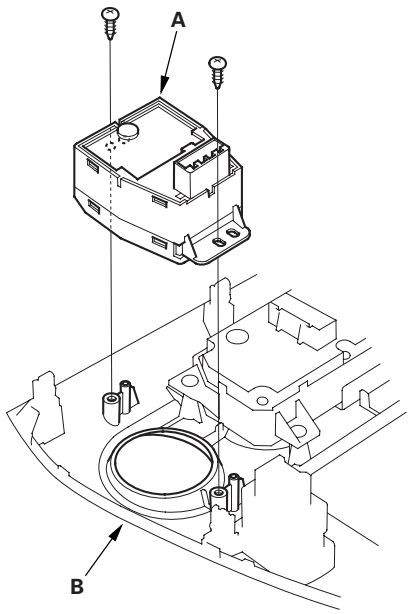
2. Disconnect the 7P connector (A) from the rear mode control motor (B). Remove the self-tapping screws and the rear mode control motor.



3. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

Rear Heater-A/C Main Switch Removal and Installation

1. Remove the center panel with the rear heater-A/C main switch (see page 20-69).
2. Remove the self-tapping screws and the rear heater-A/C main switch (A) from the center panel (B).



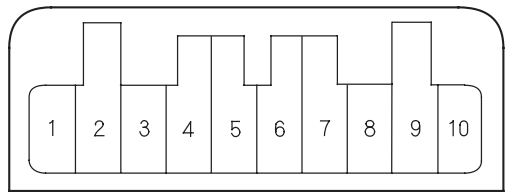
3. Install the main switch in the reverse order of removal. After installation, operate the main switch controls to see whether it works properly.

Rear Heater-A/C Main Switch Test

Check for continuity between the terminals in each switch position according to the table.

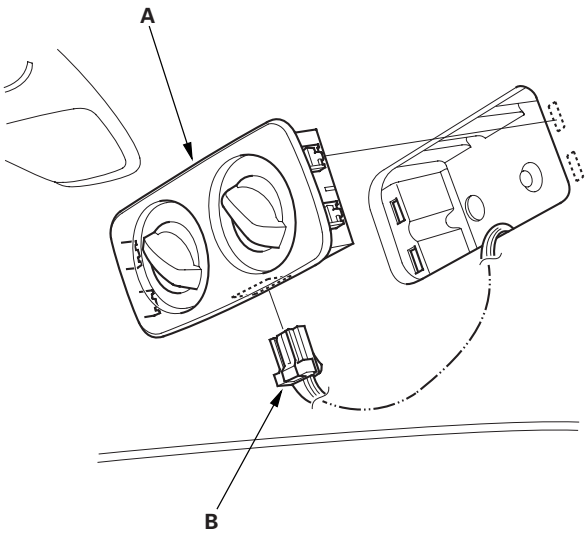
Position \ Terminal	2	3	4	5	6	7	8	9	1		10
OFF											
RR				○			○				
• (Cool)			○		○		○				
● (Cool)		○	○				○				
● (Cool)			○				○	○			
• (Hot)					○	○	○				
● (Hot)		○				○	○				
● (Hot)						○	○	○			

REAR HEATER-A/C MAIN SWITCH



Rear Heater-A/C Passenger's Control Panel Removal and Installation

1. Remove the rear heater-A/C passenger's control panel (A) from the headliner, then disconnect the 10P connector (B). Be careful not to damage the switch or the headliner.



2. Install the control panel in the reverse order of removal. After installation, operate the control panel controls to see whether it works properly.

Rear Heater-A/C Passenger's Control Panel Test

Check for continuity between the terminals in each switch position according to the table.

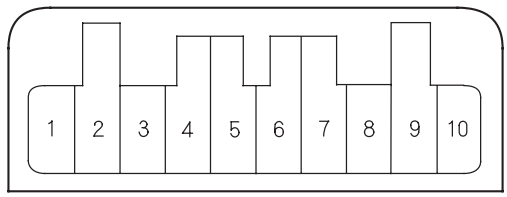
Fan Switch Test

Position \ Terminal	1		2	3	4	5		6
OFF								
•	○	◄	○					
••	○	◄		○				
•••	○	◄			○			

Mode Control Switch Test

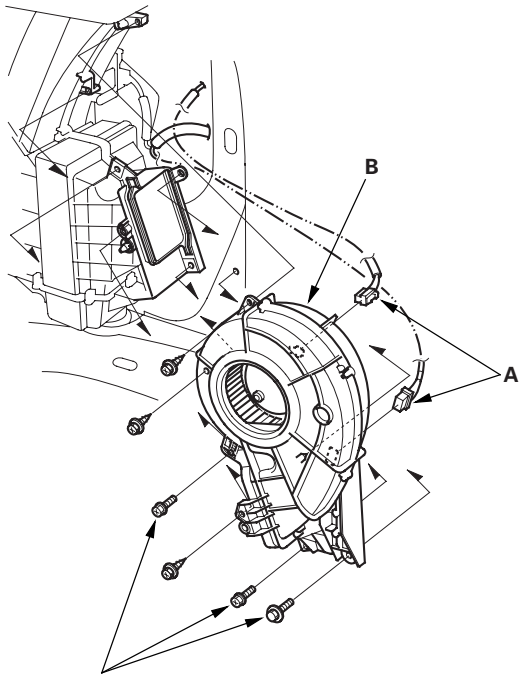
Position \ Terminal	1		8		7	9
(Cool)	○	◄	○	◄	○	
(Hot)	○	◄				○

REAR HEATER-A/C PASSENGER'S CONTROL PANEL



Rear Blower Unit Removal and Installation

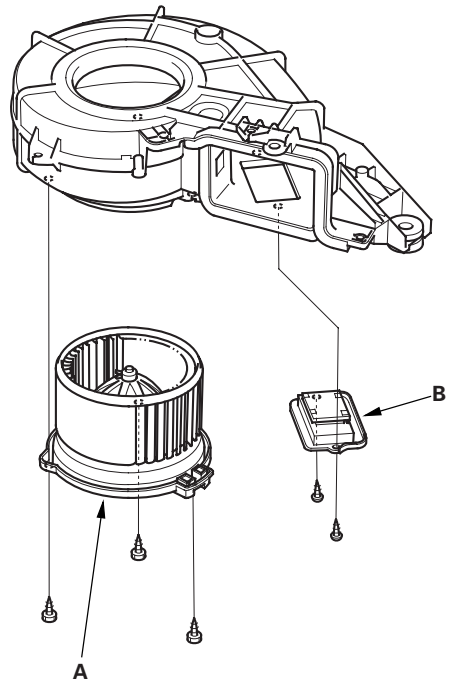
1. Remove the rear side trim panel of the right side (see page 20-60).
2. Disconnect the connectors (A) from the rear blower motor and the rear blower resistor, then remove the self-tapping screws, the mounting bolts and the rear blower unit (B).



3. Install the unit in the reverse order of removal. Make sure that there is no air leakage.

Rear Blower Unit Component Replacement

1. Remove the self-tapping screws and the rear blower motor (A). Remove the self-tapping screws and the rear blower resistor (B).



2. Install the motor and the resistor in the reverse order of removal.

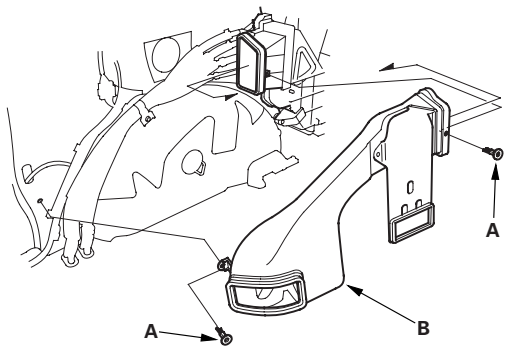
Rear Evaporator-Heater Unit Removal and Installation

1. When the engine is cool, drain the engine coolant from the radiator (see page 10-13).

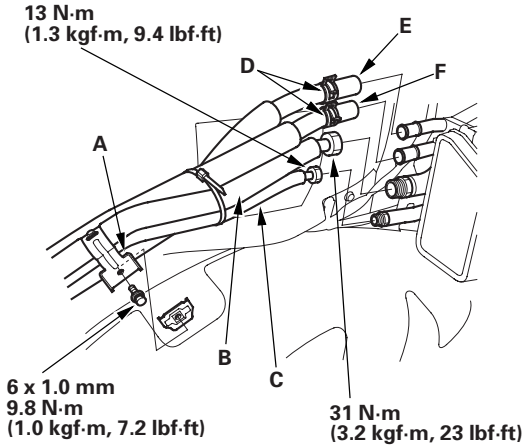
2. Recover the refrigerant with a recovery/recycling/charging station (see page 21-56).

3. Remove the rear blower unit (see page 21-142).

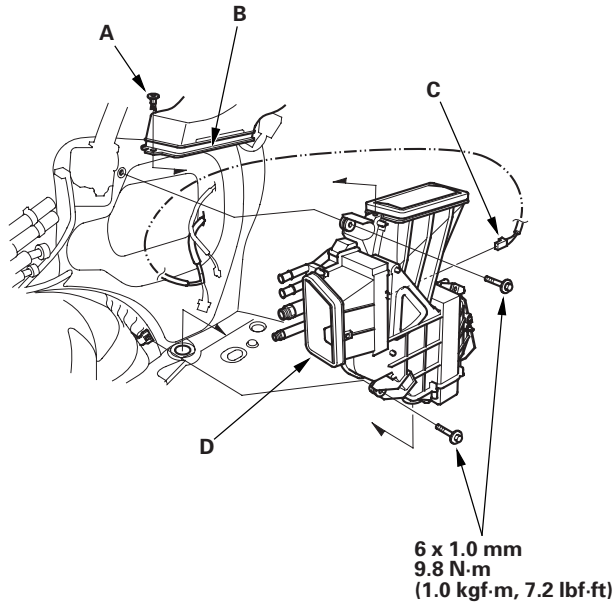
4. Remove the clips (A) and the rear heater duct (B).



5. Remove the bolt from the bracket (A). Disconnect the suction line (B) and receiver line (C) from the rear evaporator. Slide the hose clamps (D) back, then disconnect the inlet heater hose (E) and the outlet heater hose (F) from the rear heater unit. Engine coolant will run out when the hoses are disconnected; drain it into a clean drip pan. Be sure not to let coolant spill on the electrical parts or the painted surfaces. If any coolant spills, rinse it off immediately. Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.



6. Remove the clip (A), then lifting the upper duct (B) up. Disconnect the connector (C) from the rear mode control motor. Remove the mounting bolts and the rear evaporator-heater unit (D).



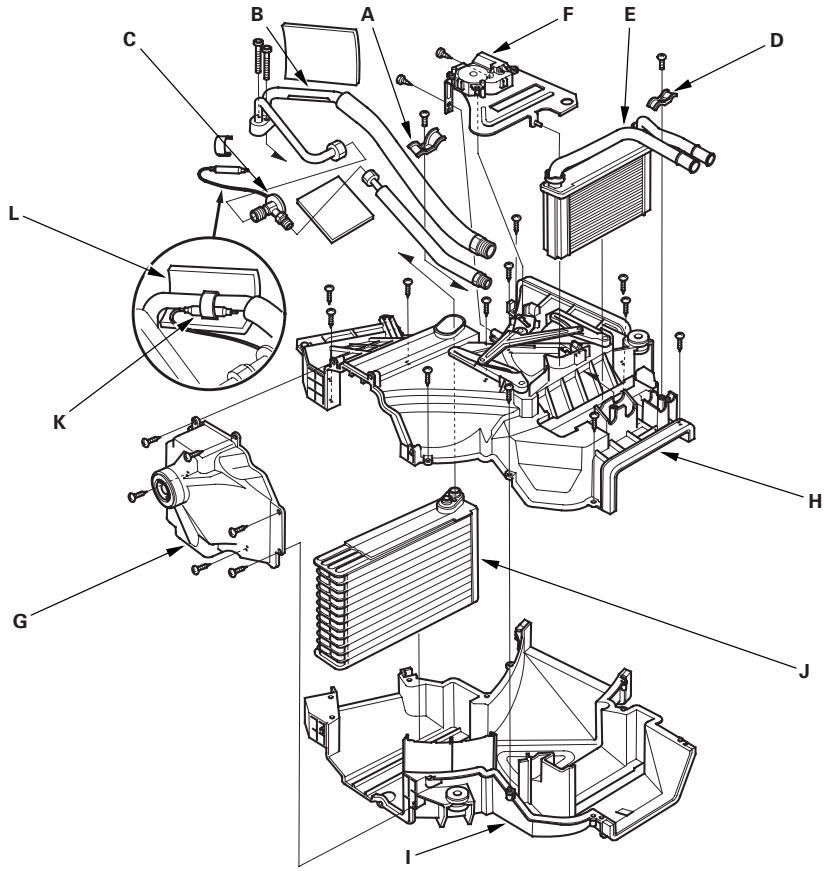
7. Install the unit in the reverse order of removal, and note these items.

- If you're installing a new evaporator, add refrigerant oil (DENSO ND-OIL 8) (see page 21-6).
- Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint. If the refrigerant oil contacts the paint, wash it off immediately.
- Do not interchange the inlet and outlet heater hoses. Install the hose clamps securely.
- Refill the cooling system with engine coolant (see page 10-13).
- Make sure that there is no coolant leakage.
- Make sure that there is no air leakage.
- Charge the system (see page 21-58).

Rear Evaporator-Heater Unit Component Replacement

NOTE:
- The rear mode control motor can be replaced without removing the rear evaporator-heater unit.
- Replace all O-rings, and coat them with refrigerant oil before installation.
- Install the capillary tube (K) directly against the outlet line, and wrap it with electrical tape (L).
- Before reassembly, make sure that the rear mode control doors and linkage move smoothly without binding.
- After reassembly, make sure the rear mode control motor runs smoothly (see page 21-139).
- Make sure that there is no coolant leakage.
- Make sure that there is no air leakage.

1. Remove the self-tapping screws and the clamp (A), then remove the bolts and the evaporator lines (B) together with the expansion valve (C). If necessary, remove the expansion valve. Use a second wrench to hold the other fitting on the valve so the evaporator lines won't twist. Leave the first fitting loosely connected so you can use it to hold the valve while you loosen the second fitting.



2. Remove the self-tapping screws and the clamp (D), then be careful not to bend the inlet and outlet pipes during the heater core (E) removal, and pull out the heater core.

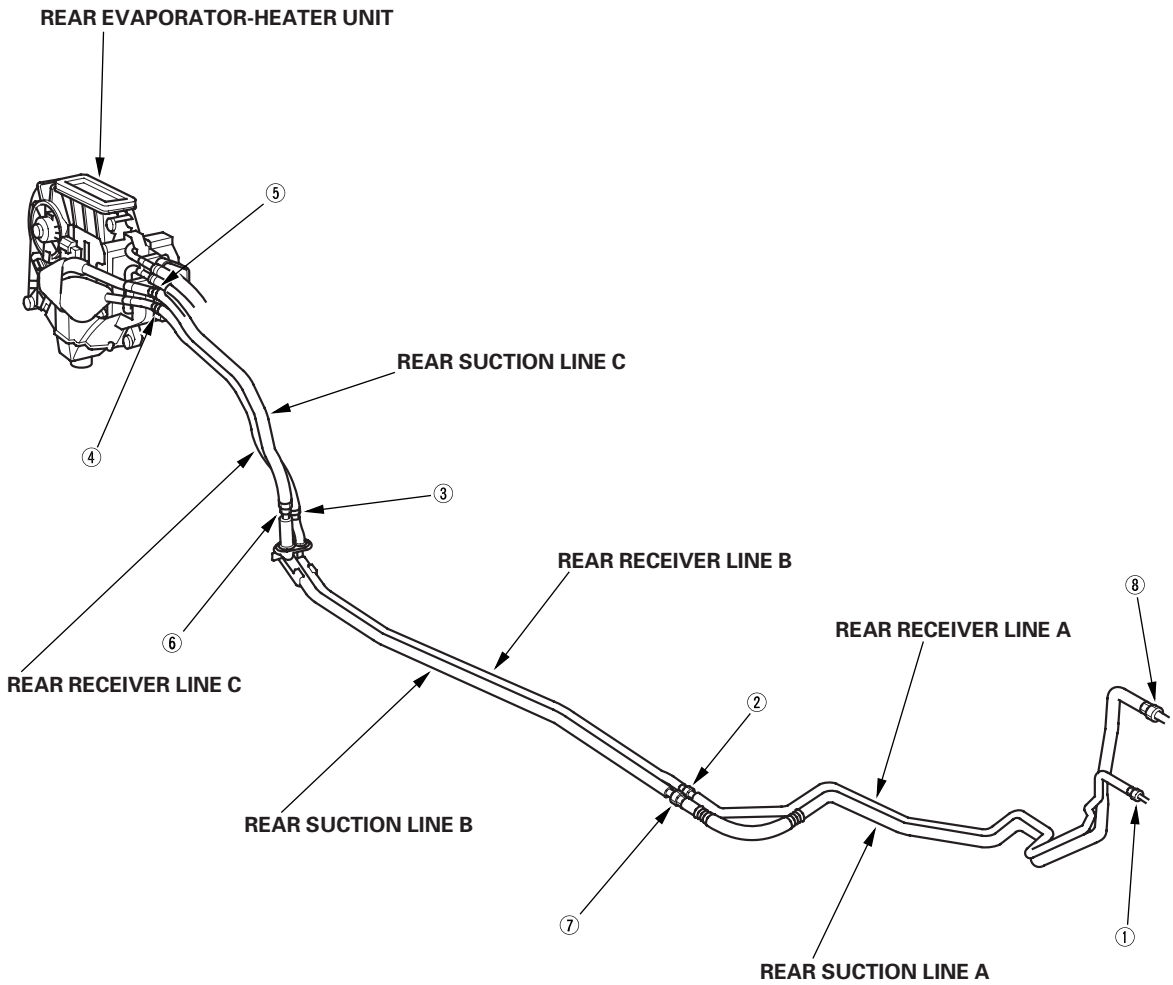
3. Remove the self-tapping screws and the rear mode control motor (F).

4. Remove the self-tapping screws and the lower housing (G).

5. Remove the self-tapping screws, carefully separate the right housing (H) from the left housing (I), then remove the evaporator core (J).

6. Reassemble the unit in the reverse order of disassembly.

Rear A/C Line Replacement



① Rear receiver line A to the receiver line: 13 N·m (1.3 kgf·m, 9.4 lbf·ft)
② Rear receiver line B to the rear receiver line A: 13 N·m (1.3 kgf·m, 9.4 lbf·ft)
③ Rear receiver line C to the rear receiver line B: 13 N·m (1.3 kgf·m, 9.4 lbf·ft)
④ Rear receiver line C to the rear evaporator-heater unit: 13 N·m (1.3 kgf·m, 9.4 lbf·ft)
⑤ Rear suction line C to the rear evaporator-heater unit: 31 N·m (3.2 kgf·m, 23 lbf·ft)
⑥ Rear suction line C to the rear suction line B: 31 N·m (3.2 kgf·m, 23 lbf·ft)
⑦ Rear suction line B to the rear suction line A: 31 N·m (3.2 kgf·m, 23 lbf·ft)
⑧ Rear suction line A to the suction line: 31 N·m (3.2 kgf·m, 23 lbf·ft)

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If electrical maintenance is required)

The Odyssey SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done only by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work must be performed by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump the SRS unit. Otherwise, the system may fail in a collision, or airbags may deploy if the ignition switch is ON (II).
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, and around the floor. Do not use electrical test equipment on these circuits.

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Seat Heaters ('02-04 models)
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Switch Test 22-330
Heater Test 22-330

Rear Entertainment System ('02-04 models)
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Wireless Remote Control Battery Replacement 22-345

Navigation System 22-347

Body Electrical

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07XAA-0010200	Antenna Nut Wrench	1
②	07WAZ-001010A	MPCS Service Connector	1
③	07LAJ-PT3020A	Test Harness	1
④	07TAZ-001020A	Back Probe Adaptor	1

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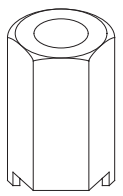

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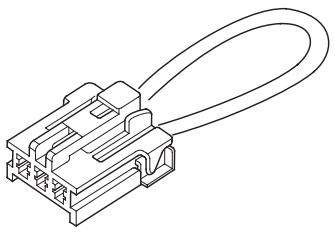

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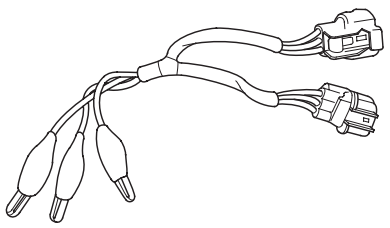

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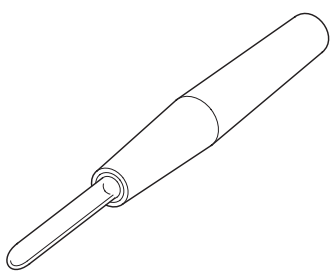


④

General Troubleshooting Information

Tips and Precautions

Before Troubleshooting

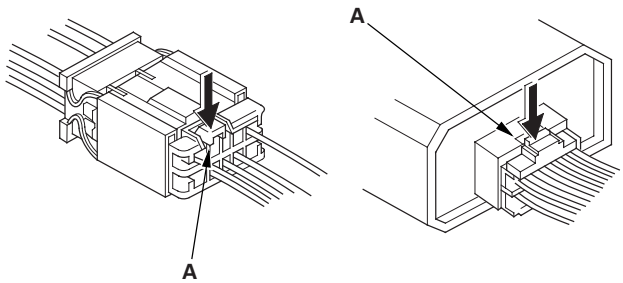
1. Check applicable fuses in the appropriate fuse/relay box.

2. Check the battery for damage, state of charge, and clean and tight connections.

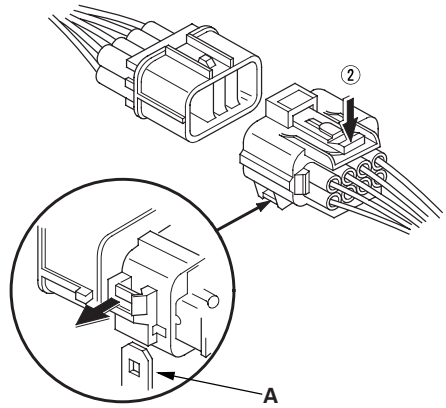
   NOTICE
   - Do not quick-charge a battery unless the battery ground cable has been disconnected, otherwise you will damage the alternator diodes.
   - Do not attempt to crank the engine with the battery ground cable loosely connected or you will severely damage the wiring.

3. Check the alternator belt tension.

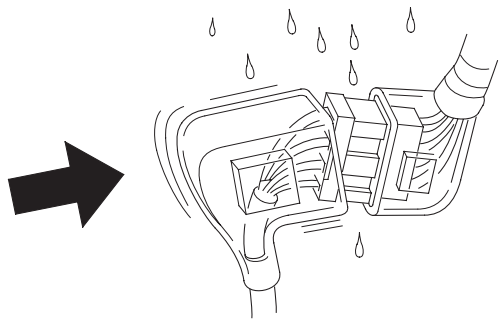
Handling Connectors
- Make sure the connectors are clean and have no loose wire terminals.
- Make sure multiple cavity connectors are packed with dielectric grease (except watertight connectors).
- All connectors have push-down release type locks (A).



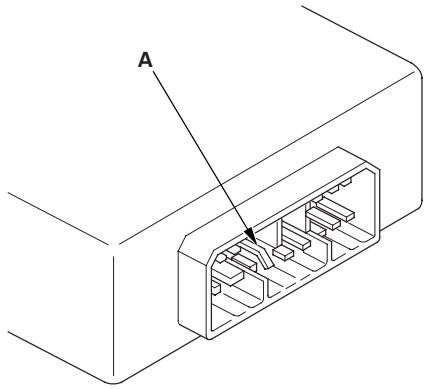
- Some connectors have a clip on their side used to attach them to a mount bracket on the body or on another component. This clip has a pull type lock.
- Some mounted connectors cannot be disconnected unless you first release the lock and remove the connector from its mount bracket (A).



- Never try to disconnect connectors by pulling on their wires; pull on the connector halves instead.
- Always reinstall plastic covers.



- Before connecting connectors, make sure the terminals (A) are in place and not bent.



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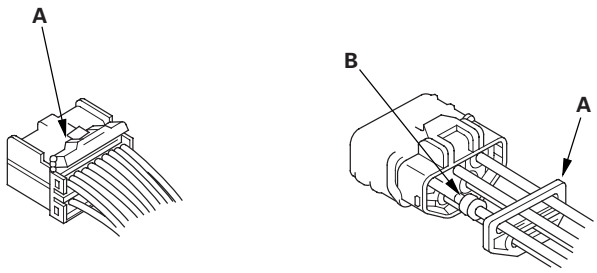
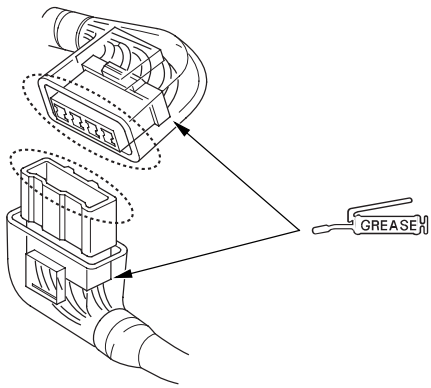
General Troubleshooting Information (cont'd)

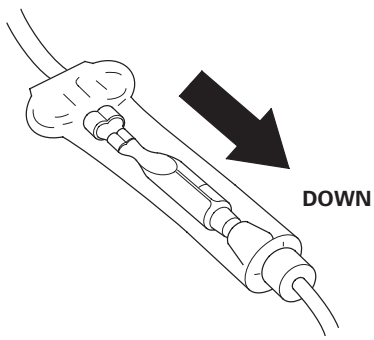
- Check for loose retainer (A) and rubber seals (B).



- The backs of some connectors are packed with dielectric grease. Add grease if necessary. If the grease is contaminated, replace it.

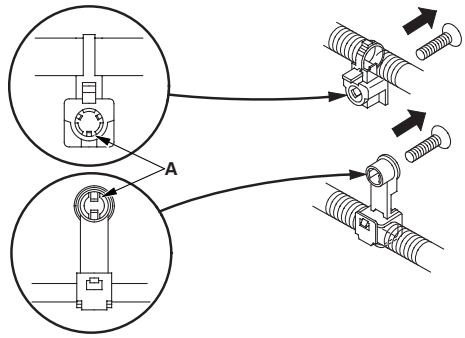


- Insert the connector all the way and make sure it is securely locked.
- Position wires so that the open end of the cover faces down.

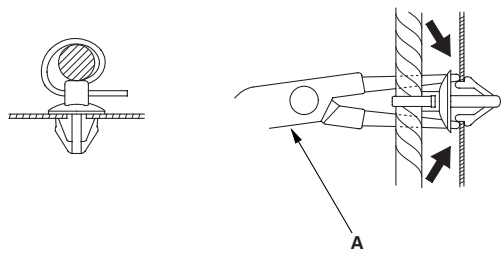


Handling Wires and Harnesses

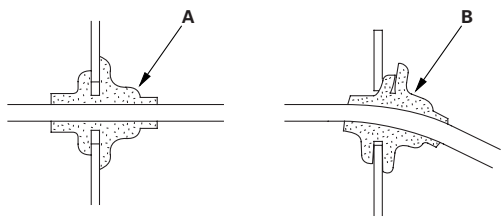
- Secure wires and wire harnesses to the frame with their respective wire ties at the designated locations.
- Remove clips carefully; don't damage their locks (A).



- Slip pliers (A) under the clip base and through the hole at an angle, then squeeze the expansion tabs to release the clip.

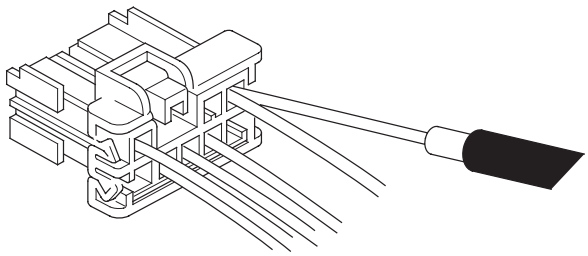


- After installing harness clips, make sure the harness doesn't interfere with any moving parts.
- Keep wire harnesses away from exhaust pipes and other hot parts, from sharp edges of brackets and holes, and from exposed screws and bolts.
- Seat grommets in their grooves properly (A). Do not leave grommets distorted (B).

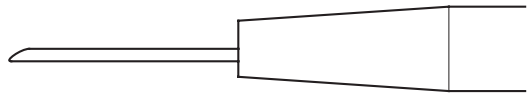


Testing and Repairs

- Do not use wires or harnesses with broken insulation. Replace them or repair them by wrapping the break with electrical tape.
- After installing parts, make sure that no wires are pinched under them.
- When using electrical test equipment, follow the manufacturer's instructions and those described in this manual.
- If possible, insert the probe of the tester from the wire side (except waterproof connector).



- Use back probe adaptor 07TAZ-001020A.



- Refer to the instructions in the Honda Terminal Kit for identification and replacement of connector terminals.

(cont'd)

General Troubleshooting Information (cont'd)

Five-step Troubleshooting

1. Verify The Complaint
   Turn on all the components in the problem circuit to verify the customer complaint. Note the symptoms. Do not begin disassembly or testing until you have narrowed down the problem area.

2. Analyze The Schematic
   Look up the schematic for the problem circuit. Determine how the circuit is supposed to work by tracing the current paths from the power feed through the circuit components to ground. If several circuits fail at the same time, the fuse or ground is a likely cause.

   Based on the symptoms and your understanding of the circuit operation, identify one or more possible causes of the problem.

3. Isolate The Problem By Testing The Circuit
   Make circuit tests to check the diagnosis you made in step 2. Keep in mind that a logical, simple procedure is the key to efficient troubleshooting. Test for the most likely cause of failure first. Try to make tests at points that are easily accessible.

4. Fix The Problem
   Once the specific problem is identified, make the repair. Be sure to use proper tools and safe procedures.

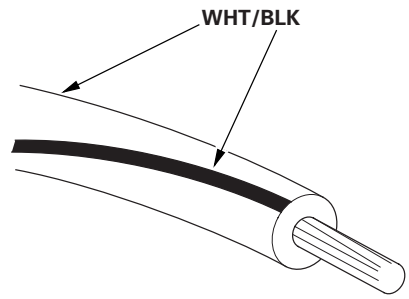
5. Make Sure The Circuit Works
   Turn on all components in the repaired circuit in all modes to make sure you've fixed the entire problem. If the problem was a blown fuse, be sure to test all of the circuits on the fuse. Make sure no new problems turn up and the original problem does not recur.

Wire Color Codes

The following abbreviations are used to identify wire colors in the circuit schematics:

WHT	White
YEL	Yellow
BLK	Black
BLU	Blue
GRN	Green
RED	Red
ORN	Orange
PNK	Pink
BRN	Brown
GRY	Gray
PUR	Purple
LT BLU	Light Blue
LT GRN	Light Green

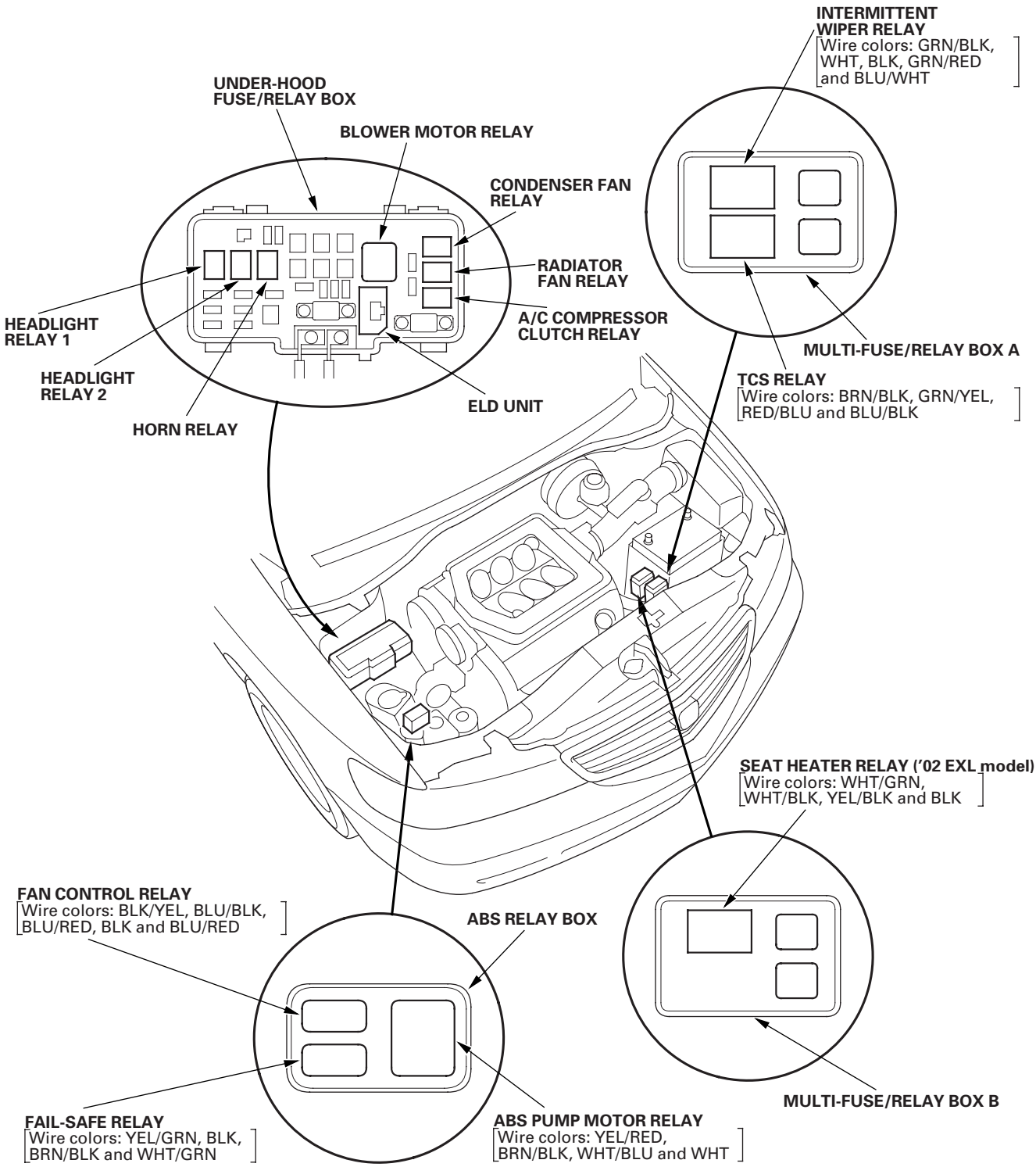
The wire insulation has one color or one color with another color stripe. The second color is the stripe.



Relay and Control Unit Locations

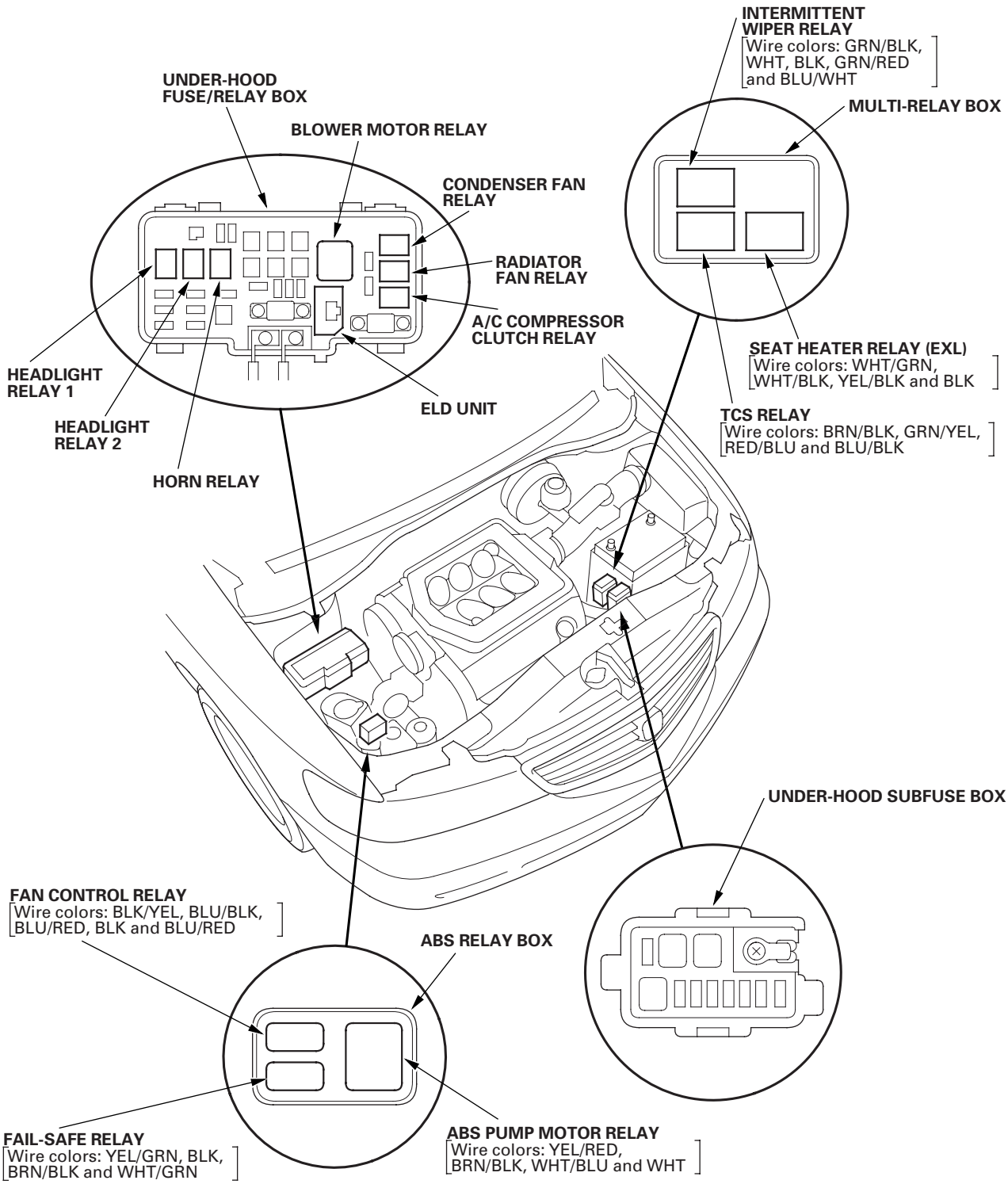
Engine Compartment

'99-02 models



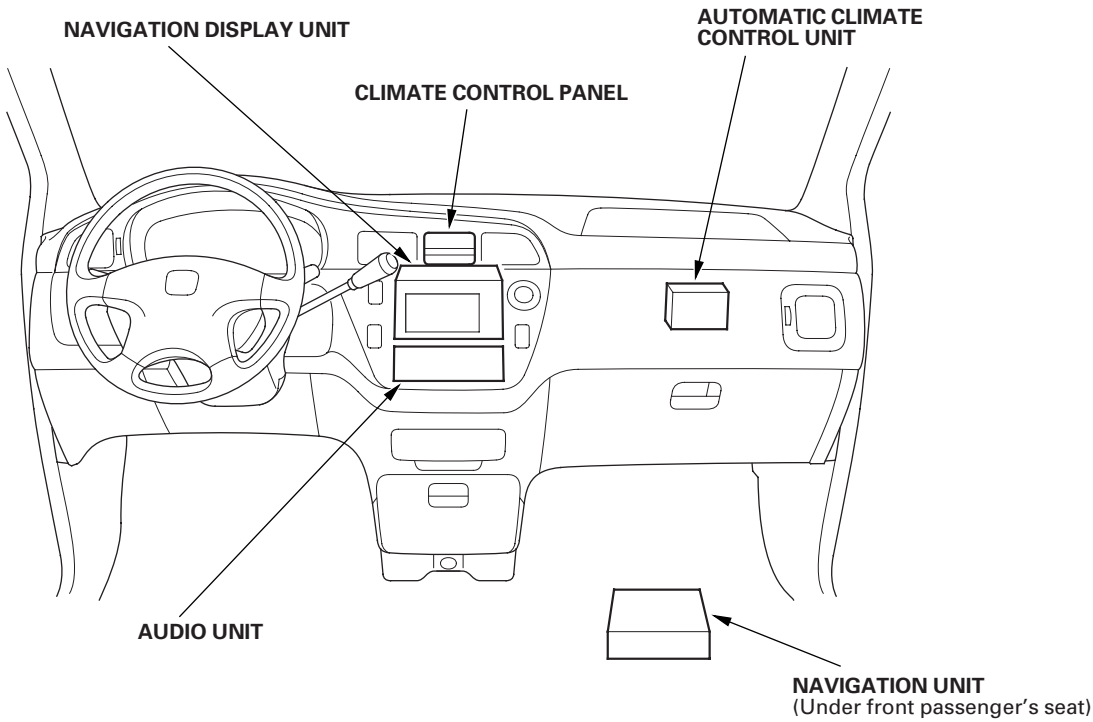
Engine Compartment (cont'd)

'03-04 models

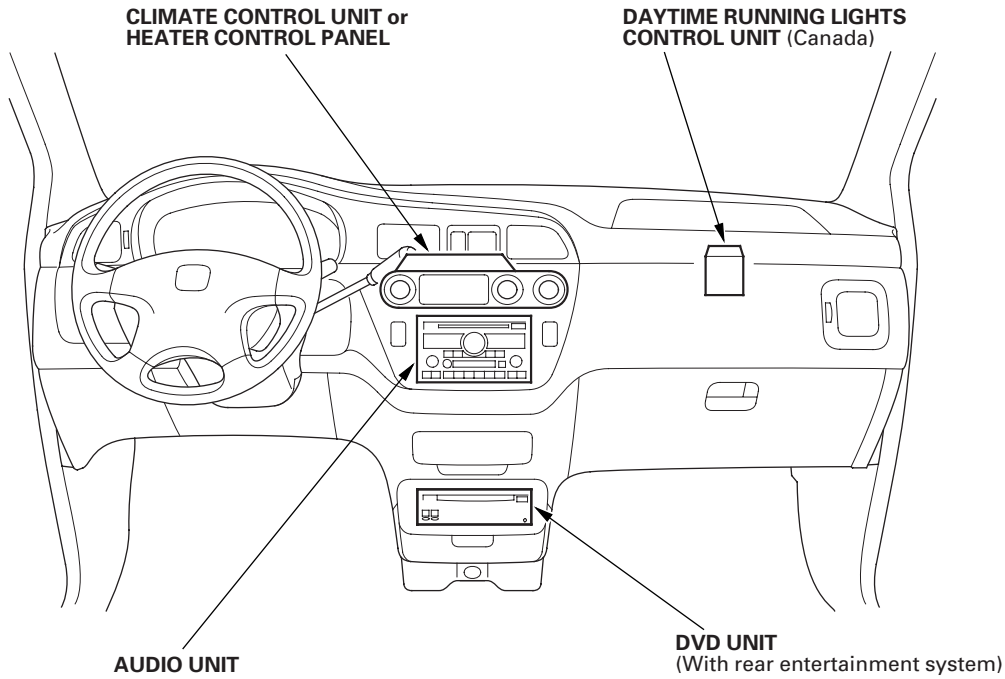


Dashboard

With navigation System:



Without navigation System:



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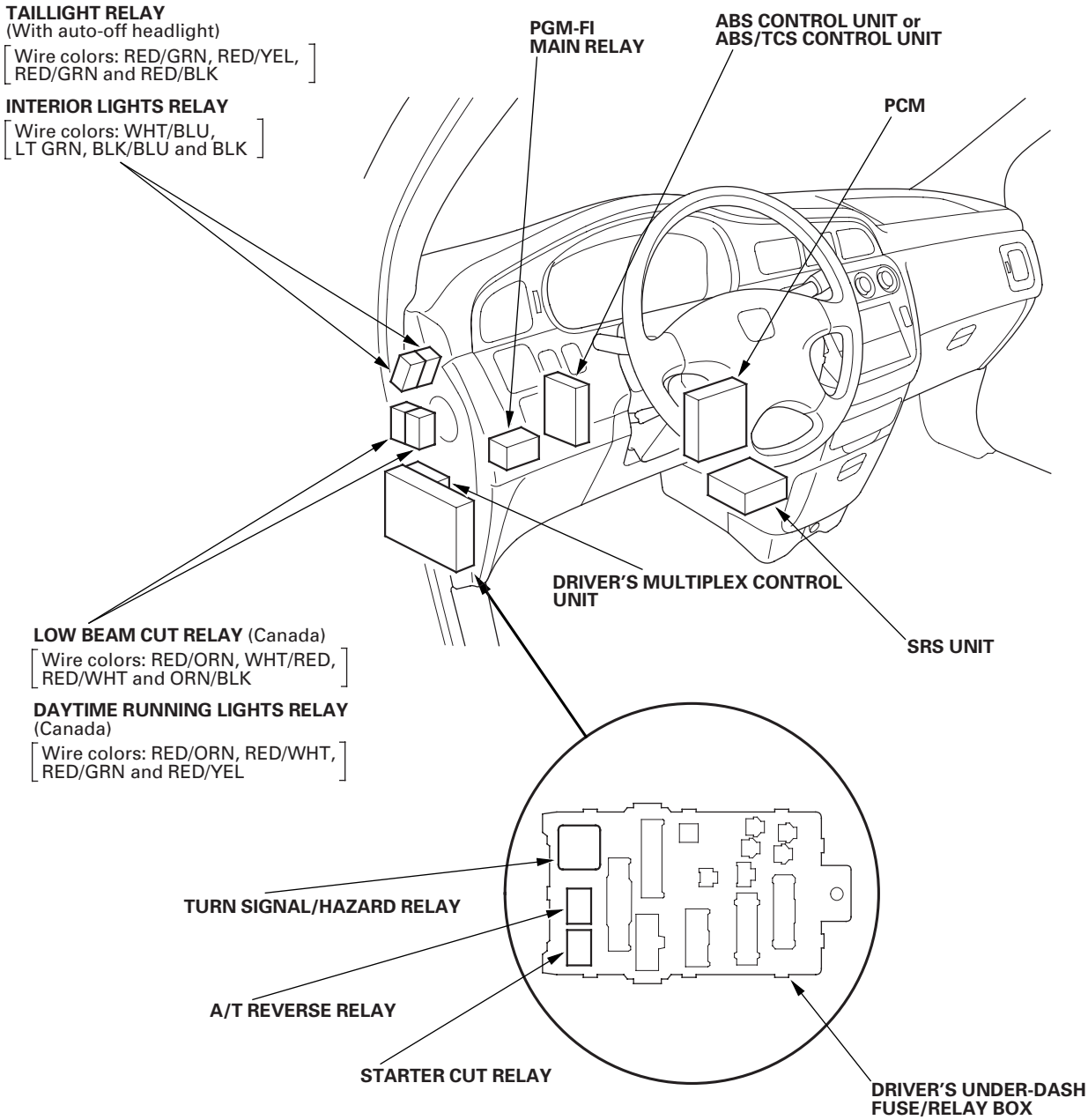
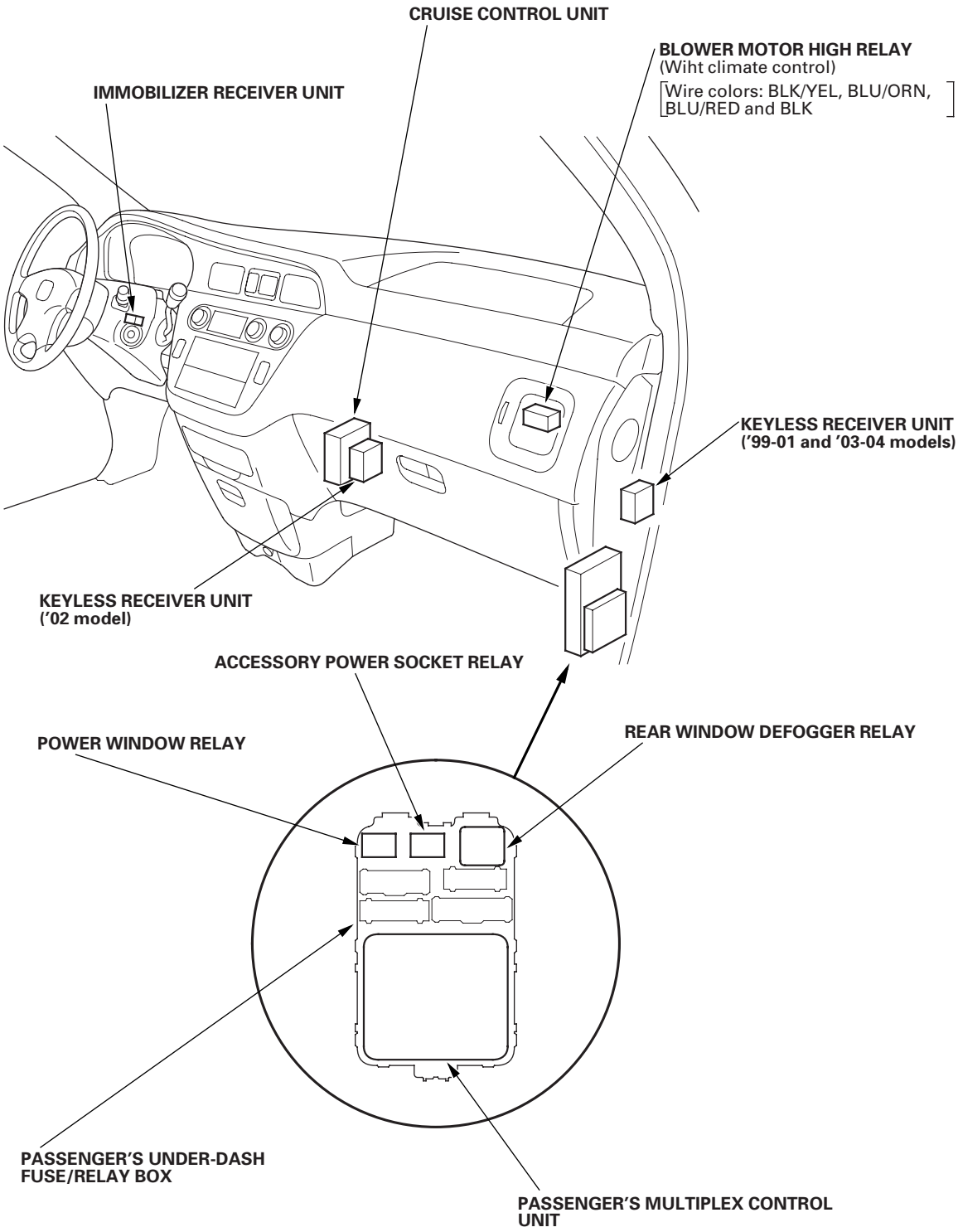
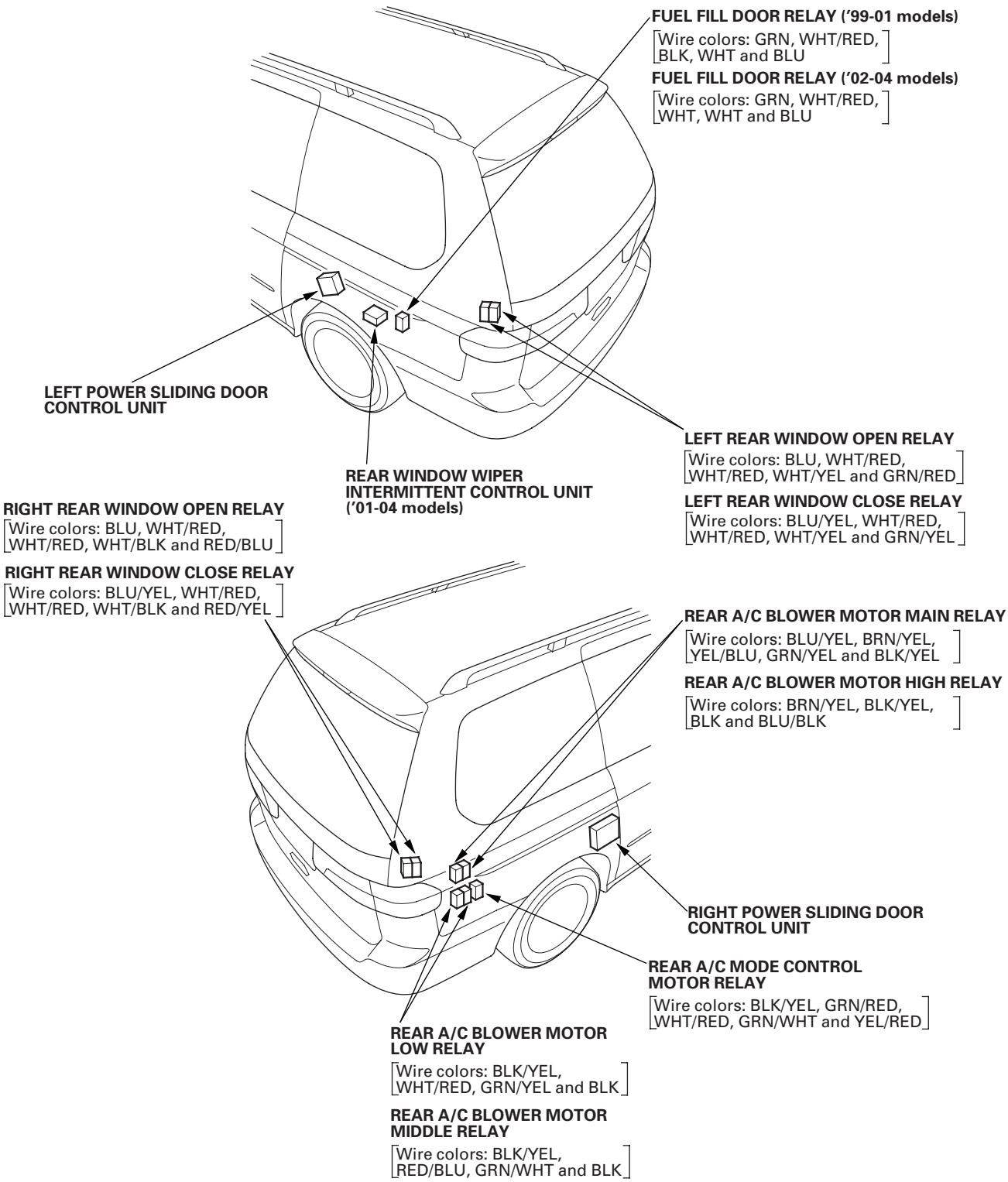
Relay and Control Unit Locations

Dashboard (cont'd)

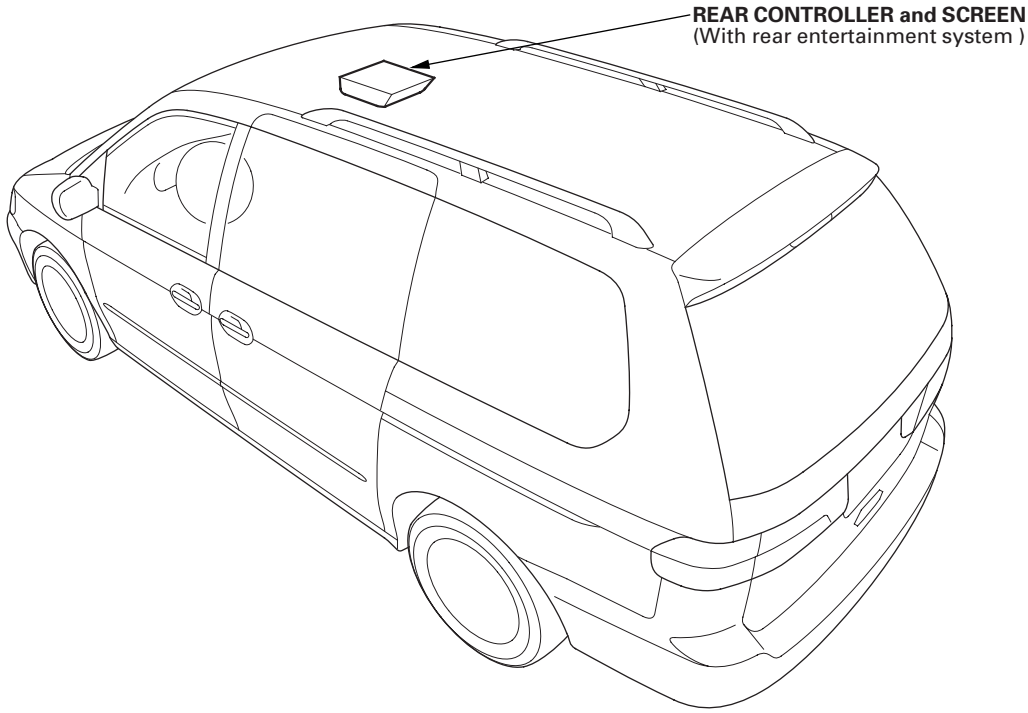



CRUISE CONTROL UNIT
BLOWER MOTOR HIGH RELAY
(Wiht climate control)
Wire colors: BLK/YEL, BLU/ORN, BLU/RED and BLK
IMMOBILIZER RECEIVER UNIT
KEYLESS RECEIVER UNIT
('99-01 and '03-04 models)
KEYLESS RECEIVER UNIT
('02 model)
ACCESSORY POWER SOCKET RELAY
POWER WINDOW RELAY
REAR WINDOW DEFOGGER RELAY
PASSENGER'S UNDER-DASH
FUSE/RELAY BOX
PASSENGER'S MULTIPLEX CONTROL
UNIT

Rear Side Trim

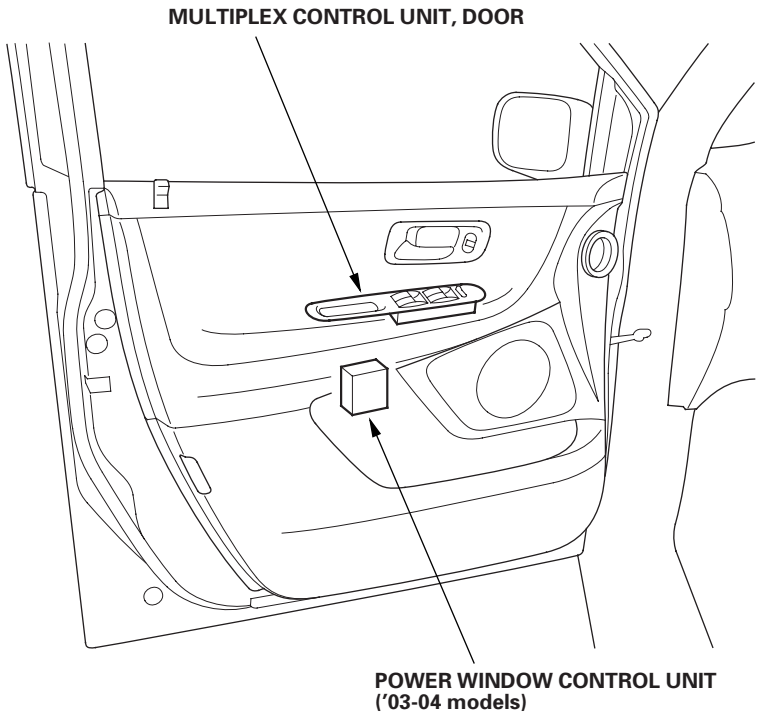


Roof

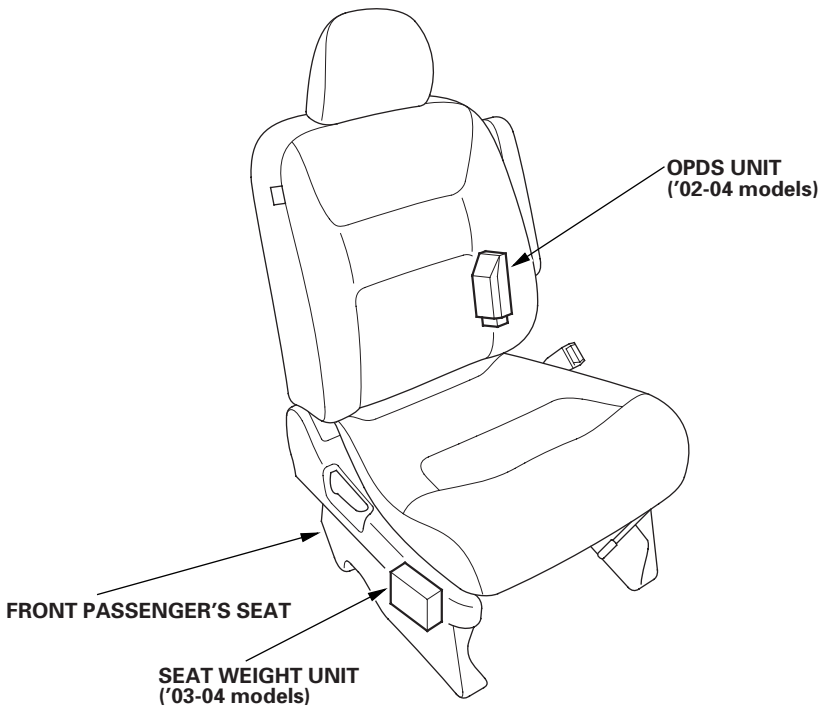

REAR CONTROLLER and SCREEN
(With rear entertainment system)

Door and Seat

Driver's Door:



Front Passenger's Seat:



Connector Index

Identification numbers have been assigned to in-line connectors. The number is preceded by the letter ''C'' for connectors, ''G'' for ground terminals or ''T'' for non-ground terminals.

Harness	Location			
	Engine Compartment	Dashboard	Others (Floor, Door, Tailgate and Roof)	Notes
Starter cable	T1, T2 and (+)			(see page 22-16)
Battery ground cable	T3 G1 and (−)			(see page 22-16)
Engine ground cable	T4 G2			(see page 22-16)
Engine wire harness	C101 through C108, C151 T101 and T102 G101 and G102			(see page 22-18)
Right engine compartment wire harness	G201	C201 through C205		(see page 22-26)
Left engine compartment wire harness	C101, C102 and C108 T103, T5 G301 through G303	C301 through C304, C753		(see page 22-28)
Dashboard wire harness B (right branch)		C201 and C202 C451 and C452		(see page 22-32)
Dashboard wire harness B (left branch)		C301 and C302 C401 and C402 G401		(see page 22-32)
Dashboard wire harness A		C203, C204, C303, C401, C402 C501 through C509, C512 C541 G501 through G503		(see page 22-38)
Left side wire harness		C501, C502, C507, C508, C509, C551, C751	C552 through C559 C510, C511 G551 and G552	(see page 22-48)
Right side wire harness		C451, C452, C505 C506, C581, C761	C582, C583, C584, C589, C861 G581 and G582	(see page 22-52)
Tailgate wire harness			C554, C555 C601 through C603	(see page 22-58)
Tailgate subharness			C601 through C603	(see page 22-59)
Roof wire harness		C512	C582, C510, C511	(see page 22-60)
SRS main harness		C503, C205, C304 C551, C581, C851 G801		(see page 22-61)
Knock sensor subharness	C103			(see page 22-18)
Driver's seat wire harness			C552	(see page 22-72)
Driver's door wire harness		C751, C753	C752	(see page 22-70)
Front passenger's door wire harness		C761	C762	(see page 22-71)
PCM subharness		C504		(see page 22-68)
Fuel unit subharness			C553	(see page 22-48)
Ignition switch lead				(see page 22-69)
Navigation wire harness		C541		(see page 22-68)
Driver's seat heater switch subharness ('02-04 models)			C752	(see page 22-70)
Front passenger's seat heater switch subharness ('02-04 models)			C762	(see page 22-71)
SRS floor harness ('02-04 models)		C851 and C852 G851		(see page 22-62)
SRS floor subharness ('02-04 models)		C852	C556, C557, C558 C583, C584	(see page 22-62)
OPDS unit harness ('02-04 models)			C861	(see page 22-62)
A/T subharness ('02-04 models)	C151 G151			(see page 22-74)
Front passenger's seat wire harness ('03-04 models)			C589, C861	(see page 22-73)
Seat position sensor subharness ('03-04 LX)			C559	(see page 22-64)

Connector to Harness Index

Starter Cable

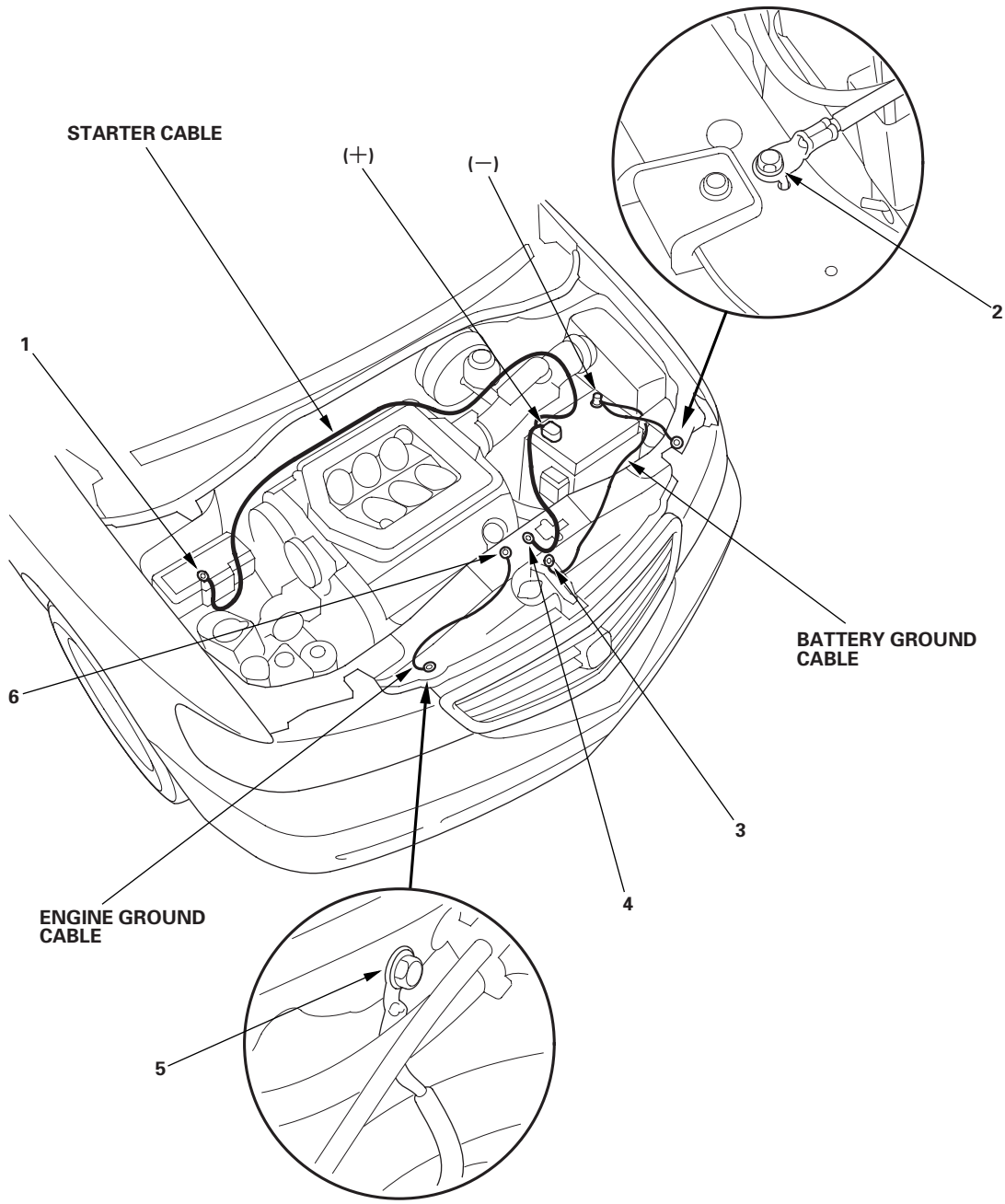
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
T1	1		Right side of engine compartment	Under-hood fuse/relay box	
T2	4		Left side of engine compartment	Starter motor	
(+)			Battery	Battery positive terminal	

Battery Ground Cable

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
T3	3		Left side of engine compartment	Transmission housing	
G1	2		Left side of engine compartment	Body ground via battery ground cable	
(−)			Battery	Battery positive terminal	

Engine Ground Cable

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
T4	6		Right side of engine compartment	Transmission housing	
G2	5		Right side of engine compartment	Body ground via engine ground cable	

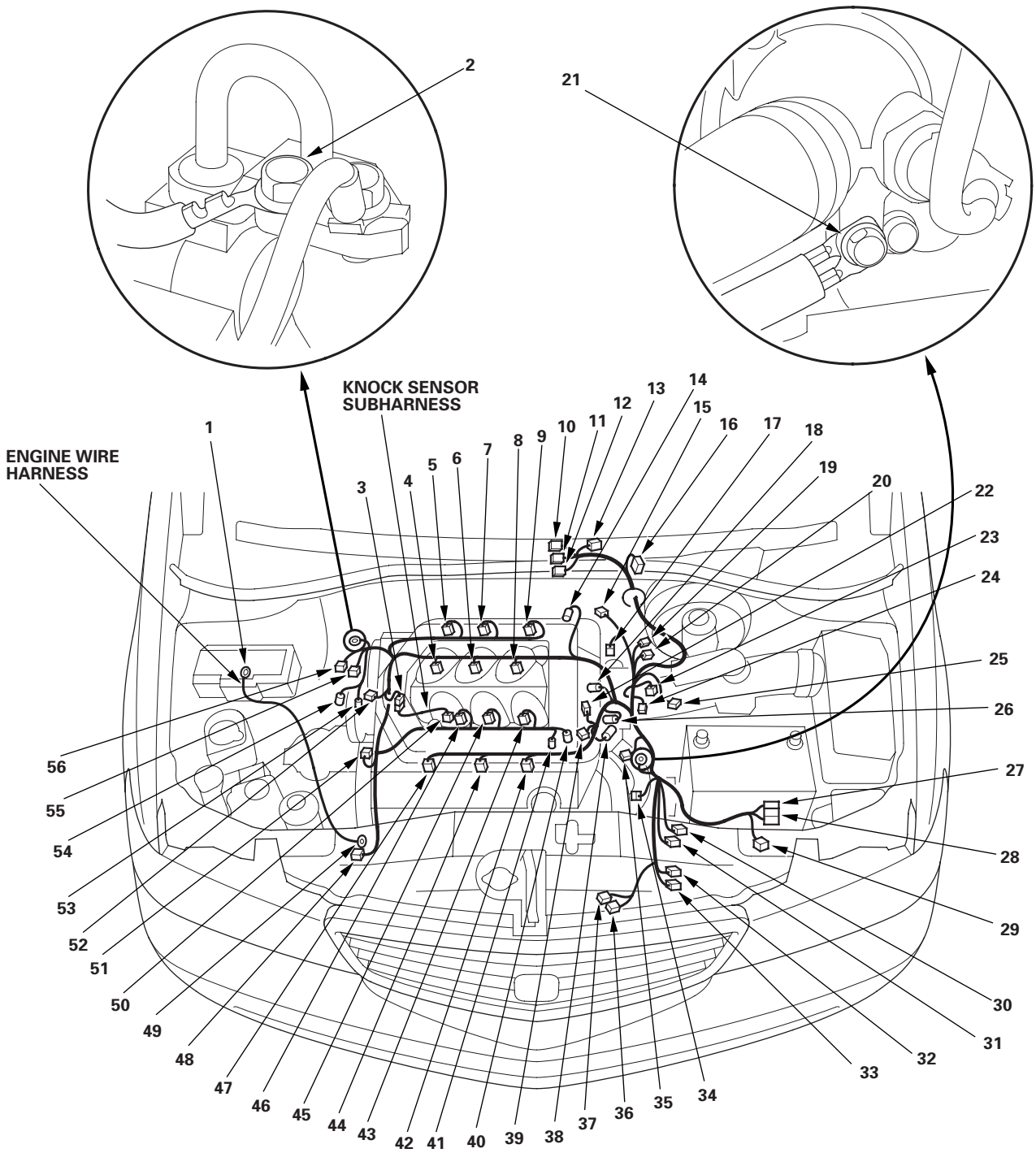

STARTER CABLE
(+)
(−)
1
2
6
BATTERY GROUND CABLE
3
4
ENGINE GROUND CABLE
5

Connector to Harness Index (cont'd)

Engine Wire Harness ('99-01 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Alternator	48	4	Middle of engine compartment		
A/T clutch pressure control valve A	30	2	On transmission housing		
A/T clutch pressure control valve B	31	2	On transmission housing		
CKP sensor	55	2	Right side of engine compartment		
Coolant temperature gauge sending unit	41	1	Middle of engine compartment		* 1
EGR valve and EGR valve lift sensor	39	6	Left side of engine compartment		
Engine coolant temperature (ECT) sensor	40	2	Middle of engine compartment		
Engine oil pressure switch	53	1	Right side of engine compartment		
Idle air control (IAC) valve	22	3	Left side of engine compartment		
Ignition coil No. 1	5	3	Middle of engine compartment		
Ignition coil No. 2	7	3	Middle of engine compartment		
Ignition coil No. 3	9	3	Middle of engine compartment		
Ignition coil No. 4	47	3	Middle of engine compartment		
Ignition coil No. 5	44	3	Middle of engine compartment		
Ignition coil No. 6	42	3	Middle of engine compartment		
Injector No. 1	4	2	Middle of engine compartment		
Injector No. 2	6	2	Middle of engine compartment		
Injector No. 3	8	2	Middle of engine compartment		
Injector No. 4	46	2	Middle of engine compartment		
Injector No. 5	45	2	Middle of engine compartment		
Injector No. 6	43	2	Middle of engine compartment		
Input shaft (Countershaft) speed sensor	25	2	On transmission housing		
Intake air temperature (IAT) sensor	14	2	Middle of engine compartment		
MAP sensor	18	3	Left side of engine compartment		
Output shaft (Mainshaft) speed sensor	32	2	On transmission housing		
PCM connector B	10	25	Under middle of dash		* 1
PCM connector C	11	31	Under middle of dash		* 1
PCM connector D	12	16	Under middle of dash		* 1
PCM connector A	10	31	Under middle of dash		* 2
PCM connector B	11	24	Under middle of dash		* 2
PCM connector C	12	22	Under middle of dash		* 2

* 1: '99-00 models
* 2: '01 model


KNOCK SENSOR SUBHARNESS
ENGINE WIRE HARNESS
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(cont'd)

Connector to Harness Index (cont'd)

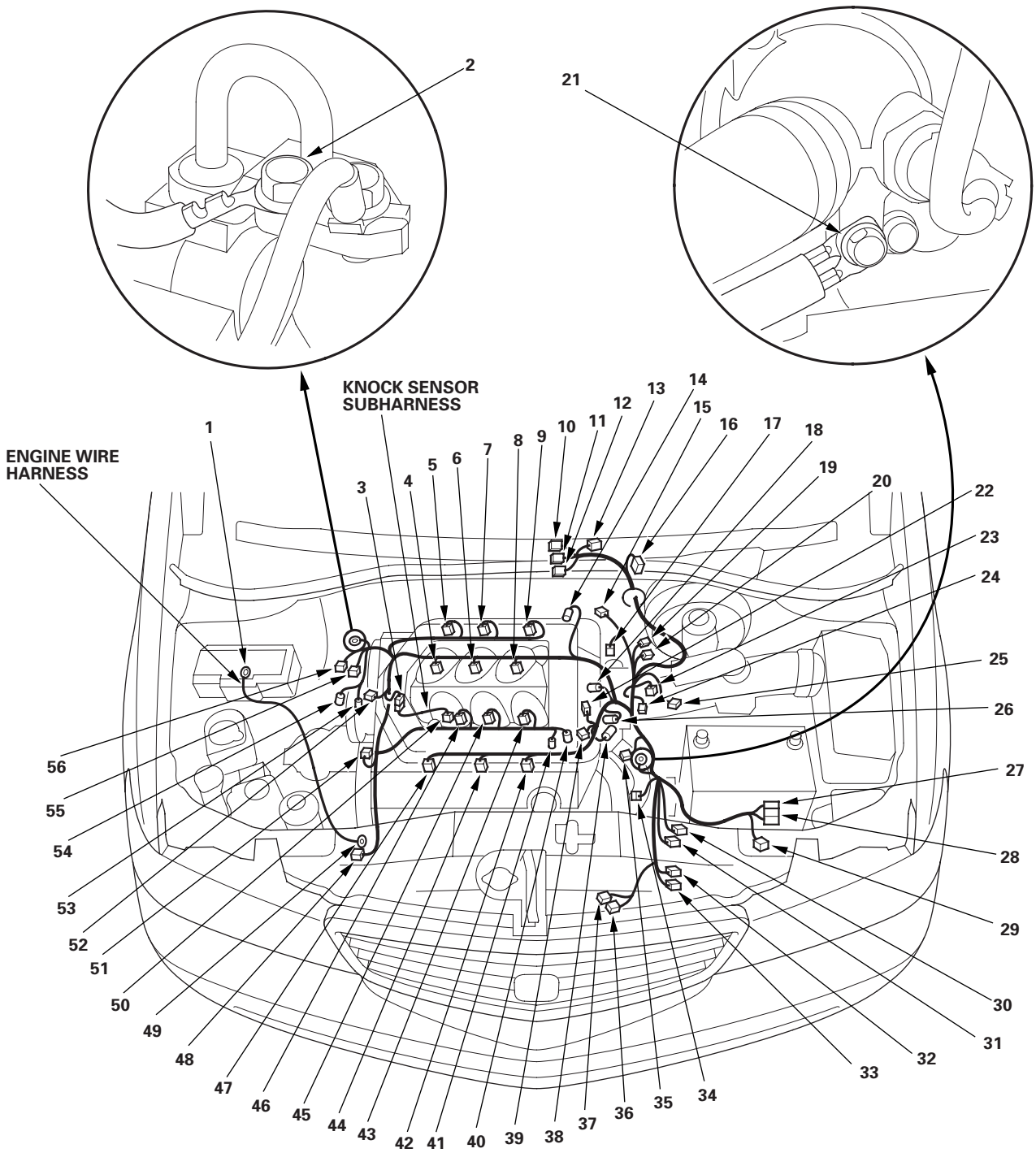
Engine Wire Harness ('99-01 models) (cont'd)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Primary heated oxygen sensor (PHO2S)	15	4	Left side of engine compartment		
Radiator fan switch A	26	2	Left side of engine compartment		
Radiator fan switch B	52	2	Right side of engine compartment		
Second clutch pressure switch	35	1	On transmission housing		
Shift solenoid valve B	36	2	On transmission housing		
Shift solenoid valve C	37	2	On transmission housing		
Starter solenoid	34	1	Left side of engine compartment		
TDC sensor 1 and 2	51	4	Right side of engine compartment		
Third clutch pressure switch	33	1	On transmission housing		
Throttle position (TP) sensor	38	3	Left side of engine compartment		
Torque converter clutch solenoid valve and shift solenoid valve A	24	3	On transmission housing		
Transmission range switch	19	10	On transmission housing		
Vehicle speed sensor (VSS)	17	3	Left side of engine compartment		Navigation
VTEC pressure switch	54	2	Right side of engine compartment		
VTEC solenoid valve	56	1	Right side of engine compartment		
C101	27	10	Left side of engine compartment	Left engine compartment wire harness (see page 22-28)	
C102	28	14	Left side of engine compartment	Left engine compartment wire harness (see page 22-28)	
C103	3	1	Right side of engine compartment	Knock sensor subharness	
C104 (Junction connector)	23	8	Left side of engine compartment		
C105 (Junction connector)	20	14	Left side of engine compartment		
C106 (Junction connector)	16	20	Under middle of dash		
C107 (Junction connector)	13	20	Under middle of dash		
C108	29	1	Left side of engine compartment	Left engine compartment wire harness (see page 22-28)	Navigation
T101	1		Under-hood fuse/relay box		
T102	49		Alternator		
G101	21		Left side of engine compartment	Engine ground via engine wire harness	
G102	2		Right side of engine compartment	Engine ground via engine wire harness	* 3

* 3: '00-01 models

Knock Sensor Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Knock sensor	50	1	Middle of engine compartment		
C103	3	1	Middle of engine compartment	Engine wire harness	


KNOCK SENSOR SUBHARNESS
ENGINE WIRE HARNESS
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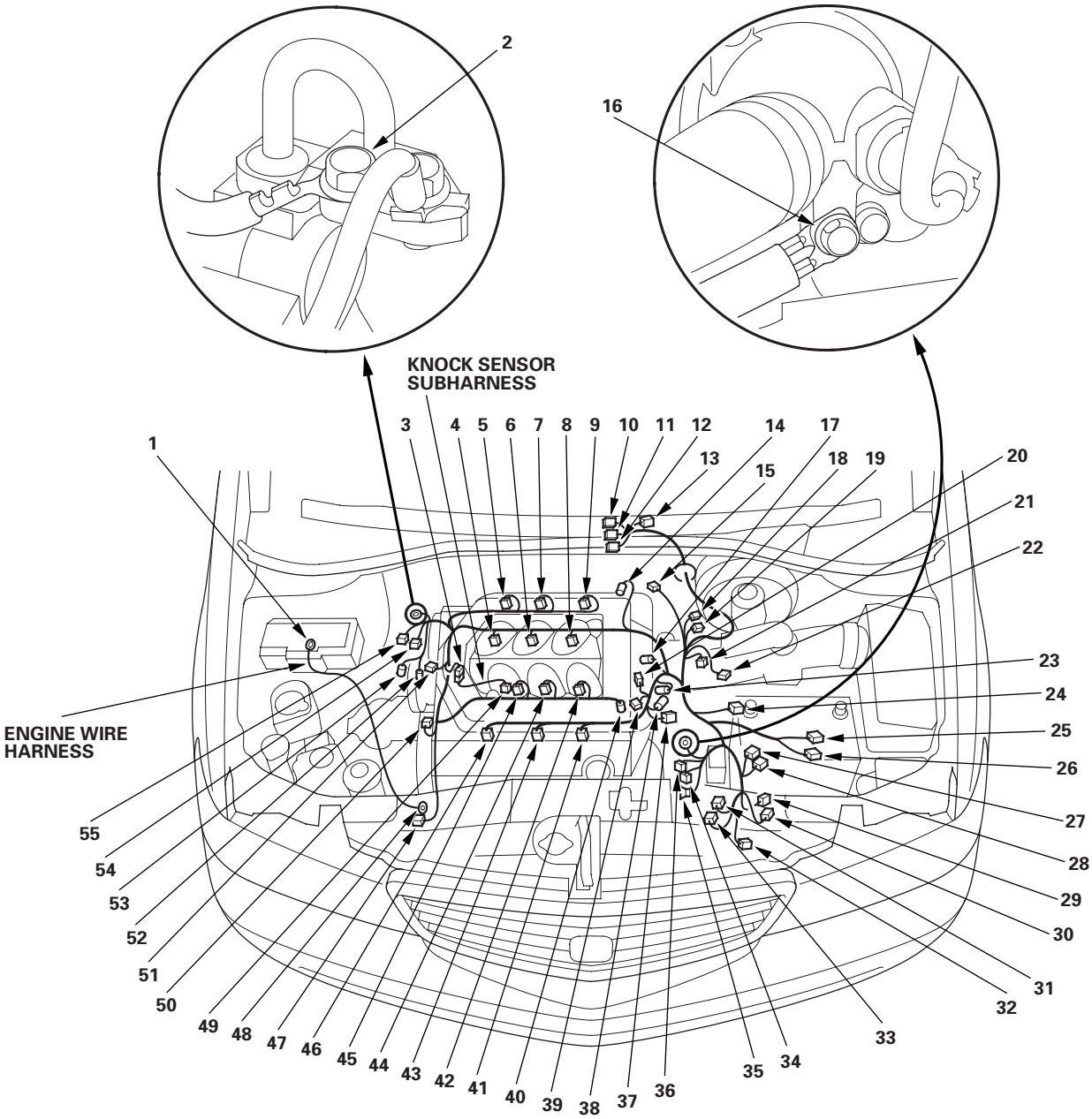
Connector to Harness Index (cont'd)

Engine Wire Harness ('02-04 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Alternator	47	4	Middle of engine compartment		
A/T clutch pressure control valve A	28	2	Left side of engine compartment		
A/T clutch pressure control valve B	27	2	Left side of engine compartment		
A/T clutch pressure control valve C	32	2	Left side of engine compartment		
CKP sensor	54	2	Right side of engine compartment		
CMP sensor A and B	50	4	Right side of engine compartment		
EGR valve and EGR valve lift sensor	39	6	Left side of engine compartment		
Engine coolant temperature (ECT) sensor	40	2	Middle of engine compartment		
Engine oil pressure switch	52	1	Right side of engine compartment		
EVAP canister purge valve	37	2	Middle of engine compartment		
4th clutch pressure switch	30	1	Transmission housing		
Idle air control (IAC) valve	20	3	Left side of engine compartment		
Ignition coil No. 1	5	3	Middle of engine compartment		
Ignition coil No. 2	7	3	Middle of engine compartment		
Ignition coil No. 3	9	3	Middle of engine compartment		
Ignition coil No. 4	46	3	Middle of engine compartment		
Ignition coil No. 5	43	3	Middle of engine compartment		
Ignition coil No. 6	41	3	Middle of engine compartment		
Injector No. 1	4	2	Middle of engine compartment		
Injector No. 2	6	2	Middle of engine compartment		
Injector No. 3	8	2	Middle of engine compartment		
Injector No. 4	45	2	Middle of engine compartment		
Injector No. 5	44	2	Middle of engine compartment		
Injector No. 6	42	2	Middle of engine compartment		
Input shaft (Mainshaft) speed sensor	29	3	On transmission housing		
Intake air temperature (IAT) sensor	14	2	Middle of engine compartment		
MAP sensor	17	3	Left side of engine compartment		
Output shaft (Countershaft) speed sensor	22	3	On transmission housing		
PCM connector B	10	25	Under middle of dash		
PCM connector C	11	31	Under middle of dash		
PCM connector D	12	16	Under middle of dash		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KNOCK SENSOR
SUBHARNESS
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ENGINE WIRE
HARNESS

(cont'd)

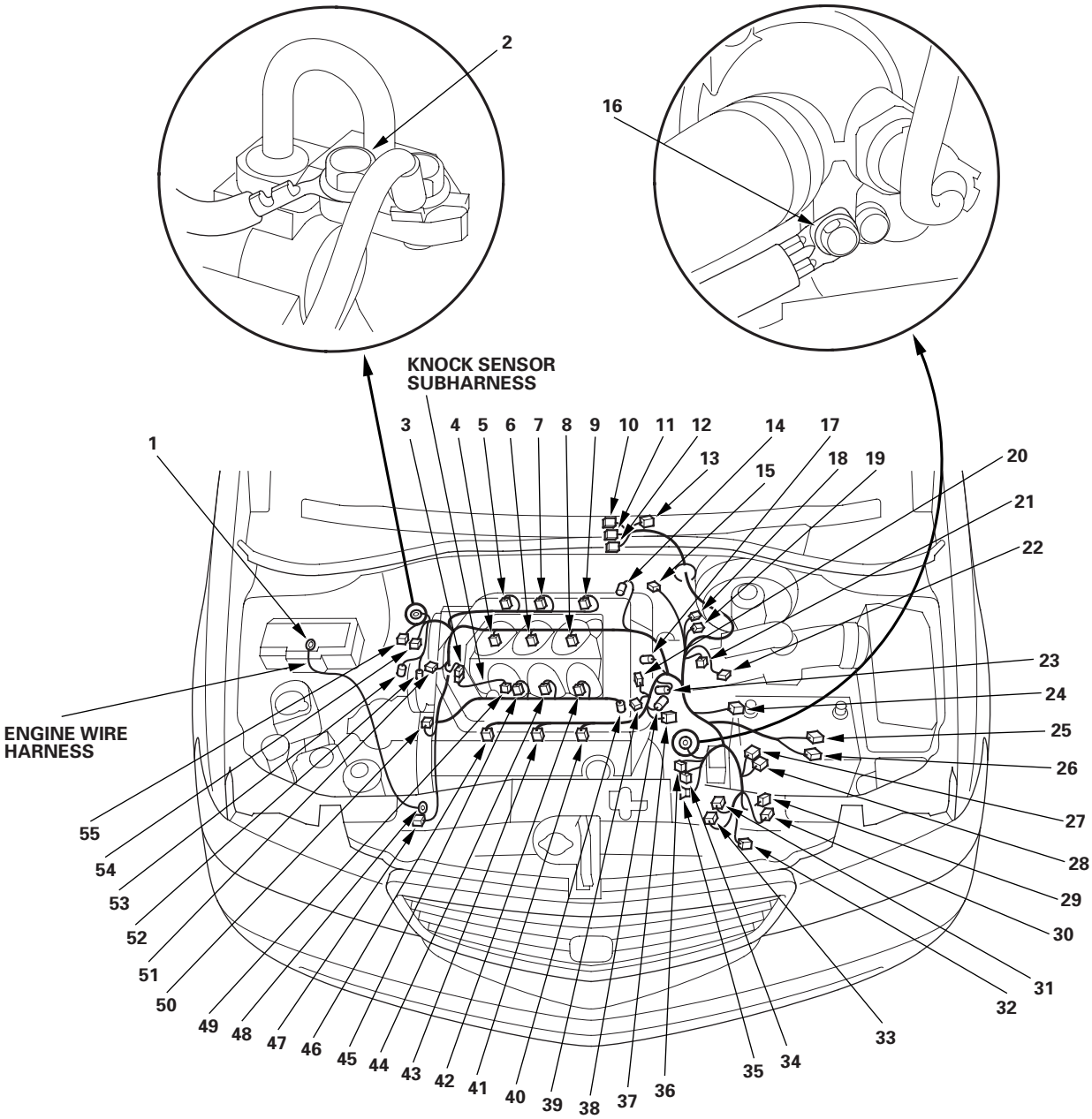
Connector to Harness Index (cont'd)

Engine Wire Harness ('02-04 models) (cont'd)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Primary heated oxygen sensor (PHO2S)	15	4	Left side of engine compartment		
Radiator fan switch A	23	2	Left side of engine compartment		
Radiator fan switch B	51	2	Right side of engine compartment		
Shift solenoid valve A	31	2	On transmission housing		
Shift solenoid valve B	34	2	On transmission housing		
Shift solenoid valve C	33	2	On transmission housing		
Starter solenoid	35	1	Left side of engine compartment		
Throttle position (TP) sensor	38	3	Left side of engine compartment		
Torque converter clutch solenoid valve	36	2	On transmission housing		
Transmission range switch	18	10	On transmission housing		
VTEC pressure switch	53	2	Right side of engine compartment		
VTEC solenoid valve	55	1	Right side of engine compartment		
C101	25	10	Left side of engine compartment	Left engine compartment wire harness: '99-02 models (see page 22-28), '03-04 models (see page 22-30)	
C102	26	14	Left side of engine compartment	Left engine compartment wire harness: '99-02 models (see page 22-28), '03-04 models (see page 22-30)	
C103	3	1	Right side of engine compartment	Knock sensor subharness	
C104 (Junction connector)	21	24	Left side of engine compartment		
C105 (Junction connector)	19	24	Left side of engine compartment		
C107 (Junction connector)	13	20	Under middle of dash		
C151	24	8	Left side of engine compartment	A/T subharness (see page 22-74).	
T101	1		Under-hood fuse/relay box		
T102	48		Alternator		
G101	16		Left side of engine compartment	Engine ground via engine wire harness	
G102	2		Right side of engine compartment	Engine ground via engine wire harness	

Knock Sensor Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Knock sensor	49	1	Middle of engine compartment		
C103	3	1	Middle of engine compartment	Engine wire harness	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KNOCK SENSOR
SUBHARNESS
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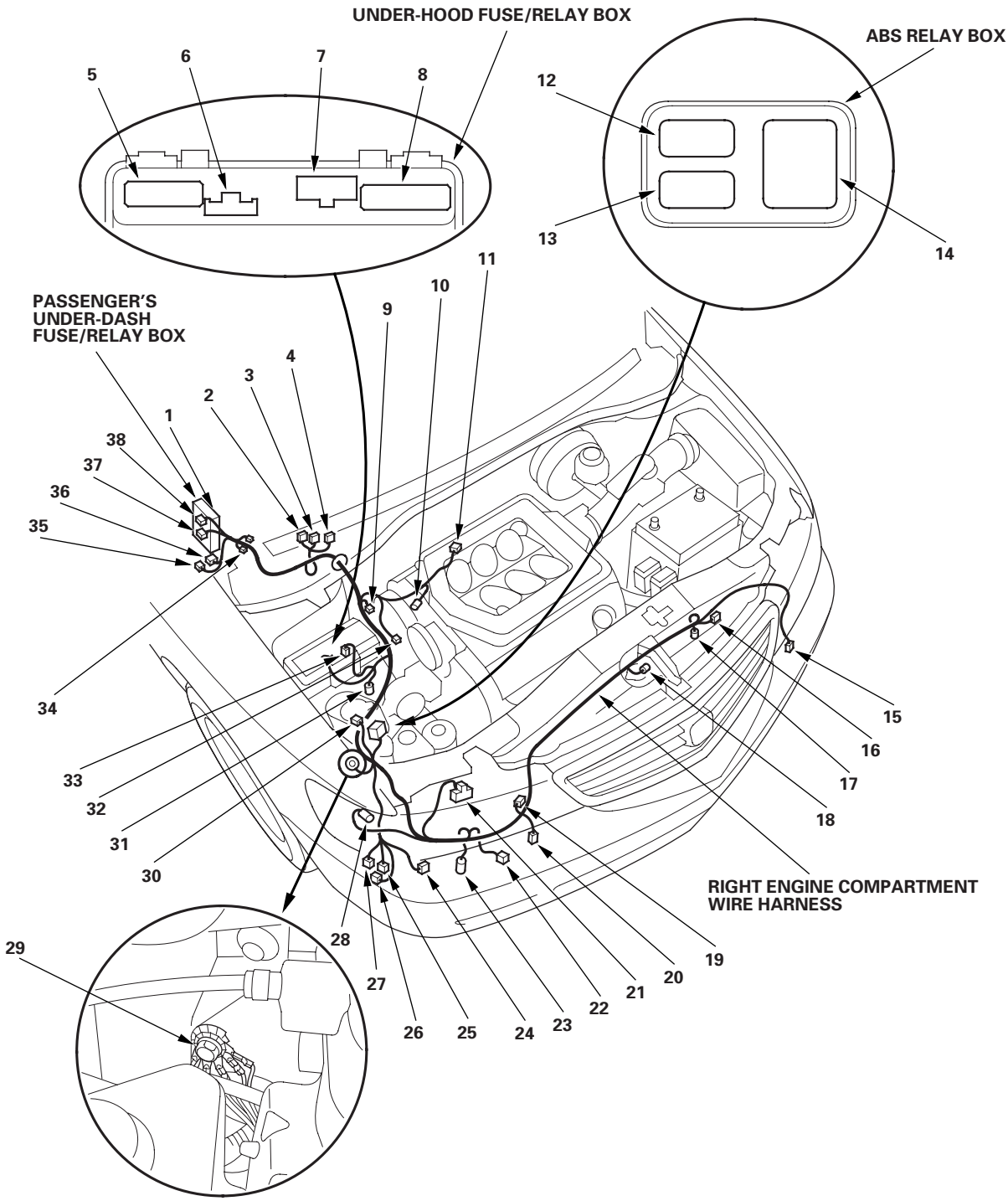
ENGINE WIRE
HARNESS

Connector to Harness Index (cont'd)

Right Engine Compartment Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
ABS right front wheel sensor	9	2	Right side of engine compartment		
ABS pump motor relay	14	4	Right side of engine compartment		
A/C compressor clutch	20	1	Right side of engine compartment		
A/C pressure switch	31	4	Right side of engine compartment		
Condenser fan motor	19	2	Right side of engine compartment		
Cruise control actuator	30	4	Right side of engine compartment		
Diode (A/C switch)	34	2	Right side of dash		
Diode (Fan)	1	2	Right side of dash		
ELD unit (see page 22-75)	33	3	Into under-hood fuse/relay box		
Engine mount control solenoid valve	17	2	Middle of engine compartment		
Fail-safe relay	13	4	Right side of engine compartment		
Fan control relay	12	5	Right side of engine compartment		
Hood switch	18	2	Under hood latch		Security
Horn (high)	15	1	Under left headlight		
Horn (low)	24	1	Under right headlight		
Outside air temperature sensor	23	2	Behind right side of front bumper		Automatic climate control
Passenger's under-dash fuse/relay box connector C (see page 22-77)	38	18	Behind right kick panel		
Passenger's under-dash fuse/relay box connector D (see page 22-77)	37	3	Behind right kick panel		
Power steering pressure (PSP) switch	10	2	Middle of engine compartment		
Radiator fan motor	16	2	Middle of engine compartment		
Rear window washer motor	25	2	Behind right side of front bumper		
Right headlight	21	3	Behind right headlight		
Right side marker and turn signal lights	28	3	Behind right headlight		
Secondary heated oxygen sensor (SHO2S)	11	4	Middle of engine compartment		
SRS right front sensor	22	2	Behind right side of front bumper		'02 model
SRS right front sensor	32	2	Right side of engine compartment		'03-04 models
Under-hood fuse/relay box connector D (see page 22-75)	5	16	Right side of engine compartment		
Under-hood fuse/relay box connector C (see page 22-75)	6	3	Right side of engine compartment		
Under-hood fuse/relay box connector B (see page 22-75)	7	7	Right side of engine compartment		
Under-hood fuse/relay box connector A (see page 22-75)	8	18	Right side of engine compartment		
Washer fluid level switch	26	2	Behind right side of front bumper		Canada
Windshield washer motor	27	2	Behind right side of front bumper		
C201	2	7	Behind right side of dash	Dashboard wire harness B (see page 22-32)	
C202	3	6	Behind right side of dash	Dashboard wire harness B (see page 22-32)	
C203	35	16	Behind right side of dash	Dashboard wire harness A: '99-01 models (see page 22-38), '02-04 models (see page 22-40)	
C204	36	2	Behind right side of dash	Dashboard wire harness A: '99-01 models (see page 22-38), '02-04 models (see page 22-40)	Security
C205	4	4	Behind right side of dash	SRS main harness: '02 model (see page 22-62), '03-04 models (see page 22-64)	'02-04 models
G201	29		Right side of engine compartment	Body ground via right engine compartment wire harness	


UNDER-HOOD FUSE/RELAY BOX
ABS RELAY BOX
PASSENGER'S UNDER-DASH FUSE/RELAY BOX
RIGHT ENGINE COMPARTMENT WIRE HARNESS
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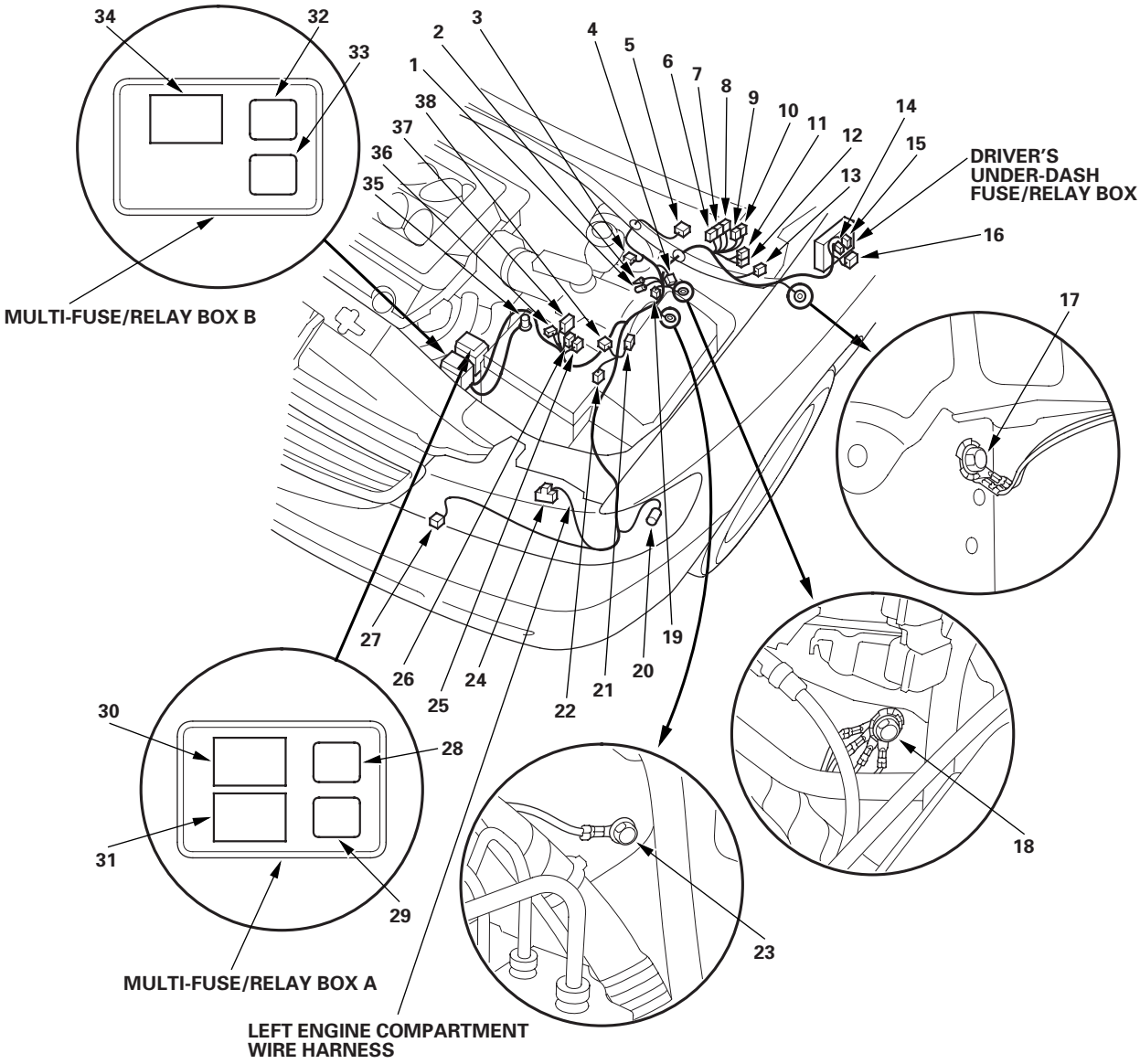
Connector to Harness Index (cont'd)

Left Engine Compartment Wire Harness ('99-02 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
ABS control unit A	9	22	Under left side of dash		* 1
ABS control unit B	10	12	Under left side of dash		* 1
ABS left front wheel sensor	19	2	Left side of engine compartment		
ABS modulator unit	26	10	Left side of engine compartment		* 1
ABS pump motor	25	2	Left side of engine compartment		* 1
ABS/TCS control unit A	6	26	Under left side of dash		
ABS/TCS control unit B	7	16	Under left side of dash		
ABS/TCS control unit C	8	12	Under left side of dash		
ABS/TCS modulator unit	37	24	Left side of engine compartment		
Brake fluid level switch connector (+)	1	1	Left side of engine compartment		
Brake fluid level switch connector (−)	2	1	Left side of engine compartment		
Driver's under-dash fuse/relay box connector C (see page 22-76)	14	5	Behind left kick panel		
Driver's under-dash fuse/relay box connector E (see page 22-76)	15	20	Behind left kick panel		
EVAP canister purge valve	4	2	Left side of engine compartment		'99-01 models
Left headlight	24	3	Behind left headlight		
Left side marker and turn signal lights	20	3	Behind left headlight		
Multi-fuse/relay box No. 60 fuse (see page 22-78)	28		Left side of engine compartment		Rear Heater-A/C
Multi-fuse/relay box No. 61 fuse (see page 22-78)	29		Left side of engine compartment		Power sliding door
Multi-fuse/relay box No. 62 fuse (see page 22-78)	32		Left side of engine compartment		'02 model
Multi-fuse/relay box No. 63 fuse (see page 22-78)	33		Left side of engine compartment		'02 model
Optional connector	21	1	Left side of engine compartment		
Seat heater relay	34	4	Left side of engine compartment		'02 model
SRS left front sensor	27	2	Behind left side of front bumper		'02 model
TCS relay	31	4	Left side of engine compartment		
Test tachometer connector	3	2	Left side of engine compartment		
Windshield wiper intermittent relay	30	5	Left side of engine compartment		
Windshield wiper motor	5	5	Left side of engine compartment		
C101	36	10	Left side of engine compartment	Engine wire harness: '99-01 models (see page 22-18), '02 model (see page 22-22)	
C102	38	14	Left side of engine compartment	Engine wire harness: '99-01 models (see page 22-18), '02 model (see page 22-22)	
C108	22	1	Left side of engine compartment	Engine wire harness: '99-01 models (see page 22-18)	'99-01 models
C301	11	20	Behind left kick panel	Dashboard wire harness B (see page 22-32)	'99-01 models
C301	11	22	Behind left kick panel	Dashboard wire harness B (see page 22-32)	'02 model
C302	12	2	Behind left kick panel	Dashboard wire harness B (see page 22-32)	Rear Heater-A/C and power sliding door
C303	16	24	Behind left kick panel	Dashboard wire harness A: '99-01 models (see page 22-38), '02 model (see page 22-40)	
C304	13	4	Behind left kick panel	SRS main harness (see page 22-62)	'02 model
T103	35		Battery		
G301	18		Left side of engine compartment	Body ground via left engine compartment wire harness	
G302	23		Left side of engine compartment	Body ground via left engine compartment wire harness	
G303	17		Behind left kick panel	Body ground via left engine compartment wire harness	

* 1: '99-01 LX models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MULTI-FUSE/RELAY BOX B
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DRIVER'S
UNDER-DASH
FUSE/RELAY BOX
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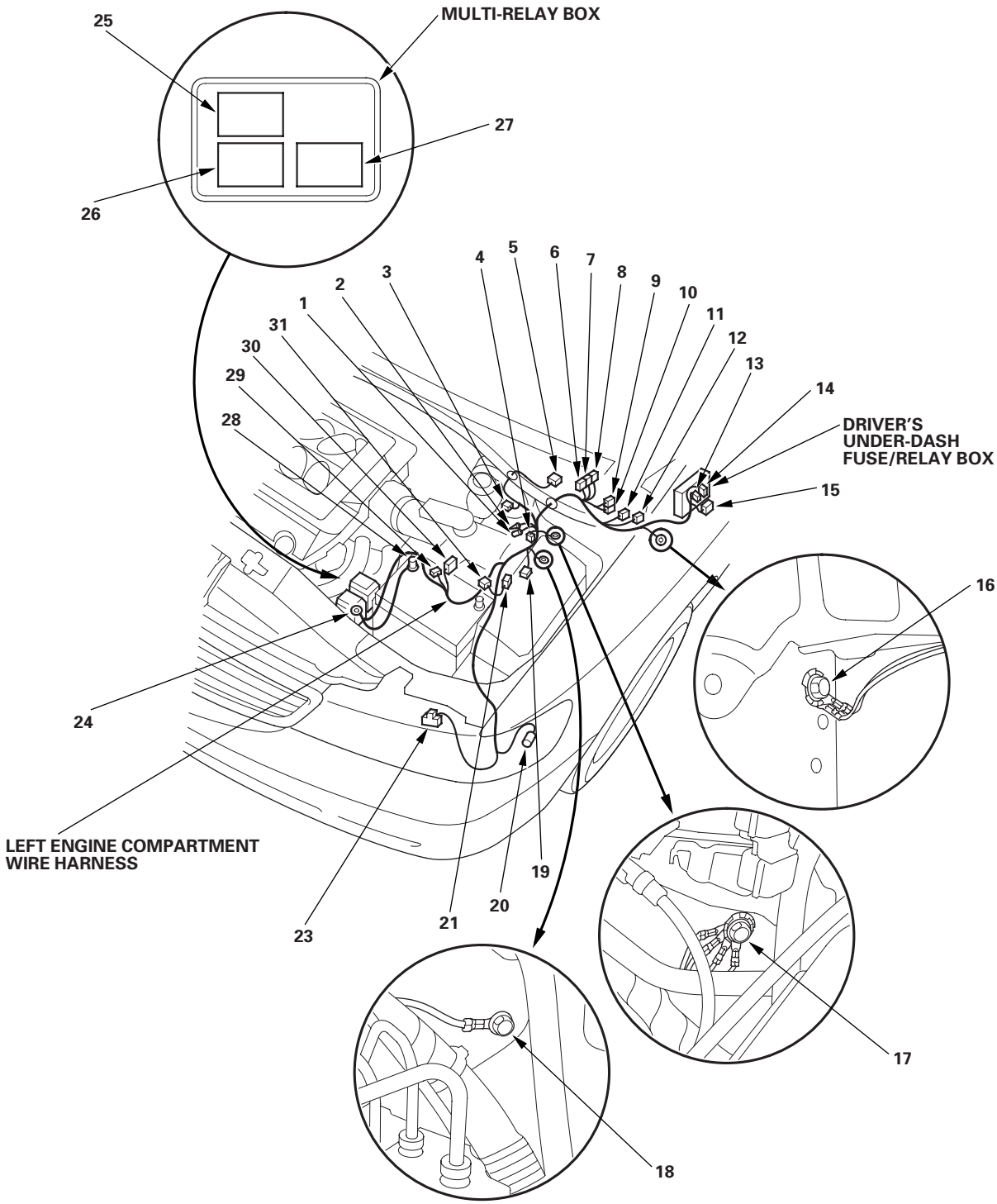
LEFT ENGINE COMPARTMENT
WIRE HARNESS

Connector to Harness Index (cont'd)

Left Engine Compartment Wire Harness ('03-04 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
ABS left front wheel sensor	4	2	Left side of engine compartment		
ABS/TCS control unit A	6	26	Under left side of dash		
ABS/TCS control unit B	7	16	Under left side of dash		
ABS/TCS control unit C	8	12	Under left side of dash		
ABS/TCS modulator unit	30	24	Left side of engine compartment		
Brake fluid level switch connector (+)	1	1	Left side of engine compartment		
Brake fluid level switch connector (−)	2	1	Left side of engine compartment		
Driver's under-dash fuse/relay box connector C (see page 22-76)	13	5	Behind left kick panel		
Driver's under-dash fuse/relay box connector E (see page 22-76)	14	20	Behind left kick panel		
Left headlight	23	3	Behind left headlight		
Left side marker and turn signal lights	20	3	Behind left headlight		
Optional connector	21	1	Left side of engine compartment		
Seat heater relay	27	4	Left side of engine compartment		
SRS left front sensor	19	2	Behind left side of front bumper		
TCS relay	26	4	Left side of engine compartment		
Test tachometer connector	3	2	Left side of engine compartment		
Windshield wiper intermittent relay	25	5	Left side of engine compartment		
Windshield wiper motor	5	5	Left side of engine compartment		
C101	29	10	Left side of engine compartment	Engine wire harness (see page 22-22)	
C102	31	14	Left side of engine compartment	Engine wire harness (see page 22-22)	
C301	9	22	Behind left kick panel	Dashboard wire harness B (see page 22-32)	
C302	10	2	Behind left kick panel	Dashboard wire harness B (see page 22-32)	Rear Heater-A/C and power sliding door
C303	15	24	Behind left kick panel	Dashboard wire harness A (see page 22-40)	
C304	11	4	Behind left kick panel	SRS main harness (see page 22-64)	
C753	12	6	Behind left kick panel	Driver's door wire harness (see page 22-70).	
T5	24		Beside of battery	Under-hood sub fuse box (see page 22-79)	
T103	28		Battery		
G301	17		Left side of engine compartment	Body ground via left engine compartment wire harness	
G302	18		Left side of engine compartment	Body ground via left engine compartment wire harness	
G303	16		Behind left kick panel	Body ground via left engine compartment wire harness	


MULTI-RELAY BOX
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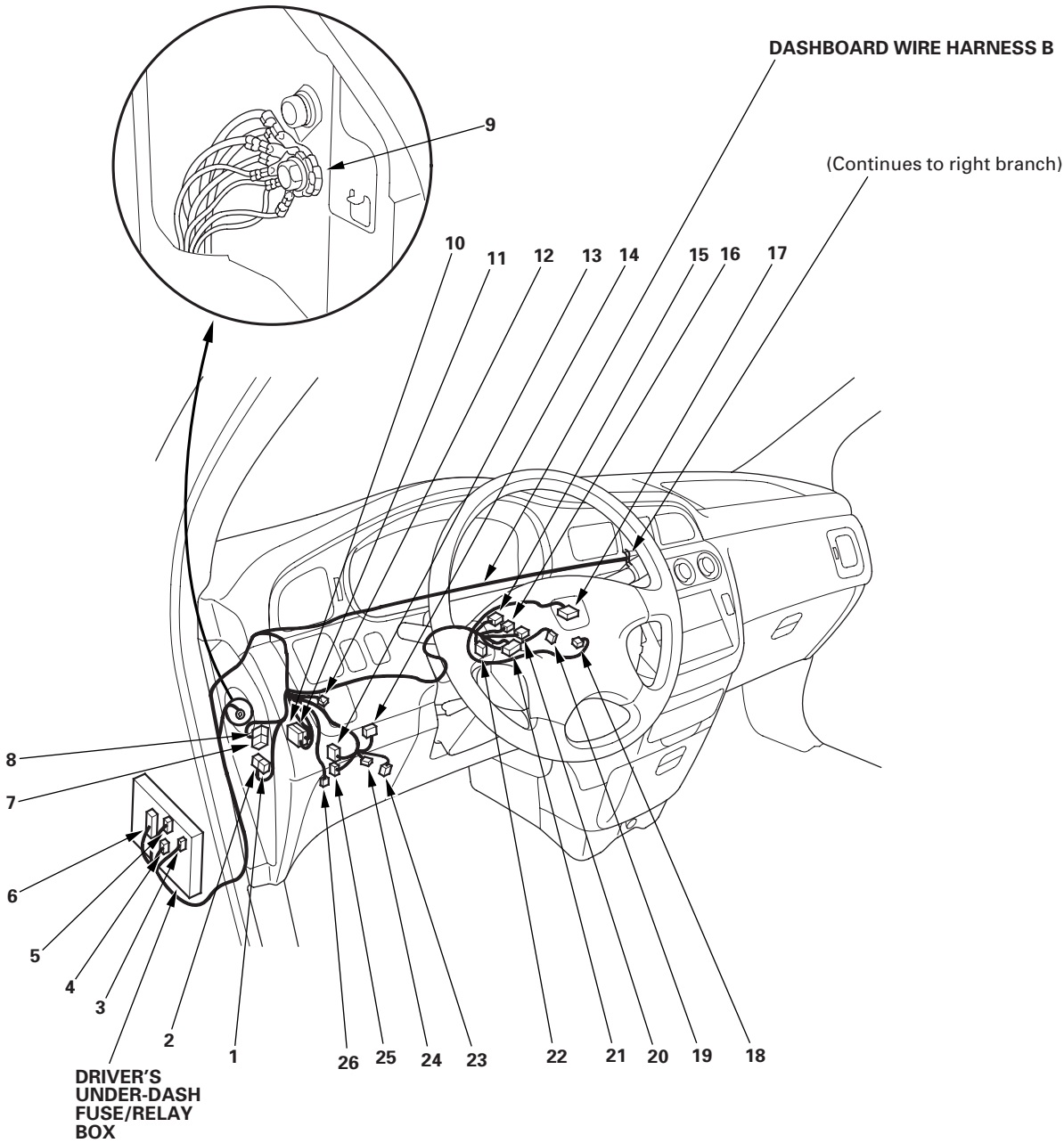
DRIVER'S
UNDER-DASH
FUSE/RELAY BOX
LEFT ENGINE COMPARTMENT
WIRE HARNESS

Connector to Harness Index (cont'd)

Dashboard Wire Harness B (Left branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Brake pedal position switch	23	4	Under left side of dash		* 4
Brake pedal position switch	23	2	Under left side of dash		* 5
Cable reel	18	4	Under left side of dash		
Combination light switch	21	14	Under left side of dash		
Daytime running lights relay	2	4	Behind left kick panel		Canada
Driver's under-dash fuse/relay box connector O (see page 22-76)	6	20	Behind left kick panel		
Driver's under-dash fuse/relay box connector P (see page 22-76)	5	7	Behind left kick panel		
Driver's under-dash fuse/relay box connector Q (see page 22-76)	4	22	Behind left kick panel		
Driver's under-dash fuse/relay box connector J (see page 22-76)	3	3	Behind left kick panel		
Ignition key switch	19	7	Under left side of dash		
Immobilizer receiver unit	22	4	Under left side of dash		
Interiors light relay	7	4	Under left side of dash		
Low beam cut relay	1	5	Under left side of dash		Canada
Multiplex control inspection connector	24	3	Under left side of dash		
Parking brake switch	26	1	Under left side of dash		
Park pin switch	16	3	Under left side of dash		
PGM-FI main relay	14	7	Under left side of dash		
Rear window wiper/washer switch	20	8	Under left side of dash		'01-04 models
Rear window wiper/washer switch	20	6	Under left side of dash		'99-00 models
Security option connector	12	3	Under left side of dash		
Shift lock solenoid	15	2	Under left side of dash		
Taillight relay	8	4	Under left side of dash		Auto-off headlight
Windshield wiper/washer switch	17	8	Under left side of dash		
C301	13	20	Under left side of dash	Left engine compartment wire harness (see page 22-28)	'99-01 models
C301	13	22	Under left side of dash	Left engine compartment wire harness: '02 model (see page 22-28), '03-04 models (see page 22-30)	
C302	25	2	Under left side of dash	Left engine compartment wire harness: '02 model (see page 22-28), '03-04 models (see page 22-30)	Rear Heater-A/C and power sliding door
C401	10	22	Under left side of dash	Dashboard wire harness A (see page 22-40)	* 1
C401	10	20	Under left side of dash	Dashboard wire harness A (see page 22-38)	* 2
C401	10	14	Under left side of dash	Dashboard wire harness A: '99-01 models (see page 22-38), '02-04 models (see page 22-40)	* 3
C402	11	24	Under left side of dash	Dashboard wire harness A: '99-01 models (see page 22-38), '02-04 models (see page 22-40)	
G401	9		Under left side of dash	Body ground via dashboard wire harness B	

* 1: '99-00 models with navigation and power sliding door, '01 EX, '02-04 models with power sliding door
* 2: '99-01 models with power sliding door
* 3: Without power sliding door
* 4: '99-02 models with cruise control and '03-04 models
* 5: '99-02 models without cruise control


DASHBOARD WIRE HARNESS B
(Continues to right branch)
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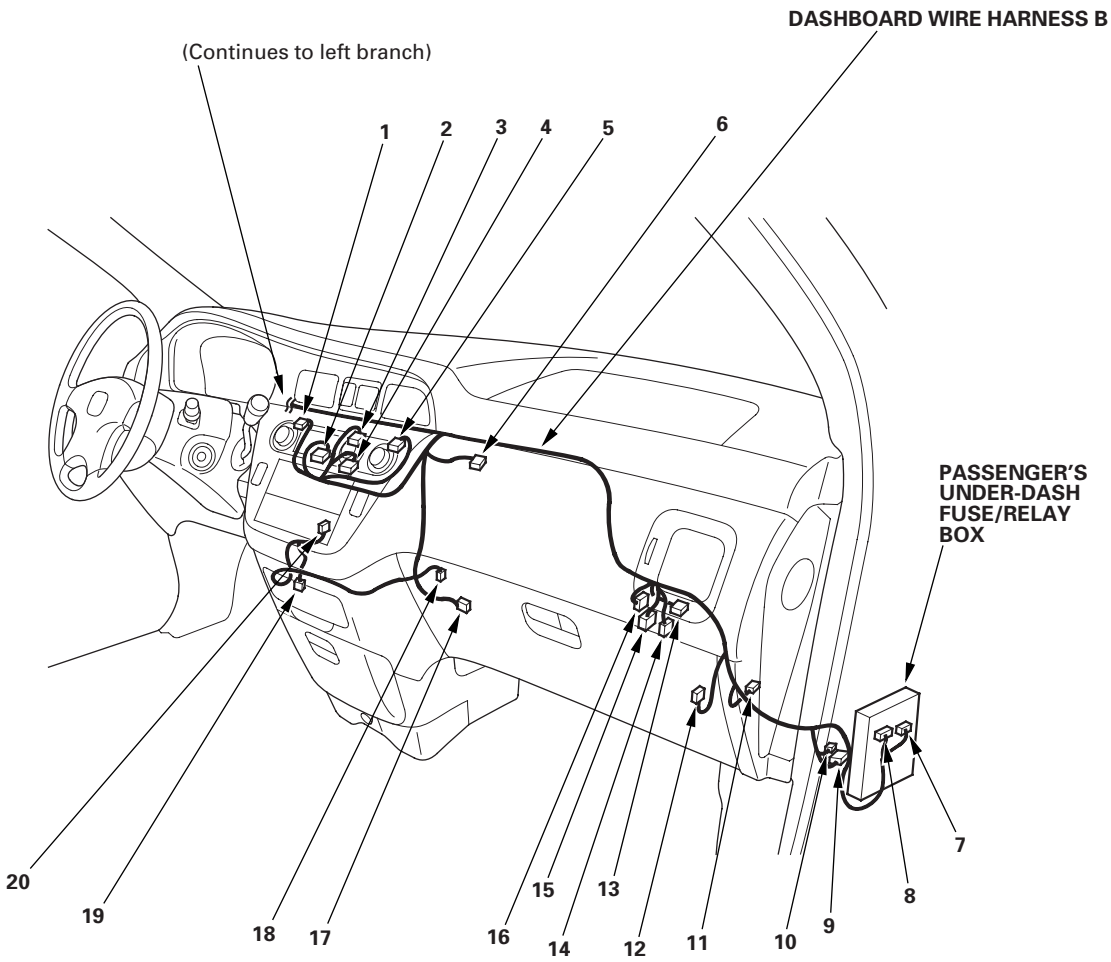
DRIVER'S UNDER-DASH FUSE/RELAY BOX

Connector to Harness Index (cont'd)

Dashboard Wire Harness B (Without Navigation System) (Right branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Air mix control motor	17	7	Under middle of dash		
Blower motor	11	2	Under right side of dash		
Blower motor high relay	13	5	Under right side of dash		Automatic climate control
Blower motor resistor	12	5	Under right side of dash		LX
Center pocket light	19	2	Under middle of dash		
Climate control unit connector A	3	20	Under middle of dash		
Climate control unit connector B	4	8	Under middle of dash		
Daytime running lights control unit	6	14	Under right side of dash		Canada
Evaporator temperature sensor	18	2	Under middle of dash		
Heater control panel	2	22	Under middle of dash		
Heater fan switch	1	7	Under middle of dash		
Mode control motor	20	7	Under middle of dash		
Passenger's under-dash fuse/relay box connector J (see page 22-77)	7	16	Behind right kick panel		
Passenger's under-dash fuse/relay box connector K (see page 22-77)	8	16	Behind right kick panel		
Power transistor	12	5	Under right side of dash		Automatic climate control
Recirculation control motor	16	7	Under right side of dash		
Rear heater-A/C main switch	5	10	Under middle of dash		
C201	14	7	Under right side of dash	Right engine compartment wire harness (see page 22-26)	
C202	15	6	Under right side of dash	Right engine compartment wire harness (see page 22-26)	
C451	9	16	Under right side of dash	Right side wire harness (see page 22-52)	* 1
C451	9	12	Under right side of dash	Right side wire harness (see page 22-52)	* 2
C451	9	3	Under right side of dash	Right side wire harness (see page 22-52)	* 3
C451	9	14	Under right side of dash	Right side wire harness (see page 22-52)	'01 EX
C451	9	13	Under right side of dash	Right side wire harness (see page 22-54)	'02-04 models
C452	10	1	Under right side of dash	Right side wire harness (see page 22-52)	* 4
C452	10	2	Under right side of dash	Right side wire harness (see page 22-54)	'02-04 models

* 1: '99-00 models with rear heater-A/C
* 2: '99-00 models with power sliding door
* 3: '99-01 models except * 1, * 2 and '01 EX
* 4: '99-01 models with power sliding door


DASHBOARD WIRE HARNESS B
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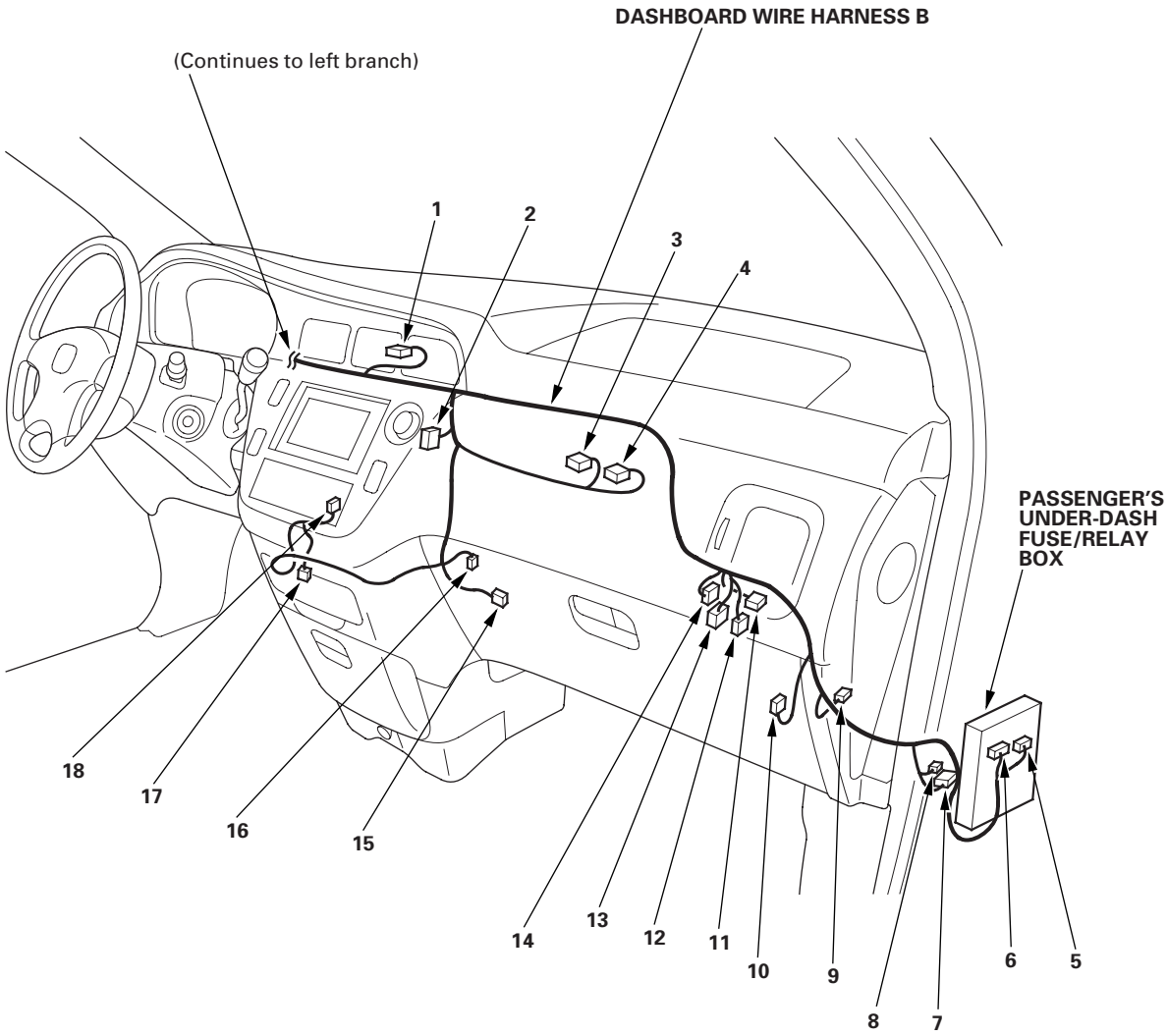
Connector to Harness Index (cont'd)

Dashboard Wire Harness B (With Navigation System) (Right branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Air mix control motor	15	7	Under middle of dash		
Blower motor	9	2	Under right side of dash		
Blower motor high relay	11	5	Under right side of dash		
Center pocket light	17	2	Under middle of dash		
Climate control panel	1	16	Under middle of dash		
Climate control unit connector A	3	26	Under right side of dash		
Climate control unit connector B	4	16	Under right side of dash		
Evaporator temperature sensor	16	2	Under middle of dash		
Mode control motor	18	7	Under middle of dash		
Passenger's under-dash fuse/relay box connector J (see page 22-77)	5	16	Behind right kick panel		
Passenger's under-dash fuse/relay box connector K (see page 22-77)	6	16	Behind right kick panel		
Power transistor	10	5	Under right side of dash		
Recirculation control motor	14	7	Under right side of dash		
Rear heater-A/C main switch	2	10	Under middle of dash		
C201	12	7	Under right side of dash	Right engine compartment wire harness (see page 22-26)	
C202	13	6	Under right side of dash	Right engine compartment wire harness (see page 22-26)	
C451	7	12	Under right side of dash	Right side wire harness (see page 22-52)	* 1
C451	7	14	Under right side of dash	Right side wire harness (see page 22-52)	'01 EX
C451	7	13	Under right side of dash	Right side wire harness (see page 22-54)	'02-04 models
C452	8	1	Under right side of dash	Right side wire harness (see page 22-52)	'00-01 models
C452	8	2	Under right side of dash	Right side wire harness (see page 22-54)	'02-04 models

* 1: '00-01 models except '01 EX


DASHBOARD WIRE HARNESS B
(Continues to left branch)
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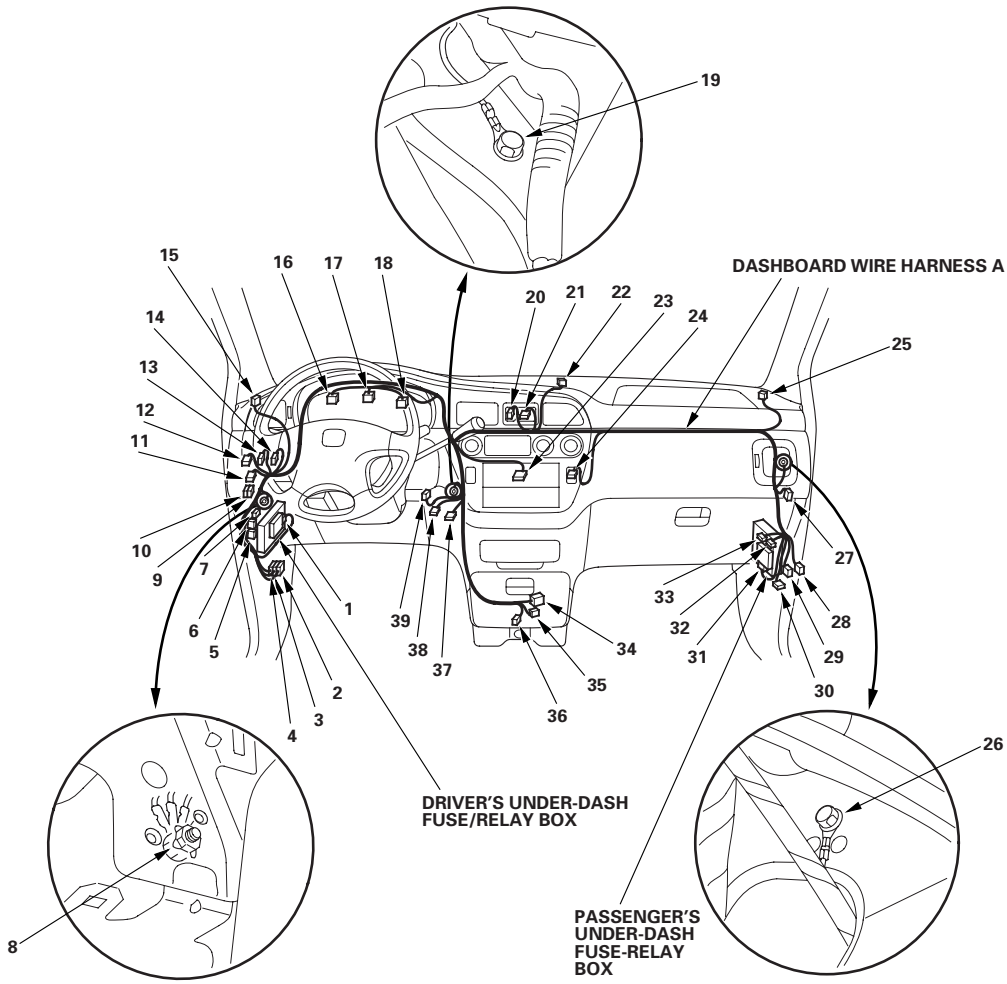
Connector to Harness Index (cont'd)

Dashboard Wire Harness A ('99-01 models without Navigation System)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Accessory power socket (front)	36	2	Behind middle of dash		
Audio unit	23	20	Behind audio unit		
Clock	21	5	Behind clock		
Cruise control main switch	14	5	Behind instrument panel		
Cruise control unit	39	14	Under middle of dash		
Data link connector	37	16	Under middle of dash		
Driver's under-dash fuse/relay box connector I (see page 22-76)	6	18	Behind left kick panel		
Driver's under-dash fuse/relay box connector K (see page 22-76)	5	18	Behind left kick panel		
Gauge assembly connector A	17	14	Behind gauges		
Gauge assembly connector B	16	22	Behind gauges		
Gauge assembly connector C	18	16	Behind gauges		
Hazard warning switch	20	10	Behind hazard warning switch		
In-car temperature sensor	38	2	Under middle of dash		Automatic climate control
Interior lights switch	24	6	Behind instrument panel		
Keyless receiver unit	27	14	Behind right kick panel		
Multiplex control unit, driver's connector B (see page 22-76)	1	22	Behind left kick panel		
Multiplex control unit, passenger's connector B (see page 22-77)	31	22	Behind right kick panel		
Passenger's under-dash fuse/relay box connector H (see page 22-77)	33	18	Behind right kick panel		
Passenger's under-dash fuse/relay box connector I (see page 22-77)	32	18	Behind right kick panel		
PCM connector A	34	32	Under middle of dash		* 1
PCM connector D	35	17	Under middle of dash		TCS * 2
PCM connector E	34	31	Under middle of dash		* 2
Power mirror switch	11	10	Behind instrument panel		
Power sliding door switch	12	10	Behind instrument panel		
Sunlight sensor	22	2	Under middle of dash		Automatic climate control
TCS switch	13	8	Behind instrument panel		TCS
Tweeter (left)	15	2	Under left side of dash		
Tweeter (right)	25	2	Under right side of dash		
C203	28	16	Behind right kick panel	Right engine compartment wire harness (see page 22-26)	
C204	29	2	Behind right kick panel	Right engine compartment wire harness (see page 22-26)	Security
C303	2	24	Behind left kick panel	Left engine compartment wire harness (see page 22-28)	
C401	9	20	Behind left kick panel	Dashboard wire harness B (see page 22-32)	Power sliding door
C401	9	14	Behind left kick panel	Dashboard wire harness B (see page 22-32)	
C402	10	24	Behind left kick panel	Dashboard wire harness B (see page 22-32)	
C501	4	14	Behind left kick panel	Left side wire harness (see page 22-48)	* 1
C501	4	20	Behind left kick panel	Left side wire harness (see page 22-48)	* 2

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
C502	3	20	Behind left kick panel	Left side wire harness (see page 22-48)	Power sliding door *1
C502	3	8	Behind left kick panel	Left side wire harness (see page 22-48)	
C502	3	22	Behind left kick panel	Left side wire harness (see page 22-48)	Power sliding door *2
C503	7	3	Behind left kick panel	SRS main harness (see page 22-61)	
C504	35	2	Under middle of dash	PCM subharness (see page 22-68)	TCS *1
C505	30	16	Behind right kick panel	Right side wire harness (see page 22-52)	Power sliding door
G501	8		Behind left kick panel	Engine ground via dashboard wire harness A	
G502	19		Under middle of dash	Engine ground via dashboard wire harness A	
G503	26		Behind right kick panel	Engine ground via dashboard wire harness A	

* 1: '99-00 models
* 2: '01 model

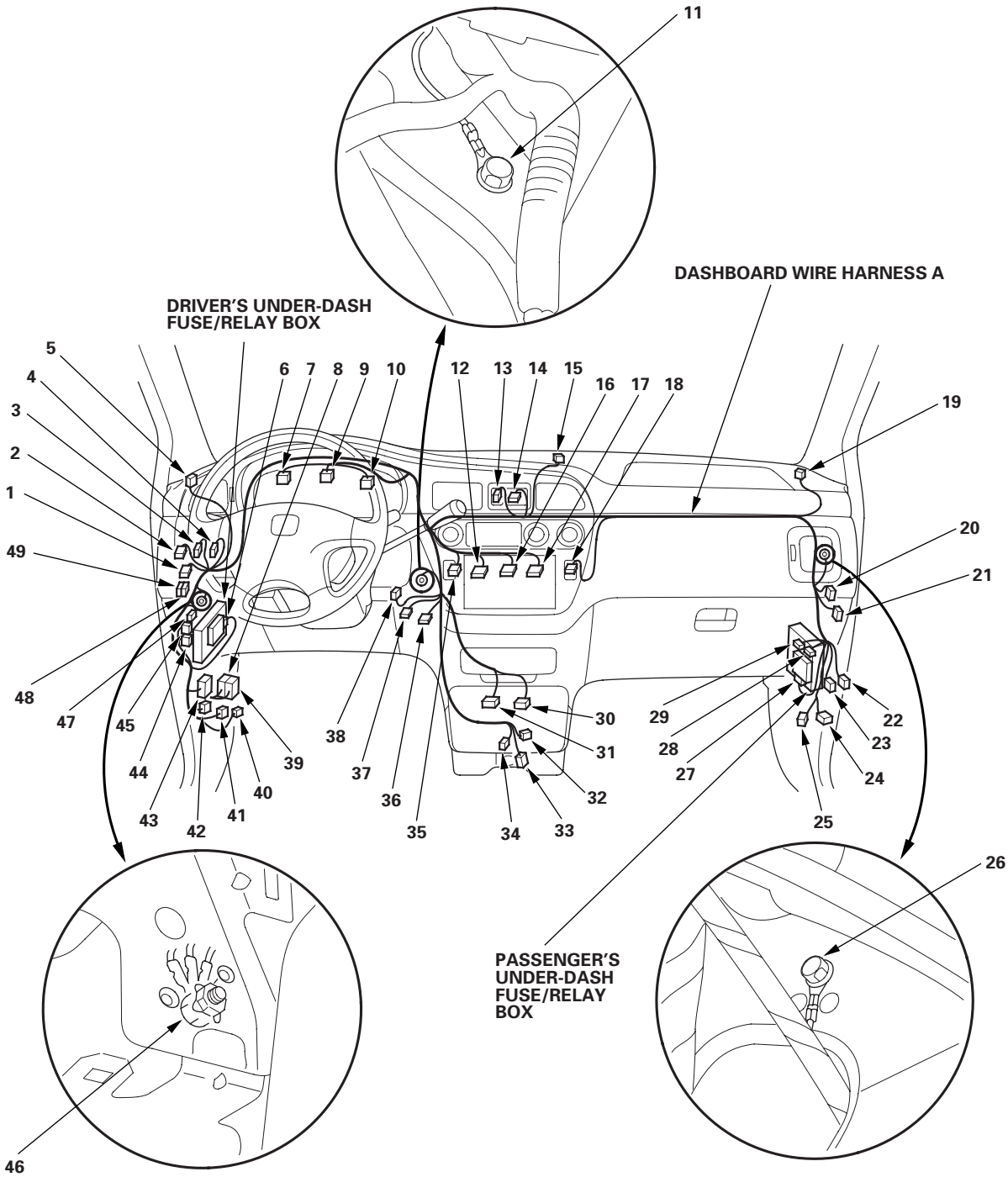


Connector to Harness Index (cont'd)

Dashboard Wire Harness A ('02-04 models without Navigation System)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Accessory power socket (front)	34	2	Behind middle of dash		
Audio unit connector A	12	20	Behind audio unit		
Audio unit connector B	16	16	Behind audio unit		* 1
Audio unit connector C	17	22	Behind audio unit		* 1
Clock	14	5	Behind clock		
Cruise control main switch	4	5	Behind instrument panel		'02 model
Cruise control unit	38	14	Under middle of dash		
Data link connector	36	16	Under middle of dash		
Driver's under-dash fuse/relay box connector I (see page 22-76)	45	18	Behind left kick panel		
Driver's under-dash fuse/relay box connector K (see page 22-76)	44	18	Behind left kick panel		
DVD unit connector A	30	26	Behind DVD unit		* 1
DVD unit connector B	31	8	Behind DVD unit		* 1
Gauge assembly connector A	9	14	Behind gauges		
Gauge assembly connector B	7	22	Behind gauges		
Gauge assembly connector C	10	16	Behind gauges		
Hazard warning switch	13	10	Behind hazard warning switch		
In-car temperature sensor	37	2	Under middle of dash		Automatic climate control
Interior lights switch	18	6	Behind instrument panel		'02 model
Interior lights switch	35	6	Behind instrument panel		'03-04 models
Keyless receiver unit	20	14	Behind right kick panel		
Multiplex control unit, driver's connector B (see page 22-76)	6	22	Behind left kick panel		
Multiplex control unit passenger's connector B (see page 22-76)	27	22	Behind right kick panel		
Passenger's airbag cutoff indicator	18	4	Behind instrument panel		'03-04 models
Passenger's under-dash fuse/relay box connector H (see page 22-77)	29	18	Behind right kick panel		
Passenger's under-dash fuse/relay box connector I (see page 22-77)	28	18	Behind right kick panel		
PCM connector A	33	32	Under middle of dash		
Power mirror switch	1	10	Behind instrument panel		
Power sliding door switch	2	10	Behind instrument panel		
Sunlight sensor	15	2	Under middle of dash		Automatic climate control
TCS switch	3	8	Behind instrument panel		'02 model
TCS and cruise control main switch	3	8	Behind instrument panel		'03-04 models
Tweeter (left)	5	2	Under left side of dash		
Tweeter (right)	19	2	Under right side of dash		

* 1: With rear entertainment system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DASHBOARD WIRE HARNESS A
DRIVER'S UNDER-DASH FUSE/RELAY BOX
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PASSENGER'S UNDER-DASH FUSE/RELAY BOX
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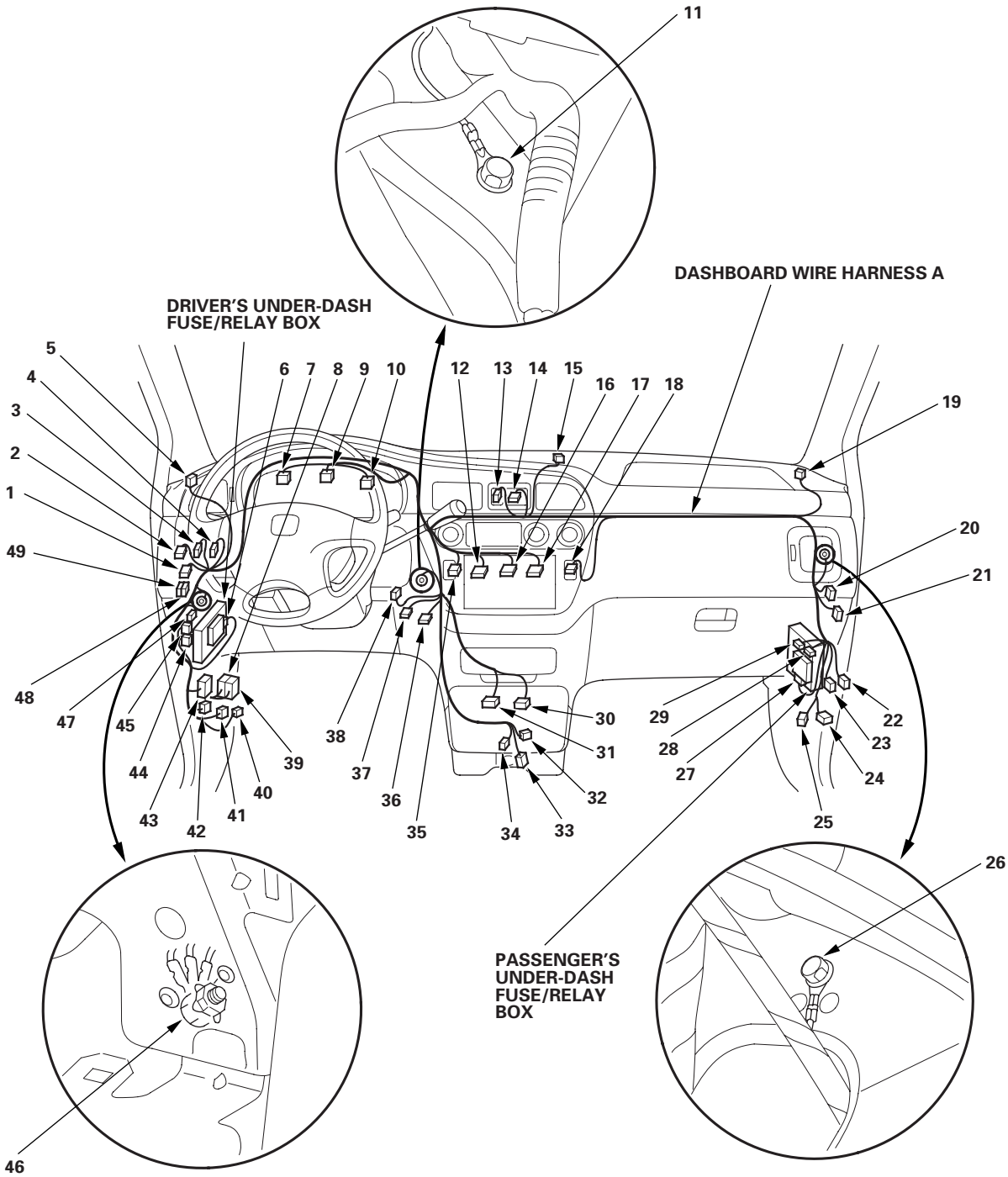
(cont'd)

Connector to Harness Index (cont'd)

Dashboard Wire Harness A ('02-04 models without Navigation System) (cont'd)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
C203	22	16	Behind right kick panel	Right engine compartment wire harness (see page 22-26)	
C204	23	2	Behind right kick panel	Right engine compartment wire harness (see page 22-26)	Security
C303	39	24	Behind left kick panel	Left engine compartment wire harness: '02 model (see page 22-28), '03-04 models (see page 22-30)	
C401	48	22	Behind left kick panel	Dashboard wire harness B (see page 22-32)	Power sliding door
C401	48	14	Behind left kick panel	Dashboard wire harness B (see page 22-32)	
C402	49	24	Behind left kick panel	Dashboard wire harness B (see page 22-32)	
C501	8	21	Behind left kick panel	Left side wire harness (see page 22-48)	
C502	41	13	Behind left kick panel	Left side wire harness (see page 22-48)	
C503	47	8	Behind left kick panel	SRS main harness: '02 model (see page 22-62), '03-04 models (see page 22-64)	TCS
C504	32	8	Under middle of dash	PCM subharness (see page 22-68)	* 2
C504	32	3	Under middle of dash	PCM subharness (see page 22-68)	* 3
C504	32	10	Under middle of dash	PCM subharness (see page 22-68)	'03-04 models
C505	24	21	Behind right kick panel	Right side wire harness (see page 22-54)	
C506	25	2	Behind right kick panel	Right side wire harness (see page 22-54)	Power sliding door
C507	43	22	Behind left kick panel	Left side wire harness (see page 22-48)	* 1
C508	42	8	Behind left kick panel	Left side wire harness (see page 22-48)	
C509	40	2	Behind left kick panel	Left side wire harness (see page 22-48)	
C512	21	6	Behind instrument panel	Roof wire harness (see page 22-60)	* 4
G501	46		Behind left kick panel	Body ground via dashboard wire harness A	
G502	11		Under middle of dash	Body ground via dashboard wire harness A	
G503	26		Behind right kick panel	Body ground via dashboard wire harness A	

* 1: With rear entertainment system
* 2: '02 model with TCS and '03 model
* 3: '02 model without TCS
* 4: '03-04 models with rear entertainment system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DRIVER'S UNDER-DASH FUSE/RELAY BOX
DASHBOARD WIRE HARNESS A
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PASSENGER'S UNDER-DASH FUSE/RELAY BOX
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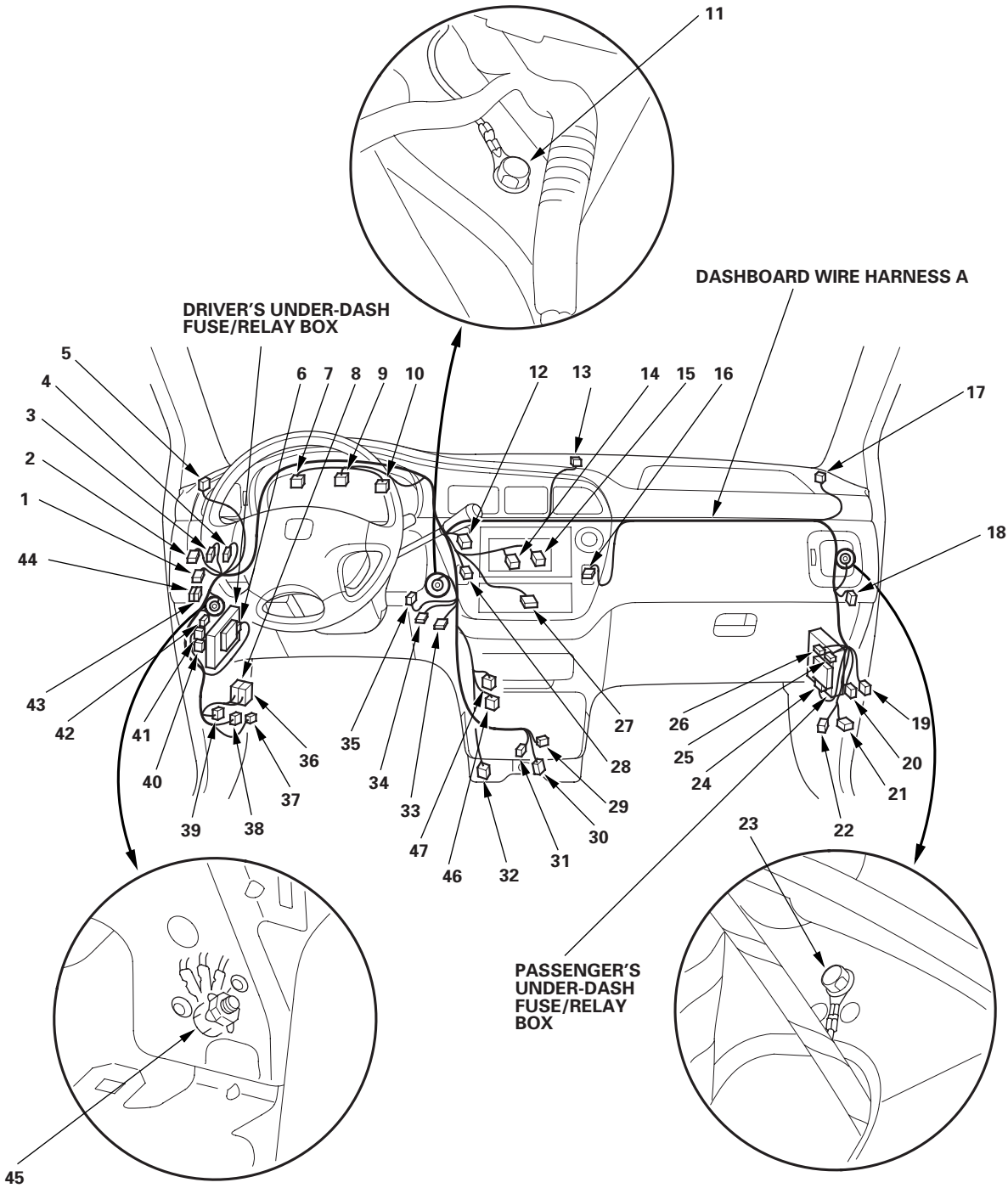
Connector to Harness Index (cont'd)

Dashboard Wire Harness A (With Navigation System)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Accessory power socket (front)	31	2	Behind middle of dash		
Audio unit	27	20	Behind audio unit		
Cruise control main switch	4	5	Behind instrument panel		'02 model
Cruise control unit	35	14	Under middle of dash		
Data link connector	33	16	Under middle of dash		
Driver's under-dash fuse/relay box connector I (see page 22-76)	41	18	Behind left kick panel		
Driver's under-dash fuse/relay box connector K (see page 22-76)	40	18	Behind left kick panel		
Gauge assembly connector A	9	14	Behind gauges		
Gauge assembly connector B	7	22	Behind gauges		
Gauge assembly connector C	10	16	Behind gauges		
Hazard warning switch	12	10	Behind hazard warning switch		
In-car temperature sensor	34	2	Under middle of dash		
Interior lights switch	16	6	Behind instrument panel		'02 model
Interior lights switch	29	6	Behind instrument panel		'03-04 models
Keyless receiver unit	18	14	Behind right kick panel		
Multiplex control unit, driver's, connector B (see page 22-76)	6	22	Behind left kick panel		
Multiplex control unit, passenger's, connector B (see page 22-76)	24	22	Behind right kick panel		
Navigation display unit connector A	14	5	Behind navigation display		
Navigation display unit connector B	15	20	Behind navigation display		
Passenger's airbag cutoff indicator	16	4	Behind instrument panel		'03-04 models
Passenger's under-dash fuse/relay box connector H (see page 22-77).	26	18	Behind right kick panel		
Passenger's under-dash fuse/relay box connector I (see page 22-77)	25	18	Behind right kick panel		
PCM connector A	29	32	Under middle of dash		Except '01 model
PCM connector A	29	22	Under middle of dash		'01 model
PCM connector D	47	16	Under middle of dash		Except '01 model
PCM connector D	46	17	Under middle of dash		'01 model
PCM connector E	46	12	Under middle of dash		'99-'00 models, EX
PCM connector E	46	31	Under middle of dash		'01 model
PCM connector E	46	20	Under middle of dash		'02-'04 models
Power mirror switch	1	10	Behind instrument panel		
Power sliding door switch	2	10	Behind instrument panel		
Sunlight sensor	13	2	Under middle of dash		
TCS switch	3	8	Behind instrument panel		'99-02 models
TCS and cruise control main switch	3	8	Behind instrument panel		'03-04 models
Tweeter (left)	5	2	Under left side of dash		
Tweeter (right)	17	2	Under right side of dash		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PASSENGER'S UNDER-DASH FUSE/RELAY BOX
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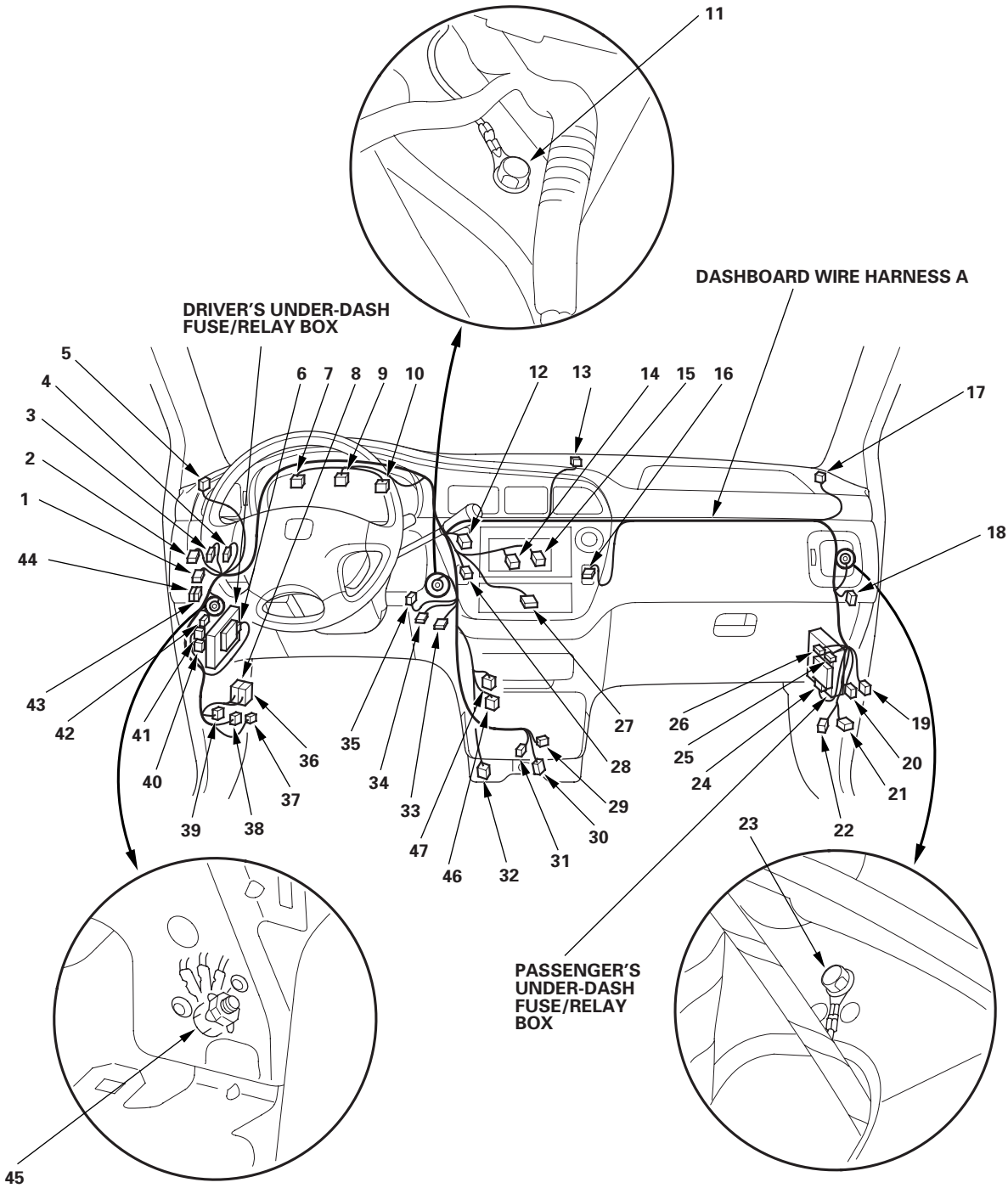
Connector to Harness Index (cont'd)

Dashboard Wire Harness A (With Navigation System) (cont'd)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
C203	19	16	Behind right kick panel	Right engine compartment wire harness (see page 22-26)	
C204	20	2	Behind right kick panel	Right engine compartment wire harness (see page 22-26)	Security
C303	36	24	Behind left kick panel	Left engine compartment wire harness (see page 22-28)	
C401	43	22	Behind left kick panel	Dashboard wire harness B (see page 22-32)	
C402	44	24	Behind left kick panel	Dashboard wire harness B (see page 22-32)	
C501	8	14	Behind left kick panel	Left side wire harness (see page 22-48)	'99-00 models
C501	8	20	Behind left kick panel	Left side wire harness (see page 22-48)	'01 model
C501	8	21	Behind left kick panel	Left side wire harness (see page 22-48)	'02-04 models
C502	38	20	Behind left kick panel	Left side wire harness (see page 22-48)	'99-00 models
C502	38	22	Behind left kick panel	Left side wire harness (see page 22-48)	'01 model
C502	38	13	Behind left kick panel	Left side wire harness (see page 22-48)	'02-04 models
C503	42	3	Behind left kick panel	SRS main harness (see page 22-61)	'99-01 models
C504	30	2	Under middle of dash	PCM subharness (see page 22-68)	'99-01 models
C504	30	8	Under middle of dash	PCM subharness (see page 22-68)	'02 model
C504	30	10	Under middle of dash	PCM subharness (see page 22-68)	'03-04 models
C505	21	16	Behind right kick panel	Right side wire harness (see page 22-52)	'99-01 models
C505	21	21	Behind right kick panel	Right side wire harness (see page 22-54)	'02-04 models
C506	22	2	Behind right kick panel	Right side wire harness (see page 22-54)	'02-04 models
C508	39	8	Behind left kick panel	Left side wire harness (see page 22-48)	'02-04 models
C509	37	2	Behind left kick panel	Left side wire harness (see page 22-48)	'02-04 models
C541	32	24	Under middle of dash	Navigation wire harness (see page 22-68)	'00-04 models
G501	45		Behind left kick panel	Body ground via dashboard wire harness A	
G502	11		Under middle of dash	Body ground via dashboard wire harness A	
G503	23		Behind right kick panel	Body ground via dashboard wire harness A	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DRIVER'S UNDER-DASH FUSE/RELAY BOX
DASHBOARD WIRE HARNESS A
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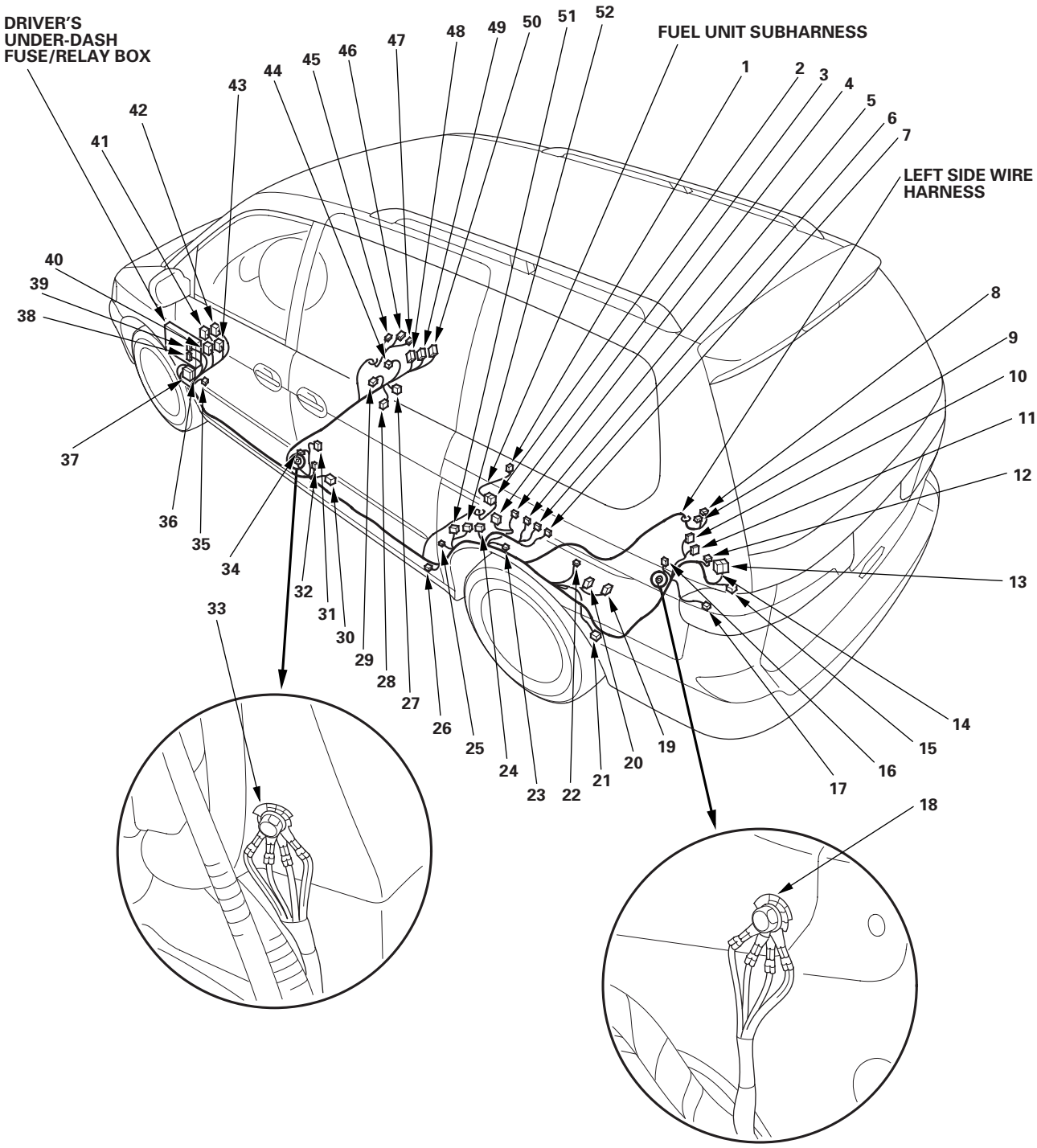
PASSENGER'S UNDER-DASH FUSE/RELAY BOX

Connector to Harness Index (cont'd)

Left Side Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
ABS left rear wheel sensor	9	2	On left half of rear cross beam		
ABS right rear wheel sensor	8	2	On left half of rear cross beam		
Auxiliary jacks	24	14	Left quarter panel		* 2
Brake light failure sensor	15	6	Behind left taillight		
Driver's door switch	34	1	Left B-pillar		
Driver's seat belt switch	44	2	Under driver's seat		'02 LX
Driver's seat belt switch	44	3	Under driver's seat		'03-04 LX
Driver's seat belt tensioner	32	2	Left B-pillar		
Driver's side airbag inflator	27	2	Under driver's seat		'02-04 models
Driver's side impact sensor	30	2	Left B-pillar		'02-04 models
Driver's under-dash fuse/relay box connector A (see page 22-76)	38	10	Left kick panel		
Driver's under-dash fuse/relay box connector B (see page 22-76)	39	14	Left kick panel		
EVAP bypass solenoid valve	47	2	Middle of floor		
EVAP canister vent shut valve	45	2	Middle of floor		
Fuel fill door relay	19	5	Left quarter panel		
Fuel fill door switch	23	2	Left quarter panel		
Fuel tank pressure (FTP) sensor	46	3	Middle of floor		
Left power sliding door control unit connector A	3	26	Left quarter panel		
Left power sliding door control unit connector B	4	5	Left quarter panel		
Left power sliding door junction switch	31	10	Left B-pillar		Except '04 model
Left power sliding door junction switch	31	12	Left B-pillar		Security
Left rear speaker	22	2	Left quarter panel		
Left sliding door handle switch	26	2	Left quarter panel		
Left sliding door motor	5	2	Left quarter panel		
Left sliding door sensor	6	4	Left quarter panel		
Left sliding door switch	25	1	Left quarter panel		
Left rear window motor	16	2	Left quarter panel		
Left rear window open relay	14	5	Left quarter panel		
Left rear window close relay	13	5	Left quarter panel		
Left taillight	17	5	Left tailight		
Rear accessory power socket	21	2	Left quarter panel		
Rear window wiper intermittent control unit	20	8	Left quarter panel		'01-04 models
Slide door buzzer	7	2	Left quarter panel		
Trailer lighting connector	12	6	Behind left taillight		

* 2: With rear entertainment system


DRIVER'S UNDER-DASH FUSE/RELAY BOX
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LEFT SIDE WIRE HARNESS
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Connector to Harness Index (cont'd)

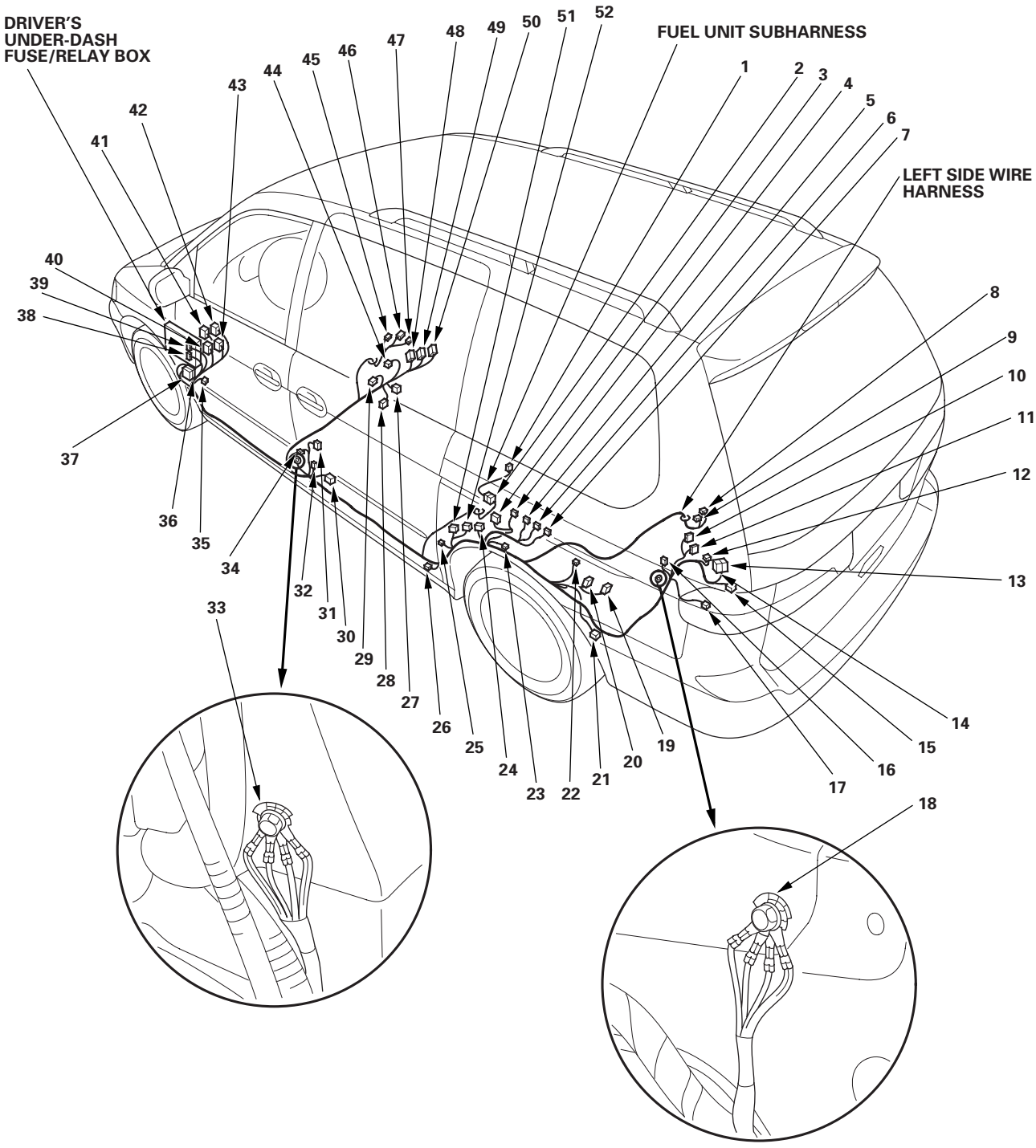
Left Side Wire Harness (cont'd)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
C501	36	14	Behind left kick panel	Dashboard wire harness A (see page 22-38)	'99-00 models
C501	36	20	Behind left kick panel	Dashboard wire harness A (see page 22-38)	'01 model
C501	36	21	Behind left kick panel	Dashboard wire harness A (see page 22-40)	'02-04 models
C502	37	20	Behind left kick panel	Dashboard wire harness A (see page 22-38)	'99-00 models *1
C502	37	8	Behind left kick panel	Dashboard wire harness A (see page 22-38)	'99-01 models
C502	37	22	Behind left kick panel	Dashboard wire harness A (see page 22-38)	'01 model *1
C502	37	13	Behind left kick panel	Dashboard wire harness A (see page 22-40)	'02-04 models
C507	43	22	Behind left kick panel	Dashboard wire harness A (see page 22-40)	'02-04 models
C508	41	8	Behind left kick panel	Dashboard wire harness A (see page 22-40)	'02-04 models
C509	42	2	Behind left kick panel	Dashboard wire harness A (see page 22-40)	'02-04 models
C510	51	6	Left quarter panel	Roof wire harness (see page 22-60)	'02-04 models *2
C511	52	16	Left quarter panel	Roof wire harness (see page 22-60)	'02-04 models *2
C551	35	2	Behind left kick panel	SRS main harness (see page 22-61)	
C552	29	4	Under driver's seat	Driver's power seat wire harness (see page 22-72)	'99-01 models
C552	29	10	Under driver's seat	Driver's power seat wire harness (see page 22-72)	'02 model
C552	29	12	Under driver's seat	Driver's seat wire harness (see page 22-72).	'03-04 EX, EXL
C553	2	4	Under middle of floor	Fuel unit subharness	
C554	10	14	Left quarter panel	Tailgate wire harness (see page 22-58)	
C554	10	16	Left quarter panel	Tailgate wire harness (see page 22-58)	Security
C555	11	2	Left quarter panel	Tailgate wire harness (see page 22-58)	Security
C556	49	2	Under driver's seat	SRS floor subharness: '02 model (see page 22-62), '03-04 models (see page 22-64)	'02-04 models
C557	50	2	Under driver's seat	SRS floor subharness: '02 model (see page 22-62), '03-04 models (see page 22-64)	'02-04 models
C558	48	3	Under driver's seat	SRS floor subharness (see page 22-64)	'03-04 models
C559	28	2	Under driver's seat	Seat position sensor subharness (see page 22-64)	'03-04 LX
C751	40	2	Behind left kick panel	Driver's door wire harness (see page 22-70)	Seat heater
G551	33		Left B-pillar	Body ground via left side wire harness	
G552	18		Left quarter panel	Body ground via left side wire harness	

* 1: With power sliding door
* 2: With rear entertainment system

Fuel Unit Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Fuel pump/fuel gauge sending unit	1	5	Fuel tank		
C553	2	4	Under middle of floor	Left side wire harness	


DRIVER'S
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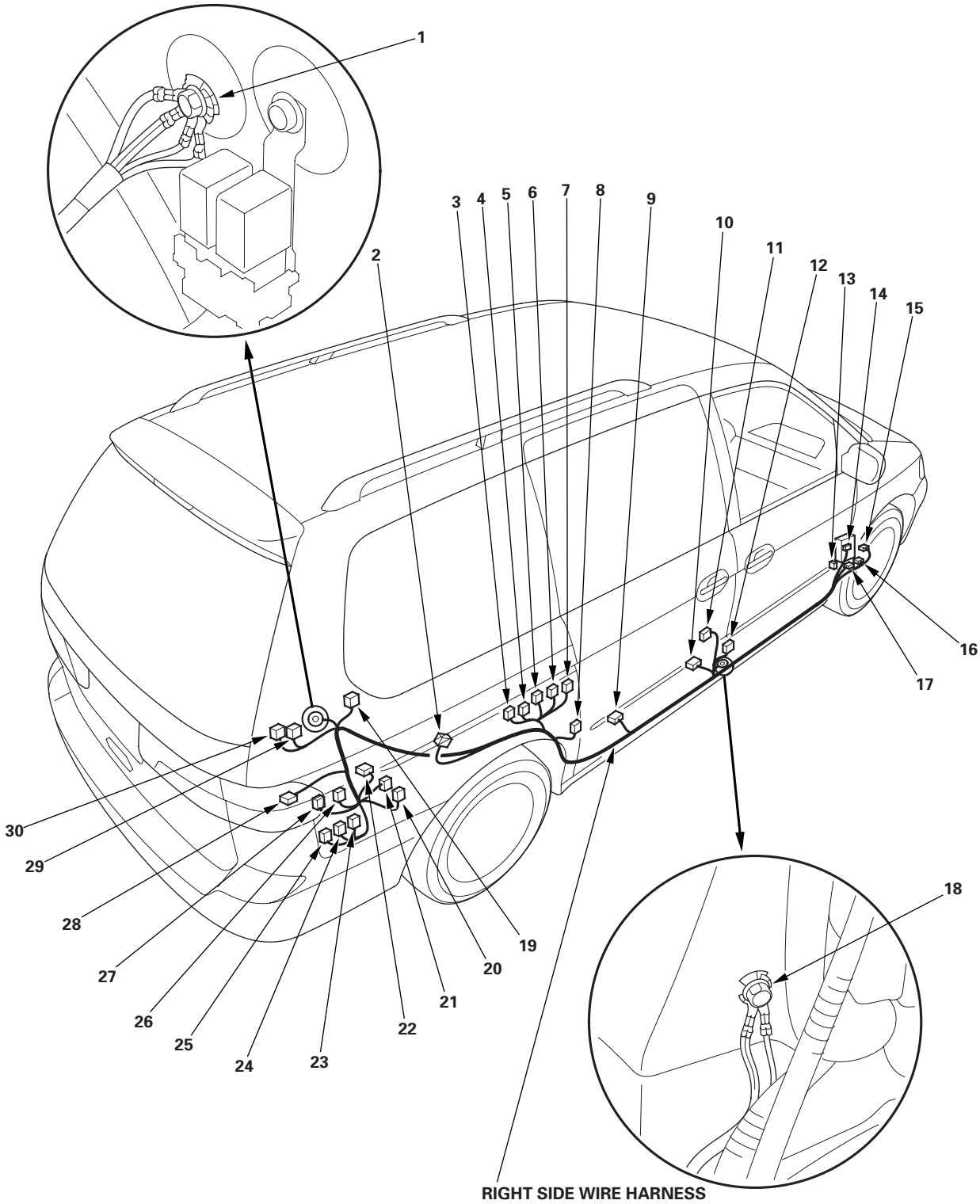
Connector to Harness Index (cont'd)

Right Side Wire Harness ('99-01 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Front passenger's door switch	12	1	Right B-pillar		
Front passenger's seat belt tensioner	10	2	Right B-pillar		
Passenger's under-dash fuse/relay box connector A (see page 22-77)	14	20	Behind right kick panel		
Rear A/C blower motor	21	2	Right quarter panel		
Rear A/C blower motor high relay	27	6	Right quarter panel		
Rear A/C blower motor low relay	23	4	Right quarter panel		
Rear A/C blower motor main relay	26	4	Right quarter panel		
Rear A/C blower motor middle relay	24	4	Right quarter panel		
Rear A/C mode control motor	22	7	Right quarter panel		
Rear A/C mode control motor relay	25	5	Right quarter panel		
Rear A/C power transistor	20	5	Right quarter panel		
Right power sliding door control unit connector A	6	26	Right C-pillar		
Right power sliding door control unit connector B	5	5	Right C-pillar		
Right power sliding door junction switch	11	10	Right B-pillar		
Right power sliding door junction switch	11	12	Right B-pillar		Security
Right rear speaker	2	2	Right quarter panel		
Right sliding door motor	3	2	Right C-pillar		
Right sliding door handle switch	9	2	Right C-pillar		
Right sliding door sensor	4	4	Right C-pillar		
Right sliding door switch	8	1	Right C-pillar		
Right taillight	28	5	Behind right taillight		
Right rear window motor	19	2	Right quarter panel		
Right rear window open relay	29	5	Right quarter panel		
Right rear window close relay	30	5	Right quarter panel		
C451	17	12	Behind right kick panel	Dashboard wire harness B (see page 22-34)	* 1
C451	17	16	Behind right kick panel	Dashboard wire harness B (see page 22-34)	* 2
C451	17	3	Behind right kick panel	Dashboard wire harness B (see page 22-34)	* 3
C451	17	14	Behind right kick panel	Dashboard wire harness B (see page 22-34)	'01 EX
C452	16	1	Behind right kick panel	Dashboard wire harness B (see page 22-34)	* 4
C505	15	16	Behind right kick panel	Dashboard wire harness A (see page 22-38)	* 4
C581	13	2	Behind right kick panel	SRS main harness (see page 22-61)	
C582	7	14	Right C-pillar	Roof wire harness (see page 22-60)	Rear Heater-A/C
C582	7	3	Right C-pillar	Roof wire harness (see page 22-60)	
G581	18		Right B-pillar	Body ground via right side wire harness	
G582	1		Right quarter panel	Body ground via right side wire harness	

* 1: '99-00 models with power sliding door
* 2: '99-00 models with rear heater-A/C
* 3: '99-01 models except * 1, * 2, and '01 EX
* 4: '99-01 models with power sliding door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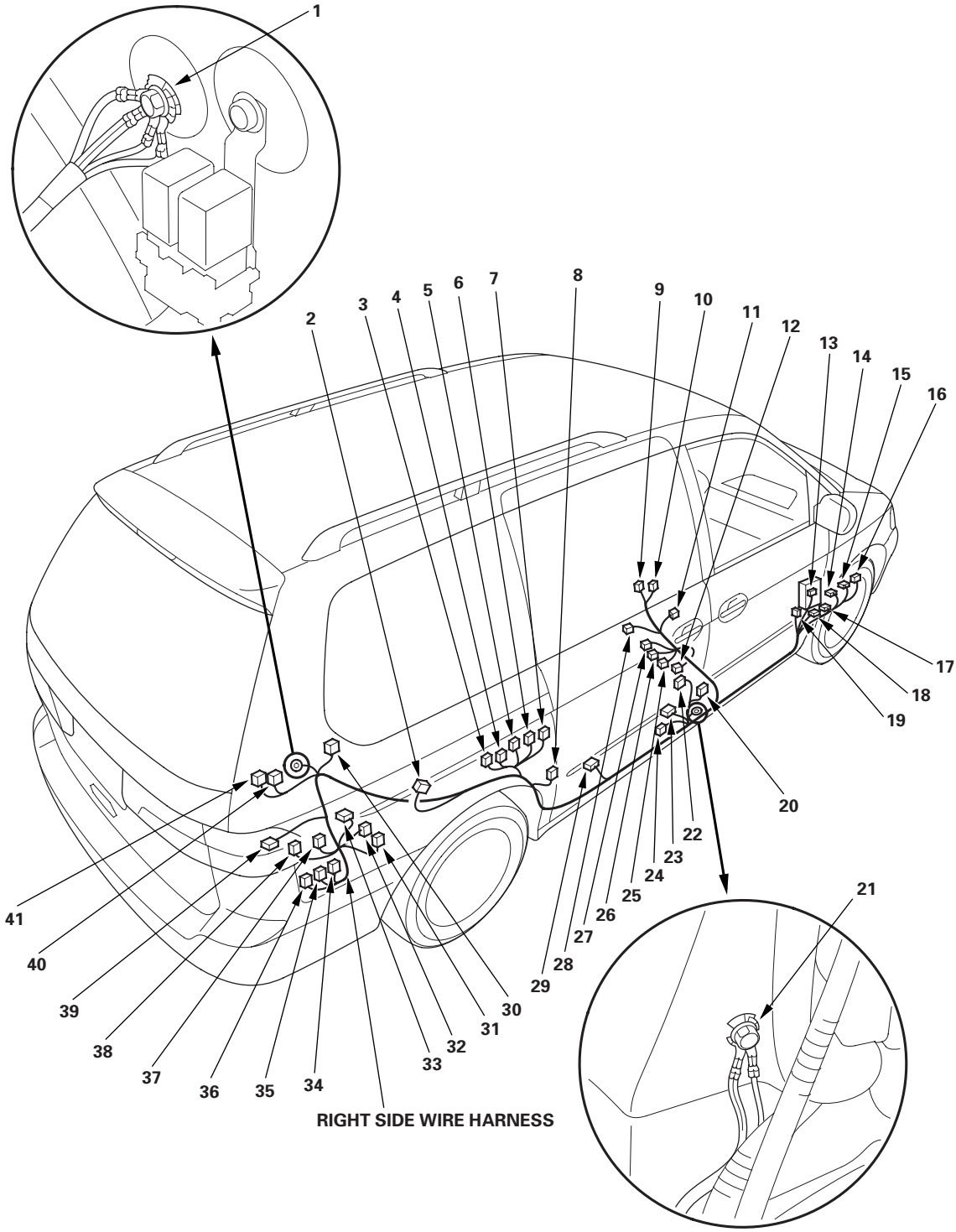
RIGHT SIDE WIRE HARNESS

Connector to Harness Index (cont'd)

Right Side Wire Harness ('02-04 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Front passenger's door switch	20	1	Right B-pillar		
Front passenger's seat belt switch	27	3	Under front passenger's seat		*
Front passenger's seat belt tensioner	23	2	Right B-pillar		
Front passenger's seat heater	26	4	Under front passenger's seat		*
Front passenger's side airbag inflator	25	2	Under front passenger's seat		
Front passenger's weight sensor	12	6	Under front passenger's seat		'03-04 models
Passenger's side impact sensor	24	2	Right B-pillar		
Passenger's under-dash fuse/relay box connector A (see page 22-77)	13	20	Behind right kick panel		
Rear A/C blower motor	32	2	Right quarter panel		
Rear A/C blower motor high relay	38	6	Right quarter panel		
Rear A/C blower motor low relay	34	4	Right quarter panel		
Rear A/C blower motor main relay	37	4	Right quarter panel		
Rear A/C blower motor middle relay	35	4	Right quarter panel		
Rear A/C mode control motor	33	7	Right quarter panel		
Rear A/C mode control motor relay	36	5	Right quarter panel		
Rear A/C power transistor	31	5	Right quarter panel		
Right power sliding door control unit connector A	6	26	Right C-pillar		
Right power sliding door control unit connector B	5	5	Right C-pillar		
Right power sliding door junction switch	22	10	Right B-pillar		'02-03 models
Right power sliding door junction switch	22	12	Right B-pillar		Security
Right rear speaker	2	2	Right quarter panel		
Right sliding door motor	3	2	Right C-pillar		
Right sliding door handle switch	29	2	Right C-pillar		
Right sliding door sensor	4	4	Right C-pillar		
Right sliding door switch	8	1	Right C-pillar		
Right taillight	39	5	Behind right taillight		
Right rear window motor	30	2	Right quarter panel		
Right rear window open relay	40	5	Right quarter panel		
Right rear window close relay	41	5	Right quarter panel		

*: '02 model, '03-04 LX, and '03-04 EXL with navigation system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RIGHT SIDE WIRE HARNESS

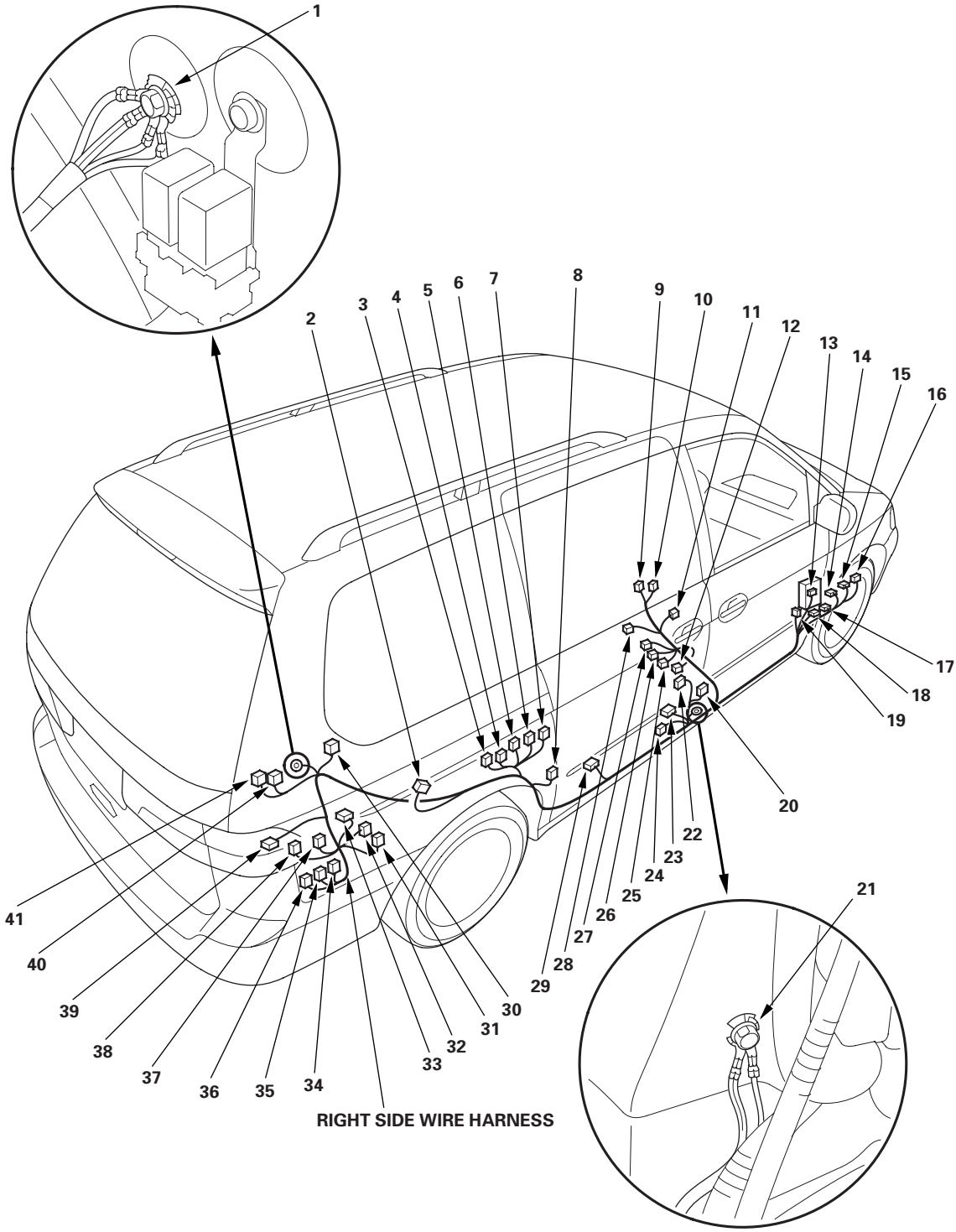
(cont'd)

Connector to Harness Index (cont'd)

Right Side Wire Harness ('02-04 models) (cont'd)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
C451	18	13	Behind right kick panel	Dashboard wire harness B (see page 22-34)	
C452	17	2	Behind right kick panel	Dashboard wire harness B (see page 22-34)	
C505	14	21	Behind right kick panel	Dashboard wire harness A (see page 22-40)	
C506	15	2	Behind right kick panel	Dashboard wire harness A (see page 22-40)	Power sliding door
C581	19	2	Behind right kick panel	SRS main harness: '02 model (see page 22-62), '03-04 models (see page 22-64)	
C582	7	14	C-pillar	Roof wire harness (see page 22-60)	Rear Heater-A/C
C582	7	3	C-pillar	Roof wire harness (see page 22-60)	Ecept '04 model
C583	9	2	Under front passenger's seat	SRS floor subharness: '02 model (see page 22-62), '03-04 models (see page 22-64)	
C584	10	2	Under front passenger's seat	SRS floor subharness: '02 model (see page 22-62), '03-04 models (see page 22-64)	
C589	11	10	Under front passenger's seat	Front passenger's seat wire harness (see page 22-73)	* 2
C761	16	3	Behind right kick panel	Front passenger's door wire harness (see page 22-71)	Seat heater
C861	28	4	Under front passenger's seat	OPDS unit harness: '02 model (see page 22-62), '03-04 models (see page 22-66)	* 1
G581	21		Right B-pillar	Body ground via right side wire harness	
G582	1		Right quarter panel	Body ground via right side wire harness	

* 1: '02 model, '03-04 LX, and '03-04 EXL with navigation system
* 2: '03-04 EX and EXL without navigation system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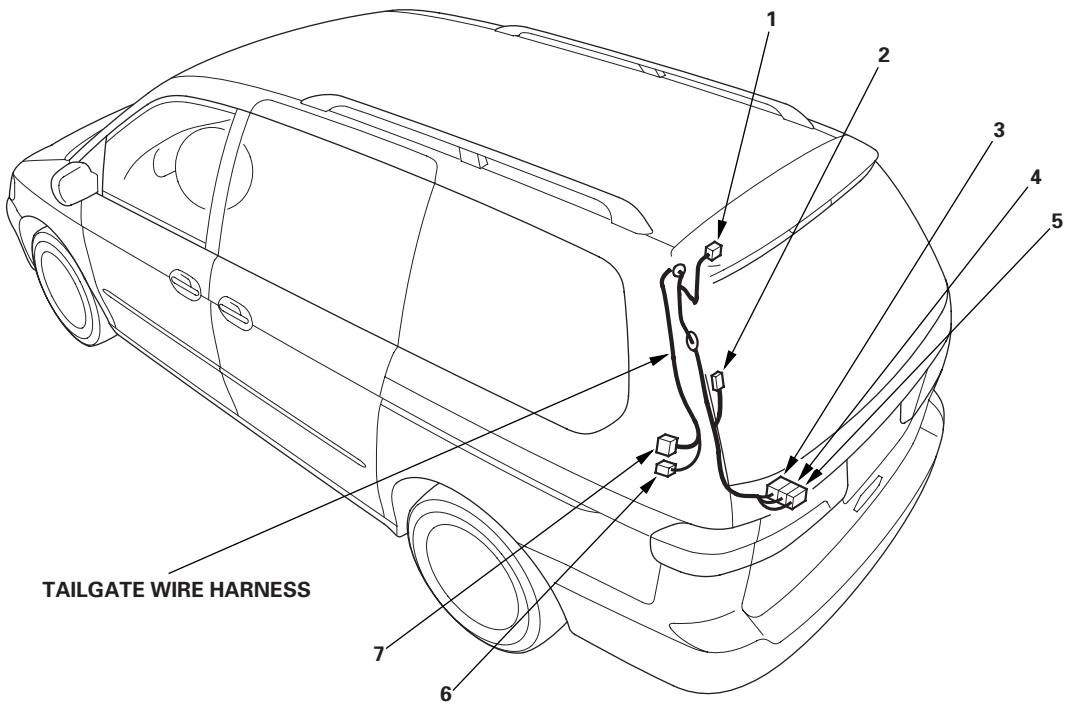
RIGHT SIDE WIRE HARNESS

Connector to Harness Index (cont'd)

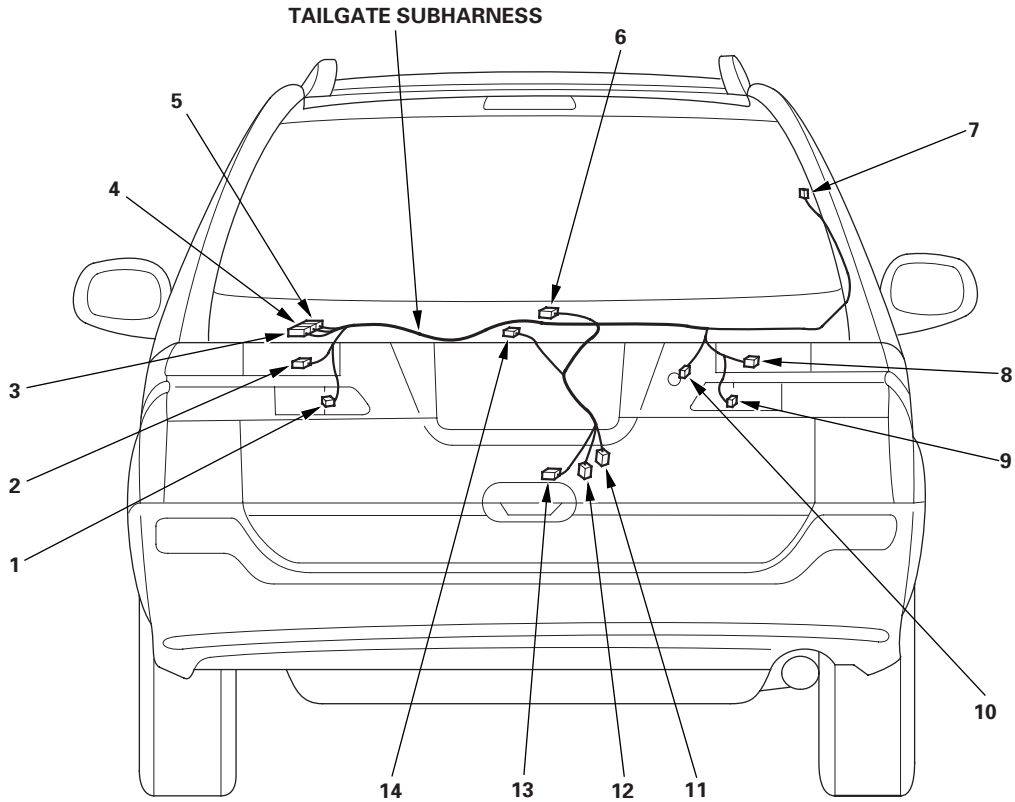
Tailgate Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
High mount brake light	1	2	Left side of roof spoiler		
Rear window defogger connector (+)	2	1	Left side of rear window		
C554	6	14	Left quarter panel	Left side wire harness (see page 22-48)	
C554	6	16	Left quarter panel	Left side wire harness (see page 22-48)	Security
C555	7	2	Left quarter panel	Left side wire harness (see page 22-48)	Security
C601	5	4	Left side of tailgate	Tailgate subharness (see page 22-59)	
C601	5	6	Left side of tailgate	Tailgate subharness (see page 22-59)	Security
C602	4	6	Left side of tailgate	Tailgate subharness (see page 22-59)	
C603	3	2	Left side of tailgate	Tailgate subharness (see page 22-59)	



Tailgate Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Left back-up light	1	3	Behind left inner taillight		
Left inner taillight	2	2	Behind left inner taillight		
License plate light	14	2	Middle of tailgate		
Rear window defogger (−)	7	1	Right side of rear window		
Rear window wiper motor	6	4	Middle of tailgate		
Right back-up light	9	3	Behind right inner taillight		
Right inner taillight	8	2	Behind right inner taillight		
Tailgate key cylinder switch	10	3	Right side of tailgate		
Tailgate knob switch	12	3	Middle of tailgate		'01-04 models
Tailgate latch switch	13	2	Middle of tailgate		
Tailgate lock actuator	11	2	Middle of tailgate		
C601	3	4	Left side of tailgate	Tailgate wire harness (see page 22-58)	
C601	3	6	Left side of tailgate	Tailgate wire harness (see page 22-58)	Security
C602	4	6	Left side of tailgate	Tailgate wire harness (see page 22-58)	
C603	5	2	Left side of tailgate	Tailgate wire harness (see page 22-58)	

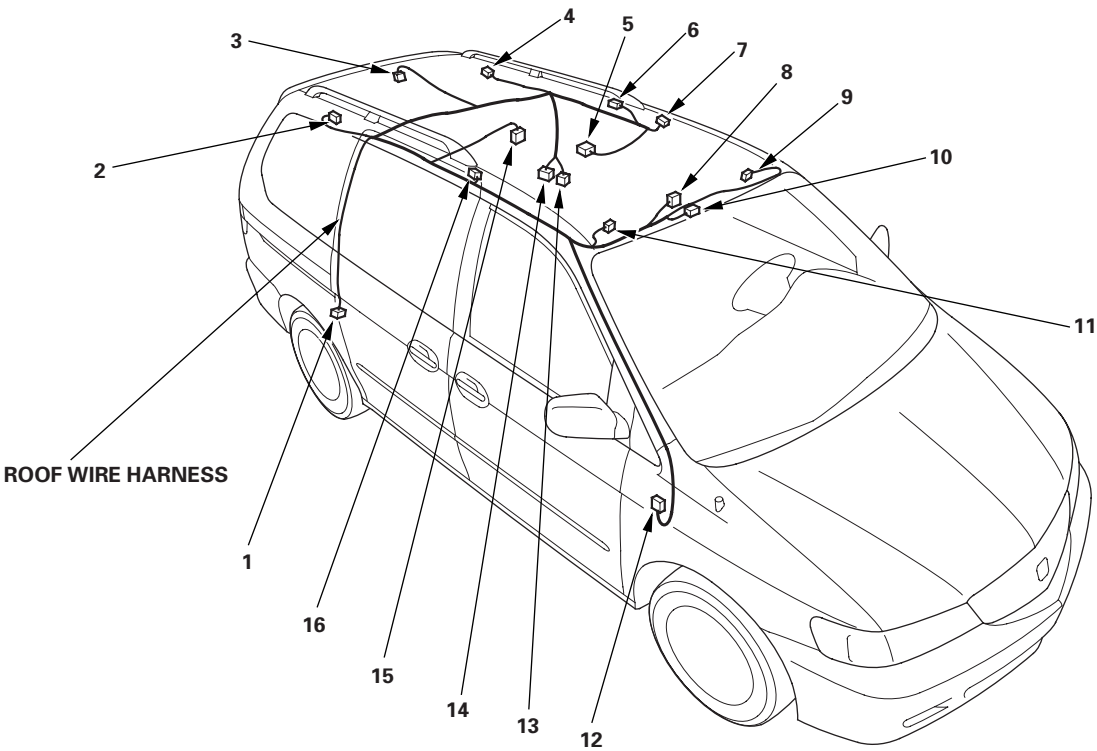


Connector to Harness Index (cont'd)

Roof Wire Harness

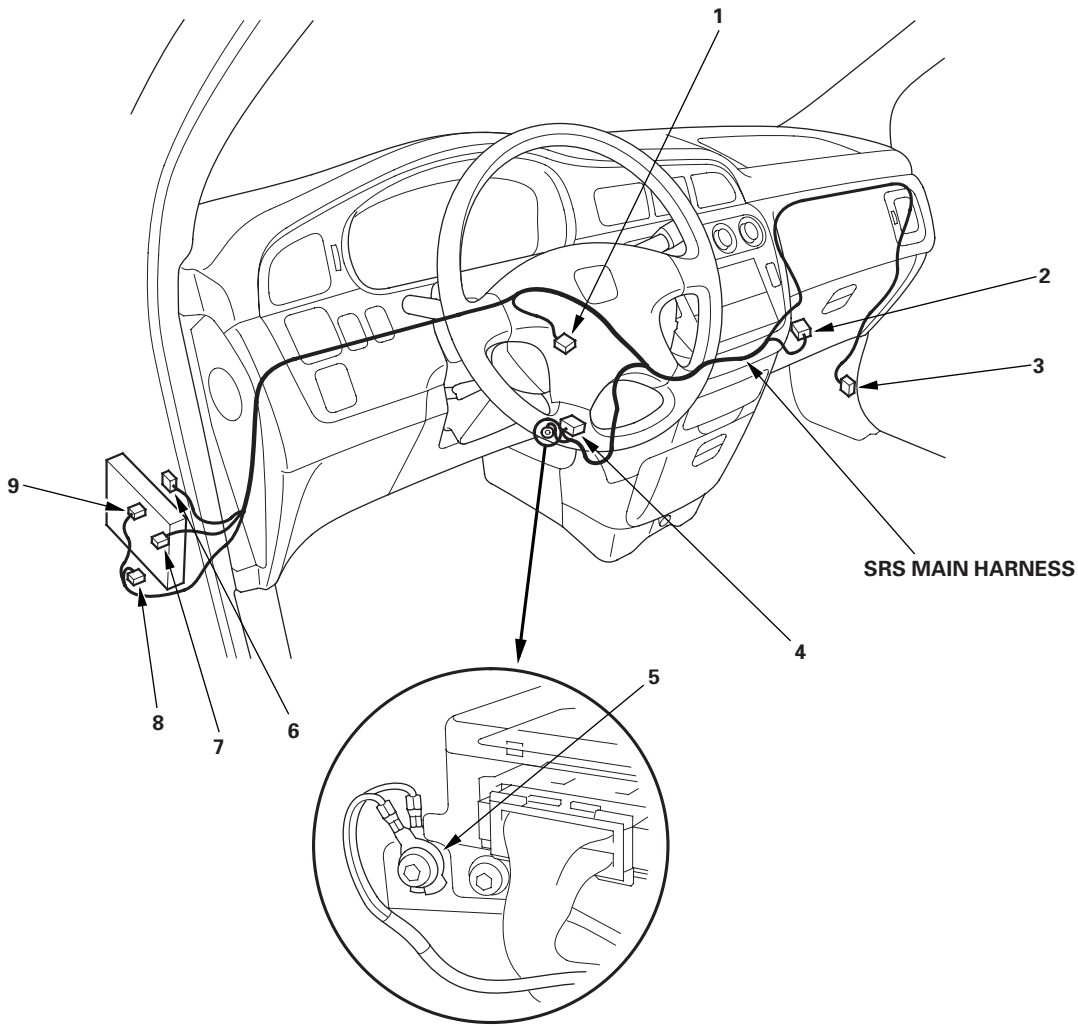
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Cargo area light	3	3	Roof area		
Driver's vanity mirror light	9	2	Left front side of roof area		
Front ceiling light	8	3	Roof area		
Left front individual map light	6	3	Left side of roof area		
Left rear individual map light	4	3	Left side of roof area		
Passenger's vanity mirror light	11	2	Right front side of roof area		
Rear ceiling light	15	3	Roof area		Except '04 model
Rear controller and screen	5	26	Middle of roof		*
Rear heater-A/C passenger's control panel	7	10	Roof area		
Right front individual map light	16	3	Right side of roof area		
Right rear individual map light	2	3	Right side of roof area		
Front individual map light	10	3	Roof area		
C510	13	6	Left quarter panel	Left side wire harness (see page 22-48)	*
C511	14	16	Left quarter panel	Left side wire harness (see page 22-48)	*
C512	12	6	Behind right kick panel	Dashboard wire harness A (see page 22-40)	'03-04 models*
C582	1	14	Right side of floor	Right side wire harness: '99-01 models (see page 22-52), '02-04 models (see page 22-54)	Rear Heater-A/C
C582	1	3	Right side of floor	Right side wire harness: '99-01 models (see page 22-52), '02-04 models (see page 22-54)	Except '04 model

*: With rear entertainment system



SRS Main Harness ('99-01 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Cable reel	1	2	Behind steering column		
Driver's under-dash fuse/relay box connector N (see page 22-76)	9	2	Behind left kick panel		
Front passenger's airbag assembly	2	2	Behind glove box		
Memory erase signal (MES) connector	7	2	Behind left kick panel		
SRS unit	4	18	Middle of floor		
C503	6	3	Behind left kick panel	Dashboard wire harness A (see page 22-38)	
C551	8	2	Behind left kick panel	Left side wire harness (see page 22-48)	
C581	3	2	Behind right kick panel	Right side wire harness (see page 22-52)	
G801	5		Middle of floor	Body ground via SRS main harness	



Connector to Harness Index (cont'd)

SRS Main Harness ('02 model)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Cable reel	1	4	Behind steering column		
Driver's under-dash fuse/relay box connector N (see page 22-76)	26	2	Behind left kick panel		
Front passenger's airbag inflator	5	4	Behind glove box		
Memory erase signal (MES) connector	25	2	Behind left kick panel		
C205	6	4	Behind right kick panel	Right engine compartment wire harness (see page 22-26)	
C304	23	4	Behind left kick panel	Left engine compartment wire harness (see page 22-28)	
C503	27	8	Behind left kick panel	Dashboard wire harness A (see page 22-40)	
C551	24	2	Behind left kick panel	Left side wire harness	
C581	7	2	Under right side of dash	Right side wire harness	
C851	22	28	Under middle of dash	SRS floor harness	

SRS Floor Harness ('02 model)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
SRS unit connector A	2	8	Under middle of dash		
SRS unit connector B	3	18	Under middle of dash		
SRS unit connector C	4	18	Under middle of dash		
C851	22	28	Under middle of dash	SRS main harness	
C852	21	28	Under middle of dash	SRS floor subharness	
G851	19		Under middle of dash	Body ground via SRS floor harness	

SRS Floor Subharness ('02 model)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
C556	15	2	Under driver's seat	Left side wire harness	
C557	16	2	Under driver's seat	Left side wire harness	
C583	14	2	Under front passenger's seat	Right side wire harness	
C584	13	2	Under front passenger's seat	Right side wire harness	
C852	21	28	Under middle of dash	SRS floor harness	

OPDS Unit Harness ('02 model)

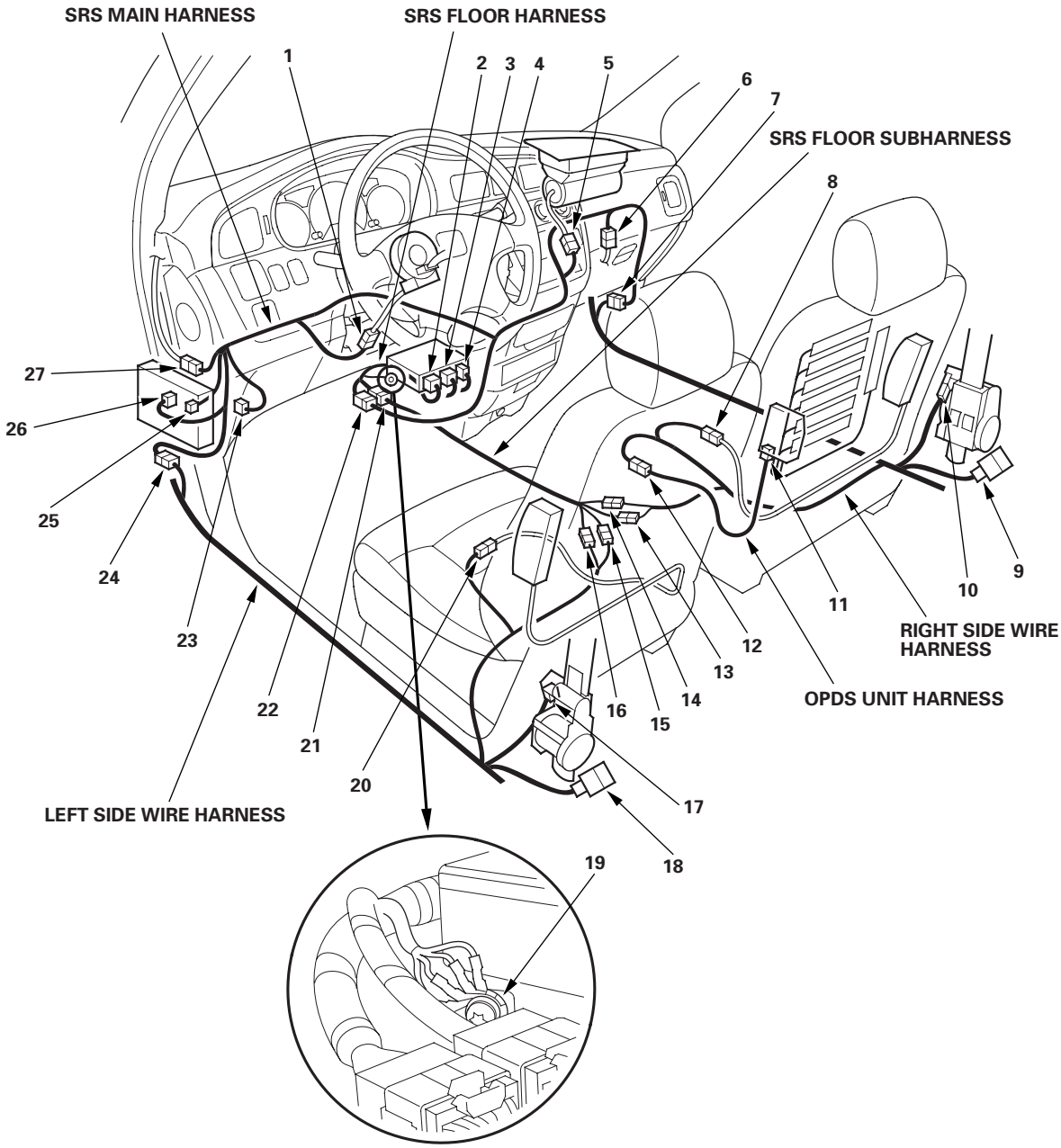
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
OPDS unit	11	4	In front passenger's seat		
C861	12	4	Under front passenger's seat	Right side wire harness	

Left Side Wire Harness (SRS branch) ('02 model)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Driver's seat belt tensioner	17	2	Left B-pillar		
Driver's side airbag inflator	20	2	Under driver's seat		
Driver's side impact sensor	18	2	Left B-pillar		
C551	24	2	Behind left kick panel	SRS main harness	
C556	15	2	Under driver's seat	SRS floor subharness	
C557	16	2	Under driver's seat	SRS floor subharness	

Right Side Wire Harness (SRS branch) ('02 model)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Front passenger's side airbag inflator	8	2	Under front passenger's seat		
Passenger's seat belt tensioner	10	2	Right B-pillar		
Passenger's side impact sensor	9	2	Right B-pillar		
C581	7	2	Behind right kick panel	SRS main harness	
C583	14	2	Under front passenger's seat	SRS floor subharness	
C584	13	2	Under front passenger's seat	SRS floor subharness	
C861	12	4	Under front passenger's seat	OPDS unit harness	


SRS MAIN HARNESS
SRS FLOOR HARNESS
SRS FLOOR SUBHARNESS
RIGHT SIDE WIRE HARNESS
OPDS UNIT HARNESS
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Connector to Harness Index (cont'd)

SRS Main Harness ('03-04 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Cable reel	1	4	Behind steering column		
Driver's under-dash fuse/relay box connector N (see page 22-76)	28	2	Behind left kick panel		
Front passenger's airbag inflator	5	4	Behind glove box		
Memory erase signal (MES) connector	27	2	Behind left kick panel		
C205	6	4	Behind right kick panel	Right engine compartment wire harness (see page 22-26)	
C304	30	4	Behind left kick panel	Left engine compartment wire harness (see page 22-30)	
C503	29	8	Behind left kick panel	Dashboard wire harness A (see page 22-40)	
C551	26	2	Behind left kick panel	Left side wire harness	
C581	7	2	Under right side of dash	Right side wire harness	
C851	25	28	Under middle of dash	SRS floor harness	

SRS Floor Harness ('03-04 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
SRS unit connector A	3	28	Under middle of dash		
SRS unit connector B	4	28	Under middle of dash		
C851	25	28	Under middle of dash	SRS main harness	
C852	24	28	Under middle of dash	SRS floor subharness	
G851	2		Under middle of dash	Body ground via SRS floor harness	

SRS Floor Subharness ('03-04 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
C556	16	2	Under driver's seat	Left side wire harness	
C557	17	2	Under driver's seat	Left side wire harness	
C558	18	3	Under driver's seat	Left side wire harness	
C583	15	2	Under front passenger's seat	Right side wire harness	
C584	14	2	Under front passenger's seat	Right side wire harness	
C852	24	28	Under middle of dash	SRS floor harness	

Driver's Seat Wire Harness (EX, EXL) (SRS branch) ('03-04 models)

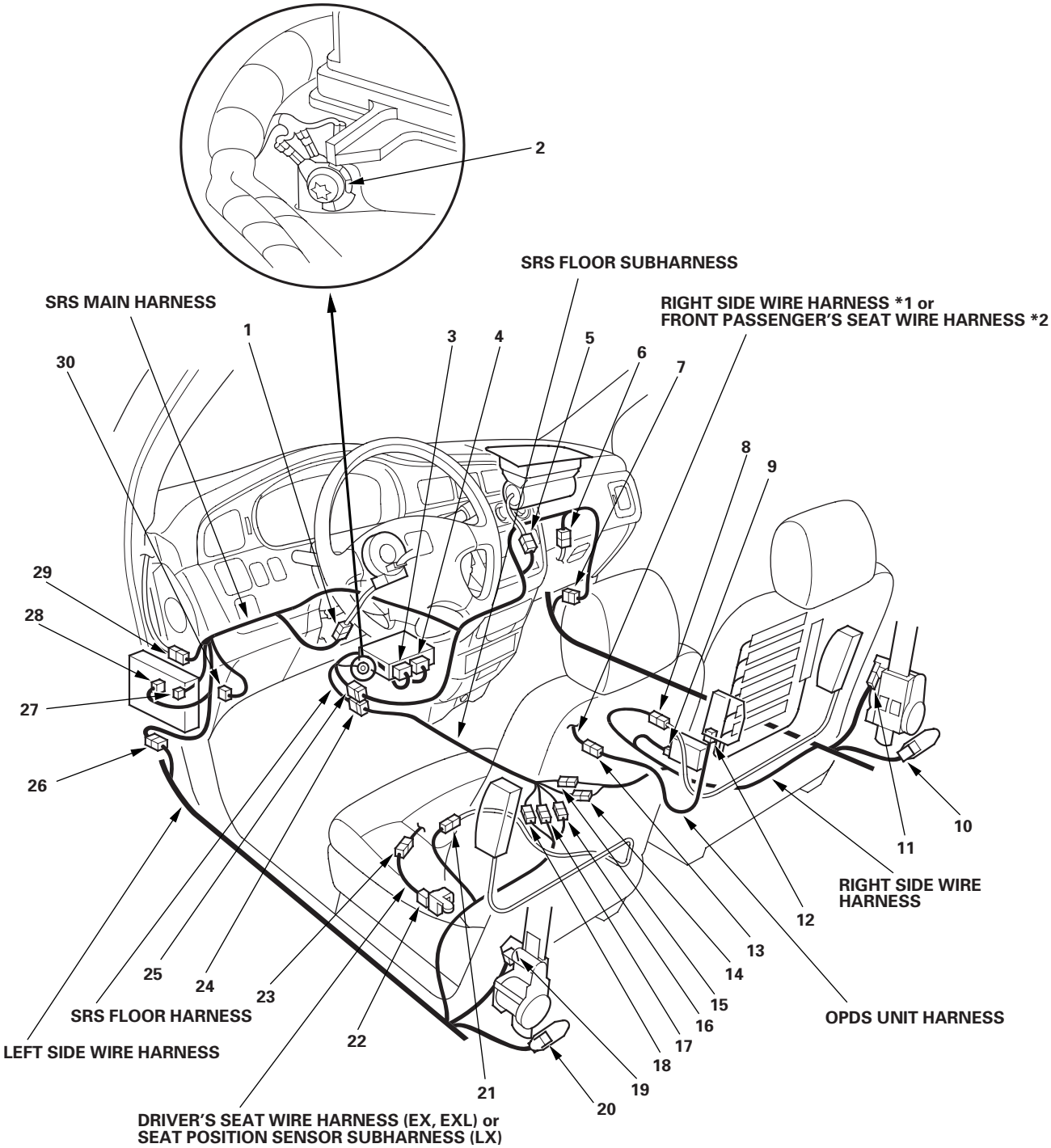
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Driver's seat position sensor	22	2	Under driver's seat		

Seat Position Sensor Subharness (LX) ('03-04 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Driver's seat position sensor	22	2	Under driver's seat		
C559	23	2	Under driver's seat	Left side wire harness (see page 22-48)	

Left Side Wire Harness (SRS branch) ('03-04 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Driver's seat belt tensioner	19	2	Left B-pillar		
Driver's side airbag inflator	21	2	Under driver's seat		
Driver's side impact sensor	20	2	Left B-pillar		
C551	26	2	Behind left kick panel	SRS main harness	
C556	16	2	Under driver's seat	SRS floor subharness	
C557	17	2	Under driver's seat	SRS floor subharness	
C558	18	3	Under driver's seat	SRS floor subharness	



*1: LX and EXL with navigation system
*2: EX and EXL without navigation system

Connector to Harness Index (cont'd)

OPDS Unit Harness ('03-04 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
OPDS unit	12	8	Under front passenger's seat		
C861	13	4	Under front passenger's seat	Right side wire harness	'03 model *1
C861	13	4	Under front passenger's seat	Front passenger's seat wire harness (see page 22-73)	* 2

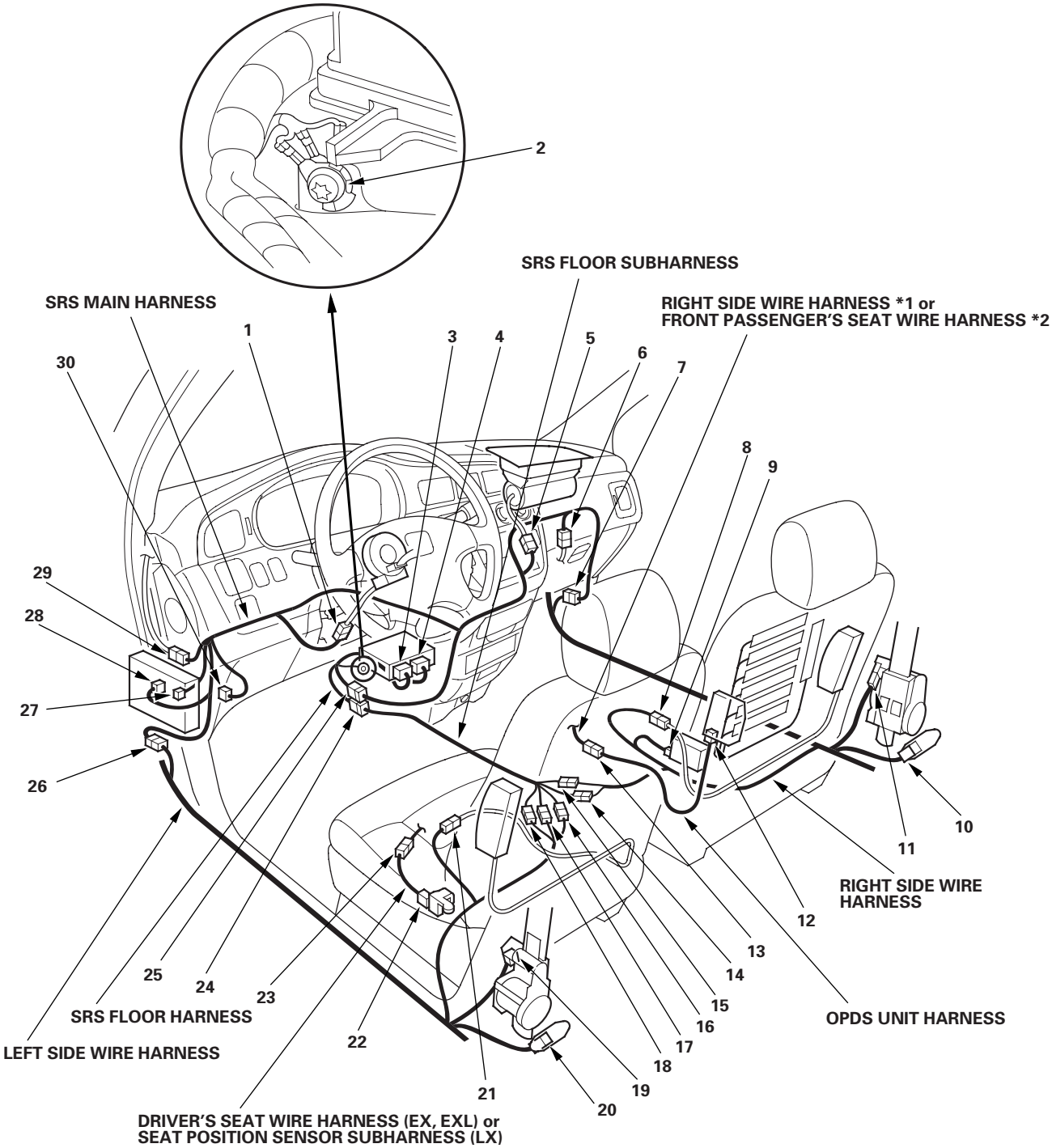
Front Passenger's Seat Wire Harness (EX without Navigation System) (SRS branch) ('03 model)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
C861	13	4	Under front passenger's seat	OPDS unit harness	

Right Side Wire Harness (SRS branch) ('03-04 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Front passenger's seat belt tensioner	11	2	Right B-pillar		
Passenger's side airbag inflator	8	2	Under front passenger's seat		
Passenger's side impact sensor	10	2	Right B-pillar		
Front passenger's weight sensor	9	6	Under front passenger's seat		
C581	7	2	Behind right kick panel	SRS main harness	
C583	15	2	Under front passenger's seat	SRS floor subharness	
C584	14	2	Under front passenger's seat	SRS floor subharness	
C861	13	4	Under front passenger's seat	OPDS unit harness	'03 model *1

* 1: LX and EXL with navigation system
* 2: EX and EXL without navigation system



*1: LX and EXL with navigation system
*2: EX and EXL without navigation system

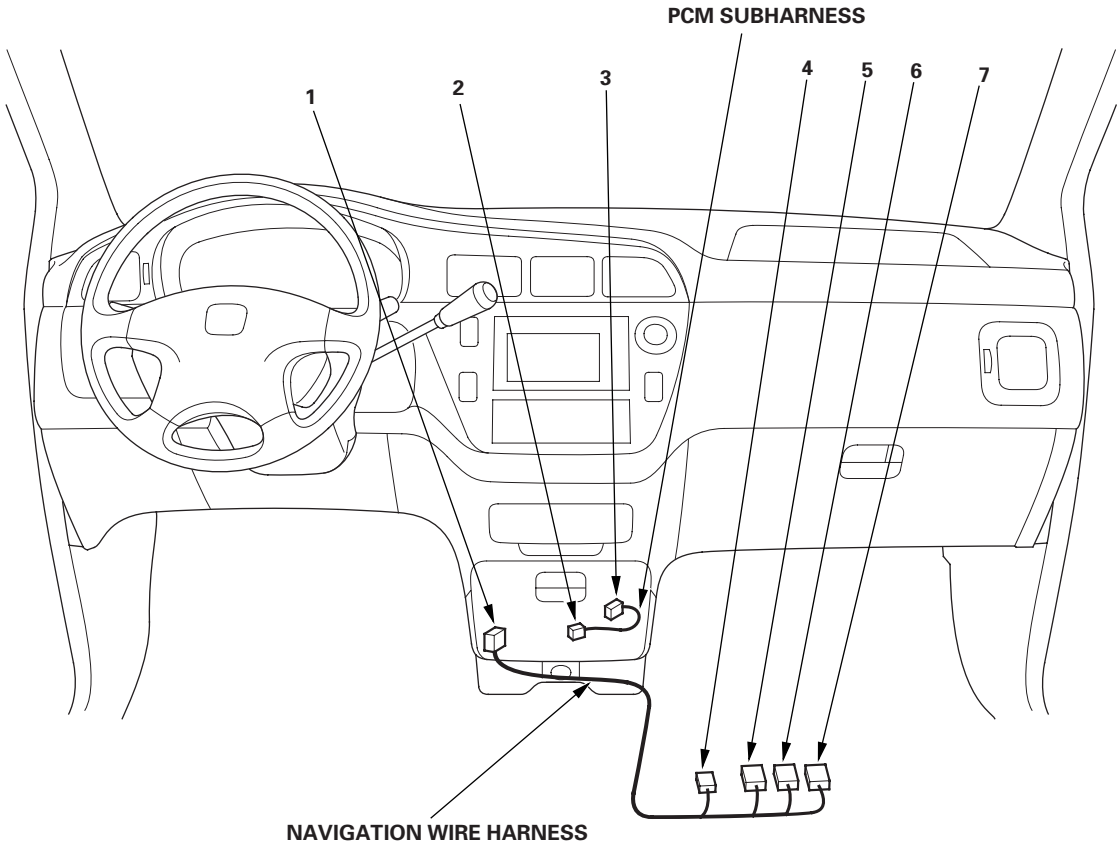
Connector to Harness Index (cont'd)

PCM Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
PCM connector E	3	12	Under middle of dash		'99-01 models
PCM connector E	3	20	Under middle of dash		'02-04 models
C504	2	2	Under middle of dash	Dashboard wire harness A (see page 22-38)	'99-01 models
C504	2	8	Under middle of dash	Dashboard wire harness A (see page 22-40)	'02 model with TCS and '03 model
C504	2	3	Under middle of dash	Dashboard wire harness A (see page 22-40)	'02 model without TCS
C504	2	10	Under middle of dash	Dashboard wire harness A (see page 22-40)	'03-04 models

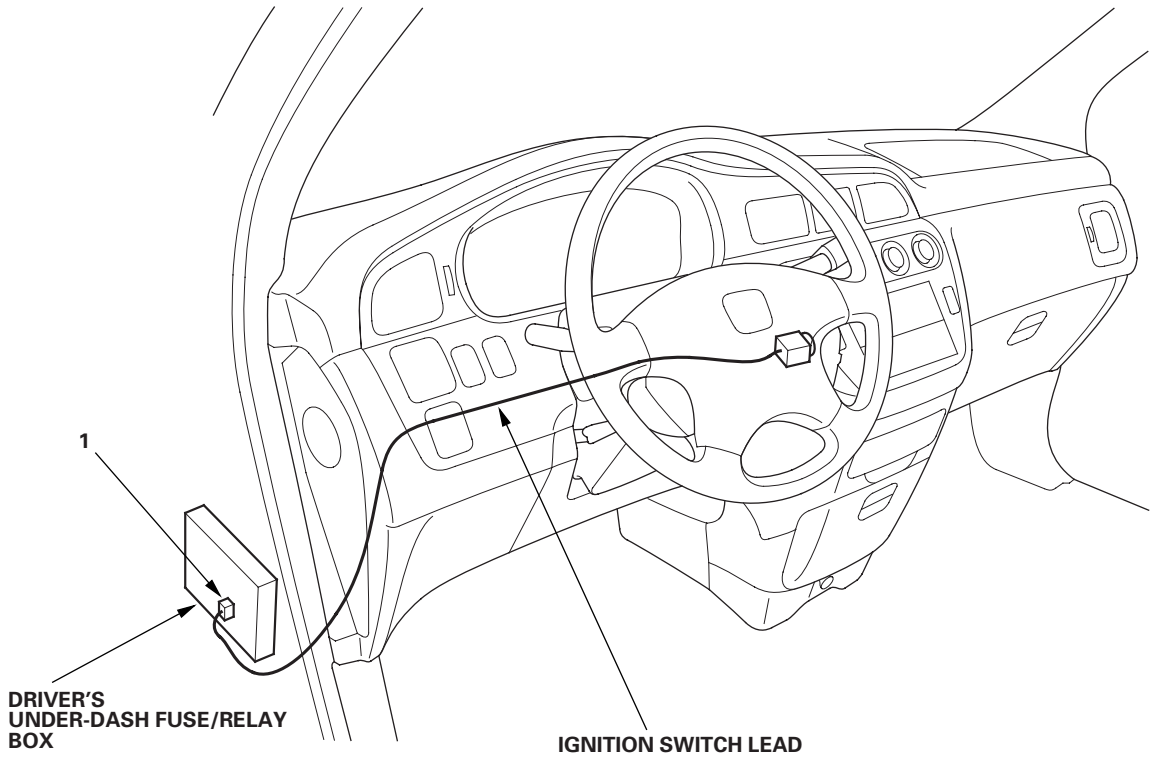
Navigation Wire Harness ('00-04 models with Navigation System)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Navigation unit connector A	6	12	Under front passenger's seat		
Navigation unit connector B	7	16	Under front passenger's seat		
Navigation unit connector C	5	8	Under front passenger's seat		
Navigation maintenance connector	4	2	Under front passenger's seat		
C541	1	24	Behind middle of dash	Dashboard wire harness A (see page 22-44)	



Ignition Switch Lead

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Driver's under-dash fuse/relay box connector M (see page 22-76)	1	6	Under left side of dash		



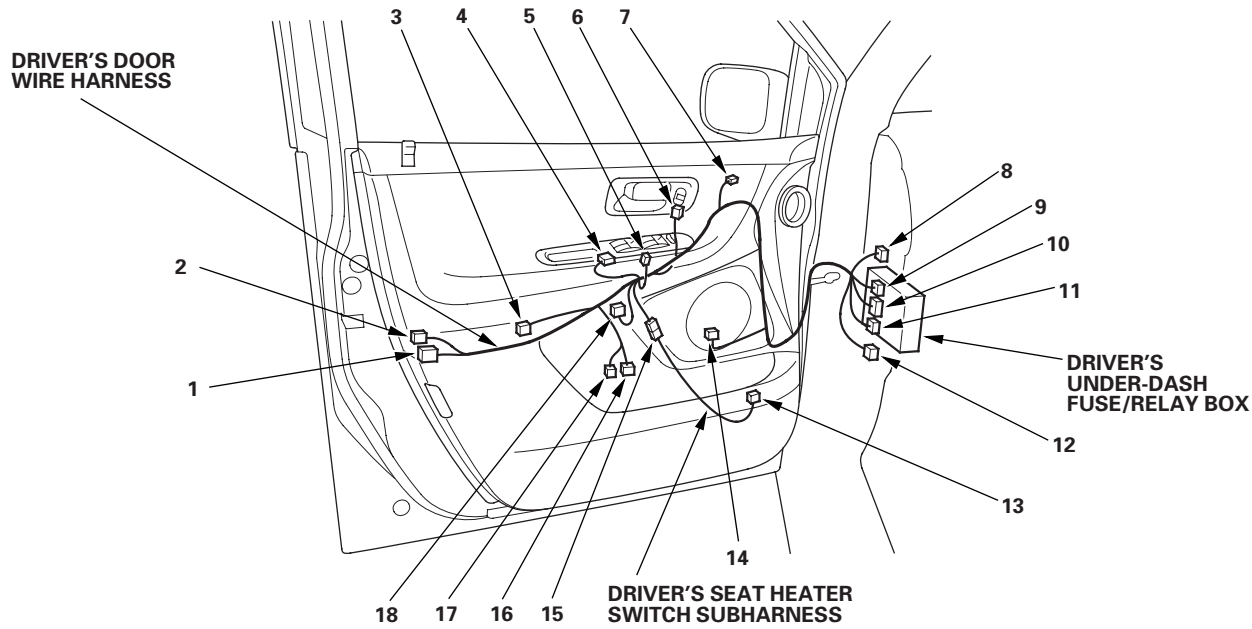
Connector to Harness Index (cont'd)

Driver's Door Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Door multiplex control unit connector A	4	20	Driver's door		
Door multiplex control unit connector B	5	2	Driver's door		
Driver's door key cylinder switch	3	3	Driver's door		
Driver's door lock actuator	1	2	Driver's door		
Driver's door lock knob switch	2	3	Driver's door		
Driver's door lock switch	6	3	Driver's door		
Driver's door speaker	14	2	Driver's door		
Driver's power window motor	16	4	Driver's door		'99-02 models
Driver's power window motor	16	2	Driver's door		'03-04 models
Driver's power window motor hall IC sensor	17	4	Driver's door		'03-04 models
Driver's under-dash fuse/relay box connector F (see page 22-76)	9	6	Behind left kick panel		
Driver's under-dash fuse/relay box connector G (see page 22-76)	10	18	Behind left kick panel		
Driver's under-dash fuse/relay box connector H (see page 22-76)	11	6	Behind left kick panel		Seat heater
Left power mirror actuator	7	6	Driver's door		Canada
Left power mirror actuator	7	3	Driver's door		USA
Power window control unit	18	18	Driver's door		'03-04 models
C751	12	2	Behind left kick panel	Left side wire harness (see page 22-48)	Seat heater
C752	15	6	Driver's door	Driver's seat heater switch subharness	Seat heater
C753	8	6	Behind left kick panel	Left engine compartment wire harness (see page 22-30)	'03-04 models

Driver's Seat Heater Switch Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Driver's seat heater switch	13	6	Driver's door		
C752	15	6	Driver's door	Driver's door wire harness	

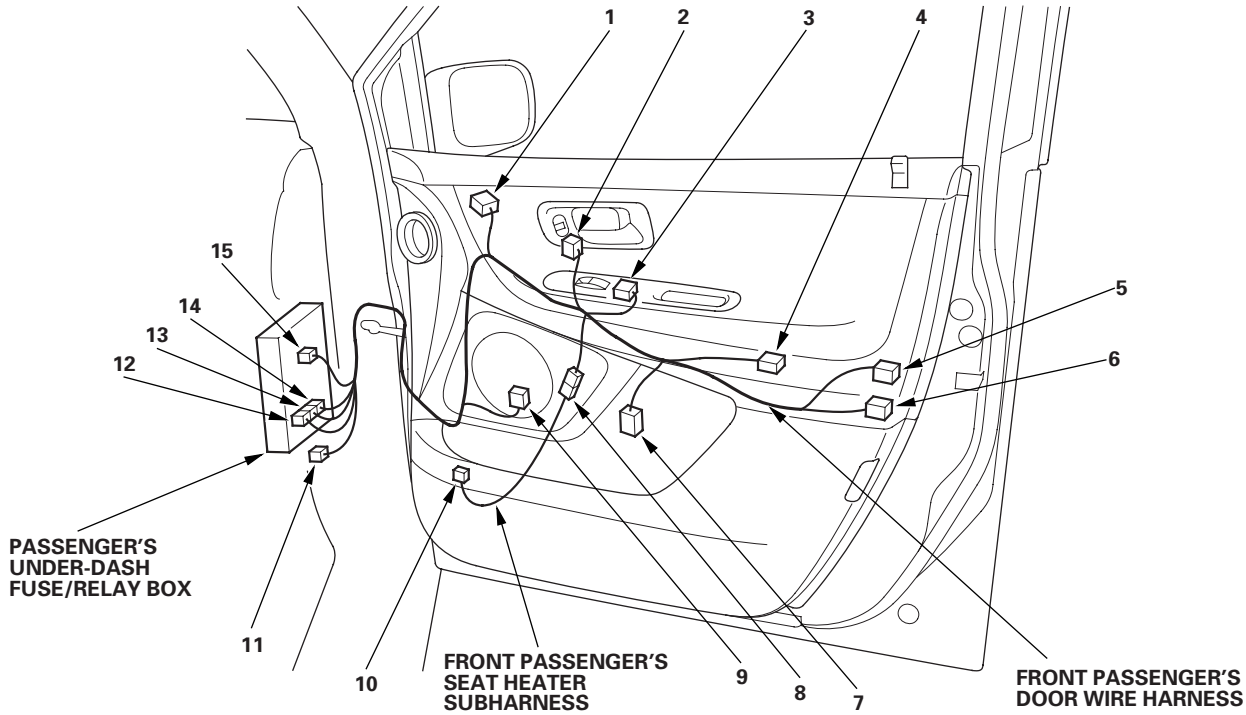


Front Passenger's Door Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Passenger's door key cylinder switch	4	3	Passenger's door		
Passenger's door lock actuator	6	2	Passenger's door		
Passenger's door lock knob switch	5	3	Passenger's door		Security
Passenger's door lock switch	2	3	Passenger's door		
Passenger's door speaker	9	2	Passenger's door		
Passenger's window motor	7	2	Passenger's door		
Passenger's window switch	3	6	Passenger's door		
Passenger's under-dash fuse/relay box connector B (see page 22-77)	15	4	Behind right kick panel		Seat heater
Passenger's under-dash fuse/relay box connector E (see page 22-77)	12	2	Behind right kick panel		Seat heater
Passenger's under-dash fuse/relay box connector F (see page 22-77)	13	20	Behind right kick panel		
Passenger's under-dash fuse/relay box connector G (see page 22-77)	14	3	Behind right kick panel		Security
Right power mirror actuator	1	6	Passenger's door		Canada
Right power mirror actuator	1	3	Passenger's door		USA
C761	11	3	Behind right kick panel	Right side wire harness (see page 22-54)	Seat heater
C762	8	6	Front passenger's door	Front passenger's seat heater switch subharness	Seat heater

Front Passenger's Seat Heater Switch Subharness

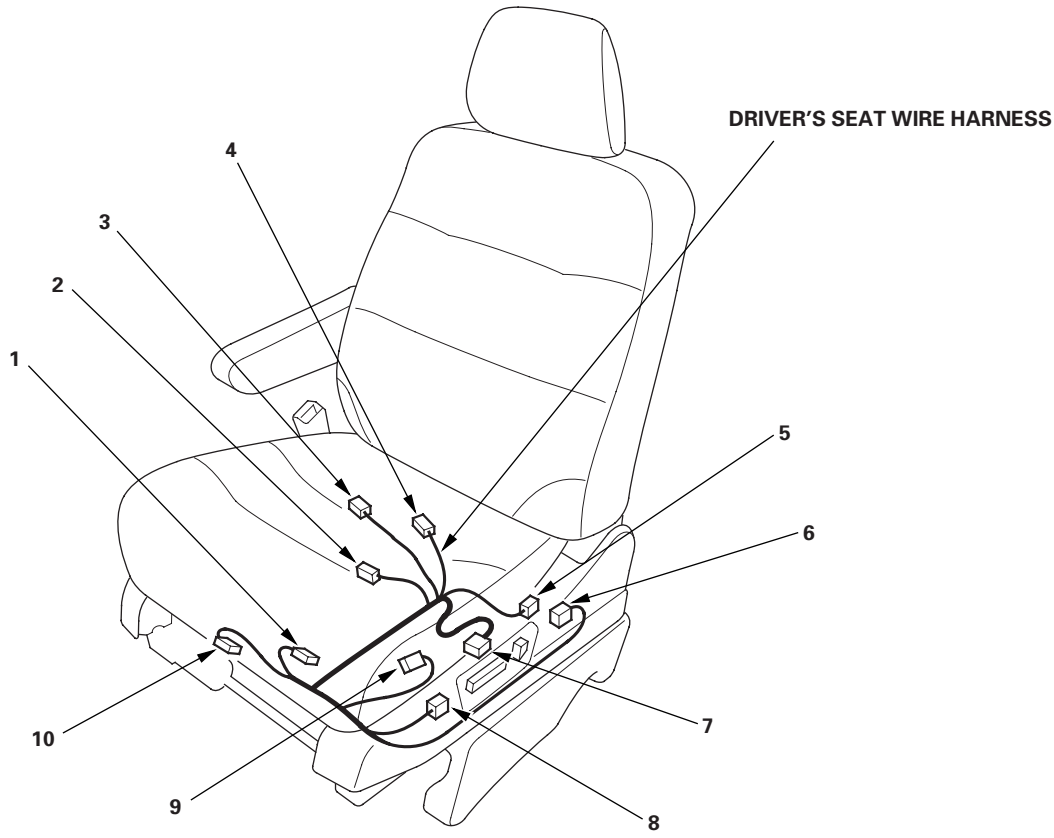
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Front passenger's seat heater switch	10	6	Front passenger's door		
C762	8	6	Front passenger's door	Front passenger's door wire harness	



Connector to Harness Index (cont'd)

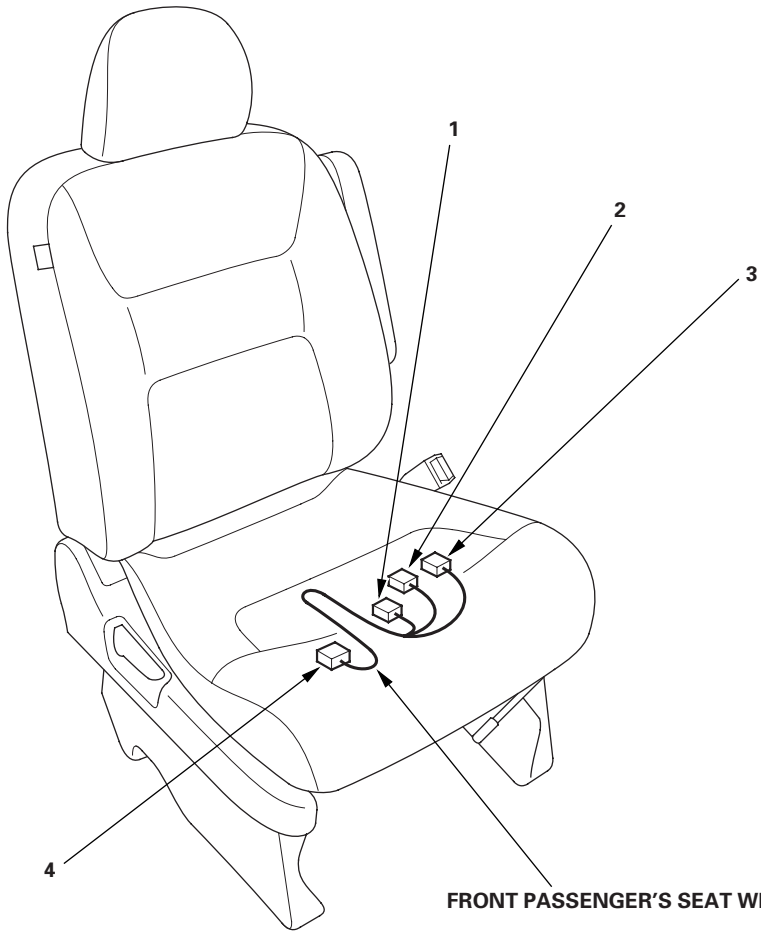
Driver's Seat Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Driver's seat belt buckle switch	3	2	Under driver's seat		'99-02 models
Driver's seat belt buckle switch	3	3	Under driver's seat		'03-04 models
Driver's seat heater	4	3	Under driver's seat		'99-02 models
Driver's seat heater	4	4	Under driver's seat		'03-04 models
Driver's seat position sensor	5	2	Under driver's seat		'03-04 models
Power seat front up-down motor	2	2	Under driver's seat		
Power seat rear up-down motor	1	2	Under driver's seat		
Power seat recline motor	9	2	Under driver's seat		
Power seat slide motor	10	2	Under driver's seat		
Power seat switch connector A	8	6	Left side of driver's seat		
Power seat switch connector B	8	6	Left side of driver's seat		
C552	7	4	Under driver's seat	Left side wire harness (see page 22-48)	'99-01 models
C552	7	10	Under driver's seat	Left side wire harness (see page 22-48)	'02 model
C552	7	12	Under driver's seat	Left side wire harness (see page 22-48)	'03-04 models EX, EX-L



Front Passenger's Seat Wire Harness ('03-04 EX without Navigation System)

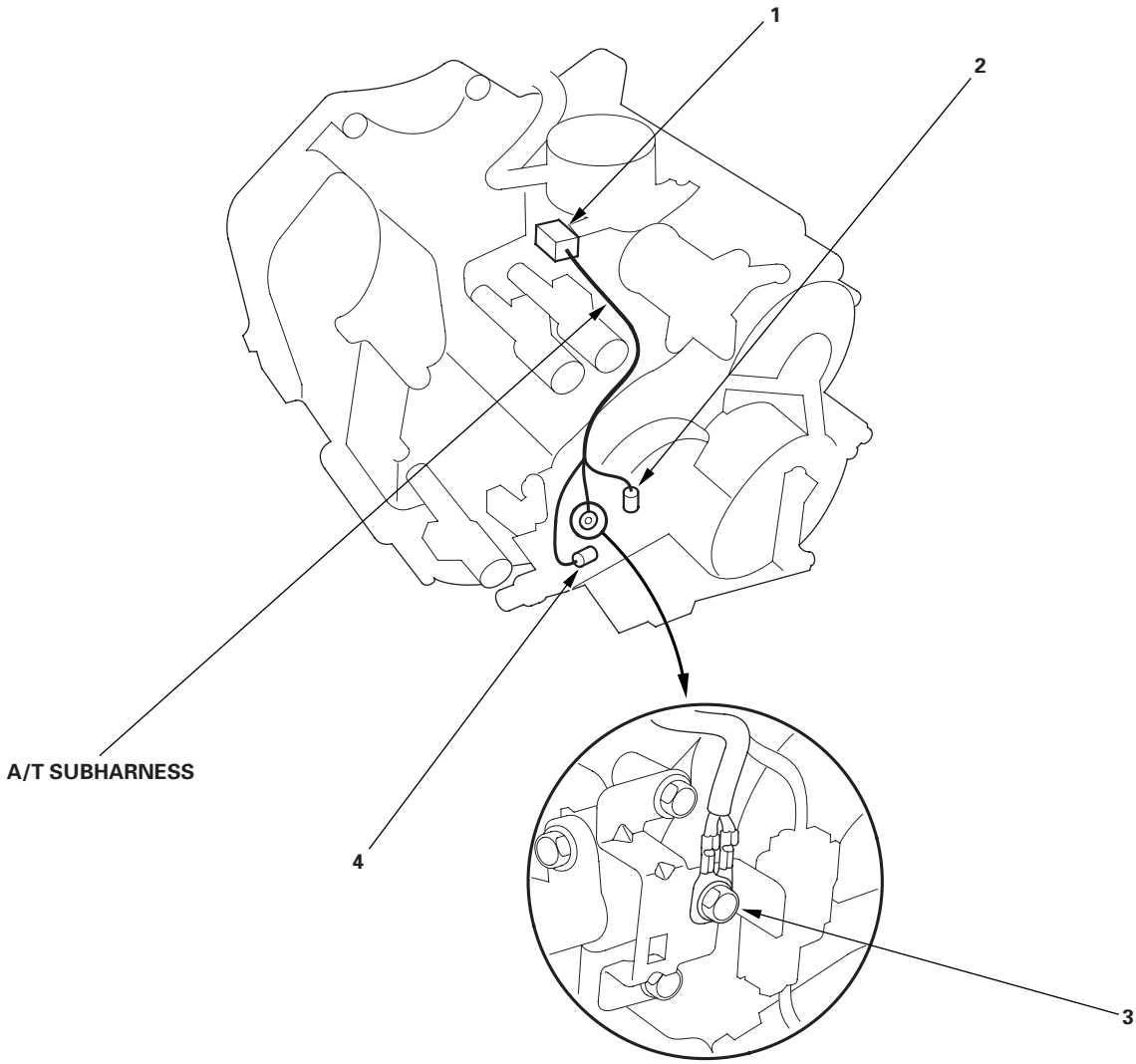
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Front passenger's seat belt switch	3	3	Under front passenger's seat		
Front passenger's seat heater	1	5	Under front passenger's seat		
C589	4	10	Under front passenger's seat	Right side wire harness (see page 22-54)	
C861	2	4	Under front passenger's seat	OPDS unit harness (see page 22-66)	



Connector to Harness Index (cont'd)

A/T Subharness ('02-04 models)

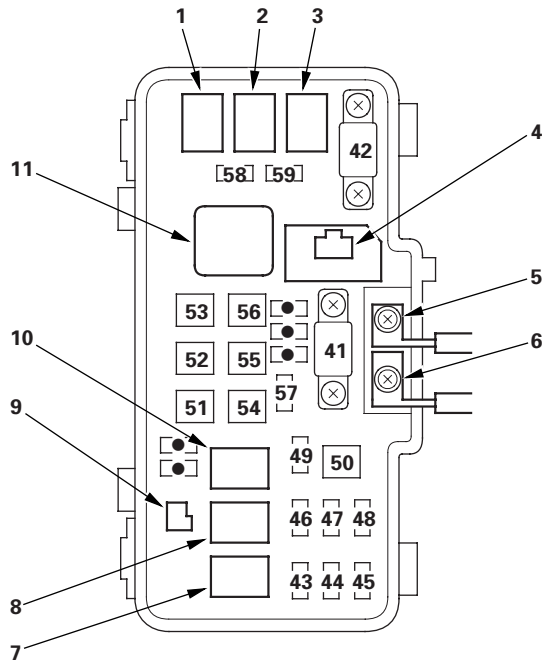
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/T fluid temperature sensor	2	2	On transmission housing		
3rd clutch pressure switch	4	1	On transmission housing		
C151	1	8	On transmission housing	Engine wire harness (see page 22-22)	
G151	3		On transmission housing	Engine ground, via A/T subharness	

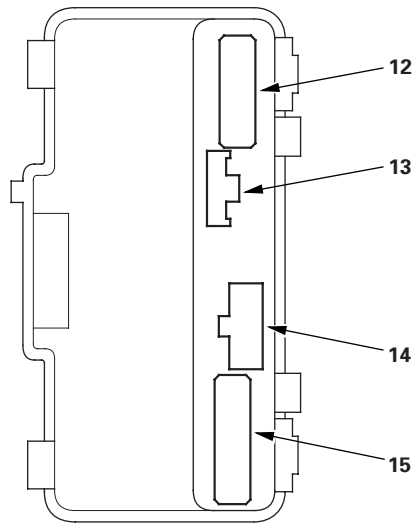


Connector to Fuse/Relay Box Index

Under-hood Fuse/Relay Box

Socket	Ref	Terminal	Connects to
A	15	18	Right engine compartment wire harness (see page 22-26)
A/C compressor clutch relay	3	4	
B	14	7	Right engine compartment wire harness (see page 22-26)
Blower motor relay	11	4	
C	13	3	Right engine compartment wire harness (see page 22-26)
Condenser fan relay	1	4	
D	12	16	Right engine compartment wire harness (see page 22-26)
Diode	9	2	Not used
ELD Unit	4	3	Right engine compartment wire harness (see page 22-26)
Horn relay	10	4	
Headlight relay 1	7	4	
Headlight relay 2	8	4	
Radiator fan relay	2	4	
T1	6		Starter cable (see page 22-16)
T101	5		Engine wire harness (see page 22-18)

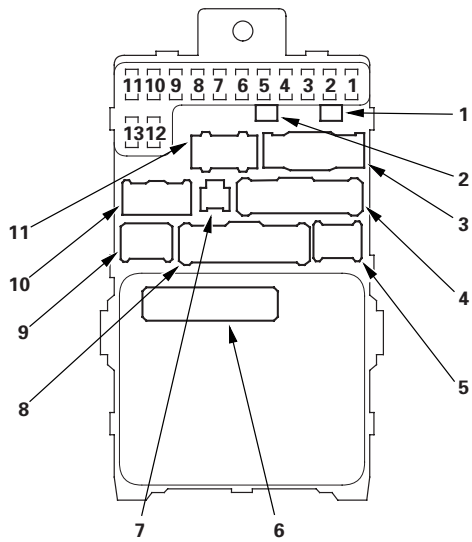


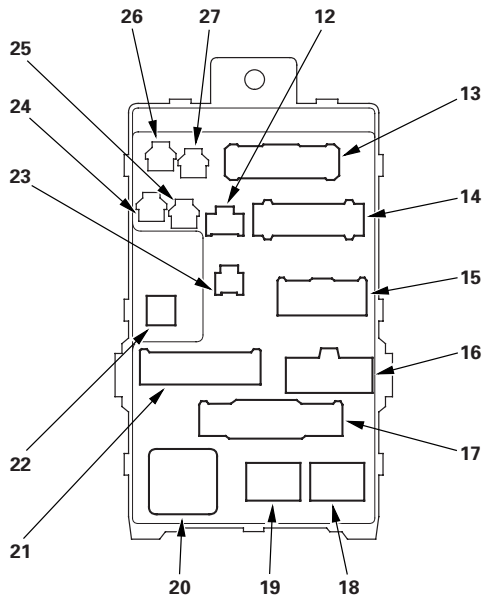


Connector to Fuse/Relay Box Index (cont'd)

Driver's Under-dash Fuse/Relay Box

Socket	Ref	Terminal	Connects to
A	11	10	Left side wire harness (see page 22-48)
B	3	14	Left side wire harness (see page 22-48)
C	10	5	Left engine compartment wire harness (see page 22-30)
D	7	———	Not used
Diode	1	———	Not used
Diode	2	———	Not used
E	4	20	Left engine compartment wire harness (see page 22-30)
F	9	6	Driver's door wire harness (see page 22-70)
G	8	18	Driver's door wire harness (see page 22-70)
H	5	6	Driver's door wire harness (see page 22-70)
I	13	18	Dashboard wire harness A (see page 22-38)
J	12	3	Dashboard wire harness B (see page 22-32)
K	14	18	Dashboard wire harness A (see page 22-38)
L	23	———	Not used
M	15	6	Ignition switch lead (see page 22-69)
Multiplex control unit connector A	6	24	(Plugs directly into the fuse box)
N	22	2	SRS main harness (see page 22-61)
O	21	20	Dashboard wire harness B (see page 22-32)
P	16	7	Dashboard wire harness B (see page 22-32)
Q	17	22	Dashboard wire harness B (see page 22-32)
R	26	1	Optional connector
Reverse relay	19	4	
S	27	1	Optional connector
Starter cut relay	18	4	
T	24	1	Optional connector
Turn signal/hazard relay	20	4	
U	25	1	Optional connector

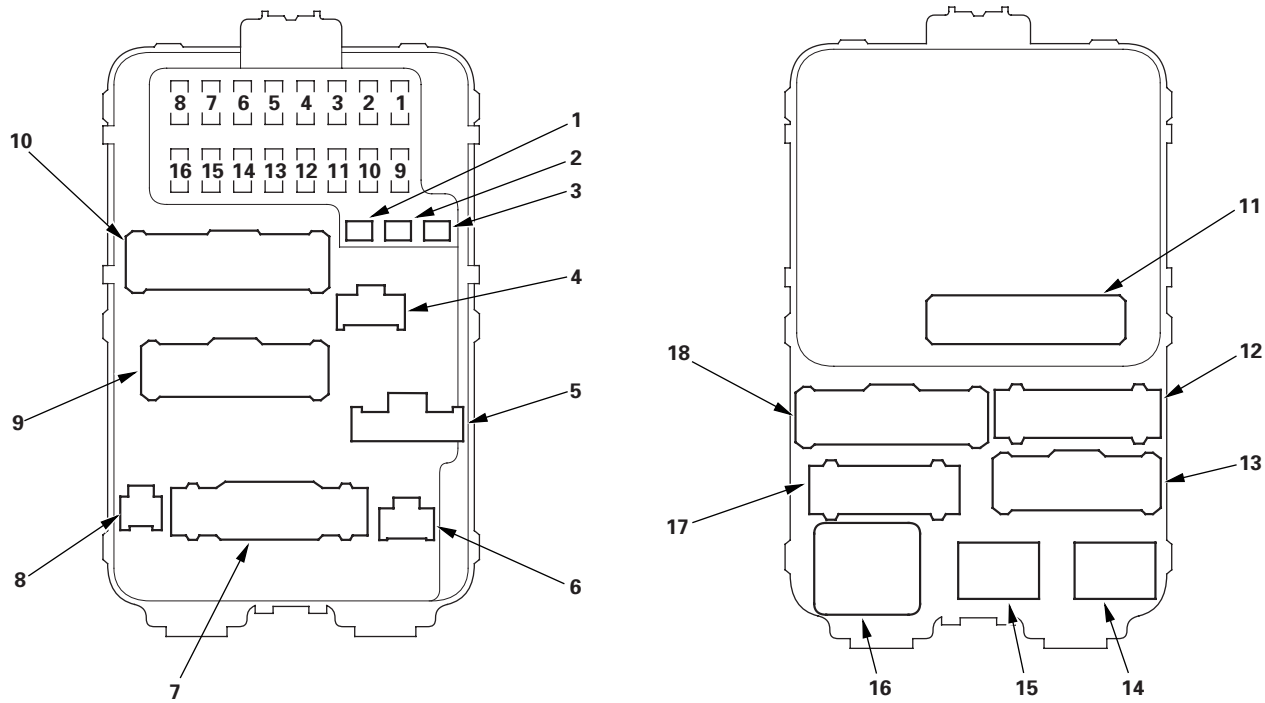




Passenger's Under-dash Fuse/Relay Box

Socket	Ref	Terminal	Connects to
A	10	20	Right side wire harness (see page 22-52)
Accessory power socket relay	15	4	
B	4	4	Front passenger's door wire harness (see page 22-71)
C	9	18	Right engine compartment wire harness (see page 22-26)
D	5	3	Right engine compartment wire harness (see page 22-26)
Diode	1	2	(for A/C)
Diode	2	———	Not used
Diode	3	———	Not used
E	8	2	Front passenger's door wire harness (see page 22-71)
F	7	20	Front passenger's door wire harness (see page 22-71)
G*1	6	3	Front passenger's door wire harness (see page 22-71)
G*2	6	———	Not used
H	18	18	Dashboard wire harness A (see page 22-38)
I	12	18	Dashboard wire harness A (see page 22-38)
J	17	16	Dashboard wire harness B (see page 22-32)
K	13	16	Dashboard wire harness B (see page 22-32)
Multiplex control unit connector A	11	24	(Plugs directly into the fuse box)
Power window relay	14	4	
Rear window defogger relay	16	4	

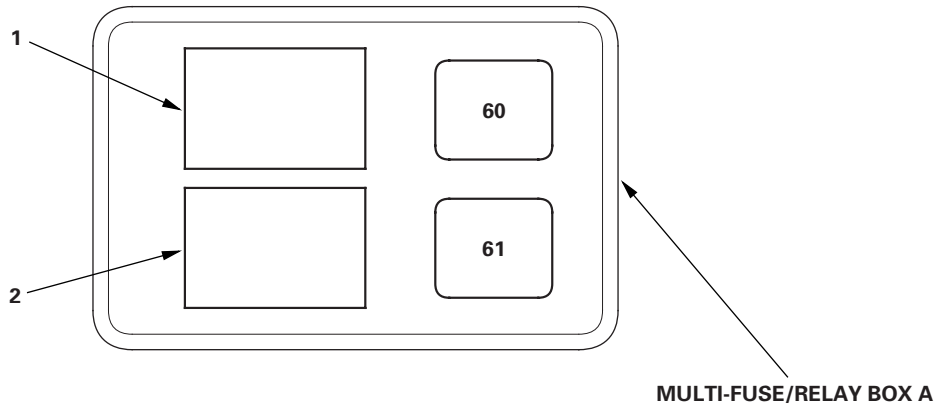
* 1: With security system
* 2: Without security system



Connector to Fuse/Relay Box Index (cont'd)

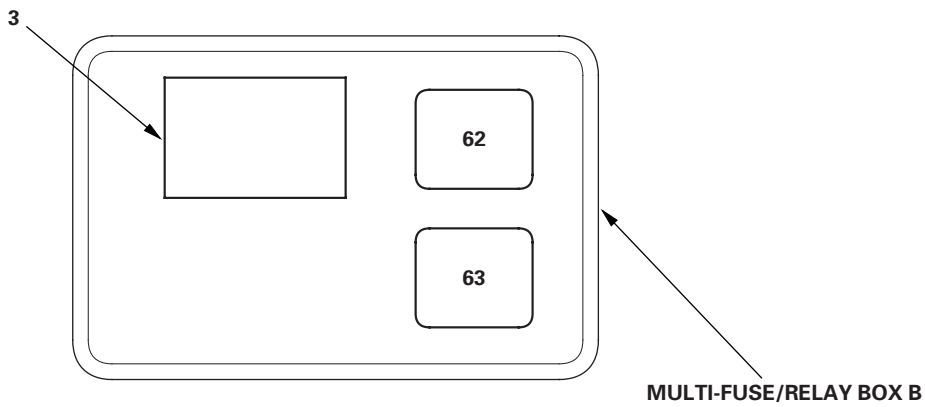
Multi-Fuse/Relay Box A ('99-02 models)

Socket	Ref	Terminal	Connects to
Intermittent wiper relay	1	5	Left engine compartment wire harness (see page 22-28)
TCS relay	2	4	Left engine compartment wire harness (see page 22-28)



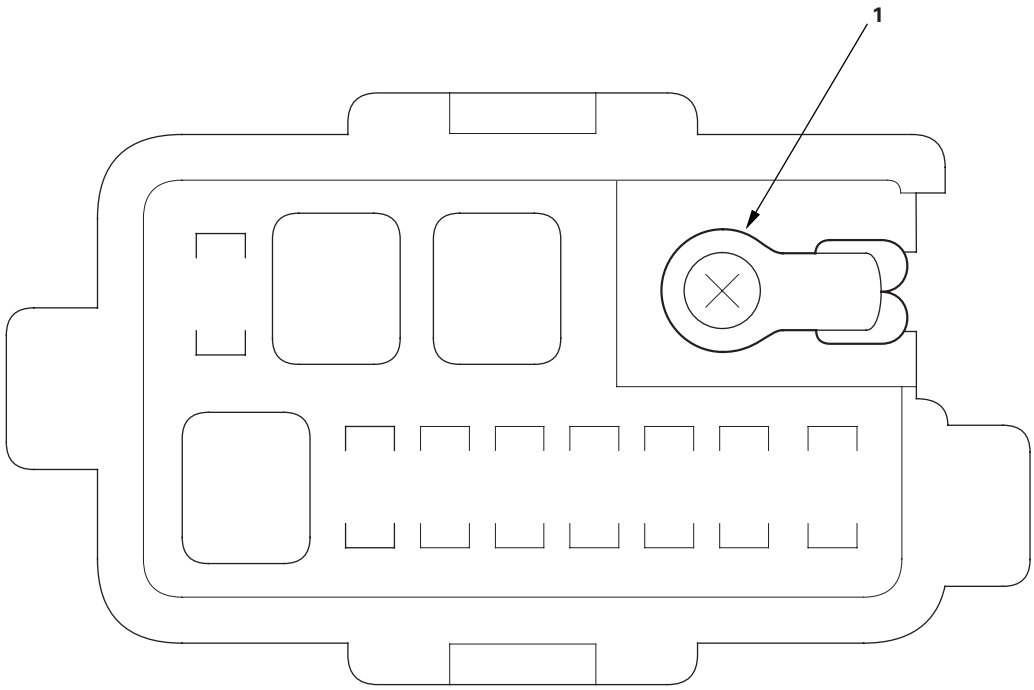
Multi-Fuse/Relay Box B ('02 model)

Socket	Ref	Terminal	Connects to
Seat heater relay	3	4	Left engine compartment wire harness (see page 22-28)



Under-hood Sub fuse Box ('03-04 models)

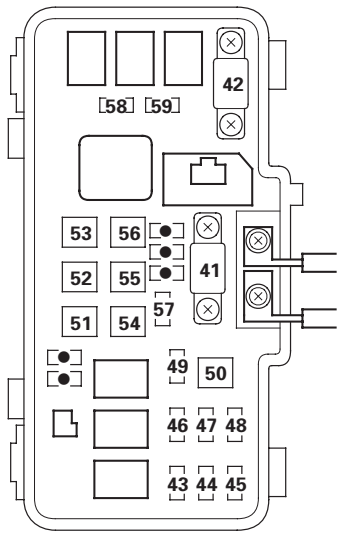
Socket	Ref	Terminal	Connects to
T5	1		Left engine compartment wire harness (see page 22-30)



Fuse to Components Index

Under-hood Fuse/Relay Box

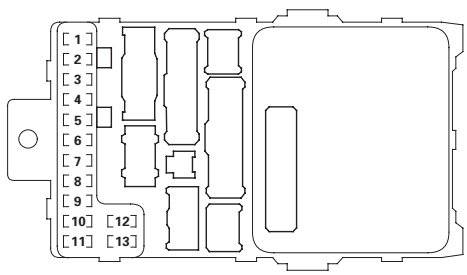
Fuse Number	Amps	Wire Color	Component(s) or Circuit(s) Protected
41	120A	———	Battery, Power distribution
42	50A	WHT	Ignition switch (BAT)
43	15A	RED/GRN	Daytime running lights control unit (Canada), Headlight (right)
44	———	———	Not used
45	15A	RED/YEL	Daytime running lights control unit (Canada), Headlight (left), High beam indicator light, High beam cut relay (Canada)
46	15A	WHT/GRN	Data link connector (DLC), PGM-FI main relay
47	20A	WHT/YEL	ABS control unit, ABS/TCS control unit, Brake lights, Cruise control unit, High mount brake light, Horns, Ignition key light, Key interlock solenoid, Driver's multiplex control unit, PCM, Trailer lighting connector
48	20A	WHT/GRN	ABS pump motor relay, ABS modulator unit, ABS/TCS control unit, ABS/TCS modulator unit
49	15A	WHT/GRN	Hazard warning lights
50	30A	WHT	ABS pump motor, ABS/TCS modulator unit
51	40A	WHT/BLU	No. 1 fuse (in the passenger's under-dash fuse/relay box) power window motor fuses
52	30A	WHT/RED	Right power sliding door control unit
53	30A	WHT/GRN	Rear window defogger (via rear window defogger relay)
54	40A	YEL	No. 9, 10, 11, 12 and 13 fuses (in the passenger's under-dash fuse/relay box)
55	40A	YEL/GRN	No. 2, 3, 4, 5 and 6 fuses (in the passenger's under-dash fuse/relay box) power seat fuses
56	40A	YEL/BLK	Blower motor
57	30A	BLU/BLK	Radiator fan motor
58	30A	BLU/YEL	Condenser fan motor
59	7.5A	RED	A/C compressor clutch



Driver's Under-dash Fuse/Relay Box

Fuse Number	Amps	Wire Color	Component(s) or Circuit(s) Protected
1	15A	GRN or RED/WHT	SRS unit (VA)
		RED/WHT	PGM-FI main relay
2	10A	GRN or BLK/WHT	SRS unit (VB)
3	7.5A	BLK/YEL	A/C compressor clutch relay, Blower motor relay, Climate control unit, Condenser fan relay, Fan control relay, Heater control panel, Radiator fan relay, Rear A/C blower motor relays, Rear window defogger relay, Rear A/C mode relay and motor, Recirculation control motor
4	7.5A	YEL/BLK	ABS control unit, ABS/TCS control unit, Power mirror actuators, Power mirror defoggers (Canada), Seat heater relay ('02-04 models)
		Fuse/relay box socket	Optional connector "S"
5	7.5A	YEL/RED	Daytime running lights control unit (Canada)
6	15A	BLK/YEL	Alternator, Charging system light, Cruise control main switch, Cruise control unit, ELD unit, EVAP canister vent shut valve, EVAP bypass solenoid valve, EVAP purge control solenoid valve, Engine mount control solenoid valve, PCM, Primary and secondary heated oxygen sensors, Vehicle speed sensor (VSS) (with navigation system)
7	10A*1	YEL/GRN	Rear window wiper motor, Rear window washer motor, Windshield washer motor
	15A*2	BLK/YEL	Ignition coils
8	7.5A	YEL/BLK	Accessory power socket relay
		Fuse/relay box socket	Optional connector "R"
9	10A	YEL	A/T reverse relay, Back-up lights, Brake light failure sensor, Brake system indicator, Clock, DRL indicator (Canada), Gauge assembly, Keyless receiver unit, Passenger's multiplex control unit, Navigation unit, Passenger's airbag cutoff indicator ('03-04 models) Power sliding door control units, Shift lock solenoid
		Fuse/relay box socket	Driver's multiplex control unit
10	7.5A	YEL/RED	Turn signal/hazard relay
11	15A*1	BLK/YEL	Ignition coils
	10A*2	YEL/GRN	Rear window wiper motor, Rear window wiper intermittent control unit, Rear window washer motor, Windshield washer motor, OPDS unit ('02-04 models), Front passenger's weight sensor ('03-04 models)
12	30A	GRN/BLK	Intermittent wiper relay, Windshield wiper motor
13	7.5A	BLU/ORN	PCM, PGM-FI main relay

* 1: '99-00 models
* 2: '01-04 models



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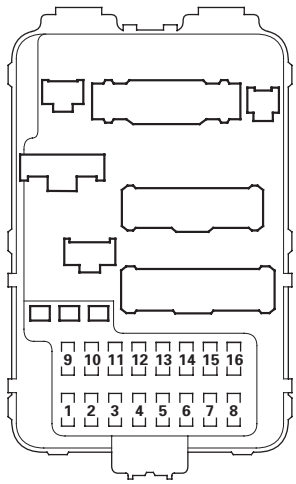
Fuse to Components Index (cont'd)

Passenger's Under-dash Fuse/Relay Box

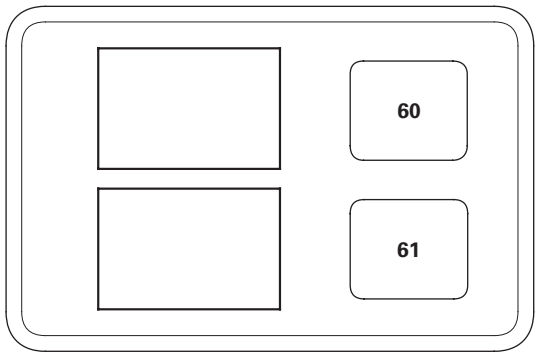
Fuse Number	Amps	Wire Color	Component(s) or Circuit(s) Protected
1	20A	GRN	Left power sliding door control unit
2	20A	RED	Driver's power seat recline motor and rear up-down motor
3	10A	BLU/BLK	ABS/TCS modulator unit (via ABS/TCS fail-safe relay)
4	20A	BLU	Driver's power seat slide motor and front up-down motor
5	20A	RED/YEL	Right power sliding door control unit, Passenger's multiplex control unit
6	10A	RED/BLU	Daytime running lights control unit (Canada)
7	7.5A	WHT/YEL	Left rear window motors (via rear window relays)
8	20A	BLU/BLK	Front passenger's power window motor
9	15A	WHT/RED	Audio unit, Front and rear accessory power sockets (via accessory power socket relay), Navigation unit, Navigation display unit
10	15A	RED/GRN	Audio unit, Center pocket light, Clock, Climate control unit, Combination light switch, Cruise control main switch light, Gauge assembly, Hazard warning switch light, Heater control panel, Interior lights switch light, Driver's multiplex control unit, Power sliding door switch light, Rear A/C fan switch light, Taillight relay TCS switch light
11	10A	WHT/BLU	Audio unit, Cargo area light, Ceiling lights, Gauge assembly, Passenger's multiplex control unit (with keyless entry system), Navigation unit, Navigation display unit, Spotlights, Homelink unit
12	20A	WHT	Fuel fill door relay (via fuel fill door switch), Sliding door lock control units (via fuel fill door relay)
		Fuse/relay box socket	Passenger's multiplex control unit
13	7.5A	WHT/YEL	Climate control unit, Clock, Gauge assembly, Heater control panel, Keyless receiver unit, Immobilizer indicator light, Door multiplex control unit, Driver's multiplex control unit, PCM (VBU), Power sliding door control unit
		Fuse/relay box socket	Passenger's multiplex control unit
14	7.5A	GRN	ABS control unit or ABS/TCS control unit (MCK)
15	20A * 1	GRN/WHT	Driver's power window motor, Door multiplex control unit
	7.5A * 2	GRN/WHT	Power window control unit
16	7.5A	WHT/BLK	Right rear window motor (via rear window relays)

* 1: '99-02 models
* 2: '03-04 models



Multi-Fuse/Relay Box A ('99-02 models)

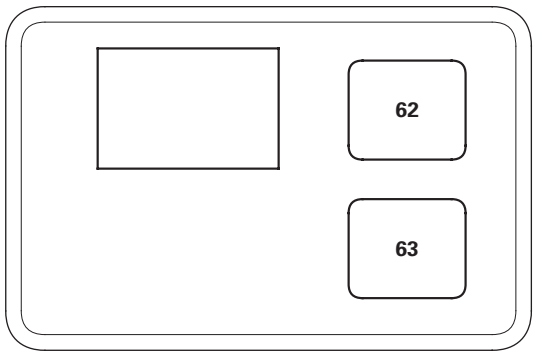
Fuse Number	Amps	Wire Color	Component(s) or Circuit(s) Protected
60	40A	RED	Rear A/C blower motor
61	30A	WHT/BLK	Left power sliding door control unit



Multi-Fuse/Relay Box B ('02 model)

Fuse Number	Amps	Wire Color	Component(s) or Circuit(s) Protected
62 *1	20A	WHT/GRN	Seat heater
63 *2	20A	WHT/BLU	Audio unit, DVD unit, Rear controller and screen

* 1: With seat heater
* 2: With rear entertainment system



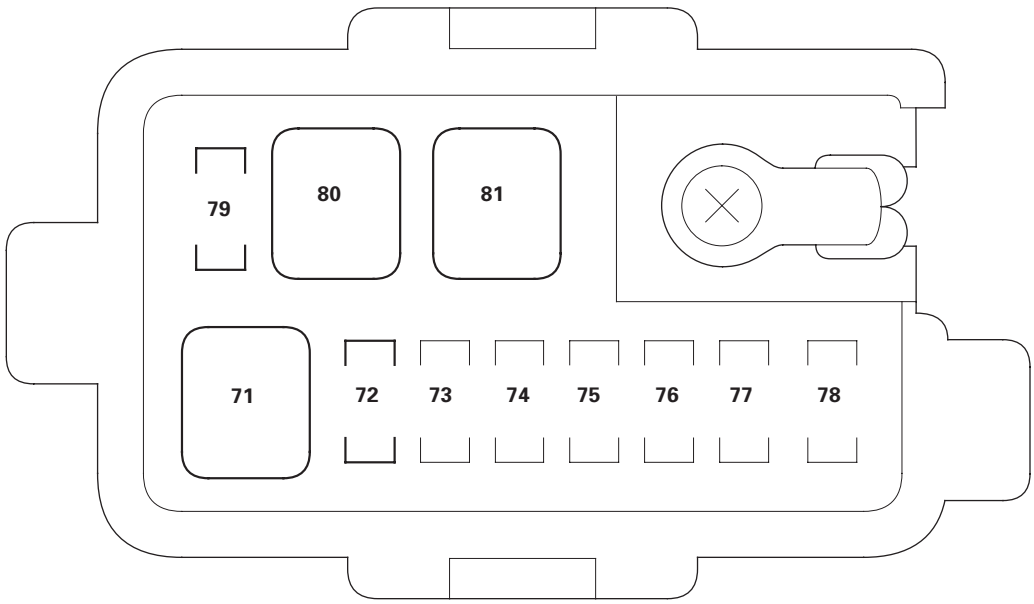
(cont'd)

Fuse to Components Index (cont'd)

Under-hood Sub Fuse ('03-04 models)

Fuse Number	Amps	Wire Color	Component(s) or Circuit(s) Protected
71 * 1	20A	WHT/BLU	Audio unit, DVD unit, Rear controller and screen
72	———	———	Not used
73	———	———	Not used
74	———	———	Not used
75	———	———	Not used
76	———	———	Not used
77	———	———	Not used
78 * 2	20A	WHT/GRN	Seat heater (EXL)
79	20A	WHT/RED	Power window control unit
80	40A	RED	Rear A/C blower motor
81	30A	WHT/BLK	Left power sliding door control unit

* 1: With rear entertainment system
* 2: With seat heater



Ground to Components Index

Ground	Component or circuit grounded
G1	Battery, Transmission housing
G2	Engine block
G101 and G102 *1	PCM (PG1 and PG2 are BLK; LG1 and LG2 are BRN/BLK), ABS/TCS control unit, Transmission range switch, Data link connector (DLC), (BRN/BLK), EGR valve, IAC valve, Ignition coils, Immobilizer receiver unit (BRN/BLK), PGM-FI main relay, Radiator fan switch A and B, Shift control solenoid valve B and C*2, Vehicle speed sensor (with navigation system)*5, VTEC pressure switch (BRN/BLK)
	Shielding between the PCM and these components have BRN/BLK wires: Countershaft speed sensor, CKP sensor, Knock sensor, Mainshaft speed sensor, Primary and secondary HO2S, TDC sensors
G151*3	Shift control solenoid valve A, B and C, Lock-up control solenoid valve
G201	ABS fail-safe relay, Blower motor relay, ELD unit, Cruise control actuator, Fan control relay, Hood switch, Power steering pressure switch, Radiator fan motor, Rear window washer motor, Right turn signal/side marker lights, Washer fluid level switch (Canada), Windshield washer motor
G301	Brake fluid level switch, Intermittent wiper relay, Left turn signal/side marker lights, Windshield wiper motor, Seat heater relay*3
G302	ABS pump motor, ABS/TCS modulator unit
G303	ABS control unit (4 wires), ABS/TCS control unit (3 wires)
G401	Park pin switch, Blower motor high relay, Center pocket light, Climate control panel, Climate control unit, Combination light switch (2 wires), Daytime running lights control unit (Canada) (2 wires), Driver's door key cylinder switch, Driver's door lock switch, Driver's door lock knob switch, Heater control panel, Heater fan switch, Ignition key switch, Interior light relay, Left power mirror defogger (Canada), Multiplex control inspection connector, Driver's multiplex control unit, Power transistor, Power window master switch, Rear A/C fan switch, Rear window wiper/washer switch (2 wires), Turn signal/hazard relay, Windshield wiper/washer switch, Driver's seat heater switch*3
G501	Clock, Cruise control unit, Cruise control main switch, Data link connector (DLC), Front accessory power socket, Interior lights switch, Driver's multiplex control unit, Navigation display unit, Navigation unit, Power mirror switch, Power sliding door switch
G502	Audio unit, Shielding between Navigation display unit and Navigation unit have BRN/WHT wires, DVD unit*3
G503	Gauge assembly, Keyless receiver unit, Passenger's multiplex control unit
G551	Driver's power window motor, Driver's seat belt switch, Fuel gauge sending unit, Fuel pump, Left power sliding door control unit, Left power sliding door latch position switch, Left power sliding door release actuator, Power window master switch (2 wires), Sliding door lock control unit, Driver's seat heater*3, Door multiplex control unit, Power seat adjustment switch, Power window control unit ('03 model)
G552	Back-up lights, Brake light failure sensor, Fuel fill door relay*2, Fuel fill door switch*3 High mount brake light, Inner taillights, Left power sliding door control unit (2 wires), Left taillight (2 wires), License plate light, Rear accessory power socket, Rear window wiper motor, Rear window defogger, Sliding door buzzer, Tailgate key cylinder switch, Tailgate latch switch, Tailgate lock knob switch, Trailer lighting connector, Rear window wiper intermittent control unit*4, Rear controller and screen (2 wires)*3, AUX-IN jack*3, Rear window defogger
G581	Front passenger's door key cylinder switch, Front passenger's door lock switch, Right power mirror defogger (Canada), Right power sliding door control unit, Right power sliding door latch position switch, Right power sliding door release actuator, Front passenger's seat heater and switch*3, OPDS unit*3, Front passenger's seat belt switch*3, Power window relay, Accessory power socket relay, Passenger's multiplex control unit, Front passenger's weight sensor, Homelink unit
G582	Cargo area light, Front individual map lights, Rear A/C blower motor relays, Rear A/C mode motor, Right power sliding door control unit (2 wires), Right taillight (2 wires), Vanity mirror lights
G801*2	SRS unit (2 wires)
G851*3	SRS unit (2 wires), Memory erase signal (MES) connector, SRS front sensors

* 1: '00-04 models
* 2: '99-01 models
* 3: '02-04 models
* 4: '01-04 models
* 5: '00-01 models

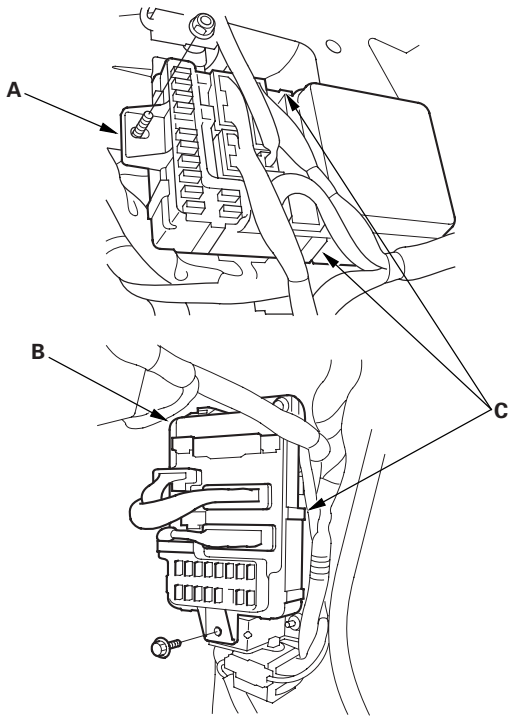
Under-hood Fuse/Relay Box

Removal and Installation

SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

Removal

1. Make sure you have the anti-theft codes for the radio and the navigation system, then write down the frequencies for the radio's preset buttons.
2. Disconnect the battery negative cable, then disconnect the positive cable, and wait at least 3 minutes.
3. Remove the driver's dashboard lower cover (see page 20-69).
4. Remove the door sill molding and left or right kick panel (see page 20-58).
5. Disconnect the connectors from the fuse side of the driver's fuse/relay box (A) or the passenger's fuse/relay box (B).



6. Remove the mounting bolt release the clips (C) at the middle on both sides of the box, and pull the fuse/relay box away from the body.
7. Disconnect the driver's or passenger's under-dash fuse/relay box connectors, and remove the driver's or passenger's under-dash fuse/relay box.

   NOTE: Some part of the SRS harness connector is a spring-loaded lock type (see page 23-25).

Installation

1. Connect the connectors to the driver's or passenger's under-dash fuse/relay box, then install the driver's or passenger's under-dash fuse/relay box in the reverse order of removal.
2. Install the left or right kick panel and the door sill molding.
3. Install the dashboard lower cover.
4. Connect both the positive cable and negative cable to the battery, enter the anti-theft codes for the radio and the navigation system, then enter the customer's radio station presets.
5. Do the power window control unit reset procedure (see page 22-200).
6. Confirm that all systems work properly.

Battery Test

⚠ WARNING

A battery can explode if you do not follow the proper procedure, causing serious injury to anyone nearby. Follow all procedures carefully and keep sparks and open flames away from the battery.

Use either a JCI or Bear ARBST tester, and follow the manufacturer's procedures. If you don't have one of these computerized testers, follow this conventional test procedure:

1. Be sure the temperature of the electrolyte is between 70°F (21°C) and 100°F (38°C).

2. Inspect the battery case for cracks or leaks.

   - If the case is damaged, replace the battery. ■
   - If the case looks OK, go to step 3.

3. Check the indicator EYE.

   - If the EYE indicates the battery is charged, go to step 4.
   - If the EYE indicates a low charge, go to step 7.

4. Apply a 300 amp load for 15 seconds to remove the surface charge.

5. Wait 15 seconds, then apply a test load of 280 amps for 15 seconds.

6. Record battery voltage.

   - If voltage is above 9.6 volts, the battery is OK. ■
   - If voltage is below 9.6 volts, go to step 7.

7. Charge the battery on High (40 amps) until the EYE shows the battery is charged, plus an additional 30 minutes. If the battery charge is very low, it may be necessary to bypass the charger's polarity protection circuitry.

   - If the EYE indicates the battery is charged within three hours, the battery is OK. ■
   - If the EYE indicates the battery is not charged within three hours, replace the battery. ■

Power Relay Test

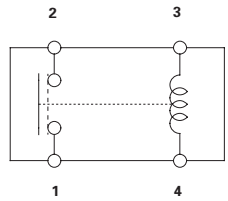
Use this chart to identify the type of relay, then do the test listed for it.
NOTE: For the turn signal/hazard relay input test (see page 22-136).

Relay	Test
Accessory power socket relay	Normally-open type A
A/C compressor clutch relay	
Condenser fan relay	
Fail-safe relay	
Headlight relay 1	
Headlight relay 2	
Horn relay	
Interior lights relay	
Low beam cut relay (Canada)	
Power window relay	
Radiator fan relay	
Reverse relay	
Rear A/C blower low relay	
Rear A/C blower middle relay	
Seat heater relay	
Starter cut relay	
Taillight relay	
TCS relay	
ABS pump motor relay	Normally-open type B
Blower motor relay	
Blower motor high relay	
Rear A/C blower high relay	
Rear window defogger relay	
Rear A/C blower main relay	Five-terminal type A
Daytime running lights relay (Canada)	Five-terminal type B
Fuel fill door relay	
Left rear window motor close relay	
Left rear window motor open relay	
Radiator fan control relay	
Rear A/C mode and motor relay	
Right rear window motor close relay	
Right rear window motor open relay	
Windshield wiper intermittent relay	

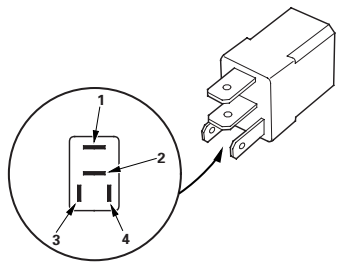
Normally-open type A

Check for continuity between the terminals.

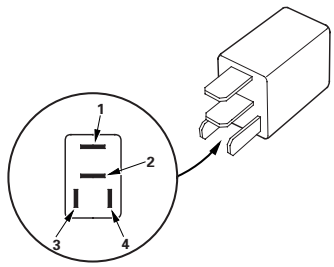
- There should be continuity between the No. 1 and No. 2 terminals when power and ground are connected to the No. 3 and No. 4 terminals.
- There should be no continuity between the No. 1 and No. 2 terminals when power is disconnected.



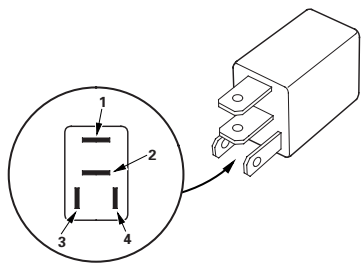
type 1:



type 2:



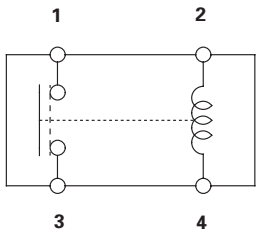
type 3:



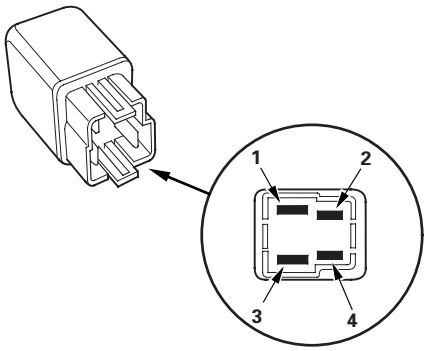
Normally-open type B

Check for continuity between the terminals.

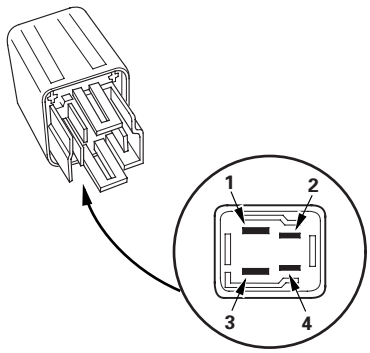
- There should be continuity between the No. 1 and No. 3 terminals when power and ground are connected to the No. 2 and No. 4 terminals.
- There should be no continuity between the No. 1 and No. 3 terminals when power is disconnected.



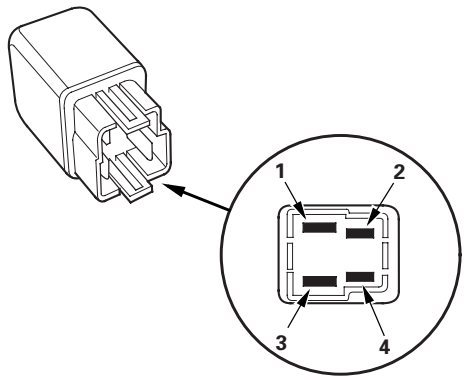
Blower motor relay, type 1:



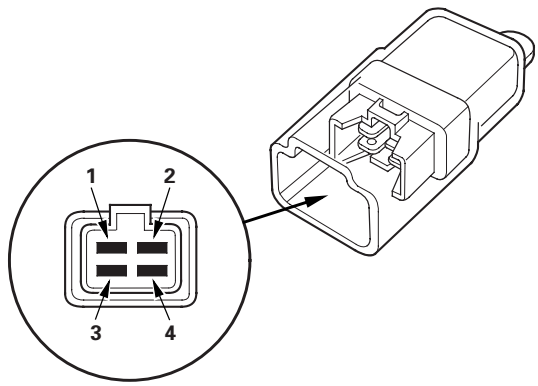
Blower motor relay, type 2:



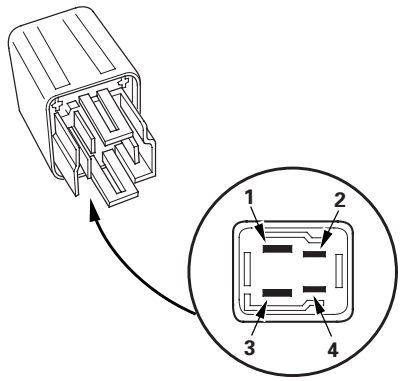
ABS pump motor relay:



Rear A/C blower high relay:



Rear window defogger relay:



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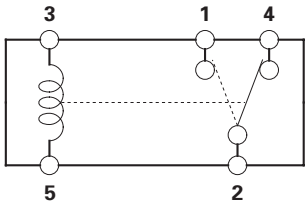
Power Relay Test (cont'd)

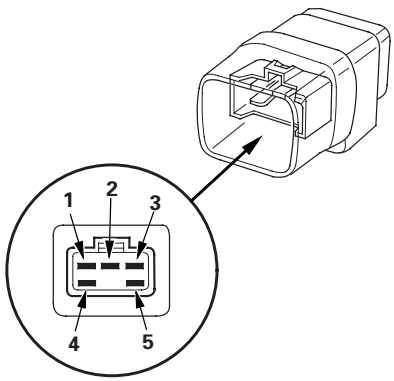
Five-terminal type A

Check for continuity between the terminals.

- There should be continuity between the No. 1 and No. 2 terminals when power and ground are connected to the No. 3 and No. 5 terminals.
- There should be continuity between the No. 2 and No. 4 terminals when power is disconnected.



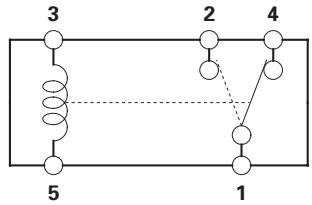
Rear A/C blower main relay:

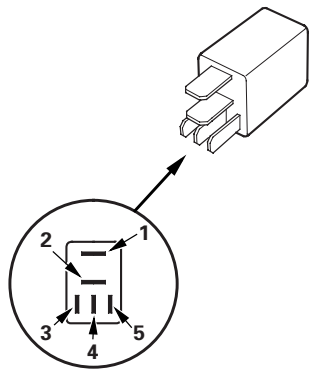


Five-terminal type B

Check for continuity between the terminals.

- There should be continuity between the No. 1 and No. 2 terminals when power and ground are connected to the No. 3 and No. 5 terminals.
- There should be continuity between the No. 1 and No. 4 terminals when power is disconnected.

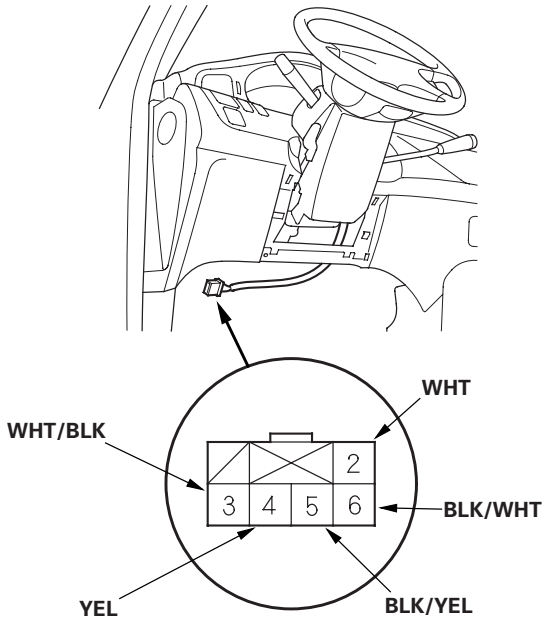




Test

SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Make sure you have the anti-theft codes for the radio and the navigation system, then write down the frequencies for the radio's preset buttons.
2. Disconnect the battery negative cable.
3. Remove the dashboard lower cover (see page 20-69).
4. Disconnect the 6P connector from the driver's under-dash fuse/relay box.



Wire side of female terminals

5. Check for continuity between the terminals in each switch position according to the table.

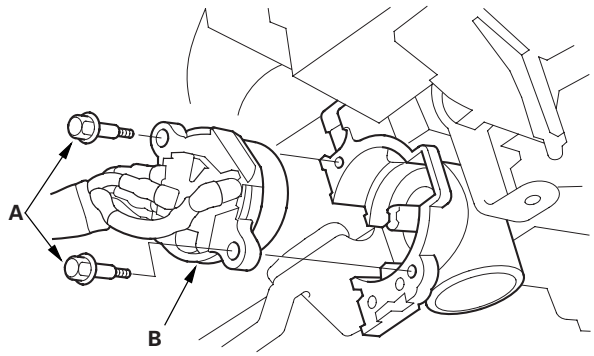
Terminal / Position	WHT/ BLK (ACC)	WHT (BAT)	BLK/ YEL (IG1)	YEL (IG2)	BLK/ WHT (ST)
O (LOCK)					
I (ACC)	○—○				
II (ON)	○—○	○—○	○—○		
III (START)		○—○	○—○	○—○	

6. If the continuity checks do not agree with the table, replace the electrical switch.
7. After reconnecting the battery, enter the anti-theft codes for the radio and the navigation system, then enter the customer's radio station presets.
8. Do the power window control unit reset procedure (see page 22-200).
9. Confirm that all systems work properly.

Replacement

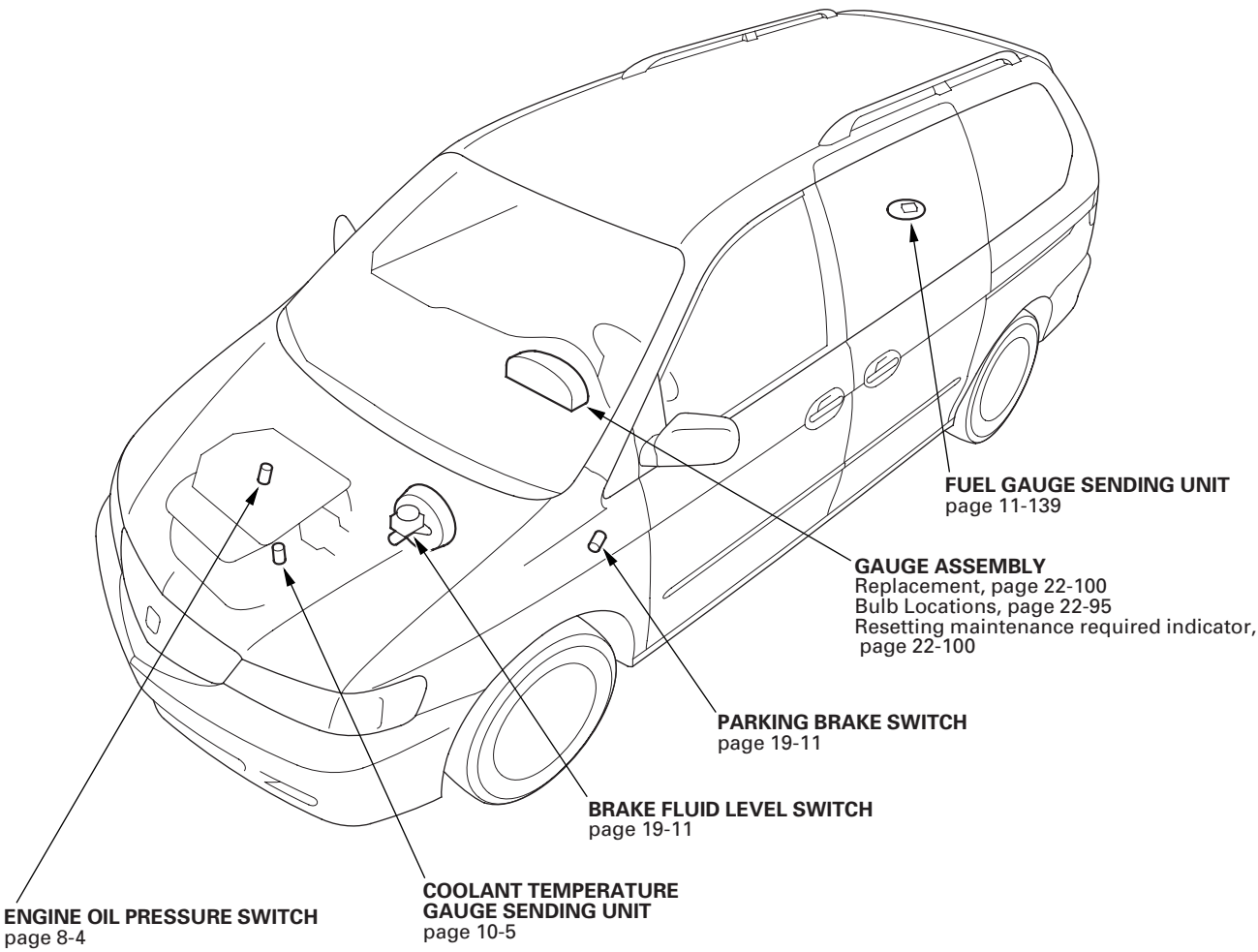
SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

1. Make sure you have the anti-theft codes for the radio and the navigation system, then write down the frequencies for the radio's preset buttons.
2. Disconnect the battery negative cable.
3. Remove the steering column covers (see page 17-25).
4. Insert the ignition key, and turn it to ''0''.
5. Remove the two screws (A), and replace the electrical switch (B).



6. Install in the reverse order of removal.
7. After reconnecting the battery, enter the anti-theft codes for the radio and the navigation system, then enter the customer's radio station presets.
8. Do the power window control unit reset procedure (see page 22-200).
9. Confirm that all systems work properly.

Component Location Index



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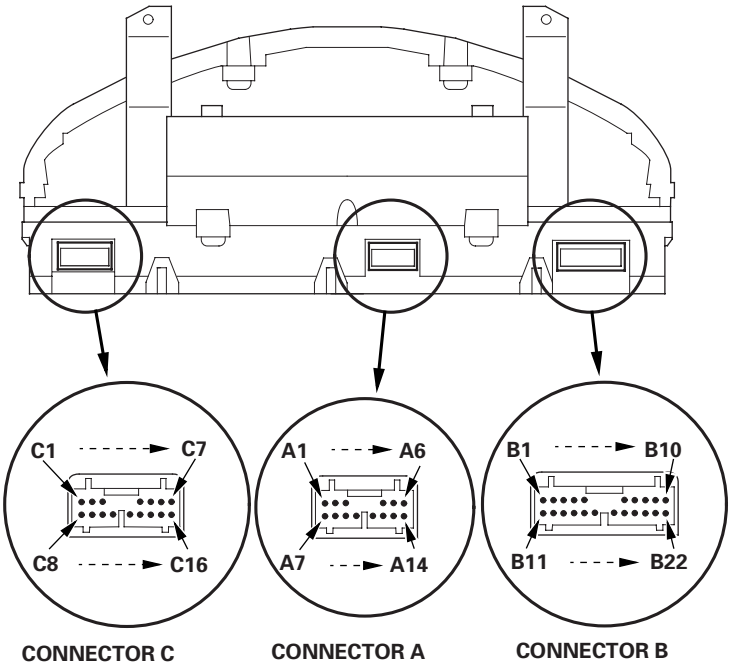
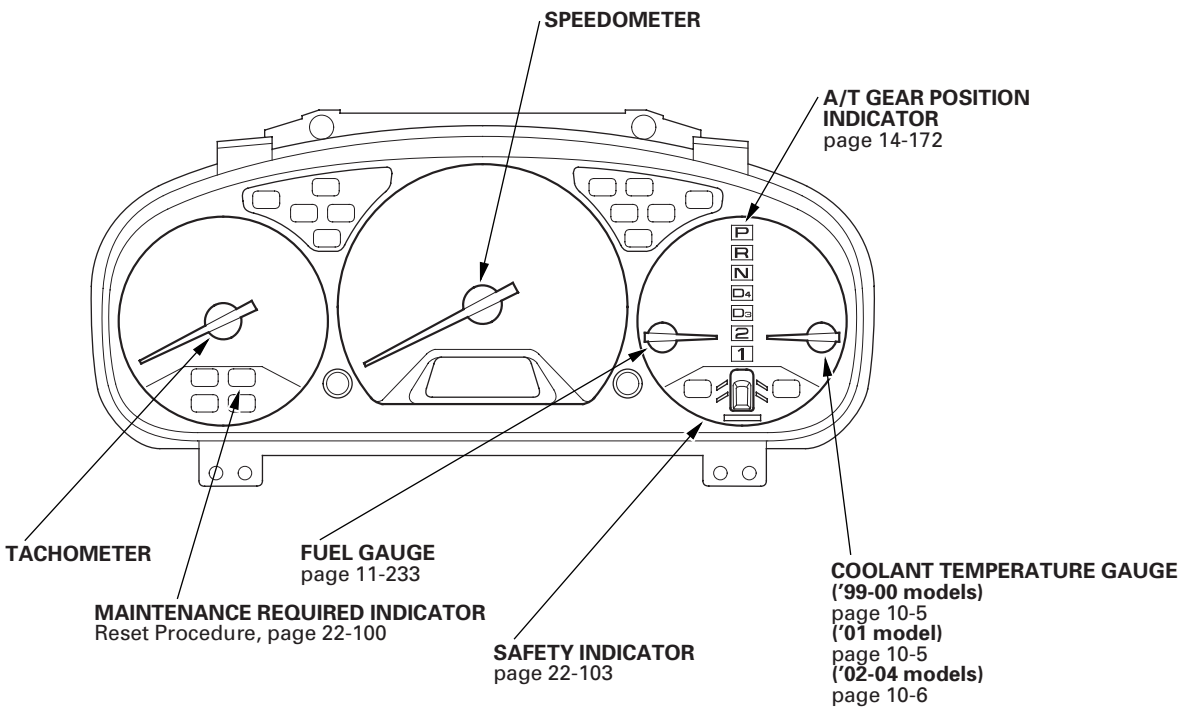
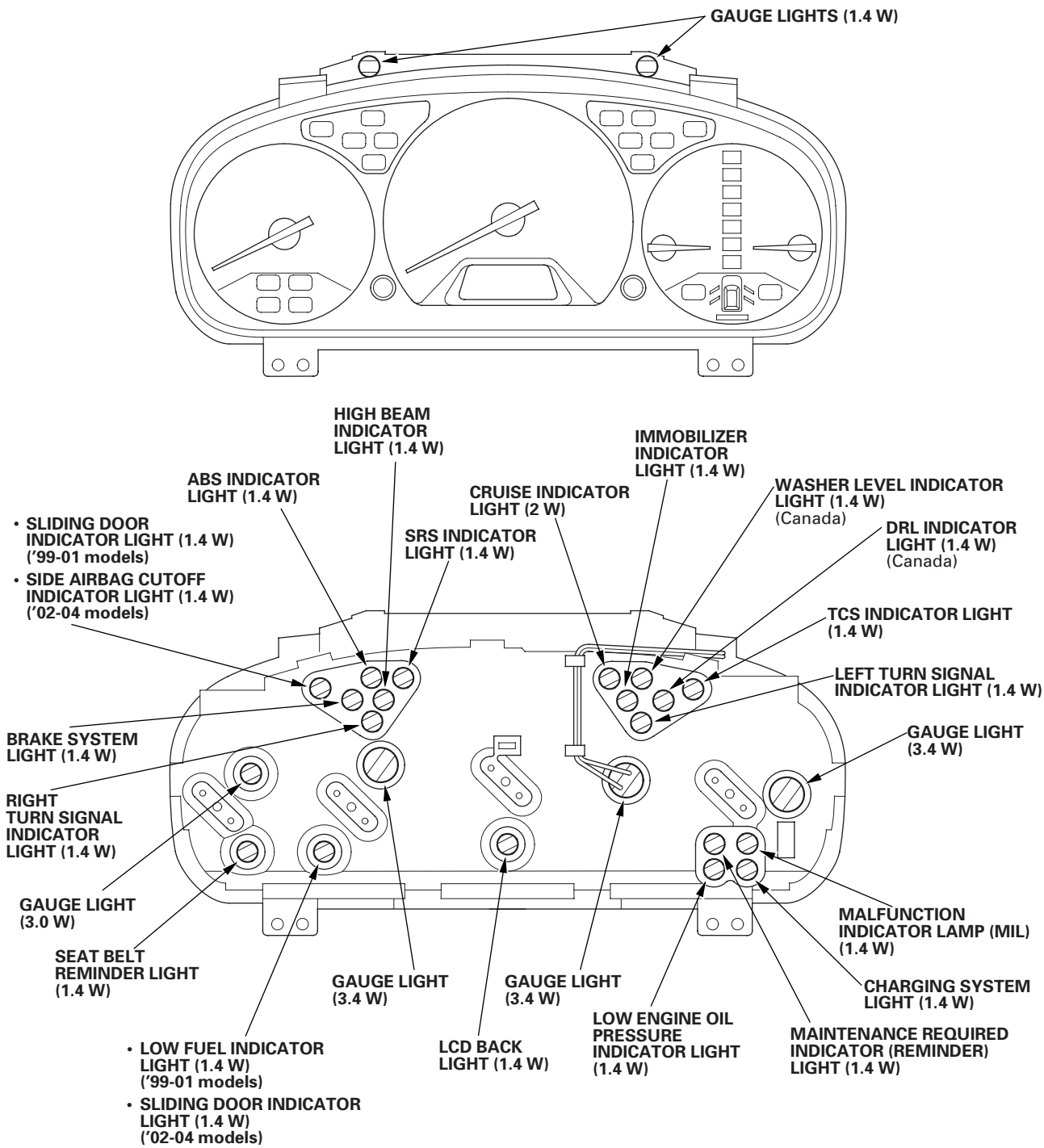
Component Location Index (cont'd)

Gauge/Terminal Location Index:

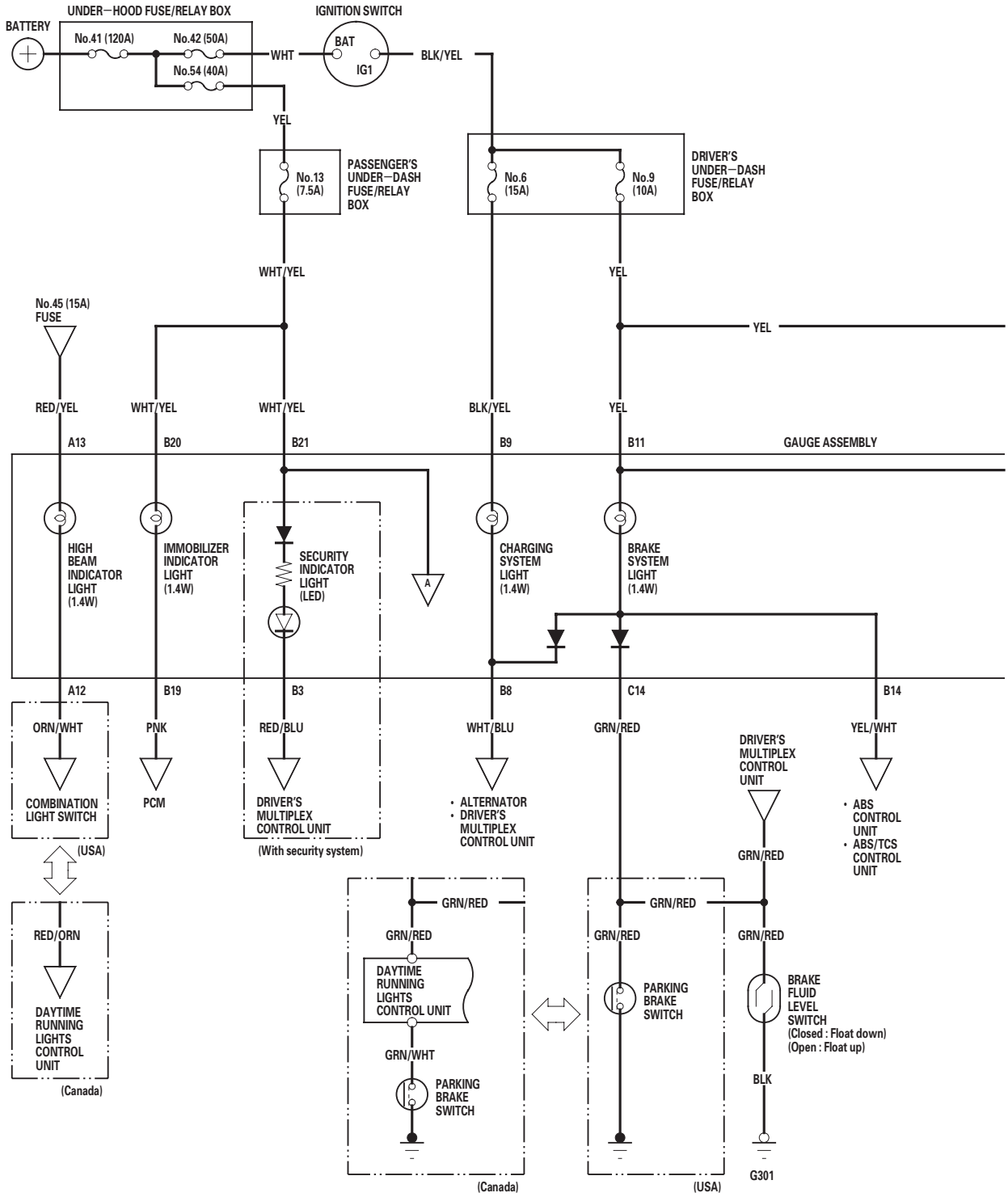




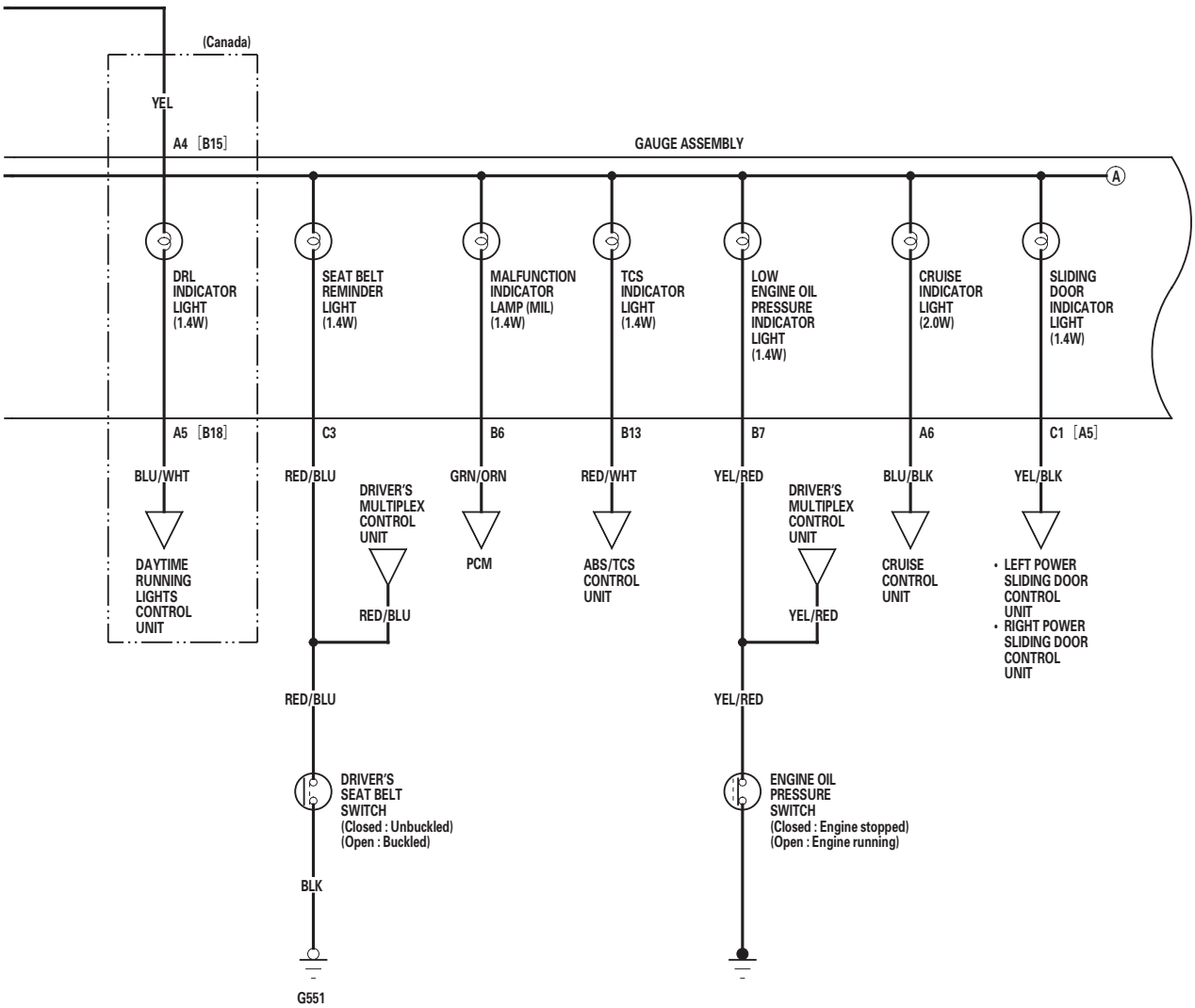
Gauge Bulb Replacement



Circuit Diagram



[ ] : '02—04 models



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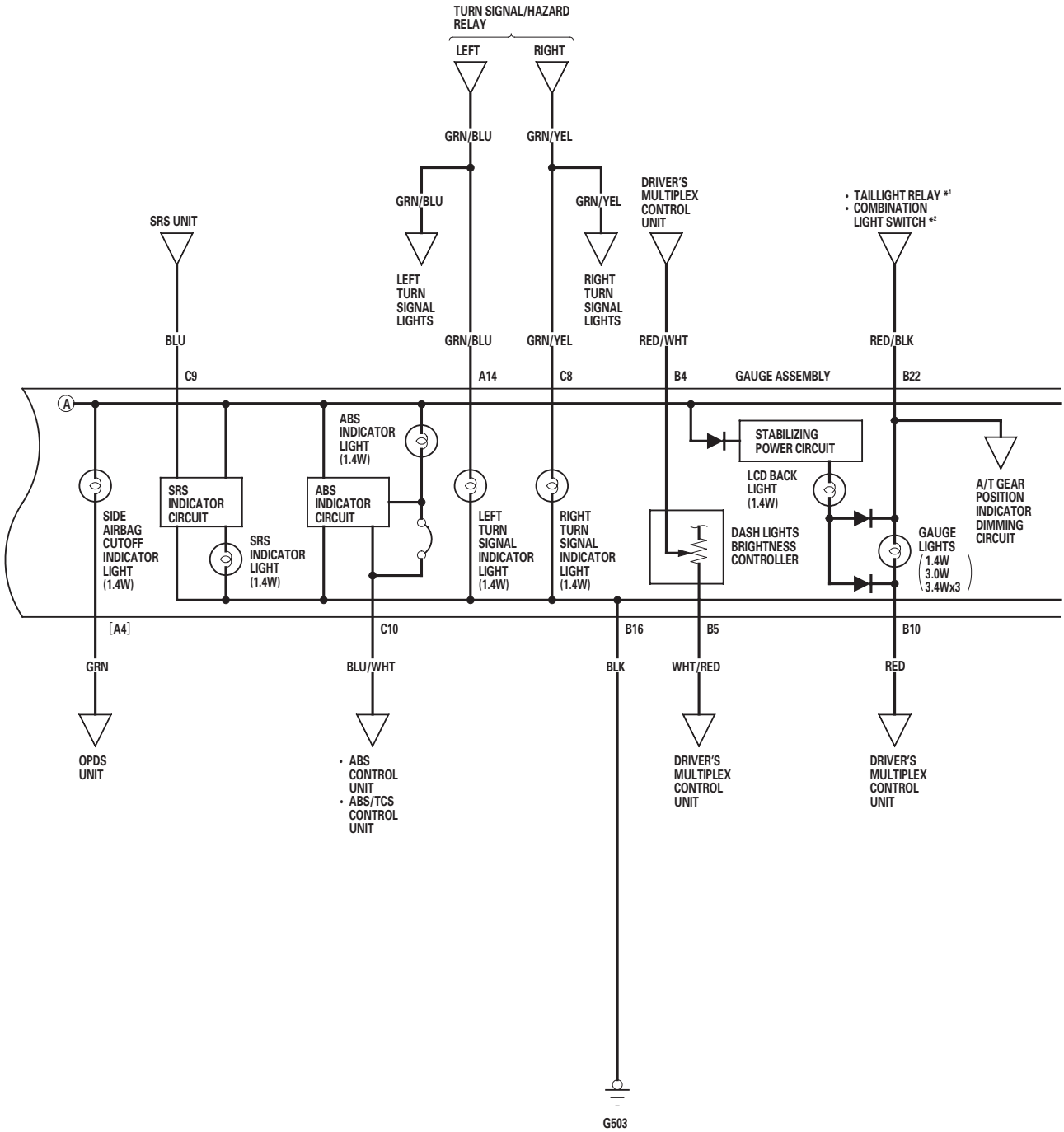
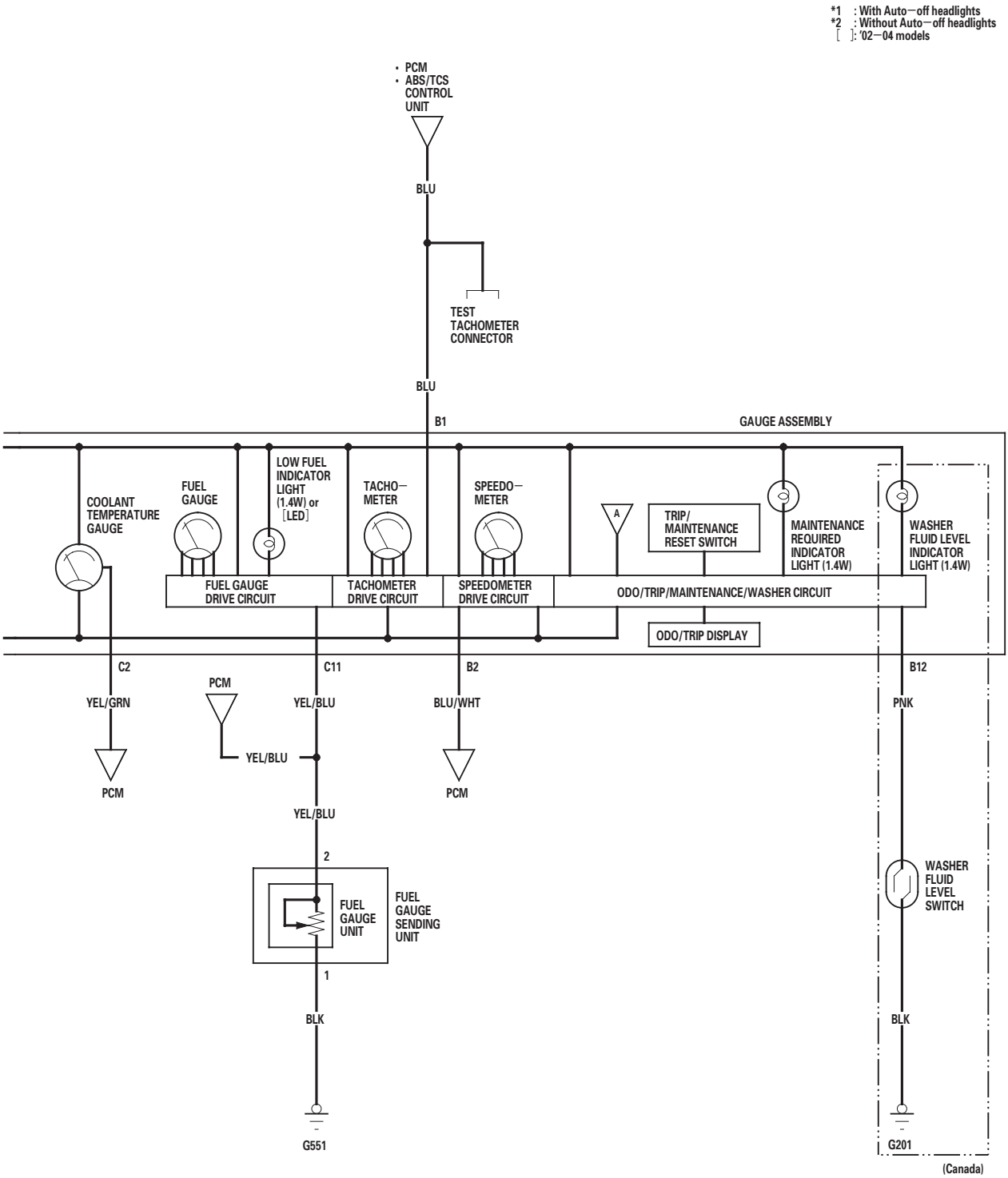
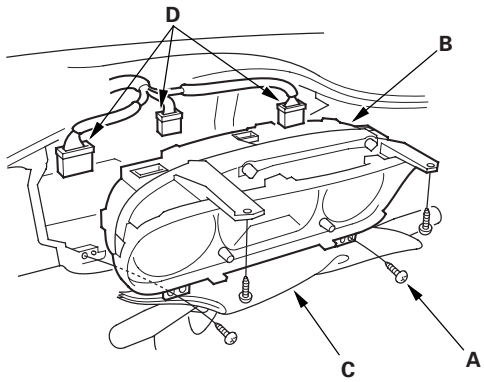
Circuit Diagram (cont'd)




*1 : With Auto—off headlights
*2 : Without Auto—off headlights
[ ]: '02—04 models
• PCM
• ABS/TCS CONTROL UNIT
BLU
TEST TACHOMETER CONNECTOR
BLU
B1
GAUGE ASSEMBLY
COOLANT TEMPERATURE GAUGE
FUEL GAUGE
LOW FUEL INDICATOR LIGHT (1.4W) or [LED]
TACHO— METER
SPEEDO— METER
A
TRIP/ MAINTENANCE RESET SWITCH
MAINTENANCE REQUIRED INDICATOR LIGHT (1.4W)
WASHER FLUID LEVEL INDICATOR LIGHT (1.4W)
FUEL GAUGE DRIVE CIRCUIT
TACHOMETER DRIVE CIRCUIT
SPEEDOMETER DRIVE CIRCUIT
ODO/TRIP/MAINTENANCE/WASHER CIRCUIT
ODO/TRIP DISPLAY
C2
C11
B2
B12
YEL/GRN
PCM
YEL/BLU
BLU/WHT
PNK
PCM
YEL/BLU
PCM
YEL/BLU
2
FUEL GAUGE UNIT
FUEL GAUGE SENDING UNIT
WASHER FLUID LEVEL SWITCH
1
BLK
BLK
G551
G201
(Canada)

Gauge Assembly Replacement

1. Remove the instrument panel (see page 20-69).
2. Remove the screws (A) from the gauge assembly (B), and spread a protective cloth (C) on the upper column cover.



3. Disconnect the connectors (D), and remove the gauge assembly.
4. Install in the reverse order of removal.

Resetting the Maintenance Required Indicator

How to Reset

Press the select switch and reset switch at the same time, turn the ignition switch ON (II), and hold them more than 10 seconds.

Blinking Pattern:

Miles (km)	Maintenance Reminder Light
At 5,900 (9,440) to 6,100 (9,760)	Blinks for 10 seconds when the ignition switch is turned ON (II).
At 7,400 (11,840) to 7,600 (12,160)	Comes on and stays on while the ignition switch is ON (II).

Vehicle Speed Signal Circuit Troubleshooting

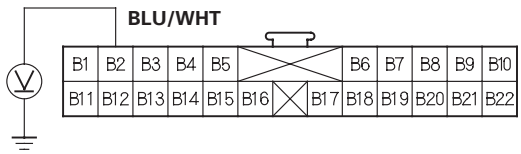
Before testing
- Check to see if diagnostic trouble code P0720 (9) is indicated. If it is, troubleshoot the DTC (see page 14-321).
- Inspect the No. 9 (10A) fuse in the driver's under-dash fuse/relay box.
- Check for continuity between the B16 terminal and body ground (G503).

1. Raise the vehicle, and make sure it is securely supported.

2. Disconnect the connector B (22P) from the gauge assembly.

3. Connect the B2 terminal to the positive probe of a voltmeter, and connect the negative probe to body ground. To prevent damage to the gauge assembly, lay the gauge assembly on a shop rag.

GAUGE ASSEMBLY CONNECTOR B (22P)



Wire side of female terminals

4. Put the vehicle in neutral position with the ignition switch ON (II).

5. Slowly rotate (over 3 mph (2 km/h)) one wheel with the other wheel blocked.

   Does voltage pulse from 0 to approx. 5 V or more?

   YES—Substitute a known-good gauge assembly. If the problem is gone, replace the gauge assembly.■

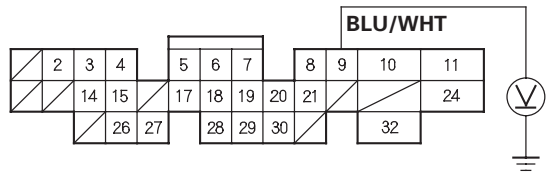
   NO—Go to step 6.

6. Turn the ignition switch off.

7. Connect the No. 9 terminal of the PCM connector A (32P) (except '01 model) or the No. 26 terminal of the PCM connector E (31P) ('01 model) to the positive probe of a voltmeter, and connect the negative probe to body ground.

   Except '01 model:

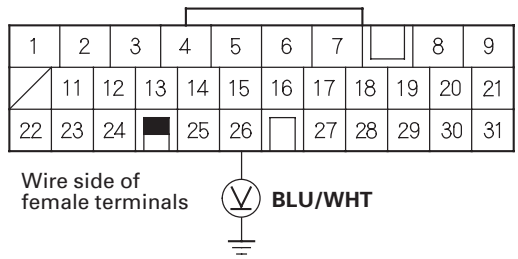
PCM CONNECTOR A (32P) (Connected)



Wire side of female terminals

   '01 model:

PCM CONNECTOR E (31P) (Connected)



8. Turn the ignition switch ON (II).

9. Slowly rotate (over 3 mph (2 km/h)) one wheel with the other wheel blocked.

   Does voltage pulse from 0 to approx. 5 V or more?

   YES—Repair open in the BLU/WHT wire between the PCM and the gauge assembly.■

   NO—Go to step 10.

10. Turn the ignition switch OFF.

(cont'd)

Vehicle Speed Signal Circuit Troubleshooting (cont'd)

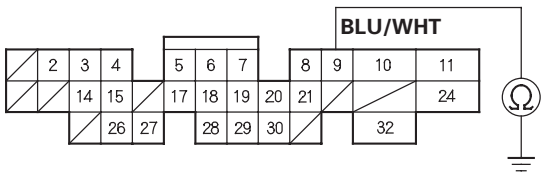
11. Disconnect the PCM connector A (32P) (except '01 model) or E (31P) ('01 model).

12. Disconnect the driver's multiplex control unit connector B, and the cruise control unit.
    On EX and EXL models: disconnect the left and right power sliding door control units.

13. Check for continuity between PCM connector A No. 9 terminal or PCM connector E No. 26 terminal and body ground.

Except '01 model:

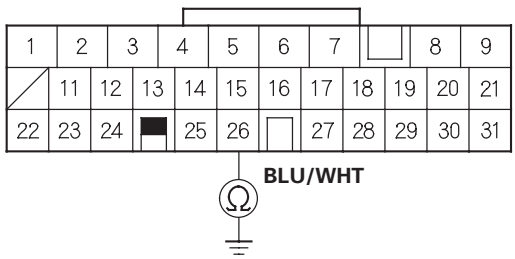
PCM CONNECTOR A (32P) (Connected)



Wire side of female terminals

'01 model:

PCM CONNECTOR E (31P) (Disconnected)



Wire side of female terminals

Is there continuity?

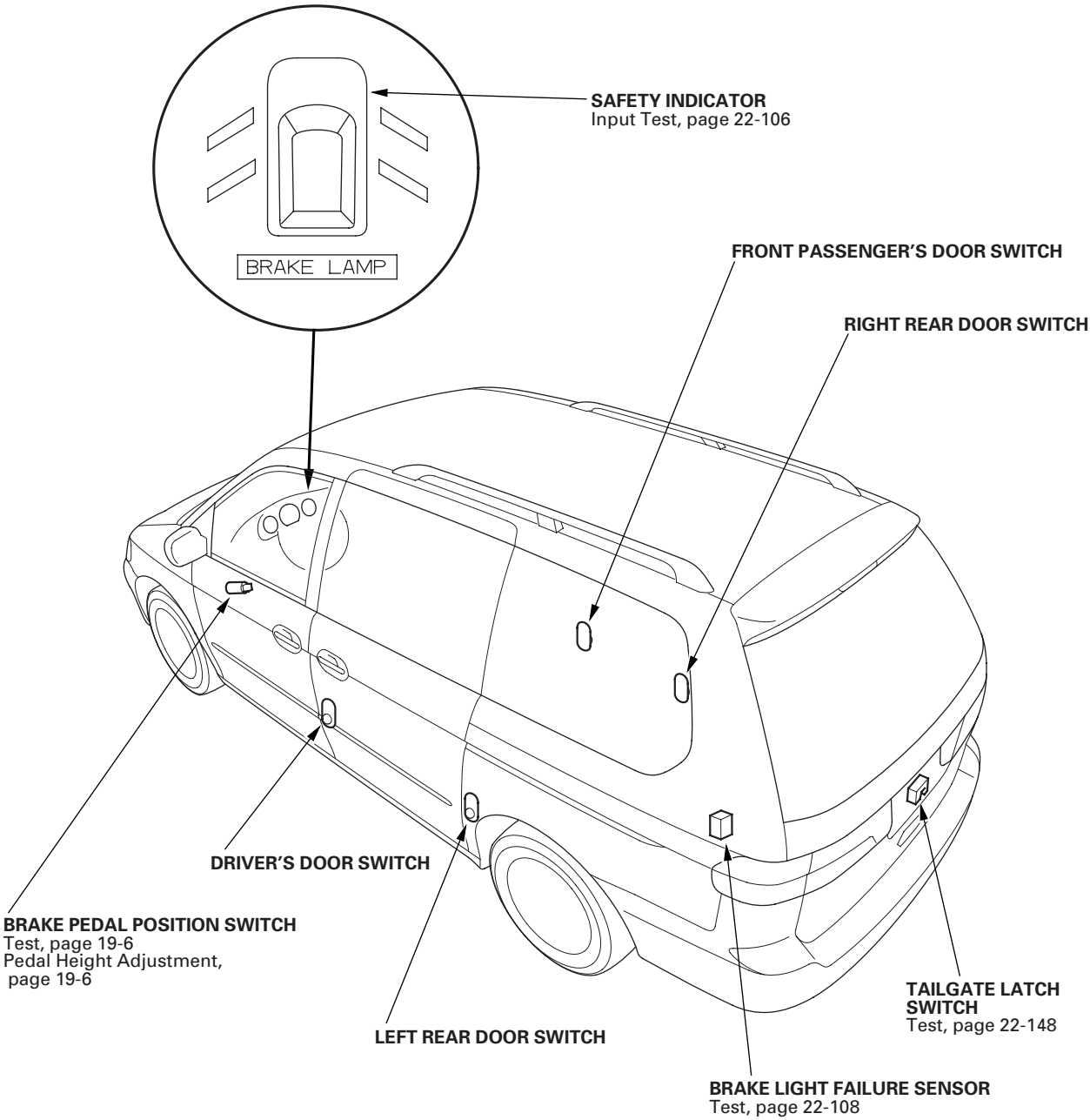
YES—Repair short to ground in the BLU/WHT wire between the PCM and the gauge assembly, the cruise control unit, or the driver's multiplex control unit. ■

NO—Check for these problems:

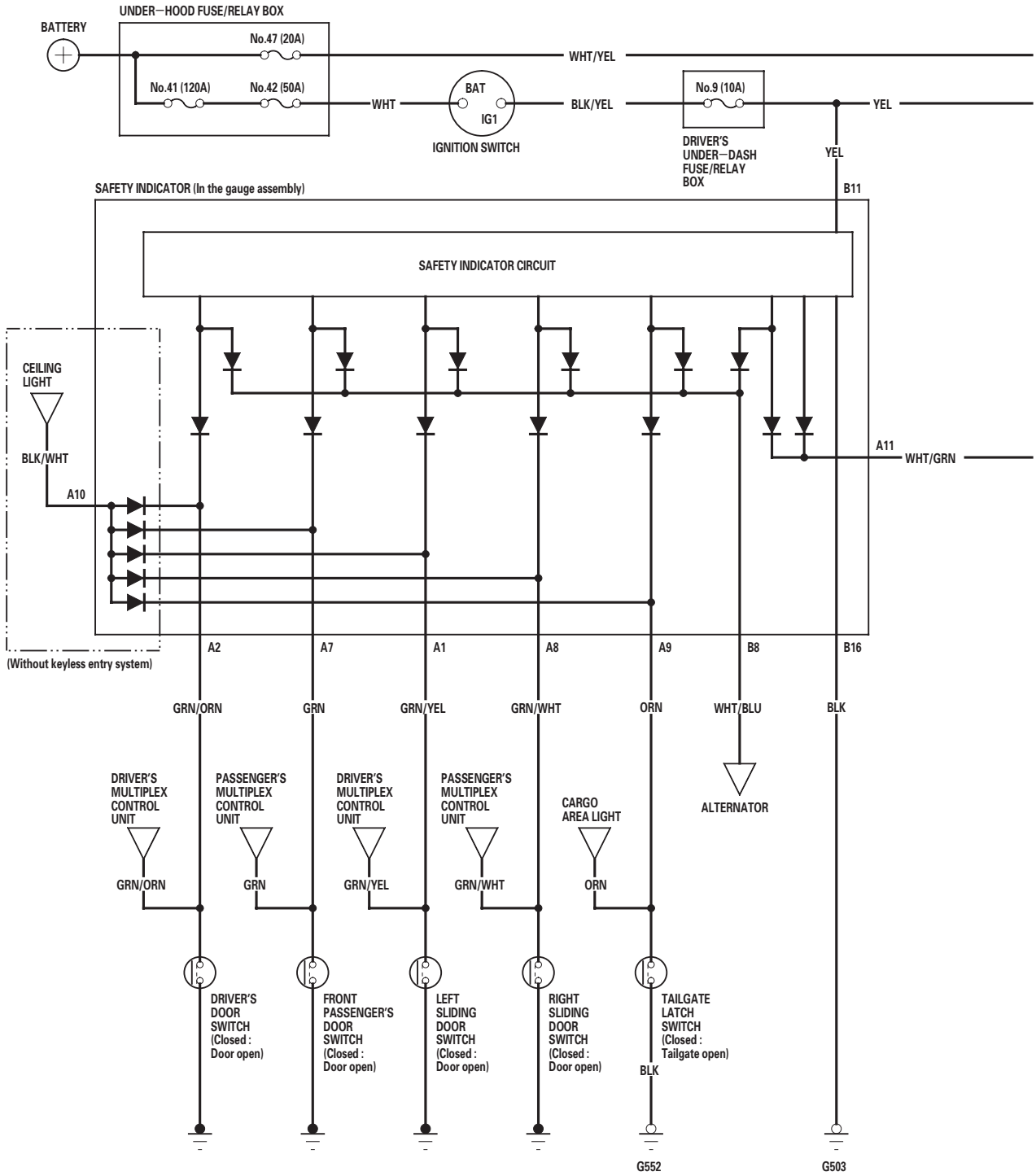
- Bent, loose or corroded terminals. ■
- A faulty PCM. ■

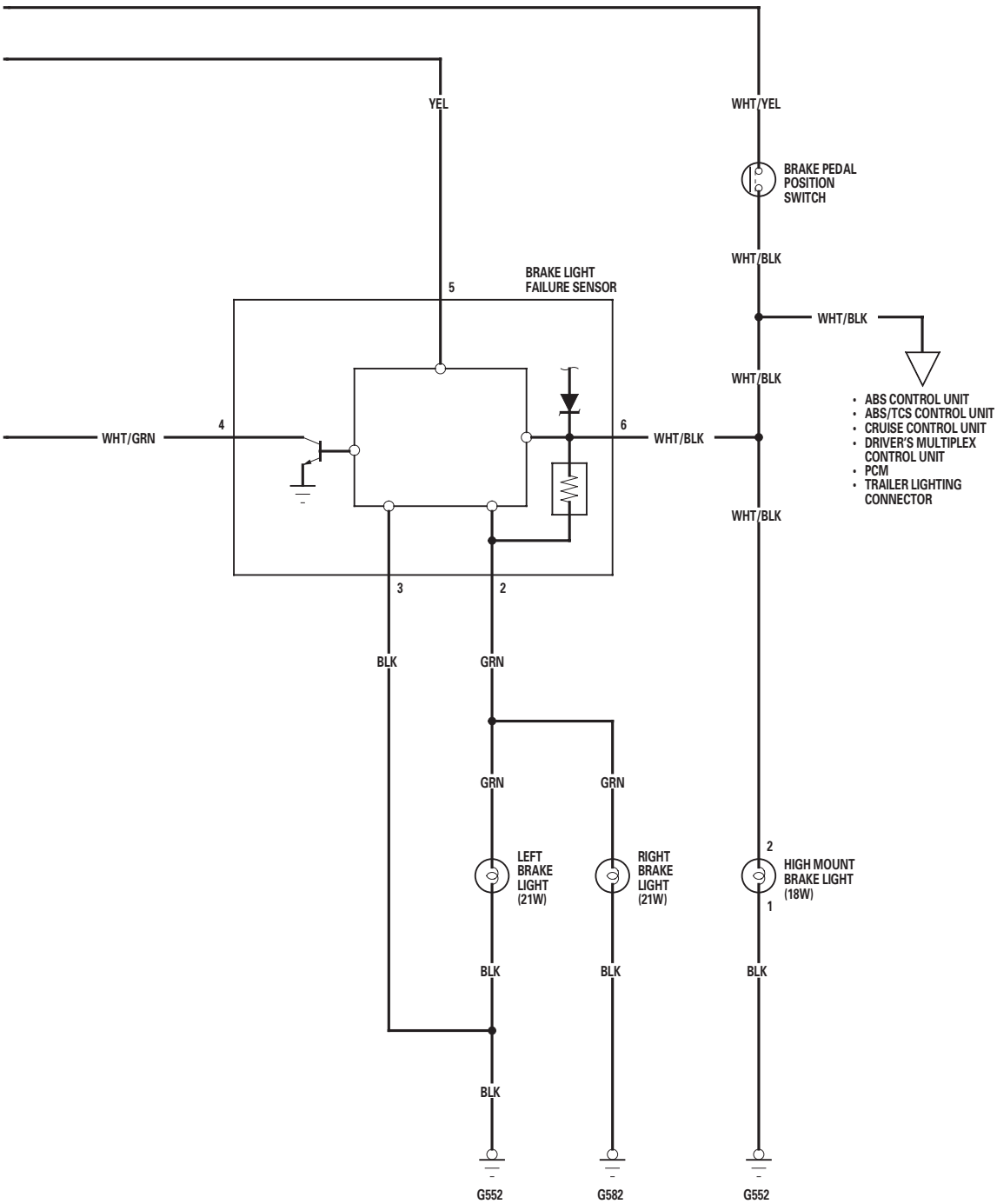
Safety Indicator System

Component Location Index



Circuit Diagram



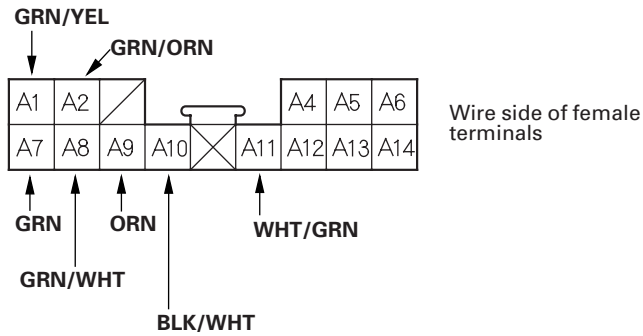

YEL
WHT/YEL
BRAKE PEDAL POSITION SWITCH
WHT/BLK
BRAKE LIGHT FAILURE SENSOR
5
WHT/BLK
WHT/BLK
• ABS CONTROL UNIT
• ABS/TCS CONTROL UNIT
• CRUISE CONTROL UNIT
• DRIVER'S MULTIPLEX CONTROL UNIT
• PCM
• TRAILER LIGHTING CONNECTOR
WHT/GRN
4
6
WHT/BLK
WHT/BLK
3
2
BLK
GRN
GRN
GRN
2
LEFT BRAKE LIGHT (21W)
RIGHT BRAKE LIGHT (21W)
HIGH MOUNT BRAKE LIGHT (18W)
1
BLK
BLK
BLK
BLK
G552
G582
G552

Safety Indicator Input Test

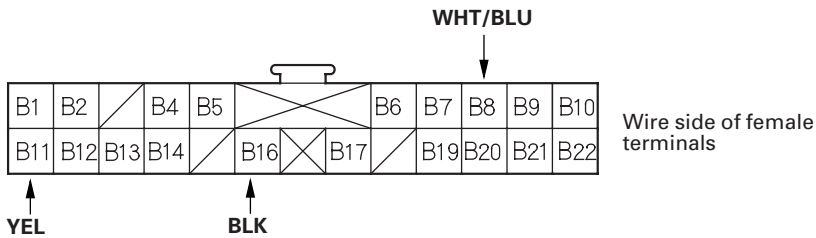
1. Remove the gauge assembly (see page 22-100).

2. Disconnect the 14P connector A and 22P connector B from the gauge assembly.

14P CONNECTOR A



22P CONNECTOR B



3. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

4. With the connectors still disconnected, make these input tests at the connectors.
   - If the test indicates a problem, find and correct the cause, then recheck the system.
   - If the input test proves OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A11	WHT/GRN	Under all conditions	Check for continuity between the A11 terminal and the brake failure sensor No. 4 terminal: There should be continuity.	• An open in the wire
B16	BLK	Under all conditions	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G503) • An open in the wire
B11	YEL	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • An open in the wire

5. Reconnect the connectors to the gauge assembly, and perform the following inputs tests at the appropriate connector.
   - If any test indicates a problem, find and correct the cause, and recheck the system.
   - If all the input tests prove OK, the gauge internal circuit must be faulty; replace the gauge assembly.

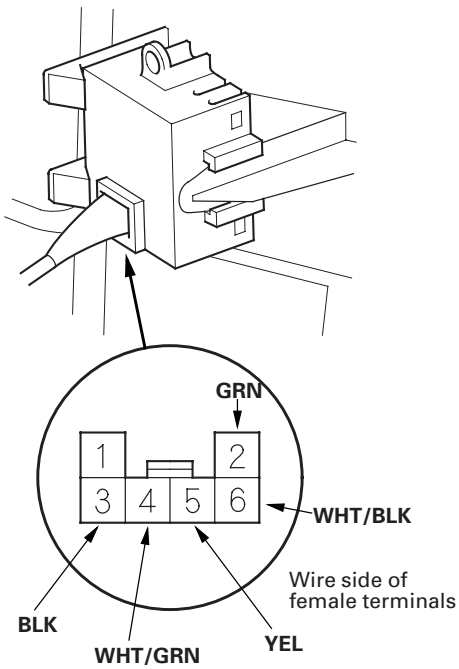
Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A10	BLK/WHT	Ceiling lights switch in middle position (without keyless entry)	Connect to ground: The ceiling lights should come on.	• Faulty ceiling light or bulb • Blown No. 11 (10A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
B8	WHT/BLU	Engine running	Check for voltage to ground: There should be battery voltage.	• Faulty charging system • An open in the wire
A7	GRN	Front passenger's door open	Check for voltage to ground: There should be less than 1 V.	• Faulty front passenger's door switch • An open in the wire
		Front passenger's door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty front passenger's door switch • Short to ground in the wire
A2	GRN/ORN	Driver's door open	Check for voltage to ground: There should be less than 1 V.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty driver's door switch • Short to ground in the wire
A9	ORN	Tailgate open	Check for voltage to ground: There should be less than 1 V.	• Faulty tailgate latch switch • An open in the wire • Poor ground (G552)
		Tailgate closed	Check for voltage to ground: There should be 5 V or more.	• Faulty tailgate latch switch • Short to ground in the wire
A8	GRN/WHT	Right sliding door open	Check for voltage to ground: There should be less than 1 V.	• Faulty right sliding door switch • An open in the wire
		Right sliding door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty right sliding door switch • Short to ground in wire
A1	GRN/YEL	Left sliding door open	Check for voltage to ground: There should be less than 1 V.	• Faulty left sliding door switch • An open in the wire
		Left sliding door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty left sliding door switch • Short to ground in the wire

Brake Light Failure Sensor Test

1. First make sure the brake lights come on when the brake pedal is pressed.

   - If all the brake lights come on, go to step 2.
   - If one of the brake lights does not come on, check whether the bulb is blown. If the bulb is OK, go to step 2.
   - If none of the brake lights come on, check the brake light circuit (see page 22-121).

2. Open the tailgate, and remove the left rear side trim panel (see page 20-60).



3. Make sure the BRAKE LAMP light in the safety indicator does not come on and stay on when the 6P connector is disconnected and the ignition switch is turned from OFF to engine running.

   - If the BRAKE LAMP light comes on, check for:
     – a short to ground between the No. 11 terminal of the gauge assembly connector A (14P) and the No. 4 terminal of the failure sensor.
     – a faulty safety indicator circuit (printed circuit board) in the gauge assembly.
   - If the BRAKE LAMP light does not come on, go to step 4.

4. Reconnect the 6P connector. Check the voltage to ground on No. 5 terminal (YEL).

   - If there is 12 V, go to step 5.
   - If there is 0 V, check for:
     – an open in the YEL wire.
     – a blown fuse.

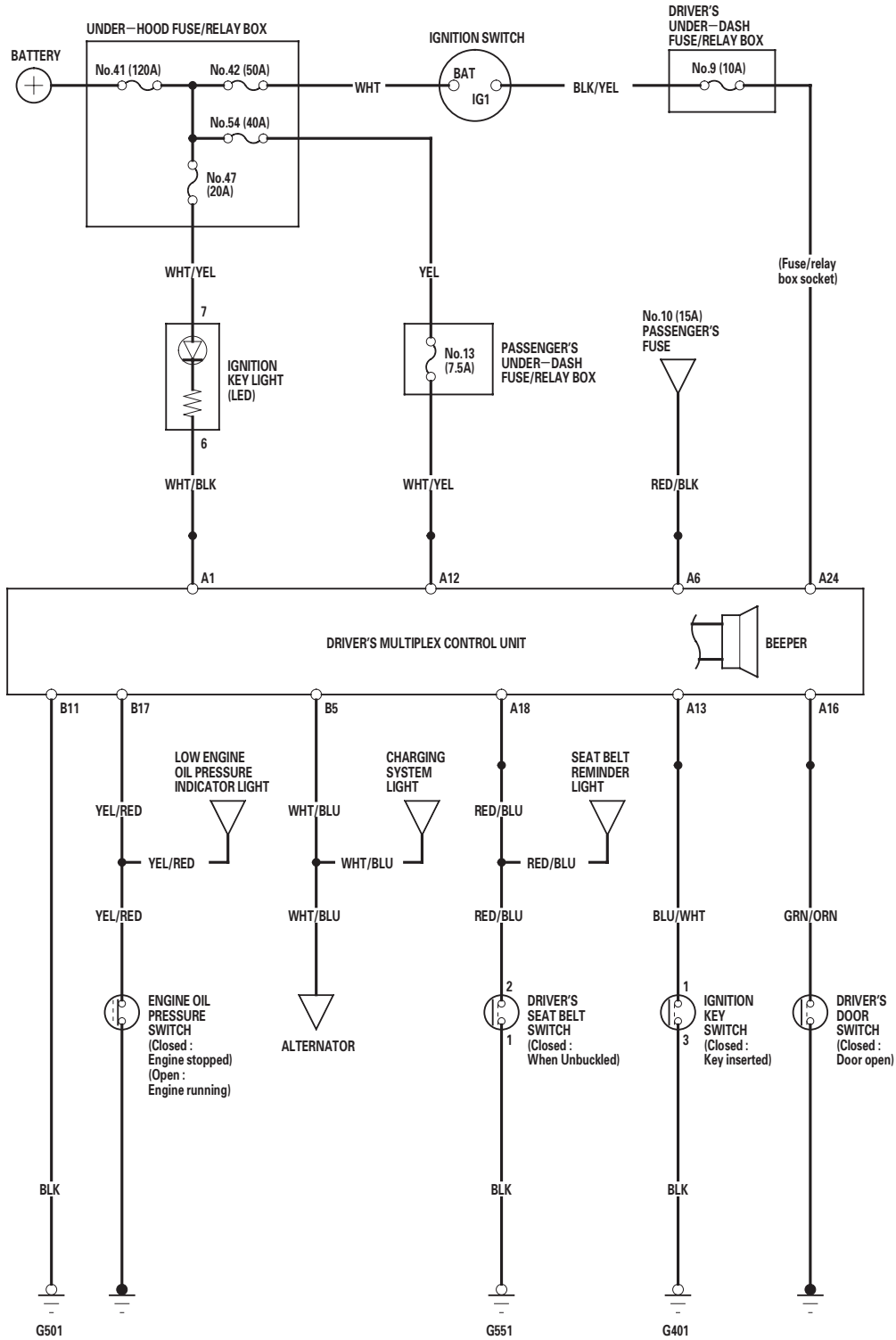
5. Reconnect the 6P connector. Make sure the BRAKE LAMP light in the safety indicator comes on and goes off when the No. 3 terminal of the 6P connector is grounded, the brake pedal is pressed, and the ignition switch is turned from OFF to engine running.

   - If the BRAKE LAMP light does not go off, replace the brake failure sensor.
   - If the BRAKE LAMP light goes off, check for:
     – a poor ground (G 552, G582).
     – an open in the BLK wire.

Lights-on, Key-in, Seat Belt Reminder, Key Light Timer, and Engine Oil Pressure Indicator Systems

BODY

Circuit Diagram



Control Unit Input Test

1. Before testing these systems, troubleshoot the multiplex control system (see page 22-244).

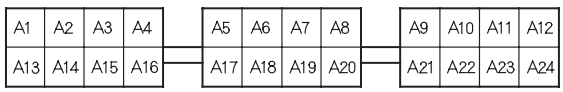
Driver's Multiplex Control Unit

2. Remove the driver's unit from the driver's under-dash fuse/relay box.

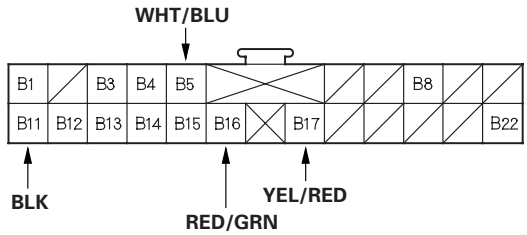
3. Inspect the connector and socket terminals to be sure they are all making good contact.

   • If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   • If the terminals look OK, go to step 4.

DRIVER'S UNDER-DASH FUSE/RELAY BOX SOCKET
(Driver's multiplex control unit connector A)



DRIVER'S MULTIPLEX CONTROL UNIT CONNECTOR B



Wire side of female terminals

4. With the driver's multiplex control unit still disconnected, make these input tests at the connector and driver's under-dash fuse/relay box sockets.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 5.

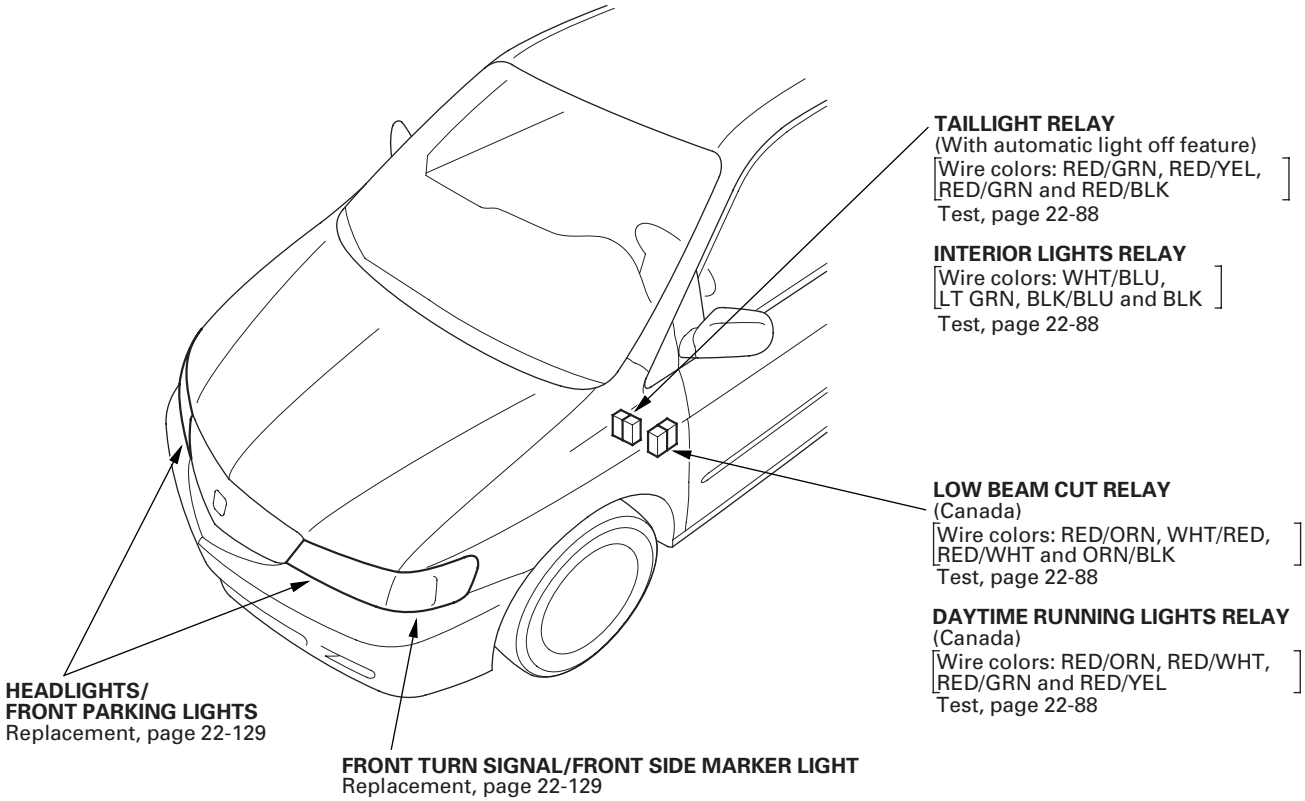
Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A24	Fuse/relay box socket	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • Faulty driver's fuse/relay box
A12		Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
A1		Under all conditions	Attach to ground: The ignition key light should come on.	• Blown No. 47 (20A) fuse in the under-hood fuse/relay box • An open in the wire
B11	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
B17	YEL/RED	Ignition switch OFF	Check for continuity to ground: There should be continuity.	• Faulty engine oil pressure switch • An open in the wire
		Ignition switch ON (II)	Check the low engine oil pressure indicator light operation: The indicator should come on.	• Faulty LED • An open in the wire
		Start the engine	Check for voltage to ground: There should be battery voltage.	• Insufficient oil • Improper lubrication • Faulty engine oil pressure switch • An open in the wire • A short in the wire

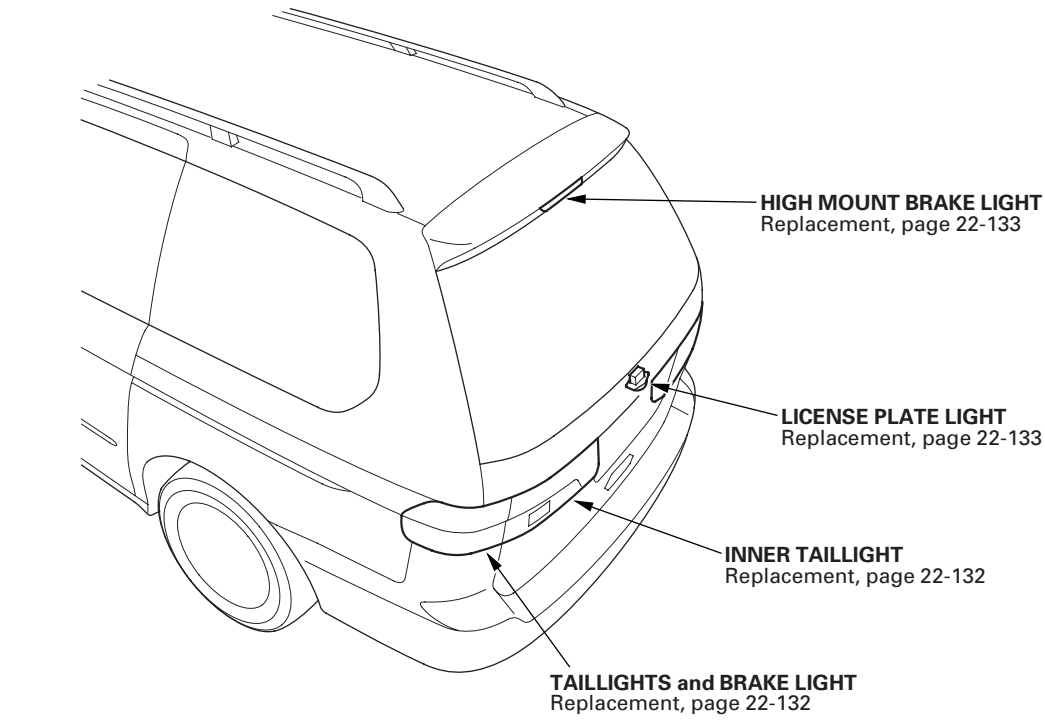
5. Reconnect the driver's multiplex control unit to the driver's under-dash fuse/relay box, and perform the following input tests at the appropriate connectors on the back of the driver's under-dash fuse/relay box.
   For driver's under-dash fuse/relay box connector socket location (see page 22-76).

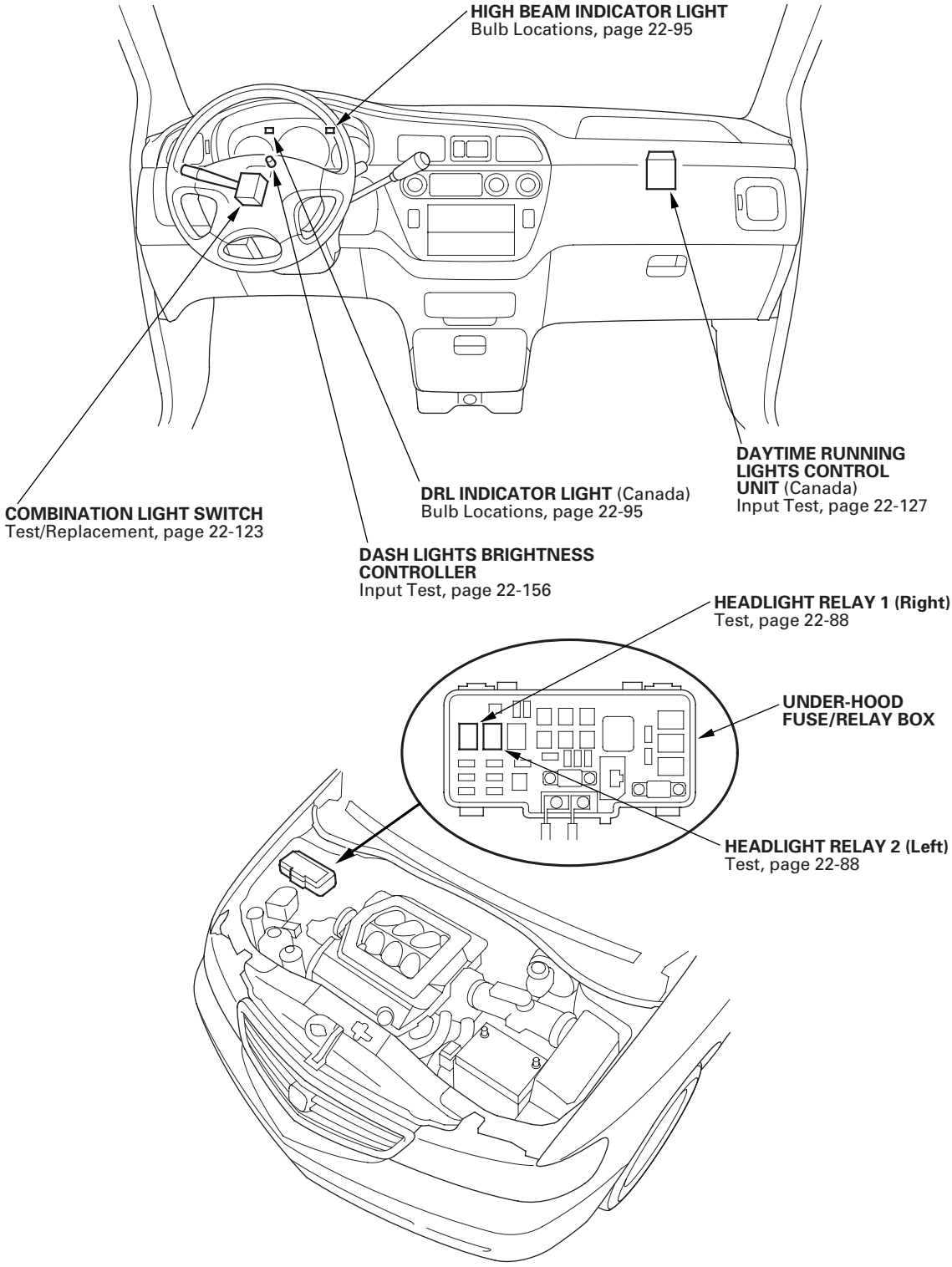
   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, the driver's multiplex control unit must be faulty, replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A16	Fuse/relay box socket	Driver's door open	Check for voltage to ground: There should be 1 V or less.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty driver's door switch • Short to ground
A18		Ignition switch ON (II), driver's seat belt unbuckled	Check for voltage to ground: There should be 1 V or less.	• Faulty driver's seat belt switch • Poor ground (G551) • An open in the wire
		Ignition switch ON (II), driver's seat belt buckled	Check for voltage to ground: There should be 5 V or more.	• Faulty driver's seat belt switch • Short to ground
A13		Ignition key is in the ignition switch	Check for voltage to ground: There should be 1 V or less.	• Faulty ignition switch • Poor ground (G401) • An open in the wire
		Ignition key is out of the ignition switch	Check for voltage to ground: There should be 5 V or more.	• Faulty ignition switch • Short to ground
B5	WHT/BLU	Engine running	Check for voltage to ground: There should be battery voltage.	• Faulty charging system • An open in the wire • Short to ground
A6	Fuse/relay box socket	Combination light switch ON Jump battery voltage to B16 (RED/GRN) on automatic lights off feature only.	Check for voltage to ground: There should be battery voltage.	• Blown No. 10 (15A) fuse in the passenger's under-dash fuse/relay box • Faulty combination light switch • Faulty driver's under-dash fuse/relay box • An open in the wire

Component Location Index

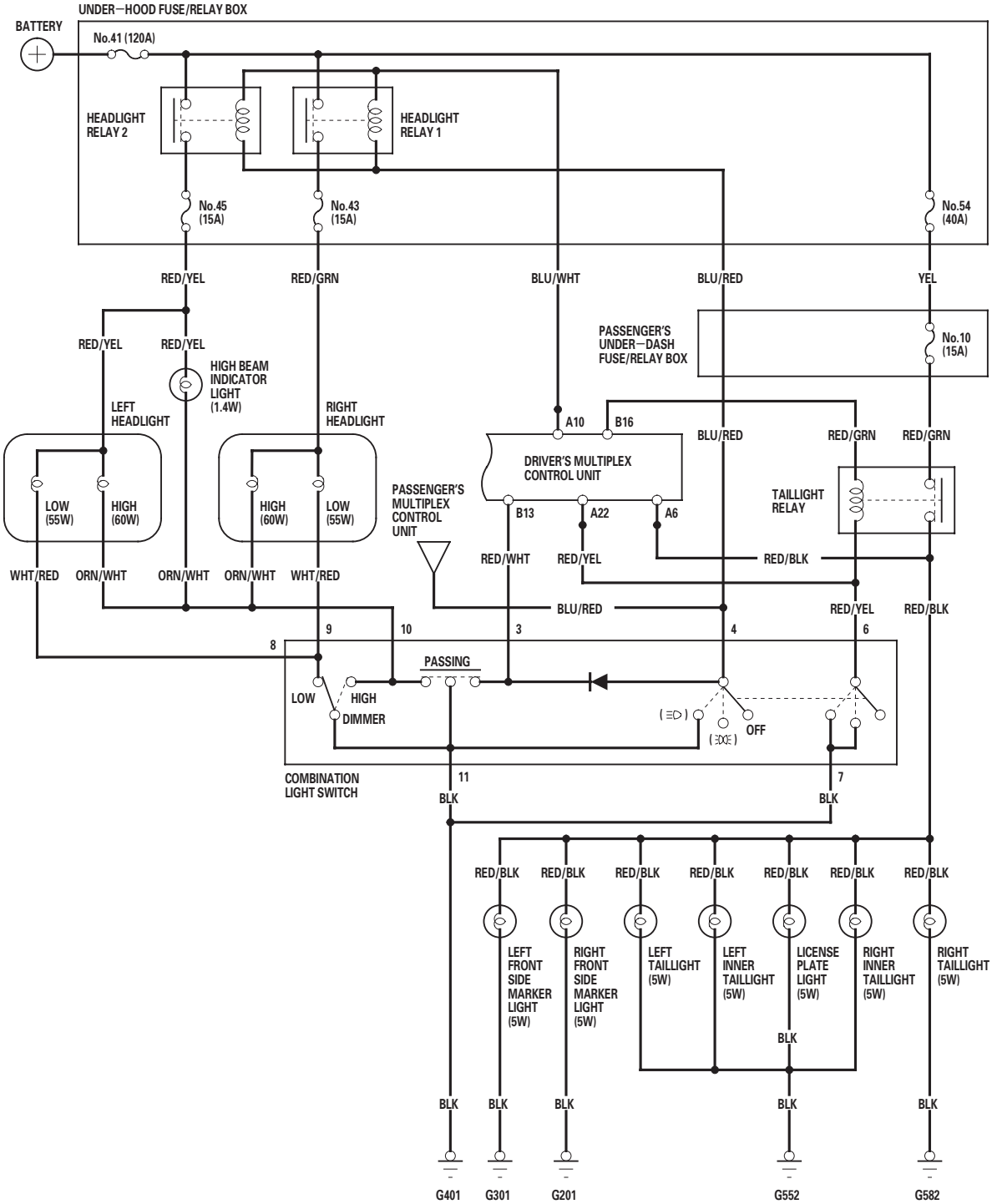





HIGH BEAM INDICATOR LIGHT
Bulb Locations, page 22-95
DAYTIME RUNNING LIGHTS CONTROL UNIT (Canada)
Input Test, page 22-127
DRL INDICATOR LIGHT (Canada)
Bulb Locations, page 22-95
COMBINATION LIGHT SWITCH
Test/Replacement, page 22-123
DASH LIGHTS BRIGHTNESS CONTROLLER
Input Test, page 22-156
HEADLIGHT RELAY 1 (Right)
Test, page 22-88
UNDER-HOOD FUSE/RELAY BOX
HEADLIGHT RELAY 2 (Left)
Test, page 22-88

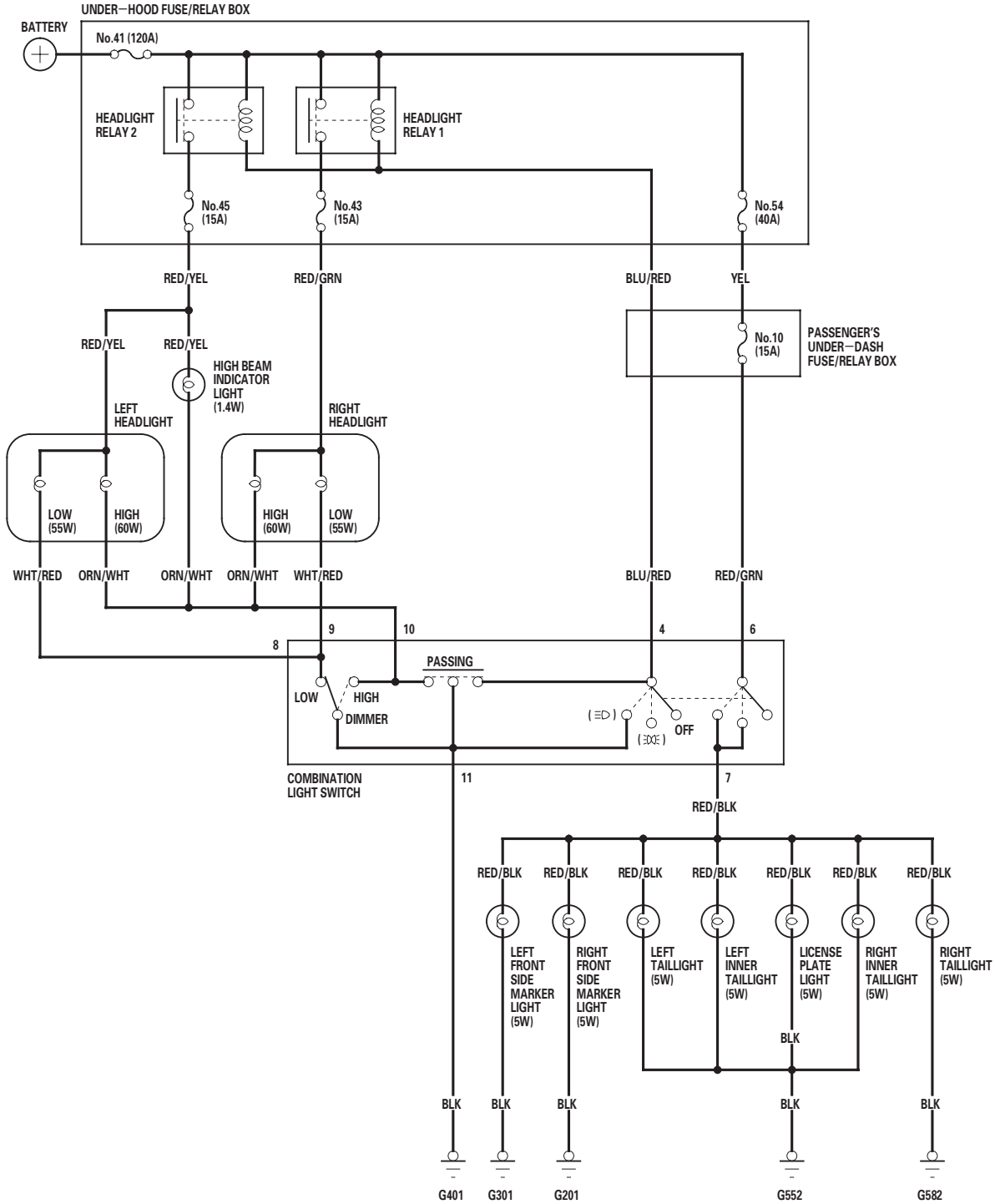
Circuit Diagram - with Automatic Light-off Feature

USA



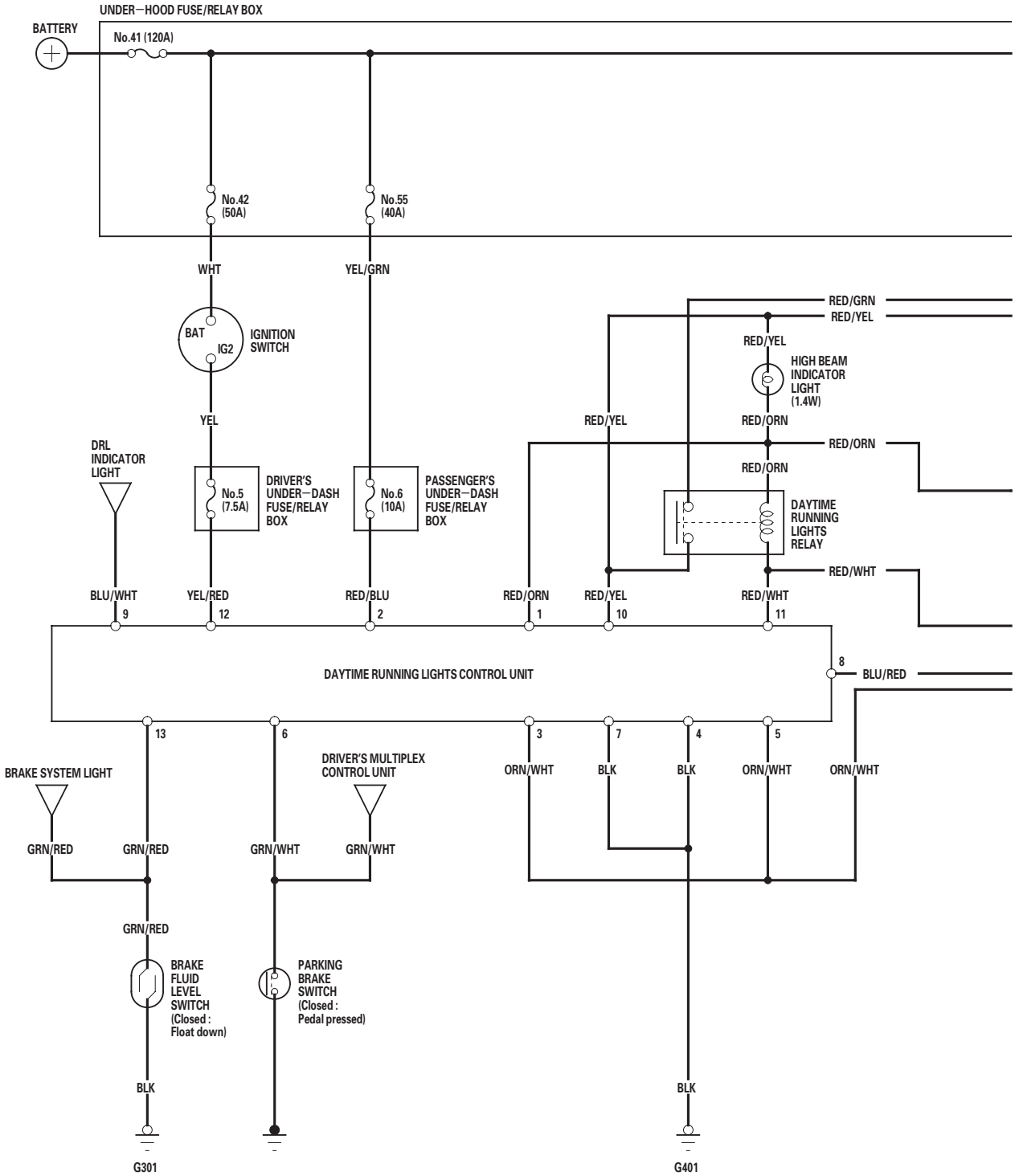
Circuit Diagram - without Automatic Light-off Feature

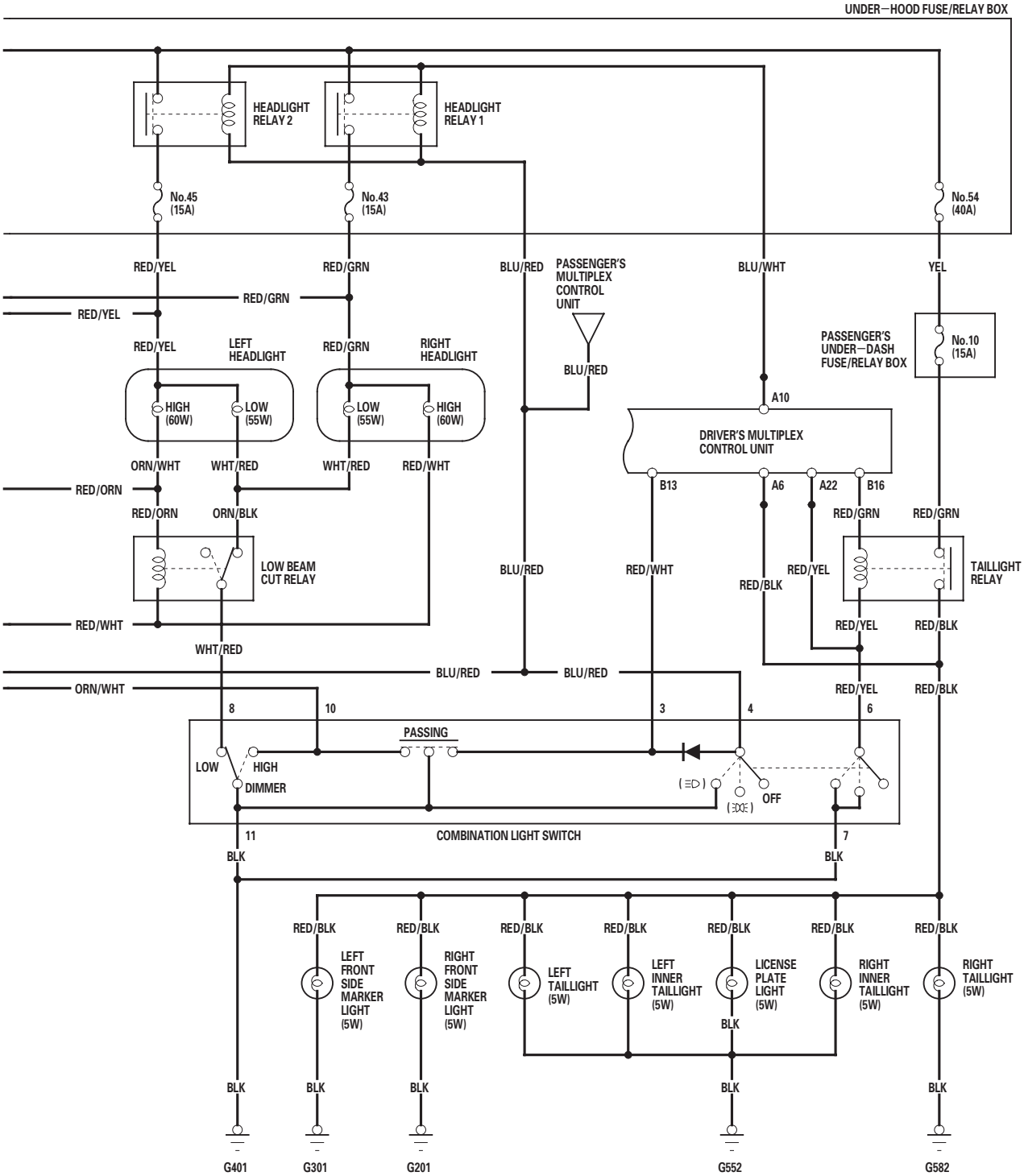
USA



Circuit Diagram - with Automatic Light-off Feature

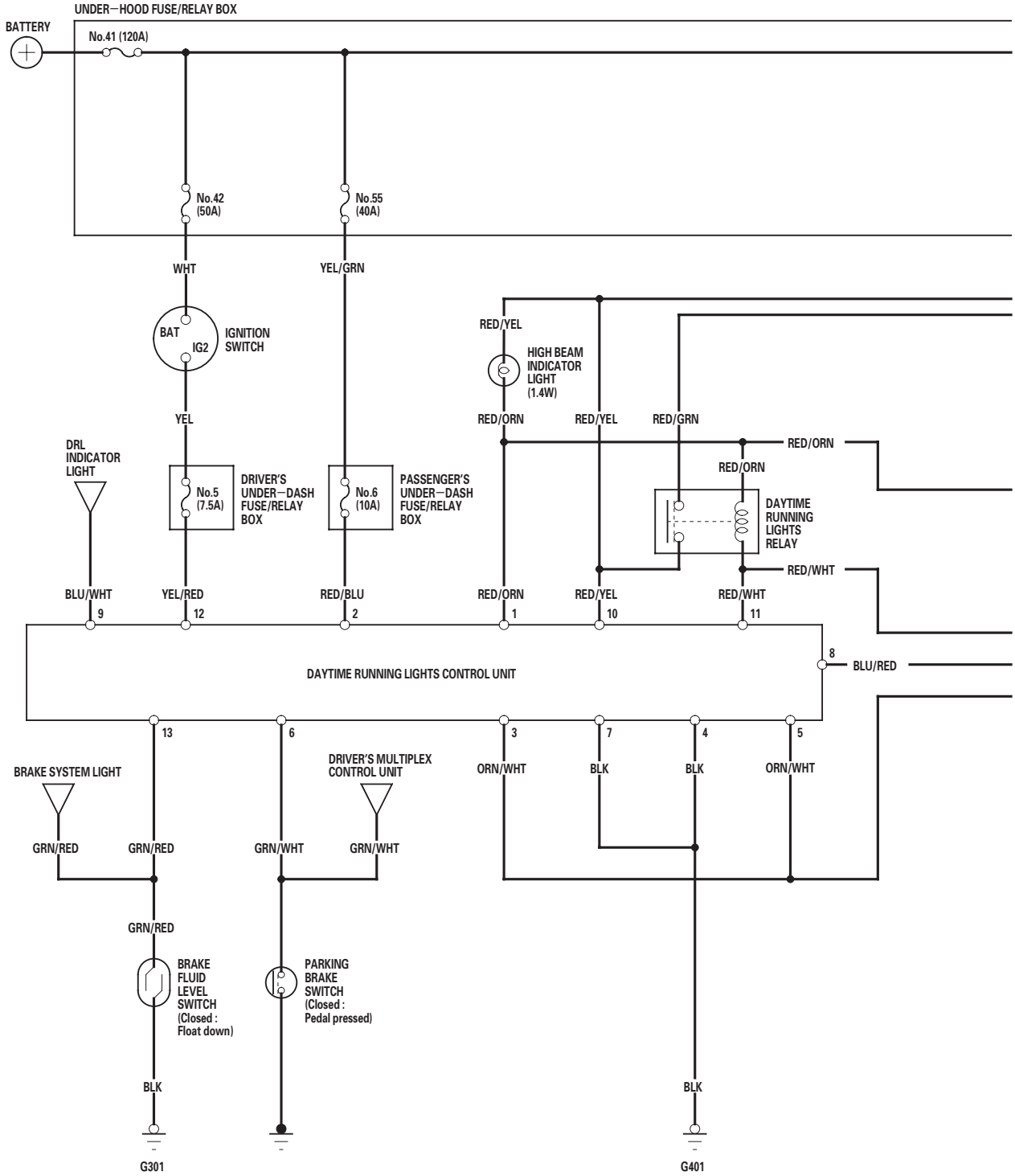
Canada

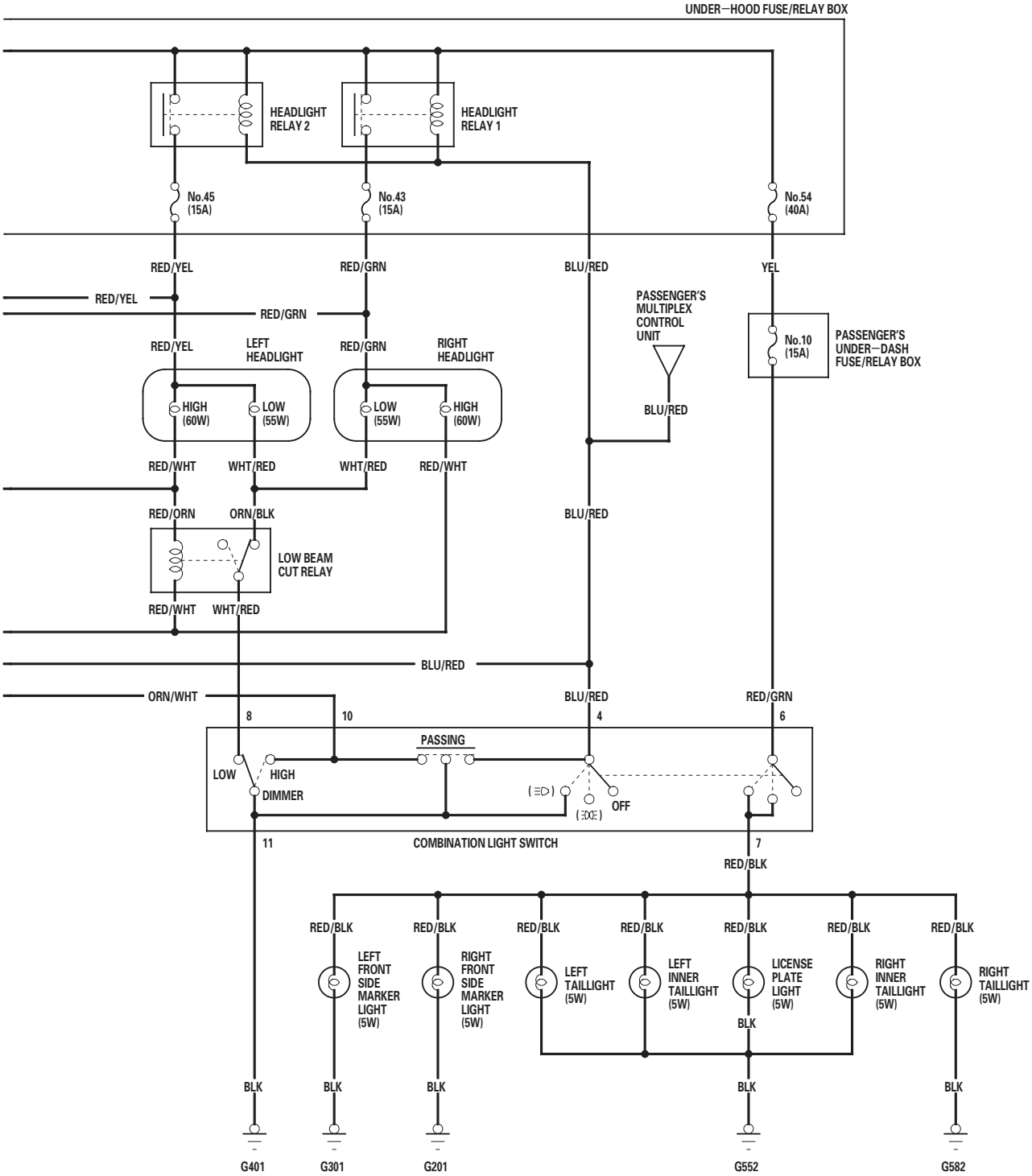



UNDER–HOOD FUSE/RELAY BOX
HEADLIGHT RELAY 2
HEADLIGHT RELAY 1
No.45 (15A)
No.43 (15A)
No.54 (40A)
RED/YEL
RED/GRN
BLU/RED
PASSENGER'S MULTIPLEX CONTROL UNIT
BLU/WHT
YEL
PASSENGER'S UNDER–DASH FUSE/RELAY BOX
No.10 (15A)
LEFT HEADLIGHT
RIGHT HEADLIGHT
HIGH (60W)
LOW (55W)
LOW (55W)
HIGH (60W)
A10
DRIVER'S MULTIPLEX CONTROL UNIT
B13
A6
A22
B16
ORN/WHT
WHT/RED
WHT/RED
RED/WHT
RED/ORN
ORN/BLK
LOW BEAM CUT RELAY
RED/BLK
RED/YEL
TAILLIGHT RELAY
RED/BLK
WHT/RED
ORN/WHT
8
10
3
4
6
PASSING
LOW
HIGH
DIMMER
OFF
11
7
COMBINATION LIGHT SWITCH
BLK
LEFT FRONT SIDE MARKER LIGHT (5W)
RIGHT FRONT SIDE MARKER LIGHT (5W)
LEFT TAILLIGHT (5W)
LEFT INNER TAILLIGHT (5W)
LICENSE PLATE LIGHT (5W)
RIGHT INNER TAILLIGHT (5W)
RIGHT TAILLIGHT (5W)
G401
G301
G201
G552
G582

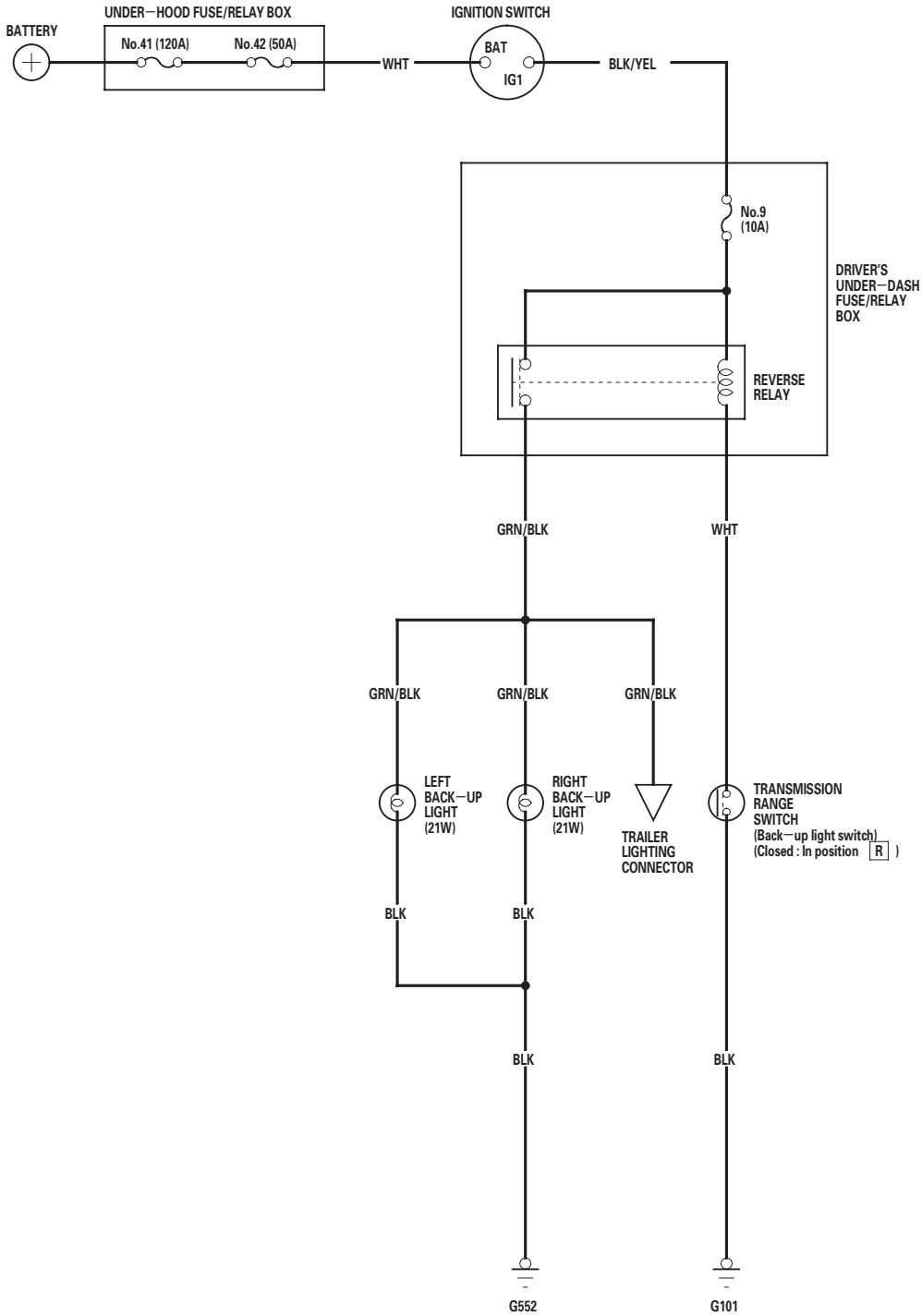
Circuit Diagram - without Automatic Light-off Feature

Canada

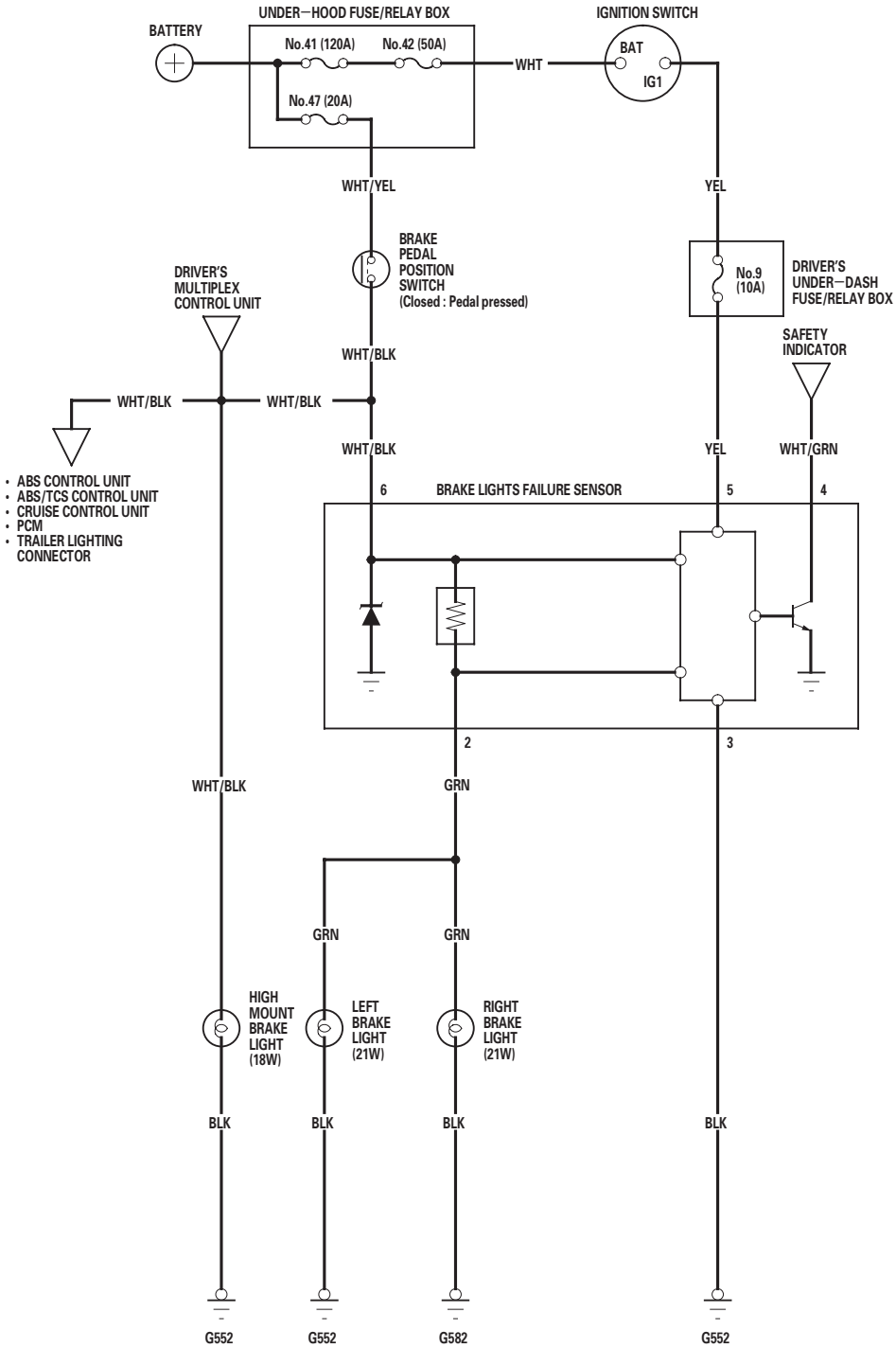



UNDER–HOOD FUSE/RELAY BOX
HEADLIGHT RELAY 2
HEADLIGHT RELAY 1
No.45 (15A)
No.43 (15A)
No.54 (40A)
RED/YEL
RED/GRN
BLU/RED
YEL
PASSENGER'S MULTIPLEX CONTROL UNIT
No.10 (15A)
PASSENGER'S UNDER–DASH FUSE/RELAY BOX
LEFT HEADLIGHT
RIGHT HEADLIGHT
HIGH (60W)
LOW (55W)
RED/WHT
WHT/RED
RED/ORN
ORN/BLK
LOW BEAM CUT RELAY
ORN/WHT
8
10
4
6
PASSING
LOW
HIGH
DIMMER
OFF
11
COMBINATION LIGHT SWITCH
7
RED/BLK
LEFT FRONT SIDE MARKER LIGHT (5W)
RIGHT FRONT SIDE MARKER LIGHT (5W)
LEFT TAILLIGHT (5W)
LEFT INNER TAILLIGHT (5W)
LICENSE PLATE LIGHT (5W)
RIGHT INNER TAILLIGHT (5W)
RIGHT TAILLIGHT (5W)
BLK
G401
G301
G201
G552
G582

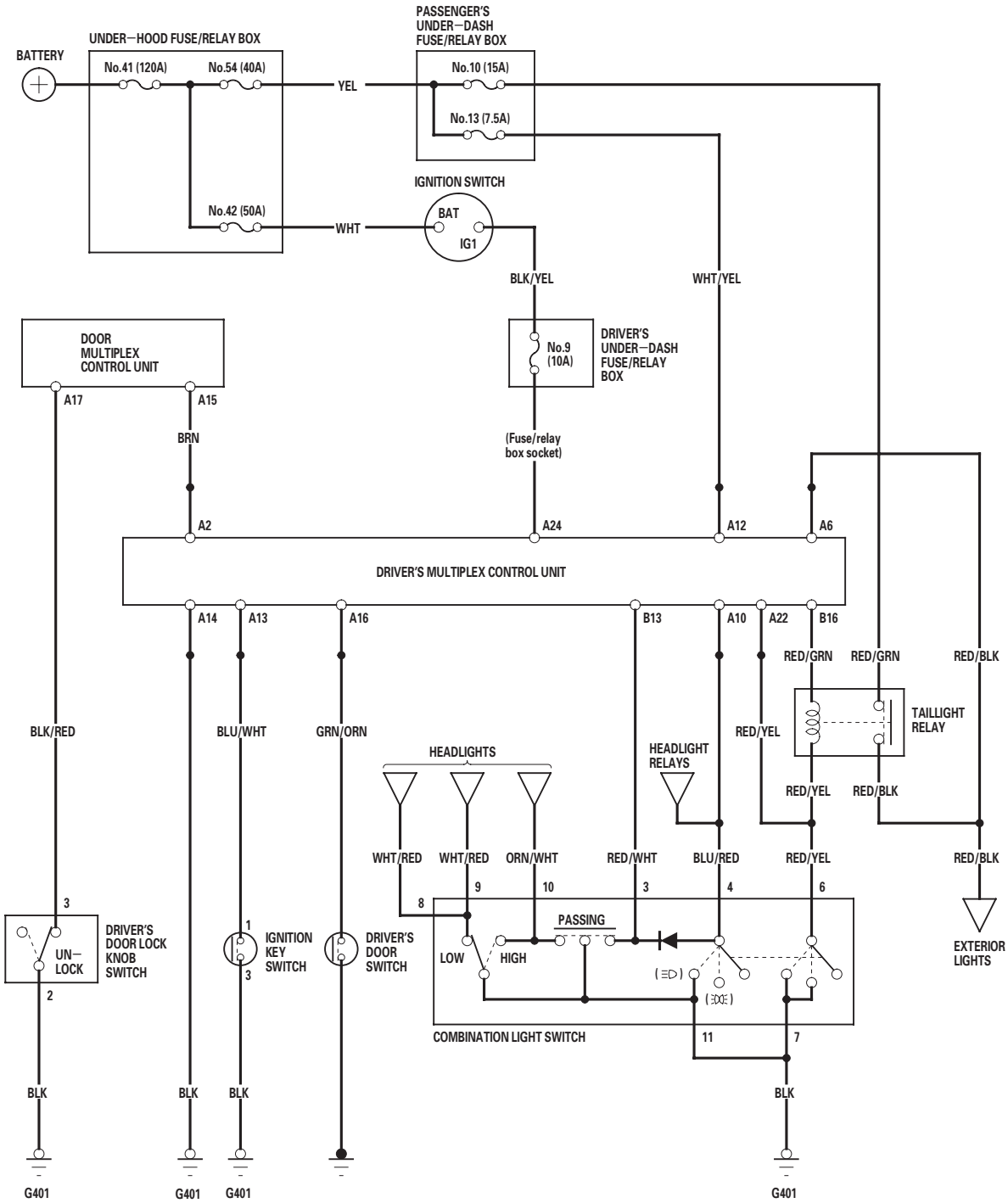
Circuit Diagram - Back-up Light



Circuit Diagram - Brake Light

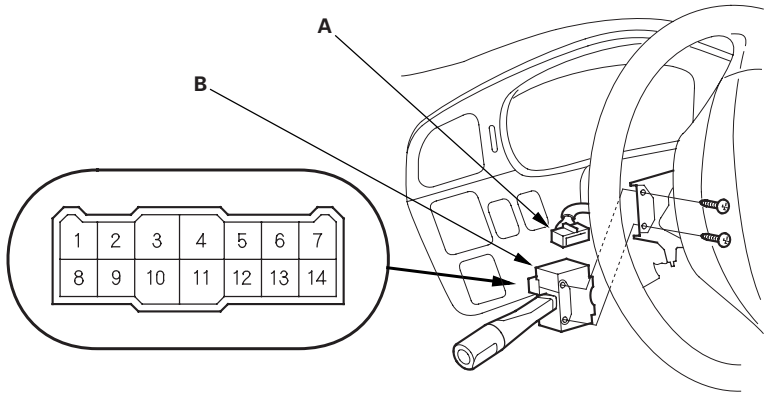


Circuit Diagram - Automatic Light-off Feature



Combination Light Switch Test/Replacement

1. Remove the driver's dashboard lower cover (see page 20-69).
2. Remove the steering column covers (see page 17-25).
3. Disconnect the 14P connector (A) from the combination light switch (B).



4. Remove the two screws, then pull out the combination light switch.
5. Inspect the connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, check for continuity between the terminals in each switch position according to the tables.

Light switch:

Position \ Terminal			3 (*1)		4	8	9 (*2)	10	11	6	7
Headlight switch	OFF										
	≡D									○—○	
		LOW	○	—▶—	○	○	○		○	○—○	
		HIGH	○	—▶—	○			○	○	○—○	
Passing switch	OFF										
	ON		○	—▶—				○	○		

*1: With auto-off headlight function
*2: Canada

Turn signal switch:

Position \ Terminal	12	13	14
LEFT	○	○	
NEUTRAL			
RIGHT		○	○

6. If the continuity check is not as specified in the table, replace the switch.

Auto-off Headlight Control Unit Input Test

1. Before testing the exterior lights control functions, troubleshoot the multiplex control system (see page 22-244).

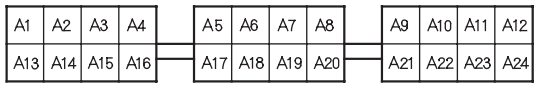
Driver's Multiplex Control Unit

2. Remove the driver's multiplex control unit from the driver's under-dash fuse/relay box.

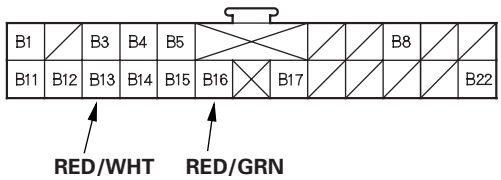
3. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

DRIVER'S UNDER-DASH FUSE/RELAY BOX SOCKET
(Driver's multiplex control unit connctor A)

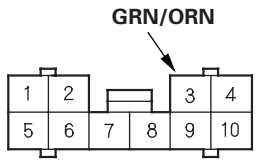


DRIVER'S MULTIPLEX CONTROL UNIT CONNECTOR B
(Plug into the driver's multiplex control unit)



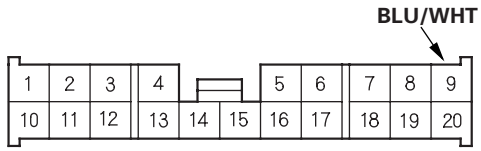
Wire side of female terminals

DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR A



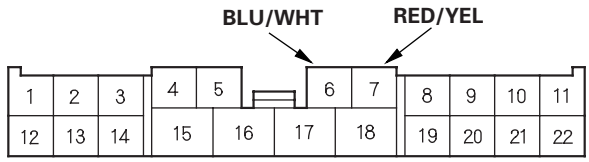
Wire side of female terminals

DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR O



Wire side of female terminals

DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR Q



Wire side of female terminels

4. With the driver's multiplex control unit still disconnected, make these input tests at the fuse/relay box socket.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A12	Fuse/ relay box socket	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
A24		Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • Faulty driver's under-dash fuse/relay box

5. Reconnect the driver's multiplex control unit to the fuse/relay box, and perform the following input tests at the appropriate connectors on the back of the fuse/relay box (see page 22-76).

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A3	GRN/ ORN	Driver's door open	Check for voltage to ground: There should be 1 V or less.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty driver's door switch • A short to ground
B16*	RED/ GRN	Combination light switch ON	Check for voltage to ground: There should be about 12 V.	• Poor ground (G401) • Faulty combination light switch • Faulty driver's multiplex control unit
B13*	RED/ WHT	Passing switch ON	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G401) • Faulty combination light switch • An open in the wire
O9	BLU/ WHT	Ignition key is in the ignition switch	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G401) • Faulty ignition switch • An open in the wire
		Ignition key is out of the ignition switch	Check for voltage to ground: There should be 5 V or more.	• Poor connection • Short to ground • Faulty driver's multiplex control unit
Q6	BLU/ WHT	Combination light switch ON	Check for voltage to ground: There should be about 12 V.	• Poor ground (G401) • Faulty combination light switch • Faulty driver's side fuse box or driver's multiplex control unit • An open in the wire
Q7	RED/ YEL	Combination light switch ON	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G401) • Faulty combination light switch • An open in the wire

*: Multiplex connector B

(cont'd)

Auto-off Headlight Control Unit Input Test (cont'd)

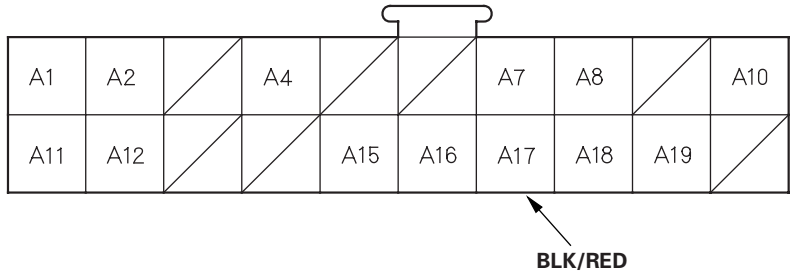
Door Multiplex Control Unit

6. Remove the driver's door panel, and disconnect the 20P connector A from the door multiplex control unit.

7. Inspect the connector and socket terminals to be sure they are all making good contact.

   • If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   • If the terminals look OK, go to step 8.

DOOR MULTIPLEX CONTROL UNIT CONNECTOR A



Wire side of female terminals

8. Reconnect the connector to the unit, and make these input tests.

   • If a test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 9.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A17	BLK/RED	Driver's door lock knob locked	Check for voltage to ground: There should be 5 V or more.	• Faulty driver's door lock actuator • Short to ground
		Driver's door lock knob unlocked	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G401) • Faulty driver's door lock actuator • An open in the wire

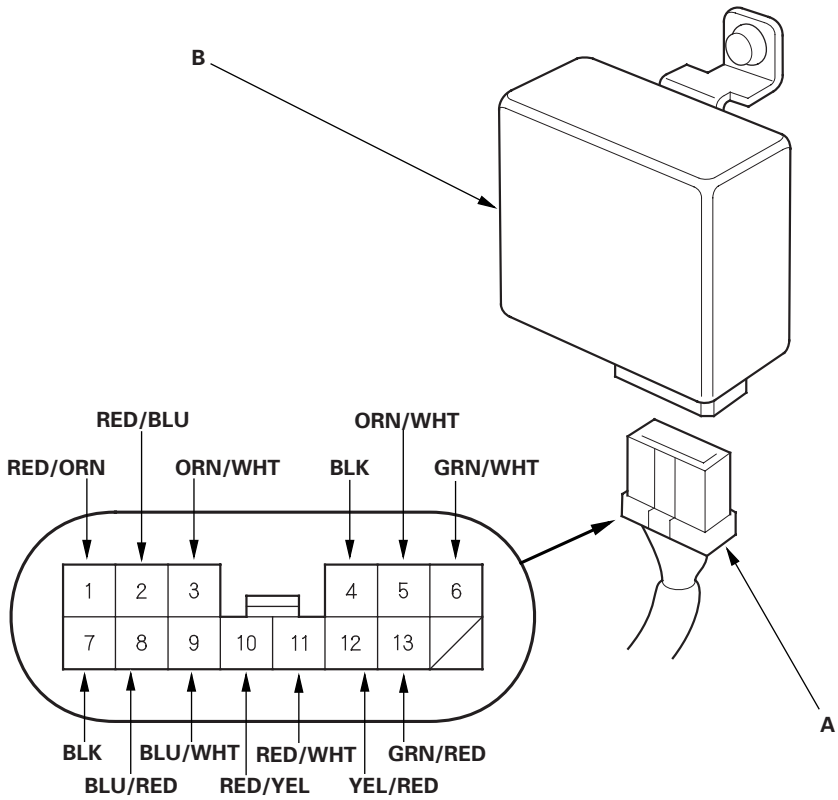
9. If all the input tests prove OK, one of the control units must be faulty. Substitute a known-good control unit for the one that is most likely at fault, then recheck the system. If the system works properly, the original control unit is faulty; replace it. If there is still a malfunction, substitute a known-good control unit for the next most likely unit to be at fault, and recheck. If the system works properly, the original unit is faulty; replace it.

Daytime Running Lights Control Unit Input Test

Canada

1. Remove the glove box (see page 20-71).

2. Disconnect the 14P connector (A) from the daytime running lights control unit (B).



Wire side of female terminals

3. Inspect the all connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

(cont'd)

Daytime Running Lights Control Unit Input Test (cont'd)

4. Make these input tests at the connector.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, the control unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
1 11	RED/ORN RED/WHT	Combination light switch ON (≣D), and dimmer switch in HIGH	Connect a jumper wire between No. 1 and No. 2 terminals and connect No. 11 terminal to ground: The headlights (HIGH) and high beam indicator light should come on.	• Blown No. 55 (40A) fuse in the under-hood fuse/relay box • Blown No. 6 (10A) fuse in the passenger's under-dash fuse/relay box • Blown headlight bulb (High beam) • Blown high beam indicator light • An open in the wire • Poor ground (G401)
2	RED/BLU	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 55 (40A) fuse in the under-hood fuse/relay box • Blown No. 6 (10A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
4 7	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • An open in the wire
6	GRN/WHT	Parking brake pedal pressed	Check for continuity to ground: There should be continuity.	• Faulty parking brake switch • An open in the wire
8	BLU/RED	Headlights OFF	Check for voltage to ground: There should be battery voltage.	• Faulty headlight relay 1 • An open in the wire
9	BLU/WHT	Ignition switch ON (II)	Connect to ground: The indicator light should come on.	• Faulty DRL indicator light • An open in the wire
10	RED/YEL	Combination light switch ON (≣D), and dimmer switch in HIGH	Check for voltage to ground: There should be battery voltage.	• Blown No. 45 (15A) fuse in the under-hood fuse/relay box • Faulty combination light switch • Faulty headlight relay 2 • An open in the wire
3 5	ORN/WHT	Combination light switch ON (≣D)	Check for continuity to ground: There should be continuity.	• Faulty combination light switch • Poor ground (G401) • An open in the wire
12	YEL/RED	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 5 (7.5A) fuse in the driver's under-dash fuse/relay box • An open in the wire
13	GRN/RED	Brake fluid reservoir float in down position	Check for continuity to ground: There should be continuity.	• Faulty brake fluid level switch • An open in the wire • Poor ground (G302)

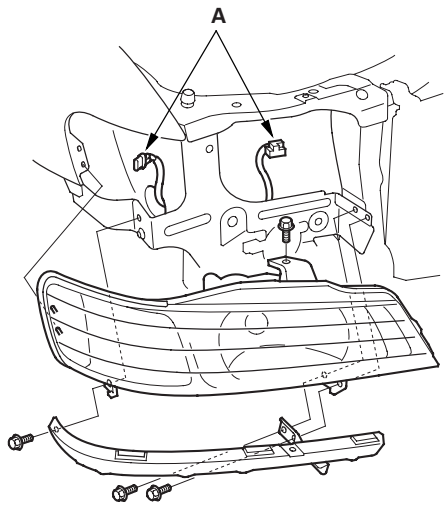
Headlight Replacement

⚠CAUTION

Headlights become very hot during use; do not touch them or any attaching hardware immediately after they have been turned off.

1. Remove the front bumper (see page 20-128).
2. Disconnect the connectors (A) from the headlight.

HEADLIGHT (High): 60 W
(Low): 55 W
FRONT TURN SIGNAL/ SIDE MARKER LIGHT: 21/5 W



3. Remove the four mounting bolts, then remove the headlight assembly.
4. Install the headlight in the reverse order of removal.
5. After replacement, adjust the headlights to local requirements (see page 22-130).

Headlight Adjustment

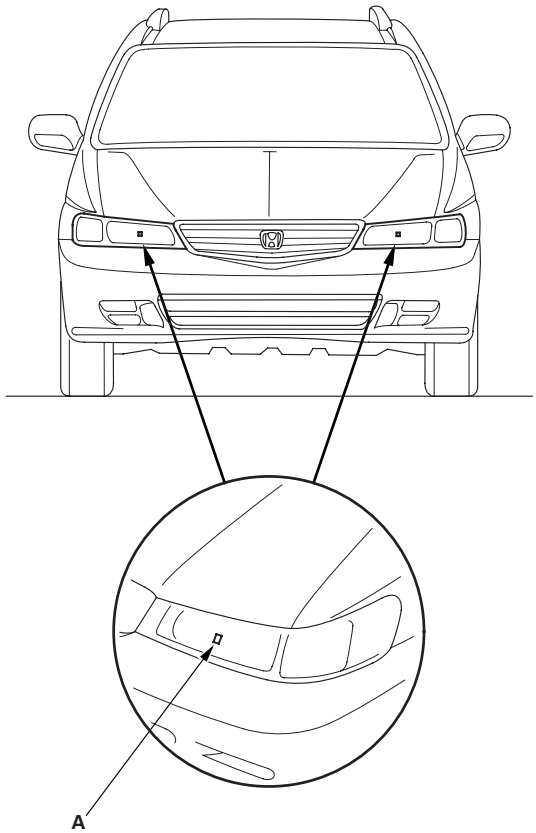
⚠CAUTION

Headlight become very hot during use; do not touch them or any attaching hardware immediately after they have been turned off.

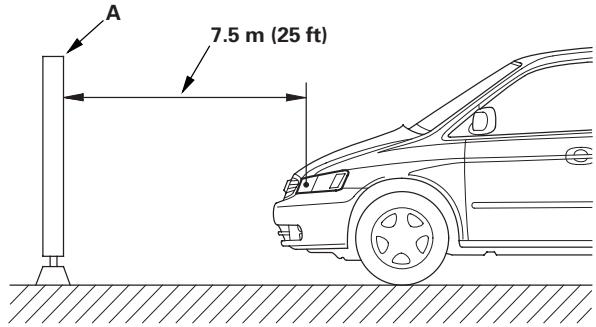
Before adjusting the headlights

- Park the vehicle on level surface.
- Make sure the tire pressures are correct.
- The driver or someone who weighs the same should sit in the driver's seat.

1. Clean the outer lens so that you can see the center of the headlights (A).

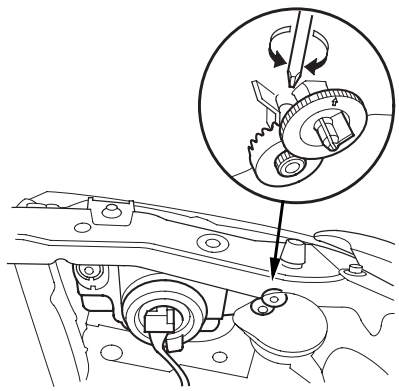


2. Park the vehicle 7.5 m (25 ft) from a wall or a screen (A).



3. Open the hood.

4. Turn the horizontal adjuster so that the arrow on the horizontal indicator gear (A) is pointing up. ('99-00 models)

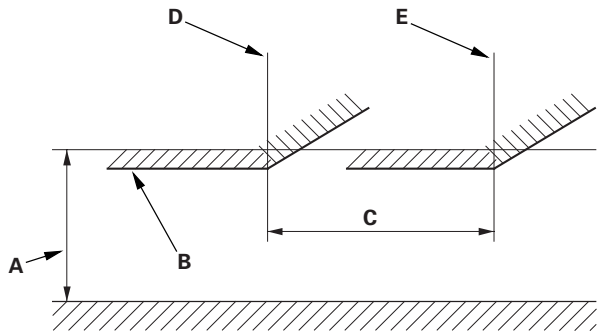


5. Turn the low beams on.

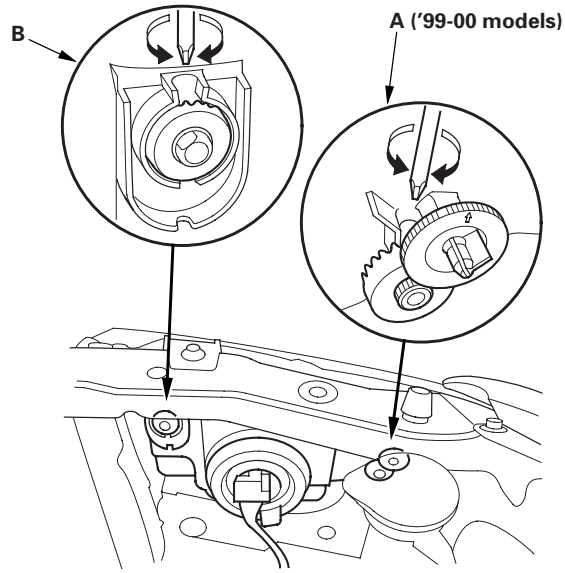
6. Determine if the headlights are aimed properly.

   Vertical adjustment:
   Measure the height of the headlights (A). The lights should reflect 52 mm (2.1 in.) below headlight height (B).

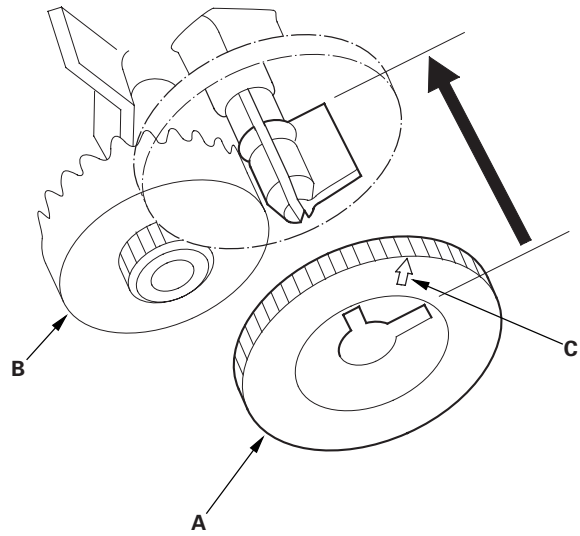
   Horizontal adjustment ('99-00 models):
   The width of the refracting points (C) should be the same as the width of the headlight central points (D, E).



7. If necessary, adjust the headlights to local requirements by turning the horizontal adjuster (A) ('99-00 models) and the vertical adjuster (B).



8. After headlight replacement;
   On '99-00 models, push and install the horizontal indicator gear (A) to the horizontal adjuster (B) so that the arrow on the indicator gear (C) is pointing up.

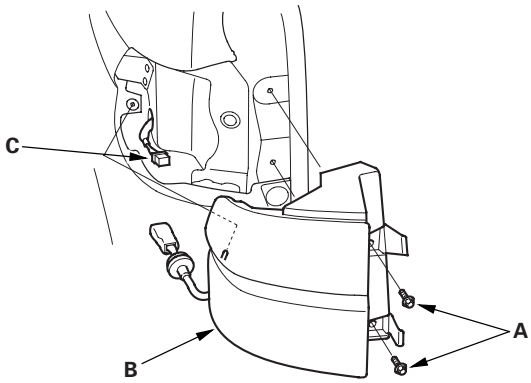


Taillight Replacement

Taillights

1. Remove the two mounting bolts (A), then pull out the taillight (B).

BRAKE/TAILLIGHT: 21/5 W
TURN SIGNAL LIGHT: 21 W

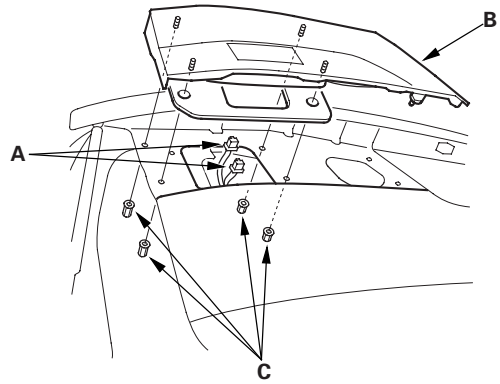


2. Disconnect the connector (C) from the taillight.
3. Install the taillight, and note these items:
   - Inspect the gasket; replace it if it is distorted or stays compressed.
   - After installing the taillight, run water over it to make sure it does not leak.

Inner Taillights

1. Remove the tailgate trim panel (see page 20-61).
2. Disconnect the connectors (A) from the taillight (B).

TAILLIGHT: 5 W
BACK-UP LIGHT: 21 W

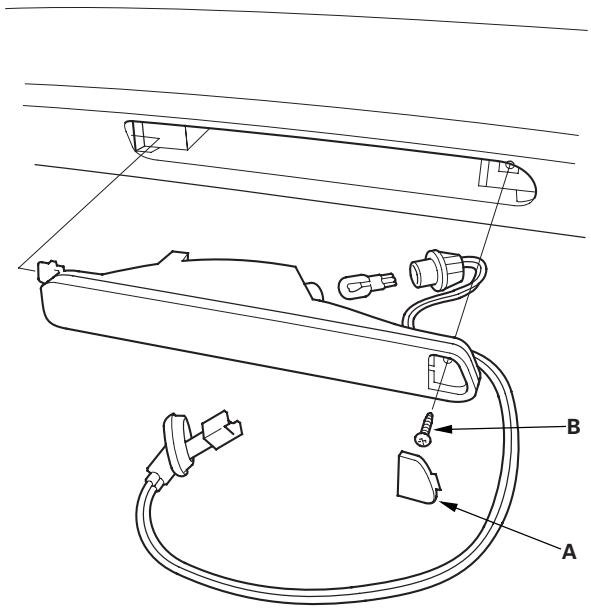


3. Remove the four mounting nuts (C), then pull out the inner taillight.
4. Install the taillight, and note these items:
   - Inspect the gasket; replace it if it is distorted or stays compressed.
   - After installing the taillight, run water over it to make sure it dose not leak.

High Mount Brake Light Replacement

1. Remove the cover (A), then remove the screw (B) from the high mount brake light.

   HIGH MOUNT BRAKE LIGHT BULB: 18 W

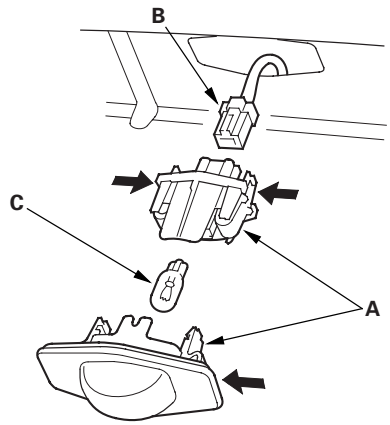


2. Disconnect the 2P connector from the high mount brake light.

License Plate Light Replacement

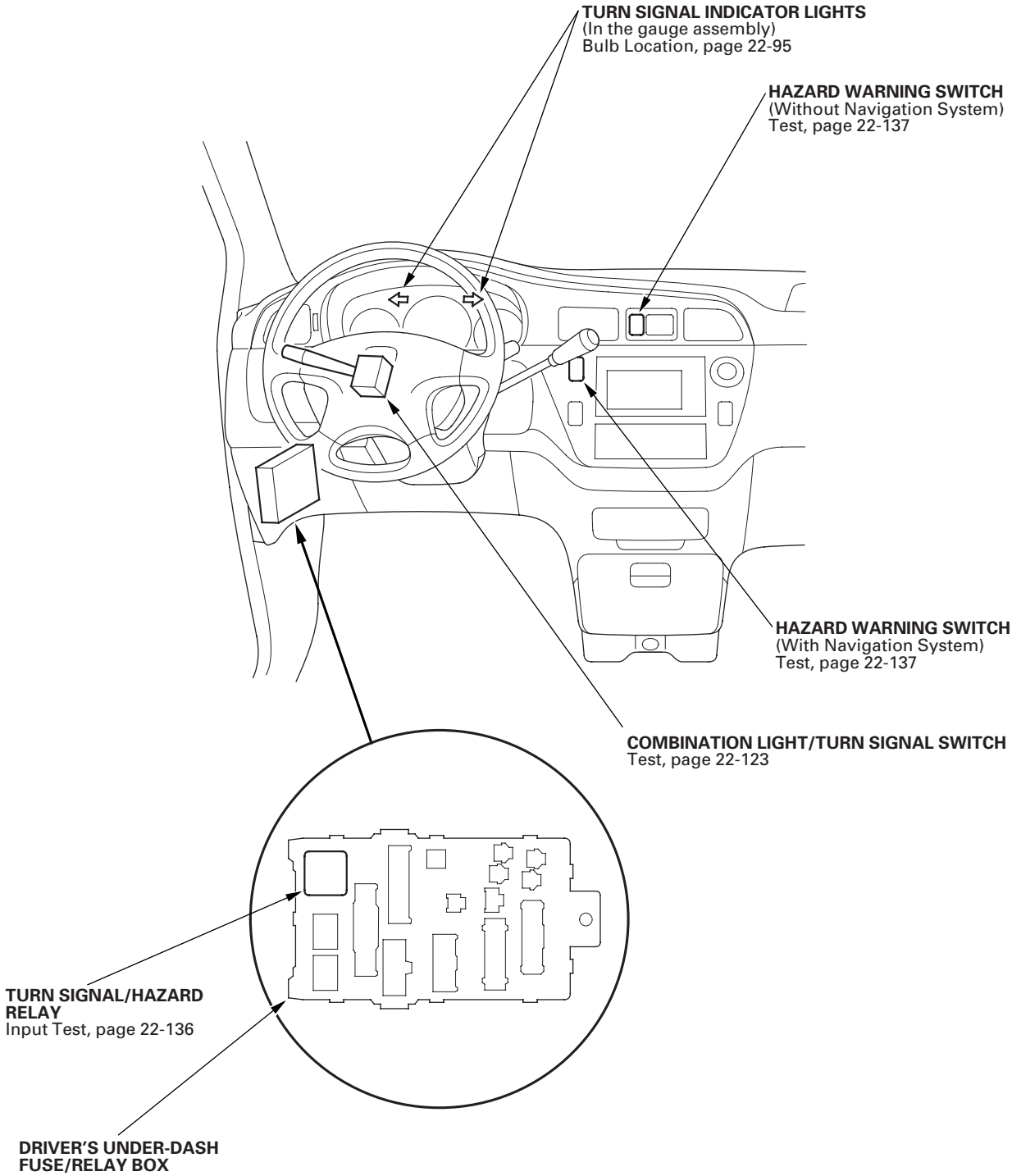
1. Pull the license plate light assembly (A) out, and disconnect the 2P connector (B) from the light.

   LICENSE PLATE LIGHT BULB: 5 W

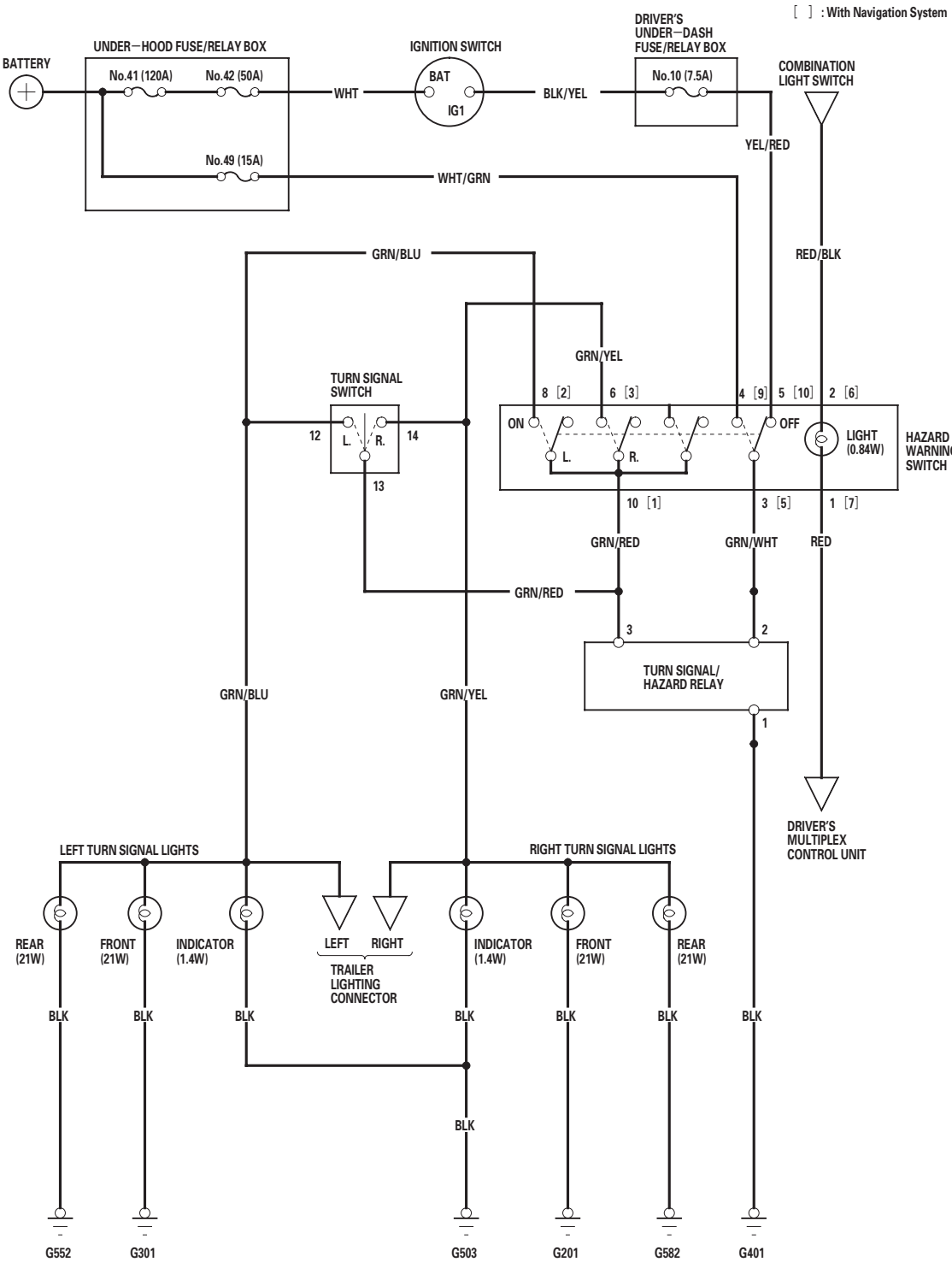


2. Take the lens off, then replace the bulb (C).

Component Location Index



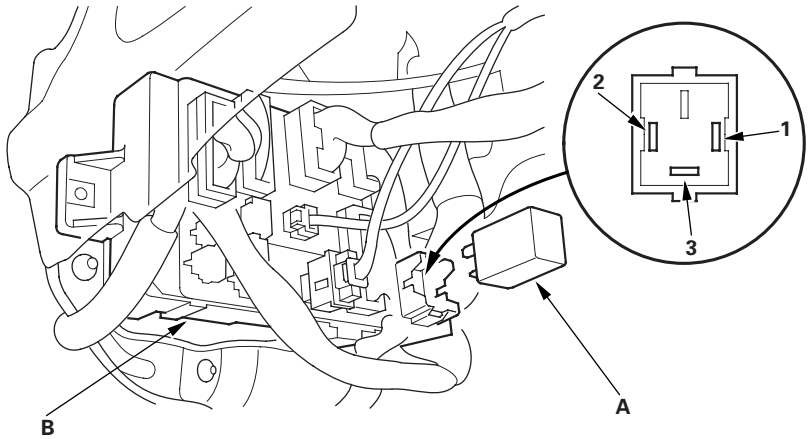
Circuit Diagram



Turn Signal/Hazard Relay Input Test

1. Remove the driver's under-dash fuse/relay box (see page 22-86).

2. Remove the turn signal/hazard relay (A) from the driver's under-dash fuse/relay box (B).



3. Inspect the relay and fuse/relay box socket terminals to be sure they are all making good contact.

   • If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   • If the terminals look OK, go to step 4.

4. Make these input tests at the fuse/relay box.

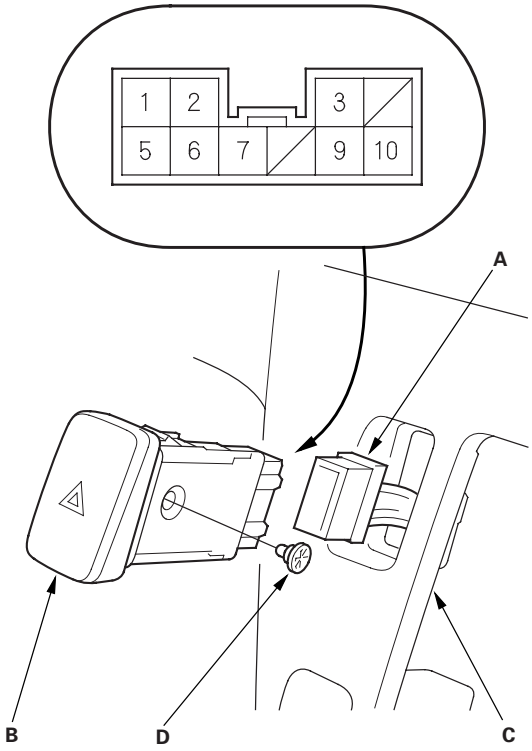
   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, the turn signal/hazard relay must be faulty; replace it.

Cavity	Test condition	Test: Desired result	Possible cause if result is not obtained
1	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • An open in the wire
2	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 10 (7.5A) fuse in the driver's under-dash fuse/relay box • Faulty hazard warning switch • An open in the wire
	Hazard warning switch ON	Check for voltage to ground: There should be battery voltage.	• Blown No. 49 (15A) fuse in the under-hood fuse/relay box • Faulty hazard warning switch • An open in the wire
3	Ignition switch ON (II) and turn signal switch in Right or Left position	Connect No. 2 terminal to No. 3 terminal: Right or left turn signal lights should come on.	• Poor ground (G201, G301, G552, G582) • Faulty hazard warning switch • An open in the wire
	Hazard warning switch ON	Connect No. 2 terminal to No. 3 terminal: Hazard warning lights should come on.	• Poor ground (G201, G301, G552, G582) • Faulty hazard warning switch • An open in the wire

Hazard Warning Switch Test

With Navigation System

1. Remove the center panel (see page 20-70).
2. Disconnect the 10P connector (A) from the hazard warning switch (B).



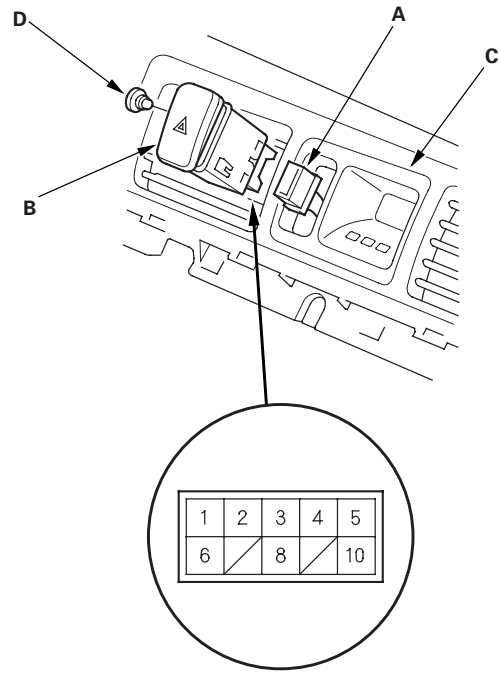
3. Push out the hazard warning switch from behind the center panel (C).
4. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	6		7	1	2	3	5	9	10
OFF	○	⊗	○				○		○
ON	○	⊗	○	○	○	○	○	○	

5. If the continuity is not as specified, replace the bulb (D) or the switch.

Without Navigation System

1. Remove the instrument panel (see page 20-69).
2. Disconnect the 10P connector (A) from the hazard warning switch (B).



3. Pull the hazard warning switch out from the clock (C).
4. Check for continuity between the terminals in each switch position according to the table.

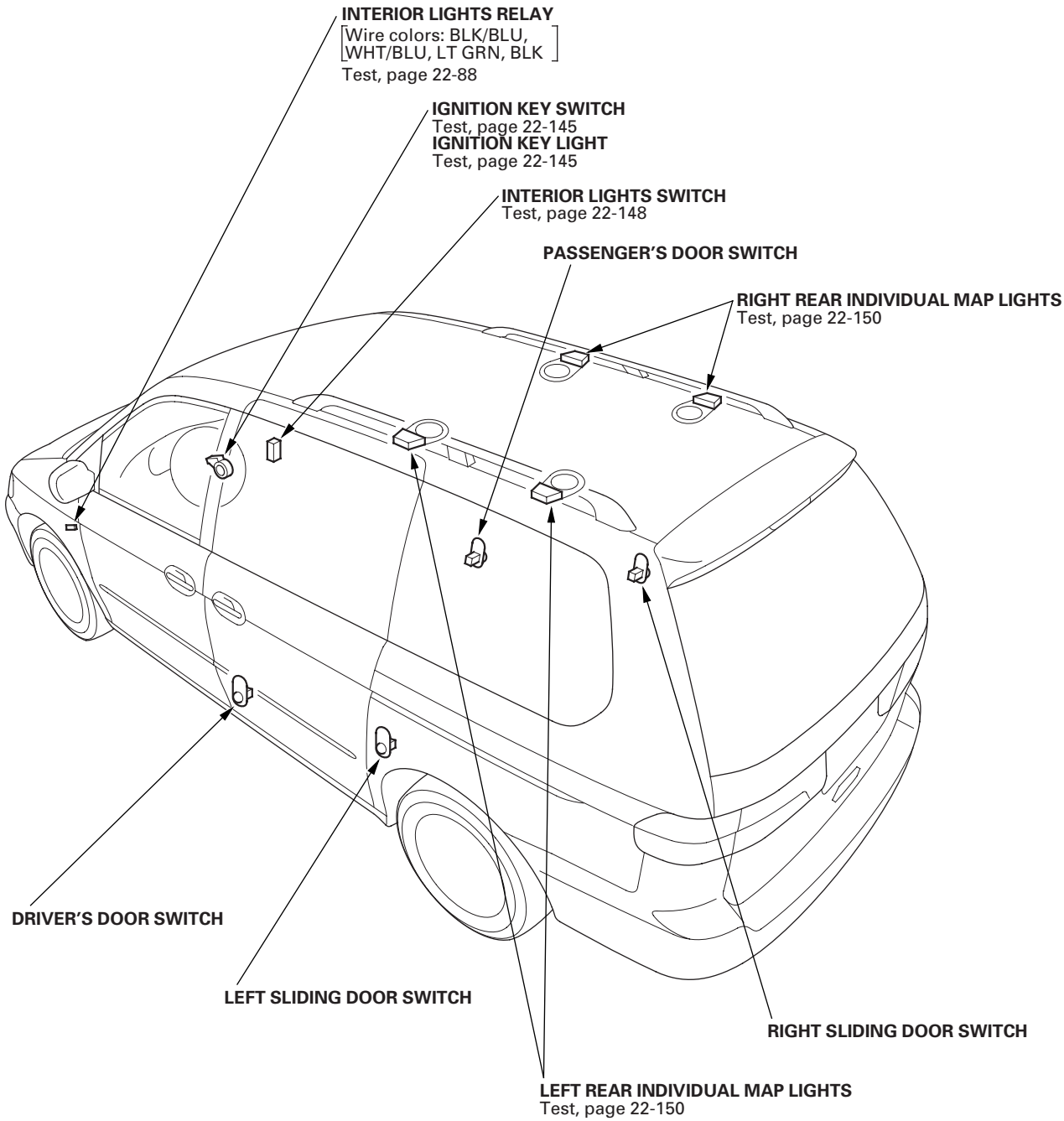
Terminal / Position	1		2	3	4	5	6	8	10
OFF	○	⊗	○	○		○			
ON	○	⊗	○	○	○		○	○	○

5. If the continuity is not as specified, replace the bulb (D) or the switch.

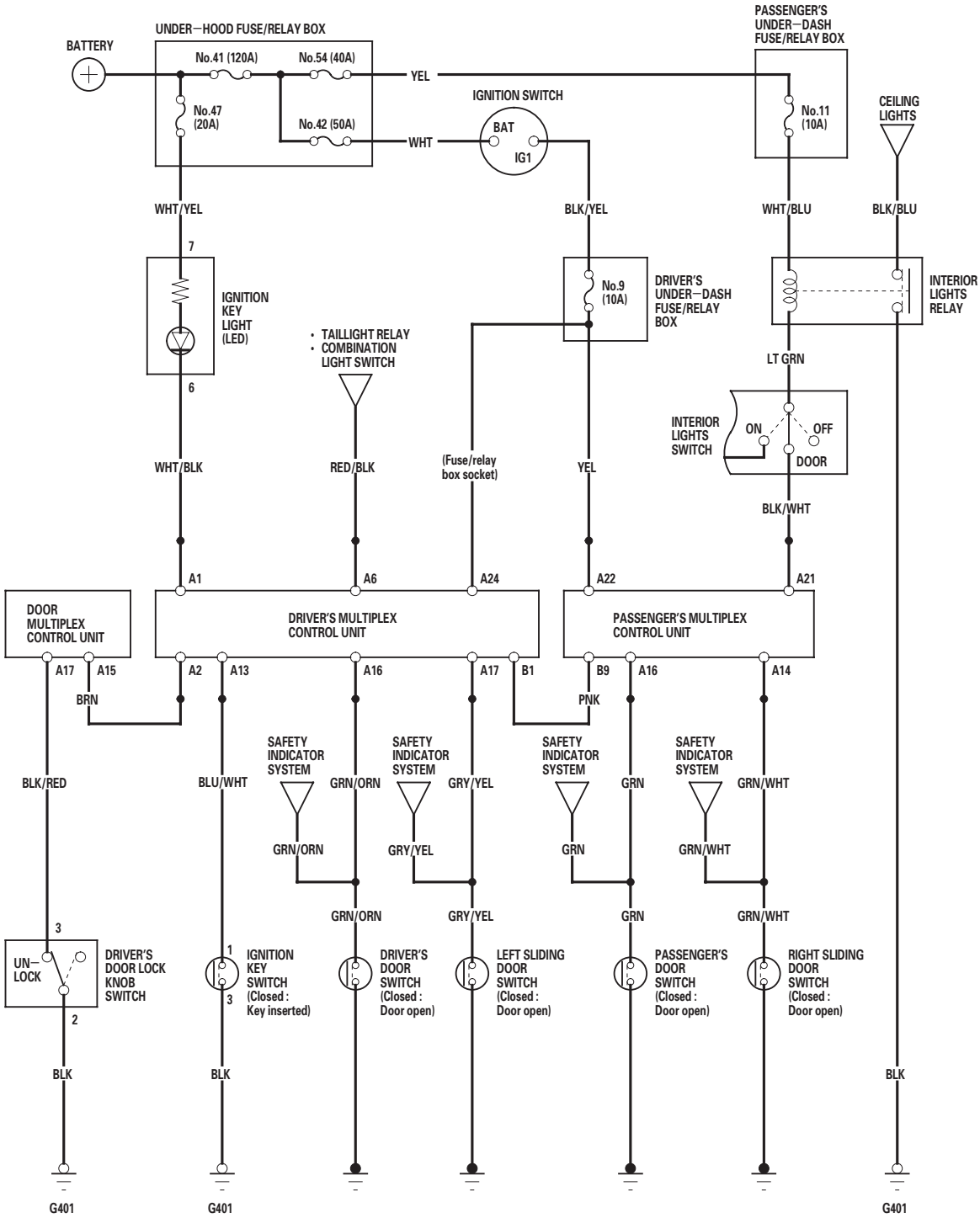
Entry Lights Control System

Component Location Index

NOTE: Entry Light Control System is on EX and EXL models.
For LX model, refer to Safety Indicator System page 22-103.



Circuit Diagram



Control Unit Input Test

1. Before testing the entry light control functions, troubleshoot the multiplex control system (see page 22-244).

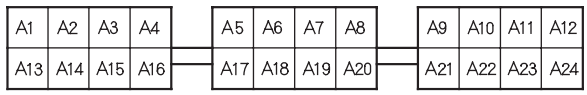
Driver's Multiplex Control Unit

2. Remove the driver's multiplex control unit from the driver's under-dash fuse/relay box.

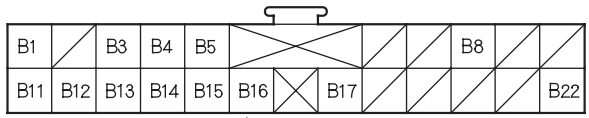
3. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

DRIVER'S UNDER-DASH FUSE/RELAY BOX SOCKET
(Driver's multiplex control unit connector A)



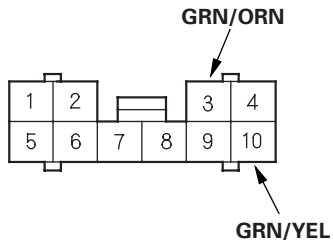
DRIVER'S MULTIPLEX CONTROL UNIT CONNECTOR B



RED/GRN

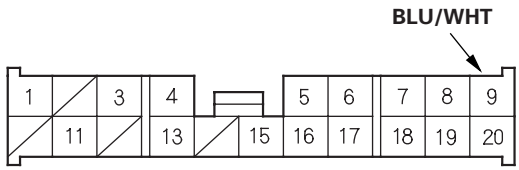
Wire side of female terminals

DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR A



Wire side of female terminals

DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR O



Wire side of female terminals

4. With the driver's unit still disconnected, make these input tests at the connector and fuse/relay box socket.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A1	Fuse/relay box socket	Under all conditions	Attach to ground: The ignition key light should come on.	• Blown No. 47 (20A) fuse in the under-hood fuse/relay box • Blown LED • An open in the wire
A6		Combination light switch ON, jump battery voltage to B16 (RED/GRN)	Check for voltage to ground: There should be battery voltage.	• Blown No. 10 (15A) fuse in the passenger's under-dash fuse/relay box • Faulty taillight relay • Faulty combination light switch • An open in the wire
A24		Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • Faulty driver's fuse/relay box

5. Reconnect the driver's multiplex control unit to the fuse/relay box, and perform the following input tests at the appropriate connectors on the back of the fuse/relay box.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
O9	BLU/WHT	Ignition key is in the ignition switch	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G401) • Faulty ignition switch • An open in the wire
		Ignition key is out of the ignition switch	Check for voltage to ground: There should be 5 V or more.	• Faulty ignition switch • A short in the wire
A3	GRN/ORN	Driver's door open	Check for voltage to ground: There should be 1 V or less.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty driver's door switch • A short in the wire
A10	GRN/YEL	Left sliding door open	Check for voltage to ground: There should be 1 V or less.	• Faulty left sliding door switch • An open in the wire
		Left sliding door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty left sliding door switch • A short in the wire

(cont'd)

Control Unit Input Test (cont'd)

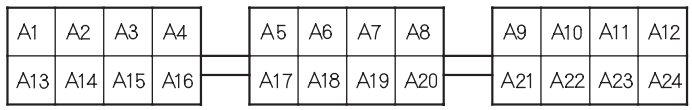
Passenger's Multiplex Control Unit

6. Remove the passenger's multiplex control unit from the passenger's under-dash fuse/relay box, and disconnect its connector.

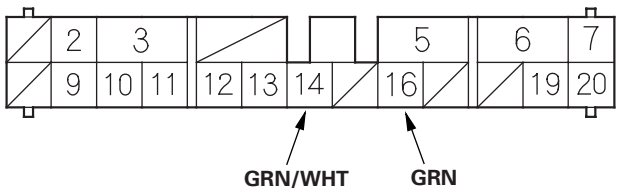
7. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 8.

PASSENGER'S UNDER-DASH FUSE/RELAY BOX SOCKET
(Passenger's multiplex contorl unit connector A)



PASSENGER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR A



Wire side of female terminals

8. With the control unit still disconnected, make these input tests at the connector and fuse/relay box socket.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 9.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A22	Fuse/relay box socket	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • An open in the wire
A21		Ceiling light switches in the middle (Door) position	Attach to ground: Ceiling lights should come on.	• Blown No. 11 (10A) fuse in the passenger's under-dash fuse/ relay box • Blown No. 54 (40A) fuse in the under-hood fuse/relay box • Faulty interior lights relay • Faulty interior lights switch • Faulty ceiling light bulb • Poor ground (G401) • An open in the wire

9. Reconnect the passenger's multiplex control unit to the fuse/relay box, and perform the following input tests at the appropriate connectors on the back of the fuse/relay box.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 10.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A16	GRN	Passenger's door open	Check for voltage to ground: There should be 1 V or less.	• Faulty front passenger's door switch • An open in the wire
		Passenger's door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty front passenger's door switch • A short to ground in the wire
A14	GRN/WHT	Right sliding door open	Check for voltage to ground: There should be 1 V or less.	• Faulty right rear door switch • An open in the wire
		Right sliding door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty right rear door switch • A short to ground in the wire

(cont'd)

Control Unit Input Test (cont'd)

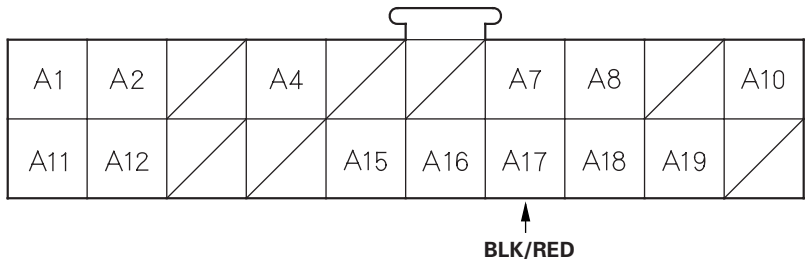
Door Multiplex Control Unit

10. Remove the driver's door panel and disconnect the 20P connector A from the door multiplex control unit.

11. Inspect all connector and socket terminals to be sure they are making good contact.

    - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
    - If the terminals look OK, go to step 12.

DOOR MULTIPLEX CONTROL UNIT CONNECTOR A



Wire side of female terminals

12. Reconnect the connectors to the door unit, and make the input test at the connector.

    - If a test indicates a problem, find and correct the cause, then recheck the system.
    - If the input test proves OK, go to step 13.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A17	BLK/RED	Driver's door lock knob locked	Check for voltage to ground: There should be 5 V or more.	• Faulty driver's door lock actuator • Poor ground (G401) • An open in the wire
		Driver's door lock knob unlocked	Check for voltage to ground: There should be 1 V or less.	• Faulty driver's door lock actuator • Short to ground

13. If all the input tests prove OK, one of the control units must be faulty. Substitute a known-good control unit for the one that is most likely at fault, then recheck the system. If the system works properly, the original control unit is faulty; replace it. If there is still a malfunction, substitute a known-good control unit for the next unit most likely to be at fault, and recheck. If the system works properly, the original unit is faulty; replace it.

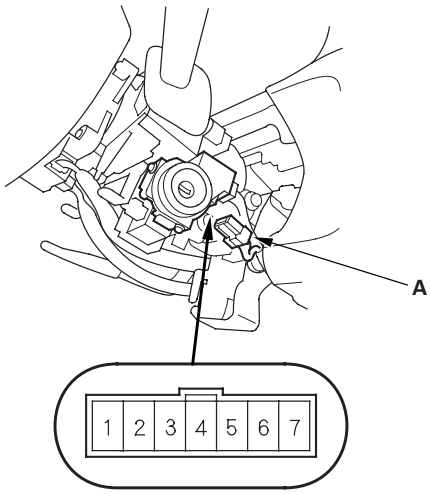
Ignition Key Switch Test

NOTE: For more key-in beeper information, refer to the circuit diagram (see page 22-109) and input test (see page 22-110).

When the ignition key is not removed, the key-in beeper in the driver's multiplex control unit senses ground through the closed ignition key switch. When you open the driver's door, the beeper circuit senses ground through the closed door switch.

1. Remove the steering column upper and lower covers (see page 17-25).
2. Disconnect the 7P connector.

   NOTE: Lock tab (A) points down when installed.

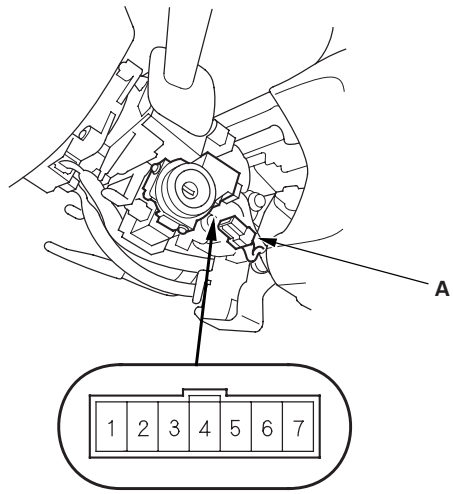


3. Check for continuity between terminals No. 1 and No. 3.
   - There should be continuity with the key in the ignition switch.
   - There should be no continuity with the key removed.
4. If the continuity is not as specified, replace the ignition key switch.

Ignition Key Light Test

1. Remove the steering column upper and lower covers (see page 17-25).
2. Disconnect the 7P connector.

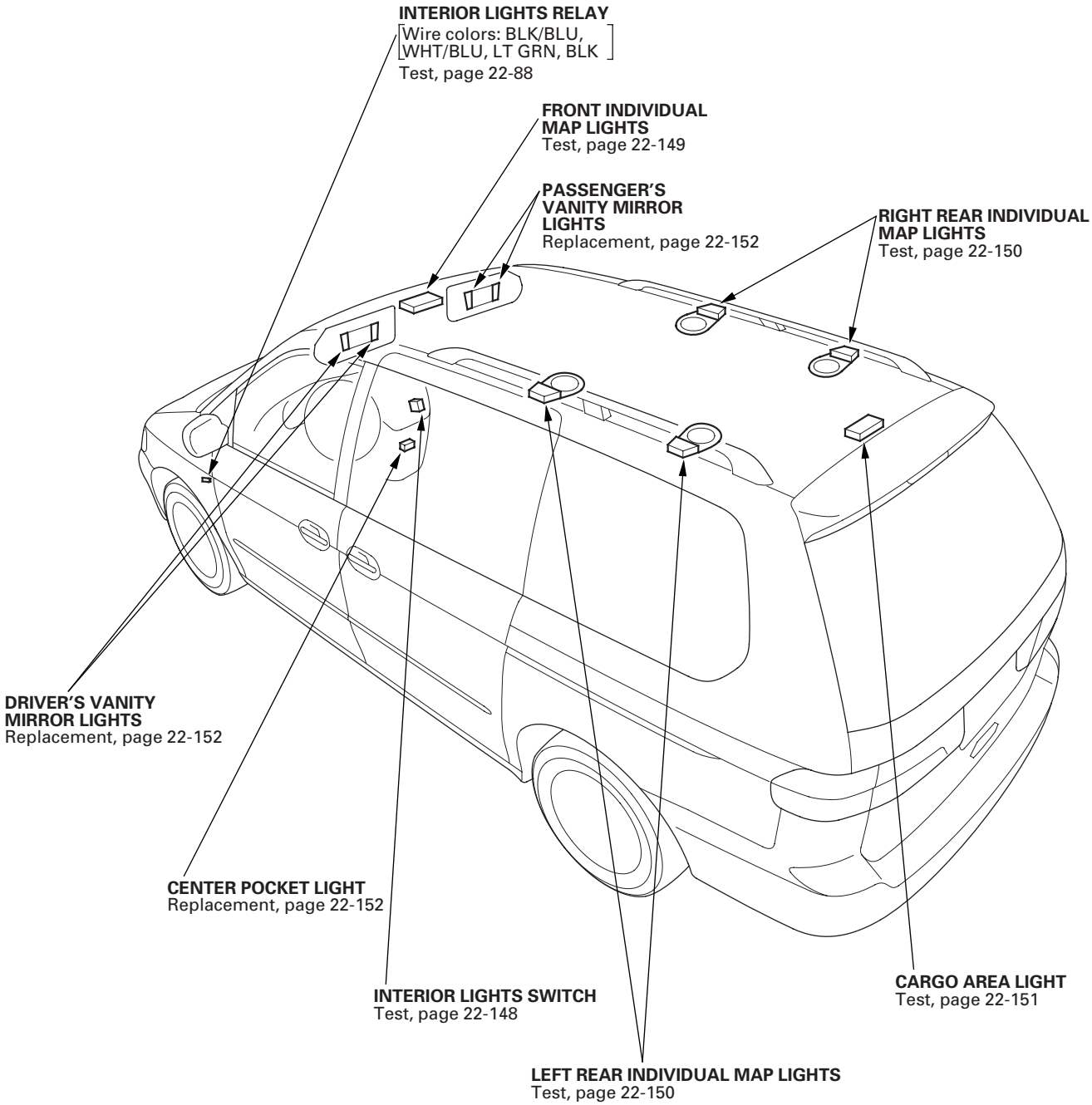
   NOTE: Lock tab (A) points down when installed.



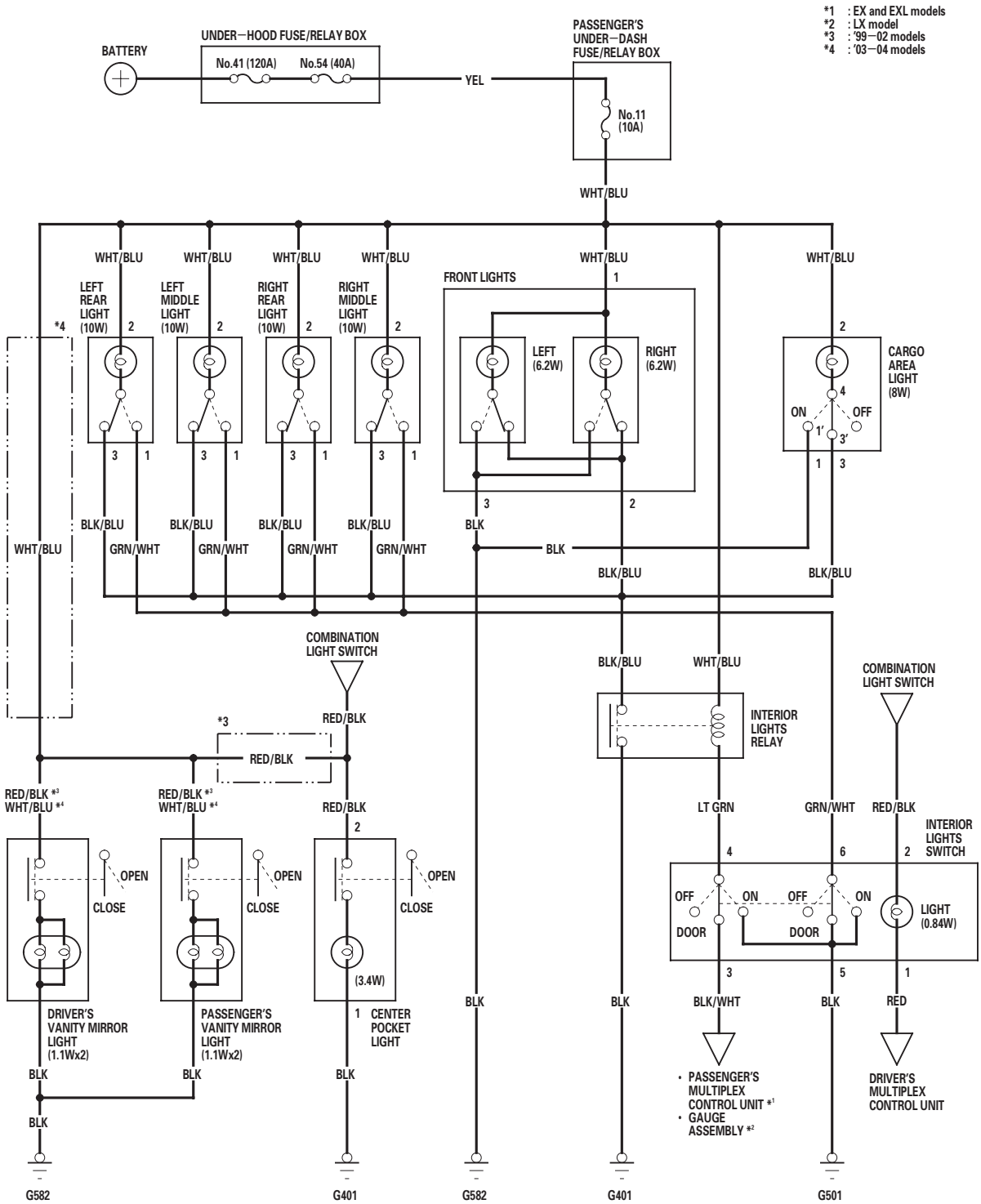
3. The LED should come on when power is connected to terminal No. 7 and ground is connected to terminal No. 6.
4. If the LED does not come on, replace the ignition key switch.

Component Location Index

NOTE: Use Interior Lights to troubleshoot LX model ceiling lights. For EX and EXL models, page 22-138.

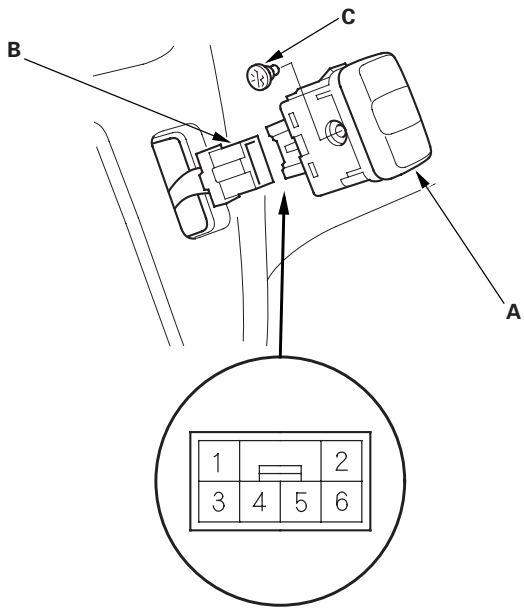


Circuit Diagram



Interior Light Switch Test

1. Remove the center panel (see page 20-70).
2. Push the switch (A) out from the center panel.



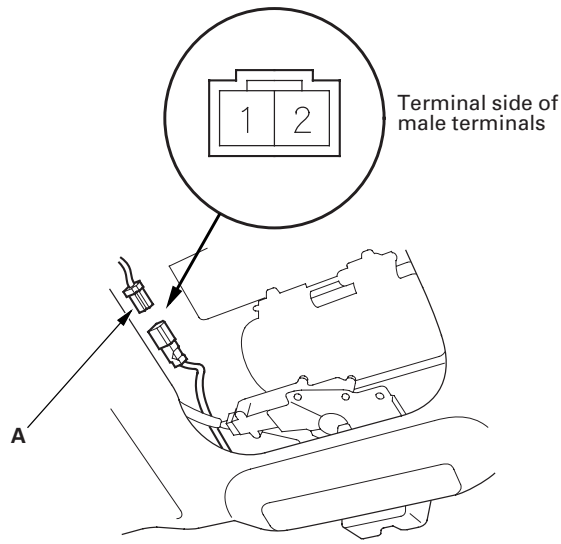
3. Disconnect the 6P connector (B) from the switch.
4. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	1		2	3	4	5	6
OFF	○	ω	○				
MIDDLE	○	ω	○	○	○	○	○
ON	○	ω	○		○	○	○

5. If the continuity is not as specified, replace the bulb (C) or the switch.

Tailgate Latch Switch Test

1. Open the tailgate.
2. Remove the tailgate lower trim (see page 20-61).
3. Disconnect the 2P connector (A) from the latch switch.

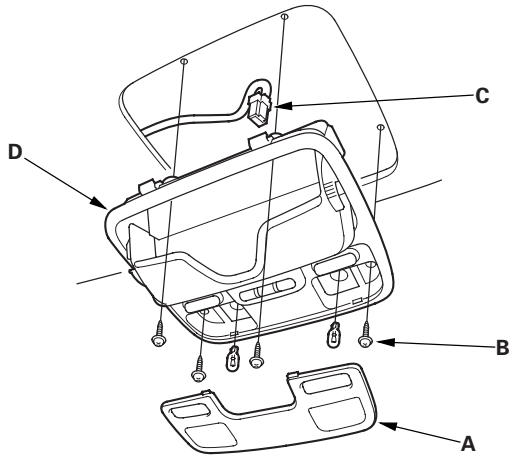


4. Check for continuity between the No. 1 and No. 2 terminals.
   - With the tailgate open, there should be continuity.
   - With the tailgate closed, there should be no continuity.
5. If the continuity is not as specified, replace the tailgate latch switch.

Front Individual Map Light Test

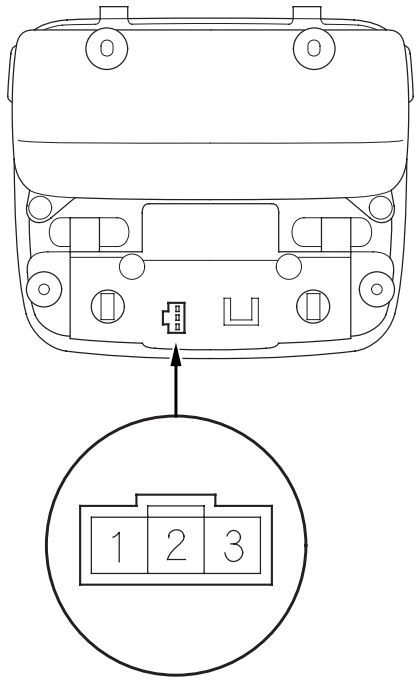
1. Carefully pry off the lens (A) with a small screwdriver.

   FRONT MAP LIGHT BULB: 6.2 W



2. Remove the four mounting screws (B).
3. Disconnect the 3P connector (C) from the housing (D).
4. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position		1		2		3
LEFT	ON	○			◎	○
	OFF	○	◎	○		
RIGHT	ON	○			◎	○
	OFF	○	◎	○		

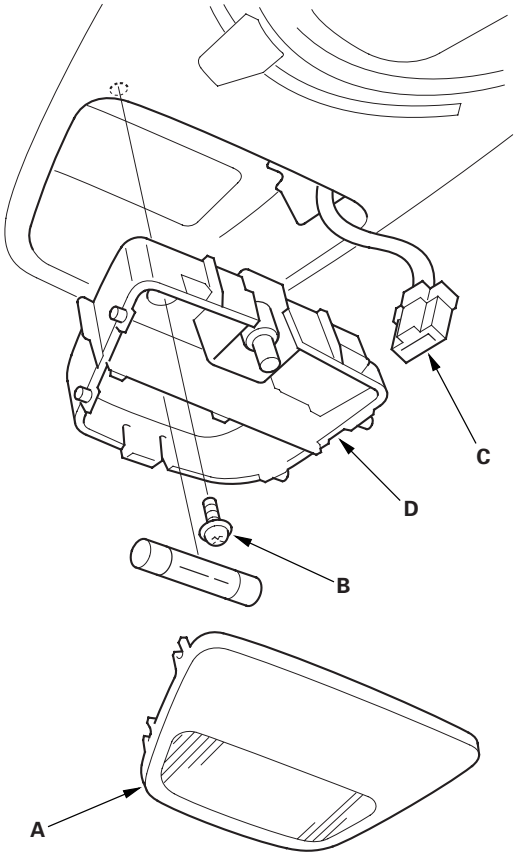


5. If the continuity is not as specified, check the bulb(s). If the bulb(s) are OK, replace the light.

Rear Individual Map Light Test

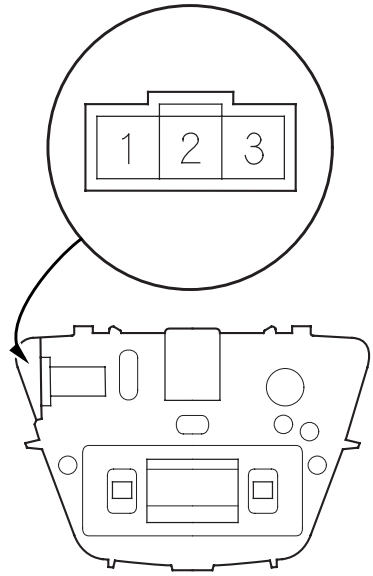
1. Carefully pry off the lens (A) with a small screwdriver.

REAR MAP LIGHT BULB: 10 W



2. Remove the mounting screw (B).
3. Disconnect the 3P connector (C) from the housing (D).
4. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position		1		2		3
LEFT	ON			○	○	○
	OFF	○	○	○		
RIGHT	ON			○	○	○
	OFF	○	○	○		

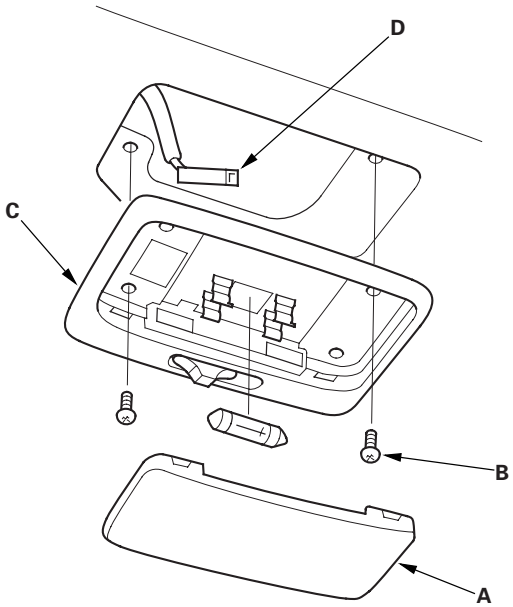


5. If the continuity is not as specified check the bulb. If the bulb is OK, replace the light.

Cargo Area Light Test

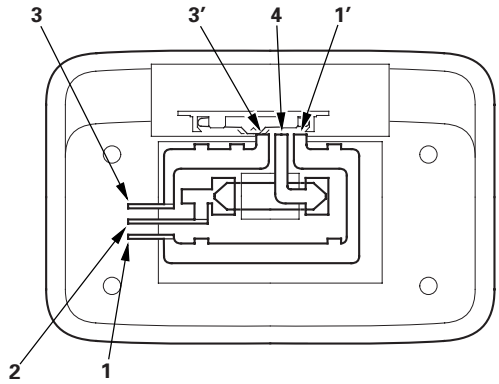
1. Turn the light switch OFF.
2. Carefully pry off the lens (A) with a small screwdriver.

CARGO AREA LIGHT BULB: 8 W



3. Remove the two mounting screws (B) and the housing (C).
4. Disconnect the 3P connector (D) from the housing.
5. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	1 or 1′	3 or 3′	4		2
OFF			○	○	○
MIDDLE		○	○	○	○
ON	○		○	○	○

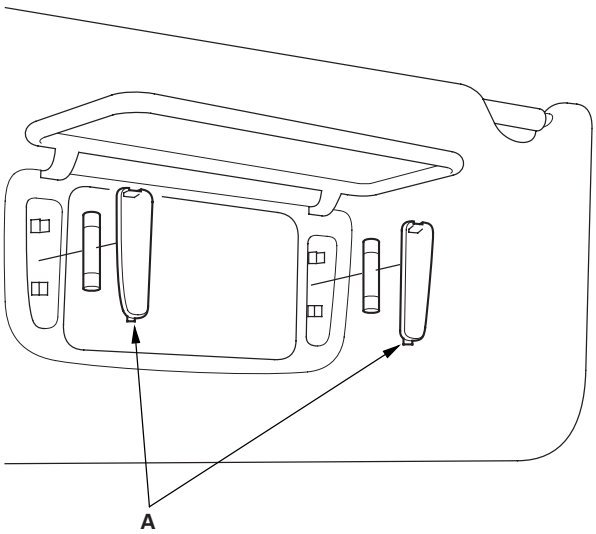


6. If the continuity is not as specified check the bulb. If the bulb is OK, replace the light.

Vanity Mirror Light Replacement

1. Open the sunvisor.
2. Carefully pry off the lens (A) with a small screwdriver.

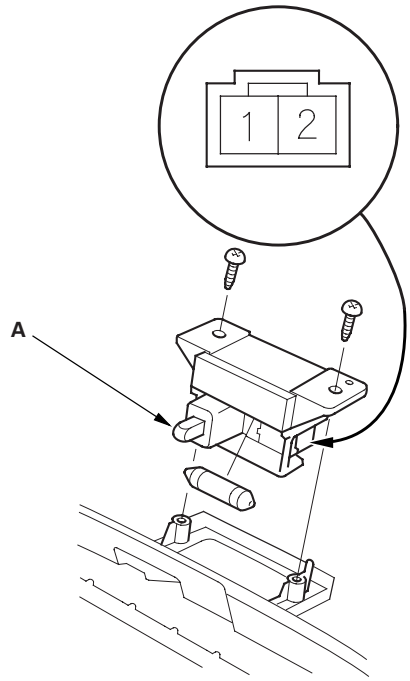
VANITY MIRROR LIGHT BULB: 1.1 W



Center Pocket Light Replacement

1. Remove the center pocket (see page 20-67).
2. Disconnect the 2P connector from the center pocket light.

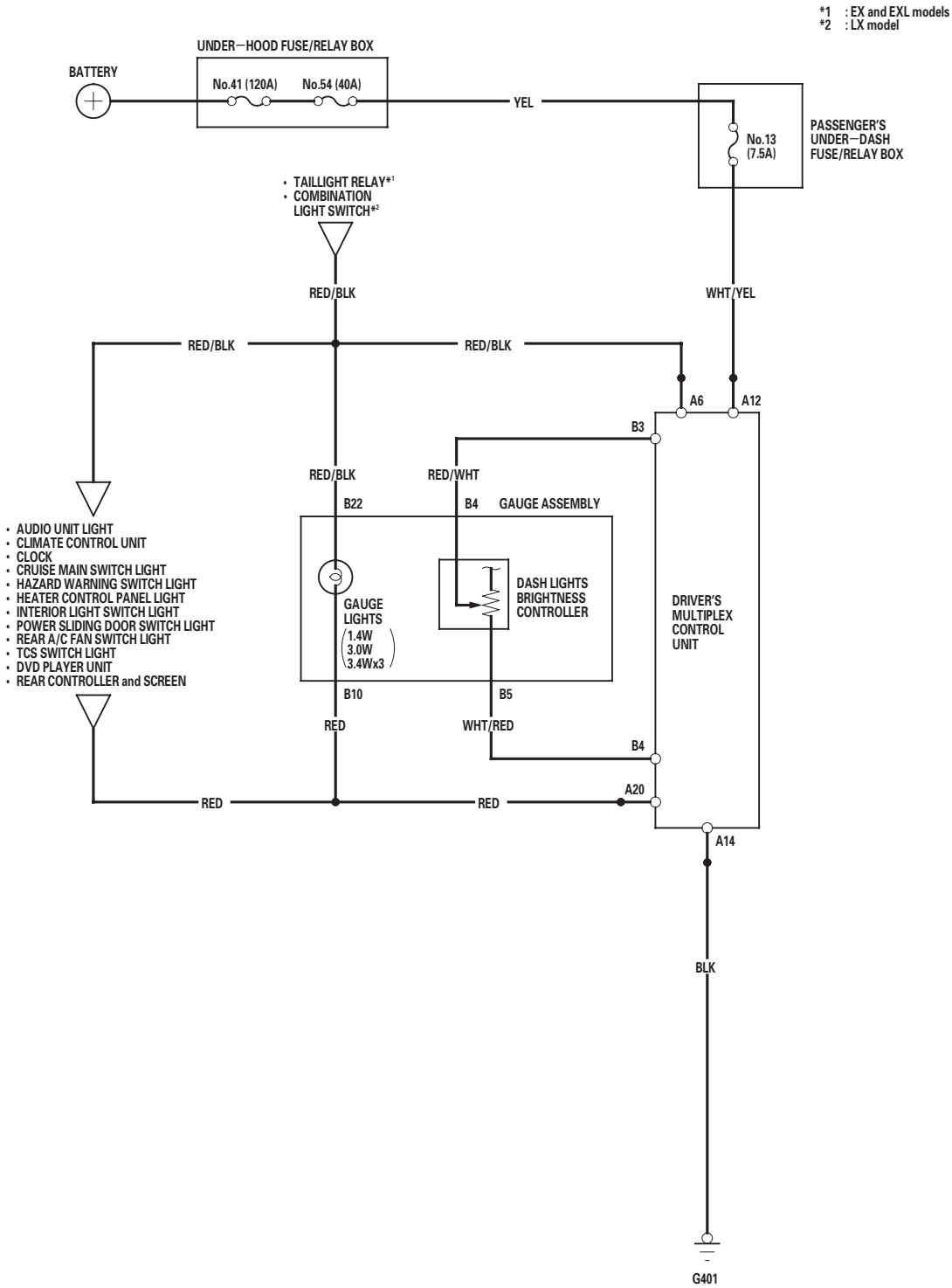
CENTER POCKET LIGHT BULB: 3.4 W



3. Check for continuity between the No. 1 and No. 2 terminals.
   - With the button (A) pressed, there should be no continuity.
   - With the button (A) released, there should be continuity.
4. If the continuity is not as specified, check the bulb, if the bulb is OK, replace the light.

Dash Lights Brightness Controller

Circuit Diagram



Dash Lights Brightness Controller

Control Unit Input Test

1. Before testing the dash lights brightness control functions, troubleshoot the multiplex control system (see page 22-244).

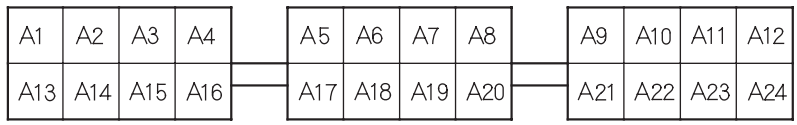
Driver's Multiplex Control Unit

2. Remove the driver's multiplex control unit from the driver's under-dash fuse/relay box.

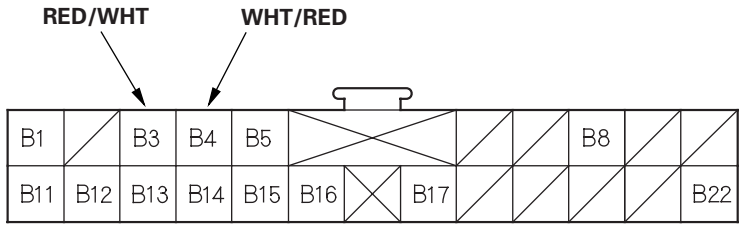
3. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals OK, go to step 4.

DRIVER'S UNDER-DASH FUSE/RELAY BOX SOCKET
(Driver's multiplex control unit connector A)

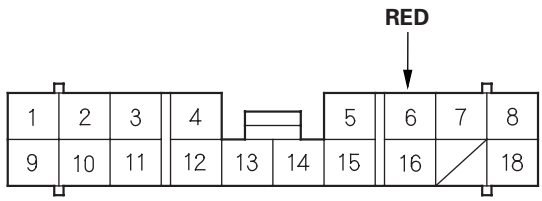


DRIVER'S MULTIPLEX CONTROL UNIT CONNECTOR B



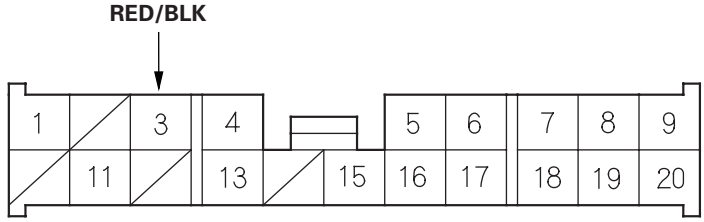
Wire side of female terminals

DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR I



Wire side of female terminals

DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR O



Wire side of female terminals

4. With the control unit still disconnected, make these input tests at the connector and fuse/relay box socket.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A12	Fuse/relay box socket	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/ relay box • An open in the wire
A14		Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • An open in the wire
B3 · B4	RED/WHT and WHT/RED	Adjusting dial rotated	Check for resistance between the B3 and B4 terminals: There should be 0—20 kΩ at all times.	• Faulty dash lights brightness controller • An open in the wire

5. Reconnect the driver's multiplex control unit to the fuse/relay box, and perform the following input tests at the appropriate connectors on the back of the fuse/relay box.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 6.

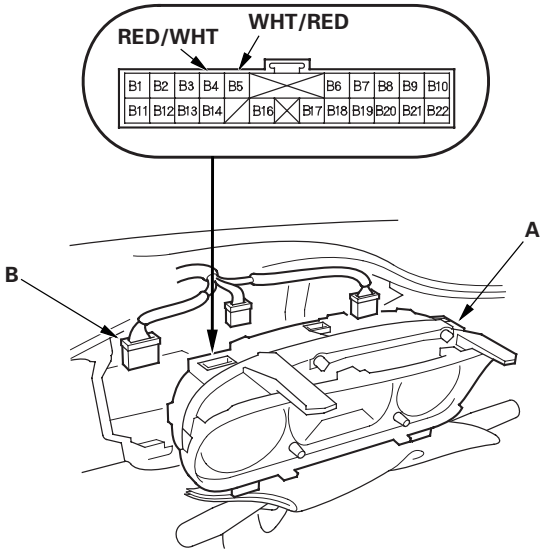
Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
O3	RED/BLK	Combination light switch ON (≡DOE) or (≣D)	Check for voltage to ground: There should be battery voltage.	• Blown No. 10 (15A) fuse in the passenger under-dash fuse/relay box • Faulty combination light switch • Faulty taillight relay • An open in the wire
I6	RED	Combination light switch ON (≡DOE) or (≣D)	Attach to ground: Dash lights should come on full bright.	• An open in the wire

6. If all the input tests prove OK, the driver's multiplex control unit must be faulty. Substitute a known-good control unit, then recheck the system. If the system works properly, the original control unit is faulty; replace it.

Controller Test

1. Before testing the controller, do the control unit input test (see page 22-154).

2. Remove the gauge assembly (A) (see page 22-100).



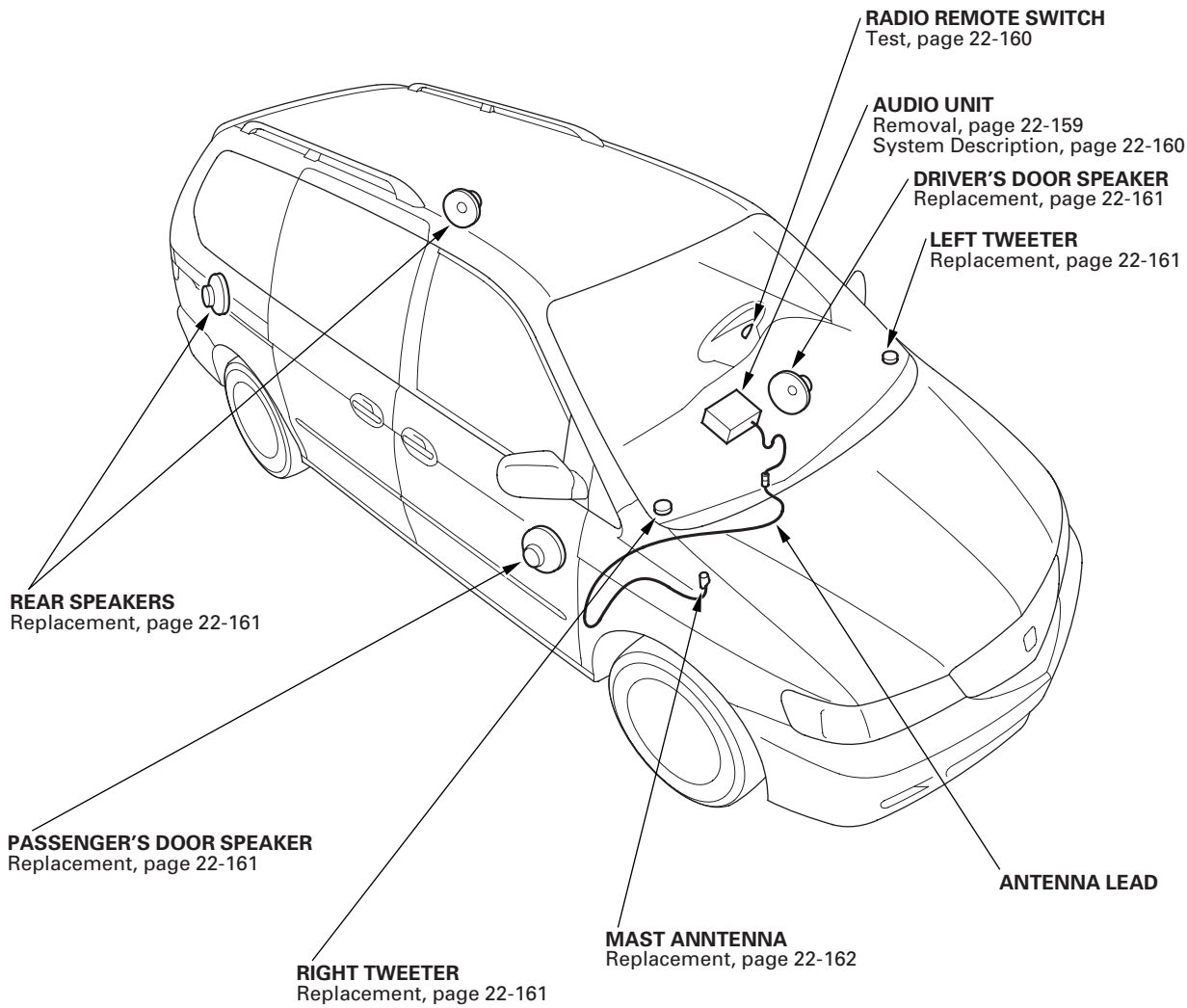
3. Disconnect the 22P connector (B).

4. At the gauge assembly, measure resistance between the B4 and B5 terminals while rotating the adjusting dial.
   Resistance should vary from 0 to 20,000 ohms as the dial is rotated.

5. If the resistance does not change, replace the gauge assembly.

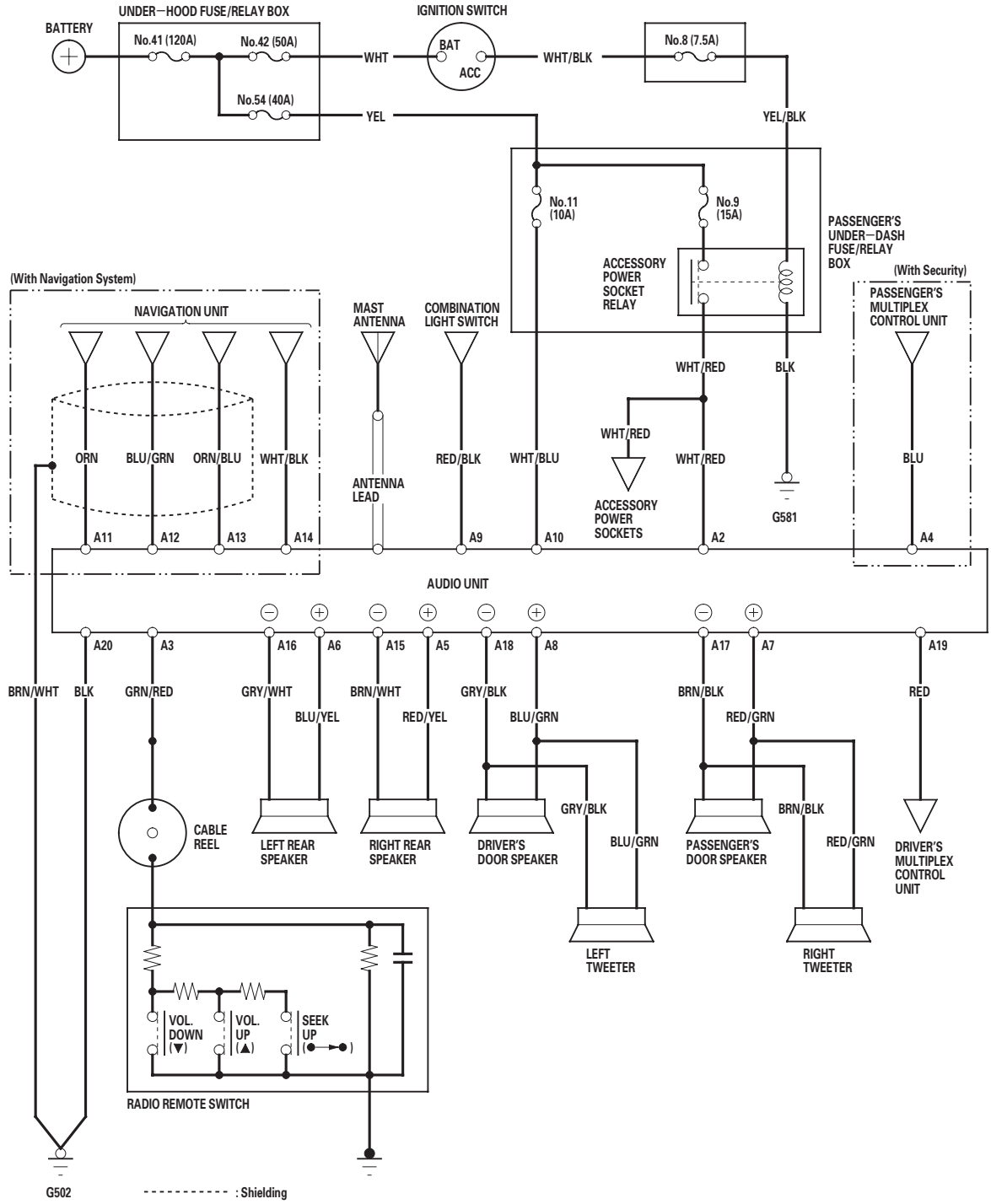
Component Location Index

- Refer to page 22-161 for the Rear Entertainment System.



Circuit Diagram

Without Rear Entertainment System



Audio Unit Removal/Installation

SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the dashboard and related parts.

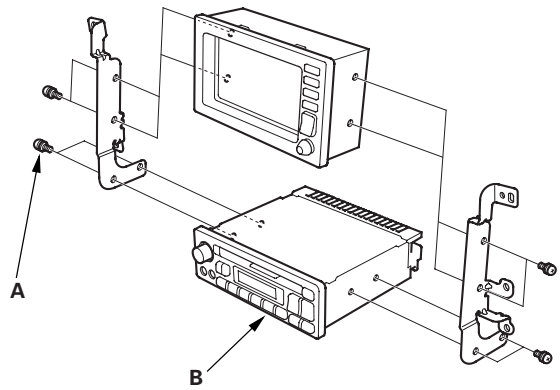
1. Make sure you have the anti-theft codes for the radio and the navigation system, then write down the frequencies for the radio's preset buttons.

2. Remove the center panel (see page 20-70)

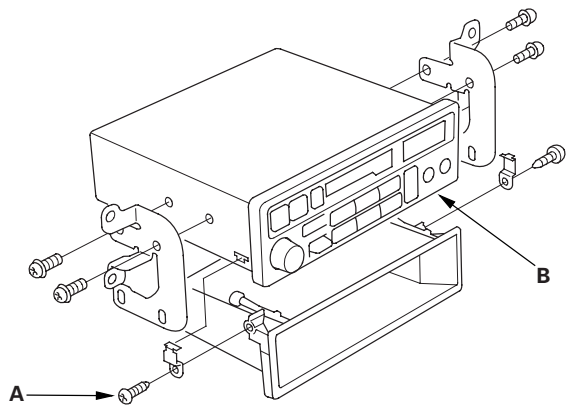
3. Disconnect the audio unit connector (A) and the antenna lead (B) from the audio unit.

4. Remove the screws (A) and the audio unit (B).

With Navigation System:



Without Navigation System:



5. Install in the reverse order of removal, and note these items:

   - Make sure the audio unit connectors are plugged in properly, and the antenna lead is connected properly.
   - Enter the anti-theft codes for the radio and the navigation system, then enter the customer's radio station presets.

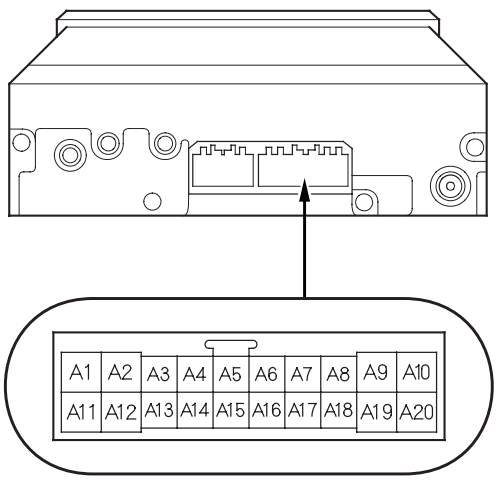
System Description

Audio Unit Connector Inputs and Outputs

When replacing an audio unit connector, match the wires to the cavities listed in the following table. Cavity 1 is not used.

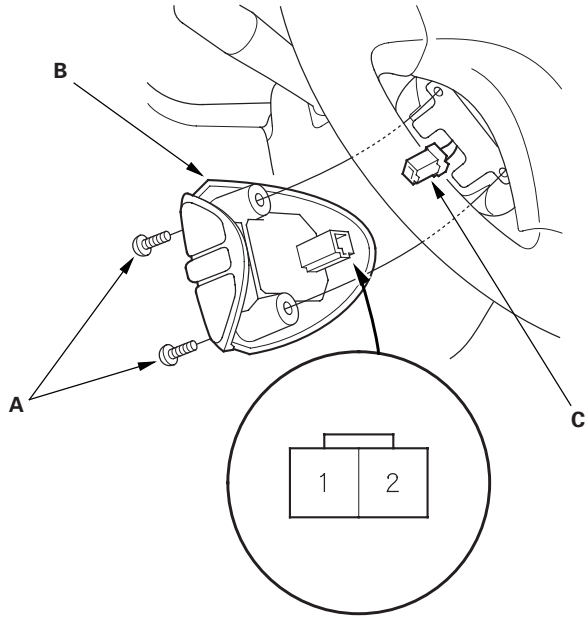
Cavity	Wire	Connect to
2	WHT/RED	ACC (main stereo power supply)
3	GRN/RED	Radio remote switch
4*	BLU	Security input
5	RED/YEL	Right rear speaker (+)
6	BLU/YEL	Left rear speaker (+)
7	RED/GRN	Front passenger's speaker (+) Right tweeter (+)
8	BLU/GRN	Driver's door speaker (+) Left tweeter (+)
9	RED/BLK	Lights-on signal
10	WHT/BLU	Constant power
11	ORN	Navigation unit
12	BLU/GRN	Navigation unit
13	ORN/BLU	Navigation unit
14	WHT/BLK	Navigation unit
15	BRN/WHT	Right rear speaker (−)
16	GRY/WHT	Left rear speaker (−)
17	BRN/BLK	Front passenger's door speaker (−) Right tweeter (−)
18	GRY/BLK	Driver's door speaker (−) Left tweeter (−)
19	RED	Dash lights brightness controller
20	BLK	Ground (G502)

*: With security alarm system



Radio Remote Switch Test

1. Remove the two screws (A) from the radio remote switch (B).



2. Remove the radio remote switch from the steering wheel and disconnect the 2P connector (C).

3. Measure resistance between the No. 1 and No. 2 terminals in each switch position according to the table.

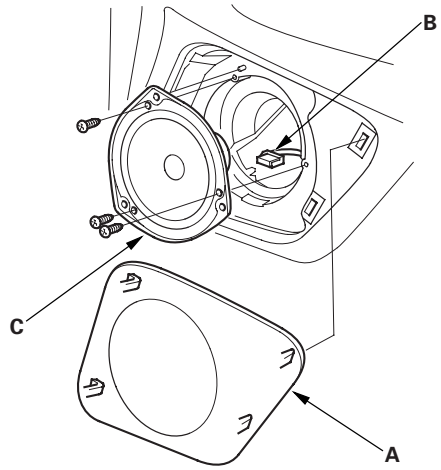
Position	Resistance
OFF	Approx. 3.6 kΩ
●➡● (SEEK)	Approx. 990 Ω
▲ (VOL.UP)	Approx. 370 Ω
▼ (VOL.DOWN)	Approx. 100 Ω

4. If the resistance is not as specifide, replace the remote switch.

Speaker Replacement

Door

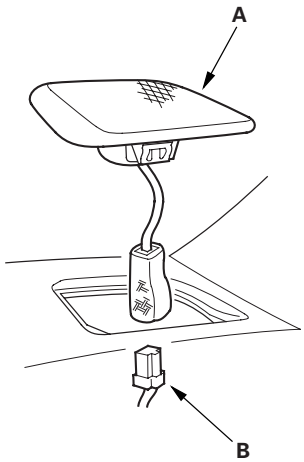
1. Remove the front door panel (see page 20-7).
2. Remove the speaker cover (A).



3. Remove the three screws, then disconnect the 2P connector (B) from the speaker (C).

Tweeter

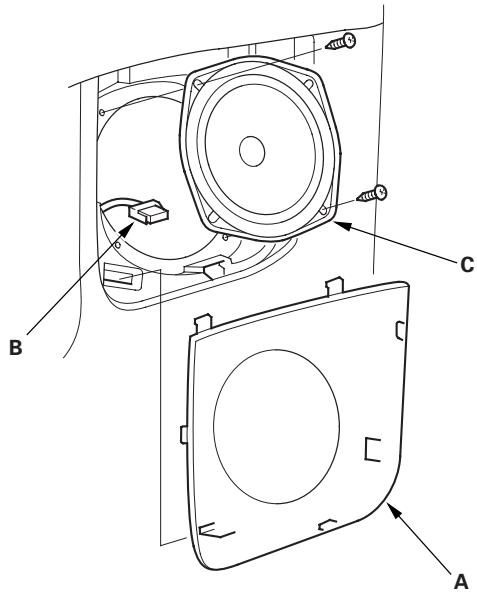
Carefully pry the tweeter (A) out of the dashboard, then disconnect the 2P connector (B) from the tweeter.



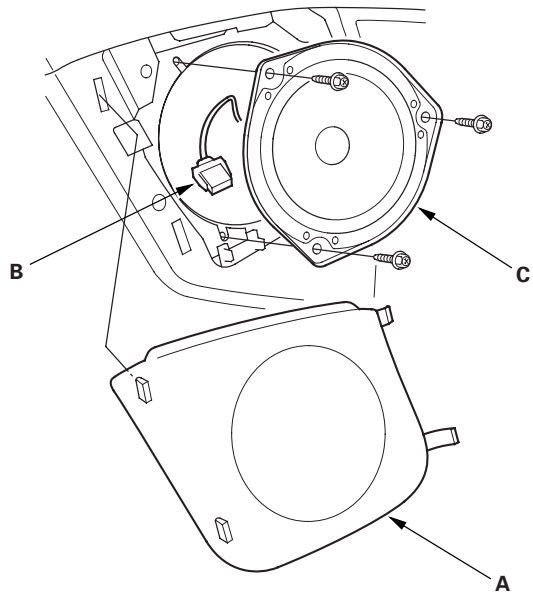
Rear

1. Remove the speaker cover (A).

'99-01 models:



'02-04 models:

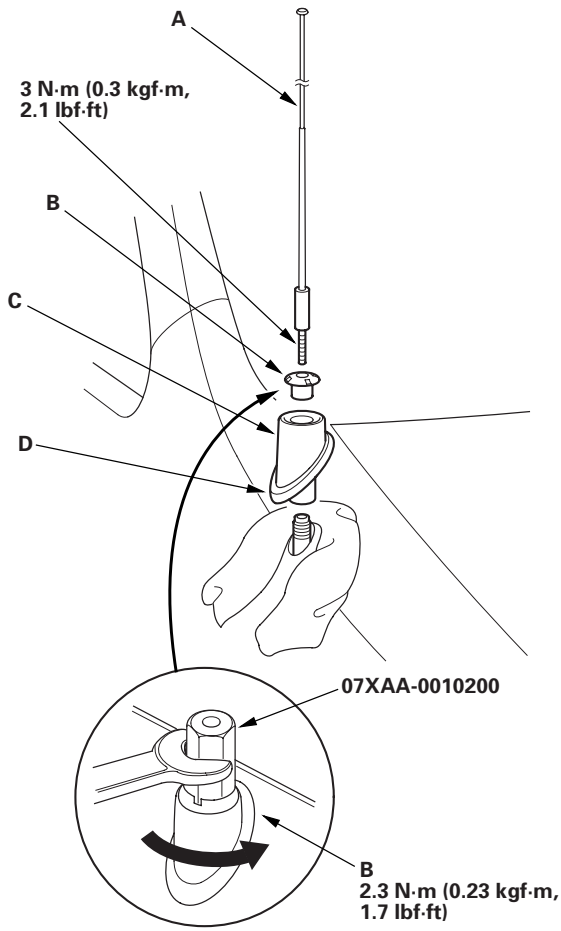


2. Remove the two (or three) screws, then disconnect the 2P connector (B) from the speaker (C).

Mast Antenna Replacement

Special Tools Required
Antenna nut wrench 07XAA-0010200

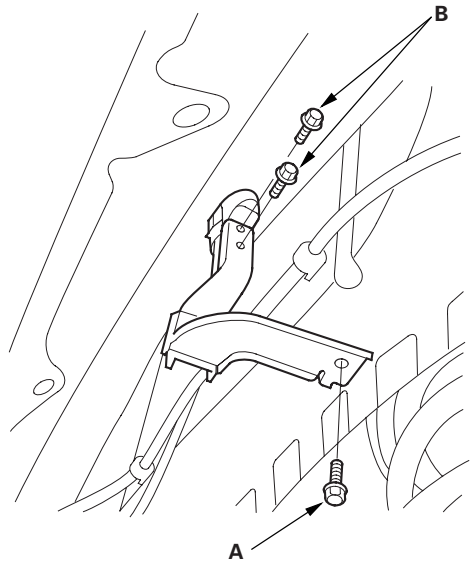
1. Remove the antenna mast (A).



2. Remove the antenna nut (B), spacer (C) and bushing (D).

3. Remove the right inner fender (see page 20-149).

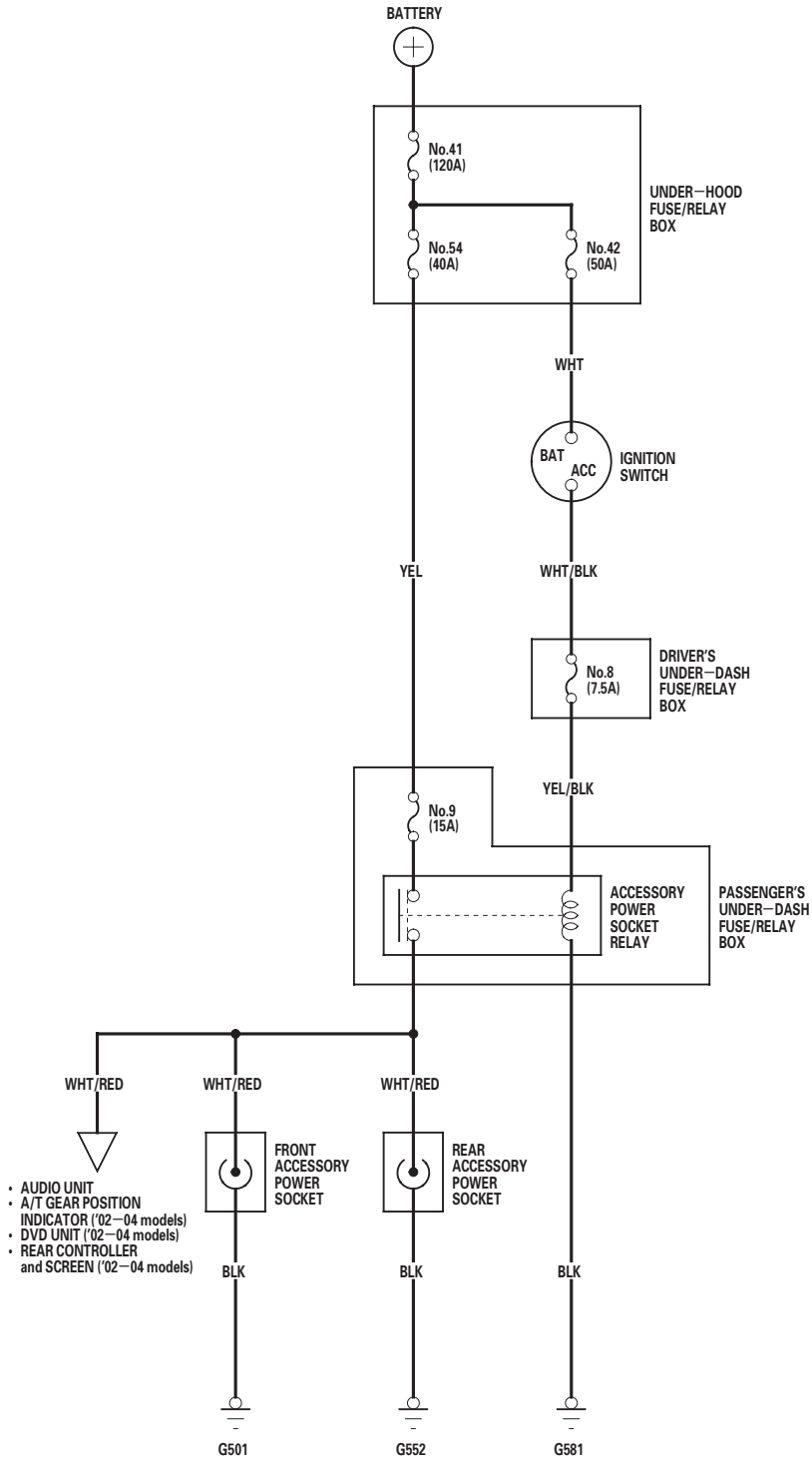
4. Remove the antenna housing bracket bolt (A), then pull the housing out of the wheel well.



5. If necessary, remove the two bolts (B) from the housing, then separate the housing from the bracket.

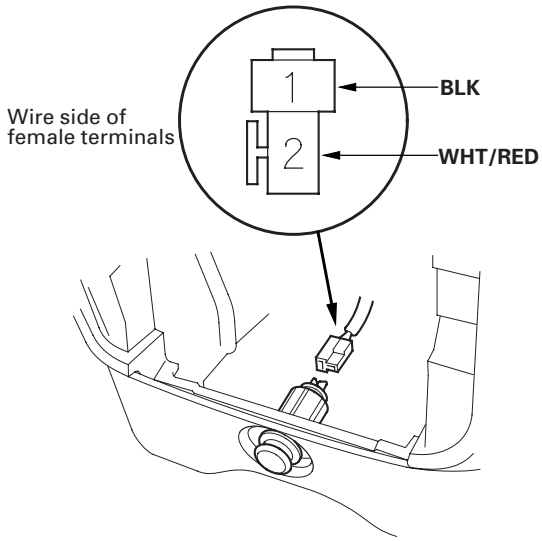
Accessory Power Sockets

Circuit Diagram

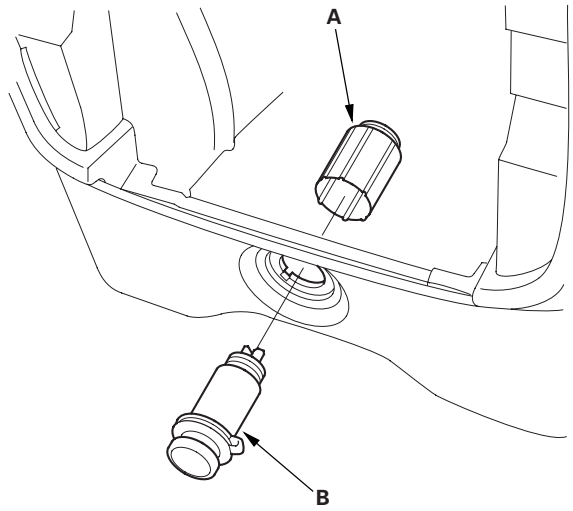


Front Accessory Power Socket Test/Replacement

1. Remove the center pocket (see page 20-67).
2. Disconnect the 2P connector.
3. Inspect the connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.



4. Turn the ignition switch to ACC (I).
5. Check for voltage between the No. 1 and No. 2 terminals.
   - There should be battery voltage.
   - If there is no battery voltage, check for:
     – blown No. 8 (7.5A) fuse in the driver's under-dash fuse/relay box.
     – faulty accessory power socket relay.
     – poor ground (G 501, G581).
     – an open in the wire.
     – blown No. 9 (15A) in the passenger's under-dash fuse/relay box.
6. Remove the housing (A) and socket (B).



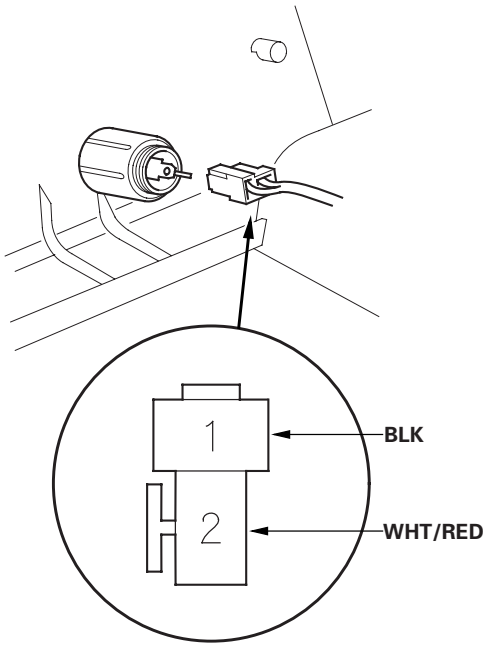
Rear Accessory Power Socket Test/Replacement

1. Remove the left rear side trim panel (see page 20-60).

2. Disconnect the 2P connector.

3. Inspect the connector terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.



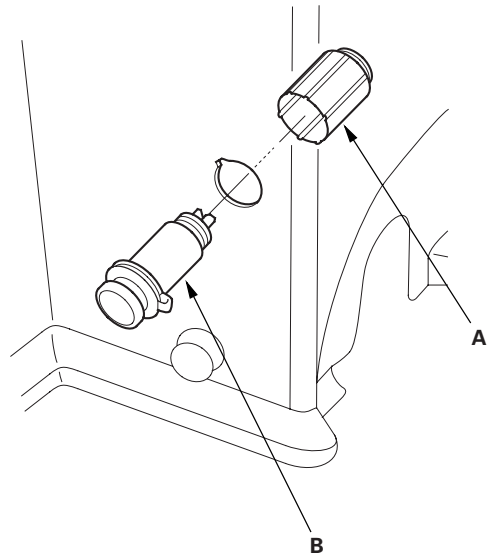
Wire side of female terminals

4. Turn the ignition switch to ACC (I).

5. Check for voltage between the No. 1 and No. 2 terminals.

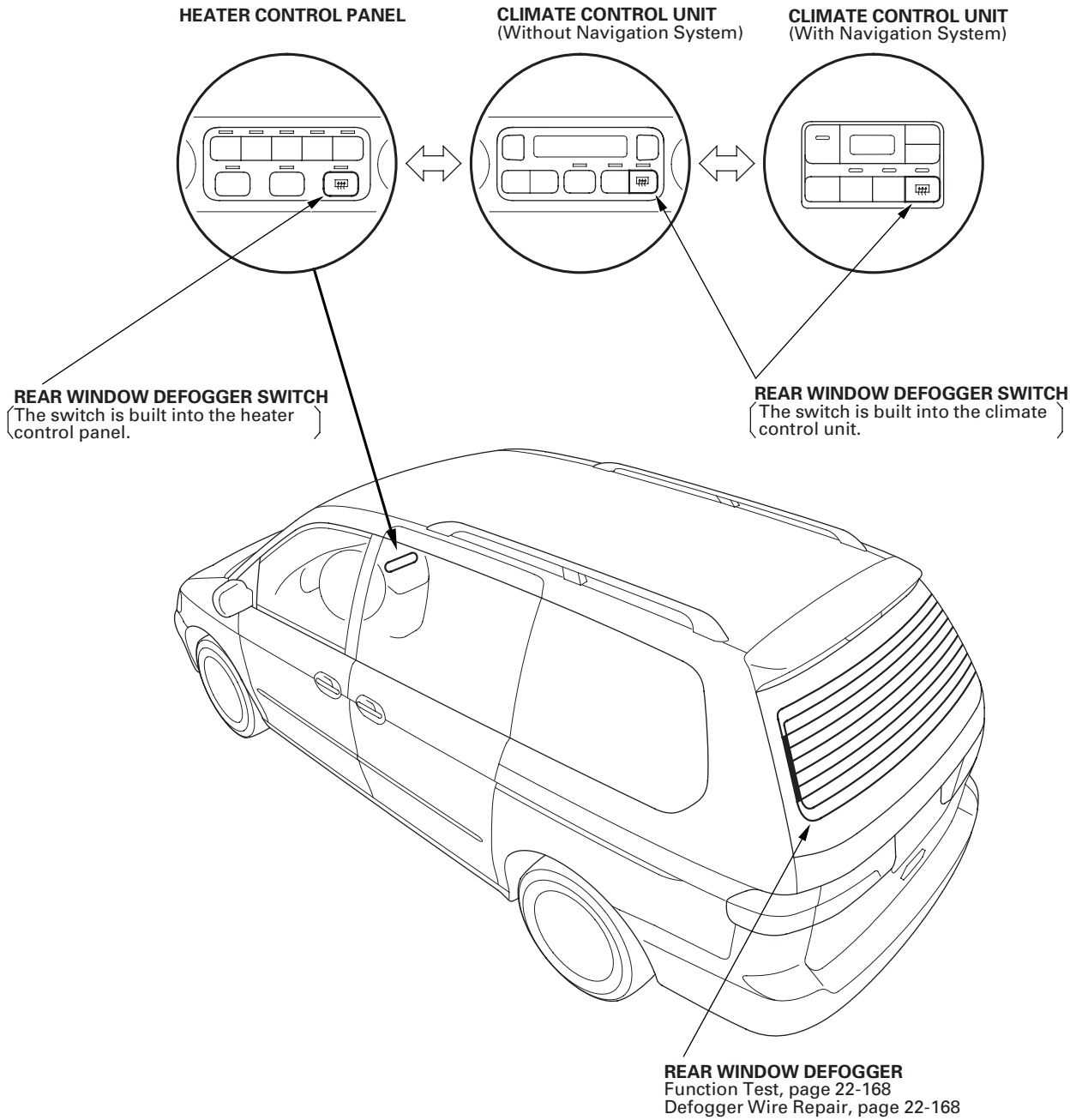
   - There should be battery voltage.
   - If there is no battery voltage, check for:
     – blown No. 8 (7.5A) fuse in the driver's under-dash fuse/relay box.
     – faulty accessory power socket relay.
     – poor ground (G 552, G581).
     – an open in the wire.
     – blown No.9 (15A) in the passenger's under-dash fuse/relay box.

6. Remove the housing (A) and socket (B).

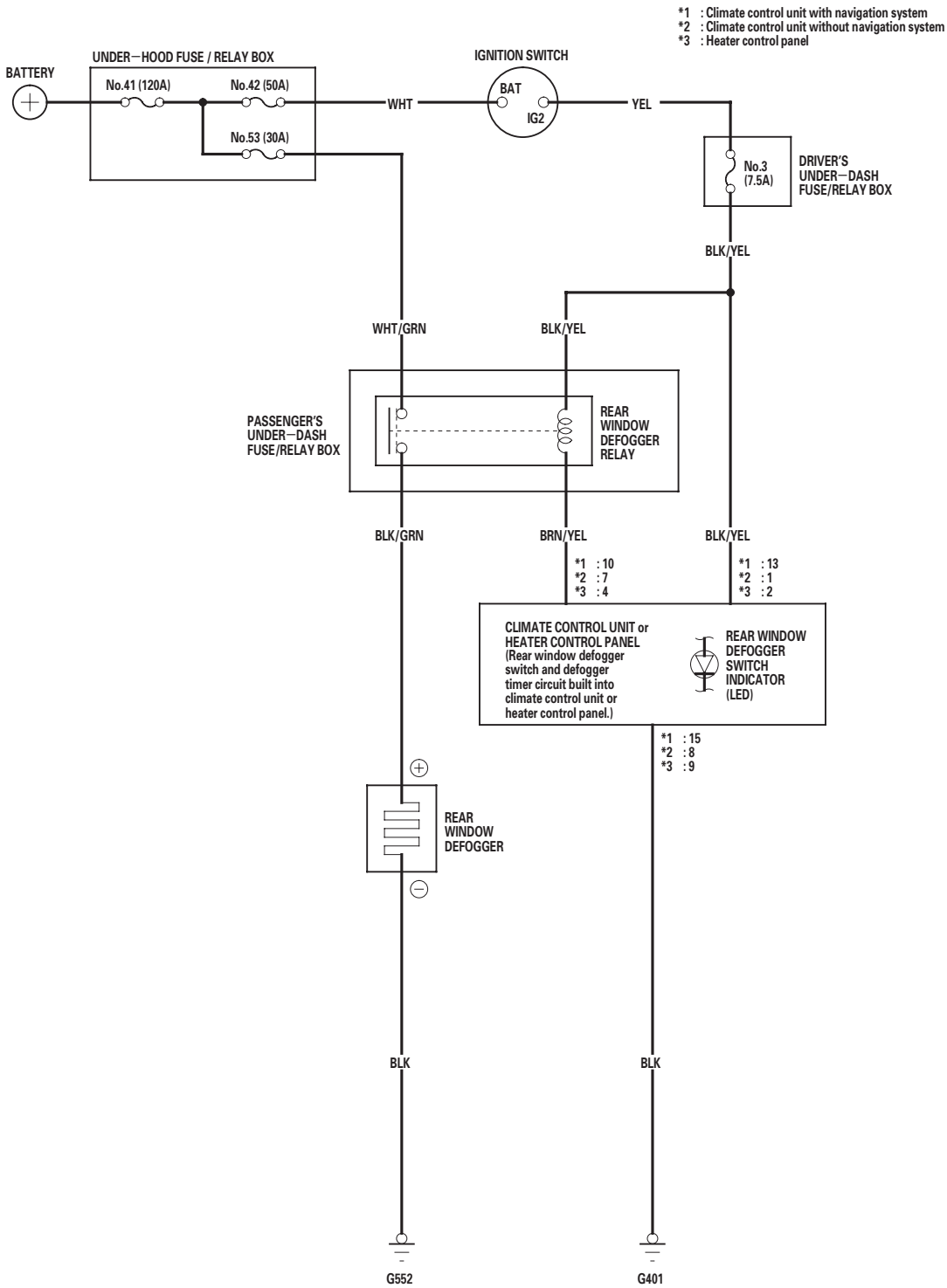


Rear Window Defogger

Component Location Index



Circuit Diagram

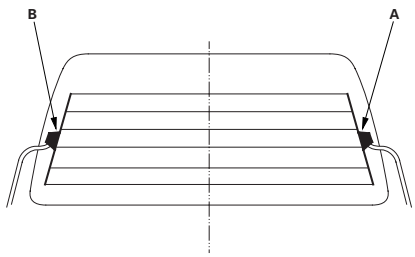


Rear Window Defogger

Function Test

NOTE: Be careful not to scratch or damage the defogger wires with the tester probe.

1. Check for voltage between the positive terminal (Passenger's side) (A) and body ground with the ignition switch and defogger switch ON.
   There should be battery voltage.
   - If there is no voltage,
     – Check for voltage at the WHT/GRN wire at the rear window defogger relay. If there is no voltage at the WHT/GRN wire, check for a blown fuse No. 53 (30A) in the under-hood fuse/relay box or an open in the wire.
     – With the ignition switch ON (II), check for voltage at the BLK/YEL wire of the rear window defogger relay. If there is no voltage at the BLK/YEL wire, check for a blown No. 3 (7.5A) fuse in the driver's under-dash fuse/relay box or an open in the wire.
     – With the ignition switch ON (II), and the rear window defogger relay installed, jump to ground BRN/YEL wire at the climate control unit (heater control panel). There should be voltage at the BLK/GRN wire. If there is no voltage at the BLK/GRN wire, check for an open in the BLK/GRN wire or a faulty rear window defogger relay.
   - If there is battery voltage, go to step 2.

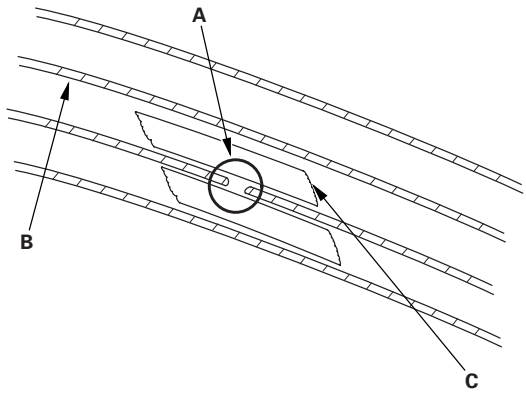


2. Check for continuity between the negative terminal (Driver's side) (B) and body ground. If there is no continuity, check for an open in the defogger ground wire.
3. Touch the voltmeter positive probe to the halfway point of each defogger wire, and the negative probe to the negative terminal. There should be approximately 6 V with the ignition switch and the defogger switch ON.
   - If the voltage is as specified, the defogger wire is OK.
   - If the voltage is not as specified, repair the defogger wire.
     – If it is more than 6 V, there is a break in the negative half of the wire.
     – If it is less than 6 V, there is a break in the positive half of the wire.

Defogger Wire Repair

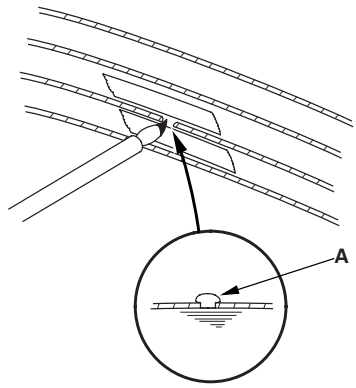
NOTE: To make an effective repair, the broken section must be no longer than one inch.

1. Lightly rub the area around the broken section (A) with fine steel wool, then clean it with alcohol.



2. Carefully mask above and below the broken portion of the defogger wire (B) with cellophane tape (C).

3. Mix the silver conductive paint thoroughly. Using a small brush, apply a heavy coat of paint extending about 1/8'' on both sides of the break. Allow 25 minutes to dry.

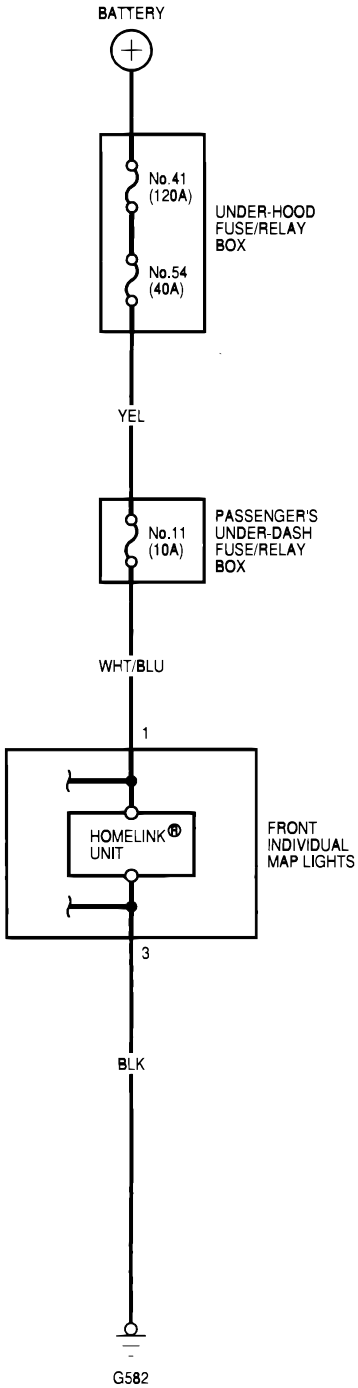


4. Check for continuity in the repaired wire.

5. Apply a second coat of paint in the same way. Let it dry 3 hours before removing the tape.

Homelink Remote Control System

Circuit Diagram

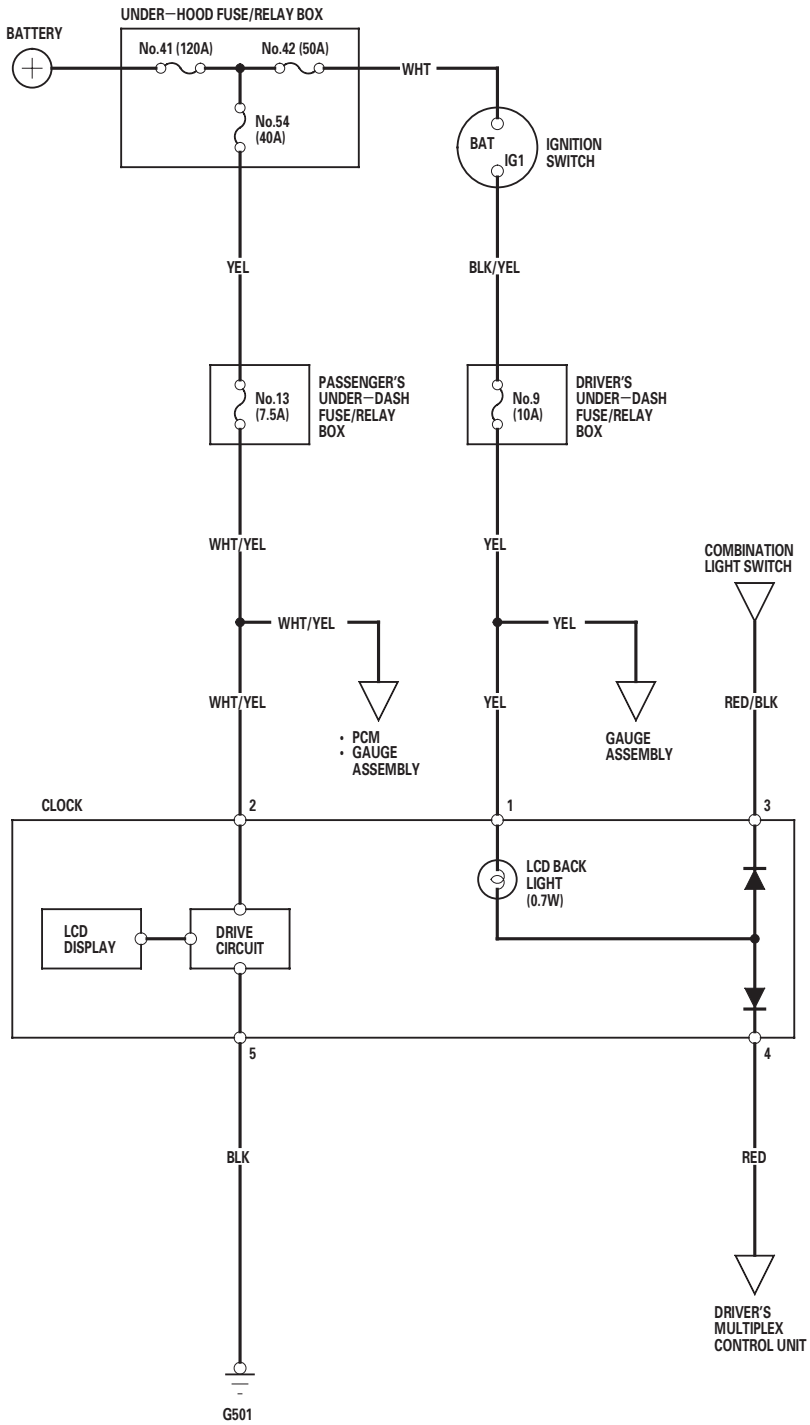


Test

Turn on the front individual map lights.

- If the front individual map lights comes on, the Homelink's power and ground circuits are OK. If the Homelink will not open the customer's garage door, check that the Homelink is programmed properly (see the owner's manual) or call Homelink at 800-355-3515. On the internet, go to www. homelink. com.
- If the front individual map lights do not come on, check for these problems:
  – a blown No. 11 (10A) fuse in the passenger's under-dash fuse/relay box.
  – a faulty in the passenger's under-dash fuse/relay box.
  – an open in the WHT/BLU wire between the passenger's under-dash fuse/relay box and front individual map lights.
  – an open in the BLK wire between the front individual map lights and G582.

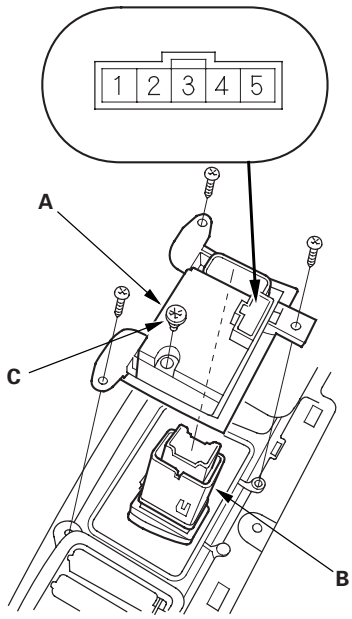
Circuit Diagram



Replacement

1. Remove the instrument panel and disconnect the connectors (see page 20-69).

2. Remove the three screws from the clock (A).



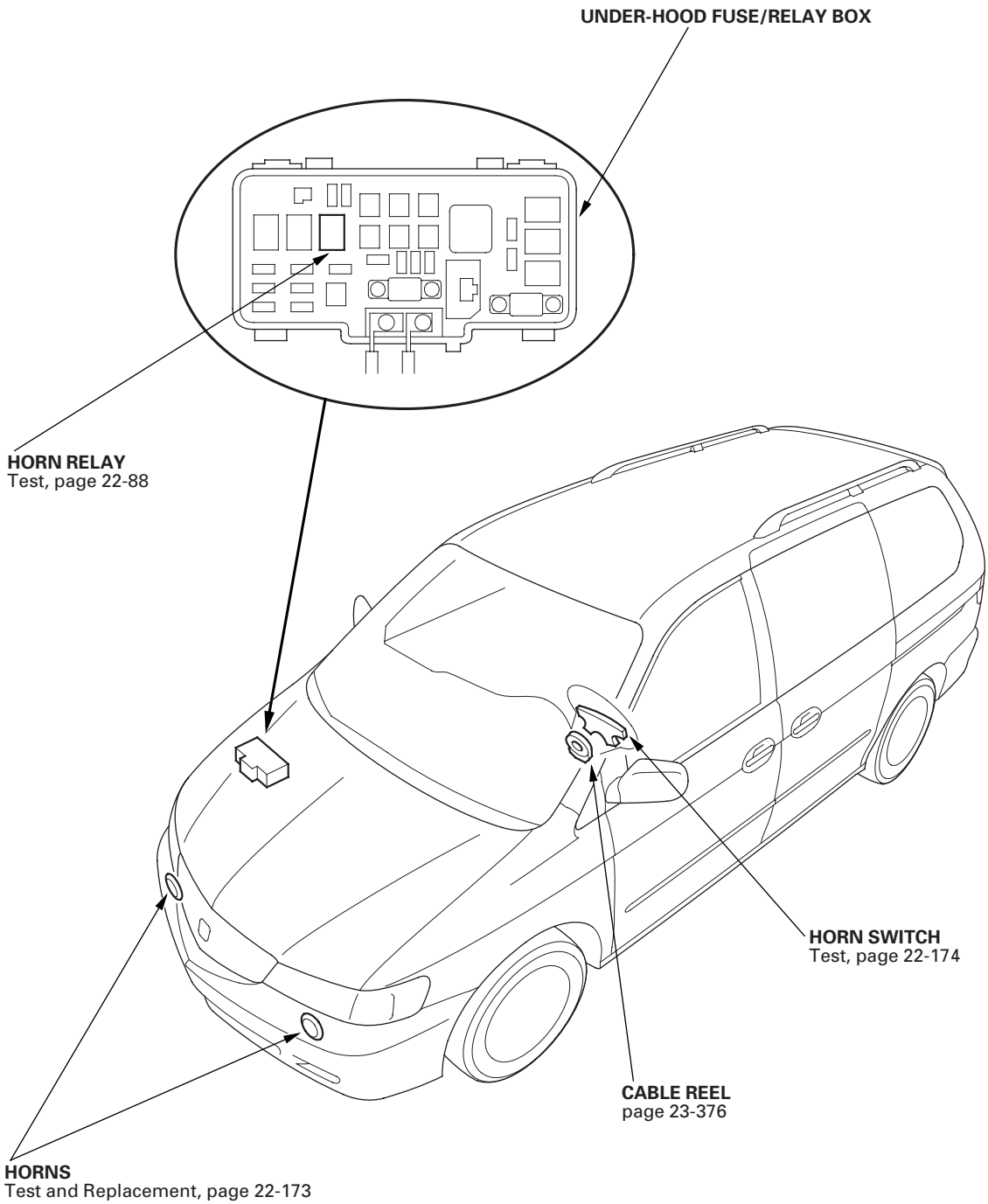
3. Separate the clock and hazard warning switch (B).

Terminals

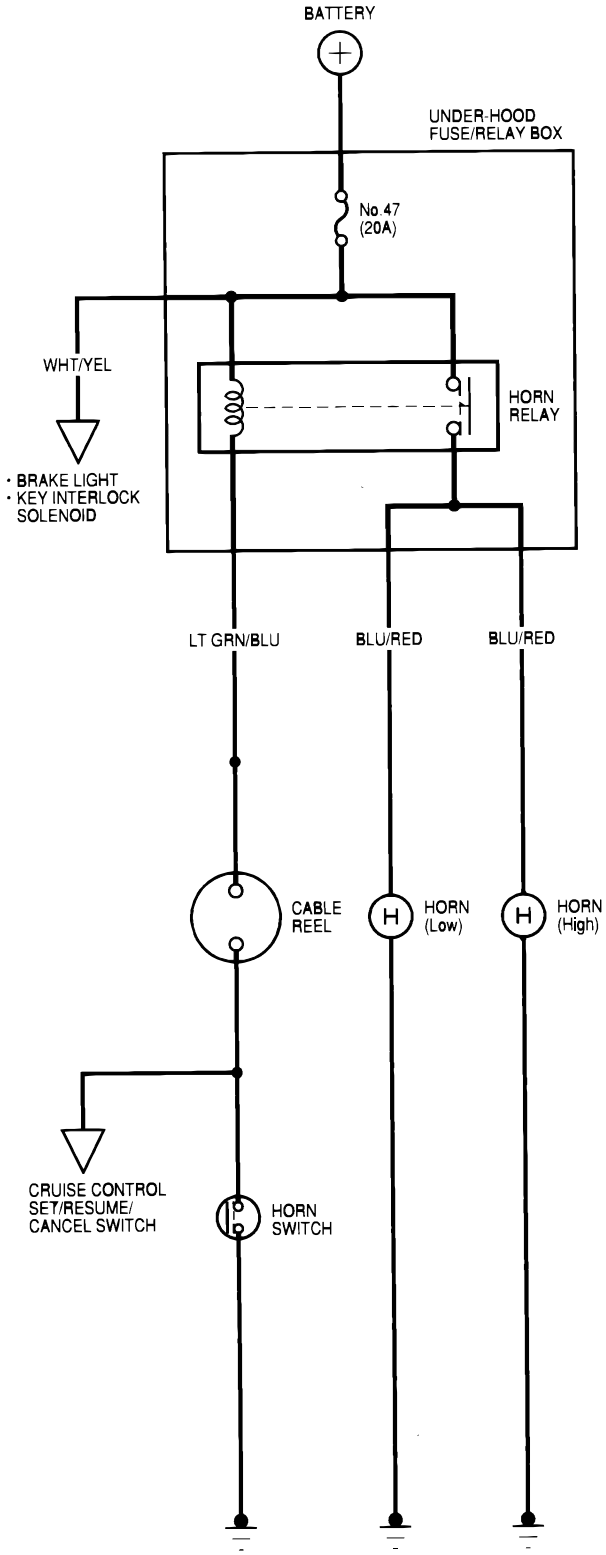
Cavity	Wire	Connect to
1	YEL	IG1 (main clock power supply)
2	WHT/YEL	Constant power
3	RED/BLK	Lights-on signal
4	RED	Driver's multiplex control unit (ground)
5	BLK	Ground (G501)

4. If necessary, check the illumination bulb (C).

Component Location Index

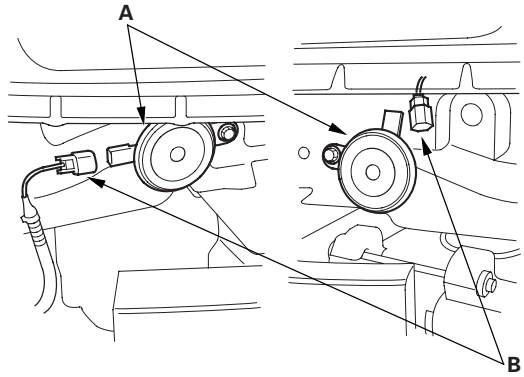


Circuit Diagram



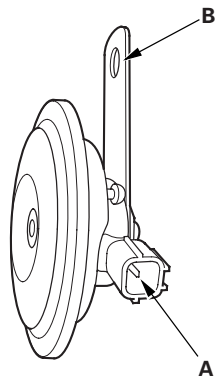
Horn Test/Replacement

1. Remove the front bumper (see page 20-128).



2. Disconnect the 1P connector (B), and remove the horn (A).

3. Test the horn by connecting battery power to the terminal (A) and grounding the bracket (B). The horn should sound.



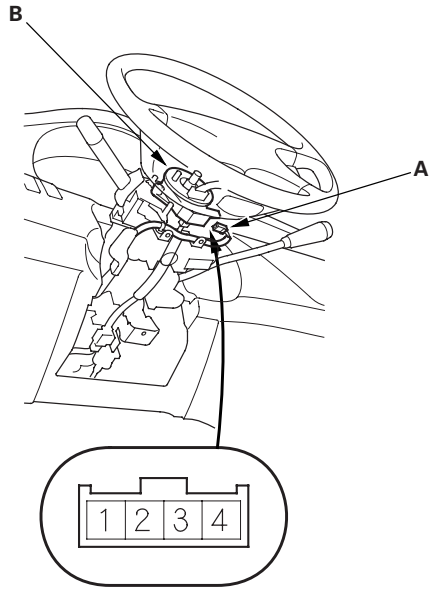
4. If it fails to sound, replace it.

Horn Switch Test

1. Remove the dashboard lower cover (see page 20-69).

2. Remove the steering column upper and lower covers (see page 17-25).

3. Disconnect the dashboard wire harness B 4P connector (A) from the cable reel (B).



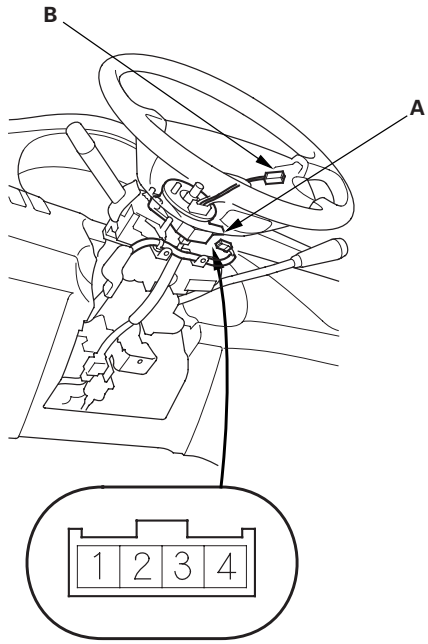
4. Check for continuity between the cable reel No. 2 terminal and body ground in each switch position.

   - There should be continuity when the horn switch is pushed.
   - There should be no continuity when the horn switch is released.
   - If both continuity checks are OK, the horn switch is OK.
   - If neither check is OK, go to step 5.

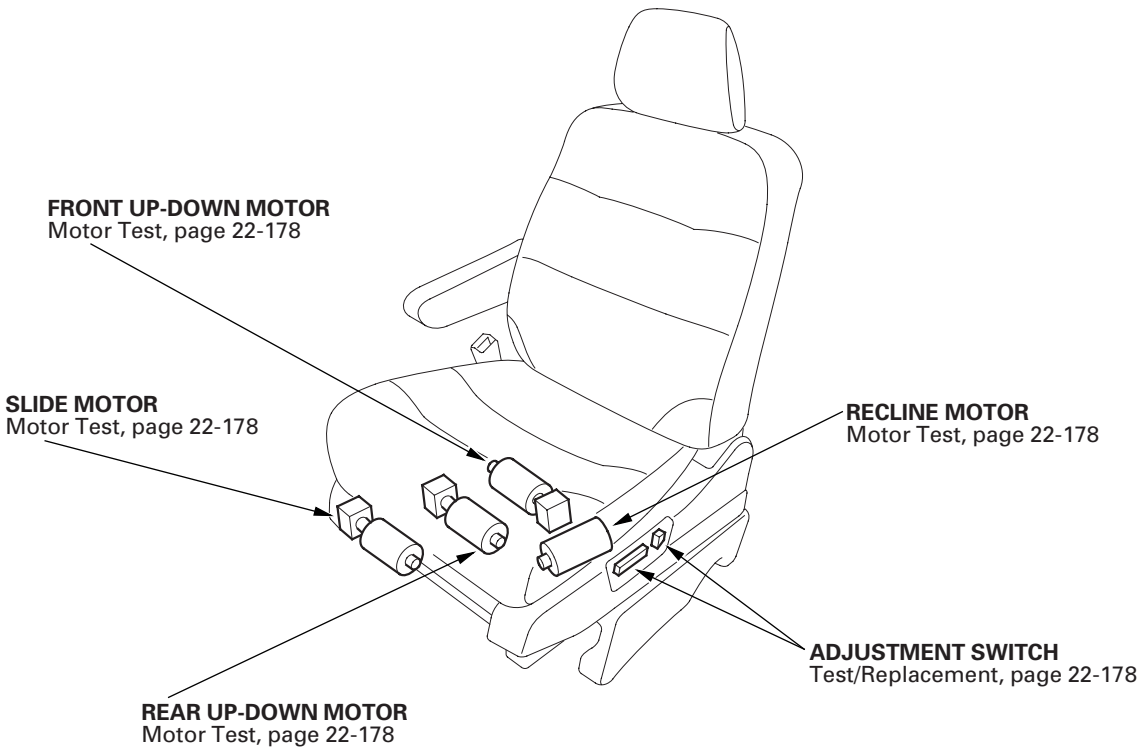
5. Remove the driver's airbag assembly (see page 23-368).

6. Check for continuity between the cable reel No. 2 terminal (A) and the horn switch positive terminal (B).

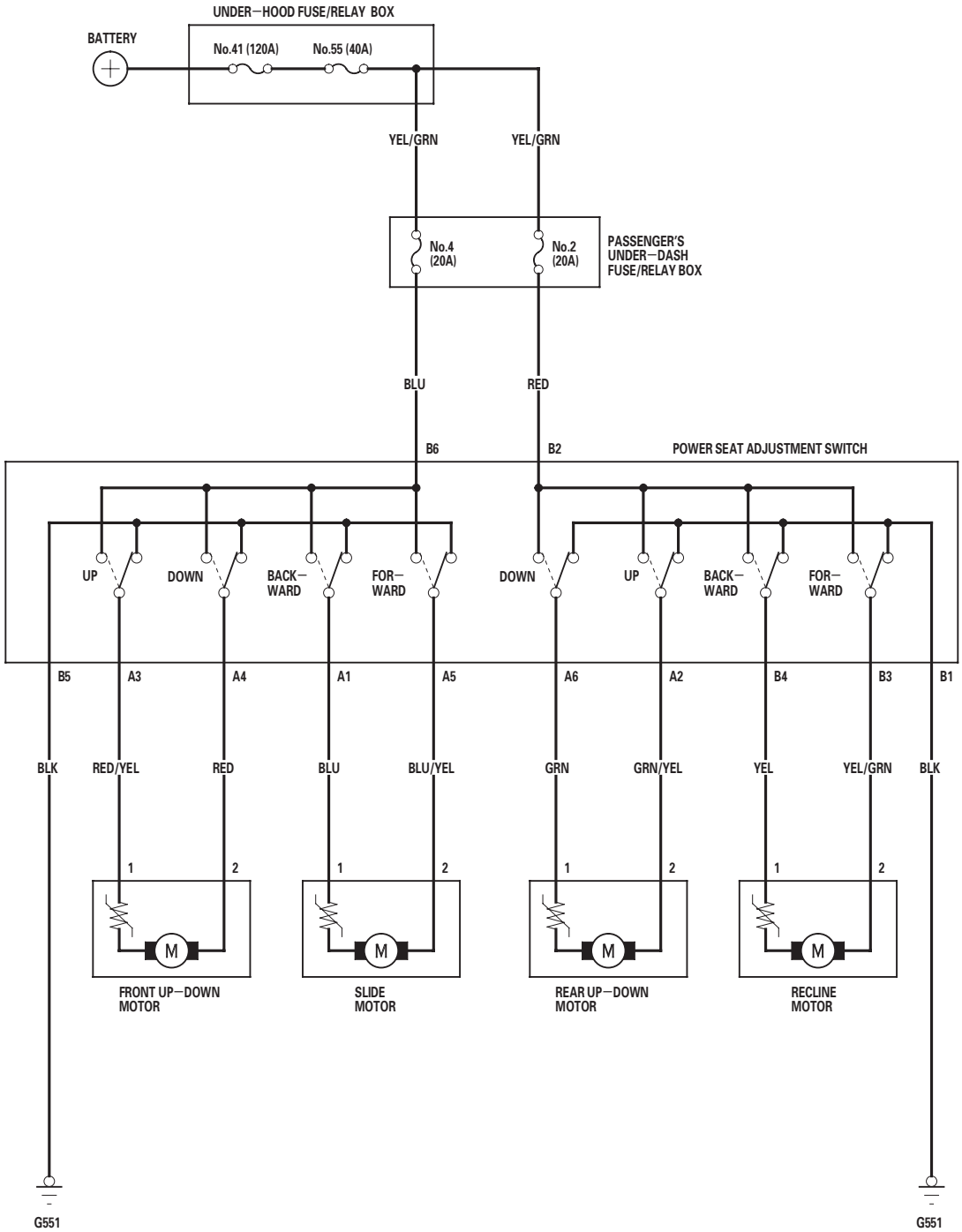
   - If there is no continuity, check the cruise control Set/Resume/Cancel switch. If the switch is OK, replace the cable reel (see page 23-376) and check for the proper operation.
   - If there is continuity, replace the driver's airbag.



Component Location Index

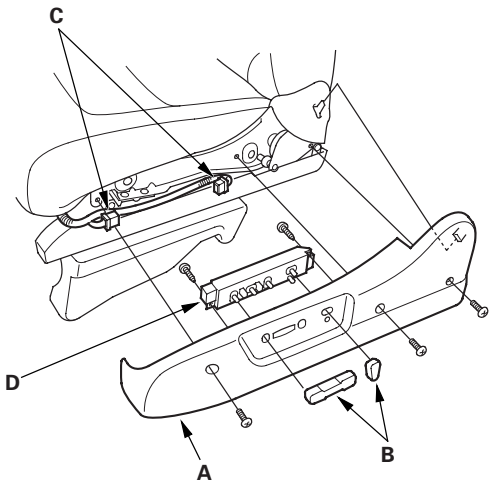


Circuit Diagram - 8-Way Adjustable



Switch Test/Replacement

1. Remove the adjustment switch cover (A) from the driver's seat by removing the three screws, and pulling off the adjustment switch knobs (B).

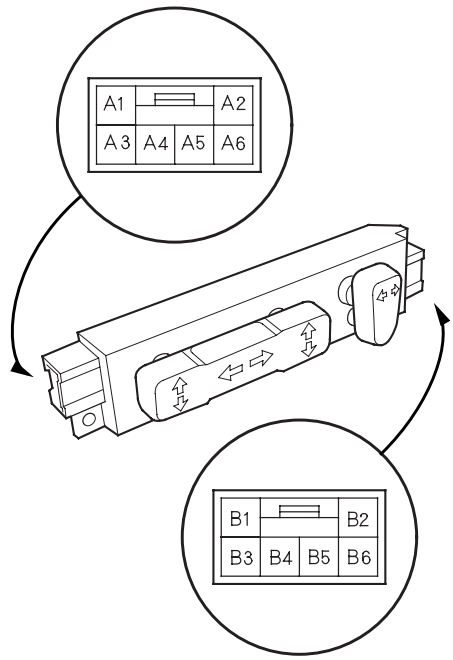


2. Disconnect the 6P connectors (C) from the adjustment switch (D), then remove the switch from the cover by removing its two mounting screws.

3. Reinstall the adjustment switch knobs.

4. Check for continuity between the terminals in each switch position according to the table.

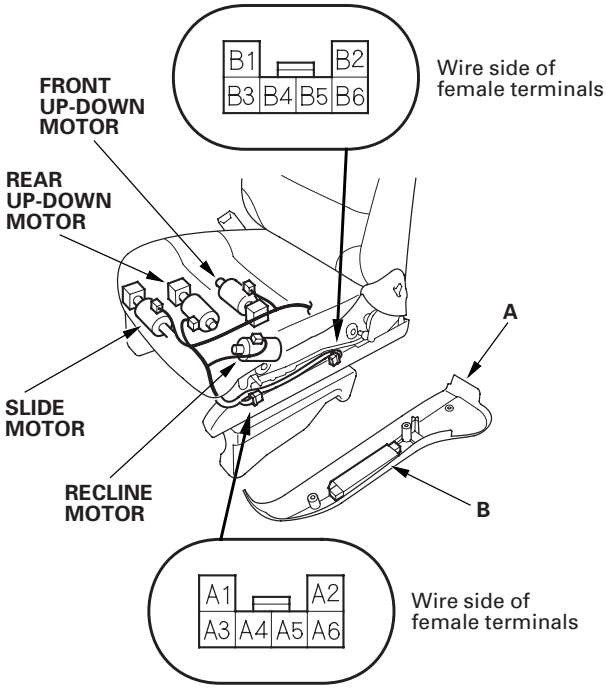
Position \ Terminal		A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6
SLIDE SWITCH	FOR WARD					○						○	○
	BACK WARD	○											
RECLINE SWITCH	FOR WARD								○	○			
	BACK WARD							○			○		
FRONT UP-DOWN SWITCH	UP			○									○
	DOWN				○							○	
REAR UP-DOWN SWITCH	UP		○						○				
	DOWN						○	○					



5. If the continuity is not as specified, replace the switch.

Motor Test

1. Remove the driver's seat (see page 20-81).
2. Remove the adjustment switch cover (A) by removing the three screws.



3. Disconnect the 6P connectors from the adjustment switch (B).
4. Test the motor. When the motor stops running, disconnect battery power immediately.

Recline motor:

Terminal / Position	B3	B4
Forward	⊕	⊖
Backward	⊖	⊕

Slide motor:

Terminal / Position	A1	A5
Forward	⊖	⊕
Backward	⊕	⊖

Front up-down motor:

Terminal / Position	A3	A4
UP	⊕	⊖
DOWN	⊖	⊕

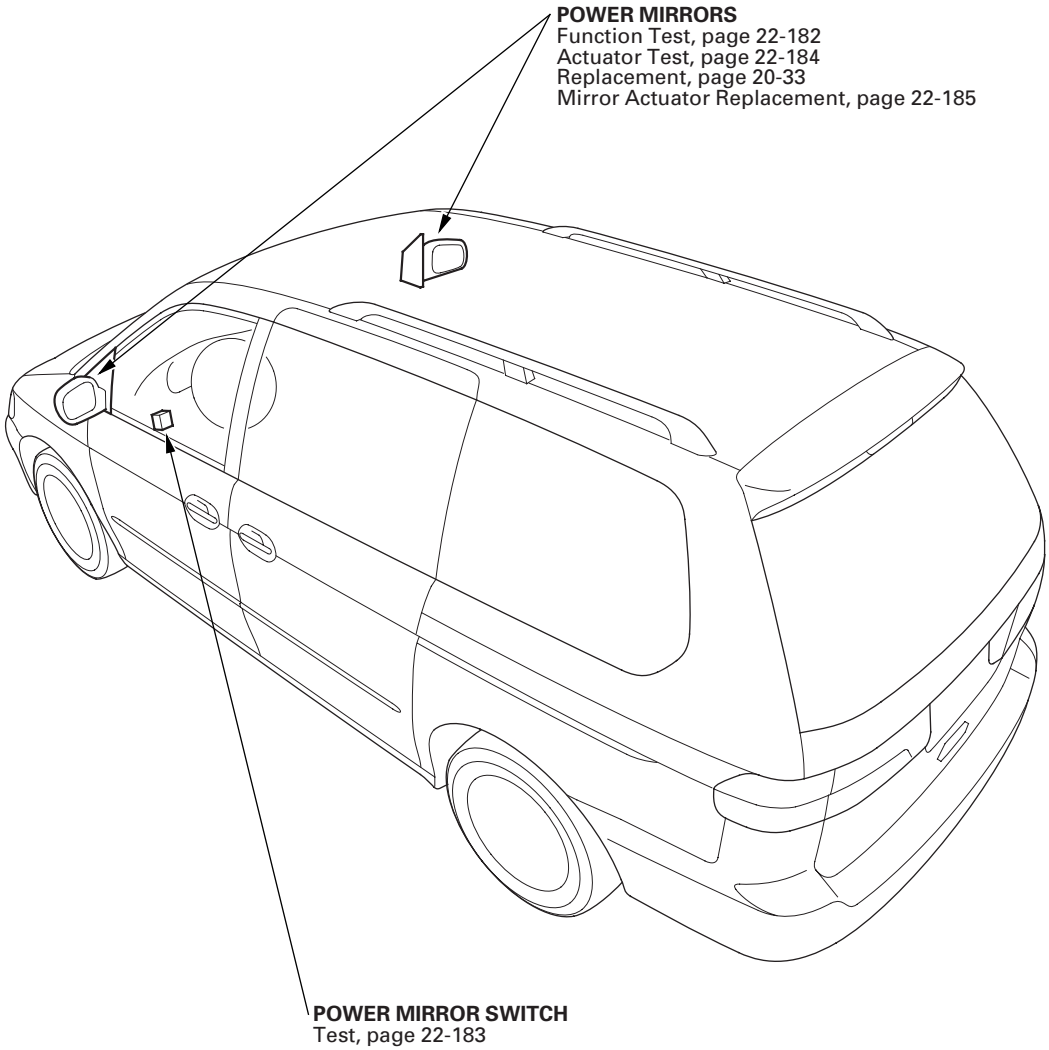
Rear up-down motor:

Terminal / Position	A2	A6
UP	⊕	⊖
DOWN	⊖	⊕

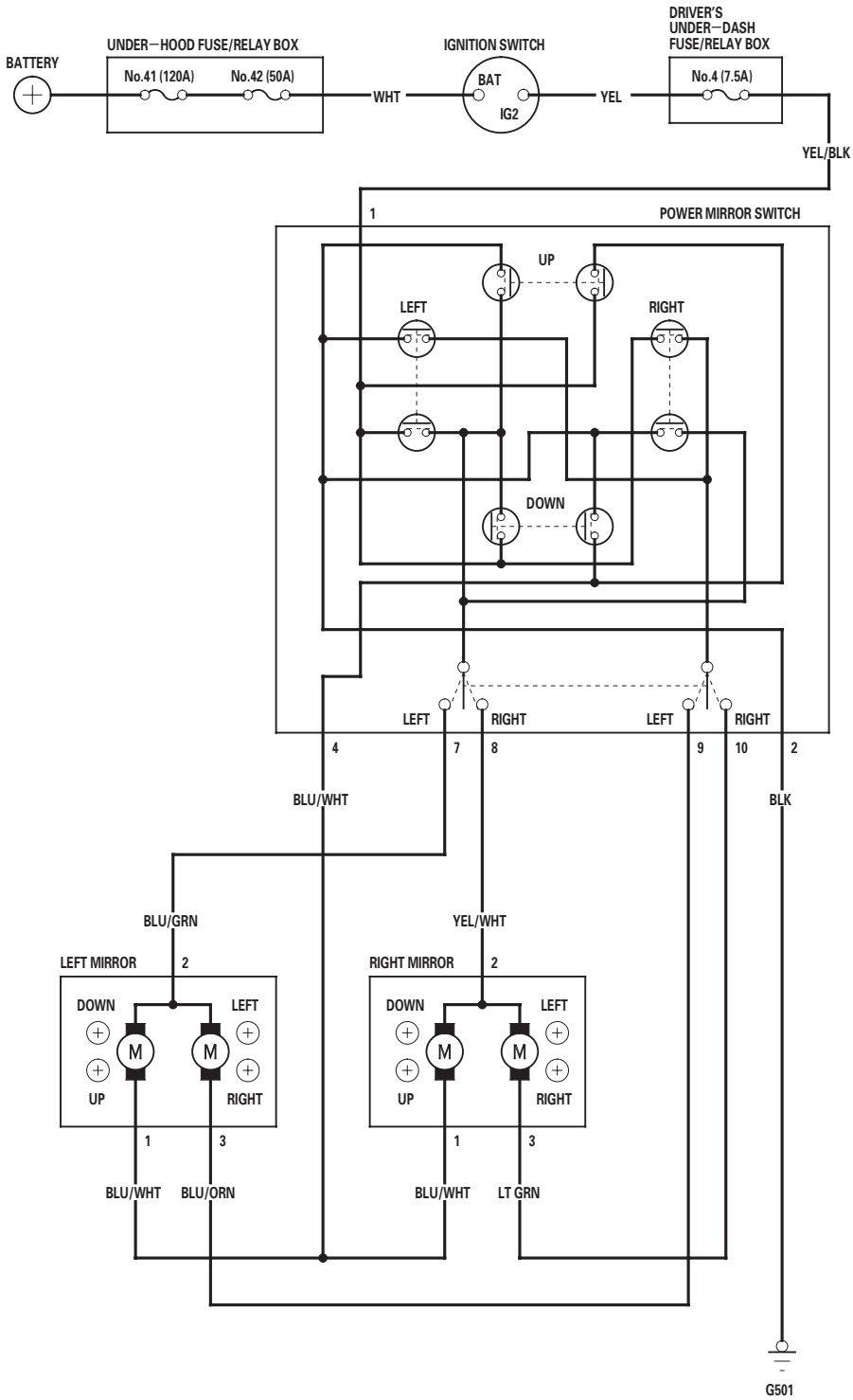
5. If the motor does not run or fails to run smoothly, check for an open in the power seat wire harness between the 6P connector and the 2P connectors. If the harness is OK, replace the motor.

Power Mirrors

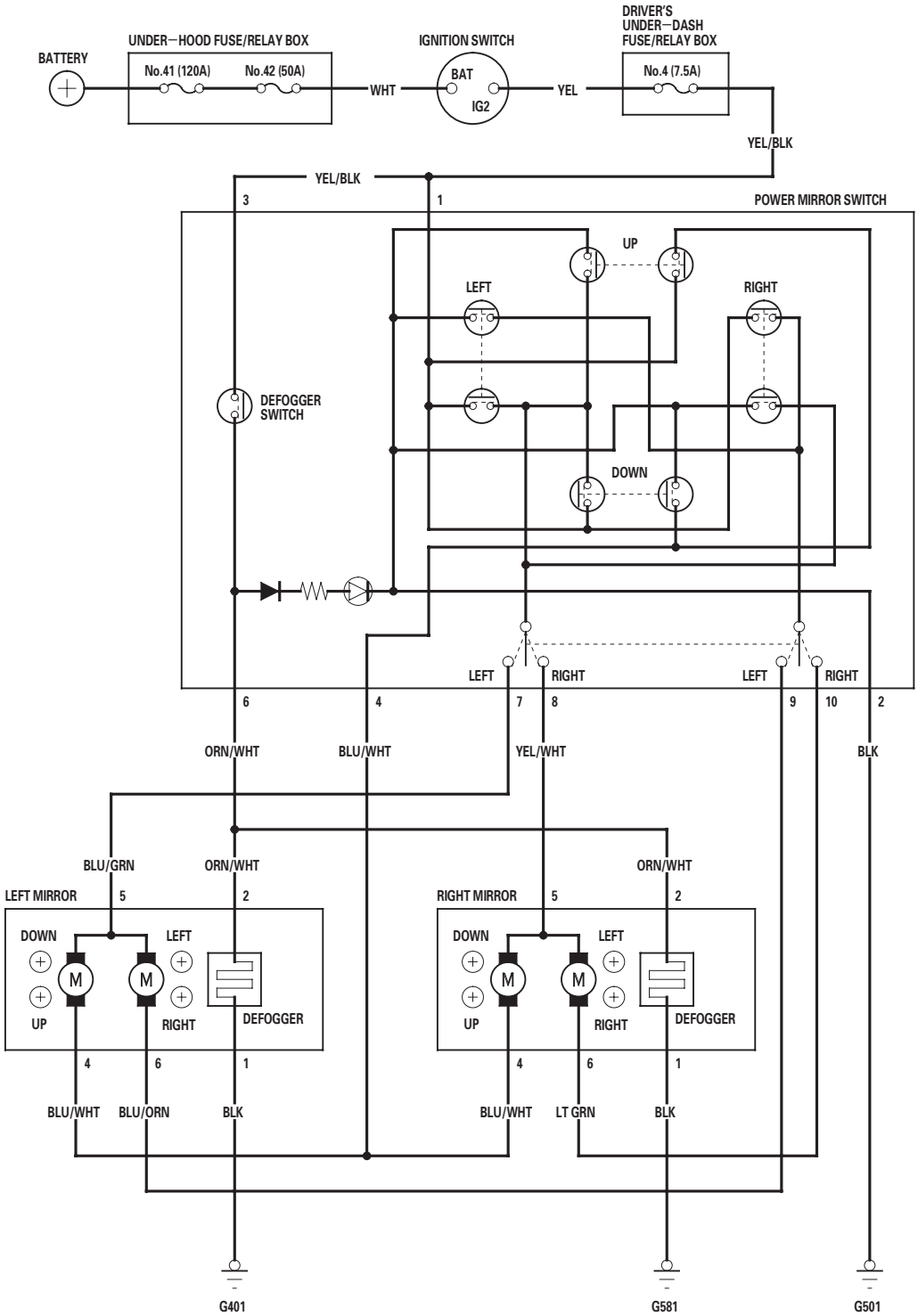
Component Location Index



Circuit Diagram - without Defogger



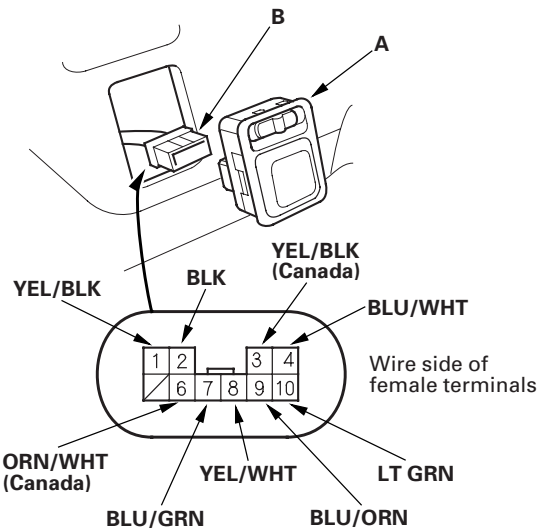
Circuit Diagram - with Defogger



Function Test

1. Remove the dashboard lower cover (see page 20-69).

2. Push the power mirror switch (A) out from behind the dashboard.



3. Disconnect the 10P connector (B) from the switch, then remove the switch.

4. Choose the appropriate test based on the symptom:
   - Both mirrors don't work, go to step 5.
   - Left mirror doesn't work, go to step 7.
   - Right mirror doesn't work, go to step 8.
   - Defoggers don't work, go to step 9 (Canada).

Both mirrors

5. Check for voltage between the No. 1 terminal and body ground with the ignition switch ON (II). There should be battery voltage.
   - If there is no battery voltage, check for:
     – blown No. 4 (7.5A) fuse in the driver's under-dash fuse/relay box.
     – an open in the YEL/BLK wire.
   - If there is battery voltage, go to step 6.

6. Check for continuity between the No. 2 terminal and body ground.
   There should be continuity.
   - If there is no continuity, check for:
     – an open in the BLK wire.
     – poor ground (G 501).
   - If there is continuity, check both mirrors individually as described in the next column.

Left mirror

7. Connect the No. 1 terminal to the No. 7 terminal, and the No. 4 (or No. 9) terminal to body ground with jumper wires. The left mirror should tilt down (or swing left) with the ignition switch ON (II).
   - If the mirror does not tilt down (or does not swing left), check for an open in the BLU/WHT (or BLU/ORN) wire between the left mirror and the 10P connector. If the wire is OK, check the left mirror actuator.
   - If the mirror neither tilts down nor swings left, repair the BLU/GRN wire.
   - If the mirror works properly, check the mirror switch.

Right mirror

8. Connect the No. 1 terminal to the No. 8 terminal, and the No. 4 (or No. 10) terminal to body ground with jumper wires. The right mirror should tilt down (or swing left) with the ignition switch ON (II).
   - If the mirror does not tilt down (or does not swing left), check for an open in the BLU/WHT (or LT GRN) wire between the right mirror and the 10P connector.
     If the wire is OK, check the right mirror actuator.
   - If the mirror neither tilts down nor swings left, repair the YEL/WHT wire.
   - If the mirror works properly, check the mirror switch.

Defogger (Canada)

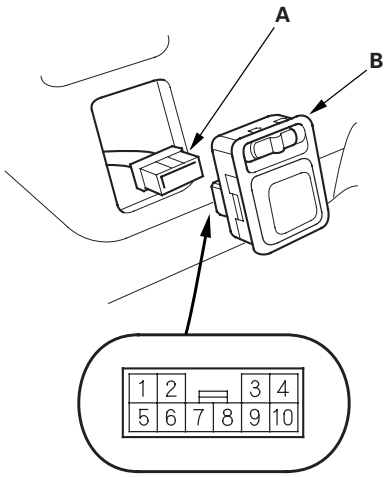
9. Connect the No. 3 and No. 6 terminals with a jumper wire, and check for voltage between the No. 3 terminal and body ground. There should be battery voltage and both mirrors should warm up with the ignition switch ON (II).

   - If there is no voltage or neither warms up, check for:
     – an open in the YEL/BLK or ORN/WHT wire.
     – blown No. 4 (7.5A) fuse in the driver's under-dash fuse/relay box.
     – poor ground (G401 or G581).
   - If only one fails to warm up, check its defogger.
   - If both warm up, check the defogger switch.

Power Mirror and Mirror Defogger Switch Test

1. Remove the dashboard lower cover (see page 20-69).

2. Disconnect the 10P connector (A) from the power mirror switch (B).



3. Check for continuity between the terminals in each switch position according to the table.

Mirror Switch:

Position \ Terminal		1	2	4	7	8	9	10
L	UP	○		○				
			○		○			
	DOWN	○			○			
			○	○				
	LEFT	○			○			
			○				○	
	RIGHT	○					○	
			○		○			
R	UP	○		○				
			○			○		
	DOWN	○				○		
			○	○				
	LEFT	○				○		
			○					○
	RIGHT	○						○
			○			○		

Defogger Switch (Canada):

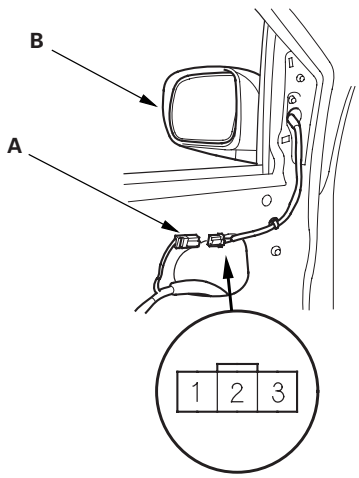
Position \ Terminal	3	6
ON	○	○
OFF		

4. If the continuity is not as specified, replace the switch.

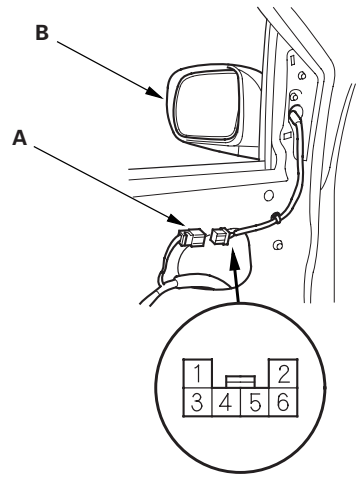
Power Mirror Actuator Test

1. Remove the door panel (see page 20-7).
2. Disconnect the 3P or 6P connector (A) from the power mirror (B).

USA:



Canada:



3. Check actuator operation by connecting power and ground according to the table.

Terminal / Position	1 (4)	2 (5)	3 (6)
TILT UP	⊕	⊖	
TILT DOWN	⊖	⊕	
SWING LEFT		⊕	⊖
SWING RIGHT			⊕

( ) : Canada

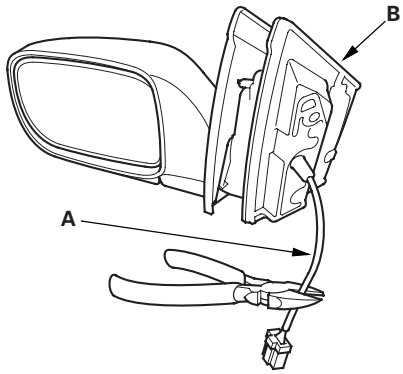
4. If the mirror fails to work properly, replace the mirror actuator.

Defogger Test (Canada)

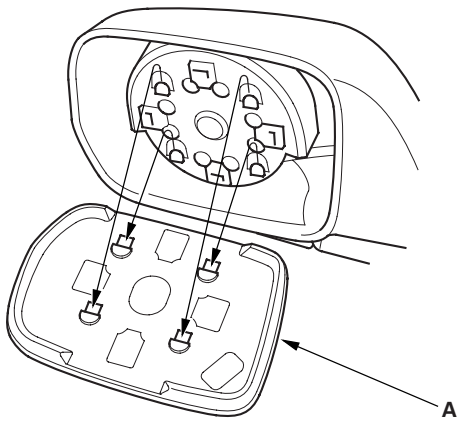
5. Check for continuity between the No. 1 and No. 2 terminals of the 6P connector. There should be continuity.
6. If there is no continuity, replace the mirror.

Power Mirror Actuator Replacement

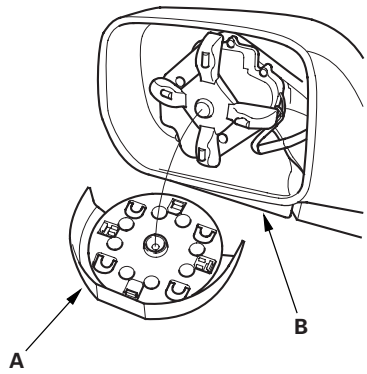
1. Remove the power mirror from the door (see page 20-33).
2. Disconnect the 3P or 6P connector from the mirror.
3. Cut the wire harness (A) with a wire cutter.



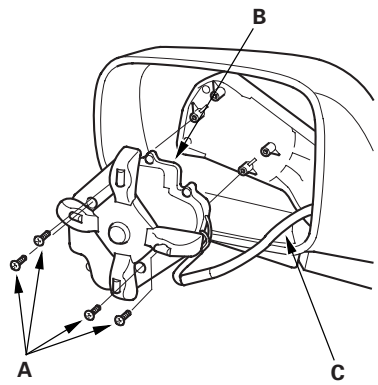
4. Remove the seat base (B).
5. Remove the mirror holder (A) (see page 20-35).



6. Pry off the holder (A) from the housing (B).



7. Remove the four screws (A) and the actuator (B) from the housing.



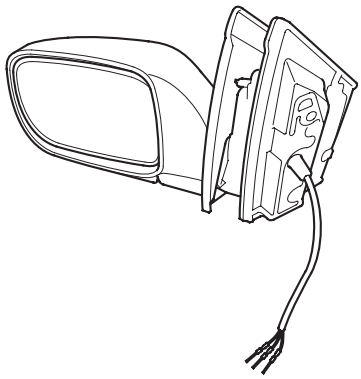
8. Pull the wire (C) from the housing.

(cont'd)

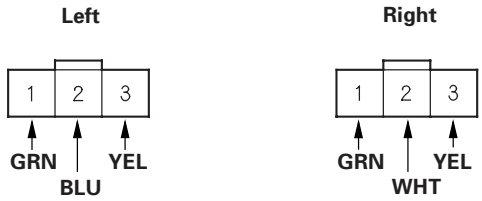
Power Mirror Actuator Replacement (cont'd)

9. Install in the reverse of removal. Replace the mirror and three screws with new one.

10. Insert the terminals into the connector in the original arrangement as shown below.

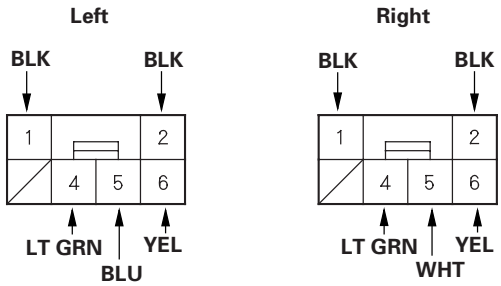


USA :



Wire side of female terminals

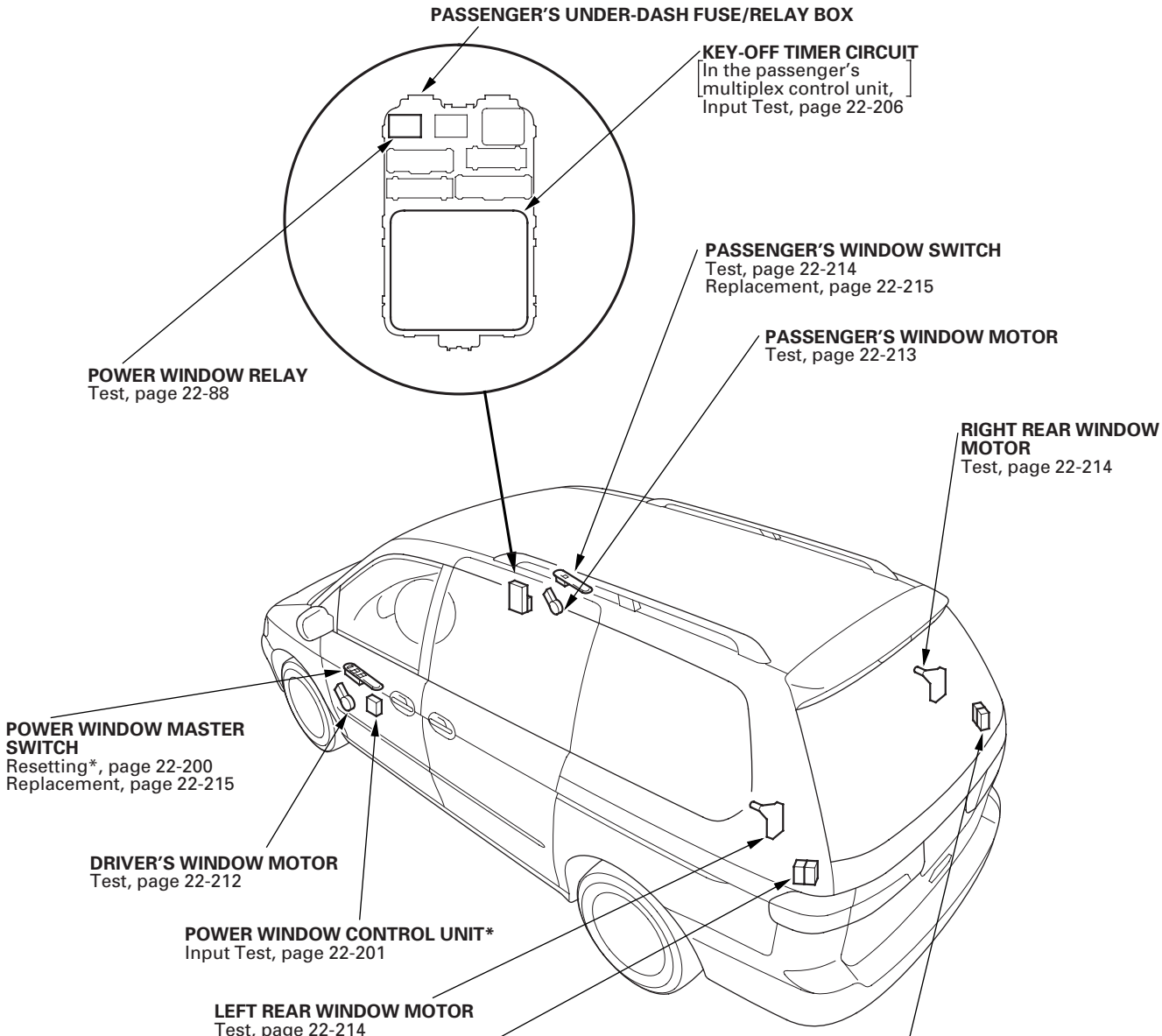
Canada :



Wire side of female terminals

11. Operate the power mirror to check that the actuator works smoothly.

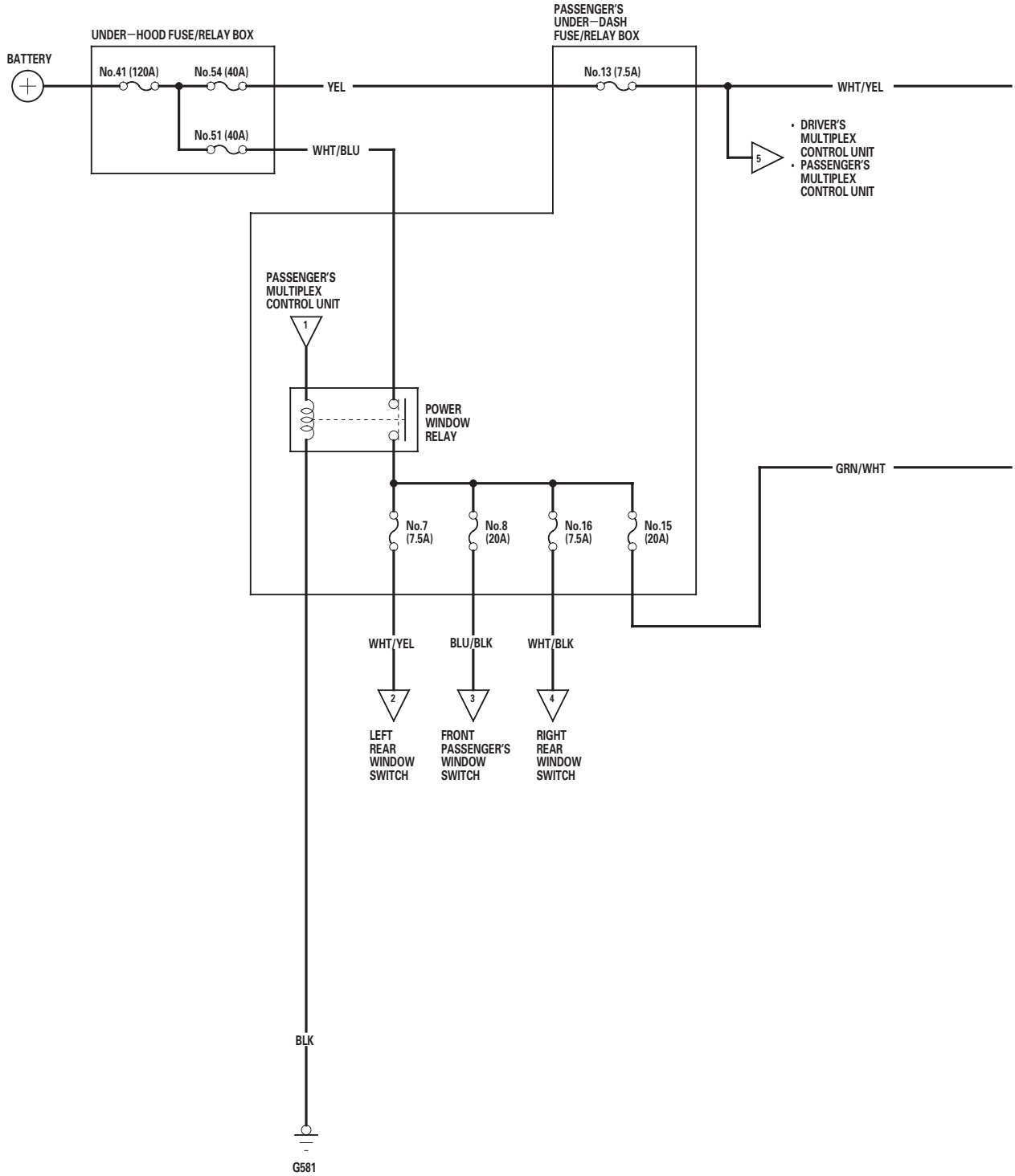
Component Location Index

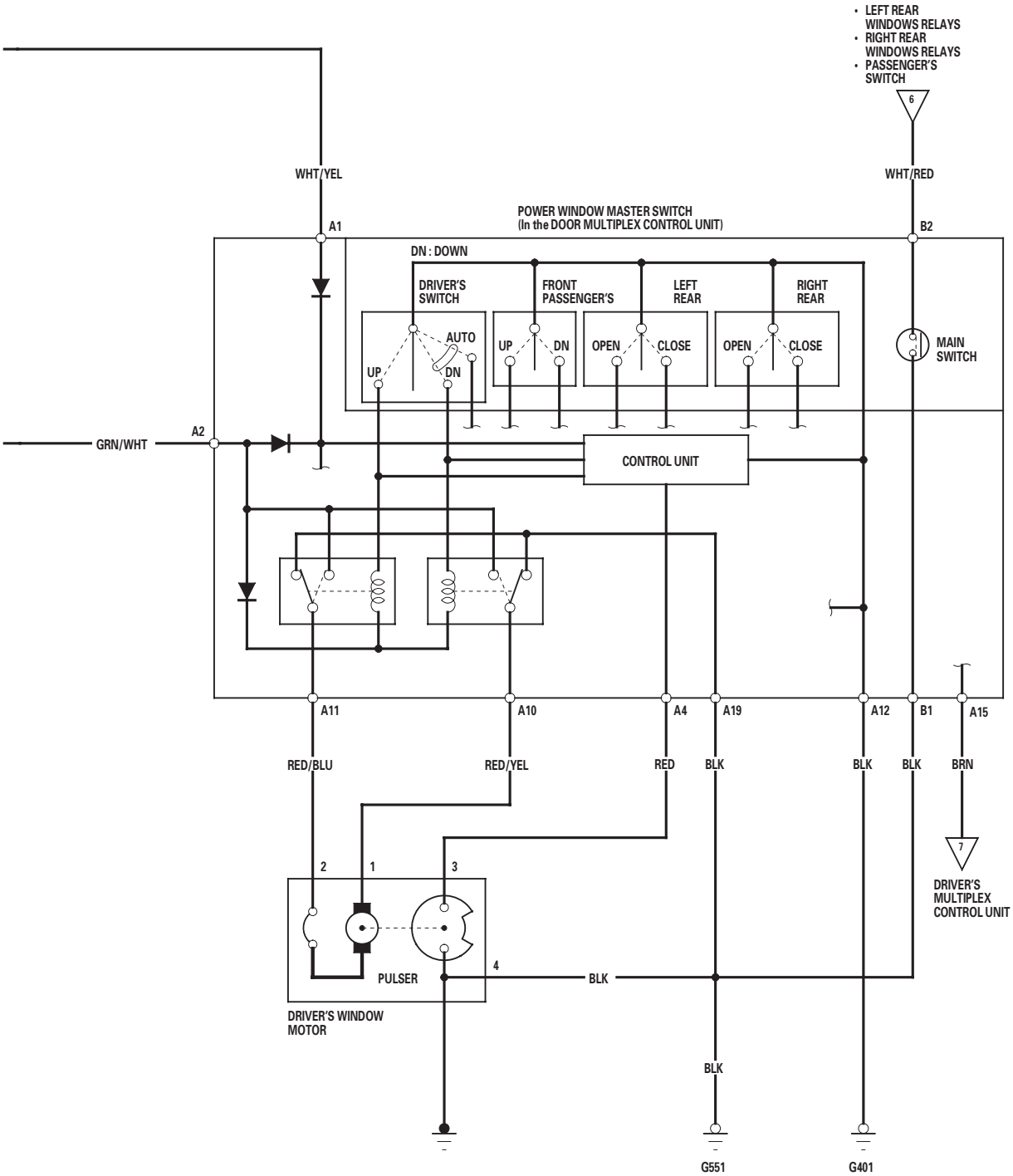


*: '03-04 models

Circuit Diagram

'99 model

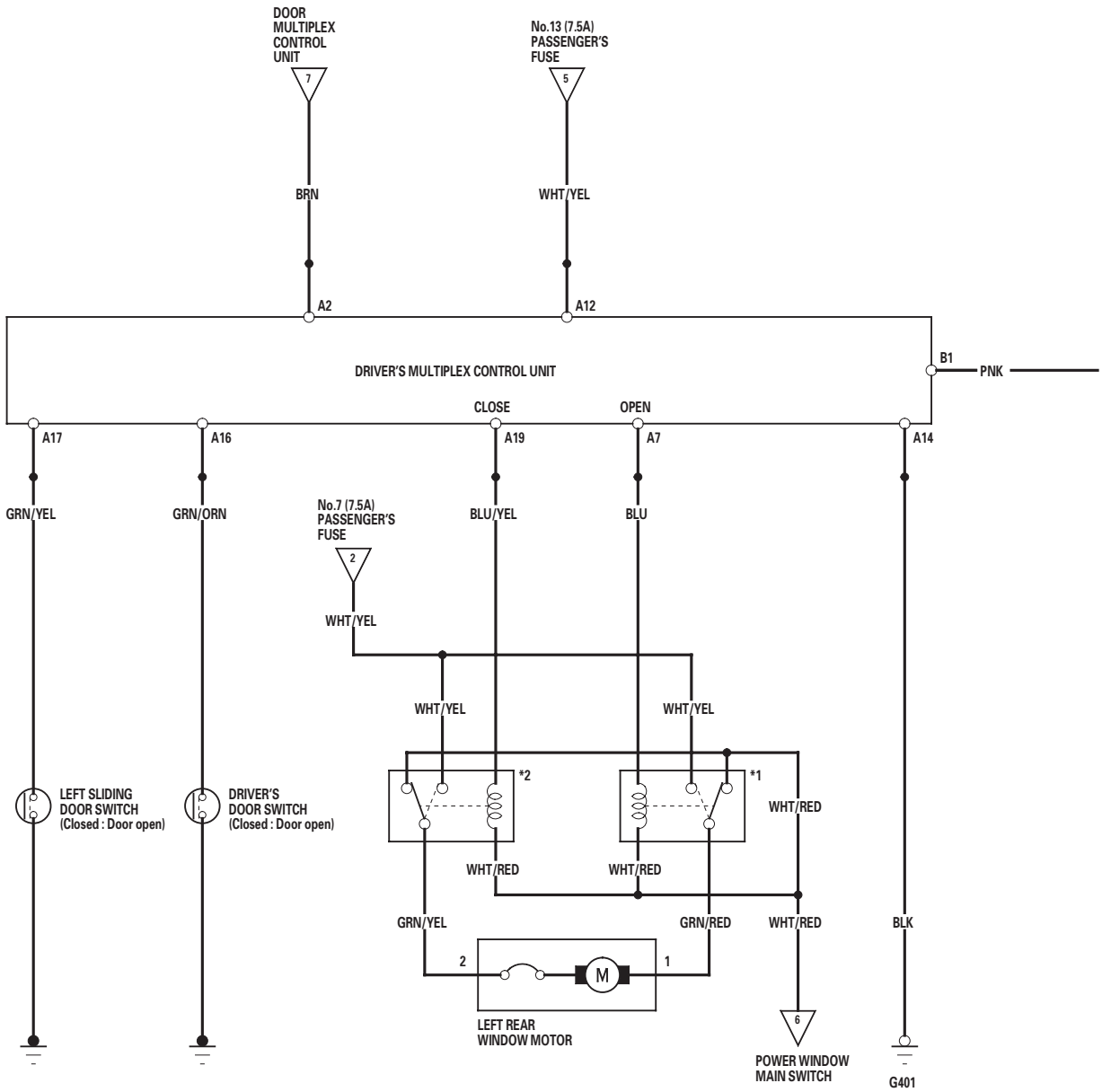



• LEFT REAR WINDOWS RELAYS
• RIGHT REAR WINDOWS RELAYS
• PASSENGER'S SWITCH
6
WHT/RED
WHT/YEL
POWER WINDOW MASTER SWITCH
(In the DOOR MULTIPLEX CONTROL UNIT)
A1
B2
DN : DOWN
DRIVER'S SWITCH
FRONT PASSENGER'S
LEFT REAR
RIGHT REAR
AUTO
UP
DN
OPEN
CLOSE
MAIN SWITCH
GRN/WHT
A2
CONTROL UNIT
A11
A10
A4
A19
A12
B1
A15
RED/BLU
RED/YEL
RED
BLK
BRN
7
DRIVER'S MULTIPLEX CONTROL UNIT
2
1
3
4
PULSER
DRIVER'S WINDOW MOTOR
G551
G401

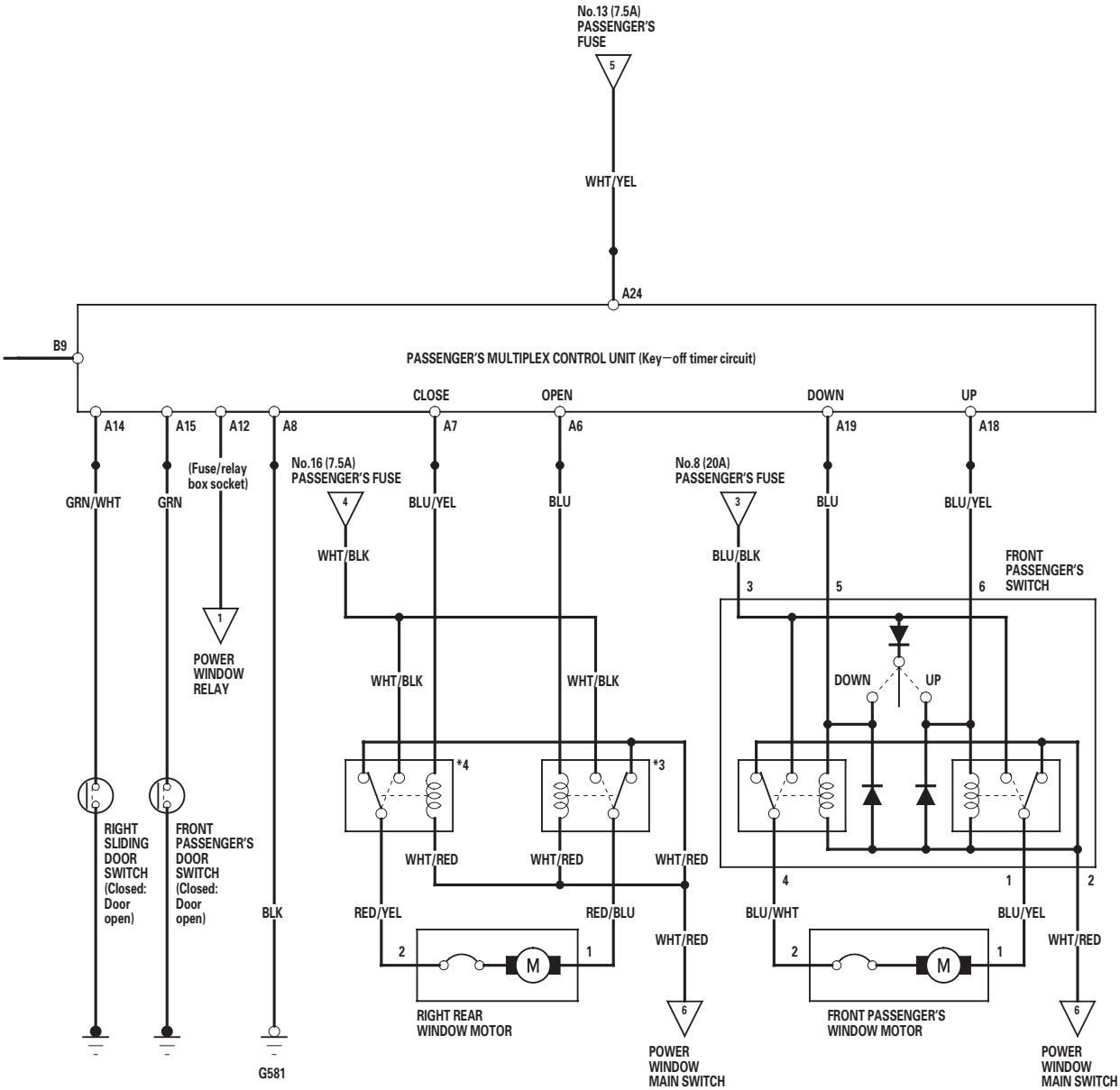
(cont'd)

Circuit Diagram (cont'd)

'99 model

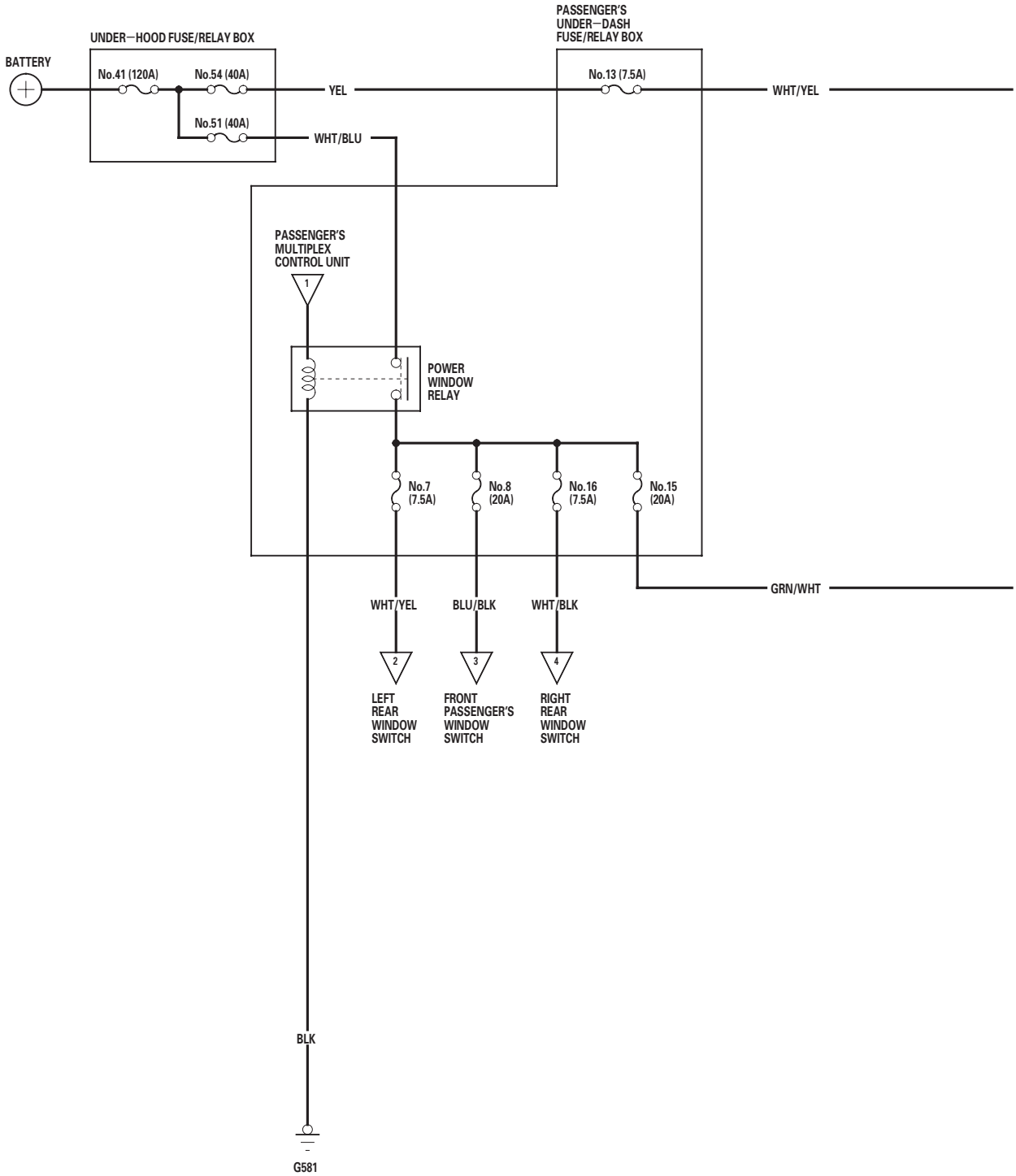


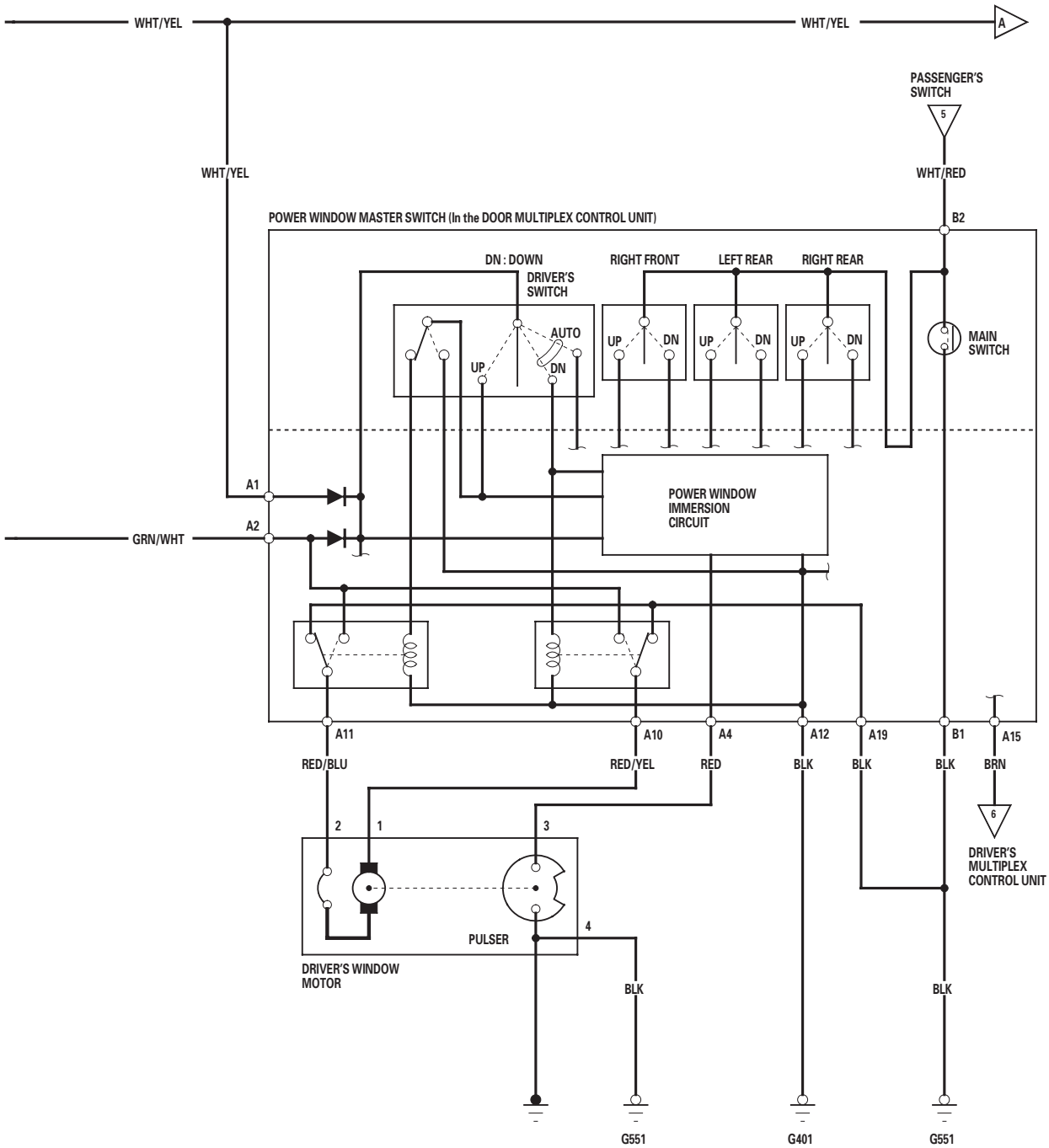
*1 : Left rear window motor open relay
*2 : Left rear window motor close relay
*3 : Right rear window motor open relay
*4 : Right rear window motor close relay



Circuit Diagram (cont'd)

'00-02 models

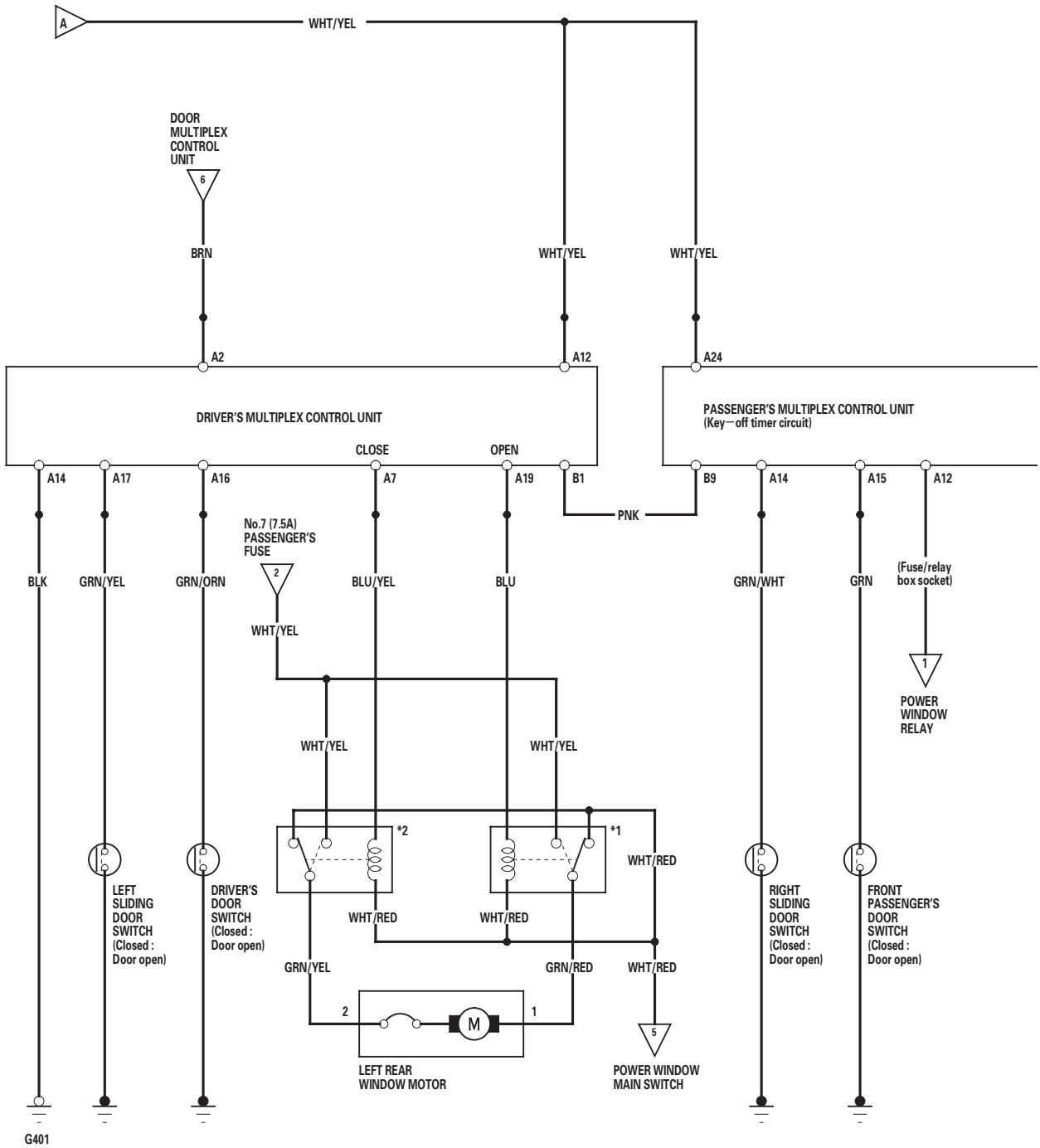



WHT/YEL
WHT/YEL
A
PASSENGER'S SWITCH
5
WHT/YEL
WHT/RED
POWER WINDOW MASTER SWITCH (In the DOOR MULTIPLEX CONTROL UNIT)
B2
DN : DOWN
DRIVER'S SWITCH
RIGHT FRONT
LEFT REAR
RIGHT REAR
AUTO
UP
DN
MAIN SWITCH
A1
A2
GRN/WHT
POWER WINDOW IMMERSION CIRCUIT
A11
A10
A4
A12
A19
B1
A15
RED/BLU
RED/YEL
RED
BLK
BLK
BLK
BRN
6
DRIVER'S MULTIPLEX CONTROL UNIT
2
1
3
4
PULSER
DRIVER'S WINDOW MOTOR
BLK
BLK
G551
G401
G551

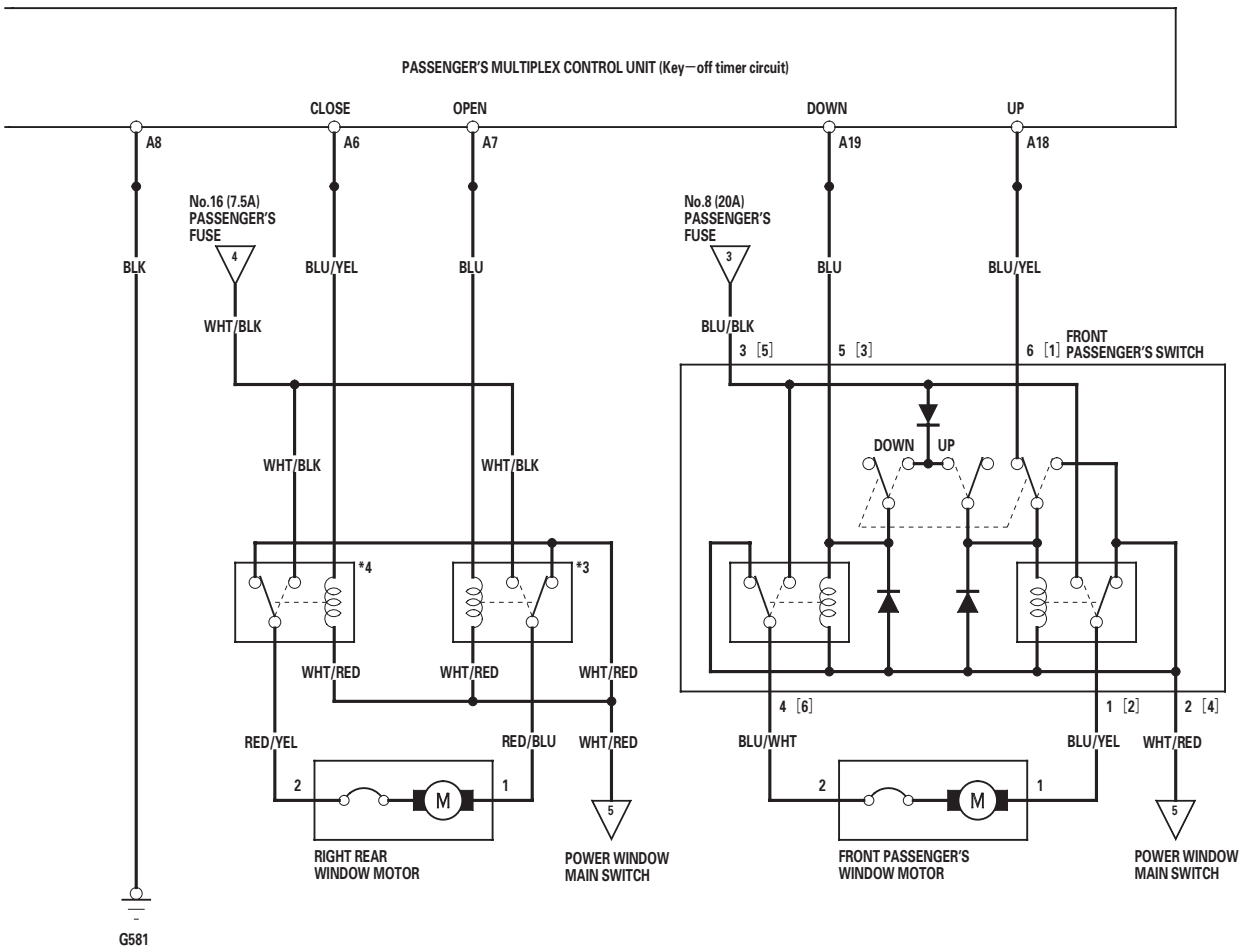
(cont'd)

Circuit Diagram (cont'd)

'00-02 models

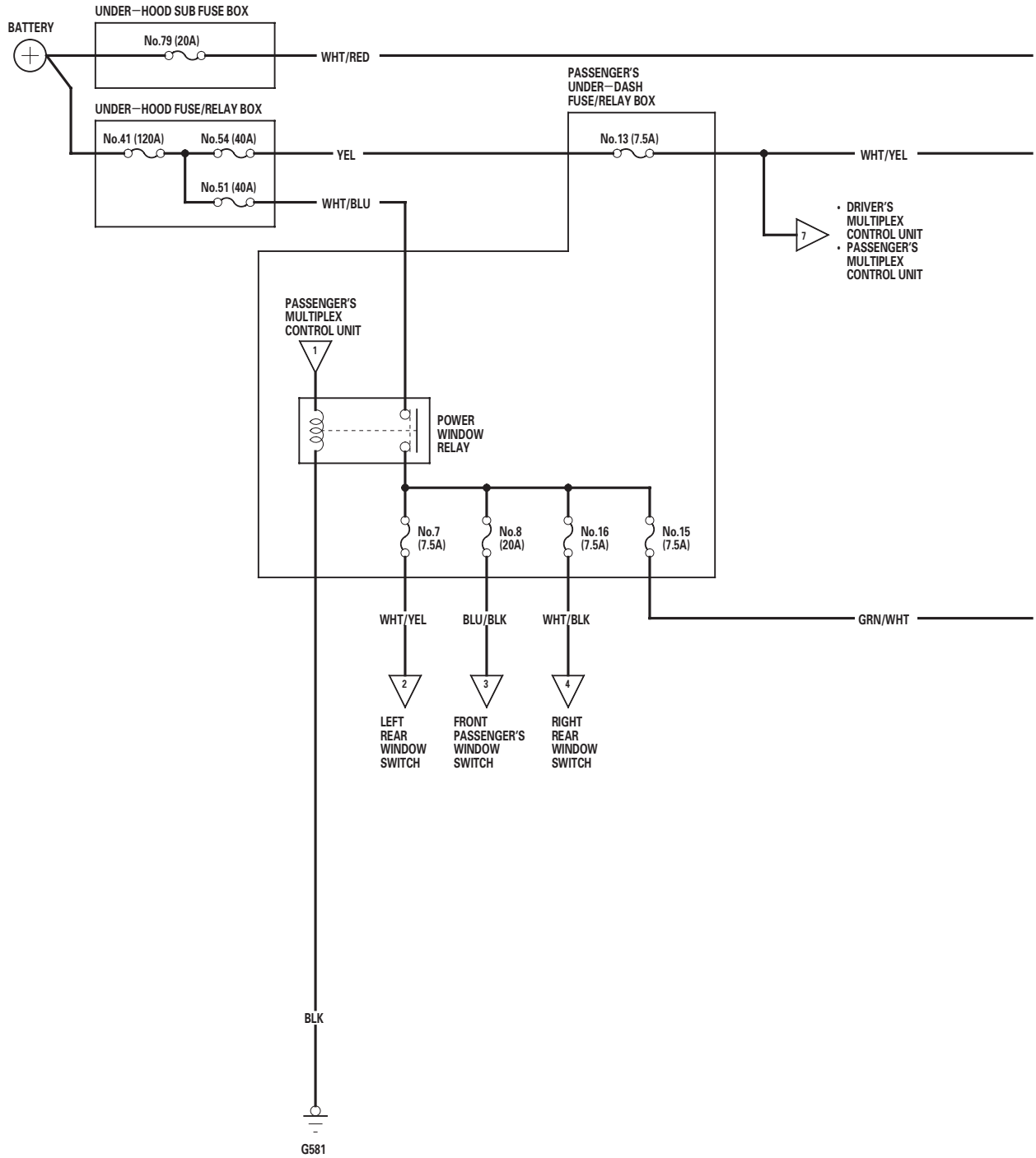


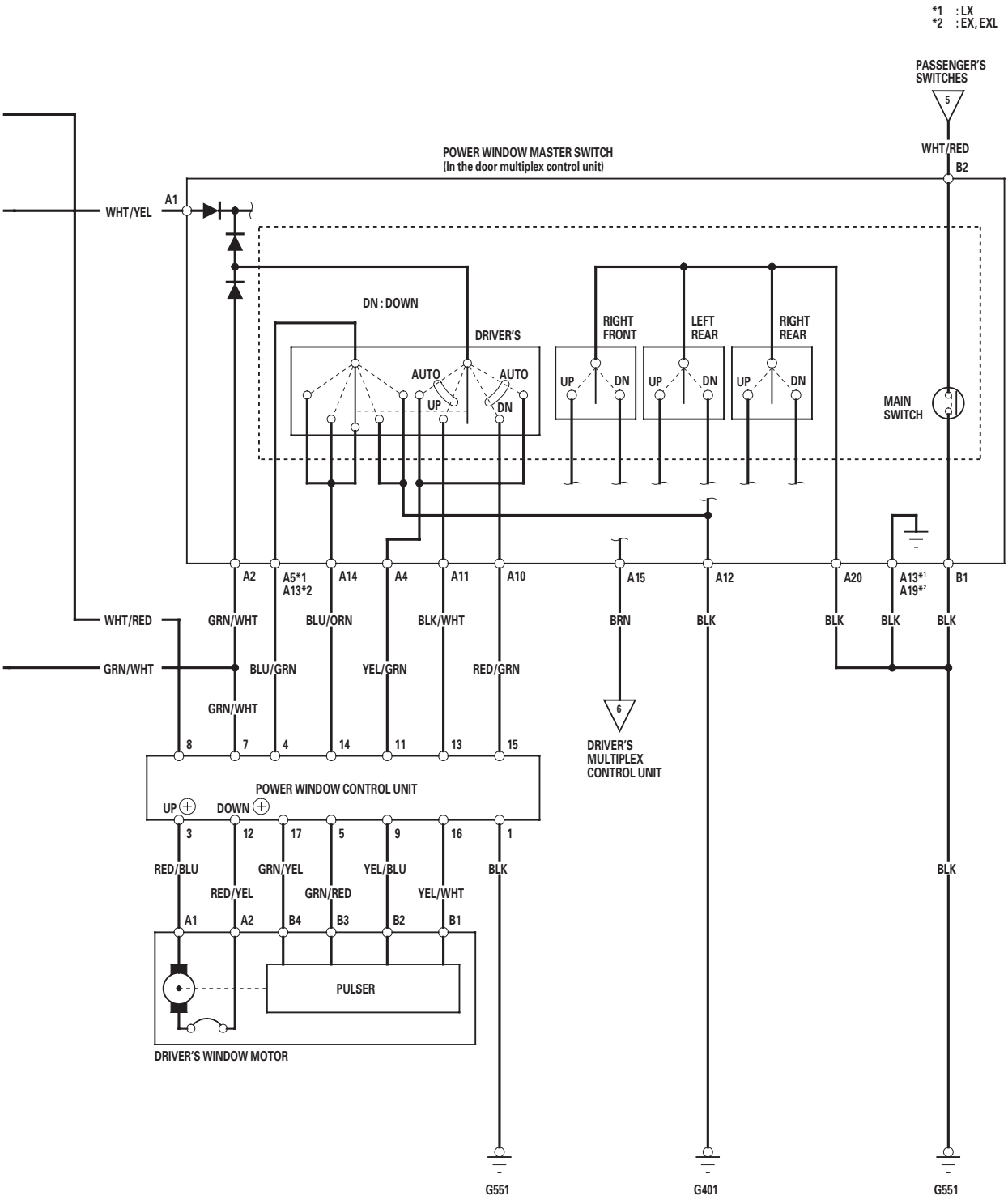
*1 : Left rear window motor open relay
*2 : Left rear window motor close relay
*3 : Right rear window motor open relay
*4 : Right rear window motor close relay
[ ]: '01—02 models



Circuit Diagram (cont'd)

'03-04 models

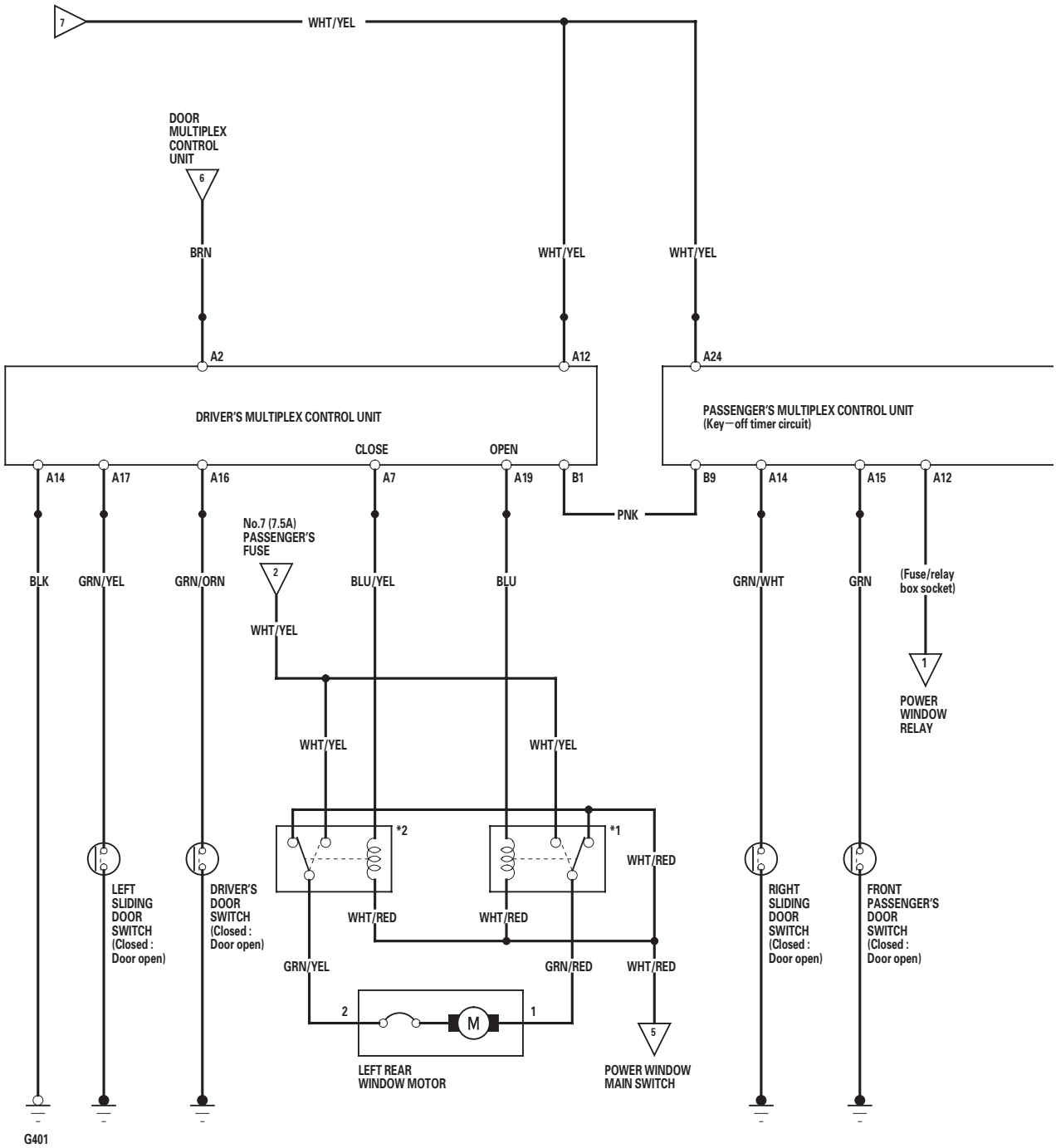



*1 : LX
*2 : EX, EXL
PASSENGER'S SWITCHES
5
WHT/RED
B2
POWER WINDOW MASTER SWITCH
(In the door multiplex control unit)
A1
WHT/YEL
DN : DOWN
DRIVER'S
AUTO
UP
AUTO
DN
RIGHT FRONT
LEFT REAR
RIGHT REAR
UP
DN
MAIN SWITCH
A2
A5*1
A13*2
A14
A4
A11
A10
A15
A12
A20
A13*1
A19*2
B1
WHT/RED
GRN/WHT
BLU/ORN
BLK/WHT
BRN
BLK
BLK
BLK
BLK
GRN/WHT
BLU/GRN
YEL/GRN
RED/GRN
GRN/WHT
6
DRIVER'S MULTIPLEX CONTROL UNIT
8
7
4
14
11
13
15
POWER WINDOW CONTROL UNIT
UP
DOWN
3
12
17
5
9
16
1
RED/BLU
GRN/YEL
YEL/BLU
BLK
BLK
RED/YEL
GRN/RED
YEL/WHT
A1
A2
B4
B3
B2
B1
PULSER
DRIVER'S WINDOW MOTOR
G551
G401
G551

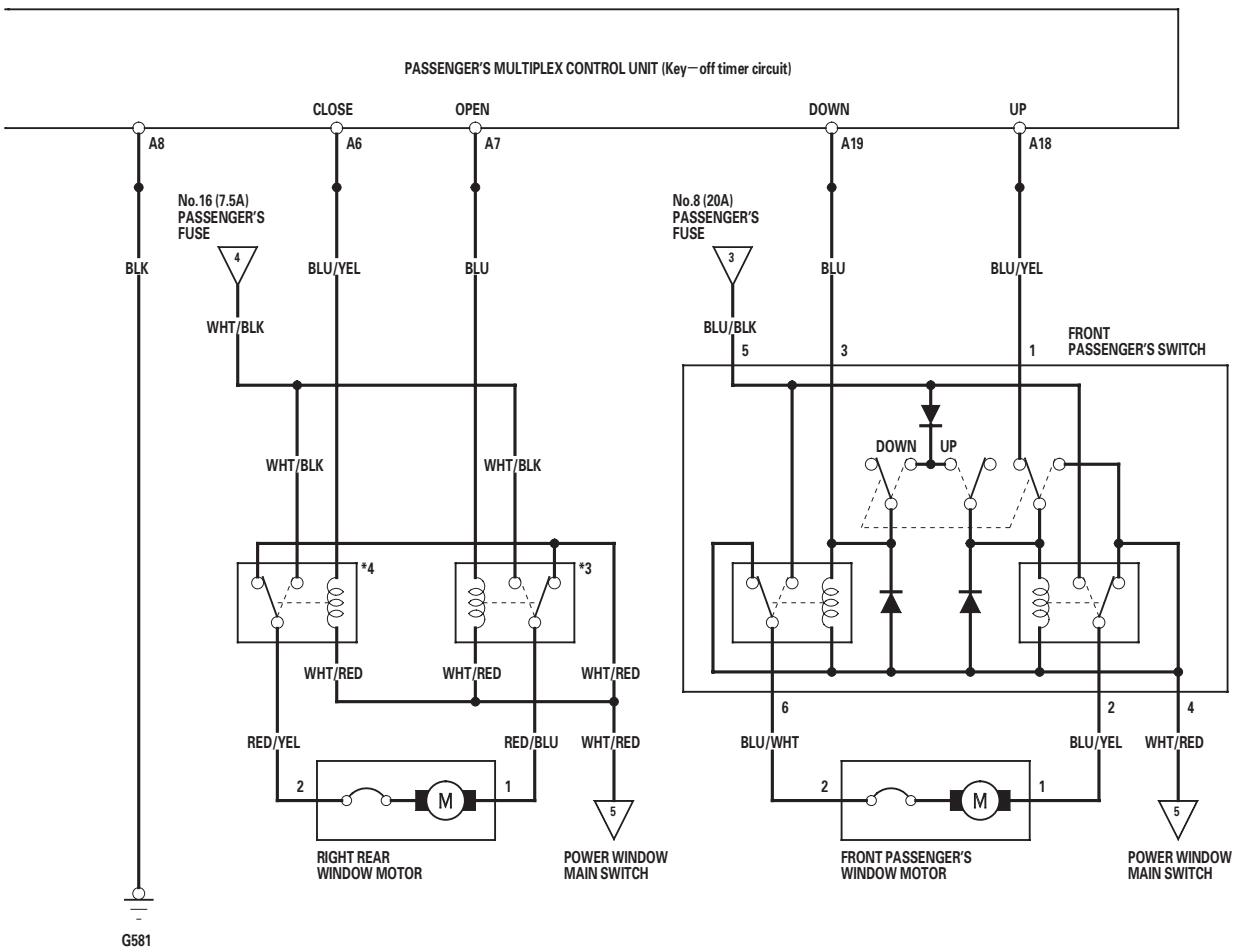
(cont'd)

Circuit Diagram (cont'd)

'03-04 models



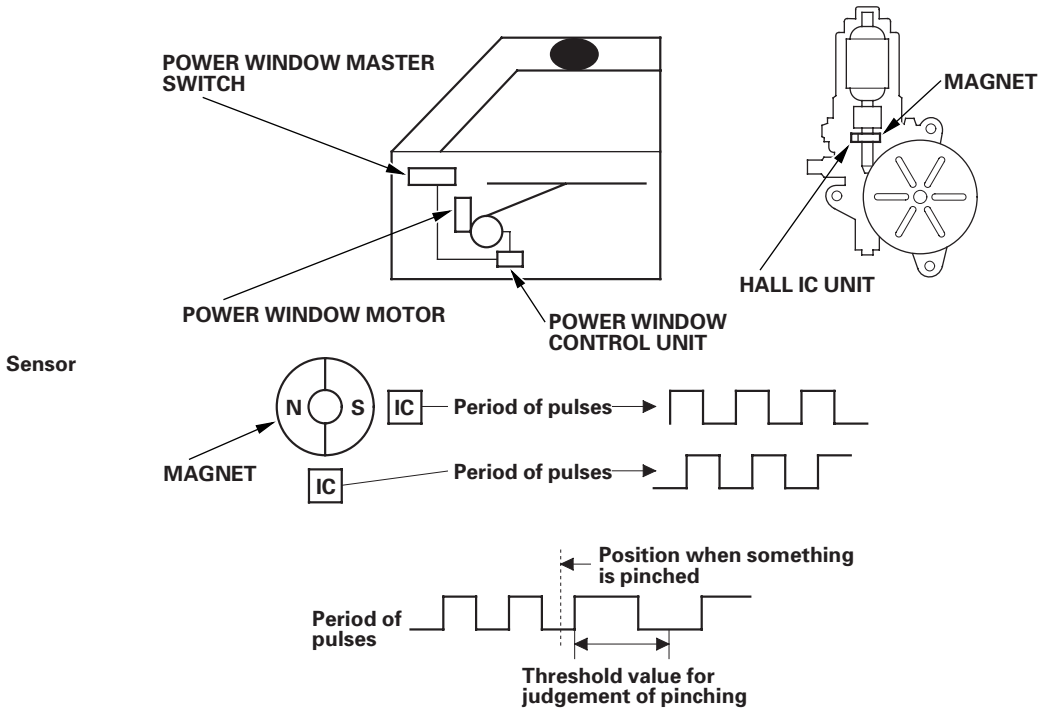
*1 : Left rear window motor open relay
*2 : Left rear window motor close relay
*3 : Right rear window motor open relay
*4 : Right rear window motor close relay



System Description

'03-04 models

The driver's window will stop and automatically open if you pinch your hand or something during auto-up operation. The system is composed of the power window master switch, the power window control unit and the driver's window motor.
The power window motor incorporates a pulser which generates pulses during the motor's operation and sends the pulses to the power window control unit. As soon as the power window control unit detects no pulses from the pulser, the control unit makes the power window motor stop and reverse.



Resetting the Power Window Control Unit
'03-04 models

Resetting the power window control unit is required after performing the following procedures

- Disconnecting the battery.
- Removing the No. 79 (20A) fuse in the under-hood subfuse box.
- Disconnecting the 18P connector from the power window control unit.
- Removing the window regulator, glass or glass run channel.
- Disconnecting the driver's door wire harness.

1. Turn the ignition switch off, then back ON (II).

2. Move the driver's window all the way down by holding the driver's switch to the AUTO DOWN position; when the window reaches the bottom, hold the driver's window switch in the AUTO DOWN position for 2 seconds.

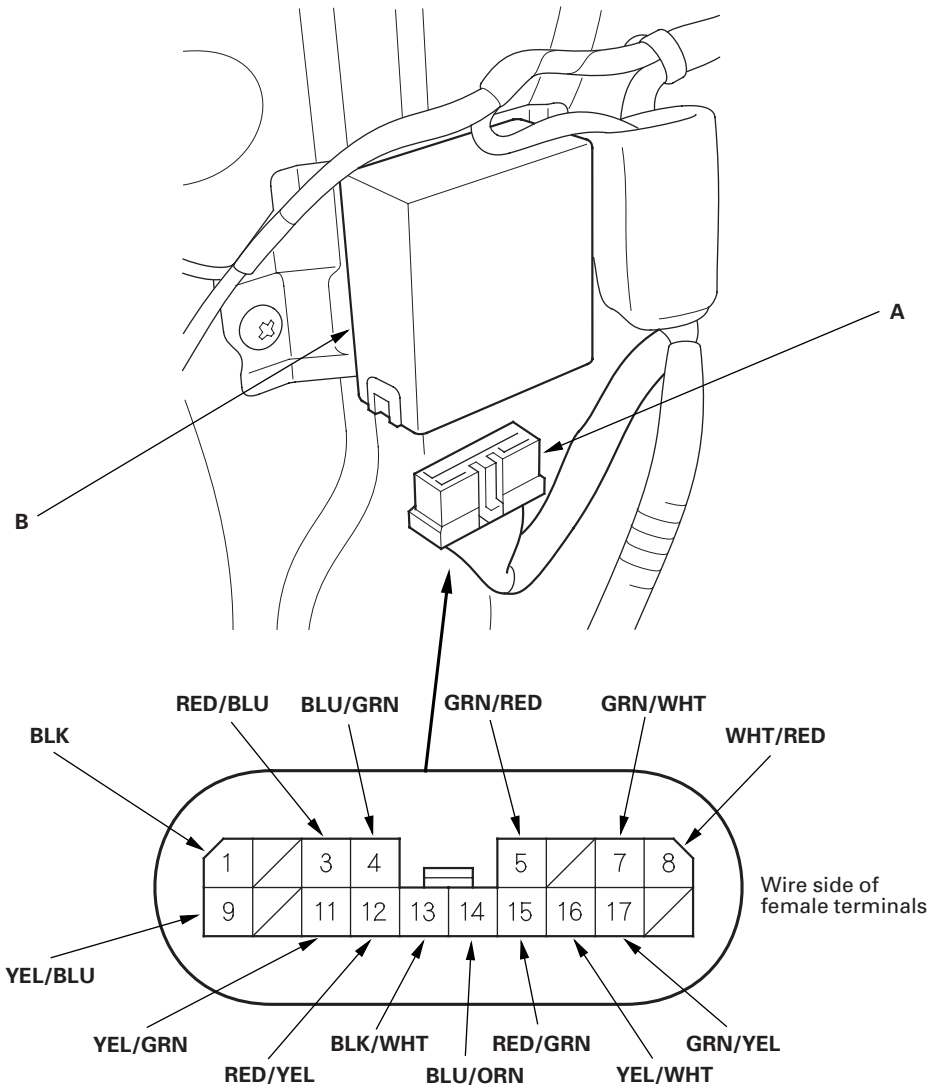
3. Move the driver's window all the way up without stopping by holding the driver's switch to the AUTO UP position; when the window reaches the top, hold the driver's window switch in the AUTO UP position for 2 seconds.

If the window does not work in AUTO, reset the power window control unit according to the above procedures again.

Power Window Control Unit Input Test

'03-04 models

1. Remove the driver's door panel (see page 20-7).
2. Disconnect the 18P connector (A) from the power window control unit (B).



3. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

(cont'd)

Power Window Control Unit Input Test (cont'd)

4. With the control unit connector still disconnected, make these input tests at the connector.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
1	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G551) • An open in the wire
8	WHT/RED	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 79 (20A) fuse in the under-hood sub fuse box • Faulty under-hood sub fuse box • An open in the wire
7	GRN/WHT	Ignition switch ON (II) and passenger's multiplex control unit terminal A12 connected to battery voltage	Check for voltage to ground: There should be battery voltage.	• Blown No. 15 (20A) fuse in the passenger's under-dash fuse/relay box • Faulty power window relay • An open in the wire
A12*	Fuse/relay box socket			
13	BLK/WHT	Ignition switch ON (II) and driver's window switch UP	Check for voltage to ground: There should be battery voltage.	• Faulty power window master switch • Faulty power window relay • Blown No. 15 (20A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
11	YEL/GRN	Ignition switch ON (II) and driver's window switch AUTO UP		
		Ignition switch ON (II) and driver's window switch AUTO DOWN		
15	RED/GRN	Ignition switch ON (II) and driver's window switch DOWN		
4	BLU/GRN	Driver's window switch DOWN	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • An open in the wire
4	BLU/GRN	Driver's window switch OFF	Check for continuity between the No. 4 and No. 14 terminals: There should be continuity.	• Faulty power window master switch • An open in the wire
14	BLU/ORN			
3	RED/BLU	Connect the battery power to the No. 12 (+) and ground the No. 3 (−) terminals	Check the driver's window motor: It should run (the window moves down).	• Faulty power window motor • An open in the wire
12	RED/YEL	Connect the battery power to the No. 3 (−) and ground the No. 12 (+) terminals	Check for driver's window motor: It should run (the window moves up).	

*: Passenger's multiplex control unit connector

5. Reconnect the 18P connector to the power window control unit, and reconnect the passenger's multiplex control unit. Then make these input tests at the connector.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, the control unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
17 9	GRN/YEL YEL/BLU	Ignition switch ON (II)	Check for voltage between the No. 17 (+) and No. 9 (−) terminals: There should be battery voltage.	• Faulty power window control unit • Faulty power window motor • Faulty pulser • An open in the wire
5	GRN/RED	While operating the driver's window switch	Check for voltage between the No. 5 (+) and No. 9 (−) terminals: There should be pulse voltage. • An analog voltmeter needle should move back and forth (0−5 V) alternately. • A digital voltmeter should show the average voltage of about 2.5 V.	
16	YEL/WHT	While operating the driver's window switch	Check for voltage between the No. 16 (+) and No. 9 (−) terminals: There should be pulse voltage. • An analog voltmeter needle should move back and forth (0−5 V) alternately. • A digital voltmeter should show the average voltage of about 2.5 V.	
17	GRN/YEL	Ignition switch ON (II)	Check for voltage between the No. 17 terminal and body ground: There should be battery voltage.	• Faulty power window control unit • Faulty power window motor • Short to ground

Control Unit Input Test

1. Before testing the power window control functions, troubleshoot the multiplex control system (see page 22-244).

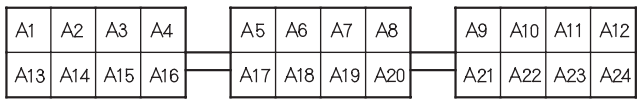
Driver's Multiplex Control Unit

2. Remove the driver's multiplex control unit from the driver's under-dash fuse/relay box.

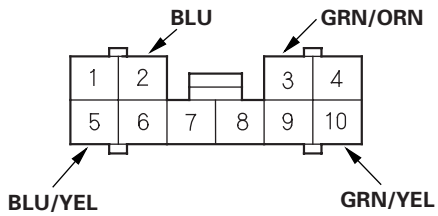
3. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

DRIVER'S UNDER-DASH FUSE/RELAY BOX SOCKET
(Driver's multiplex control unit connector A)



DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR A



Wire side of female terminals

4. With the driver's multiplex control unit still disconnected, make these input tests at the fuse/relay box socket.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A12	Fuse/relay box socket	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
A14		Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • An open in the wire
A7		Power window main switch ON and ignition switch ON (II), jump 12 V to A7	Check the left rear window motor operation: The window should close.	• Blown No. 7 (7.5A) fuse in the passenger's under-dash fuse/relay box • Poor ground (G581) • An open in the wire • A faulty window relay • A faulty window close motor • Faulty power window master switch
A19		Power window main switch ON and ignition switch ON (II), jump 12 V to A19	Check the left rear window motor operation: The window should open.	• Blown No. 7 (7.5A) fuse in the passenger's under-dash fuse/relay box • Poor ground (G581) • An open in the wire • A faulty window relay • A faulty window open motor • Faulty power window master switch

5. Reconnect the driver's multiplex control unit to the fuse/relay box, turn the ignition switch ON (II), and perform the following input tests at the appropriate connectors on the back of the fuse/relay box.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
*A3	GRN/ORN	Driver's door open	Check for voltage to ground: There should be less than 1 V.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty driver's door switch • A short in the wire
*A10	GRN/YEL	Left sliding door open	Check for voltage to ground: There should be less than 1 V.	• Faulty left sliding door switch • An open in the wire
		Left sliding door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty left sliding door switch • A short in the wire

*: Driver's under-dash fuse/relay box connector A

(cont'd)

Control Unit Input Test (cont'd)

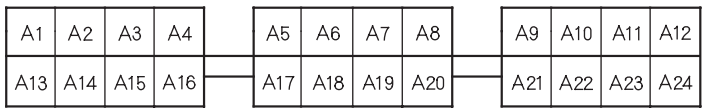
Passenger's Multiplex Control Unit

6. Remove the passenger's multiplex control unit from the passenger's under-dash fuse/relay box, and disconnect its connectors.

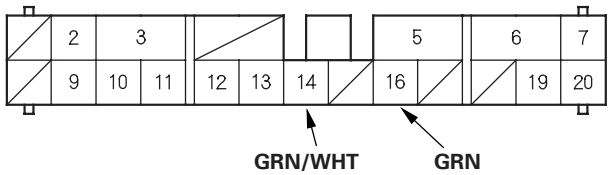
7. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 8.

PASSENGER'S UNDER-DASH FUSE/RELAY BOX SOCKET
(Passenger's multiplex control unit connector A)



PASSENGER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR A



Wire side of female terminals

8. With the passenger's multiplex control unit still disconnected, make these input tests at the connector and fuse/relay box socket.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input test prove OK, go to step 9.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A24	Fuse/relay box socket	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/relay box • Faulty passenger's fuse/relay box
A12	Fuse/relay box socket	Power window main switch ON and jump battery voltage to A12	Check for voltage to ground at the power window fuses 7, 8, 15 and 16 in the passenger's under-dash fuse/relay box. There should be battery voltage.	• Poor ground (G581) • Faulty power window relay • Faulty passenger's fuse/relay box • An open in the wire
A8		Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G581) • Faulty passenger's fuse/relay box • An open in the wire
A18	Fuse/relay box socket	With battery voltage jumped to A12, power window main switch ON and jump A18 to battery voltage	Check the front passenger's power window operation: The window should close.	• Blown No. 8 (20A) fuse in the passenger's under-dash fuse/relay box • Faulty front passenger's switch • An open in the wire • An open in the passenger's under-dash fuse/relay box
A19		With battery voltage jumped to A12, power window main switch ON and jump A19 to battery voltage	Check the front passenger's power window operation: The window should open.	
A6	Fuse/relay box socket	With battery voltage jumped to A12, power window main switch ON and jump A6 to battery voltage	Check the right rear power window operation: The window should close.	• Blown No. 16 (7.5A) fuse in the passenger's under-dash fuse/relay box • Faulty right rear window open relay • Faulty right rear window close relay • An open in the wire
A7		With battery voltage jumped to A12, power window main switch ON and jump A7 to battery voltage	Check the right rear power window operation: The window should open.	

9. Reconnect the passenger's multiplex control unit to the fuse/relay box, turn the ignition switch ON (II), and perform the following input tests at the appropriate connectors on the back of the fuse/relay box.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 10 ('99-02 models), or go to step 15 ('03-04 models).

*A16	GRN	Front passenger's door open	Check for voltage to ground: There should be less than 1 V.	• Faulty front passenger's door switch • An open in the wire
		Front passenger's door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty front passenger's door switch • A short in the wire
*A14	GRN/WHT	Right sliding door open	Check for voltage to ground: There should be less than 1 V.	• Faulty right sliding door switch • An open in the wire
		Right sliding door closed	Check for voltage to ground: There should be 5 V or more.	• Faulty right sliding door switch • A short in the wire

*: Passenger's under-dash fuse/relay box connector A

(cont'd)

Control Unit Input Test (cont'd)

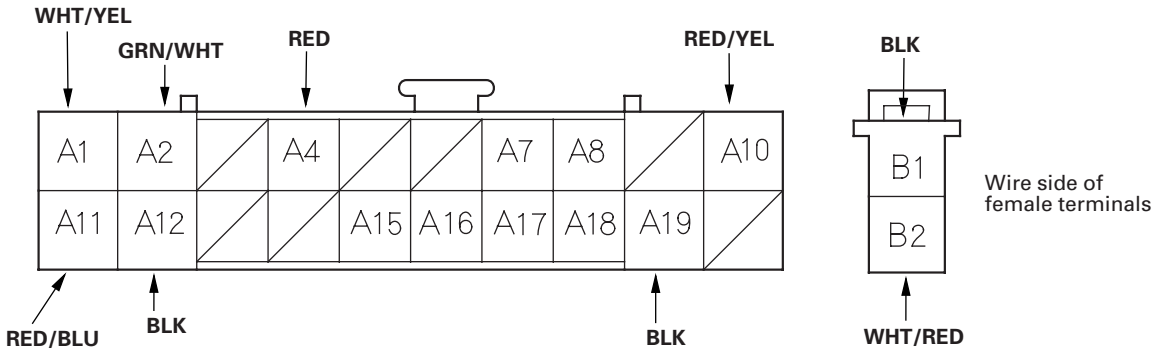
Door Multiplex Control Unit

10. Remove the door multiplex control unit from the driver's door, and disconnect its connectors.

11. Inspect the connector and socket terminals to be sure they are all making good contact.

    - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
    - If the terminals look OK, go to step 12.

DOOR MULTIPLEX CONTROL UNIT CONNECTORS



Wire side of female terminals

12. With the door multiplex control unit still disconnected, make these input tests at the connectors.

    • If any test indicates a problem, find and correct the cause, then recheck the system.
    • If all the input tests prove OK, go to step 13.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A1	WHT/YEL	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/ relay box • An open in the wire
A2	GRN/WHT	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 15 (20A) fuse in the passenger's under-dash fuse/ relay box • An open in the wire
A12 A19 B1	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401, G551) • An open in the wire
A11 A10	RED/BLU RED/YEL	Connect the A10 terminal to the A12 terminal, and the A11 terminal to the A1 terminal	Check the driver's window motor operation: The window should go up (reverse the wires for down).	• Faulty driver's window motor • An open in the wire

13. Reconnect the door multiplex control unit, and perform the following input test.

    • If any test indicates a problem, find and correct the cause, then recheck the system.
    • If all the input tests prove OK, go to step 14.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A4	RED	While operating the driver's window switch	Check for voltage between the A4 and A12 terminals: Approx. 6 V should be indicated as the driver's window motor runs.	• Faulty pulser • Faulty driver's window motor • An open in the wire • Short to ground
B2	WHT/RED	Operate the passenger's switch with master main switch OFF	Check for voltage to ground: There should be battery voltage.	• Faulty passenger's switch • An open in the wire

14. If all the input tests prove OK, one of the control units must be faulty. Substitute a known-good control unit for the one that is most likely at fault, then recheck the system. If the system works properly, the original control unit is faulty; replace it. If there is still a malfunction, substitute a known-good control unit for the next most likely unit to be at fault, and recheck. If the system works properly, the original unit is faulty; replace it.

(cont'd)

Control Unit Input Test (cont'd)

Door Multiplex Control Unit

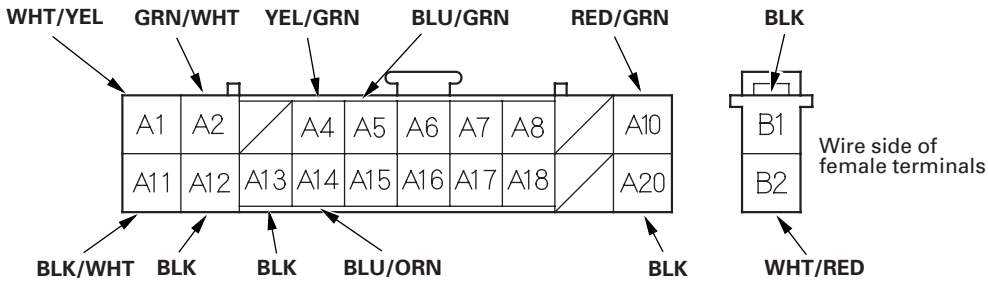
15. Remove the door multiplex control unit from the driver's door, and disconnect its connectors.

16. Inspect the connector and socket terminals to be sure they are all making good contact.

    - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
    - If the terminals look OK, go to step 17.

LX model:

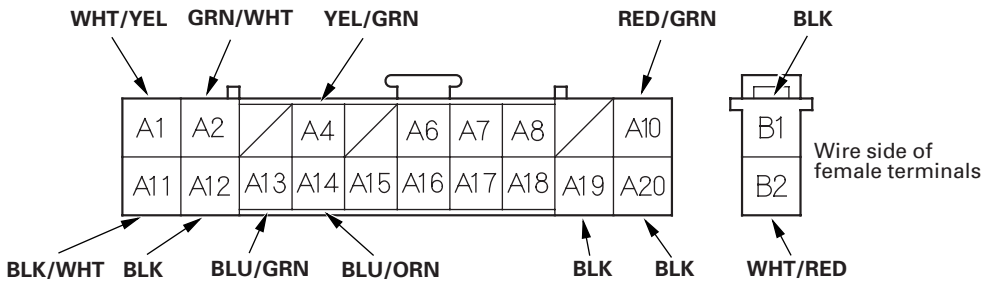
DOOR MULTIPLEX CONTROL UNIT CONNECTORS



Wire side of female terminals

EX, EXL models:

DOOR MULTIPLEX CONTROL UNIT CONNECTORS



Wire side of female terminals

17. With the door multiplex control unit still disconnected, make these input tests at the connectors.

    • If any test indicates a problem, find and correct the cause, then recheck the system.
    • If all the input tests prove OK, go to step 18.

    NOTE: For the terminals A4, A5 (LX), A10, A11, A13 (EX, EXL), and A14, refer to the power window control unit input test (see page 22-201).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A1	WHT/YEL	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/ relay box • Faulty passenger's fuse/relay box • An open in the wire
A2	GRN/WHT	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 15 (20A) fuse in the passenger's under-dash fuse/ relay box • Faulty passenger's multiplex control unit • Faulty power window relay • Poor ground (G581) • An open in the wire
A12	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401, G551) • An open in the wire
A13*1 A19*2				
A20				
B1				

* 1: LX
* 2: EX, EXL

18. Reconnect the door multiplex control unit, and perform the following input test.

    • If any test indicates a problem, find and correct the cause, then recheck the system.
    • If all the input tests prove OK, go to step 19.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B2	WHT/RED	Ignition switch ON (II), operate the passenger's switch with master main switch OFF	Check for voltage to ground: There should be battery voltage.	• Faulty passenger's switch • An open in the wire

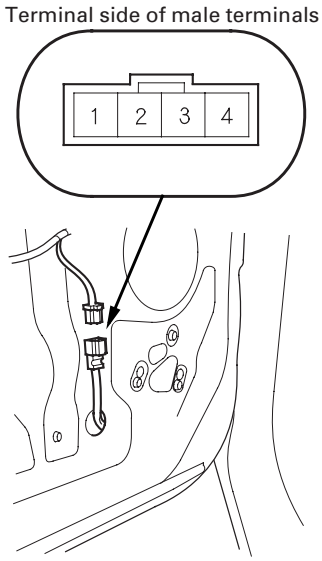
19. If all the input tests prove OK, one of the control units must be faulty. Substitute a known-good control unit for the one that is most likely at fault, then check the system. If the system works properly, the original control unit is faulty; replace it. If there is still a malfunction, substitute a known-good control unit for the next most likely unit to be at fault, and recheck. If the system works properly, the original unit is faulty; replace it.

Driver's Window Motor Test

'99-02 models

Motor Test

1. Remove the driver's door panel (see page 20-7).
2. Disconnect the 4P connector from the window motor.



3. Test the motor in each direction by connecting battery power and ground according to the table. When the motor stops running, disconnect one lead immediately.

Terminal / Direction	1	2
UP	⊖	⊕
DOWN	⊕	⊖

4. If the motor does not run or fails to run smoothly, replace it.

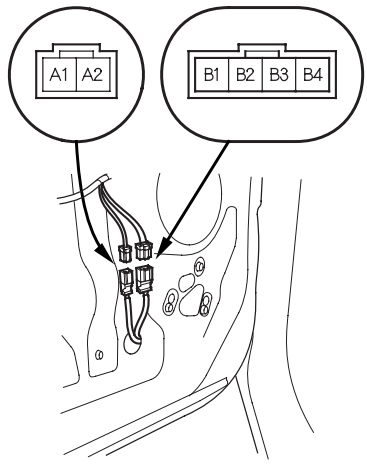
Pulser Test

5. Connect the test leads of an analog ohmmeter to the No. 3 and No. 4 terminals.
6. Run the motor by connecting power and ground to the No. 1 and No. 2 terminals. The ohmmeter needle should move back and forth alternately.
7. If the test is not as specified, replace the driver's window motor.

'03-04 models

Motor Test

1. Remove the driver's door panel (see page 20-7).
2. Disconnect the 2P and 4P connectors from the window motor.



3. Test the motor in each direction by connecting battery power and ground according to the table. When the motor stops running, disconnect one lead immediatery.

Terminal / Direction	A1	A2
UP	⊕	⊖
DOWN	⊖	⊕

4. If the motor does not run or fails to run smoothly, replace it.

Pulser Test

5. Reconnect the 4P connector to the window motor.

6. Check for voltage between the terminals.

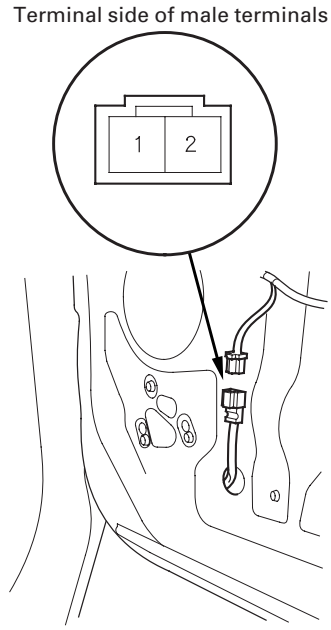
   - There should be battery voltage between the B4 (+) and B2 (−) terminals when the ignition switch ON (II).
   - Connect an analog voltmeter between the B3 (+) and B2 (−) terminals, and run the window motor at down or up. The voltmeter needle should move back and forth alternately (a digital voltmeter should show the average voltage between 0−5 V).
   - Connect an analog voltmeter between the B1 (+) and B2 (−) terminals, and run the window motor at down or up. The voltmeter needle should move back and forth alternately. (a digital voltmeter should show the average voltage between 0−5 V).

7. If the test is not as specified, replace the driver's window motor.

Passenger's Window Motor Test

1. Remove the passenger's door panel (see page 20-7).

2. Disconnect the 2P connector from the window motor.



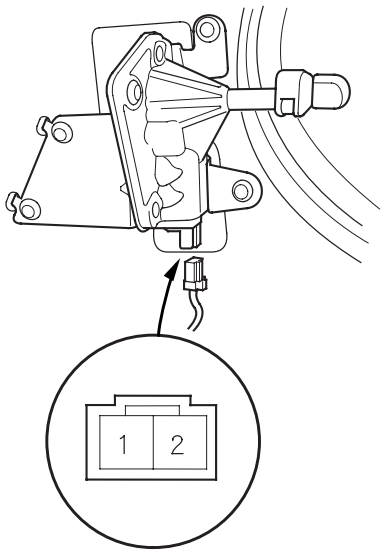
3. Check window motor operation by connecting power and ground according to the table. When the motor stops running, disconnect one lead immediately.

Terminal / Direction	1	2
UP	⊕	⊖
DOWN	⊖	⊕

4. If the motor does not run or fails to run smoothly, replace it.

Rear Window Motor Test

1. Remove the side trim panel (see page 20-60).
2. Disconnect the 2P connector from the rear window motor.



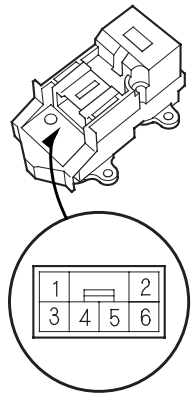
3. Check window motor operation by connecting power and ground according to the table. When the motor stops running, disconnect one lead immediately.

Terminal / Direction	1	2
OPEN	⊕	⊖
CLOSE	⊖	⊕

4. If the motor does not run or fails to run smoothly, replace it.

Passenger's Window Switch Test

1. Remove the front passenger's switch from front passenger's door panel (see page 20-7).



2. Check for continuity between the terminals in each switch position according to the table.

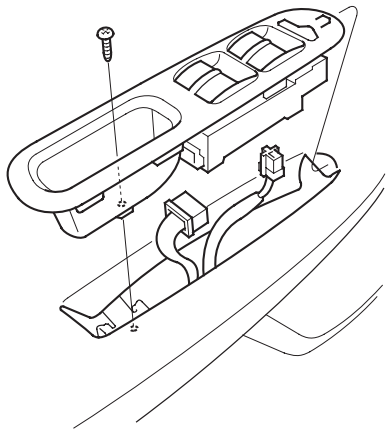
Terminal / Position	1 [2]	2 [4]	3 [5]	4 [6]	5 [3]	6 [1]
UP	○	○	○	○	○	○
OFF	○		○	○	○	○
DOWN	○	○	○	○	○	○

[ ] : **'01-04 models**

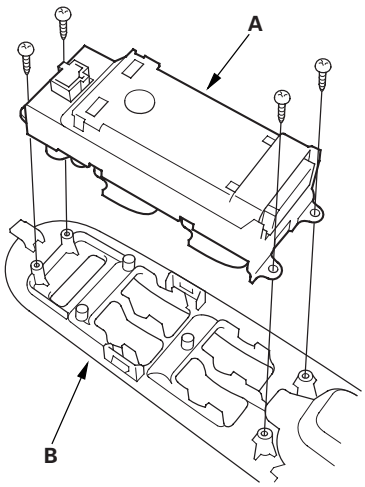
3. If the continuity is not as specified, replace the switch.

Master Switch Replacement

1. Remove the screw and master switch assembly from the door panel.

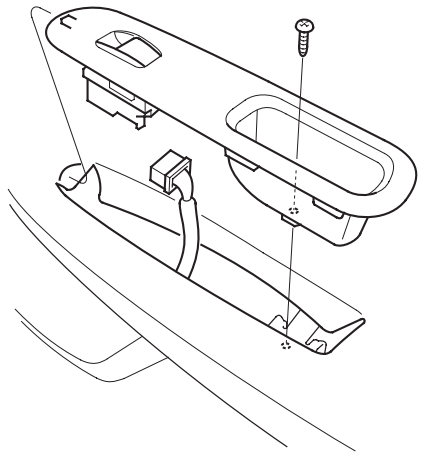


2. Remove the four mounting screws, then remove the master switch (A) from the panel (B).

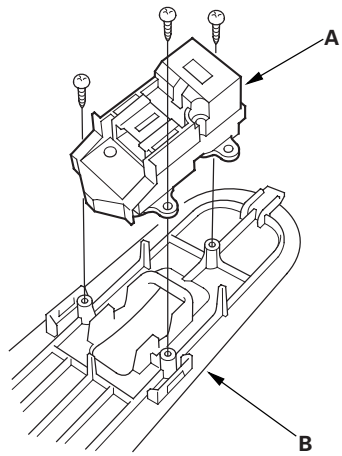


Passenger's Window Switch Replacement

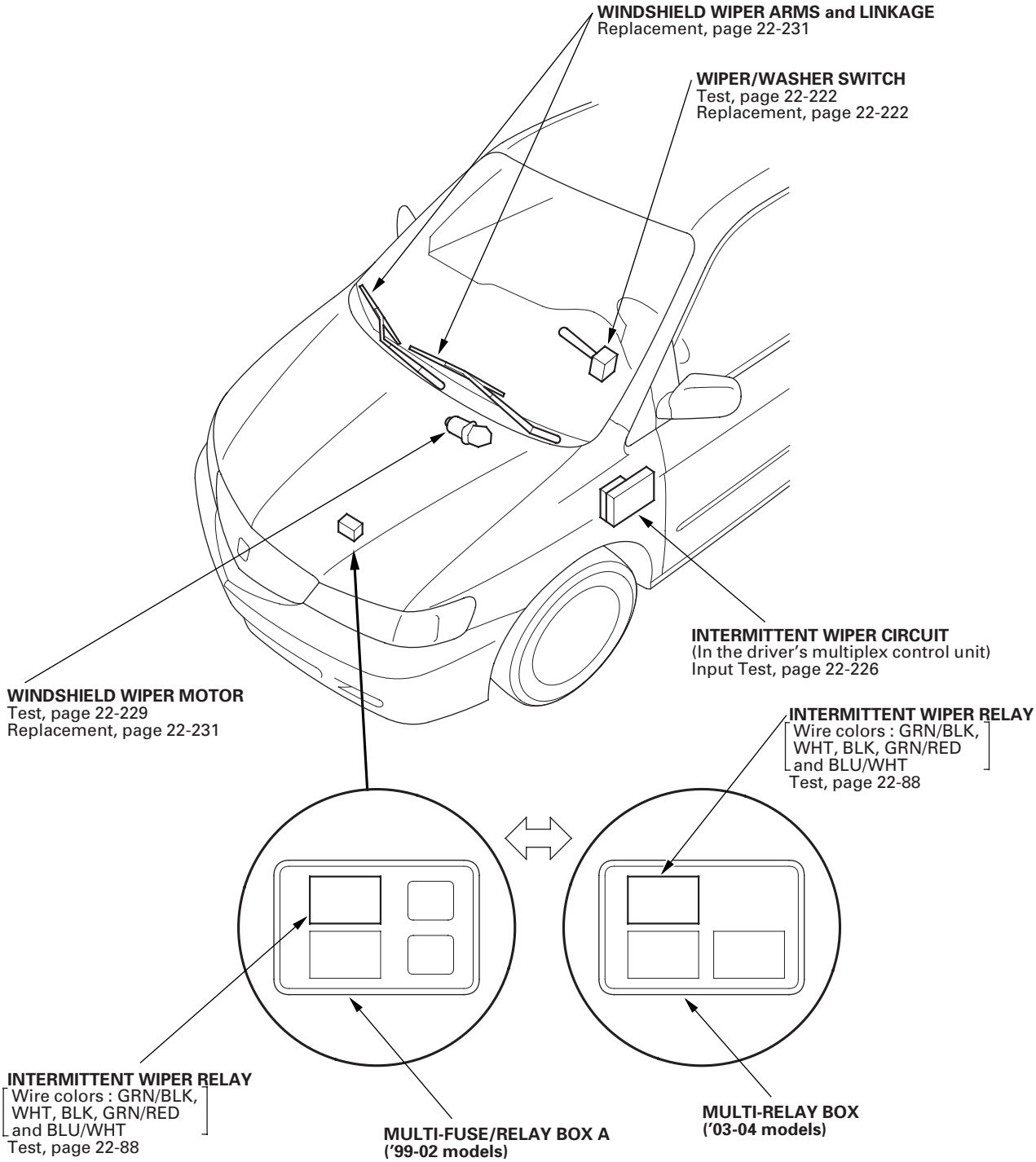
1. Remove the screw and passenger's window switch assembly from the door panel.

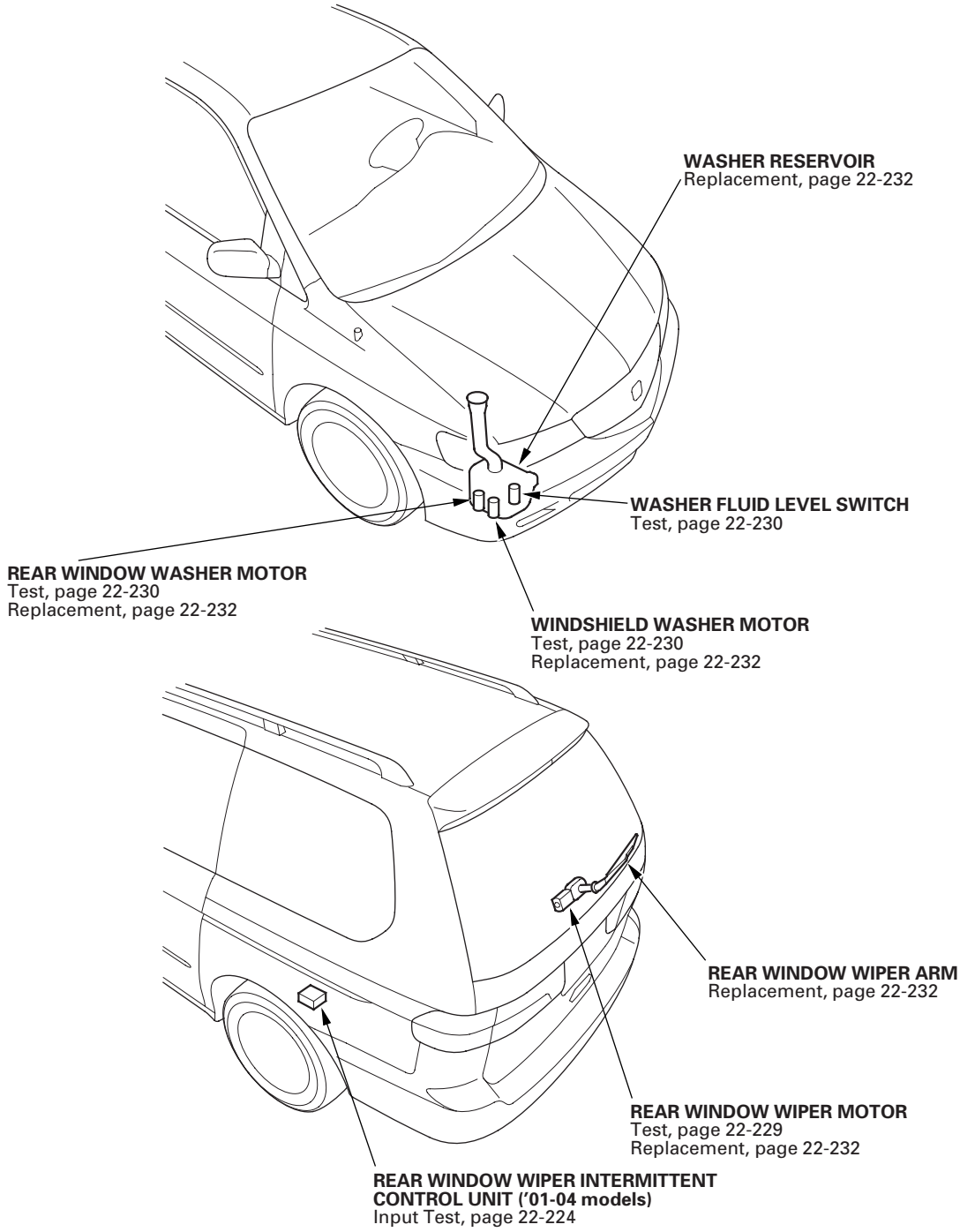


2. Remove the three mounting screws, then remove the passenger's window switch (A) from the panel (B).

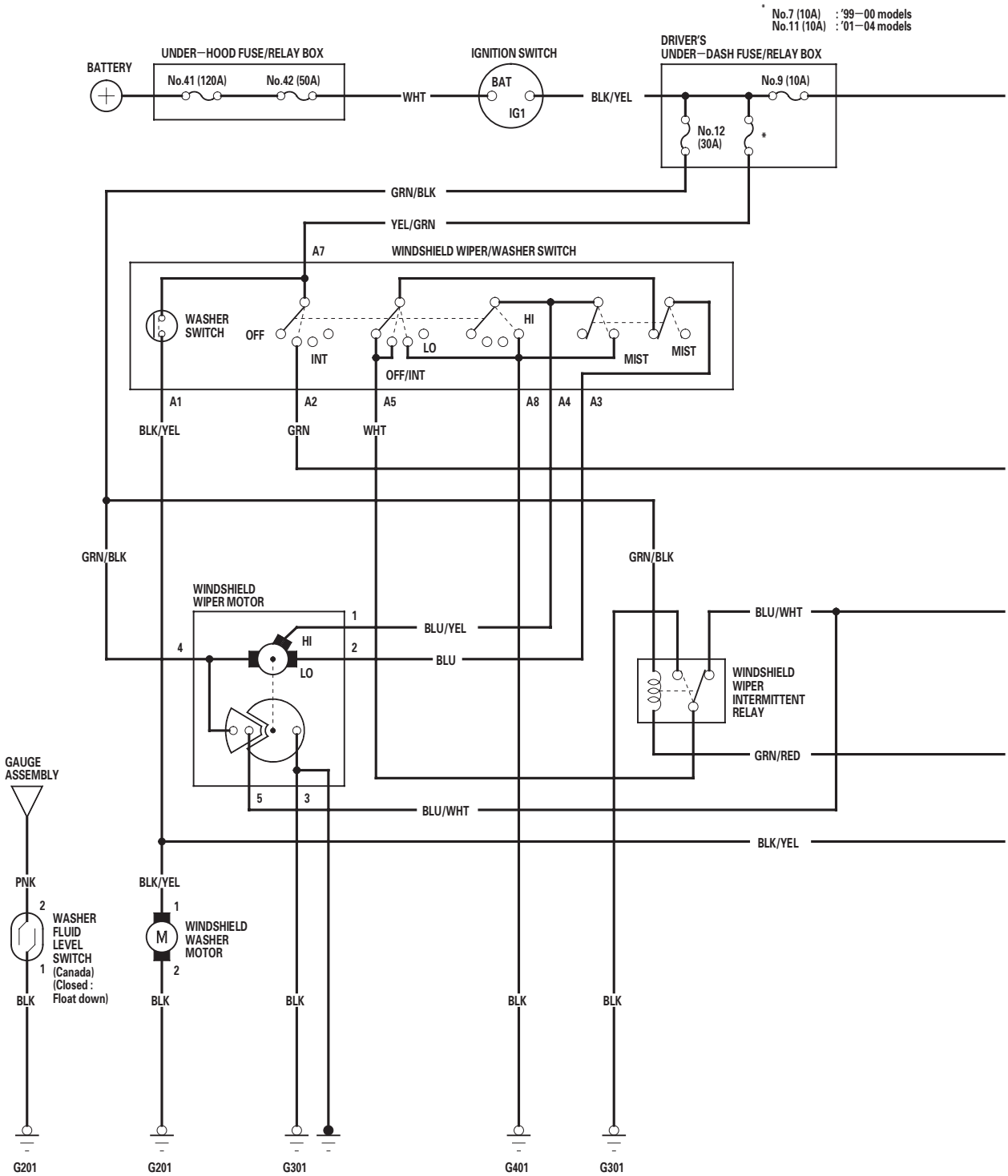


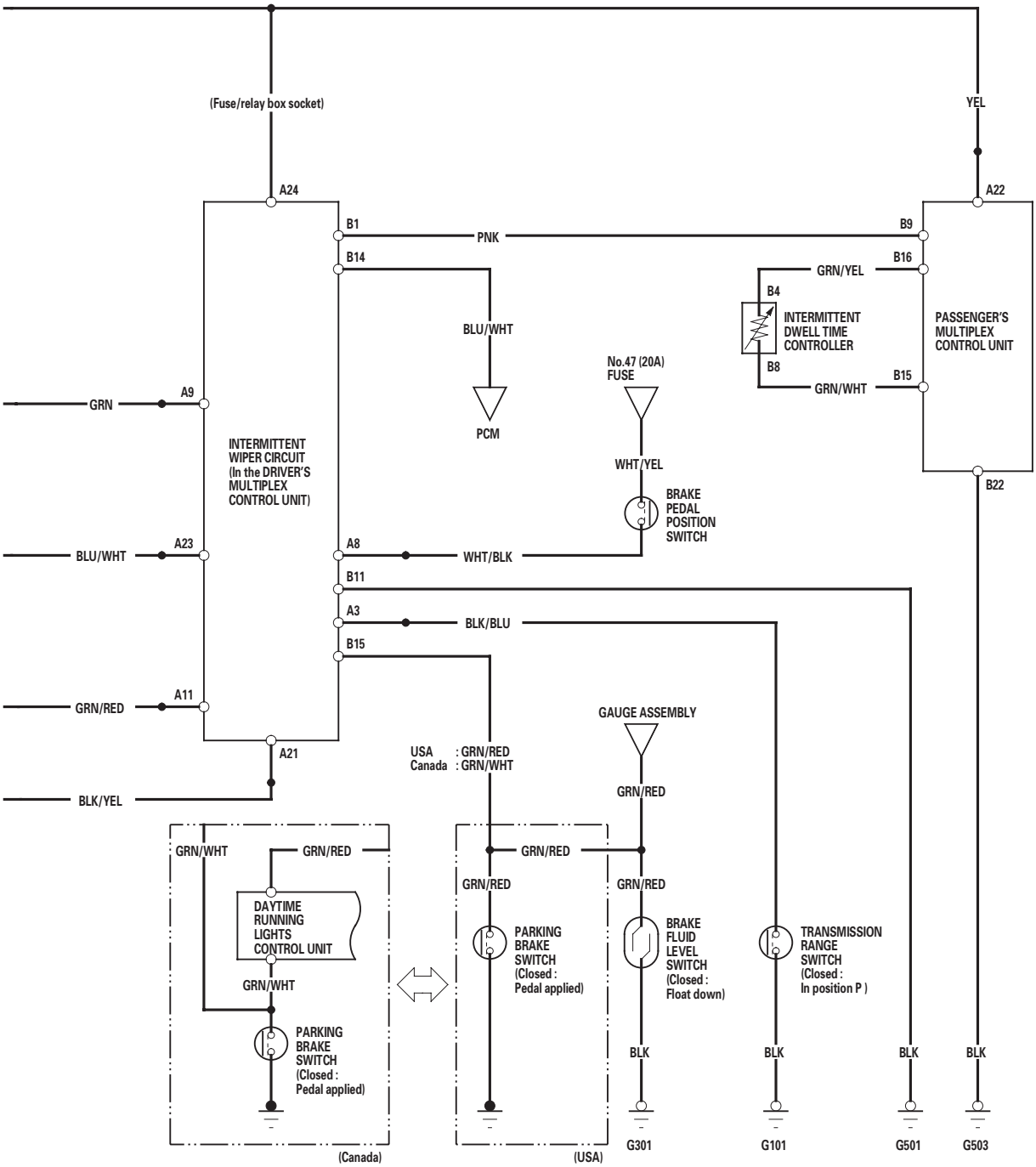
Component Location Index




WASHER RESERVOIR
Replacement, page 22-232
WASHER FLUID LEVEL SWITCH
Test, page 22-230
REAR WINDOW WASHER MOTOR
Test, page 22-230
Replacement, page 22-232
WINDSHIELD WASHER MOTOR
Test, page 22-230
Replacement, page 22-232
REAR WINDOW WIPER ARM
Replacement, page 22-232
REAR WINDOW WIPER MOTOR
Test, page 22-229
Replacement, page 22-232
REAR WINDOW WIPER INTERMITTENT CONTROL UNIT ('01-04 models)
Input Test, page 22-224

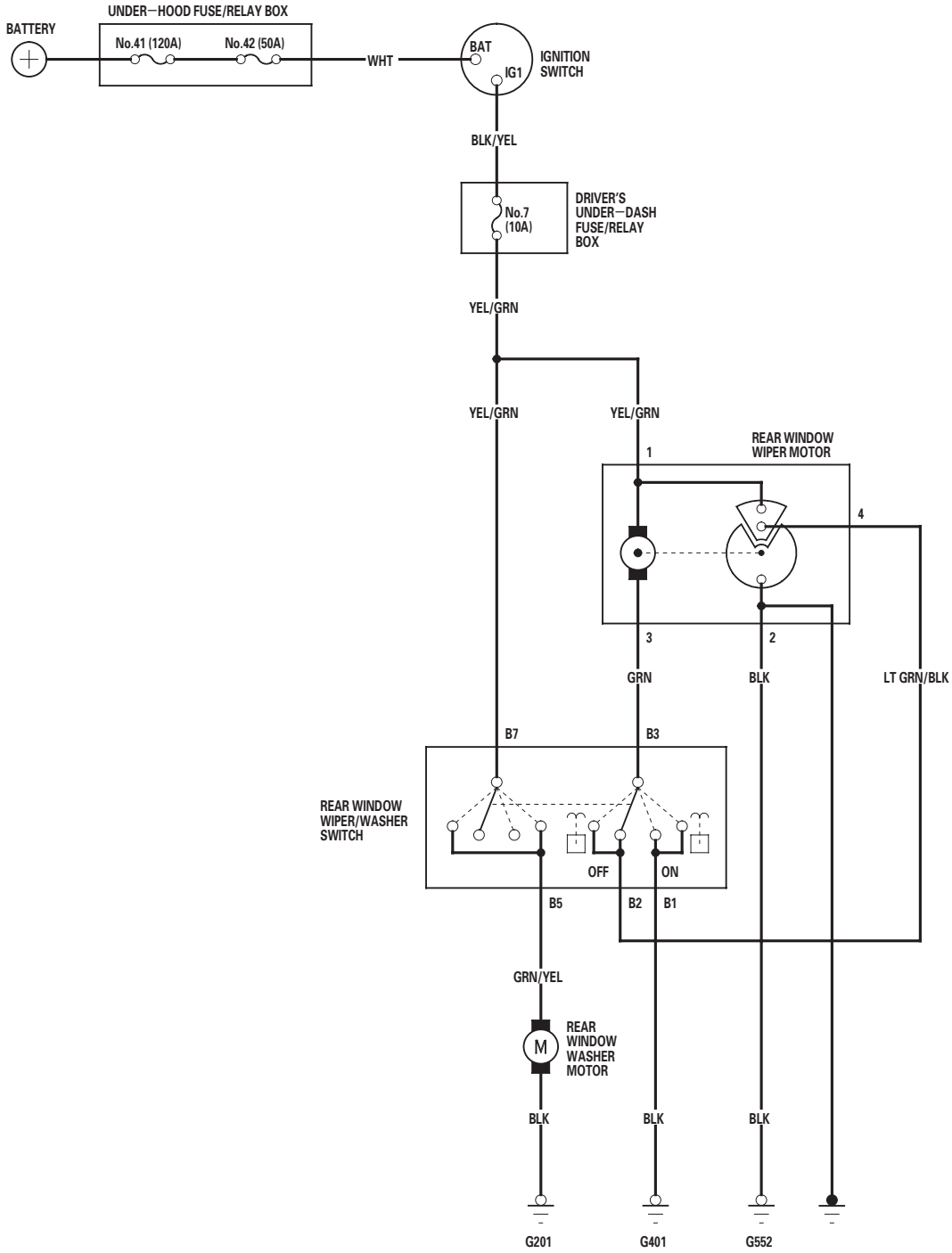
Circuit Diagram - Windshield



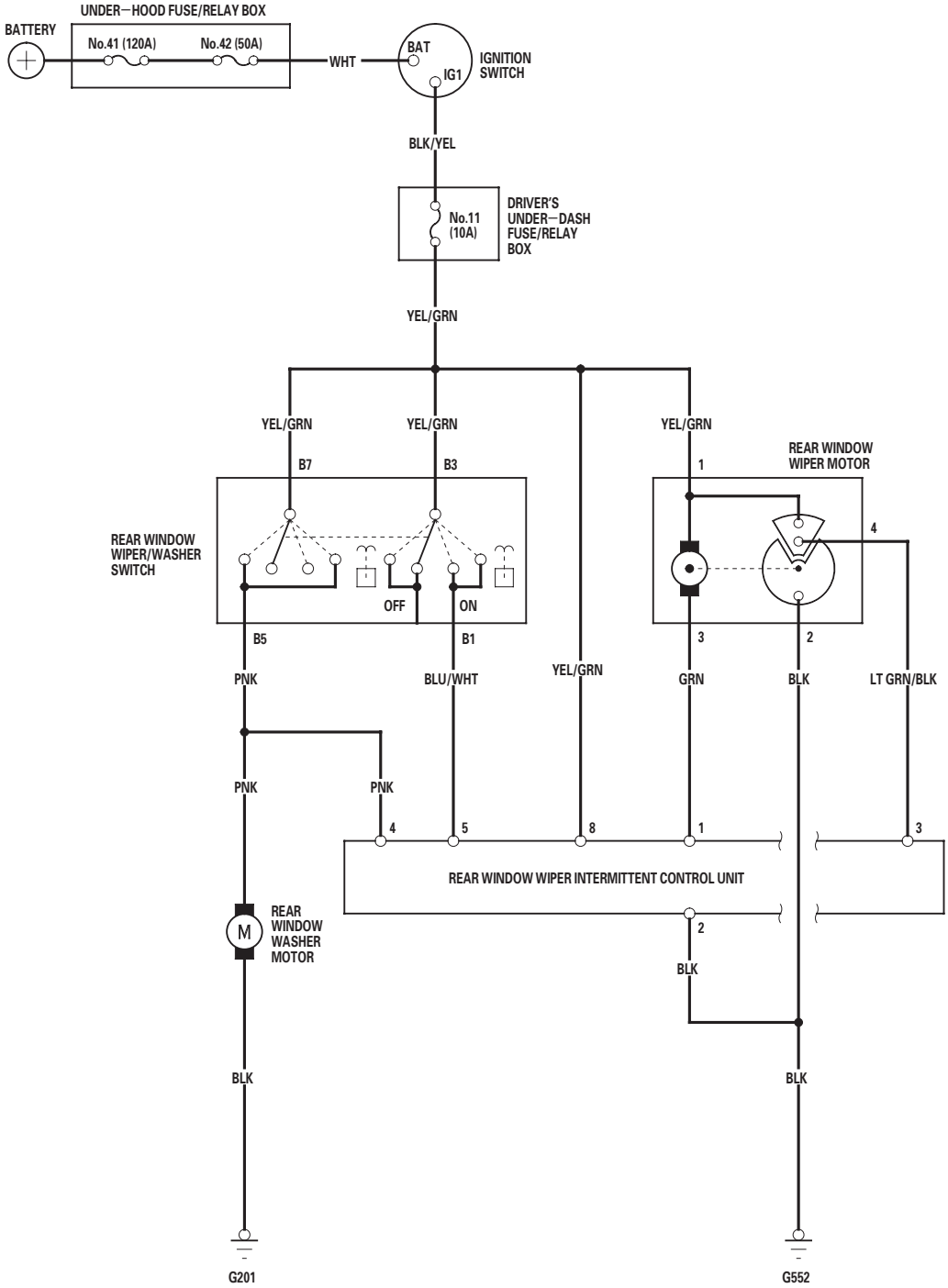

(Fuse/relay box socket)
YEL
A24
A22
B1
PNK
B9
B14
GRN/YEL
B16
B4
INTERMITTENT DWELL TIME CONTROLLER
B8
PASSENGER'S MULTIPLEX CONTROL UNIT
BLU/WHT
PCM
No.47 (20A) FUSE
GRN
A9
GRN/WHT
B15
INTERMITTENT WIPER CIRCUIT (In the DRIVER'S MULTIPLEX CONTROL UNIT)
WHT/YEL
BRAKE PEDAL POSITION SWITCH
B22
BLU/WHT
A23
A8
WHT/BLK
B11
A3
BLK/BLU
B15
GRN/RED
A11
GAUGE ASSEMBLY
A21
USA : GRN/RED
Canada : GRN/WHT
BLK/YEL
GRN/RED
GRN/WHT
GRN/RED
GRN/RED
GRN/RED
GRN/RED
DAYTIME RUNNING LIGHTS CONTROL UNIT
PARKING BRAKE SWITCH (Closed : Pedal applied)
BRAKE FLUID LEVEL SWITCH (Closed : Float down)
TRANSMISSION RANGE SWITCH (Closed : In position P)
GRN/WHT
PARKING BRAKE SWITCH (Closed : Pedal applied)
BLK
BLK
BLK
BLK
G301
G101
G501
G503
(Canada)
(USA)

Circuit Diagram - Rear Window

'99-00 models

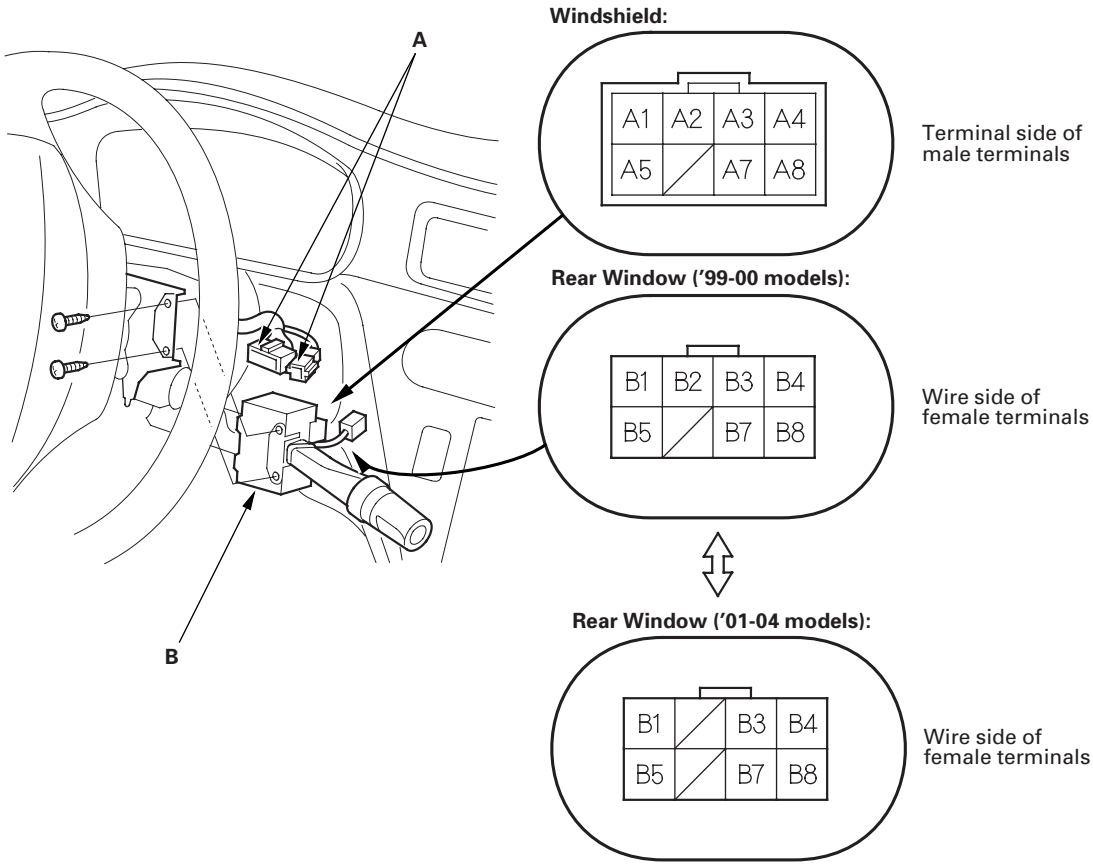


'01-04 models


UNDER—HOOD FUSE/RELAY BOX
BATTERY
No.41 (120A)
No.42 (50A)
WHT
BAT
IG1
IGNITION SWITCH
BLK/YEL
No.11 (10A)
DRIVER'S UNDER—DASH FUSE/RELAY BOX
YEL/GRN
YEL/GRN
YEL/GRN
YEL/GRN
B7
B3
1
REAR WINDOW WIPER MOTOR
4
REAR WINDOW WIPER/WASHER SWITCH
OFF
ON
B5
B1
3
2
PNK
BLU/WHT
YEL/GRN
GRN
BLK
LT GRN/BLK
PNK
PNK
4
5
8
1
3
REAR WINDOW WIPER INTERMITTENT CONTROL UNIT
M
REAR WINDOW WASHER MOTOR
2
BLK
BLK
BLK
G201
G552

Wiper/Washer Switch Test/Replacement

1. Remove the driver's dashboard lower cover (see page 20-69).
2. Remove the steering column covers (see page 17-25).
3. Disconnect the connectors (A) from the wipers/washers switch (B), then remove the two screws and the switch.



4. Check for continuity between the terminals in each switch position according to the table. If the switch fails any continuity check, replace the switch.

Windshield:

Terminal / Position	A1	A2	A3	A4	A5	A7	A8	B4		B8
OFF			○		○					
INT		○				○				
			○		○					
LO			○				○			
HI				○			○			
Mist switch ON				○			○			
Washer switch ON	○					○				
Intermittent dwell time controller turned								○	0—30 kΩ	○

Rear Window ('99-00 models):

Terminal / Position	B1	B2	B3	B5	B7
Washer switch ON and wiper switch OFF		○	○	○	○
OFF		○	○		
ON	○		○		
Wiper and Washer switch ON	○		○	○	○

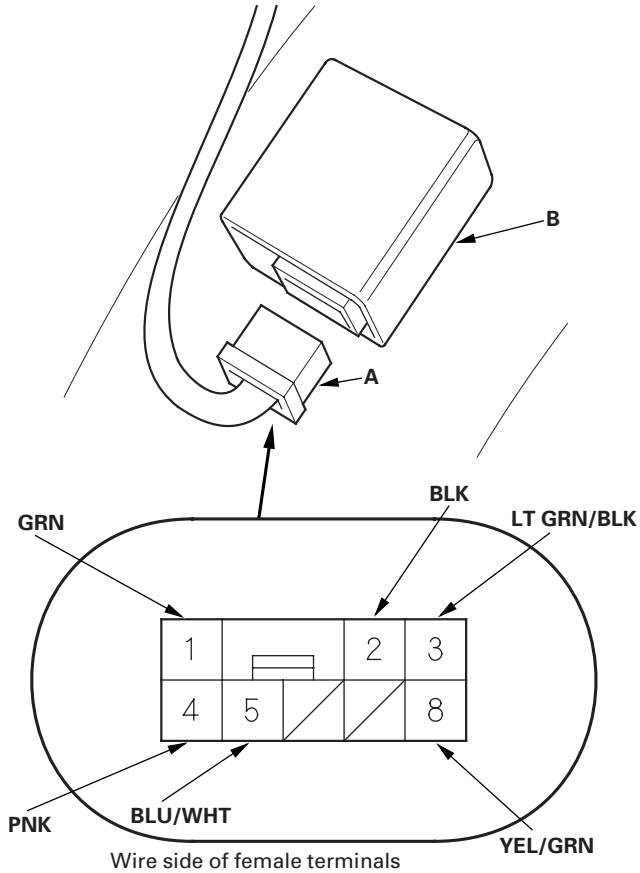
Rear Window ('01-04 models):

Terminal / Position	B1	B3	B5	B7
Washer switch ON and wiper switch OFF			○	○
OFF				
ON	○	○		
Wiper and Washer switch ON	○	○	○	○

Rear Window Wiper Intermittent Control Unit Input Test

'01-04 models

1. Remove the left rear side trim panel (see page 20-60).
2. Disconnect the 8P connector (A) from the rear window intermittent wiper control unit (B).



3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

4. With the connector still disconnected, make these input tests at the connector.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 5.

Cavity	Wire	Test Condition	Test: Desired result	Possible cause if result is not obtained
1	GRN	Ignition switch ON (II)	Attach to ground: Rear window wiper motor should run.	• Blown No. 11 (10A) fuse in the driver's under-dash fuse/ relay box • Faulty rear window wiper motor • An open in the wire
3	LT GRN/ BLK	Ignition switch ON (II) and jump terminal No. 1 to ground	Check for continuity to ground: The meter should alternate from continuity to ground to open.	• Blown No. 11 (10A) fuse in the driver's under-dash fuse/ relay box • Faulty rear window wiper motor • An open in the wire

5. Reconnect the rear window wiper intermittent control unit and make these input tests.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, the control unit must be faulty, replace it.

Cavity	Wire	Test Condition	Test: Desired result	Possible cause if result is not obtained
8	YEL/GRN	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 11 (10A) fuse in the driver's under-dash fuse/ relay box • An open in the wire
2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G552) • An open in the wire
5	BLU/WHT	Ignition switch ON (II) and rear window wiper switch ON	Check for voltage to ground: There should be battery voltage.	• Blown No. 11 (10A) fuse in the driver's under-dash fuse/ relay box • Faulty rear window wiper switch • An open in the wire
4	PNK	Ignition switch ON (II) and rear window washer switch ON	Check for voltage to ground: There should be battery voltage.	• Blown No. 11 (10A) fuse in the driver's under-dash fuse/ relay box • Faulty rear window wiper switch • An open in the wire

Control Unit Input Test

1. Before testing the wiper/washer control functions, troubleshoot the multiplex control system (see page 22-244).

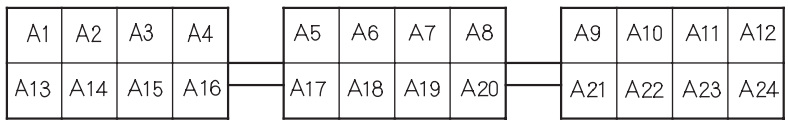
Driver's Multiplex Control Unit

2. Remove the driver's multiplex control unit from the driver's under-dash fuse/relay box, and disconnect its connector.

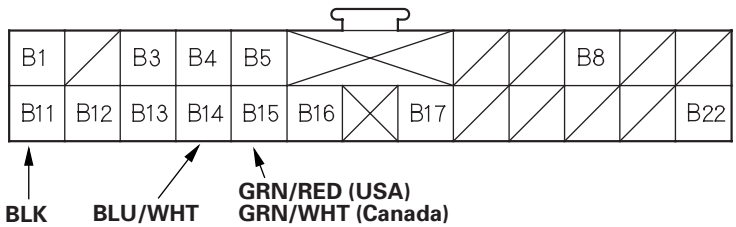
3. Inspect all connector and socket terminals to be sure they are making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

DRIVER'S UNDER-DASH FUSE/RELAY BOX SOCKET
(Driver's multiplex control unit connector A)



DRIVER'S MULTIPLEX CONTROL UNIT CONNECTOR B



Wire side of female terminals

4. With the driver's multiplex control unit still disconnected, make these input tests at the connector and fuse/relay box socket.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A3	Fuse/relay box socket	Ignition switch ON (II), and shift lever in Park	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G101) • Faulty transmission range switch • An open in the wire
A8		Brake pedal pushed	Check for voltage to ground: There should be battery voltage.	• Blown No. 47 (20A) fuse in the under-hood fuse/relay box • Faulty brake pedal position switch • An open in the wire
A9		Ignition switch ON (II) and wiper switch at INT	Check for voltage to ground: There should be battery voltage.	• Blown No. 7 (10A) [No. 11 (10A)] fuse in the driver's under-dash fuse/relay box • Faulty wiper switch • An open in the wire
A11		Ignition switch ON (II), wiper switch OFF, jump A11 to ground	Check wiper motor operation: The wiper motor should run at low speed.	• Blown No. 12 (30A) fuse in the driver's under-dash fuse/relay box • Faulty intermittent wiper relay • Faulty wiper switch • Poor ground (G301) • An open in the wire
A21		Ignition switch ON (II) and washer switch ON	Check for voltage to ground: There should be battery voltage.	• Blown No. 7 (10A) [No. 11 (10A)] fuse in the driver's under-dash fuse/relay box • Faulty washer switch • An open in the wire
A23		Ignition switch ON (II), wiper switch in the PARK position	Check for voltage to ground: There should be battery voltage.	• Blown No. 12 (30A) fuse in the driver's under-dash fuse/relay box • Faulty intermittent wiper relay • An open in the wire
A24		Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • Faulty driver's fuse/relay box
B11	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty driver's under-dash fuse/relay box • An open in the wire
B14	BLU/WHT	Ignition switch ON (II), vehicle in neutral, and slowly rotate one wheel with the other wheel blocked.	Check for voltage to ground: The voltage should pulse from 0 to about 5 V.	• An open in the wire • Short to ground • Faulty PCM (check for VSS DTC)
B15	GRN/RED (USA) GRN/WHT (Canada)	Parking brake pedal applied	Check for continuity to ground: There should be continuity.	• Faulty parking brake switch • An open in the wire

[ ] : '01-04 models

(cont'd)

Control Unit Input Test (cont'd)

Passenger's Multiplex Control Unit

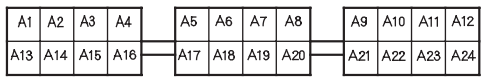
5. Remove the passenger's under-dash fuse/relay box (see page 22-86).

6. Remove the passenger's multiplex control unit from the passenger's under-dash fuse/relay box, and disconnect its connector.

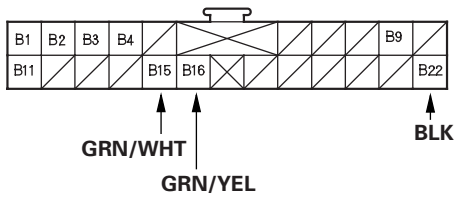
7. Inspect all connector and socket terminals to be sure they are making good contact.

   • If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   • If the terminals look OK, go to step 8.

PASSENGER'S UNDER-DASH FUSE/RELAY BOX SOCKET
(Passenger's multiplex control unit connector A)



PASSENGER'S MULTIPLEX CONTROL UNIT CONNECTOR B



Wire side of female terminals

8. With the passenger's multiplex control unit still disconnected, make these input tests at the connector and the fuse/relay box socket.

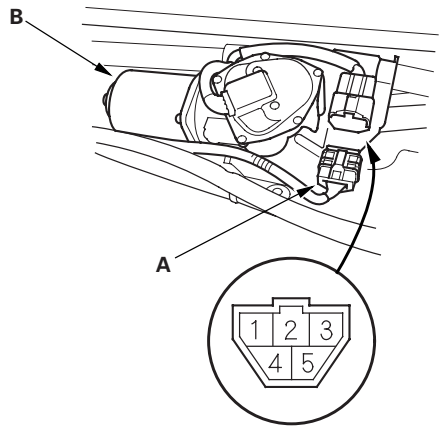
   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, the control unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B22	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G503) • An open in the wire
A22	Fuse/relay box socket	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • An open in the wire
B15	GRN/WHT	Intermittent dwell time control ring turned	Check for resistance between the terminals: It should vary from 0 to approx. 30 kΩ as the ring is turned.	• Faulty intermittent dwell time controller • An open in the wire
B16	GRN/YEL			

Wiper Motor Test

Windshield

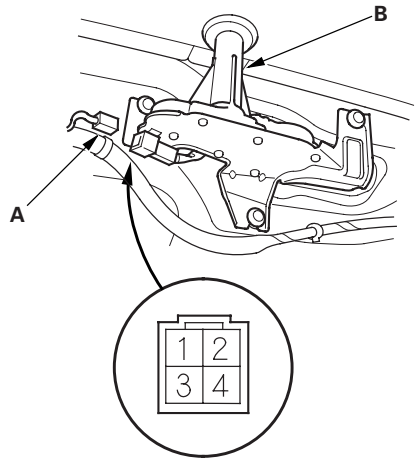
1. Open the hood, and carefully remove the cap nuts and the wiper arms. Make sure they do not touch the hood.
2. Remove the hood seal and cowl cover.
3. Disconnect the 5P connector (A) from the motor (B).



4. Test the motor by connecting battery power to the No. 4 terminal and ground to the No. 2 terminal of the wiper motor 5P connector. The motor should run at low speed. If the motor does not run or fails to run smoothly, replace the motor.
5. Connect an analog voltmeter between the No. 5 (+) and No. 3 (−) terminals, and run the motor at low or high speed. The voltmater should indicate 12 V and 4 V or less alternately.
6. If the motor test is not as specified, replace the windshield wiper motor.

Rear Window

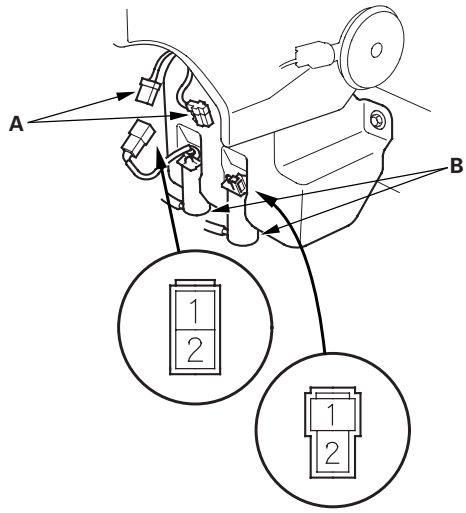
1. Open the tailgate, and remove the tailgate lower panel (see page 20-61).
2. Disconnect the 4P connector (A) from the motor (B).



3. Test the motor by connecting battery power to the No. 1 terminal and ground, to the No. 3 terminal of the 4P connector. The motor should run. If the motor does not run or fails to run smoothly, replace the motor.
4. Test the wiper motor park switch by connecting an analog voltmeter between the No. 4 (+) terminal and ground, and run the motor. The voltmeter should indicate 12 V and 4 V or less alternately.
5. If the motor test is not as specified, replace the rear window wiper motor.

Washer Motor Test

1. Remove the right inner fender (see page 20-149).
2. Disconnect the 2P connectors (A) from the washer motors (B).

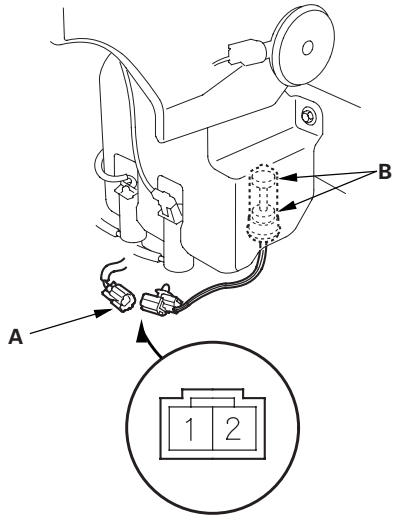


3. Test the motor by connecting battery power to the No. 1 terminal and ground the No. 2 terminal of the washer motor. The motor should run.
   - If the motor does not run or fails to run smoothly, replace it.
   - If the motor runs smoothly, but little or no washer fluid is pumped, check for a disconnected or blocked washer hose, or a clogged pump outlet in the motor.

Washer Fluid Level Switch Test

Canada

1. Remove the right inner fender (see page 20-149).
2. Disconnect the 2P connector (A) from the washer level switch.



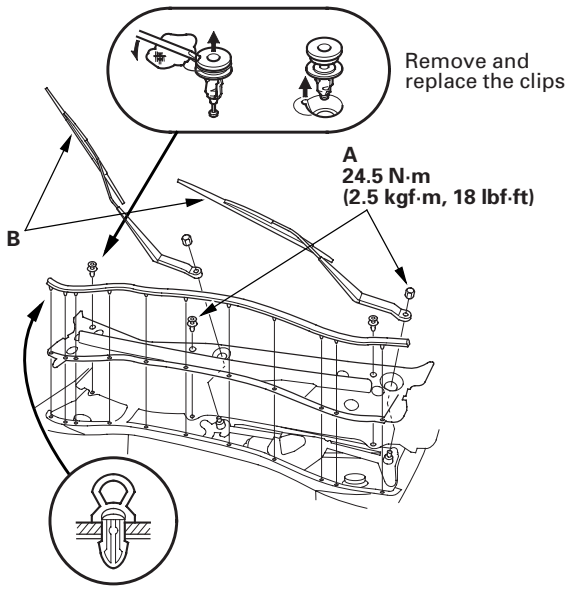
3. Remove the washer fluid level switch from the washer reservoir.

   NOTE: Fluid may flow out of the opening.

4. Check for continuity between the No. 1 and No. 2 terminals in each float position (B).
   - There should be continuity when the float is down.
   - There should be no continuity when the float is up.
5. If the continuity is not as specified, replace the switch.

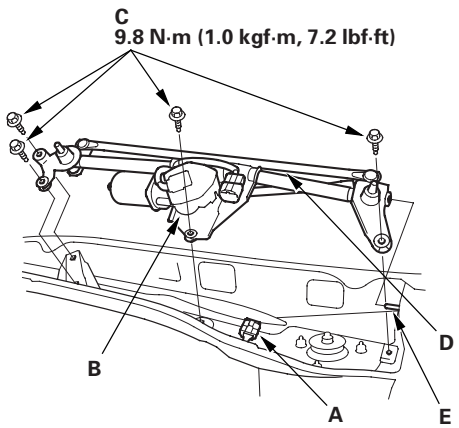
Windshield Wiper Motor Replacement

1. Open the hood. Remove the nuts (A) and the windshield wiper arms (B).



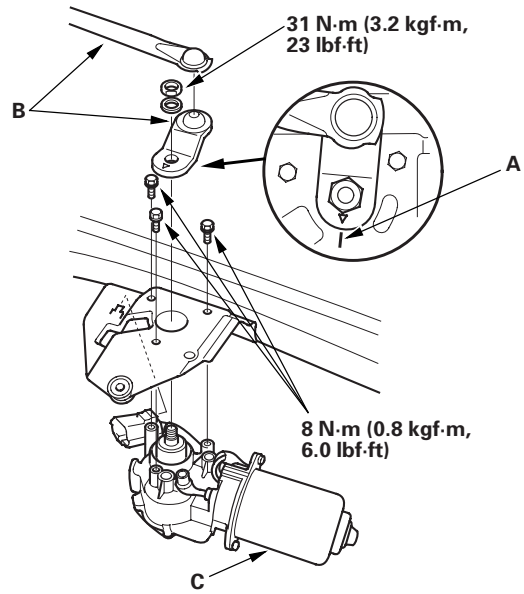
2. Remove the hood seal and cowl cover.

3. Disconnect the 5P connector (A) from the wiper motor (B).



4. Remove the bolts (C), move windshield wiper linkage assembly (D) toward the passenger's side of the vehicle until it slides off of the pin (E), then remove the assembly.

5. Scribe a line (A) across the link and windshield wiper linkage to show the original adjustment. Separate the windshield wiper linkage (B) from the wiper motor (C).

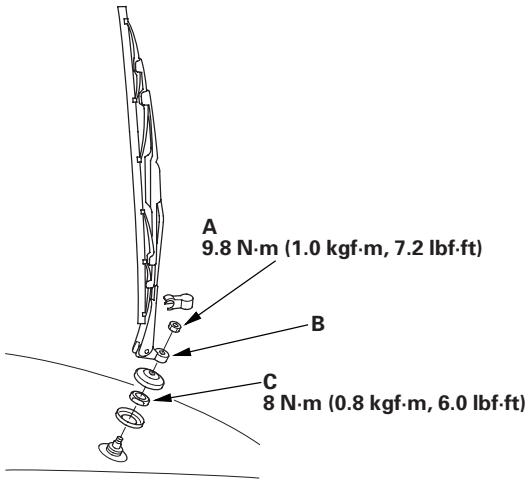


6. Install in the reverse order of removal, and note these items:

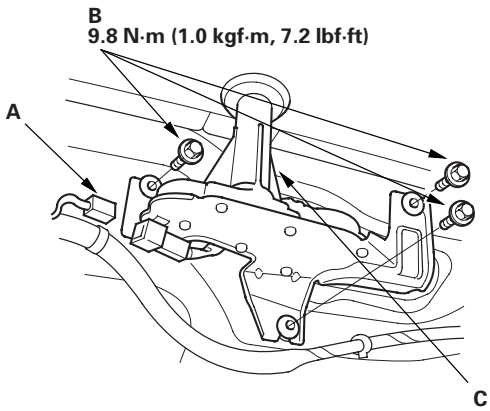
   - Grease the moving parts.
   - Before reinstalling the wiper arms, turn the wiper switch ON, then OFF to return the wiper shafts to the park position.
   - If necessary, replace any damaged clips.
   - Check the wiper motor operation.

Rear Window Wiper Motor Replacement

1. Open the tailgate, and remove the tailgate lower trim panel (see page 20-61).
2. Remove the mounting nut (A), the wiper arm (B) and the special nut (C).



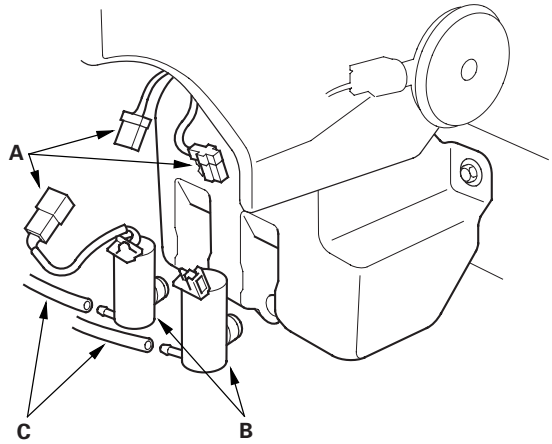
3. Disconnect the 4P connector (A) and remove the three mounting bolts (B), then remove the rear window wiper motor (C).



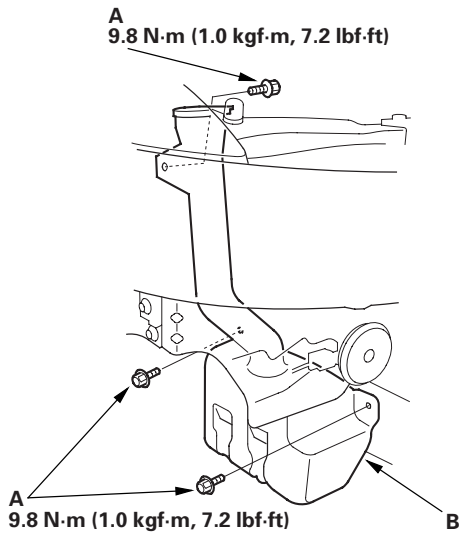
4. Install in the reverse order of removal.

Washer Reservoir Replacement

1. Pull away the right inner fender.
2. Disconnect the 2P connectors (A) from the washer motors (B) and level switch.



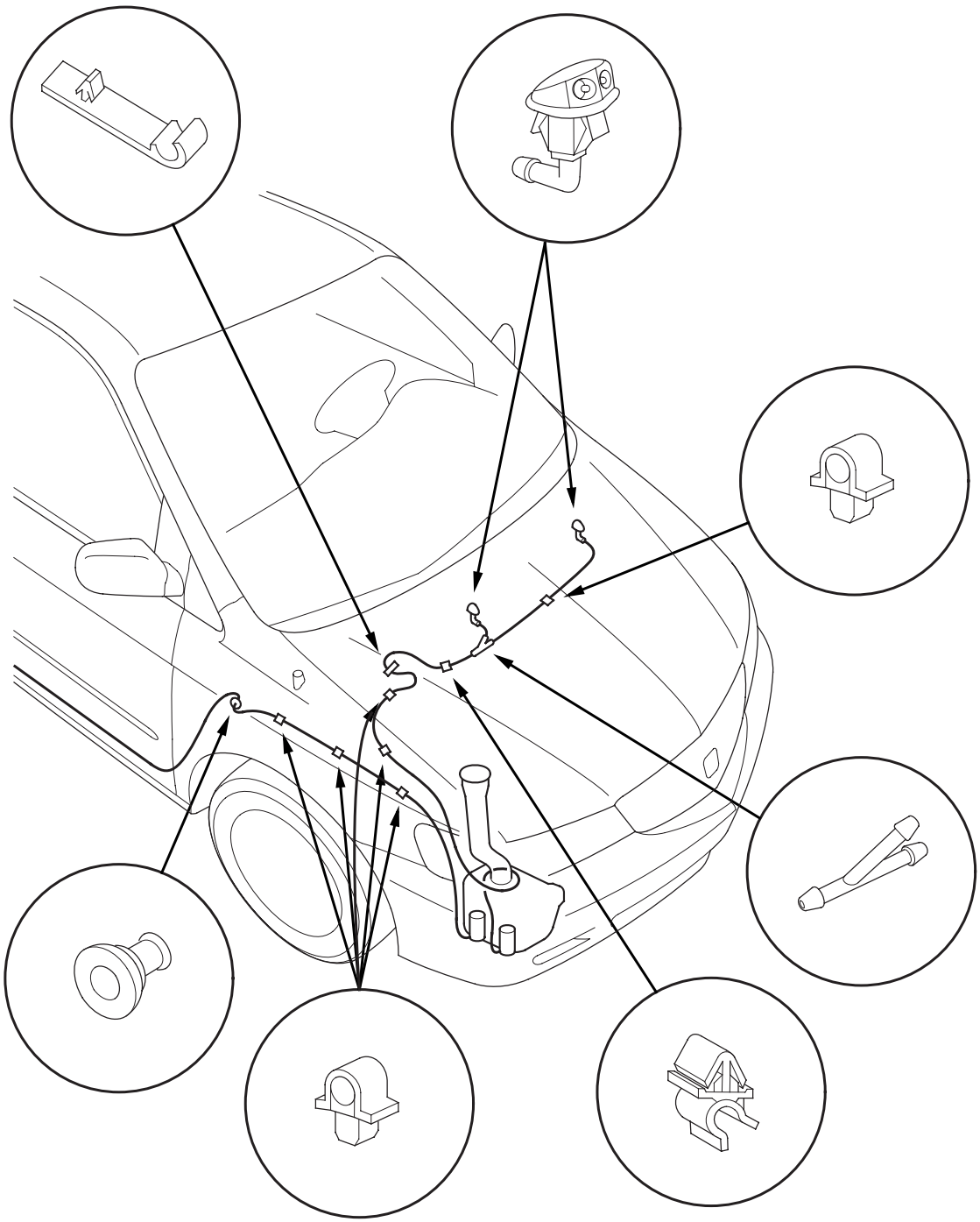
3. Disconnect the tubes (C) from the washer motors.
4. Remove the three bolts (A) and washer reservoir (B).



5. Install in the reverse order of removal.

Washer Tube Replacement

1. Remove the right inner fender (see page 20-149).
2. Remove the washer nozzles and clips, then remove the tubes.



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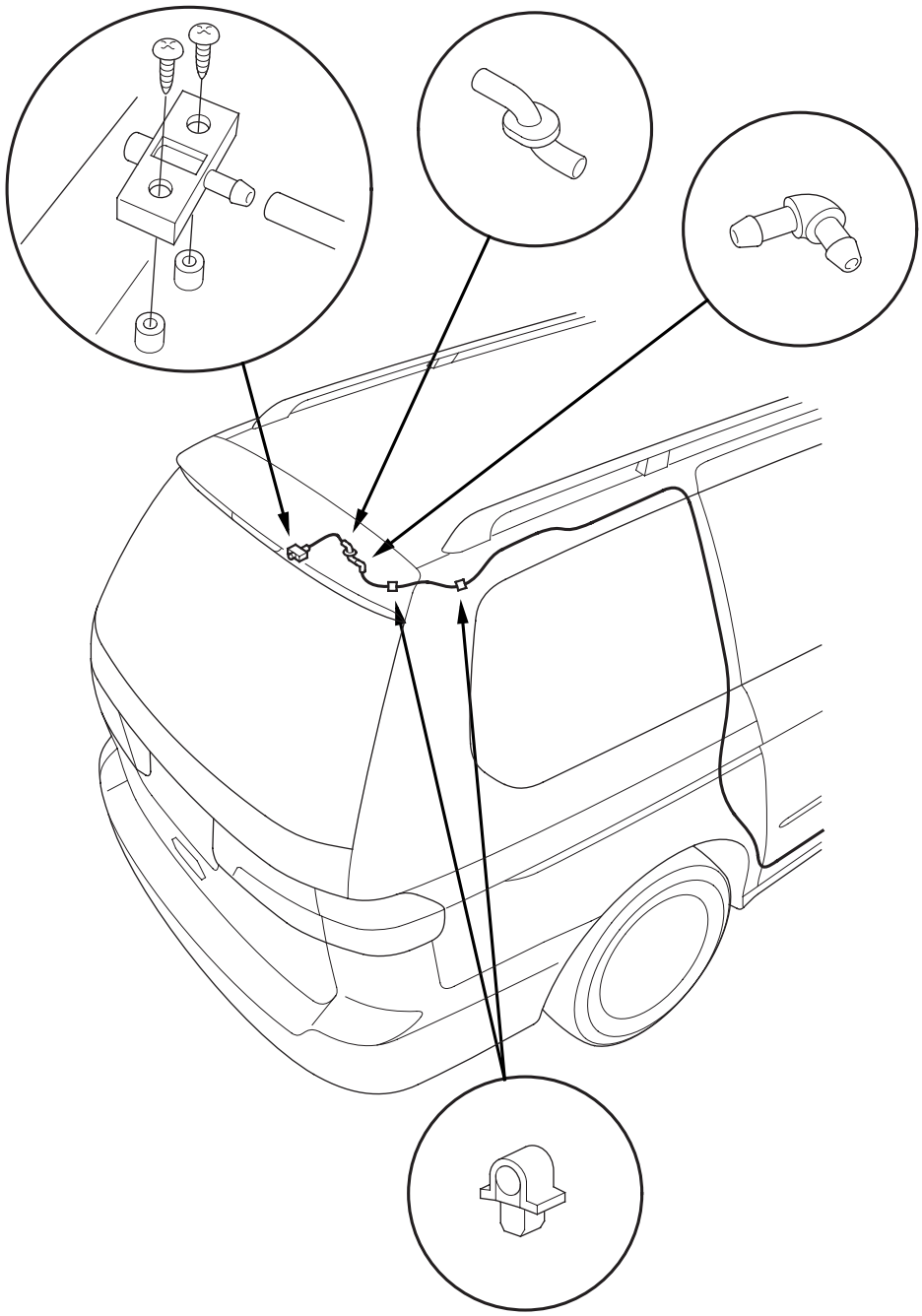
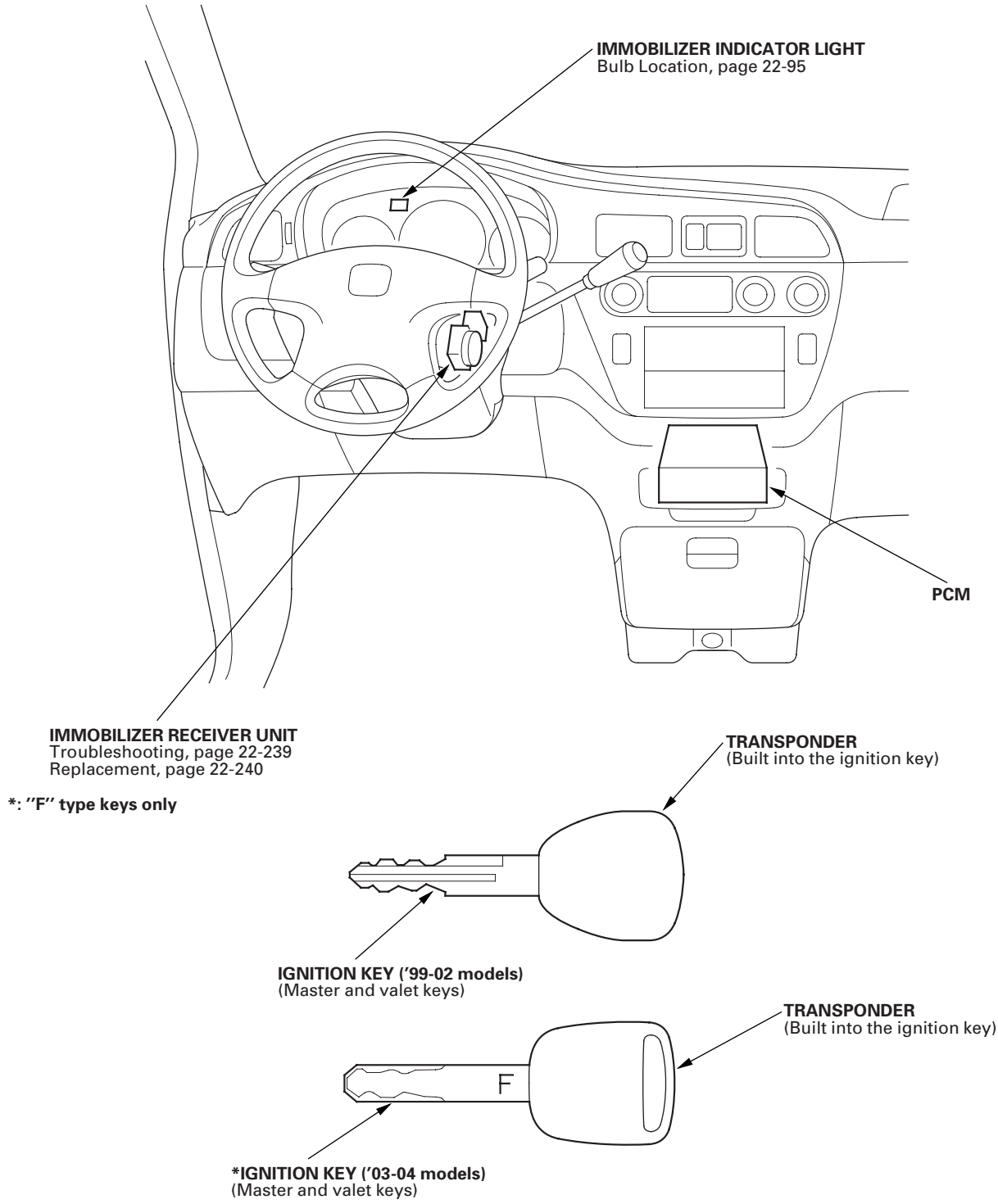
Washer Tube Replacement (cont'd)



3. Install in the reverse order of removal. Take care not to pinch the washer tubes. Check the washer operation.

Component Location Index



Immobilizer System

System Description

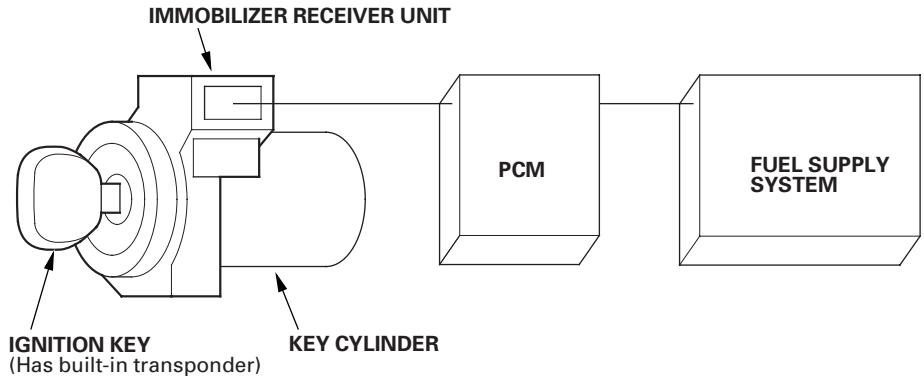
The vehicle is equipped with an immobilizer system that will disable the vehicle unless the proper ignition key is used. This system consists of a transponder located in the ignition key, an immobilizer receiver unit, an indicator light, and the PCM.

The vehicle has two kinds of keys.

- The black master key for:
  – Ignition switch.
  – Door locks.
  – Tailgate lock.
  – Glove box.
- The gray valet key for:
  – Ignition switch.
  – Door locks.

When the key is inserted in the ignition switch and turned to the (II) position, the immobilizer receiver unit sends power to the transponder in the ignition key. The transponder then sends a coded signal back through the immobilizer receiver unit to the PCM.

- The immobilizer system can store up to six key codes.
- If it is necessary to rewrite the PCM, the dealer needs the customer's vehicle, all its master keys and valet keys, and the HDS. Any key that is not learned during rewriting will no longer start the engine.
- It is possible to add ONE new key without reprogramming all of the keys.
- If the customer has lost his key, and cannot start the engine, contact Honda Customer Relations.

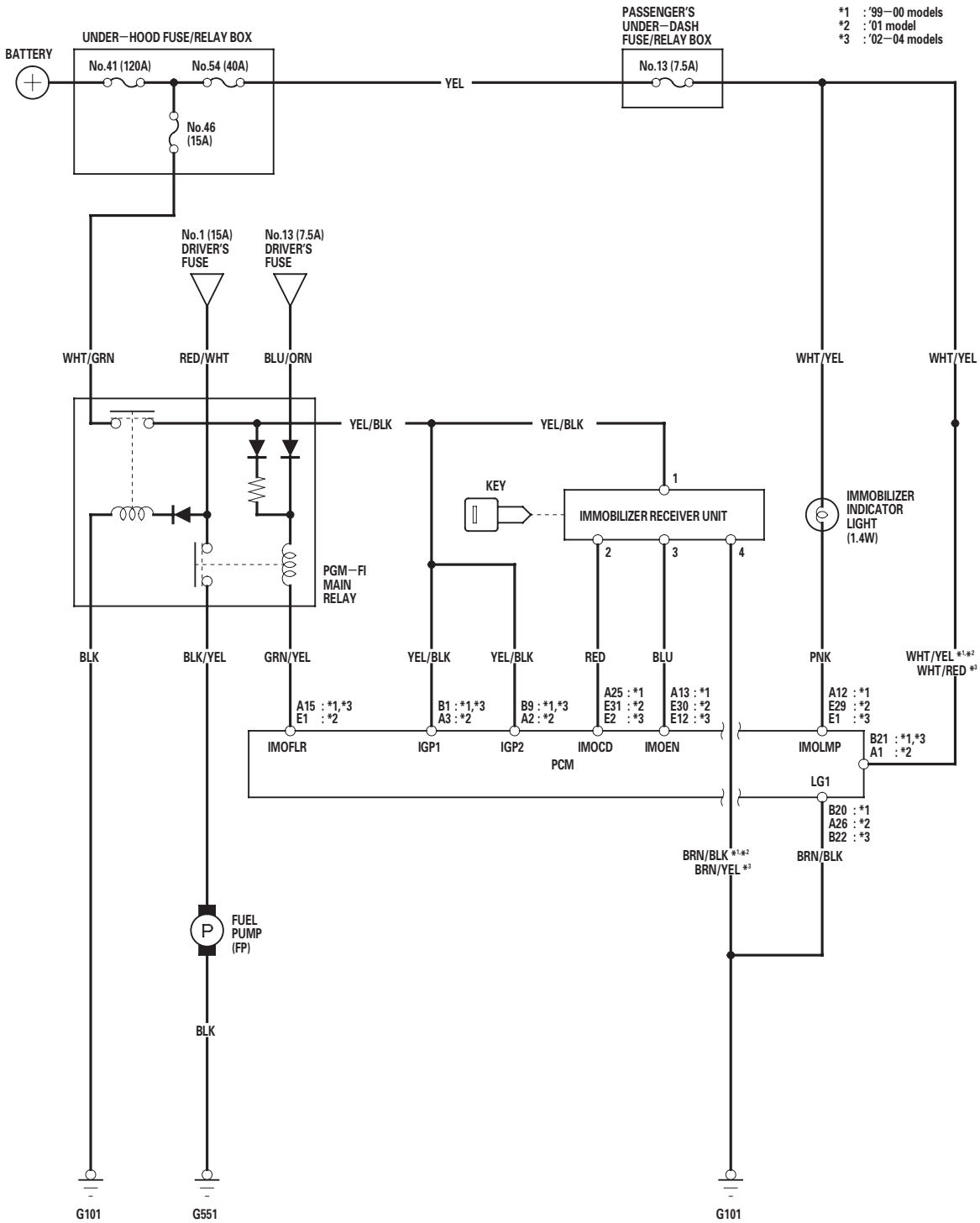


- If the proper key has been used, the immobilizer indicator light will come on for about 2 seconds, then go off.
- If the wrong key has been used or the code was not received or recognized by the PCM, the indicator light will come on for about 2 seconds, then it will blink until the ignition switch is turned OFF. For accurate immobilizer system diagnosis get as much information from the customer as possible. A blinking indicator light means the key was not recognized.
- If the ignition switch is turned OFF, the indicator will blink for about 5 seconds to signal that the immobilizer system has been set correctly, then the indicator will go off.

NOTE:
- Large metal objects, key fobs, other immobilizer keys, and other transpondars can interfere with the immobilizer signal. If an intermittent program is suspected, remove the ignition key from the key ring.
- '03-04 models use sidewinder keys that are ''F'' type.

Problem	Part set	PGM-Tester required ?
① Master or valet key has been lost or additional master or valet key is required.	Blank key	YES
② All master and valet keys have been lost.	Blank key x 2, or 3	YES
③ Immobilizer receiver unit does not work.	Immobilizer receiver unit	NO
④ PCM does not work.	PCM	YES
⑤ Ignition switch does not work.	Ignition switch, Master keys, and valet key (rekey all lock cylinders to the new keys)	YES
⑥ Door key cylinder is broken.	Door key cylinder (rekey the cylinder)	NO

Circuit Diagram



Troubleshooting

Follow this procedure if the vehicle does not start, or after rewriting the PCM with the HDS and the vehicle does not start.

Note these items before troubleshooting:

- Due to the action of the immobilizer system, the engine takes slightly more time to start than on a vehicle without an immobilizer system.
- When the system is normal, and the proper key is inserted, the indicator light comes on for 2 seconds, then it will go off.
- If the indicator starts to blink after 2 seconds, or if the engine does not start, repeat the starting procedure. If the engine still does not start, continue with this procedure.

1. Using the HDS, check for a diagnostic trouble code (DTC) (see page 11-3).

   Is DTC P1607 indicated?

   YES — Replace the PCM. ■

   NO — Go to step 2.

2. Turn the ignition switch ON (II) with the proper key.

3. Check to see if the immobilizer indicator light comes on.

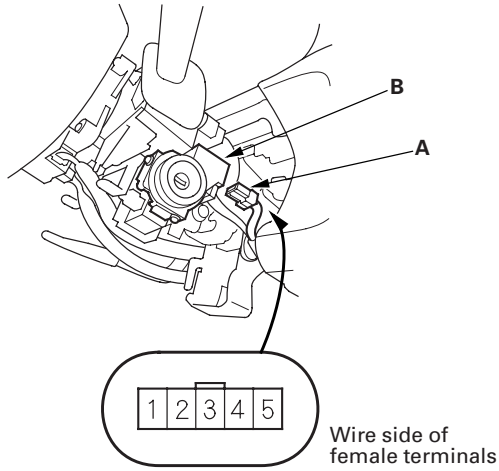
   Does the indicator light blink?

   YES — Go to step 4.

   NO — Check for these problems:

   - an open in the PNK wire between the gauge assembly and PCM. ■
   - a faulty immobilizer indicator light. ■

4. Disconnect the 5P connector (A) from the immobilizer receiver unit (B).



5. Check for voltage between the No.1 terminal and body ground with the ignition switch turned ON (II).

   Is there battery voltage?

   YES — Go to step 6.

   NO — Check for these problems:

   - a blown No. 1 (15A) fuse in the driver's under-dash fuse/relay box. ■
   - a blown No. 46 (15A) fuse in the under-hood fuse/relay box. ■
   - an open in the YEL/BLK wire between the PGM-FI main relay and immobilizer receiver unit. ■
   - a faulty PGM-FI main relay. ■
   - an open between the PGM-FI main relay and G101. ■

(cont'd)

Troubleshooting (cont'd)

6. Check for continuity between the No. 4 terminal and body ground.

   Is there continuity?

   YES — Go to step 7.

   NO — Repair open in the BRN/BLK or BRN/YEL ('02-03 models) wire between the immobilizer receiver unit and G101. ■

7. Check for continuity between the No. 2 terminal and the PCM.

   - ('99-00 models) connector A No. 25 terminal
   - ('01 model) connector E No. 31 terminal
   - ('02-04 models) connector E No. 2 terminal

   Is there continuity?

   YES — Go to step 8.

   NO — Repair open in the RED wire between the immobilizer receiver unit and PCM. ■

8. Check for continuity between the No. 3 terminal and PCM.

   - ('99-00 models) connector A No. 13 terminal
   - ('01 model) connector E No. 30 terminal
   - ('02-04 models) connector E No. 12 terminal

   Is there continuity?

   YES — Replace the immobilizer receiver unit. ■

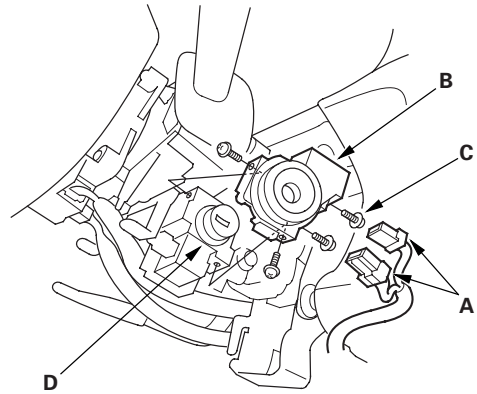
   NO — Repair open in the BLU wire between the immobilizer receiver unit and PCM. ■

Immobilizer Receiver Unit Replacement

1. Remove the driver's dashboard lower cover (see page 20-69).

2. Remove the steering column covers (see page 17-25).

3. Disconnect the 5P and 7P connectors (A) from the immobilizer receiver unit (B).



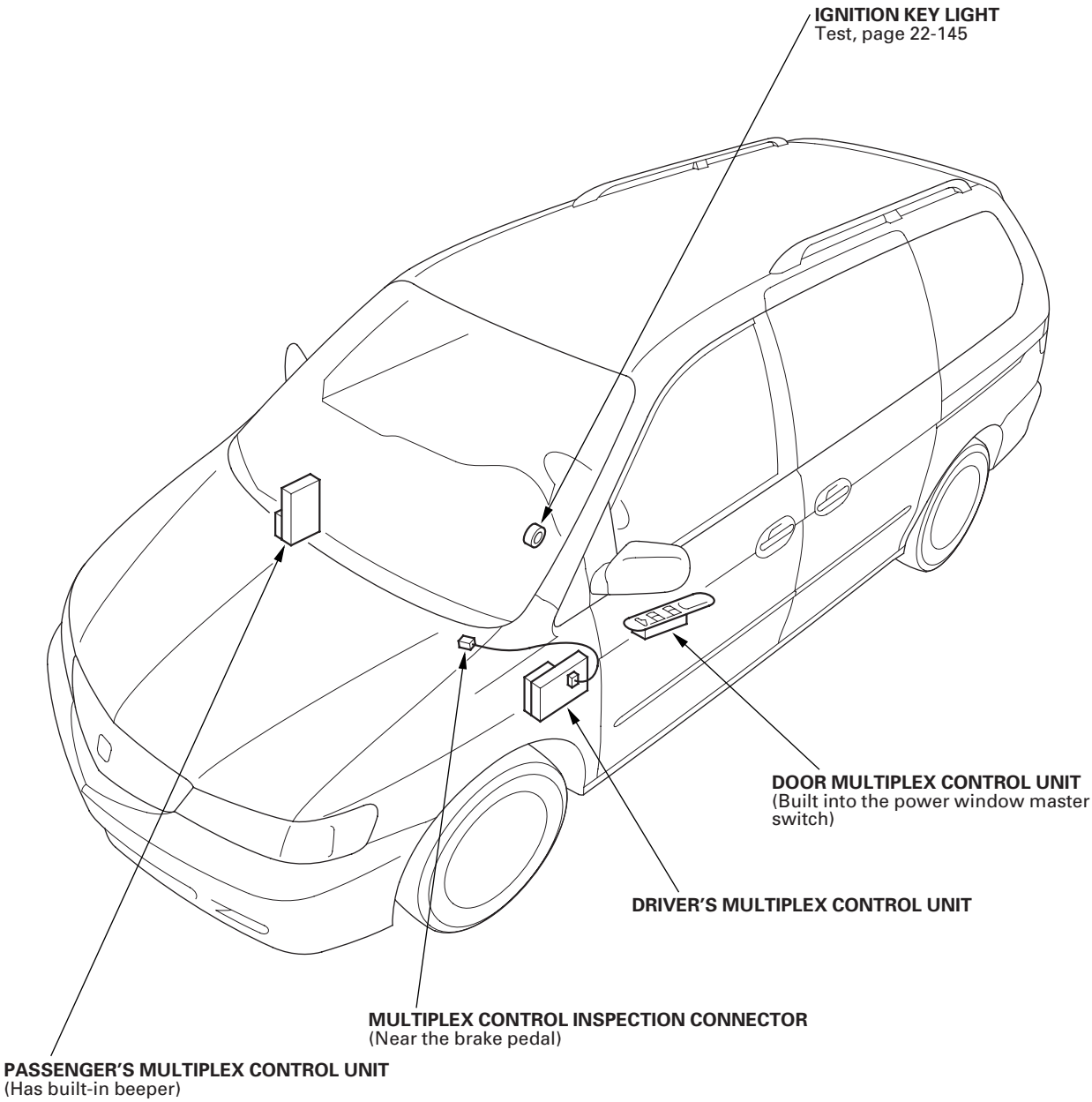
4. Remove the screws (C) and the immobilizer receiver unit from the ignition key cylinder (D).

5. Install in the reverse order of removal.

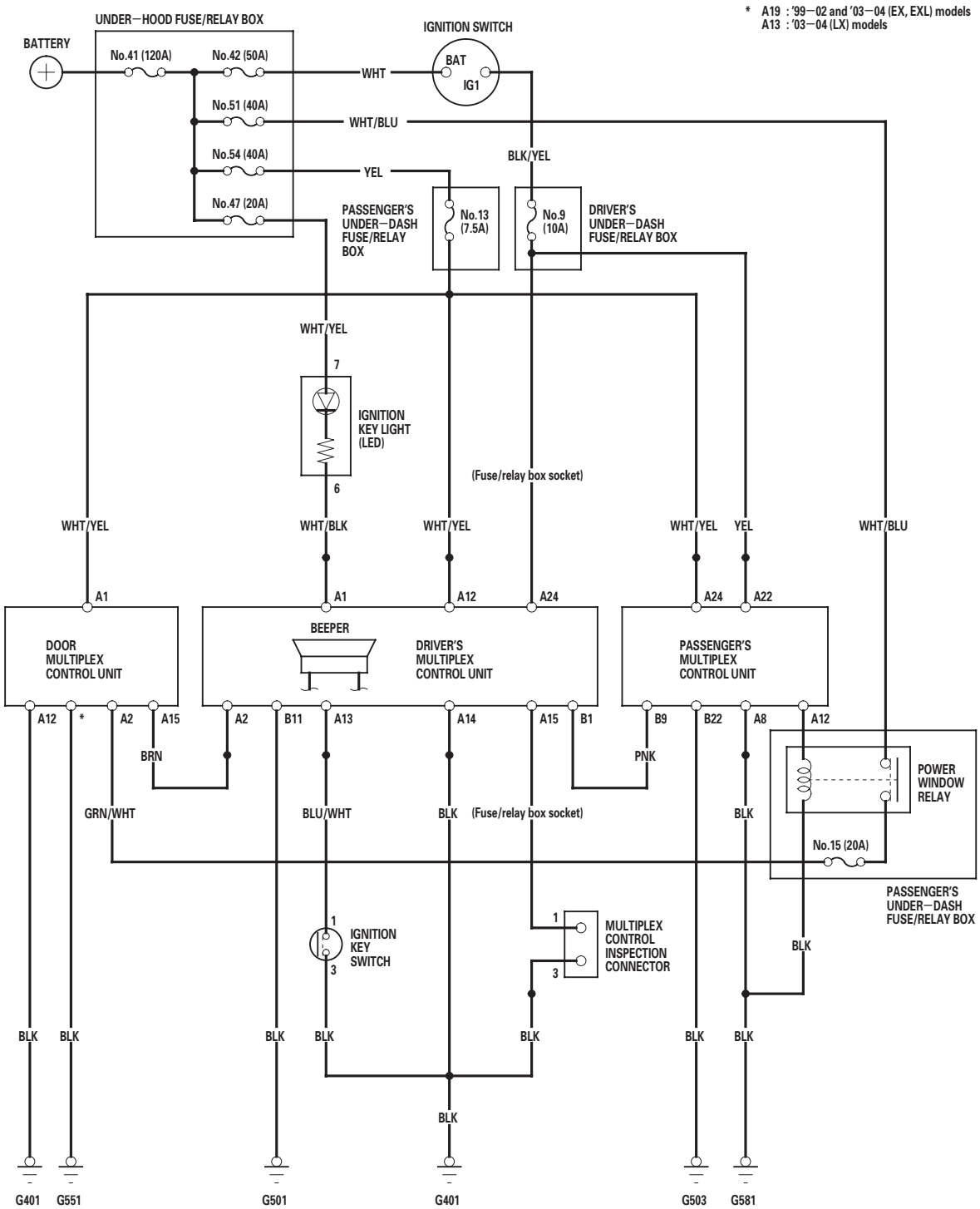
6. After replacement, check the immobilizer system.

   NOTE: The PCM does not need to be reprogrammed if only the receiver has been replaced.

Component Location Index



Circuit Diagram (Power, Ground, Communication Lines)



System Descriptions

The multiplex control system has four internal functions:
- Multiplexing (send multiple signals over shared wires)
- Wake up/sleep modes (runs at full power only on demand to reduce battery draw)
- Fail-safe (fixes or ignores faulty signals)
- Self-diagnosis (Mode 1 for the system, Mode 2 for input lines)

The system controls the function of the following circuits
- Engine Oil Pressure Indicator
- Seat Belt Reminder
- Lights-on Reminder
- Key-in Reminder
- Key Light Timer
- Dash Lights Brightness Control
- Entry Light Control (EX and EXL models)
- Automatic Lights-off (EX and EXL models)
- Power Window (including key-off timer operation)
- Wiper/Washers (including speed sensitive intermittent wiper)
- Keyless/Power Door Locks
- Interlock
- Factory Security Alarm System ('01-04 EX and '02-04 EXL models)

Multiplex Communication

To reduce the number of wire harnesses, digital signals are sent via shared multiplex communication lines rather than sending normal electrical signals through individual wires.
- The input signals from each switch are converted to digital signals at the central processing unit (CPU). The digital signals are sent from the transmitter unit to the receiver unit as serial signals.
- The transmitted signal is converted to a switch signal at the receiver unit, and it operates the related component.
- There are exclusive communication lines between each of the multiplex control units:
  – Door ↔Driver's (between the door and the driver's multiplex control units) Wire color: BRN
  – Driver's ↔Passenger's (between the driver's and the passenger's multiplex control units) Wire color: PNK

The control units always communicate via these lines when the system is operating, and they stop communicating when the system is OFF.

Wake-up and Sleep

The multiplex control system has ''wake-up'' and ''sleep'' functions to decrease parasitic draw on the battery when the ignition switch is OFF.
- In the sleep mode, the multiplex control unit stops the functions (communication and CPU control) when it is not necessary for the system to operate.
- As soon as any operation is requested (for example, door is unlocked), the related control unit in the sleep mode immediately wakes up and begins to function. This control unit also sends a wake-up signal to the other control units via the communication lines.
- When the ignition switch is turned OFF, and driver's or front passenger's door is opened then closed, there is about a 10 second delay before the control units go from the wake-up mode to the sleep mode.
- If any door is open, the sleep mode will not function.
- If a key is in the ignition switch, the sleep mode will not function.
- If one of the key cylinder switch inputs is shorted, the sleep mode will not function.

Fail-safe

To prevent improper operation, the multiplex control system has a fail-safe function. In the fail-safe mode, the output signal is stopped when any part of the system malfunctions (for example, a faulty control unit or communication line).
Each control unit has a hardware fail-safe function that stops the output signal when there is any CPU malfunction, and a software fail-safe function that ignores the signal from the malfunctioning control unit and allows part of the system with no defect to operate normally.

Troubleshooting

Special Tools Required
MPCS service connector 07WAZ-001010A

Mode 1

Description

Mode 1 is a communication line and CPU self test. If a problem occurs on a communication wire or with an individual control unit, multiplex system will store a DTC as long as the fault is still present.

To Enter Mode 1

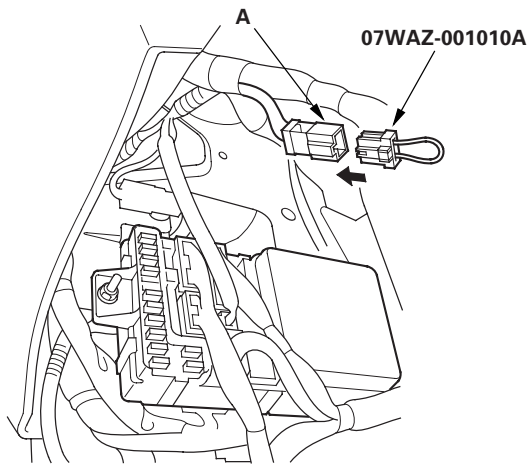
1. Check the No. 9 (10A) fuse in the driver's under-dash fuse/relay box and the No. 13 (7.5A) fuse in the Passenger's under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

   NO—Find and repair the cause of the blown fuse. ■

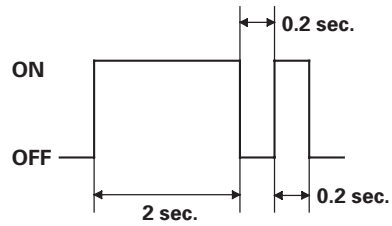
2. Connect the special tool to the multiplex control system (MPCS) inspection connector (A).



3. Turn the ignition switch ON (II). If the driver's seat belt is unbuckled, the seat belt reminder will beep five times.

4. After about 5 seconds, the ignition key light should come on and the beeper should beep for 2 seconds, then go off for 0.2 second, then blink and deep for 0.2 second. This indicated that the system is in Mode 1.

   MODE 1: Ignition Key Light and Beeper



   Did the multiplex system enter Mode 1?

   YES—Go to step 5.

   NO—Go to step 6.

5. Check for a DTC.

   - If there is no DTCs present:
     The ignition key light and beeper will not blink/beep again after the Mode 1 indication.
   - If there is no DTC present:
     About 1 second after entering Mode 1, the ignition key light and beeper indicate the DTC(s), then repeat it every 3 seconds. If there is more than one DTC, the system will indicate them in ascending order.

   Is there a DTC present?

   YES—Follow the procedure in the chart below.

   NO—Go to Mode 2 (see page 22-247).

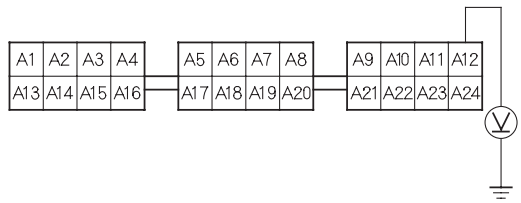
DTC(s)	Cause	Procedure
1	The driver's unit is not able to receive signals from the door unit.	Go to BRN wire communication line test (see page 22-248)
2	The driver's unit is unable to receive signals from the passenger's unit.	Go to PNK wire communication line test (see page 22-249)
3	Malfunction in the driver's unit.	Go to multiplex control system input test. If all inputs are OK, replace driver's multiplex control unit.
4	Signal from each unit do not match.	Confirm correct multiplex control units are installed.
5	The passenger's unit is not able to receive signals from the other units.	Go to multiplex control system input test. If all inputs are OK, replace passenger's multiplex control unit.
6	The door unit is not able to receive signals from the other units.	Go to multiplex control system input test. If all inputs are OK, replace door multiplex control unit.
1, 2 and 3 Simultaneously	Communication (BRN or PNK) wire is shorted. (12 V or Ground)	Go to shorted communication line test (see page 22-249)

6. Remove the special tool from the MPCS inspection connector.

7. Remove driver's multiplex control unit from the driver's under-dash fuse/relay box.

8. Check for voltage between the No. 12 terminal of the driver's fuse/relay box socket and body ground.

DRIVER'S UNDER-DASH FUSE/RELAY BOX SOCKET



Is there battery voltage?

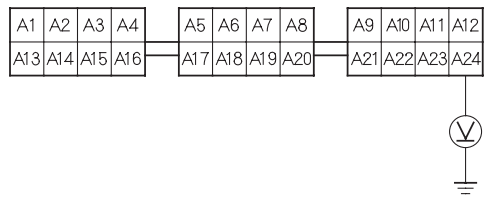
YES—Go to step 9.

NO—Replace the driver's under-dash fuse/relay box. ■

9. Turn ignition switch ON (II).

10. Check for voltage between No. 24 terminal of the driver's fuse/relay box socket and body ground.

DRIVER'S UNDER-DASH FUSE/RELAY BOX SOCKET



Is there battery voltage?

YES—Go to step 11.

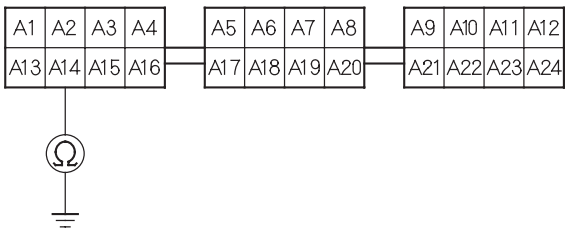
NO—Repair an open in the wire between No. 13 fuse in the passenger's under-dash fuse/relay box and the driver's under-dash fuse/relay box socket. ■

(cont'd)

Troubleshooting (cont'd)

11. Check for continuity between No.14 terminal of the driver's under-dash fuse/relay box socket and body ground.

DRIVER'S UNDER-DASH FUSE/RELAY BOX SOCKET



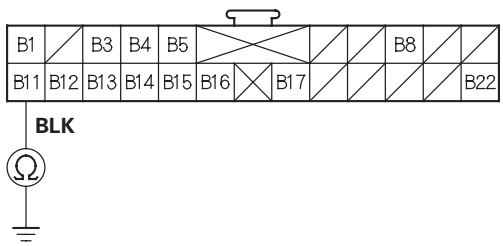
Is there continuity?

YES—Go to step 12.

NO—Repair an open in the wire between driver's multiplex control unit and body ground. If the wire is OK, check for poor ground at G401. ■

12. Check for continuity between No.11 terminal of the driver's multiplex control unit connector B (22P) and body ground.

DRIVER'S MULTIPLEX CONTROL UNIT CONNECTOR B (22P)



Wire side of female terminals

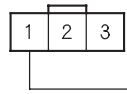
Is there continuity?

YES—Go to step 13.

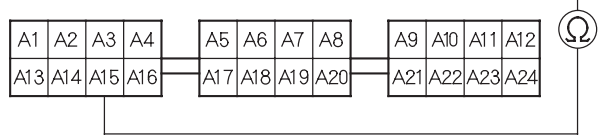
NO—Repair an open in the wire between driver's multiplex control unit connector B and ground. If the wire is OK, check for door ground at G501. ■

13. Check for continuity between No.1 terminal of the MPCS inspection connector and the No. 15 terminal of the driver's under-dash fuse/relay box socket.

MPCS INSPECTION CONNECTOR



DRIVER'S UNDER-DASH FUSE/RELAY BOX SOCKET



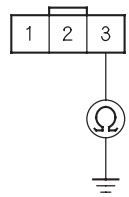
Is there continuity?

YES—Go to step 14.

NO—Repair an open in the wire between the MPCS inspection connector and the driver's under-dash fuse/relay box. If the wire is OK, replace the driver's under-dash fuse/relay box. ■

14. Check for continuity between No. 3 terminal of the MPCS inspection connector and body ground.

MPCS INSPECTION CONNECTOR



Is there continuity?

YES—If there is still no Mode 1 indication, replace the driver's multiplex control unit and recheck the symptom. ■

NO—Repair an open in the wire between the inspection connector and body ground. If the wire is OK, check for a poor ground at G401. ■

Mode 2

Description

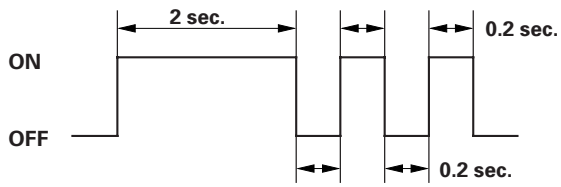
Mode 2 is an easy way to identify a problem circuit without having to test circuit with a DVOM. Mode 2 will confirm a switch/circuit is working by flashing the ignition key light and sounding the beeper as the circuit is used. The multiplex control system will confirm inputs as they are grounded except for the following circuits:

- Turning the intermittent wiper ring (several confirmations as ring is turned)
- Turning the dash light illumination dimmer (several confirmations as the knob is turned)
- The Audio unit, Navigation display, RES display , DVD player (confirmation as any one component is disconnected)

To Enter Mode 2

1. From mode 1, disconnect the special tool from the multiplex control system (MPCS) inspection connector for between 5 and 10 seconds, then reconnect it. The ignition key light should come on and the beeper should beep for 2 seconds, then blink/beep twice more at 0.2 second intervals. This indicates the system has entered mode 2.

   Mode 2: Ignition key Light



2. Operate the switch as described in the charts below.

   NOTE: Key cylinder switch tests require a second key be used to perform.

Inputs monitored by Door Multiplex Control Unit	
Switch/Circuit	**Note:**
Driver's door lock knob switch (LOCK/UNLOCK)	
Driver's key cylinder switch *1 (UNLOCK LX models) (LOCK/UNLOCK EX models)	Turn the key two times consecutively to each position (LOCK/UNLOCK) to prevent inputs from lock knob switches causing false input confirmations.
Driver's door lock switch (LOCK/UNLOCK)	
Power window master switch (Passenger's switches) (UP/DOWN)	Driver's window switch will not be confirmed in either direction.

Inputs monitored by Driver's Multiplex Control Unit	
Switch/Circuit	**Note:**
Dash lights brightness controller (ROTATE)	
DriverDriver's door switch (OPEN)	
Left rear sliding door switch (OPEN)	
Tailgate latch switch (OPEN)	
Driver's seatbelt buckle switch (UNBUCKLED)	
Windshield wiper/washer switch (INT, DWELL, WIPER, PARK POSITION, WASHER)	
Brake pedal position switch (BRAKE PEDAL PRESSED)	
Parking brake switch (ON)	
Hood switch (OPEN EX models)	
Headlight switch (ON)	
Ignition key switch (KEY INSTERTED)	This input cannot be confirmed in Mode 2 since key must be installed to perform test.

(cont'd)

Troubleshooting (cont'd)

Inputs monitored by Passenger's Multiplex Control Unit	
Switch/Circuit	**Note:**
Front passenger's key cylinder switch * 1 (LOCK/UNLOCK)	Turn the key two times consecutively to each position (LOCK/UNLOCK) to prevent input from lock knob switches causing false input confirmations.
Front passenger's door lock knob switch (UNLOCK EX models)	Start this test with both lock knobs in the locked position. Unlock one lock knob at a time, and then return it to the locked position before testing the next lock knob switch.
Right rear sliding door lock knob switch (UNLOCK EX models)	
Front passenger's door lock switch (LOCK/ UNLOCK)	
Front passenger's door switch (OPEN)	
Right rear sliding door switch (OPEN)	
Tailgate key cylinder switch	
Security input (DISCONNECTED EX models)	Test by disconnecting then reconnecting the Radio, Navigation Display Unit, RES display unit or RES DVD player connector.

* 1: The multiplex system should flash the ignition key light and sound the beeper each time when the key is turned to the LOCK or UNLOCK position, and should not flash/beep as the key is returned to the neutral position.

Did the multiplex control system confirm all the circuits by flashing the ignition key light and sounding the beeper?

YES—The multiplex system is OK. If the symptom is still present, go to the input test for the system with the problem (see these items), or refer to multiplex input test (see page 22-250).

- Power door locks (see page 22-267)
- Security (EX models) (see page 22-267)
- Keyless (EX models) (see page 22-267)
- Power windows (includes key-off timer operation) (see page 22-208)
- Entry light control, Key light timer (see page 22-140)
- Windshield wiper controls (front and rear) (see page 22-226)
- Automatic lights off (EX models) (see page 22-110)
- Reminder chimes (Key-in, seat belt, lights-on) (see page 22-110)
- Dash lights brightness control (see page 22-154)
- Engine oil pressure indicator (see page 22-110)

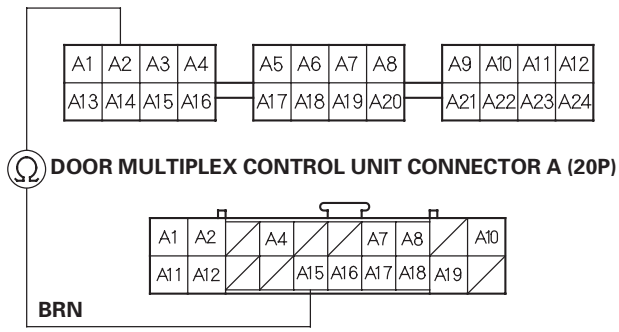
NO—Find the open or short in the circuit that was not confirmed by the multiplex control system. If the circuit is OK, replace the multiplex control unit that monitors the circuit. ■

Communication Line Test

BRN Wire Communication Line Test

1. Remove the driver's multiplex control unit from the driver's under-dash fuse/relay box.
2. Carefully pry off driver's door switch trim (see page 20-7).
3. Disconnect door multiplex connector A (20P).
4. Check for continuity between No. 2 terminal of the driver's under-dash fuse/relay box socket and No. 15 terminal of the door multiplex control unit connector A (20P).

DRIVER'S UNDER-DASH FUSE/RELAY BOX SOCKET



Is there continuity?

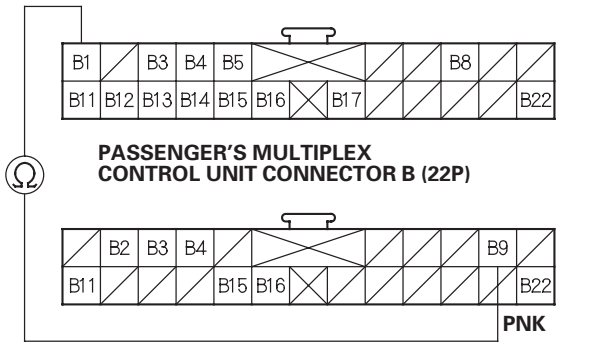
YES—Replace the multiplex control unit most closely related to failure.

NO—Repair an open in the wire between the door multiplex connector and the driver's under-dash fuse/relay box. If the wire is OK, replace the under-dash fuse/relay box. ■

PNK Wire Communication Line Test

1. Disconnect driver's multiplex control unit connector B (22P).
2. Disconnect passenger's multiplex control unit connector B (22P).
3. Check for continuity between No. 1 terminal of the driver's multiplex connector B (22P) and No. 9 terminal of the passenger's multiplex connector B (22P).

DRIVER'S MULTIPLEX CONTROL UNIT CONNECTOR B (22P)



Is there continuity?

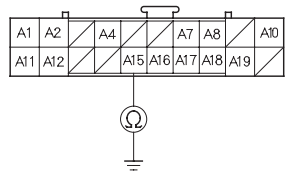
YES—Replace the multiplex control unit most closely related to the failure. ■

NO—Repair an open in the wire between the door multiplex B (22P) connector and the passenger's multiplex B (22P) connector. ■

Shorted Communication Line Test

1. Remove the driver's multiplex control unit from the driver's under-dash fuse/relay box.
2. Carefully pry off the driver's door switch trim (see page 20-7).
3. Disconnect door multiplex connector A (20P).
4. Disconnect passenger's multiplex control unit connector B (22P).
5. Check for continuity between No. 15 terminal of door multiplex connector A (20P) and body ground.

DOOR MULTIPLEX CONTROL UNIT CONNECTOR A (20P)



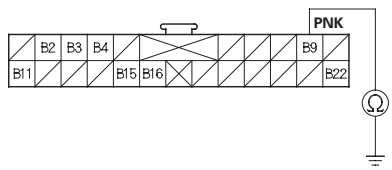
Is there continuity?

YES—Repair short to ground in the wire between door multiplex control unit connector A (20P) and the driver's under-dash fuse/relay box. ■

NO—Go to step 6.

6. Check for continuity between No. 9 terminal of passenger's multiplex connector B (22P) and body ground.

PASSENGER'S MULTIPLEX CONTROL UNIT CONNECTOR B (22P)



Is there continuity?

YES—Repair short to ground in the wire between passenger's multiplex control unit connector B (22P) and driver's multiplex control unit connector B (22P). ■

NO—Replace driver's multiplex control unit and recheck the symptom. ■

Multiplex Control Unit Input Test

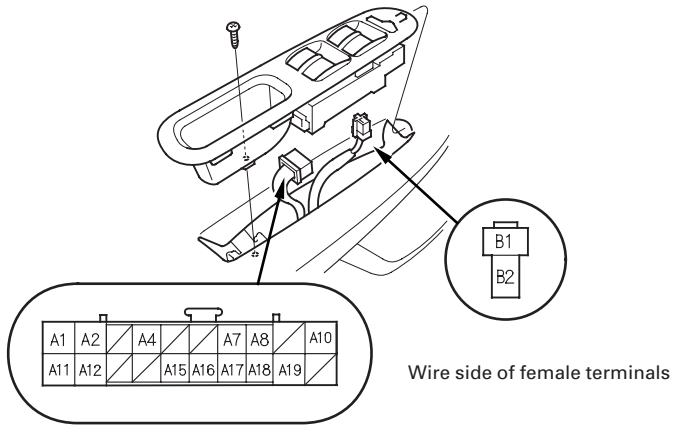
Door Unit

1. Remove the driver's door panel (see page 20-7), and disconnect the connectors from the door multiplex control unit.

2. Inspect the connector and socket terminals to be sure they are all making good contact.

   • If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   • If the terminals look OK, go to step 3.

   NOTE: The illustration shows '99 models.



3. Make the following input tests at connector A (20P).

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 8.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A1	WHT/RED	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/ relay box • Blown No. 54 (40A) fuse in the under-hood fuse/relay box • An open in the wire
A2	WHT/YEL	Ignition switch ON (II) and passenger's multiplex terminal A12 connected to battery voltage	Check for voltage to ground on A2: There should be battery voltage.	• Blown No. 51 (40A) fuse in the under-hood fuse/relay box. • Blown No. 15 (20A) fuse in the passenger's under-dash fuse/ relay box • Faulty power window relay • An open in the wire
A12 *1	Fuse/relay box socket			
A12	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • An open in the wire
A13 *2 A19 *3	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G551) • An open in the wire

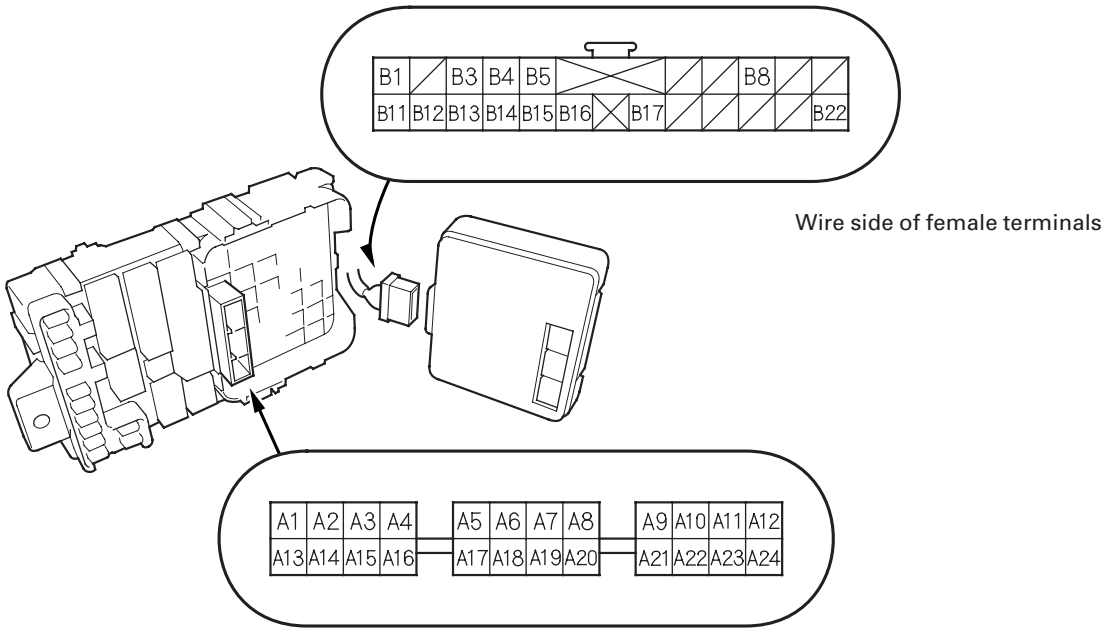
* 1: Passenger's multiplex control unit connector A
* 2: '03-04 (LX) models
* 3: '99-02 and '03-04 (EL, EXL) models

Driver's Unit

4. Remove the driver's multiplex control unit from the driver's under-dash fuse/relay box, and disconnect its connectors.

5. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 6.



(cont'd)

Multiplex Control Unit Input Test (cont'd)

6. Make the following input tests at the connector B and fuse/relay box socket.

   - If any test indicate a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 7.

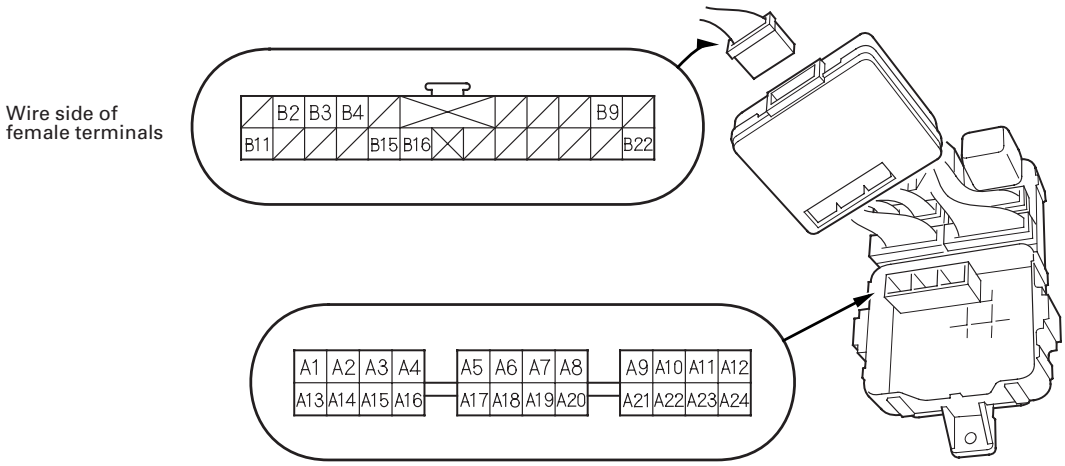
Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B11	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
A12	Fuse/relay box socket	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/ relay box • Blown No. 54 (40A) fuse in the under-hood fuse/relay box • An open in the wire
A14		Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • An open in the wire
A24		Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • An open in the wire
A13		Ignition key is inserted into the ignition switch	Check for continuity to ground: There should be continuity.	• Faulty ignition key switch • An open in the wire • Poor ground (G401)
		Ignition key removed from the ignition switch	Check for continuity to ground: There should be no continuity.	• Faulty ignition key switch • Short to ground
A1		Under all conditions	Attach to ground: Ignition key light should come on.	• Blown No. 47 (20A) fuse in the under-hood fuse/relay box • Blown LED • An open in the wire
A15		Short the multiplex control inspection connector terminals with the special tool	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • Faulty driver's fuse/relay box • An open in the wire
		Remove the special tool from the multiplex control inspection connector	Check for continuity to ground: There should be no continuity.	• Short to ground

Passenger's Unit

7. Remove the passenger's multiplex control unit from the passenger's under-dash fuse/relay box, and disconnect its connector.

8. Inspect the connector and socket terminals to be sure they are all making good contact.

   • If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   • If the terminals look OK, go to step 9.



9. Make the following input tests at the connector B and the fuse/relay box socket.

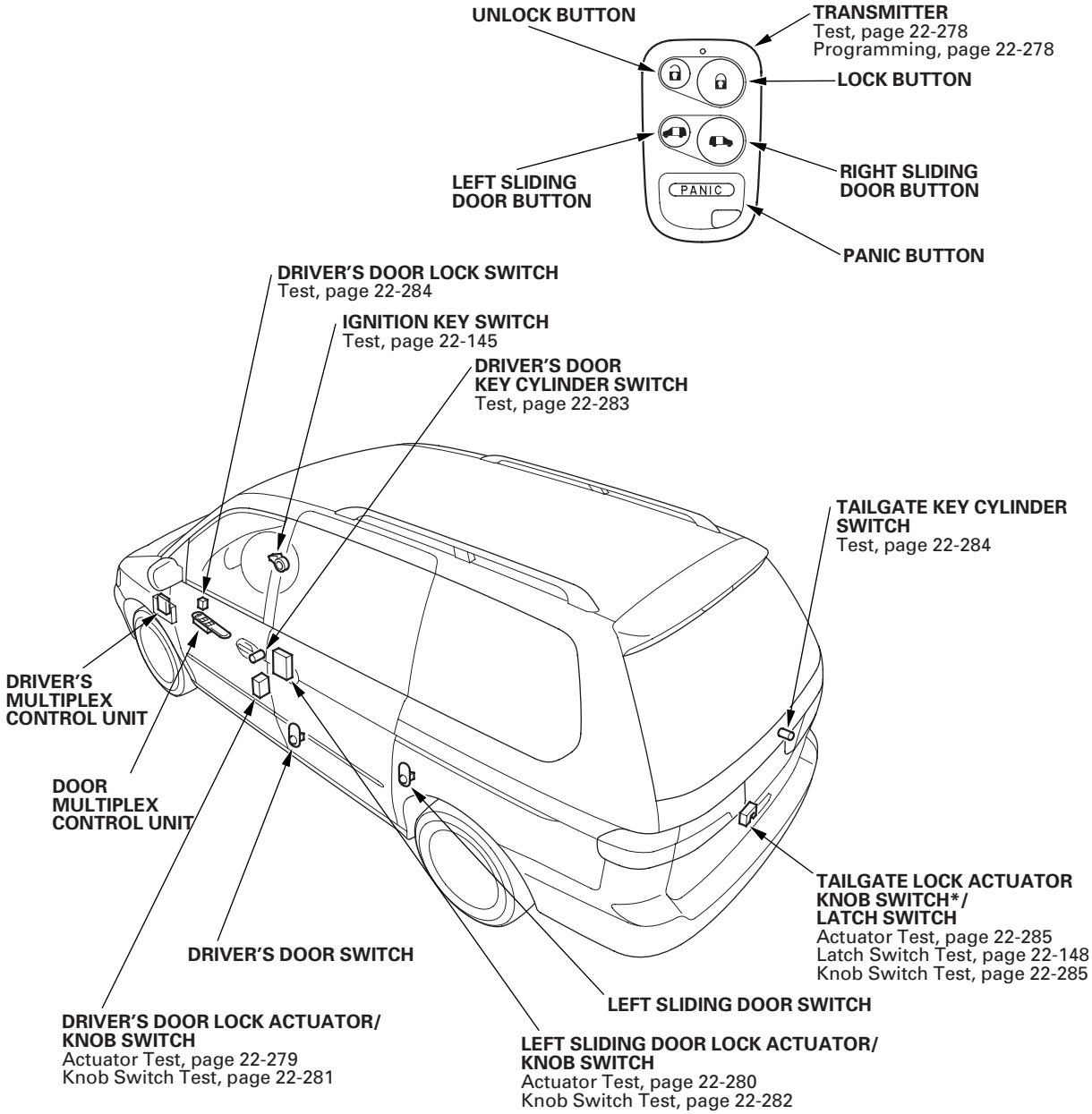
   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to the Multiplex Control System Troubleshooting (see page 22-244).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B22	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G503) • An open in the wire
A24	Fuse/relay box socket	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/relay box • Blown No. 54 (40A) fuse in the under-hood fuse/relay box • Faulty passenger's under-dash fuse/relay box
A8		Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G581) • An open in the wire
A22		Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • An open in the wire
A12		Under all conditions	Attach A12 to battery voltage: Power window relay should click and check voltage between No. 15 (20A) fuse and body ground: There should be battery voltage.	• Poor ground (G581) • Faulty passenger's fuse box • Faulty power window relay • An open in the wire • Blown No. 51 (40A) fuse in the under-hood fuse/relay box

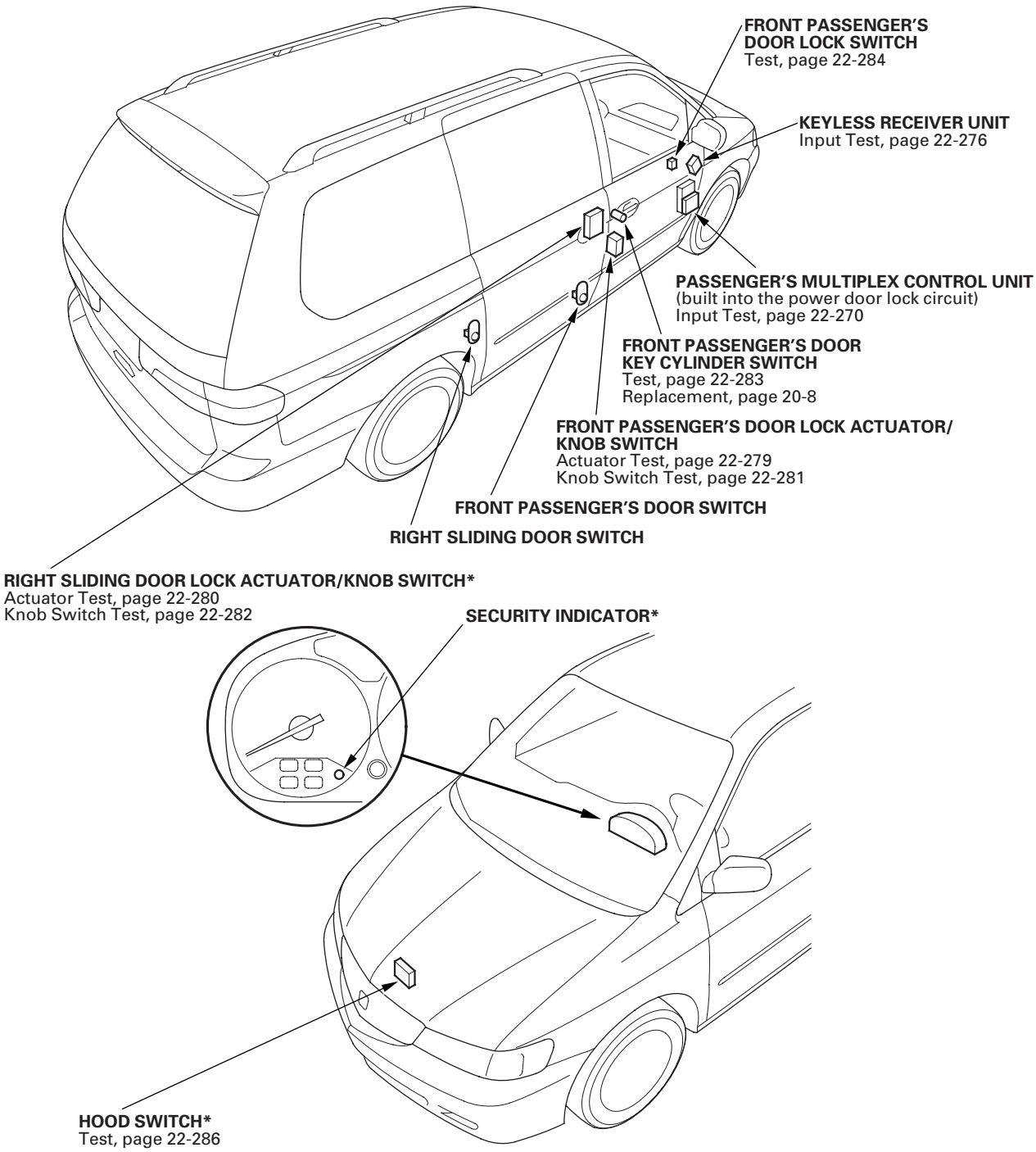
Component Location Index

Power Door Locks '99-02 LX models
Factory Keyless Entry '99-00 EX models
Factory Security Alarm System
'01-04 EX and '02-04 EXL models

NOTE: To troubleshoot '99-04 LX Keyless Entry/Security Alarm System and '99-00 EX Security Alarm Systems, refer to the ETM and the accessory owner's manual.



*: '01-04 EX and '02-04 EXL models



System Description

Security Alarm System-'01-04 EX, EXL

NOTE: For a description of the security system on '99-04 LX or '99-00 EX models, refer to the ETM and accessory alarm owner's manual.

The security alarm system is armed automatically after the doors, hood, and tailgate are closed and locked. For the system to arm, the ignition switch must be off, the key must be removed, and the security control unit must receive signals that the doors, hood, and tailgate are closed and locked. The alarm can be disarmed at any time by unlocking either door with the key or the remote transmitter.

When everything is closed and locked, the only control unit inputs that are grounded, and have 0 volts, are the driver's door lock knob switch, the audio unit, and the navigation display. In other words, all of the other switches are open, including the key cylinder switches, and they have about 10 volts. Ten seconds after the doors are locked with the key or the lock knob (with the door open), or immediately after the doors are locked with the LOCK button on the remote transmitter, the security system arms, and the security indicator on the gauge flashes. If the security indicator does not flash, the system is not arming. Check the doors, hood, and trunk to see if they are closed. A beep to confirm the security alarm system is armed will sound if the LOCK button is pressed a second time within 5 seconds.

If one of the switches is misadjusted or there is a short in the system, the system will not arm. As long as the control unit continues to receive a ground signal, it senses that the vehicle is not closed and locked, and the system will not arm. Conversely, a switch that is slightly misadjusted can sound an alarm for no apparent reason. In this case, a significant change in outside temperature, the vibration of a passing truck, or someone bumping into the vehicle could cause the alarm to sound. There is no glass breakage or motion detector feature.

If anything is opened or improperly unlocked after the system is armed, the control unit receives a ground signal from that switch, and the 10 volts reference drops to 0 volts. If the radio is disconnected, the input loses its ground, and the input voltage goes to 10 volts. The system sounds the alarm when any of these things occur:

- A door is forced open
- A door is unlocked without using the key or the remote transmitter
- The hood is opened
- The tailgate is opened without using the transmitter
- The audio unit, navigation display unit, DVD player unit, or rear controller and screen is disconnected
- The panic mode is activated

When the system sounds the alarm, the security horn sounds and the exterior lights flash for 2 minutes. The alarm can be stopped at any time by unlocking either door with the key or by pushing any button on the remote transmitter.

Panic Mode

The panic mode allows the security system to sound the alarm with the remote transmitter in order to attract attention. When the PANIC butten is pressed and held for 2 seconds, the alarm will sound and the exterior lights will flash for about 30 seconds.

The panic mode can be canceled at anytime by pressing any button on the remote transmitter or by turning the ignition switch ON (II). The panic mode will not function if the ignition switch is ON (II).

Keyless Entry System

NOTE: '99-04 LX models have an accessory keyless entry and security system. '99-00 EX models have a factory keyless entry and an accessory security system. For an accessory keyless entry or security system, refer to the ETM and accessory owner's manual.

The security alarm system is integrated with the keyless entry and multiplex systems on '01-04 EX, EXL.
The keyless entry system allows you to lock and unlock the vehicle with the remote transmitter. When you push the LOCK button, all doors lock. When you push the UNLOCK button once, only the driver's door unlocks. The other doors and the tailgate door will unlock when you push the button a second time.

When the switch for the ceiling light is in the center position, it will come on when you press the UNLOCK button. If you do not open a door, the light will go off in about 30 seconds, the doors will automatically relock, and the security system will rearm. If you relock the doors with the remote transmitter within 30 seconds, the light will go off immediately.

You cannot lock the doors with the remote transmitter if a door or the tailgate is not fully closed, or if the key is in the ignition switch. If the tailgate or hood is not closed, the doors will lock and unlock, but the security system will not be armed until the tailgate and hood are closed.

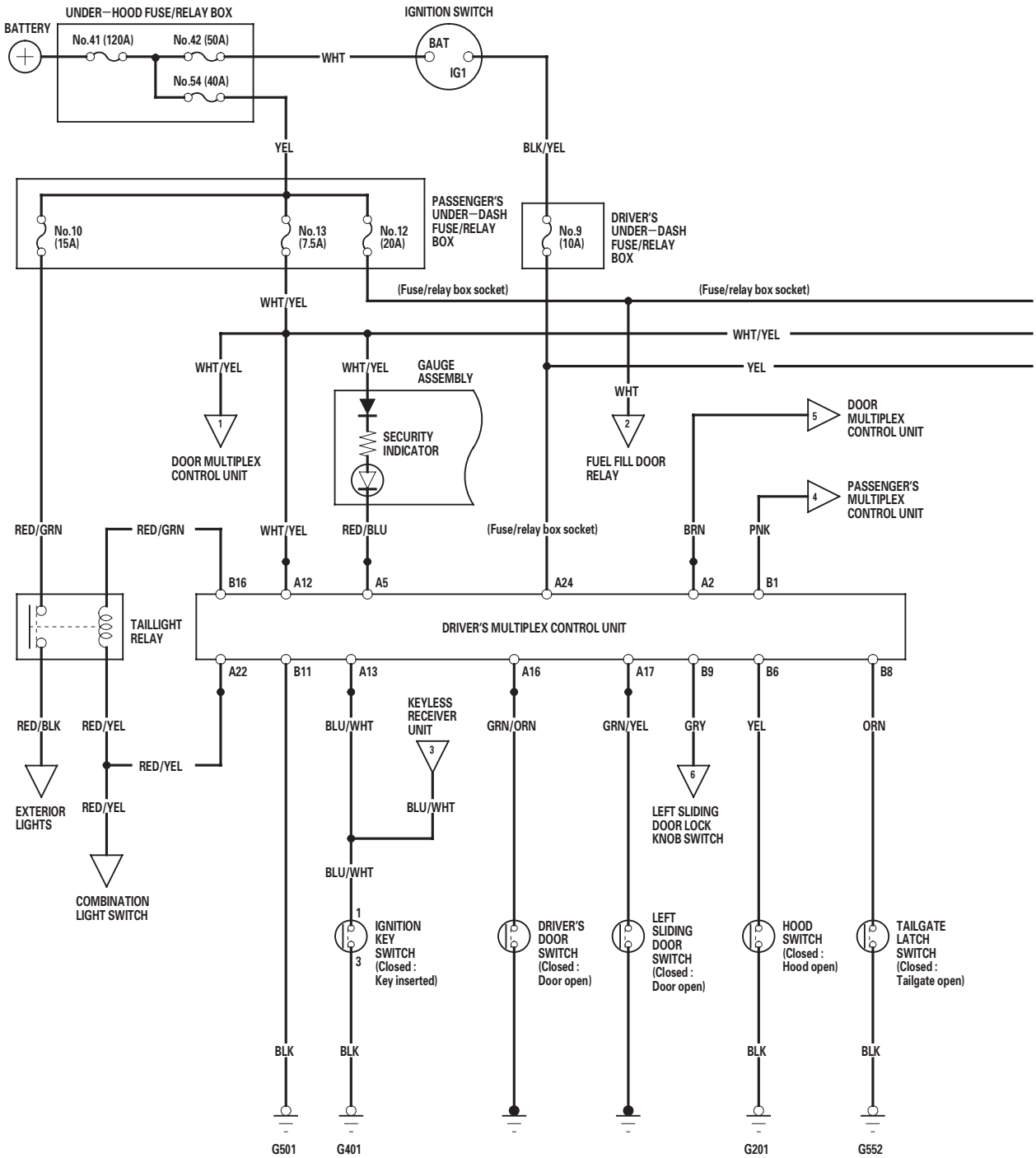
The system will signal you when the doors lock and unlock by flashing the parking lights, side marker lights, and taillights: once when they lock, and twice when they unlock.

When you press the LOCK button a second time within 5 seconds after you have locked the doors, the horn will sound once to verify that the security system will be set.

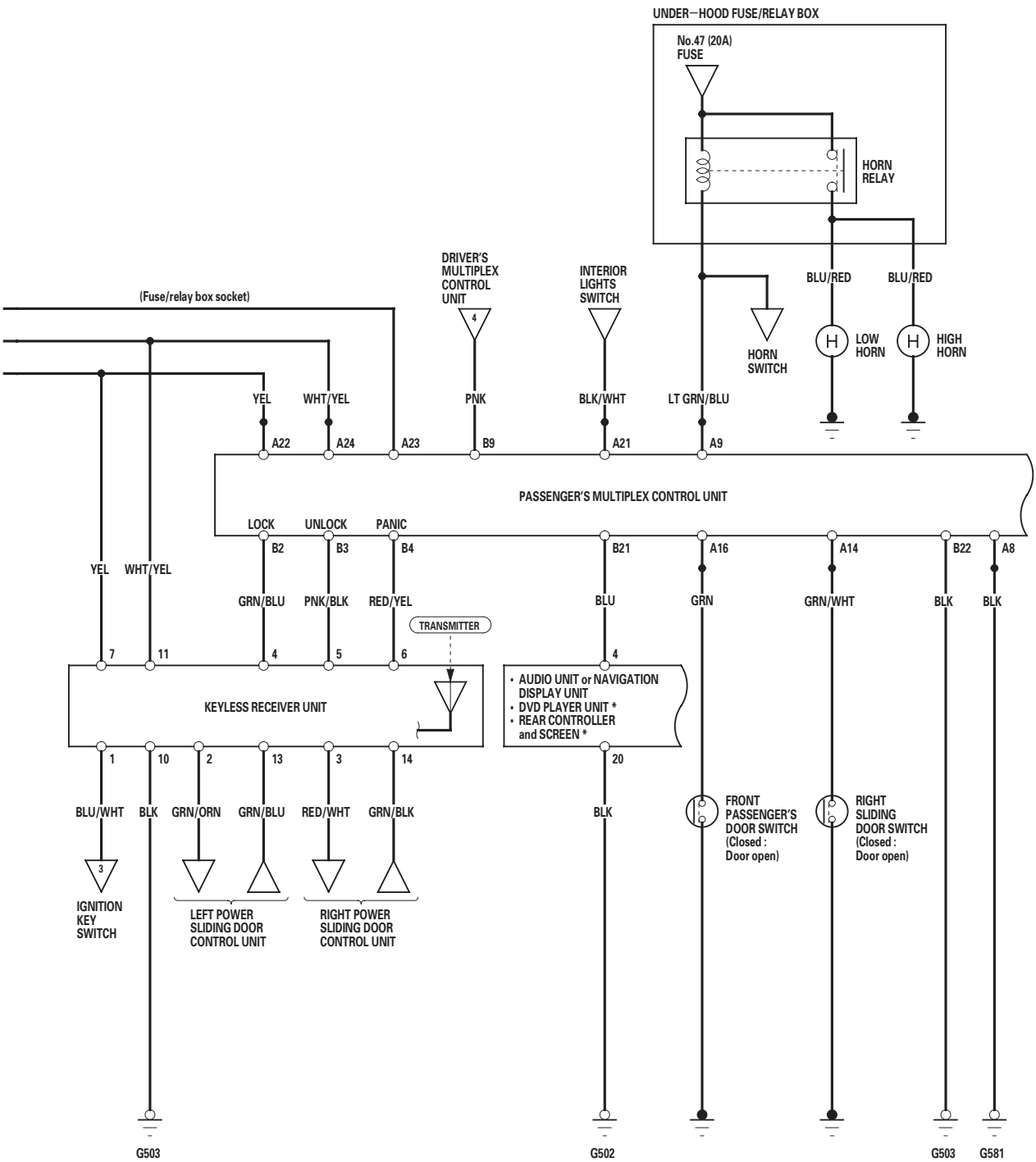
If the lights do not flash, make sure the doors, the hood, and the tailgate are closed and locked. The most common failure is a door, hood, tailgate, lock knob, ignition key, or door/tailgate key cylinder input. Check that the security indicator blinks. If the security alarm system does not arm, refer to the multiplex mode or security input tests.

Circuit Diagram - With Security System

'01-04 EX and '02-04 EXL models



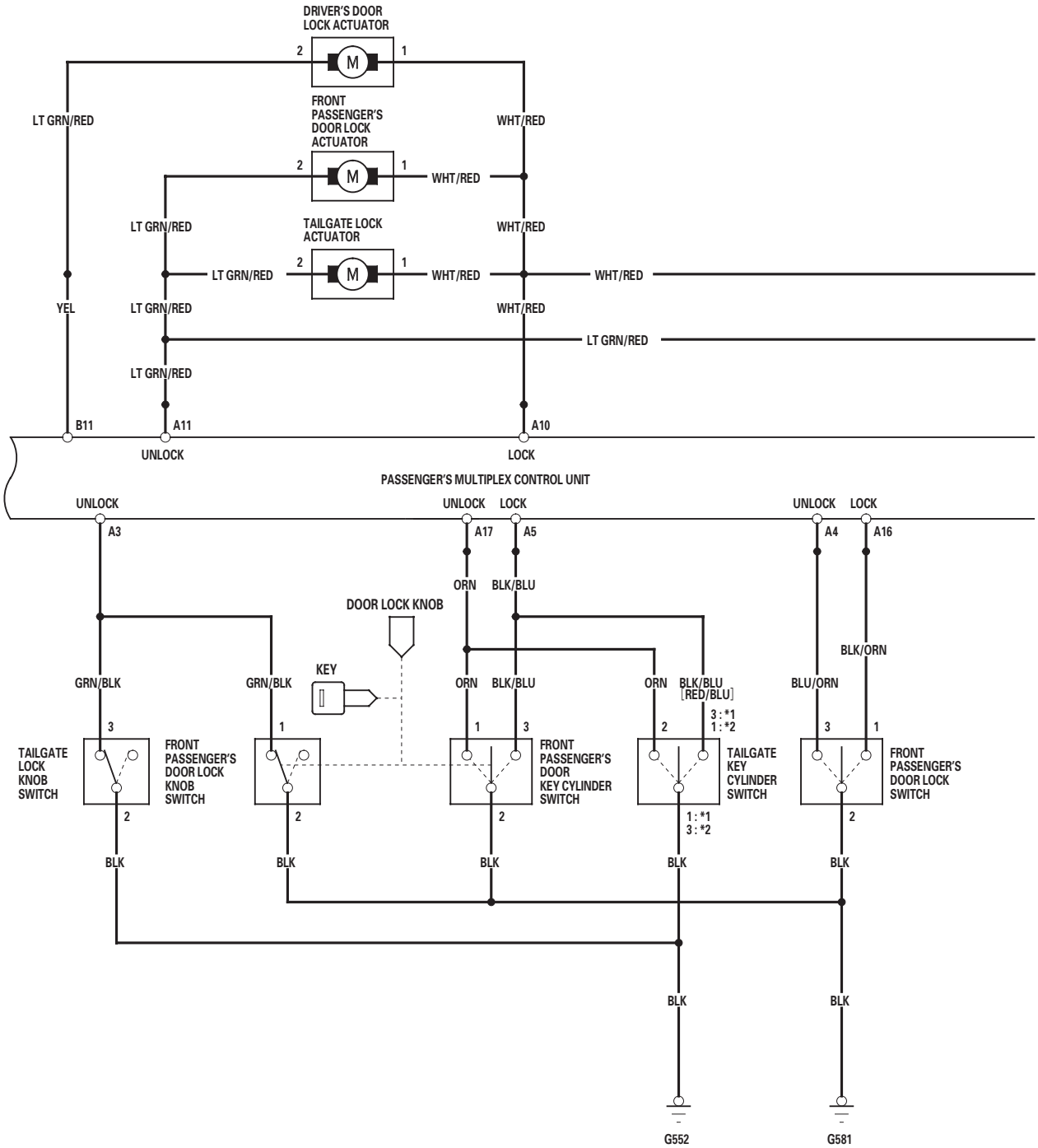
* : With rear entertainment system

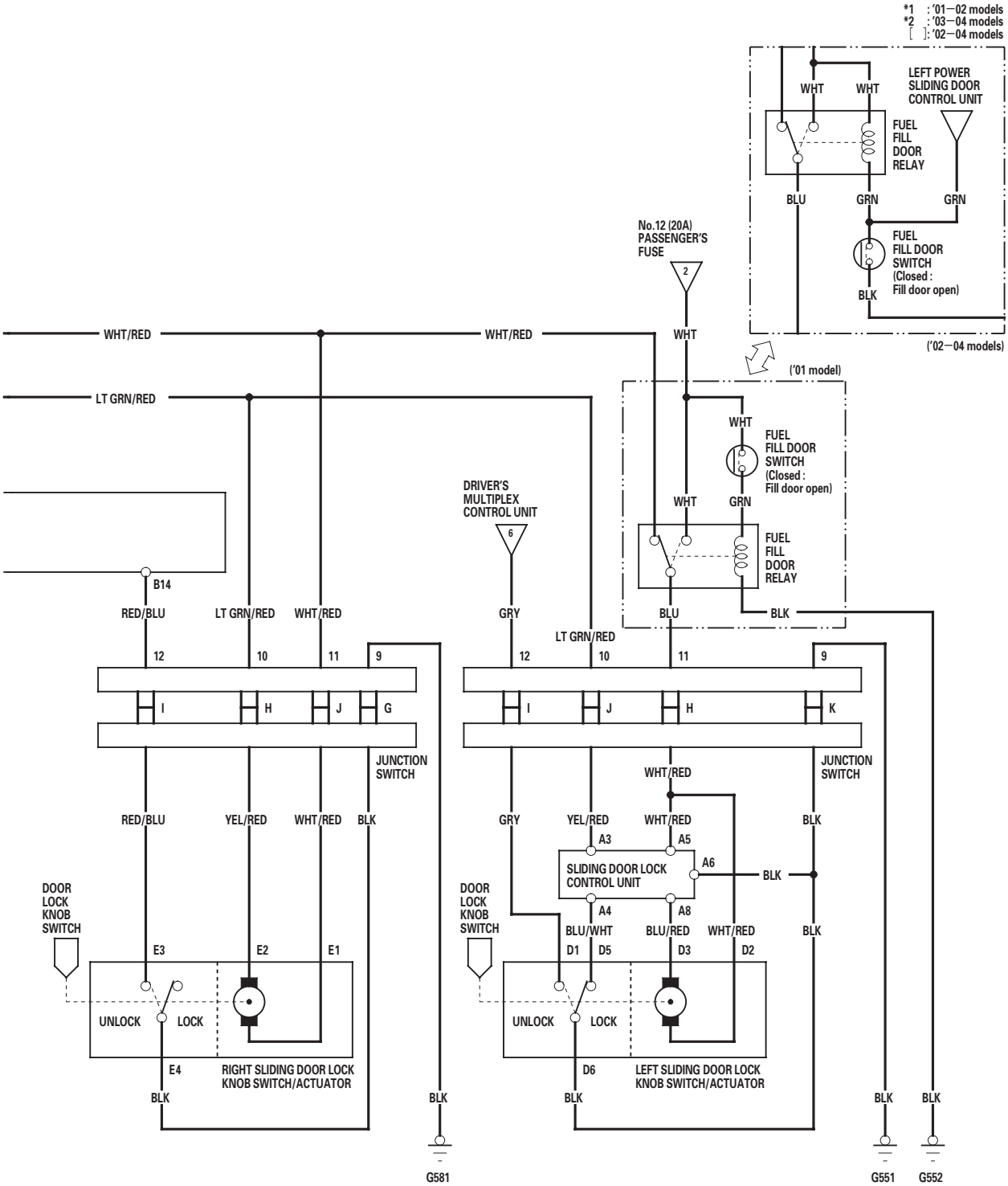


(cont'd)

Circuit Diagram - With Security System (cont'd)

'01-04 EX and '02-04 EXL models

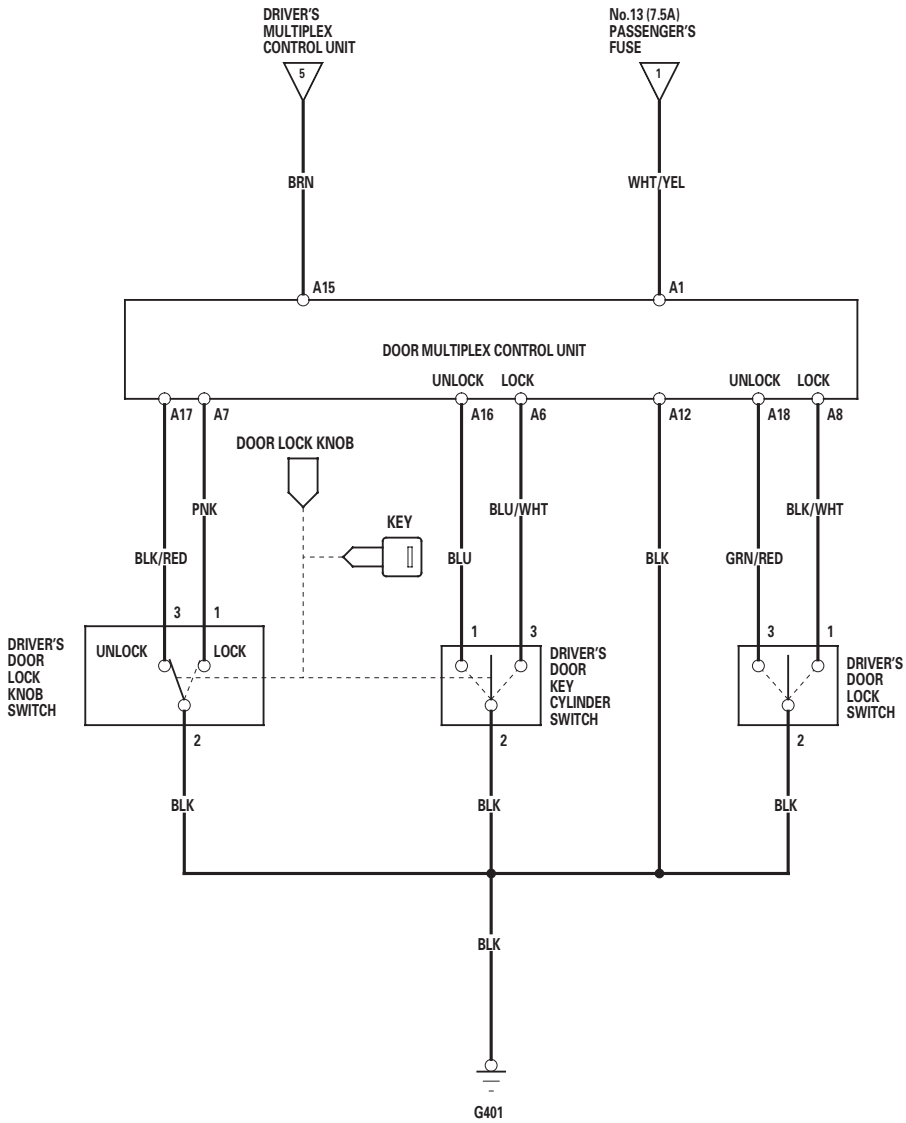



*1 : '01—02 models
*2 : '03—04 models
[ ]: '02—04 models
LEFT POWER SLIDING DOOR CONTROL UNIT
WHT
WHT
FUEL FILL DOOR RELAY
BLU
GRN
GRN
FUEL FILL DOOR SWITCH (Closed : Fill door open)
BLK
('02—04 models)
No.12 (20A) PASSENGER'S FUSE
2
WHT/RED
WHT/RED
WHT
('01 model)
LT GRN/RED
WHT
FUEL FILL DOOR SWITCH (Closed : Fill door open)
WHT
GRN
FUEL FILL DOOR RELAY
BLU
BLK
DRIVER'S MULTIPLEX CONTROL UNIT
6
B14
RED/BLU
LT GRN/RED
WHT/RED
GRY
LT GRN/RED
12
10
11
9
I
H
J
G
I
J
H
K
JUNCTION SWITCH
JUNCTION SWITCH
WHT/RED
RED/BLU
YEL/RED
WHT/RED
BLK
GRY
YEL/RED
WHT/RED
BLK
A3
A5
A6
SLIDING DOOR LOCK CONTROL UNIT
BLK
A4
A8
DOOR LOCK KNOB SWITCH
DOOR LOCK KNOB SWITCH
BLU/WHT
BLU/RED
WHT/RED
BLK
D1
D5
D3
D2
E3
E2
E1
UNLOCK
LOCK
UNLOCK
LOCK
E4
RIGHT SLIDING DOOR LOCK KNOB SWITCH/ACTUATOR
D6
LEFT SLIDING DOOR LOCK KNOB SWITCH/ACTUATOR
BLK
BLK
BLK
BLK
BLK
G581
G551
G552

(cont'd)

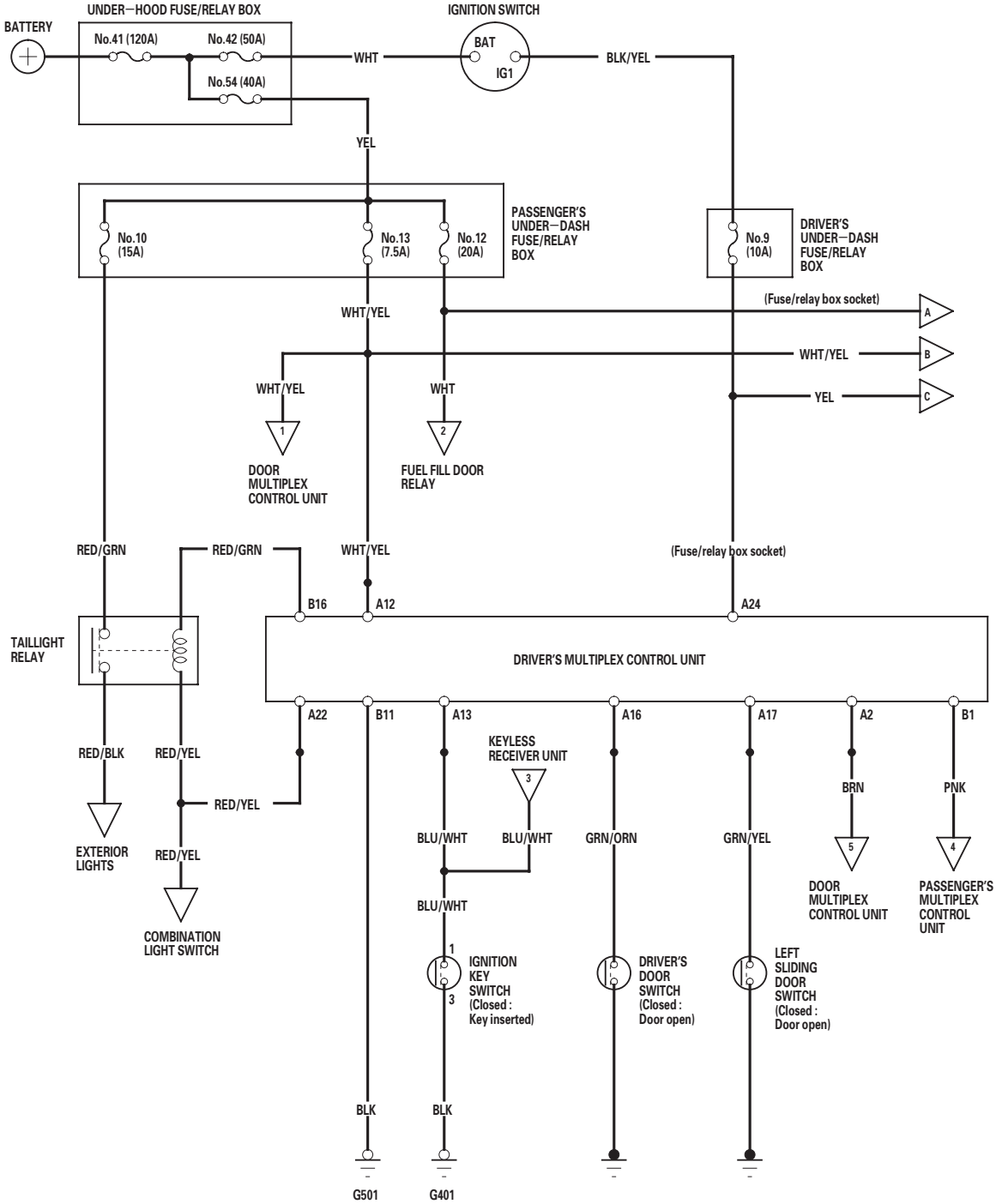
Circuit Diagram - With Security System (cont'd)

'01-04 EX and '02-04 EXL models



Circuit Diagram - Without Security System

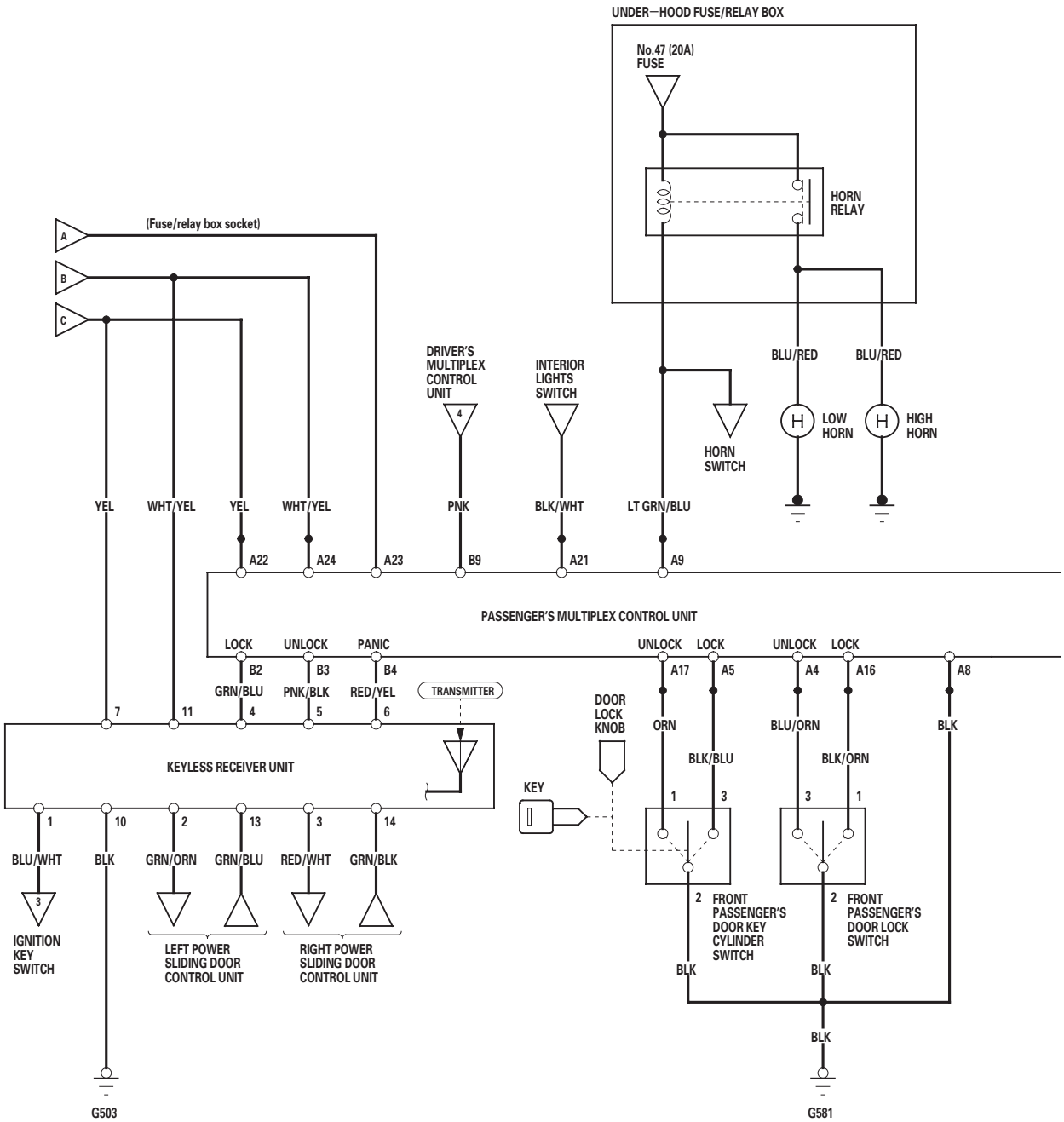
'99-04 LX and '99-00 EX models

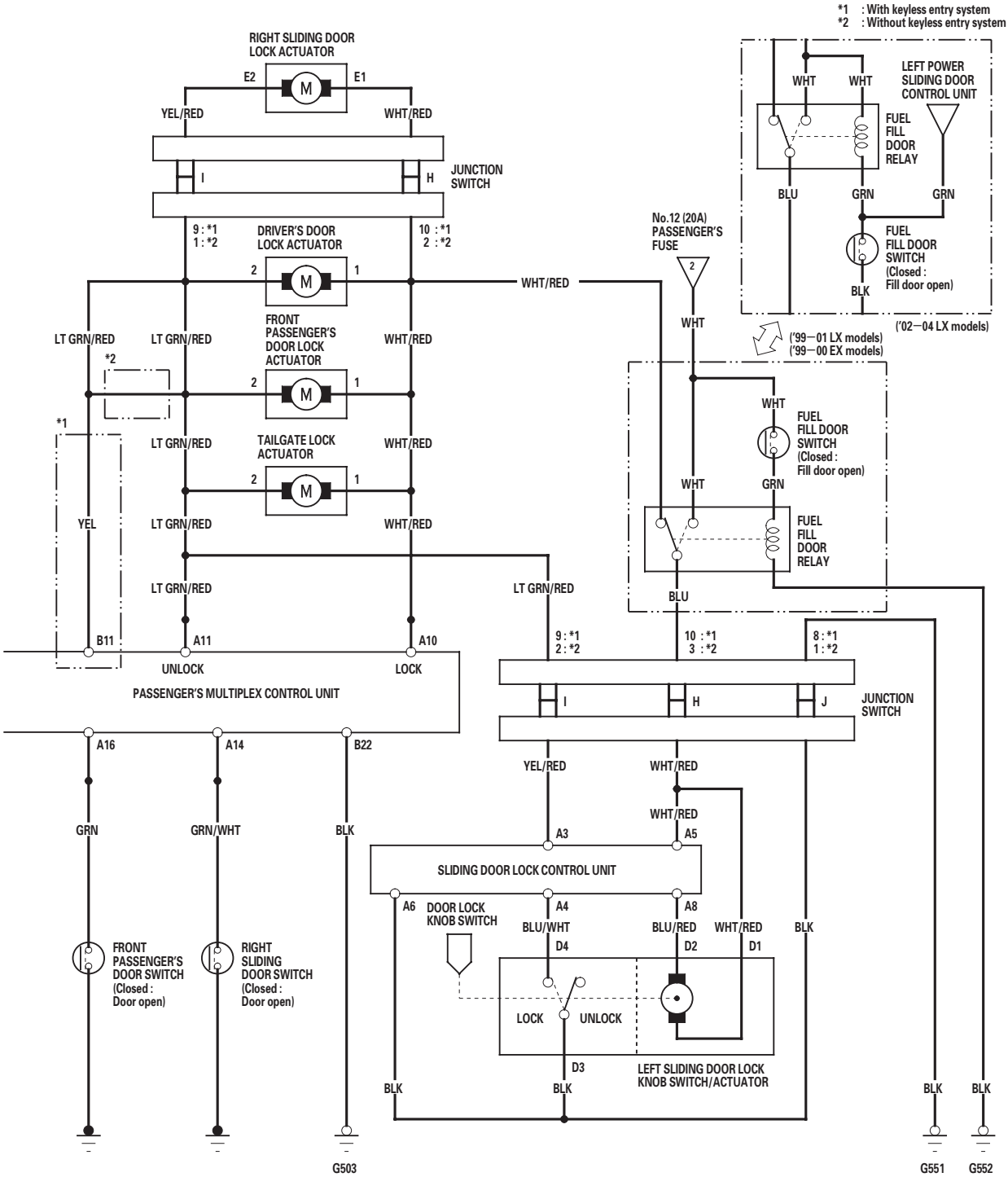


(cont'd)

Circuit Diagram - Without Security System (cont'd)

'99-04 LX and '99-00 EX models



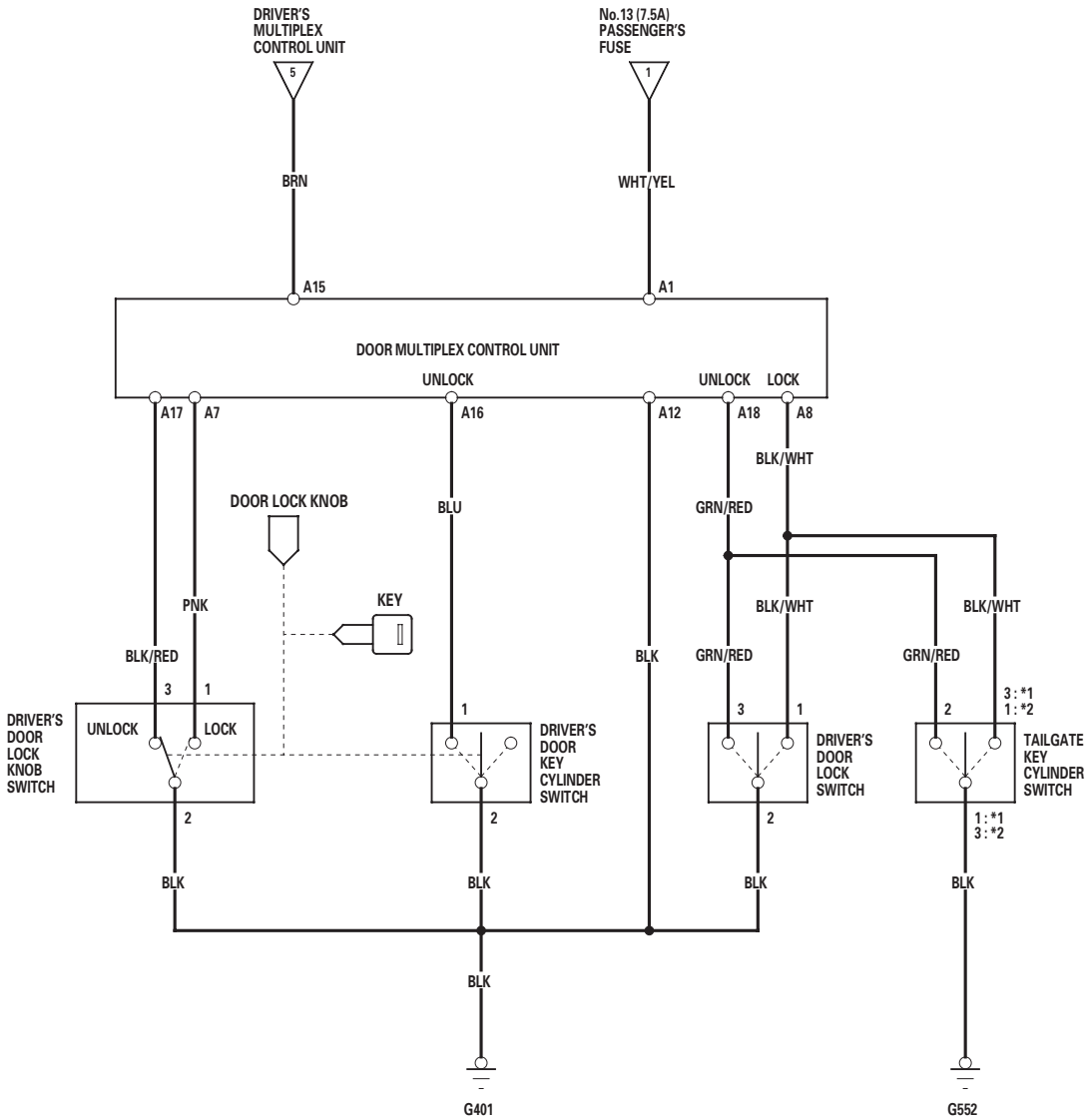

*1 : With keyless entry system
*2 : Without keyless entry system
RIGHT SLIDING DOOR LOCK ACTUATOR
E2
E1
M
YEL/RED
WHT/RED
JUNCTION SWITCH
I
H
9 : *1
1 : *2
DRIVER'S DOOR LOCK ACTUATOR
10 : *1
2 : *2
2
1
WHT/RED
No.12 (20A) PASSENGER'S FUSE
LEFT POWER SLIDING DOOR CONTROL UNIT
WHT
WHT
FUEL FILL DOOR RELAY
BLU
GRN
GRN
FUEL FILL DOOR SWITCH (Closed : Fill door open)
BLK
('02—04 LX models)
('99—01 LX models)
('99—00 EX models)
LT GRN/RED
LT GRN/RED
FRONT PASSENGER'S DOOR LOCK ACTUATOR
WHT/RED
*2
*1
TAILGATE LOCK ACTUATOR
YEL
LT GRN/RED
WHT/RED
WHT
FUEL FILL DOOR SWITCH (Closed : Fill door open)
WHT
GRN
FUEL FILL DOOR RELAY
BLU
LT GRN/RED
LT GRN/RED
B11
A11
A10
UNLOCK
LOCK
PASSENGER'S MULTIPLEX CONTROL UNIT
9 : *1
2 : *2
10 : *1
3 : *2
8 : *1
1 : *2
I
H
J
JUNCTION SWITCH
A16
A14
B22
YEL/RED
WHT/RED
WHT/RED
GRN
GRN/WHT
BLK
A3
A5
SLIDING DOOR LOCK CONTROL UNIT
A6
DOOR LOCK KNOB SWITCH
A4
A8
BLU/WHT
BLU/RED
WHT/RED
BLK
D4
D2
D1
FRONT PASSENGER'S DOOR SWITCH (Closed : Door open)
RIGHT SLIDING DOOR SWITCH (Closed : Door open)
LOCK
UNLOCK
D3
LEFT SLIDING DOOR LOCK KNOB SWITCH/ACTUATOR
BLK
BLK
BLK
BLK
G503
G551
G552

(cont'd)

Circuit Diagram - Without Security System (cont'd)

'99-04 LX and '99-00 EX models

*1 : '99—02 LX and '99—00 EX models
*2 : '03—04 LX models



Control Unit Input Test

1. Before testing the keyless entry/power door lock control functions, troubleshoot the multiplex control system (see page 22-244).

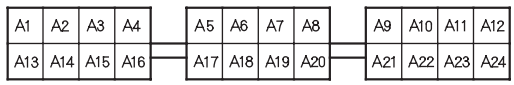
Driver's multiplex Control Unit

2. Remove the driver's multiplex control unit from the driver's under-dash fuse/relay box.

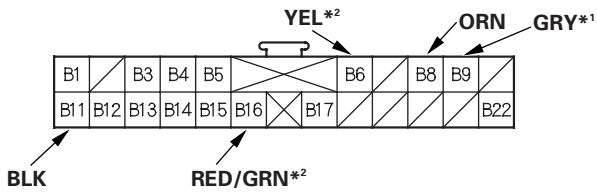
3. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

DRIVER'S UNDER-DASH FUSE/RELAY BOX SOCKET
(Driver's multiplex control unit connector A)

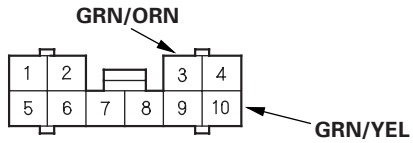


DRIVER'S MULTIPLEX CONTROL UNIT CONNECTOR B



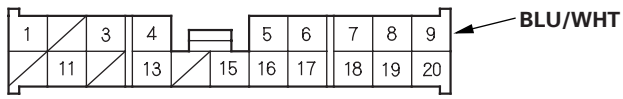
Wire side of female terminals

DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR A



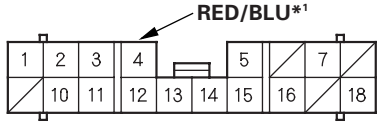
Wire side of female terminals

DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR O



Wire side of female terminals

DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR K



Wire side of female terminals

***1: '01-04 EX, '02-04 EXL**
***2: EX, '02-04 EXL**

(cont'd)

Control Unit Input Test (cont'd)

4. With the driver's multiplex cotrol unit still disconnected, make these input tests at the connector and fuse/relay box sockets.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B11	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
A12	Fuse/relay box socket	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse or faulty passenger's under-dash fuse/relay box • An open in the wire
A24		Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (7.5A) fuse in the driver's under-dash fuse/relay box • Faulty driver's under-dash fuse/relay box
A22		Combination light switch ON	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • Faulty combination light switch • An open in the wire
		Combination light switch OFF	Check for continuity to ground: There should be no continuity.	
B16*	RED/GRN	Combination light switch ON and jump battery voltage to B16	Check the exterior lights: The taillights and parking lights should come on.	• Faulty taillight relay • Faulty combination light switch • An open in the wire
K4*	RED/BLU	Under all conditions	Attach to ground: The indicator should come on.	• Faulty security indicator • Faulty gauge assembly • An open in the wire

*: '01-04 EX and '02-04 EXL models

5. Reconnect the driver's multiplex control unit to the fuse/relay box, and perform the following input tests at the appropriate connectors on the back of the fuse/relay box (see page 22-76).

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
O9	BLU/WHT	Ignition key is in the ignition switch	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G401) • Faulty ignition key switch • An open in the wire • Short to ground
		Ignition key is out of the ignition switch	Check for voltage to ground: There should be 5 V or more.	
A3	GRN/ORN	Driver's door open	Check for voltage to ground: There should be less than 1 V.	• Faulty driver's door switch • An open in the wire • Short to ground
		Driver's door closed	Check for voltage to ground: There should be 5 V or more.	
A10	GRN/YEL	Left sliding door open	Check for voltage to ground: There should be less than 1 V.	• Faulty left sliding door switch • An open in the wire • Short to ground
		Left sliding door closed	Check for voltage to ground: There should be 5 V or more.	
B8	ORN	Tailgate open	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G552) • Faulty tailgate latch switch • An open in the wire • A short to ground
		Tailgate closed	Check for voltage to ground: There should be 5 V or more.	
B6*	YEL	Hood open	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G201) • Faulty hood switch • An open in the wire • A short to ground
		Hood closed	Check for voltage to ground: There should be 5 V or more.	
B9*	GRY	Left sliding door lock knob unlocked (door fully closed)	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G581) • Faulty left sliding door lock knob switch • Poor junction connector connection • An open in the wire • A short to ground
		Left sliding door lock knob locked (door fully closed)	Check for voltage to ground: There should be 5 V or more.	

*: '01-04 EX and '02-04 EXL models

(cont'd)

Control Unit Input Test (cont'd)

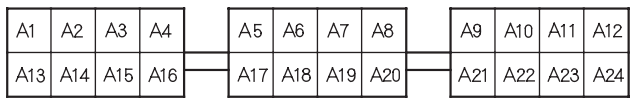
Passenger's multiplex Control Unit

6. Remove the passenger's multiplex control unit from the passenger's under-dash fuse/relay box, and disconnect its connector.

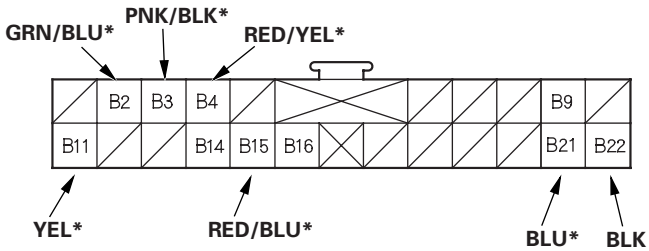
7. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 8.

PASSENGER'S UNDER-DASH FUSE/RELAY BOX SOCKET
(Passenger's multiplex control unit connector A)

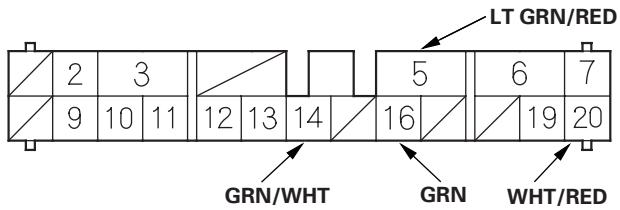


PASSENGER'S MULTIPLEX CONTROL UNIT CONNECTOR B



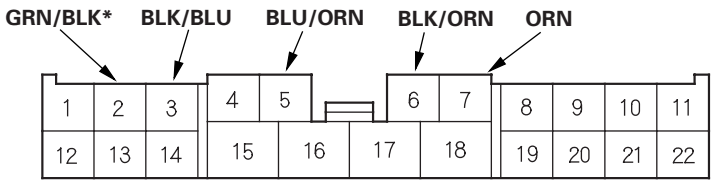
Wire side of female terminals

PASSENGER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR A



Wire side of female terminals

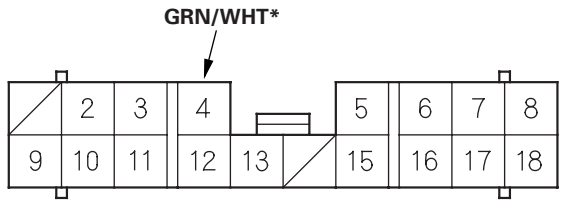
PASSENGER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR F



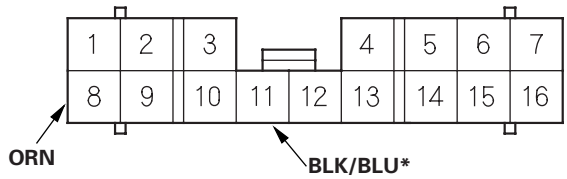
Wire side of female terminals

***: '01-04 EX, '02-04 EXL**

PASSENGER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR I



PASSENGER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR J



Wire side of female terminals

***: '01-04 EX, '02-04 EXL**

(cont'd)

Control Unit Input Test (cont'd)

8. With the multiplex control unit still disconnected, make these input tests at the connector and fuse/relay box sockets.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 9.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A8	Fuse/relay box socket	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G581) • An open in the wire
A9		Jump A9 to body ground	The horn should sound.	• Blown No. 47 (20A) fuse in the under-hood fuse/relay box • Faulty horn relay • Faulty horn • An open in the wire
A21		Ceiling lights switch in the middle position	Attach to ground: Ceiling lights should come on with the interior light switch in the DOOR position.	• Blown No. 11 (10A) fuse in the passenger's under-dash fuse/relay box • Faulty interior lights relay • Faulty interior light switch • An open in the wire • Poor ground (G401)
A22		Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse or faulty driver's under-dash fuse/relay box • An open in the wire
A23		Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 12 (20A) fuse in the passenger's under-dash fuse/relay box • Faulty passenger's under-dash fuse/relay box
A24		Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/relay box • Faulty passenger's under-dash fuse/relay box
B22	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G503) • An open in the wire
A10 A11	Fuse/relay box socket	Connect the A10 terminal to the A23 terminal, and the A11 to B22 momentarily	Check door lock operation: The tailgate, the passenger's door, and both sliding doors should lock (reverse the connection to unlock)	• Blown No. 12 (20A) fuse in the passenger's under-dash fuse/relay box • Faulty fuel fill door relay • Faulty door lock actuators • Faulty sliding door junction switch • An open in the wire
B11*	YEL	Connect the A10 terminal to the A23 terminal, and the B11 to B22 momentarily	The driver's door and left sliding door should lock (reverse the connection to unlock)	
B2*	GRN/BLU	Under all conditions	Check for continuity between the B2 terminal and keyless receiver unit No. 4 terminal: There should be continuity.	• An open in the wire
B3*	PNK/BLK	Under all conditions	Check for continuity between the B3 terminal and keyless receiver unit No. 5 terminal: There should be continuity.	• An open in the wire
B4*	RED/YEL	Under all conditions	Check for continuity between the B4 terminal and keyless receiver unit No. 6 terminal: There should be continuity.	• An open in the wire

*: '01-04 EX and '02-04 EXL models

9. Reconnect the passenger's multiplex control unit to the fuse/relay box, and perform the following input tests at the appropriate connectors on the back of the fuse/relay box (see page 22-77).

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 10.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B21*	BLU	Ignition switch ON (II)	Check for voltage to ground: There should be less than 1 V with interior light switch in the DOOR position.	• Poor ground (G502) • Faulty connections at the audio or navigation unit • Faulty audio unit • Faulty navigation display unit • An open in the wire
F3 . J8*	BLK/BLU	Front passenger's door lock or tailgate (*) key cylinder locked	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G581) • Faulty or misadjusted front passenger's door lock key cylinder switch • An open in the wire • A short to ground
		Front passenger's door lock or tailgate (*) key cylinder in neutral or unlocked	Check for voltage to ground: There should be 5 V or more.	
F7 . J11*	ORN	Front passenger's door lock or tailgate (*) key cylinder unlocked	Check for voltage to ground: There should be 1 V or less.	
		Front passenger's door lock or tailgate (*) key cylinder in neutral or locked	Check for voltage to ground: There should be 5 V or more.	
F5	BLU/ORN	Front passenger's door lock switch in UNLOCK	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G581) • Faulty front passenger's door lock switch • An open in the wire • A short to ground
		Front passenger's door lock switch in neutral or locked	Check for voltage to ground: There should be 5 V or more.	
F6	BLK/ORN	Front passenger's door lock switch in LOCK	Check for voltage to ground: There should be 1 V or less.	
		Front passenger's door lock switch in neutral or unlocked	Check for voltage to ground: There should be 5 V or more.	
A14	GRN/WHT	Right sliding door open	Check for voltage to ground: There should be 1 V or less.	• Faulty right sliding door switch • An open in the wire • A short to ground
		Right sliding door closed	Check for voltage to ground: There should be 5 V or more.	
A16	GRN	Front passenger's door open	Check for voltage to ground: There should be 1 V or less.	• Faulty front passenger's door switch • An open in the wire • A short to ground
		Front passenger's door closed	Check for voltage to ground: There should be 5 V or more.	
B14*	RED/BLU	Right sliding door lock knob unlocked (door fully closed)	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G581) • Faulty right sliding door lock knob switch • Poor junction connector connection • An open in the wire • A short to ground
		Right sliding door lock knob locked (door fully closed)	Check for voltage to ground: There should be 5 V or more.	
F2*	GRN/BLK	Front passenger's door lock knob unlocked	Check for voltage to ground: There should be 1 V or less.	• Poor ground (G581) • Faulty front passenger's door lock knob switch • Faulty tailgate knob switch • An open in the wire • A short to ground
		Front passenger's door lock knob locked	Check for voltage to ground: There should be 5 V or more.	
I4*	GRN/BLK	Tailgate lock knob unlocked	Check for voltage to ground: There should be 1 V or less.	
		Tailgate lock knob locked	Check for voltage to ground: There should be 5 V or more.	

*: '01-04 EX and '02-04 EXL models

NOTE: When testing lock knob switches, make sure all doors are closed and locked, then unlock them one at a time.

(cont'd)

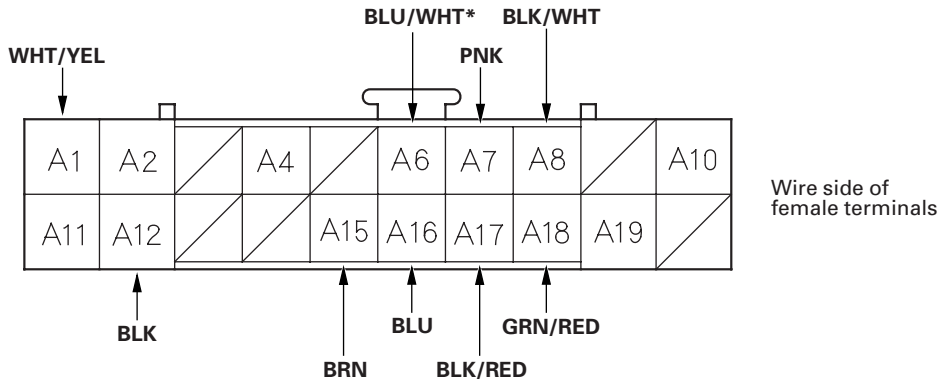
Control Unit Input Test (cont'd)

Door Multiplex Control Unit

10. Remove the door multiplex control unit, and disconnect its connector.

11. Inspect the connector and socket terminals to be sure they are making good contact.

    - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
    - If the terminals look OK, go to step 12.



*: '01-04 EX, '02-04 EX-L

12. With the door unit still disconnected, make these input tests at the connector.

    - If any test indicates a problem, find and correct the cause, then recheck the system.
    - If all the input tests prove OK, go to step 13.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A1	WHT/YEL	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse or faulty passenger's under-dash fuse/ relay box • An open in the wire
A12	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G401) • An open in the wire

13. Reconnect the connector to the door unit, and perform the following input tests at the connectors.

    • If any test indicates a problem, find and correct the cause, then recheck the system.
    • If all the input tests prove OK, go to step 14.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A16	BLU	Driver's door key cylinder switch in UNLOCK	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G401) • Faulty or misadjusted driver's door key cylinder switch • An open in the wire
		Driver's door key cylinder switch in neutral or locked	Check for voltage to ground: There should be 5 V or more.	
A6*1	BLU/WHT	Driver's door key cylinder switch in LOCK	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G401) • Faulty or misadjusted driver's door key cylinder switch • An open in the wire
		Driver's door key cylinder switch in neutral or unlocked	Check for voltage to ground: There should be 5 V or more.	
A7	PNK	Driver's door lock knob locked	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G401) • Faulty driver's door lock actuator • An open in the wire
		Driver's door lock knob unlocked	Check for voltage to ground: There should be 5 V or more.	
A17	BLK/RED	Driver's door lock knob unlocked	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G401) • Faulty driver's door lock actuator • An open in the wire
		Driver's door lock knob locked	Check for voltage to ground: There should be 5 V or more.	
A8	BLK/WHT	Driver's door lock switch in LOCK	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G401) • Faulty driver's door lock switch • Faulty tailgate lock switch • An open in the wire
		Tailgate key cylinder switch in LOCK (* 2)	Check for voltage to ground: There should be less than 1 V.	
		Tailgate key cylinder switch or driver's lock switch in neutral or unlocked (* 2)	Check for voltage to ground: There should be 5 V or more.	
A18	GRN/RED	Driver's door lock switch in UNLOCK	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G401) • Faulty driver's door lock switch • Faulty tailgate key cylinder switch • An open in the wire
		Driver's door lock switch in neutral or locked	Check for voltage to ground: There should be 5 V or more.	
		Tailgate key cylinder switch in UNLOCK (* 2)	Check for voltage to ground: There should be less than 1 V.	
		Tailgate key cylinder switch in neutral (* 2)	Check for voltage to ground: There should be 5 V or more.	

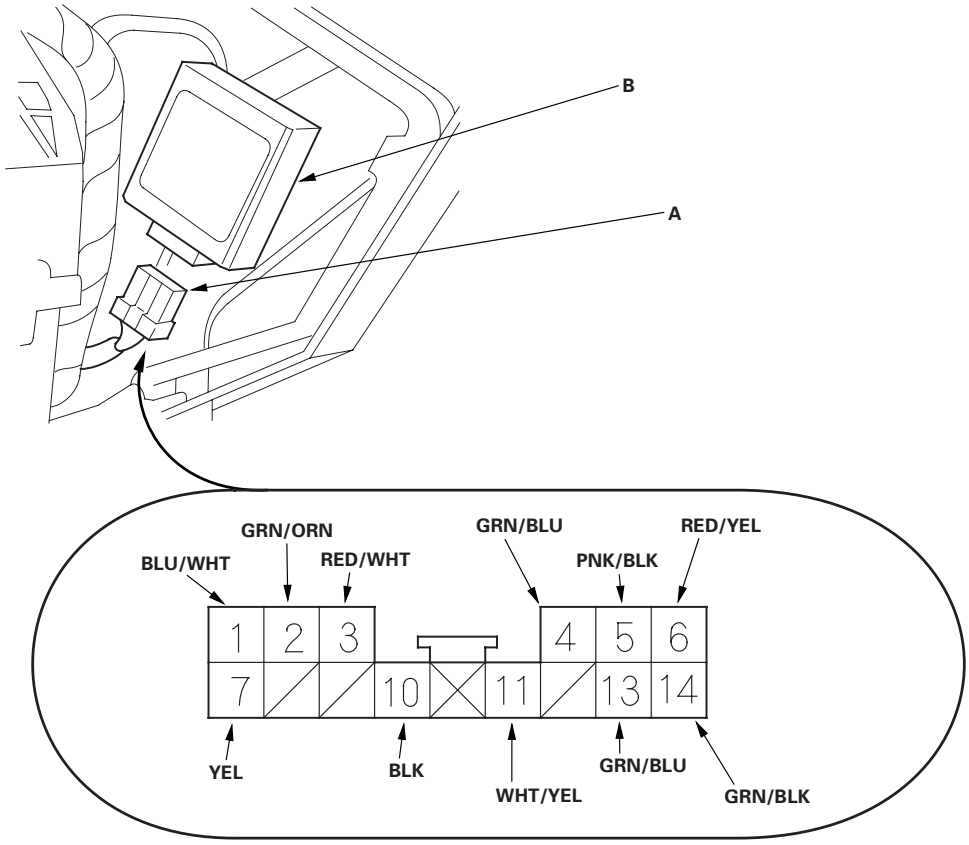
* 1: '01-04 EX and '02-04 EXL models
* 2: '99-04 LX and '99-04 EX models

14. If all the input tests prove OK, one of the control units must be faulty, Substitute a known-good control unit for the one that is most likely at fault, then recheck the system. If the system works properly, the original control unit is faulty; replace it. If there is still a malfunction, substitute a known-good control unit for the next most likely unit to be at fault, and recheck. If the system works properly, the original unit is faulty; replace it.

Keyless Receiver Unit Input Test

1. Remove the glove box (see page 20-71).

2. Disconnect the 14P connector (A) from the keyless receiver unit (B).



Wire side of female terminals

3. Inspect the all connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

4. Make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
7	YEL	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • An open in the wire
11	WHT/YEL	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G503) • An open in the wire
4	GRN/BLU (lock)	Jump to ground momentarily	Check door lock operation: The doors should lock.	• An open in the wire • Short to ground • Faulty passenger's multiplex control unit
5	PNK/BLK (unlock)	Jump to ground momentarily	Check door lock operation: The doors should unlock.	• An open in the wire • Short to ground • Faulty passenger's multiplex control unit
6	RED/YEL	Jump to ground momentarily	Check horn operation: The horns should sound.	• An open in the wire • Short to ground • Faulty passenger's multiplex control unit

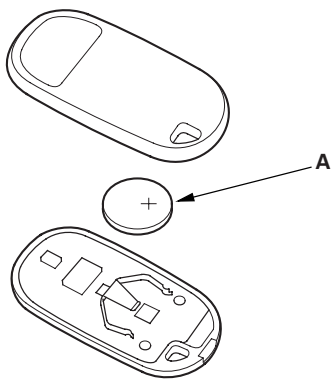
5. Reconnect the connector to the control unit, and perform the following input tests at the keyless receiver unit connector.
   - If any test indicates a problem, find and correct the cause then recheck the system.
   - If all the input tests prove OK, the keyless receiver unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
1	BLU/WHT	Ignition key is in the ignition switch	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G401) • Faulty ignition switch • An open in the wire
		Ignition key is out of the ignition switch	Check for voltage to ground: There should be 5 V or more.	
2	GRN/ORN	Under all conditions	Check for voltage to ground: There should be about 5 V.	• Faulty left power sliding door control unit • Faulty keyless receiver unit • Short to ground
13	GRN/BLU	Under all conditions	Check for voltage to ground: There should be about 5 V.	• An open or short in the wire • Faulty keyless receiver unit • Faulty power sliding door control unit
3	RED/WHT	Under all conditions	Check for voltage to ground: There should be about 5 V.	• Faulty right power sliding door control unit • Faulty keyless receiver unit • Short to ground
14	GRN/BLK	Under all conditions	Check for voltage to ground: There should be about 5 V.	• An open or short in the wire • Faulty keyless receiver unit • Faulty power sliding door control unit

Transmitter Test

NOTE:
- If the doors unlock or lock with the transmitter, but the LED on the transmitter does not come on, the LED is faulty; replace the transmitter.
- If any door or the tailgate is open, you cannot lock the door with the transmitter.
- If you unlocked the doors with the transmitter, but do not open any of the doors within 30 seconds, the doors relock automatically.
- The doors do not lock or unlock with the transmitter if the ignition key is inserted in the ignition switch.

1. Press the lock or unlock button five or six times to reset the transmitter.
   - If the locks work, the transmitter is OK. ■
   - If the locks don't work, go to step 2.
2. Open the transmitter and check for water damage.
   - If you find any water damage, replace the transmitter. ■
   - If there is no water damage, go to step 3.
3. Replace the transmitter battery (A) with a new one, and try to lock and unlock the doors with the transmitter by pressing the lock or unlock button five or six times.
   - If the doors lock and unlock, the transmitter is OK. ■
   - If the doors don't lock and unlock, go to step 4.



4. Reprogram and register the transmitter, then try to lock and unlock the doors.
   - If the doors lock and unlock, the transmitter is OK. ■
   - If the doors don't lock and unlock, replace the transmitter. ■

Transmitter Programming

Storing transmitter codes:
The codes of up to three transmitters can be read into the keyless receiver unit memory. (If a fourth code is stored, the code which was input first will be erased.)

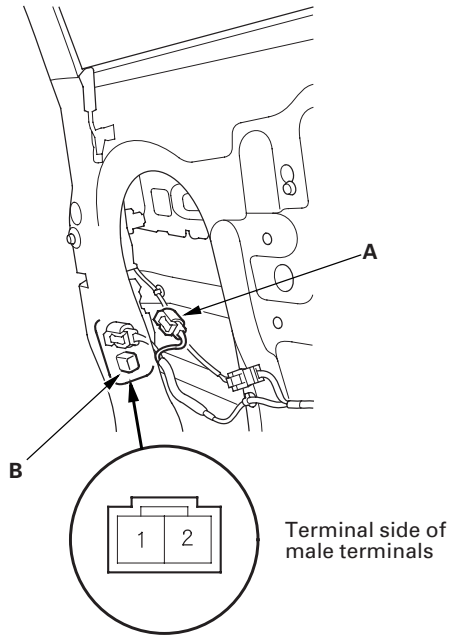
NOTE: It is important to maintain the time limits between the steps. Make sure the doors, the hood and the tailgate are closed.

1. Turn the ignition switch ON (II).
2. Within 1 to 4 sec., push the transmitter lock or unlock button with the transmitter aimed at the keyless receiver unit by the glove box.
3. Within 1 to 4 sec., turn the ignition switch OFF.
4. Within 1 to 4 sec., turn the ignition switch ON (II).
5. Within 1 to 4 sec., push the transmitter lock or unlock button with the transmitter aimed at the keyless receiver unit by the glove box.
6. Within 1 to 4 sec., turn the ignition switch OFF.
7. Within 4 sec., turn the ignition switch ON (II).
8. Within 1 to 4 sec., push the transmitter lock or unlock button with the transmitter aimed at the keyless receiver unit by the glove box.
9. Within 1 to 4 sec., turn the ignition switch OFF.
10. Within 4 sec., turn the ignition switch ON (II).
11. Within 1 to 4 sec., push the transmitter lock or unlock button with the transmitter aimed at the keyless receiver unit by the glove box.
12. Confirm you can hear the sound of the door lock actuators. Within 1 to 4 sec., push the transmitter lock or unlock button again.
13. Within 10 sec., aim the transmitters (up to two additional ones) whose codes you want to store at the keyless receiver unit, and press the transmitter lock or unlock buttons.
    Confirm that you can hear the sound of the door lock actuators after each transmitter code is stored.
14. Turn the ignition switch OFF, and pull out the key.
15. Confirm proper operation with the transmitters.

Door Lock Actuator Test

Driver's Door

1. Remove the driver's door panel (see page 20-7).
2. Disconnect the 2P connector (A) from the actuator (B).



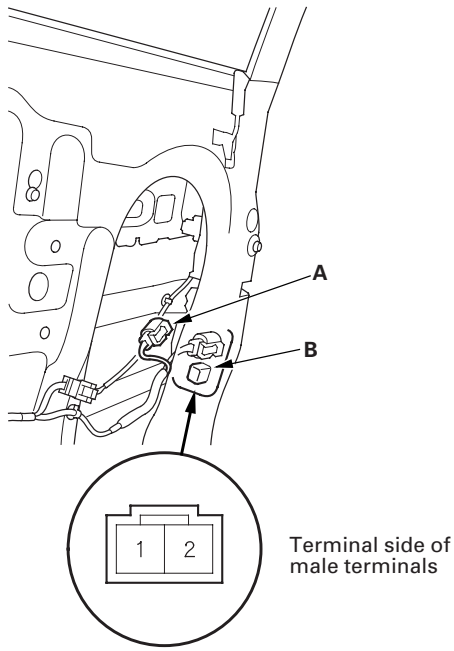
3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

Terminal / Position	1	2
LOCK	⊕	⊖
UNLOCK	⊖	⊕

4. If the actuator does not operate as specified, replace it.

Passenger's Door

1. Remove the front passenger's door panel (see page 20-7).
2. Disconnect the 2P connector (A) from the actuator (B).



3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

Terminal / Position	1	2
LOCK	⊕	⊖
UNLOCK	⊖	⊕

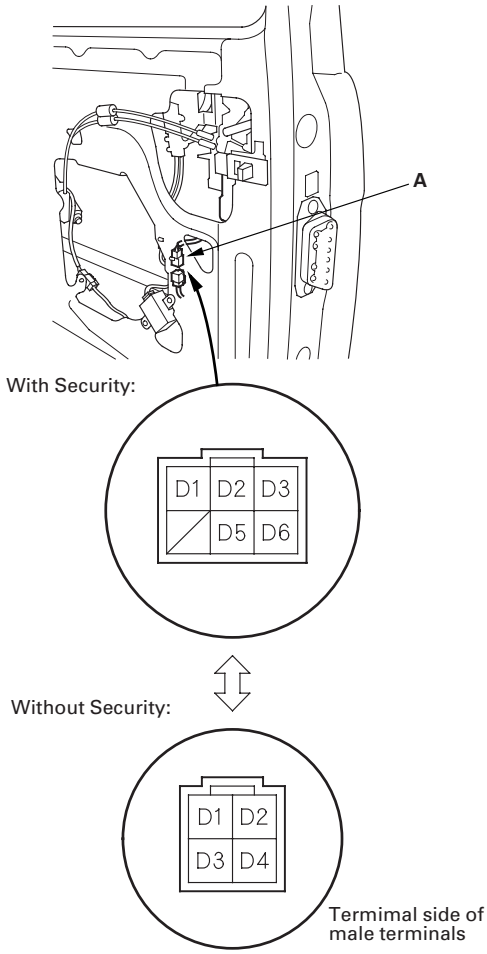
4. If the actuator does not operate as specified, replace it.

(cont'd)

Door Lock Actuator Test (cont'd)

Left Sliding Door

1. Remove the left sliding door panel (see page 20-13).
2. Disconnect the connector (A) from the actuator.



3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

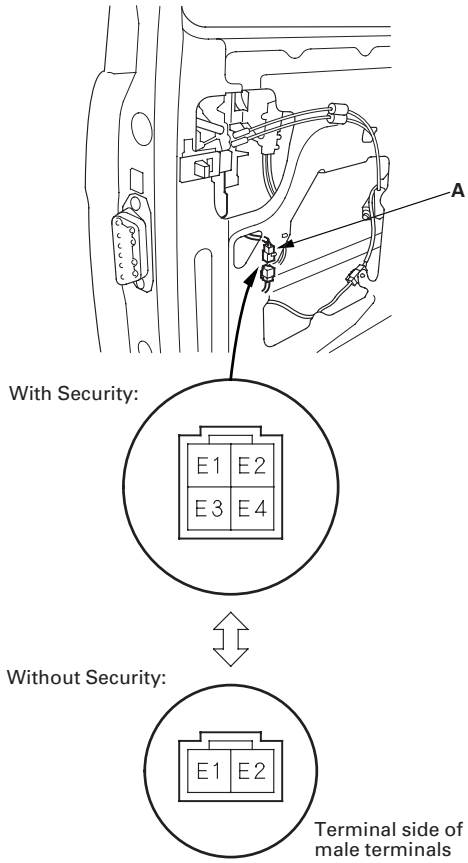
Terminal / Position	D1 [D2]	D2 [D3]
LOCK	⊕	⊖
UNLOCK	⊖	⊕

[ ] :**With Security**

4. If the actuator does not work as specified, replace it.

Right Sliding Door

1. Remove the right sliding door panel (see page 20-13).
2. Disconnect the connector (A) from the actuator.



3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

Terminal / Position	E1	E2
LOCK	⊕	⊖
UNLOCK	⊖	⊕

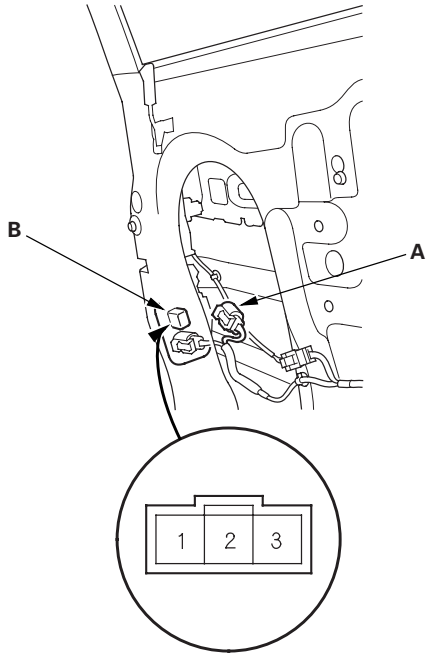
4. If the actuator does not work as specified, replace it.

Door Lock Knob Switch Test

Driver's Door

1. Remove the driver's door panel (see page 20-7).

2. Disconnect the 3P connector (A) from the actuator (B).



3. Check for continuity between the No. 1 and No. 2 terminals in each switch position.

   - There should be continuity with the knob switch in LOCK.
   - There should be no continuity with the knob switch in UNLOCK.

4. Check for continuity between the No. 2 and No. 3 terminals in each switch position.

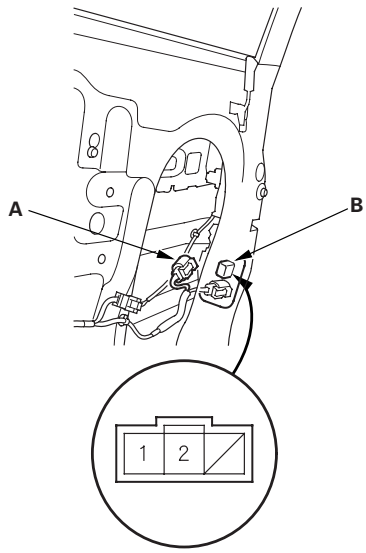
   - There should be continuity with the knob switch in UNLOCK.
   - There should be no continuity with the knob switch in LOCK.

5. If the continuity is not as specified, replace the switch.

Passenger's Door (With Security System)

1. Remove the front passenger's door panel (see page 20-7).

2. Disconnect the 3P connector (A) from the actuator (B).



3. Check for continuity between the No. 1 and No. 2 terminals in each switch position.

   - There should be continuity with the knob switch in UNLOCK.
   - There should be no continuity with the knob switch in LOCK.

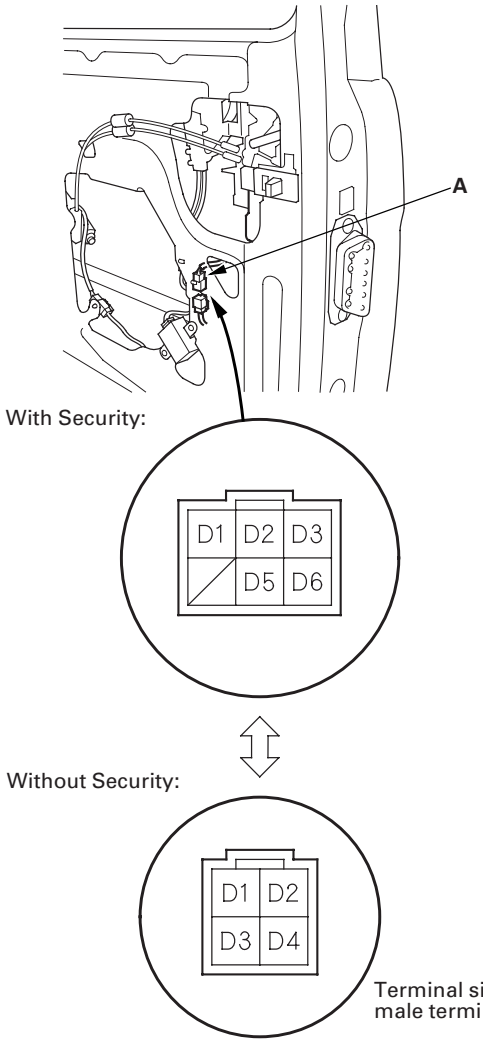
4. If the continuity is not as specified, replace the switch.

(cont'd)

Door Lock Knob Switch Test (cont'd)

Left Sliding Door

1. Remove the left sliding door panel (see page 20-13).
2. Disconnect the connector (A) from the actuator.



3. Check for continuity between the terminals in each switch position according to the table.

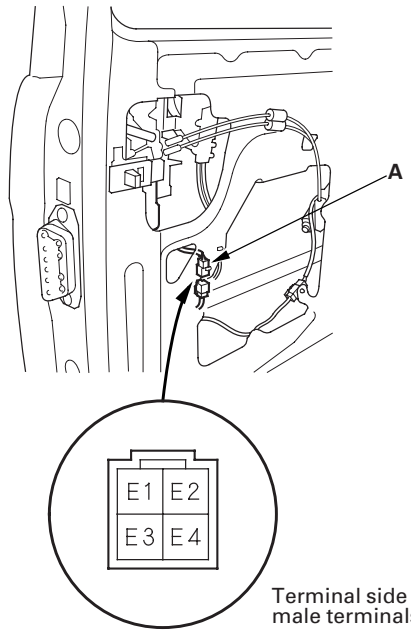
Terminal / Position	[D1]	D4 [D5]	D3 [D6]
LOCK		○	○
UNLOCK	○		○

[ ] : **With Security**

4. If the continuity is not as specified, replace the switch.

Right Sliding Door (With Security System)

1. Remove the right sliding door panel (see page 20-13).
2. Disconnect the connector (A) from the actuator.

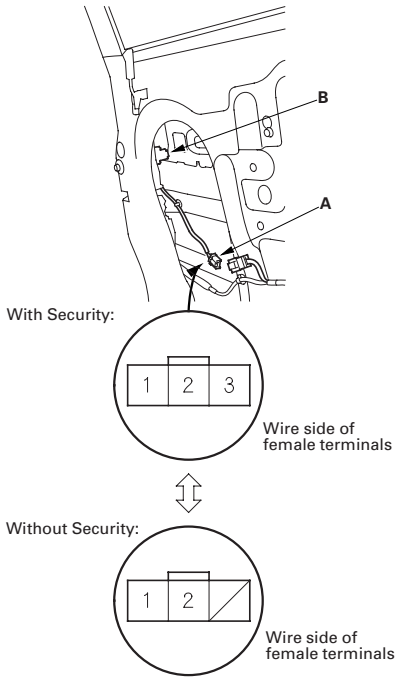


3. Check for continuity between the E3 and E4 terminals in each switch position.
   - There should be continuity with the knob switch in UNLOCK.
   - There should be no continuity with the knob switch in LOCK.
4. If the continuity is not as specified, replace the switch.

Door/Tailgate Key Cylinder Switch Test

Driver's Door

1. Remove the driver's door panel (see page 20-7).
2. Disconnect the 3P connector (A) from the key cylinder switch (B).



3. Check for continuity between the terminals in each switch position according to the table.

With Security:

Position \ Terminal	1	2	3
LOCK		○	○
OFF			
UNLOCK	○	○	

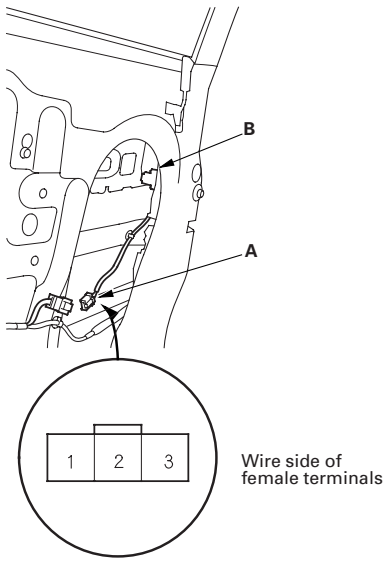
Without Security:

Position \ Terminal	1	2
OFF		
UNLOCK	○	○

4. If the continuity is not as specified, replace the switch.

Passenger's Door

1. Remove the front passenger's door panel (see page 20-7).
2. Disconnect the 3P connector (A) from the key cylinder switch (B).



3. Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal	1	2	3
LOCK		○	○
OFF			
UNLOCK	○	○	

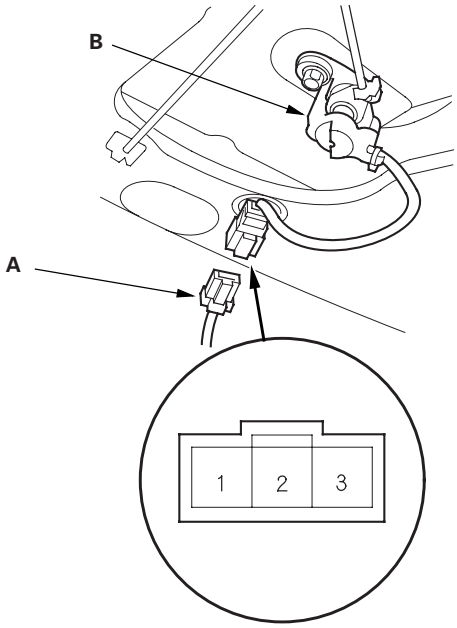
4. If the continuity is not as specified, replace the switch.

(cont'd)

Door/Tailgate Key Cylinder Switch Test (cont'd)

Tailgate (With Security System)

1. Remove the tailgate trim panel (see page 20-61).
2. Disconnect the 3P connector (A) from the switch (B).



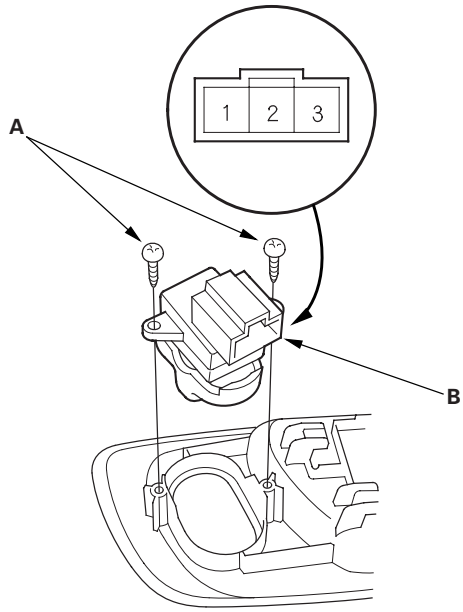
3. Check for continuity between the terminal in each switch position according to the table.

Position \ Terminal	1	2	3
LOCK	○		○
OFF			
UNLOCK	○	○	

4. If the continuity is not as specified, replace the switch.

Door Lock Switch Test

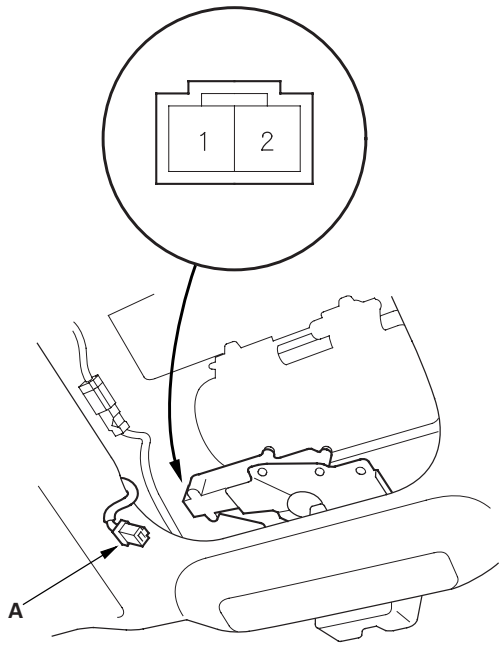
1. Remove the inner door handle (see page 20-7).
2. Remove the two screws (A), then remove the door lock switch (B).



3. Check for continuity between the No. 1 and No. 2 terminals in each switch position.
   - There should be no continuity with the door lock switch in neutral or LOCK.
   - There should be continuity with the door lock switch in UNLOCK.
4. Check for continuity between the No. 2 and No. 3 terminals in each switch position.
   - There should be continuity with the door lock switch in UNLOCK.
   - There should be no continuity with the door lock switch in neutral or LOCK.
5. If the continuity is not as specified, replace the switch.

Tailgate Lock Actuator Test

1. Remove the tailgate trim panel (see page 20-61).
2. Disconnect the 2P connector (A) from the actuator.



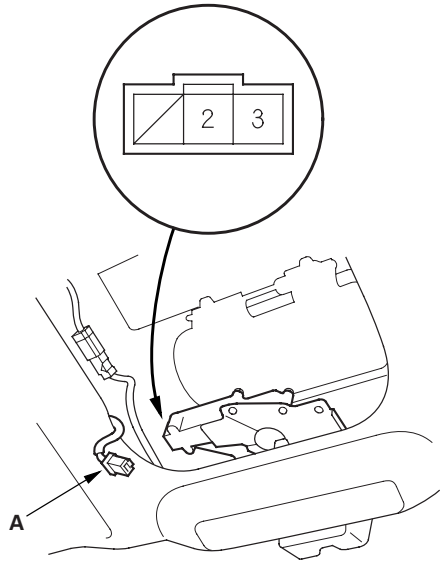
3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

Terminal / Position	1	2
LOCK	⊕	⊖
UNLOCK	⊖	⊕

4. If the actuator does not operate as specified, replace it.

Tailgate Lock Knob Switch Test

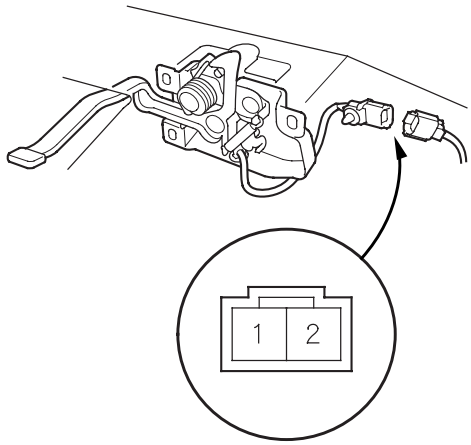
1. Remove the tailgate trim panel (see page 20-61).
2. Disconnect the 3P connector (A) from the actuator (B).



3. Check for continuity between the 2 and 3 terminals in each switch position.
   - There should be continuity with the knob switch in UNLOCK.
   - There should be no continuity with the knob switch in LOCK.
4. If the continuity is not as specified, replace the switch.

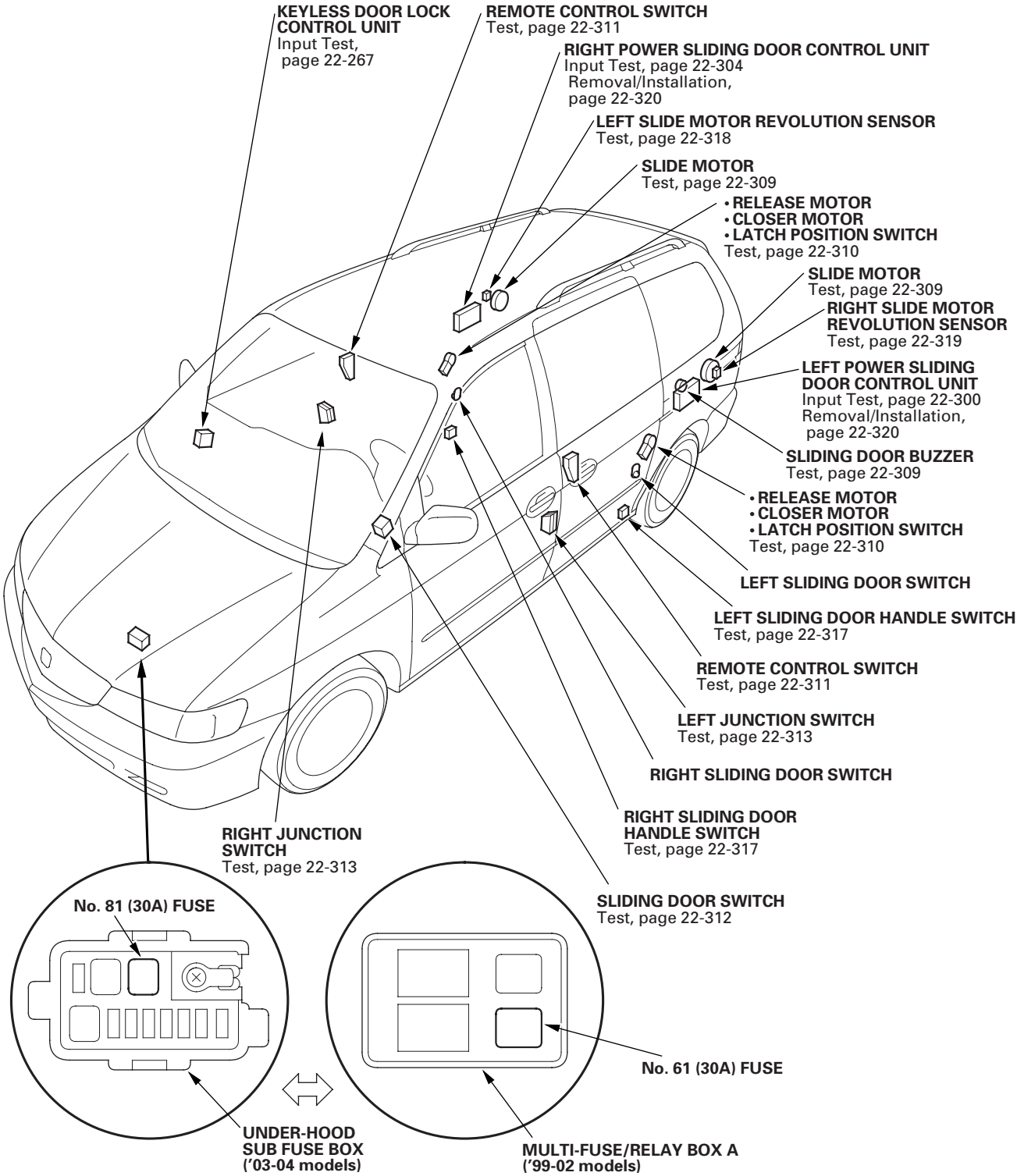
Hood Switch Test

1. Open the hood.
2. Disconnect the 2P connector from the hood switch.



3. Check for continuity between the terminals.
   - There should be continuity between the No. 1 and No. 2 terminals when the hood is opened (lever released).
   - There should be no continuity between the No. 1 and No. 2 terminals when the hood is closed (lever pushed down).
4. If the continuity is not as specified, replace the switch.

Component Location Index



Power Sliding Doors

System Description

The power sliding doors can automatically be opened and closed by operating the driver's switch, the inner and outer handles on either sliding door, or the keyless transmitter. The power sliding doors have two safety functions for safeguarding passengers: one is the obstruction detection function, and the other is the emergency stop function.

The power sliding doors are also equipped with a closing system that enables the doors to close automatically when the doors are half latched.

The power sliding doors have a self-diagnosis function and a fail-safe function. If an electrical malfunction occurs, the doors can still be opened and closed manually, and the self-diagnosis function can still be activated.

Basic Operation

Opening the power sliding door
With the shift lever in Park, turn on the main switch on the power sliding door switch, then perform one of these operations:
- Press the OPEN button on the power sliding door switch once.
- Pull either of the inner or outer door handles once. (Child safety lock must be off for inner handle to open the door).
- Press the sliding door button on the keyless transmitter once.

First, the release motor unlatches the power sliding door, then the slide motor turns toward the OPEN side, and the door moves from the fully-closed position to the fully-open position. (The slide motor revolution sensor determines the fully-open position by counting the pulse of the slide motor.) Once the door is fully open, the system shuts down.

Closing the power sliding door
With the main switch on the power sliding door switch still on, perform one of these operations:
- Press the CLOSE button on the power sliding door switch once.
- Pull either of the inner or outer door handles once. (Child safety lock must be off for inner handle to open the door).
- Press the sliding door button on the keyless transmitter once.

First, the slide motor turns toward the CLOSE side. The latch switch on the latch position switch turns on and determines if the door is half latched. The closer motor is energized to complete the latching procedure.

Obstruction Detection Function

When opening the sliding doors
A slide motor revolution sensor in the sliding door motor outputs pulses at a constant rate. When something is pinched in the sliding door, the pulse rate changes. The control unit detects this and then stops the motor, sounds the buzzer 3 times, and reverses its direction. The door will then open automatically at the same rate it would normally open.

If the shift lever is shifted into any position other than Park or the vehicle speed exceeds 3 mph (5 km/h) while a door is closing, the control unit will stop the door motor momentarily, and then continue to close the door completely.

Automatic Closer Function

When the main switch on the power sliding door switch is on, the automatic close function will work regardless of whether the door is closed manually or with the switch. When the door is commanded to close, the latch position switch turns on when the door is half latched. The closer motor is then energized to complete the latching procedure.

Fail-safe Function

When a power sliding door is in the half-latched position, the obstruction detection function is off. If the corresponding power sliding door control unit receives any signal from the dash switch, the remote control switch (inner or outer sliding door handles), or the factory keyless receiver while in the half-latched position, the control unit sounds the buzzer 3 times and activates the release motor. The release motor pulls the failsafe lever to mechanically disengage the closer motor from the latch. Once the latch and the closer motor are disengaged, the slide motor will partially open the door (about 1 ft).

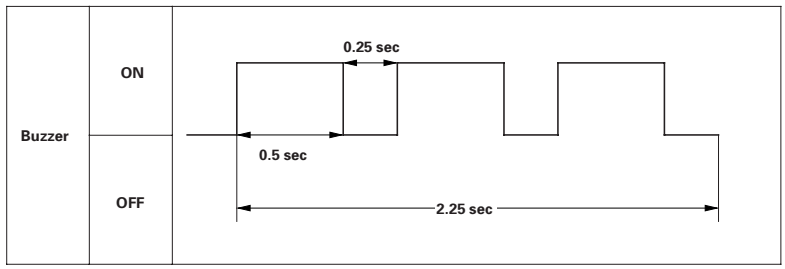
Emergency Stop Function

The emergency stop function automatically stops the sliding doors when any of the switches described below are pressed to prevent someone or something from being pinched in the doors.

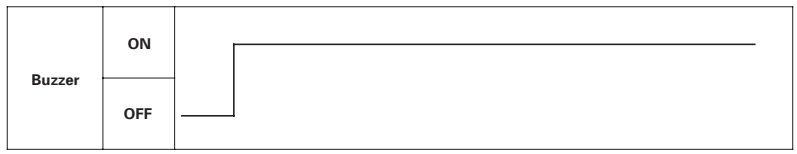
Operation
When the following switches are pressed while a door is moving, the warning buzzer will sound and the sliding door will stop:

- when the OPEN switch is pressed.
- when the CLOSED switch is pressed.
- when the power sliding door switch on the keyless transmitter is pressed.

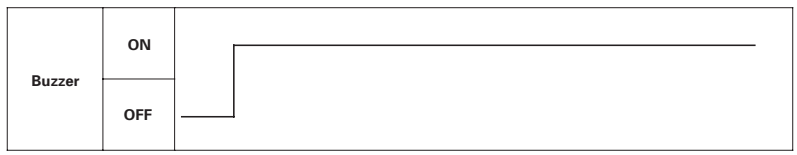
At this time, the warning buzzer sounds in the following interval, and the doors cannot be operated until the warning buzzer stops.



When the shift lever is in any position other than Park or the vehicle runs more than 3 mph (5 km/h) while the door is opening automatically, the warning buzzer will sound continuously and the door will stop.



When the shift lever is in any position other than Park or the vehicle runs more than 3 mph (5 km/h) while the door is closing, the warning buzzer will sound continuously and the door will continue to close.



When the sliding door main switch is turned off while a door is opening or closing, the door will stop.
NOTE: No warning buzzer will sound.

Self-diagnosis Procedure

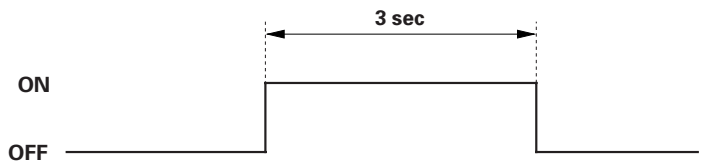
Reading the DTC

When the power sliding door indicator light stays on with the ignition switch ON (II) and with the power sliding door master switch ON, read the DTC using the following method:

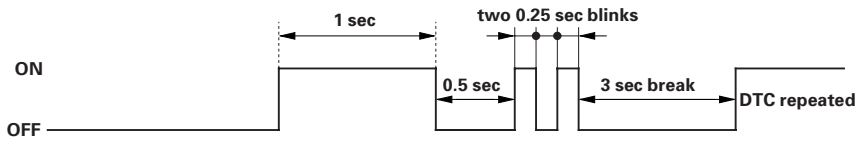
1. With the ignition switch OFF, turn the power sliding door main switch ON.
2. Turn the ignition switch ON (II).
3. Watch the power sliding door indicator light.
   - If the light comes on for 2 seconds and then goes off, there is an intermittent problem. Erase the DTC(s), do the re-homing procedure, and recheck the system.
   - If the light stays on, go to step 4.
4. Turn the main switch OFF.
5. Press and hold the open or close button of the door that is not working.
6. While still holding the button, turn on the main switch for one second, and then turn the main switch OFF.
7. One second after you turn off the main switch, release the open or close button. The indicator light will begin to flash DTC(s) in the order they were set.

Examples of DTC Indications

No System Problem
If there is no DTC stored, the indicator will come on for 3 seconds and then go off.



One or more system problems exist (example shows DTC 12)
Up to five DTCs can be indicated in the order the problems occurred. The first digit is indicated by the number of long (one second) blinks, and the second digit is indicated by the number of short (0.25 second) blinks. There is a 0.5 second break between each DTC when there are multiple DTCs.



Erasing the DTC Memory

1. Turn OFF the power sliding door main switch.
2. Close both power sliding doors completely (close manually if necessary).
3. Remove the No. 13 (7.5A) fuse from the passenger's under-dash fuse/relay box for 10 seconds, and reinstall the fuse.
4. Turn the main switch ON.
5. Confirm proper operation of the power sliding doors using the door switches, door handles, and the keyless transmitter.

   NOTE: The doors will not operate automatically unless all DTCs have been cleared and any problems have been repaired.
6. Reset the clock.
7. Turn the ignition switch OFF to exit the self-diagnostic mode.
8. Do the re-homing procedure.

Re-homing the Power Sliding Doors

1. Close the power sliding door.
2. Turn the power sliding door main switch OFF.
3. Slowly open the power sliding door manually.
4. Turn the power sliding door main switch ON.
5. Press and hold the power sliding door switch to close the door you just opened manually. Continue to hold the switch until the door is completely closed.
6. Do steps 1 thru 5 on the other power sliding door.

Symptom Troubleshooting Index

Symptom	Diagnostic Procedure	Also check for
The door will not open with either the inside or outside door handle	The door unlatches when you pull the handle, but the slide motor does not start powering the door until you manually open the door about halfway. The door works OK with the sliding door switch and the remote transmitter.	The remote control switch or circuit Perform the following tests: • Release Motor and Remote Control Switch Test • Sliding Door Junction Switch Test • Control Unit Input Test • Power Sliding Doors
The door will not open with the inside door handle	The door will not unlatch either electrically or manually with the inside door handle.	Child Safety Lock
The door will not open with the sliding door switch or with any of the remote transmitters. The door may not open if you pull and release a door handle too quickly	The release motor does not operate, and the door does not unlatch. The slide motor tries to open the door, but the door does not move. The beeper sounds three times. If you pull and hold either door handle, the door will open normally.	The release motor or circuit Perform the following tests: • Release Motor and Remote Control Switch Test • Sliding Door Junction Switch Test • Control Unit Input Test • Power Sliding Doors • Inspect the cable between the remote control assembly and the latch assembly.
The left door will not open with the sliding door switch, either door handle, or with any remote transmitter	The door does not unlatch. The slide motor tries to operate, but the door does not move. The beeper sounds three times. The door lock knob will not stay in the unlocked position unless it is held there for several seconds.	The fuel fill door switch or circuit Perform the following tests: • Sliding Door Lock Control Unit Input Test • Power Door Locks
The door will not operate from the remote transmitters	The door operates normally when activated by the sliding door switch or either door handle, but not by the remote transmitters.	The keyless receiver unit or circuit Perform the following tests: • Keyless Receiver Unit Input Test • Control Unit Input Test • Power Sliding Doors • Power Door Locks
The door stops just before the half-latch position or The door stops just before the half-latch position, then reopens or The door reaches half-latch, but will not fully latch	The door stops and the beeper sounds three times just before it reaches the half-latch position, then it may reopen. The beeper may sound three times when the door reaches the fully open position. The door may not close when either door handle is used to close the door. If the door reaches half-latch, the closer motor operates, but is does not pull the door to full-latch.	Bound linkage or cables Perform the following tests: • Remote control assembly linkage • Latch assembly linkage (failsafe lever) • Cables between components: – Release cable – Failsafe lever cable – Lower roller lever cable
The door does not operate. The sliding door indicator is on	The door will not operate from any source (door handles, sliding door switch, or remote transmitter), but it can be operated manually. A DTC 25 is stored in the affected door's control unit.	The control unit, the slide motor, or the control unit grounds or circuit Perform the following tests: • Control Unit Input Test • Slide Motor Test • Power Sliding Door

Symptom	Diagnostic Procedure	Also check for
The door does not operate. The sliding door indicator is not on	The door will not operate from any source (door handles, sliding door switch, or remote transmitter), but it can be operated manually. No DTCs are stored.	The Main switch, control unit, or circuit Perform the following tests: • Power Sliding Door Switch Test • Control Unit Input Test • Power Sliding Doors
The door unlatches, but it does not slide open	The release motor operates to unlatch the door, but the slide motor does not operate. The sliding door indicator is off, no DTCs are stored, and the beeper does not sound.	The control unit or circuit (logic, power or ground) Perform the following tests: • Control Unit Input Test • Power Sliding Doors
The door reaches half-latch, but will not fully latch	The beeper sounds five or six times when the door reaches half-latch. The closer motor does not operate. If the open side of the sliding door switch is pushed, the release motor operates and the door opens about 9 inches.	The half-latch switch, junction switch, control unit, or circuit Perform the following tests: • Closer Motor Latch Switch Position Switch Test • Sliding Door Junction Switch Test • Control Unit Input Test • Power Sliding Doors
The door reaches half-latch, but will not fully latch	The closer motor does not operate. The slide motor continues to hum for 5 to 8 seconds after the door reaches half-latch.	The closer motor, junction switch, control unit, or circuit Perform the following tests: • Closer Motor Latch Switch Position Switch Test • Sliding Door Junction Switch Test • Control Unit Input Test • Power Sliding Doors
The sliding door beeper sounds a continuous tone when the shift lever is moved out of Park (This may happen only intermittently)	The door is fully latched, yet the beeper sounds continuously when the shift lever is not in Park.	The full-latch switch, junction switch, door adjustment, control unit, or circuit Perform the following tests: • Closer Motor Latch Switch Position Switch Test • Sliding Door Junction Switch Test • Control Unit Input Test • Power Sliding Doors

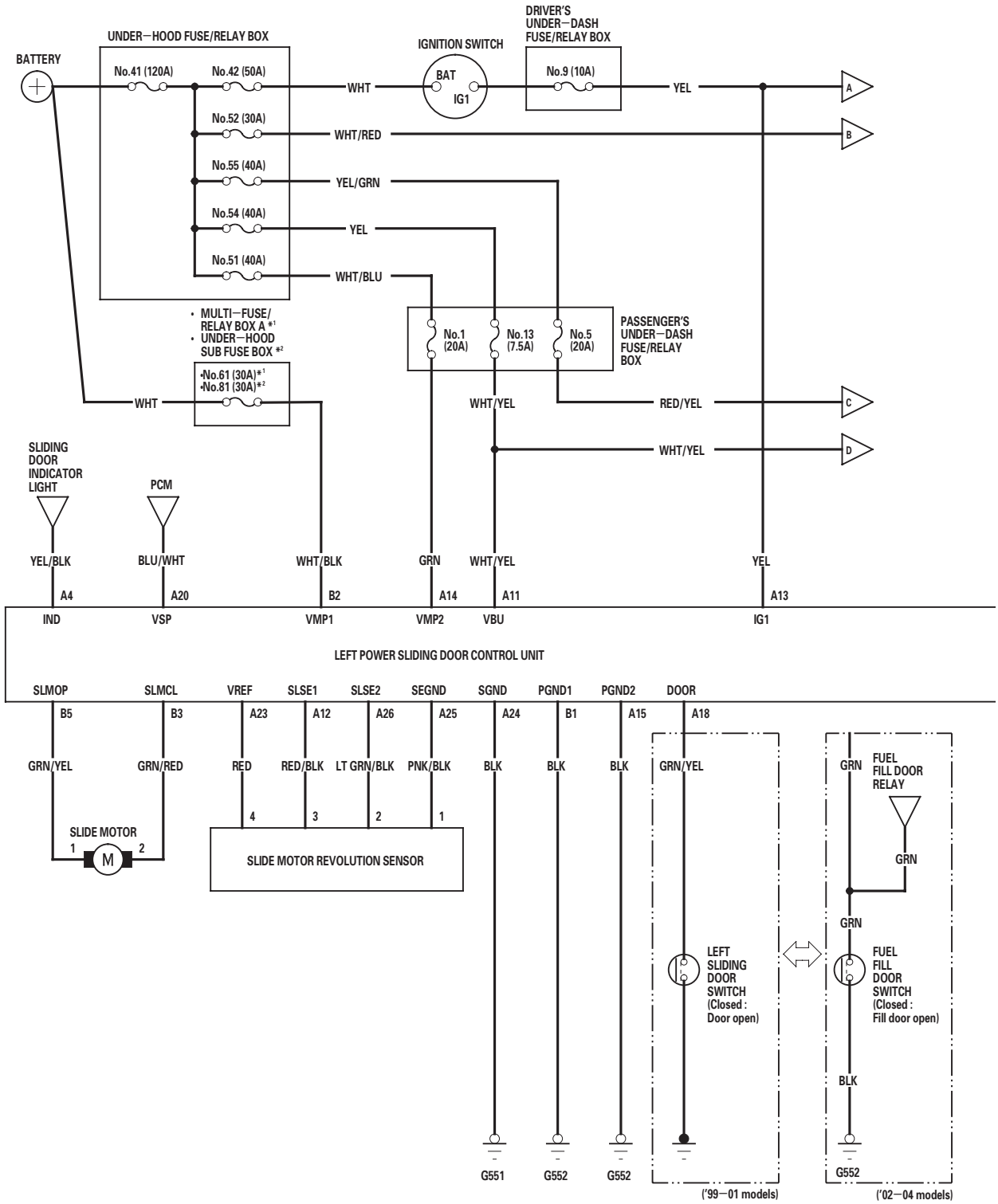
DTC Troubleshooting Index

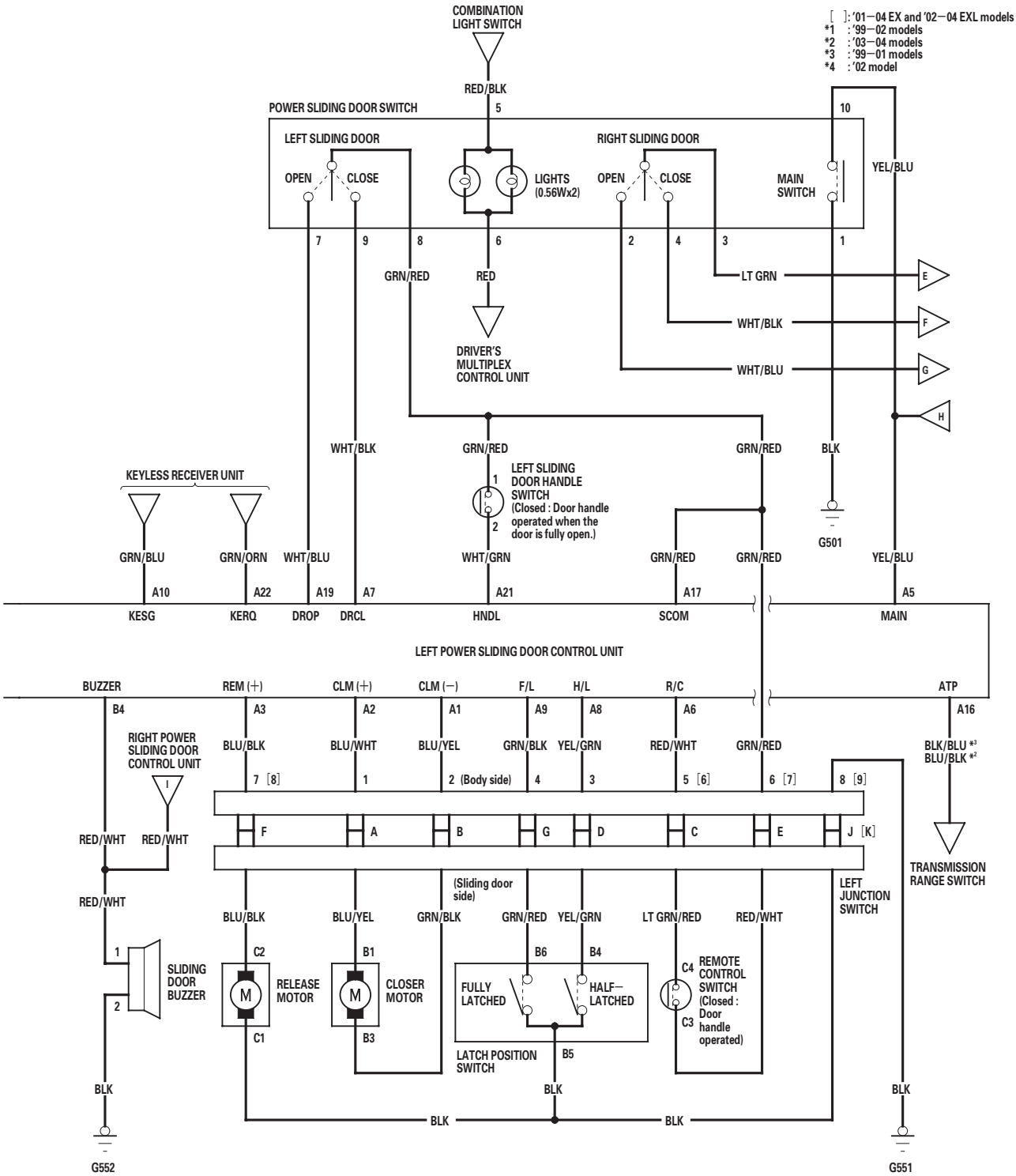
DTC	Faulty Line	Possible Cause	Test Terminals	Page
1	DROP/DRCL	1. Faulty power sliding door switch 2. A short in the wire between the DROP circuit and the DRCL circuits 3. Faulty power sliding door control unit	Left door. A19, A7 Right door. A19, A17	(see page 22-300). (see step 1 on page 22-304).
2	HNDL/RC	1. A short in the wire between the HNDL circuit and the R/C circuit 2. Faulty power sliding door control unit	Left door. A21, A6 Right door. A21, A9	(see page 22-300). (see step 1 on page 22-304).
11	DROP	1. Faulty OPEN switch in the power sliding door switch 2. A short to body ground in the wire of the DROP circuit 3. A short to body ground in the wire of the SCOM circuit 4. Faulty power sliding door control unit	Left door. A19, A17 Right door. A19, A24	(see page 22-300). (see step 1 on page 22-304).
12	DRCL	1. Faulty CLOSE switch in the power sliding door switch 2. A short to body ground in the wire of the DRCL circuit 3. A short to body ground in the wire of the SCOM circuit 4. Faulty power sliding door control unit	Left door. A7, A17 Right door. A7, A24	(see page 22-300). (see step 1 on page 22-304).
13	R/C	1. Faulty remote control switch 2. A short to body ground in the wire of the R/C circuit 3. A short to body ground in the wire of the SCOM circuit 4. Faulty power sliding door control unit	Left door. A6, A17 Right door. A9, A24	(see page 22-300). (see step 1 on page 22-304).
14	HNDL	1. Faulty sliding door handle switch 2. A short to body ground in the wire of the HNDL circuit 3. A short to body ground in the wire of the SCOM circuit 4. Faulty power sliding door control unit	Left door. A21, A17 Right door. A21, A24	(see page 22-300). (see step 1 on page 22-304).
15	KESG	1. Faulty keyless receiver unit 2. A short to body ground in the wire of the KESG circuit 3. Faulty power sliding door control unit	Left door. A10 Right door. A18	(see page 22-300). (see step 1 on page 22-304).

DTC	Faulty Line	Possible Cause	Test Terminals	Page
21	SLSE1	1. Faulty slide motor revolution sensor 2. An open in the wire of the VREF circuit 3. A short to body ground in the wire of the VREF circuit 4. An open in the wire of the SEGND circuit 5. Poor ground of the SEGND circuit 6. An open in the wire of the SLSE1 circuit 7. A short to body ground in the wire of the SLSE1 circuit 8. An open in the wire of the VMP1 circuit Blown No. 61 (30A) fuse in the multi-fuse/relay box A ('99-02 models) Blown No. 81 (30A) fuse in the under-hood sub fuse box ('03 model) 9. [Blown No. 52 (30A) fuse in the under-hood fuse/relay 10. box] 11. An open in the BLK wire of the PGND1 circuit 12. Poor ground (G552 [G582]) 13. An open in the wire of the SLMOP circuit 14. An open in the wire of the SLMCL circuit Faulty power sliding door control unit	Left door. A12, A23, A25, B1, B2, B3, B5 Right door. A3, A5, A17, B1, B2, B3, B5	(see page 22-300). (see step 1 on page 22-304).
22	HNDL/RC	1. Faulty slide motor revolution sensor 2. An open in the wire of the VREF circuit 3. A short to body ground in the wire of the VREF circuit 4. An open in the wire of the SEGND circuit 5. Poor ground of the SEGND circuit 6. An open in the wire of the SLSE2 circuit 7. A short to body ground in the wire of the SLSE2 circuit 8. An open in the wire of the VMP1 circuit Blown No. 61 (30A) fuse in the multi-fuse/relay box A ('99-02 models) Blown No. 81 (30A) fuse in the under-hood sub fuse box ('03 model) 9. [Blown No. 52 (30A) fuse in the under-hood fuse/relay 10. box] 11. An open in the BLK wire of the PGND1 circuit 12. Poor ground (G552 [G582]) 13. An open in the wire of the SLMOP circuit 14. An open in the wire of the SLMCL circuit Faulty power sliding door control unit	Left door. A23, A25, A26, B1, B2, B3, B5 Right door. A3, A5, A15, B1, B2, B3, B5	(see page 22-300). (see step 1 on page 22-304).
23	EXOR	1. Faulty power sliding door control unit	Left door. A12, A26 Right door. A15, A17	(see page 22-300). (see step 1 on page 22-304).
24	SENSOR	1. Faulty slide motor revolution sensor 2. An open in the wire of the VREF circuit 3. A short to body ground in the wire of the VREF circuit 4. An open in the wire of the SEGND circuit 5. Poor ground of the SEGND circuit 6. Any short in the wire(s) between the SLSE1 circuit and the SLSE2 circuit 7. An open in the wire of the VMP1 circuit Blown No. 61 (30A) fuse in the multi-fuse/relay box A ('99-02 models) Blown No. 81 (30A) fuse in the under-hood subfuse box ('03 model) 8. [Blown No. 52 (30A) fuse in the under-hood fuse/relay 9. box] 10. An open in the BLK wire of the PGND1 circuit 11. Poor ground (G552 [G582]) 12. An open in the BLK wire of the PGND1 circuit 13. An open the wire of the SLMCL circuit Faulty power sliding door control unit	Left door. A12, A23, A25, A26, B1, B2, B3, B5 Right door. A3, A15, A17, B1, B2, B3, B5	(see page 22-300). (see step 1 on page 22-304).
25	SLMOP/ SLMCL	1. Faulty slide motor 2. Any short in the wire(s) between the SLMOP circuit and 3. SLMCL circuit Faulty power sliding door control unit	Left door. B3, B5 Right door. B3, B5	(see page 22-300). (see step 1 on page 22-304).

[ ] : Right power sliding door control unit

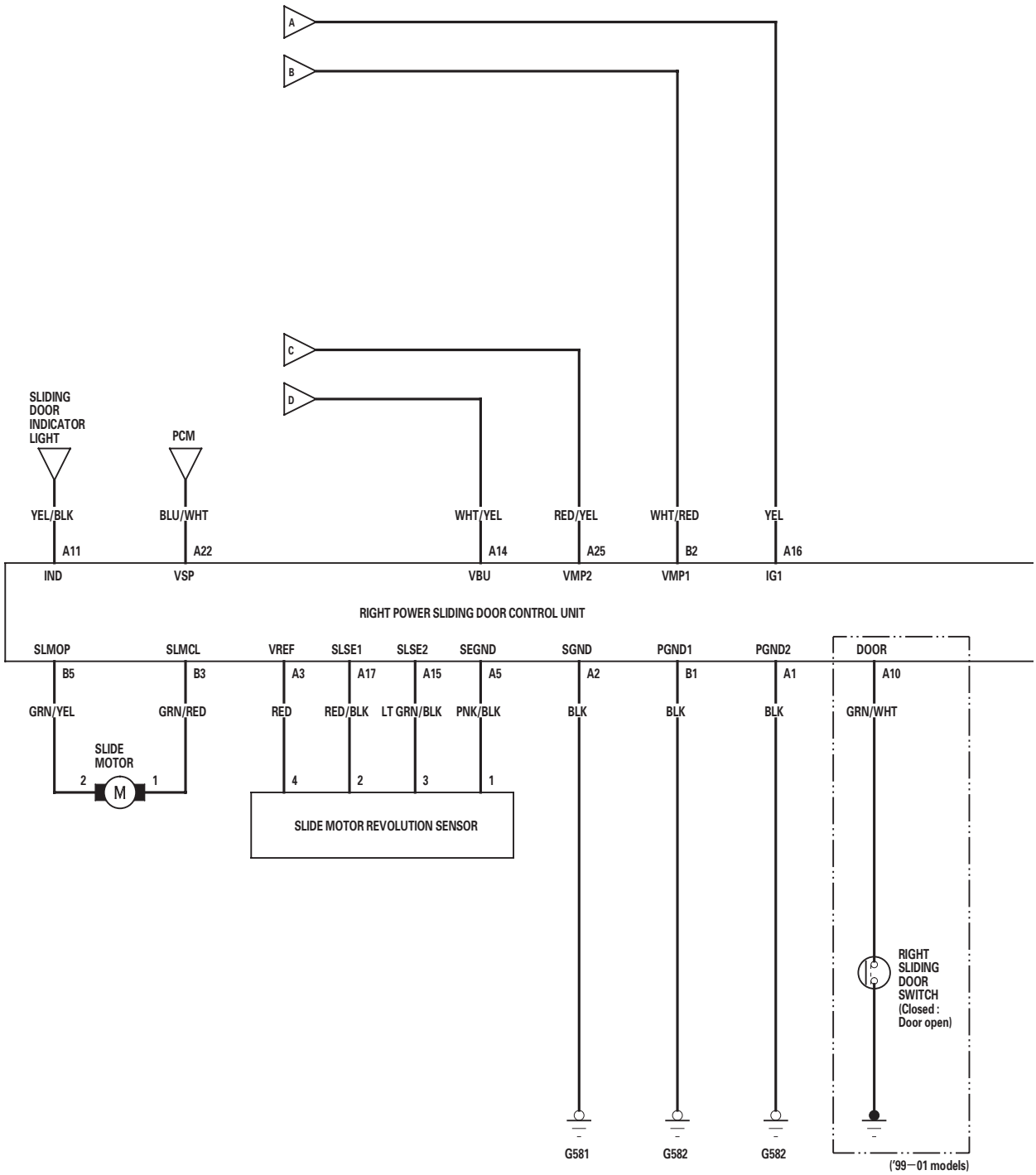
Circuit Diagram



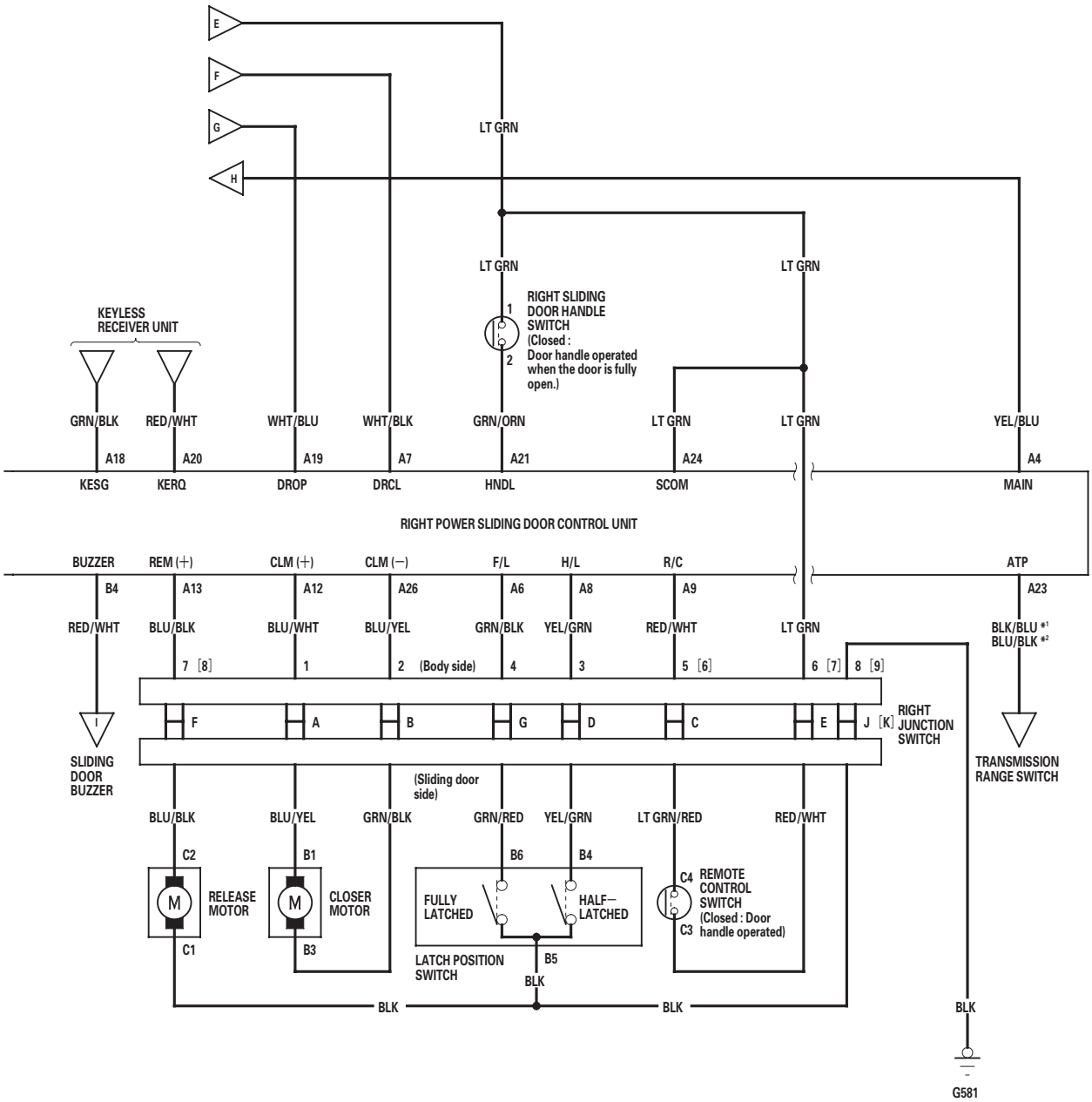

[ ]: '01—04 EX and '02—04 EXL models
*1 : '99—02 models
*2 : '03—04 models
*3 : '99—01 models
*4 : '02 model
COMBINATION LIGHT SWITCH
RED/BLK
5
POWER SLIDING DOOR SWITCH
LEFT SLIDING DOOR
OPEN
CLOSE
LIGHTS (0.56Wx2)
RIGHT SLIDING DOOR
OPEN
CLOSE
MAIN SWITCH
10
YEL/BLU
7
9
8
6
2
4
3
1
GRN/RED
RED
LT GRN
WHT/BLK
WHT/BLU
E
F
G
H
DRIVER'S MULTIPLEX CONTROL UNIT
WHT/BLK
GRN/RED
GRN/RED
BLK
KEYLESS RECEIVER UNIT
LEFT SLIDING DOOR HANDLE SWITCH
(Closed : Door handle operated when the door is fully open.)
1
2
G501
GRN/BLU
GRN/ORN
WHT/BLU
WHT/GRN
GRN/RED
GRN/RED
YEL/BLU
A10
A22
A19
A7
A21
A17
A5
KESG
KERQ
DROP
DRCL
HNDL
SCOM
MAIN
LEFT POWER SLIDING DOOR CONTROL UNIT
BUZZER
REM (+)
CLM (+)
CLM (−)
F/L
H/L
R/C
ATP
B4
A3
A2
A1
A9
A8
A6
A16
RIGHT POWER SLIDING DOOR CONTROL UNIT
BLU/BLK
BLU/WHT
BLU/YEL
GRN/BLK
YEL/GRN
RED/WHT
GRN/RED
BLK/BLU *3
BLU/BLK *2
7 [8]
1
2 (Body side)
4
3
5 [6]
6 [7]
8 [9]
I
F
A
B
G
D
C
E
J [K]
RED/WHT
RED/WHT
RED/WHT
TRANSMISSION RANGE SWITCH
(Sliding door side)
LEFT JUNCTION SWITCH
BLU/BLK
BLU/YEL
GRN/BLK
GRN/RED
YEL/GRN
LT GRN/RED
RED/WHT
1
2
SLIDING DOOR BUZZER
C2
C1
RELEASE MOTOR
B1
B3
CLOSER MOTOR
B6
B4
B5
FULLY LATCHED
HALF—LATCHED
LATCH POSITION SWITCH
C4
C3
REMOTE CONTROL SWITCH
(Closed : Door handle operated)
BLK
BLK
BLK
BLK
BLK
G552
G551

(cont'd)

Circuit Diagram (cont'd)



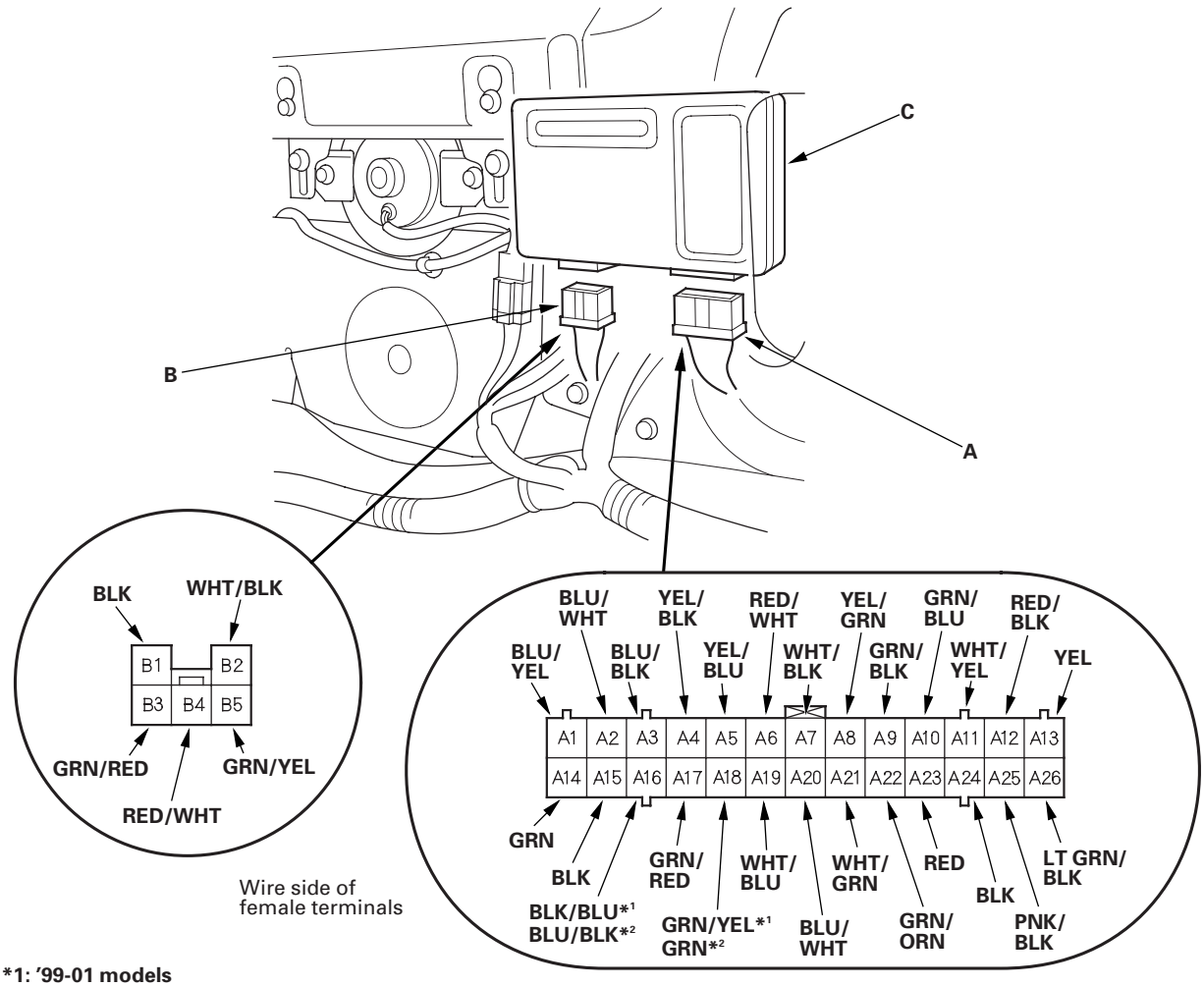
[ ]: '01—02 EX, '02 EXL models and '04 model
*1 : '99—01 models
*2 : '02—04 models



Control Unit Input Test

Left Power Sliding Door Control Unit

1. Remove the left rear side trim panel (see page 20-60).
2. Remove the left power sliding door control unit (see page 22-320).
3. Disconnect the 26P connector (A) and 5P connector (B) from the left power sliding door control unit (C).



***1: '99-01 models**
***2: '02-04 models**

4. Inspect the all connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 5.

5. With connectors disconnected from the left sliding door control unit, and the sliding door closed unless otherwise noted, perform these input tests at the connectors.

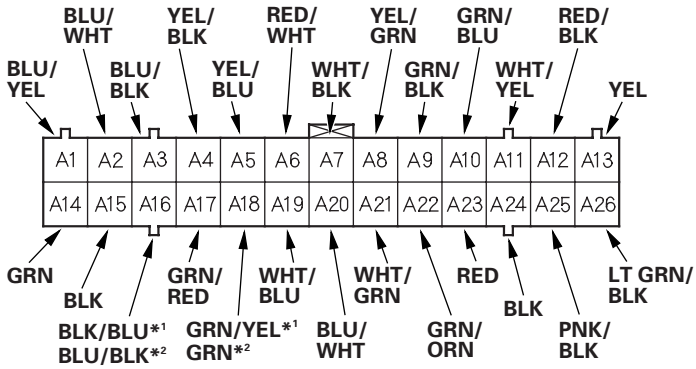
   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 6.

Cavity	Wire	Test Condition	Test: Desired result	Possible cause if result is not obtained
B1 A15 A24	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G551, G552) • An open in the wire
A11	WHT/YEL	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
A13	YEL	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • An open in the wire
A4	YEL/BLK	Ignition switch ON (II)	Attach to ground: The sliding door indicator light should come on.	• Blown bulb • An open in the wire
A14	GRN	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 1 (20A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
B2	WHT/BLK	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 61 (30A) fuse in the multi-fuse /relay box ('99-02 models) • Blown No. 81 (30A) fuse in the under-hood subfuse box ('03-04 models) • An open in the wire
A1	BLU/YEL	Connect the A14 (+) terminal to the A2 terminal and A1 terminal to the A15 (−) terminal.	Check the closer motor operation: The closer motor should move the latch to the closed position. The motor should operate only one time in this direction.	• Faulty closer motor • Poorly connected junction switch • An open in the wire
A2	BLU/WHT	Connect the A14 (+) terminal to the A1 terminal and the A2 terminal to the A15 (−) terminal to return the closer motor.	Check the closer motor operation: The closer motor should move the latch to the starting position. The motor should operate only one time in this direction.	
A3	BLU/BLK	Connect the A14 (+) terminal to the A3 terminal momentarily.	Check the motor operation: The release motor should operate.	• Poor ground (G551) • Faulty release motor • Poorly connected junction switch • An open in the wire
A5	YEL/BLU	Power sliding door main switch ON	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty power sliding door main switch • An open in the wire • Short to ground
		Power sliding door main switch OFF	Check for continuity to ground: There should be no continuity.	
A6 · A17	RED/WHT GRN/RED	Without sliding the door open, move the inside door handle to the rear of the vehicle	Check for continuity between the A6 terminal and the A17 terminal: There should be continuity when moved, and no continuity when released.	• Faulty remote control switch • Poorly connected junction switch • An open in the wire
A21 · A17	WHT/GRN GRN/RED	With the door opened fully, move the inside door handle to the front of the vehicle	Check for continuity between the A21 terminal and the A17 terminal: There should be continuity when moved, and no continuity when released.	• Faulty power sliding door handle switch • An open in the wire
A7 · A17	WHT/BLK GRN/RED	Press and hold the "Close" button on the left sliding door switch	Check for continuity between the A7 terminal and the A17 terminal: There should be continuity when pressed, and no continuity when released.	• Faulty power sliding door switch • An open in the wire
A19 · A17	WHT/BLU GRN/RED	Press and hold the "Open" button on the left sliding door switch	Check for continuity between the A19 terminal and the A17 terminal: There should be continuity when pressed, and no continuity when released.	• Faulty power sliding door switch • An open in the wire

(cont'd)

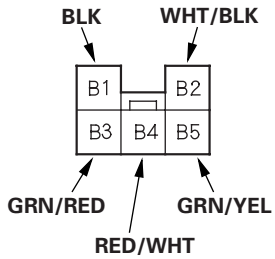
Control Unit Input Test (cont'd)

LEFT POWER SLIDING DOOR CONTROL UNIT CONNECTOR A:



Wire side of female terminals

LEFT POWER SLIDING DOOR CONTROL UNIT CONNECTOR B:



Wire side of female terminals

***1: '99-01 models**
***2: '02-04 models**

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A10	GRN/BLU	Under all conditions	Check for continuity between the A10 terminal and the keyless receiver unit No. 13 terminal: There should be continuity.	• An open in the wire
A22	GRN/ORN	Under all conditions	Check for continuity between the A22 terminal and the keyless receiver unit No. 2 terminal: There should be continuity.	• An open in the wire
A23	RED	Under all conditions	Check for continuity between the A23 terminal and the sliding motor revolution sensor No. 4 terminal: There should be continuity.	• An open in the wire
A25	PNK/BLK	Under all conditions	Check for continuity between the A25 terminal and the slide motor revolution sensor No. 1 terminal: There should be continuity.	• An open in the wire
B4	RED/WHT	Connect the A11 (+) terminal to the B4 terminal.	Check the buzzer operation: The buzzer should sound.	• Faulty buzzer • An open in the wire • Poor ground (G552)
B5	GRN/YEL	With door unlatched, and half way open, connect the B2 (+) terminal to the B5 terminal, and momentarily connect B3 terminal to the B1 (−) terminal. CAUTION: Door moves quickly.	Check sliding motor operation: The motor should run (door open).	• Faulty sliding motor • An open in the wire
B3	GRN/RED	With door unlatched, and half way open, connect the B2 (+) terminal to the B3 terminal, and momentarily connect B5 terminal to the B1 (−) terminal. CAUTION: Door moves quickly.	Check sliding motor operation: The motor should run (door closed).	• Faulty sliding motor • An open in the wire

6. Reconnect the connectors to the left sliding door control unit and, with the master switch off, perform these input tests at the connectors.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, the control unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A8	YEL/GRN	Door half latched/ fully latched	Check for voltage to ground: There should be 1 V or less.	• Faulty latch position switch • Poorly connected junction switch • An open in the wire • Short to ground
		Door open	Check for voltage to ground: There should be battery voltage.	
A9	GRN/BLK	Door half latched	Check for voltage to ground: There should be battery voltage.	• Faulty latch position switch • Poorly connected junction switch • An open in the wire • Short to ground
		Door fully latched	Check for voltage to ground: There should be 1 V or less.	
A26	LT GRN/BLK	Manually slide the door slowly	Check for voltage to ground: There should be 0 to approx. 5 V repeatedly.	• An open in the wire • A short in the wire • Faulty revolution sensor
A12	RED/BLK	Manually slide the door slowly	Check for voltage to ground: There should be 0 to approx. 5 V repeatedly.	• An open in the wire • A short in the wire • Faulty revolution sensor
A18	GRN/YEL*1	Door half latched/ open	Check for voltage to ground: There should be 1 V or less.	• Faulty left sliding door switch • An open in the wire • Short to ground
		Door fully latched	Check for voltage to ground: There should be battery voltage.	
A18	GRN*2	Fuel fill door open	Check for voltage to ground: There should be 1 V or less.	• Faulty fuel fill door switch • Faulty fuel fill door relay • An open in the wire • Short to ground
		Fuel fill door close	Check for voltage to ground: There should be battery voltage.	
A6	RED/WHT	Without sliding the door open, move the inside door handle to the rear of the vehicle	Check for voltage between the A6 terminal and the A15 terminal. Battery voltage should drop to approximately 6 V.	• Faulty remote control switch • Poorly connected junction switch • An open in the wire • Short to ground
A21	WHT/GRN	With the door opened fully, move the inside door handle to the front of the vehicle	Check for voltage between the A21 terminal and the A15 terminal: Battery voltage should drop to approximately 6 V.	• Faulty power sliding door handle switch • An open in the wire • Short to ground • Misadjusted cables to the lower roller lever
A7	WHT/BLK	Push and hold the ''Close'' button on the left sliding door switch.	Check for voltage between the A7 terminal and the A15 terminal: Battery voltage should drop to approximately 6 V.	• Faulty power sliding door switch • An open in the wire • Short to ground
A19	WHT/BLU	Push and hold the ''Open'' button on the left sliding door switch.	Check for voltage between the A19 terminal and the A15 terminal: Battery voltage should drop to approximately 6 V.	• Faulty power sliding door switch • An open in the wire • Short to ground
A20	BLU/WHT	Rotate one front wheel slowly with other wheel blocked.	Check for voltage to ground: There should be 0 to approx. 5V repeatedly.	• Faulty PCM • An open in the wire • Short to ground
A16	BLK/BLU*1 BLU/BLK*2	A/T gear selector in park	Check for voltage to ground: There should be 1 V or less.	• Faulty transmission range switch • An open in the wire • Poor ground (G101) • Short to ground
		A/T gear selector in position other than park.	Check for voltage to ground: There should be battery voltage.	

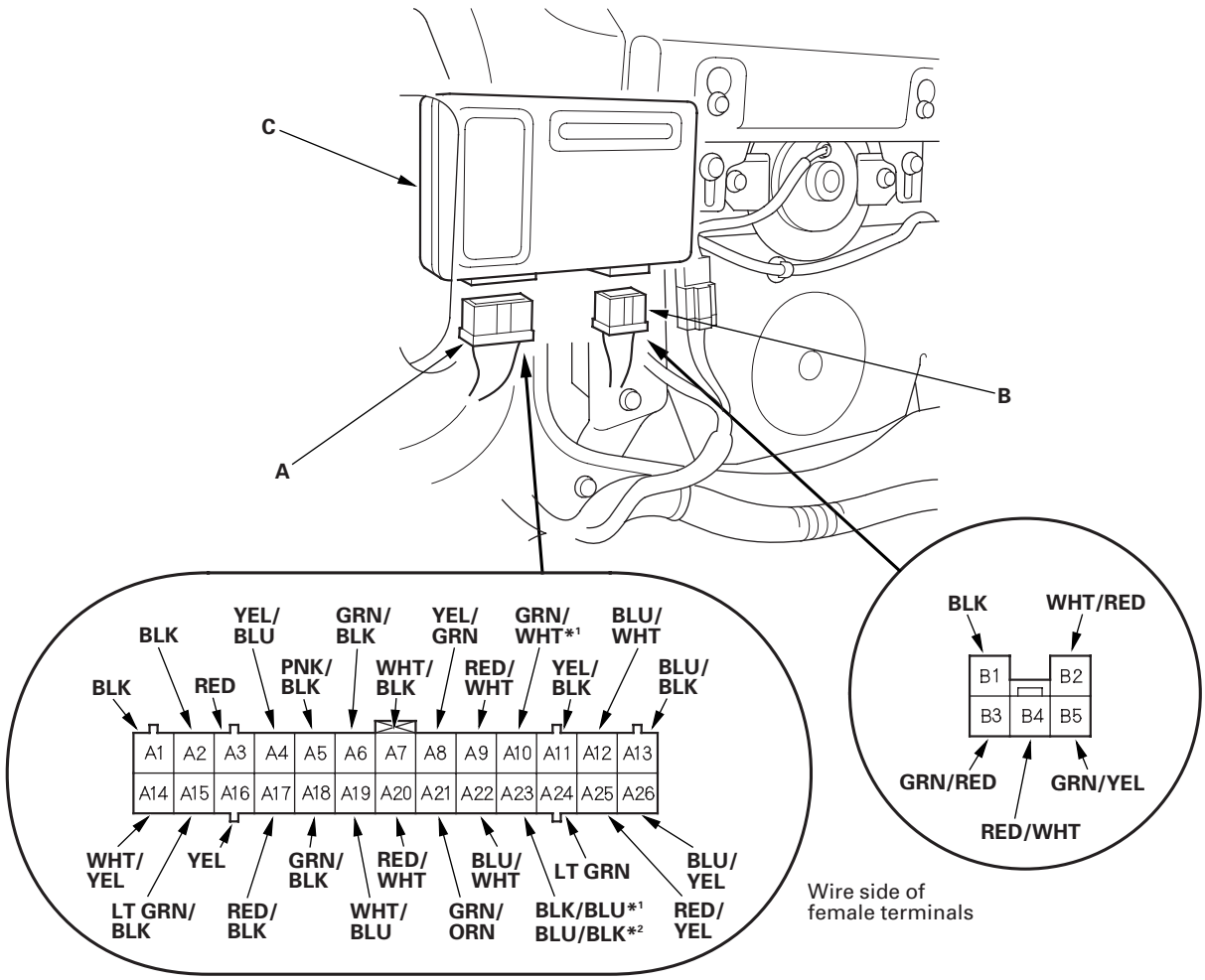
* 1: '99-01 models
* 2: '02-04 models

(cont'd)

Control Unit Input Test (cont'd)

Right Power Sliding Door Control Unit

1. Remove the right rear side trim panel (see page 20-60).
2. Remove the right power sliding door control unit (see page 22-320).
3. Disconnect the 26P connector (A) and 5P connector (B) from the right power sliding door control unit (C).



***1: '99-01 models**
***2: '02-04 models**

4. Inspect the all connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 5.

5. With the connectors disconnected from the right sliding door control unit, and the sliding door closed unless otherwise noted, perform these input tests at the connectors.

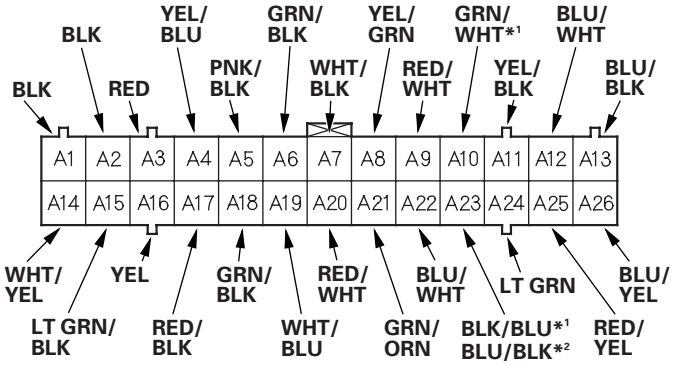
   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A1 A2 B1	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G581, G582) • An open in the wire
A25	RED/YEL	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 5 (20A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
A14	WHT/YEL	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5A) fuse in the passenger's under-dash fuse/relay box • An open in the wire
A16	YEL	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 9 (10A) fuse in the driver's under-dash fuse/relay box • An open in the wire
A11	YEL/BLK	Ignition switch ON (II)	Attach to ground: The sliding door indicator light should come on.	• Blown bulb • An open in the wire
B2	WHT/RED	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 52 (30A) fuse in the under-hood fuse/relay box • An open in the wire
A12	BLU/WHT	Connect the A14 (+) terminal to the A12 terminal and A1 (−) terminal to the A26 terminal.	Check the closer motor operation: The closer motor should move the latch to the closed position. The motor should operate only one time in this direction.	• Faulty closer motor • Poorly connected junction switch • An open in the wire
A26	BLU/YEL	Connect the A14 (+) terminal to the A26 terminal and the A1 (−) terminal to the A12 terminal to return the closer motor.	Check the closer motor operation: The closer motor should move the latch to the starting position. The motor should operate only one time in this direction.	
A13	BLU/BLK	Connect the A14 (+) terminal to the A13 terminal momentarily.	Check the motor operation: The release motor should run.	• Poor ground (G581) • Faulty release motor • Poorly connected junction switch • An open in the wire
A4	YEL/BLU	Power sliding door main switch ON	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty power sliding door main switch • An open in the wire • Short to ground
		Power sliding door main switch OFF	Check for continuity to ground: There should be no continuity.	
A9 · A24	RED/WHT LT GRN	Without sliding the door open, move the inside door handle to the rear of the vehicle.	Check for continuity between the A9 terminal and the A24 terminal: There should be continuity when moved, and no continuity when released.	• Faulty remote control switch • Poorly connected junction switch • An open in the wire
A21 · A24	GRN/ORN LT GRN	With the door opened fully, move the inside door handle toward the front of the vehicle.	Check for continuity between the A21 terminal and the A24 terminal: There should be continuity when moved, and no continuity when released.	• Faulty power sliding door handle switch • An open in the wire
A7 · A24	WHT/BLK LT GRN	Press and hold the CLOSE button on the right sliding door switch	Check for continuity between the A7 terminal and the A24 terminal: There should be continuity when pressed, and no continuity when released.	• Faulty power sliding door switch • An open in the wire
A19 · A24	WHT/BLU LT GRN	Press and hold the OPEN button on the right sliding door switch	Check for continuity between the A19 terminal and the A24 terminal: There should be continuity when pressed, and no continuity when released.	• Faulty power sliding door switch • An open in the wire

(cont'd)

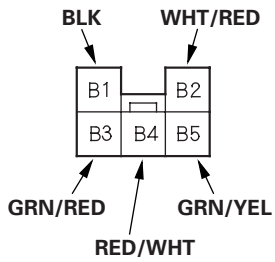
Control Unit Input Test (cont'd)

RIGHT POWER SLIDING DOOR CONTROL UNIT CONNECTOR A:



Wire side of female terminals

RIGHT POWER SLIDING DOOR CONTROL UNIT CONNECTOR B:



Wire side of female terminals

***1: '99-01 models**
***2: '02-04 models**

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A3	RED	Under all conditions	Check for continuity between the A3 terminal and the sliding motor revolution sensor No. 4 terminal: There should be continuity.	• An open in the wire
A5	PNK/BLK	Under all conditions	Check for continuity between the A5 terminal and the sliding motor revolution sensor No. 1 terminal: There should be continuity.	• An open in the wire
A18	GRN/BLK	Under all conditions	Check for continuity between the A18 terminal and the keyless receiver unit No. 14 terminal: There should be continuity.	• An open in the wire
A20	RED/WHT	Under all conditions	Check for continuity between the A20 terminal and the keyless receiver unit No. 3 terminal: There should be continuity.	• An open in the wire
B4	RED/WHT	Connect the A14 (+) terminal to the B4 terminal.	Check the buzzer operation: The buzzer should sound.	• Faulty buzzer • An open in the wire • Poor ground (G552)
B5	GRN/YEL	With door unlatched and half way open, connect the B2 (+) terminal to the B5 terminal, and momentarily connect B3 terminal to the B1 (−) terminal. CAUTION: Door moves quickly.	Check the sliding motor operation: The motor should run (door open).	• Faulty sliding motor • An open in the wire
B3	GRN/RED	With door unlatched and half way open, connect the B2 (+) terminal to the B3 terminal, and momentarily connect B5 terminal to the B1 (−) terminal. CAUTION: Door moves quickly.	Check the sliding motor operation: The motor should run (door close).	• Faulty sliding motor • An open in the wire

6. Reconnect the connectors to the right sliding door control unit and, with the master switch off, perform those input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the control unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A8	YEL/GRN	Door half latched/ fully latched	Check for voltage to ground: There should be 1 V or less.	• Faulty latch position switch • Poorly connected junction switch • An open in the wire • Short to ground
		Dooe open	Check for voltage to ground: There should be battery voltage.	
A6	GRN/BLK	Door half latched/ open	Check for voltage to ground: There should be battery voltage.	• Faulty latch position switch • Poorly connected junction switch • An open in the wire • Short to ground
		Door fully latched	Check for voltage to ground: There should be 1 V or less.	
A15	LT GRN/BLK	Manually slide the door slowly	Check for voltage to ground: There should be 0 to approx. 5 V repeatedly.	• An open in the wire • A short in the wire • Faulty revolution sensor
A17	RED/BLK	Manually slide the door slowly	Check for voltage to ground: There should be 0 to approx. 5 V repeatedly.	• An open in the wire • A short in the wire • Faulty revolution sensor
A10 *1	GRN/WHT	Right sliding door half latched/open	Check for voltage to ground: There should be 1 V or less.	• Faulty right sliding door switch • An open in the wire • Short to ground
		Right sliding door fully latched	Check for voltage to ground: There should be battery voltage.	
A9	RED/WHT	Without sliding the door open, move the inside door handle to the rear of the vehicle.	Check for voltage between the A9 terminal and the A1 terminal: Battery voltage should drop to approx. 6 V.	• Faulty remote control switch • Poorly connected junction switch • An open in the wire • Short to ground
A21	GRN/ORN	With the door opened fully, move the inside door handle to the front of the vehicle	Check for voltage between the A21 terminal and the A1 terminal: Battery voltage should drop to approx. 6 V.	• Faulty power sliding door handle switch • An open in the wire • Misadjusted lower roller lever cable • Short to ground
A7	WHT/BLK	Push and hold the ''Close'' button on the right sliding door switch.	Check for voltage between the A7 terminal and the A1 terminal: Battery voltage should drop to approx. 6 V.	• Faulty power sliding door switch • An open in the wire • Short to ground
A19	WHT/BLU	Push and hold the ''Open'' button on the right sliding door switch.	Check for voltage between the A19 terminal and the A1 terminal: Battery voltage should drop to approx. 6 V.	• Faulty power sliding door switch • An open in the wire • Short to ground
A22	BLU/WHT	Rotate one front wheel slowly with the other wheel blocked.	Check for voltage to ground: There should be 0 to approx. 5 V or more repeatedly.	• Faulty PCM • An open in the wire • Short to ground
A23	BLK/BLU *1 BLU/BLK *2	A/T gear selector in park	Check for voltage to ground: There should be 1 V or less.	• Faulty transmission range switch • An open in the wire • Poor ground (G101) • Short to ground
		A/T gear selector in position other than park	Check for voltage to ground: There should be battery voltage.	

* 1: '99-01 models
* 2: '02-04 models

Power Sliding Door Troubleshooting

1. Verify the customer's complaint using ALL three of the following methods:

   - Using the driver's switch to OPEN/CLOSE both doors
   - Using the keyless transmitter to OPEN/CLOSE both doors
   - Using the inner and outer handles to OPEN/CLOSE both doors

   Do the doors operate properly using all three methods?

   YES—Intermittent problem, inspect all connections. ■

   NO—Go to step 2.

2. Check the fuses.

   Are the fuses OK?

   YES—Go to step 3.

   NO—Find and repair the cause of the blown fuse. ■

3. Open and close the doors again using all three methods, and listen for the warning beeper.

   Did the warning beeper sound three times when all three opening methods were used?

   YES—Go to step 4.

   NO—Go to step 5.

4. With the MAIN switch turned OFF, compare the manual door opening/closing force between the left and right doors.

   Is the opening/closing force equal on both sides?

   YES—Go to step 5.

   NO—Inspect the door guides, rollers, and cables on the door that exhibited the higher opening/closing force. ■

5. Check for codes.

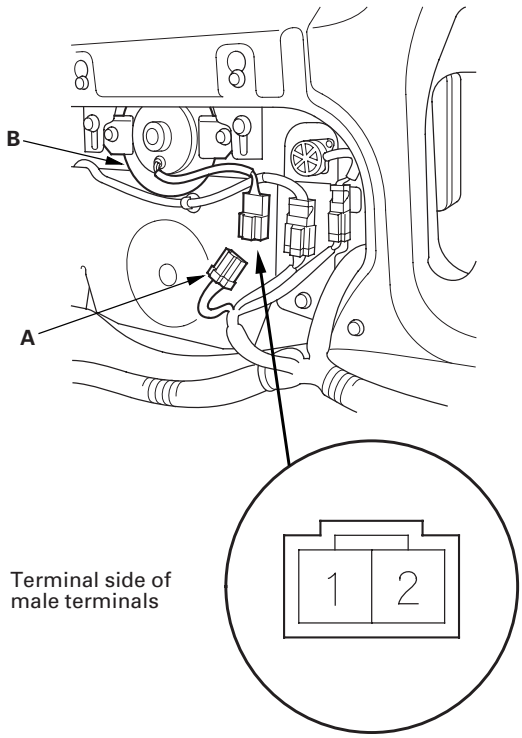
   Are there any codes stored?

   YES—Perform the troubleshooting (see page 22-290). ■

   NO—Refer to the Symptom Troubleshooting Index or perform the input test (see page 22-300). ■

Slide Motor Test

1. Remove the rear side trim panel (see page 20-60).
2. Disconnect the 2P connector (A) from the slide motor (B).



3. Check slide motor operation by connecting battery power and ground according to the table.

NOTICE

The doors move very quickly. Do not allow the motor to slam the door open or closed.

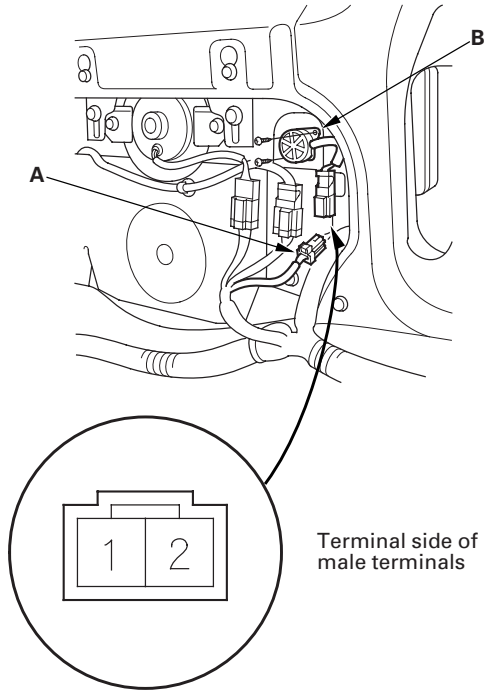
Terminal / Direction	1 [2]	2 [1]
OPEN	⊕	⊖
CLOSE	⊖	⊕

[ ] : **Right side**

4. If the motor does not run or fails to run smoothly, replace it.

Sliding Door Buzzer Test

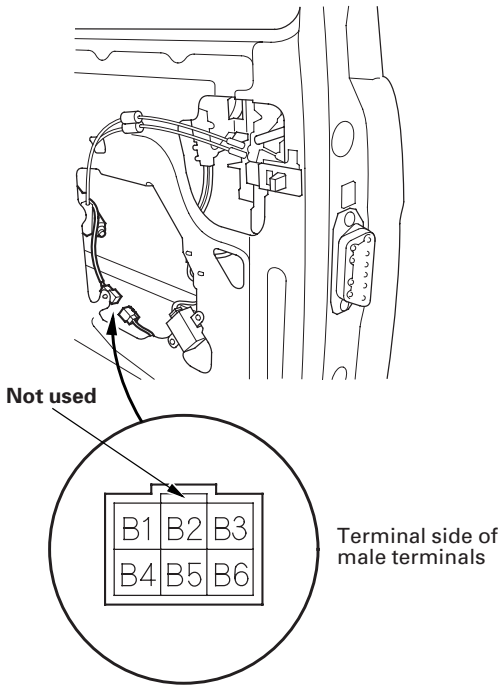
1. Remove the left rear side trim panel (see page 20-60).
2. Disconnect the 2P connector (A) from the buzzer (B).



3. Test the buzzer by connecting battery power to the No. 1 terminal and grounding to the No. 2 terminal. The buzzer should sound.
4. If the buzzer does not sound or fails to sound, replace it.

Closer Motor and Latch Position Switch Test

1. Remove the sliding door panel (see page 20-13).
2. Disconnect the 6P connector from the motor and switch.

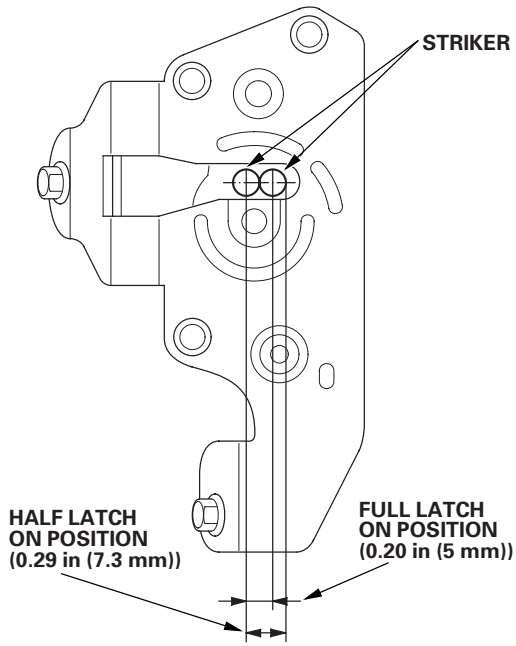


3. Test the closer motor by connecting power and ground according to the table.

Terminal / Direction	B1	B3
FORWARD	⊕	⊖
REVERSE	⊖	⊕

4. Check for continuity between the terminals in each switch position according to the table.

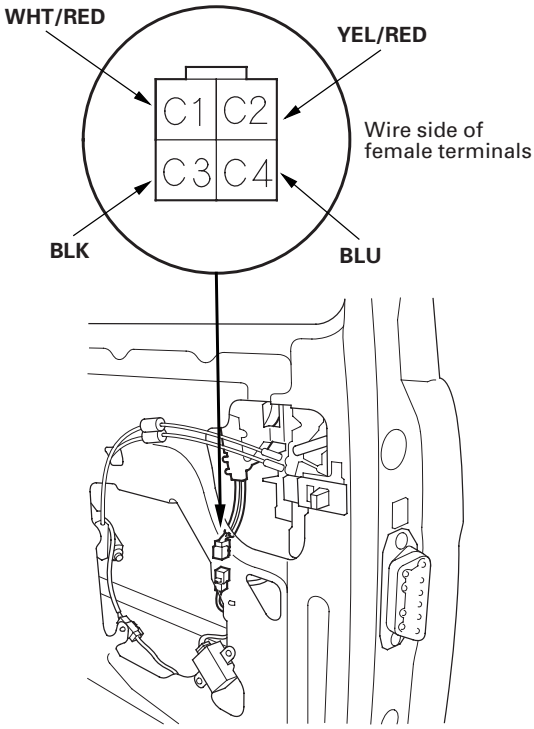
Terminal / Position	B4	B5	B6
FULL LATCH	○	○	○
HALF LATCH	○	○	
OPEN			



5. If the motor does not operate as specified or the continuity is not as specified, replace the unit.

Release Motor and Remote Control Switch Test

1. Remove the sliding door panel (see page 20-13).
2. Disconnect the 4P connector from the release motor and switch.



3. Test the release motor by connecting power and ground according to the table.

Terminal / Direction	C1	C2
OPEN	⊕	⊖

4. Check for continuity between the terminals in each switch position according to the table.

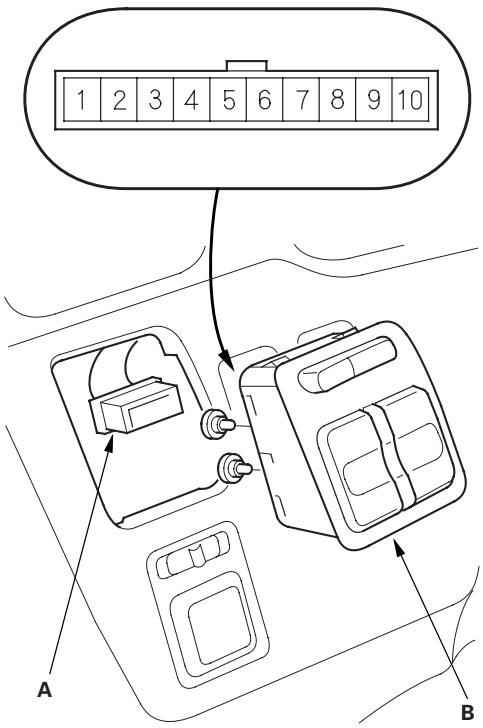
Terminal / Position	C3	C4
HANDLE SWITCH ON	○	○
HANDLE SWITCH OFF		

5. If the actuator does not operate as specified or the continuity is not as specified, replace the unit.

Power Sliding Door Switch Test

1. Remove the dashboard lower cover (see page 20-69).

2. Disconnect the 10P connector (A) from the power sliding door switch (B).



3. Check for continuity between the terminals in each switch position according to the table.

Open/Close Switch:

Position \ Terminal		2	3	4	7	8	9	5		6
L.	OPEN				○	○				
	CLOSE					○	○			
R.	OPEN	○	○							
	CLOSE		○	○						

Main Switch:

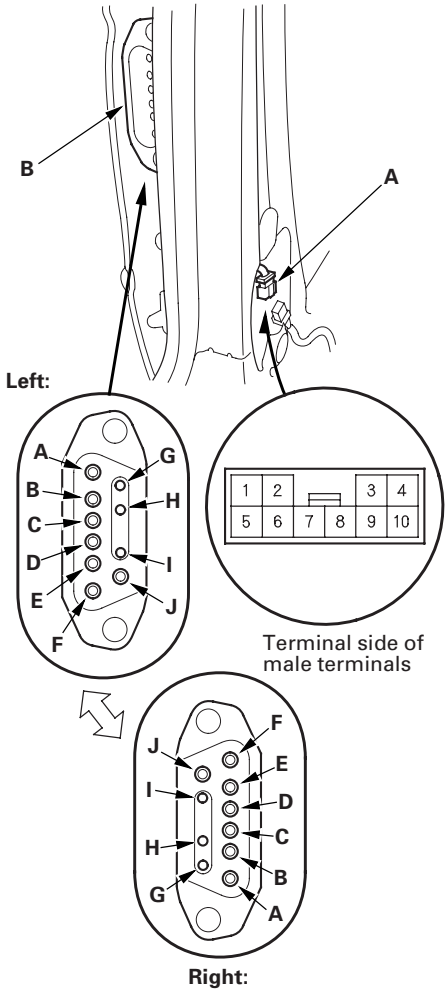
Position \ Terminal	1	10
ON	○	○
OFF		

4. If the continuity is not as specified, replace the bulbs (C) or the switch.

Sliding Door Junction Switch Test

Body Side ('99-00 EX models)

1. Remove the center pillar trim (see page 20-58).
2. Disconnect the 10P connector (A) from the switch (B).



3. Check for continuity between the terminals according to the tables.

1	2	3	4	5	A	B	C	D	G
○					○				
	○					○			
		○						○	
			○						○
				○			○		

6	7	8	9	10	E	F	H	I	J
○					○				
	○					○			
		○							○
			○					○	
				○			○		

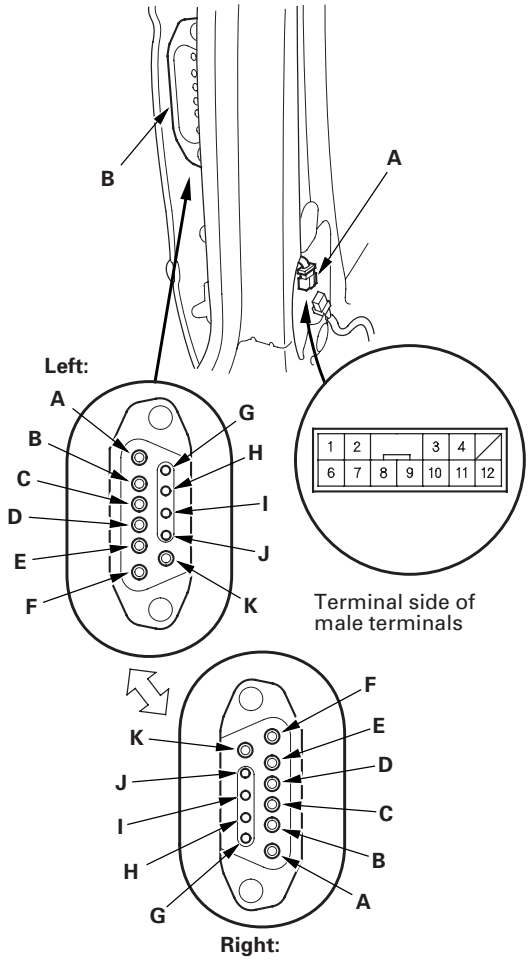
4. If the continuity is not as specified, replace the switch.

(cont'd)

Sliding Door Junction Switch Test (cont'd)

Body Side ('01-04 EX and '02-04 EXL models)

1. Remove the sliding door panel (see page 20-13).
2. Disconnect the 12P connector (A) from the switch (B).



3. Check for continuity between the terminals according to the tables.

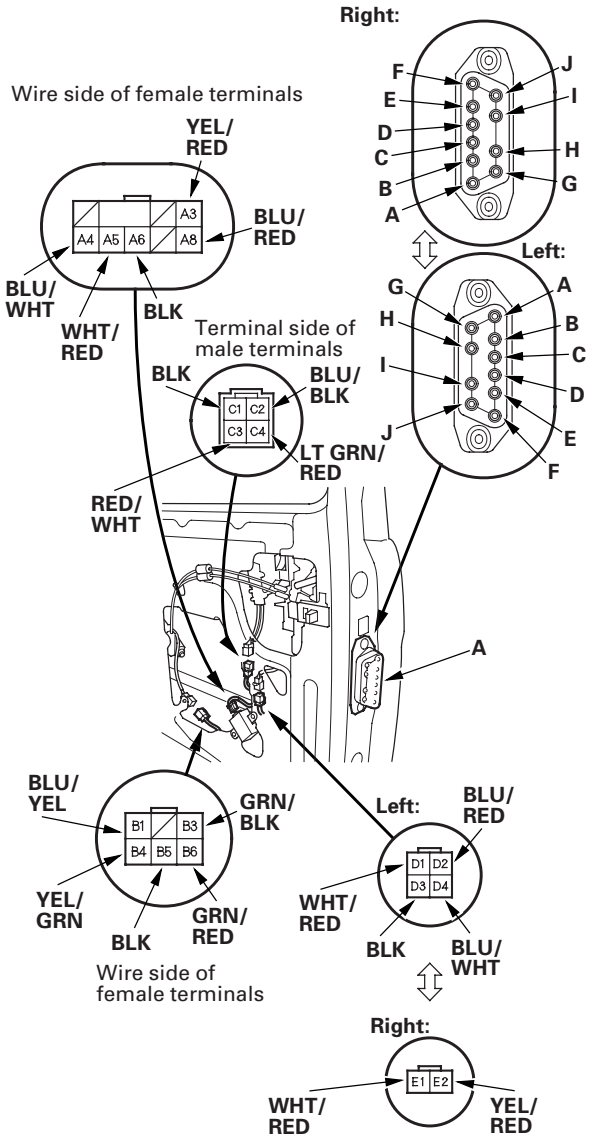
1	2	3	4	6	A	B	C	D	G
○					○				
	○					○			
		○						○	
			○						○
				○			○		

7	8	9	10	11	12	E	F	H	I	J	K
○						○					
	○						○				
		○									○
			○							○	
				○				○			
					○				○		

4. If the continuity is not as specified, replace the switch.

Door Side ('99-00 EX models)

1. Remove the sliding door panel (see page 20-13).
2. Disconnect the connectors from the switch (A).



3. Check for continuity between the terminals according to the tables.

A	B	C	D	E	F	G	B1	B3	B4	B6	C2	C3	C4
○							○						
	○							○					
		○											○
			○						○				
				○								○	
					○						○		
						○				○			

H	I	J	K	A3, E2	A5, D1, E1	A6, B5, C1, D3	D1, E3	A4	A8	D2	D4
								○			○
									○	○	
○					○						
	○			○							
		○				○					

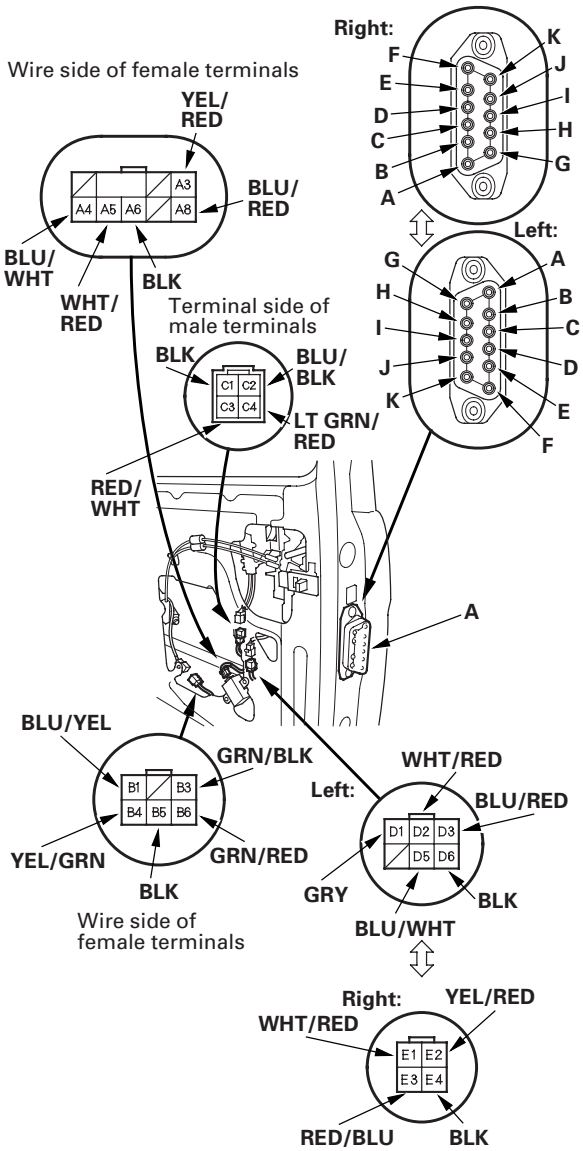
4. If the continuity is not as specified, replace the switch.

(cont'd)

Sliding Door Junction Switch Test (cont'd)

Door Side ('01-04 EX and '02-04 EXL models)

1. Remove the sliding door panel (see page 20-13).
2. Disconnect the connectors from the switch (A).



3. Check for continuity between the terminals according to the tables.

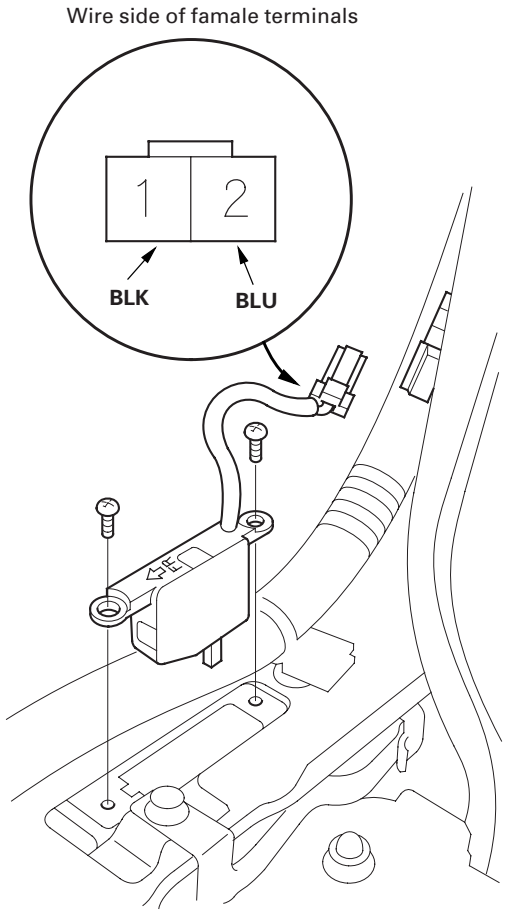
A	B	C	D	E	F	G	B1	B3	B4	B6	C2	C3	C4
○							○						
	○							○					
		○											○
			○						○				
				○								○	
					○						○		
						○				○			

H	I	J	K	A3, E2	A5, D2, E1	A6, B5, C1, D6, E4	D1, E3	A4	A8	D3	D5
								○			○
									○	○	
○					○						
	○						○				
		○		○							
			○			○					

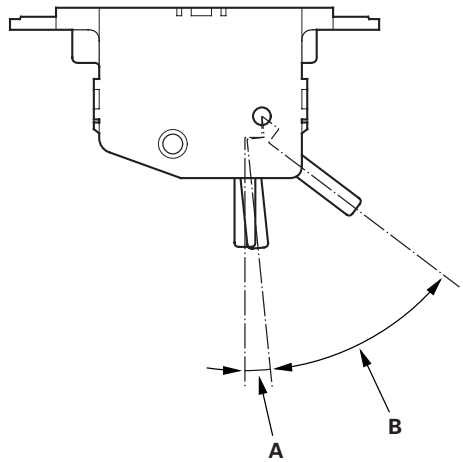
4. If the continuity is not as specified, replace the switch.

Sliding Door Handle Switch Test

1. Disconnect the 2P connector from the sliding door handle switch (A).
2. Remove the two mounting screws from the switch.



3. Check for continuity between the terminals in each switch position according to the table.



Terminal / Position	1	2
A		
B	○	○

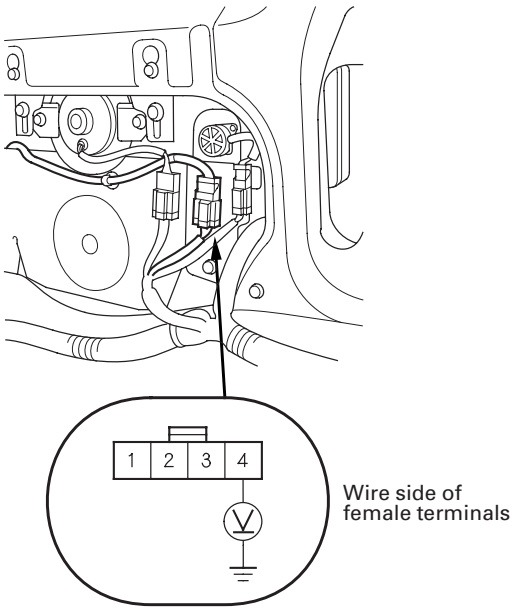
4. If the continuity is not as specified, replace the switch.

Left Slide Motor Revolution Sensor Test

1. Remove the rear side trim panel (see page 20-60).

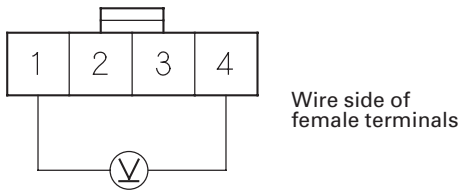
2. Check for voltage between the No. 4 terminal and body ground. There should be battery voltage.

   • If there is no voltage, check the following:
   – a faulty power sliding door control unit.
   – an open in the RED wire.
   – a short in the wire.



3. Check for voltage between the No. 4 and No. 1 terminals. There should be battery voltage.

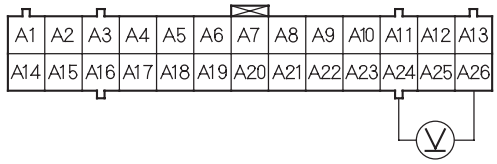
   • If there is no voltage, check the following:
   – a faulty power sliding door control unit.
   – an open in the PNK/BLK wire.



4. Turn the power sliding door main switch OFF.

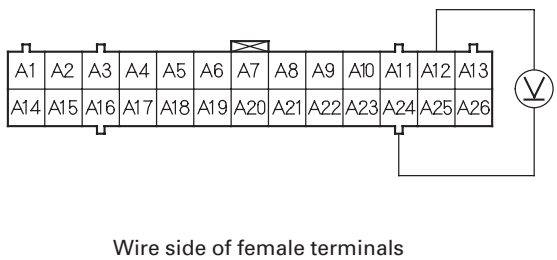
5. While slowly sliding the door manually, check for voltage between the power sliding door control unit terminals A26 and A24.
   There should be 0 to about 5 V repeatedly.

   • If there is no voltage, check the following:
   – a faulty power sliding door control unit.
   – a faulty left slide motor revolution sensor.
   – an open or a short in the LT GRN/BLK wire.



6. While slowly sliding the door manually, check for voltage between the power sliding door control unit terminals A12 and A24.
   There should be 0 to about 5 V repeatedly.

   • If there is no voltage, check the following:
   – a faulty power sliding door control unit.
   – a faulty left slide motor revolution sensor.
   – an open or a short in the RED/BLK wire.

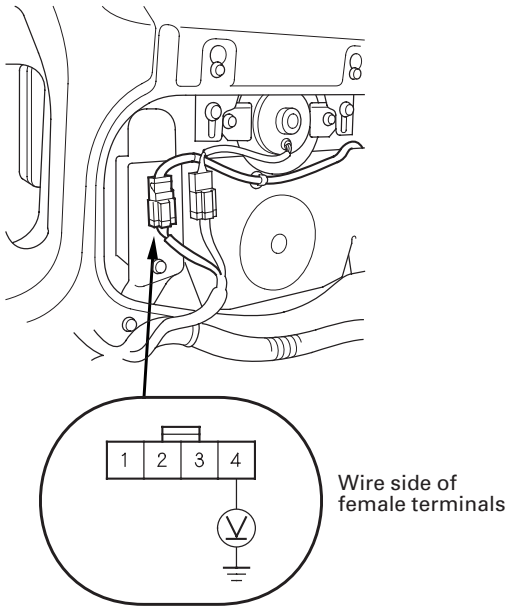


Right Slide Motor Revolution Sensor Test

1. Remove the rear side trim panel (see page 20-60).

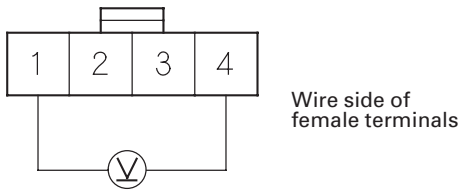
2. Check for voltage between the No. 4 terminal and body ground. There should be battery voltage.

   • If there is no voltage, check the following:
   – a faulty power sliding door control unit.
   – an open in the RED wire.
   – a short in the wire.



3. Check for voltage between the No. 4 and No. 1 terminals. There should be battery voltage.

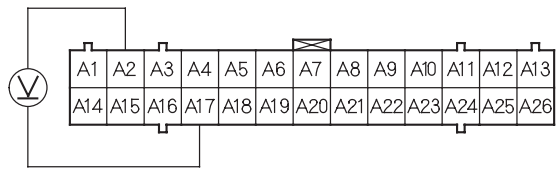
   • If there is no voltage, check the following:
   – a faulty power sliding door control unit.
   – an open in the PNK/BLK wire.



4. Turn the power sliding door main switch OFF.

5. While slowly sliding the door manually, check for voltage between the power sliding door control unit terminals A17 and A2.
   There should be 0 to about 5 V repeatedly.

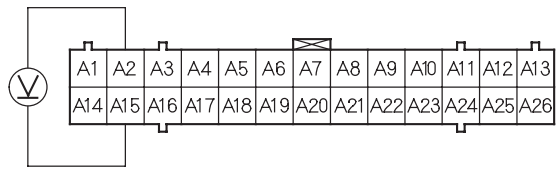
   • If there is no voltage, check the following:
   – a faulty power sliding door control unit.
   – a faulty right slide motor revolution sensor.
   – an open or a short in the RED/BLK wire.



Wire side of female terminals

6. While slowly sliding the door manually, check for voltage between the power sliding door control unit terminals A2 and A15.
   There should be 0 to about 5 V repeatedly.

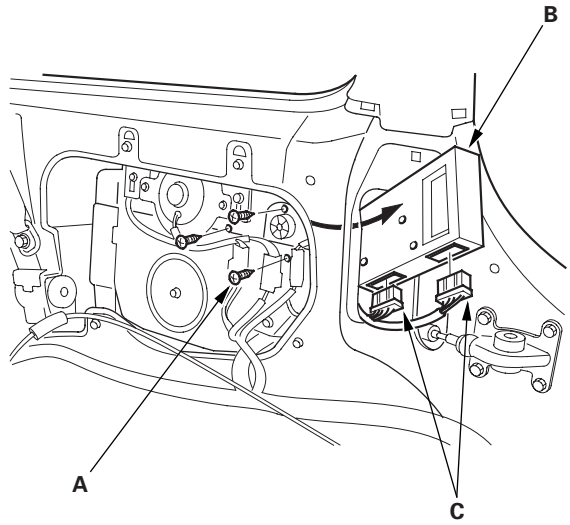
   • If there is no voltage, check the following:
   – a faulty power sliding door control unit.
   – a faulty right slide motor revolution sensor.
   – an open or a short in the LT GRN/BLK wire.



Wire side of female terminals

Power Sliding Door Control Unit Removal/Installation

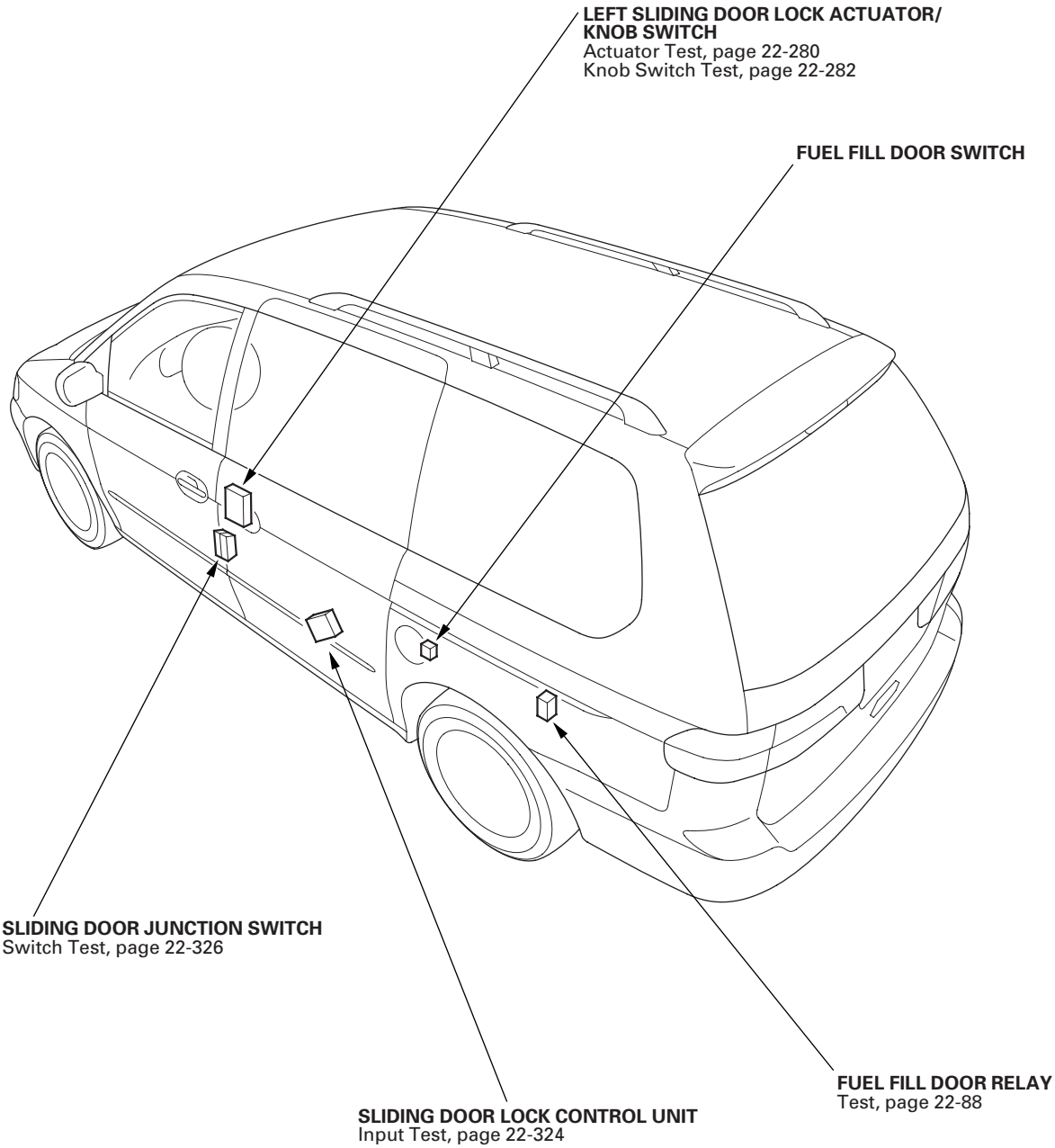
1. Remove the rear side trim panel (see page 20-60).
2. Remove the seat belt tensioner for the second row seat (see page 23-8).
3. Remove the three mounting screws (A) from the power sliding door control unit (B).



4. Disconnect the 26P and 5P connectors (C) from the control unit.
5. Remove the control unit through the seat belt tensioner mounting hole.
6. Install the control unit in the reverse order of removal.

Sliding Door Lock System

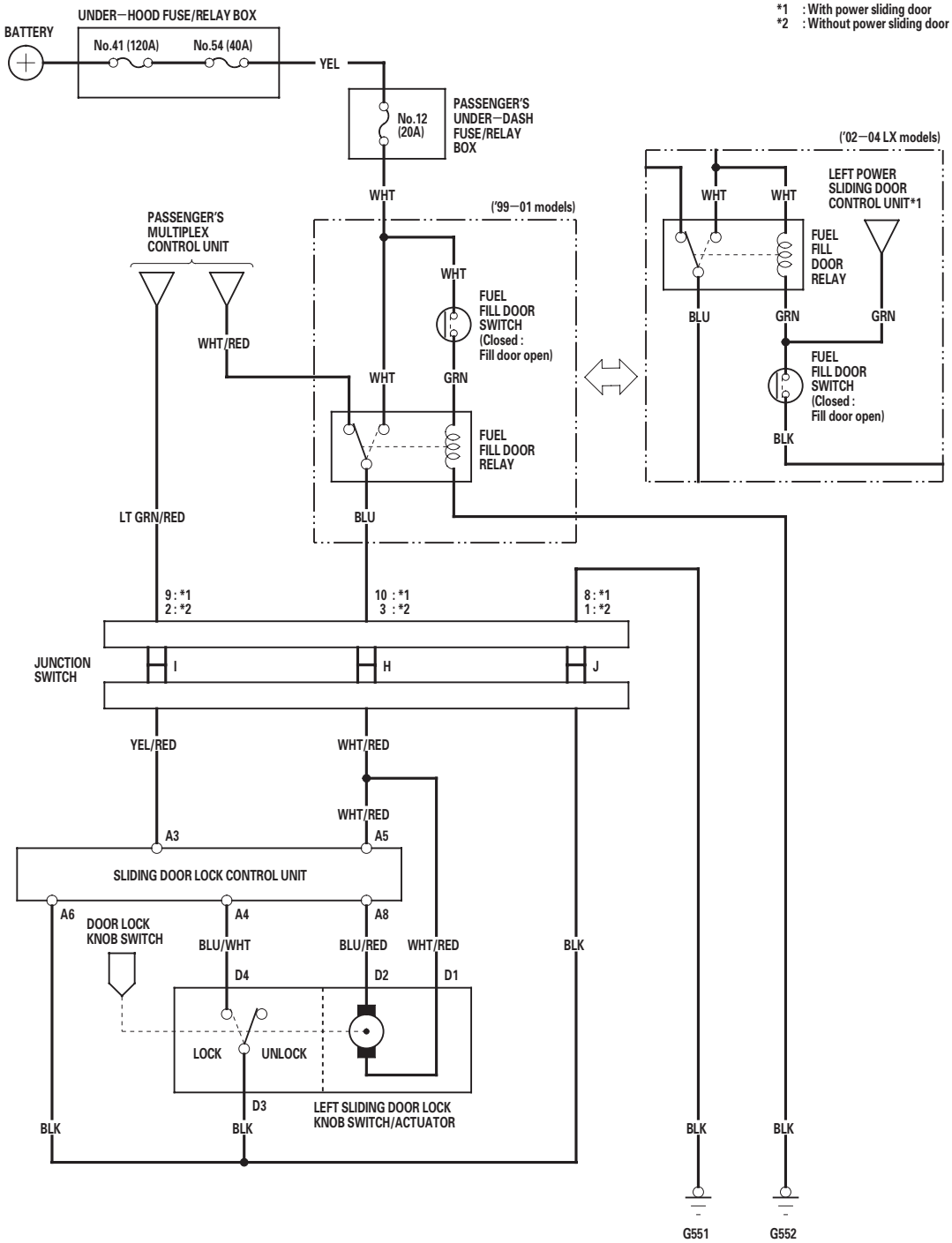
Component Location Index



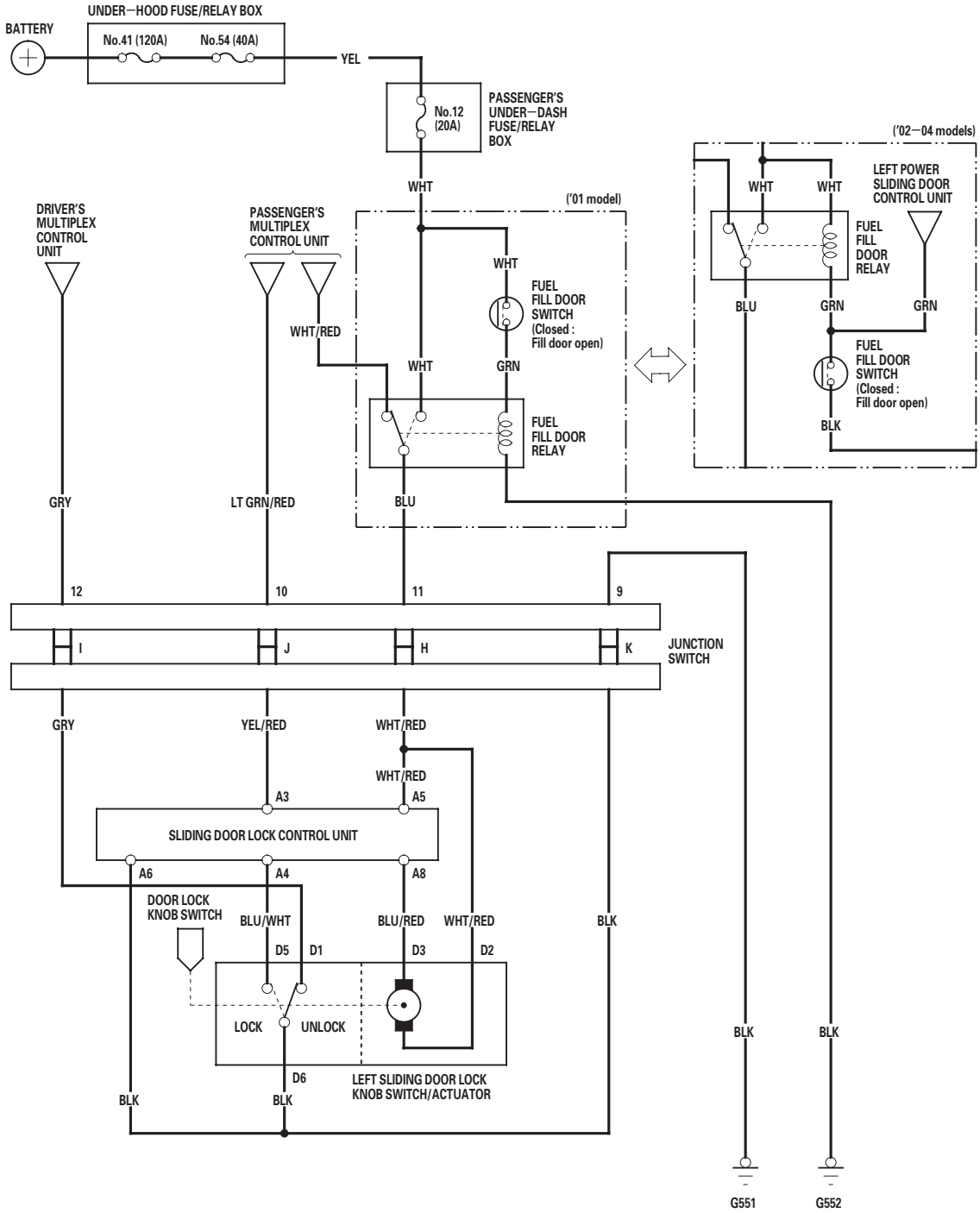
Sliding Door Lock System

Circuit Diagram

Without Factory Security System



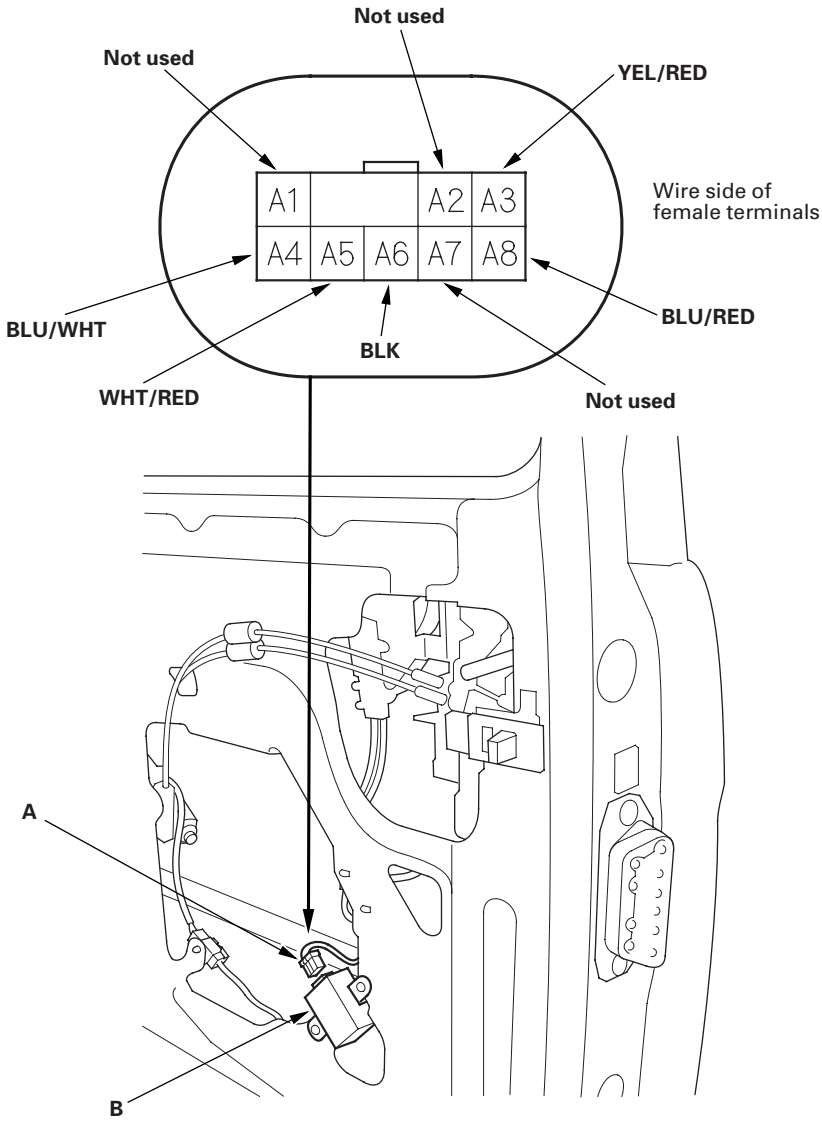
With Factory Security System ('01-04 EX, '02-04 EXL models)



Control Unit Input Test

1. Remove the left sliding door panel (see page 20-13).

2. Disconnect the 8P connector (A) from the sliding door control unit (B).



3. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

4. Close the sliding door.

5. Make these input test at the connector.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A6	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G551) • Faulty junction switch • An open in the wire
A3 A8	YEL/RED BLU/RED	Connect the A3 terminal to the A8 terminal, and driver's door lock switch in LOCK or UNLOCK	Check the actuator operation: The actuator should run.	• Faulty left sliding door lock actuator • Faulty fuel fill door relay • An open in the wire • Faulty junction switch

6. Reconnect the connector to the control unit, and make this input test.

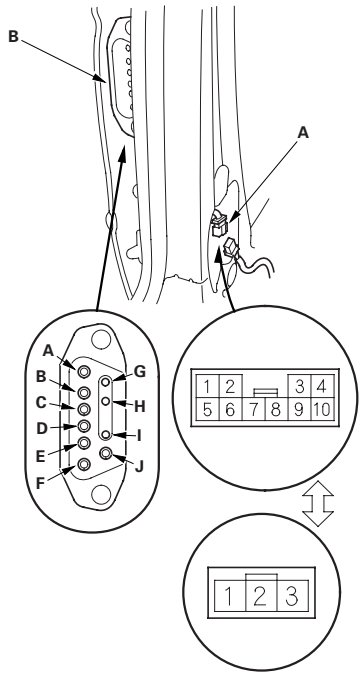
   • If a test indicates a problem, find and correct the cause, then recheck the system.
   • If the input test proves OK, the control unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A4	BLU/WHT	Left sliding door closed, and fuel lid open	Check for voltage to ground: There should be 0 volts.	• Poor ground (G551) • Faulty left sliding door lock knob switch • Faulty junction switch • An open in the wire
A5	WHT/RED	Fuel fill door open	Check for voltage to ground: There should be battery voltage.	• Poor ground (G552) • Blown No. 12 (20A) fuse in the passenger's under-dash fuse/ relay box • Faulty fuel fill door relay • Faulty fuel fill door switch • Faulty junction switch • An open in the wire
A4	BLU/WHT	Left sliding door closed, and LOCKED	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G551) • Faulty lock knob switch • Faulty junction switch • An open in the wire
A4	BLU/WHT	Left sliding door closed, and UNLOCKED	Check for voltage to ground: There should be 5 V or more.	• Faulty lock knob switch • A short in the wire

Sliding Door Junction Switch Test

Body Side (Without Factory Security System)

1. Remove the center pillar trim (see page 20-58).
2. Disconnect the connector (A) from the junction switch (B).



Terminal side of male terminals

3. Check for continuity between the terminals according to the table.

10P connector (with power sliding door):

8	9	10	H	I	J
○					○
	○			○	
		○	○		

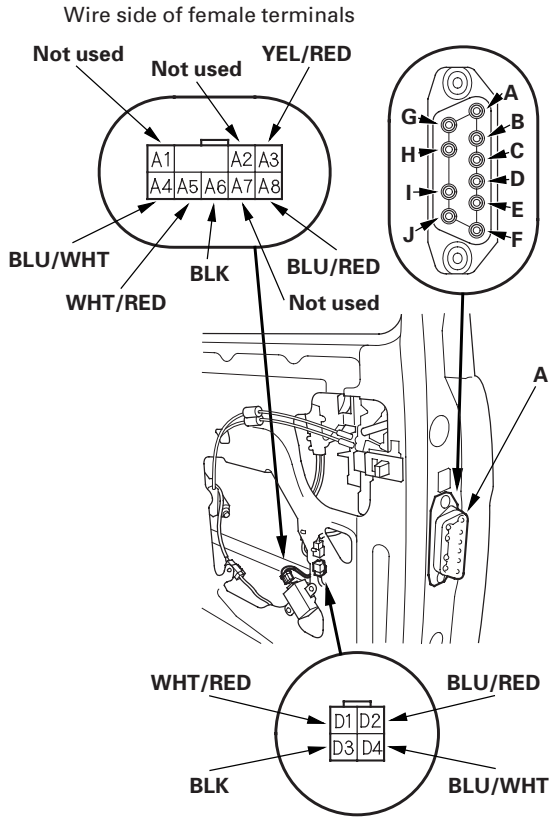
3P connector (without power sliding door):

1	2	3	H	I	J
○					○
	○			○	
		○	○		

4. If the continuity is not as specified, replace the switch.

Door Side (Without Factory Security System)

1. Remove the left sliding door panel (see page 20-13).
2. Disconnect the 8P and 4P connectors of the junction switch.



Wire side of female terminals

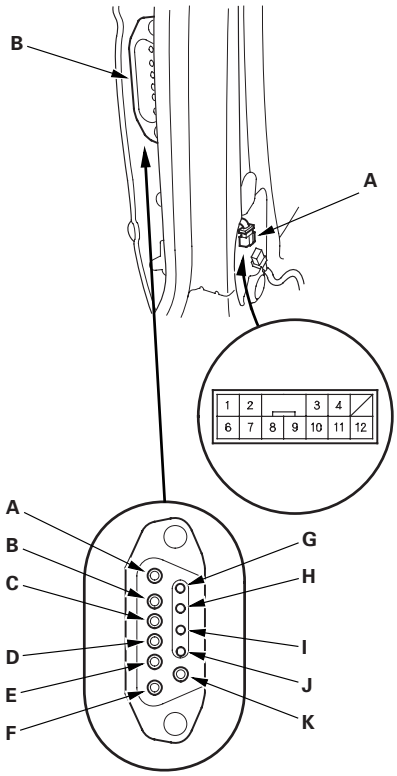
3. Check for continuity between the terminals according to the table.

A3	A4	A5	A6	A8	H	I	J	D2	D4
○						○			
	○								○
		○			○				
			○				○		
				○				○	

4. If the continuity is not as specified, replace the switch.

Body Side ('01-04 EX, '02-04 EXL models)

1. Remove the center pillar trim (see page 20-58).
2. Disconnect the 12P connector (A) from the junction switch (B).



Terminal side of male terminals

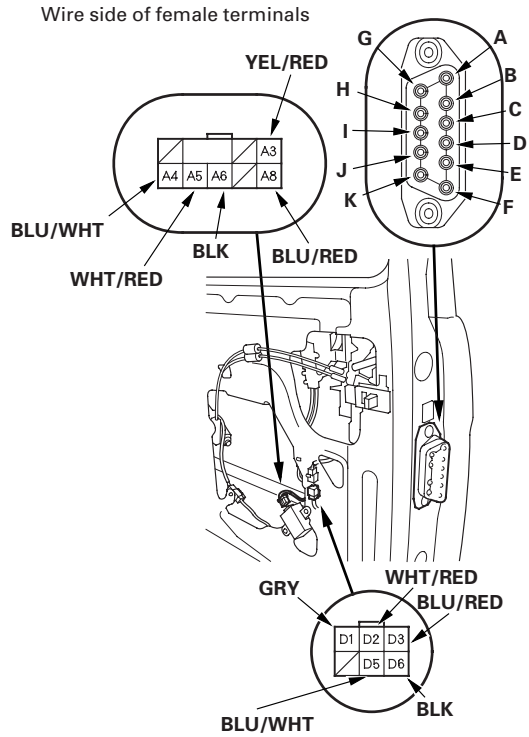
3. Check for continuity between the terminals according to the table.

9	10	11	12	H	I	J	K
○							○
		○		○			
	○					○	
			○		○		

4. If the continuity is not as specified, replace the switch.

Door Side ('01-04 EX, '02-04 EXL models)

1. Remove the left sliding door panel (see page 20-13).
2. Disconnect connector A (8P) and connector D (6P) of the junction switch.



Wire side of female terminals

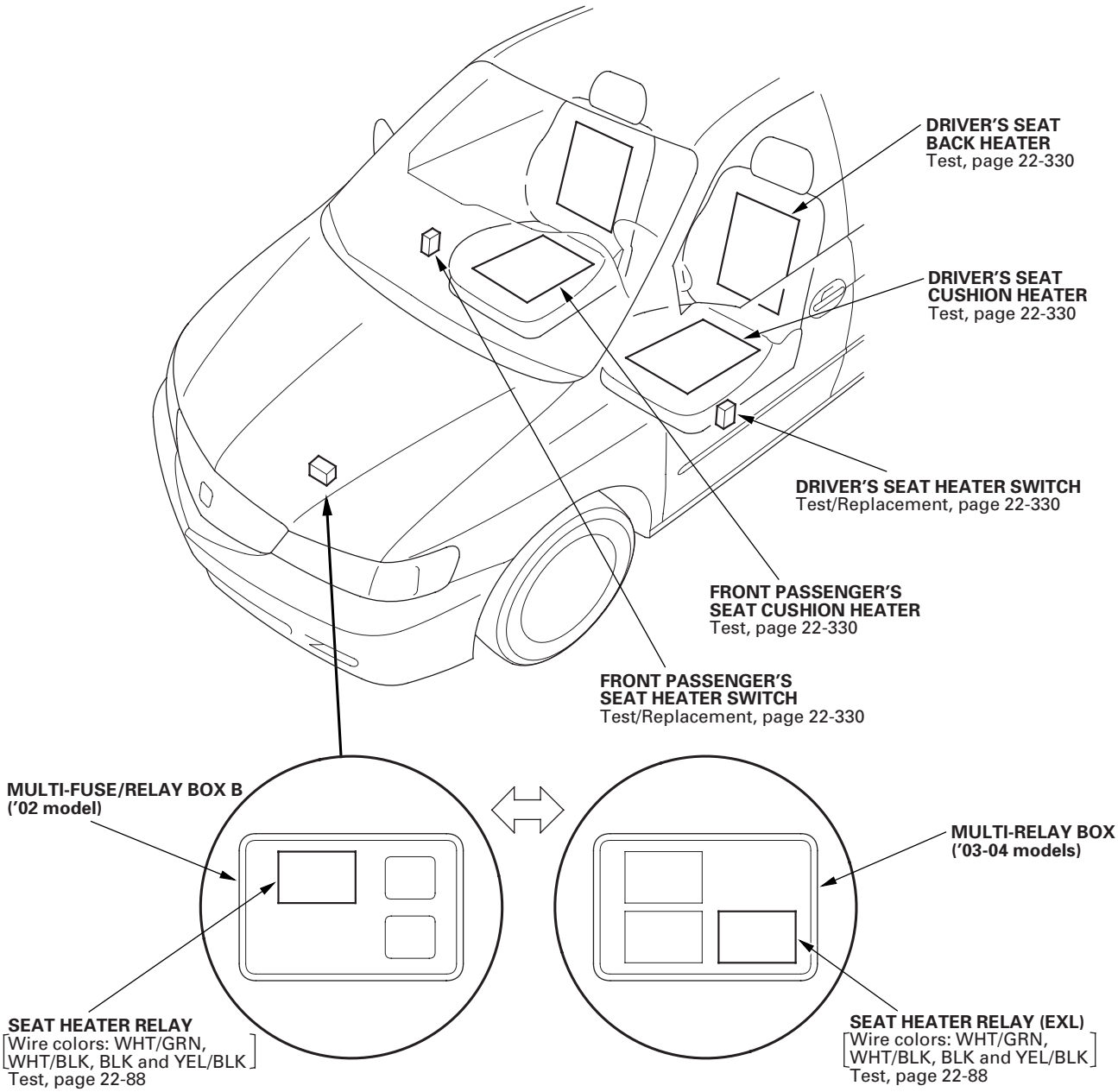
3. Check for continuity between the terminals according to the table.

A3	A4	A5	A6	A8	H	I	J	K	D1	D2	D3	D5	D6
○							○						
	○											○	
		○			○					○			
			○					○					○
				○								○	
						○			○				

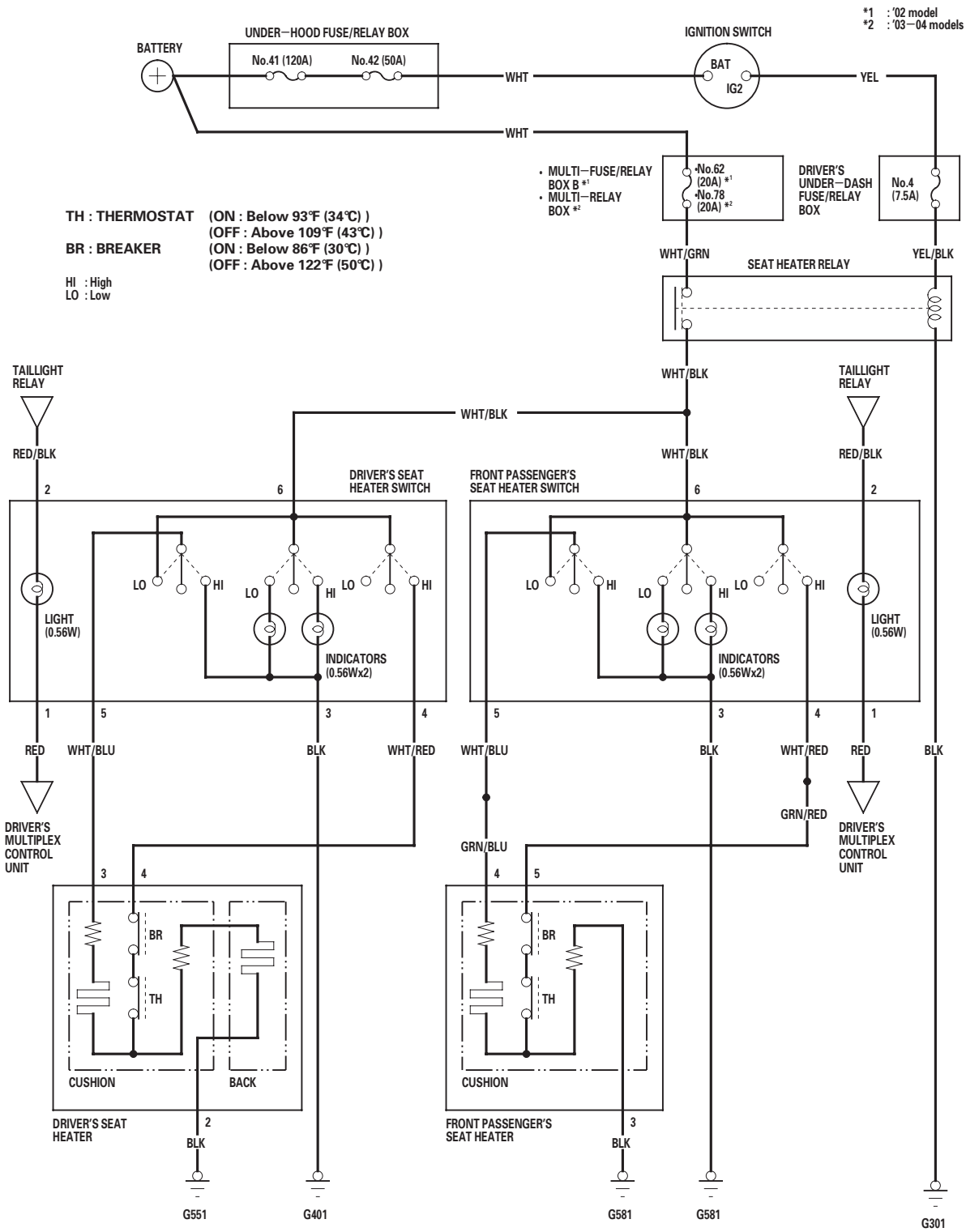
4. If the continuity is not as specified, replace the switch.

Component Location Index

'02-04 models



Circuit Diagram

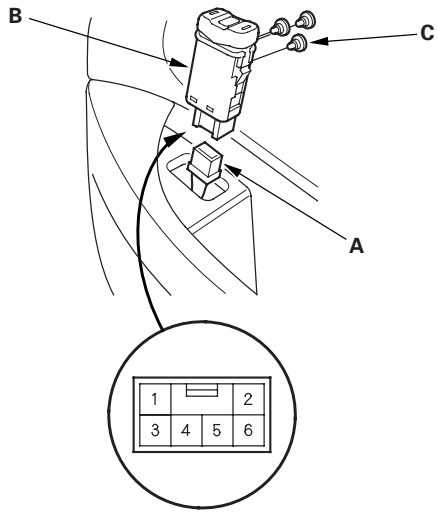


Seat Heaters

Switch Test

1. Remove the door panel (see page 20-7).

2. Disconnect the 6P connector (A) from the seat heater switch (B).



3. Check for continuity between the terminal in each switch position according to the table.

Position \ Terminal		1		2	3		4	5	6
ON	HI	○	○	○	○	○	○		○
					○			○	
	LO	○	○	○	○	○			○
								○	○
OFF		○	○	○					

4. If the continuity is not as specified, replace the bulbs (C) or the switch.

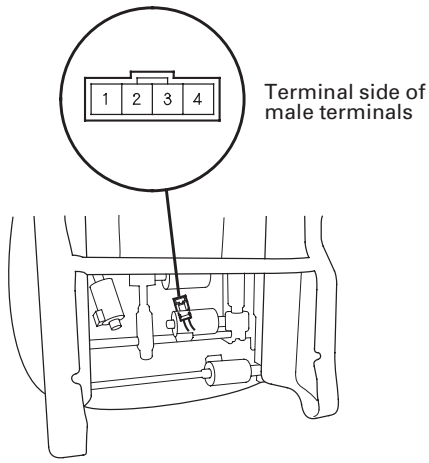
Seat Heater Test

1. Remove the front seat (see page 20-81).

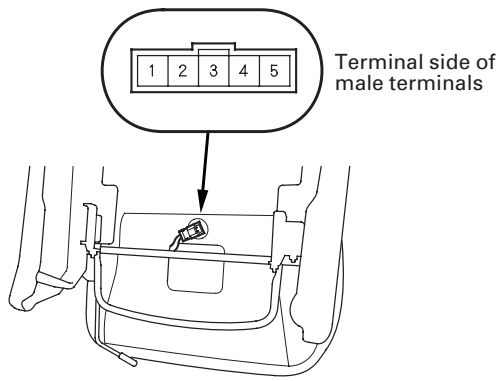
2. Driver's seat: Check for continuity between the No. 2 and No. 3 terminals, and No. 3 and No. 4 terminals of the driver's seat heater heater connector (4P).
   There should be continuity. If there is no continuity, replace the driver's seat heater.

3. Front passenger's seat: Check for continuity between the No. 3 and No. 4 terminals, and No. 4 and No. 5 terminals of the passenger's seat heater connector (5P).
   There should be continuity. If there is no continuity, replace the passenger's seat heater.

DRIVER'S SEAT:



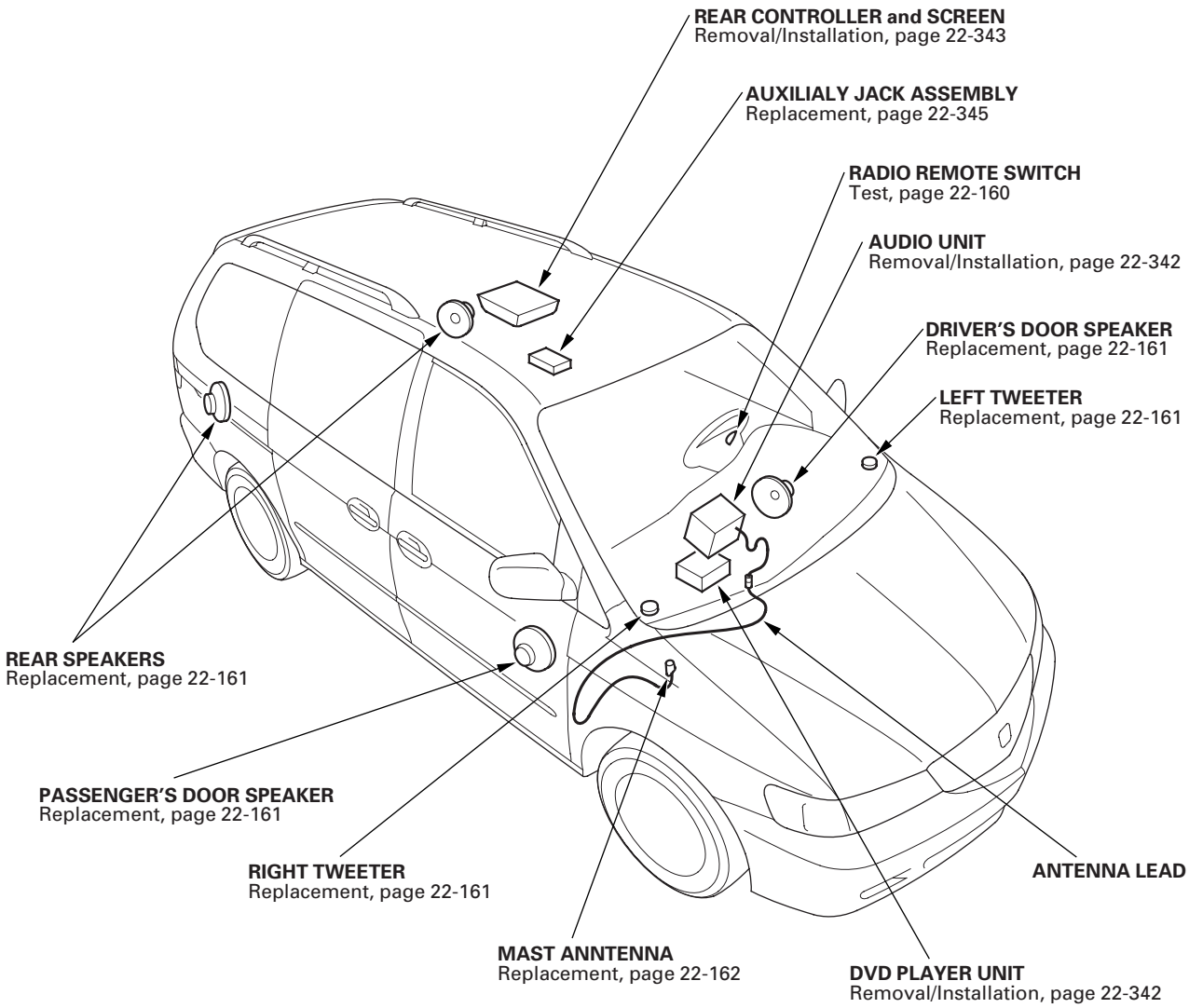
FRONT PASSENGER'S SEAT:



4. If the continuity is not as specified, replace the heater.

Component Location Index

'02-04 models



- **WIRELESS HEADPHONE**
  Battery Replacement, page 22-344
- **WIRELESS REMOTE CONTROL**
  Battery Replacement, page 22-345

Rear Entertainment System (DVD)

System Description

The rear entertainment system is composed of a special audio unit, a DVD player unit, a rear controller, wireless headphones, wireless remote control, anxiliary input jacks, and a screen.

System Components

Audio Unit
- Provides rear system power
- Provides control for the rear functions
- Allows the rear display to show information about the rear system status
- Provides a method to stop the rear from having control of the rear system

DVD Player Unit
- Offers simple operation (control in the audio unit)
- Has the ability to play DVDs or CDs
- Automatically turns off when battery voltage drops below 12 volts

Rear Controller and Screen
- Has flip down 7'' display
- Allows full operation of the rear system through the controller and information on the LCD
- Display is inoperative when pushed beyond the detent

Wireless Headphone
- Has ON/OFF button
- Has volume control
- Has automatic shut off when not in use
- Operational only in the second and third row seats, not outside the vehicle or in the front seats

Wireless Remote Control
Allows remote operation of the audio and DVD units.

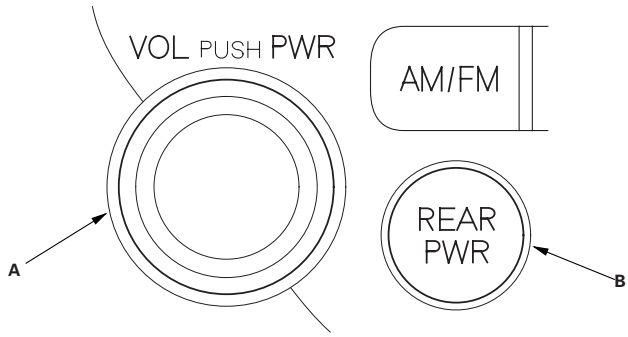
Auxiliary Input Jacks
- Allows input from standard video game and video equipment using RCA connectors
- Provides three headphone connectors and separate volume controls

Radio Remote Switch
Allows operation of the audio and DVD units at the steering wheel.

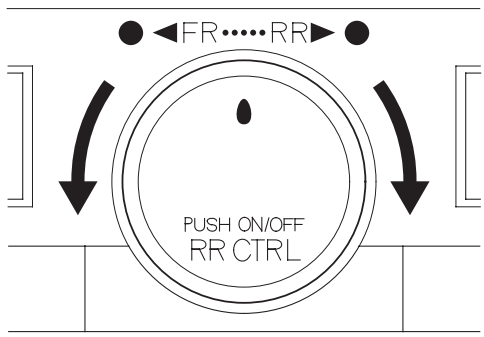
Operating Method

Audio Unit

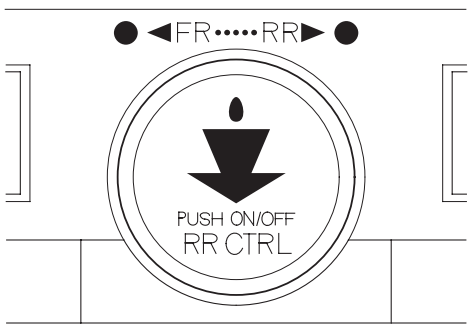
1. Turn the rear entertainment system ON.
   - After the main power switch ''VOL PUSH PWR'' (A) is turned ON, push ''REAR PWR'' switch (B) to turn the rear system ON. To turn the rear system OFF, push ''REAR PWR'', and to turn the whole system OFF, push ''VOL PUSH PWR''.

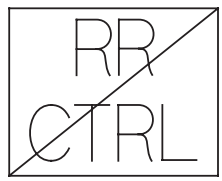


2. Using the selector knob.
   - Turn left to select the front controls (Audio).
   - Turn right to select the rear controls (After rear operation is finished, selector will automatically return to the front control in 10 seconds).



3. Rear control enable/disable.
   - By pushing the selector knob, the driver can prevent the rear passengers from operating the system. Each push of the selector knob cycles the switch between ON-OFF (Rear Control Enable/Rear Control Disabled). When rear operation is prohibited, the LCD on the audio unit displays ''RR CONT OFF''.

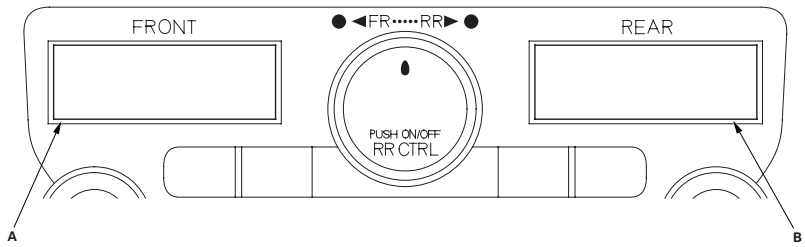




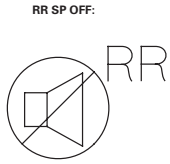
(cont'd)

System Description (cont'd)

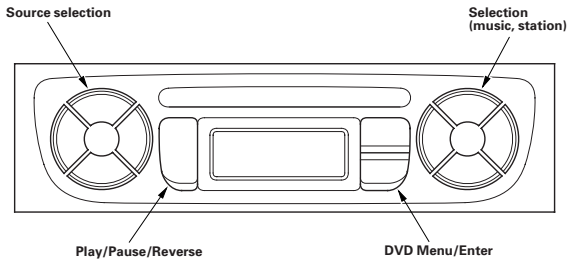
4. Viewing the twin displays.
   • The two displays indicate the status of the front (A) and rear (B) systems.



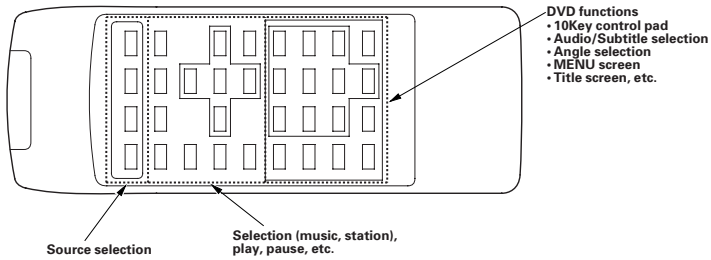
5. Rear speaker automatic OFF function.
   • By turning the rear speaker OFF you can reduce the interference between the front source and the rear source (Headphone). The speaker will be turned ON/OFF automatically when the front and rear have different sources selected. When the rear speaker is in the OFF mode, the LCD display on the audio unit displays ''RR SP OFF''.
   RR SP OFF:



Rear Controller
Using the control switch from the rear seat.
• With ''Rear Power ON'' the rear passenger can control the functions, unless the rear control has been turned off in the front.

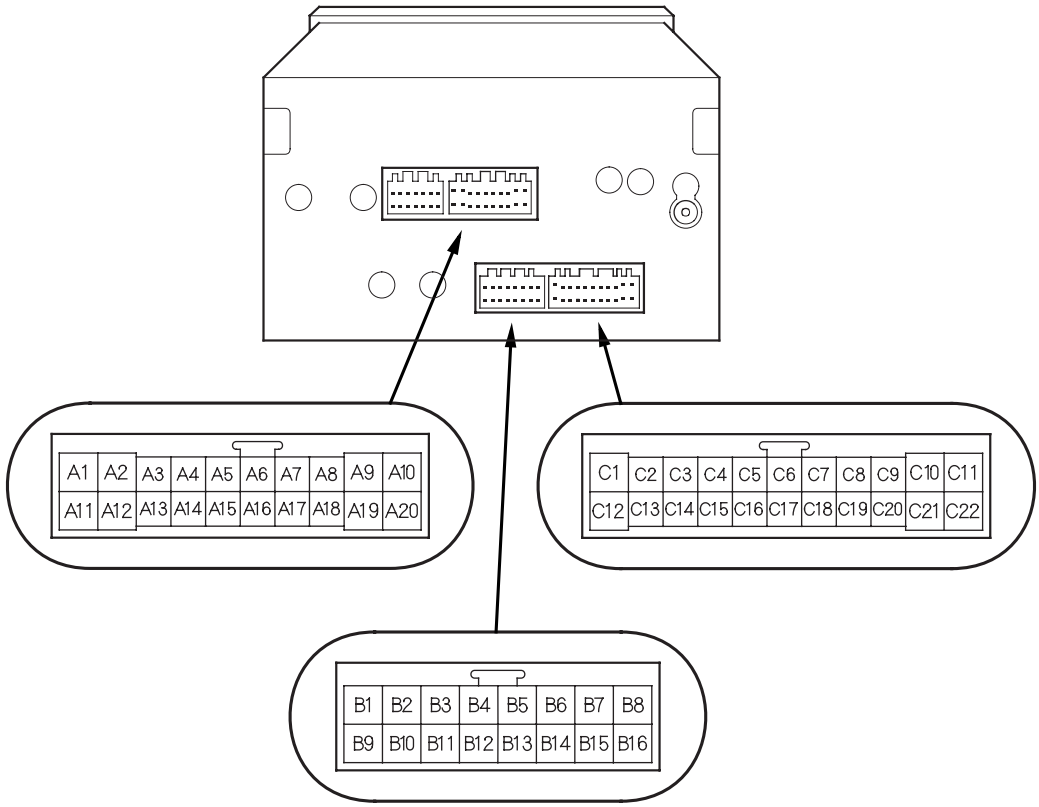


Rear Control
Remote control switch use and function.
• With ''Rear Power ON'' and rear control enabled, the rear passengers can control the functions with the remote, except volume.



Audio Unit Connector Inputs and Outputs

When replacing an audio unit connector, match the wires to the cavities listed in the following table.



Cavity	Wire	Connect to	Cavity	Wire	Connect to
A1	———	Not used	A11	———	Not used
A2	WHT/RED	ACC (Main stereo power supply)	A12	———	Not used
A3	GRN/RED	Radio remote switch	A13	———	Not used
A4	BLU	DVD player unit (Security input)	A14	———	Not used
A5	RED/YEL	Right rear speaker (+)	A15	BRN/WHT	Right rear speaker (−)
A6	BLU/YEL	Left rear speaker (+)	A16	GRY/WHT	Left rear speaker (−)
A7	RED/GRN	Passenger's door speaker (+), Right tweeter (+)	A17	BRN/BLK	Passenger's door speaker (−), Right tweeter (−)
A8	BLU/GRN	Driver's door speaker (+), Left tweeter (+)	A18	GRY/BLK	Driver's door speaker (−), Left tweeter (−)
A9	RED/BLK	Lights-on signal	A19	RED	Dash lights brightness controller
A10	WHT/BLU	Constant power	A20	BLK	Ground (G502)

(cont'd)

System Description (cont'd)

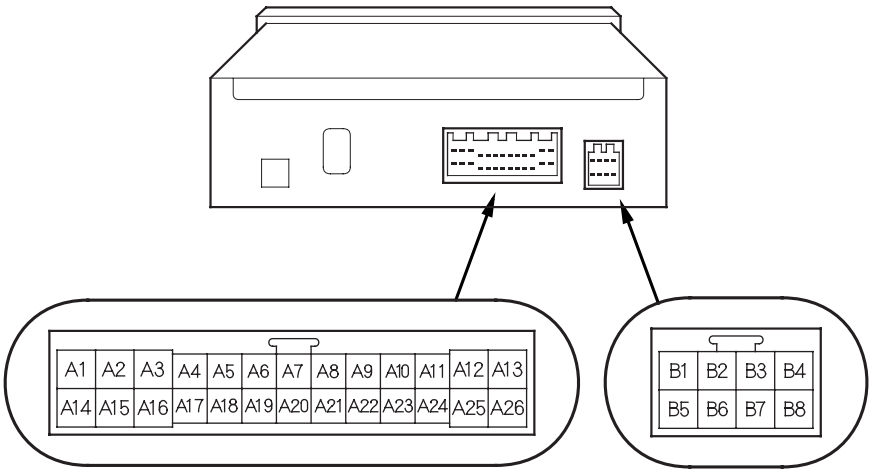
Audio Unit Connector Inputs and Outputs (cont'd)

Cavity	Wire	Connect to	Cavity	Wire	Connect to
B1	YEL	Rear controller and screen (L ch2)	B9	BLU	Rear controller and screen (audio 2 ground)
B2	GRN	Rear controller and screen (R ch2)	B10	BRN/WHT	Rear controller and screen (audio 2 shielding)
B3	———	Not used	B11	———	Not used
B4	BLU/GRN	Rear controller and screen (video 2)	B12	ORN/BLU	Rear controller and screen (video 2 ground)
B5	———	Not used	B13	BRN/WHT	Rear controller and screen (video 2 shielding)
B6	———	Not used	B14	———	Not used
B7	ORN	Rear controller and screen (BUS data input)	B15	ORN/BLU	Rear controller and screen (BUS data output)
B8	BLU/GRN	Rear controller and screen (BUS ground)	B16	BRN	Rear controller and screen (BUS shielding)

Cavity	Wire	Connect to	Cavity	Wire	Connect to
C1	ORN	DVD player unit (L ch1)	C12	ORN/BLU	DVD player unit (R ch1)
C2	BLU/GRN	DVD player unit (audio 1 ground)	C13	BRN	DVD player unit (audio 1 shielding)
C3	YEL	DVD player unit (serial data input)	C14	GRN	DVD player unit (serial data ground)
C4	BLU	DVD player unit (serial ground)	C15	BRN/WHT	DVD player unit (serial shielding)
C5	———	Not used	C16	———	Not used
C6	BLU	DVD player unit (video 1)	C17	RED	DVD player unit (video 1 ground)
C7	BRN	Auxiliary jack assembly (audio shielding)	C18	BRN/BLK	DVD player unit (video 1 shielding)
C8	ORN	Auxiliary jack assembly (L ch)	C19	BLU/GRN	Auxiliary jack assembly (audio ground)
C9	ORN/BLU	Auxiliary jack assembly (R ch)	C20	———	Not used
C10	YEL/RED	Dash lights for DVD player unit, rear controller and screen and auxiliary jack assembly	C21	———	Not used
C11	———	Not used	C22	———	Not used

DVD Player Unit Connector Inputs and Outputs

When replacing a DVD player unit connector, match the wires to the cavities listed in the following table.



Cavity	Wire	Connect to	Cavity	Wire	Connect to
A1	WHT/BLU	Constant power	A14	BLK	Ground (G502)
A2	WHT/RED	ACC (Main stereo power supply)	A15	———	Not used
A3	———	Not used	A16	———	Not used
A4	ORN	Audio unit (L ch1)	A17	BLU/GRN	Audio unit (audio 1 ground)
A5	ORN/BLU	Audio unit (R ch1)	A18	BRN	Audio unit (audio 1 shielding)
A6	YEL	Audio unit (serial data input)	A19	GRN	Audio unit (serial data output)
A7	BLU	Audio unit (serial ground)	A20	BRN/WHT	Audio unit (serial shielding)
A8	———	Not used	A21	———	Not used
A9	BLU	Audio unit (video 1)	A22	RED	Audio unit (video 1 ground)
A10	———	Not used	A23	BRN/BLK	Audio unit (video 1 shielding)
A11	BLU	Audio unit (security input)	A24	GRN	Rear controller and screen (security input)
A12	YEL/RED	Dash lights for audio unit, rear controller and screen and auxiliary jack assembly	A25	———	Not used
A13	RED/BLK	Lights-on signal	A26	RED	Dash lights brightness controller

Cavity	Wire	Connect to	Cavity	Wire	Connect to
B1	YEL	Auxiliary jack assembly (L ch3)	B5	BLU	Auxiliary jack assembly (audio 3 ground)
B2	GRN	Auxiliary jack assembly (R ch3)	B6	BRN/WHT	Auxiliary jack assembly (audio 3 shielding)
B3	BLU	Auxiliary jack assembly (video 3)	B7	RED	Auxiliary jack assembly (video 3 ground)
B4	WHT/GRN	Auxiliary jack assembly (communication line check)	B8	BRN/BLK	Auxiliary jack assembly (video 3 shielding)

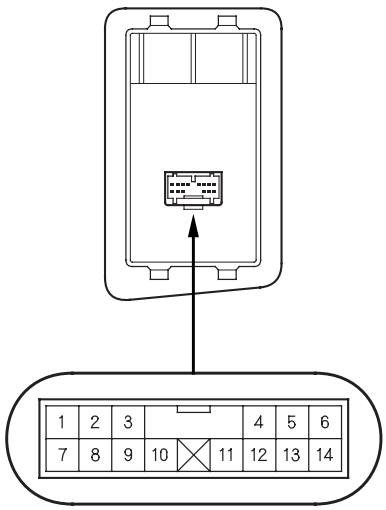
(cont'd)

System Description (cont'd)

Auxiliary Jack Assembly Connector Inputs and Outputs

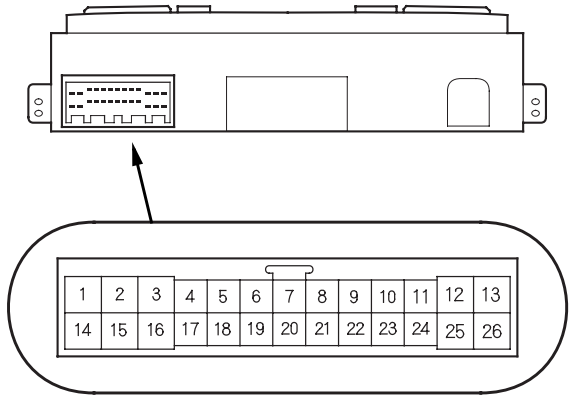
When replacing an auxiliary jack assembly connector, match the wires to the cavities listed in the following table.

Cavity	Wire	Connect to
1	BLK	Ground (G552)
2	WHT/RED	Dash lights for audio unit, DVD player unit and rear controller and screen
3	BRN	Audio unit (audio shielding)
4	BRN/BLK	DVD player unit (video 3 shielding)
5	BRN/WHT	DVD player unit (audio 3 shielding)
6	WHT/GRN	DVD player unit (communication line check)
7	BLU/GRN	Audio unit (headphone audio ground)
8	RED	DVD player unit (video 3 ground)
9	BLU	DVD player unit (video 3)
10	YEL	DVD player unit (L ch3)
11	BLU	DVD player unit (audio 3 ground)
12	GRN	DVD player unit (R ch3)
13	ORN	Audio unit (headphone L ch output)
14	ORN/BLU	Audio unit (headphone R ch output)



Rear Controller and Screen Connector Inputs and Outputs

When replacing a rear controller and screen connector, match the wires to the cavities listed in the following table.

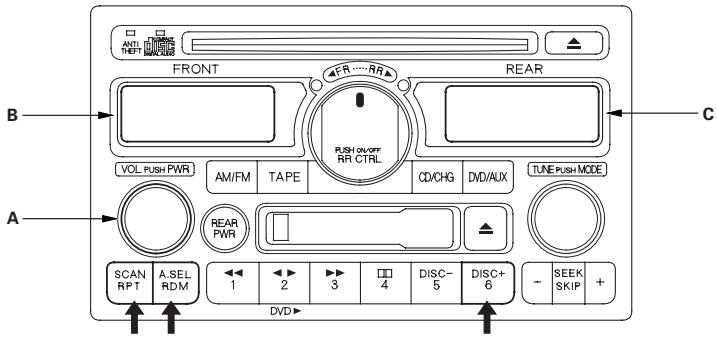


Cavity	Wire	Connect to
1	WHT/BLU	Constant power
2	WHT/RED	ACC (main stereo power supply)
3	———	Not used
4	YEL	Audio unit (L ch)
5	GRN	Audio unit (R ch)
6	———	Not used
7	BLU	Audio unit (video)
8	———	Not used
9	GRN	DVD player unit (security output)
10	ORN	Audio unit (BUS data input)
11	BLU/GRN	Audio unit (BUS ground)
12	YEL/RED	Dash lights for audio unit, DVD player unit and auxiliary jack assembly
13	RED/BLK	Lights-on signal
14	BLK	Ground (G552)
15	BLK	Ground (G552)
16	———	Not used
17	BLU	Audio unit (audio ground)
18	BRN/WHT	Audio unit (audio shielding)
19	———	Not used
20	RED	Audio unit (video ground)
21	BRN/BLK	Audio unit (video shielding)
22	BLU	Security input
23	ORN/BLU	Audio unit (BUS data output)
24	BRN	Audio unit (BUS shielding)
25	———	Not used
26	RED	Dash lights brightness controller

Self-diagnosis Procedure

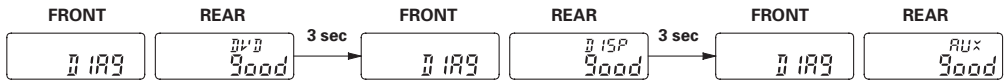
The rear entertainment system has a self-diagnosis test. To run the self-diagnosis test, do the following:

1. Turn the ignition switch to the ACC (I) or ON (II) position.
2. Pushing the ''VOL push PWR'' knob (A).
3. To run the self-diagnosis test, simultaneously push and hold the buttons ''DISC＋6'', ''SCAN'' and ''A.SEL'' for more than 2 seconds.



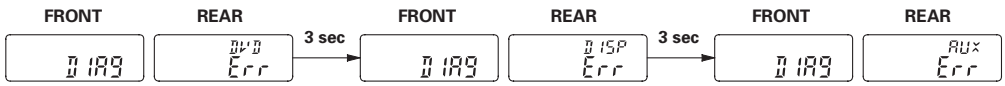
4. Release the buttons when a diagnosis message (DIAG) shows in the ''FRONT'' display (B) and diagnosis indiction shows in the ''REAR'' display (C) of the audio unit. It changes every 3 seconds for the DVD player unit (DVD), the rear controller and screen (DISP), and auxiliary (AUX).
5. When there is no problem found, the system returns to normal operation automatically followed by a single audiable deep.

Normal:



6. When a problem is detected, the system will display which component has the error followed by three audiable beeps.
   - The error (Err) message will appear in the ''REAR'' display.
   - If the DVD player or the rear controller and screen (DISP) has a malfunction, an indication will appear in the ''FRONT'' display.
   - If the auxiliary (AUX) assembly has a malfunction, an indication will appear in the ''REAR'' display.

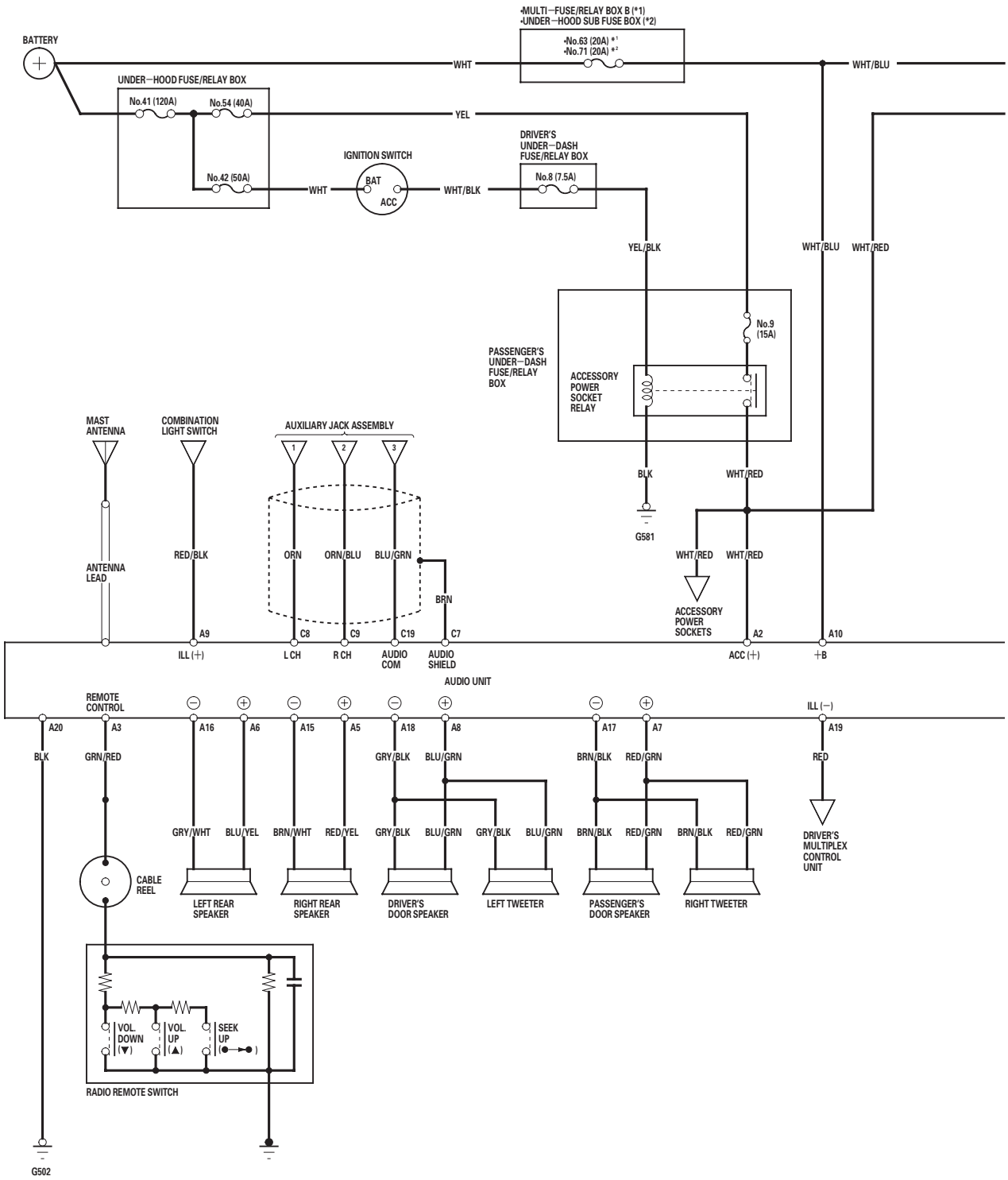
Faulty:

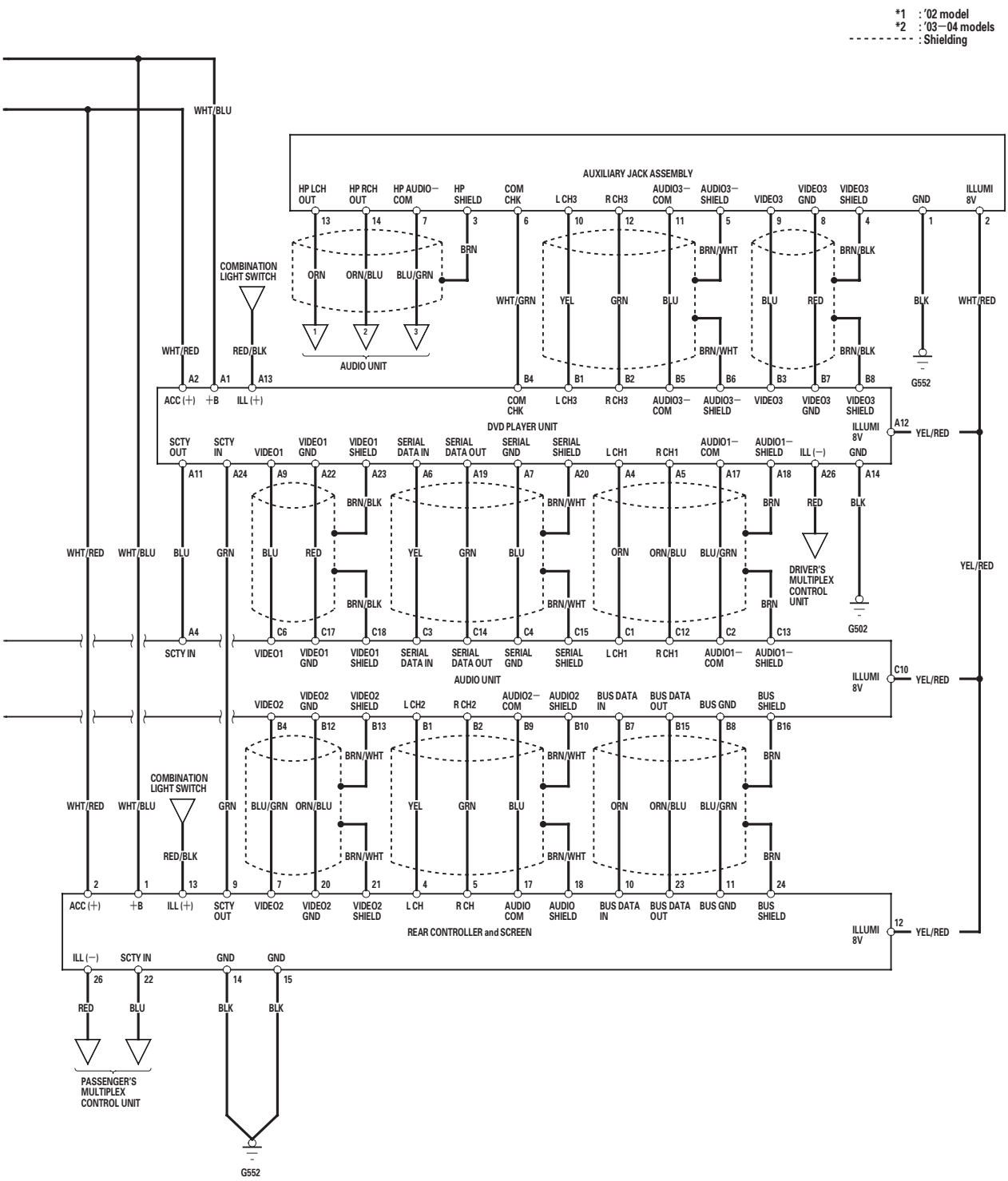


7. After the three beeps, the system will hold the displayed error as shown depending on which component has the malfunction.

8. Turn the ignition switch OFF or push the ''VOL push PWR'' button to cancel the self-diagnosis function.

Circuit Diagram




*1 : '02 model
*2 : '03—04 models
: Shielding
WHT/BLU
AUXILIARY JACK ASSEMBLY
HP LCH OUT
HP RCH OUT
HP AUDIO— COM
HP SHIELD
COM CHK
L CH3
R CH3
AUDIO3— COM
AUDIO3— SHIELD
VIDEO3
VIDEO3 GND
VIDEO3 SHIELD
GND
ILLUMI 8V
COMBINATION LIGHT SWITCH
ORN
ORN/BLU
BLU/GRN
BRN
WHT/GRN
YEL
GRN
BLU
BRN/WHT
BRN/BLK
RED
BLK
WHT/RED
RED/BLK
AUDIO UNIT
G552
ACC (+)
+B
ILL (+)
DVD PLAYER UNIT
SCTY OUT
SCTY IN
VIDEO1
VIDEO1 GND
VIDEO1 SHIELD
SERIAL DATA IN
SERIAL DATA OUT
SERIAL GND
SERIAL SHIELD
L CH1
R CH1
AUDIO1— COM
AUDIO1— SHIELD
ILL (—)
YEL/RED
DRIVER'S MULTIPLEX CONTROL UNIT
G502
AUDIO UNIT
VIDEO2
VIDEO2 GND
VIDEO2 SHIELD
L CH2
R CH2
AUDIO2— COM
AUDIO2 SHIELD
BUS DATA IN
BUS DATA OUT
BUS GND
BUS SHIELD
REAR CONTROLLER and SCREEN
PASSENGER'S MULTIPLEX CONTROL UNIT
G552

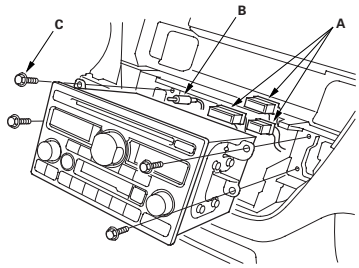
Audio Unit Removal/Installation

With Rear Entertainment System

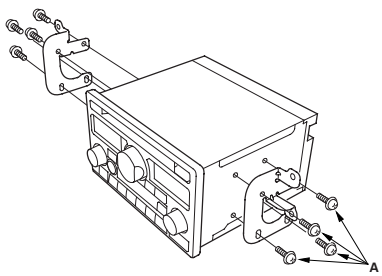
SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the dashboard and related parts.

1. Make sure you have the anti-theft code for the radio, then write down the frequencies for the radio's preset buttons.
2. Remove the center panel (see page 20-70).
3. Disconnect the audio unit connectors (A), the optional accessory connector (if equipped), and the antenna lead (B) from the audio unit.



4. Remove the bolts (C).
5. Remove the screws (A) and the audio unit.



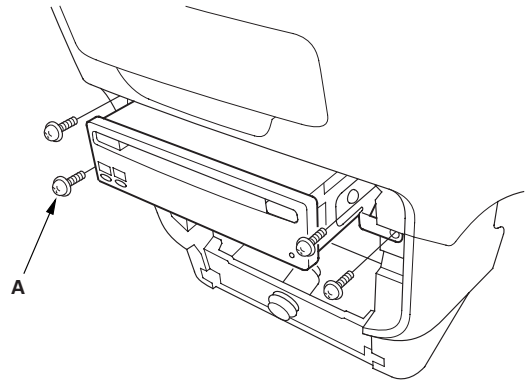
6. Install in the reverse order of removal, and note these items.
   - Make sure the audio unit connectors, and the antenna lead are connected properly.
   - Enter the anti-theft code for the radio, then enter the customer's radio station presets.

DVD Player Unit Removal/ Installation

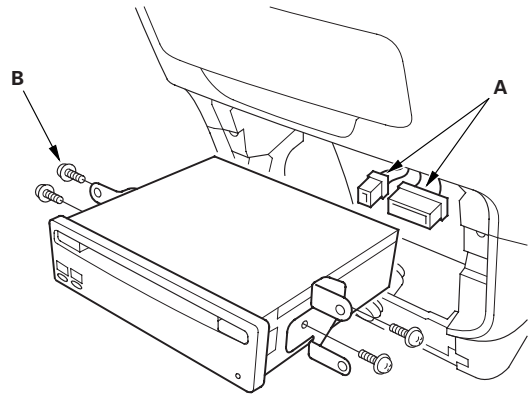
SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) in the SRS before performing repairs or service.

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the dashboard and related parts.

1. Remove the center lower pocket (see page 20-67).
2. Remove the screws (A).



3. Disconnect the DVD player unit connectors (A) from the DVD player unit.

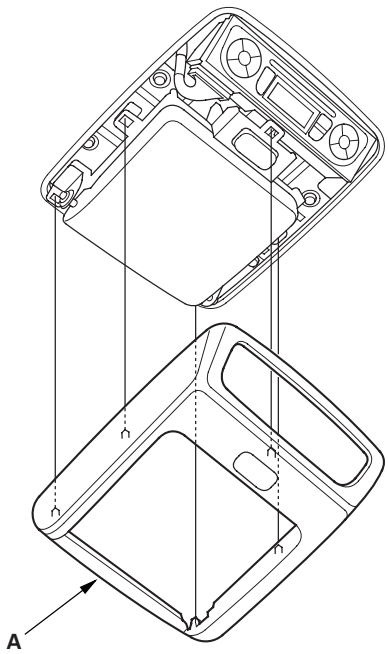


4. Remove the screws (B) and the DVD player unit.
5. Install in the reverse order of removal, and make sure the DVD player unit connectors are plugged in properly.

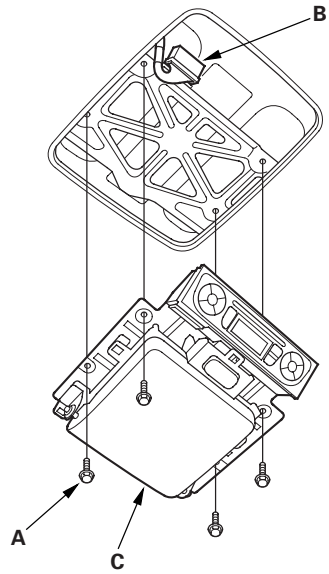
Rear Controller and Screen Removal/Installation

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the headliner and display cover.

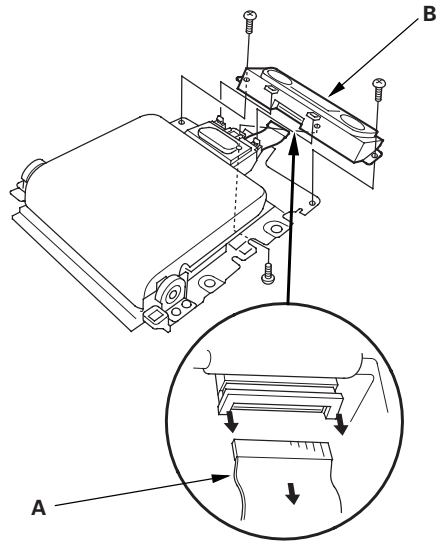
1. Remove the display cover (A).



2. Remove the mounting bolts (A).



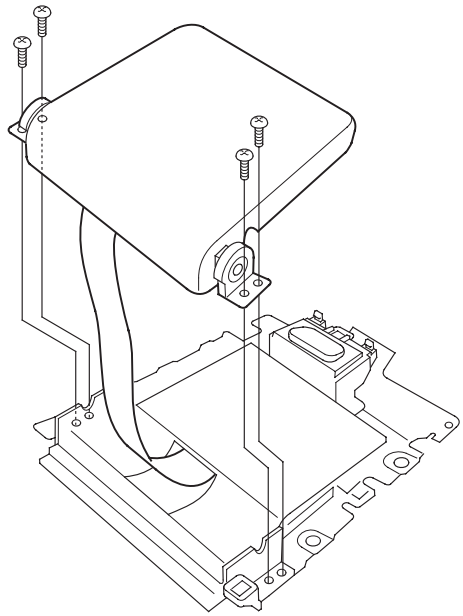
3. Disconnect the connector (B) from the rear controller and screen (C).
4. Remove the screws from the controller.
5. Disconnect the cable (A) from the controller (B).



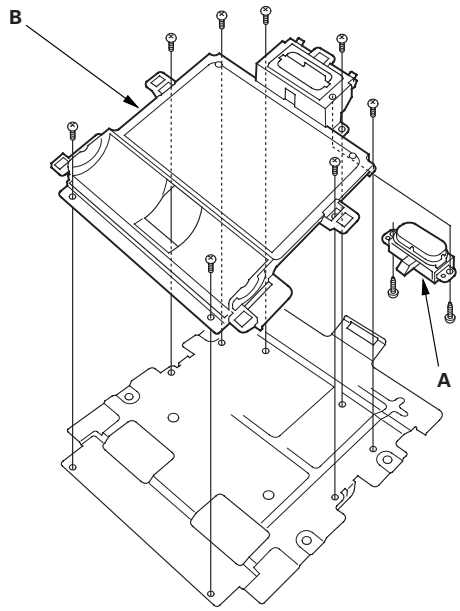
(cont'd)

Rear Controller and Screen Removal/Installation (cont'd)

6. Remove the screw, then remove the screen.



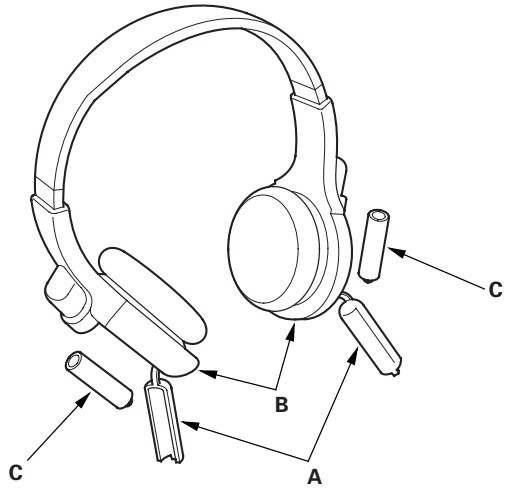
7. Remove the mounting screws from the lock switch (A) and base (B).



8. Install in the reverse order of removal, and make sure the rear controller and screen connector is plugged in properly.

Wireless Headphone Battery Replacement

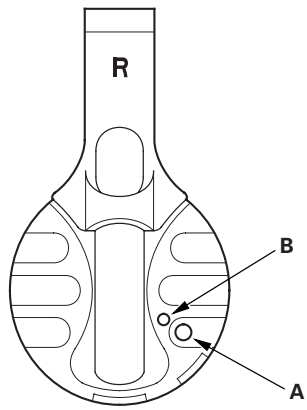
1. Remove the battery covers (A) from the wireless headphone by inserting a coin in the locktabs (B) and lifting the covers.



2. Remove the batteries (C) from the wireless headphone.

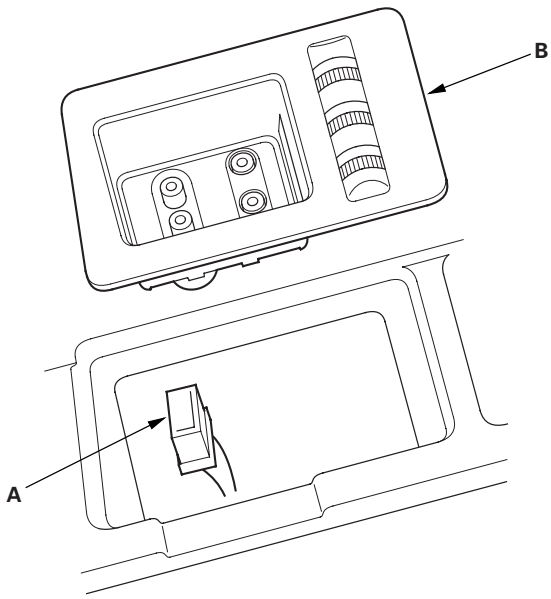
   Replacement Battery Size: AAA

3. Push the on/off button (A), and confirm that the indicator (B) comes on after the batteries are replaced.



Auxiliary Jack Assembly Replacement

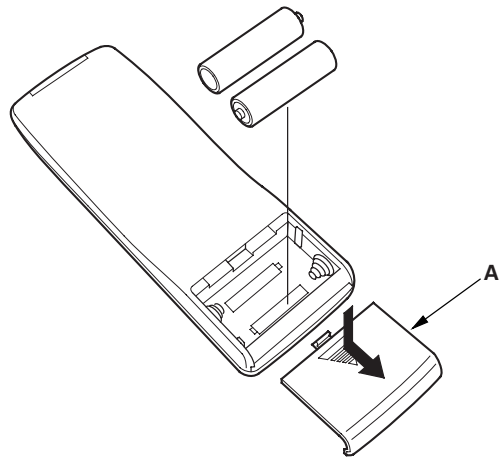
1. Remove the left rear side trim panel (see page 20-60).
2. Disconnect the 14P connector (A) from the auxiliary jack assembly (B).



3. Carefully pry the auxiliary jack assembly out of the left rear side trim panel.
4. Install in the reverse order of removal.

Wireless Remote Control Battery Replacement

1. Remove the cover (A) from the remote control.



2. Remove the batteries (B).

   Replacement Battery Size: AA

3. Confirm that each operation works normally after the batteries are replaced.

Navigation System

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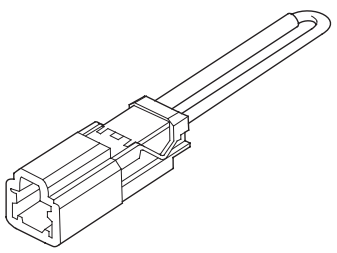
Navigation System

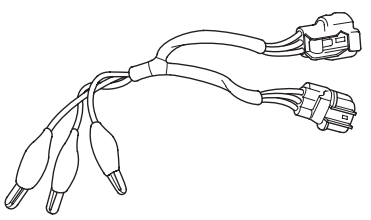
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07PAZ-0010100	SCS Service Connector	1
②	07LAJ-PT3020A	Test Harness ('00-'01 models)	1

0 1
0 1

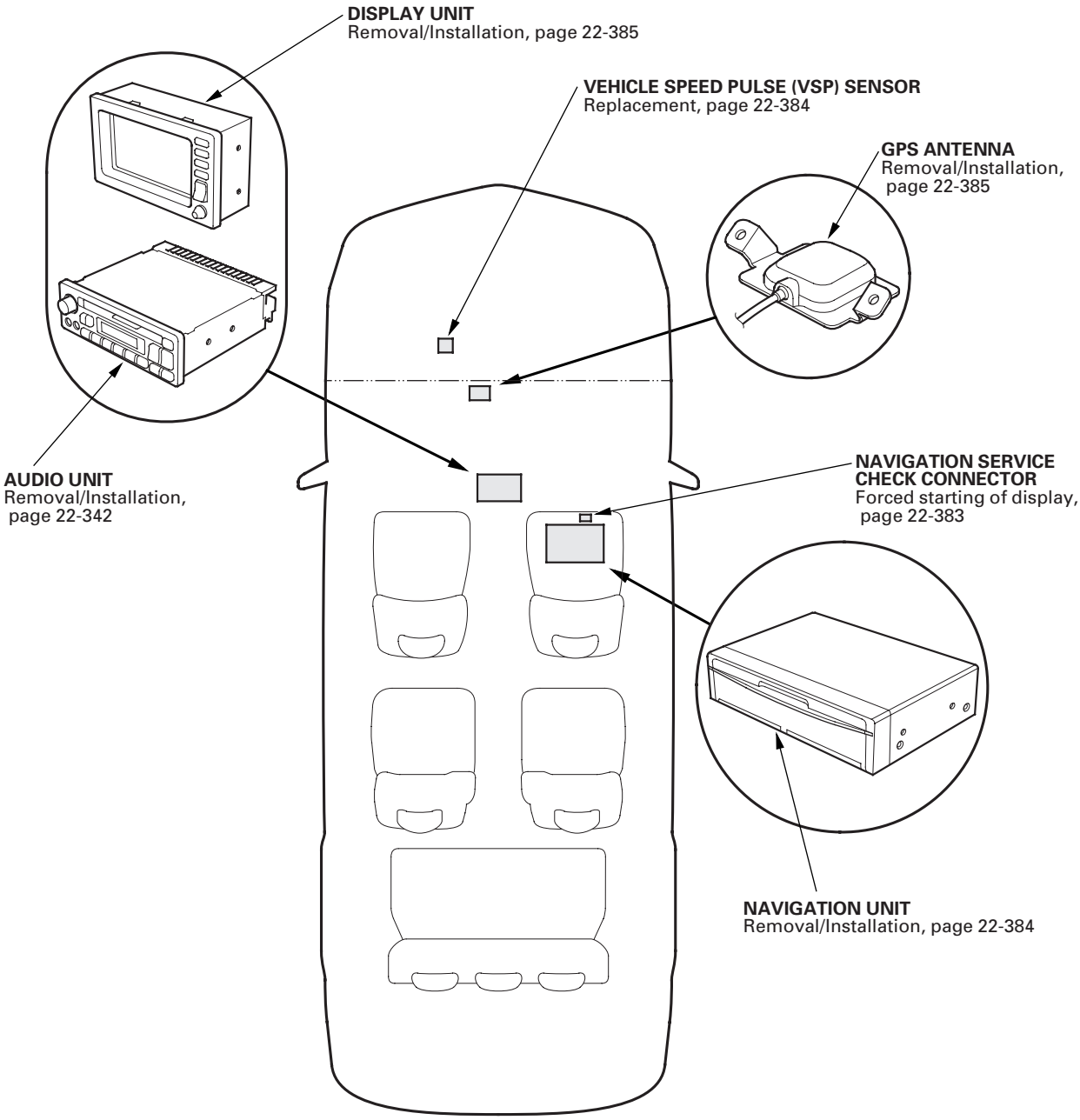


①



②

Component Location Index



General Troubleshooting Information

General Operation

Refer to the Honda Navigation System manual for the navigation system operating procedures.

Anti-theft Feature

The navigation system has a coded theft protection circuit. Be sure to get the customer's 4-digit anti-theft security code number before;

- Disconnecting the battery.
- Disconnecting the navigation unit 8P connector.
- Removing the NAVIGATION (10A) fuse from the passenger's under-dash fuse/relay box.

After service, reconnect power to the navigation unit, and turn the ignition switch ON (II). Enter the 4-digit anti-theft security code, then select ''Done''.

When replacing the navigation unit, be sure to give the customer the new anti-theft security code.

Symptom Diagnosis

Certain circumstances and system limitations will result in occasional vehicle positioning errors. Some customers may think this indicates a problem with the navigation system when, in fact, the system is normal. Keep the following items in mind when interviewing customers about symptoms of the navigation system.

Self-Inertial Navigation Limitations

The limitations of the self-inertial portion of the navigation system (the yaw rate sensor and the vehicle speed signal) can cause some discripancies between the vehicle's actual position and the indicated vehicle position (GPS vehicle position). However, if GPS signals cannot be received, you must tune the vehicle position manually.

The following circumstances may cause vehicle positioning errors:

- Moving the vehicle with the navigation system on the vehicle stopped, such as by ferry or tow truck, or if the vehicle is spun on a turn table.
- Tire slippage, changes in tire rolling diameters, and some driving situations may cause discrepancies in travel distances. Examples of this include:
  – Continuous tire slippage on a slippery surface.
  – Driving with snow chains mounted.
  – Abnormal tire pressure.
  – Incorrect tire size.
  – Frequent lane changes across a wide highway.
  – Continuous driving on a straight or gently curving highway.
- Tolerances in the system and map inaccuracies sometimes limit how precisely the vehicle position is indicated. Examples of this include:
  – Driving on roads not shown on the map (map matching is not possible).
  – Driving on a road that winds in one direction, such as a loop bridge, an interchange, or a spiral parking garage.
  – Driving on a road with a series of sharp hair-pin turns.
  – Driving near a gradual highway exit or transition.
  – Driving on one of two close parallel roads.
  – Making many 90 degree turns.

Global Positioning System (GPS) Limitations

The GPS cannot detect the vehicle's position during the following instances:

- For the first 5 to 10 minutes after reconnecting the battery.
- When the satellite signals are blocked by tall buildings, mountains, tunnels, large trees, or large trucks.
- When the GPS antenna is blocked by something on the dashboard.
- When there is no satellite signal output (signal output is sometimes stopped for satellite servicing).
- When the satellite signals are blocked by the operation of some electronic after-market accessories.

The accuracy of GPS is reduced during these instances:

- When only two satellite signals can be received (Three satellite signals are required for accurate positioning).
- When the satellite control centers are experiencing problems.
- When driving near high tension power lines.

LCD Display Unit Limitations

- In cold temperatures, the display may stay dark for the first 2 or 3 minutes until it warms up.
- When the display is too hot because of direct summer sunlight, it will remain dark until the temperature drops.
- When the humidity is high and the interior temperature is low, the display may appear cloudy. The display will clear up after some use.
- Fingerprints on the touch panel may sometimes be noticeable because of the panel's low-reflection coating. When cleaning the panel, wipe it gently with a soft cloth. To avoid scratching the panel, do not rub too hard.
- The touch panel is an infrared system, so there is no need to press hard. If a touch switch does not function immediately, shift your finger slightly on the switch, and touch it again.

Symptom Duplication

- When the symptom can be duplicated, follow the self-diagnostic procedures (picture diagnosis mode) and the appropriate troubleshooting procedures.
- When the symptom does not reappear or only reappears intermittently, ask the customer about the conditions when the symptom occured.
  - Try to establish if outside interference may have been the cause.
  - Try to duplicate the symptom under the same conditions the customer was experiencing.
  - Vibration, temperature extremes, and moisture (dew, humidity) are factors that are difficult to duplicate.
  - Inspect the vehicle for after-market electronic devices (vehicle locators, amp, radar detectors, etc) that may be hidden.

Service Precautions

- Before disconnecting the battery, make sure you have the anti-theft codes for the radio and the navigation system, and write down the frequencies for the radio's preset buttons.
- When the battery is disconnected, the clock is reset to ''0:00''. The clock will reset to the correct time after the system receives the GPS satellite signals.
- After reconnecting the battery, you have to wait to get the initial signal from the satellite. It will take about 10 minutes.
- Before returning the vehicle to the customer, enter the radio anti-theft code, then enter the customer's radio station presents.

NOTE: If the anti-theft code is incorrectly entered three times, the vehicle will need to be left outside away from tall buildings, trees, etc, with the engine running for one hour before the correct code can be entered again.

After Servicing Procedures-Map Matching

- Park the vehicle in an area where the GPS satellite signals will be unobstructed, and check the satellite mark on the display.
- Drive the vehicle 1 mile before entering a destination and confirm the road being used is displayed at the bottom of the screen (map matched).
- Enter the dealer address and confirm the system routes and performs normally.
- Clear any previous destinations that may have been entered for testing purposes.

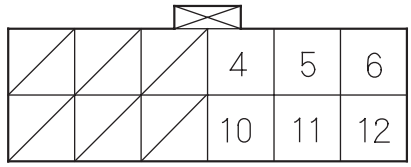
Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
No picture is shown on the display	Troubleshooting (see page 22-366)	
Picture is missing a color or tone	Troubleshooting (see page 22-367)	
Display unit buttons do not work	Troubleshooting (see page 22-368)	
Satellite mark in the icon is not indicated	Troubleshooting (see page 22-369)	Electronic after market accessories
Audio driving instructions cannot be heard	Troubleshooting (see page 22-370)	Vehicle position wanders on the map (see page 22-373)
Vehicle position wanders on the map	Troubleshooting (see page 22-373)	Satellite mark in the GPS icon is not indicated (see page 22-369)
Rearview camera image missing, or briefly displays but then disappears ('03-04 Models Only)	Go to system Diagnosis Test (see page 22-376), and check that the rear camera setting is ''ON'' (see page 22-377)	Rear camera Owner's Manual or accessory installation instructions for more details

System Description

Navigation Unit Inputs and Outputs for Connector A (12P)

NAVIGATION UNIT CONNECTOR A (12P)



Wire side of female terminals

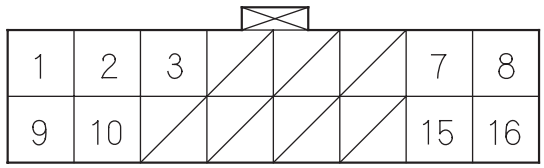
Terminal number	Wire color	Terminal	Terminal name	Description
4	WHT	R SIG	Red signal	Red color signal
5	RED	G SIG	Green signal	Green color signal
6	BRN/BLK	SH SIG	Shield signal	Shield for terminal No. 4, 5, 10, 11, 12
10	YEL	B SIG	Blue signal	Blue color signal
11	GRN	C SIG	Composite signal	Composite video (vertical/horizontal) synchronizing signal
12	BLU	GND SIG	Ground signal	Ground for color signal

(cont'd)

System Description (cont'd)

Navigation Unit Inputs and Outputs for Connector B (16P)

NAVIGATION UNIT CONNECTOR B (16P)

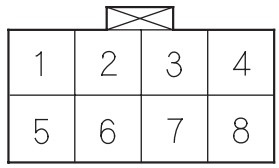


Wire side of female terminals

Terminal number	Wire color	Terminal	Terminal name	Description
1	BLU/GRN	RG R+	Route guidance right positive	Right audio signal of voice guidance
2	BRN/WHT	SH RG	Shield route guidance	Shield for terminal No. 1, 9, 10
3	WHT/BLK	MUTE	Mute	Audio mute signal
7	BLU/GRN	DISP BUS (+)	Display bus positive	Data bus (+)
8	RED/BLK	ILL+	Illumination positive	Parking light ON signal
9	ORN/BLU	RG L+	Route guidance left positive	Left audio signal of voice guidance
10	ORN	GND RG	Ground route guidance	Ground for voice guidance signal
15	ORN/BLU	DISP BUS (−)	Display bus negative	Data bus (−)
16	LT BLU	SH DISP BUS	Shield display bus	Shield for terminal No. 7, 15

Navigation Unit Inputs and Outputs for Connector C (8P)

NAVIGATION UNIT CONNECTOR C (8P)

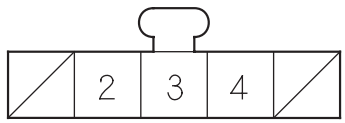


Wire side of female terminals

Terminal number	Wire color	Terminal	Terminal name	Description
1	WHT/BLU	+B	+B power source	Countinuous power source
2	WHT/RED	ACC	Accessory	Power source for accessory
3	WHT/BLU	CHG	Charge	Engine ON signal
4	BLK	GND	Ground	Ground for navigation unit
5	GRN/BLK	BACK LT	Back light	Reverse signal of select lever
6	BLU/WHT	VSP	Vehicle speed pulse	Vehicle speed pulse signal
7	GRN/RED	DIAG P	Diagnosis positive	Service check signal for navigation system
8	BLU/GRN	DIAG N	Diagnosis negative	Ground for service check signal

Display Unit Inputs and Outputs for Connector A (5P)

DISPLAY UNIT CONNECTOR A (5P)



Wire side of female terminals

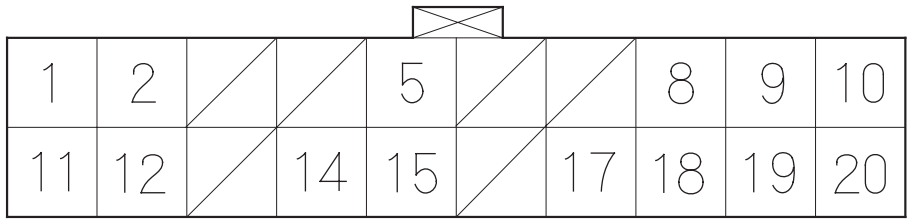
Terminal number	Wire color	Terminal	Terminal name	Description
2	YEL/BLU	CLK2	Clock 2	Air conditioning control unit synchronizing signal
3	GRN/ORN	ACI	Air conditioner in	Communication circuit with climate control unit
4	RED/GRN	ACO	Air conditioner out	

(cont'd)

System Description (cont'd)

Display Unit Inputs and Outputs for Connector B (20P)

DISPLAY UNIT CONNECTOR B (20P)



Wire side of female terminals

Terminal number	Wire color	Terminal	Terminal name	Description
1	WHT/BLU	＋B	＋B power source	Continuous power source
2	WHT/RED	ACC	Accessory	Power source for accessory
5	BLU/GRN	DISP BUS (＋)	Display bus positive	Data bus (＋)
8	WHT	R SIG	Red signal	Red color signal
9	RED	G SIG	Green signal	Green color signal
10	BLK	GND	Ground	Ground for display unit
11	RED/BLK	ILL＋	Illumination positive	Parking light ON signal
12	RED	ILL－	Illumination negative	Parking light ON signal
14	LT BLU	SH DISP BUS	Shield display bus	Shield for display bus
15	ORN/BLU	DISP BUS (－)	Display bus negative	Data bus (－)
17	BLU	GND SIG	Ground signal	Ground for color signal
18	YEL	B SIG	Blue signal	Blue color signal
19	GRN	C SIG	Composite signal	Composite video (vertical/horizontal) synchronizing signal
20	BRN/BLK	SH SIG	Shield signal	Shield for terminal No. 8, 9, 17, 18, 19

Overview

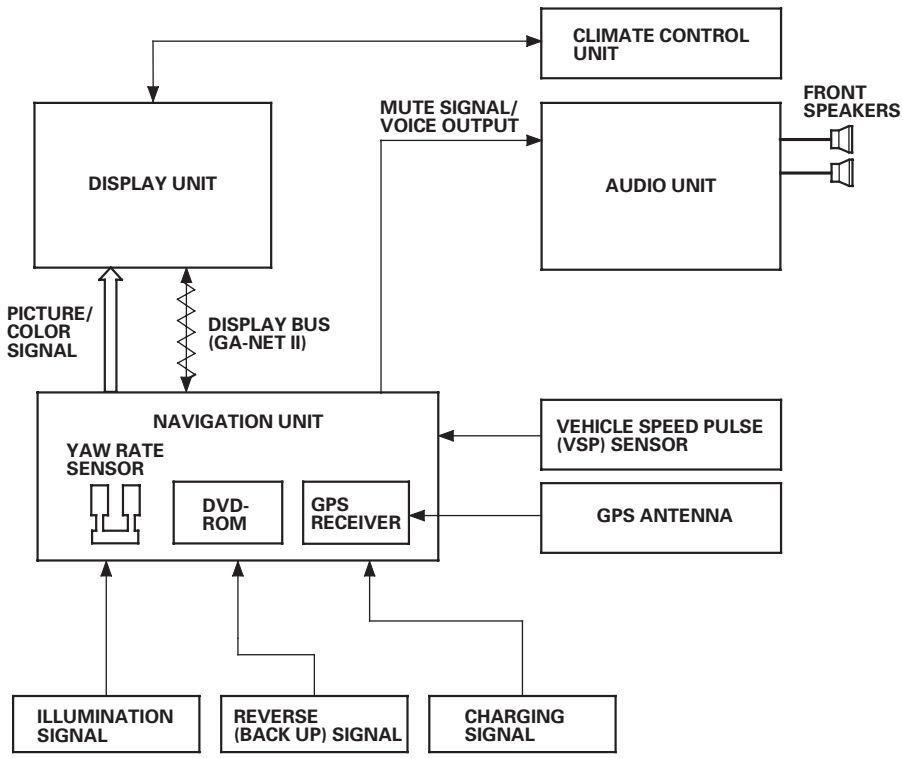
The Honda Navigation System is a highly-sophisticated, hybrid locating system that uses satellites and a map database to show you where you are and to help guide you to a desired destination.

The navigation system receives signals from the global positioning system (GPS), a network of 24 satellites in orbit around the earth. By receiving signals from serveral of these satellites, the navigation system can determine the latitude and longitude of the vehicle. In addition, signals from the system's yaw rate sensor and the vehicle speed pulse (VSP) sensor enable the system to keep track of the vehicle's direction and speed of travel.

This hybrid system has advantages over a system that is either entirely self-contained or one that relies totally on the GPS. For example, the self-contained portion of the system can keep track of vehicle position even when satellite signals cannot be received, and the GPS can keep track of the vehicle position even when the vehicle is transported by ferry.

The navigation system applies all this location, direction, and speed information to the maps and calculates a route to the destination entered. As you drive to that destination, the system provides both visual and audio guidance.

System Diagram



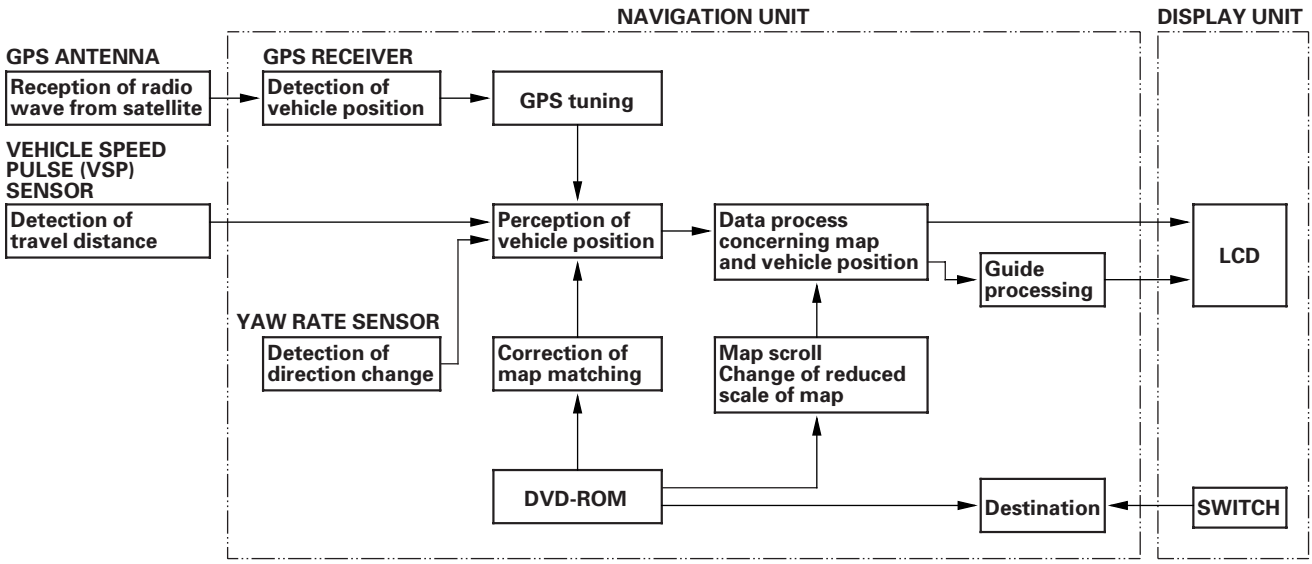
(cont'd)

System Description (cont'd)

Navigation Function

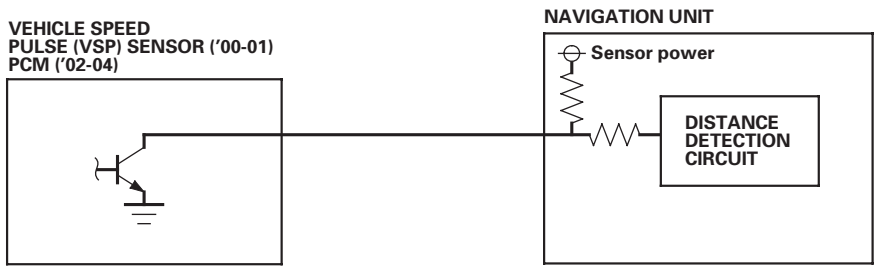
The navigation system is composed of the navigation unit, the vehicle speed pulse (VSP) sensor, the GPS antenna, and the display unit.

Function Diagram



Vehicle Speed Pulse (VSP) Sensor

The vehicle speed pulse (VSP) sensor is driven by the differential gear ('00-01) or the PCM ('02-04). For every revolution of the wheel, a four-pulse signal is sent to the navigation unit. The VSP outputs the distance signal by turning the navigation unit's sensor power on and off.



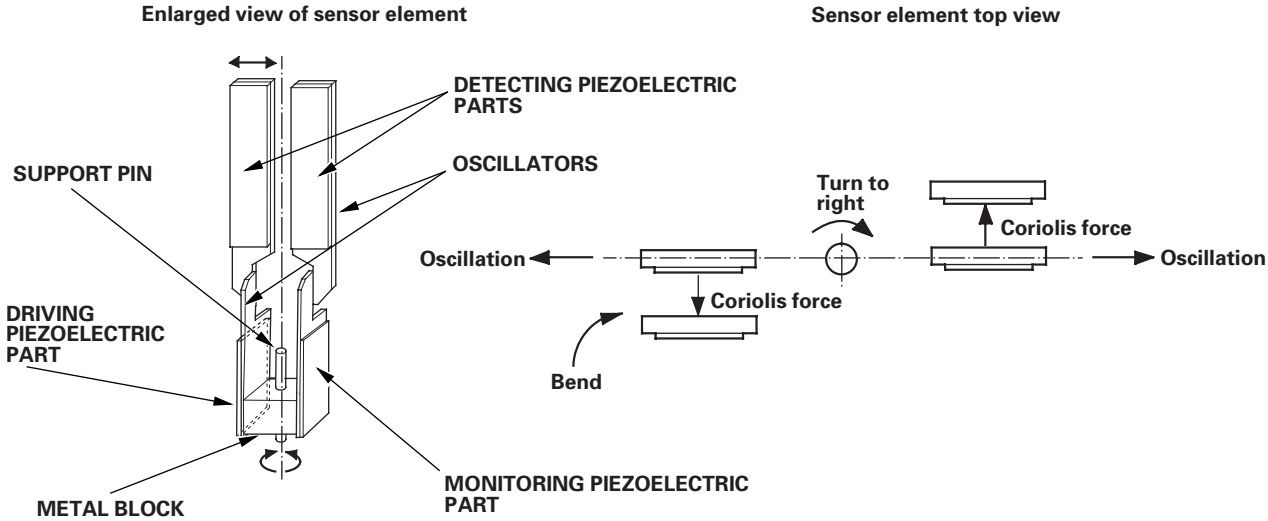
Yaw Rate Sensor
The yaw rate sensor detects the direction change (angular speed) of the vehicle. The sensor is an oscillation gyro built into the navigation unit.

Sensor Element Structure
The sensor element is shaped like a tuning fork, and it consists of the piezoelectric parts, the metal block, and the support pin. There are four piezoelectric parts: one to drive the oscillators, one to monitor and maintain the oscillation at a regular frequency, and two to detect angular velocity. The two oscillators, which have a 90 degree twist in the center, are connected at the bottom by the metal block, and supported by the support pin. A detection piezoelectric part is attached to the top of each oscillator. The driving piezoelectric part is attached to the bottom of one oscillator, and the monitoring piezoelectric part is attached to the bottom of the other oscillator.

Oscillation Gyro Principles
The piezoelectric parts have ''electric/mechanical transfer characteristics.'' They bend vertically when voltage is applied to both sides of the parts, and voltage is generated between both sides of the piezoelectoric parts when they are bent by an external force. The oscillation gyro fuctions by utilizing this characteristic of the piezoelectric parts and ''Coriolis force.'' (Coriolis force deflects moving objects as a result of the earth's rotation.) In the oscillation gyro, this force moves the sensor element when angular velocity is applied.

Operation

1. The driving piezoelectric part oscillates the oscillator by repeatedly bending and returning when an AC voltage at 6 kHz is applied to the part. The monitoring-side oscillator resonates because it is connected to the driving-side oscillator by the metal block.
2. The monitoring piezoelectric part bend in proportion to the oscillation and outputs voltage (the monitor signal). The navigation unit control circuit controls the drive signal to stabilize the monitor signal.
3. When the vehicle is stopped, the detecting piezoelectric parts oscillate right and left with the oscillators, but no signal is output because the parts are not bent (no angular force).
4. When the vehicle turns to the right, the sensor element moves in a circular motion with the right oscillator bending forward and the left oscillator bending rearward. The amount of forward/rearward bend varies according to the angular velocity of the vehicle.
5. The detecting piezoelectric parts output voltage (the yaw rate signal) according to the amount of bend. The amount of vehicle direction change is determined by measuring this voltage.

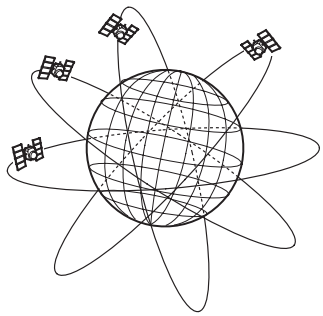


(cont'd)

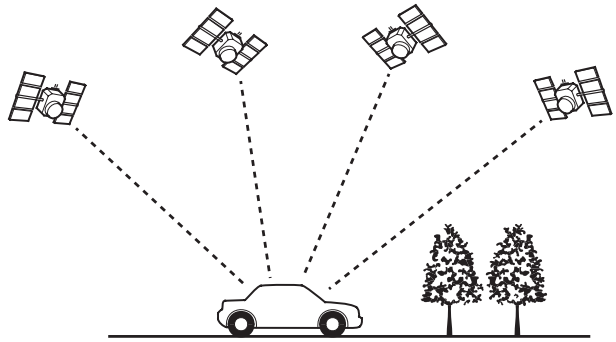
System Description (cont'd)

Global Positioning System (GPS)
The global positioning system (GPS) enables the navigation system to determine the current position of the vehicle by utilizing the electronic waves transmitted from the satellites in orbit around the earth. The satellites transmit the satellite identification signal, orbit information, transmission time signal, and other information. When the GPS receiver receives the electronic waves from three or more satellites simultaneously, it calculates the current position of the vehicle based on the distance to each satellite and the satellite positions on their respective orbits.

Position detection Image with GPS satellite



NOTE: Four satellites on each of six orbits.



Precision of GPS
The precision of the GPS varies according to the number of satellites from which electronic waves are received and the control condition. The precision is indicated by the GPS mark shown on the upper left of the display.

GPS ICON	No.of SATELLITES	CONDITION	DESCRIPTION
No satellite mark →	Two or less	Impossible to detect vehicle position	The GPS function is normal. The satellite electronic waves received by the GPS receiver are too few to determine the vehicle position.
Yellow satellite mark →	Three	Vehicle position detectable in two dimensions	The longitude and latitude of the vehicle position can be determined. (Less precise than detection in three dimensions)
Green satellite mark →	Four or more	Vehicle position detectable in three dimensions	The longitude, latitude and the altitude of the vehicle position can be determined. (More precise than detection in two dimensions)
Not indicate	———	Faulty	The GPS can't be utilized due to a faulty GPS receiver, open in the antenna wire, disconnected antenna, or other outside interference.

GPS Antenna
The GPS antenna amplifies and transmits the electronic waves received from the satellites, to the GPS receiver.

GPS Receiver
The GPS receiver is built into the navigation unit. It calculates the vehicle position by receiving the signal from the GPS antenna. The vehicle position and signal reception condition is transmitted from the GPS receiver to the navigation control unit to adjust the vehicle position.

Navigation Unit
The navigation unit calculates the vehicle position and guides you to the destination. The unit performs map matching correction, GPS correction, and distance tuning. It also controls the menu functions and the DVD-ROM drive. With control of all these items, the navigation unit makes the navigation picture signal, then it transmits the signal to the display unit and audio driving instructions to the audio unit.

Calculation of Vehicle Position
The navigation unit calculates the vehicle position (the driving direction and the current position) by receiving the directional change signals from the yaw rate sensor and the travel distance signals from the vehicle speed pulse (VSP) sensor.

Map Matching Tuning
The map matching tuning is accomplished by indicating the vehicle position on the roads on the map. The map data transmitted from the DVD-ROM is checked against the vehicle position data, and the vehicle position is indicated on the nearest road. Map matching tuning does not occur when the vehicle travels on a road not shown on the map, or when the vehicle position is far away from a road on the map.

GPS Tuning
The GPS tuning is accomplished by indicating the vehicle position as the GPS's vehicle position. The navigation unit compares its calculated vehicle position data with the GPS vehicle position data. If there is a large difference between the two, the indicated vehicle position is adjusted to the GPS vehicle position.

Distance Tuning
The distance tuning reduces the difference between the travel distance signal from the VSP and the distance data on the map. The navigation unit compares its calculated vehicle position data with the GPS vehicle position data. The navigation unit then decreases the tuning value when the vehicle position is always ahead of the GPS vehicle position, and it increases the tuning value when the vehicle position is always behind the GPS vehicle position.

Route Guidance
The navigation unit can calculate different routes to a selected destination. You have four options:
- Direct Route — Calculate a route that is the most direct and will take the least time.
- Easy Route — Calcute a route that minimizes the number of turns needed.
- Minimize Freeways — Calculate a route that avoids freeway travel. If that is not possible, keep the amount of freeway travel to a minimum.
- Mimimize Toll Roads — Calculate a route that avoids, or minimizes travel on toll roads.

Audio Guidance
The navigation unit transmits audio driving instructions before entering an intersection or passing a junction. The audio instructions come through the audio unit and the front speakers.

DVD-ROM
The map data (including all scale rates) is stored in the DVD-ROM. The map data includes:
- Road distances, road widths, speed limits, traffic regulations, passing time at junction, distances to junctions, and the driving instructions for audio guidance.
- Latitude and longitude GPS.

(cont'd)

System Description (cont'd)

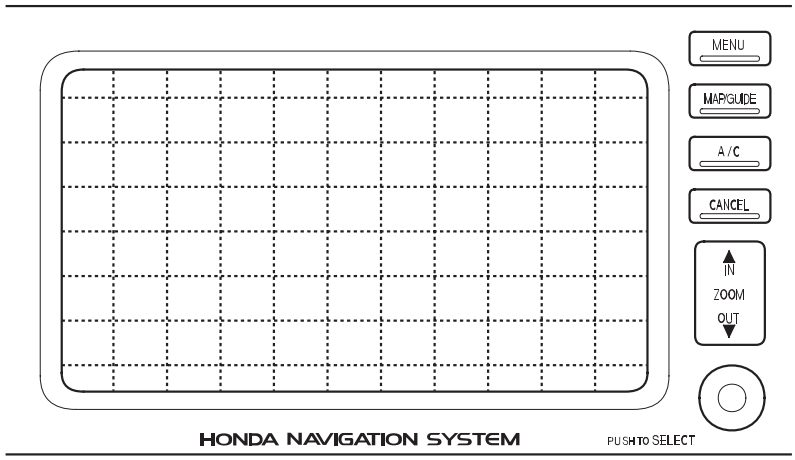
Glossory
The following is a glossary of terms used pertaining to the Navigation system.

POI	Point of Interest, these are listed under the ''places'' option on the Main Menu.
PIN	Personal identification number, a random number created by the user(s) to protect personal information.
GPS	Global positioning system. A network of 24 communication satellites orbiting the earth.
NAVI	Abbreviation for navigation system.
LCD	Liquid crystal display.
PCM	Powertrain control module.
DCA	Digital coverage area, an area that is covered in the database digital mapping. For example, the 48 continuous United States are within the DCA. Hawaii and Alaska are outside of the DCA.
Detailed Coverage Areas	Major city and metropolitan areas have detailed coverage of streets and addresses.
Outlying Areas	Outlying areas have coverage of major roads and highways only.
VSP	Vehicle speed pulse. A travel distance signal supplied by the PCM.
DATABASE	The data (mapping and address information) stored on the DVD-ROM disc and in the navigation system's control unit.
DVD-ROM	Digital video disk read-only memory.
DIGITIZED ROAD	A road that appears on the navigation digitized map screen.
NON-DIGITIZED ROAD	A road that DOES NOT appears on the navigation digitized map screen.
Map Matched (ing)	The navigation system has matched the car to a digitized road segment which is represented when the name of the current road being driven on is indicated in the bottom of the screen in the blue shaded area.

Audio Unit
The audio unit receives the audio driving instructions from the navigation unit and transmits the instructions through the front speakers even when the audio system is in use.

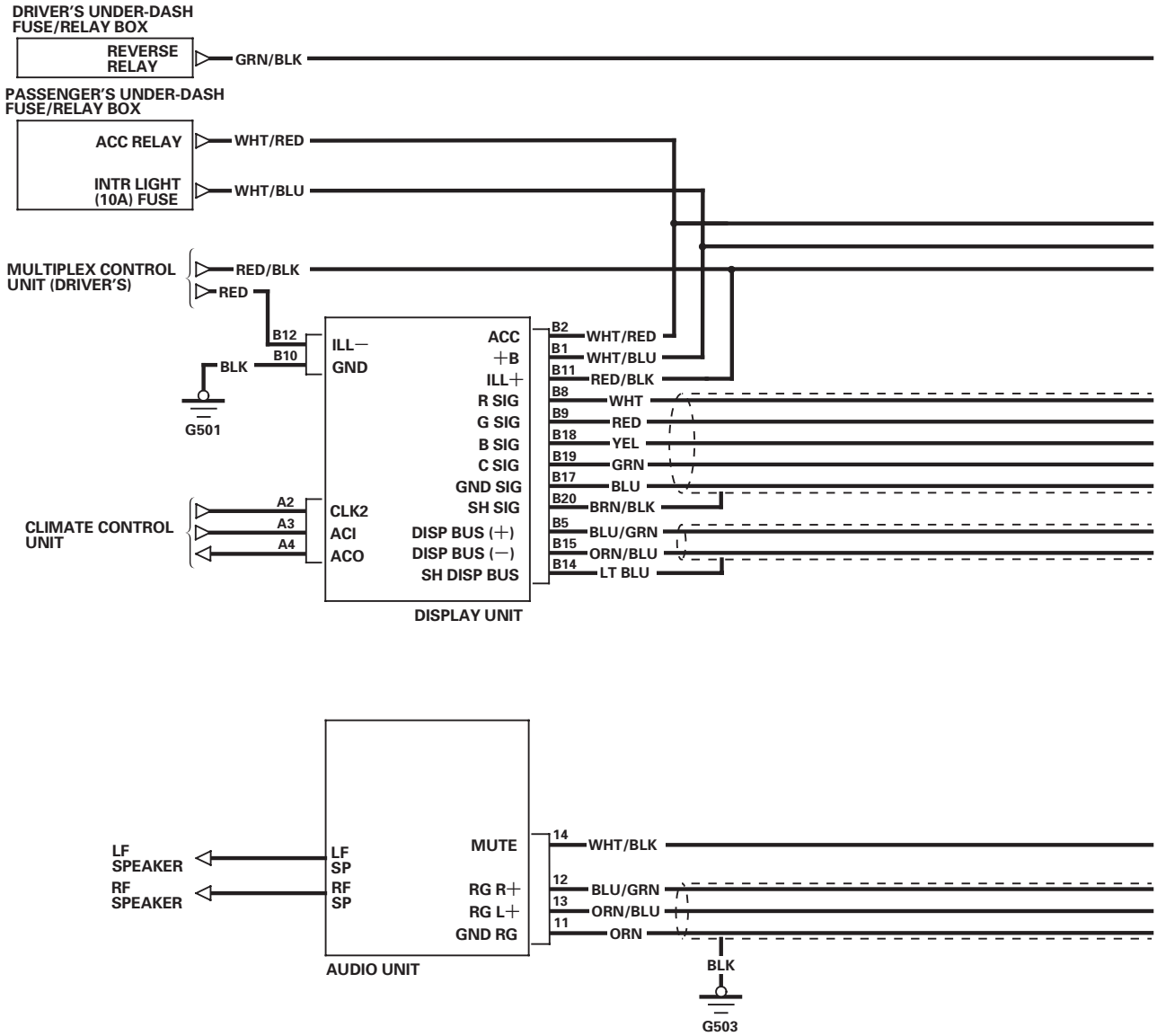
Display Unit
The display unit uses liquid crystal display (LCD). The LCD is a 6-inch-wide, thin film transistor (TFT), stripe type with 280,800 picture elements, The color film and fluorescent light are laid out on the back of the liquid crystal film. The touch sensor on the front of the LCD is an infrared type with 10 vertical and 7 horizontal infrared rays to produce 70 sensing points. The display unit transmits the signal from each operation key and the touch switches to the navigation unit.

Infrared Rays

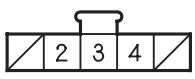


- - - - : **Infrared for touch switch**

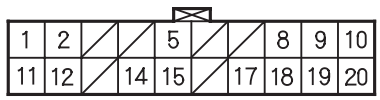
Circuit Diagram



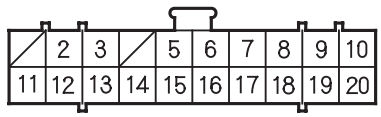
DISPLAY UNIT CONNECTOR A (5P)



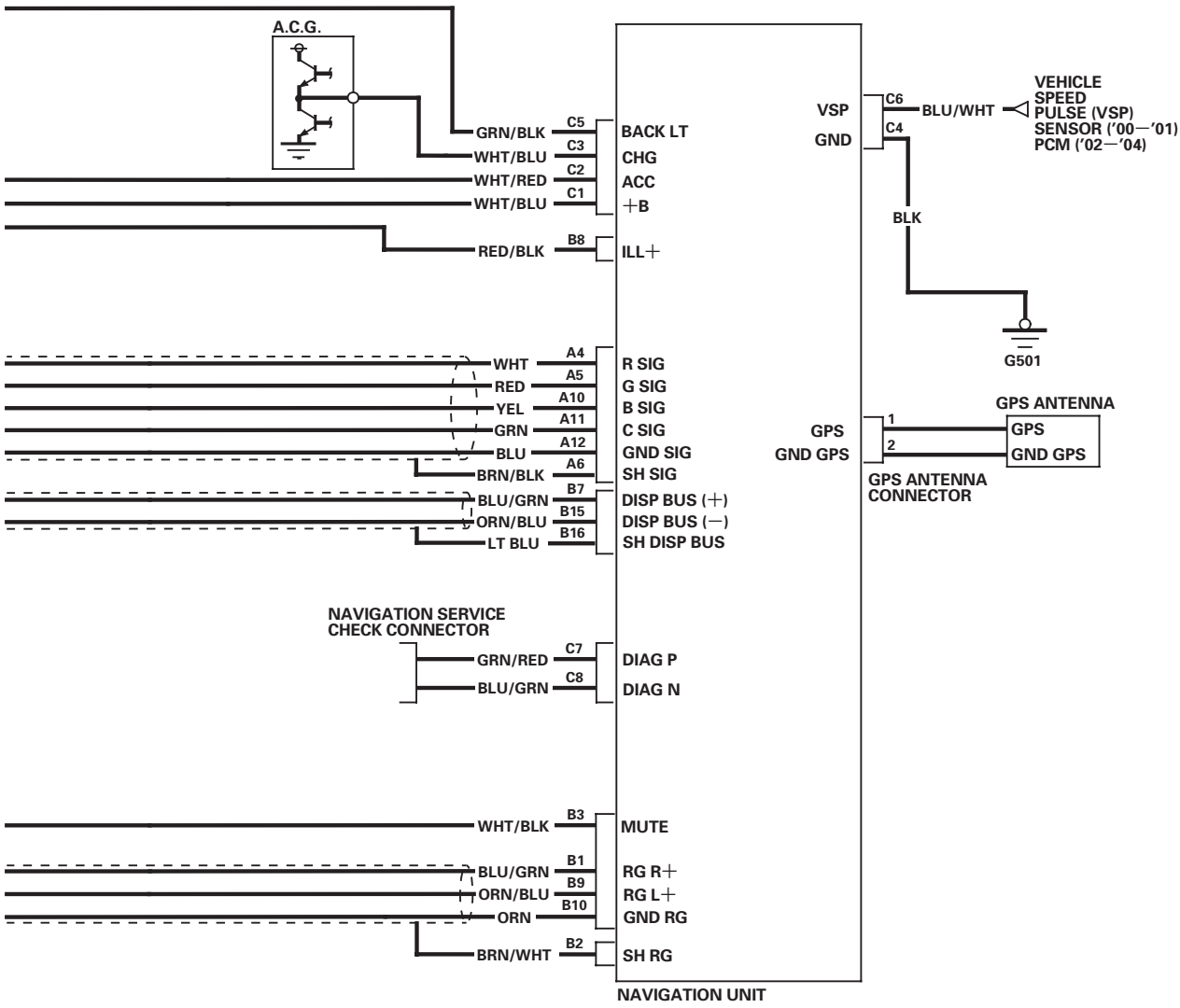
DISPLAY UNIT CONNECTOR B (20P)



AUDIO UNIT CONNECTOR



Wire side of female terminals



NAVIGATION UNIT CONNECTORS

CONNECTOR A (12P)

			4	5	6
			10	11	12

CONNECTOR B (16P)

1	2	3				7	8
9	10					15	16

CONNECTOR C (8P)

1	2	3	4
5	6	7	8

GPS ANTENNA CONNECTOR

1	2

NAVIGATION SERVICE CHECK CONNECTOR

1	2

Wire side of female terminals

Symptom Troubleshooting

Special Tools Required
Test harness 07LAJ-PT3020A

No picture is shown on the display

1. Check the NAVIGATION (10A) fuse in the passenger's under-dash fuse relay box, and reinstall the fuse if it is OK.

   Is the fuse OK?

   YES — Go to step 2.

   NO — Replace the fuse and recheck. ■

2. Turn the ignition switch to ACC (I).

3. Operate the radio and listen to the audio.

   Can audio be heard?

   YES — Go to step 4.

   NO — Check the ACC circuit. ■

4. Turn the ignition switch ON (II).

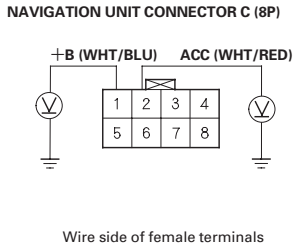
5. Perform the forced starting of display (see page 22-383).

   Is the diagnosis menu of the picture diagnosis displayed?

   YES — Perform the System Links Test in the Picture Diagnosis Test menu (see page 22-376). ■

   NO — Go to step 6.

6. Measure the voltage between body ground and navigation unit connector C (8P) terminals No. 1 and No. 2 individually.

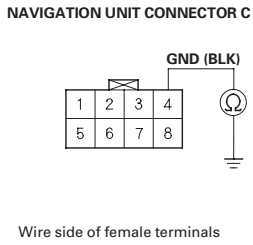


   Is there battery voltage?

   YES — Go to step 7.

   NO — Repair open in the wire between the passenger's under-dash fuse/relay box and the navigation unit. ■

7. Check for continuity between navigation unit connector C (8P) terminal No. 4 and body ground.



   Is there continuity?

   YES — Go to step 8.

   NO — Repair open in the wire between the navigation unit and body ground (G501). ■

8. Turn the ignition switch OFF.

9. Shield the display unit from the sun with your hand, and check that the display is black (only back light is ON.)

   Can you see the back light?

   YES — Replace the navigation unit. ■

   NO — Replace the display unit. ■

Picture is missing a color or tone

1. Perform the start-up procedure (see page 22-376). Press the Monitor Check button then press the RGB color button (see page 22-378).

   Are the red, green, and blue colored circles shown?

   YES—Push the return button. Push the Color Change button, and then press the Default button to restore the standard color settings. ■

   NO—Go to step 2.

2. Turn the ignition switch OFF. Disconnect the navigation unit connector A (12P) from the navigation unit, and the display unit connector B (20P) from the display unit.

3. Check for loose termnals at the navigation unit connector A (12P) and the display unit connector B (20P).

   Are there loose terminals?

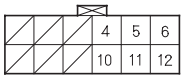
   YES—Repair the terminal. ■

   NO—Go to step 4.

4. Check for continuity between the appropriate terminals of the navigation unit connector A (12P) to the display unit connector B (20P) based on the missing color(s).

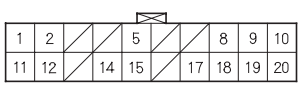
Missing color	Navigation unit connector A (12P)	Display unit connector B (20P)	Wire color
Blue	A10	B18	YEL
Green	A5	B9	RED
Red	A4	B8	WHT

NAVIGATION UNIT CONNECTOR A (12P)



Wire side of female terminals

DISPLAY UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there continuity?

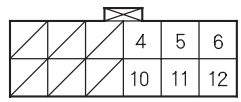
YES—Go to step 5.

NO—There is an open in the circuit between the display unit and the navigation unit. Replace the affected shielded harness. ■

5. Check for continuity between the appropriate terminals of the navigation unit connector A (12P) and display unit connector B (20P) based on the missing color(s).

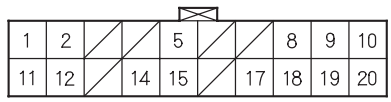
Missing color	Navigation unit connector A (12P) Display unit connector B (20P)	Display unit connector B (20P) Wire color
Blue	B10	B10, B20
Green	A5	B10, B20
Red	A4	B10, B20

NAVIGATION UNIT CONNECTOR A (12P)



Wire side of female terminals

DISPLAY UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there continuity?

YES—There is a short to body ground in the circuit between the display unit and the navigation unit. Replace the affected shielded harness. ■

NO—Replace the navigation unit. If the problem is still unresolved, replace the display unit. ■

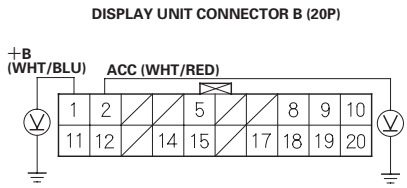
Symptom Troubleshooting (cont'd)

Display unit buttons do not work

NOTE:
- Always check the connectors for poor connections or loose terminals.
- Before troubleshooting, get the navigation system anti-theft codes.
- After troubleshooting, enter the navigation system anti-theft codes.

1. Turn the ignition switch to ACC (I).

2. Measure the voltage betwen body ground and display unit connector B (20P) terminals No. 1 and No. 2 individually.



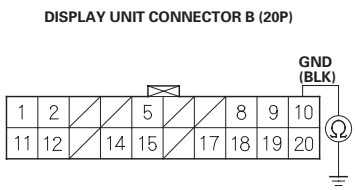
Wire side of female terminals

Is there battery voltage?

YES — Go to step 3.

NO — Repair open in the wire between the passenger's under-dash fuse/relay box and the display unit. ■

3. Check for continuity between display unit connector B (20P) terminal No. 10 and body ground.



Wire side of female terminals

Is there continuity?

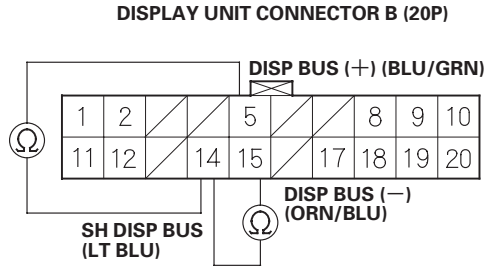
YES — Go to step 4.

NO — Repair the open in the wire between the display unit and body ground (G501). ■

4. Turn the ignition switch OFF.

5. Disconnect the navigation unit and display unit connectors.

6. Check for continuity between the display unit connector B (20P) terminal No. 14 (for the harness) shield and terminals No. 5 and No. 15 (for the DISP BUS) individually.



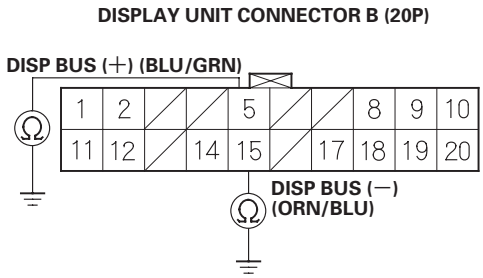
Wire side of female terminals

Is there continuity?

YES — Replace the affected shielded harness. ■

NO — Go to step 7.

7. Check for continuity between body ground and display unit connector B (20P) terminals No. 5 and No. 15 individually.



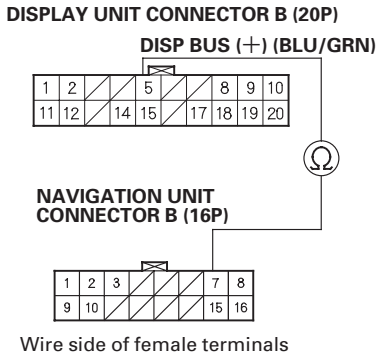
Wire side of female terminals

Is there continuity?

YES — There is a short to body ground in the circuit between the display unit and the navigation unit. Replace the affected shielded harness. ■

NO — Go to step 8.

8. Check for continuity between display unit connector B (20P) terminal No. 5 and navigation unit connector B (16P) terminal No. 7.

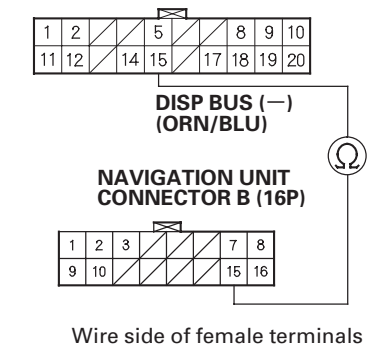


Is there continuity?

YES—Go to step 9.

NO—There is an open in the circuit between the display unit and the navigation unit. Replace the affected shielded harness. ■

9. Check for continuity between display unit connector B (20P) terminal No. 15 and navigation unit 16P connector B (16P) terminal No. 15.



Is there continuity?

YES—Replace the display unit. ■

NO—There is an open in the wire between the display unit and the navigation unit. Check for poor connections or loose terminals at the display and navigation units. If a poor connection or loose terminal is found, replace the affected shielded harness. ■

Satellite mark in the GPS icon is not indicated

NOTE: Make sure the vehicle is parked outside and away from buildings.

1. Check for electronic after market accessories (possibly hidden) mounted near the GPS antenna or the navigation unit.

   Are there any electronic accessories?

   YES—Disable the accessories and recheck. ■

   NO—Go to step 2.

2. Perform the ''System Links'' check in the System Diagnosis Menu (see page 22-376).

   Is ''NG'' indicated for ANT or GPS?

   YES—Check for a kinked, crushed, or disconnected GPS antenna wire. If necessary, try a known-good GPS antenna. If ''NG'' is still indicated, replace the navigation unit. ■

   NO—Check that nothing is blocking the GPS antenna located under the dash board and recheck. Substitute a known-good navigation unit, and recheck. ■

Symptom Troubleshooting (cont'd)

Audio driving instructions cannot be heard

NOTE:
- Always check the connectors for poor connections or loose terminals.
- Before troubleshooting, write down the customer's radio station presets, and get the radio and navigation system anti-theft codes.
- After troubleshooting, enter the radio and navigation system anti-theft codes, and the radio station presets.

1. Start the engine.
2. Perform the Car Status test under ''Unit Check'' in the System Diagnosis Menu (see page 22-376).

   Is there vehicle speed pulse signal?

   YES—Replace the navigation unit. ■

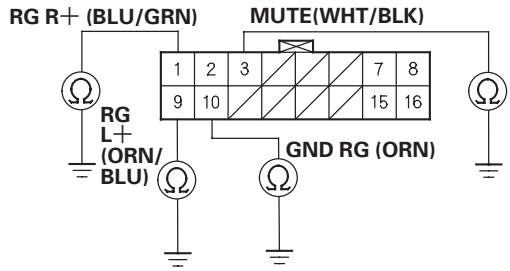
   NO—Go to step 5.
3. Push the display unit MENU key, and select ''set-up''.
4. Check the audio driving instructions volume setting.

   Is it set to OFF?

   YES—Set the volume to an audible level. ■

   NO—Go to step 7.
5. Turn the ignition switch OFF.
6. Disconnect the navigation unit connector B (16P) and the audio unit 20P connectors.
7. Check for continuity between body ground and navigation unit connector B (16P) terminals No. 1, No. 3, No. 9, and No. 10 individually.

NAVIGATION UNIT CONNECTOR B (20P)



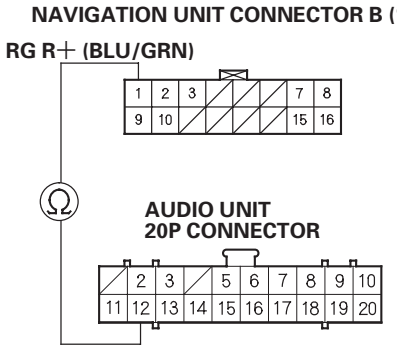
Wire side of female terminals

Is there continuity?

YES—If terminal No. 3 has continuity to ground, repair the short to body ground in the WHT/BLK wire. If terminal No. 1, No. 9, or No. 10 have continuity to ground, repair the affected shielded harness. ■

NO—Go to step 8.

8. Check for continuity between navigation unit connector B (16P) terminal No. 1 and the audio unit 20P connector terminal No. 12.

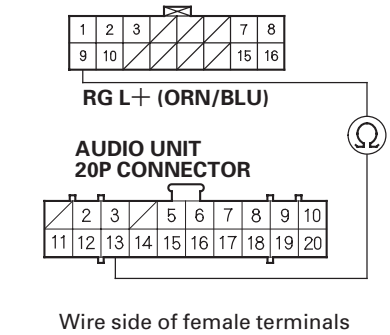


Is there continuity?

YES—Go to step 9.

NO—There is an open in the circuit between the navigation unit and the audio unit. Replace the affected shielded harness. ■

9. Check for continuity between navigation unit connector B (16P) terminal No. 9 and the audio unit 20P connector terminal No. 13.



Is there continuity?

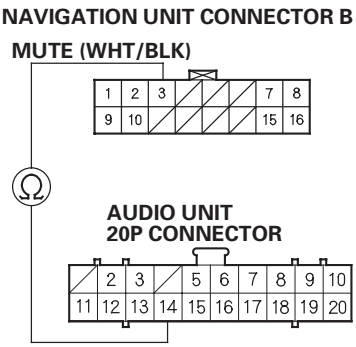
YES—Go to step 10.

NO—There is an open in the circuit between the navigation unit and the audio unit. Replace the affected shielded harness. ■

(cont'd)

Symptom Troubleshooting (cont'd)

10. Check for continuity between navigation unit connector B (16P) terminal No. 3 and the audio unit 20P connector terminal No. 14.

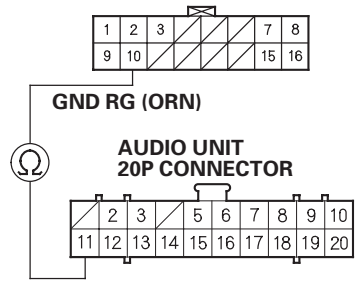


Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the navigation unit and the audio unit. ■

11. Check for continuity between navigation unit connector B (16P) terminal No. 10 and the audio unit 20P connector terminal No. 11.



Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the navigation unit and the audio unit. ■

12. Substitute a known-good audio unit and recheck.

Is the system OK?

YES—Replace the audio unit (see page 22-342). ■

NO—Replace the navigation unit (see page 22-384). ■

Vehicle position wanders on the map

NOTE:
- Always check the connectors for poor connections or loose terminals.
- Before troubleshooting, write down the customer's radio station presets, and get the radio and navigation system anti-theft codes.
- After troubleshooting, enter the radio and navigation system anti-theft codes, and the radio station presets.

Vehicle Speed Pulse (VSP) Check

Before testing, inspect the No. 6 (15A) fuse in the driver's under-dash fuse/relay box.

1. Start the engine.

2. Perform the Car Status test under ''Unit Check'' in the System Diagnosis Menu (see page 22-376).

   Is there vehicle speed pulse signal?

   YES—Replace the navigation unit. ■

   NO—Go to step 3.

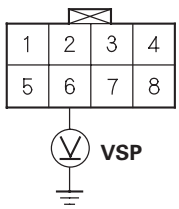
3. Turn the ignition switch OFF.

4. Raise the front of the vehicle, and make sure it is securely supported.

5. Put the vehicle in neutral with the ignition switch ON (II).

6. Measure the voltage between body ground and navigation unit connector C (8P) terminal No. 6.

NAVIGATION UNIT CONNECTOR C (8P)



Wire side of female terminals

7. Slowly rotate one wheel with the other wheel blocked.

   Does voltage pulse from 0 to approx. 5 V?

   YES—Replace the navigation unit. ■

   NO—'02-04 models: Go to step 8.
   '00-01 models: Go to step 9.

8. Check the speedometer and cruise control.

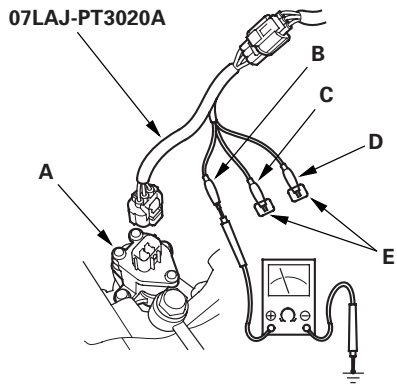
   Does the speedometer and cruise control function normally?

   YES—Repair open or short in the wire between the PCM and the navigation unit. ■

   NO—Troubleshoot the VSS circuit. ■

9. Turn the ignition switch OFF.

10. Disconnect the 3P connector from the vehicle speed pulse (VSP) sensor (A).



11. Connect the test harness only to the engine wire harness.

12. Connect the RED test harness clip (B) to the positive probe of an ohmmeter, and the negative probe to body ground. Cover the white (C) and green (D) test harness with protective tape (E).

(cont'd)

Symptom Troubleshooting (cont'd)

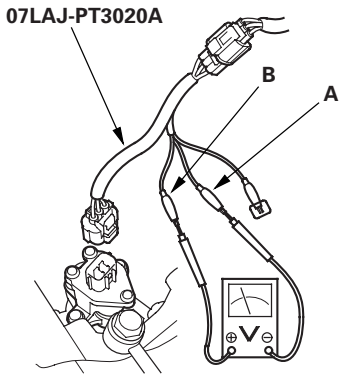
13. Check for continuity between the RED test harness clip and body ground.

    Is there continuity?

    YES—Go to step 14.

    NO—Repair open in the BLK wire between the VSP and G101. ■

14. Connect the WHT test harness clip (A) to the positive probe of a voltmeter, and connect the RED test harness clip (B) to the negative probe.



15. Turn the ignition switch ON (II).

    Is there battery voltage?

    YES—Go to step 16.

    NO—Repair open in the BLK/YEL wire between the VSP and the driver's under-dash fuse/relay box. ■

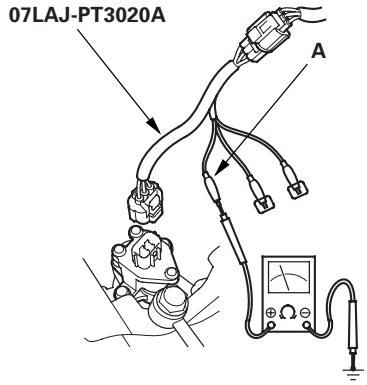
16. Turn the ignition switch OFF.

17. Disconnect the navigation unit connector C (8P) from the navigation unit.

18. Disconnect the WHT and RED test harness clips.

19. Connect the GRN test harness clip (A) to the positive probe of the ohmmeter.

20. Check for continuity between the GRN test harness clip and body ground.



    Is there continuity?

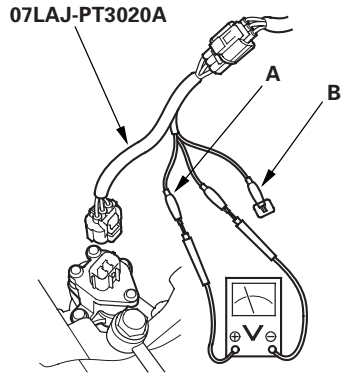
    YES—Repair short in the BLU/WHT wire between the VSP and the navigation unit. ■

    NO—Go to step 21.

21. Reconnect the navigation unit connector C (8P).

22. Turn the ignition switch ON (II).

23. Connect the GRN test harness clip (A) to the positive probe of a voltmeter, and connect the RED test harness clip (B) to negative probe.



    Is there 5 V?

    YES—Replace the VSP. ■

    NO—Repair open in the BLU/WHT wire between the VSP and the navigation unit. ■

Yaw Rate Sensor Check

1. Perform the start-up procedure (see page 22-376).

2. Select yaw rate.

3. The yaw rate offset and sensor should indicate 1.500 to 3.500 V with the vehicle stopped. If either is zero or five volts (0.00 V or 5.00 V), replace the navigation unit.

4. The yaw rate offset and sensor should be within ±0.01 V of each other with the vehicle stopped. The sensor value should change relative to offset as the car is turned while driving. If not, replace the navigation unit.

   Example

   Car stopped:

Normal		**Abnormal**	
Offset	**2.526 V**	**Offset**	**2.526 V**
Sensor	**2.516−2.536 V**	**Sensor**	**2.623 V**

   Car turning:

Normal		**Abnormal**	
Offset	**2.526 V**	**Offset**	**2.526 V**
Sensor	**2.678 V (Right Turn)**	**Sensor**	**2.525 V (no change on turns)**
	2.479 V (Left Turn)		

   NOTE: The next check will need to be done as the vehicle is driven. You may want to save this test until last. Have a helper monitor the screen as the vehicle is driven.

5. Select tuning.

6. Test drive the vehicle on a straight section of highway. While driving the vehicle, monitor the RED ARROW SHAPED ICON on the ''Tuning'' screen. Just under the icon you will see term ''ANG-Disp'' with an angle degree number written under it (for example: −4°).

   The icon will leave a trail of ''BREAD CRUMBS'' as it moves across the screen from left to right. It takes approximately 1/2 mile to cover the screen.

   As you drive the vehicle, the angle degree number should be 0° (±3°). If after 1/2 mile the number exceeds 0° (±3°), replace the navigation unit.

   NOTE: This test relies on the vehicle being driven perfectly straight for 1/2 mile. If this not possible, the results of this test will be false. When possible compare your results to a known-good vehicle.

System Diagnosis Test

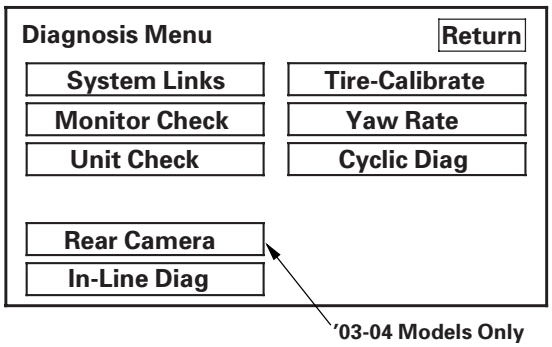
Start-up procedure

1. Turn the ignition switch ON (II), select ''OK'' on the Disclaimer screen then press and hold the buttons in this order: (1) MENU button. (2) MAP/GUIDE button, (3) CANCEL button, and keep them pressed for 5 seconds.

2. After the display changes to the diagnosis menu screen, select the item you want to check, and the check will start. To return to the previous screen, select the ''RETURN'' on the screen.

   - System Links.
   - Tire Calibrate.
   - Monitor Check.
   - Yaw Rate.
   - Unit Check.
   - Cyclic Diag.
   - Rear camera. ('03-04 Models Only)
   - In-line Diag.

DIAGNOSIS MENU SCREEN

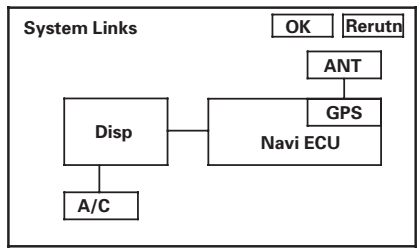


System Links

- During diagnosis, all of the communication lines connecting the components are shown in yellow.
- If the system is OK, all of the communication lines connecting the components will change to green, the screen will indicate ''OK'', and a tone will sound.
- If there is a problem in the system, the faulty communication line will change to red, the screen will indicate ''NG'', and a tone will sound.

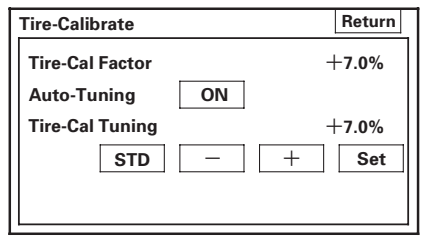
  NOTE: If the A/C link is red, refer to climate control manual switch troubleshooting (see page 21-116).

- The indication on the screen will not change until the ignition switch is cycled. After repairing the system, turn the ignition switch OFF to reset the system, then return to the Diagnosis Menu screen, and run system Links again.



Tire Calibrate

- The ''AUTO TUNING'' is factory-set to ''ON'', and it should remain on. If you find it has been turned OFF, turn it back ON.
- The ''TIRE-CAL TUNING'' should not be used. The AUTO TUNING function keeps the system in better tune.



Yaw Rate

''Offset'' is a reference voltage or standard within the yaw rate sensor. It should indicate 1.500 to 3.500 V with the vehicle stopped.

''Sensor'' indicates the voltage output from the yaw rate sensor. It should indicate 1.500 to 3.500 V with the vehicle stopped.

A ''sensor'' output voltage HIGHER than that of the ''Offset'' voltage indicates the vehicle is turning to the RIGHT.

A ''sensor'' output voltage LOWER than that of the ''Offset'' voltage indicates the vehicle is turning to the LEFT.

With the vehicle stopped, sitting still, with the engine idling, both the ''Offset'' and ''Sensor'' voltage should be within 0.01 V ± of each other.

If not, replace the navigation unit.

Example:

NOTE: The vehicle is stopped, sitting still, with the engine idling.

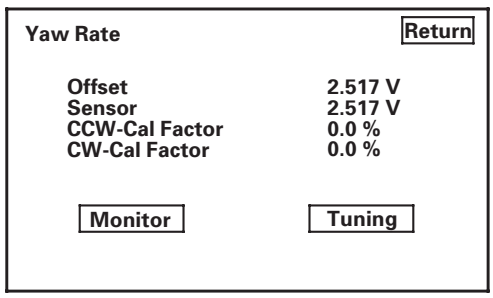
Good

Offset	**2.517 V**
Sensor	**2.517 V (0.010 V ±)**

Bad

Offset	**2.517 V**
Sensor	**2.823 V**

NOTE: Do not try to tune the yaw rate sensor unless instructed by American Honda.



Cyclic Diag

This test checks the following items repeatedly:

- Navigation unit check
- Monitor check (except switch test)

To exit this test, press the CANCEL key

In-Line Diag

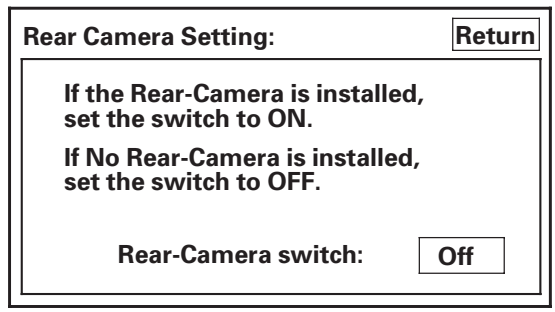
This test checks following items:

- System links
- Car status
- Yaw rate

Rear Camera (Accessory) ('03-04 Models Only)

This screen is used to turn on or off the rear camera setting. When the setting is turned on, the navigation system will know that the rear camera accessory is installed, and the following changes occur within the navigation system:

- Normally, if you do not touch ''OK'' on the Disclaimer screen, the navigation display screen turns off after 30 seconds. If you select Rear-Camera switch ''On'', the rear camera to operate even if the navigation screen is deliberately turned off, or goes off automatically if the disclaimer screen is ignored.
- The navigation touch screen and hard buttons are ignored when the transmission is in reverse. This prevents accidental touch screen/hard button commands that can cancel your route, or disturb the screen you are viewing.

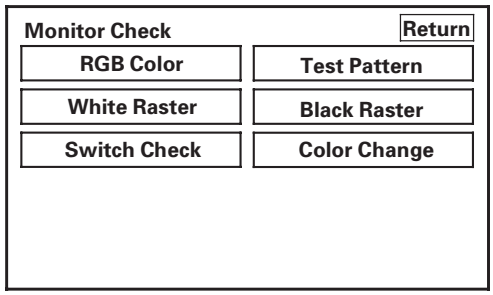


(cont'd)

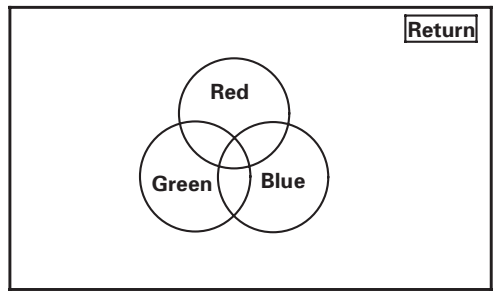
System Diagnosis Test (cont'd)

Monitor Check

Select the item you want to check, and the check starts.



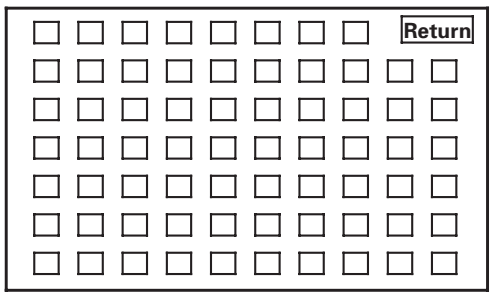
RGB Color
The three primary colors of red, green and blue must be shown. If any color is missing, troubleshoot for the missing color (see page 22-367).



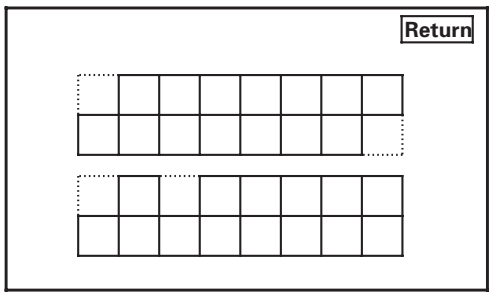
White Raster
The entire display must be shown in white.

Switch Check
Each switch must be shown on the display and each switch must reverse and sound, when touched.

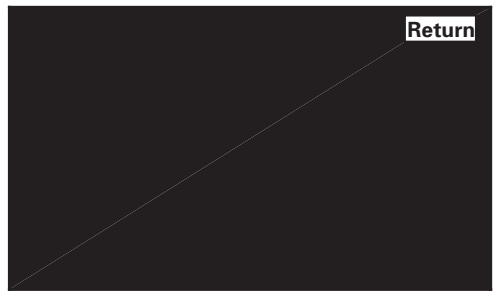
NOTE: The test may be affected if done in direct sunlight.



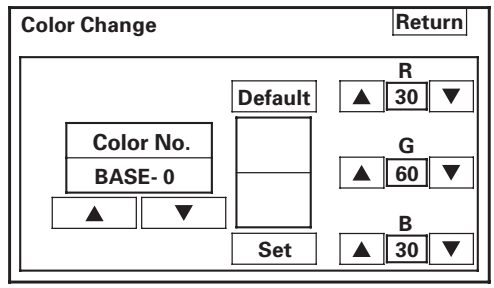
Test Pattern
All 32 colors including black must be indicated (including the back ground color).



Black Raster
The entire display must be shown in black.



Color Change
This screen is for the manufacturer's use only.



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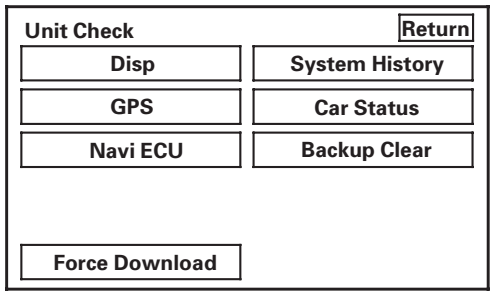
System Diagnosis Test (cont'd)

Unit Check

Touch the item you want to check, and the check starts.

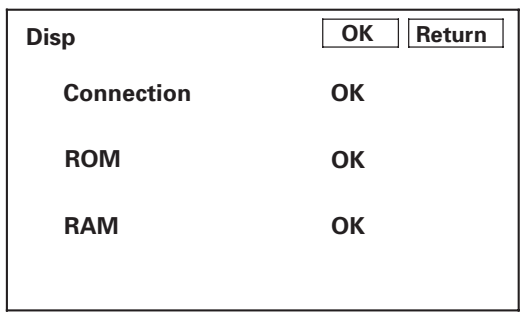


NOTE: Do not use ''Force Download'', this is for the manufacturer's use only.

Disp

When the connection is NG.
First check for loose terminals at the navigation unit and the display unit connectors.
Next check for an open or short in the communication line between the navigation unit and the display unit. If the line is OK, replace the display unit. If the line is found to have an open or short, replace the affected shielded harness.

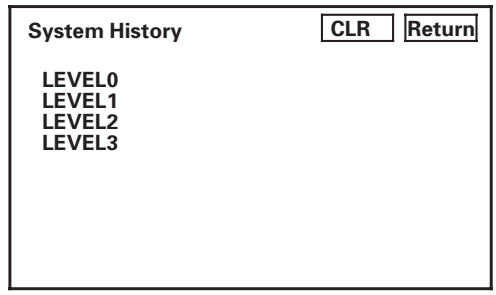
When the ROM or RAM is NG.
Replace the display unit.



System History

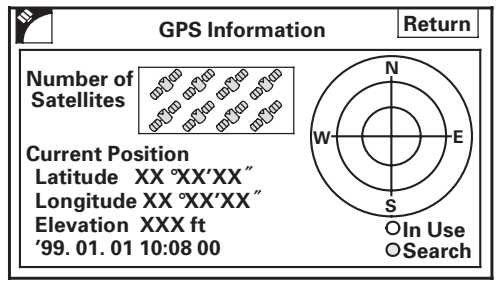
This screen is for the manufacturer's use only.

NOTE: Do not select the CLR. Selecting CLR will clear the system history.



GPS Information

This screen shows the condition of the GPS reception and the vehicle position.
The vehicle should be parked outside away from buildings, tall trees, high tension lines for 10 minutes with motor running.
The number of satellites boxs should contain at least three yellow satellite icons. If not, troubleshoot for satellite mark in the GPS icon is not indicated (see page 22-369).



Car Status

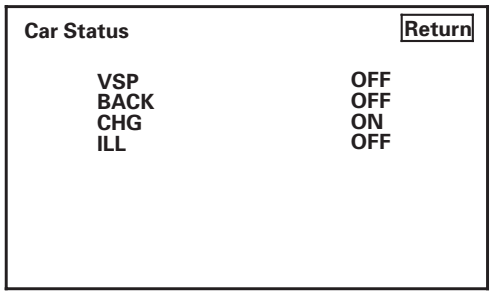
Use the car status screen to check each signal.
If the indication does not match the actual vehicle status, check the applicable signal line.

- VSP (vehicle speed pulse indication)
  – OFF when vehicle is not moving
  – ON when vehicle is moving

- BACK (reverse indication)
  – OFF when shift lever is in any position other than reverse
  – ON when shift lever is in reverse

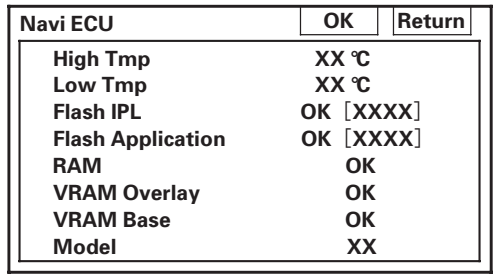
- CHG (charging indication)
  – ON when engine is running and alternator is charging
  – OFF when engine is off or alternator is not charging

- ILL (illumination indication)
  – OFF when parking lights or headlights are off
  – ON when parking lights or headlights are on



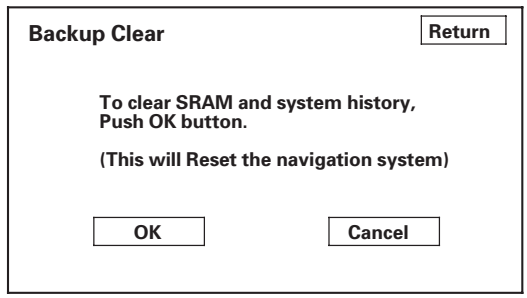
Navi ECU

When any item is NG, replace the navigation unit.



Back-up Clear

This screen is for manufacturer's use only.



(cont'd)

System Diagnosis Test (cont'd)

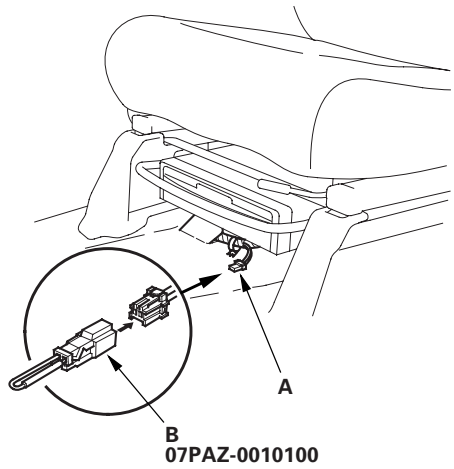
Error Message Table

Error Message	Solution
Navigation system is unable to acquire a proper GPS signal. • Move vehicle to another location • Turn the ignition switch off • Disconnect the battery for 30 min to clear the GPS receiver's memory • Reconnect the battery and follow the screen prompts	No GPS reception. See repair for ''Satellite mark is not indicated.''
Navigation unit door is open or No DVD Disc installed. Please check system.	Check that the DVD disc is installed with the label side up and the navigation unit door is fully snapped closed. If OK, replace the navigation unit.
No DVD Disc, please check system.	Check that the DVD disc is installed with the label side up. If OK, replace the navigation unit.
System is shutting down now to conserve battery.	This error is displayed if there is no operation of the navigation system in any mode for 5 minutes when the engine is not running or a loss of the alternator signal (CHG) input when the engine is running.
Display temp is too high. System will shut down until display cools down.	The navigation display contains a thermistor that is placed on the PCB such that the thermistor reaching 105℃ corres ponds with the LCD reaching a temperature of around 90℃. Beyond 90℃ the LCD can be damaged. This message will appear briefly, and then the display will turn off until the temperature cools down.
Outside temperature is low, system will take a while to start up.	The temperature is below －30℃ and the navigation ECU has difficulties reading the DVD. If no DVD reading error occurs, this error should not occur even if the temperature is below－30℃.
DVD Disc reading error (unformatted), please consult your dealer.	Check the DVD disc surface for deep scratches or other damage. If OK, replace the navigation unit.
Route has not been completed. Please try again from a difference location.	User tried planning a route from a digitized area to a non-digitized area.
No alternate route found. Original route will be guided.	User tried to change the route method, but no alternative route was found.
This destination cannot be found in database.	POI or destination was not found in the database.
Vehicle is out of database coverage area, route cannot be calculated.	Vehicle was been driven out of the DCA and the system cannot find origin of route.
Destination is out of database coverage area, route cannot be calculated.	The destination is out of the DCA, and a route cannot be calculated.
System cannot define vehicle position please drive for a while.	Loss of map matching. Confirm GPS, Yaw Rate, and VSP inputs are working normally. Drive vehicle on a digitized road until the current road being on is displayed across the bottom of the screen within the blue shaded area.
Database old (or outdated), please see your dealer.	Check the DVD disc surface for deep scratchers or other damage. If OK, replace the navigation unit.

Forced Starting of Display

Special Tools Required
SCS service connector 07PAZ-0010100

1. Locate the navigation service check connector (A) under the front passenger's seat.

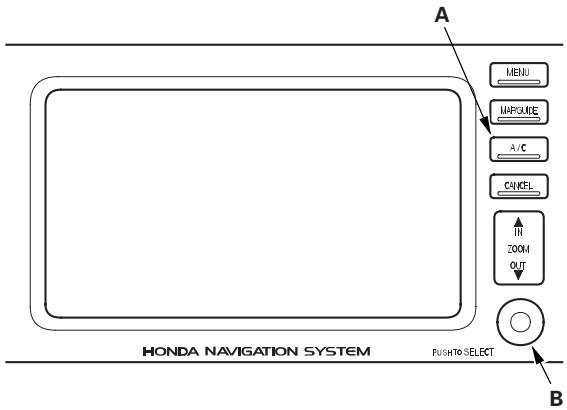


2. Connect the SCS service connector (B) to the navigation service check conector (A).

3. Check that the diagnosis menu for the picture diagnosis starts up, and then changes to the system link menu.

4. If the display does not turn on, turn the ignition switch OFF, press and hold the SET UP button (A), press and hold the joystick (B) up, then turn ignition switch to ACC (I).

   NOTE: If the display fails to light or the system link screen is not displayed, refer to no picture is shown on the display (see page 22-366).

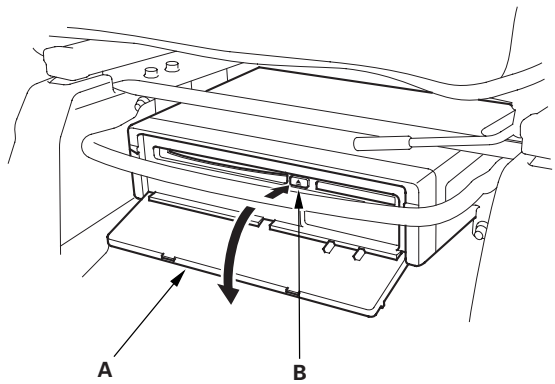


DVD-ROM Replacement

NOTE: When the DVD-ROM is re-inserted or replaced, a map match must be done (see page 22-351).

1. Turn the ignition switch ON (II).

2. Open the front cover (A) of navigation unit.



3. Press the EJECT (B) switch.

4. Remove the DVD-ROM.

5. Insert the new DVD-ROM.

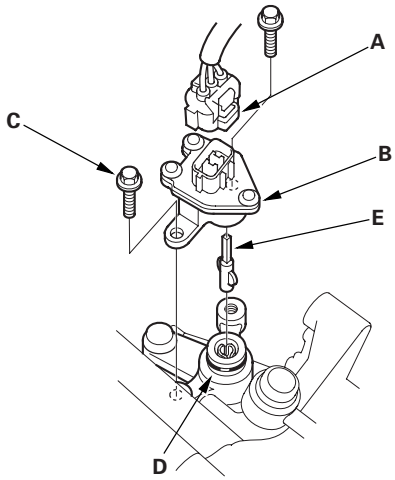
6. Close the front cover.

   NOTE: After servicing, the front cover must be closed. If you start up the navigation system with the front cover open, the display will indicate. ''Navigation unit door is open or No DVD Disk installed. Please check system.''
   Do not turn the ignition switch OFF, until data is down loaded to navigation unit.

7. Perform After Servicing Procedures (see page 22-351).

Vehicle Speed Pulse (VSP) Sensor Replacement

1. Disconnect the 3P connector (A) from the vehicle speed pulse (VSP) sensor (B).

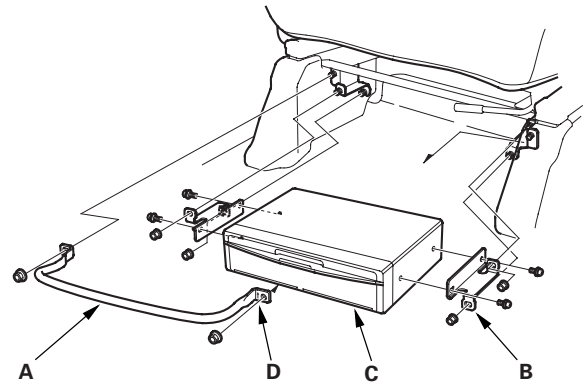


2. Remove the mounting bolt (C), then remove the VSP.

3. Install the VSP. Lubricate the new O-ring (D) and the vehicle speed pulse (VSP) sensor joint (E) with grease before installing.

Navigation Unit Removal/ Installation

1. Remove the navigation unit guard (A) from the bracket.



2. Remove the navigation unit bracket (B) from the passenger's seat.

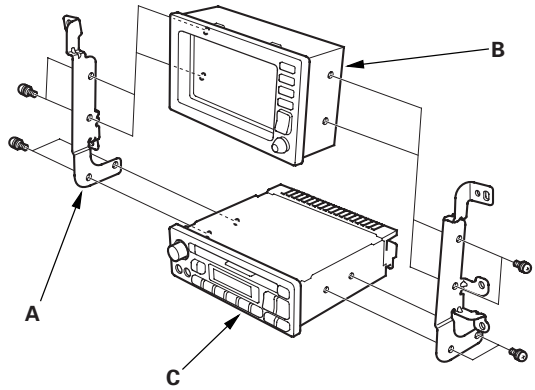
3. Remove the navigation unit (C) from the bracket.

4. Install the parts in the reverse order of removal.

   NOTE: Install the navigation unit guard with the arrow (D) pointing up.

Display Unit Removal/Installation

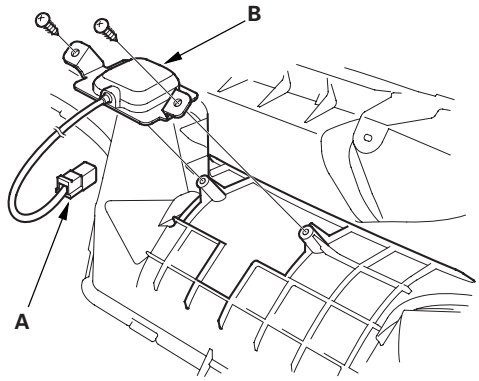
1. Remove the center panel (see page 20-70).
2. Remove the radio bracket (A) from the dashboard.



3. Remove the display unit (B) and audio unit (C) from the radio bracket.
4. Install in the reverse order of removal.

GPS Antenna Removal/Installation

1. Remove the center panel (see page 20-70).
2. Remove the Instrument panel (see page 20-69).
3. Remove the center lower console (see page 20-68).
4. Disconnect the GPS antenna connector (A).



5. Remove the passenger's seat (see page 20-81).
6. Remove the GPS antenna (B) from the center defogger duct.
7. Install in the reverse order of removal.

   NOTE: Be careful when routing the GPS antenna wire so that it does not become pinched, especially near the front passenger's seat.

Clock Display Size and Location Adjustment

1. Turn the ignition switch ON (II).
2. When the Disclaimer is shown on the navigation display unit, select ''OK.''
3. When the ''Enter destination by'' screen is shown, select ''Setup.''
4. When the ''Setup'' screen is shown, select Display ''Off.''
5. Touch the numbers of the clock to change the clock size and location.
   - If the clock is small and in the lower right hand corner of the screen, it will increase in size and move to the center of the screen.
   - If the clock is large and in the center of the screen, it will decrease in size and move to the lower right hand corner of the screen.
6. Press the MENU button to return to the ''Enter destination by'' screen. The clock display settings will be saved.

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Restraints

Special Tools

Ref.No.	Tool Number	Description	Qty
①*1	07HAZ-SG00500	Deployment Tool	1
②	07PAZ-0010100	SCS Service Connector	1
③	07SAZ-TB4011A	SRS Inflator Simulator	1
④	07TAZ-SZ5011A	SRS Simulator Lead C	1
⑤*2	07TAZ-001020A	Backprobe Adapter, 17 mm	2
⑥	07XAZ-S1A0200	SRS Simulator Lead E	1
⑦	07XAZ-SZ30100	SRS Simulator Lead F	1
⑧	07YAZ-S3AA100	SRS Simulator Lead H	1
⑨	070AZ-SAA0100	SRS Short Canceler	1

* 1: Included in SRS Tool Set 07MAZ-SM5000B

* 2: Use with the stacking patch cords from T/N 07SAZ-001000A, Backprobe Set.

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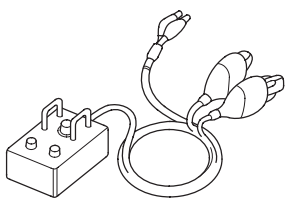

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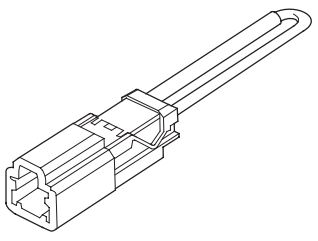

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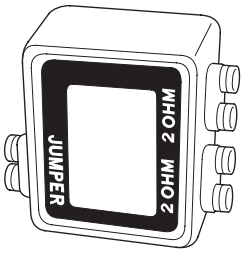

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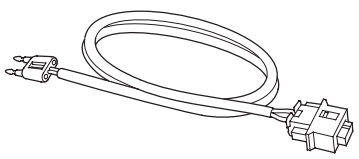

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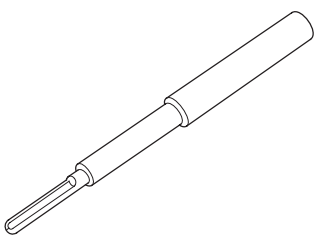

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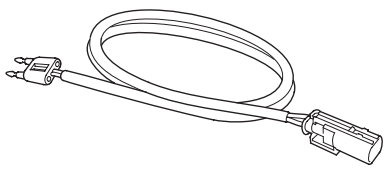

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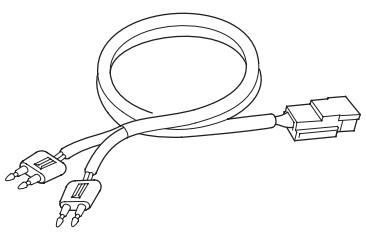

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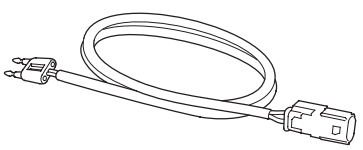

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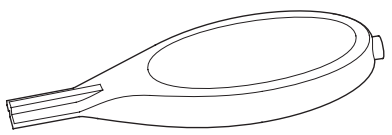

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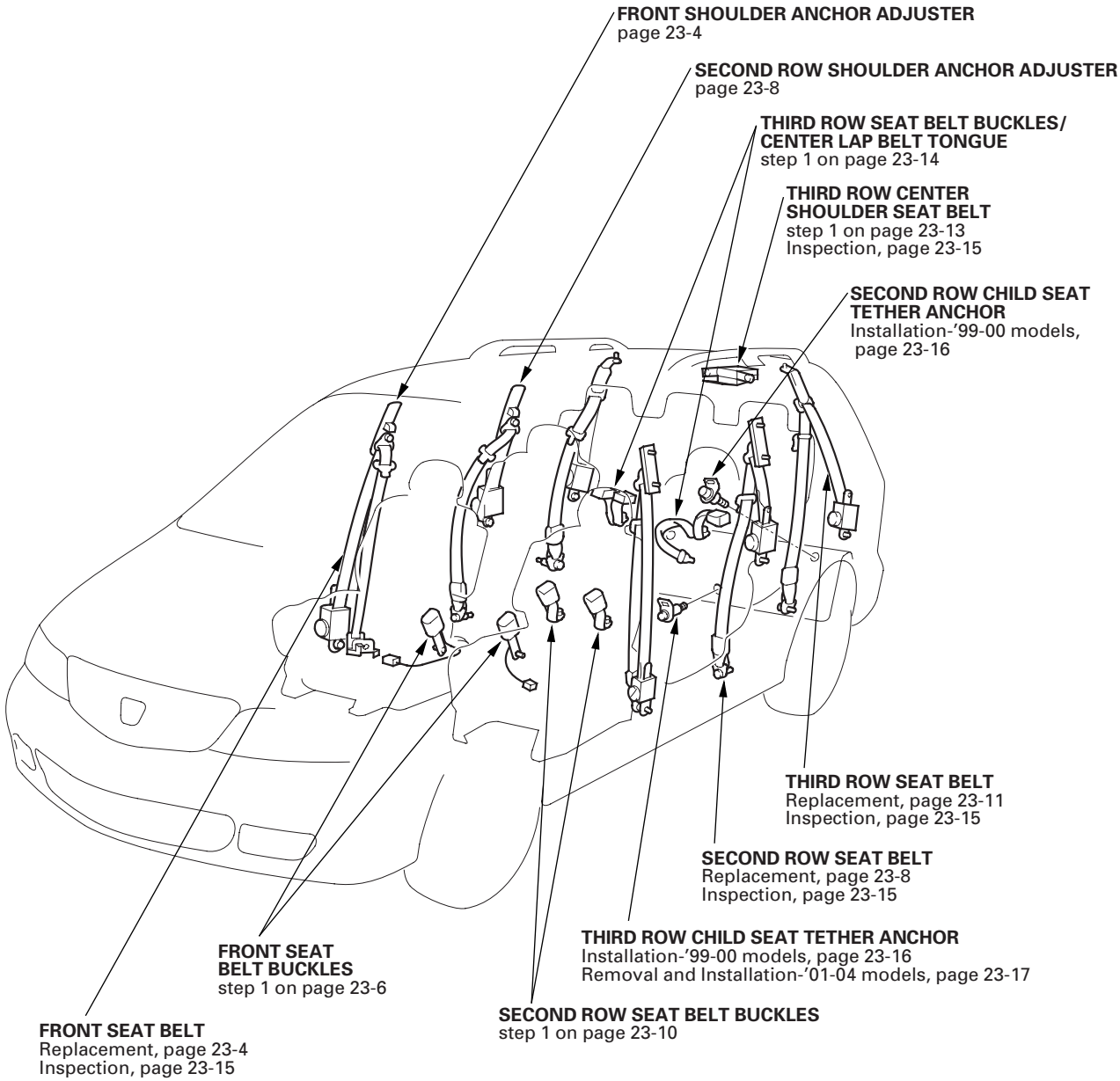
Component Location Index



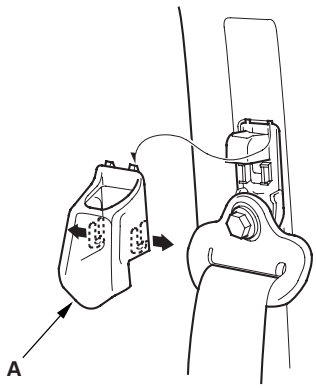
Front Seat Belt Replacement

SRS components are located in this area. Review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before preforming repairs or service.

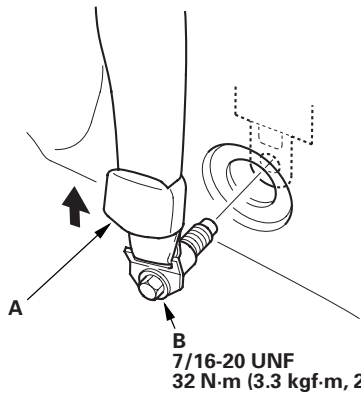
NOTE: Check the front seat belts for damage, and replace them if necessary.

Front Seat Belt

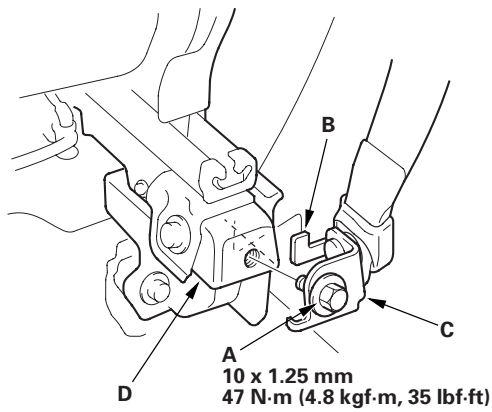
1. Make sure you have the anti-theft code for the radio and the navigation system, and then write down the frequencies for the preset buttons.
2. Slide the front seat forward fully.
3. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.
4. Remove the upper anchor cover (A).



5. For '99-02 models driver's and passenger's seat belts and '03-04 models driver's seat belt: Pull the lower anchor cover (A) back, and remove the lower anchor bolt (B).

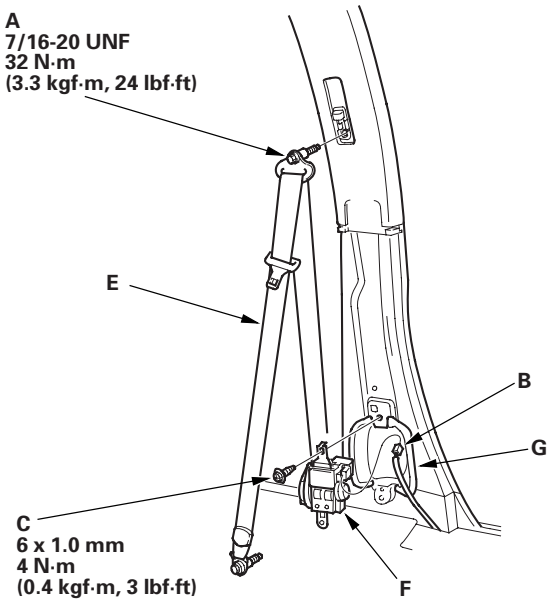


6. For '03-04 models passenger's seat belt: Remove the rear riser cover (see step 7 on page 20-82). Remove the bolt (A), and release the hook (B), then remove the lower anchor bracket (C) from the outer weight sensor (D).

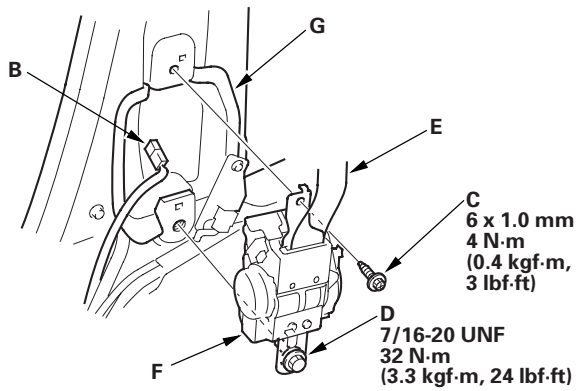


7. Remove the center pillar lower trim panel (see page 20-58).

8. Remove the upper anchor bolt (A).



'03-04 models passenger's seat belt

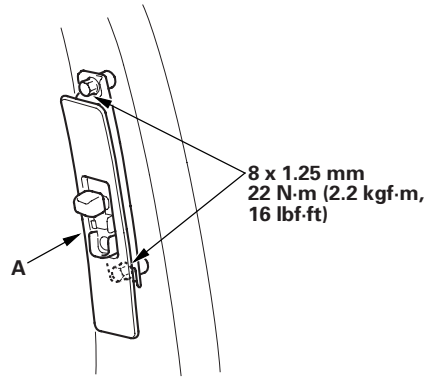


9. Disconnect the seat belt tensioner connector (B). Remove the retractor mounting ET screw (C), and for '03-04 models passenger's seat belt, remove the retractor bolt (D), then remove the front seat belt (E) and retractor (F).

10. If necessary, remove the front seat belt protector (G).

11. Remove the center pillar upper trim (see page 20-58).

12. Remove the shoulder anchor adjuster (A).



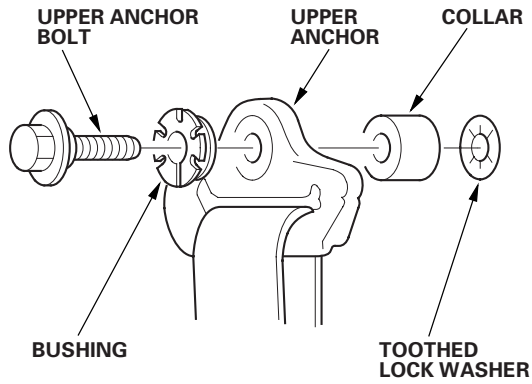
13. Install the seat belt and retractor in the reverse order of removal, and note these items:

- Apply liquid thread lock to the anchor bolts before reinstallation.
- Check that the retractor locking mechanism functions (see page 23-15).
- Assemble the washers, collar and bushing on the upper and lower anchor bolts as shown.
- If the seat belt tensioner has been activated, replace the front seat belt protector with a new one.
- Before installing the anchor bolts, make sure there are no twists or kinks in the seat belt.
- Make sure the seat belt tensioner connector is plugged in properly.
- Reconnect the negative cable to the battery.
- Enter the anti-theft code for the radio and the navigation system, and then enter the customer's radio station presets.
- Reset the clock.
- Do the PCM idle learn procedure (see page 11-202) and the power window control unit reset procedure ('03-04 models) (see page 22-200).

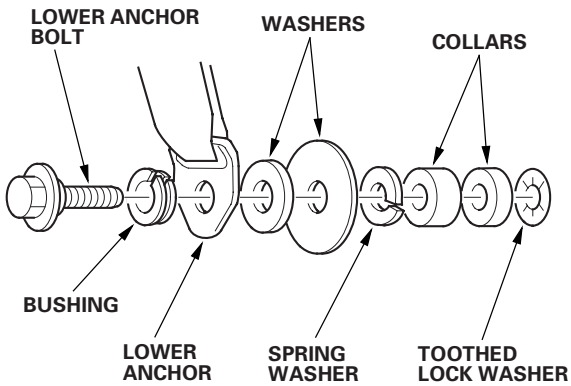
(cont'd)

Front Seat Belt Replacement (cont'd)

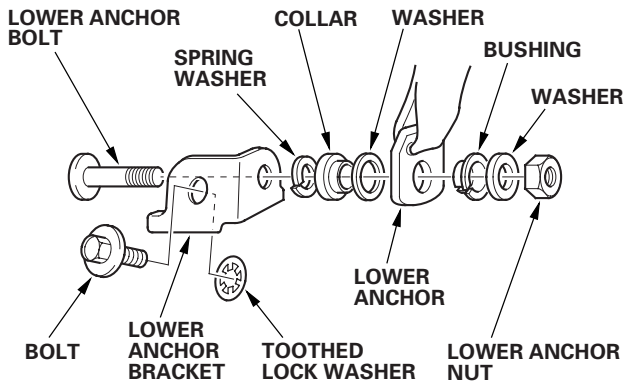
Upper anchor bolt construction



Lower anchor bolt construction



Lower anchor bolt construction ('03-04 models passenger's seat belt)

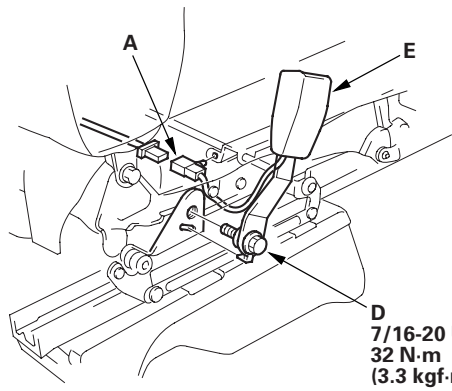


Seat Belt Buckle

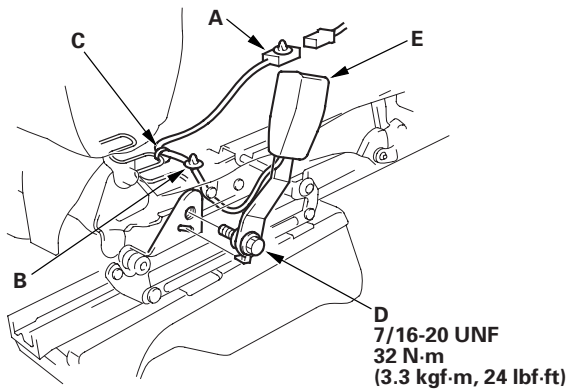
1. Remove the center cover, 8-way power seat (see page 20-86), manual height adjustable seat (see page 20-88), and manual seat (see page 20-91).

2. For '99-04 models driver's seat and '03-04 models passenger's seat: Disconnect and detach the seat belt switch connector (A). Detach the wire harness clip (B), and release the wire tie (C).

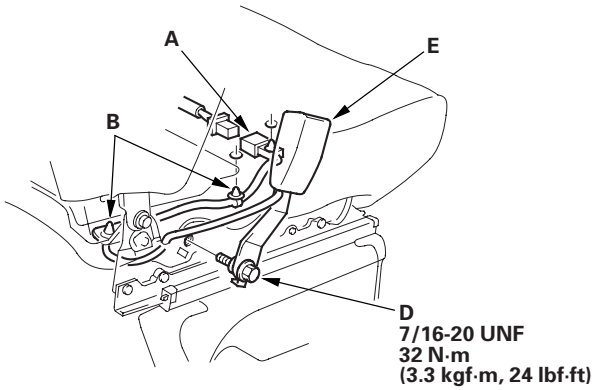
8-way power seat ('99-02 models)



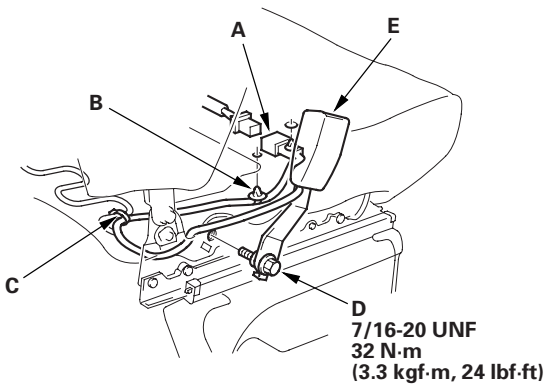
8-way power seat ('03-04 models)



Manual height adjustable seat ('01-02 models)

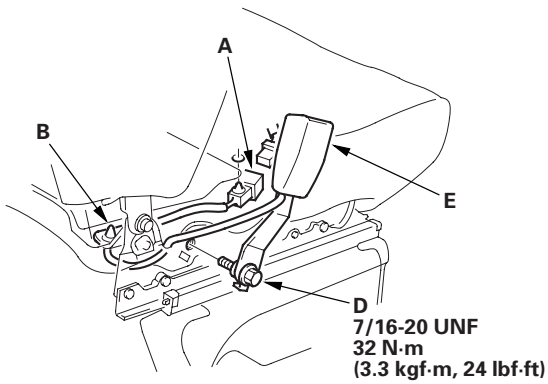


Manual height adjustable seat ('03-04 models)



Manual seat

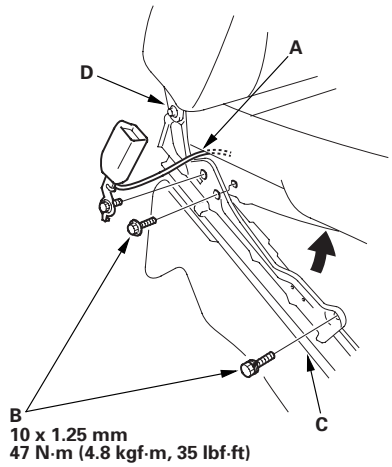
'03-04 models passenger's seat is similar to the illustration shown.



3. Remove the center anchor bolt (D), and remove the seat belt buckle (E).

4. For '99-04 models driver's seat and '03-04 models passenger's seat, remove the seat belt switch harness (A):

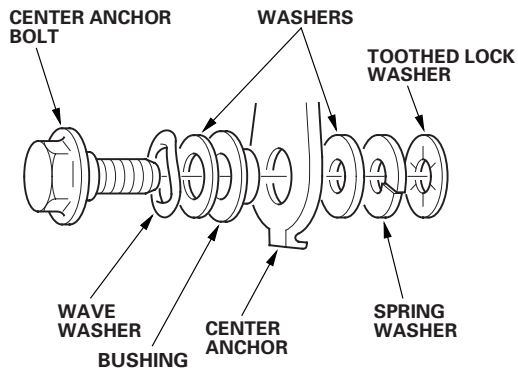
   - Power seat: Adjust the seat cushion to its maximum height, and remove the harness.
   - Manual seat: Remove the seat cushion mounting bolts (B) from the inner seat track (C), then lift the seat cushion halfway from the inner seat track, and remove the harness. Take care not to damage the hinge bracket (D).
   - '03-04 models passenger's seat is similar to the illustration shown.



5. Install the buckle in the reverse order of removal, and note these items:

   - Apply liquid thread lock to the anchor bolt before reinstallation.
   - Assemble the washers on the center anchor bolt as shown.
   - Move the seat up and down to make sure the buckle harness is not pinched.

Center anchor bolt installation

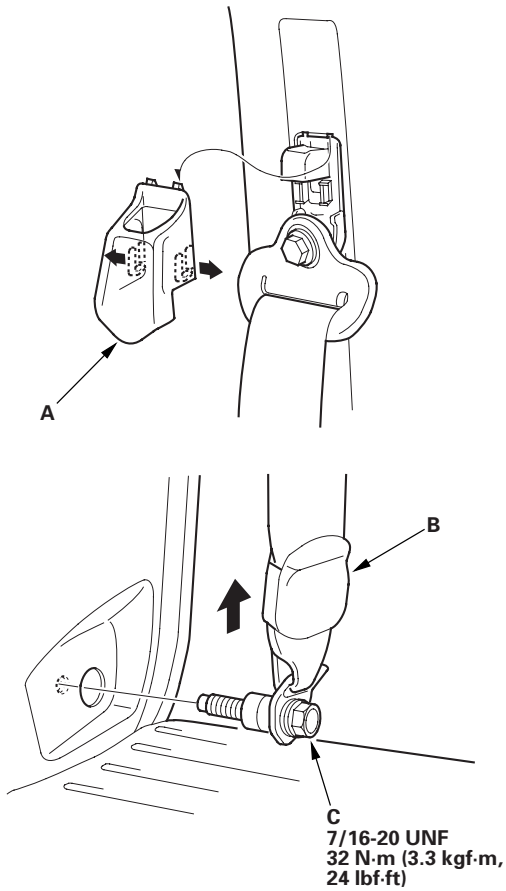


Second Row Seat Belt Replacement

NOTE: Check the second row seat belts for damage, and replace them if necessary.

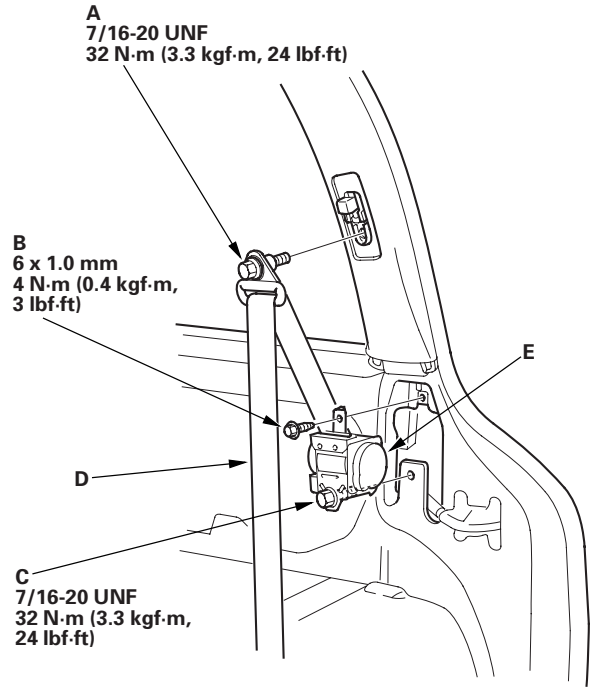
Second Row Seat Belt

1. Remove the upper anchor cover (A), pull the lower anchor cover (B) back, and remove the lower anchor bolt (C).



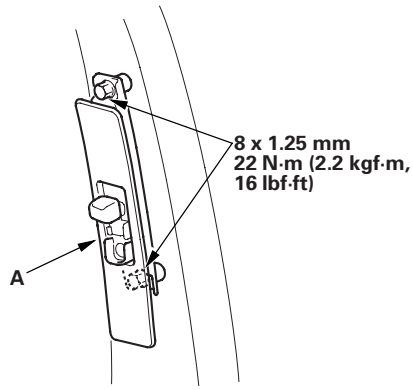
2. Remove the rear side trim panel (see page 20-60).

3. Remove the upper anchor bolt (A), the retractor mounting ET screw (B), the retractor bolt (C), then remove the second row seat belt (D) and retractor (E).



4. Remove the quarter pillar trim (see page 20-59).

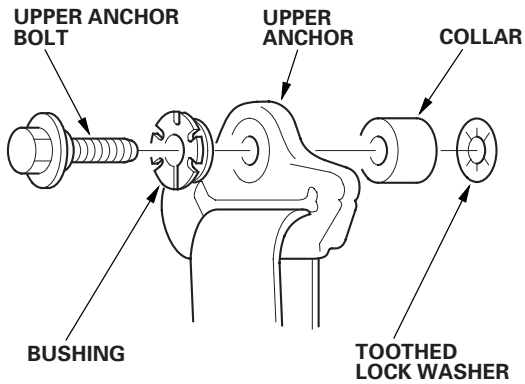
5. Remove the shoulder anchor adjuster (A).



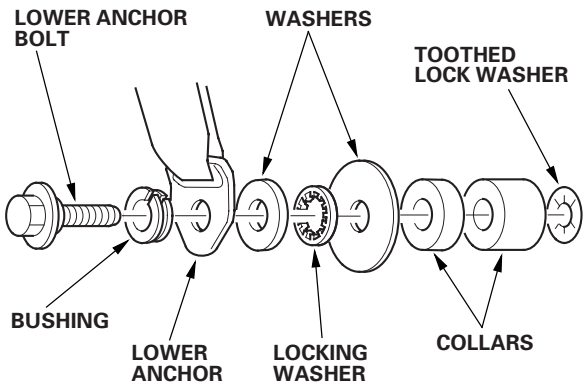
6. Install seat belt and retractor in the reverse order of removal, and note these items:

   - Apply liquid thread lock to the anchor bolts before reinstallation.
   - Check that the retractor locking mechanism functions (see page 23-15).
   - Assemble the washers, collar and bushing on the upper and lower anchor bolts as shown.
   - Before installing the anchor bolts, make sure there are no twists or kinks in the seat belt.

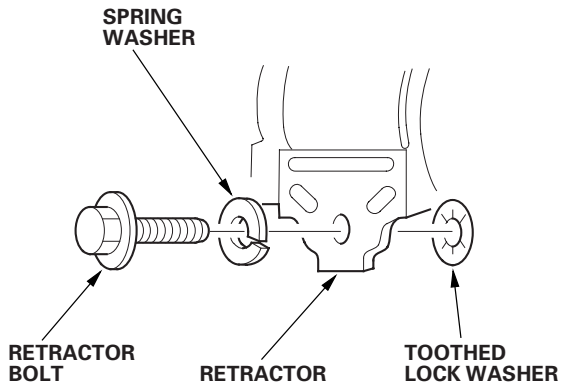
Upper anchor bolt construction



Lower anchor bolt construction



Retractor bolt construction

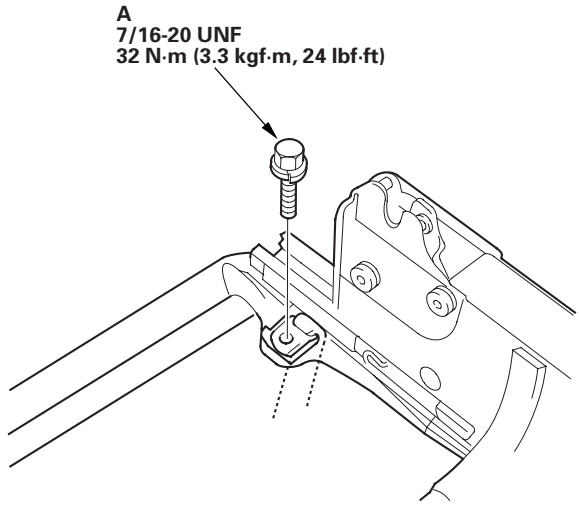


(cont'd)

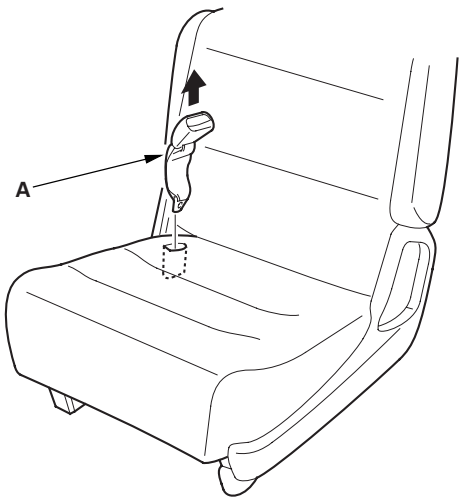
Second Row Seat Belt Replacement (cont'd)

Seat Belt Buckle (bucket-type second row seat)

1. Remove the second row seat through the door opening.
2. Remove the center anchor bolt (A) from under the seat cushion.



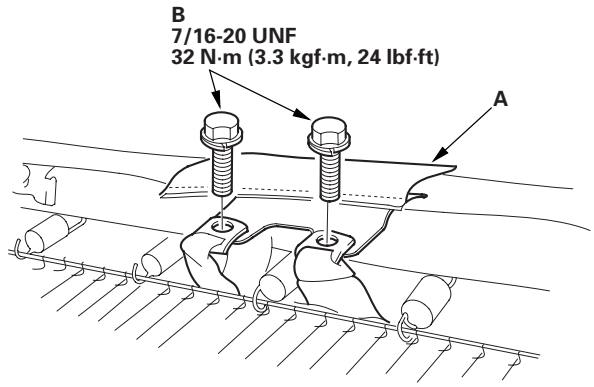
3. Remove the seat belt buckle (A).



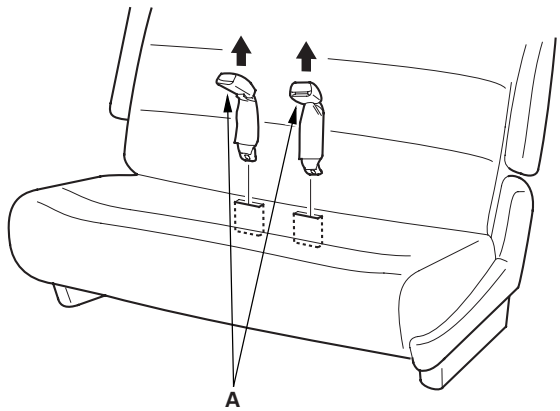
4. Install the buckle in the reverse order of removal, and apply liquid thread lock to the anchor bolt before reinstallation.

Seat Belt Buckle (bench-type second row seat)

1. Remove the second row seat through the door opening.
2. Release two clips fastening the cushion cover (see step 3 on page 20-117).
3. Turn the cushion cover (A) and remove the center anchor bolts (B) from under the seat cushion.



4. Remove the seat belt buckles (A).



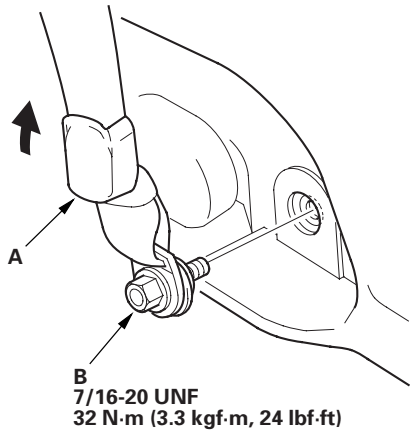
5. Install the buckles in the reverse order of removal, and apply liquid thread lock to the anchor bolts before reinstallation.

Third Row Seat Belt Replacement

NOTE: Check the third row seat belts for damage, and replace them if necessary.

Third Row Seat Belt

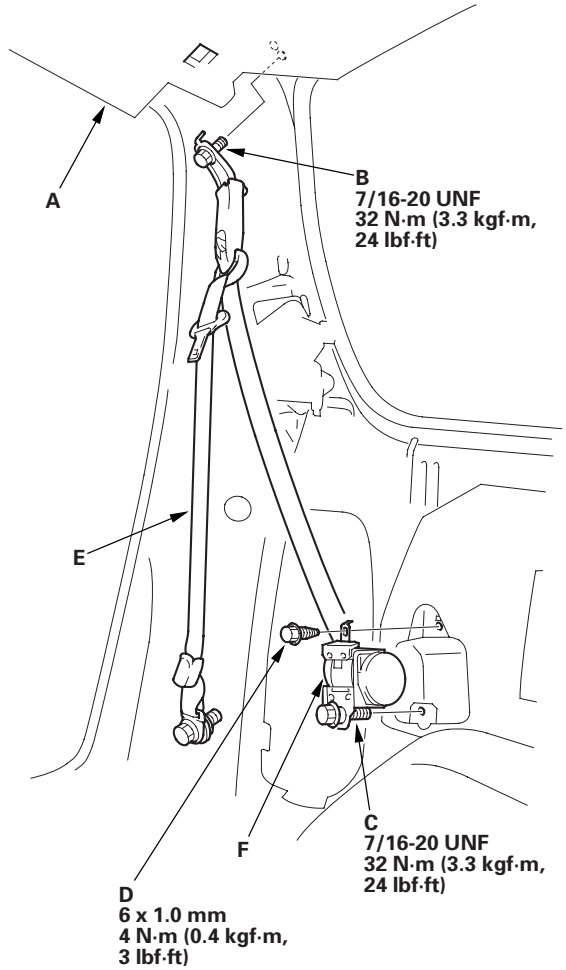
1. Pull the lower anchor cover (A) back, and remove the lower anchor bolt (B).



2. Remove these items:

   - Rear side trim panel (see page 20-60)
   - Rear pillar trim (see page 20-59)
   - Rear pillar duct (see step 13 on page 20-64)

3. Pull the headliner (A) down as necessary, then remove the upper anchor bolt (B), the retractor bolt (C), the retractor mounting ET screw (D), then remove the third row seat belt (E) and retractor (F).



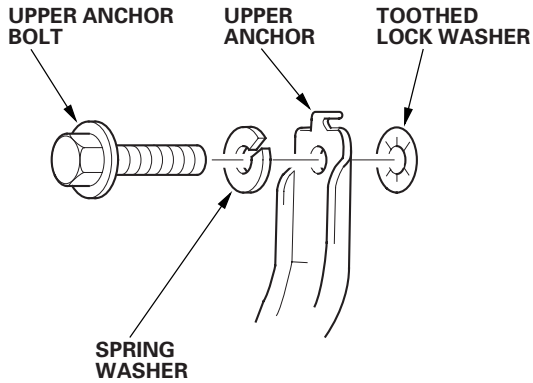
(cont'd)

Third Row Seat Belt Replacement (cont'd)

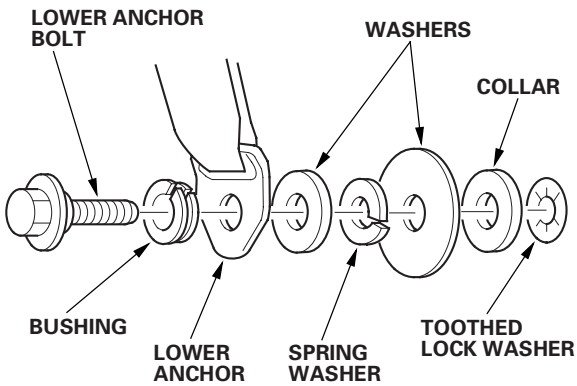
4. Install the seat belt and retractor in the reverse order of removal, and note these items:

   - Apply liquid thread lock to the anchor bolts before reinstallation.
   - Check that the retractor locking mechanism functions (see page 23-15).
   - Assemble the washers, collar and bushing on the upper and lower anchor bolts as shown.
   - Before installing the anchor bolts, make sure there are no twists or kinks in the seat belt.

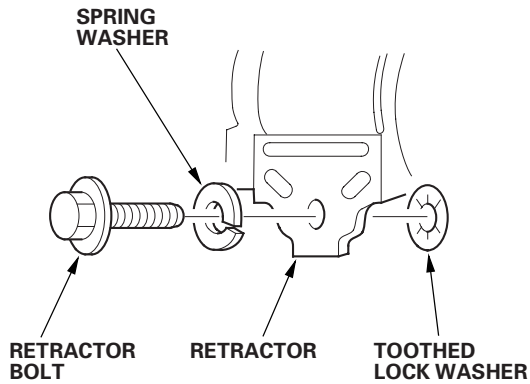
Upper anchor bolt construction



Lower anchor bolt construction

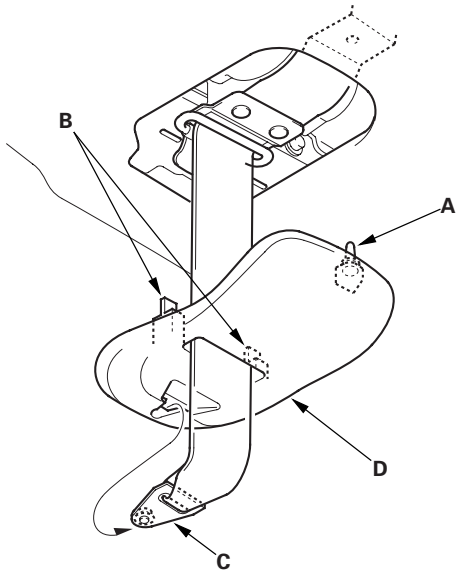


Retractor bolt construction

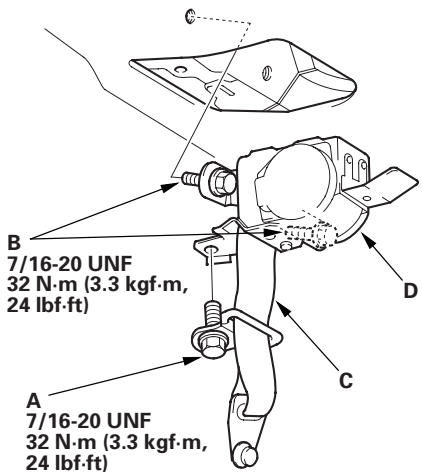


Third Row Center Shoulder Seat Belt

1. Detach the clips (A, B) and remove the metal plate (C) from the retractor cover (D).



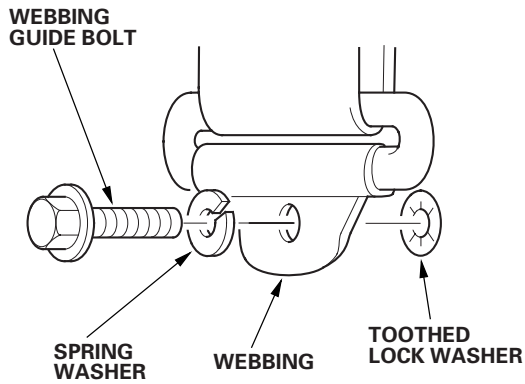
2. Remove the webbing guide bolt (A), the retractor bolts (B), then remove the center shoulder seat belt (C) and retractor (D).



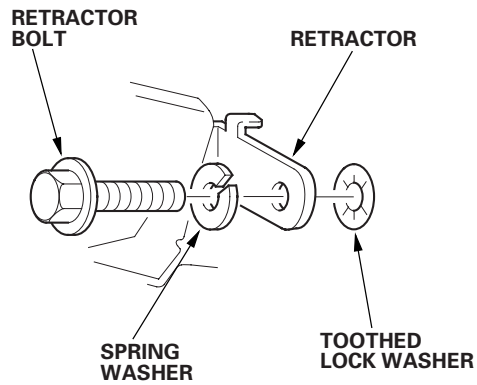
3. Install the seat belt and retractor in the reverse order of removal, and note these items:

- Apply liquid thread lock to the anchor bolts before reinstallation.
- Check that the retractor locking mechanism functions (see page 23-15).
- Assemble the washers on the center anchor bolts as shown.
- Before installing the center anchor bolt, make sure there are no twists or kinks in the seat belt.

Webbing guide bolt construction



Retractor bolt construction



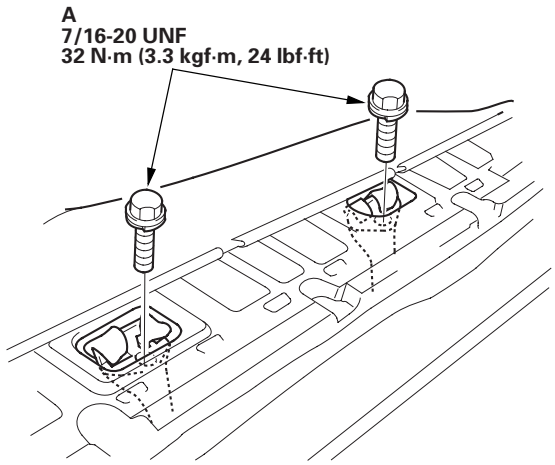
(cont'd)

Third Row Seat Belt Replacement (cont'd)

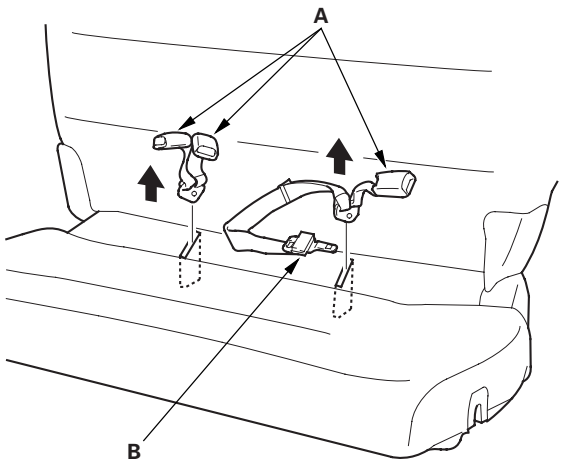
Seat Belt Buckle/Center Lap Belt Tongue

1. Pull back the third row seat cushion mat as necessary (see step 5 on page 20-126).

2. Remove the center anchor bolts (A) from under the seat cushion.



3. Remove the seat belt buckles (A) and center lap belt tongue (B).



4. Install the buckles and tongue in the reverse order of removal, and apply liquid thread lock to the anchor bolts before reinstallation.

Inspection

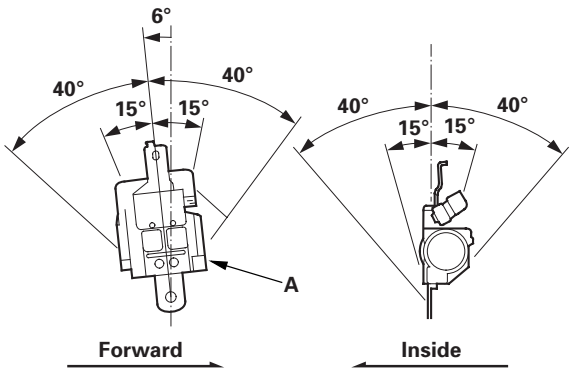
For front seat belt retractor with seat belt tensioner, review the SRS component locations, '99-01 models (see page 23-18), '02 model (see page 23-19), '03-04 models (see page 23-20), and the precautions and procedures (see page 23-21) before performing repairs or service.

Retractor

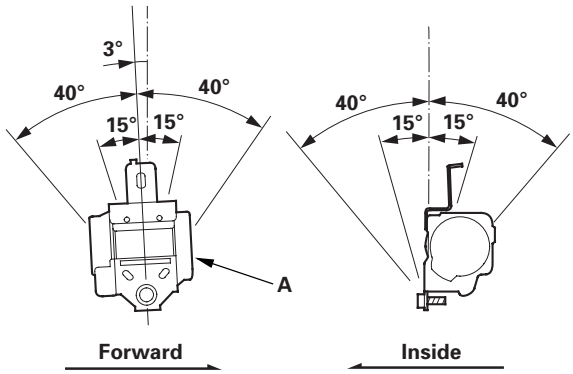
1. Before installing the retractor, check that the seat belt can be pulled out freely.

2. Make sure that the seat belt does not lock when the retractor (A) is leaned slowly up to 15° from the mounted position. The seat belt should lock when the retractor is leaned over 40°. Do not attempt to disassemble the retractor.

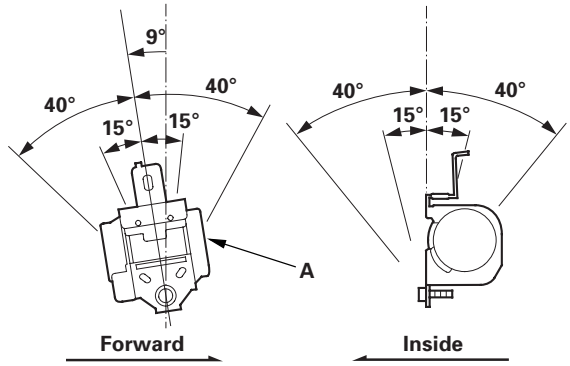
Front



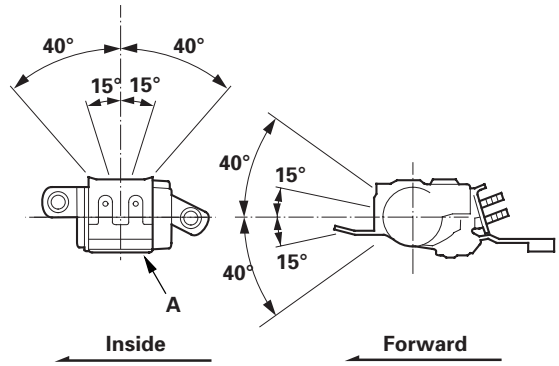
Second row



Third row



Third row center shoulder



3. Replace the seat belt with a new assembly if there is any abnormality. Do not disassemble any part of the seat belt for any reason.

(cont'd)

Inspection (cont'd)

In-vehicle

1. Check that the seat belt is not twisted or caught on anything.

2. After installing the anchors, check for free movement on the anchor bolts. If necessary, remove the anchor bolts and check that the washers and other parts are not damaged or improperly installed.

3. Check the seat belts for damage or discoloration. Clean with a shop towel if necessary. Use only soap and water to clean.

   NOTE: Dirt build-up in the loops of the upper anchors can cause the seat belts to retract slowly. Wipe the inside of the loops with a clean cloth dampened in isopropyl alcohol.

4. Check that the seat belt does not lock when pulled out slowly. The seat belt is designed to lock only during a sudden stop or impact.

5. Make sure that the seat belt will retract automatically when released.

6. For each passenger's seat belt, check the seat belt retractor locking mechanism ALR (automatic locking retractor). This function is for securing child seats.

   –1 Pull the seat belt all the way out to engage the ALR. The seat belt should retract, but not extend. This is normal.
   –2 To disengage the ALR, release the seat belt and allow it to fully retract, then pull the seat belt out part-way. The seat belt should retract and extend normally.

7. Replace the seat belt with a new assembly if there is any abnormality. Do not disassemble any part of the seat belt for any reason.

Child Seat Tether Anchor Installation

'99-00 Models

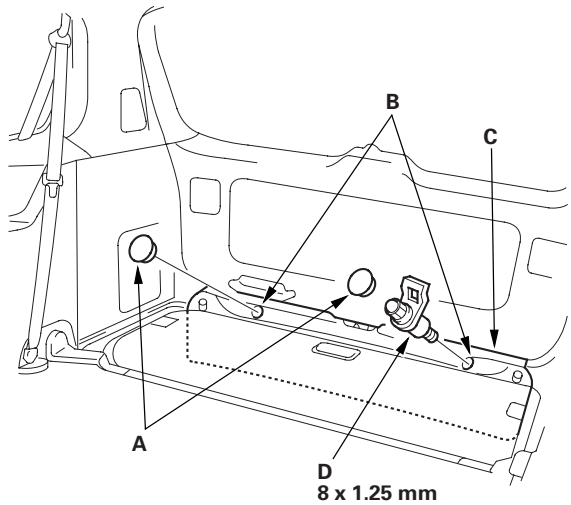
Attachment points are provided for a second row or third row seat-mounted child restraint system which uses a top tether. The attachment points are located on the rear trim panel, just behind the third row seat-back. When using a child seat with a top tether, install the child seat tether anchors securely.

NOTE:
- Do not remove the toothed washer from the child seat tether anchors. Use the child seat anchor plate with the toothed washer attached to it.
- When installing a child seat on the second row or third row seat, follow the instructions of the manufacturer of the child seat.
- Additional tether anchors are available.

Second Row Seat Installation

1. Store the third row seat in the floor recess.

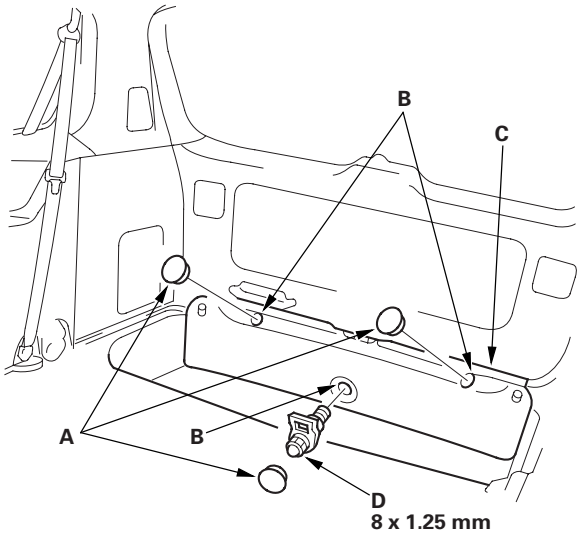
2. Remove the plug (A) from the attachment point (B) on the rear trim panel (C).



3. Install the child seat tether anchor (D). Torque the bolt to 22 N·m (2.2 kgf·m, 16 lbf·ft), and apply liquid thread lock to the threads of the child seat tether anchor bolt(s).

Third Row Seat Installation

1. Remove the plug (A) from the attachment point (B) on the rear trim panel (C).

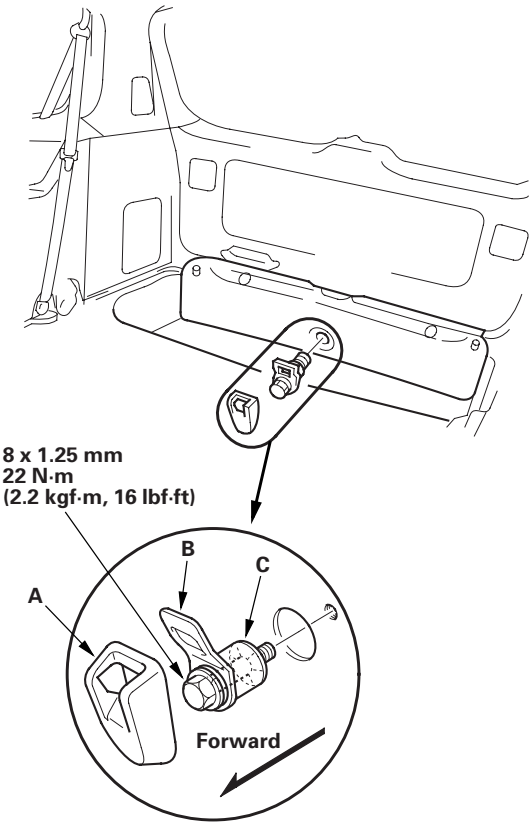


2. Install the child seat tether anchor (D). Torque the bolt to 22 N·m (2.2 kgf·m, 16 lbf·ft), and apply liquid thread lock to the threads of the anchor bolt(s).

Third Row Child Seat Tether Anchor Removal and Installation

'01-04 Models Except Van

1. Remove the third row child seat tether anchor cover (A).

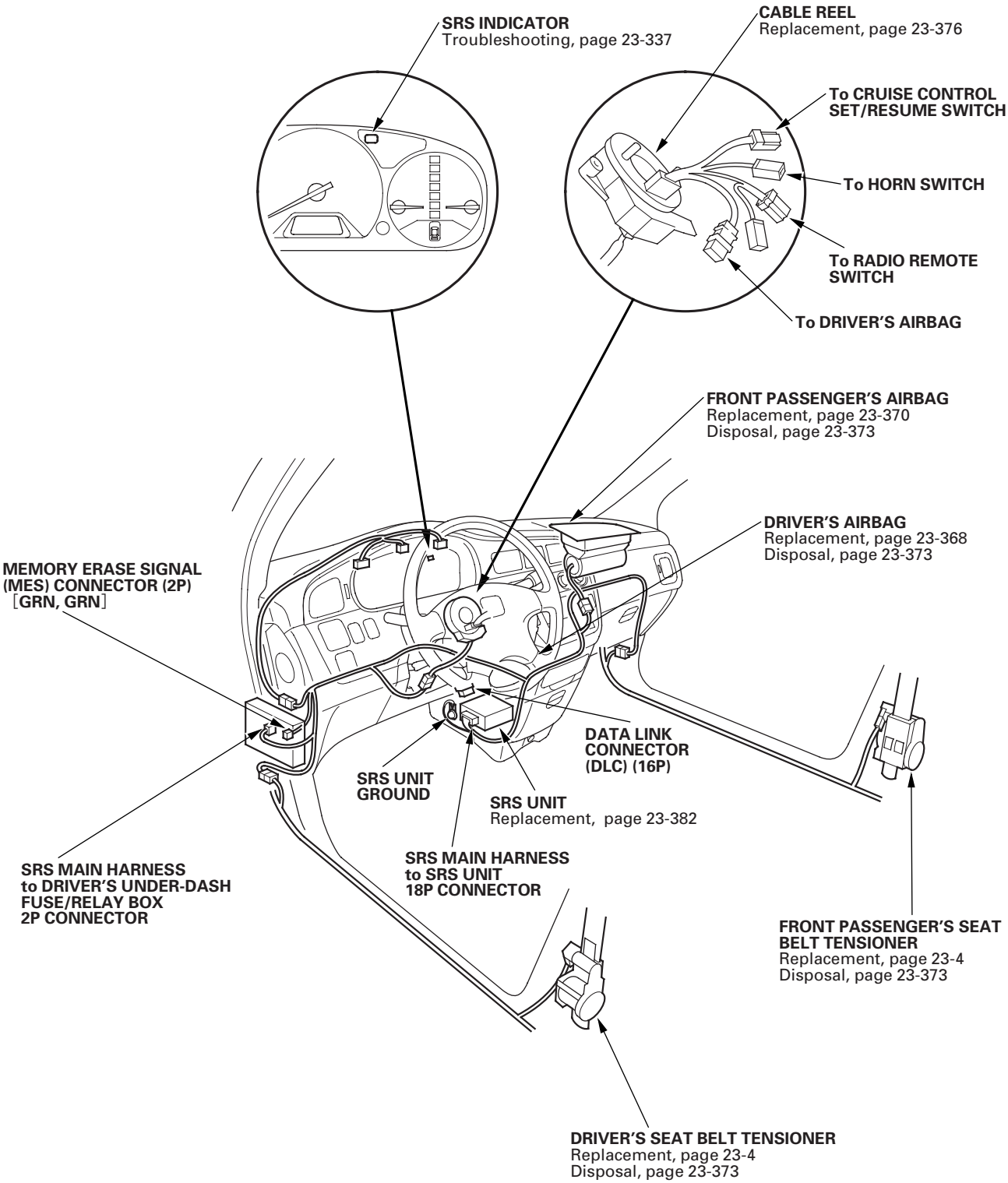


2. Remove the third row child seat tether anchor (B). Do not remove the toothed washer (C) from the tether anchor.

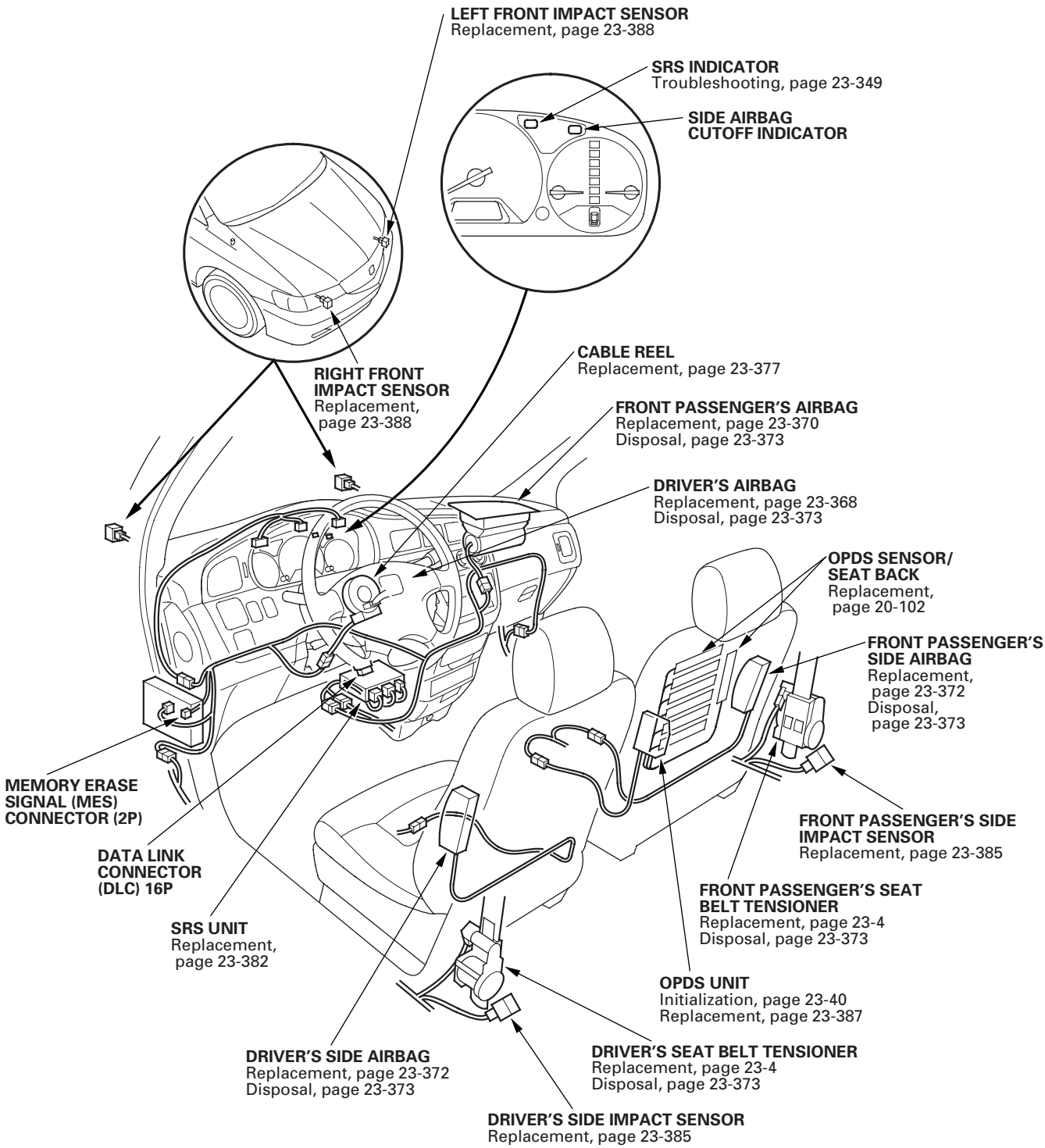
3. Install the anchor in the reverse order of removal, and apply liquid thread lock to the threads of the anchor bolt(s).

Component Location Index

'99-01 Models



'02 Model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SRS INDICATOR
Troubleshooting, page 23-349
SIDE AIRBAG CUTOFF INDICATOR
RIGHT FRONT IMPACT SENSOR
Replacement, page 23-388
CABLE REEL
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DATA LINK CONNECTOR (DLC) 16P
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FRONT PASSENGER'S SEAT BELT TENSIONER
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DRIVER'S SEAT BELT TENSIONER
Replacement, page 23-4
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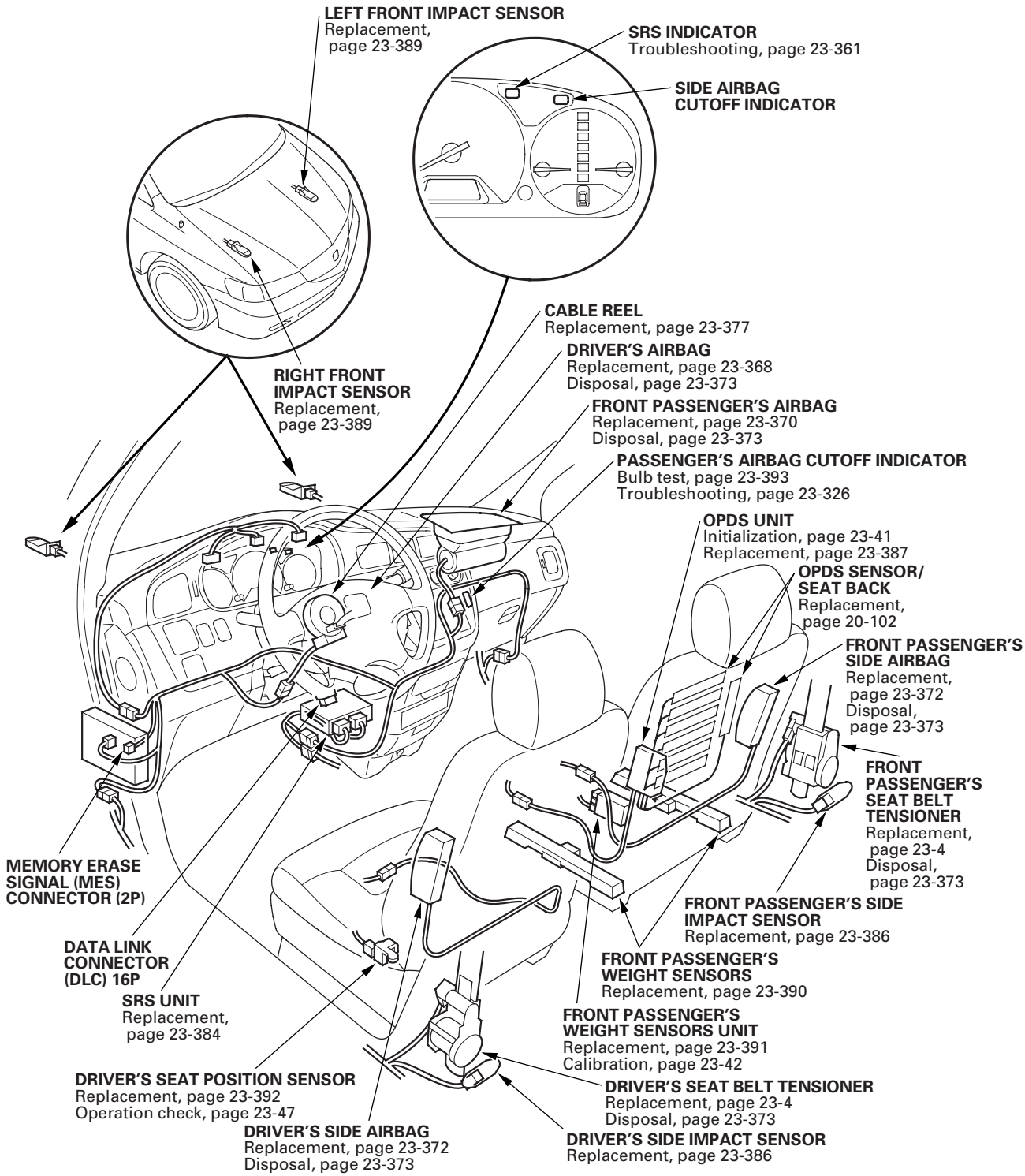
Replacement, page 23-385

Component Location Index (cont'd)

'03-04 Models

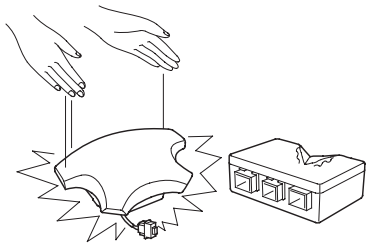


Precautions and Procedures

General Precautions

Please read the following precautions carefully before performing airbag system service. Observe the instructions described in this manual, or the airbags could accidentally deploy and cause damage or injuries.

- Except when performing electrical inspections, always turn the ignition switch OFF disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.
  NOTE: The memory is not erased even if the ignition switch is turned OFF or the battery cables are disconnected from the battery.
- Use replacement parts which are manufactured to the same standards and quality as the original parts. Do not install used SRS parts. Use only new parts when making SRS repairs.
- Carefully inspect any SRS part before you install it. Do not install any part that shows signs of being dropped or improperly handled, such as dents, cracks or deformation.



- Before removing any SRS parts (including disconnection of connectors), always disconnect the SRS connector.
- Use only a digital multimeter to check the system. If it is not a Honda multimeter, make sure its output is 10 mA (0.01A) or less when switched to the lowest value in the ohmmeter range. A tester with a higher output could cause accidental deployment and possible injury.
- Do not put objects on the front passenger's airbag.
- The original radio has a coded theft protection circuit. Be sure to get the customer's radio and navigation system codes and write down the frequencies for the radio's preset stations before disconnecting the battery cable.
- Before returning the vehicle to the customer, enter the radio and navigation system codes, then enter the customer's radio station presets, and set the clock. Do the powertrain control module (PCM) idle learn procedure (see page 11-202).
- After disconnecting the battery negative cable, do the power window control unit resetting procedure (see page 22-200).

Steering-related Precautions

Cable Reel Alignment

- Misalignment of the cable reel could cause an open in the wiring, making the SRS system and the horn inoperative. Center the cable reel whenever the following is performed (see step 6 on page 23-379).
  – Installation of the steering wheel
  – Installation of the cable reel
  – Installation of the steering column
  – Other steering-related adjustment or installation
- Do not disassemble the cable reel.
- Do not apply grease to the cable reel.
- If the cable reel shows any signs of damage, replace it with a new one. For example, it does not rotate smoothly.

(cont'd)

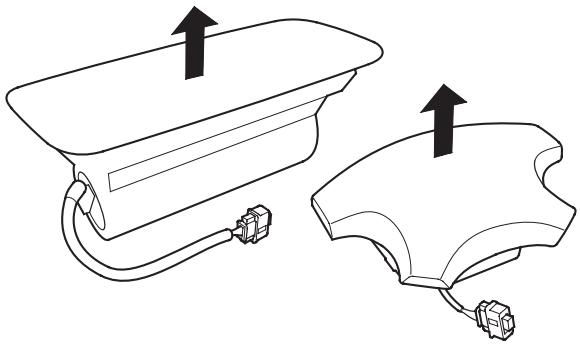
Precautions and Procedures (cont'd)

Airbag Handling and Storage

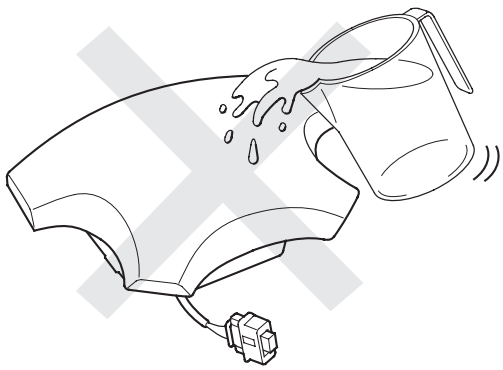
Do not disassemble an airbag. It has no serviceable parts. Once an airbag has been deployed, it cannot be repaired or reused.

For temporary storage of the airbag during service, observe the following precautions.

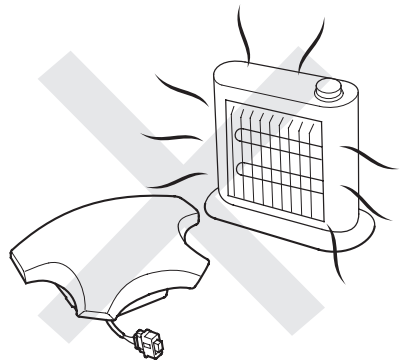
- Store the removed airbag with the pad surface up. Never put anything on the removed airbag.



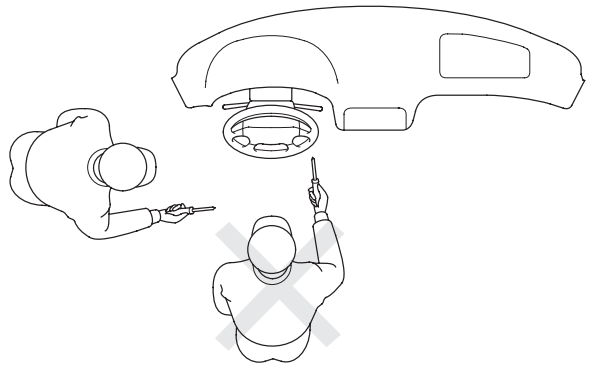
- To prevent damage to the airbag, keep free from any oil, grease, detergent, or water.



- Store the removed airbag on a secure, flat surface away from any high heat source (exceeding 200°F/ 93°C).



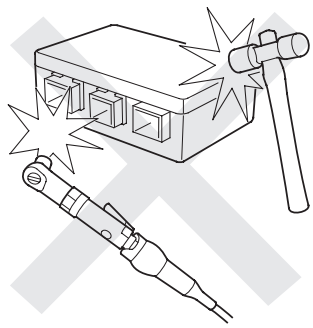
- Never perform electrical inspections to the airbags, such as measuring resistance.
- Do not position yourself in front of the airbag during removal, inspection, or replacement.



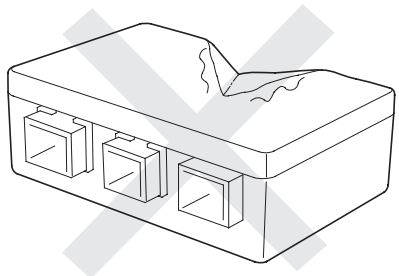
- Refer to the scrapping procedures for disposal of a damaged airbag.

SRS Unit, Front and Side Impact Sensors ('02-04 Models), Driver's Seat Position Sensor, Front Passenger's Weight Sensors unit, and Front Passenger's Weight Sensors ('03-04 Models)

- Be careful not to bump or impact the SRS unit, front impact sensors or the side impact sensors whenever the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF.
- During installation or replacement, be careful not to bump (by impact wrench, hammer, etc.) the area around the SRS unit, front impact sensors, and the side impact sensor. The airbags could accidentally deploy and cause damage or injury.



- After a collision in which any airbags were deployed, replace the SRS unit, seat belt tensioners, front impact sensors, and other related components (see page 23-367). After a collision in which side airbag was deployed, replace the side impact sensor on the deployed side and the SRS unit. After a collision in which the airbags or the side airbags did not deploy, inspect for any damage or any deformation on the SRS unit, front impact sensors, and the side impact sensors. If there is any damage, replace the SRS unit and/or the side impact sensors.



- After a collision, calibrate the front passenger's weight sensors. If the sensors cannot be calibrated, replace them.
- Do not disassemble the SRS unit or the side impact sensors, driver's seat position sensor, front passenger's weight sensor unit, and front passenger's weight sensors.
- Turn the ignition switch OFF, disconnect the battery negative cable and wait at least 3 minutes before beginning installation or replacement of the SRS unit, or disconnecting the connectors from the SRS unit.
- Be sure the SRS unit and side impact sensors are installed securely with the mounting bolts torqued to 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
- Do not spill water or oil on the SRS unit or the side impact sensors, and keep them away from dust.
- Store the SRS unit and the side impact sensors in a cool (less than 104℉/40℃) and dry (less than 80 % relative humidity, no moisture) area.

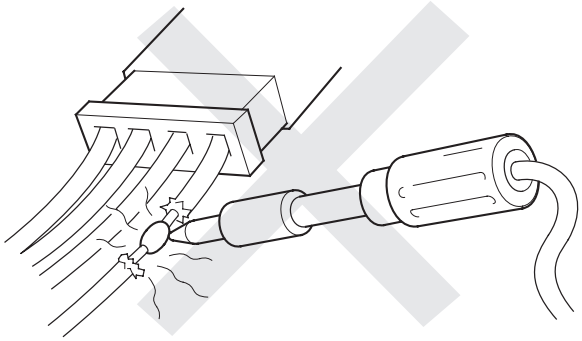
(cont'd)

Precautions and Procedures (cont'd)

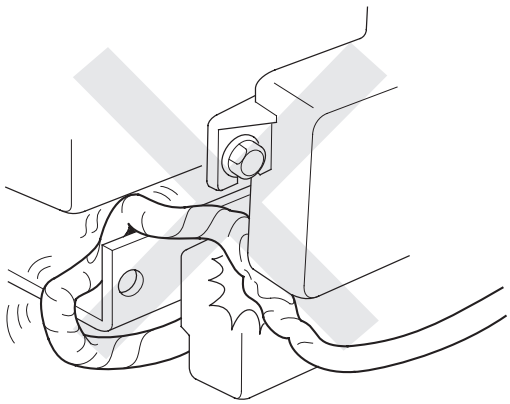
Wiring Precautions

Some of the SRS wiring can be identified by special yellow outer covering, and the SRS connectors can be identified by their yellow color.
Observe the instructions described in this section.

- Never attempt to modify, splice, or repair SRS wiring. If there is an open or damage in SRS wiring, replace the harness.



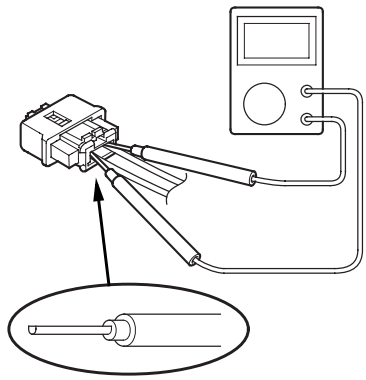
- Be sure to install the harness wires so they do not get pinched or interfere with other parts.



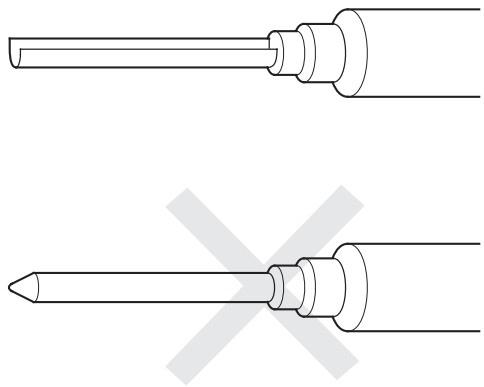
- Make sure all SRS ground locations are clean, and grounds are securely fastened for optimum metal-to-metal contact. Poor grounding can cause intermittent problems that are difficult to diagnose.

Precautions for Electrical Inspections

- When using electrical test equipment, insert the probe of the tester into the wire side of the connector. Do not insert the probe of the tester into the terminal side of the connector, and do not tamper with the connector.



- Use a U-shaped probe. Do not insert the probe forcibly.



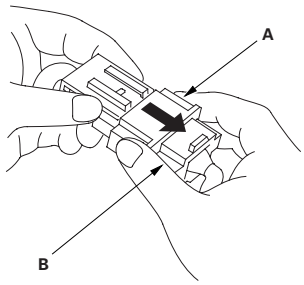
- Use specified service connectors in troubleshooting. Using improper tools could cause an error in inspection due to poor metal-to-metal contact.

Spring-loaded Lock Connector

Some SRS system connectors have a spring-loaded lock.

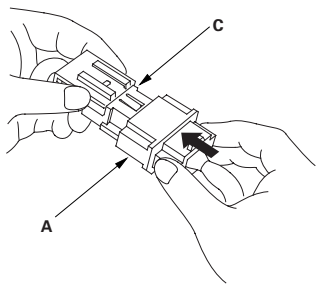
Front Airbag Connectors

Disconnecting
To release the lock, pull the spring-loaded sleeve (A) toward the stop (B) while holding the opposite half of the connector. Then pull the connector halves apart. Be sure to pull on the sleeve and not on the connector.

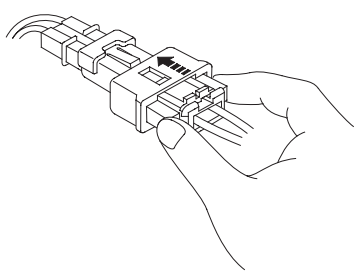


Connecting

1. To reconnect, hold the pawl-side connector, and press on the back of the sleeve-side connector in the direction shown. As the two connector halves are pressed together, the sleeve (A) is pushed back by the pawl (C). Do not touch the sleeve.

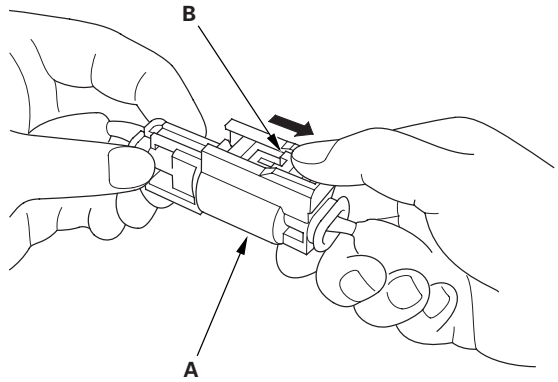


2. When the connector halves are completely connected, the pawl is released, and the spring-loaded sleeve locks the connector.

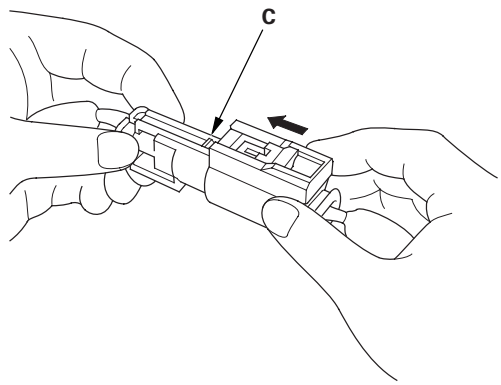


Side Airbag Connector

Disconnecting
To release the lock, pull the spring-loaded sleeve (A) and the slider (B) while holding the opposite half of the connector. Then pull the connector halves apart. Be sure to pull on the sleeve and not on the connector half.



Connecting
Hold both connector halves, and press them firmly together until the projection (C) of the sleeve-side connector clicks.



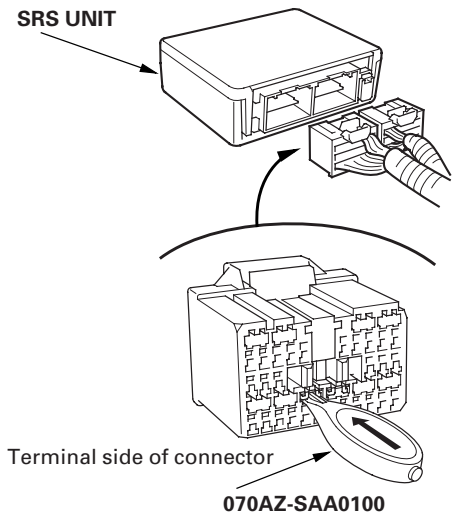
(cont'd)

Precautions and Procedures (cont'd)

Reopening the SRS Unit connector for diagnosis ('03-04 Models)

NOTE:
- To prevent damage of the connector cavity, insert the special tool straight into the cavity from the terminal side.
- Do not use the special tool if it is damaged.
- Make sure to remove the special tool before reconnection.

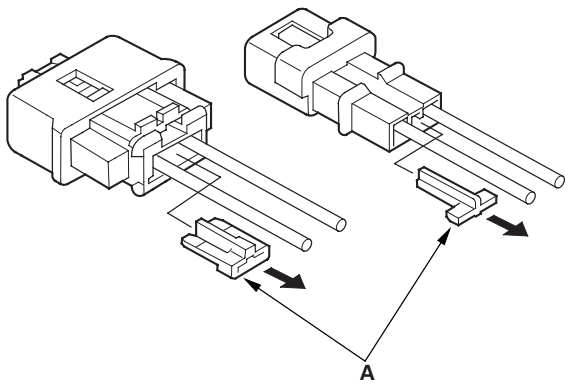
When the SRS unit connector is disconnected, a short circuit is created in the connector to prevent an airbag deployment. The circuit needs to be open sometimes when diagnosis is performed on the system. Insert the special tool(s) (No. 070AZ-SAA0100) in the specified cavities when it is necessary to keep the circuit open for diagnosis.



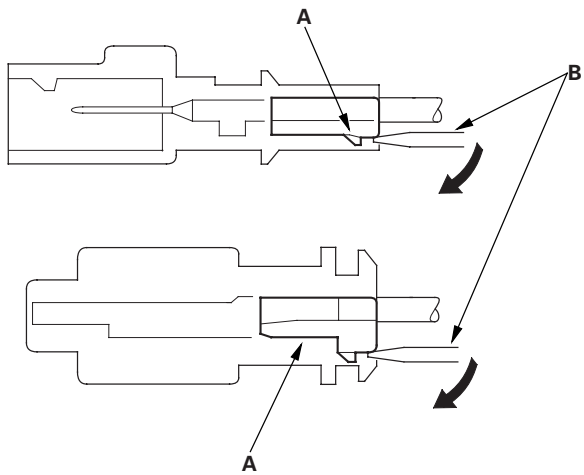
Backprobing Spring-loaded Lock Connectors

When checking voltage or resistance on this type of connector the first time, you must remove the retainer (A) to insert the tester probe from the wire side.

NOTE: It is not necessary to reinstall the removed retainer; the terminals will stay locked in the connector housing.



To remove the retainer (A), insert a flat-tip screwdriver (B) between the connector body and the retainer, then carefully pry out the retainer. Take care not to break the connector.



Seats with Side Airbags

Seats with side airbags have a ''SIDE AIRBAG'' label on the seat-back. Because the component parts (seat-back cover, cushion, etc.) of seats with and without airbags are different, make sure you install only the correct replacement parts.

- When cleaning, do not saturate the seat with liquid, and do not spray steam on the seat.
- Do not repair a torn or frayed seat-back cover. Replace the seat-back cover.
- After a collision in which the side airbag was deployed, replace the side airbag with new parts. If the seat-back cushion is split, it must be replaced. If the seat-back frame is deformed, it must be replaced.
- Never put aftermarket accessories on the seat (covers, pads, seat heaters, lights, etc.).

(cont'd)

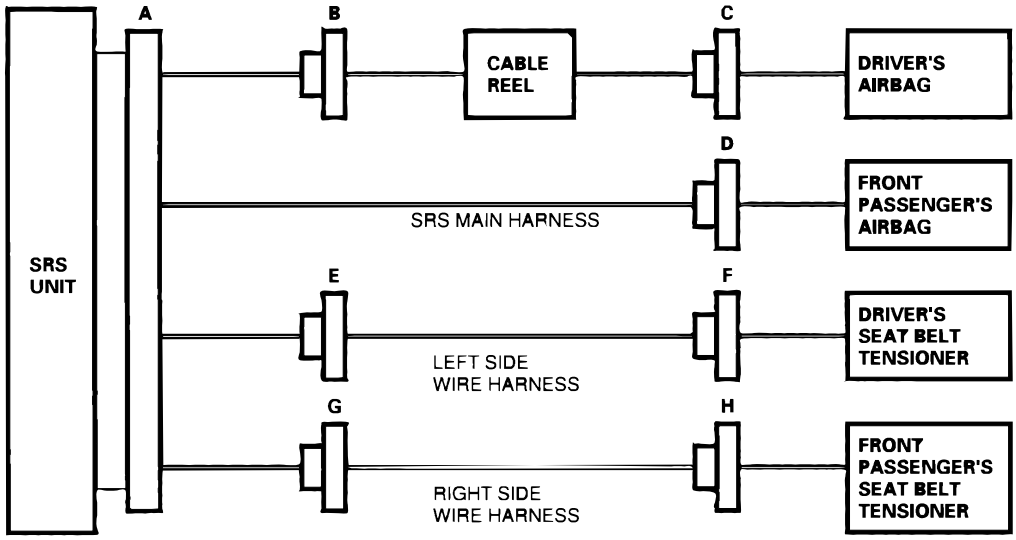
Precautions and Procedures (cont'd)

Disconnecting System Connectors ('99-01 Models)

Before removing a front airbag or other SRS related devices (the SRS unit, the cable reel and the seat belt tensioner connector), disconnecting connectors from related devices, or removing the dashboard or the steering column, disconnect the airbag connectors and seat belt tensioner connectors to prevent accidental deployment.

Turn the ignition switch OFF, disconnect the negative cable from the battery, and wait at least 3 minutes before beginning the following procedures.

- Before disconnecting the SRS unit 18P connector (A) from the SRS unit, disconnect both airbag 2P connectors (C, D) and both seat belt tensioner 2P connectors (F, H).
- Before disconnecting the cable reel 2P connector (B), disconnect the driver's airbag 2P connector (C).
- Before disconnecting the left side wire harness 2P connector (E), disconnect the driver's seat belt tensioner 2P connector (F).
- Before disconnecting the right side wire harness 2P connector (G), disconnect the front passenger's seat belt tensioner 2P connector (H).

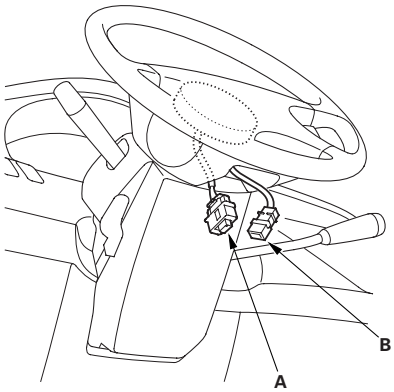


Disconnecting System Connectors ('99-01 Models) (cont'd)

1. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait at least 3 minutes.

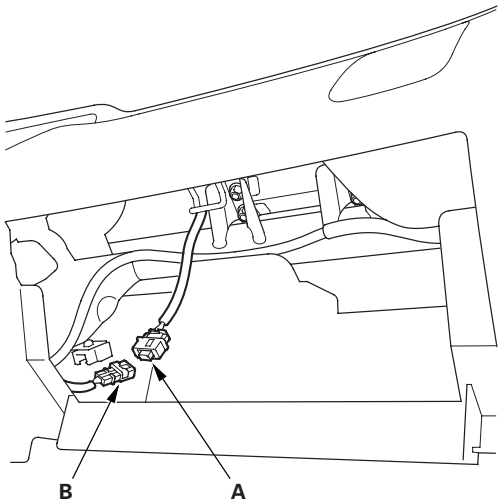
Driver's Airbag

2. Remove the access panel from the steering wheel, then disconnect the driver's airbag 2P connector (A) and cable reel 2P connector (B).



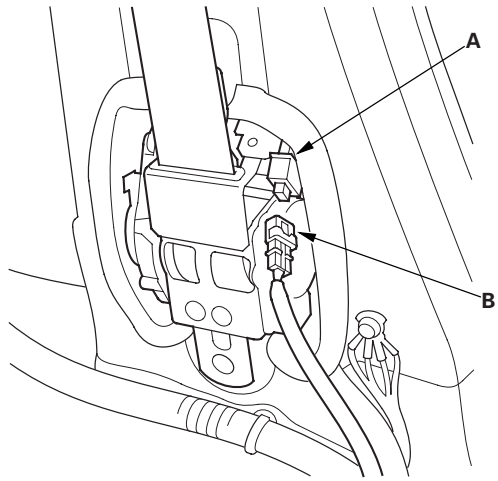
Front Passenger's Airbag

3. Remove the glove box, then disconnect the front passenger's airbag 2P connector (A) and SRS main harness 2P connector (B).



Seat Belt Tensioner

4. Remove the center pillar lower trim panel (see page 20-58). Disconnect the seat belt tensioner 2P connector (A) and side wire harness 2P connector (B).



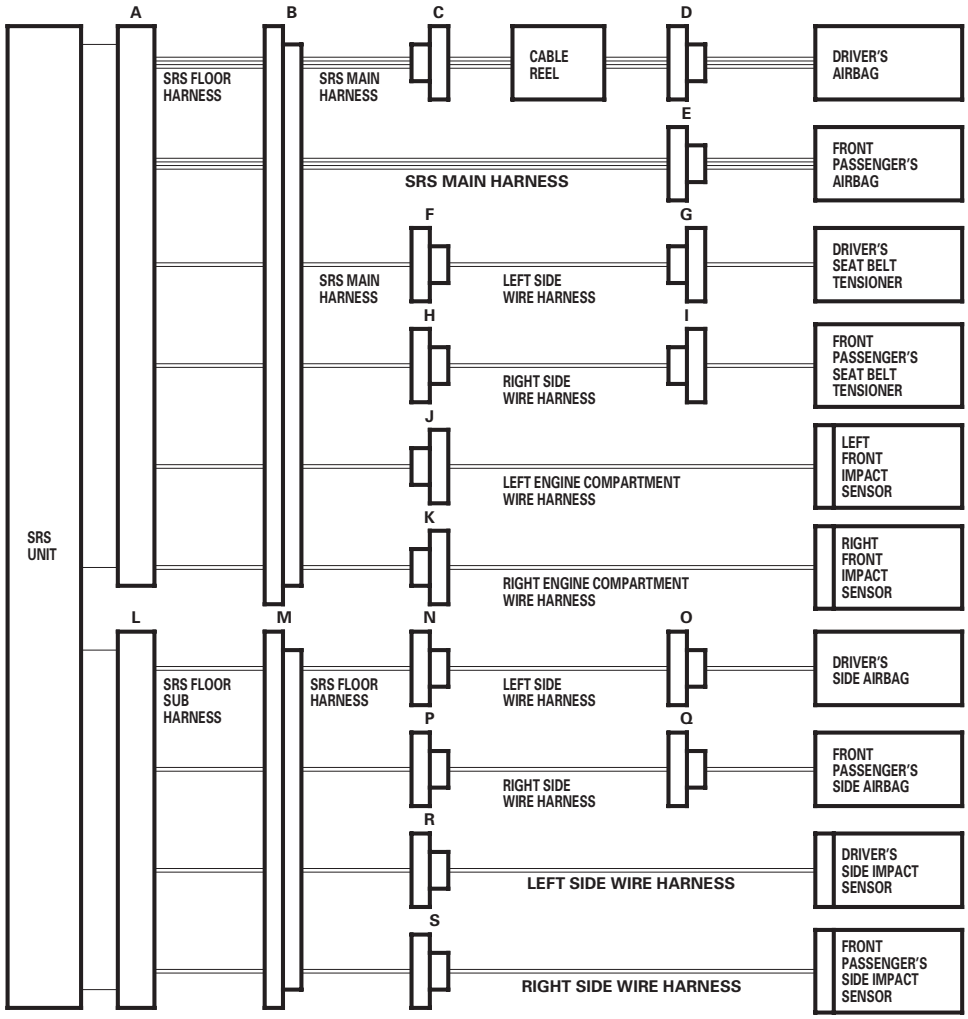
(cont'd)

Precautions and Procedures (cont'd)

Disconnecting System Connectors ('02 Model)

Before removing a front airbag, side airbag, or other SRS related devices (the SRS unit, the cable reel, the front impact sensors, the side impact sensors, and the seat belt tensioner connector), disconnecting connectors from related devices, or removing the dashboard or the steering column, disconnect the airbag connectors or the side airbag connectors to prevent accidental deployment.
Turn the ignition switch OFF, and disconnect the negative cable from the battery, and wait at least 3 minutes before beginning the following procedures.

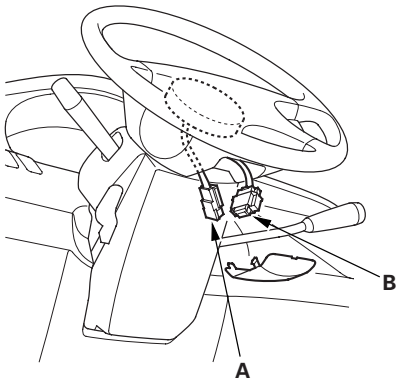
- Before disconnecting the SRS unit connector (A) from the SRS unit, disconnect the driver's airbag 4P connector (D), the front passenger's airbag 4P connector (E), the driver's seat belt tensioner 2P connector (G), and the front passenger's seat belt tensioner 2P connector (I).
- Before disconnecting the SRS unit connector (L) from the SRS unit, disconnect both side airbag 2P connectors (O, Q).
- Before disconnecting the cable reel 4P connector (C), disconnect the driver's airbag 4P connector (D).
- Before disconnecting the left side wire harness 2P connector (F), disconnect the driver's seat belt tensioner 2P connector (G).
- Before disconnecting the right side wire harness 2P connector (H), disconnect the front passenger's seat belt tensioner 2P connector (I).



1. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait at least 3 minutes.

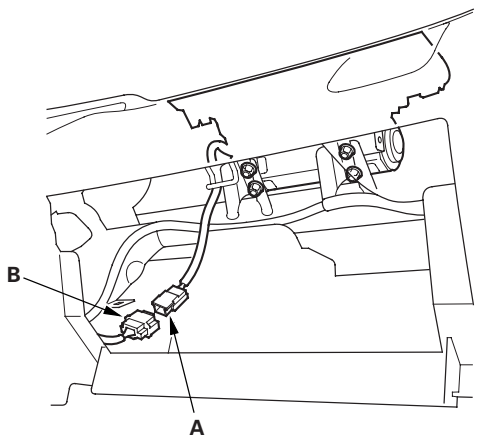
Driver's Airbag

2. Remove the access panel from the steering wheel, then disconnect the driver's airbag 4P connector (A) from the cable reel 4P connector (B).



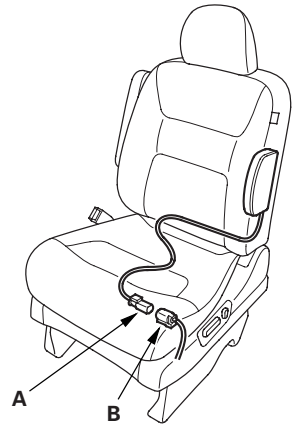
Front Passenger's Airbag

3. Remove the glove box, then disconnect the front passenger's airbag 4P connector (A) from the SRS main harness 4P connector (B).



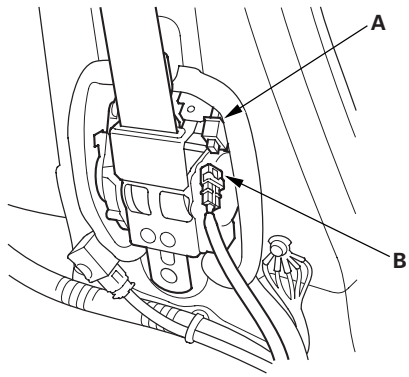
Side Airbag

4. Disconnect both side airbag 2P connectors (A) from the side wire harness 2P connectors (B).



Seat Belt Tensioner

5. Disconnect both seat belt tensioner 2P connectors (A) from the side wire harness 2P connectors (B).



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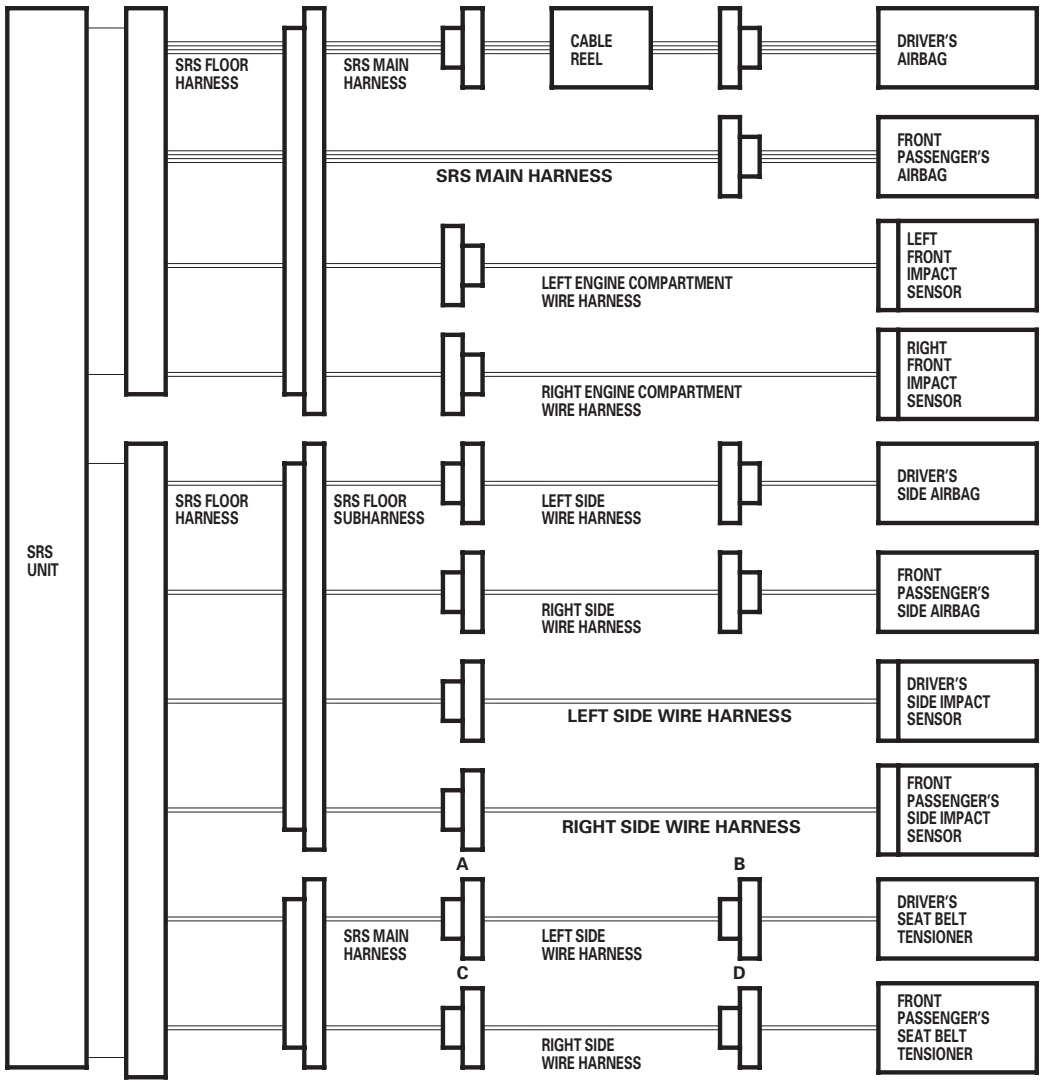
Precautions and Procedures (cont'd)

Disconnecting System Connectors ('03-04 Models)

Turn the ignition switch OFF, and disconnect the negative cable from the battery, and wait at least 3 minutes before beginning the following procedures.

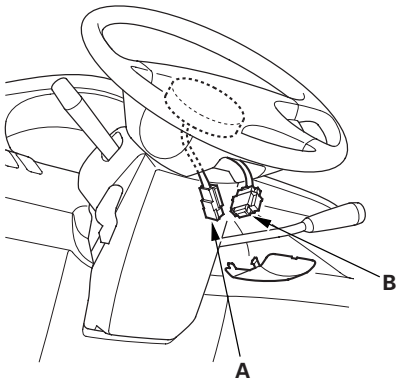
- Before disconnecting the left side wire harness 2P connector (A), disconnect the driver's seat belt tensioner 2P connector (B).
- Before disconnecting the right side wire harness 2P connector (C), disconnect the front passenger's seat belt tensioner 2P connector (D).



1. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait at least 3 minutes.

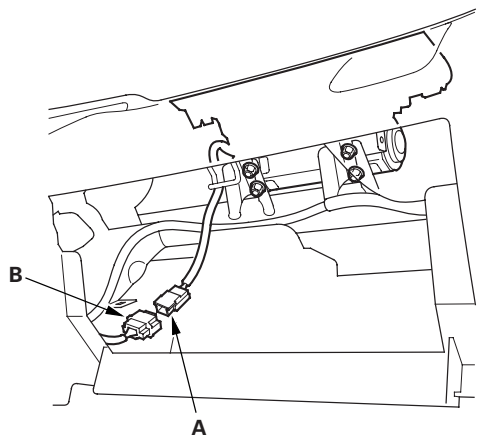
Driver's Airbag

2. Remove the access panel from the steering wheel, then disconnect the driver's airbag 4P connector (A) from the cable reel 4P connector (B).



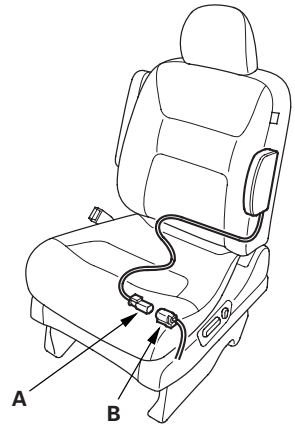
Front Passenger's Airbag

3. Remove the glove box, then disconnect the front passenger's airbag 4P connector (A) from the SRS main harness 4P connector (B).



Side Airbag

4. Disconnect both side airbag 2P connectors (A) from the side wire harness 2P connectors (B).

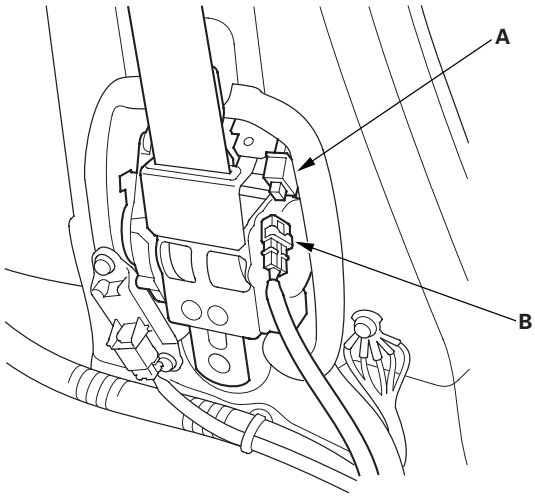


(cont'd)

Precautions and Procedures (cont'd)

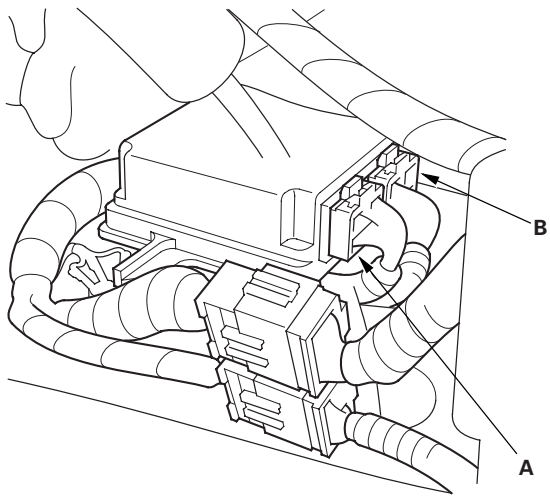
Seat Belt Tensioner

5. Remove the center pillar lower trim panel (see page 20-58). Disconnect both seat belt tensioner 2P connectors (A) from the side wire harness 2P connectors (B).



SRS Unit

6. Remove the center lower pocket (see page 20-67). Disconnect SRS unit connector A, and/or SRS unit connector B from the SRS unit.



General Troubleshooting Information

DTC (Diagnostic Trouble Codes)

The self-diagnostic function of the SRS system allows it to locate the causes of system problems and then store this information in memory. For easier troubleshooting, this data can be retrieved via a data link circuit.

- When you turn the ignition switch ON (II), the SRS indicator will come on. If it goes off after 6 seconds, the system is normal.
- If there is an abnormality, the system locates and defines the problem, stores this information in memory, and turns the SRS indicator on. The data will remain in the memory even when the ignition switch is turned off or if the battery is disconnected.
- When you connect the HDS to the 16P data link connector (DLC) to short the SCS terminal, and turn the ignition switch ON (II), the SRS indicator will indicate the diagnostic trouble code (DTC) by the number of blinks.
- When you connect the HDS to the 16P date link connector (DLC), you can retrieve the DTC in the Honda Systems ''SRS'' menu.
- After reading and recording the DTC, proceed with the troubleshooting procedure for this code.

Precautions

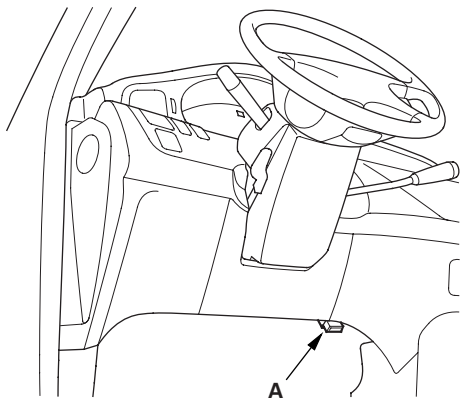
- Use only a digital multimeter to check the system. If it's not a Honda multimeter, make sure it's output is 10 mA (0.01A) or less when switched to the smallest value in the ohmmeter range. A tester with a higher output could damage the airbag circuit or cause accidental airbag deployment and possible injury.
- Whenever the ignition switch is ON (II), or has been turned OFF for less than 3 minutes, be careful not to bump the SRS unit; the airbags could accidentally deploy and cause damage or injuries.
- Before you remove the SRS harness, disconnect the driver's airbag connector, the front passenger's airbag connector, both side airbag connectors, and both seat belt tensioner connectors.
- Make sure the battery is sufficiently charged. If the battery is dead or low, measuring values won't be correct.
- Do not touch a tester probe to the terminals in the SRS unit or harness connectors, and do not connect the terminals with a jumper wire. Use only the backprobe set and the HDS. Backprobe spring-loaded lock type connectors correctly.

Reading the DTC ('99-02 Models)

When the SRS indicator is on, read the DTC using either of the following methods:

HDS

Connect the HDS to the 16P Data Link Connector (DLC) (A).



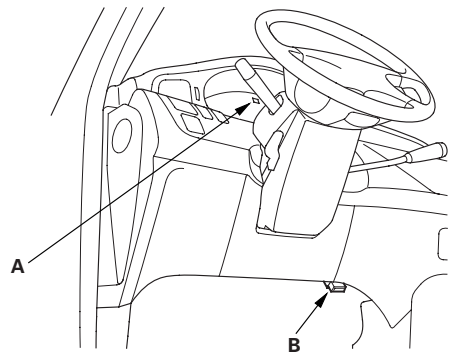
(cont'd)

General Troubleshooting Information (cont'd)

HDS (retrieving the flash codes)

The SRS indicator (A) indicates the DTC by the number of blinks when the HDS is connected to the DLC (data link connector) (16P) (B).

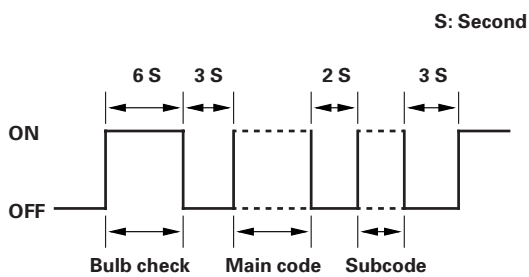
1. Make sure the ignition switch is OFF.
2. Connect the HDS to the DLC (16P) (B), and follow the Tester's prompts in the ''SCS'' menu.



3. Make sure the SCS line is grounded, then turn the ignition switch ON (II). The SRS indicator comes on for about 6 seconds, and then goes off. Then it will blink to indicate the DTCs.
4. Read the DTC.
5. Turn the ignition switch OFF, and wait for 10 seconds.
6. Disconnect the HDS from the DLC (16P) (B).
7. Proceed with the troubleshooting procedure for the DTC.

Patterns of DTC Indications

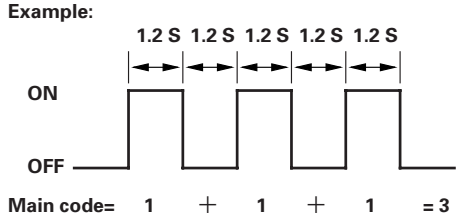
The DTC consists of a main code and subcode.



Reading the main code

In case of 1~10
Count the number of blinks.

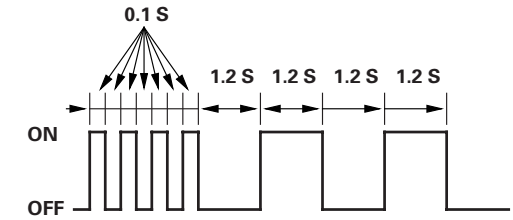
Example:



Main code= 1 + 1 + 1 = 3

In case of 11~15
Four fast blinks count as 10.
Add any further blinks together as shown.

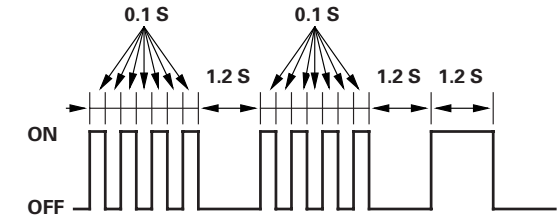
Example:



Main code= 10 + 1 + 1 = 12

In case of 20 or more
Two sets of four continuous blinks count as 20.
Add any further blinks together as shown.

Example:

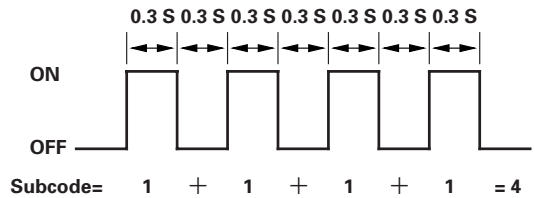


Main code= 10 + 10 + 1 = 21

Reading the subcode

Count the number of blinks.

Example:

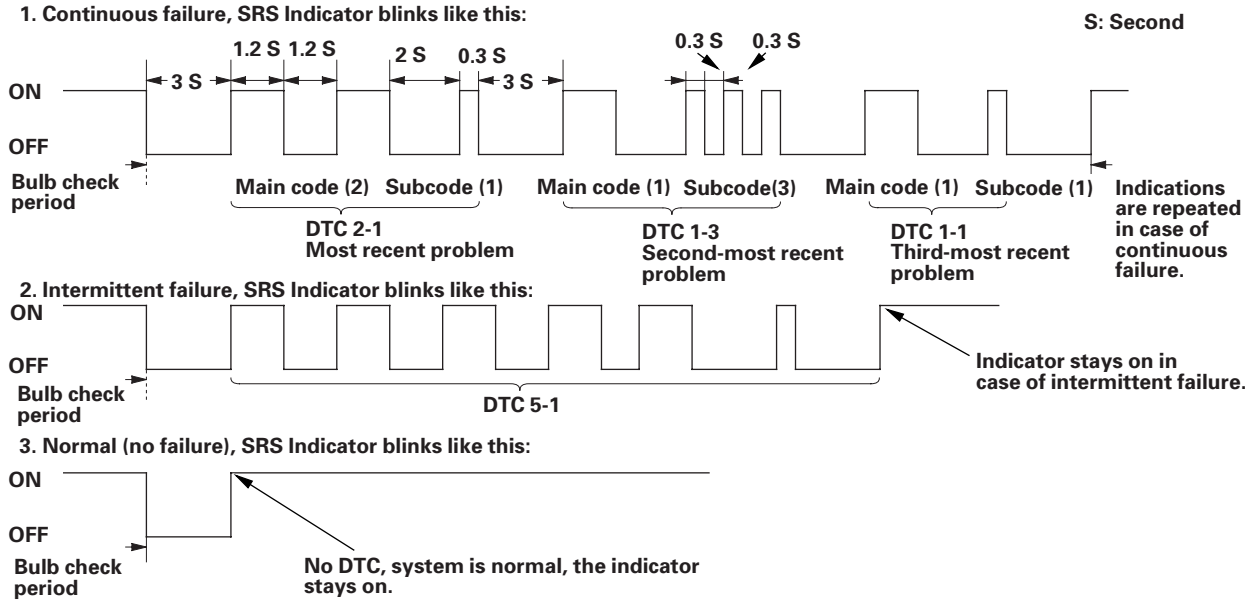


Subcode= 1 + 1 + 1 + 1 = 4

If the main code is '3', and the subcode is '4', record a DTC 3-4.

- Including the most recent problem, up to three different DTCs can be indicated.
- In case of a continuous failure, the DTC will be indicated repeatedly.
- In case of an intermittent failure, the SRS indicator will indicate the DTCs one time, then it will stay on.
- If both a continuous and an intermittent failure occur, both DTCs will be indicated as continuous failures.
- When the system is normal (no DTC), the SRS indicator will stay on.
- If the SRS indicator comes on continuously without a DTC, there may be a problem with the system.
- If the SRS indicator does not come on as indicated above, always check for an open or a short to ground in the SCS circuit before troubleshooting the system.

Example of DTC Indications

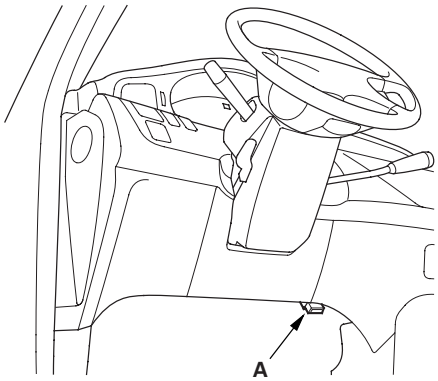


(cont'd)

General Troubleshooting Information (cont'd)

Reading the DTC ('03-04 Models)

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the DLC (A).



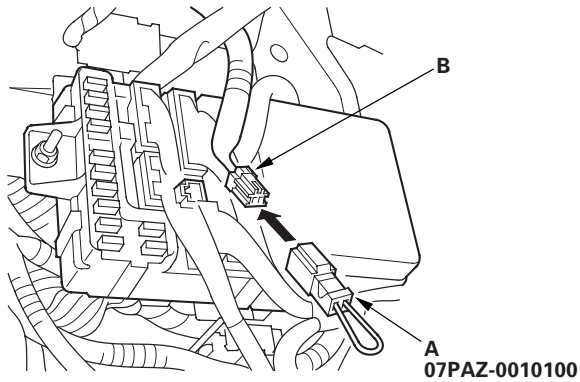
3. Turn the ignition switch ON (II).
4. Select the DTC(s) in the DTC MENU of the HDS.
5. Read the DTC.
6. Turn the ignition switch OFF, and wait for 10 seconds.
7. Disconnect the HDS from the DLC.
8. Do the troubleshooting procedure for the DTC.

Erasing the DTC Memory ('99-02 Models)

Special Tools Required
SCS service connector 07PAZ-0010100

To erase the DTC(s) from the SRS unit, use the HDS or follow this procedure.

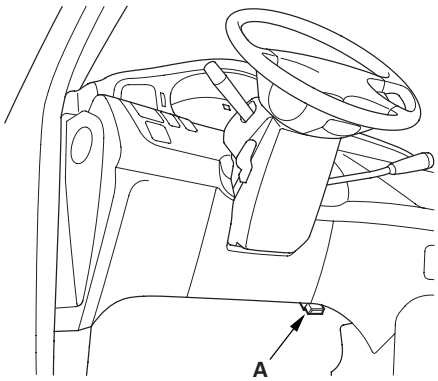
1. Make sure the ignition switch is OFF.
2. Connect the SCS service connector (A) to the MES connector (2P) (B). Do not use a jumper wire.



3. Turn the ignition switch ON (II).
4. The SRS indicator will come on for about 6 seconds, and then go off. Remove the SCS service connector from the MES connector within 4 seconds after the indicator goes off.
5. The SRS indicator will come on again. Reconnect the SCS service connector to the MES connector within 4 seconds after the indicator comes on.
6. When the SRS indicator goes off, remove the SCS service connector from the MES connector within 4 seconds.
7. The SRS indicator will blink two times indicating that the memory has been erased.
8. Turn the ignition switch OFF, and wait for 10 seconds.
9. Turn the ignition switch ON (II) again. The SRS is OK if the SRS indicator comes on for 6 seconds, and then goes off.

Erasing the DTC Memory ('03-04 Models)

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the DLC (A).



3. Turn the ignition switch ON (II).
4. Select DTC CLEAR in the TEST MODE MENU of the HDS. This erases the DTC(s).
5. Turn the ignition switch OFF, and wait for 10 seconds.
6. Disconnect the HDS from the DLC.

Troubleshooting Intermittent Failures

If there was a malfunction, but it doesn't recur, it will be stored in the memory as an intermittent failure, and the SRS indicator will come on.

After checking the DTC, troubleshoot as follows:

1. Read the DTC.
2. Erase the DTC memory.
3. With the shift lever in neutral, start the engine, and let the engine idle.
4. The SRS indicator will come on for about 6 seconds and then go off.
5. Shake the wire harness and the connectors, take a test drive (quick acceleration, quick braking, cornering), turn the steering wheel fully left and right, and hold it there for 5 to 10 seconds. If the problem recurs, the SRS indicator will come on.
6. If you can't duplicate the intermittent failure, the system is OK at this time.

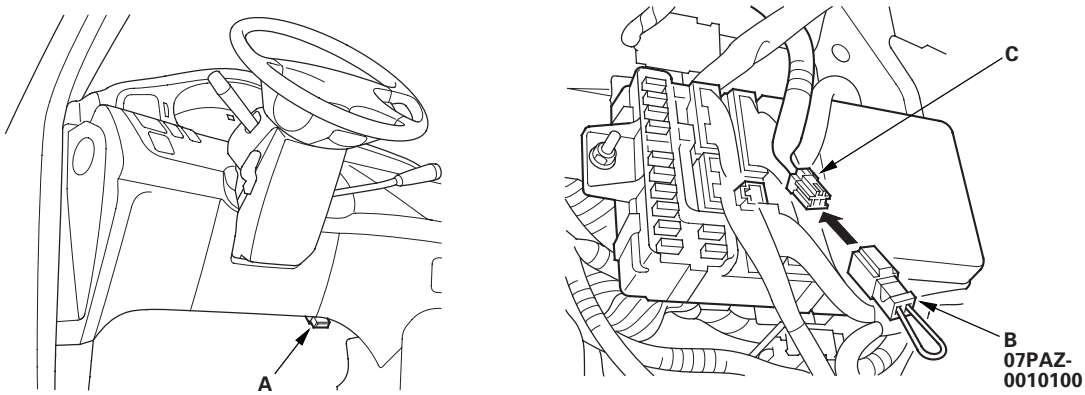
(cont'd)

General Troubleshooting Information (cont'd)

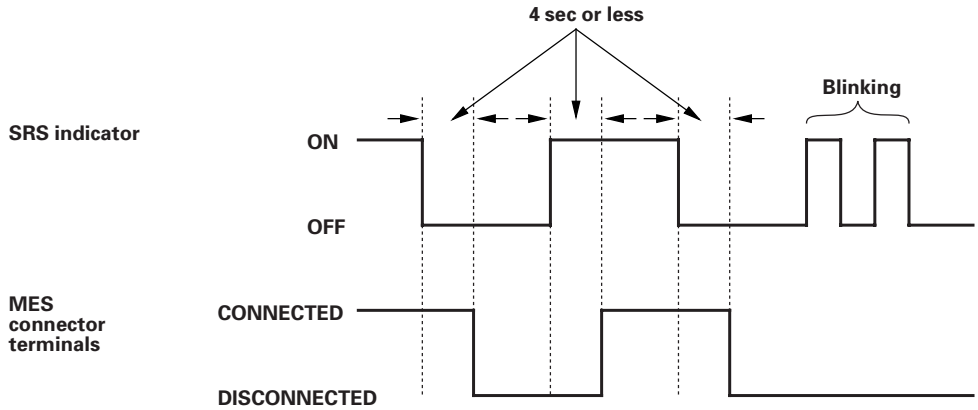
Initializing the OPDS (Occupant Position Detection System) Unit ('02 Model)

When the seat-back cover, seat-back cushion, and/or OPDS unit is replaced, initialize the OPDS system by following the procedure.
NOTE: Make sure the passenger's seat is dry. Set the seat-back in the normal position, and make sure there is nothing on the front passenger's seat.

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the DLC (16P) (A), and follow the prompts in the ''SCS'' menu to ground the SCS line.
3. Connect the SCS service connector (B) to the yellow MES connector (2P) (C). Do not use a jumper wire.



4. Turn the ignition switch ON (II).
5. The SRS indicator comes on for about 6 seconds and goes off. Remove the SCS service connector from the MES connector within 4 seconds after the SRS indicator went off.
6. The SRS indicator comes on again. Reconnect the SCS service connector to the MES connector within 4 seconds after the SRS indicator comes on.
7. The SRS indicator goes off. Remove the SCS service connector from the MES connector within 4 seconds.
8. Watch the SRS indicator.
   - If the indicator blinks two times and then stays on, the OPDS is initialized, but the DTCs need to be erased. Go to step 9, then erase the DTCs.
   - If the indicator blinks two times and then goes off, the OPDS unit is initialized. Go to step 9.
   - If the indicator stays on without first blinking, the OPDS is not initialized. Read the DTC, if DTC 15-1 is indicated, repeat the initialization procedure. If another DTC is indicated, go to the DTC Troubleshooting Index.
9. Turn the ignition switch off, and disconnect the HDS from the DLC.

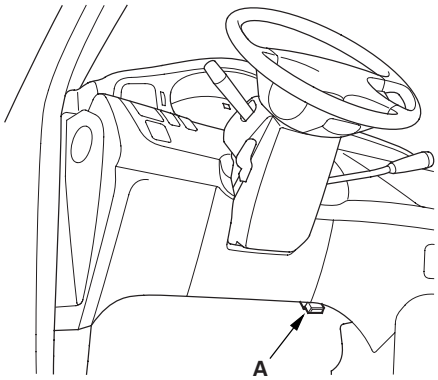


Initializing the OPDS (Occupant Position Detection System) Unit ('03-04 Models)

When a seat-back cover, seat-back cushion, and/or OPDS unit is replaced, initialize the OPDS by following the procedure.

NOTE: Make sure the front passenger's seat is dry. Set the seat-back in the normal position, and make sure there is nothing on the front passenger's seat.

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the DLC (A).



3. Turn the ignition switch ON (II).
4. Select OPDS UNIT in the ADJUSTMENT MENU of the HDS. This initializes the OPDS.
5. Turn the ignition switch OFF.
6. Disconnect the HDS from the DLC.

(cont'd)

General Troubleshooting Information (cont'd)

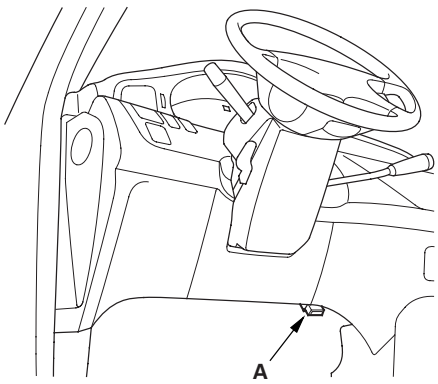
Calibrating the Front Passenger's Weight Sensor Unit ('03-04 Models)

When the front passenge's weight sensor and/or front passenger's weight sensor unit is replaced, calibrate the weight sensor unit by following the procedure.

While calibrating the front passenger's weight sensor unit, observe these precautions:
- Make sure all components of the front passenger's seat are correctly installed.
- Make sure all option parts such as seat cover are removed.
- Position the front passenger's seat to the rear most position, adjust the seat height to the lowest position, and adjust the reclining to the most forward position. Do not move from these positions.
- Make sure nothing is on or under the front passenger's seat, and there is nothing in the seat-back pocket.
- Keep the windows closed.
- Perform all calibration procedures except test driving in the service bay.
- Make sure the vehicle is on level ground.
- Keep the A/C and the heater off.
- Do not touch the front passenger's seat until you finish the next step after you start the drive the vehicle.
- Do not expose the front passenger's seat to sudden temperature change.

1. Position the front passenger's seat to the rear most position, adjust the seat height to the lowest position, and adjust the recliner to the most forward position. Do not move from these positions.

2. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (A).



3. Drive the vehicle, and accelerate to 20 mph (36 km/hr), then stop on level ground.

4. From the adjustment menu, select ''SWS INIT.''

5. Prepare a weight between 55 to 77 lbs (25 to 35 kg) then measure and note its actual weight (M) with a weight scale, machine, and take a note.

   NOTE: The accuracy of weight scale must be within ±2.2 lbs (1 kg).

6. Place the prepared weight on the front passenger's seat.

   NOTE: Leave the HDS connected in the Misc Menu.

7. Drive the vehicle, and accelerate to 20 mph (36 km/hr), then stop on level ground.

8. From the inspection menu, select ''SEAT OUTPUT CHK.'' The weight (T) of the front passenger's seat is recorded by the HDS.

9. Calculate the variance between the weight measured by the weight scale (M) and by the HDS (T), using the formula provided.

   Variance = (T) − (M) < ±8.6 lbs (3.9 kg)

   M: Weight measured by the weight scale
   T: Weight measured by the tester with the weight on the seat

   - If the variance is ±8.6 lbs (±3.9 kg) or less, calibration is complete. Go to step 18.
   - If the variance is more than ±8.6 lbs (±3.9 kg), remove the seat weight sensors, and reinstall them, then go to step 10.

10. Remove the weight from the front passenger's seat.

11. Drive the vehicle, accelerate to 20 mph (36 km/hr), then stop on level ground.

12. From the inspection menu, select ''SEAT OUTPUT CHK.'' The weight (T0) of the front passenger's seat is recorded by the HDS.

    - If the reading on the tester (T0) is ±6.6 lbs (±3.0 kg) or less, go to step 13.
    - If the reading on the tester (T0) is mean than ±6.6 lbs (±3.0 kg), repeat steps 3−9.

13. Measure and note the prepare weight (M1) again with a weight scale.

14. Place the weight on the front passenger's seat.

15. Drive the vehicle, accelerate to 20 mph (36 km/hr), then stop on level ground.

16. From the inspection menu, select ''SEAT OUTPUT CHK.'' The weight (T1) of the front passenger's seat is recorded by the HDS.

17. Calculate the variance between the weight measured by the weight scale and the tester, by using the formula provided.

    Variance = (T1)−(M1)＜±8.6 lbs (3.9 kg)

    T1: Weight measure by the tester with the weight on the seat
    M1: Weight measure by the weight scale.

    - If the variance is ±8.6 lbs (±3.9 kg) or less, calibration is complete. go to step 18.
    - If the variance is more than ±8.6 lbs (±3.9 kg), replace the front passenger's weight sensors (if they were not replaced before this step), and repeat this procedure from the beginning.

    NOTE: If the front passenger's weight sensors were not replaced before this step, replace them before going to the next step.

18. Turn the ignition switch OFF, and disconnect the HDS from the DLC.

(cont'd)

General Troubleshooting Information (cont'd)

Operation Check of the Front Passenger's Weight Sensor Unit ('03-04 Models)

The operation of the front passenger's weight sensor unit must be checked after any of these actions.
- Replacement of front passenger's seat component(s) (except weight sensor unit and/or weight sensors)
- After a vehicle collision

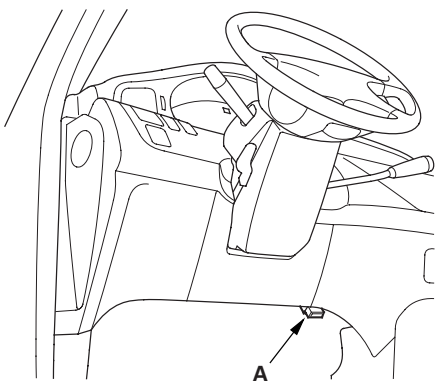
When doing the operation check, observe these precautions:
- Make sure all components of the front passenger's seat are correctly installed.
- Make sure all optional parts such as seat covers are removed.

After Replacing Front Passenger's Seat Component(s)

1. Position the front passenger's seat to the rear most position, adjust the seat height to the lowest position, and adjust the recliner to the most forward position. Do not move from these positions.

   - Make sure nothing is on or under the front passenger's seat, and there is nothing in the seat-back pocket.
   - Keep the windows closed.
   - Perform all calibration procedures except test driving in the service bay.
   - Make sure the vehicle is on level ground.
   - Keep the A/C and the heater off.
   - Do not touch the front passenger's seat until you drive the vehicle.
   - Do not expose the front passenger's seat to sudden temperature changes.

2. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (A).



3. Drive the vehicle, accelerate to 20 mph (36 km/hr), then stop on level ground.

4. From the Main Menu, select SRS, then Misc Test, then Inspection. Select ''SEAT OUTPUT CHK.'' in the tester's Inspection Menu. The weight (T0) of the front passenger's seat is recorded by the HDS.

   - If the reading on the tester (T0) is ±6.6 lbs (±3.0 kg), or less, go to step 5.
   - If the reading on the tester (T0) is more than ±6.6 lbs (±3.0 kg), turn the ignition switch OFF, and go to step 1 of ''Calibrating the Front Passenger's Weight Sensor Unit''.

5. Prepare a weight between 55 to 77 lbs (25 to 35 kg), then measure and note its actual weight (M) with a weight scale.

   NOTE: The accuracy of weight scale must be within ±2.2 lbs (1 kg).

6. Place the prepared weight on the front passenger's seat.

7. Drive the vehicle, and accelerate to 20 mph (36 km/hr), then stop on level ground.

8. From the Main Menu, select SRS, then Misc Test, then Inspection. Select ''SEAT OUTPUT CHK.'' in Inspection Menu. The weight (T1) of the front passenger's seat is recorded by the HDS.

9. Calculate the variance between the weight measured by the weight scale and the tester with the formula.

   Variance = ((T1)−(T0)−(M1))＜±8.6 lbs (3.9 kg)

   T1: Weight measured by the tester with the weight on the seat.
   T0: Weight measured by the tester with no load on the seat.
   M1: Weight measured by the weight scale.

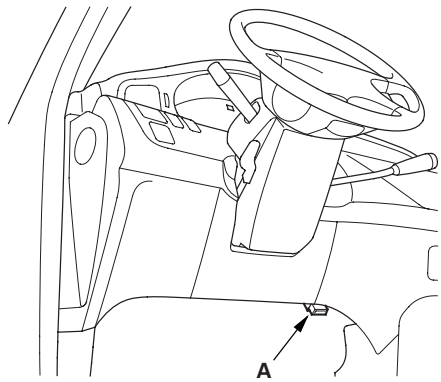
   - If the variance is ±8.6 lbs (±3.9 kg) or less, the check is complete. Go to step 10.
   - If the variance is more than ±8.6 lbs (±3.9 kg), remove the seat weight sensors, reinstall them, then repeat this procedure from the beginning.
   - If after reinstalling the front passenger's seat weight sensors, the variance is still more than ± 8.6 lbs (±3.9 kg), replace the front passenger's weight sensors (if they were not replaced).

10. Turn the ignition switch OFF, and disconnect the tester from the DLC.

After a Vehicle Collision

11. Position the front passenger's seat to the rear most position, adjust the recliner to the most forward position. Do not move from these positions.

12. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (A).



13. Drive the vehicle, accelerate to 20 mph (36 km/hr), then stop on level ground.

14. From the Inspection Menu, select ''SEAT OUTPUT CHK.'' The weight (T0) of the front passenger's seat is recorded by the HDS.

    - If the reading on the tester (T0) is ±6.6 lbs (±3.0 kg) or less, go to step 15.
    - If the reading on the tester (T0) is more than ±6.6 lbs (±3.0 kg), remove the seat weight sensors, reinstall them, then repeat steps 11 through 13.
    - If after reinstalling the front passenger's seat weight sensors, the reading on the tester (T0) is still more than ±6.6 lbs (±3.0 kg), go to step 1 of ''Calibrating the Front Passenger's Weight Sensor Unit''

15. Prepare a weight between 55 to 77 lbs (25 to 35 kg), then measure and note its actual weight (M) with a weight scale.

    NOTE: The accuracy of weight scale must be within ±2.2 lbs (1 kg).

16. Place the prepared weight on the front passenger's seat.

(cont'd)

General Troubleshooting Information (cont'd)

17. Drive the vehicle, and accelerate to 20 mph (36 km/hr), then stop on level ground.

18. From the Inspection Menu, select ''SEAT OUTPUT CHK.'' The weight (T1) of the front passenger's seat is recorded by the HDS.

19. Calculate the variance between the weight measured by the weight scale and by the tester, using the formula provided.

    Variance = ((T1)－(T0)－(M1))＜±8.6 lbs (3.9 kg)

    T1: Weight measured by the tester with the weight on the seat.
    T0: Weight measured by the tester with no load on the seat.
    M1: Weight measured by weighing machine with the weight on it

    - If the variance is ±8.6 lbs (±3.9 kg) or less, operation is complete. Go to step 20.
    - If the variance is more than ±8.6 lbs (±3.9 kg), remove the seat weight sensors, and reinstall them, repeat this procedure from step 11.
    - If after reinstalling the front passenger's seat weight sensors, the variance still more than ±8.6 lbs (±3.9 kg), replace the front passenger's weight sensors and the seat riser, then go to step 1 on ''Calibrating the Front Passenger's Weight Sensor Unit''.

20. Turn the ignition switch OFF, and disconnect the HDS from the DLC.

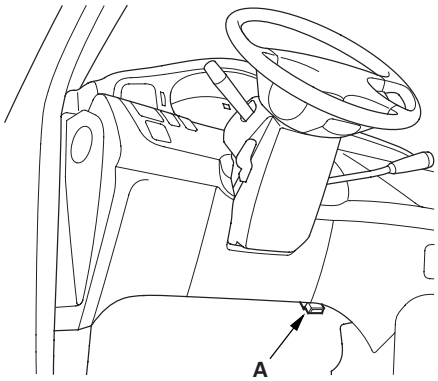
Operation Check of the Driver's Seat Position Sensor ('03-04 Models)

The driver's seat position sensor must be checked after any of these actions.
- Driver's seat position sensor replacement
- Cover plate (front side of driver's seat slide rail) replacement

1. Make sure the ignition switch is OFF (0).

2. Make sure the driver's seat is at its full forward positon.

3. Connect the HDS to the DLC (A).



4. Turn the ignition switch ON (II).

5. From the tester's Main Menu, select SRS, then Data List, then All Data List. Select SPS. In the All Data List.

6. Move the seat all the way forward, and mark the seat with a line on the height outer cover where the front riser cover meets the seat riser (using a piece of tape). SPS should read ''NEAR''.

   NOTE: It takes a few seconds for the tester to display changes, so wait about 5 seconds between each move.

   - Move the seat back in small increments (about 5 mm) until SPS reads ''NOT NEAR''. The seat should be approximately 25 mm from the front.
   - If the SPS data does not work as described above, check the driver's seat position sensor or the cover plate for damage, and replace parts as needed.

7. Turn the ignition switch OFF, and disconnect the HDS from the DLC.

DTC Troubleshooting Index

'99-01 Models

DTC	Detection Item	Notes
1-1	Open in driver's airbag inflator	(see page 23-68)
1-2	Increased resistance in driver's airbag inflator	(see page 23-68)
1-3	Short to another wire or decreased resistance in driver's airbag inflator	(see page 23-70)
1-4	Short to power in driver's airbag inflator	(see page 23-72)
1-5	Short to ground in driver's airbag inflator	(see page 23-74)
2-1	Open in front passenger's airbag inflator	(see page 23-76)
2-2	Increased resistance in front passenger's airbag inflator	(see page 23-76)
2-3	Short to another wire or decreased resistance in front passenger's airbag inflator	(see page 23-77)
2-4	Short to power in front passenger's airbag inflator	(see page 23-79)
2-5	Short to ground in front passenger's airbag inflator	(see page 23-80)
3-1	Open in driver's seat belt tensioner	(see page 23-82)
3-2	Increased resistance in driver's seat belt tensioner	(see page 23-82)
3-3	Short to another wire or decreased resistance in driver's seat belt tensioner	(see page 23-84)
3-4	Short to power in driver's seat belt tensioner	(see page 23-86)
3-5	Short to ground in driver's seat belt tensioner	(see page 23-88)
4-1	Open in front passenger's seat belt tensioner	(see page 23-90)
4-2	Increased resistance in front passenger's seat belt tensioner	(see page 23-90)
4-3	Short to another wire or decreased resistance in front passenger's seat belt tensioner	(see page 23-92)
4-4	Short to power in front passenger's seat belt tensioner	(see page 23-94)
4-5	Short to ground in front passenger's seat belt tensioner	(see page 23-96)
5-1	Internal failure of SRS unit NOTE: Before troubleshooting DTCs 5-1 through 8-6, check battery /system voltage. If the voltage is low, repair the charging system before troubleshooting the SRS.	(see page 23-98)
5-4		
5-5		
6-1		
6-2		
6-3		
6-4		
7-1		
7-2		
7-3		
8-1		
8-2		
8-3		
8-4		
8-6		
9-1	Internal failure of the SRS unit. If intermittent, it could mean internal failure of the unit or a faulty indicator circuit. Refer to Troubleshooting Intermittent Failures (see page 23-39). NOTE: Before troubleshooting DTC 9-1 or 9-2, check battery/ system voltage. If the voltage is low, repair the charging system before troubleshooting the SRS.	(see page 23-98)
9-2	Internal failure of the SRS unit. If intermittent, it could mean internal failure of the power supply (VB line). Refer to Troubleshooting Intermittent Failures (see page 23-39). NOTE: Before troubleshooting DTC 9-1 or 9-2, check battery/ system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS.	
10-1	Seat belt tensioners (and airbag(s)) deployed.	(see page 23-98)

'02 Model

DTC	Detection Item	Notes
1-1	Open or increased resistance in driver's airbag inflator	(see page 23-99)
1-3	Short to another wire or decreased resistance in driver's airbag inflator	(see page 23-102)
1-4	Short to power in driver's airbag inflator	(see page 23-105)
1-5	Short to ground in driver's airbag inflator	(see page 23-108)
2-1	Open or increased resistance in front passenger's airbag inflator	(see page 23-111)
2-3	Short to another wire or decreased resistance in front passenger's airbag inflator	(see page 23-113)
2-4	Short to power in front passenger's airbag inflator	(see page 23-115)
2-5	Short to ground in front passenger's airbag inflator	(see page 23-117)
3-1	Open or increased resistance in driver's seat belt tensioner	(see page 23-119)
3-3	Short to another wire or decreased resistance in driver's seat belt tensioner	(see page 23-122)
3-4	Short to power in driver's seat belt tensioner	(see page 23-125)
3-5	Short to ground in driver's seat belt tensioner	(see page 23-128)
4-1	Open or increased resistance in passenger's seat belt tensioner	(see page 23-131)
4-3	Short to another wire or decreased resistance in passenger's seat belt tensioner	(see page 23-134)
4-4	Short to power in passenger's seat belt tensioner	(see page 23-137)
4-5	Short to ground in passenger's seat belt tensioner	(see page 23-140)
5-1	Internal failure of SRS unit NOTE: Before troubleshooting DTCs 5-1 through 8-6, check battery /system voltage. If the voltage is low, repair the charging system before troubleshooting the SRS.	(see page 23-143)
5-2		
5-4		
5-8		
6-3		
6-4		
6-7		
6-8		
7-1		
7-2		
7-3		
8-1		
8-2		
8-3		
8-4		
8-5		
8-6		

(cont'd)

DTC Troubleshooting Index (cont'd)

'02 Model

DTC	Detection Item	Notes
9-1	Internal failure of the SRS unit. If intermittent, it could mean internal failure of the unit or a faulty indicator circuit. Refer to Troubleshooting Intermittent Failures (see page 23-38). NOTE: Before troubleshooting DTC 9-1 or 9-2, check battery/ system voltage. If the voltage is low, repair the charging system before troubleshooting the SRS.	(see page 23-143)
9-2	Internal failure of the SRS unit. If intermittent, it could mean internal failure of the power supply (VB line). Refer to Troubleshooting Intermittent Failures (see page 23-38). NOTE: Before troubleshooting DTC 9-1 or 9-2, check battery/ system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS.	
9-3	Faulty driver's seat belt buckle switch	(see page 23-145)
9-4	Faulty front passenger's seat belt buckle switch	(see page 23-150)
9-6	Faulty left front sensor	(see page 23-155)
9-7	Faulty right front sensor	(see page 23-159)
10-1	Seat belt tensioners (and airbag(s)) deployed	(see page 23-143)
10-2	Driver's side airbag deployed	
10-3	Seat belt tensioners (and airbag(s)) and driver's side airbag deployed	
10-4	Front passenger's side airbag deployed	
10-5	Seat belt tensioners (and airbag(s)) and front passenger's side airbag deployed	
10-6	Driver's and front passenger's side airbags deployed	
10-7	Seat belt tensioners (and airbag(s)) and driver's and front passenger's side airbags deployed	
11-1	Open or increased resistance in driver's side airbag inflator	(see page 23-163)
11-3	Short to another wire or decreased resistance in driver's side airbag inflator	(see page 23-165)
11-4	Short to power in driver's side airbag inflator	(see page 23-167)
11-5	Short to ground in driver's side airbag inflator	(see page 23-169)
12-1	Open or increased resistance in front passenger's side airbag inflator	(see page 23-171)
12-3	Short to another wire or decreased resistance in front passenger's side airbag inflator	(see page 23-173)
12-4	Short to power in front passenger's side airbag inflator	(see page 23-175)
12-5	Short to ground in front passenger's side airbag inflator	(see page 23-177)
13-1	Internal failure of the driver's side impact sensor	(see page 23-144)
13-2		
13-3	No signal from the driver's side impact sensor	(see page 23-179)
13-4	Faulty power supply to the driver's side impact sensor	(see page 23-181)
14-1	Internal failure of the front passenger's side impact sensor	(see page 23-144)
14-2		
14-3	No signal from the front passenger's side impact sensor	(see page 23-184)
14-4	Faulty power supply to the front passenger's side impact sensor	(see page 23-186)
15-1	Faulty OPDS unit or OPDS system not initialized	(see page 23-189)
15-2	Faulty side airbag cutoff indicator circuit	(see page 23-196)
15-3	Faulty OPDS sensor	(see page 23-201)

'03-04 Models

DTC	Latch * (1)	Reset * (2)	Detection Item	Notes
11-1x		×	Open or increased resistance in driver's airbag first inflator	(see page 23-202)
11-3x		×	Short to another wire or decreased resistance in driver's airbag first inflator	(see page 23-204)
11-4x		×	Open or increased resistance in driver's airbag second inflator	(see page 23-202)
11-6x		×	Short to another wire or decreased resistance in driver's airbag second inflator	(see page 23-204)
11-8x	×		Short to power in driver's airbag first inflator	(see page 23-207)
11-9x	×		Short to ground in driver's airbag first inflator	(see page 23-210)
11-Ax	×		Short to power in driver's airbag second inflator	(see page 23-207)
11-Bx	×		Short to ground in driver's airbag second inflator	(see page 23-210)
12-1x		×	Open or increased resistance in front passenger's airbag first inflator	(see page 23-213)
12-3x		×	Short to another wire or decreased resistance in front passenger's airbag first inflator	(see page 23-215)
12-4x		×	Open or increased resistance in front passenger's airbag second inflator	(see page 23-213)
12-6x		×	Short to another wire or decreased resistance in front passenger's airbag second inflator	(see page 23-215)
12-8x	×		Short to power in front passenger's airbag first inflator	(see page 23-217)
12-9x	×		Short to ground in front passenger's airbag first inflator	(see page 23-219)
12-Ax	×		Short to power in front passenger's airbag second inflator	(see page 23-217)
12-Bx	×		Short to ground in front passenger's airbag second inflator	(see page 23-219)
21-1x		×	Open or increased resistance in driver's seat belt tensioner	(see page 23-221)
21-3x		×	Short to another wire or decreased resistance in driver's seat belt tensioner	(see page 23-224)
21-8x	×		Short to power in driver's seat belt tensioner	(see page 23-227)
21-9x	×		Short to ground in driver's seat belt tensioner	(see page 23-230)
22-1x		×	Open or increased resistance in front passenger's seat belt tensioner	(see page 23-233)
22-3x		×	Short to another wire or decreased resistance in front passenger's seat belt tensioner	(see page 23-236)
22-8x	×		Short to power in front passenger's seat belt tensioner	(see page 23-239)
22-9x	×		Short to ground in front passenger's seat belt tensioner	(see page 23-242)
31-1x		×	Open or increased resistance in driver's side airbag inflator	(see page 23-245)
31-3x		×	Short to another wire or decreased resistance in driver's side airbag inflator	(see page 23-247)
31-8x	×		Short to power in driver's side airbag inflator	(see page 23-249)
31-9x	×		Short to ground in driver's side airbag inflator	(see page 23-251)
32-1x		×	Open or increased resistance in front passenger's side airbag inflator	(see page 23-253)
32-3x		×	Short to another wire or decreased resistance in front passenger's side airbag inflator	(see page 23-255)
32-8x	×		Short to power in front passenger's side airbag inflator	(see page 23-257)
32-9x	×		Short to ground in front passenger's side airbag inflator	(see page 23-259)

NOTE: The ''x'' at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you will see on the tester display. The character is unrelated to your troubleshooting; it designates the SRS unit manufacturer and other details used for product analysis.

* (1) The SRS indicator turns on and stays on whenever the ignition switch is in the ON position, or until the DTC is cleared.
* (2) The SRS indicator turns on when the DTC is set. The SRS indicator will not turn on after the ignition switch is cycled from ON to OFF, but the DTC will be stored in the SRS unit.

(cont'd)

DTC Troubleshooting Index (cont'd)

'03-04 models

DTC	Latch * (1)	Reset * (2)	Detection Item	Notes
41-1x		×	No signal from the left front impact sensor	(see page 23-261)
41-2x		×	Internal failure of the left front impact sensor	(see page 23-269)
41-3x		×		
41-8x		×		
41-Bx	×			
42-1x		×	No signal from the right front impact sensor	(see page 23-265)
42-2x		×	Internal failure of the right front impact sensor	(see page 23-269)
42-3x		×		
42-8x		×		
42-Bx	×			
43-1x		×	No signal from the driver's side impact sensor	(see page 23-270)
43-2x		×	Internal failure of the driver's side impact sensor	(see page 23-276)
43-3x		×		
43-8x		×		
43-Bx	×			
44-1x		×	No signal from the front passenger's side impact sensor	(see page 23-273)
44-2x		×	Internal failure of the front passenger's side impact sensor	(see page 23-276)
44-3x		×		
44-8x		×		
44-Bx	×			
51-2x		×	Internal failure of SRS unit	(see page 23-277)
51-4x		×		
52-8x	×			
52-9x	×			
52-Ax	×			(see page 23-278)
52-Bx	×			
52-Cx	×			
52-Dx	×			
52-Ex	×			
52-Fx	×			
53-1x		×		(see page 23-279)
53-2x				
53-3x				
53-4x				
54-1x				(see page 23-280)
54-2x				
54-3x				
54-4x				
54-5x				
54-6x				
54-7x				
55-1x				(see page 23-281)
55-2x				
55-3x				
55-4x				
61-1x		×	Open in driver's seat belt buckle switch	(see page 23-283)
61-2x		×	Short in driver's seat belt buckle switch	(see page 23-286)
62-1x		×	Open in front passenger's seat belt buckle switch	(see page 23-289)
62-2x		×	Short in front passenger's seat belt buckle switch	(see page 23-292)

DTC	Latch * (1)	Reset * (2)	Detection Item	Notes
71-1x			Open in driver's seat position sensor	(see page 23-295)
71-2x			Short in driver's seat position sensor	(see page 23-298)
81-4x			Faulty front passenger's weight sensor unit	(see page 23-313)
81-5x				
81-61			No signal from front passenger's weight sensor unit	(see page 23-301)
81-62			Non-stipulated response data	
81-63			Model ID code or variation code inconsistent	(see page 23-313)
81-64			ECU serial ID code inconsistent	
81-71			Front passenger's weight sensor unit not calibrated	(see page 23-42)
81-78				
81-79			Front passenger's weight sensors drift check failure	(see page 23-314)
82-1x			No signal from the inner side front passenger's weight sensor	(see page 23-390)
83-2x			No signal from the outer side front passenger's weight sensor	
84-3x			Go to DTC 82-1x	(see page 23-390)
85-4x		×	Faulty OPDS unit	(see page 23-313)
85-5x				
85-61		×	No signal from the OPDS unit	(see page 23-307)
85-62		×	Non-stipulated response data	
85-63		×	Model ID code or variation code inconsistent	(see page 23-313)
85-64		×	ECU serial ID code inconsistent	
85-71		×	OPDS unit not initialized	(see page 23-41)
85-78		×		
85-79		×	OPDS drift check failure	(see page 23-314)
86-1x		×	Faulty seat-back OPDS sensor	(see page 23-315)
86-2x		×	Faulty seat support OPDS sensor	
87-31		×	The side airbag cutoff indicator does not come on	(see page 23-316)
87-32		×	The side airbag cutoff indicator stays on	(see page 23-319)
91-1x		×	Open in SRS indicator circuit	(see page 23-320)
91-2x		×	Short in SRS indicator circuit	(see page 23-323)
92-1x		×	Open in passenger airbag cutoff indicator	(see page 23-326)
92-2x		×	Short in passenger airbag cutoff indicator	(see page 23-330)
A1-1x		×	Faulty power supply (VA line)	(see page 23-332)
A2-1x	×		Faulty power supply (VB line)	(see page 23-334)
D1-11	×		Driver's airbag and driver's seat belt tensioner deployed	(see page 23-282)
D2-11	×		Front passenger's airbag and front passenger's seat belt tensioner deployed	
D3-11	×		Driver's side airbag deployed	
D4-11	×		Front passenger's side airbag deployed	
D7-11	×		Rear-end collisioned	
E2-11	×		Front passenger's airbag deployed	
E4-11	×		Front passenger's side airbag deployed	
F1-11	×		Driver's airbag and driver's seat belt tensioner deployed	
F2-11	×		Front passenger's airbag and front passenger's seat belt tensioner deployed	
F3-11	×		Driver's side airbag deployed	
F4-11	×		Front passenger's side airbag deployed	

NOTE: The ''x'' at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you will see on the tester display. The character is unrelated to your troubleshooting; it designates the SRS unit manufacturer and other details used for product analysis.

* (1) The SRS indicator turns on and stays on whenever the ignition switch is in the ON position, or until the DTC is cleared.

* (2) The SRS indicator turns on when the DTC is set. The SRS indicator will not turn on after the ignition switch is cycled from ON to OFF, but the DTC will be stored in the SRS unit.

Symptom Troubleshooting Index

'99-01 Models

Symptom	Diagnostic procedure	Also check for
SRS indicator doesn't come on	Symptom Troubleshooting (see page 23-337)	
SRS indicator stays on when in ''SCS'' menu method	Symptom Troubleshooting (see step 1 on page 23-340)	Inability to retrieve DTCs with the HDS. Retrieve the flash codes using the SCS menu method (see page 23-36)
SRS indicator stays on, but no DTCs are stored (NEC SRS unit only)	Symptom Troubleshooting (see step 1 on page 23-346)	

'02 Model

Symptom	Diagnostic procedure	Also check for
SRS indicator doesn't come on	Symptom Troubleshooting (see page 23-349)	
SRS indicator stays on when in ''SCS'' menu method	Symptom Troubleshooting (see step 1 on page 23-353)	Inability to retrieve DTCs with the HDS. Retrieve the flash codes using the SCS menu method (see page 23-36)
Side airbag cutoff indicator stays on after bulb check(If the indicator stays on, it does not set a DTC) Side airbag cutoff indicator is flashing	• Make sure nothing is on the front passenger's seat. • If the side airbag cutoff indicator stays on after the ignition switch is turned ON (II), initialize the OPDS unit (see page 23-40). – If the side airbag cut off indicator stays operates normally, the system is OK. – If the side airbag cutoff indicator stays on replace the OPDS sensor (see page 20-102). The sensor is part of the seatback pad.	

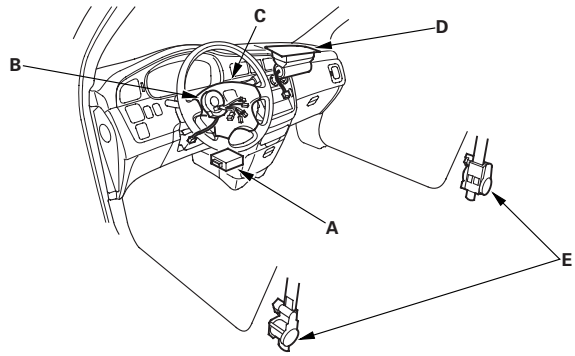
'03-04 Models

Symptom	Diagnostic procedure	Also check for
SRS indicator doesn't come on	Symptom Troubleshooting (see page 23-361)	
SRS indicator stays on when in ''SCS'' menu method	Symptom Troubleshooting (see page 23-365)	
Side airbag cutoff indicator stays on after bulb check (If the indicator stays on, it does not set a DTC) Side airbag cutoff indicator is flashing	• Make sure nothing is on the front passenger's seat. • If the side airbag cutoff indicator stays on after the ignition switch is turned ON (II), initialize the OPDS unit (see page 23-41). – If the side airbag cutoff indicator operates normally, the system is OK. – If the side airbag cutoff indicator stays on, replace the OPDS sensor (see page 20-102). The sensor is part of the seat-back pad.	

System Description

SRS Components ('99-01 Models)

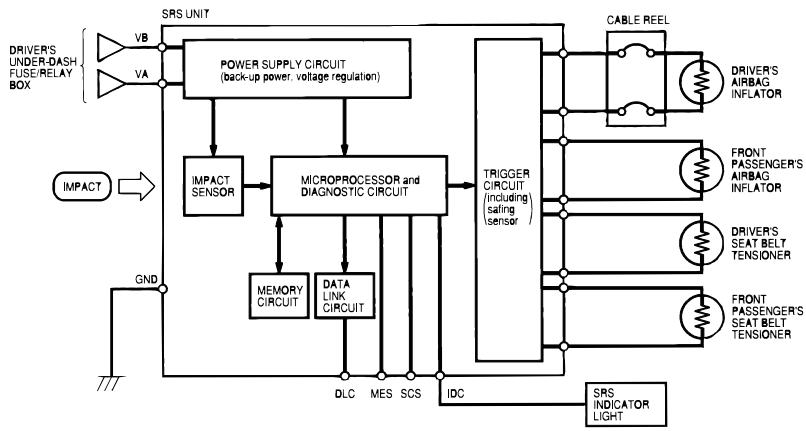
The SRS is a safety device which, when used with the seat belt, is designed to help protect the driver and front passenger in a frontal impact exceeding a certain set limit. The system consists of the SRS unit, including safing sensor and impact sensor (A), the cable reel (B), the driver's airbag (C) and the front passenger's airbag(D). The seat belt tensioners (E) are linked with the SRS airbags to further increase the effectiveness of the seat belt. In a front-end collision, the tensioner instantly retracts the belt firmly to secure the occupants in their seats.



SRS Operation ('99-01 Models)

The main circuit in the SRS unit senses and judges the force of impact and, if necessary, ignites the inflator charges. If battery voltage is too low or power is disconnected due to impact, the voltage regulator and the back-up power circuit respectively will keep voltage at a constant level.

For the SRS to operate
(1) The impact sensor must activate and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the airbag inflators (and seat belt tensioners).
(3) The inflators must ignite and deploy the airbags (and activate the tensioners).



Self-diagnosis System
A self-diagnosis circuit is built into the SRS unit; when the ignition switch is turned ON (II), the SRS indicator comes on and goes off after about 6 seconds if the system is operating normally. If the indicator does not come on, or does not go off after 6 seconds, or if it comes on while driving, it indicates an abnormality in the system. The system must be inspected and repaired as soon as possible. For better serviceability, the SRS unit memory stores a DTC that relates to the cause of the malfunction, and the unit is connected to the date link connector (DLC). This information can be read with the HDS when it is connected to the DLC (16P) (see page 23-35).

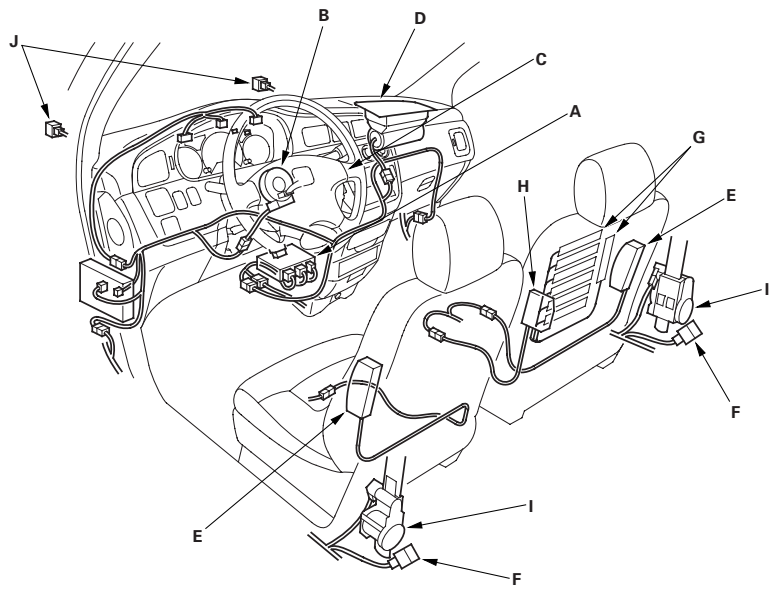
SRS Components ('02 Model)

Airbags
The SRS is a safety device which, when used with the seat belt, is designed to help protect the driver and front passenger in a frontal impact exceeding a certain set limit. The system consists of the SRS unit, including safing sensor and impact sensor (A), the cable reel (B), the driver's airbag (C), the front passenger's airbag (D), side airbags (E), seat belt tensioners (I), and front impact sensors (J). Since the driver's and front passenger's airbags use the same sensors, both normally inflate at the same time.However, it is possible for only one airbag to inflate. This can occur when the severity of a collision is at the margin, or threshold, that determines whether or not the airbags will deploy. In such cases, the seat belt will provide sufficient protection, and the supplemental protection offered by the airbag would be minimal.

Side Airbags
The side airbags (E) are in each front seat-back. They help protect the upper torso of the driver or front seat passenger during a moderate to severe side impact. Side impact sensors (F) in each door sill and in the SRS unit detect such an impact and instantly inflate the driver's or the passenger's side airbag. Only one side airbag will deploy during a side impact. If the impact is on the passenger's side, the passenger's side airbag will deploy even if there is no passenger.

Seat Belt Tensioners
The seat belt tensioners are linked with the SRS airbags to further increase the effectiveness of the seat belt. In a front-end collision, the tensioners instantly retract the belt and buckle firmly to secure the occupants in their seats.

OPDS
The side airbag system also includes an Occupant Position Detection System (OPDS). This system consists of sensors (G) and a OPDS unit (H) in the front passenger's seat-back. The OPDS unit sends occupant height and position data to the SRS unit. If the SRS unit determines that the front passenger is of small stature (for example, a child) and the front passenger is leaning into the side airbag deployment path, the SRS unit will automatically disable the airbag. The SRS unit will also disable the airbag when the OPDS detects certain objects on the seat. When the side airbag is disabled, the Side Airbag Cutoff indicator on the instrument panel alerts the driver that the passenger's side airbag will not deploy in a side impact. When the object is removed, or the passenger sits upright, the Side Airbag Cutoff indicator will go off, alerting the driver that the side airbag will deploy in a side impact.



(cont'd)

System Description (cont'd)

SRS Operation ('02 Model)

The main circuit in the SRS unit sensors and judges the force of impact and, if necessary, ignites the inflator charges. If battery voltage is too low or power is disconnected due to the impact, the voltage regulator and the back-up power circuit, respectively, will keep voltage at a constant level.

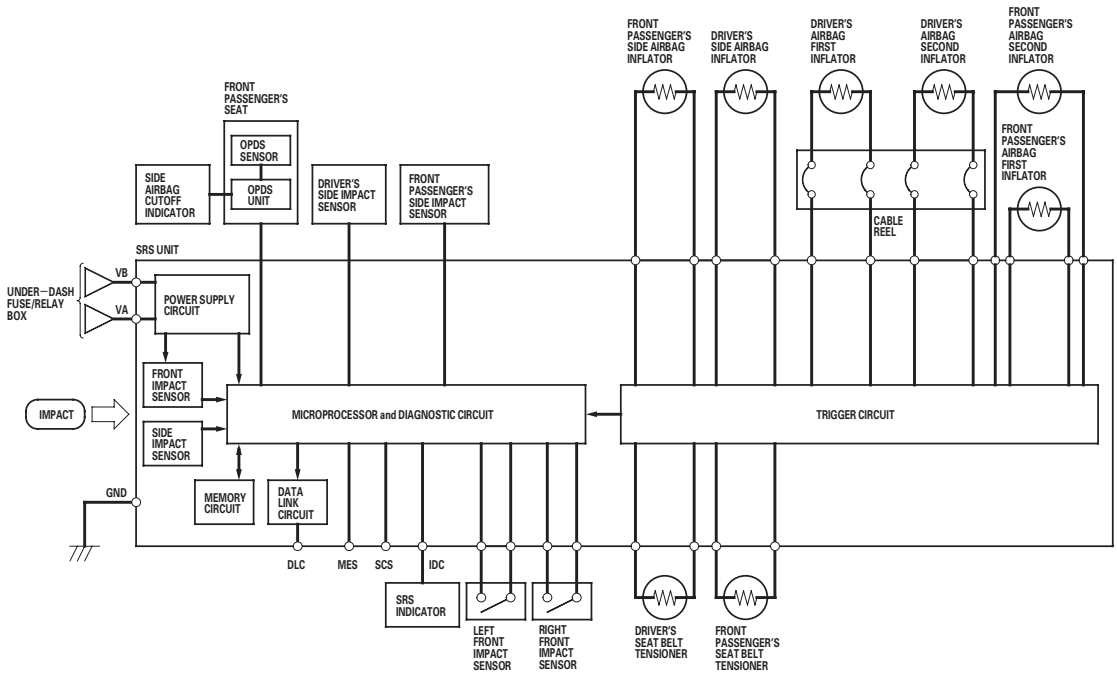
For the SRS to operate

Driver's and Front Passenger's Airbag(s)

(1) A front impact sensor must activate, and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals, and depending on the severity of the collision and whether the seat belt buckle switch is ON or OFF, it sends the appropriate signals to the airbag inflator(s).
(3) The inflators that received signals must ignite and deploy the airbags.

Side Airbag(s)

(1) A side impact sensor must activate, and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the side airbag inflator(s). However, the microprocessor cuts off the signals to the front passenger's side airbag if the SRS unit determines that the front passenger's head is in the deployment path of the side airbag.
(3) The inflator that received the signal must ignite and deploy the side airbag.



Self-diagnosis System

A self-diagnosis circuit is built into the SRS unit; when the ignition switch is turned ON (II), the SRS indicator comes on and goes off after about 6 seconds if the system is operating normally.
If the indicator does not come on, or does not go off after 6 seconds, or if it comes on while driving, it indicates an abnormality in the system. The system must be inspected and repaired as soon as possible.

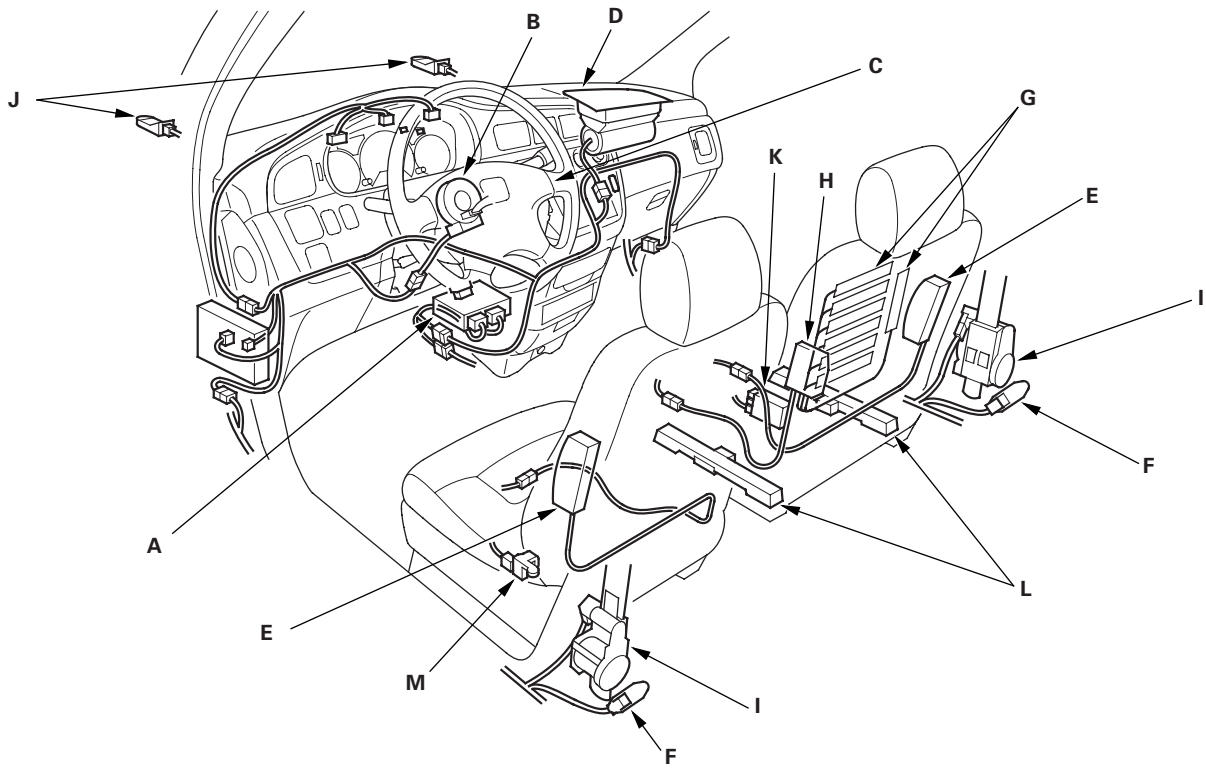
For better serviceability, the SRS unit memory stores a DTC that relates to the cause of the malfunction, and the unit is connected to the data link connector circuit. This information can be read with the HDS when it is connected to the DLC (16P) (see page 23-35).

SRS Components ('03-04 Models)

Airbags
The SRS is a safety device which, when used with the seat belt, is designed to help protect the driver and front passenger in a frontal Impact exceeding a certain set limit. The system consists of the SRS unit, including safing sensor and impact sensor (A), the cable reel (B), the driver's airbag (C), the front passenger's airbag (D), side airbags (E), seat belt tensioners (I), and front impact sensors (J). Since the driver's and front passenger's airbags use the same sensors, both normally inflate at the same time. However, it is possible for only one airbag to inflate. This can occur when the severity of a collision is at the margin, or threshold, that the determines whether or not the airbags will deploy. In such cases, the seat belt will provide sufficient protection, and the supplemental protection offered by the airbag would be minimal.

Front Passenger's Weight Sensors
The front passenger's weight sensors unit (K) is located under the front passenger's seat along with the weight sensors (L). The weight sensors detect the weight on the seat, and sends the information to the front passenger's weight sensors unit. If the total weight is about 65 lbs (30 kg) or less, the front passenger's weight sensors unit sends a signal to the SRS unit to prevent the passenger's airbag from deploying. When the passenger's airbag is disabled, the passenger airbag cutoff indicator on the center panel comes on to alert the driver that the front passenger's airbag will not deploy in a front-end collision.

Driver's Seat Position Sensor
The driver's seat position sensor (M) is under the driver's seat on the inside of the left seat When the driver's seat is moved to its full forward position, the deployment of the driver's airbag is moderated to decrease its force of impact during a front-end collision.



(cont'd)

System Description (cont'd)

Side Airbags
The side airbags (E) are in each front seat-back. They help protect the upper torso of the driver or front seat passenger during a moderate to severe side impact. Side impact sensors (F) in each door sill and in the SRS unit detect such an impact and instantly inflate the driver's or the passenger's side airbag. Only one side airbag will deploy during a side impact. If the impact is on the passenger's side, the passenger's side airbag will deploy even if there is no passenger.

Seat Belt Tensioners
The seat belt tensioners are linked with the SRS airbags to further increase the effectiveness of the seat belt. In a front-end collision, the tensioners instantly retract the belt and buckle firmly to secure the occupants in their seats.

OPDS
The side airbag system also includes an Occupant Position Detection System (OPDS). This system consists of sensors (G) and a OPDS unit (H) in the front passenger's seat-back. The OPDS unit sends occupant height and position data to the SRS unit. If the SRS unit determines that the front passenger is of small stature (for example, a child) and the front passenger is leaning into the side airbag deployment path, the SRS unit will automatically disable the airbag. The SRS unit will also disable the airbag when the OPDS detects certain objects on the seat. When the side airbag is disabled, the Side Airbag Cutoff indicator on the instrument panel alerts the driver that the passenger's side airbag will not deploy in a side impact. When the object is removed, or the passenger sits upright, the Side Airbag Cutoff indicator will go off, alerting the driver that the side airbag will deploy in a side impact.

SRS Operation ('03-04 Models)

The main circuit in the SRS unit senses and judges the force of impact and, if necessary, ignites the inflator charges. If battery voltage is too low or power is disconnected due to the impact, the voltage regulator and the back-up power circuit, respectively, will keep voltage at a constant level.

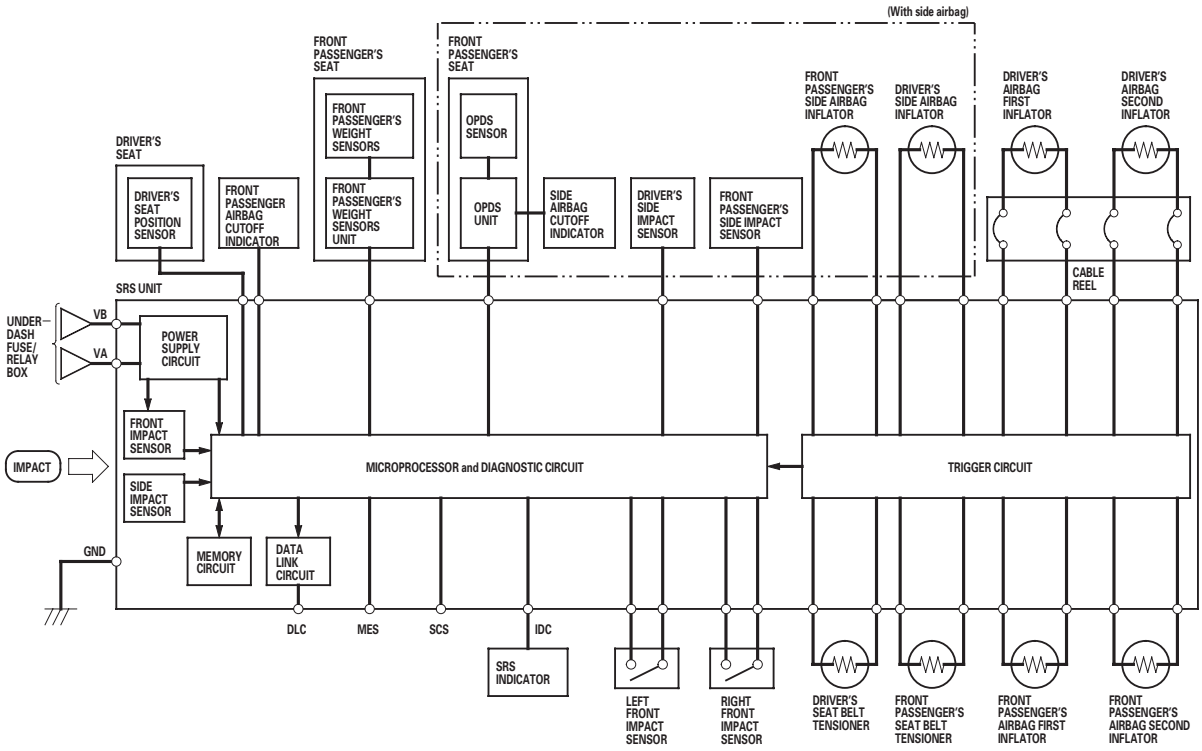
For the SRS to operate

Driver's and Front Passenger's Airbag(s)

(1) A front impact sensor must activate, and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals, and depending on the severity of the collision and whether the seat belt buckle switch is ON or OFF, it sends the appropriate signals to the airbag inflator(s).
(3) The microprecessor turns off the signals to the front passenger's airbag if the front passenger's weight sensors unit determines that the weight of the occupant in the front pasenger's seat is about 65 lbs (30kg) or less.
(4) When the driver's seat is moved to its full forward position, the seat position sensor sends a signal to the microprocessor to moderate the deployment of the driver's airbag.
(5) The inflators that received signals must ignite and deploy the airbags.

Side Airbag(s)

(1) A side impact sensor must activate, and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the side airbag inflator(s). However, the microprocessor cuts off the signals to the front passenger's side airbag if the SRS unit determines that the front passenger's head is in the deployment path of the side airbag.
(3) The inflator that received the signal must ignite and deploy the side airbag.



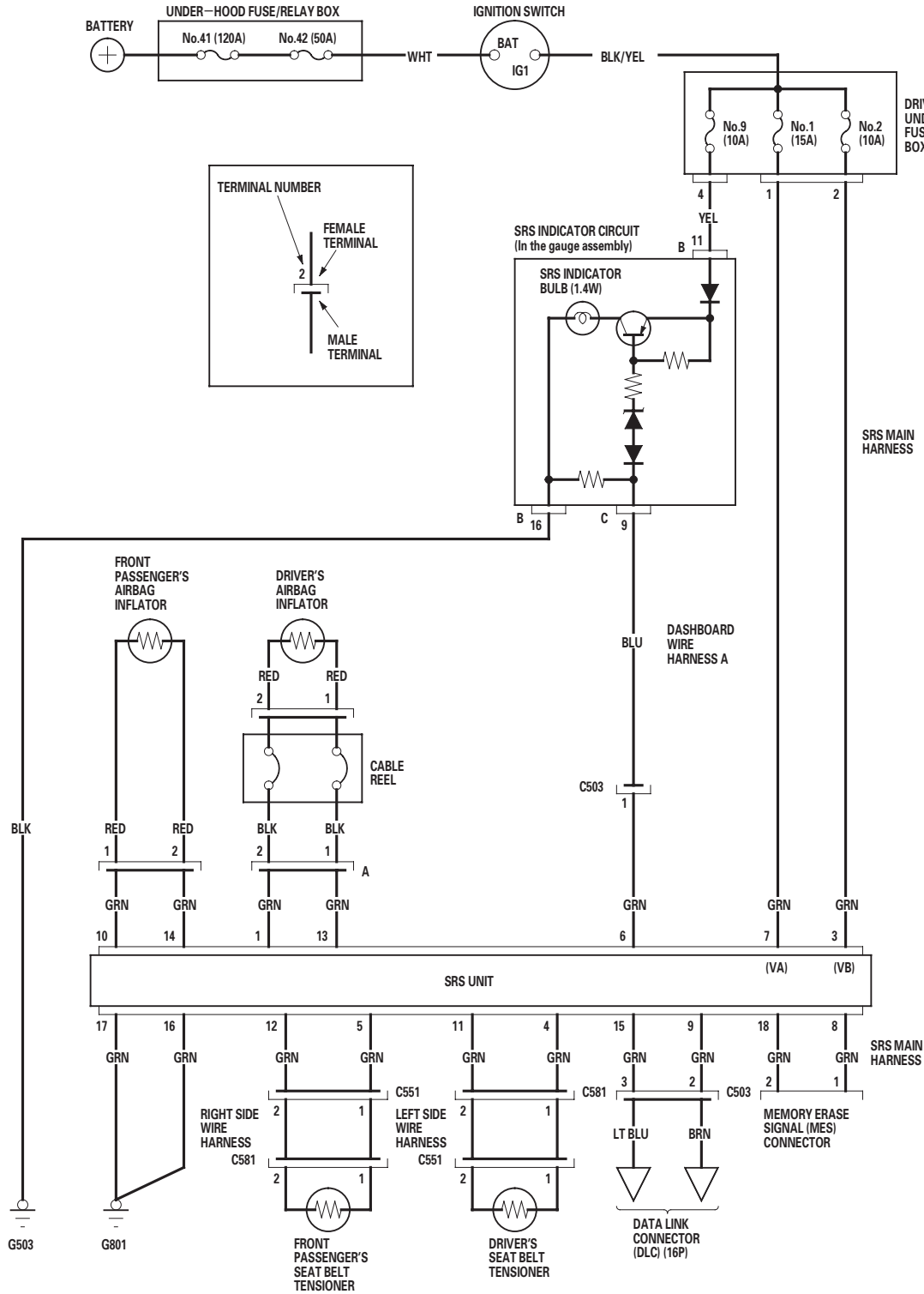
(cont'd)

System Description (cont'd)

Self-diagnosis System
A self-diagnosis circuit is built into the SRS unit; when the ignition switch is turned ON (II), the SRS indicator comes on and goes off after about 6 seconds if thesystem is operating normally. If the indicator does not come on, or does not go off after 6 seconds, or if it comes on while driving, it indicates an abnormality in the system. The system must be inspected and repaired as soon as possible. For better serviceability, the SRS unit memory stores a DTC that relates to the cause of the malfunction, and the unit is connected to the data link connector circuit. This information can be read with the HDS when it is connected to the DLC (16P) (see page 23-38).

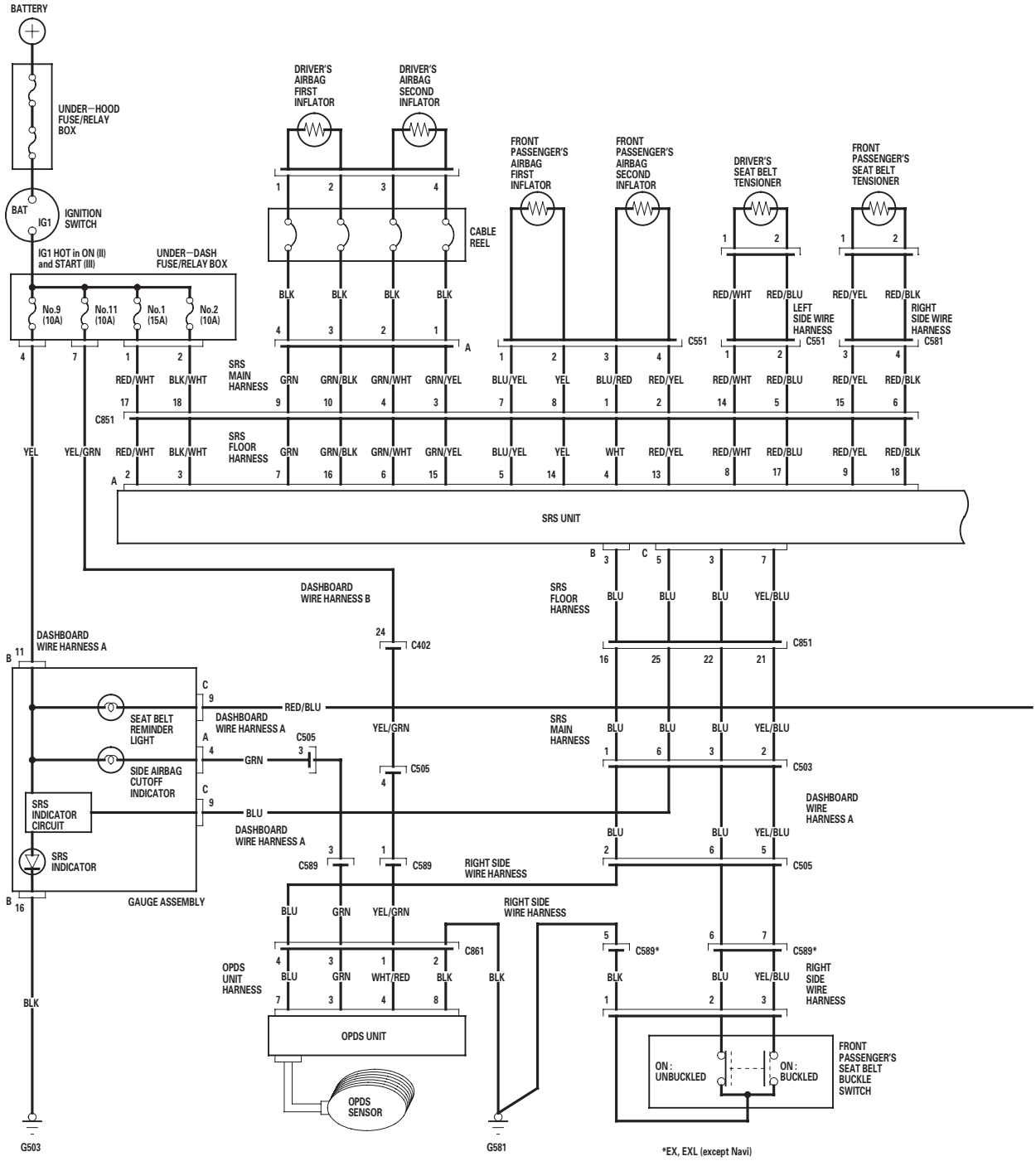
Circuit Diagram

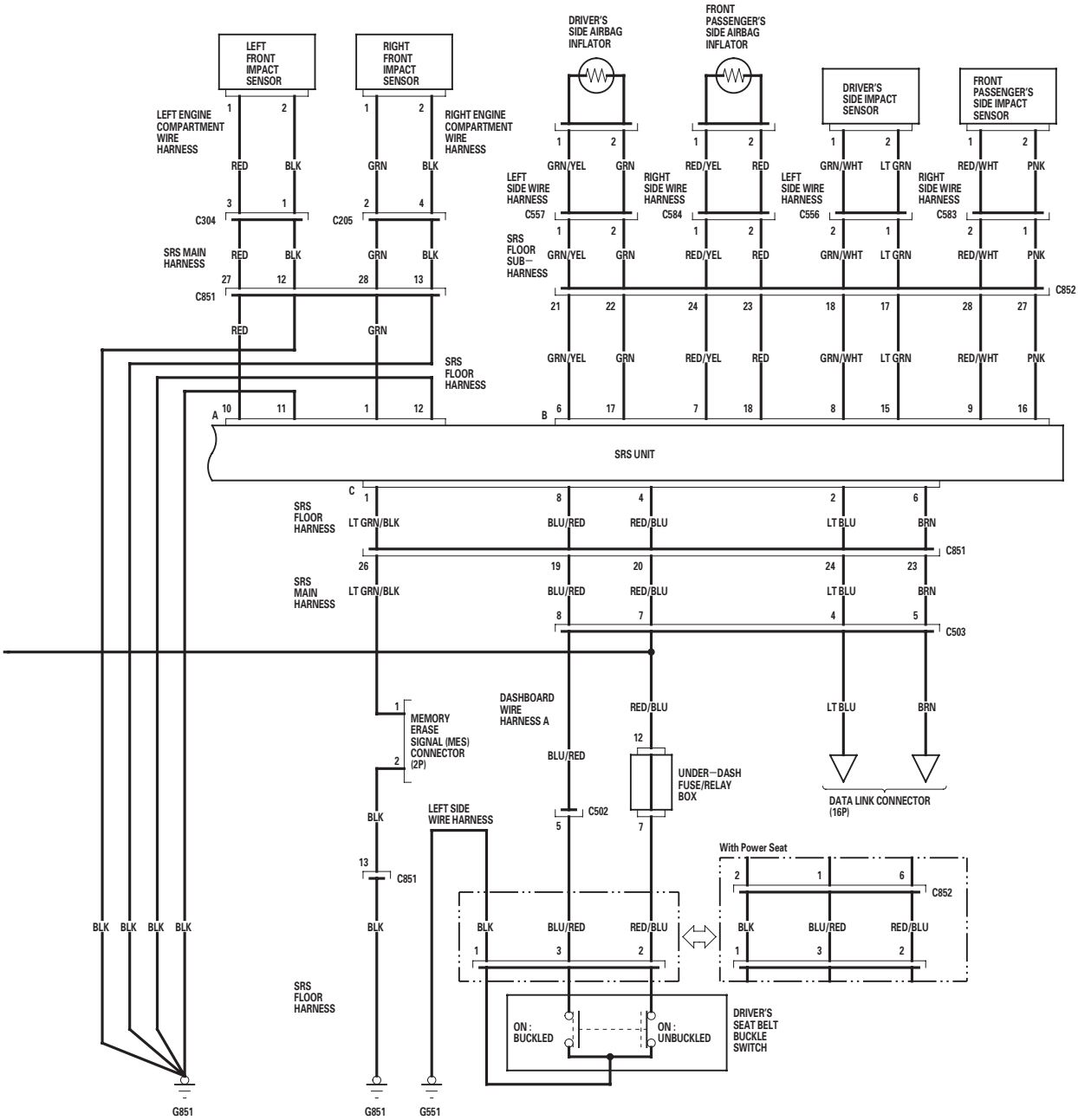
'99-01 Models



Circuit Diagram (cont'd)

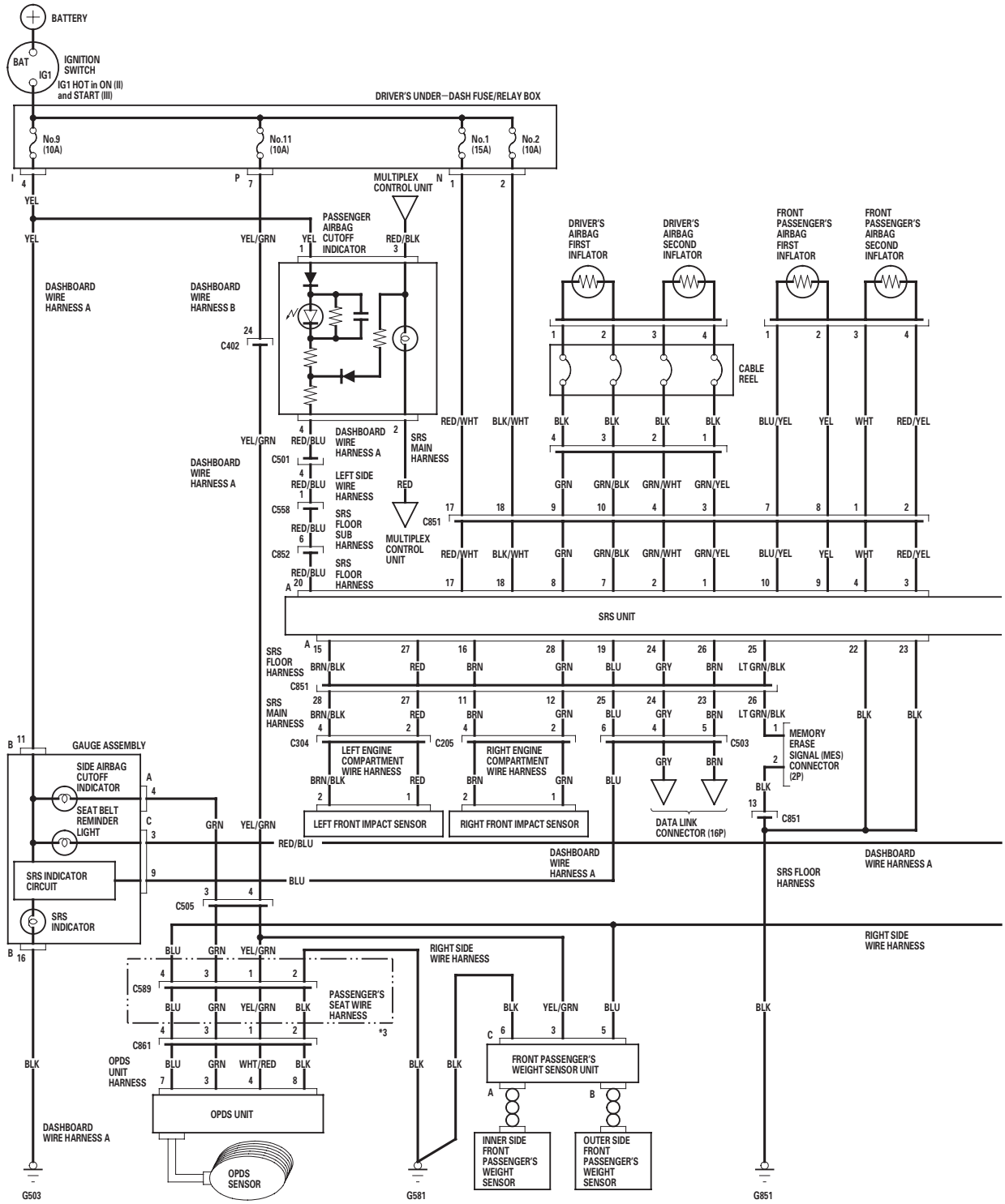
'02 Model



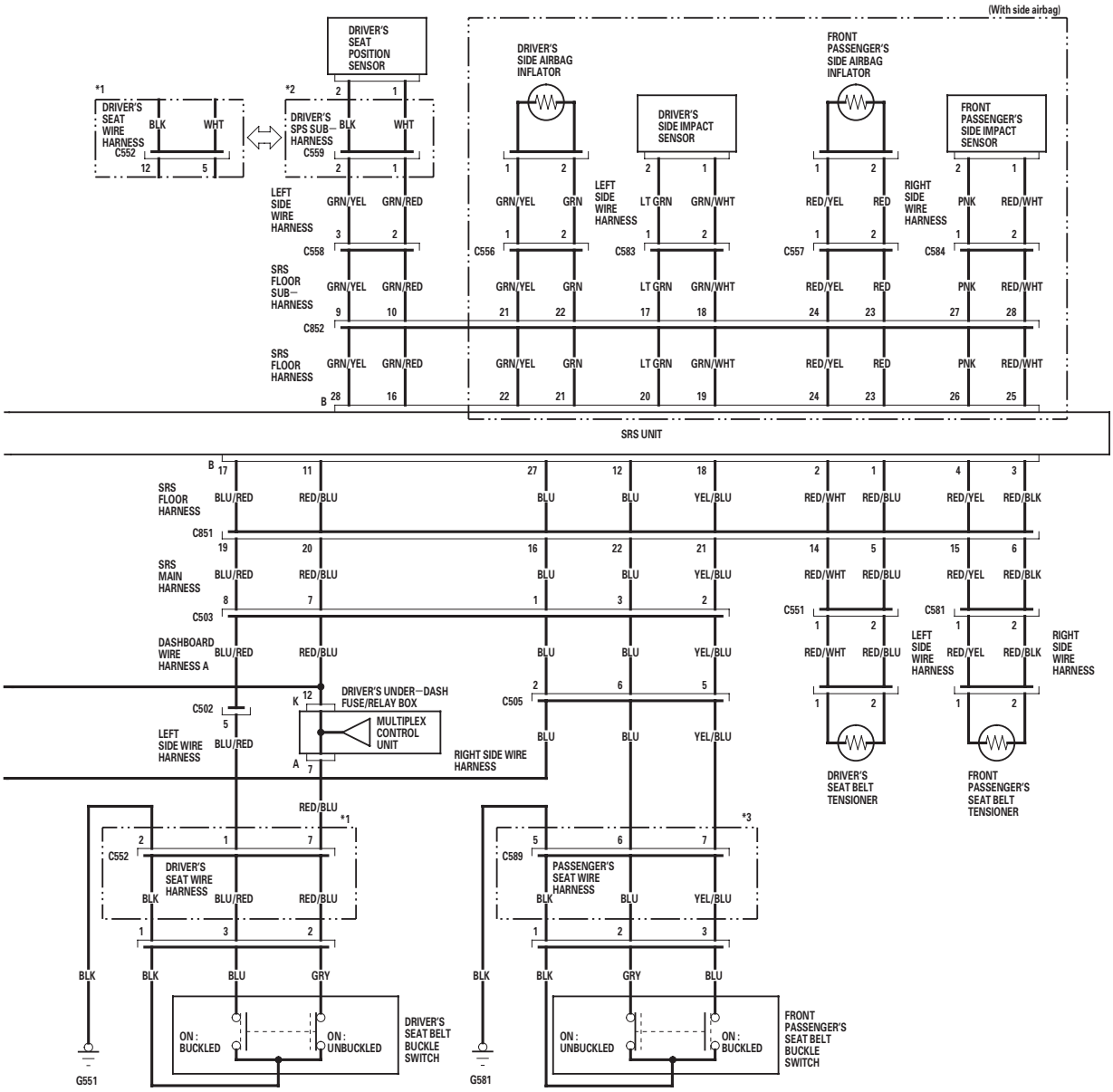

LEFT FRONT IMPACT SENSOR
RIGHT FRONT IMPACT SENSOR
DRIVER'S SIDE AIRBAG INFLATOR
FRONT PASSENGER'S SIDE AIRBAG INFLATOR
DRIVER'S SIDE IMPACT SENSOR
FRONT PASSENGER'S SIDE IMPACT SENSOR
LEFT ENGINE COMPARTMENT WIRE HARNESS
RIGHT ENGINE COMPARTMENT WIRE HARNESS
LEFT SIDE WIRE HARNESS
RIGHT SIDE WIRE HARNESS
SRS MAIN HARNESS
SRS FLOOR SUB-HARNESS
SRS FLOOR HARNESS
SRS UNIT
C304
C205
C851
C557
C584
C556
C583
C852
C503
C502
MEMORY ERASE SIGNAL (MES) CONNECTOR (2P)
DASHBOARD WIRE HARNESS A
UNDER-DASH FUSE/RELAY BOX
DATA LINK CONNECTOR (16P)
With Power Seat
ON : BUCKLED
ON : UNBUCKLED
DRIVER'S SEAT BELT BUCKLE SWITCH
G851
G551

Circuit Diagram (cont'd)

'03-04 Models



*1 : With power seat
*2 : Without power seat
*3 : With seat heater (passenger's side)



DTC Troubleshooting

'99-01 Models

DTC 1-1: Open in Driver's Airbag Inflator

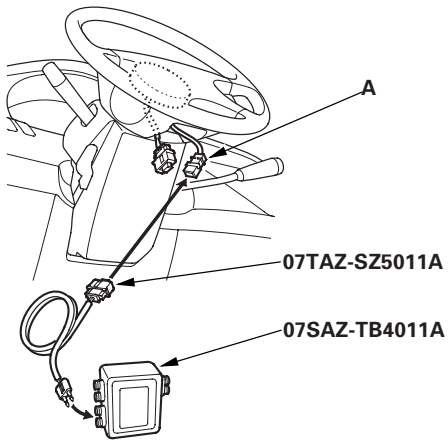
DTC 1-2: Increased Resistance in Driver's Airbag Inflator

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's airbag 2P connector from the cable reel 2P connector (A).

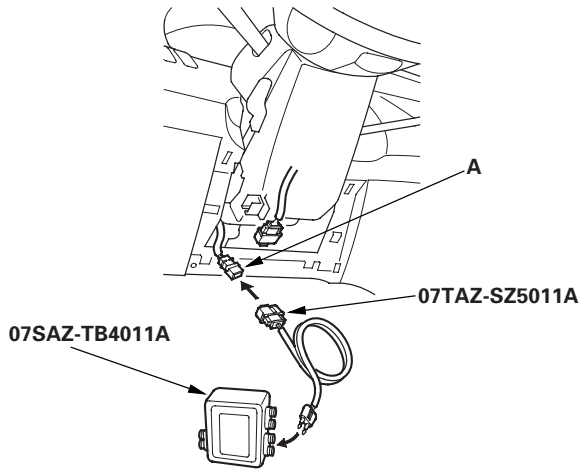


5. Connect the special tool (2 Ω connector) to the cable reel connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 1-1 or 1-2 indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the driver's airbag inflator; replace the driver's airbag (see page 23-368). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the cable reel 2P connector from the SRS main harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.

14. Read the DTC.

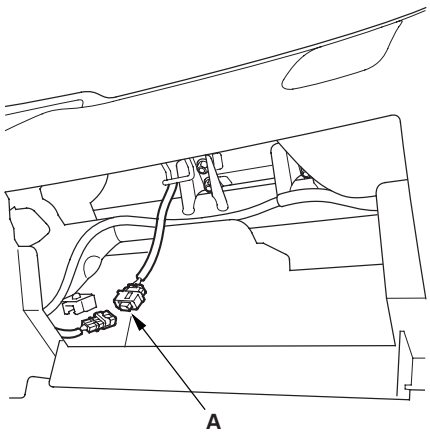
    Is DTC 1-1 or 1-2 indicated?

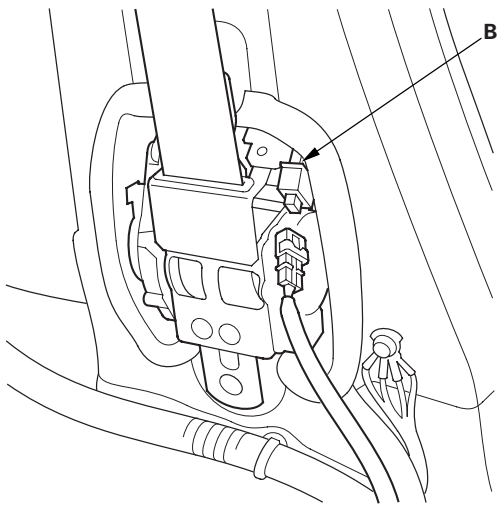
    YES—Go to step 15.

    NO—Open or increased resistance in the cable reel; replace the cable reel (see page 23-376). ■

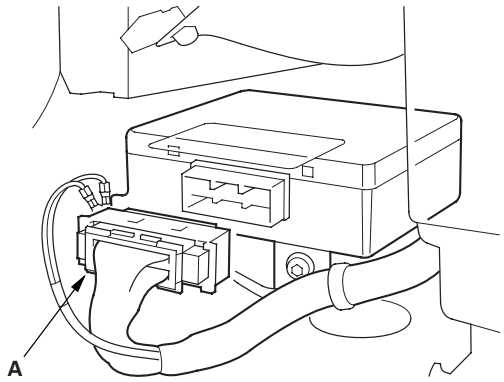
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

16. Disconnect the front passenger's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).



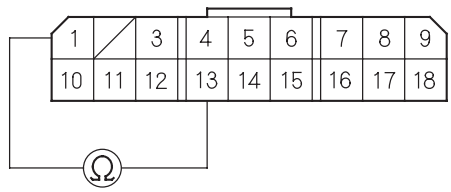


17. Disconnect the SRS main harness 18P connector (A) from the SRS unit. Do not disconnect the special tool from the SRS main harness 2P connector.



18. Check resistance between the No. 1 terminal and the No. 13 terminal of the SRS main harness 18P connector. There should be 2.0—3.0 Ω.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at the SRS main harness 18P connector and the SRS unit. Check the connection between the SRS main harness 18P connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-382). ■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'99-01 Models

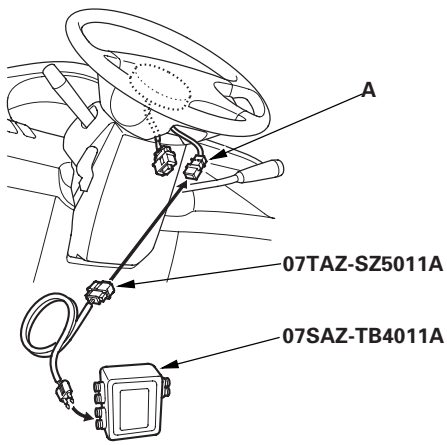
DTC 1-3: Short to Another Wire or Decreased Resistance in Driver's Airbag Inflator

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's airbag 2P connector from the cable reel 2P connector (A).

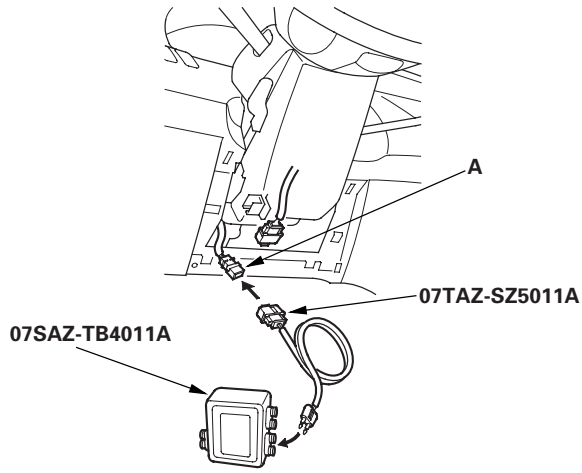


5. Connect the special tool (2 Ω connector) to the cable reel 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 1-3 indicated?

   YES—Go to step 9.

   NO—Short in the driver's airbag inflator; replace the driver's airbag (see page 23-368). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the cable reel 2P connector from the SRS main harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

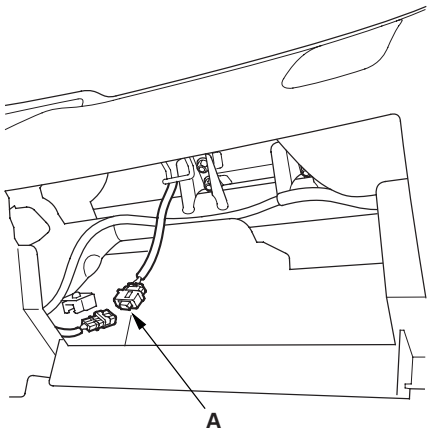
    Is DTC 1-3 indicated?

    YES—Go to step 15.

    NO—Short in the cable reel; replace the cable reel (see page 23-376). ■

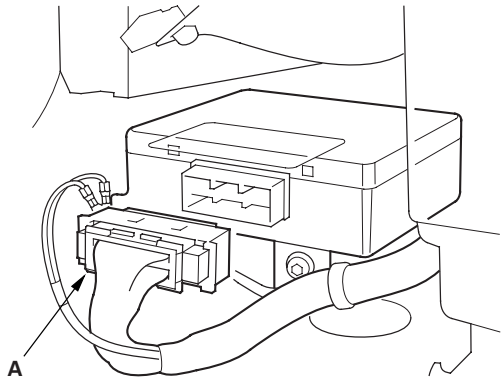
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

16. Disconnect the front passenger's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).



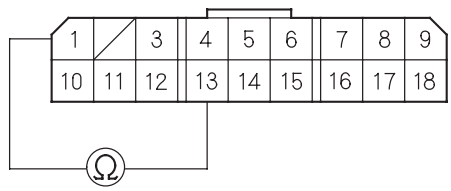
17. Disconnect the special tool from the SRS main harness 2P connector.

18. Disconnect the SRS main harness 18P connector (A) from the SRS unit.



19. Check resistance between the No. 1 terminal and the No. 13 terminal of the SRS main harness 18P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Short in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'99-01 Models

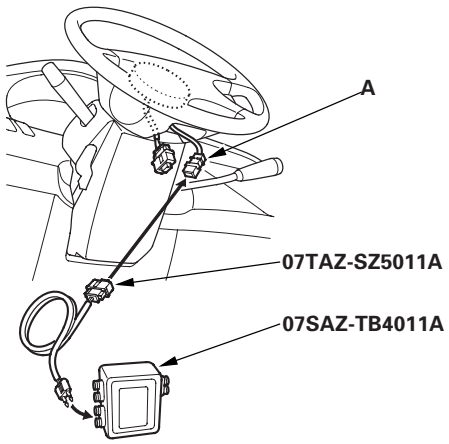
DTC 1-4: Short to Power in Driver's Airbag Inflator

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's airbag 2P connector from the cable reel 2P connector (A).

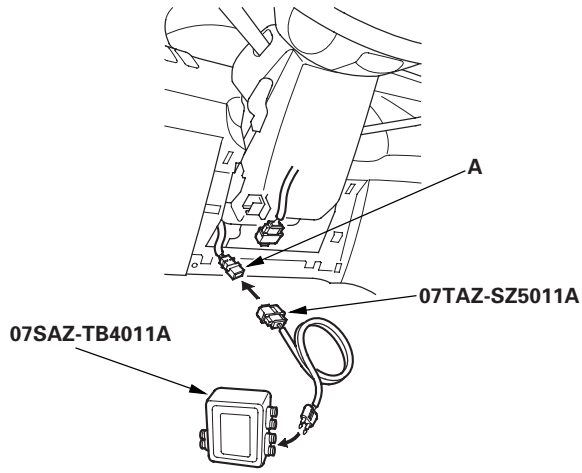


5. Connect the special tool (2 Ω connector) to the cable reel 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 1-4 indicated?

   YES—Go to step 9.

   NO—Short to power in the driver's airbag inflator; replace the driver's airbag (see page 23-368). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the cable reel 2P connector from the SRS main harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

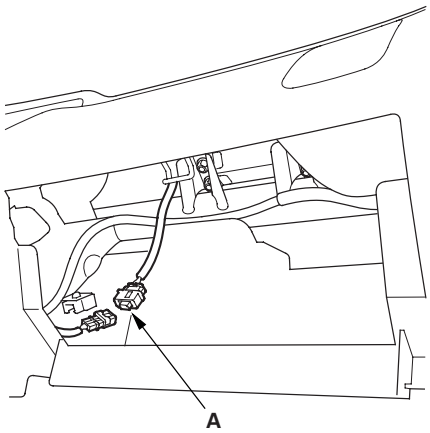
    Is DTC 1-4 indicated?

    YES—Go to step 15.

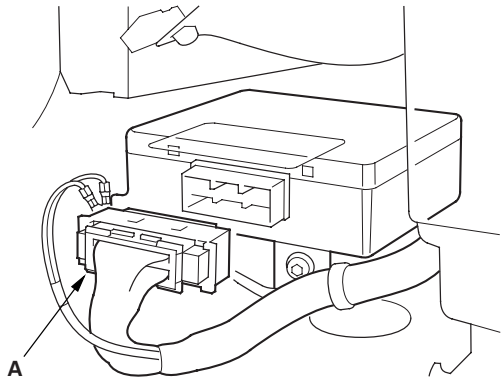
    NO—Short to power in the cable reel; replace the cable reel (see page 23-376). ■

15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

16. Disconnect the front passenger's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).



17. Disconnect the SRS main harness 18P connector (A) from the SRS unit.

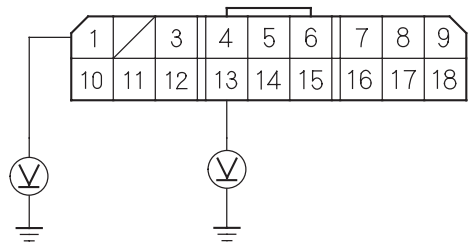


18. Reconnect the battery negative cable.

19. Turn the ignition switch ON (II).

20. Check for voltage between the No. 1 terminal of the SRS main harness 18P connector and body ground, and between the No. 13 terminal and body ground. There should be 0.5 V or less.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Short to power in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'99-01 Models

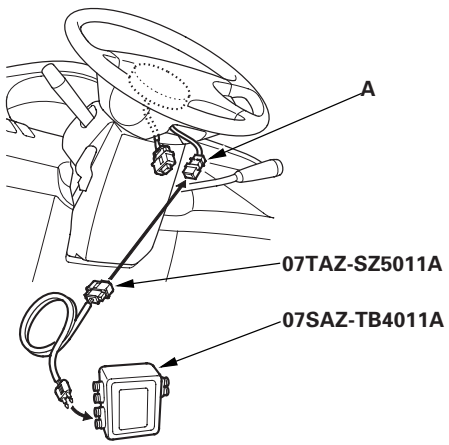
DTC 1-5: Short to Ground in Driver's Airbag Inflator

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's airbag 2P connector from the cable reel 2P connector (A).

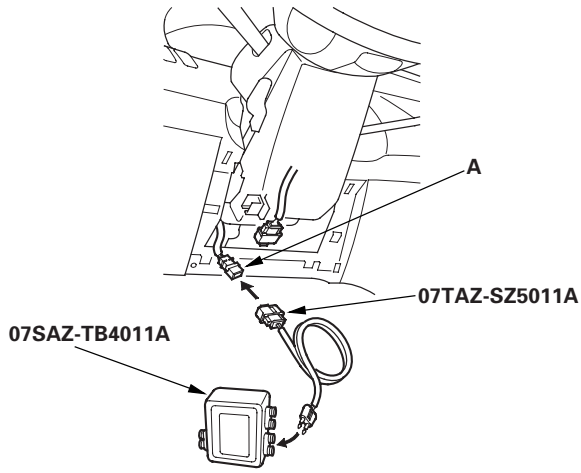


5. Connect the special tool (2 Ω connector) to the cable reel 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 1-5 indicated?

   YES—Go to step 9.

   NO—Short to ground in the driver's airbag inflator; replace the driver's airbag (see page 23-368). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector (A) from the cable reel 2P connector.



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.

14. Read the DTC.

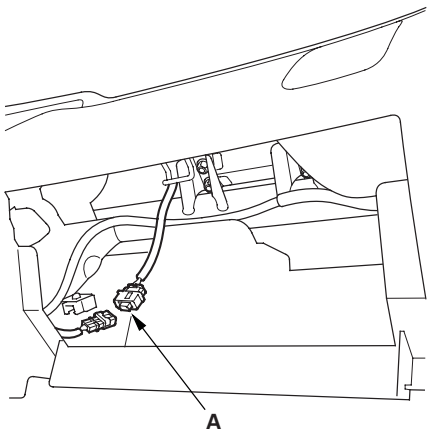
    Is DTC 1-5 indicated?

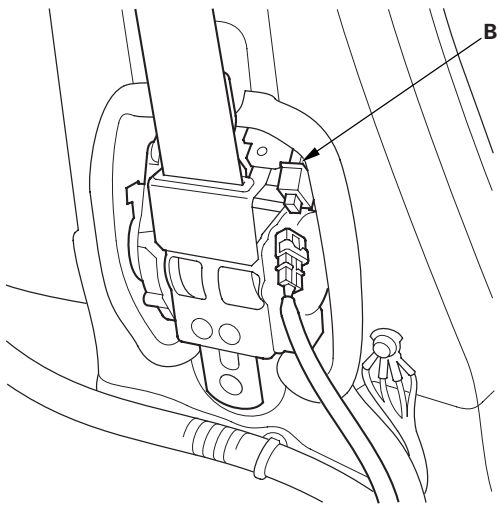
    YES—Go to step 15.

    NO—Short to ground in the cable reel; replace the cable reel (see page 23-376). ■

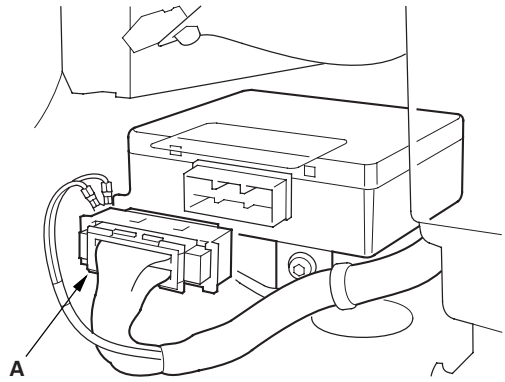
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

16. Disconnect the front passenger's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).



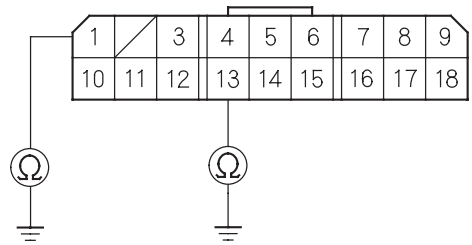


17. Disconnect the SRS main harness 18P connector (A) from the SRS unit.



18. Check resistance between the No. 1 terminal of the SRS main harness 18P connector and body ground, and between the No. 13 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Short to ground in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'99-01 Models

DTC 2-1: Open in Front Passenger's Airbag Inflator

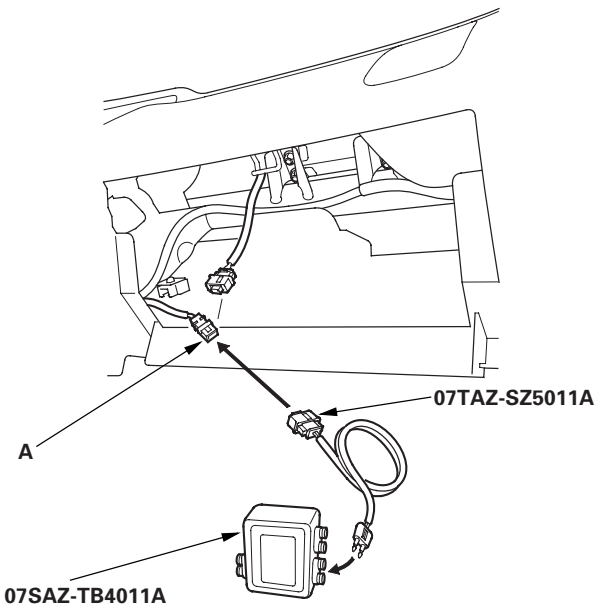
DTC 2-2: Increased Resistance in Front Passenger's Airbag Inflator

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's airbag 2P connector from the SRS main harness 2P connector (A).

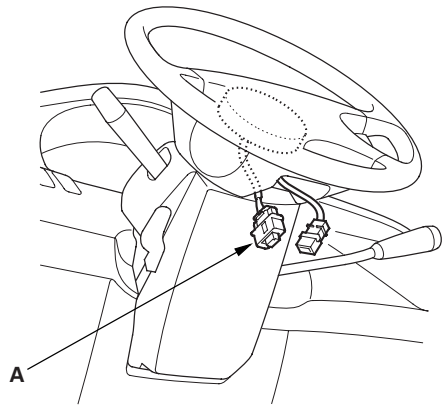


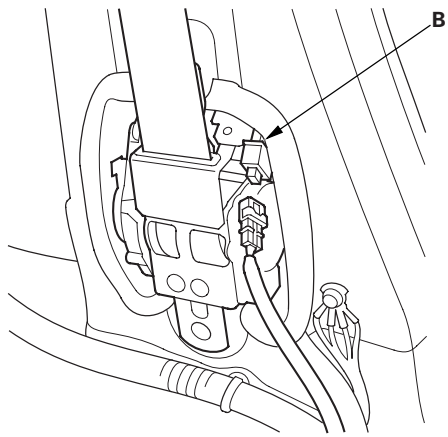
5. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 2-1 or 2-2 indicated?

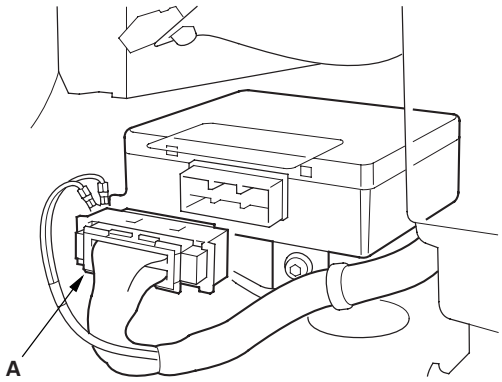
   YES—Go to step 9.

   NO—Open or increased resistance in the front passenger's airbag inflator; replace the front passenger's airbag (see page 23-370). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the driver's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).



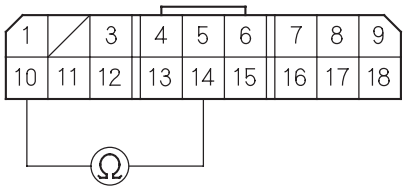


11. Disconnect the SRS main harness 18P connector (A) from the SRS unit. Do not disconnect the special tool from the SRS main harness 2P connector.



12. Check resistance between the No. 10 and No. 14 terminals of the SRS main harness 18P connector. There should be 2.0—3.0 Ω.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at the SRS unit connector (18P). Check the connection; if the connection is OK, replace the SRS unit (see page 23-382). ■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness. ■

'99-01 Models

DTC 2-3: Short to Another Wire or Decreased Resistance in Front Passenger's Airbag Inflator

1. Erase the DTC memory (see page 23-38).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

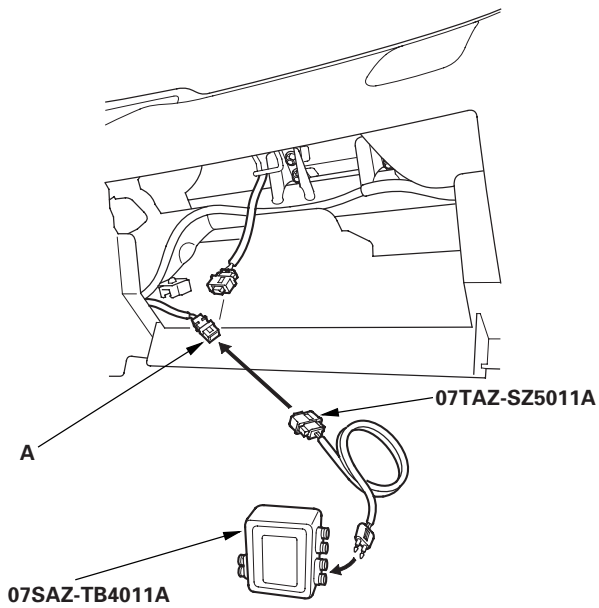
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the front passenger's airbag 2P connector from the SRS main harness 2P connector (A).



5. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.

(cont'd)

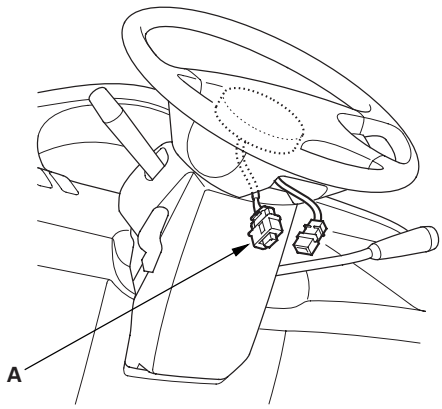
DTC Troubleshooting (cont'd)

6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

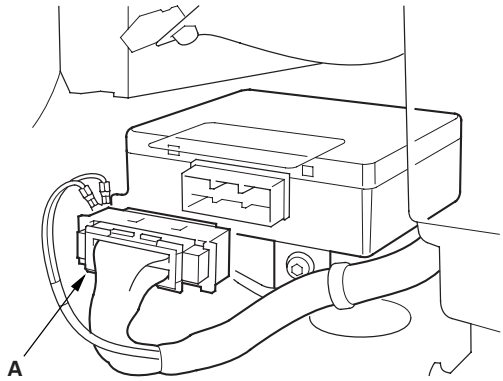
   Is DTC 2-3 indicated?

   YES—Go to step 9.

   NO—Short in the front passenger's airbag inflator; replace the front passenger's airbag (see page 23-370). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the driver's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).

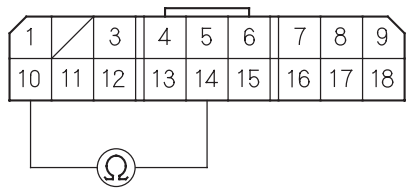


11. Disconnect the special tool (2 Ω) from the SRS main harness 2P connector.
12. Disconnect the SRS main harness 18P connector (A) from the SRS unit.



13. Check resistance between the No. 10 and No. 14 terminals of the SRS main harness 18P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Short to another wire in the SRS main harness; replace the SRS main harness. ■

'99-01 Models

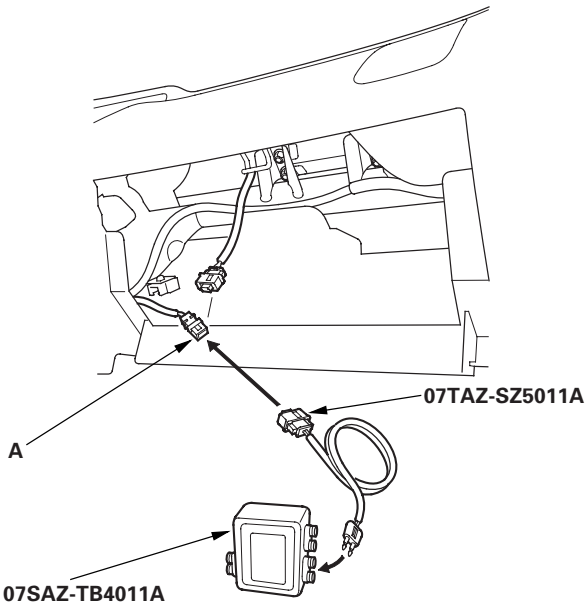
DTC 2-4: Short to Power in Front Passenger's Airbag Inflator

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's airbag 2P connector from the SRS main harness 2P connector (A).

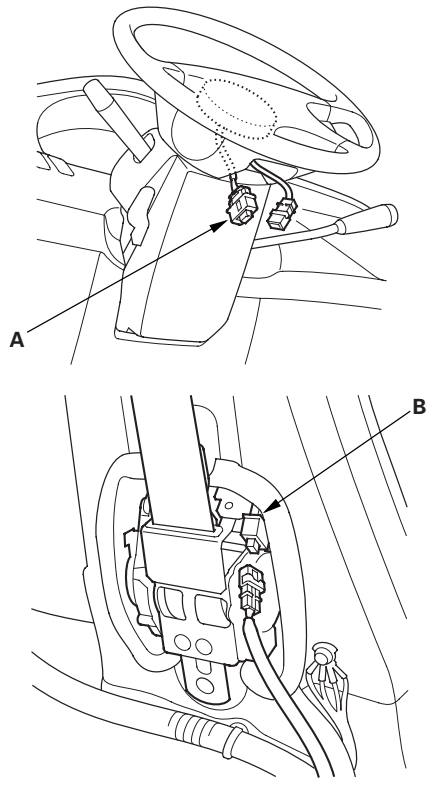


5. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 2-4 indicated?

   YES—Go to step 9.

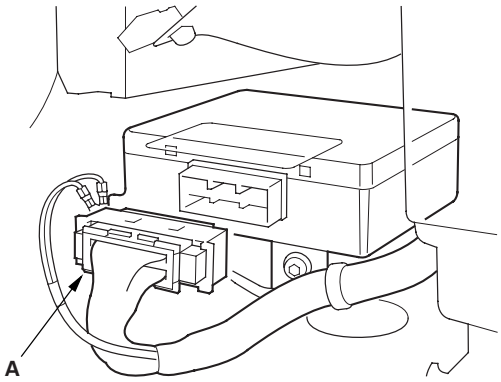
   NO—Short to power in the front passenger's airbag inflator; replace the front passenger's airbag (see page 23-370). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the driver's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B), and disconnect the special tool from the SRS main harness 2P connector.



(cont'd)

DTC Troubleshooting (cont'd)

11. Disconnect the SRS main harness 18P connector (A) from the SRS unit.

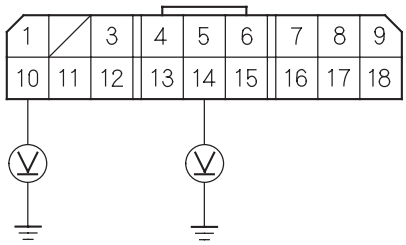


12. Reconnect the battery negative cable.

13. Turn the ignition switch ON (II).

14. Check for voltage between the No. 10 terminal of the SRS main harness 18P connector and body ground, and between the No. 14 terminal and body ground. There should be 0.5 V or less.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Short to power in the SRS main harness; replace the SRS main harness. ■

'99-01 Models

DTC 2-5: Short to Ground in Front Passenger's Airbag Inflator

1. Erase the DTC memory (see page 23-38).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

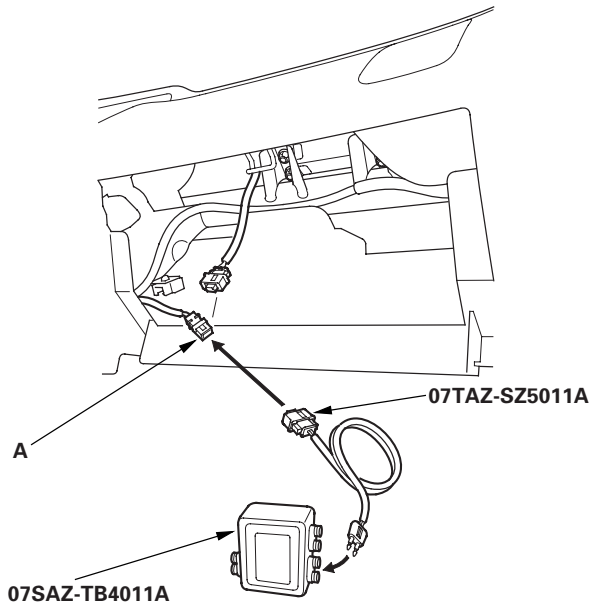
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the front passenger's airbag 2P connector from the SRS main harness 2P connector (A).



5. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-35).

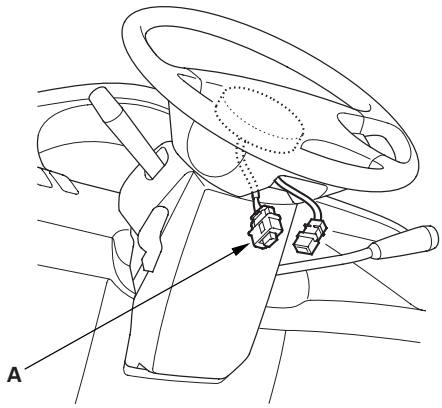
   Is DTC 2-5 indicated?

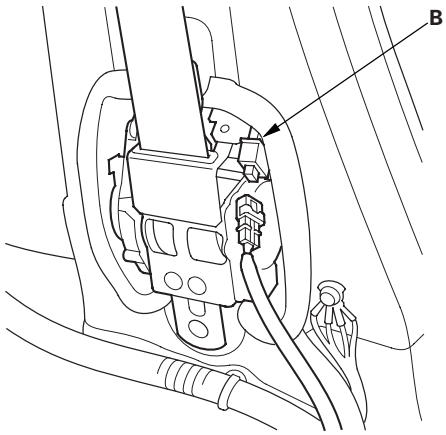
   YES—Go to step 9.

   NO—Short to ground in the front passenger's airbag inflator; replace the front passenger's airbag (see page 23-370).■

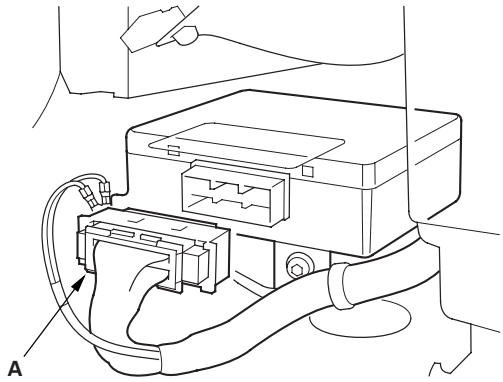
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect the driver's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B), and disconnect the special tool from the SRS main harness 2P connector.



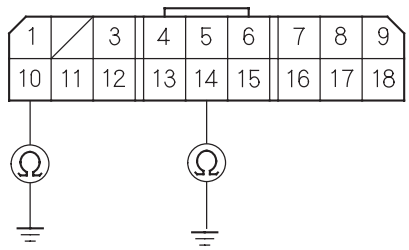


11. Disconnect the SRS main harness 18P connector (A) from the SRS unit.



12. Check resistance between the No. 10 terminal of the SRS main harness 18P connector and body ground, and between the No. 14 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382).■

NO—Short to ground in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

'99-01 Models

DTC 3-1: Open in Driver's Seat Belt Tensioner

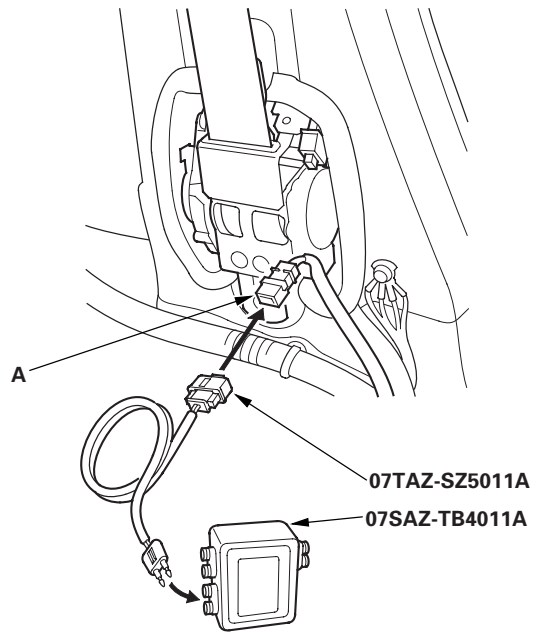
DTC 3-2: Increased Resistance in Driver's Seat Belt Tensioner

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector (A) from the left side wire harness 2P connector.

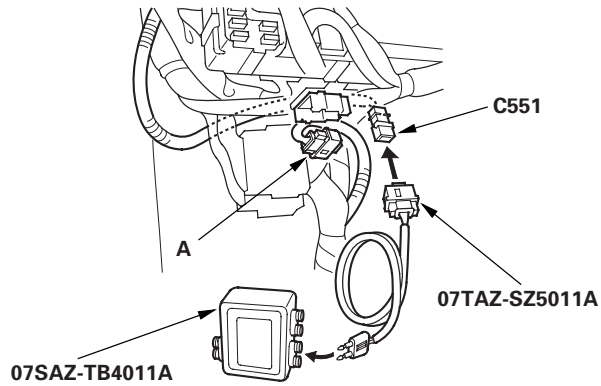


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 3-1 or 3-2 indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in driver's seat belt tensioner; replace the driver's seat belt (see page 23-4).■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the left side wire harness 2P connector C551 from the SRS main harness 2P connector (A).



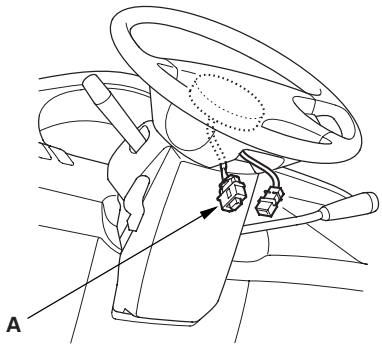
11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

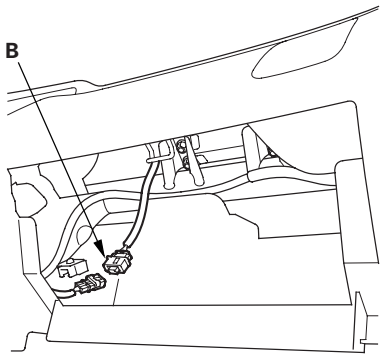
    Is DTC 3-1 or 3-2 indicated?

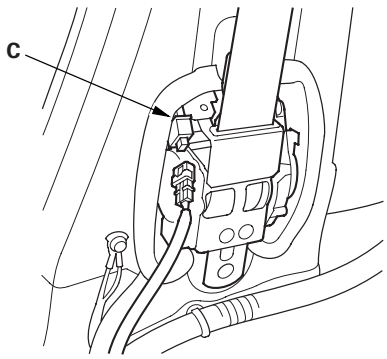
    YES—Go to step 15.

    NO—Open or increased resistance in left side wire harness; replace the left side wire harness.■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

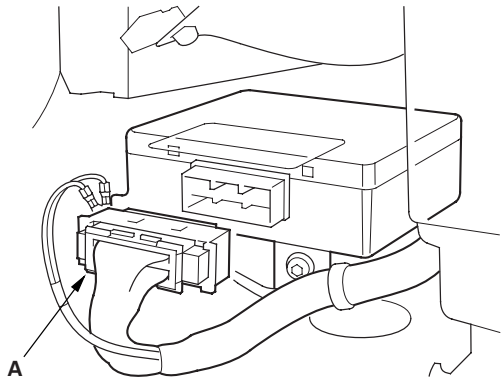
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and front passenger's seat belt tensioner connector (C).





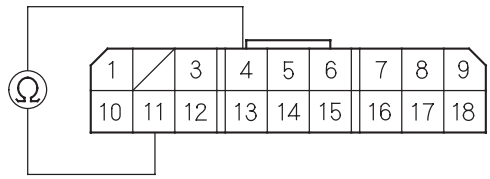


17. Disconnect the SRS main harness 18P connector (A) from the SRS unit. Do not disconnect the special tool from the left side wire harness 2P connector.



18. Check resistance between the No. 4 terminal and the No. 11 terminal of the SRS main harness 18P connector. There should be 2.0—3.0 Ω.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at the SRS main harness 18P connector and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-382). ■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'99-01 Models

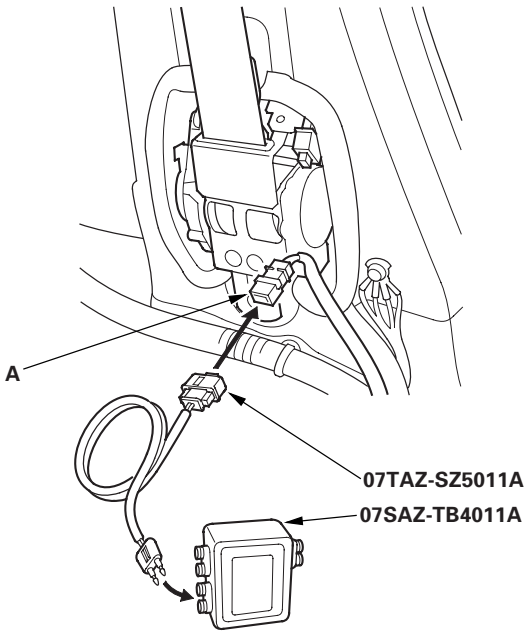
DTC 3-3: Short to Another Wire or Decreased Resistance in Driver's Seat Belt Tensioner

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the left side wire harness 2P connector (A).

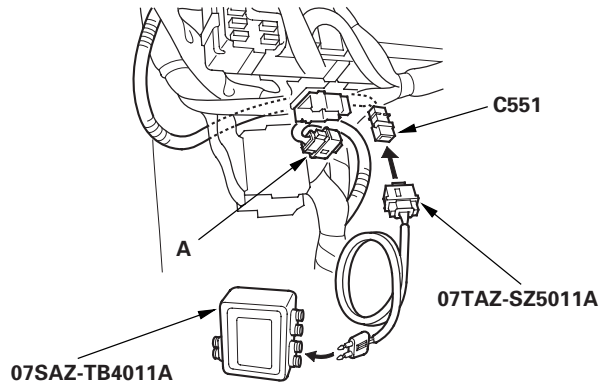


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 3-3 indicated?

   YES—Go to step 9.

   NO—Short in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C551 from the left side wire harness 2P connector (A).



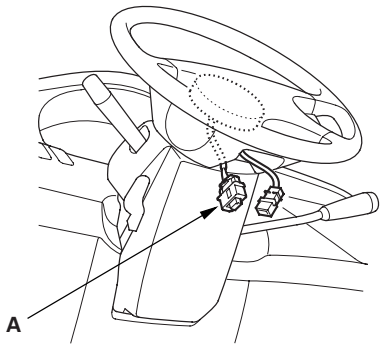
11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

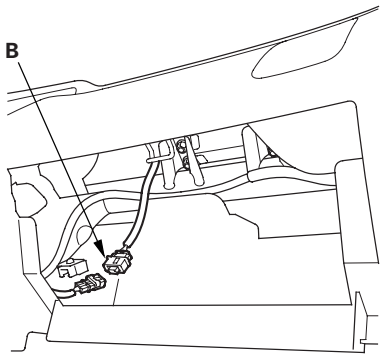
    Is DTC 3-3 indicated?

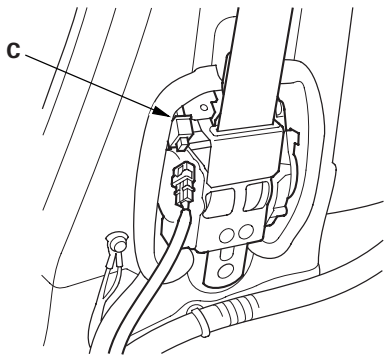
    YES—Go to step 15.

    NO—Short in left side wire harness; replace the left side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and front passenger's seat belt tensioner connector (C).

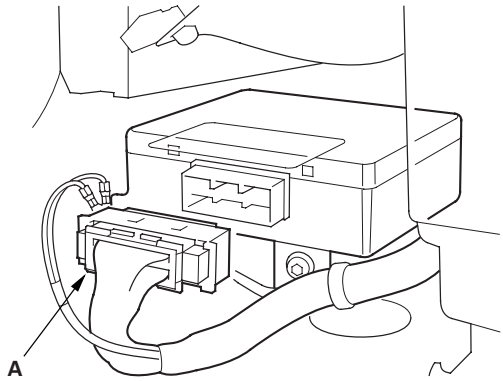






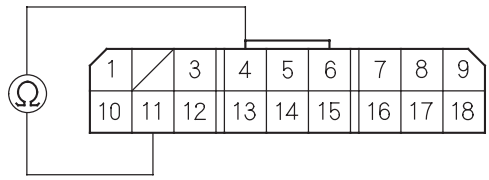
17. Disconnect the special tool from the SRS main harness 2P connector.

18. Disconnect the SRS main harness 18P connector (A) from the SRS unit.



19. Check resistance between the No. 4 terminal and the No. 11 terminal of the SRS main harness 18P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at the SRS main harness 18P connector and the SRS unit. Check the connection; if the connections is OK, replace the SRS unit (see page 23-382). ■

NO—Short in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'99-01 Models

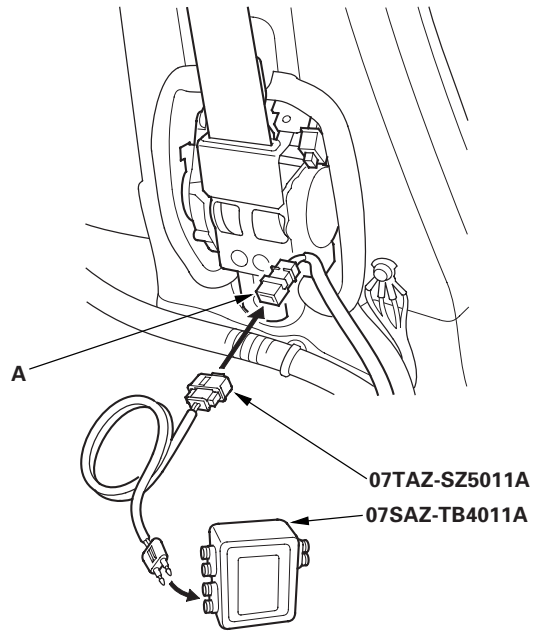
DTC 3-4: Short to Power in Driver's Seat Belt Tensioner

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the left side wire harness 2P connector (A).

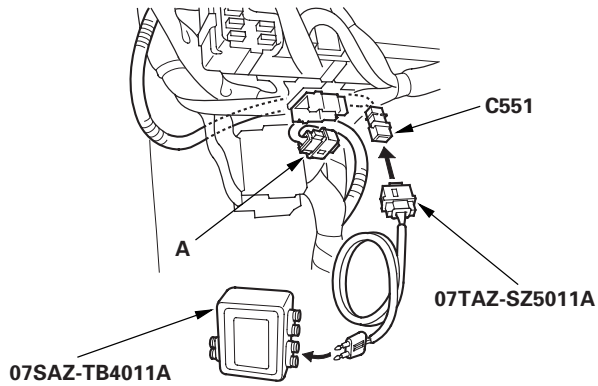


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 3-4 indicated?

   YES—Go to step 9.

   NO—Short to power in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-4).■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C551 from the left side wire harness 2P connector (A).



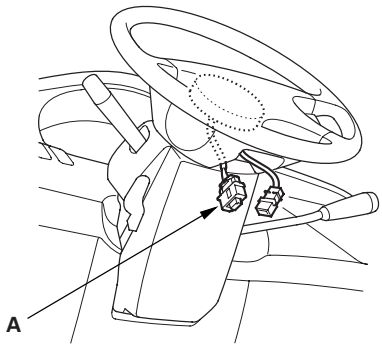
11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

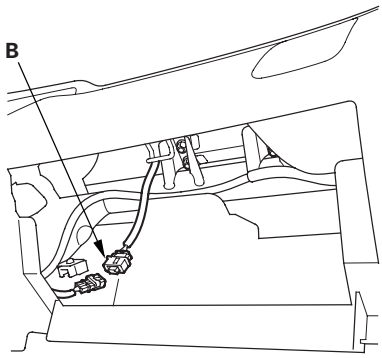
    Is DTC 3-4 indicated?

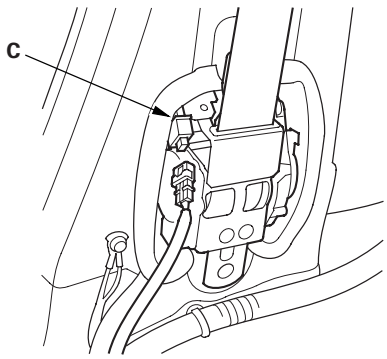
    YES—Go to step 15.

    NO—Short to power in left side wire harness; replace the left side wire harness.■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

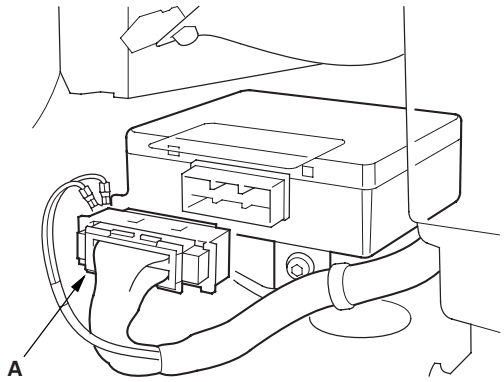
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and front passenger's seat belt tensioner connector (C).







17. Disconnect the SRS main harness 18P connector (A) from the SRS unit, and disconnect the special tool from the SRS main harness 2P connector.

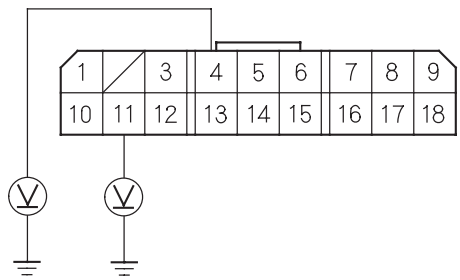


18. Reconnect the battery negative cable.

19. Turn the ignition switch ON (II).

20. Check for voltage between the No. 4 terminal of the SRS main harness 18P connector and body ground, and between the No. 11 terminal and body ground. There should be 0.5 V or less.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit or poor contact at the SRS main harness 18P connector and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-382). ■

NO—Short to power in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'99-01 Models

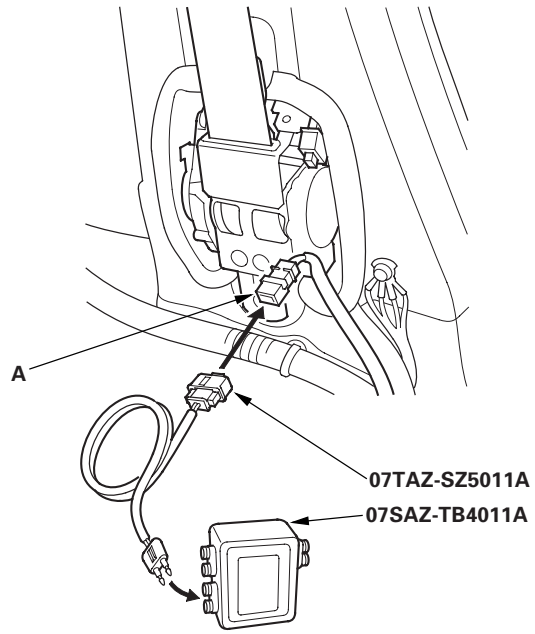
DTC 3-5: Short to Ground in Driver's Seat Belt Tensioner

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the left side wire harness 2P connector (A).

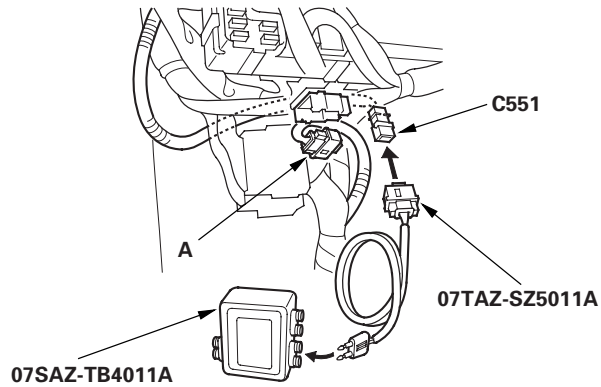


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 3-5 indicated?

   YES—Go to step 9.

   NO—Short to ground in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-4).■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C551 from the left side wire harness 2P connector (A).



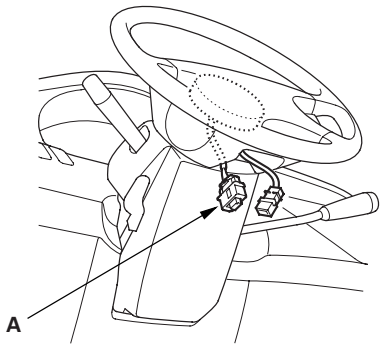
11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

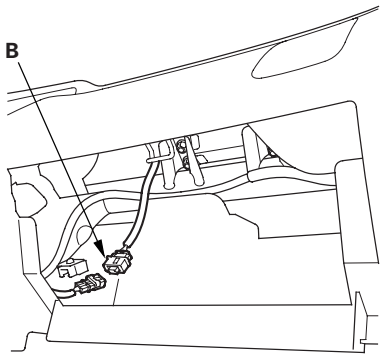
    Is DTC 3-5 indicated?

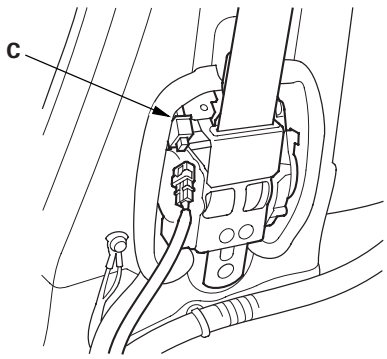
    YES—Go to step 15.

    NO—Short to ground in the left side wire harness; replace the left side wire harness.■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

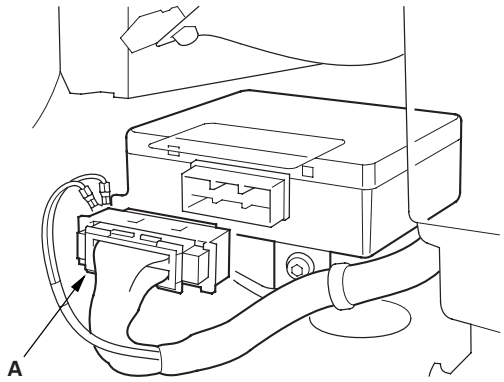
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and front passenger's seat belt tensioner connector (C).





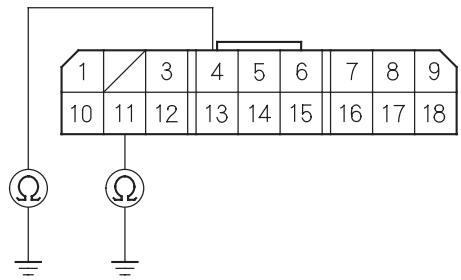


17. Disconnect the SRS main harness 18P connector (A) from the SRS unit, and disconnect the special tool from the SRS main harness 2P connector.



18. Check resistance between the No. 4 terminal of the SRS main harness 18P connector and body ground, and between the No. 11 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at the SRS main harness 18P connector at the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-382). ■

NO—Short to ground in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'99-01 Models

DTC 4-1: Open in Front Passenger's Seat Belt Tensioner

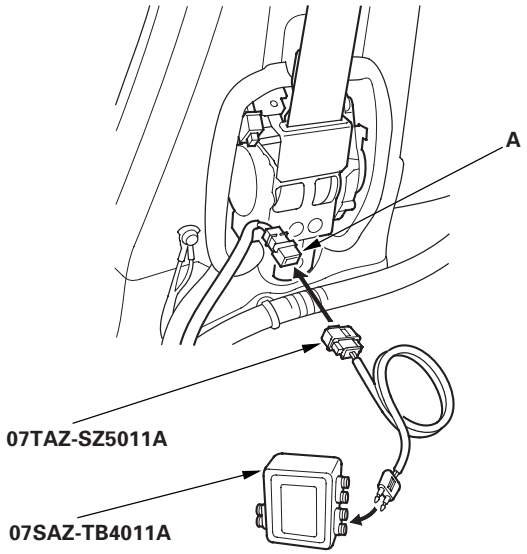
DTC 4-2: Increased Resistance in Front Passenger's Seat Belt Tensioner

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's seat belt tensioner 2P connector from the right side wire harness 2P connector (A).

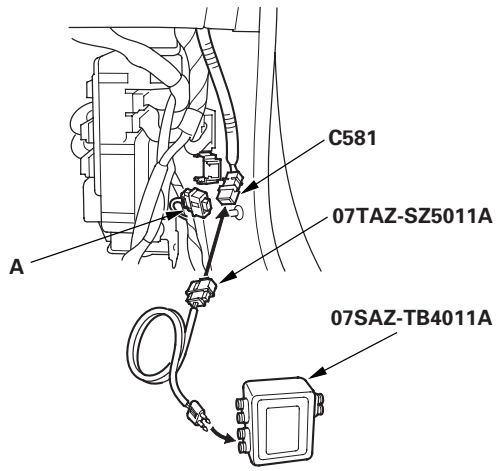


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 4-1 or 4-2 indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C581 from the right side wire harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

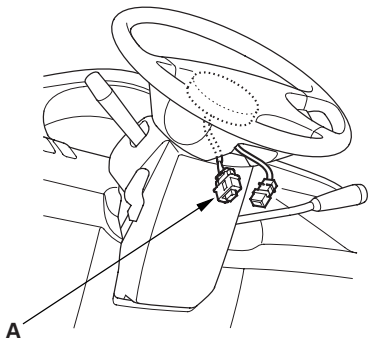
    Is DTC 4-1 or 4-2 indicated?

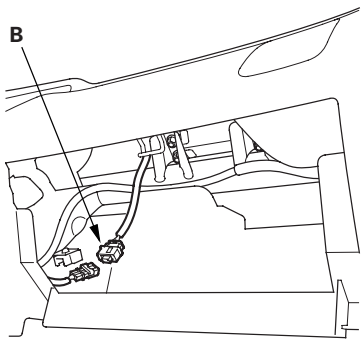
    YES—Go to step 15.

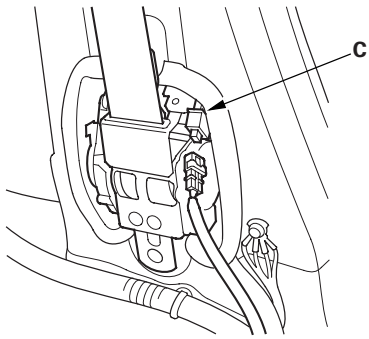
    NO—Open or increased resistance in the right side wire harness; replace the right side wire harness. ■

15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

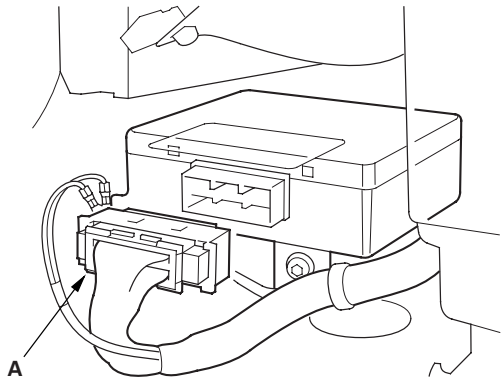
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and driver's seat belt tensioner connector (C).





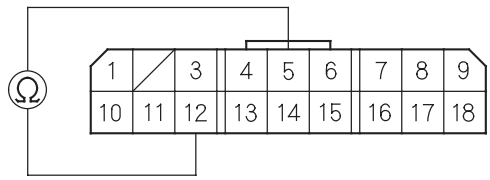


17. Disconnect the SRS main harness 18P connector (A) from the SRS unit. Do not disconnect the special tool from the right side wire harness 2P connector.



18. Check resistance between the No. 5 terminal and the No. 12 terminal of the SRS main harness 18P connector. There should be 2.0—3.0 Ω.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at the SRS main harness 18P connector and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-382). ■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'99-01 Models

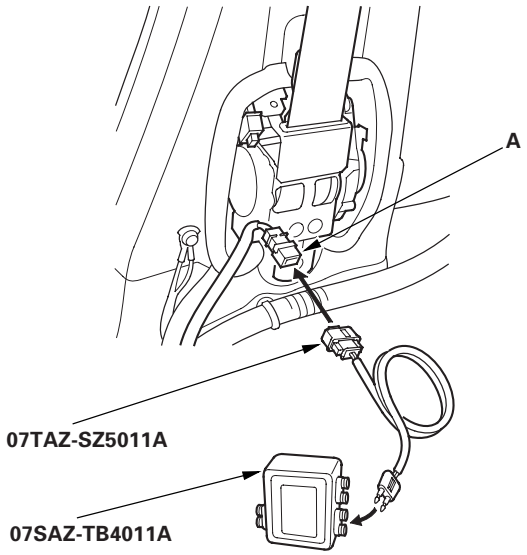
DTC 4-3: Short to Another Wire or Decreased Resistance in Front Passenger's Seat Belt Tensioner

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's seat belt tensioner 2P connector from the right side wire harness 2P connector (A).

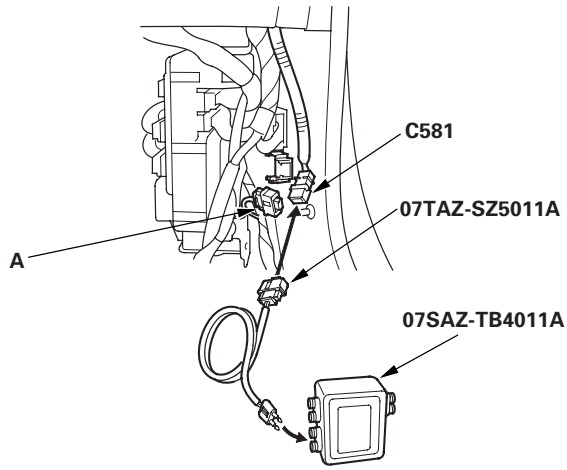


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 4-3 indicated?

   YES—Go to step 9.

   NO—Short in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C581 from the right side wire harness 2P connector (A).



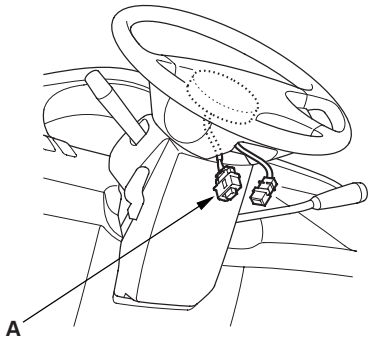
11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

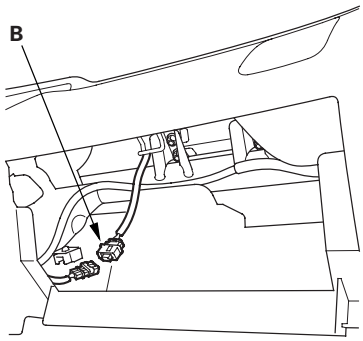
    Is DTC 4-3 indicated?

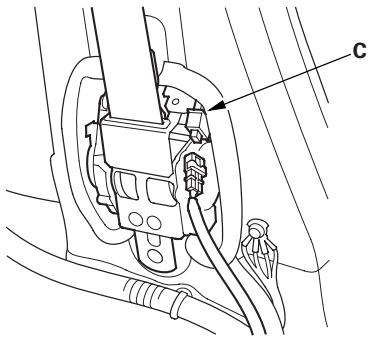
    YES—Go to step 15.

    NO—Short in the right side wire harness; replace the right side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and driver's seat belt tensioner (C).

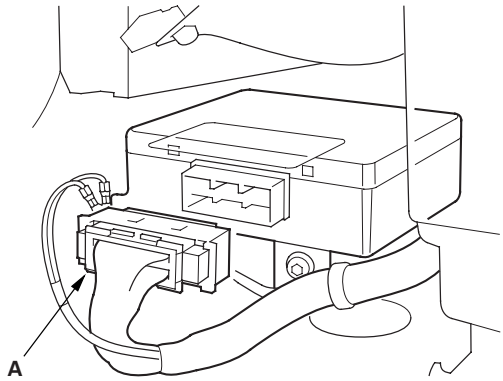






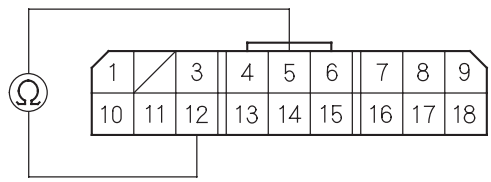
17. Disconnect the special tool from the SRS main harness 2P connector.

18. Disconnect the SRS main harness 18P connector (A) from the SRS unit.



19. Check resistance between the No. 5 terminal and the No. 12 terminal of the SRS main harness 18P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at the SRS main harness 18P connector and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-382). ■

NO—Short in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'99-01 Models

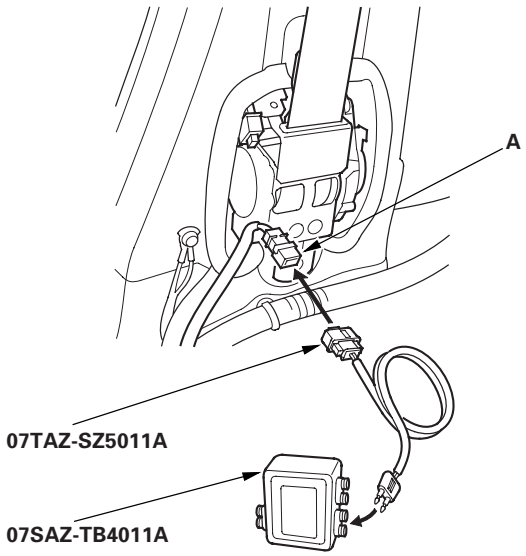
DTC 4-4: Short to Power in Front Passenger's Seat Belt Tensioner

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's seat belt tensioner 2P connector from the right side wire harness 2P connector (A).

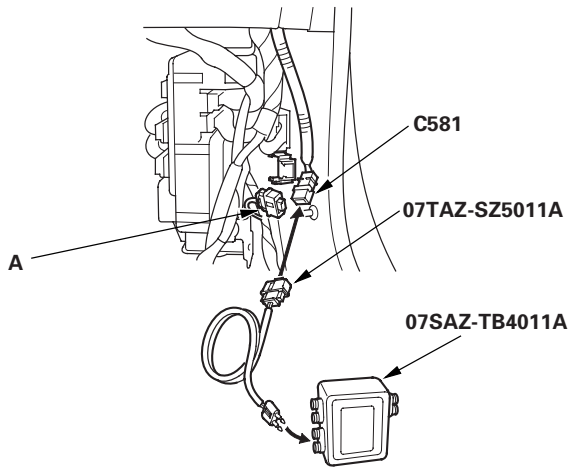


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 4-4 indicated?

   YES—Go to step 9.

   NO—Short to power in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C581 from the right side wire harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

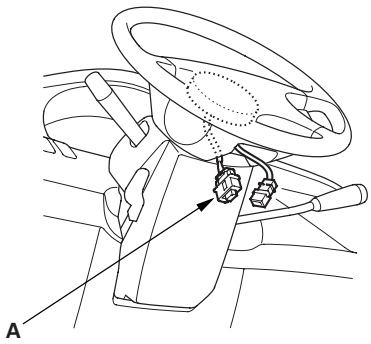
    Is DTC 4-4 indicated?

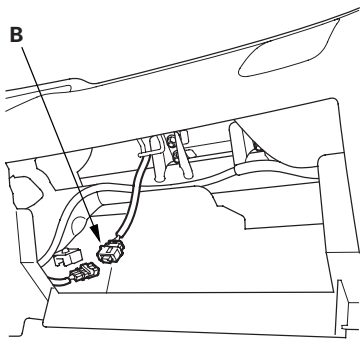
    YES—Go to step 15.

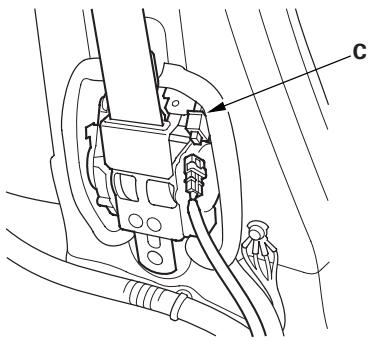
    NO—Short to power in the right side wire harness; replace the right side wire harness. ■

15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

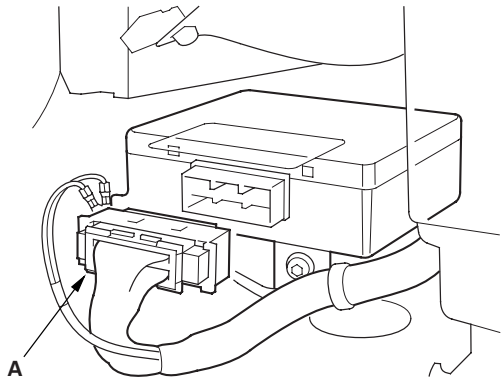
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and driver's seat belt tensioner connector (C).







17. Disconnect the SRS main harness 18P connector (A) from the SRS unit, and disconnect the special tool from the SRS main harness 2P connector.

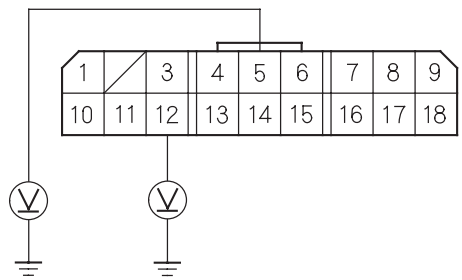


18. Reconnect the battery negative cable.

19. Turn the ignition switch ON (II).

20. Check for voltage between the No. 5 terminal of the SRS main harness 18P connector and body ground, and between the No. 12 terminal and body ground. There should be 0.5 V or less.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit or poor contact at the SRS main harness 18P connector at the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-382). ■

NO—Short to power in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'99-01 Models

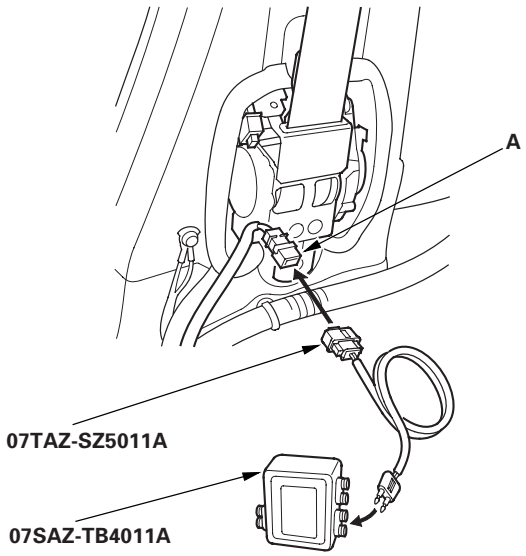
DTC 4-5: Short to Ground in Front Passenger's Seat Belt Tensioner

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's seat belt tensioner 2P connector from the right side wire harness 2P connector (A).

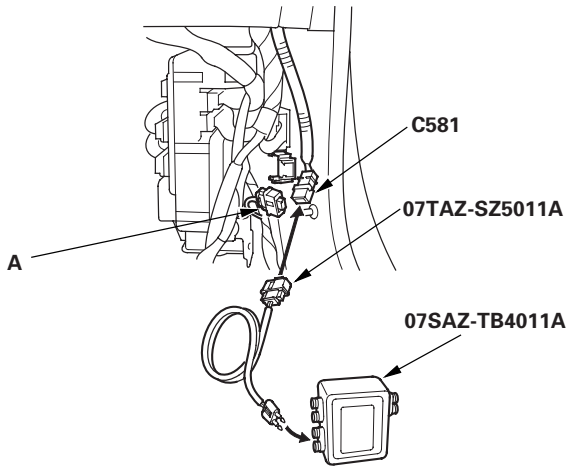


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 4-5 indicated?

   YES—Go to step 9.

   NO—Short to ground in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C581 from the right side wire harness 2P connector (A).



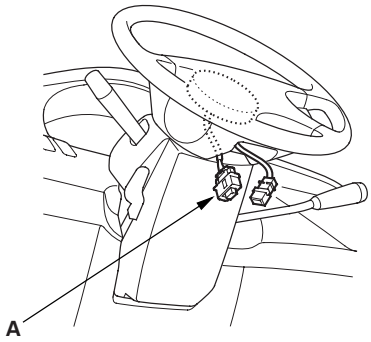
11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

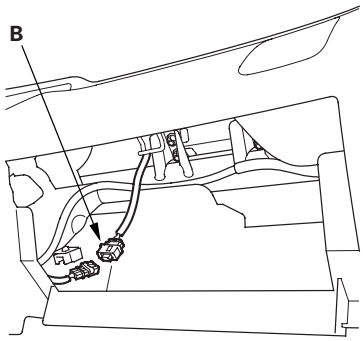
    Is DTC 4-5 indicated?

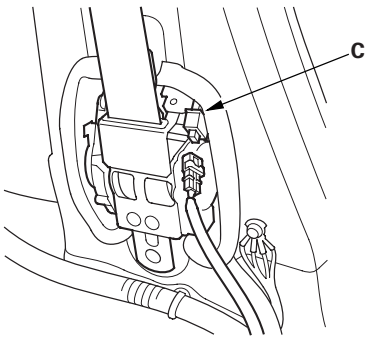
    YES—Go to step 15.

    NO—Short to ground in the right side wire harness; replace the right side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

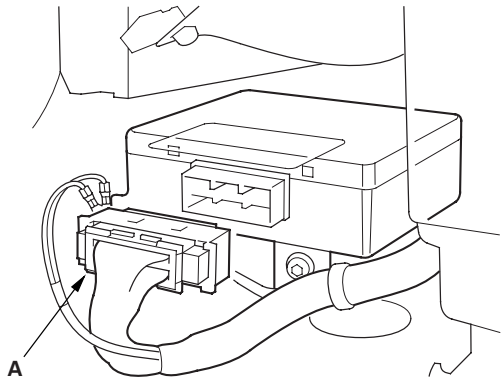
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and driver's seat belt tensioner connector (C).





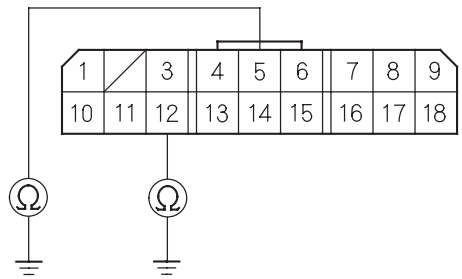


17. Disconnect the SRS main harness 18P connector (A) from the SRS unit, and disconnect the special tool from the SRS main harness 2P connector.



18. Check resistance between the No. 5 terminal of the SRS main harness 18P connector and body ground, and between the No. 12 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at the SRS main harness 18P connector at the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-382). ■

NO—Short to ground in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'99-01 Models

DTC 5-1, 5-4, 5-5, 6-1, 6-2, 6-3, 6-4, 7-1, 7-2, 7-3, 8-1, 8-2, 8-3, 8-4, 8-6, 9-1, 9-2: Internal Failure of the SRS Unit

NOTE: Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead.

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds, and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-382). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'99-01 Models

DTC 10-1: Airbags and Seat Belt Tensioners Deployed

The SRS unit must be replaced after any airbags and/or seat belt tensioners have deployed (see page 23-382). ■

'02 Model

DTC 1-1: Open or Increased Resistance in Driver's Airbag Inflator

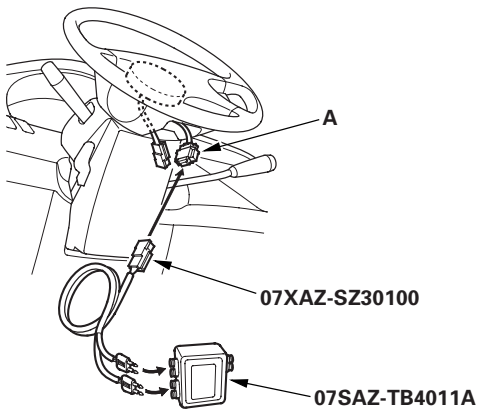
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector from the cable reel 4P connector (A).

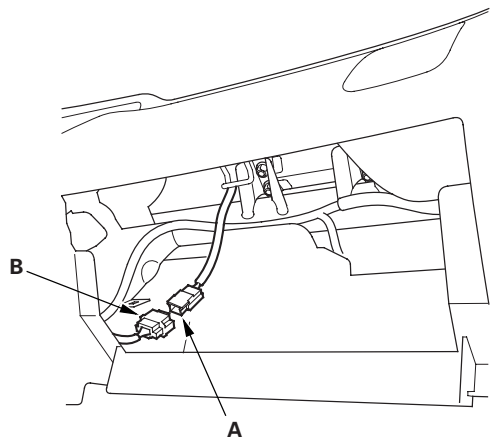


5. Connect the special tool (2 Ω connectors) to the cable reel 4P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 1-1 indicated?

   YES—Go to step 9.

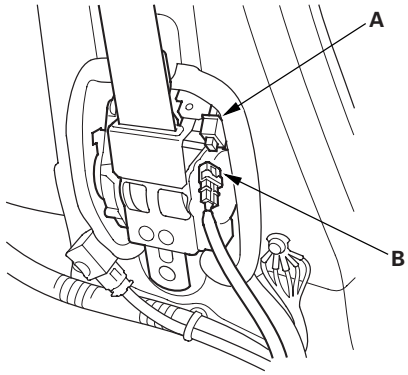
   NO—Open or increased resistance in the driver's airbag inflator; replace the driver's airbag (see page 23-368). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the front passenger's airbag 4P connector (A) from the SRS main harness 4P connector (B).



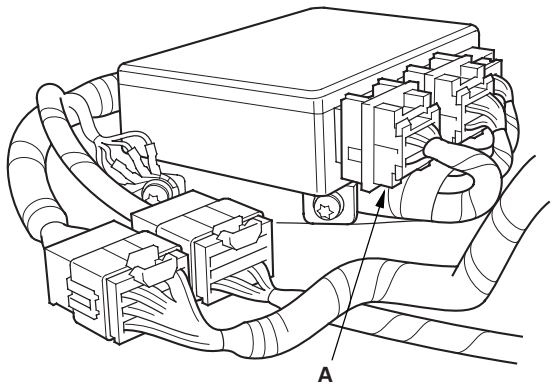
(cont'd)

DTC Troubleshooting (cont'd)

11. Disconnect both seat belt tensioner 2P connectors (A) from the side wire harness 2P connectors (B).

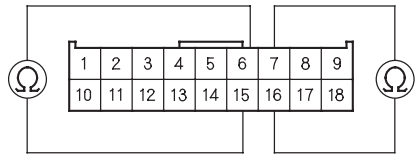


12. Disconnect SRS unit connector A (18P) from the SRS unit. Do not disconnect the special tool from the cable reel 4P connector.



13. Check resistance between the No. 7 and the No. 16 terminals and between the No. 6 and the No. 15 terminals of SRS unit connector A (18P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR A (18P)



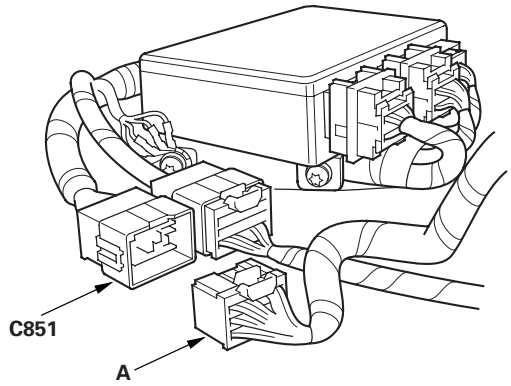
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at SRS unit connector A (18P) and the SRS unit, check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-382).■

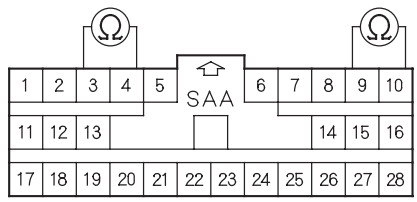
NO—Go to step 14.

14. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



15. Check resistance between the No. 9 and the No. 10 terminals and between the No. 3 and the No. 4 terminals of the SRS main harness 28P connector. There should be 2.0—3.0 Ω.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Open or increased resistance in the SRS floor harness; replace the SRS floor harness.■

NO—Open or increased resistance in the SRS main harness or the cable reel; replace the cable reel. If the problem is still present, replace the SRS main harness.■

DTC Troubleshooting (cont'd)

'02 Model

DTC 1-3: Short to Another Wire or Decreased Resistance in Driver's Airbag Inflator

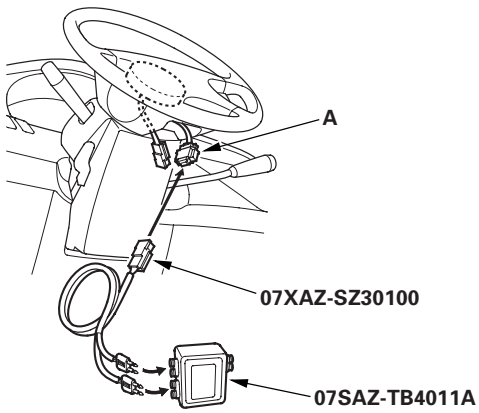
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector from the cable reel 4P connector (A).

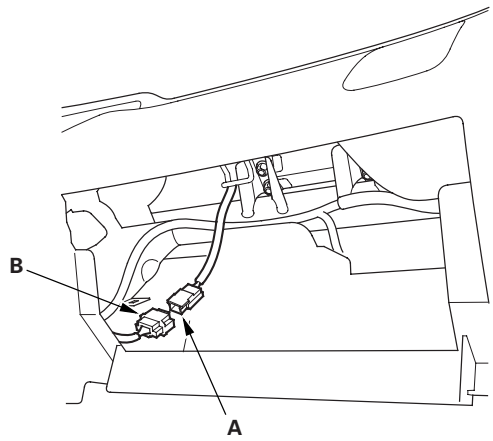


5. Connect the special tool (2 Ω connectors) to the cable reel 4P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

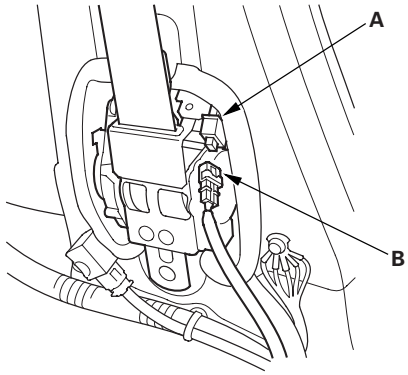
   Is DTC 1-3 indicated?

   YES—Go to step 9.

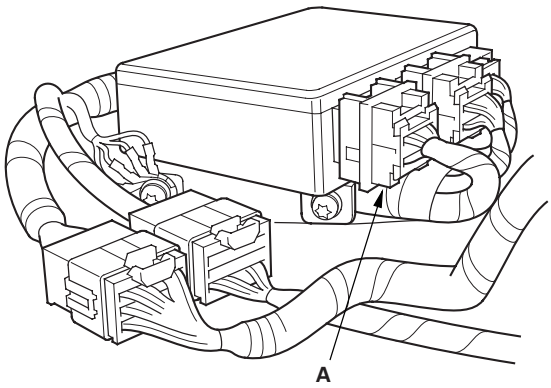
   NO—Short in the driver's airbag inflator; replace the driver's airbag (see page 23-368). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the front passenger's airbag 4P connector (A) from the SRS main harness 4P connector (B).



11. Disconnect both seat belt tensioner 2P connectors (A) from the side wire harness 2P connectors (B).



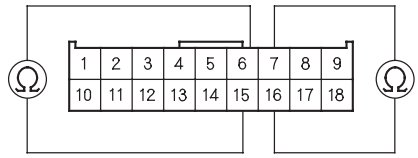
12. Disconnect SRS unit connector A (18P) from the SRS unit.



13. Disconnect the special tool from the cable reel 4P connector.

14. Check resistance between the No. 7 and the No. 16 terminals and between the No. 6 and the No. 15 terminals of SRS unit connector A (18P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382).■

NO—Go to step 15.

15. Disconnect the cable reel from the dashboard wire harness. Check resistance between the No. 7 and the No. 16 terminals and between the No. 6 and the No. 15 terminals of SRS unit connector A (18P). There should be an open circuit, or at least 1 MΩ.

Is the resistance as specified?

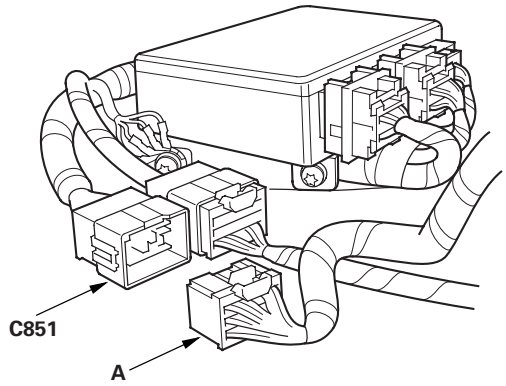
YES—Replace the cable reel (see page 23-377).■

NO—Go to step 16.

(cont'd)

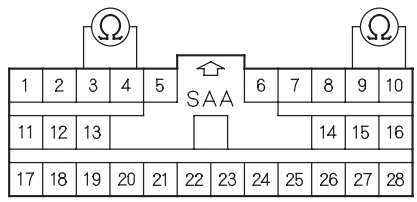
DTC Troubleshooting (cont'd)

16. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



17. Check resistance between the No. 9 and the No. 10 terminals and between the No. 3 and the No. 4 terminals of the SRS main harness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Replace the SRS floor harness. ■

NO—Replace the SRS main harness. ■

'02 Model

DTC 1-4: Short to Power in Driver's Airbag Inflator

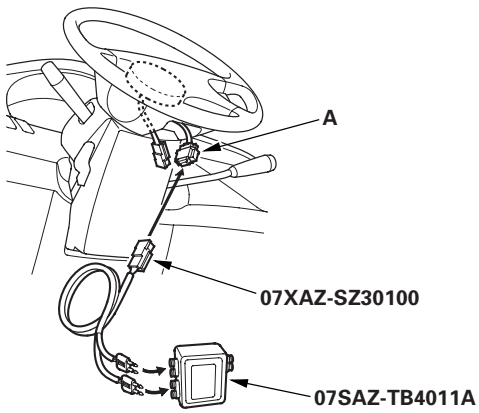
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector from the cable reel 4P connector (A).

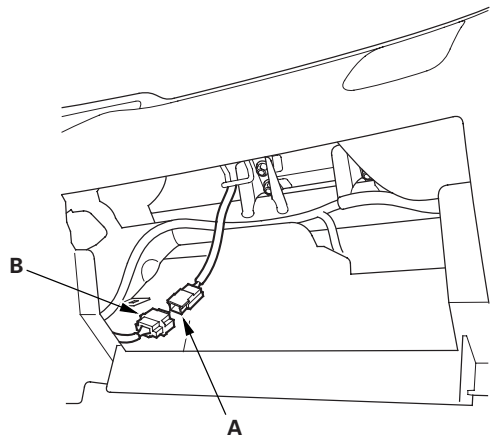


5. Connect the special tool (2 Ω connectors) to the cable reel 4P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

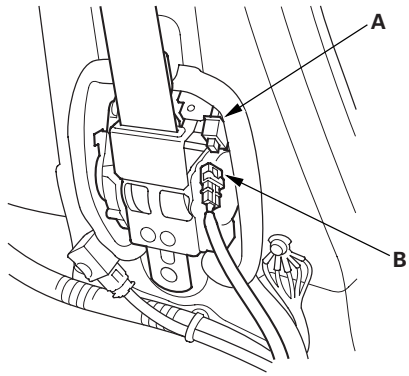
   Is DTC 1-4 indicated?

   YES—Go to step 9.

   NO—Short to power in the driver's airbag inflator; replace the driver's airbag (see page 23-368). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the front passenger's airbag 4P connector (A) from the SRS main harness 4P connector (B).



11. Disconnect both seat belt tensioner 2P connectors (A) from the side wire harness 2P connectors (B).



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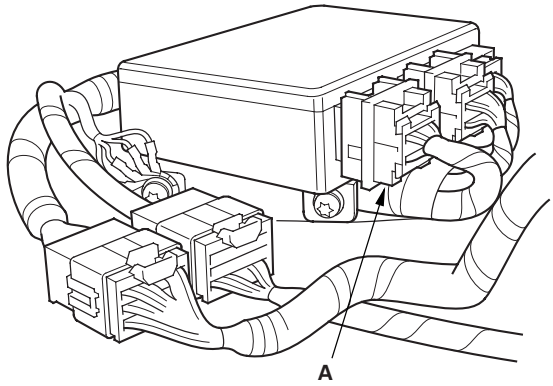
DTC Troubleshooting (cont'd)

12. Disconnect SRS unit connector A (18P) from the SRS unit.



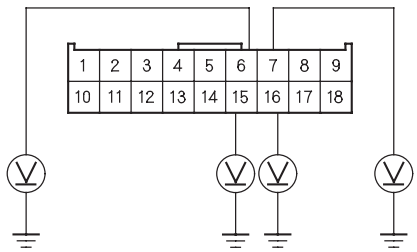
13. Disconnect the special tool from the cable reel 4P connector.

14. Reconnect the battery negative cable.

15. Turn the ignition switch ON (II).

16. Check for voltage between the No. 7 terminal of SRS unit connector A (18P) and body ground, the No. 16 terminal and body ground, the No. 6 terminal and body ground, and the No. 15 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Go to step 17.

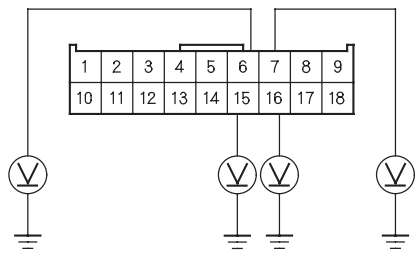
17. Turn the ignition switch OFF.

18. Disconnect the cable reel from the SRS main harness.

19. Turn the ignition switch ON (II).

20. Check for voltage between the No. 7 terminal of SRS unit connector A (18P) and body ground, the No. 16 terminal and body ground, the No. 6 terminal and body ground, and the No. 15 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

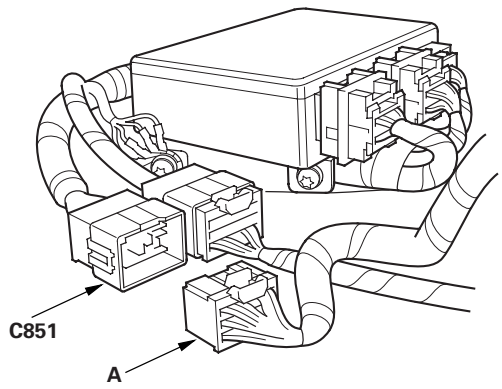
Is the voltage as specified?

YES—Replace the cable reel (see page 23-377). ■

NO—Go to step 21.

21. Turn the ignition switch OFF.

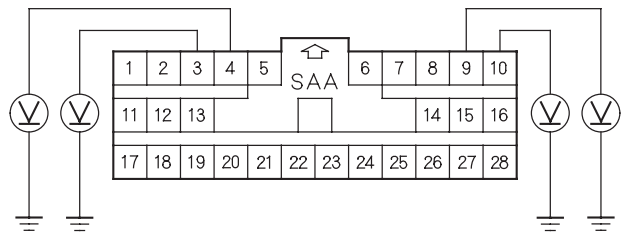
22. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



23. Turn the ignition switch ON (II).

24. Check for voltage between the No. 9 terminal of the SRS main harness 28P connector and body ground, the No. 10 terminal and body ground, the No. 3 terminal and body ground, and the No. 4 terminal and body ground. There should be 0.5 V or less.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the voltage as specified?

YES—Replace the SRS floor harness. ■

NO—Replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'02 Model

DTC 1-5: Short to Ground in Driver's Airbag Inflator

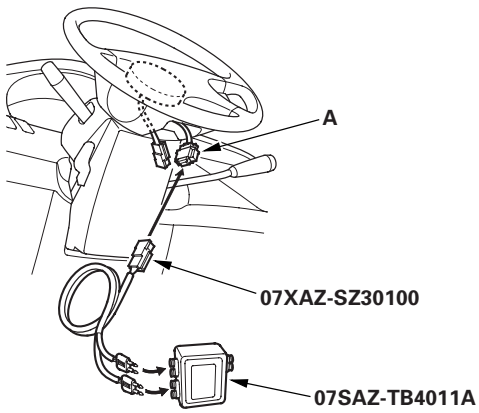
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector from the cable reel 4P connector (A).

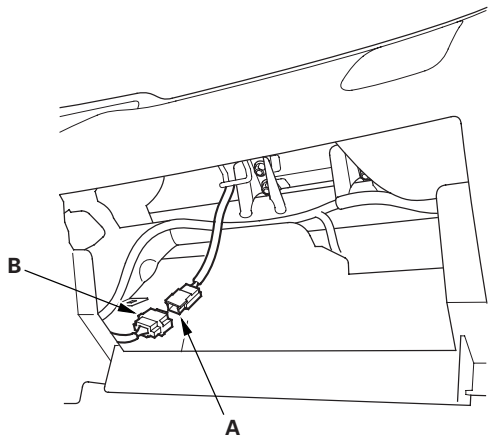


5. Connect the special tool (2 Ω connectors) to the cable reel 4P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

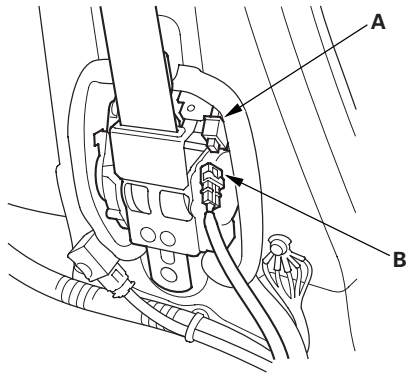
   Is DTC 1-5 indicated?

   YES—Go to step 9.

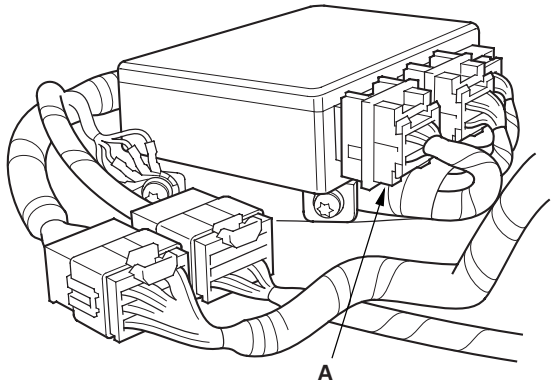
   NO—Short to ground in the driver's airbag inflator; replace the driver's airbag (see page 23-368). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the front passenger's airbag 4P connector (A) from the SRS main harness 4P connector (B).



11. Disconnect both seat belt tensioner 2P connectors (A) from the side wire harness 2P connectors (B).



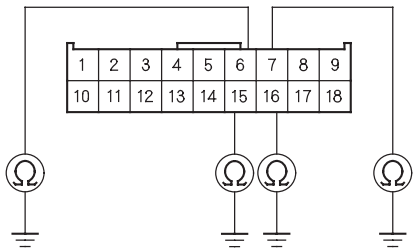
12. Disconnect SRS unit connector A (18P) from the SRS unit.



13. Disconnect the special tool from the cable reel 4P connector.

14. Check resistance between the No. 7 terminal of SRS unit connector A (18P) and body ground, the No. 16 terminal and body ground, the No. 6 terminal and body ground, and the No. 15 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

Is the resistance as specified?

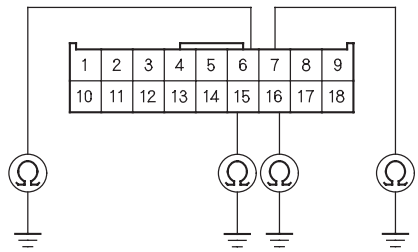
YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Go to step 15.

15. Disconnect the cable reel from the SRS main harness.

16. Check resistance between the No. 7 terminal of SRS unit connector A (18P) and body ground, the No. 16 terminal and body ground, the No. 6 terminal and body ground, and the No. 15 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

Is the resistance as specified?

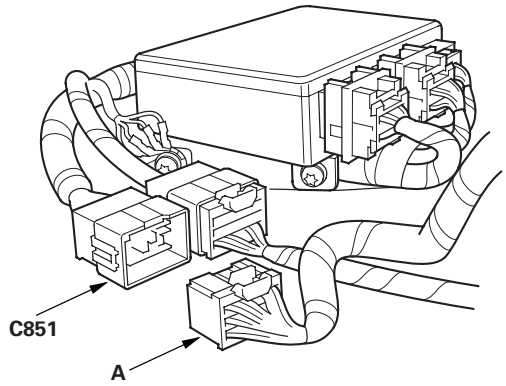
YES—Replace the cable reel (see page 23-377). ■

NO—Go to step 17.

(cont'd)

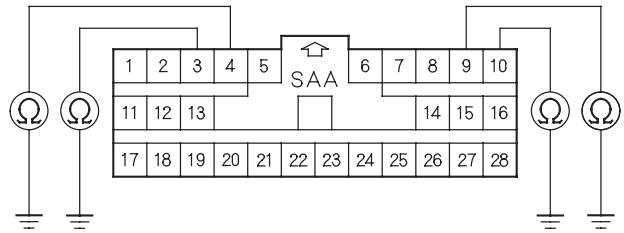
DTC Troubleshooting (cont'd)

17. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



18. Check resistance between the No. 9 terminal of the SRS main harness 28P connector and body ground, the No. 10 terminal and body ground, the No. 3 terminal and body ground, and No. 4 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Replace the SRS floor harness. ■

NO—Replace the SRS main harness. ■

'02 Model

DTC 2-1: Open or Increased Resistance in Front Passenger's Airbag Inflator

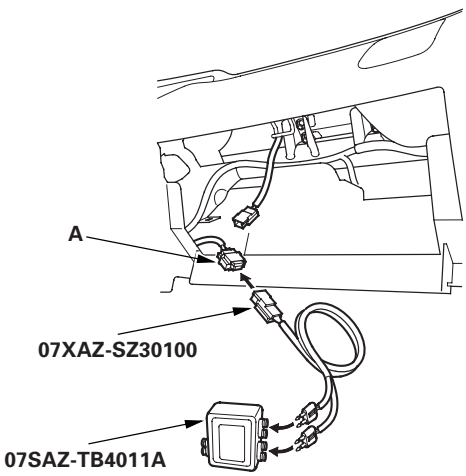
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's airbag 4P connector from the SRS main harness 4P connector (A).

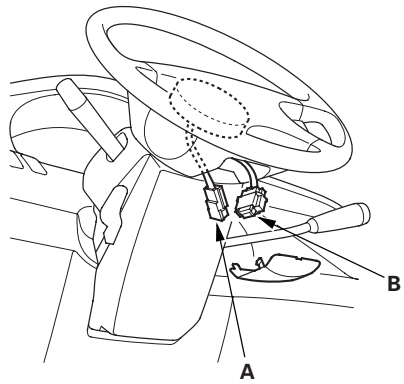


5. Connect the special tool (2 Ω connectors) to the SRS main harness 4P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

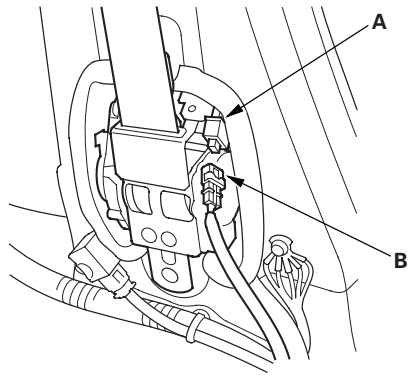
   Is DTC 2-1 indicated?

   YES — Go to step 9.

   NO — Open or increased resistance in the front passenger's airbag inflator; replace the front passenger's airbag (see page 23-370). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the driver's airbag 4P connector (A) from the cable reel 4P connector (B).



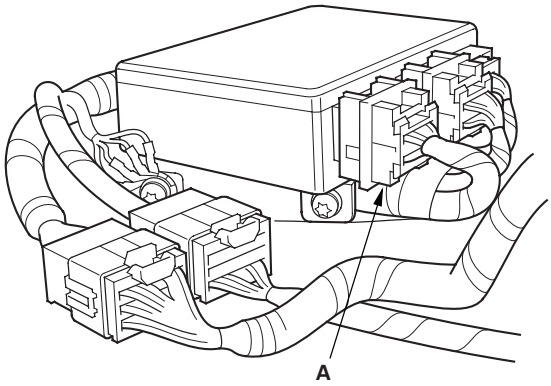
11. Disconnect both seat belt tensioner 2P connectors (A) from the side wire harness 2P connectors (B).



(cont'd)

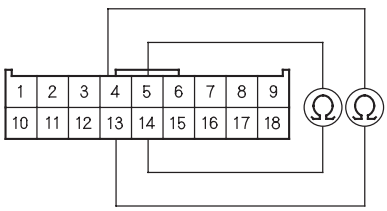
DTC Troubleshooting (cont'd)

12. Disconnect SRS unit connector A (18P) from the SRS unit. Do not disconnect the special tool from the SRS main harness 4P connector.



13. Check resistance between the No. 4 and No. 13 terminals and between the No. 5 and No. 14 terminals of SRS unit connector A (18P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at the SRS unit connector A (18P). Check the connection; if the connection is OK, replace the SRS unit (see page 23-382). ■

NO—Open or increased resistance in the dashboard wire harness; replace the dashboard wire harness. ■

'02 Model

DTC 2-3: Short to Another Wire or Decreased Resistance in Front Passenger's Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-38).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

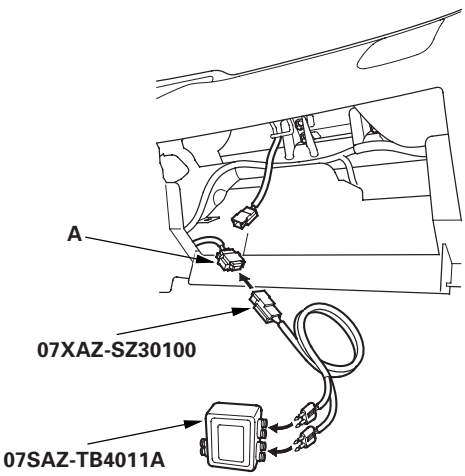
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the front passenger's airbag 4P connector from the SRS main harness 4P connector (A).



5. Connect the special tool (2 Ω connectors) to the SRS main harness 4P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-35).

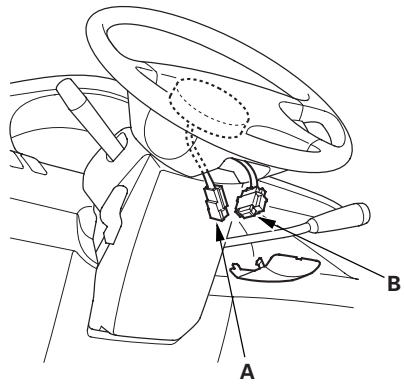
   Is DTC 2-3 indicated?

   YES—Go to step 9.

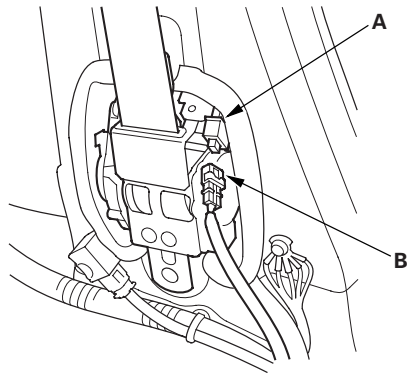
   NO—Short in the front passenger's airbag inflator; replace the front passenger's airbag (see page 23-370). ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect the driver's airbag 4P connector (A) from the cable reel 4P connector (B).



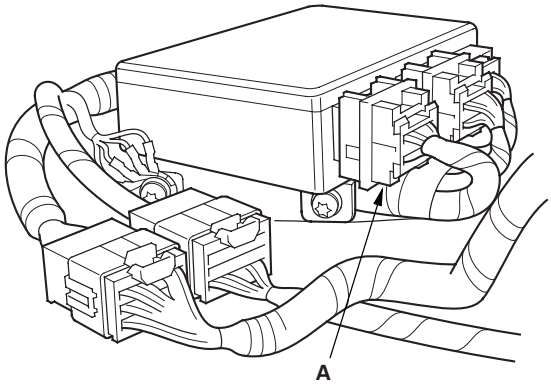
11. Disconnect both seat belt tensioner 2P connectors (A) from the side wire harness 2P connectors (B).



(cont'd)

DTC Troubleshooting (cont'd)

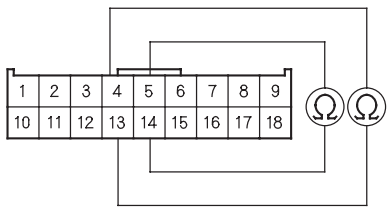
12. Disconnect SRS unit connector A (18P) from the SRS unit.



13. Disconnect the special tool from the SRS main harness 4P connector.

14. Check resistance between the No. 4 and No. 13 terminals and between the No. 5 and No.14 terminals of SRS unit connector A (18P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (18P)



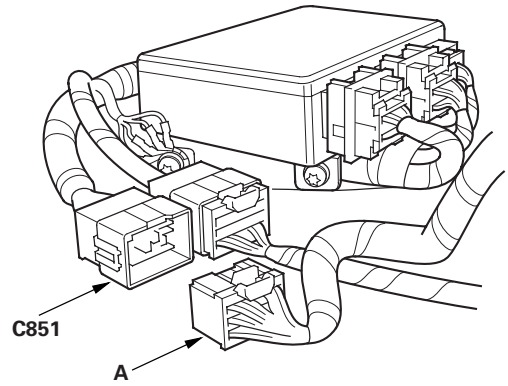
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

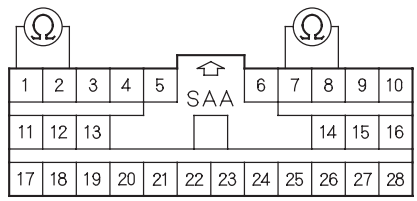
NO—Go to step 15.

15. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



16. Check resistance between the No. 7 and the No. 8 terminals and between the No. 1 and the No. 2 terminals of the SRS main harness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short in the SRS floor harness; replace the SRS floor harness. ■

NO—Short in the SRS main harness; replace the SRS main harness. ■

'02 Model

DTC 2-4: Short to Power in Front Passenger's Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-38).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

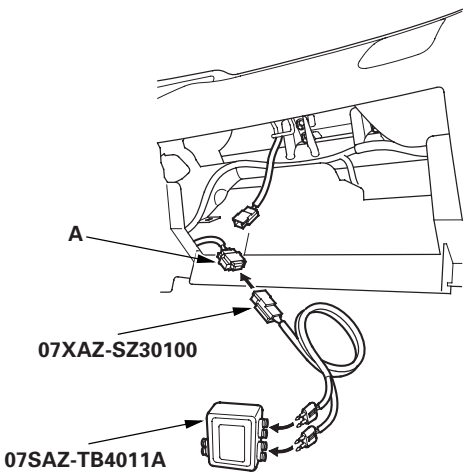
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the front passenger's airbag 4P connector from the SRS main harness 4P connector (A).



5. Connect the special tool (2 Ω connectors) to the SRS main harness 4P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-35).

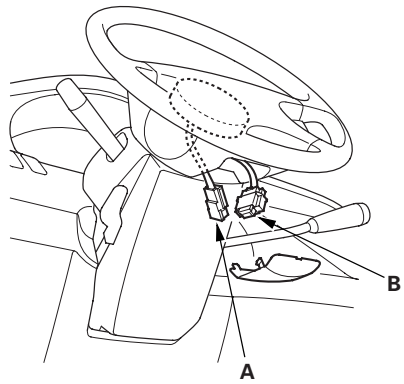
   Is DTC 2-4 indicated?

   YES—Go to step 9.

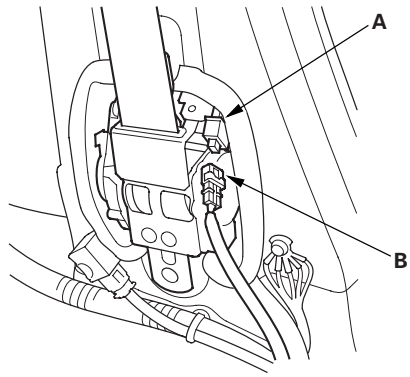
   NO—Short to power in the front passenger's airbag inflator; replace the front passenger's airbag (see page 23-370).■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect the driver's airbag 4P connector (A) from the cable reel 4P connector (B).



11. Disconnect both seat belt tensioner 2P connectors (A) from the side wire harness 2P connectors (B).



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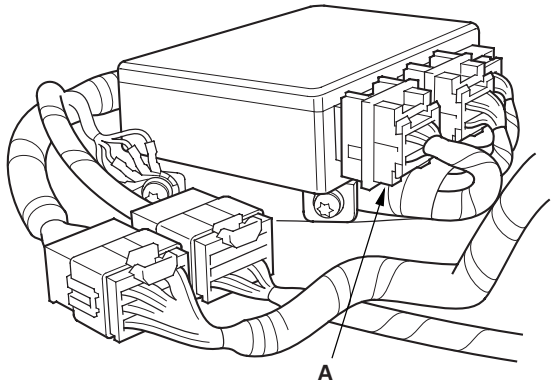
DTC Troubleshooting (cont'd)

12. Disconnect SRS unit connector A (18P) from the SRS unit.



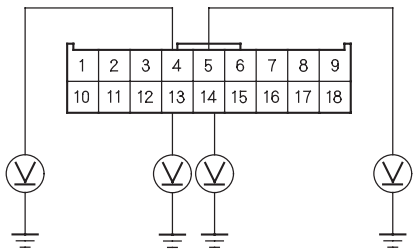
13. Disconnect the special tool from the SRS main harness 4P connector.

14. Reconnect the battery negative cable.

15. Turn the ignition switch ON (II).

16. Check for voltage between the No. 4 terminal of SRS unit connector A (18P) and body ground, the No. 13 terminal and body ground, the No. 5 terminal and body ground, and the No. 14 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

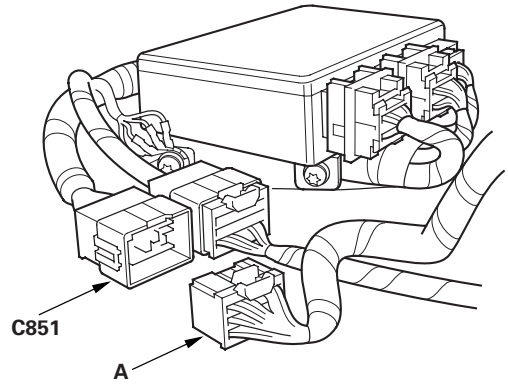
Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Go to step 17.

17. Turn the ignition switch OFF.

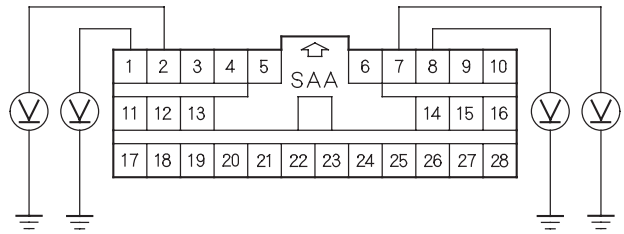
18. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



19. Turn the ignition switch ON (II).

20. Check for voltage between the No. 7 terminal of the SRS main harness 28P connector and body ground, the No. 8 terminal and body ground, the No. 1 terminal and body ground, and the No. 2 terminal and body ground. There should be 0.5 V or less.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the voltage as specified?

YES—Short to power in the SRS floor harness; replace the SRS floor harness. ■

NO—Short to power in the SRS main harness; replace the SRS main harness. ■

'02 Model

DTC 2-5: Short to Ground in Front Passenger's Airbag Inflator

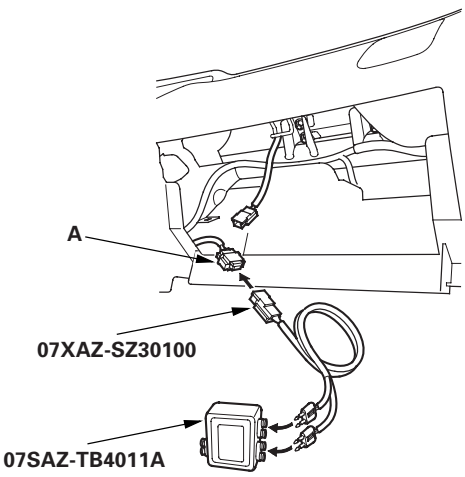
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's airbag 4P connector from the SRS main harness 4P connector (A).

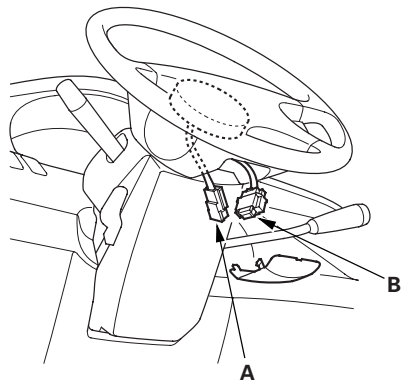


5. Connect the special tool (2 Ω connectors) to the SRS main harness 4P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

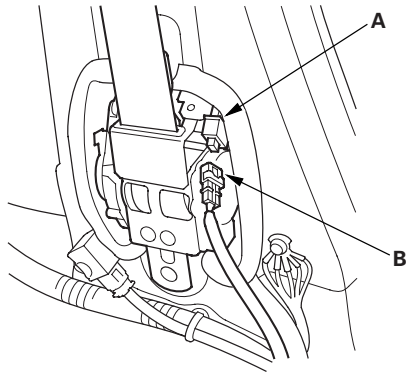
   Is DTC 2-5 indicated?

   YES—Go to step 9.

   NO—Short to ground in the front passenger's airbag inflator; replace the front passenger's airbag (see page 23-370). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the driver's airbag 4P connector (A) from the cable reel 4P connector (B).



11. Disconnect both seat belt tensioner 2P connectors (A) from the side wire harness 2P connectors (B).



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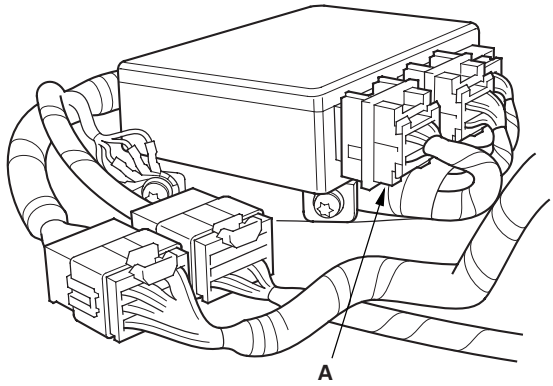
DTC Troubleshooting (cont'd)

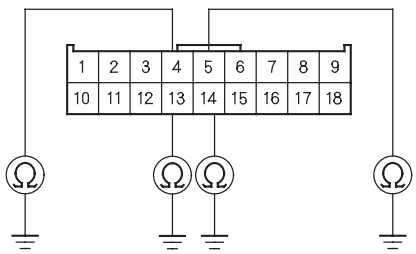
12. Disconnect SRS unit connector A (18P) from the SRS unit.



13. Disconnect the special tool from the SRS main harness 4P connector.

14. Check resistance between the No. 4 terminal of SRS unit connector A (18P) and body ground, and the No. 13 terminal and body ground, the No. 5 terminal and body ground, and the No. 14 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (18P)



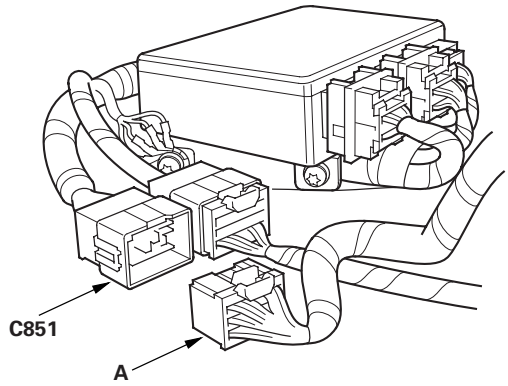
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

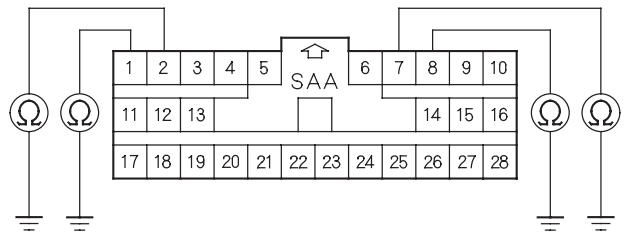
NO—Go to step 15.

15. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



16. Check resistance between the No. 7 terminal of the SRS main harness 28P connector and body ground, the No. 8 terminal and body ground, the No. 1 terminal and body ground, and the No. 2 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Replace the SRS floor harness. ■

NO—Replace the SRS main harness. ■

'02 Model

DTC 3-1: Open or Increased Resistance in Driver's Seat Belt Tensioner

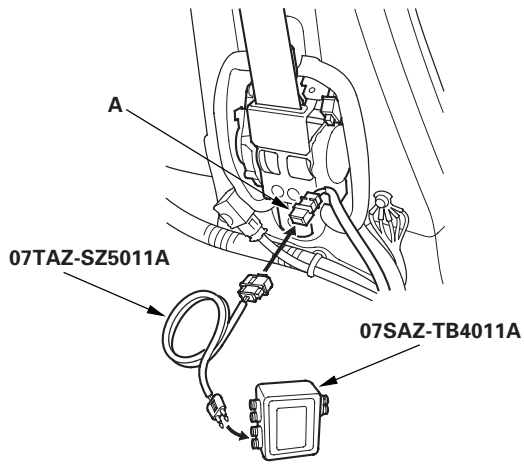
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the left side wire harness 2P connector (A).

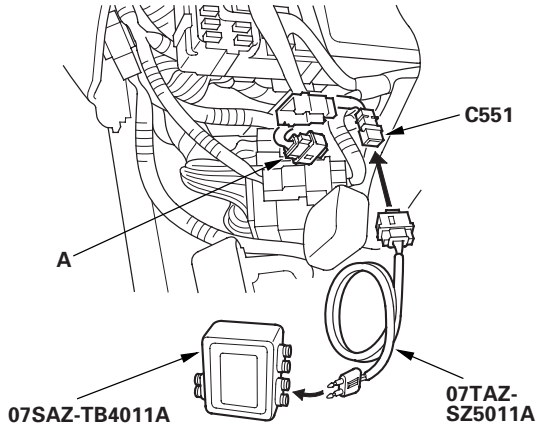


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 3-1 indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C551 from the left side wire harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 3-1 indicated?

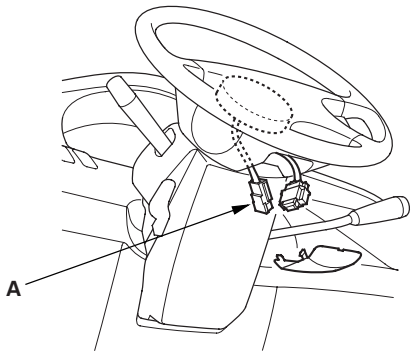
    YES—Go to step 15.

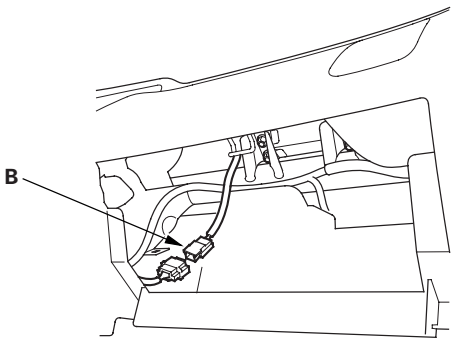
    NO—Open or increased resistance in the left side wire harness; replace the left side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

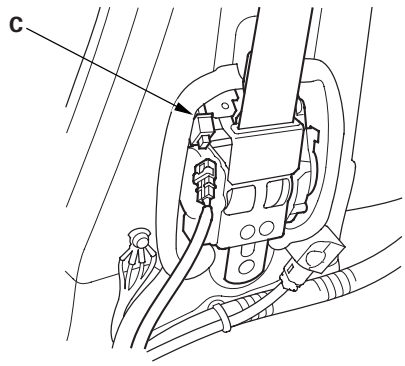
(cont'd)

DTC Troubleshooting (cont'd)

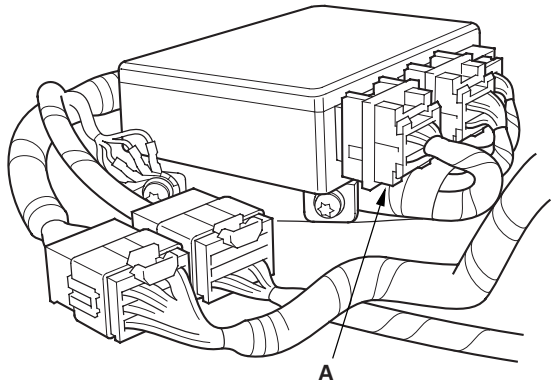
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and front passenger's seat belt tensioner connector (C).





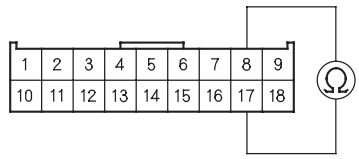


17. Disconnect SRS unit connector A (18P) from the SRS unit. Do not disconnect the special tool from the left side wire harness 2P connector.



18. Check resistance between the No. 8 terminal and the No. 17 terminal of SRS unit connector A (18P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR A (18P)



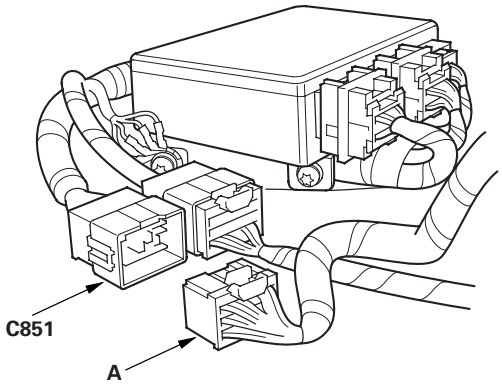
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at SRS unit connector A (18P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-382). ■

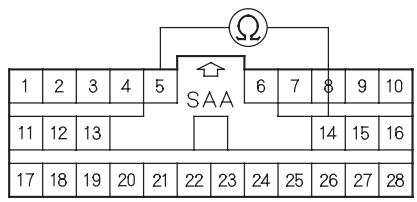
NO—Go to step 19.

19. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



20. Check resistance between the No. 5 and the No. 14 terminals of the SRS main harness 28P connector. There should be 2.0—3.0 Ω.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Open or increased resistance in the SRS floor harness; replace the SRS floor harness. ■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'02 Model

DTC 3-3: Short to Another Wire or Decreased Resistance in Driver's Seat Belt Tensioner

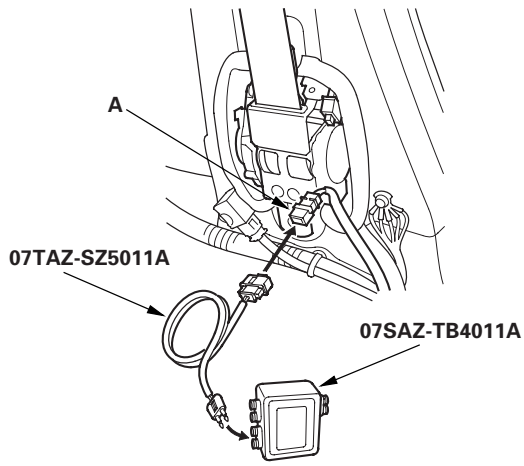
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the left side wire harness 2P connector (A).

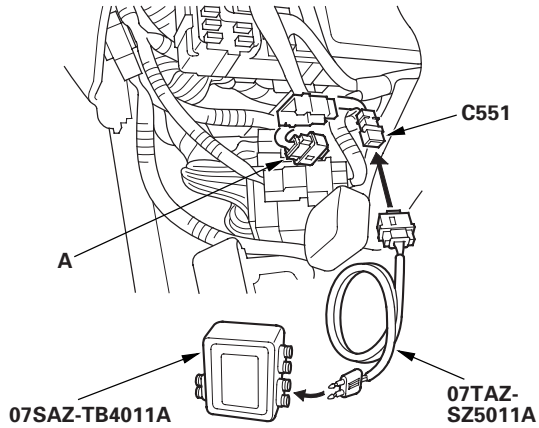


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 3-3 indicated?

   YES—Go to step 9.

   NO—Short in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C551 from the left side wire harness 2P connector (A).



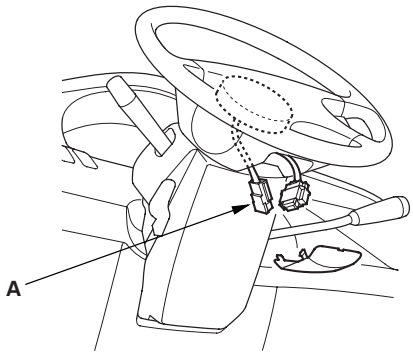
11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

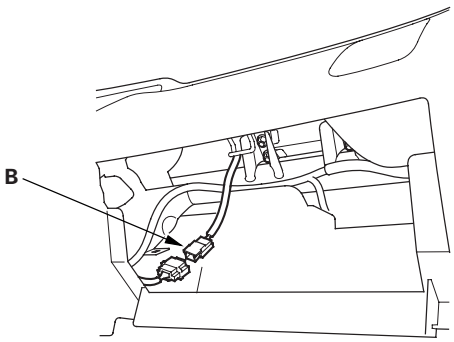
    Is DTC 3-3 indicated?

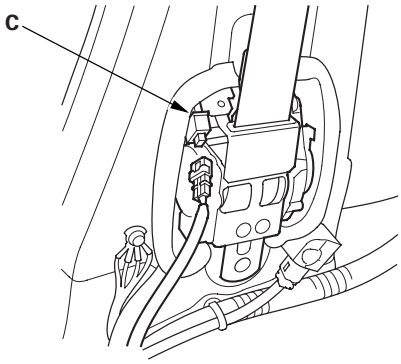
    YES—Go to step 15.

    NO—Short in the left side wire harness; replace the left side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

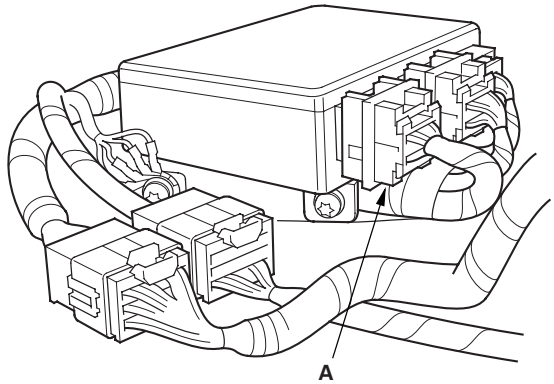
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and front passenger's seat belt tensioner connector (C).







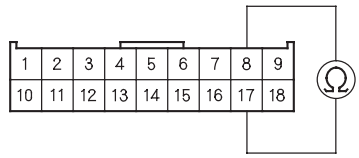
17. Disconnect SRS unit connector A (18P) from the SRS unit.



18. Disconnect the special tool from the SRS main harness 2P connector.

19. Check resistance between the No. 8 and the No. 17 terminals of the SRS unit connector A (18P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

Is the resistance as specified?

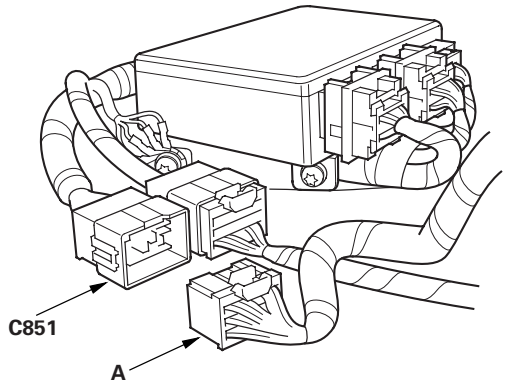
YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Go to step 20.

(cont'd)

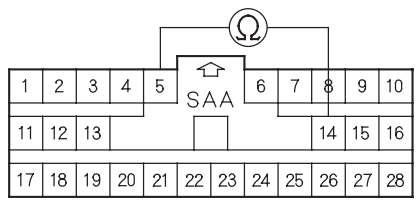
DTC Troubleshooting (cont'd)

20. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



21. Check resistance between the No. 5 and the No. 14 terminals of the SRS main harness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short in the SRS floor harness; replace the SRS floor harness. ■

NO—Short in the SRS main harness; replace the SRS main harness. ■

'02 Model

DTC 3-4: Short to Power in Driver's Seat Belt Tensioner

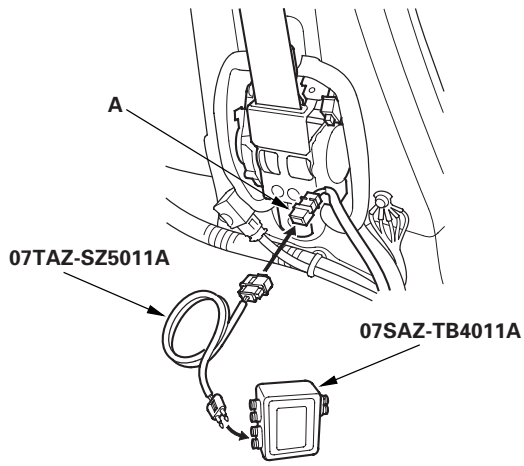
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the left side wire harness 2P connector (A).

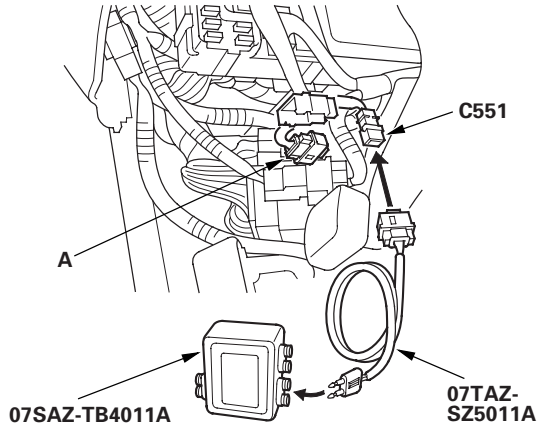


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 3-4 indicated?

   YES—Go to step 9.

   NO—Short to power in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C551 from the left side wire harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 3-4 indicated?

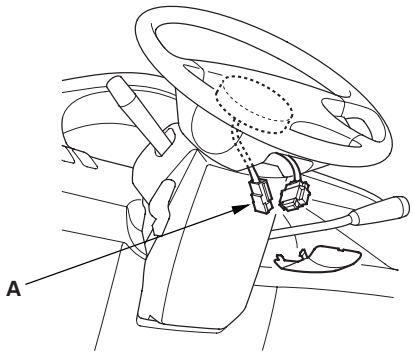
    YES—Go to step 15.

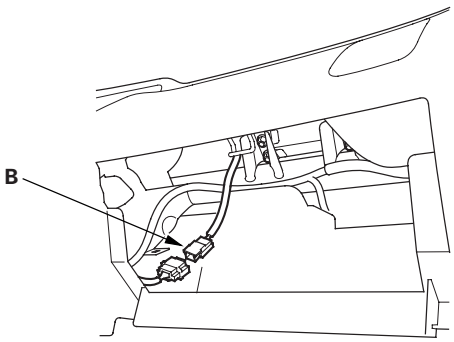
    NO—Short to power in the left side wire harness; replace the left side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

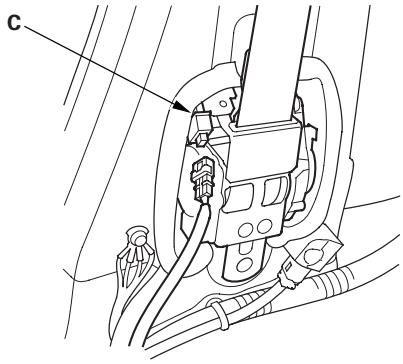
(cont'd)

DTC Troubleshooting (cont'd)

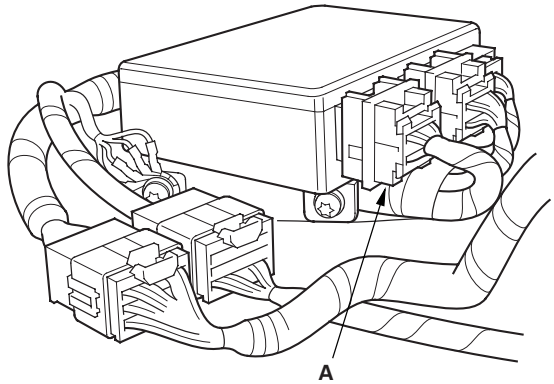
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and front passenger's seat belt tensioner connector (C).







17. Disconnect SRS unit connector A (18P) from the SRS unit.



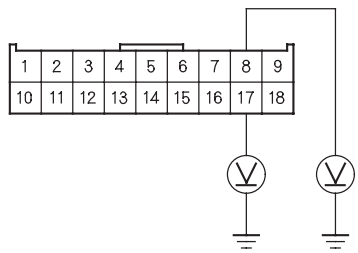
18. Disconnect the special tool from the SRS main harness 2P connector.

19. Reconnect the battery negative cable.

20. Turn the ignition switch ON (II).

21. Check for voltage between the No. 8 terminal of SRS unit connector A (18P) and body ground, and between the No. 17 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

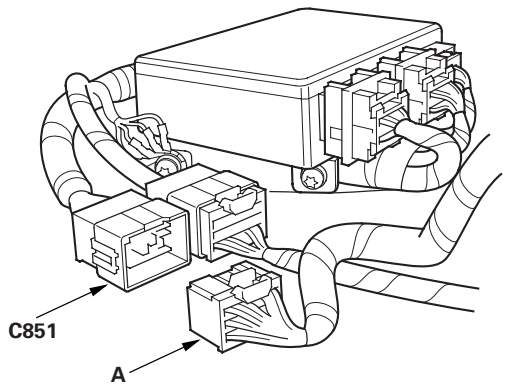
Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Go to step 22.

22. Turn the ignition switch OFF.

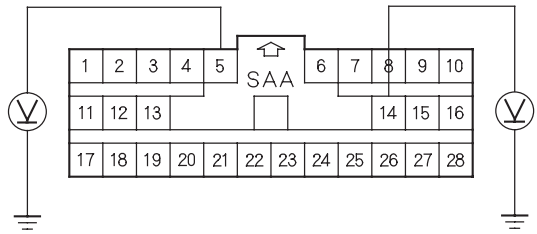
23. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



24. Turn the ignition switch ON (II).

25. Check for voltage between the No. 5 terminal of the SRS main harness 28P connector and body ground, and between the No. 14 terminal and body ground. There should be 0.5 V or less.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the voltage as specified?

YES—Short to power in the SRS floor harness; replace the SRS floor harness. ■

NO—Short to power in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'02 Model

DTC 3-5: Short to Ground in Driver's Seat Belt Tensioner

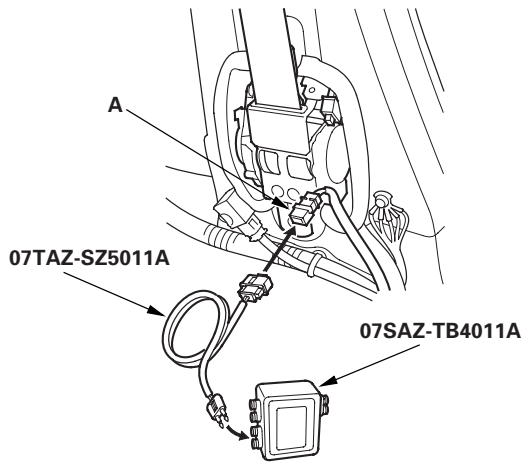
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the left side wire harness 2P connector (A).

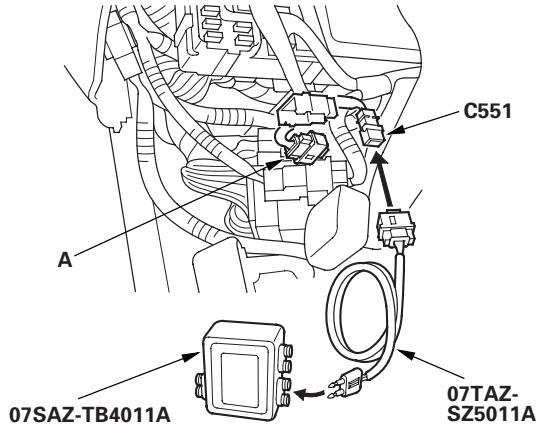


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 3-5 indicated?

   YES — Go to step 9.

   NO — Short to ground in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C551 from the left side wire harness 2P connector (A).



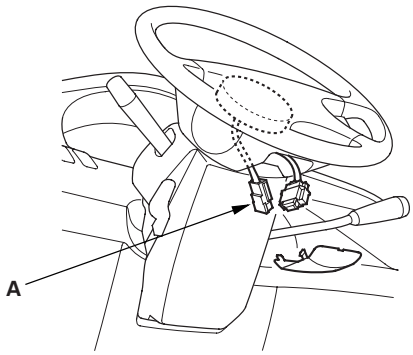
11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

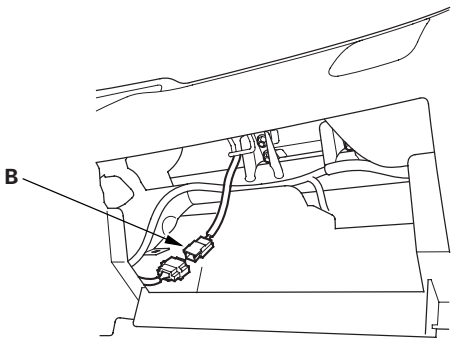
    Is DTC 3-5 indicated?

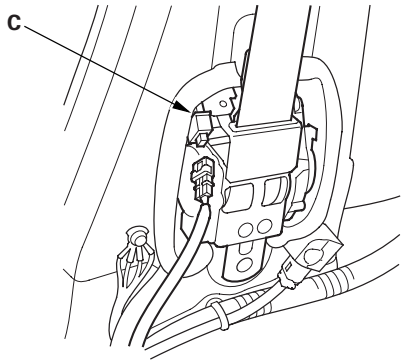
    YES — Go to step 15.

    NO — Short to ground in the left side wire harness; replace the left side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

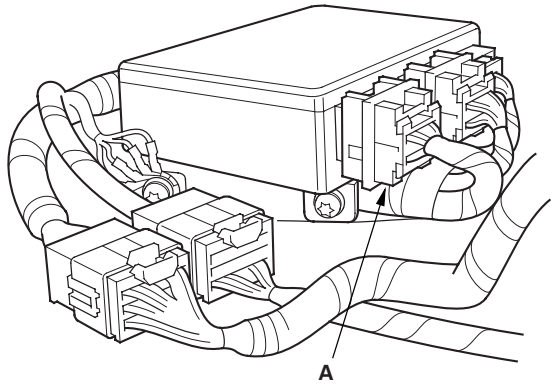
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and front passenger's seat belt tensioner connector (C).







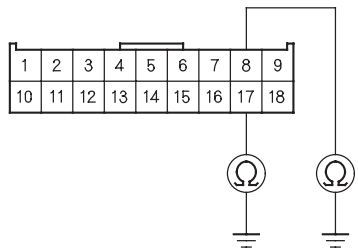
17. Disconnect SRS unit connector A (18P) from the SRS unit.



18. Disconnect the special tool from the SRS main harness 2P connector.

19. Check resistance between the No. 8 terminal of SRS unit connector A (18P) and body ground, and between the No. 17 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

Is the resistance as specified?

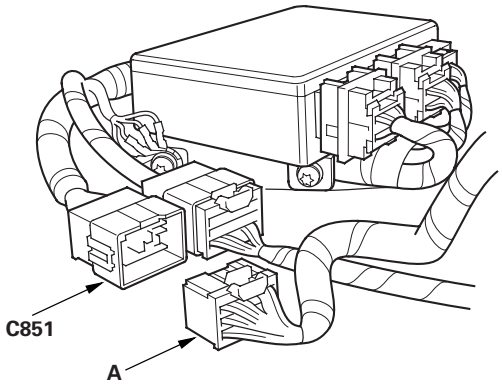
YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Go to step 20.

(cont'd)

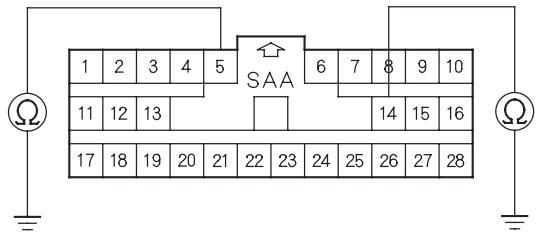
DTC Troubleshooting (cont'd)

20. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



21. Check resistance between the No. 5 terminal of the SRS main harness 28P connector and body ground, between the No. 14 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Replace the SRS floor harness. ■

NO—Replace the SRS main harness. ■

'02 Model

DTC 4-1: Open or Increase Resistance in Front Passenger's Seat Belt Tensioner

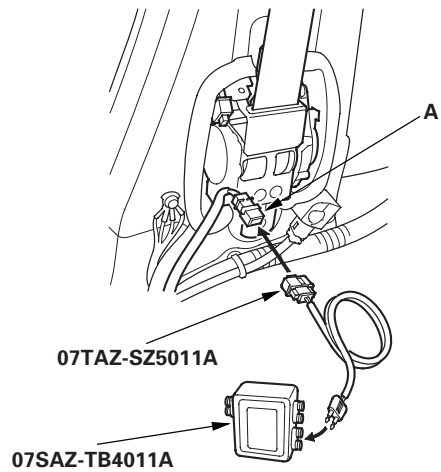
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's seat belt tensioner 2P connector from the right side wire harness 2P connector (A).

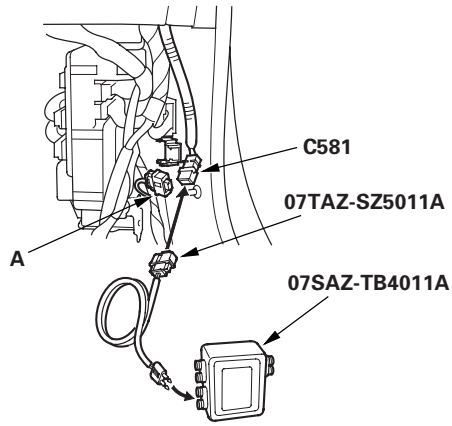


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 4-1 indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C581 from the right side wire harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 4-1 indicated?

    YES—Go to step 15.

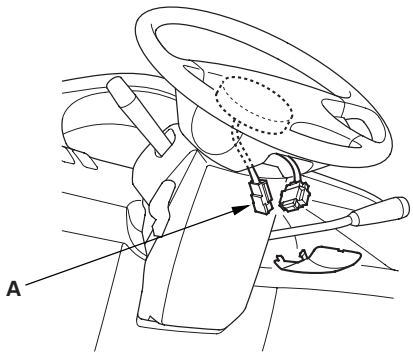
    NO—Open or increased resistance in the right side wire harness; replace the right side wire harness. ■

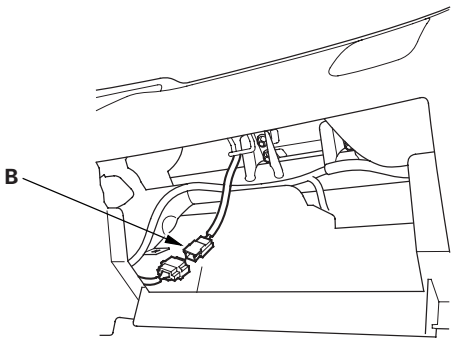
(cont'd)

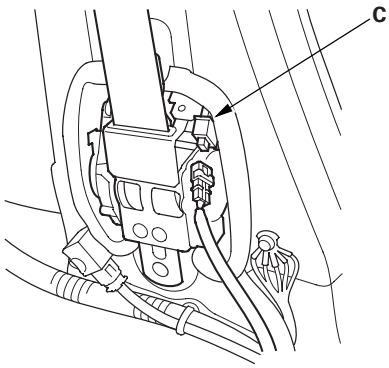
DTC Troubleshooting (cont'd)

15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

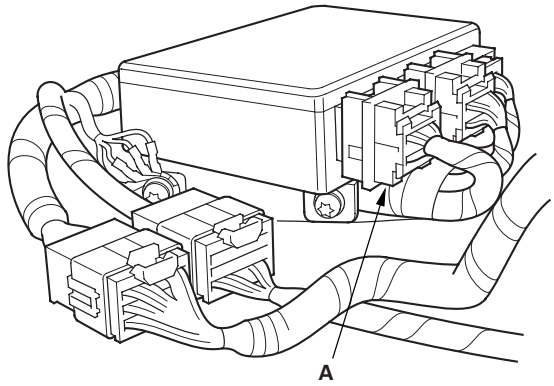
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and driver's seat belt tensioner connector (C).





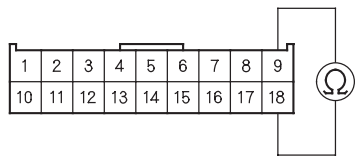


17. Disconnect SRS unit connector A (18P) from the SRS unit. Do not disconnect the special tool from the SRS main harness 2P connector.



18. Check resistance between the No. 9 and the No. 18 terminals of SRS unit connector A (18P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR A (18P)



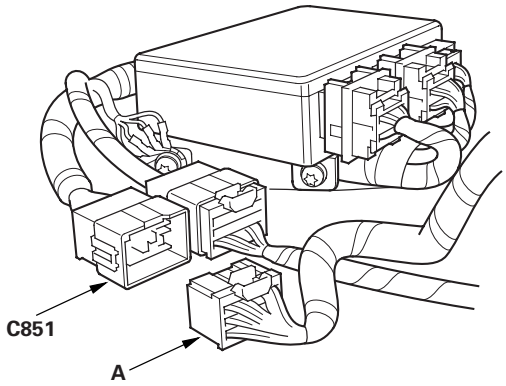
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at SRS unit connector A (18P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-382). ■

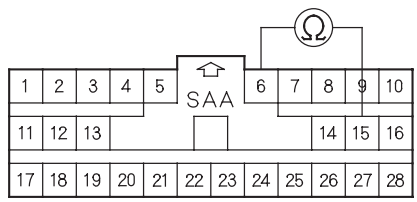
NO—Go to step 19.

19. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



20. Check resistance between the No. 6 and the No. 15 terminals of the SRS main harness 28P connector. There should be 2.0—3.0 Ω.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Open or increased resistance in the SRS floor harness; replace the SRS floor harness. ■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'02 Model

DTC 4-3: Short to Another Wire or Decreased Resistance in Front Passenger's Seat Belt Tensioner

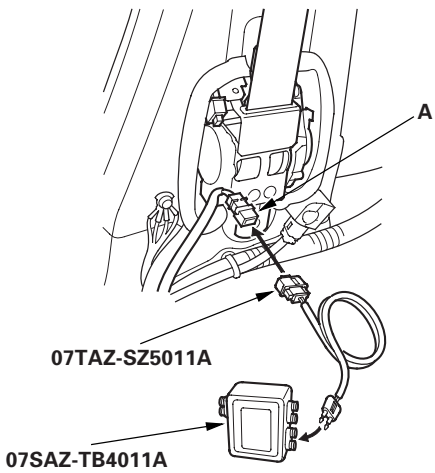
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's seat belt tensioner 2P connector from the right side wire harness 2P connector (A).

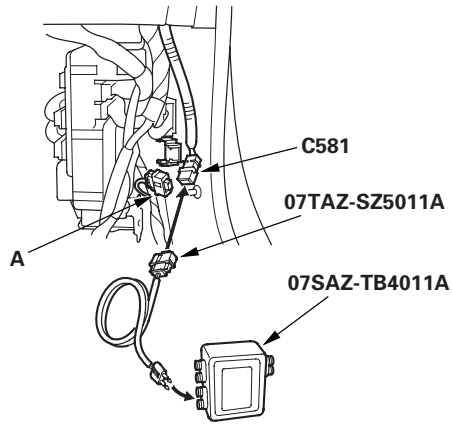


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 4-3 indicated?

   YES—Go to step 9.

   NO—Short in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main wire harness 2P connector C581 from the right side wire harness 2P connector (A).



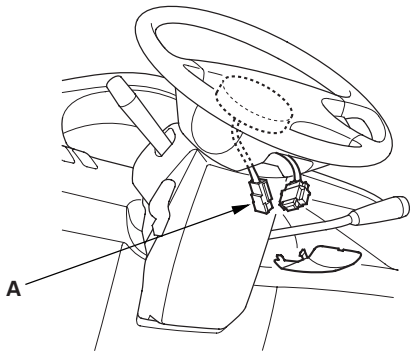
11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

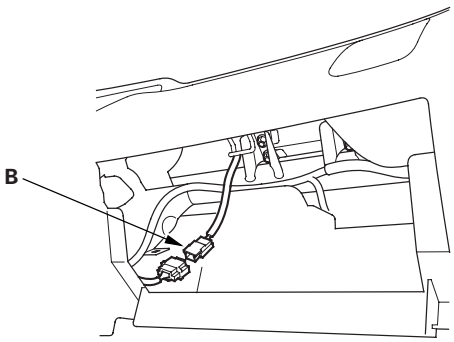
    Is DTC 4-3 indicated?

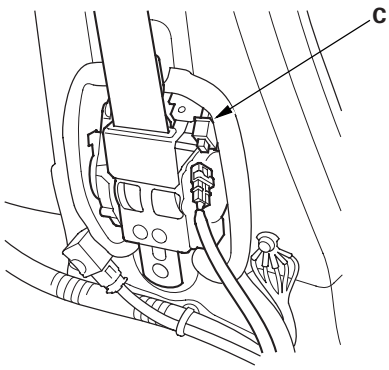
    YES—Go to step 15.

    NO—Short in the right side wire harness; replace the right side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

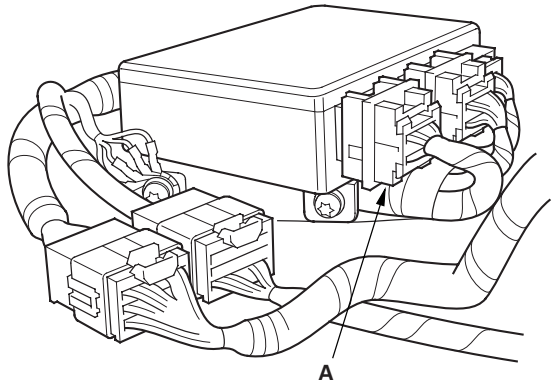
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and driver's seat belt tensioner connector (C).







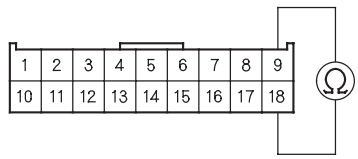
17. Disconnect SRS unit connector A (18P) from the SRS unit.



18. Disconnect the special tool from the SRS main harness 2P connector.

19. Check resistance between the No. 9 terminal and the No. 18 terminals of SRS unit connector A (18P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

Is the resistance as specified?

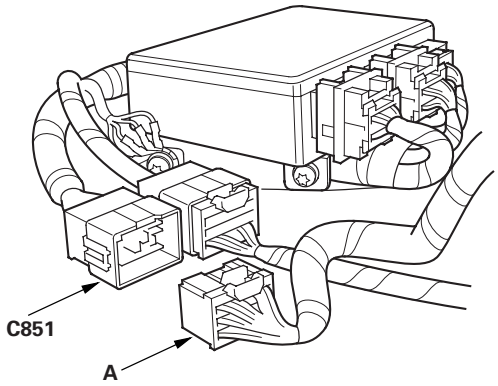
YES—Faulty SRS unit; replace the SRS unit (see page 23-382).■

NO—Go to step 20.

(cont'd)

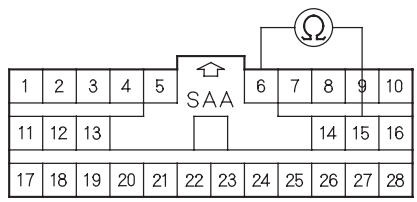
DTC Troubleshooting (cont'd)

20. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



21. Check resistance between the No. 6 and the No. 15 terminals of the SRS main harness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short in the SRS floor harness; replace the SRS floor harness. ■

NO—Short in the SRS main harness; replace the SRS main harness. ■

'02 Model

DTC 4-4: Short to Power in Front Passenger's Seat Belt Tensioner

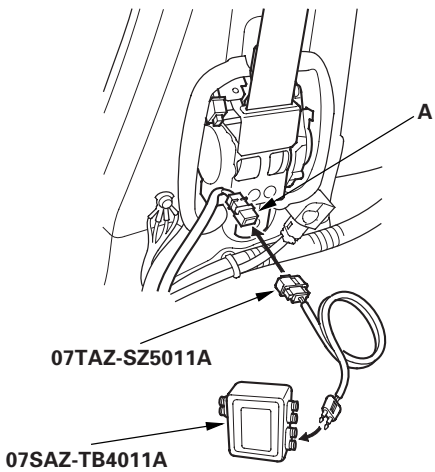
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's seat belt tensioner 2P connector from the right side wire harness 2P connector (A).

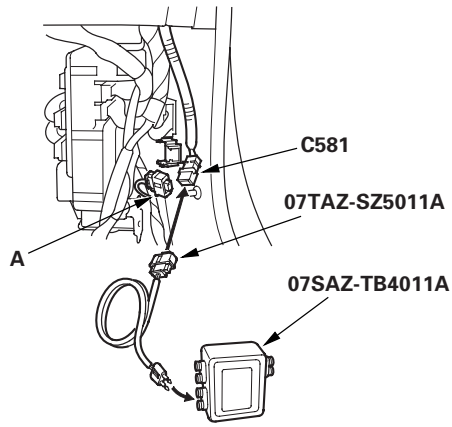


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 4-4 indicated?

   YES—Go to step 9.

   NO—Short to power in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C581 from the right side wire harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 4-4 indicated?

    YES—Go to step 15.

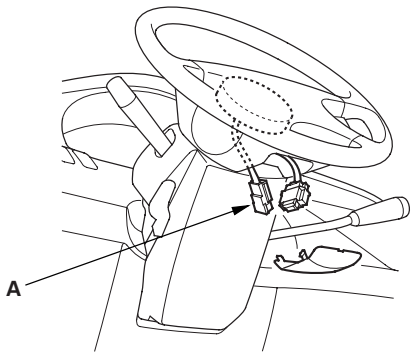
    NO—Short to power in the right side wire harness; replace the right side wire harness. ■

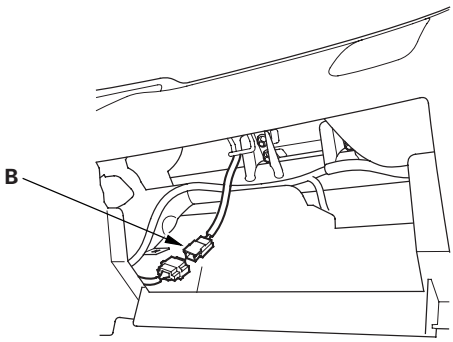
(cont'd)

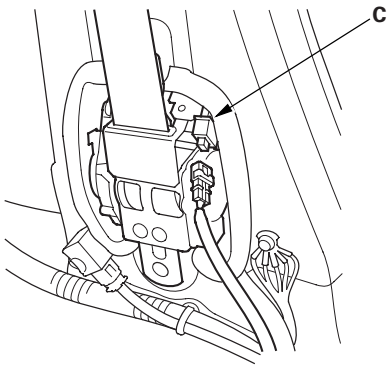
DTC Troubleshooting (cont'd)

15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

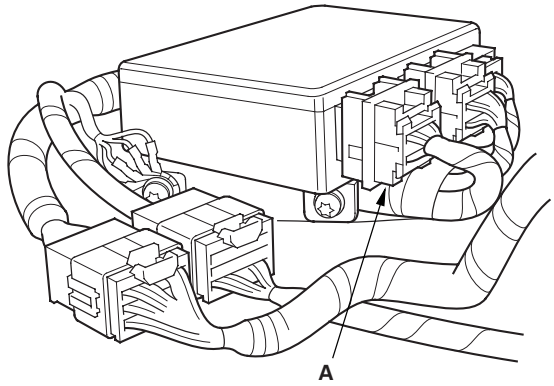
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and driver's seat belt tensioner connector (C).







17. Disconnect SRS unit connector A (18P) from the SRS unit.



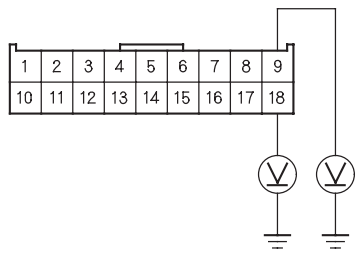
18. Disconnect the special tool from the SRS main harness 2P connector.

19. Reconnect the battery negative cable.

20. Turn the ignition switch ON (II).

21. Check for voltage between the No. 9 terminal of SRS unit connector A (18P) and body ground, and between the No. 18 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

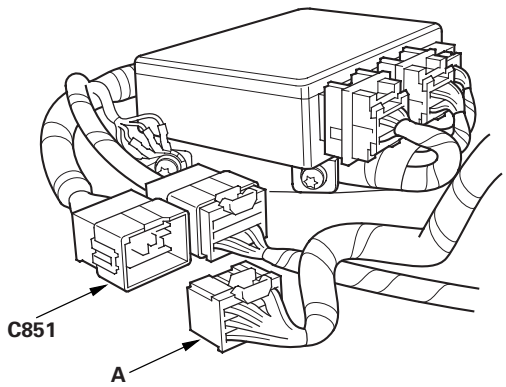
Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Go to step 22.

22. Turn the ignition switch OFF.

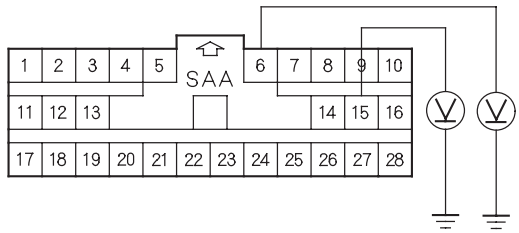
23. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



24. Turn the ignition switch ON (II).

25. Check for voltage between the No. 6 terminal of the SRS main harness 28P connector and body ground, and between the No. 15 terminal and body ground. There should be 0.5 V or less.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the voltage as specified?

YES—Short to power in the SRS floor harness; replace the SRS floor harness. ■

NO—Short to power in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'02 Model

DTC 4-5: Short to Ground in Front Passenger's Seat Belt Tensioner

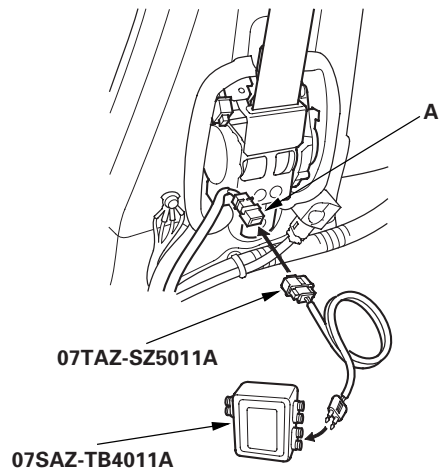
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's seat belt tensioner 2P connector from the right side wire harness 2P connector (A).

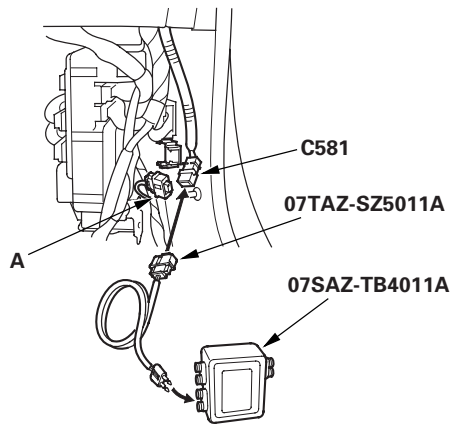


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 4-5 indicated?

   YES — Go to step 9.

   NO — Short to ground in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C581 from the right side wire harness 2P connector (A).



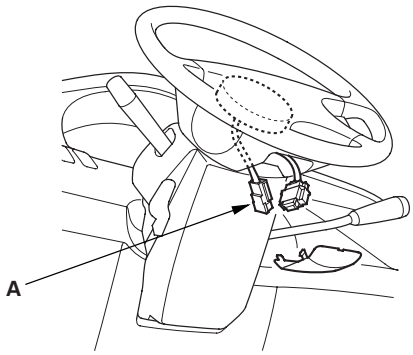
11. Connect the special tool (2 Ω connector) to the SRS main harness 4P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

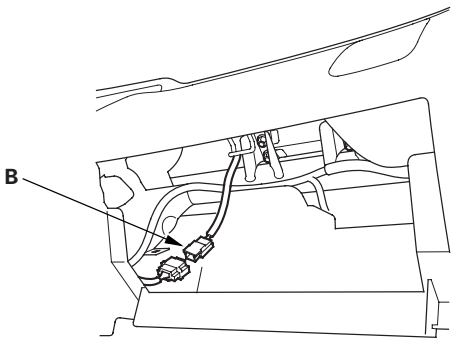
    Is DTC 4-5 indicated?

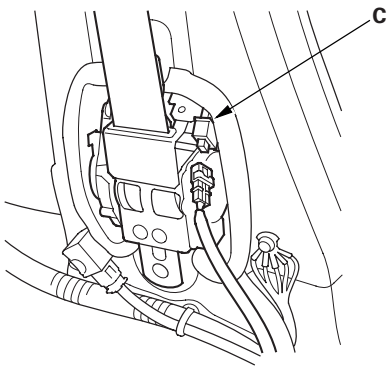
    YES — Go to step 15.

    NO — Short to ground in the right side wire harness; replace the right side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

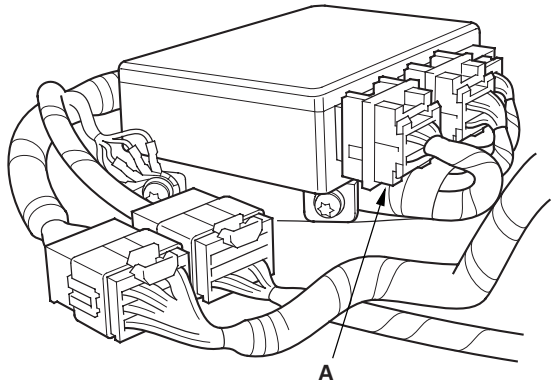
16. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and driver's seat belt tensioner connector (C).







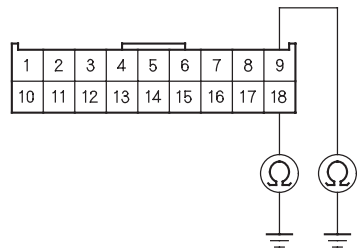
17. Disconnect SRS unit connector A (18P) from the SRS unit.



18. Disconnect the special tool from the SRS main harness 2P connector.

19. Check resistance between the No. 9 terminal of SRS unit connector A (18P) and body ground, and between the No. 18 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

Is the resistance as specified?

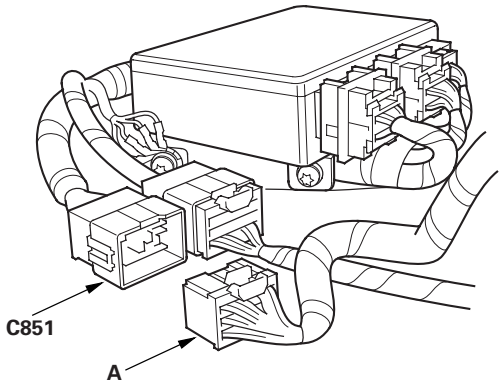
YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Go to step 20.

(cont'd)

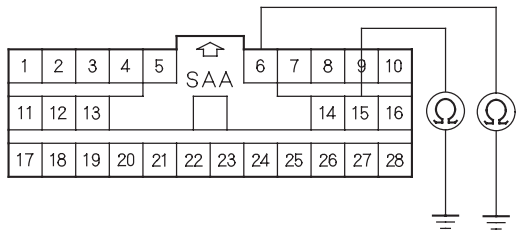
DTC Troubleshooting (cont'd)

20. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



21. Check resistance between the No. 6 terminal of the SRS main harness 28P connector and body ground, and between the No. 15 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Replace the SRS floor harness. ■

NO—Replace the SRS main harness. ■

'02 Model

DTC 5-1, 5-2, 5-4, 5-8, 6-3, 6-4, 6-7, 6-8, 7-1, 7-2, 7-3, 8-1, 8-2, 8-3, 8-4, 8-5, 8-6, 9-1, 9-2: Internal Failure of the SRS Unit

NOTE: Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead.

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-382). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'02 Model

DTC 10-1, 10-2, 10-3, 10-4, 10-5, 10-6, 10-7: Airbags, Side Airbags and/or Seat Belt Tensioners Deployed

The SRS unit must be replaced after any airbags and/or tensioners have deployed (see page 23-382). ■

DTC Troubleshooting (cont'd)

'02 Model

DTC 13-1, 13-2: Internal Failure of the Driver's Side Impact Sensor

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the driver's side impact sensor (see page 23-385). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'02 Model

DTC 14-1, 14-2: Internal Failure of the Front Passenger's Side Impact Sensor

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the front passenger's side impact sensor (see page 23-385). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'02 Model

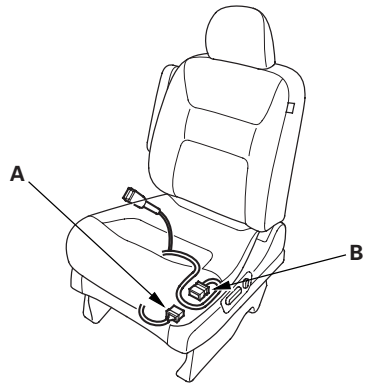
DTC 9-3: Faulty Driver's Seat Belt Buckle Switch

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), then buckle and unbuckle the driver's seat belt several times.
3. Read the DTC (see page 23-35).

   Is DTC 9-3 indicated?

   YES—Go to step 4.

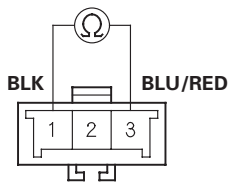
   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
4. Turn the ignition switch OFF.
5. Disconnect the left side wire harness 3P connector (A) from the driver's seat belt buckle switch 3P connector (B).



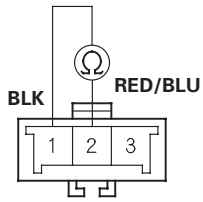
6. Buckle the driver's seat belt.

   • Check resistance between the No. 1 and No. 3 terminals of the driver's seat belt buckle switch 3P connector. There should be 0—1 Ω.
   • Check resistance between the No. 1 and No. 2 terminals of the same connector. There should be an open circuit, or at least 1 MΩ.

DRIVER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

Are the resistance readings as specified?

YES—Go to step 7.

NO—Replace the driver's seat belt buckle assembly, and clear the DTC. ■

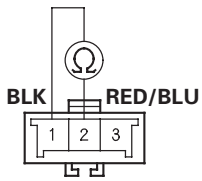
(cont'd)

DTC Troubleshooting (cont'd)

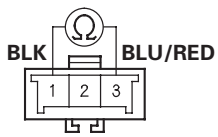
7. Unbuckle the driver's seat belt.

   • Check resistance between the No. 1 and No. 2 terminals of the driver's seat belt buckle switch 3P connector. There should be 0 — 1 Ω.
   • Check resistance between the No. 1 and No. 3 terminals of the same connector. There should be an open circuit, or at least 1 MΩ.

DRIVER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

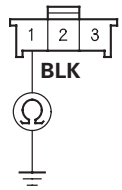
Is the resistance as specified?

YES — Go to step 8.

NO — Replace the driver's seat belt buckle assembly, and clear the DTC. ■

8. Check resistance between the No. 1 terminal of the left side wire harness connector and body ground. There should be 0 — 1 Ω.

LEFT SIDE WIRE HARNESS 3P CONNECTOR



Wire side of female terminals

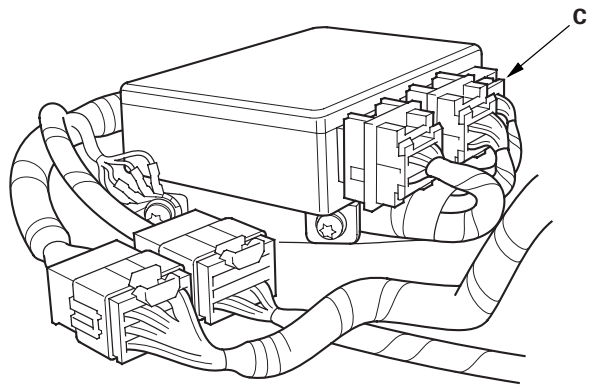
Is the resistance as specified?

YES — Go to step 9.

NO — Open in the left side wire harness or poor ground connection at G551. If G551 is OK, replace the left side wire harness. ■

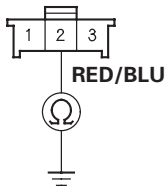
9. Disconnect the negative cable from the battery.

10. Disconnect SRS unit connector C (8P) from the SRS unit, dashboard harness connector C (16P) from the gauge assembly, and the driver's multiplex control unit from the driver's under-dash fuse/relay box.



11. Check resistance between the No. 2 terminal of the left side wire harness 3P connector and body ground. There should be an open circuit, or at least 1 MΩ.

LEFT SIDE WIRE HARNESS 3P CONNECTOR



Wire side of female terminals

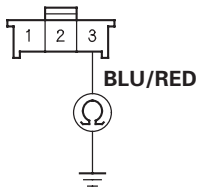
Is the resistance as specified?

YES — Go to step 12.

NO — Go to step 15.

12. Check resistance between the No. 3 terminal of the left side wire harness 3P connector and body ground. There should be an open circuit, or at least 1 MΩ.

LEFT SIDE WIRE HARNESS 3P CONNECTOR



Wire side of female terminals

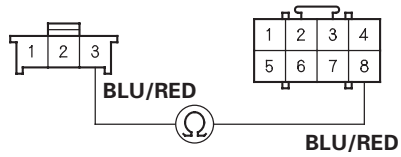
Is the resistance as specified?

YES — Go to step 13.

NO — Go to step 17.

13. Check resistance between the No. 8 terminal of SRS unit connector C (8P) and the No. 3 terminal of the left side wire harness 3P connector. There should be 0 — 1 Ω.

LEFT SIDE WIRE HARNESS 3P CONNECTOR **SRS UNIT CONNECTOR C (8P)**



Wire side of female terminals

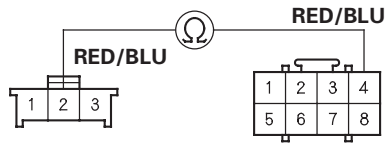
Is the resistance as specified?

YES — Go to step 14.

NO — Go to step 19.

14. Check resistance between the No. 4 terminal of SRS unit connector C (8P) and the No. 2 terminal of the left side wire harness 3P connector. There should be 0 — 1 Ω.

LEFT SIDE WIRE HARNESS 3P CONNECTOR **SRS UNIT CONNECTOR C (8P)**



Wire side of female terminals

Is the resistance as specified?

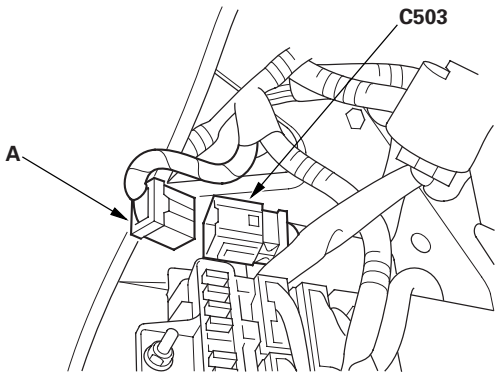
YES — Replace the SRS unit (see page 23-382). ■

NO — Go to step 21.

(cont'd)

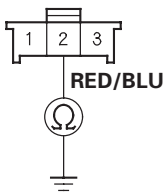
DTC Troubleshooting (cont'd)

15. Disconnect the SRS main harness 8P connector (A) from the dashboard wire harness 8P connector C503.



16. Check resistance between the No. 2 terminal of the left side wire harness 3P connector and body ground. There should be an open circuit, or at least 1 MΩ.

LEFT SIDE WIRE HARNESS 3P CONNECTOR



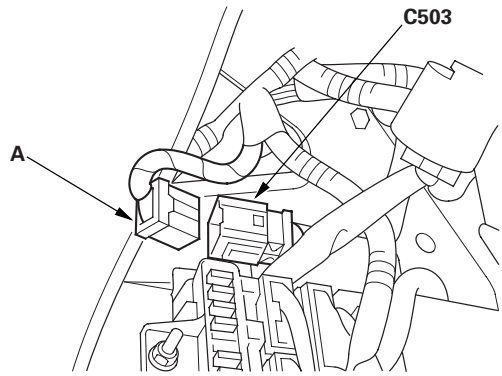
Wire side of female terminals

Is the resistance as specified?

YES—Short to ground in the SRS main harness or SRS floor harness; replace the floor harness. If the problem is still present; replace the SRS floor harness. ■

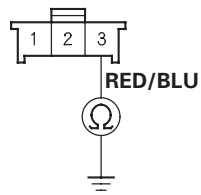
NO—Short to ground in the left side wire harness or dashboard wire harness; replace the faulty harness. ■

17. Disconnect the SRS main harness 8P connector (A) from the dashboard wire harness 8P connector C503.



18. Check resistance between the No. 3 terminal of the left side wire harness 3P connector and body ground. There should be an open circuit, or at least 1 MΩ.

LEFT SIDE WIRE HARNESS 3P CONNECTOR



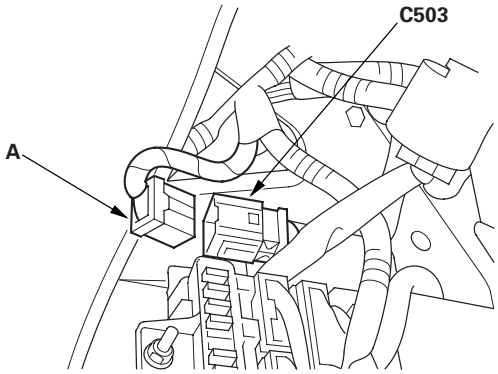
Wire side of female terminals

Is the resistance as specified?

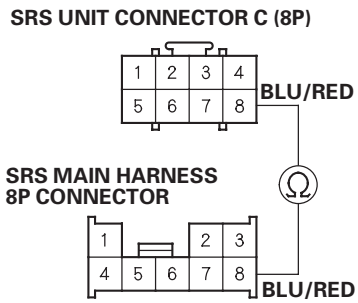
YES—Short to ground in the SRS main harness or SRS floor harness; replace the floor harness. If the problem is still present; replace the SRS floor harness. ■

NO—Short to ground in the left side wire harness or dashboard wire harness; replace the faulty harness. ■

19. Disconnect the SRS main harness 8P connector (A) from the dashboard wire harness 8P connector C503.



20. Check resistance between the No. 8 terminal of SRS unit connector C (8P) and the No. 8 terminal of the SRS main harness 8P connector. There should be 0 — 1 Ω.



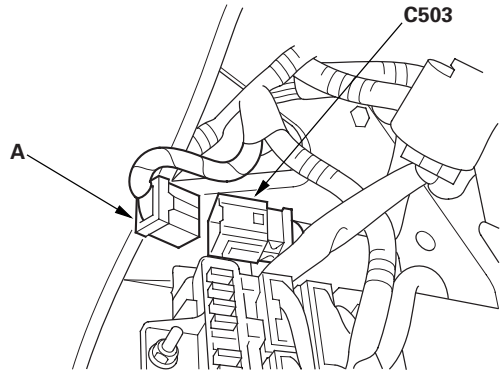
Wire side of female terminals

Is the resistance as specified?

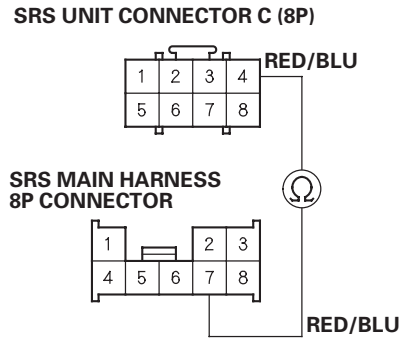
YES — Open in the left side wire harness or dashboard wire harness; replace the faulty harness. ■

NO — Open in the SRS main harness or SRS floor harness; replace the SRS floor harness. If the problem is still present, replace the SRS main harness. ■

21. Disconnect the SRS main harness 8P connector (A) from the dashboard wire harness 8P connector C503.



22. Check resistance between the No. 4 terminal of SRS unit connector C (8P) and the No. 7 terminal of the SRS main harness 8P connector. There should be 0 — 1 Ω.



Wire side of female terminals

Is the resistance as specified?

YES — Open in the left side wire harness or dashboard wire harness; replace the faulty harness. ■

NO — Open in the SRS main harness or SRS floor harness; replace the SRS floor harness. If the problem is still present, replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'02 Model

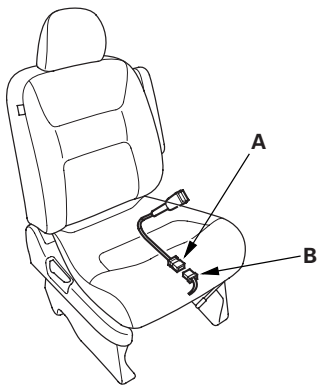
DTC 9-4: Faulty Front Passenger's Seat Belt Buckle Switch

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), then buckle and unbuckle the front passenger's seat belt several times.
3. Read the DTC (see page 23-35).

   Is DTC 9-4 indicated?

   YES—Go to step 4.

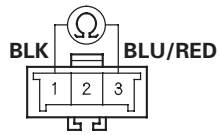
   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
4. Turn the ignition switch OFF.
5. Disconnect the front passenger's seat belt buckle switch 3P connector (A) from the floor wire harness 3P connector (B).



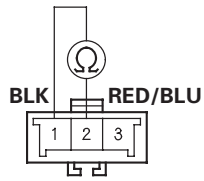
6. Buckle the front passenger's seat belt.

   • Check resistance between the No. 1 and No. 3 terminals of the front passenger's seat belt buckle switch 3P connector. There should be 0—1 Ω.
   • Check resistance between the No. 1 and No. 2 terminals of the same connector. There should be an open circuit, or at least 1 MΩ.

FRONT PASSENGER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

Is the resistance as specified?

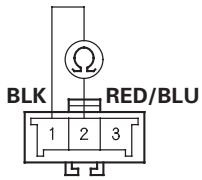
YES—Go to step 7.

NO—Replace the front passenger's seat belt buckle assembly, and clear the DTC. ■

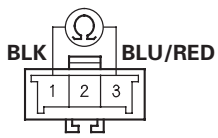
7. Unbuckle the front passenger's seat belt.

   • Check resistance between the No. 1 and No. 2 terminals of the front passenger's seat belt buckle switch 3P connector. There should be 0 — 1 Ω.
   • Check resistance between the No. 1 and No. 3 terminals of the same connector. There should be an open circuit, or at least 1 MΩ.

FRONT PASSENGER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

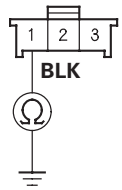
Is the resistance as specified?

YES — Go to step 8.

NO — Replace the front passenger's seat belt buckle assembly, and clear the DTC. ■

8. Check resistance between the No. 1 terminal of the right side wire harness 3P connector and body ground. There should be 0 — 1 Ω.

RIGHT SIDE WIRE HARNESS 3P CONNECTOR



Wire side of female terminals

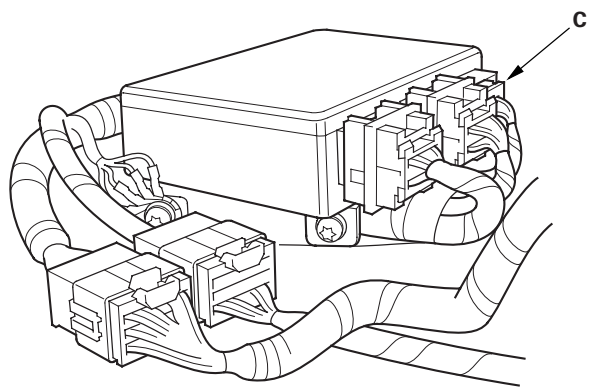
Is the resistance as specified?

YES — Go to step 9.

NO — Open in the right side wire harness or poor ground connection at G581. If G581 is OK, replace the right side wire harness. ■

9. Disconnect the negative cable from the battery.

10. Disconnect SRS unit connector C (8P) from the SRS unit.

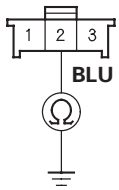


(cont'd)

DTC Troubleshooting (cont'd)

11. Check resistance between the No. 2 terminal of the right side wire harness 3P connector and body ground. There should be an open circuit, or at least 1 MΩ.

RIGHT SIDE WIRE HARNESS 3P CONNECTOR



Wire side of female terminals

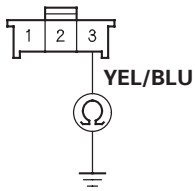
Is the resistance as specified?

YES — Go to step 12.

NO — Go to step 15.

12. Check resistance between the No. 3 terminal of the right side wire harness 3P connector and body ground. There should be an open circuit, or at least 1 MΩ.

RIGHT SIDE WIRE HARNESS 3P CONNECTOR



Wire side of female terminals

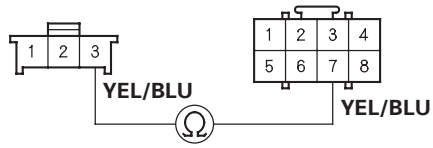
Is the resistance as specified?

YES — Go to step 13.

NO — Go to step 17.

13. Check resistance between the No. 7 terminal of SRS unit connector C (8P) and the No. 3 terminal of the right side wire harness 3P connector. There should be 0 — 1 Ω.

RIGHT SIDE WIRE HARNESS 3P CONNECTOR **SRS UNIT CONNECTOR C (8P)**



Wire side of female terminals

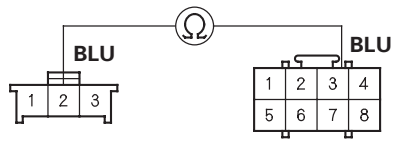
Is the resistance as specified?

YES — Go to step 14.

NO — Go to step 19.

14. Check resistance between the No. 3 terminal of SRS unit connector C (8P) and the No. 2 terminal of the right side wire harness 3P connector. There should be 0 — 1 Ω.

RIGHT SIDE WIRE HARNESS 3P CONNECTOR **SRS UNIT CONNECTOR C (8P)**



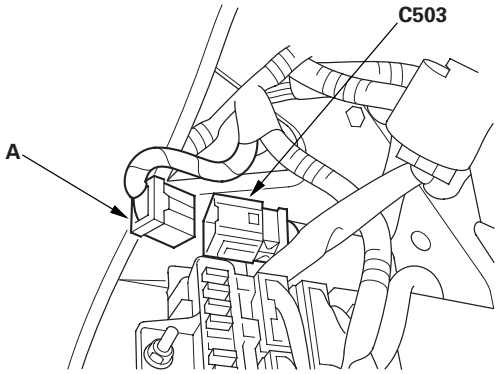
Wire side of female terminals

Is the resistance as specified?

YES — Replace the SRS unit (see page 23-382). ■

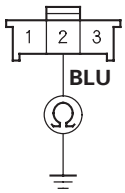
NO — Go to step 21.

15. Disconnect the SRS main harness 8P connector (A) from the dashboard wire harness 8P connector C503.



16. Check resistance between the No. 2 terminal of the right side wire harness 3P connector and body ground. There should be an open circuit, or at least 1 MΩ.

RIGHT SIDE WIRE HARNESS 3P CONNECTOR



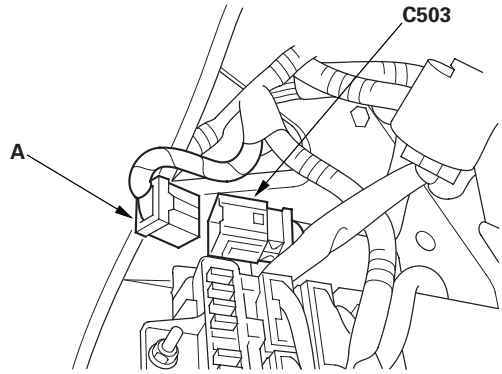
Wire side of female terminals

Is the resistance as specified?

YES—Short to ground in the SRS main harness or SRS floor harness; replace the floor harness. If the problem is still present; replace the SRS main harness. ■

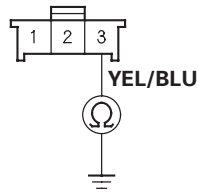
NO—Short to ground in the right side wire harness or dashboard wire harness; replace the faulty harness. ■

17. Disconnect the SRS main harness 8P connector (A) from the dashboard wire harness 8P connector C503.



18. Check resistance between the No. 3 terminal of the right side wire harness 3P connector and body ground. There should be an open circuit, or at least 1 MΩ.

RIGHT SIDE WIRE HARNESS 3P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

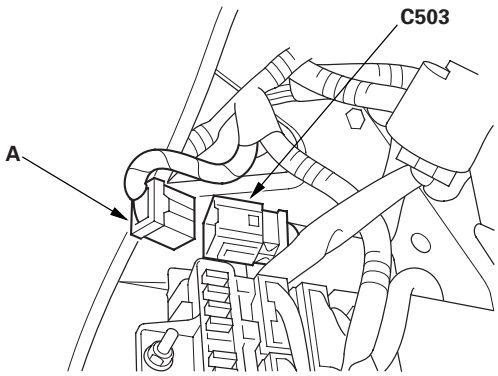
YES—Short to ground in the SRS main harness or SRS floor harness; replace the floor harness. If the problem is still present; replace the SRS main harness. ■

NO—Short to ground in the right side wire harness or dashboard wire harness; replace the faulty harness. ■

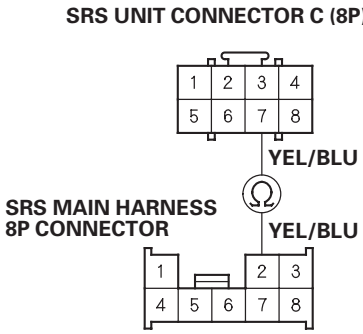
(cont'd)

DTC Troubleshooting (cont'd)

19. Disconnect the SRS main harness 8P connector (A) from the dashboard wire harness 8P connector C503.



20. Check resistance between the No. 7 terminal of SRS unit connector C (8P) and the No. 2 terminal of the SRS main harness 8P connector. There should be 0 — 1 Ω.

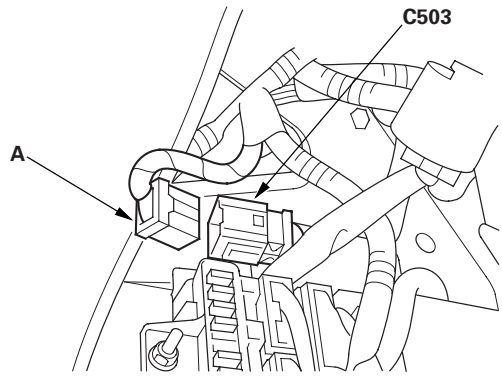


Is the resistance as specified?

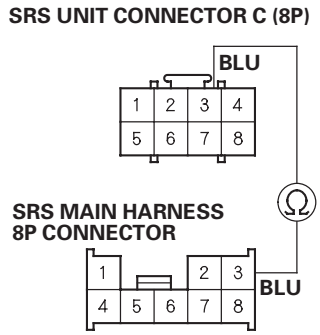
YES — Open in the right side wire harness or dashboard wire harness; replace the faulty harness. ■

NO — Open in the SRS main harness or SRS floor harness; replace the SRS floor harness. ■

21. Disconnect the SRS main harness 8P connector (A) from the dashboard wire harness 8P connector C503.



22. Check resistance between the No. 3 terminal of SRS unit connector C (8P) and the No. 3 terminal of the SRS main harness 8P connector. There should be 0 — 1 Ω.



Is the resistance as specified?

YES — Open in the right side wire harness or dashboard wire harness; replace the faulty harness. ■

NO — Open in the SRS main harness or SRS floor harness; replace the SRS floor harness. ■

'02 Model

DTC 9-6: Faulty Left Front Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead H 07YAZ-S3AA100

1. Erase the DTC memory (see page 23-38).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Check the connections between SRS unit connector A (18P) and the SRS unit, and between the left engine compartment wire harness 2P connector and the left front sensor (see page 23-19), and at the 4P connector between the SRS main harness and the SRS floor harness.

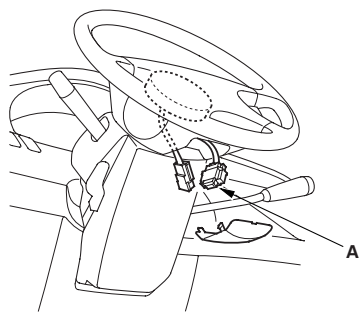
   Are the connections OK?

   YES — Go to step 4.

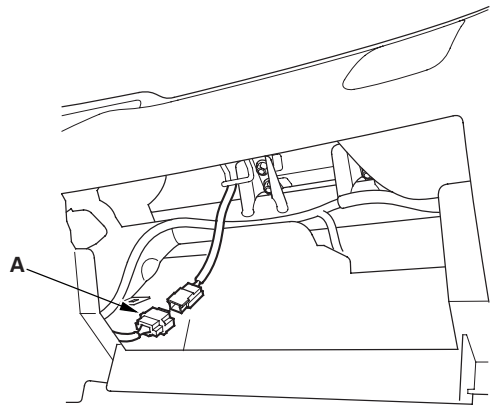
   NO — Repair the poor connections and retest. If DTC 9-6 is still present, go to step 4.

4. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

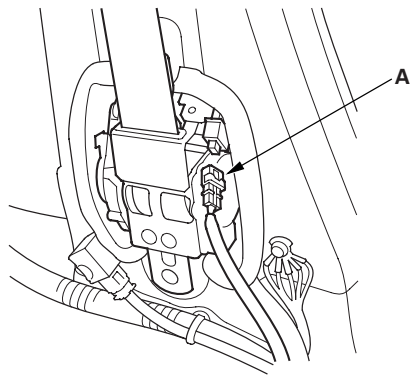
5. Disconnect the driver's airbag 4P connector from the cable reel 4P connector (A).



6. Disconnect the front passenger's airbag 4P connector from the SRS main harness 4P connector (A).



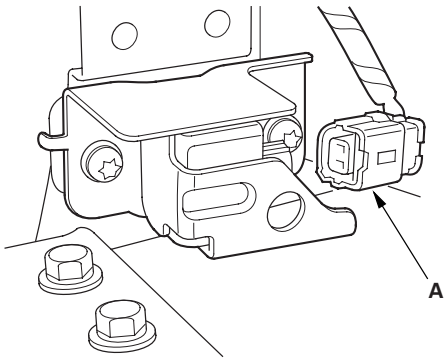
7. Disconnect both seat belt tensioner 2P connectors from the side wire harness 2P connectors (A).



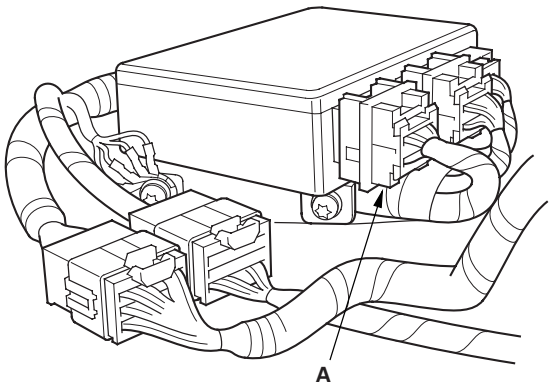
(cont'd)

DTC Troubleshooting (cont'd)

8. Disconnect the left engine compartment wire harness 2P connector (A) from the left front sensor.

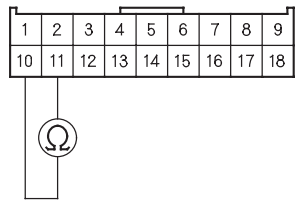


9. Disconnect SRS unit connector A (18P) from the SRS unit.



10. Check resistance between the No. 10 and No. 11 terminals of SRS unit connector A (18P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

Is the resistance as specified?

YES — Go to step 11.

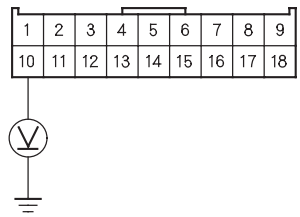
NO — Go to step 17.

11. Reconnect the battery negative cable.

12. Turn the ignition switch ON (II).

13. Check for voltage between the No. 10 terminal of SRS unit connector A (18P) and body ground. There should be 1 V or less.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

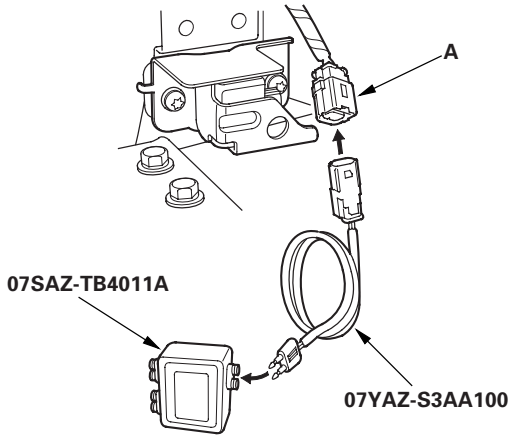
Is the voltage as specified?

YES — Go to step 14.

NO — Go to step 19.

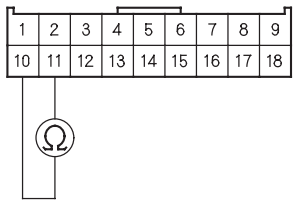
14. Turn the ignition switch OFF.

15. Connect the special tool (jumper connector) to the left engine compartment wire harness 2P connector (A).



16. Check resistance between the No. 10 and No. 11 terminals of SRS unit connector A (18P). There should be 1 Ω or less.

SRS UNIT CONNECTOR A (18P)



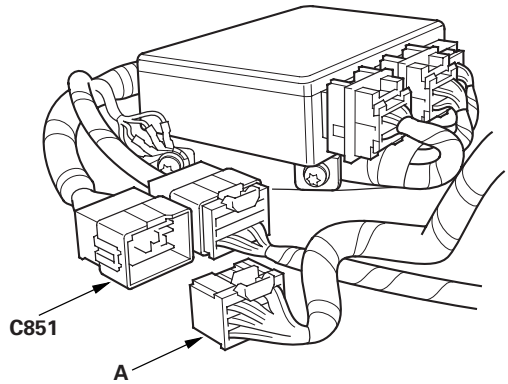
Wire side of female terminals

Is the resistance as specified?

YES—Faulty left front sensor or SRS unit. Replace the left front sensor; if the problem is still present, replace the SRS unit (see page 23-382). ■

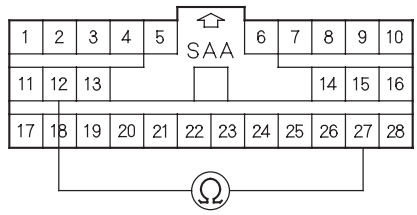
NO—Go to step 23.

17. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



18. Check resistance between the No. 12 and No. 27 terminals of the SRS main harness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short in the SRS floor harness; replace the SRS floor harness. ■

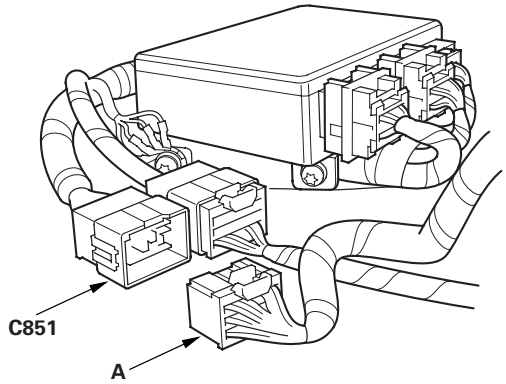
NO—Short in the left engine compartment wire harness or SRS main harness; replace the faulty harness. ■

(cont'd)

DTC Troubleshooting (cont'd)

19. Turn the ignition switch OFF.

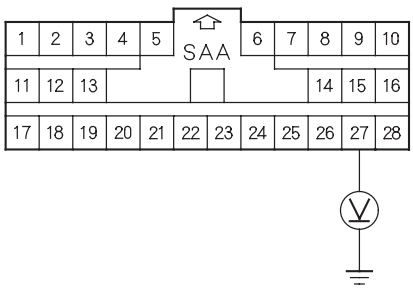
20. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



21. Turn the ignition switch ON (II).

22. Check for voltage between the No. 27 terminal of the SRS main harness 28P connector and body ground. There should be 1 V or less.

SRS MAIN HARNESS 28P CONNECTOR



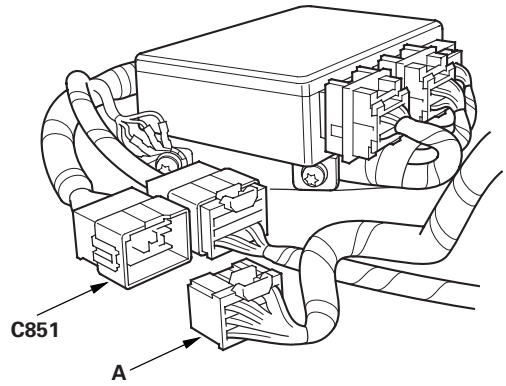
Wire side of female terminals

Is the voltage as specified?

YES—Short to power in the SRS floor harness; replace the SRS floor harness. ■

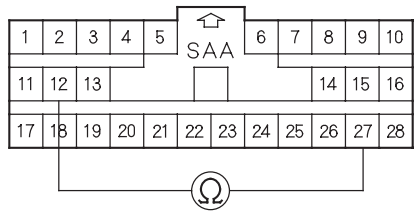
NO—Short to power in the left engine compartment wire harness or SRS main harness; replace the faulty harness. ■

23. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



24. Check resistance between the No. 12 and No. 27 terminals of the SRS main harness 28P connector. There should be 1 Ω or less.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS floor harness; replace the SRS floor harness. ■

NO—Faulty left engine compartment wire harness or SRS main harness; replace the faulty harness. ■

'02 Model

DTC 9-7: Faulty Right Front Impact Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead H 07YAZ-S3AA100

1. Erase the DTC memory (see page 23-38).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Check the connections between SRS unit connector A (18P) and the SRS unit, and between the right engine compartment wire harness 2P connector and the right front impact sensor (see page 23-19), and at the 4P connector between the SRS main harness and the SRS floor harness.

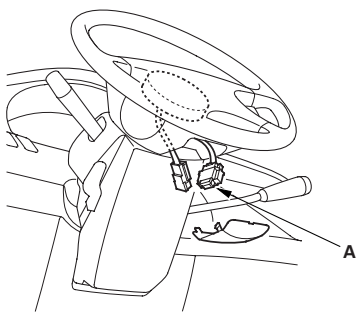
   Are the connections OK?

   YES—Go to step 4.

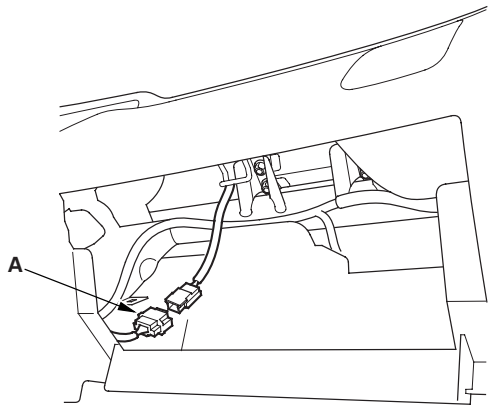
   NO—Repair the poor connections and retest. If DTC 9-7 is still present, go to step 4.

4. Disconnect the battery negative cable, and wait for 3 minutes.

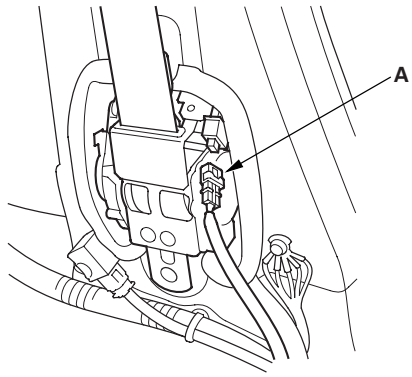
5. Disconnect the driver's airbag 4P connector from the cable reel 4P connector (A).



6. Disconnect the front passenger's airbag 4P connector from the SRS main harness 4P connector (A).



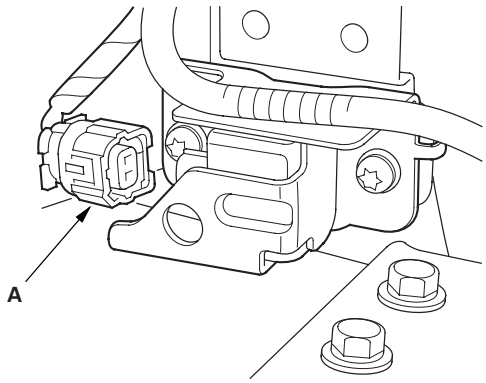
7. Disconnect both seat belt tensioner 2P connectors from the side wire harness 2P connectors (A).



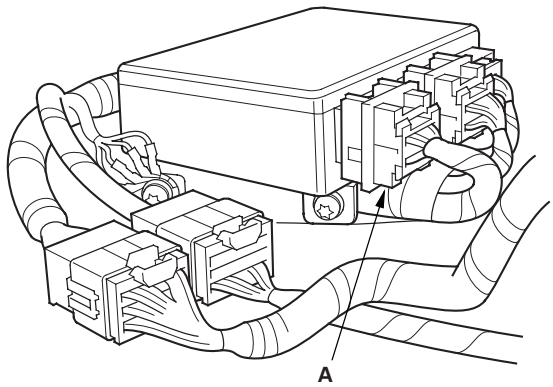
(cont'd)

DTC Troubleshooting (cont'd)

8. Disconnect the right engine compartment wire harness 2P connector (A) from the right front impact sensor.

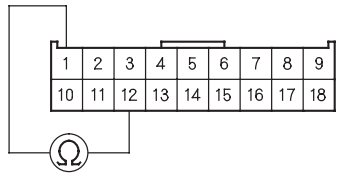


9. Disconnect SRS unit connector A (18P) from the SRS unit.



10. Check resistance between the No. 1 and No. 12 terminals of SRS unit connector A (18P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

Is the resistance as specified?

YES — Go to step 11.

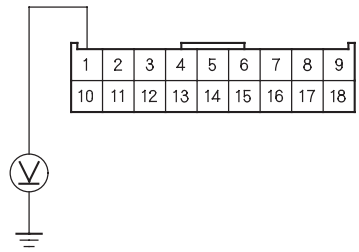
NO — Go to step 17.

11. Reconnect the battery negative cable.

12. Turn the ignition switch ON (II).

13. Check for voltage between the No. 1 terminal of SRS unit connector A (18P) and body ground. There should be 1 V or less.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

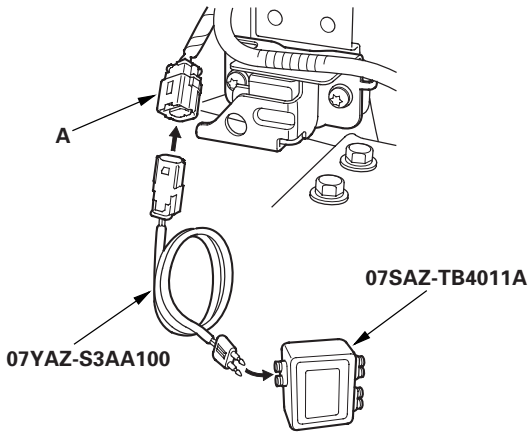
Is the voltage as specified?

YES — Go to step 14.

NO — Go to step 19.

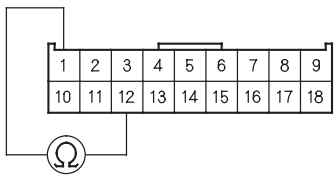
14. Turn the ignition switch OFF.

15. Connect the special tool (jumper connector) to the right engine compartment wire harness 2P connector (A).



16. Check resistance between the No. 1 and No. 12 terminals of SRS unit connector A (18P). There should be 1 Ω or less.

SRS UNIT CONNECTOR A (18P)



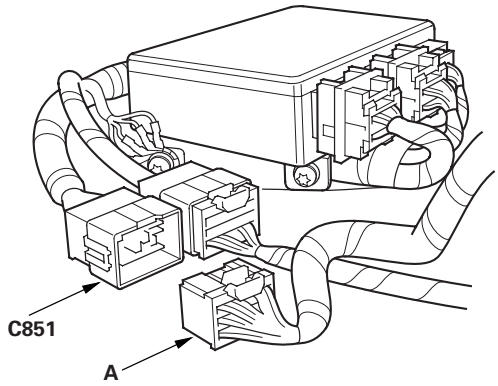
Wire side of female terminals

Is the resistance as specified?

YES—Faulty right front impact sensor or SRS unit. Replace the sensor; if the problem is still present, replace the SRS unit (see page 23-382). ■

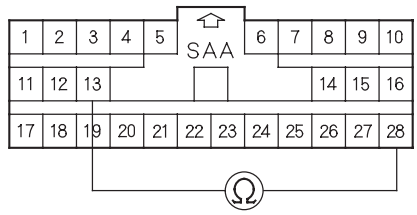
NO—Go to step 23.

17. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



18. Check resistance between the No. 13 and No. 28 terminals of the SRS main harness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short in the SRS floor harness; replace the SRS floor harness. ■

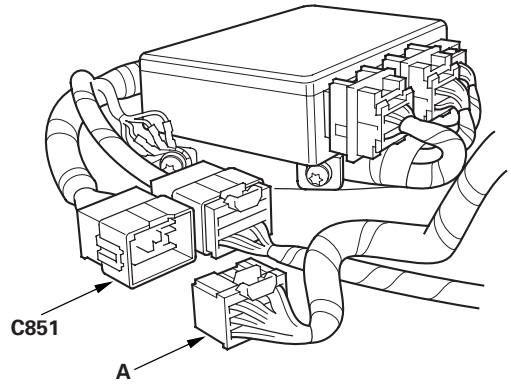
NO—Short in the right engine compartment wire harness or SRS main harness; replace the faulty harness. ■

(cont'd)

DTC Troubleshooting (cont'd)

19. Turn the ignition switch OFF.

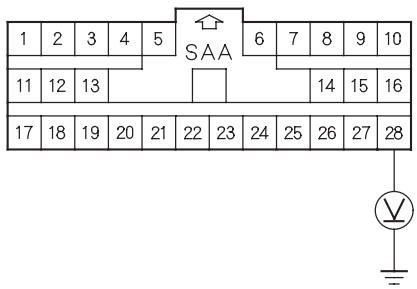
20. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



21. Turn the ignition switch ON (II).

22. Check for voltage between the No. 28 terminal of the SRS main harness 28P connector and body ground. There should be 1 V or less.

SRS MAIN HARNESS 28P CONNECTOR



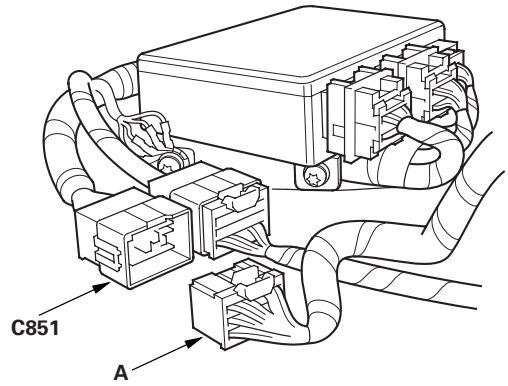
Wire side of female terminals

Is the voltage as specified?

YES—Short to power in the SRS floor harness; replace the SRS floor harness. ■

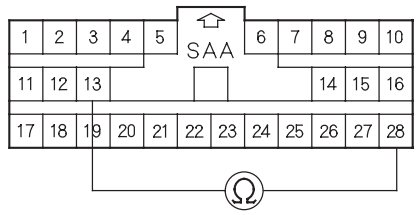
NO—Short to power in the right engine compartment wire harness or SRS main harness; replace the faulty harness. ■

23. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



24. Check resistance between the No. 13 and No. 28 terminals of the SRS main harness 28P connector. There should be 1 Ω or less.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS floor harness; replace the SRS floor harness. ■

NO—Faulty right engine compartment wire harness or SRS main harness; replace the faulty harness. ■

'02 Model

DTC 11-1: Open or Increased Resistance in Driver's Side Airbag Inflator

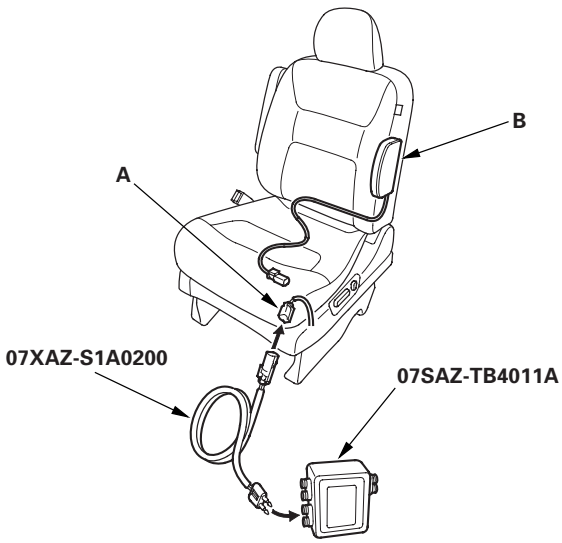
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the left side wire harness 2P connector (A) from the driver's side airbag (B).

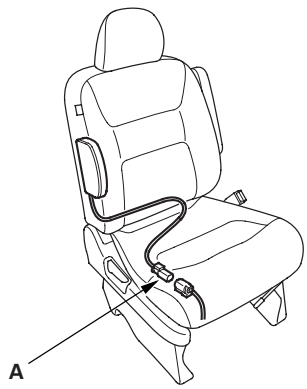


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 11-1 indicated?

   YES—Go to step 9.

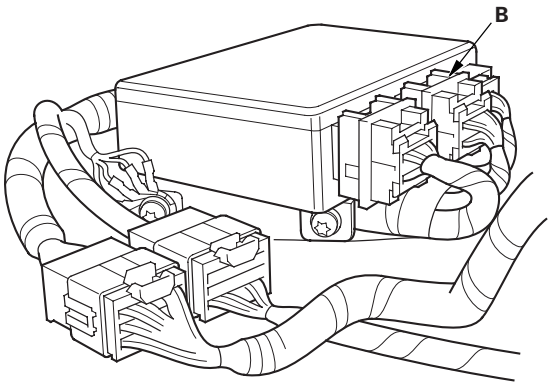
   NO—Open or increased resistance in the driver's side airbag inflator; replace the driver's side airbag (see page 23-372).■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the front passenger's side airbag 2P connector (A).



(cont'd)

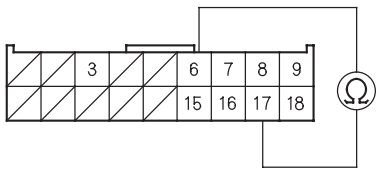
DTC Troubleshooting (cont'd)

11. Disconnect SRS unit connector B (18P) from the SRS unit. Do not disconnect the special tool from the left side wire harness 2P connector.



12. Check resistance between the No. 6 and No. 17 terminals of SRS unit connector B (18P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR B (18P)



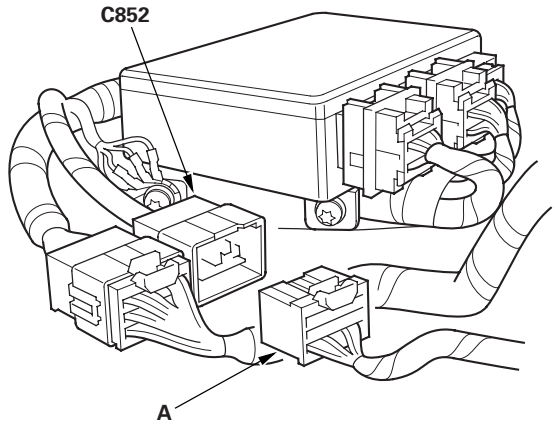
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at SRS unit connector B (18P) and the SRS unit; check the connection; if the connection is OK, replace the SRS unit (see page 23-382). ■

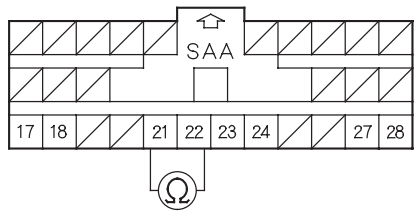
NO—Go to step 13.

13. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



14. Check resistance between the No. 21 and No. 22 terminals of the SRS floor subharness 28P connector. There should be 2.0—3.0 Ω.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Open or increased resistance in the SRS floor harness; replace the SRS floor harness. ■

NO—Open or increased resistance in the SRS floor subharness or left side wire harness; replace the faulty harness. ■

'02 Model

DTC 11-3: Short to Another Wire or Decreased Resistance in Driver's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-38).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

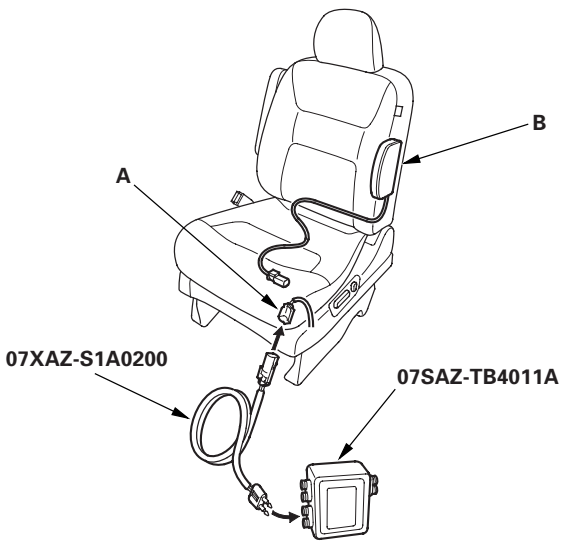
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the left side wire harness 2P connector (A) from the driver's side airbag (B).



5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-35).

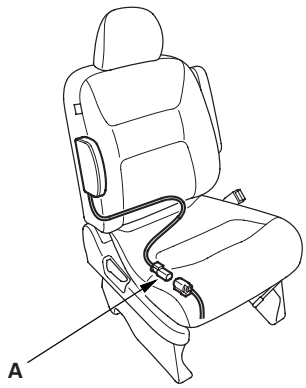
   Is DTC 11-3 indicated?

   YES—Go to step 9.

   NO—Short to another wire in the driver's side airbag inflator; replace the driver's side airbag (see page 23-372). ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect the front passenger's side airbag 2P connector (A).

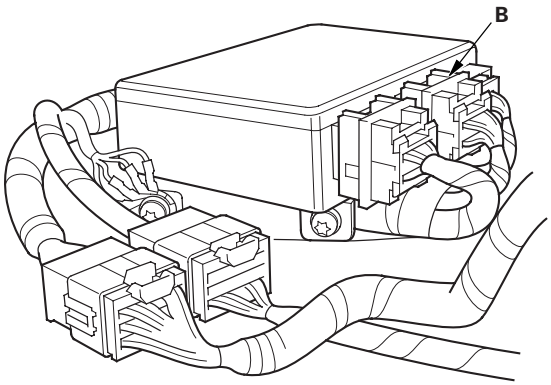


11. Disconnect the special tool from the left side wire harness 2P connector.

(cont'd)

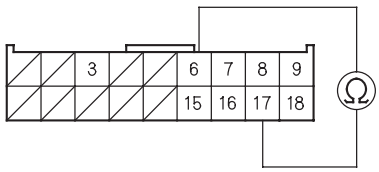
DTC Troubleshooting (cont'd)

12. Disconnect SRS unit connector B (18P) from the SRS unit.



13. Check resistance between the No. 6 and No. 17 terminals of SRS unit connector B (18P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (18P)



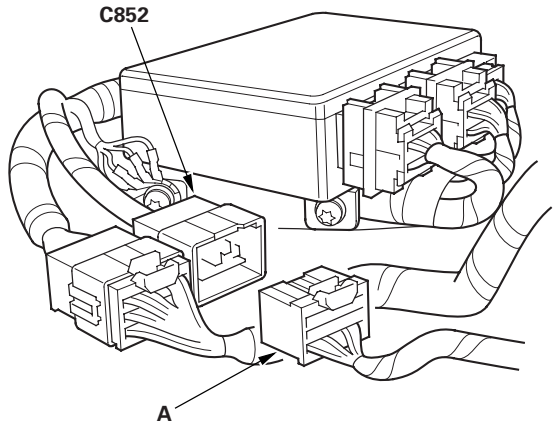
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

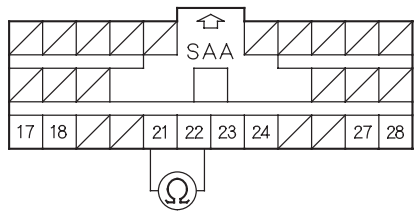
NO—Go to step 14.

14. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



15. Check resistance between the No. 21 and No. 22 terminals of the SRS floor subharness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short in the SRS floor harness; replace the SRS floor harness. ■

NO—Short in the SRS floor subharness or left side wire harness; replace the faulty harness. ■

'02 Model

DTC 11-4: Short to Power in Driver's Side Airbag Inflator

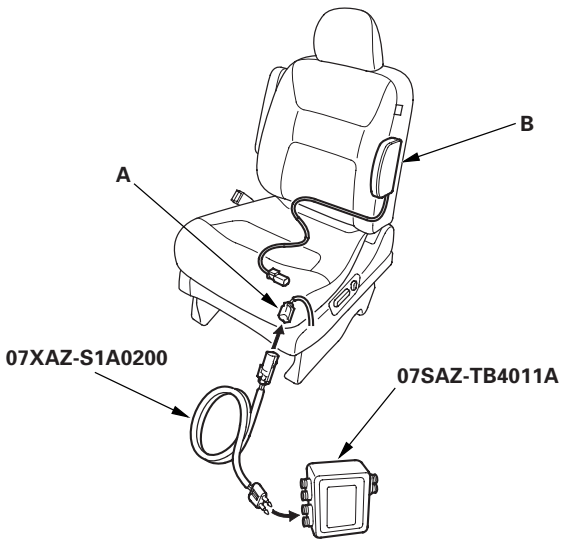
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the left side wire harness 2P connector (A) from the driver's side airbag (B).

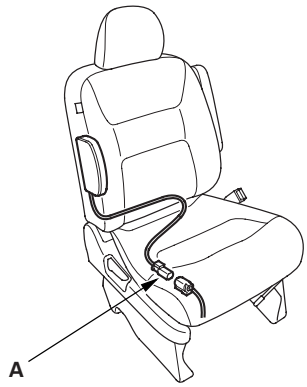


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 11-4 indicated?

   YES—Go to step 9.

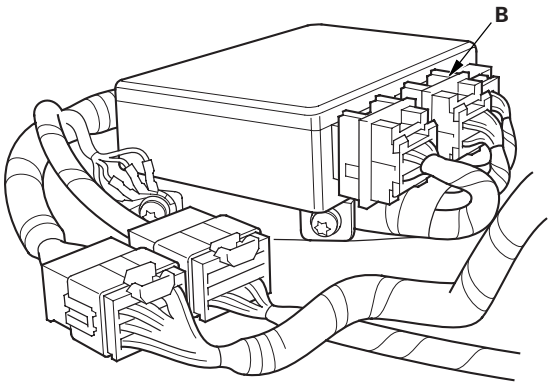
   NO—Short to power in the driver's side airbag inflator; replace the driver's side airbag (see page 23-372). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the front passenger's side airbag 2P connector (A).



(cont'd)

DTC Troubleshooting (cont'd)

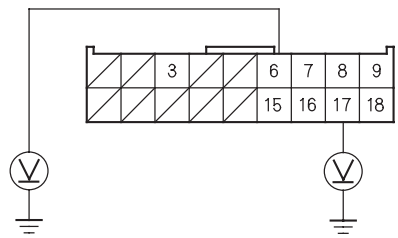
11. Disconnect SRS unit connector B (18P) from the SRS unit.



12. Turn the ignition switch ON (II).

13. Check for voltage between the No. 6 terminal of SRS unit connector B (18P) and body ground, and between the No. 17 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR B (18P)



Wire side of female terminals

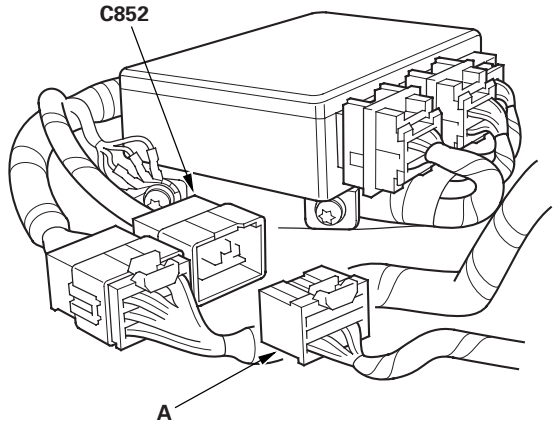
Is the voltage as specified?

YES — Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO — Go to step 14.

14. Turn the ignition switch OFF.

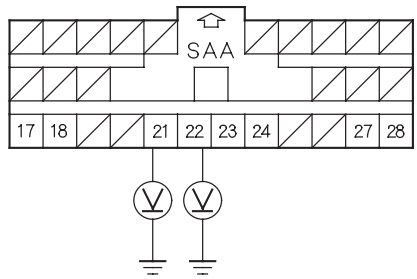
15. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



16. Turn the ignition switch ON (II).

17. Check for voltage between the No. 21 terminal of the SRS floor subharness 28P connector and body ground, and between the No. 22 terminal and body ground. There should be 0.5 V or less.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the voltage as specified?

YES — Short to power in the SRS floor harness; replace the SRS floor harness. ■

NO — Short to power in the SRS floor subharness or left side wire harness; replace the faulty harness. ■

'02 Model

DTC 11-5: Short to Ground in Driver's Side Airbag Inflator

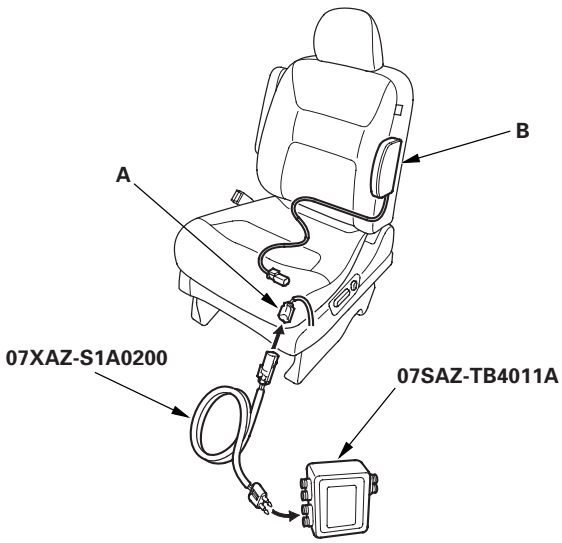
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the left side wire harness 2P connector (A) from the driver's side airbag (B).

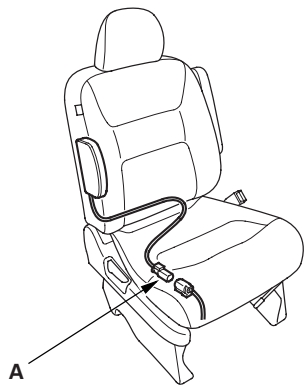


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 11-5 indicated?

   YES—Go to step 9.

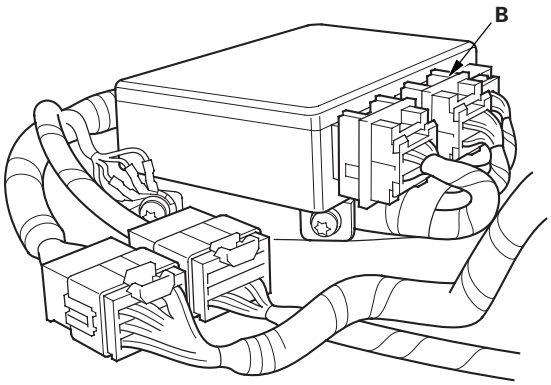
   NO—Short to ground in the driver's side airbag inflator; replace the driver's side airbag (see page 23-372). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the front passenger's side airbag 2P connector (A).



(cont'd)

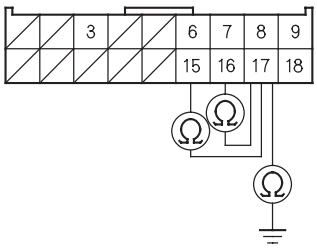
DTC Troubleshooting (cont'd)

11. Disconnect SRS unit connector B (18P) from the SRS unit.



12. Check resistance between the No. 17 and No. 15 terminals of SRS unit connector B (18P), and between the No. 17 and No. 16 terminals, and between the No. 17 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (18P)



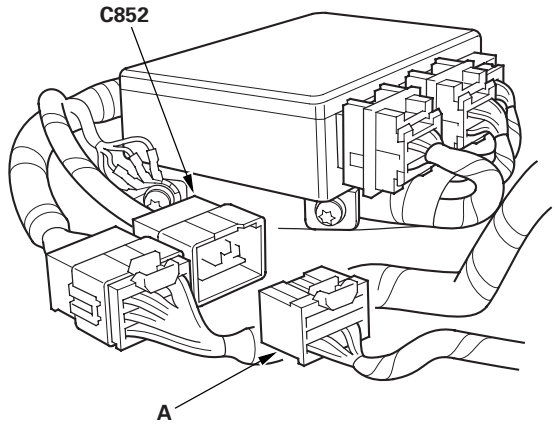
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

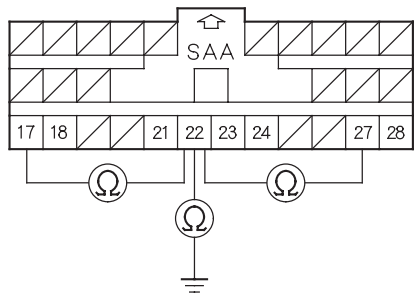
NO—Go to step 13.

13. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



14. Check resistance between the No. 22 and No. 17 terminals of the SRS floor subharness 28P connector, and between the No. 22 and No. 27 terminals. Then check resistance between the No. 22 terminal and body ground. There should be 1 MΩ or more.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short to ground in the SRS floor harness; replace the SRS floor harness. ■

NO—Short to ground in the SRS floor subharness or left side wire harness; replace the faulty harness. ■

'02 Model

DTC 12-1: Open or Increased Resistance in Front Passenger's Side Airbag Inflator

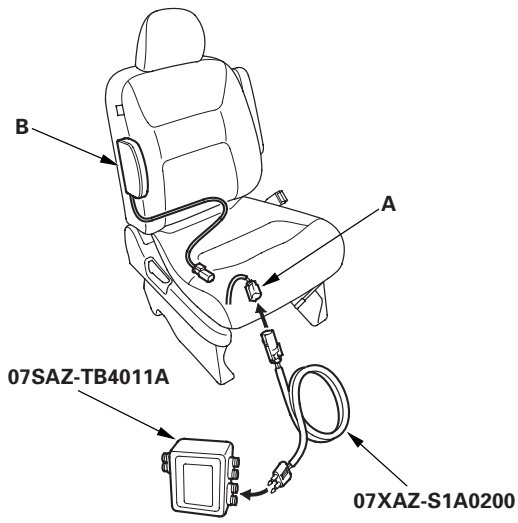
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the right side wire harness 2P connector (A) from the front passenger's side airbag (B).

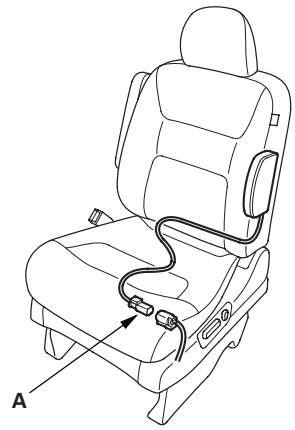


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 12-1 indicated?

   YES—Go to step 9.

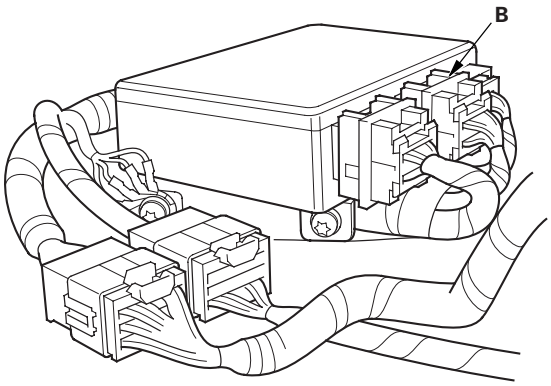
   NO—Open or increased resistance in the front passenger's side airbag inflator, replace the front passenger's side airbag (see page 23-372). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the driver's side airbag 2P connector (A).



(cont'd)

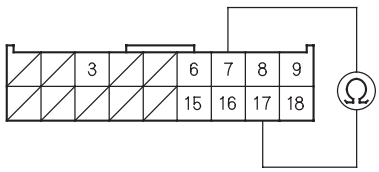
DTC Troubleshooting (cont'd)

11. Disconnect SRS unit connector B (18P) from the SRS unit. Do not disconnect the special tool from the right side wire harness 2P connector.



12. Check resistance between the No. 7 and No. 17 terminals of SRS unit connector B (18P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR B (18P)



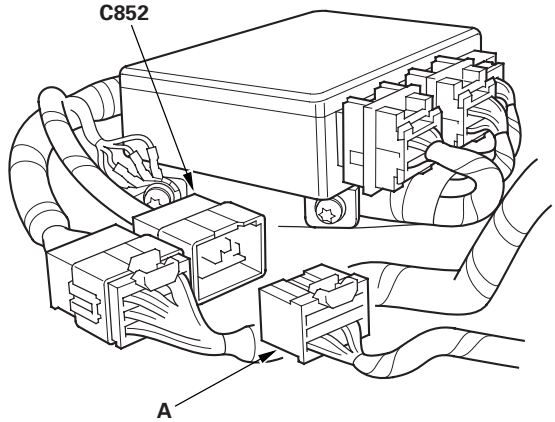
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at SRS unit connector B (18P) and the SRS unit; check the connection; if the connector is OK, replace the SRS unit (see page 23-382). ■

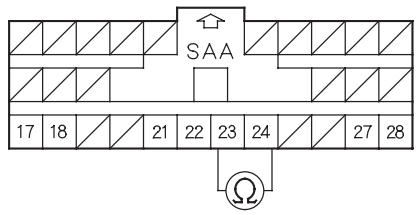
NO—Go to step 13.

13. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



14. Check resistance between the No. 23 and No. 24 terminals of the SRS floor subharness 28P connector. There should be 2.0—3.0 Ω.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Open or increased resistance in the SRS floor harness; replace the SRS floor harness. ■

NO—Open or increased resistance in the SRS floor subharness or right side wire harness; replace the faulty harness. ■

'02 Model

DTC 12-3: Short to Another Wire or Decreased Resistance in Front Passenger's Side Airbag Inflator

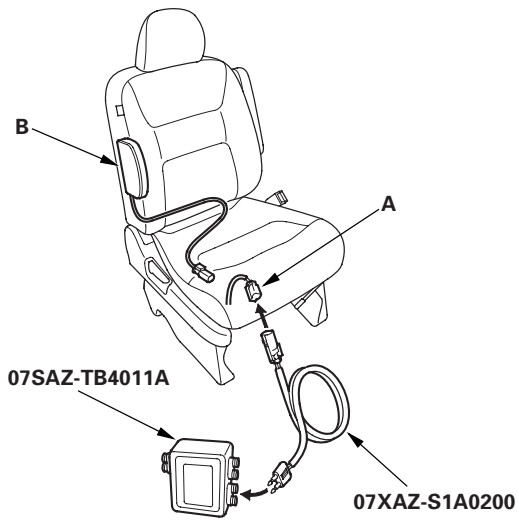
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the right side wire harness 2P connector (A) from the front passenger's side airbag (B).

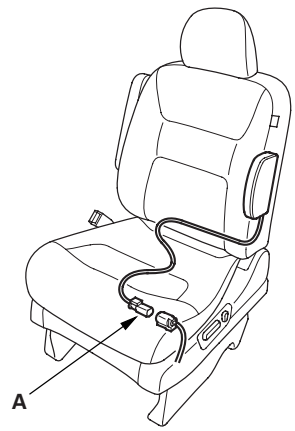


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 12-3 indicated?

   YES—Go to step 9.

   NO—Short to another wire in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 23-372).■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the driver's side airbag 2P connector (A).

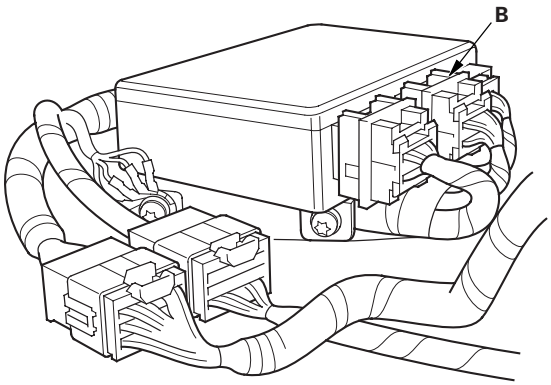


11. Disconnect the special tool from the right side wire harness 2P connector.

(cont'd)

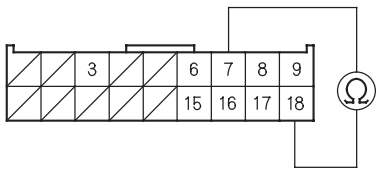
DTC Troubleshooting (cont'd)

12. Disconnect SRS unit connector B (18P) from the SRS unit.



13. Check resistance between the No. 7 and No. 18 terminals of SRS unit connector B (18P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (18P)



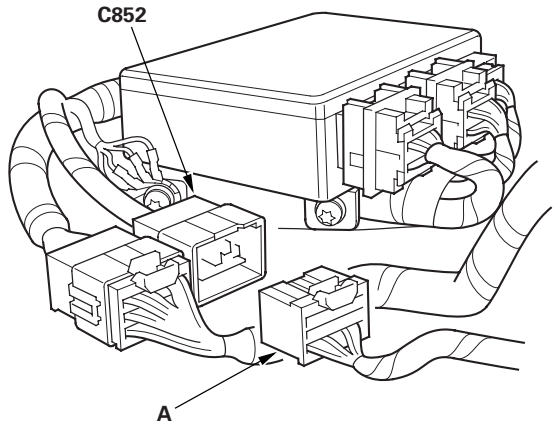
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

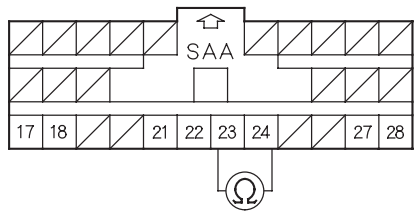
NO—Go to step 14.

14. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



15. Check resistance between the No. 23 and No. 24 terminals of the SRS floor subharness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short in the SRS floor harness; replace the SRS floor harness. ■

NO—Short in the SRS floor subharness or right side wire harness; replace the faulty harness. ■

'02 Model

DTC 12-4: Short to Power in Front Passenger's Side Airbag Inflator

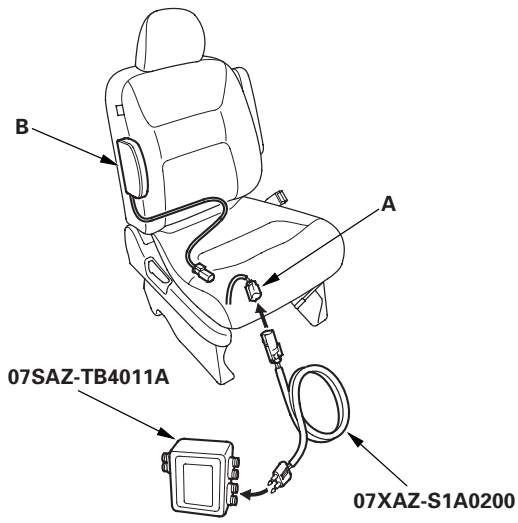
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the right side wire harness 2P connector (A) from the front passenger's side airbag (B).

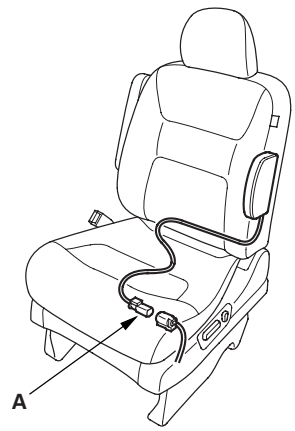


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 12-4 indicated?

   YES—Go to step 9.

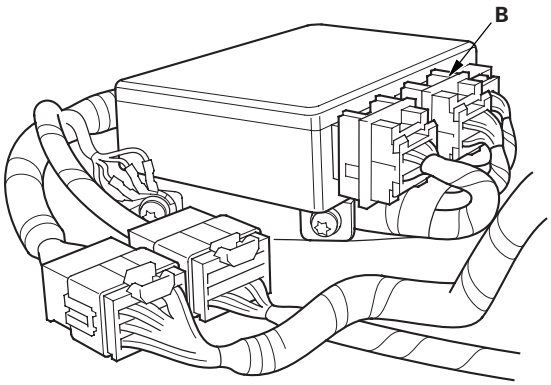
   NO—Short to power in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 23-372). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the driver's side airbag 2P connector (A).



(cont'd)

DTC Troubleshooting (cont'd)

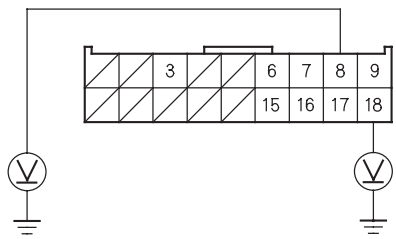
11. Disconnect SRS unit connector B (18P) from the SRS unit.



12. Turn the ignition switch ON (II).

13. Check for voltage between the No. 8 terminal of SRS unit connector B (18P) and body ground, and between the No. 18 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR B (18P)



Wire side of female terminals

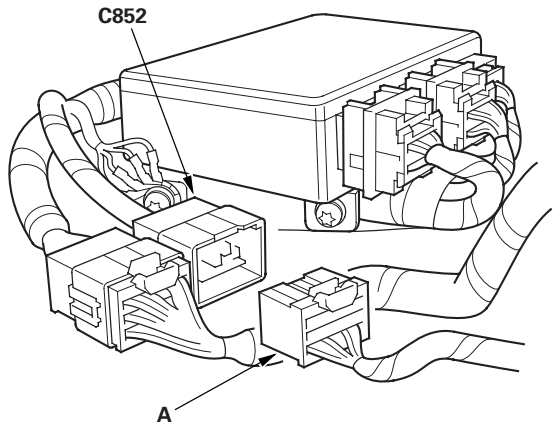
Is the voltage as specified?

YES — Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO — Go to step 14.

14. Turn the ignition switch OFF.

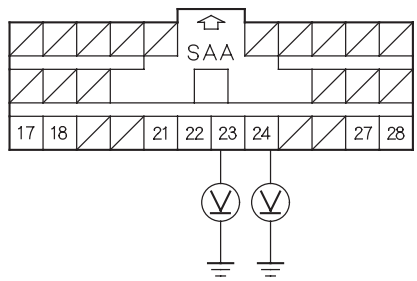
15. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



16. Turn the ignition switch ON (II).

17. Check for voltage between the No. 23 terminal of the SRS floor subharness 28P connector and body ground, and between the No. 24 terminal and body ground. There should be 0.5 V or less.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the voltage as specified?

YES — Short to power in the SRS floor harness; replace the SRS floor harness. ■

NO — Short to power in the SRS floor subharness or right side wire harness; replace the faulty harness. ■

'02 Model

DTC 12-5: Short to Ground in Front Passenger's Side Airbag Inflator

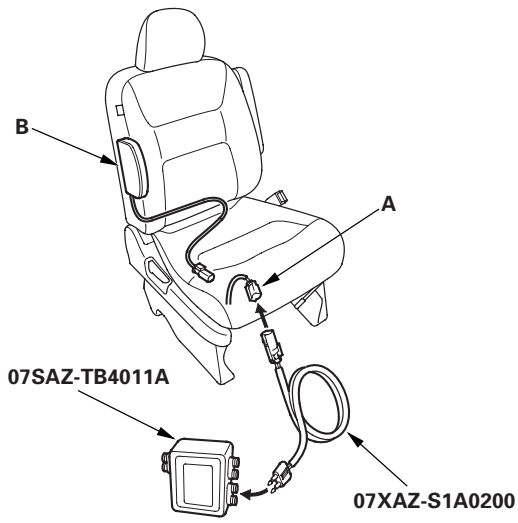
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the right side wire harness 2P connector (A) from the front passenger's side airbag (B).

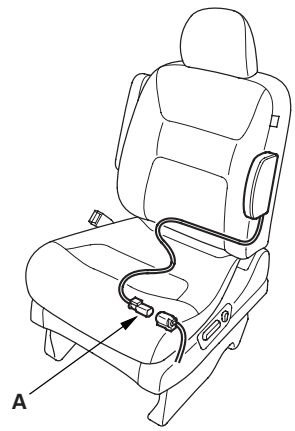


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-35).

   Is DTC 12-5 indicated?

   YES—Go to step 9.

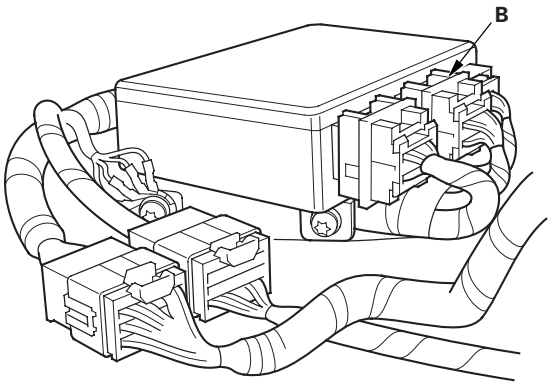
   NO—Short to ground in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 23-372). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the driver's side airbag 2P connector (A).



(cont'd)

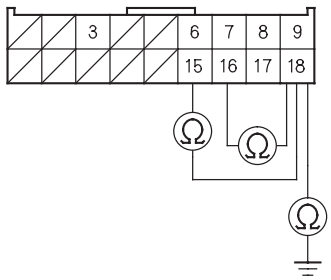
DTC Troubleshooting (cont'd)

11. Disconnect SRS unit connector B (18P) from the SRS unit.



12. Check resistance between the No. 15 and No. 18 terminals of SRS unit connector B (18P), and between the No. 16 and No. 18 terminals. Then check resistance between the No. 18 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (18P)



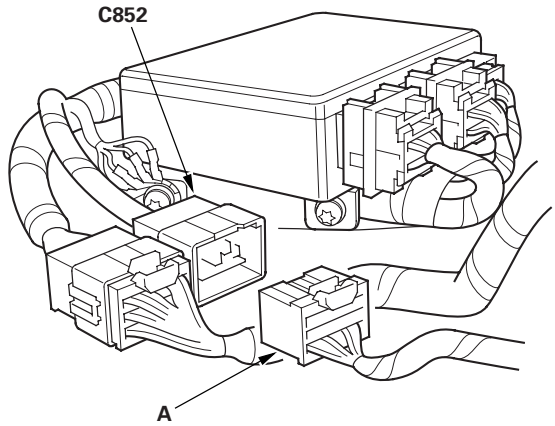
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

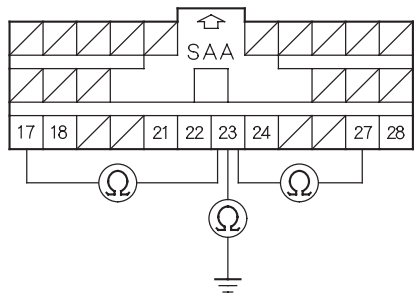
NO—Go to step 13.

13. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



14. Check resistance between the No. 17 and No. 23 terminals of the SRS floor subharness 28P connector, and between the No. 27 and No. 23 terminals. Then check resistance between the No. 23 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short to ground in the SRS floor harness; replace the SRS floor harness. ■

NO—Short to ground in the SRS floor subharness or right side wire harness; replace the faulty harness. ■

'02 Model

DTC 13-3: No Signal from the Driver's Side Impact Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead H 07YAZ-S3AA100

1. Erase the DTC memory (see page 23-38).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

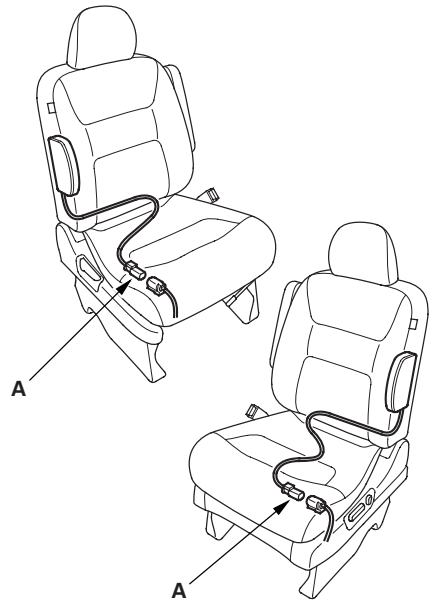
4. Check the connection between the left side wire harness 2P connector and the driver's side impact sensor.

   Is the connection OK?

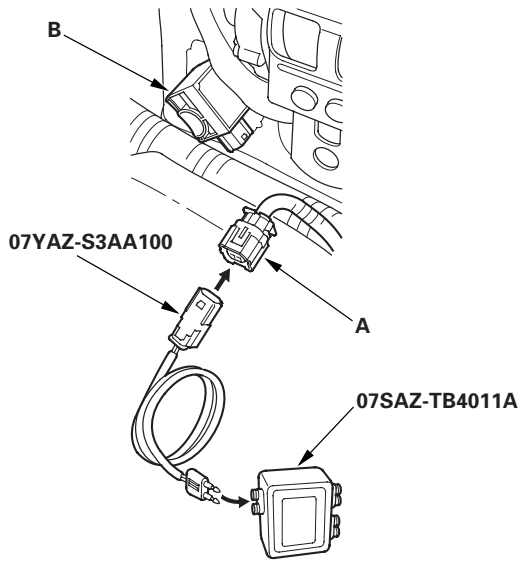
   YES — Go to step 5.

   NO — Replace the driver's side impact sensor. ■

5. Disconnect the driver's side airbag and front passenger's side airbag 2P connectors (A).



6. Disconnect the left side wire harness 2P connector (A) from the driver's side impact sensor (B).

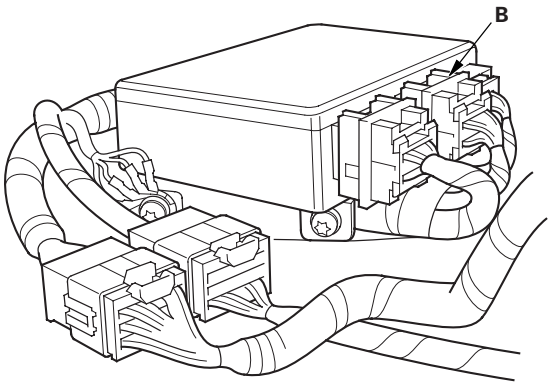


7. Connect the special tool (jumper connector) to the left side wire harness 2P connector.

(cont'd)

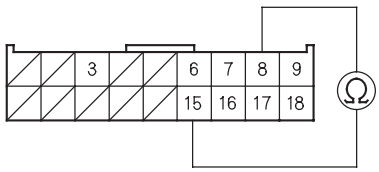
DTC Troubleshooting (cont'd)

8. Disconnect SRS unit connector B (18P) from the SRS unit.



9. Check resistance between the No. 8 and No. 15 terminals of SRS unit connector B (18P). There should be 0 — 1.0 Ω.

SRS UNIT CONNECTOR B (18P)



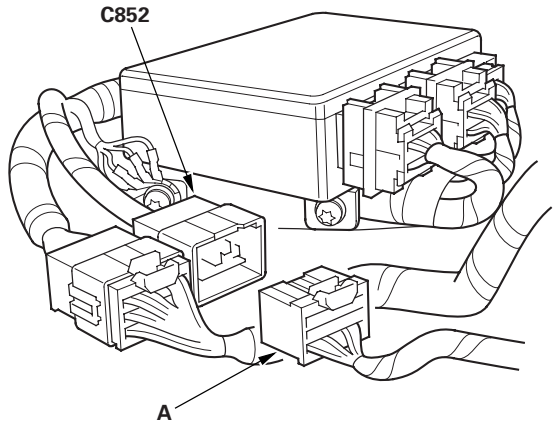
Wire side of female terminals

Is the resistance as specified?

YES — Faulty driver's side impact sensor or SRS unit; replace the driver's side impact sensor (see page 23-385). If the problem is still present, replace the SRS unit (see page 23-382). ■

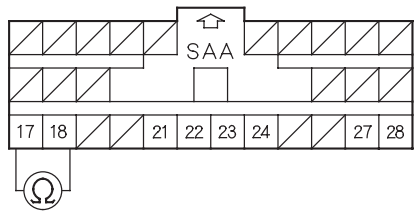
NO — Go to step 10.

10. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



11. Check resistance between the No. 18 and No. 17 terminals of the SRS floor subharness 28P connector. There should be 0 — 1.0 Ω.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES — Open in the SRS floor harness; replace the SRS floor harness. ■

NO — Open in the SRS floor subharness or left side wire harness; replace the faulty harness. ■

'02 Model

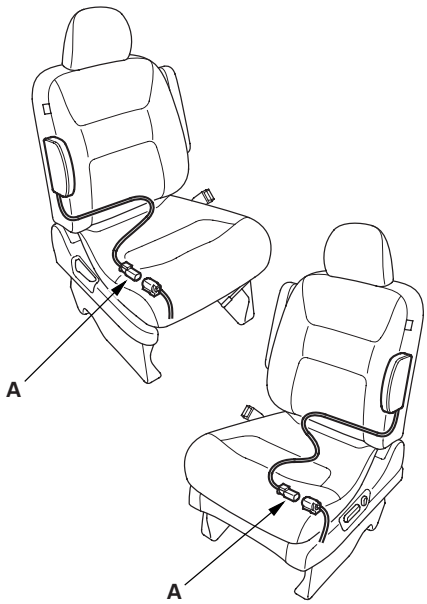
DTC 13-4: Faulty Power Supply to the Driver's Side Impact Sensor

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

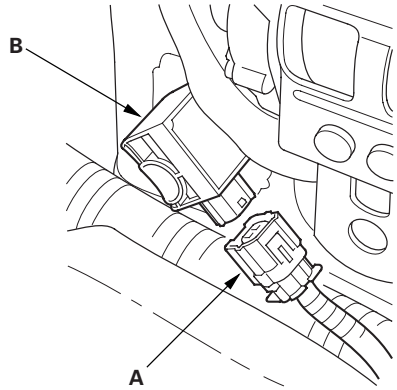
   Does the SRS indicator stay on?

   YES—Go to step 3.

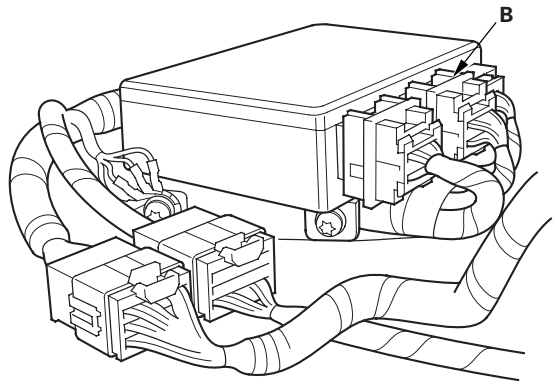
   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's side airbag and front passenger's side airbag 2P connectors (A).



5. Disconnect the left side wire harness 2P connector (A) from the driver's side impact sensor (B).



6. Disconnect SRS unit connector B (18P) from the SRS unit.

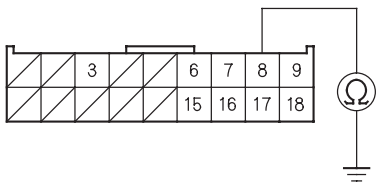


(cont'd)

DTC Troubleshooting (cont'd)

7. Check resistance between the No. 8 terminal of SRS unit connector B (18P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (18P)



Wire side of female terminals

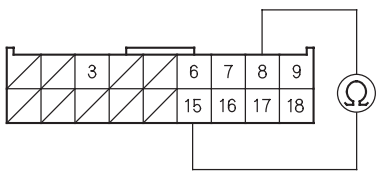
Is the resistance as specified?

YES — Go to step 8.

NO — Go to step 9.

8. Check resistance between the No. 8 and No. 15 terminals of SRS unit connector B (18P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (18P)



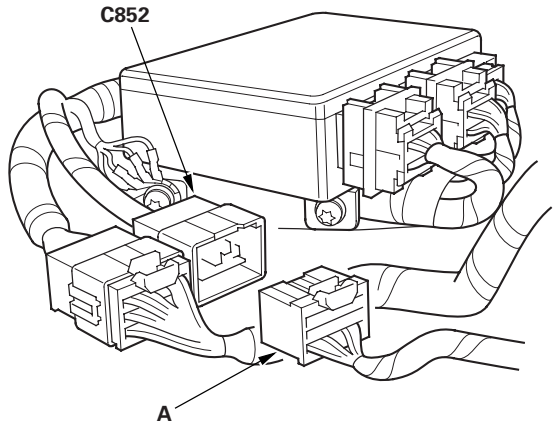
Wire side of female terminals

Is the resistance as specified?

YES — Faulty driver's side impact sensor or SRS unit; replace the driver's side impact sensor (see page 23-385). If the problem is still present, replace the SRS unit (see page 23-382). ■

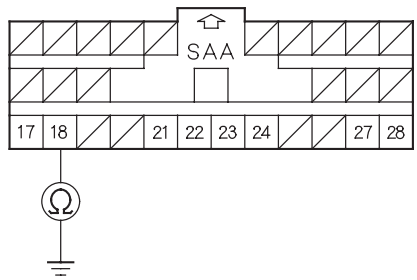
NO — Go to step 11.

9. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



10. Check resistance between the No. 18 terminal of the SRS floor subharness 28P connector and body ground. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR SUBHARNESS 28P CONNECTOR



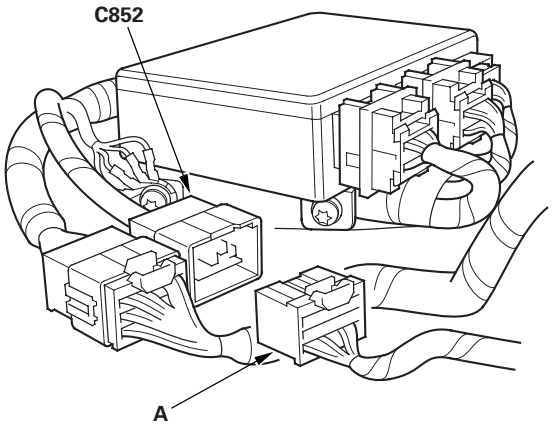
Wire side of female terminals

Is the resistance as specified?

YES — Short to ground in the SRS floor harness; replace the SRS floor harness. ■

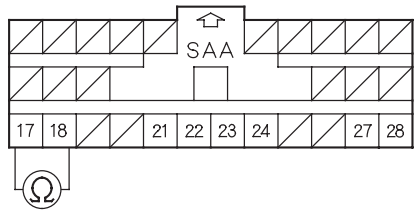
NO — Short to ground in the SRS floor subharness or left side wire harness; replace the faulty harness. ■

11. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



12. Check resistance between the No. 18 and No. 17 terminals of the SRS floor subharness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short in the SRS floor harness; replace the SRS floor harness. ■

NO—Short in the SRS floor subharness or left side wire harness; replace the faulty harness. ■

DTC Troubleshooting (cont'd)

'02 Model

DTC 14-3: No Signal from the Front Passenger's Side Impact Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead H 07YAZ-S3AA100

1. Erase the DTC memory (see page 23-38).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

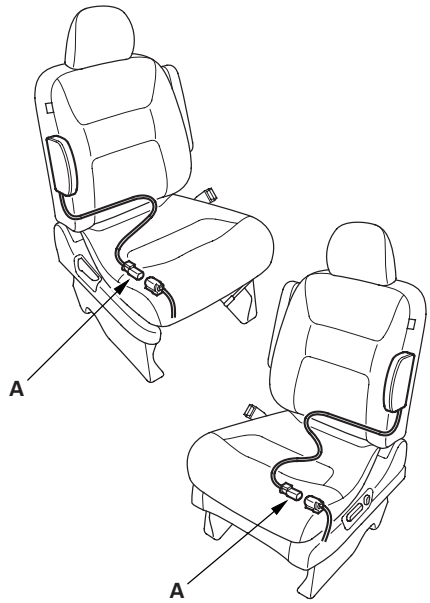
4. Check the connection between the right side wire harness 2P connector and the front passenger's side impact sensor.

   Is the connection OK?

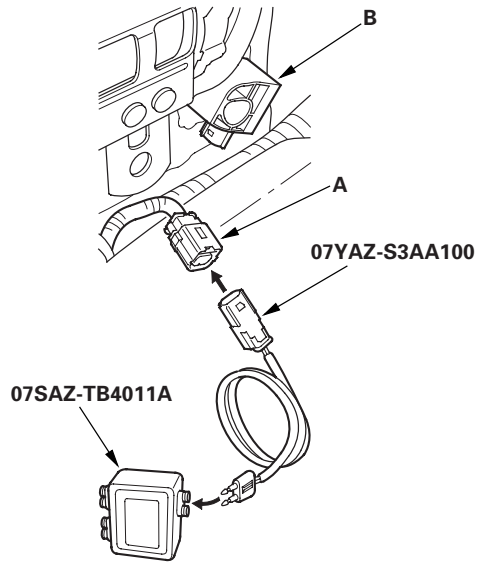
   YES — Go to step 5.

   NO — Poor contact between the right side wire harness 2P connector and the front passenger's side impact sensor; replace the front passenger's side impact sensor (see page 23-385). ■

5. Disconnect the driver's side airbag and front passenger's side airbag 2P connectors (A).

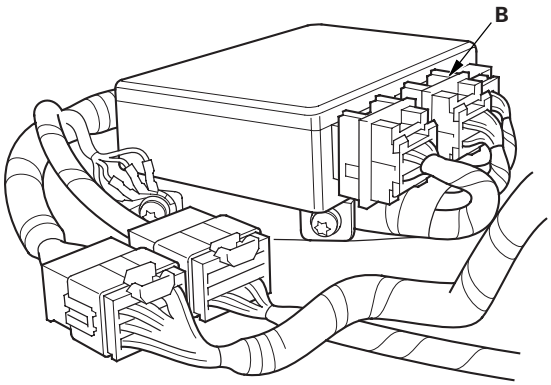


6. Disconnect the right side wire harness 2P connector (A) from the front passenger's side impact sensor (B).



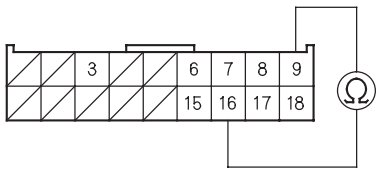
7. Connect the special tool (jumper connector) to the right side wire harness 2P connector.

8. Disconnect SRS unit connector B (18P) from the SRS unit.



9. Check resistance between the No. 9 and No. 16 terminals of SRS unit connector B (18P). There should be 0 — 1.0 Ω.

SRS UNIT CONNECTOR B (18P)



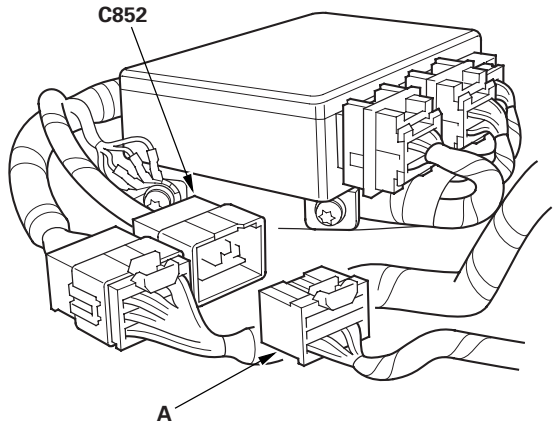
Wire side of female terminals

Is the resistance as specified?

YES — Faulty front passenger's side impact sensor or SRS unit; replace the front passenger's side impact sensor (see page 23-385). If the problem is still present, replace the SRS unit (see page 23-382). ■

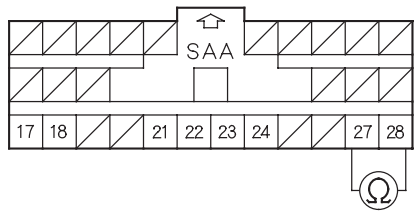
NO — Go to step 10.

10. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



11. Check resistance between the No. 28 and No. 27 terminals of the SRS floor subharness 28P connector. There should be 0 — 1.0 Ω.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES — Open in the SRS floor harness; replace the SRS floor harness. ■

NO — Open in the SRS floor subharness or right side wire harness; replace the faulty harness. ■

DTC Troubleshooting (cont'd)

'02 Model

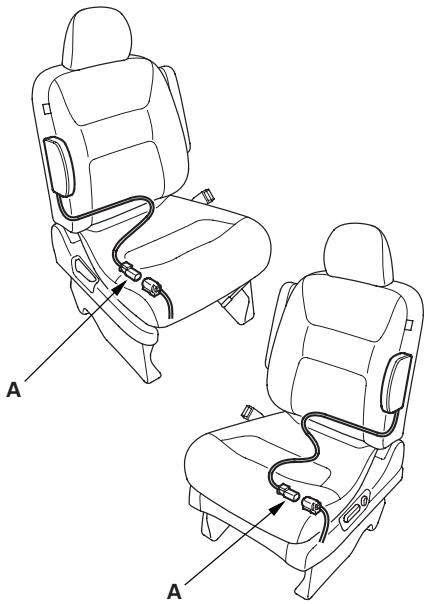
DTC 14-4: Faulty Power Supply to the Front Passenger's Side Impact Sensor

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

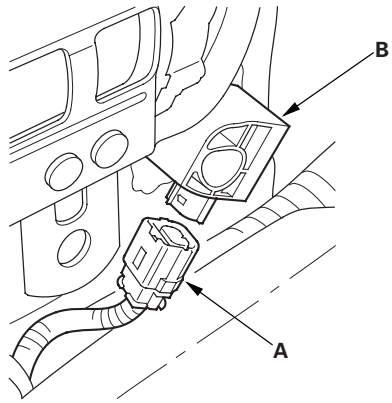
   Does the SRS indicator stay on?

   YES—Go to step 3.

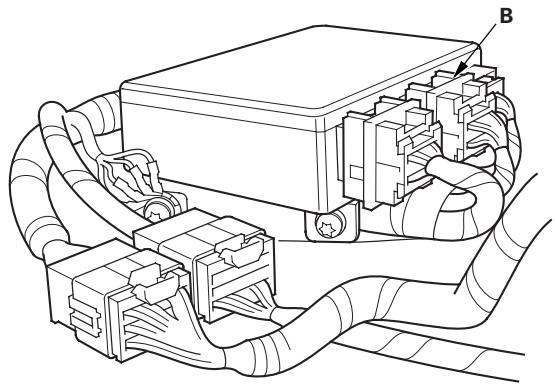
   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's side airbag and front passenger's side airbag 2P connectors (A).



5. Disconnect the right side wire harness 2P connector (A) from the front passenger's side impact sensor (B).

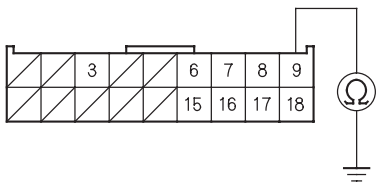


6. Disconnect SRS unit connector B (18P) from the SRS unit.



7. Check resistance between the No. 9 terminal of SRS unit connector B (18P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (18P)



Wire side of female terminals

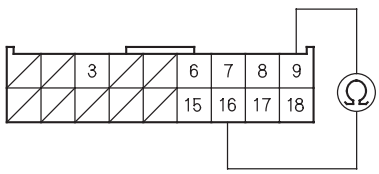
Is the resistance as specified?

YES—Go to step 8.

NO—Go to step 9.

8. Check resistance between the No. 9 and No. 16 terminals of SRS unit connector B (18P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (18P)



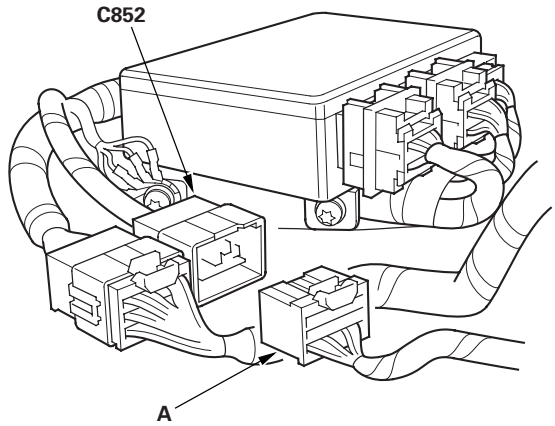
Wire side of female terminals

Is the resistance as specified?

YES—Faulty front passenger's side impact sensor or SRS unit; replace the front passenger's side impact sensor (see page 23-385). If the problem is still present, replace the SRS unit (see page 23-382). ■

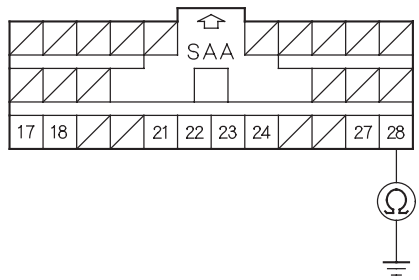
NO—Go to step 11.

9. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



10. Check resistance between the No. 28 terminal of the SRS floor subharness 28P connector and body ground. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

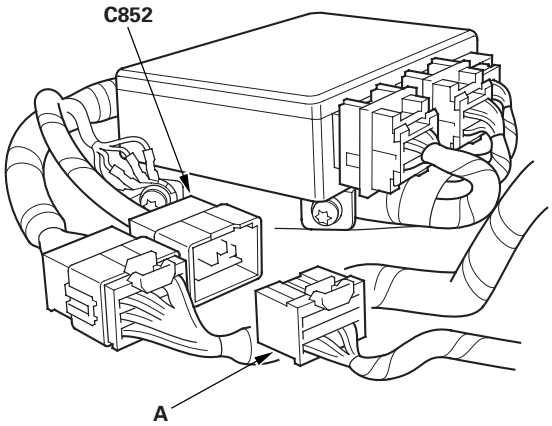
YES—Short to ground in the SRS floor harness; replace the SRS floor harness. ■

NO—Short to ground in the SRS floor subharness or right side wire harness; replace the faulty harness. ■

(cont'd)

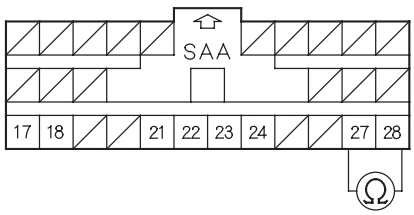
DTC Troubleshooting (cont'd)

11. Disconnect the SRS floor subharness 28P connector (A) from the SRS floor harness 28P connector C852.



12. Check resistance between the No. 28 and No. 27 terminals of the SRS floor subharness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES — Short in the SRS floor harness; replace the SRS floor harness. ■

NO — Short in the SRS floor subharness or right side wire harness; replace the faulty harness. ■

'02 Model

DTC 15-1: Faulty OPDS Unit or OPDS System Not Initialized

NOTE:
- An incorrect OPDS unit can cause DTC 15-1.
- A new (uninitialized) OPDS unit installed with a faulty OPDS sensor can also cause DTC 15-1.
- If you install a new OPDS unit and a new SRS unit at the same time, initialize the OPDS manually (see page 23-40), do not use the HDS.

1. Make sure nothing is on the front passenger's seat.
2. Initialize the OPDS unit (see page 23-40).
3. Erase the DTC memory (see page 23-38).
4. Read the DTC (see page 23-35).

   Is DTC 15-1 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

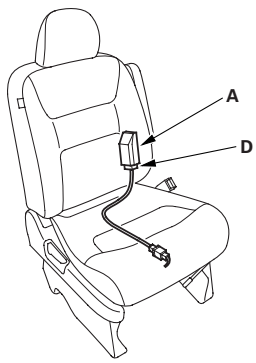
5. Check the No. 11 (10A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 6.

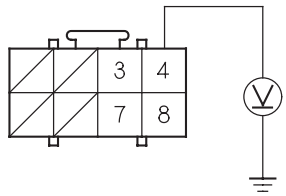
   NO—Go to step 9.

6. Disconnect OPDS unit harness 8P connector D (8P) from the OPDS unit (A).



7. Turn the ignition switch ON (II).
8. Check for voltage between the No. 4 terminal of the OPDS unit harness connector D (8P) and body ground. There should be battery voltage.

OPDS UNIT HARNESS CONNECTOR D (8P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 16.

NO—Open in dashboard wire harness A or B, right side harness, wire harness or OPDS unit harness; replace the faulty harness. ■

9. Replace the No. 11 (10A) fuse in the under-dash fuse/relay box.
10. Turn the ignition switch ON (II) for 30 seconds, then turn it OFF.
11. Check the No. 11 (10A) fuse in under-dash fuse/relay box.

    Is the fuse OK?

    YES—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

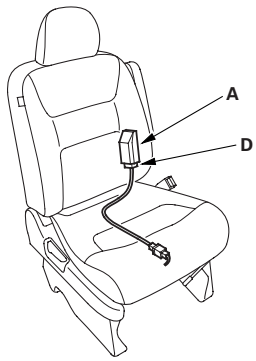
    NO—Go to step 12.

12. Replace the No. 11 (10A) fuse in the under-dash fuse/relay box.

(cont'd)

DTC Troubleshooting (cont'd)

13. Disconnect OPDS unit harness connector D (8P) from the OPDS unit (A).



14. Turn the ignition switch ON (II) for 30 seconds, then turn it off.

15. Check the No. 11 (10A) fuse in the under-dash fuse/relay box.

    Is the fuse OK?

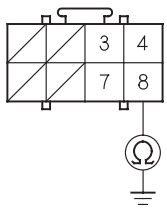
    YES—Short to ground in the OPDS unit; replace the OPDS unit (see page 23-387). ■

    NO—Short to ground in the No. 11 (10A) circuit. ■

16. Turn the ignition switch OFF.

17. Check resistance between the No. 8 terminal of OPDS unit harness connector D (8P) and body ground. There should be 0—1.0 Ω.

OPDS UNIT HARNESS CONNECTOR D (8P)



Wire side of female terminals

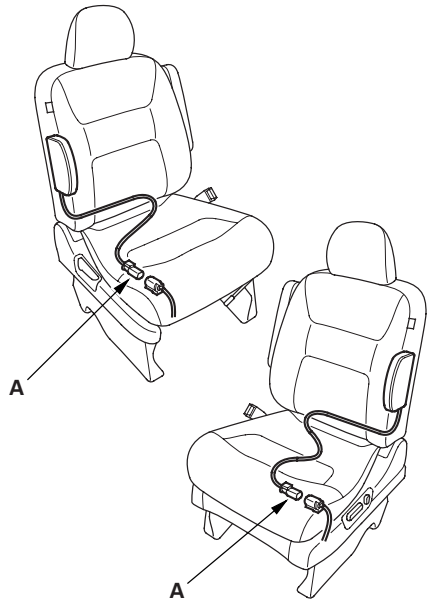
Is the resistance as specified?

YES—Go to step 18.

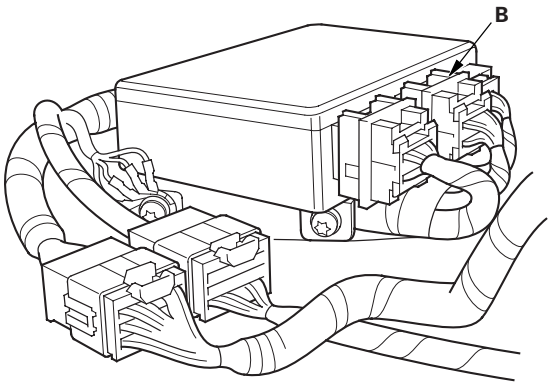
NO—Open in the right side wire harness or OPDS unit harness, or poor ground (G581). If G581 is OK, replace the faulty harness. ■

18. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

19. Disconnect both side airbag connectors (A).

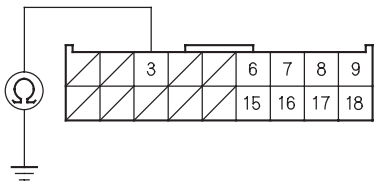


20. Disconnect SRS unit connector B (18P) from the SRS unit.



21. Check resistance between the No. 3 terminal of SRS unit connector B (18P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (18P)



Wire side of female terminals

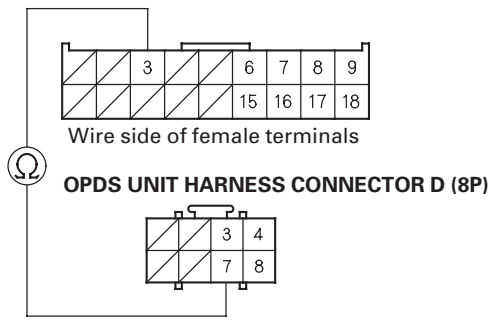
Is the resistance as specified?

YES — Go to step 22.

NO — Go to step 27.

22. Check resistance between the No. 3 terminal of SRS unit connector B (18P) and the No. 7 terminal of the OPDS unit harness connector D (8P). There should be 0 — 1.0 Ω.

SRS UNIT CONNECTOR B (18P)

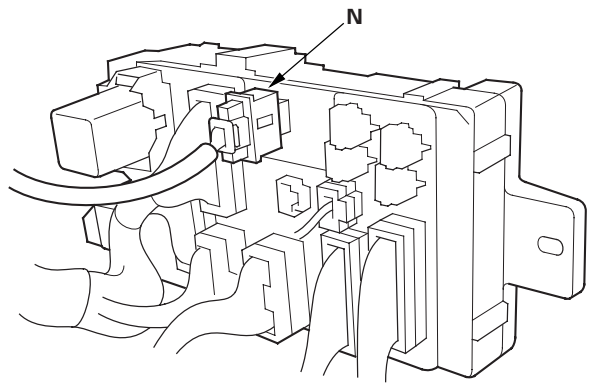


Is the resistance as specified?

YES — Go to step 23.

NO — Go to step 31.

23. Disconnect the driver's under-dash fuse/relay box connector N from the under-dash fuse/relay box.



24. Reconnect the negative battery cable.

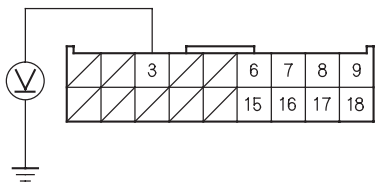
25. Turn the ignition switch ON (II).

(cont'd)

DTC Troubleshooting (cont'd)

26. Check for voltage between the No. 3 terminal of SRS unit connector B (18P) and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR B (18P)



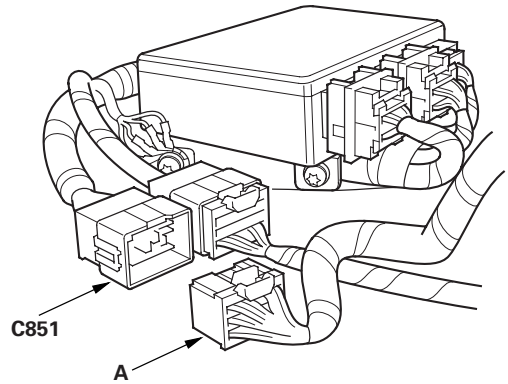
Wire side of female terminals

Is the voltage as specified?

YES — Faulty OPDS unit or SRS unit. Replace the OPDS unit (see page 23-387). If the problem is still present, replace the SRS unit (see page 23-382). ■

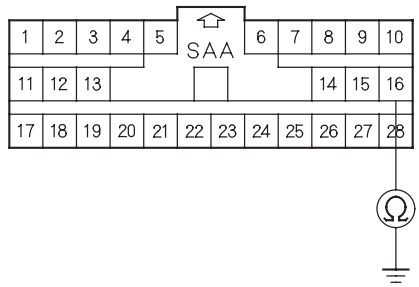
NO — Go to step 35.

27. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



28. Check resistance between the No. 16 terminal of the SRS main harness 28P connector and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



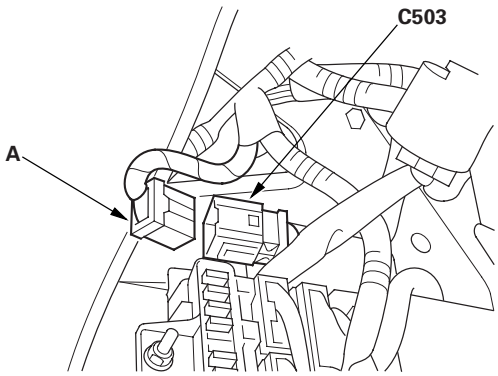
Wire side of female terminals

Is the resistance as specified?

YES — Short in the SRS floor harness; replace the SRS floor harness. ■

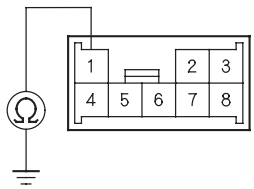
NO — Go to step 29.

29. Disconnect the SRS main harness 8P connector (A) from the dashboard wire harness 8P connector C503.



30. Check resistance between the No. 1 terminal of the dashboard wire harness 8P connector and body ground. There should be an open circuit, or at least 1 MΩ.

DASHBOARD WIRE HARNESS 8P CONNECTOR



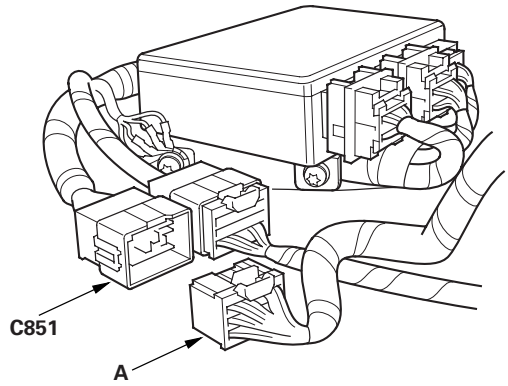
Terminal side of male terminals

Is the resistance as specified?

YES—Short in the SRS main harness; replace the SRS main harness. ■

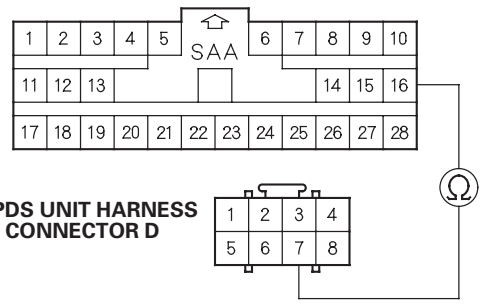
NO—Short in the dashboard wire harness, right side wire harness, or OPDS unit harness; replace the faulty harness. ■

31. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



32. Check resistance between the No. 16 terminal of the SRS main harness 28P connector and the No. 7 terminal of the OPDS unit harness 8P connector D. There should be 0—1.0 Ω.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

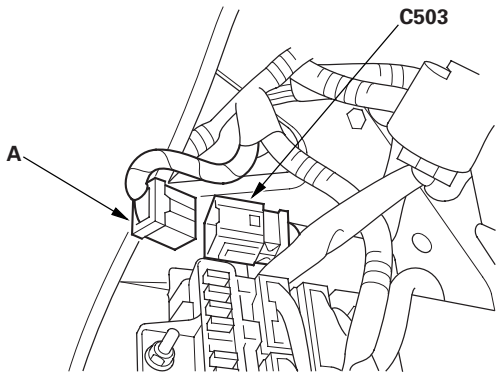
YES—Open in the SRS floor harness; replace the SRS floor harness. ■

NO—Go to step 33.

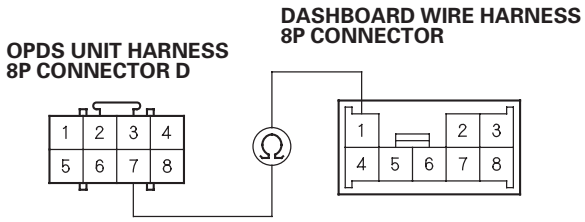
(cont'd)

DTC Troubleshooting (cont'd)

33. Disconnect the SRS main harness 8P connector (A) from the dashboard wire harness 8P connector C503.



34. Check resistance between the No. 1 terminal of the dashboard wire harness 8P connector and the No. 7 terminal of the OPDS unit harness 8P connector D. There should be 1 Ω or less.



Wire side of female terminals Terminal side of male terminals

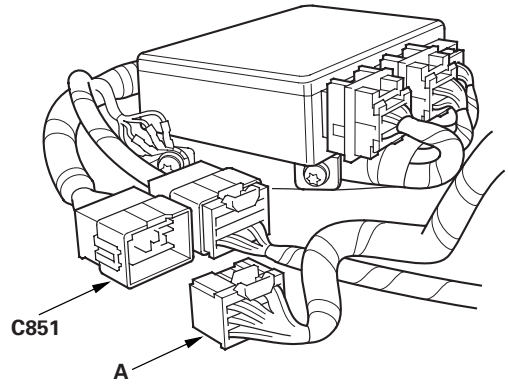
Is the resistance as specified?

YES — Open in the SRS main harness; replace the SRS main harness. ■

NO — Open in the dashboard wire harness, right side wire harness, or OPDS unit harness; replace the faulty harness. ■

35. Turn the ignition switch OFF.

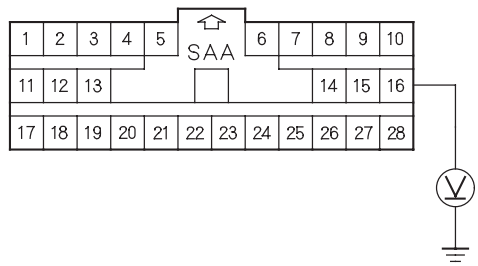
36. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



37. Turn the ignition switch ON (II).

38. Check for voltage between the No. 16 terminal of the SRS main harness 28P connector and body ground. There should be 0.5 V or less.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

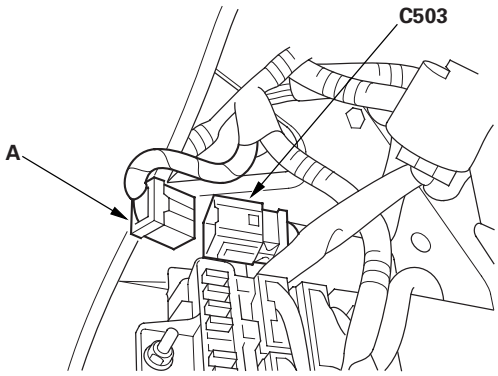
Is the voltage as specified?

YES — Short to power in the SRS floor harness; replace the SRS floor harness. ■

NO — Go to step 39.

39. Turn the ignition switch ON (II).

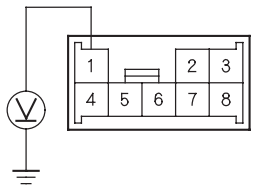
40. Disconnect the SRS main harness 8P connector (A) from the dashboard wire harness 8P connector C503.



41. Turn the ignition switch ON (II).

42. Check for voltage between the No. 1 terminal of the dashboard wire harness 8P connector and body ground. There should be 0.5 V or less.

DASHBOARD WIRE HARNESS 8P CONNECTOR



Terminal side of male terminals

Is the voltage as specified?

YES—Short to power in the SRS main harness; replace the SRS main harness.■

NO—Short to power in the dashboard wire harness or right side wire harness or OPDS unit harness; replace the faulty harness.■

DTC Troubleshooting (cont'd)

'02 Model

DTC 15-2: Faulty Side Airbag Cutoff Indicator Circuit

NOTE: This DTC may have been caused by:
- Blown or removed fuses in certain circuits (such as odometer) with the ignition switch in the ON (II) position.
- Any part of the SRS circuit (particulary the gauge assembly) is disconnected with the ignition switch in the ON (II) position.

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Make sure nothing is on the front passenger's seat.
4. Turn the ignition switch ON (II), and check that the side airbag cutoff indicator comes on.

   Does the side airbag cutoff indicator come on?

   YES—Go to step 5.

   NO—Go to step 6.
5. Make sure the side airbag cutoff indicator comes on for 5 seconds and then goes off.

   Does the side airbag cutoff indicator go off?

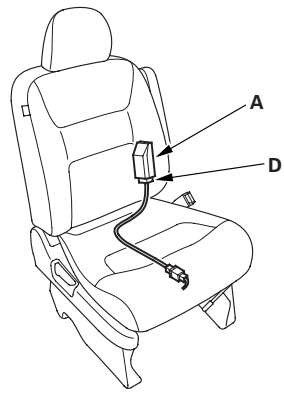
   YES—Faulty OPDS unit or SRS unit; replace the OPDS unit (see page 23-387). If the problem is still present, replace the SRS unit (see page 23-382). ■

   NO—Go to step 35.
6. Turn the ignition switch OFF.
7. Check the No. 9 (10A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

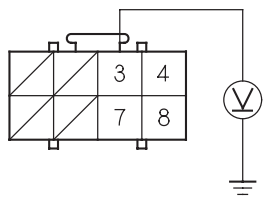
   YES—Go to step 8.

   NO—Repair the short to ground in the No. 9 (10A) fuse circuit. ■
8. Disconnect the OPDS unit harness 8P connector D from the OPDS unit (A).



9. Turn the ignition switch ON (II).
10. Check for voltage between the No. 3 terminal of the OPDS unit harness connector D (8P) and body ground. There should be battery voltage.

OPDS UNIT HARNESS CONNECTOR D (8P)



Wire side of female terminals

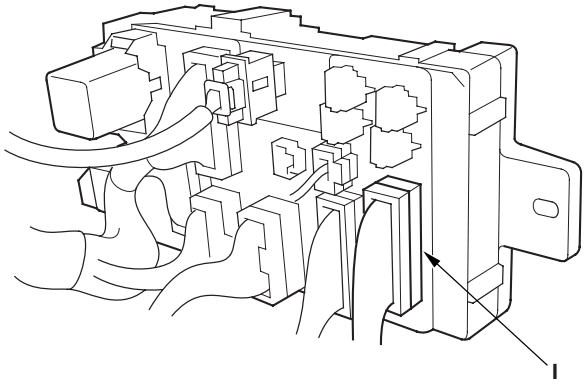
Is there battery voltage?

YES—Go to step 11.

NO—Go to step 23.

11. Turn the ignition switch OFF.

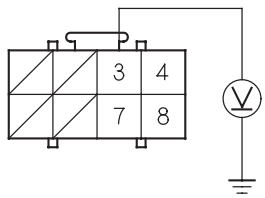
12. Disconnect the driver's under-dash fuse/relay box connector I from the under-dash fuse/relay box.



13. Turn the ignition switch ON (II).

14. Check for voltage between the No. 3 terminal of the OPDS unit harness connector D (8P) and body ground. There should be 0.5 V or less.

OPDS UNIT HARNESS CONNECTOR D (8P)



Wire side of female terminals

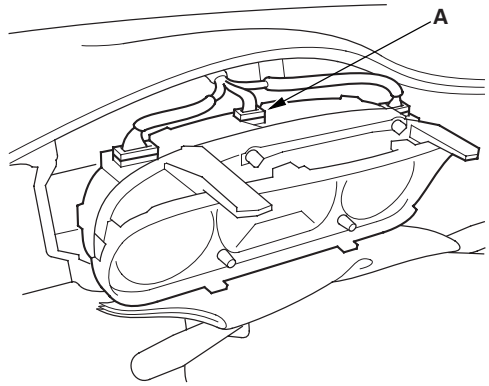
Is the voltage as specified?

YES—Faulty OPDS unit; replace the OPDS unit (see page 23-387). ■

NO—Go to step 15.

15. Turn the ignition switch OFF.

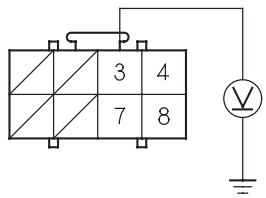
16. Disconnect gauge assembly connector A (14P) from the gauge assembly (see page 22-100).



17. Turn the ignition switch ON (II).

18. Check for voltage between the No. 3 terminal of OPDS unit harness connector D (8P) and body ground. There should be 0.5 V or less.

OPDS UNIT HARNESS CONNECTOR D (8P)



Wire side of female terminals

Is the voltage as specified?

YES—Short to power in the gauge assembly; replace the gauge assembly. ■

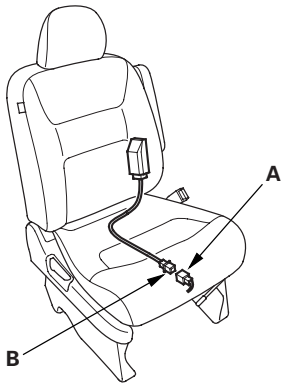
NO—Go to step 19.

(cont'd)

DTC Troubleshooting (cont'd)

19. Turn the ignition switch OFF.

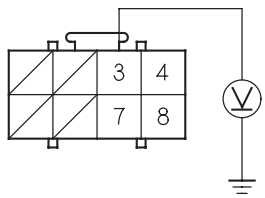
20. Disconnect the right side wire harness 4P connector (A) from the OPDS unit harness 4P connector (B).



21. Turn the ignition switch ON (II).

22. Check for voltage between the No. 3 terminal of the OPDS unit harness connector D (8P) and body ground. There should be 0.5 V or less.

OPDS UNIT HARNESS CONNECTOR D (8P)



Wire side of female terminals

Is the voltage as specified?

YES — Short to power in the right side wire harness or dashboard wire harness; replace the faulty harness. ■

NO — Short to power in the OPDS unit harness; replace the OPDS unit harness. ■

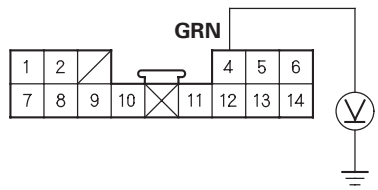
23. Turn the ignition switch OFF.

24. Backprobe the No. 4 terminal of gauge assembly connector A (14P). Do not disconnect gauge assembly connector A (14P) from the gauge assembly (see page 22-100).

25. Turn the ignition switch ON (II).

26. Check for voltage between the No. 4 terminal of gauge assembly connector A (14P) and body ground. There should be battery voltage.

GAUGE ASSEMBLY CONNECTOR A (14P)



Wire side of female terminals

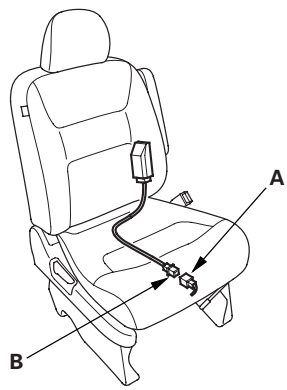
Is there battery voltage?

YES — Go to step 27.

NO — Go to step 31.

27. Turn the ignition switch OFF.

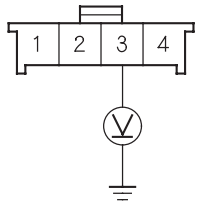
28. Disconnect the right side wire harness 4P connector (A) from the OPDS unit harness 4P connector (B).



29. Turn the ignition switch ON (II).

30. Check for voltage between the No. 3 terminal of the right side wire harness 4P connector C861 and body ground. There should be battery voltage.

RIGHT SIDE WIRE HARNESS 4P CONNECTOR C861



Wire side of female terminals

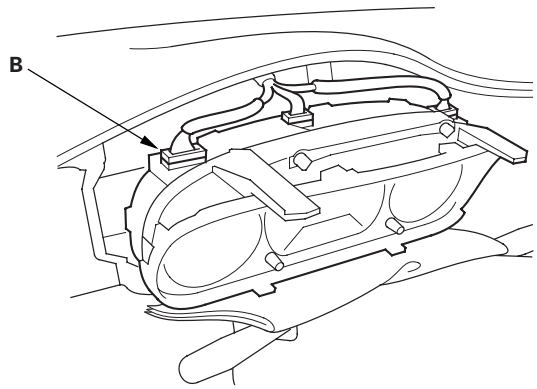
Is there battery voltage?

YES—Poor contact at the right side wire harness 4P and OPDS unit harness 4P connectors or an open in the OPDS unit harness. Check the connection between the right side wire harness and OPDS unit harness 4P connectors; if the connection is OK, replace the OPDS unit harness. ■

NO—Poor contact at gauge assembly connector A (14P) or an open in the dashboard wire harness or right side wire harness. Check gauge assembly connector A (14P); if the connections are OK, replace the faulty harness. ■

31. Turn the ignition switch OFF.

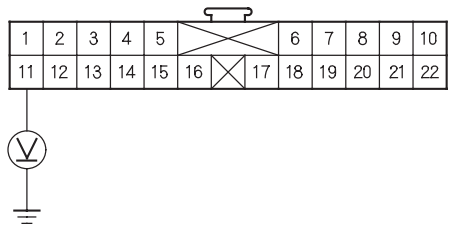
32. Disconnect gauge assembly connector B (22P) from the gauge assembly.



33. Turn the ignition switch ON (II).

34. Check for voltage between the No. 11 terminal of gauge assembly connector B (22P) and body ground. There should be battery voltage.

GAUGE ASSEMBLY CONNECTOR B (22P)



Wire side of female terminals

Is there battery voltage?

YES—Faulty side airbag cutoff indicator circuit; replace the gauge assembly. ■

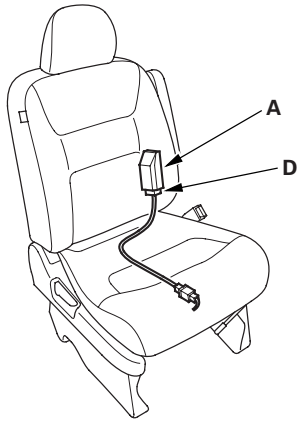
NO—Open in the dashboard wire harness; replace the dashboard wire harness. ■

(cont'd)

DTC Troubleshooting (cont'd)

35. Turn the ignition switch OFF.

36. Disconnect OPDS unit harness connector D (8P) from the OPDS unit (A).



37. Turn the ignition switch ON (II).

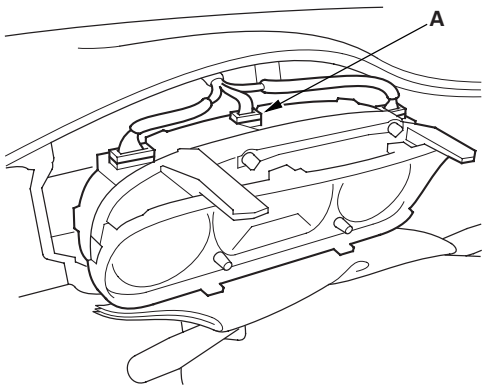
    Does the side airbag cutoff indicator come on?

    YES — Go to step 38.

    NO — Faulty OPDS unit; replace the OPDS unit. ■

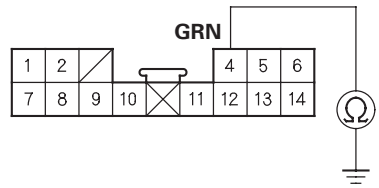
38. Turn the ignition switch OFF.

39. Disconnect gauge assembly connector A (14P) from the gauge assembly (see page 22-100).



40. Check resistance between the No. 4 terminal of gauge assembly connector A (14P) and body ground. There should an open circuit, or at least 1 MΩ.

GAUGE ASSEMBLY CONNECTOR A (14P)



Wire side of female terminals

Is the resistance as specified?

YES — Short to ground in the side airbag cutoff indicator circuit; replace the gauge assembly. ■

NO — Short to ground in the dashboard wire harness A, right side wire harness or OPDS unit harness; replace the faulty harness. ■

'02 Model

DTC 15-3: Faulty OPDS Sensor

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

   NOTE: Aftermarket devices (fluorescent lights, laptop computers, etc.) used near the front passenger's seat-back can interfere with the seat-back sensors and cause a false DTC 15-3. If one of these devices was used, erase the DTC, operate the device near the seat-back, and recheck for DTCs. If DTC 15-3 is reset, erase it, and do not use the device near the seat-back.
3. Check the connection at the OPDS sensor harness connector and the OPDS unit connector.

   Are the connections OK?

   YES—Go to step 4.

   NO—Reconnect the OPDS sensor harness connector, and clear the DTC. ■
4. Replace the OPDS sensor/seat back foam (see page 20-102), and reinitialize the OPDS (see page 23-40).
5. Erase the DTC memory, then check for DTC 15-3.

   Is DTC 15-3 indicated?

   YES—Go to step 6.

   NO—The system is OK. ■
6. Replace the OPDS unit (see page 23-387), and reinitialize the OPDS.
7. Erase the DTC memory, then check for DTC 15-3.

   Is DTC 15-3 indicated?

   YES—Replace the SRS unit (see page 23-382). ■

   NO—The system is OK. ■

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 11-1x (11-10 to 11-19, 11-1A to 11-1F):
Open or Increased Resistance in Driver's Airbag First Inflator

DTC 11-4x (11-40 to 11-49, 11-4A to 11-4F):
Open or Increased Resistance in Driver's Airbag Second Inflator

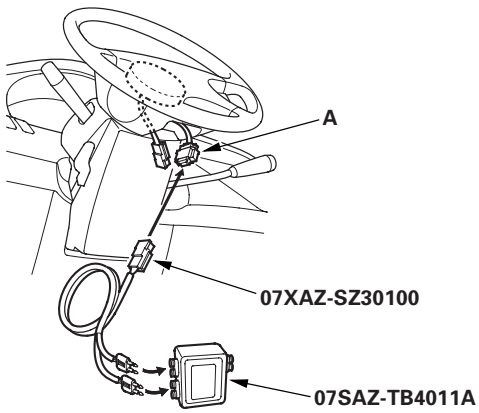
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector from the cable reel (A).

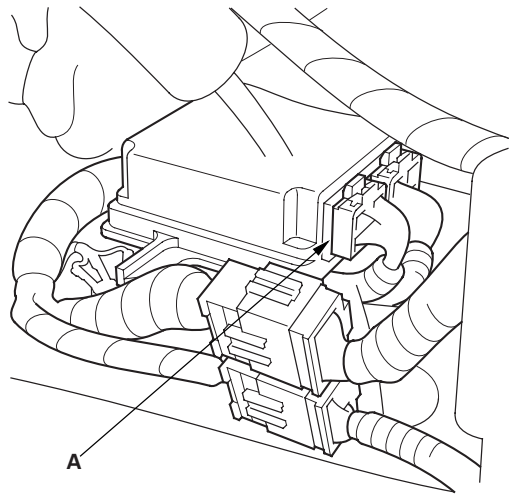


5. Connect the special tool (2 Ω connectors) to the cable reel 4P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 11-1x or 11-4x indicated?

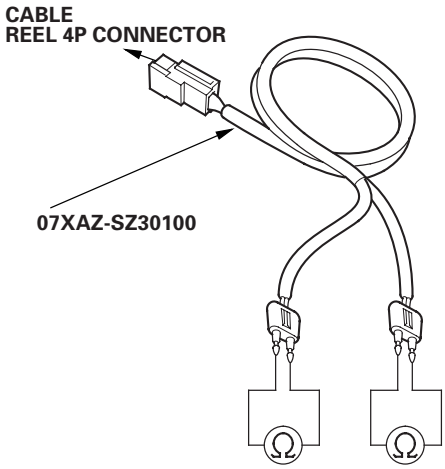
   YES — Go to step 9.

   NO — Open or increased resistance in the driver's airbag first or second inflator; replace the driver's airbag (see page 23-368). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect SRS unit connector A (28P) from the SRS unit. Do not disconnect the special tool from the cable reel 4P connector.



11. Disconnect the SRS inflator simulator from SRS simulator lead F.

12. Check resistance between the terminals of SRS simulator lead F. There should be 1 Ω or less.

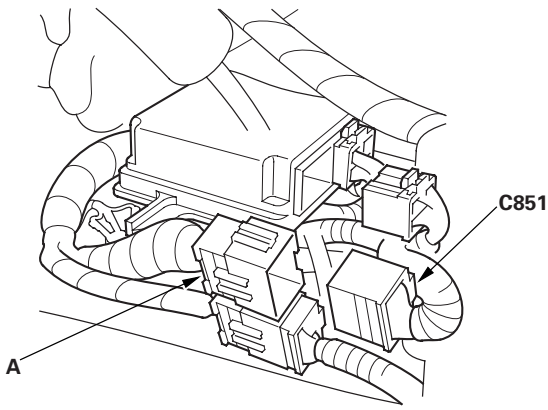


Is the resistance as specifled?

YES—Faulty SRS unit or poor contact at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-382). ■

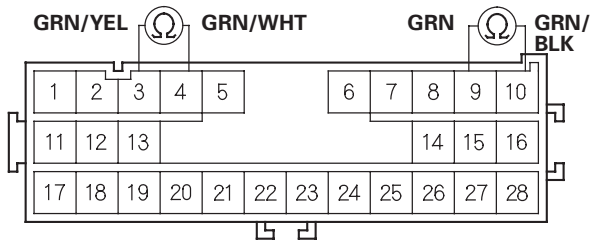
NO—Go to step 13.

13. Disconnect the SRS floor harness 28P connector (A) from SRS main harness 28P connector C851.



14. Check resistance between the No. 9 and No. 10 terminals of the SRS floor harness 28P connector C851, and between the No. 3 and No. 4 terminals. There should be 1 Ω or less.

SRS FLOOR HARNESS 28P CONNECTOR C851



Terminal side of male terminals

Is the resistance as specified?

YES—Go to step 15.

NO—Open or increased resistance in the SRS floor harness; replace the SRS floor harness. ■

15. Disconnect the cable reel 4P connector from the SRS main harness.

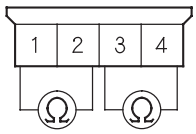
16. Connect the SRS inflator simulator to SRS simulator lead F.

(cont'd)

DTC Troubleshooting (cont'd)

17. Check resistance between the No. 4 and No. 3 terminals of the cable reel 4P connector, and between the No. 2 and No. 1 terminals. There should be 2.0—3.0 Ω.

CABLE REEL 4P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Open or increased resistance in the SRS main harness; replace the SRS main harness. ■

NO—Replace the cable reel (see page 23-377). ■

'03-04 Models

DTC 11-3x (11-30 to 11-39, 11-3A to 11-3F): Short to Another Wire or Decreased Resistance in Driver's Airbag First Inflator

DTC 11-6x (11-60 to 11-69, 11-6A to 11-6F): Short to Another Wire or Decreased Resistance in Driver's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100
- SRS short canceler 070AZ-SAA0100

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

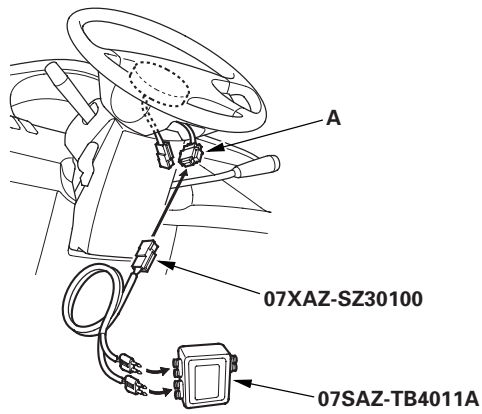
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the driver's airbag 4P connector from the cable reel (A).



5. Connect the special tool (2 Ω connectors) to the cable reel 4P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-38).

   Is DTC 11-3x or 11-6x indicated?

   YES—Go to step 9.

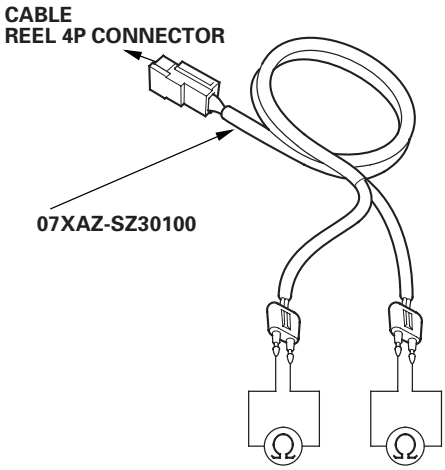
   NO—Short in the driver's airbag first or second inflator; replace the driver's airbag (see page 23-368). ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect the cable reel 4P connector from the SRS main harness.

11. Disconnect the SRS inflator simulator from SRS simulator lead F.

12. Check resistance between the terminals of SRS simulator lead F. There should be an open circuit, or at least 1 MΩ.

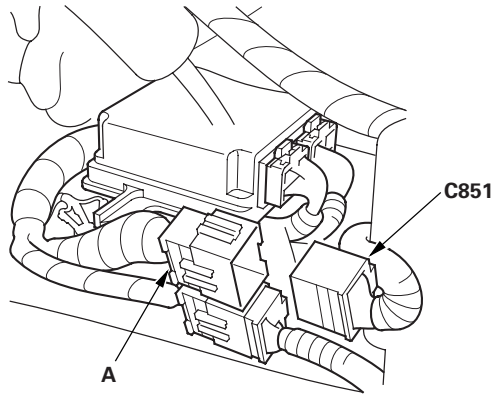


   Is the resistance as specified?

   YES—Go to step 13.

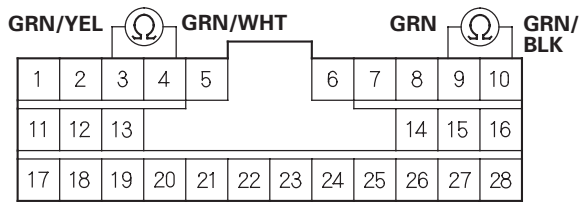
   NO—Replace the cable reel (see page 23-377). ■

13. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



14. Check resistance between the No. 9 and No. 10 terminals of SRS main harness 28P connector C851, and between the No. 3 and No. 4 terminals. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR C851



Wire side of female terminal

   Is the resistance as specified?

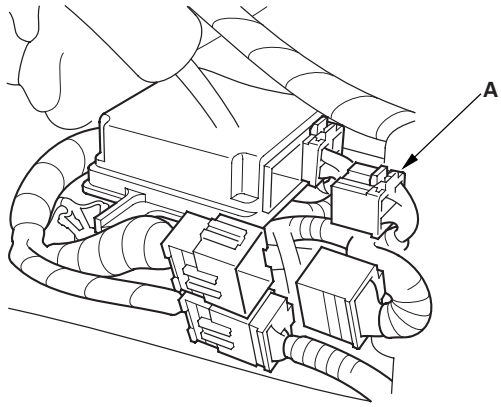
   YES—Go to step 15.

   NO—Short in the SRS main harness; replace the SRS main harness. ■

(cont'd)

DTC Troubleshooting (cont'd)

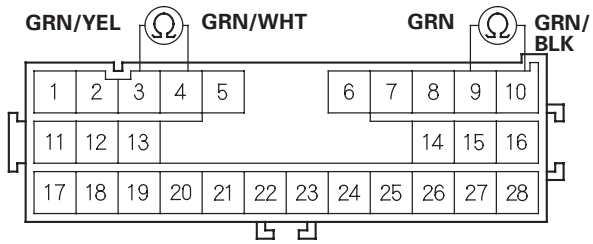
15. Disconnect SRS unit connector A (28P) from the SRS unit.



16. Connect the special tool (070AZ-SAA0100) to the No. 7 and No. 8 terminals or the No. 1 and No. 2 terminals of SRS unit connector A (28P) (see page 23-26).

17. Check resistance between the No. 9 and No. 10 terminals of the SRS floor harness 28P connector C851, and between the No. 3 and No. 4 terminals. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR HARNESS 28P CONNECTOR C851



Terminal side of male terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO—Replace the SRS floor harness. ■

'03-04 Models

DTC 11-8x (11-80 to 11-89, 11-8A to 11-8F): Short to power in Driver's Airbag First Inflator

DTC 11-Ax (11-A0 to 11-A9, 11-AA to 11-AF): Short to power in Driver's Airbag Second Inflator

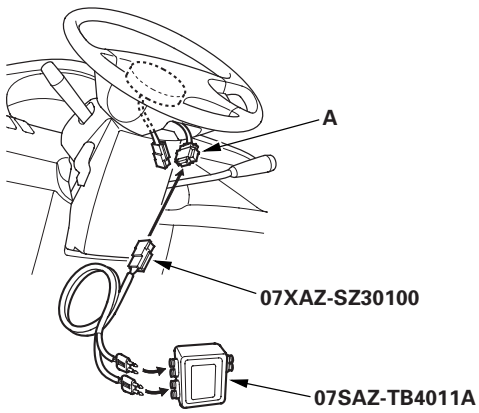
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector from the cable reel (A).

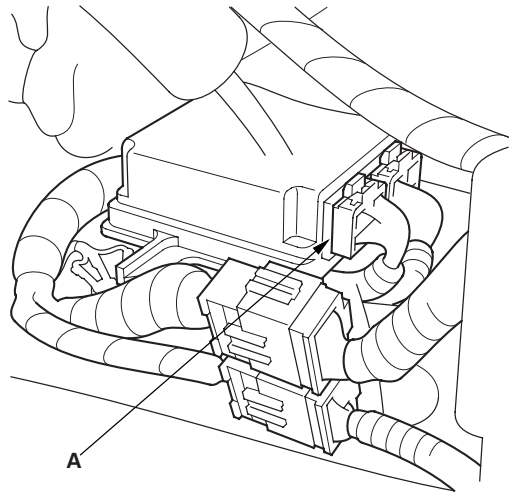


5. Connect the special tool (2 Ω connectors) to the cable reel 4P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 11-8x or 11-Ax indicated?

   YES — Go to step 9.

   NO — Short to power in the driver's airbag first or second inflator; replace the driver's airbag (see page 23-368). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect SRS unit connector A (28P) from the SRS unit.

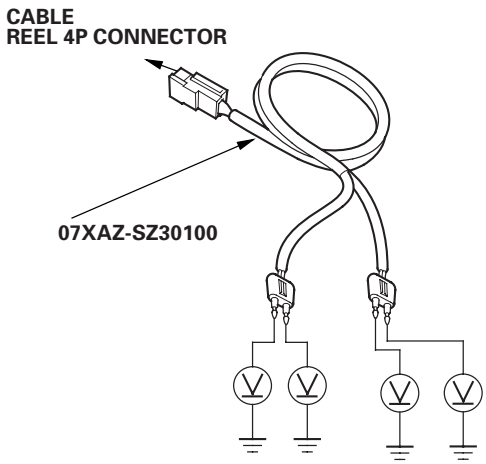


11. Reconnect the battery negative cable.
12. Turn the ignition switch ON (II).
13. Disconnect the SRS inflator simulator from SRS simulator lead F.

(cont'd)

DTC Troubleshooting (cont'd)

14. Check for voltage between each terminal of SRS simulator lead F and body ground. There should be 0.5 V or less.



Is the voltage as specified?

YES — Faulty SRS unit; replace the SRS unit (see page 23-384). ■

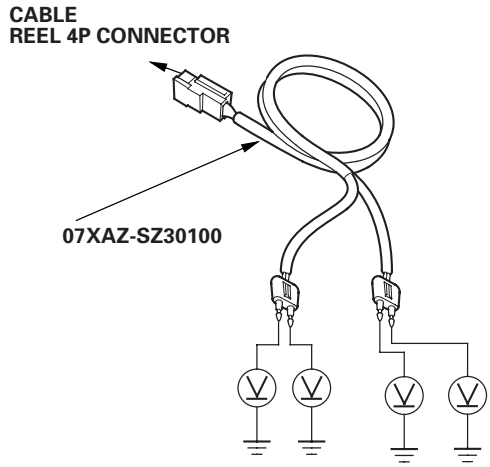
NO — Go to step 15.

15. Turn the ignition switch OFF.

16. Disconnect the SRS main harness 4P connector from the cable reel.

17. Turn the ignition switch ON (II).

18. Check for voltage between each terminal of SRS simulator lead F and body ground. There should be 0.5 V or less.



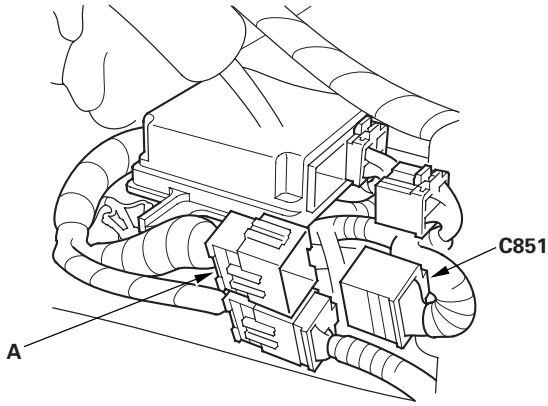
Is the voltage as specified?

YES — Go to step 19.

NO — Replace the cable reel (see page 23-377). ■

19. Turn the ignition switch OFF.

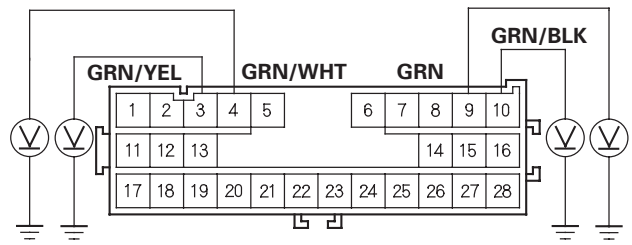
20. Disconnect the SRS floor harness 28P connector (A) from SRS main harness connector C851.



21. Turn the ignition switch ON (II).

22. Check for voltage between the No. 9 terminal of SRS floor harness 28P connector and body ground, the No. 10 terminal and body ground, the No. 3 terminal and body ground, and the No. 4 terminal and body ground. There should be 0.5 V or less.

SRS FLOOR HARNESS 28P CONNECTOR



Terminal side of male terminals

Is the voltage as specified?

YES—Replace the SRS main harness. ■

NO—Replace the SRS floor harness. ■

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 11-9x (11-90 to 11-99, 11-9A to 11-9F): Short to Ground in Driver's Airbag First Inflator

DTC 11-Bx (11-B0 to 11-B9, 11-BA to 11-BF): Short to Ground in Driver's Airbag Second Inflator

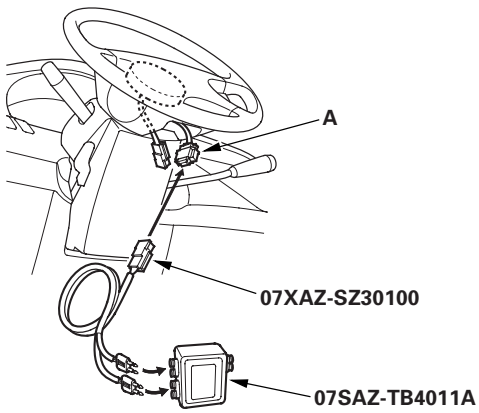
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector from the cable reel (A).

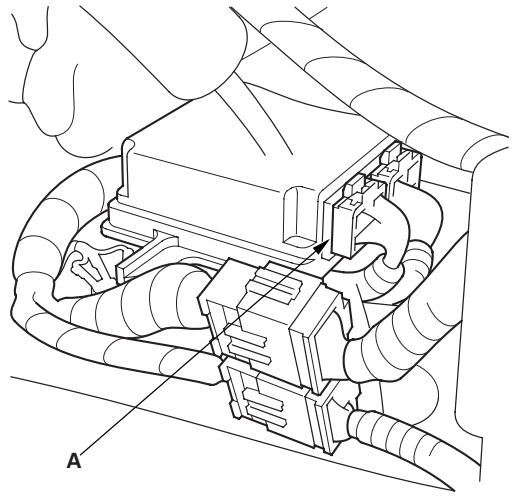


5. Connect the special tool (2 Ω connectors) to the cable reel 4P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 11-9x, or 11-Bx indicated?

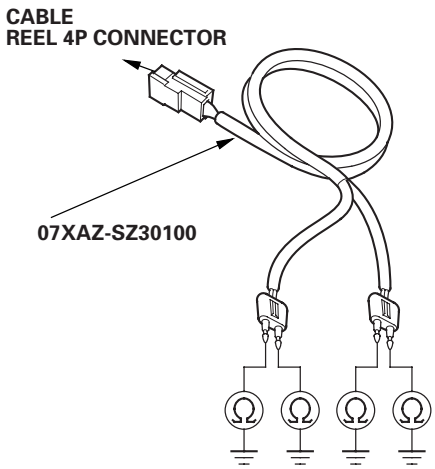
   YES — Go to step 9.

   NO — Short to ground in the driver's airbag first or second inflator; replace the driver's airbag (see page 23-368). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect SRS unit connector A (28P) from the SRS unit.



11. Disconnect the SRS inflator simulator from SRS simulator lead F.

12. Check resistance between each terminal of SRS simulator lead F and body ground. There should be an open circuit, or at least 1 MΩ.



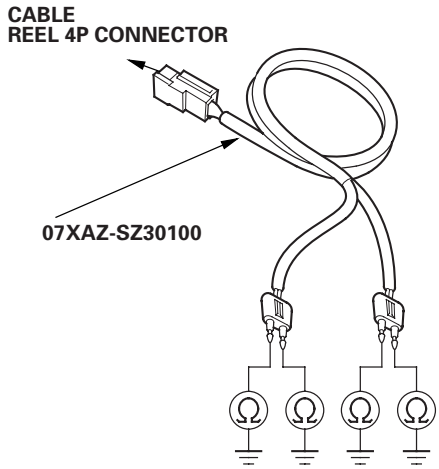
Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO—Go to step 13.

13. Disconnect the SRS main harness 4P connector from the cable reel 4P connector.

14. Check resistance between each terminal of SRS simulator lead F and body ground. There should be an open circuit, or at least 1 MΩ.



Is the resistance as specified?

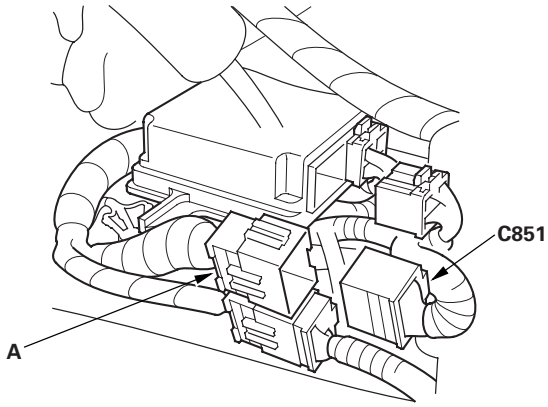
YES—Go to step 15.

NO—Replace the cable reel (see page 23-377). ■

(cont'd)

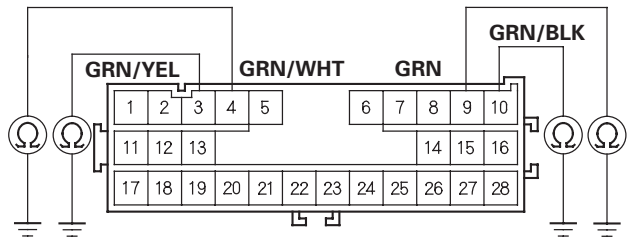
DTC Troubleshooting (cont'd)

15. Disconnect the SRS floor harness 28P connector (A) from SRS main harness connector C851.



16. Check resistance between the No. 9 terminal of the SRS floor harness 28P connector and body ground, the No. 10 terminal and body ground, the No. 3 terminal and body ground, and No. 4 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR HARNESS 28P CONNECTOR



Terminal side of male terminals

Is the resistance as specified?

YES — Replace the SRS main harness. ■

NO — Replace the SRS floor harness. ■

'03-04 Models

DTC 12-1x (12-10 to 12-19, 12-1A to 12-1F): Open or Increased Resistance in Front Passenger's Airbag First Inflator

DTC 12-4x (12-40 to 12-49, 12-4A to 12-4F): Open or Increased Resistance in Front Passenger's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

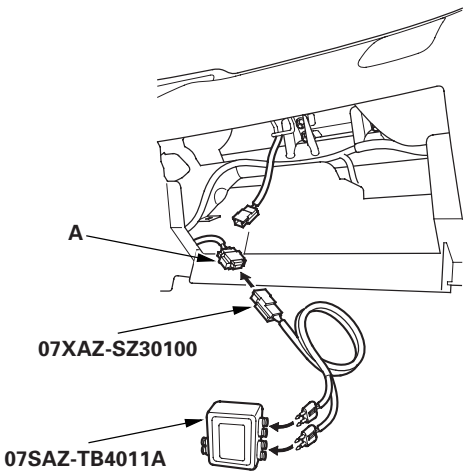
   Does the SRS indicator stay on?

   YES – Go to step 3.

   NO – Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the front passenger's airbag 4P connector from the SRS main harness (A).



5. Connect the special tool (2 Ω connectors) to the SRS main harness 4P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-38).

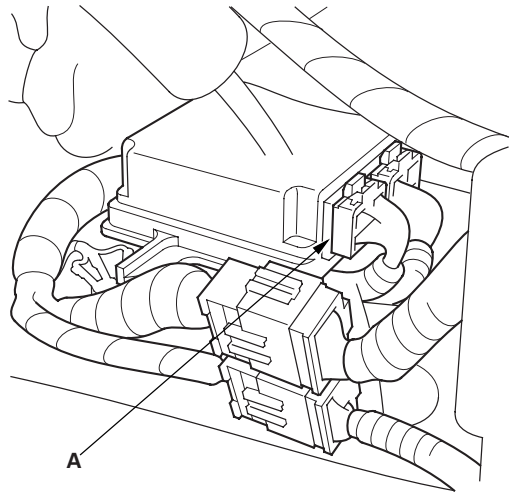
   Is DTC 12-1x or 12-4x indicated?

   YES – Go to step 9.

   NO – Open or increased resistance in the front passenger's airbag first or second inflator; replace the front passenger's airbag (see page 23-370). ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect SRS unit connector A (28P) from the SRS unit. Do not disconnect the special tool from the SRS main harness.

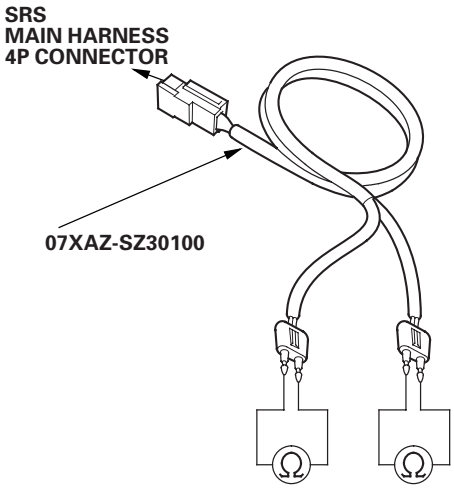


11. Disconnect the SRS Inflator simulator from SRS simulator lead F.

(cont'd)

DTC Troubleshooting (cont'd)

12. Check resistance between the terminals of the SRS simulator lead F. There should be 1 Ω or less.

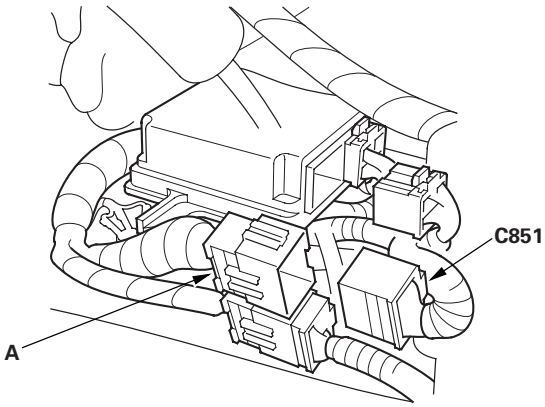


Is the resistance as specified?

YES — Faulty SRS unit or poor contact at SRS unit connector A (28P). Check the connection; if the connection is OK, replace the SRS unit (see page 23-384).

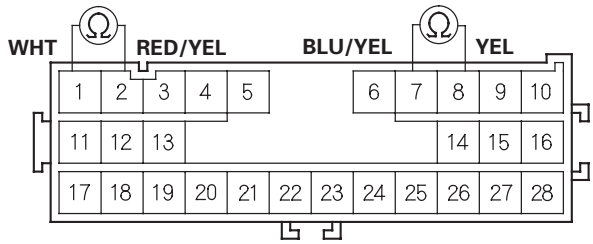
NO — Go to step 13.

13. Disconnect the SRS floor harness 28P connector (A) from SRS main harness connector C851.



14. Check resistance between the No. 7 and No. 8 terminals and between the No. 1 and No. 2 terminals of the SRS floor harness 28P connector. There should be 1 Ω or less.

SRS FLOOR HARNESS 28P CONNECTOR



Terminal side of male terminals

Is the resistance as specified?

YES — Open or increased resistance in the SRS main harness; replace the SRS main harness. ■

NO — Open or increased resistance in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 12-3x (12-30 to 12-39, 12-3A to 12-3F): Short to Another Wire or Decreased Resistance in Front Passenger's Airbag First Inflator

DTC 12-6x (12-60 to 12-69, 12-6A to 12-6F): Short to Another Wire or Decreased Resistance in Front Passenger's Airbag Second Inflator

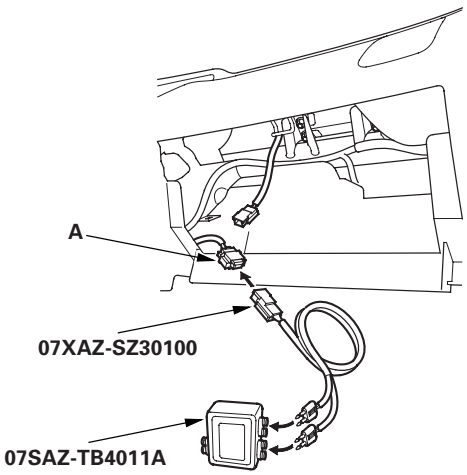
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100
- SRS short canceler 070AZ-SAA0100

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's airbag 4P connector from the SRS main harness (A).

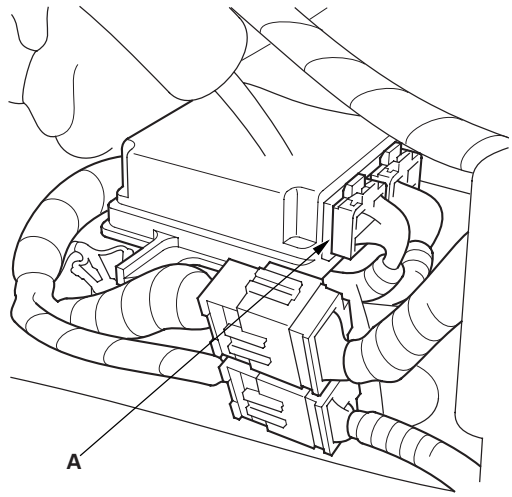


5. Connect the special tool (2 Ω connectors) to the SRS main harness 4P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 12-3x or 12-6x indicated?

   YES — Go to step 9.

   NO — Short in the front passenger's airbag first or second inflator; replace the front passenger's airbag (see page 23-370). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect SRS unit connector A (28P) from the SRS unit.

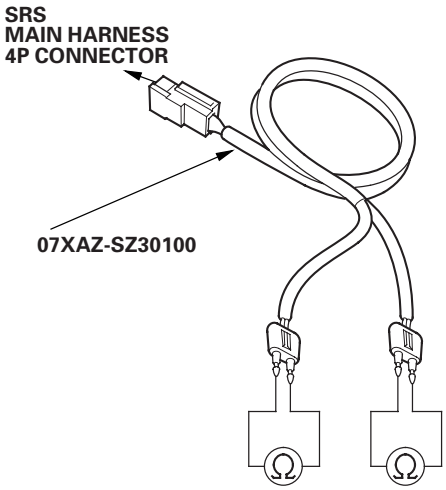


11. Disconnect the SRS inflator simulator from the SRS simulator lead F.
12. Connect the special tool (070AZ-SAA0100) to No. 9 and No. 10 terminals or No. 3 and No. 4 terminals of SRS unit connector A (28P) (see page 23-26).

(cont'd)

DTC Troubleshooting (cont'd)

13. Check resistance between the terminals of the SRS simulator lead F. There should be an open circuit, or at least 1 MΩ.

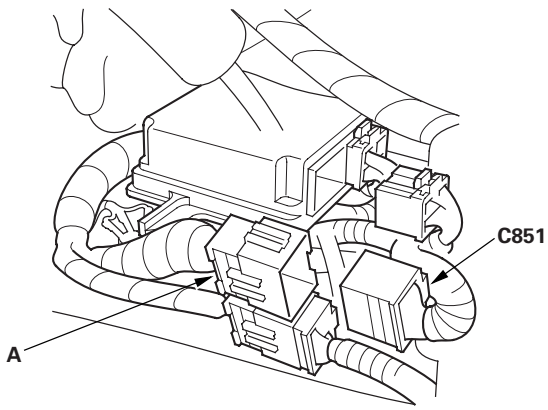


Is the resistance as specified?

YES — Replace the SRS unit (see page 23-384). ■

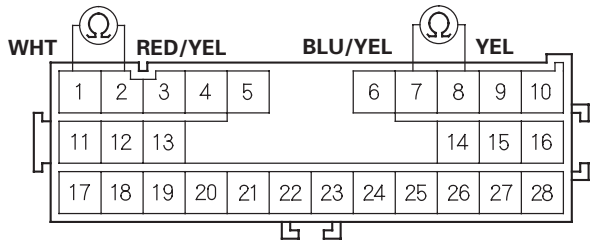
NO — Go to step 14.

14. Disconnect the SRS floor harness 28P connector (A) from SRS main harness connector C851.



15. Check resistance between the No. 7 and No. 8 terminals and between the No. 1 and No. 2 terminals of the SRS floor harness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR HARNESS 28P CONNECTOR



Terminal side of male terminals

Is the resistance as specified?

YES — Short in the SRS main harness; replace the SRS main harness. ■

NO — Short in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 12-8x (12-80 to 12-89, 12-8A to 12-8F): Short to Power in Front Passenger's Airbag First Inflator

DTC 12-Ax (12-A0 to 12-A9, 12-AA to 12-AF): Short to Power in Front Passenger's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

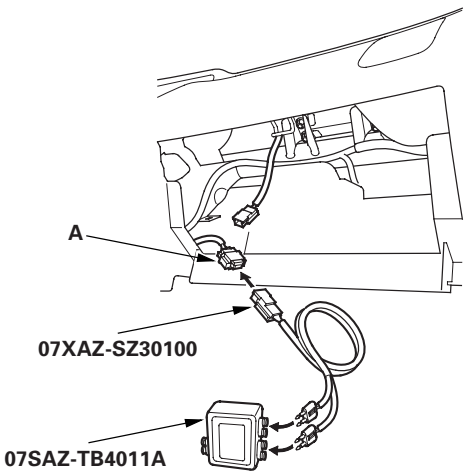
   Does the SRS indicator stay on?

   YES – Go to step 3.

   NO – Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the front passenger's airbag 4P connector from the dashboard wire harness (A).



5. Connect the special tool (2 Ω connectors) to the SRS main harness 4P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-38).

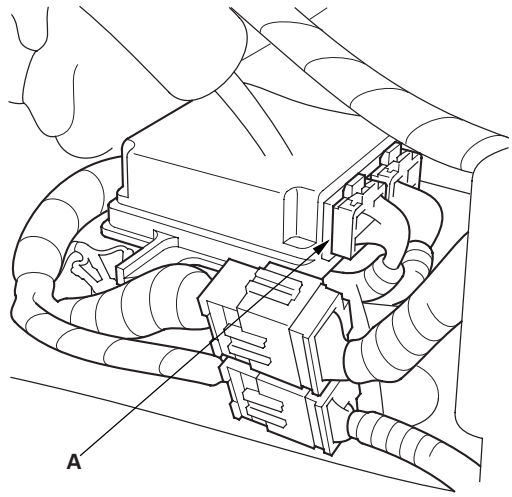
   Is DTC 12-8x or 12-Ax indicated?

   YES – Go to step 9.

   NO – Short to power in the front passenger's airbag first or second inflator; replace the front passenger's airbag (see page 23-370). ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect SRS unit connector A (28P) from the SRS unit.



11. Reconnect the battery negative cable.

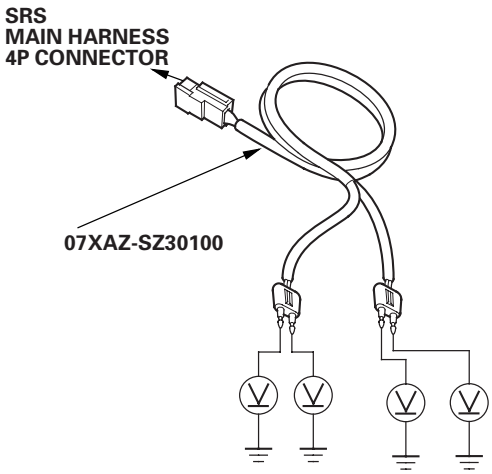
12. Disconnect the SRS inflator simulator from SRS simulator lead F.

13. Turn the ignition switch ON (II).

(cont'd)

DTC Troubleshooting (cont'd)

14. Check for voltage between each terminal of SRS simulator lead F and body ground. There should be 0.5 V or less.



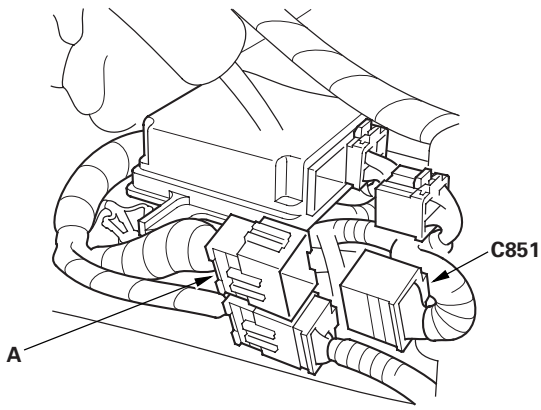
Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO—Go to step 15.

15. Turn the ignition switch OFF.

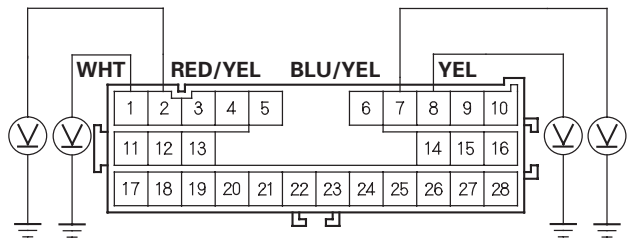
16. Disconnect the SRS floor harness 28P connector (A) from SRS main harness connector C851.



17. Turn the ignition switch ON (II).

18. Check for voltage between the No. 7 terminal of the SRS floor harness 28P connector and body ground, the No. 8 terminal and body ground, the No. 1 terminal and body ground, and the No. 2 terminal and body ground, There should be 0.5 V or less.

SRS FLOOR HARNESS 28P CONNECTOR



Terminal side of male terminals

Is the voltage as specified?

YES—Short to power in the SRS main harness; replace the SRS main harness. ■

NO—Short to power in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 12-9x (12-90 to 12-99, 12-9A to 12-9F): Short to Ground in Front Passenger's First Inflator

DTC 12-Bx (12-B0 to 12-B9, 12-BA to 12-BF): Short to Ground in Front Passenger's Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

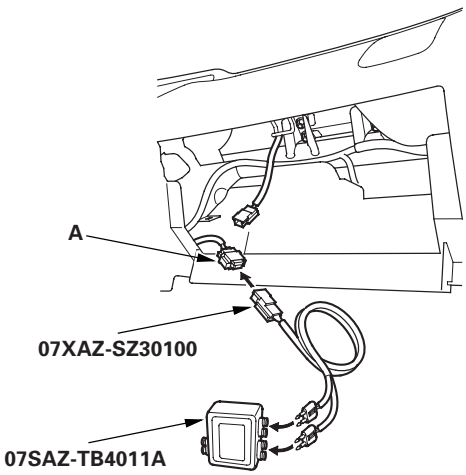
   Does the SRS indicator stay on?

   YES – Go to step 3.

   NO – Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the front passenger's airbag 4P connector from the SRS main harness (A).



5. Connect the special tool (2 Ω connectors) to the SRS main harness 4P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-38).

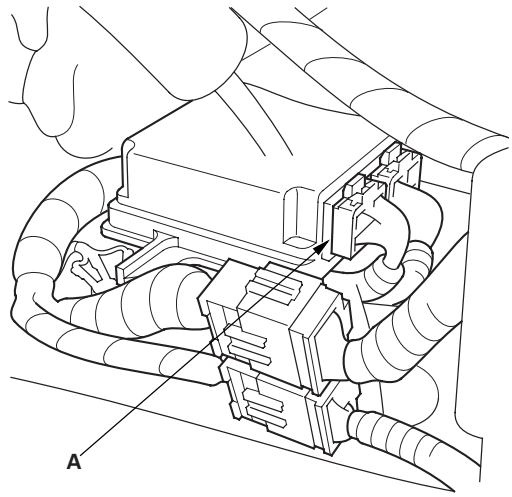
   Is DTC 12-9x or 12-Bx indicated?

   YES – Go to step 9.

   NO – Short to ground in the front passenger's airbag first or second inflator; replace the front passenger's airbag (see page 23-370). ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect SRS unit connector A (28P) from the SRS unit.

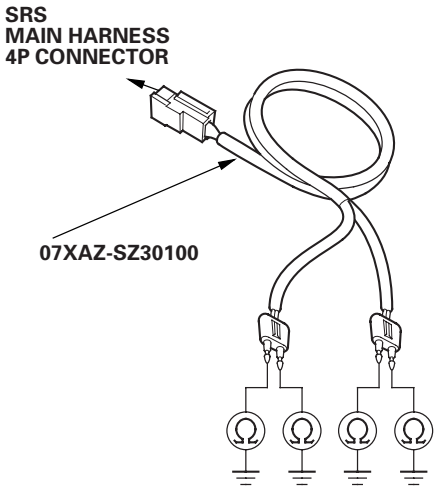


11. Disconnect the SRS inflator simulator from SRS simulator lead F.

(cont'd)

DTC Troubleshooting (cont'd)

12. Check resistance between each terminal of SRS simulator lead F and body ground. There should be an open circuit, or at least 1 MΩ.

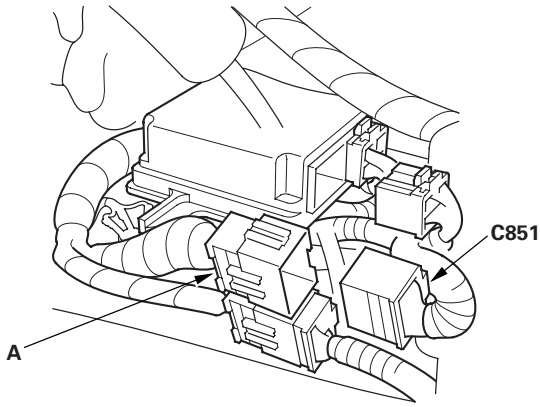


Is the resistance as specified?

YES — Faulty SRS unit; replace the SRS unit (see page 23-384). ■

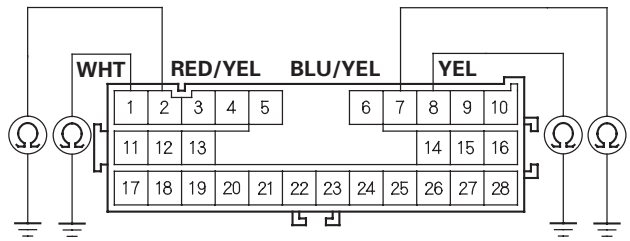
NO — Go to step 13.

13. Disconnect the SRS floor harness 28P connector (A) from SRS main harness connector C851.



14. Check resistance between the No. 7 terminal of the SRS floor harness 28P connector and body ground, the No. 8 terminal and body ground, the No. 1 terminal and body ground, and the No. 2 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR HARNESS 28P CONNECTOR



Terminal side of male terminals

Is the resistance as specified?

YES — Replace the SRS main harness. ■

NO — Replace the SRS floor harness. ■

'03-04 Models

DTC 21-1x (21-10 to 21-19, 21-1A to 21-1F): Open or Increased Resistance in Driver's Seat Belt Tensioner

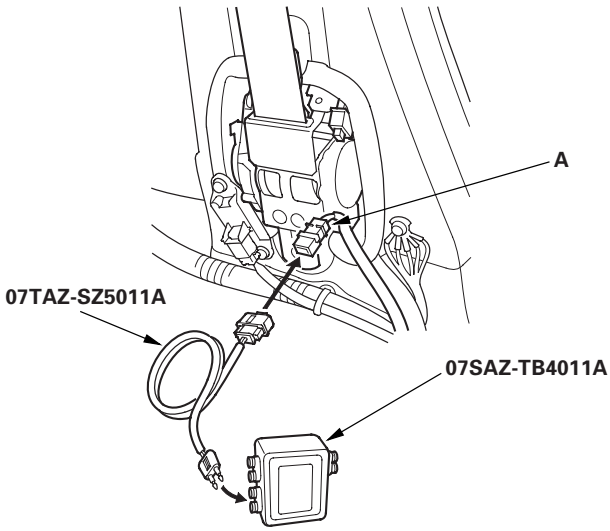
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-38).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the left side wire harness (A).

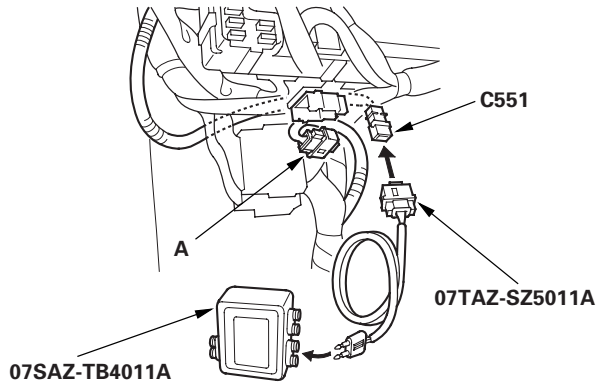


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 21-1x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C551 from the left side wire harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 21-1x indicated?

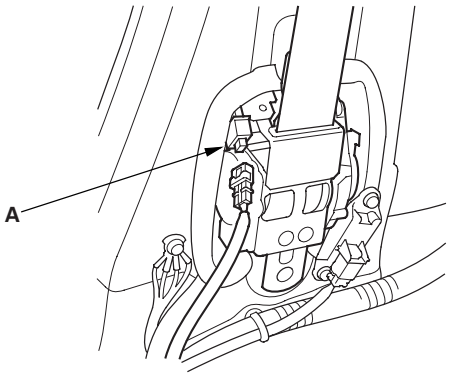
    YES—Go to step 15.

    NO—Open or increased resistance in the left side wire harness; replace the left side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

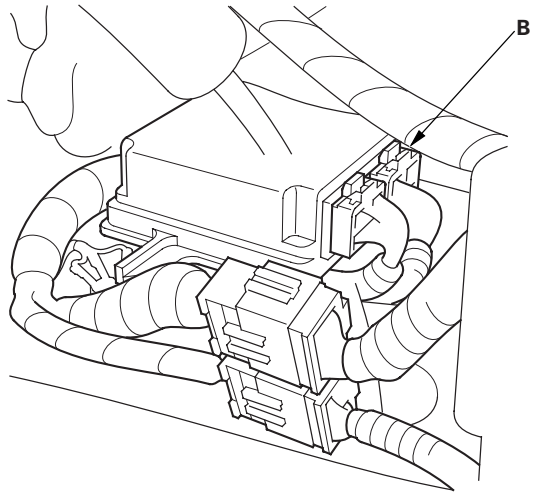
(cont'd)

DTC Troubleshooting (cont'd)

16. Disconnect the front passenger's seat belt tensioner connector (A).

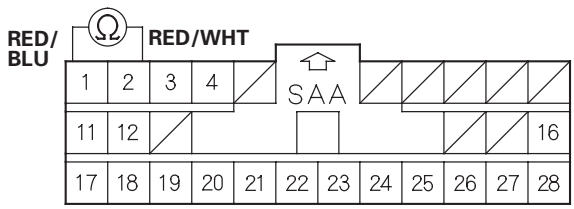


17. Disconnect SRS unit connector B (28P) from the SRS unit. Do not disconnect the special tool from the SRS main harness 2P connector.



18. Check resistance between the No. 1 terminal and the No. 2 terminal of SRS unit connector B (28P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR B (28P)



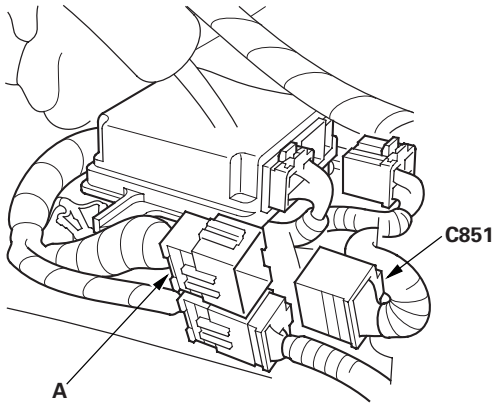
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at SRS unit connector B (28P). Check the connection; if the connection is OK, replace the SRS unit (see page 23-384). ■

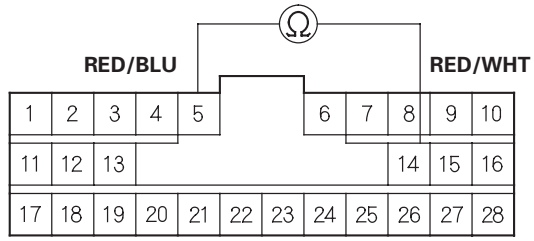
NO—Go to step 19.

19. Disconnect the SRS floor harness 28P connector (A) from SRS main harness connector C851.



20. Check resistance between the No. 5 and No. 14 terminals of the SRS main harness 28P connector. There should be 2.0—3.0 Ω.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Open or increased resistance in the SRS floor harness; replace the SRS floor harness. ■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 21-3x (21-30 to 21-39, 21-3A to 21-3F): Short to Another Wire or Decreased Resistance in Driver's Seat Belt Tensioner

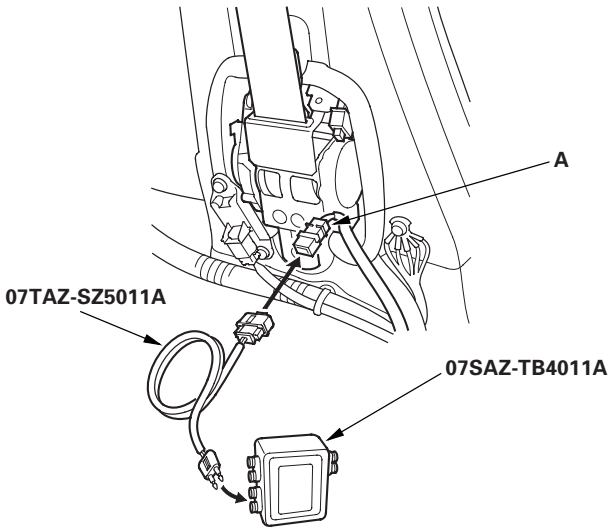
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES – Go to step 3.

   NO – Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the left side wire harness (A).

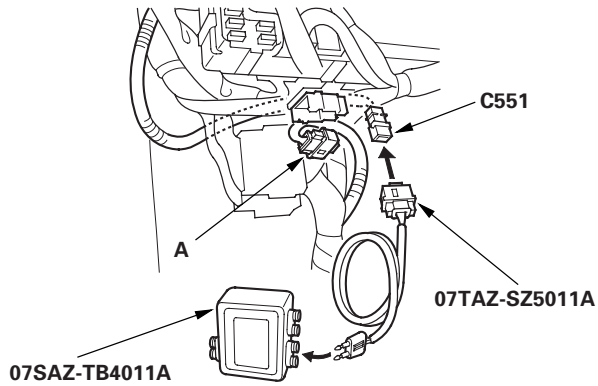


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 21-3x indicated?

   YES – Go to step 9.

   NO – Short in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C551 from the left side wire harness 2P connector (A).



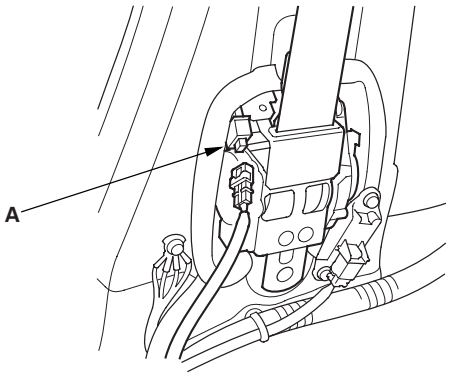
11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 21-3x indicated?

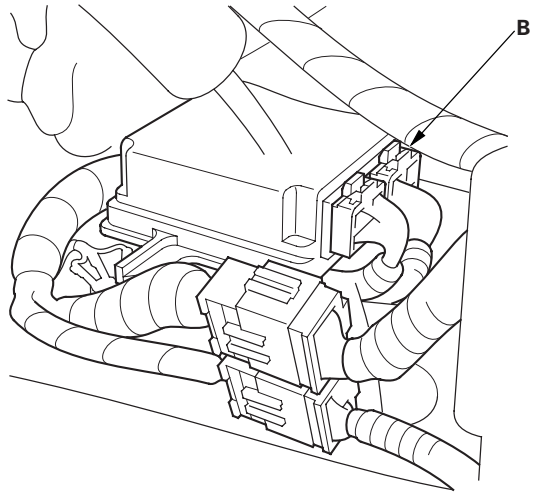
    YES – Go to step 15.

    NO – Short in the left side wire harness; replace the left side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

16. Disconnect the front passenger's seat belt tensioner connector (A).



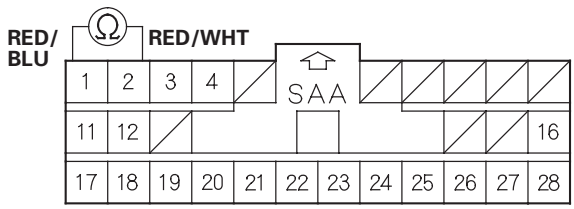
17. Disconnect SRS unit connector B (28P) from the SRS unit.



18. Disconnect the special tool from the SRS main harness 2P connector.

19. Check resistance between the No. 1 terminal and No. 2 terminals of SRS unit connector B (28P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

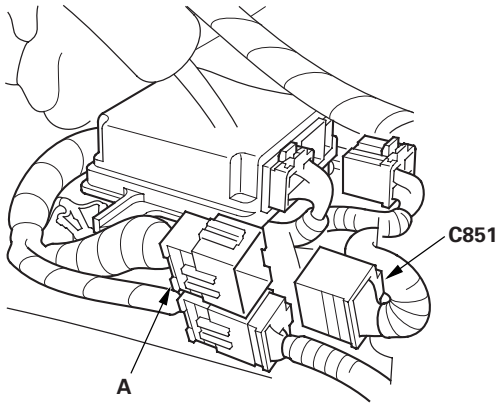
YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO—Go to step 20.

(cont'd)

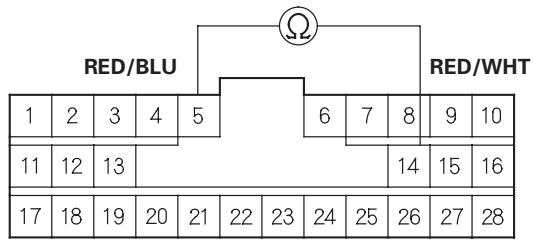
DTC Troubleshooting (cont'd)

20. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



21. Check resistance between the No. 5 and No. 14 terminals of the SRS main harness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short in the SRS floor harness; replace the SRS floor harness. ■

NO—Short in the SRS main harness; replace the SRS main harness. ■

'03-04 Models

DTC 21-8x (21-80 to 21-89, 21-8A to 21-8F): Short to Power in Driver's Seat Belt Tensioner

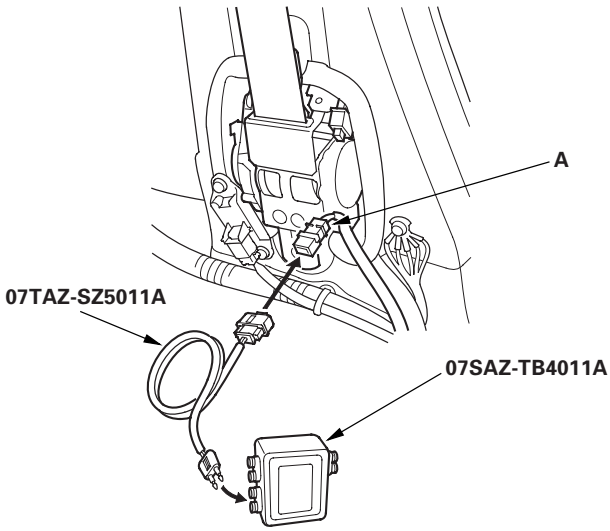
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the left side wire harness (A).

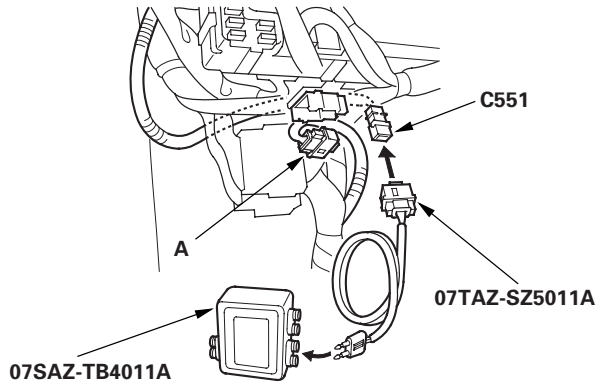


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 21-8x indicated?

   YES—Go to step 9.

   NO—Short to power in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C551 from the left side wire harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 21-8x indicated?

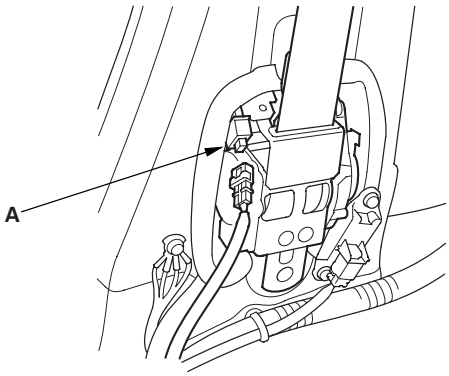
    YES—Go to step 15.

    NO—Short to power in the left side wire harness; replace the left side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

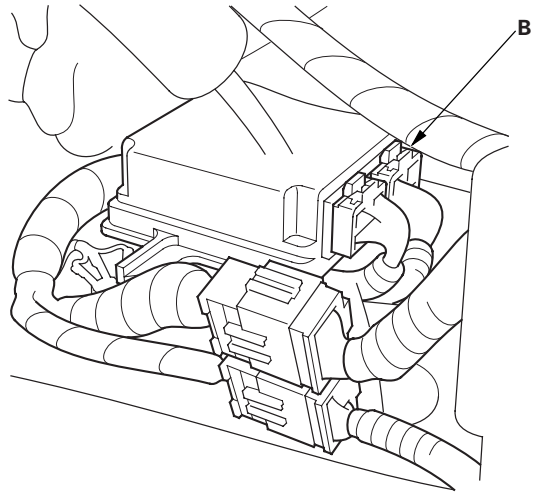
(cont'd)

DTC Troubleshooting (cont'd)

16. Disconnect the front passenger's seat belt tensioner connector (A).



17. Disconnect SRS unit connector B (28P) from the SRS unit.



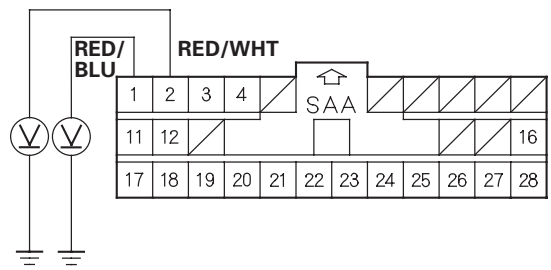
18. Disconnect the special tool from the SRS main harness 2P connector.

19. Reconnect the battery negative cable.

20. Turn the ignition switch ON (II).

21. Check for voltage between the No. 1 terminal of SRS unit connector B (28P) and body ground, and between the No. 2 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

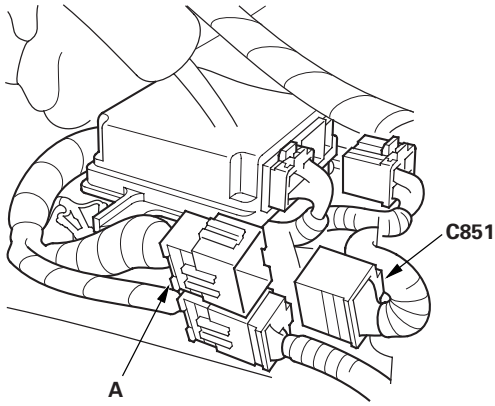
Is the voltage as specified?

YES — Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO — Go to step 22.

22. Turn the ignition switch OFF.

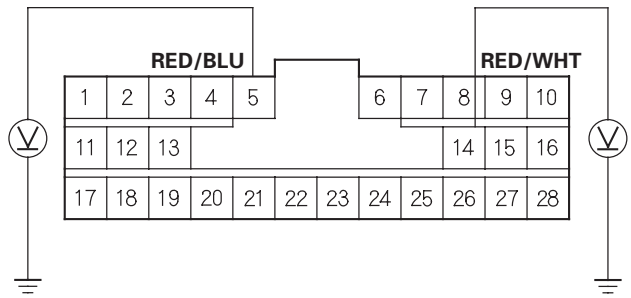
23. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



24. Turn the ignition switch ON (II).

25. Check for voltage between the No. 5 terminal of the SRS main harness 28P connector and body ground, and between the No. 14 terminal and body ground. There should be 0.5 V or less.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the voltage as specified?

YES—Short to power in the SRS floor harness; replace the SRS floor harness. ■

NO—Short to power in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 21-9x (21-90 to 21-99, 21-9A to 21-9F): Short to Ground in Driver's Seat Belt Tensioner

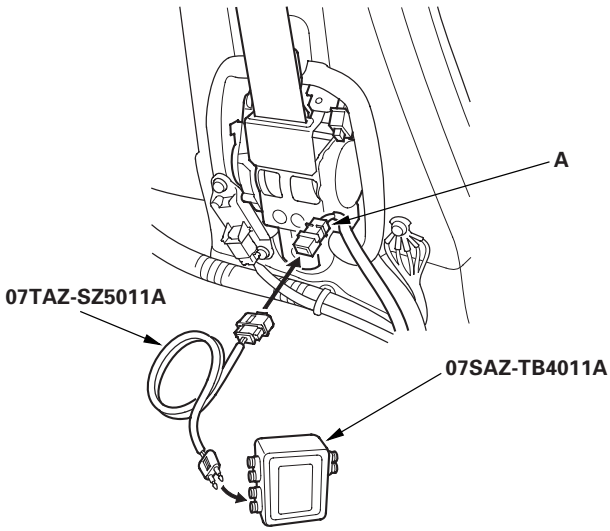
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the left side wire harness (A).

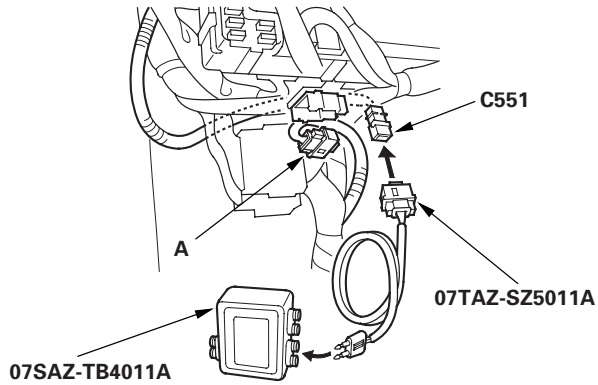


5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 21-9x indicated?

   YES—Go to step 9.

   NO—Short to ground in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-4).■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C551 from the left side wire harness 2P connector (A).



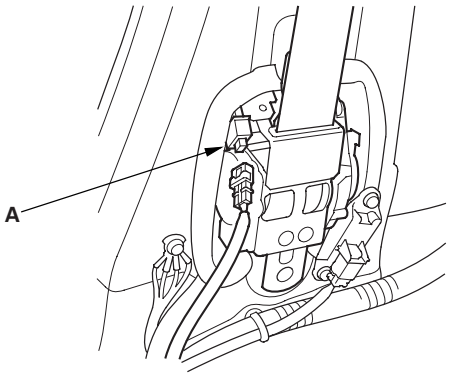
11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 21-9x indicated?

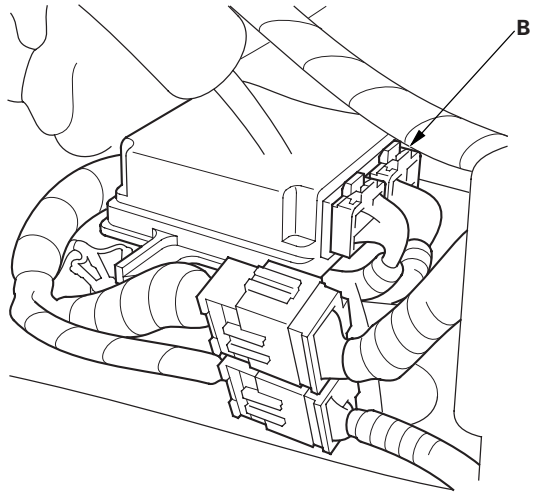
    YES—Go to step 15.

    NO—Short to ground in the left side wire harness; replace the left side wire harness.■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

16. Disconnect the front passenger's seat belt tensioner connector (A).



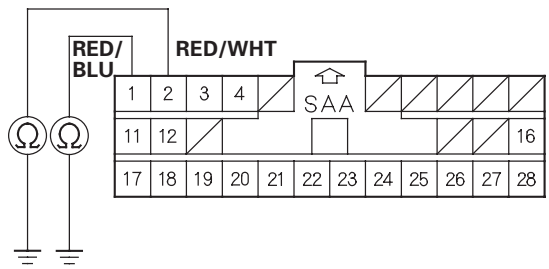
17. Disconnect SRS unit connector B (28P) from the SRS unit.



18. Disconnect the special tool from the SRS main harness 2P connector.

19. Check resistance between the No. 1 terminal of SRS unit connector B (28P) and body ground, and between the No. 2 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

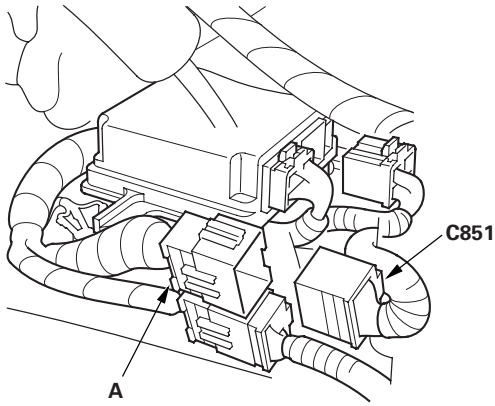
YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO—Go to step 20.

(cont'd)

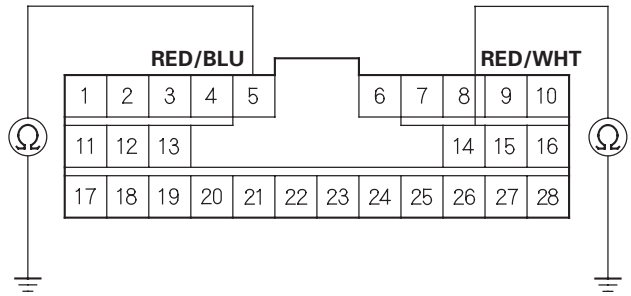
DTC Troubleshooting (cont'd)

20. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



21. Check resistance between the No. 5 terminal of the SRS main harness 28P connector and body ground, and between the No. 14 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Replace the SRS floor harness. ■

NO—Replace the SRS main harness. ■

'03-04 Models

DTC 22-1x (22-10 to 22-19, 22-1A to 22-1F): Open or Increase Resistance in Front Passenger's Seat Belt Tensioner

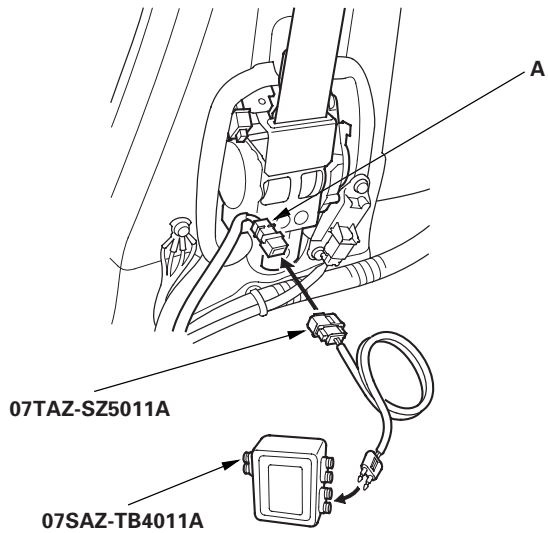
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's seat belt tensioner 2P connector from the right side wire harness (A).

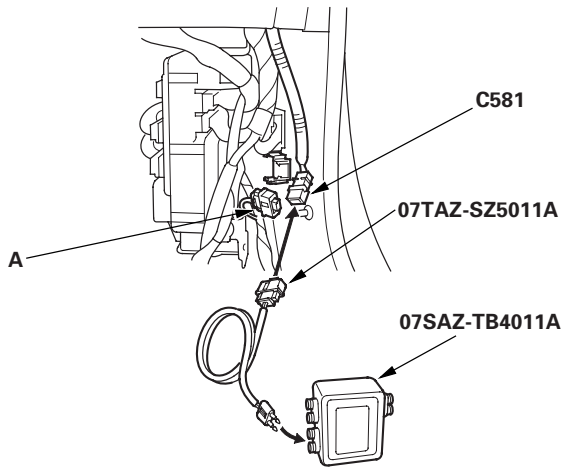


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 22-1x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C581 from the right side wire harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 22-1x indicated?

    YES—Go to step 15.

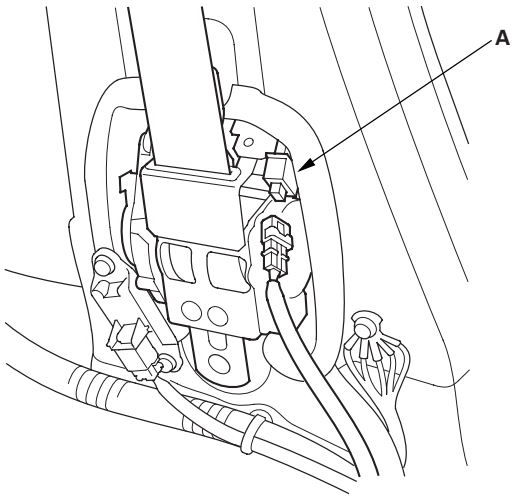
    NO—Open or increased resistance in the right side wire harness; replace the right side wire harness. ■

(cont'd)

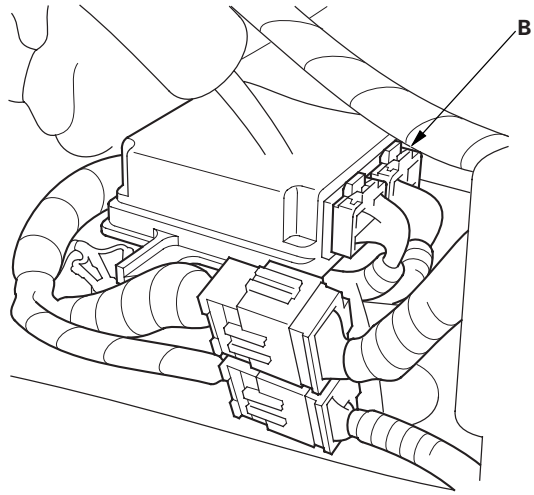
DTC Troubleshooting (cont'd)

15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

16. Disconnect the driver's seat belt tensioner connector (A).

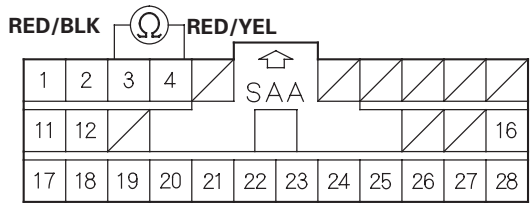


17. Disconnect SRS unit connector B (28P) from the SRS unit. Do not disconnect the special tool from the SRS main harness 2P connector.



18. Check resistance between the No. 3 and No. 4 terminals of SRS unit connector B (28P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR B (28P)



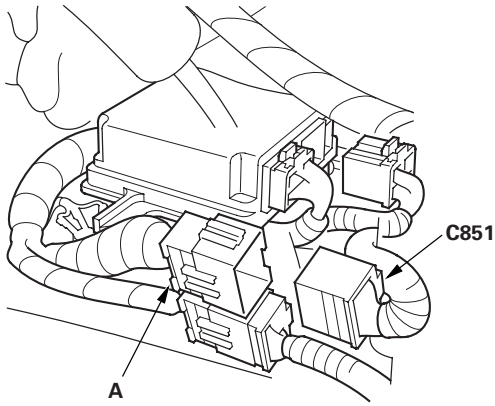
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor contact at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-384). ■

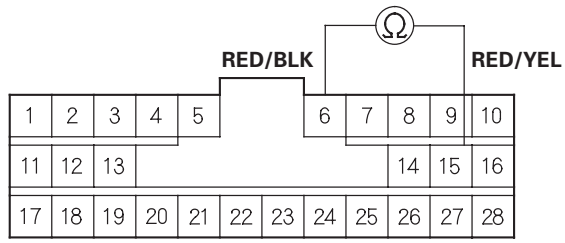
NO—Go to step 19.

19. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



20. Check resistance between the No. 6 and No. 15 terminals of the SRS main harness 28P connector. There should be 2.0—3.0 Ω.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Open or increased resistance in the SRS floor harness; replace the SRS floor harness. ■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 22-3x (22-30 to 22-39, 22-3A to 22-3F): Short to Another Wire or Decreased Resistance in Front Passenger's Seat Belt Tensioner

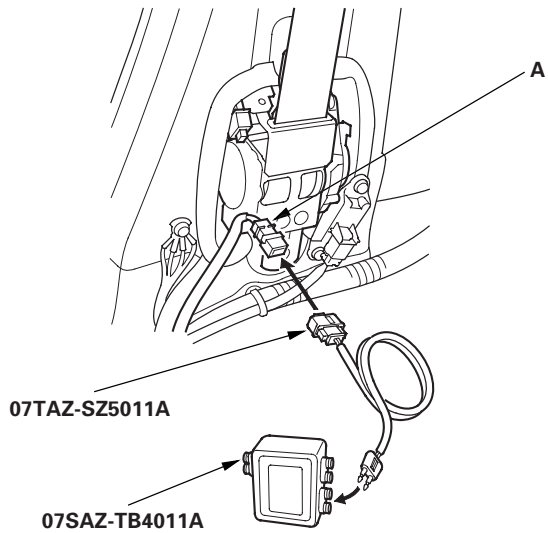
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's seat belt tensioner 2P connector from the right side wire harness(A).

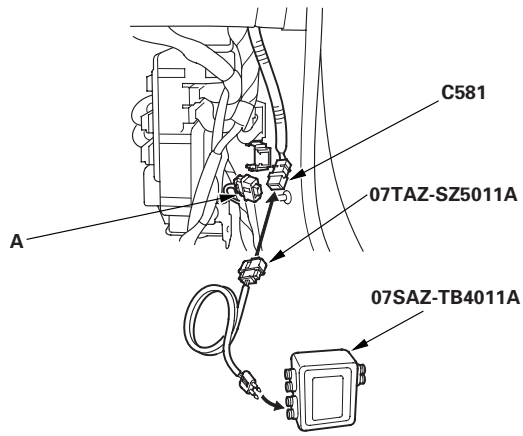


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 22-3x indicated?

   YES—Go to step 9.

   NO—Short in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main wire harness 2P connector C581 from the right side wire harness 2P connector (A).



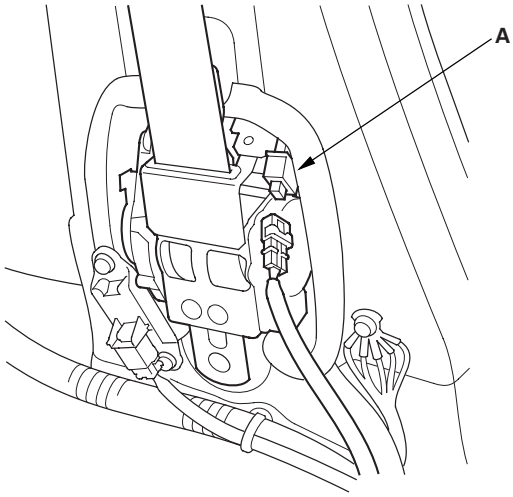
11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 22-3x indicated?

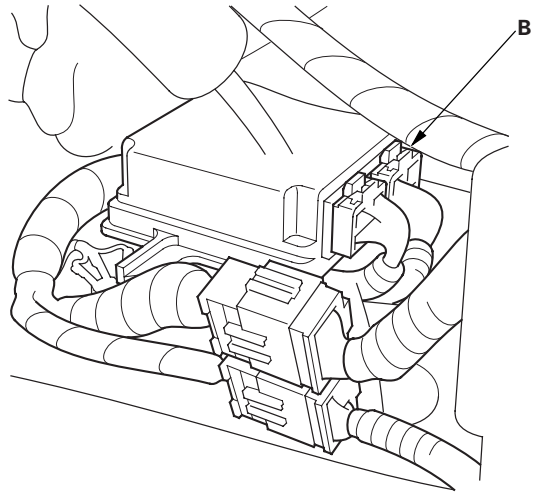
    YES—Go to step 15.

    NO—Short in the right side wire harness; replace the right side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

16. Disconnect the driver's seat belt tensioner connector (A).



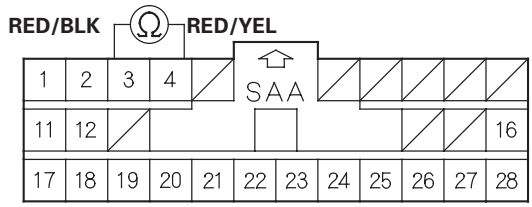
17. Disconnect SRS unit connector B (28P) from the SRS unit.



18. Disconnect the special tool from the SRS main harness 2P connector.

19. Check resistance between the No. 3 and No. 4 terminals of SRS unit connector B (28P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

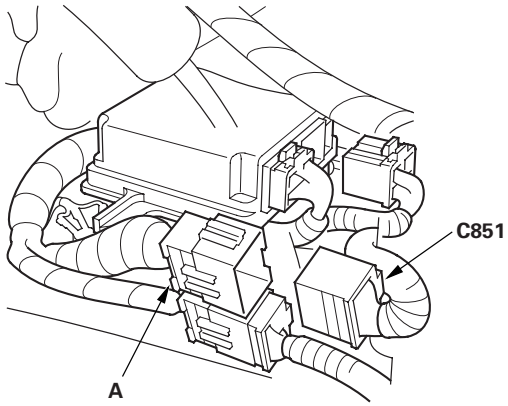
YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO—Go to step 20.

(cont'd)

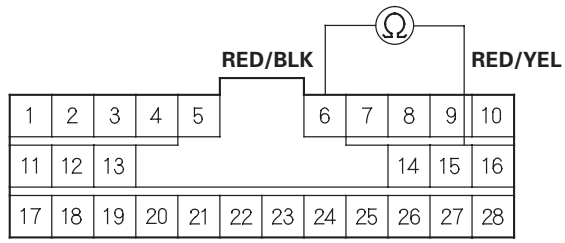
DTC Troubleshooting (cont'd)

20. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



21. Check resistance between the No. 6 and No. 15 terminals of the SRS main harness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short in the SRS floor harness; replace the SRS floor harness. ■

NO—Short in the SRS main harness; replace the SRS main harness. ■

'03-04 Models

DTC 22-8x (22-80 to 22-89, 22-8A to 22-8F): Short to Power in Front Passenger's Seat Belt Tensioner

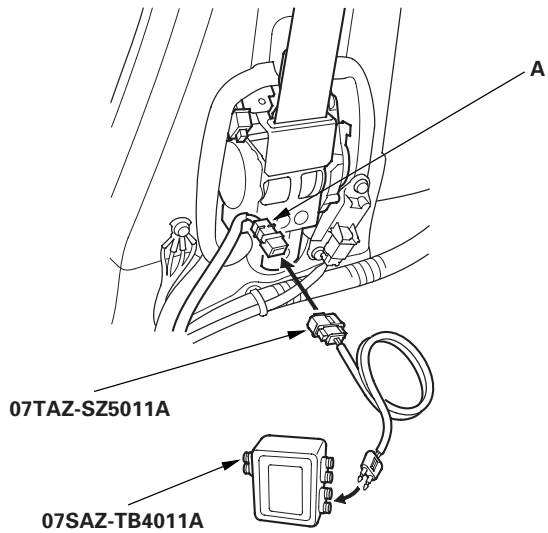
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's seat belt tensioner 2P connector from the right side wire harness (A).

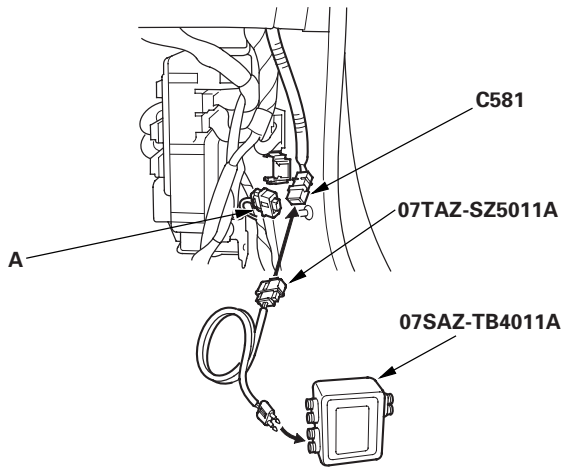


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 22-8x indicated?

   YES—Go to step 9.

   NO—Short to power in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C581 from the right side wire harness 2P connector (A).



11. Connect the special tool (2 Ω connector) to the SRS main harness 2P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 22-8x indicated?

    YES—Go to step 15.

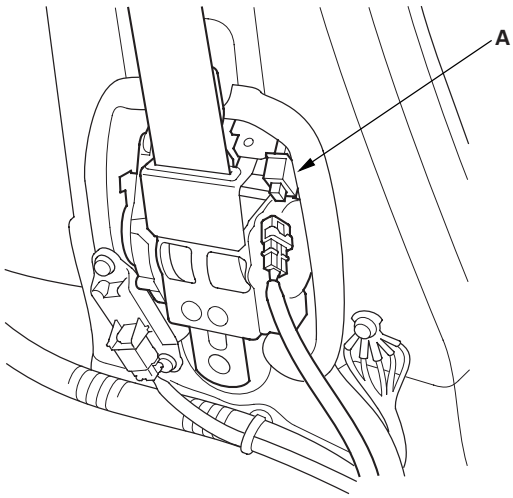
    NO—Short to power in the right side wire harness; replace the right side wire harness. ■

(cont'd)

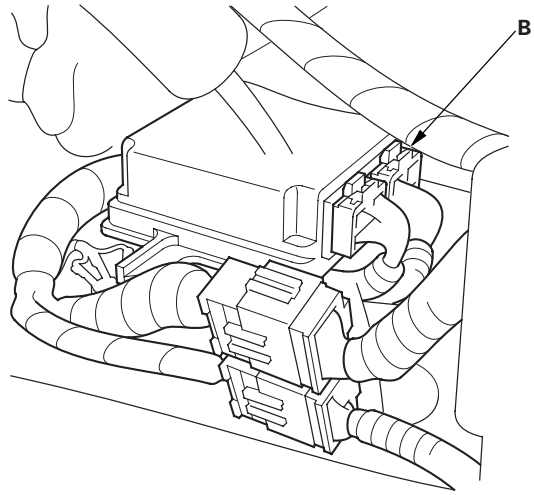
DTC Troubleshooting (cont'd)

15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

16. Disconnect the driver's seat belt tensioner connector (A).



17. Disconnect SRS unit connector B (28P) from the SRS unit.



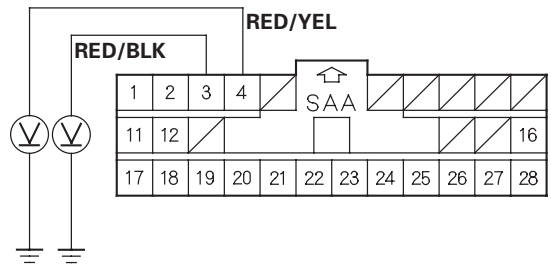
18. Disconnect the special tool from the SRS main harness 2P connector.

19. Reconnect the battery negative cable.

20. Turn the ignition switch ON (II).

21. Check for voltage between the No. 3 terminal of SRS unit connector B (28P) and body ground, and between the No. 4 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

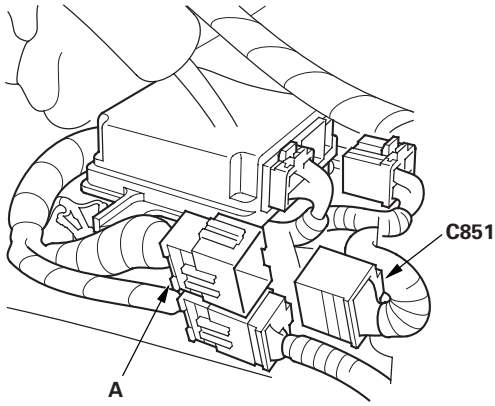
Is the voltage as specified?

YES — Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO — Go to step 22.

22. Turn the ignition switch OFF.

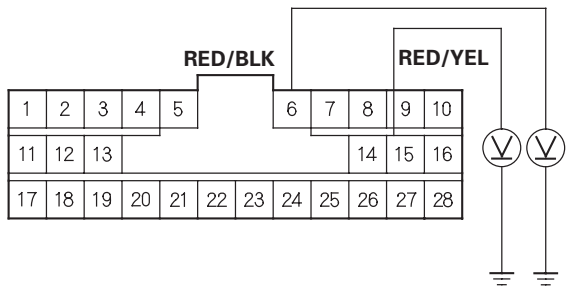
23. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



24. Turn the ignition switch ON (II).

25. Check for voltage between the No. 6 terminal of the SRS main harness 28P connector and body ground, and between the No. 15 terminal and body ground. There should be 0.5 V or less.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the voltage as specified?

YES—Short to power in the SRS floor harness; replace the SRS floor harness. ■

NO—Short to power in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 22-9x (22-90 to 22-99, 22-9A to 22-9F): Short to Ground in Front Passenger's Seat Belt Tensioner

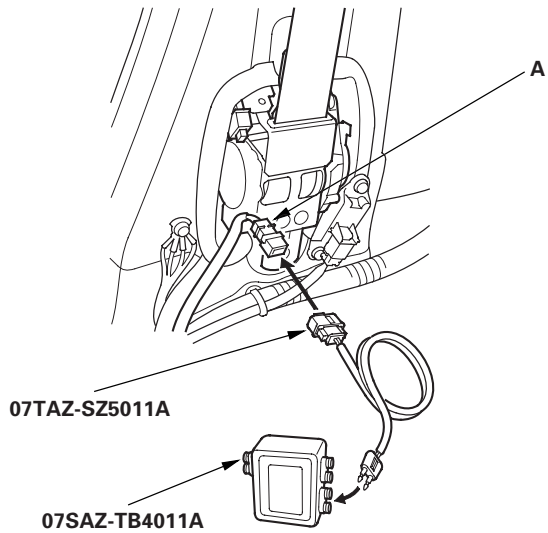
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the front passenger's seat belt tensioner 2P connector from the right side wire harness (A).

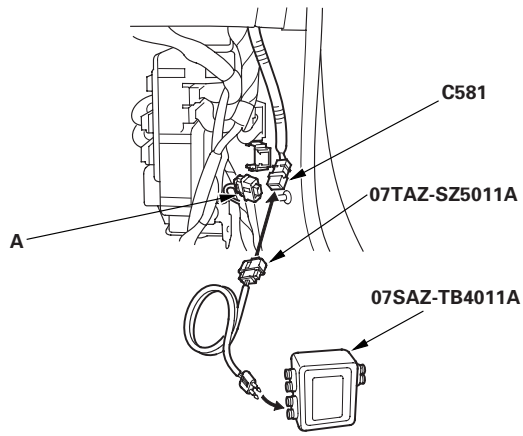


5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 22-9x indicated?

   YES — Go to step 9.

   NO — Short to ground in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 23-4). ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
10. Disconnect the SRS main harness 2P connector C581 from the right side wire harness 2P connector (A).



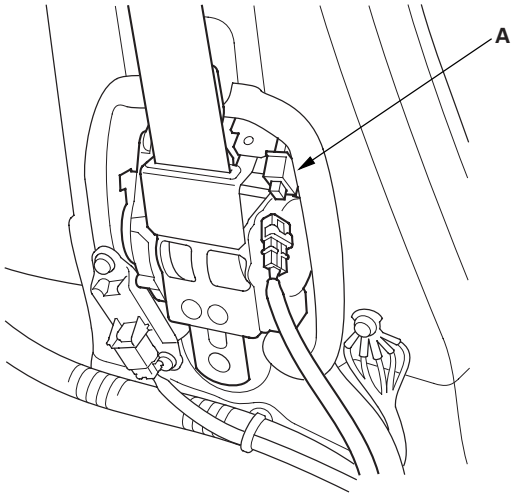
11. Connect the special tool (2 Ω connector) to the SRS main harness 4P connector.
12. Reconnect the battery negative cable.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 21-9x indicated?

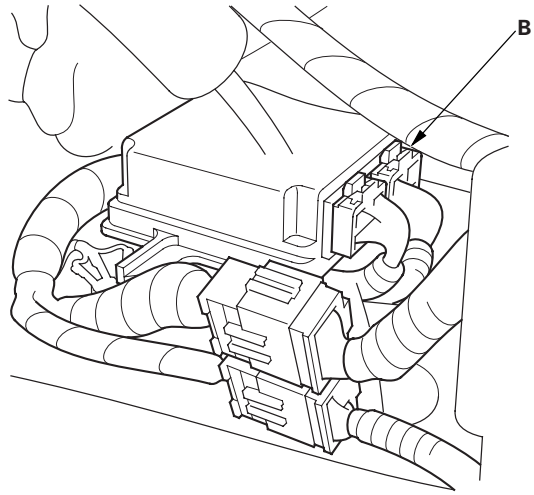
    YES — Go to step 15.

    NO — Short to ground in the right side wire harness; replace the right side wire harness. ■
15. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

16. Disconnect the driver's seat belt tensioner connector (A).



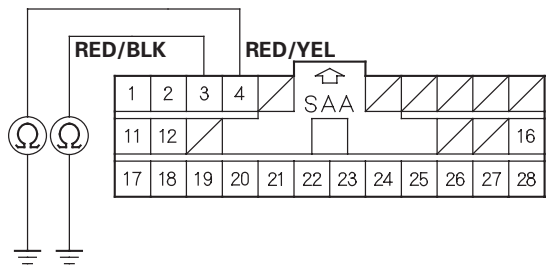
17. Disconnect SRS unit connector B (28P) from the SRS unit.



18. Disconnect the special tool from the SRS main harness 2P connector.

19. Check resistance between the No. 3 terminal of SRS unit connector B (28P) and body ground, and between the No. 4 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

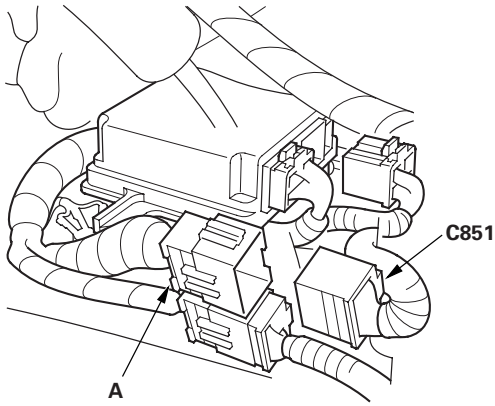
YES—Faulty SRS unit; replace the SRS unit (see page 23-384).■

NO—Go to step 20.

(cont'd)

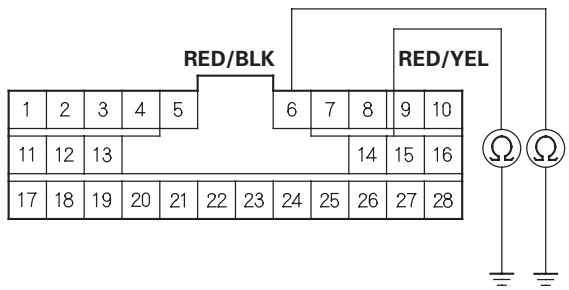
DTC Troubleshooting (cont'd)

20. Disconnect SRS floor harness 28P connector (A) from the SRS main harness 28P connector C851.



21. Check resistance between the No. 6 terminal of the SRS main harness 28P connector and body ground, and between the No. 15 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Replace the SRS floor harness. ■

NO—Replace the SRS main harness. ■

'03-04 Models

DTC 31-1x (31-10 to 31-19, 31-1A to 31-1F): Open or Increased Resistance in Driver's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

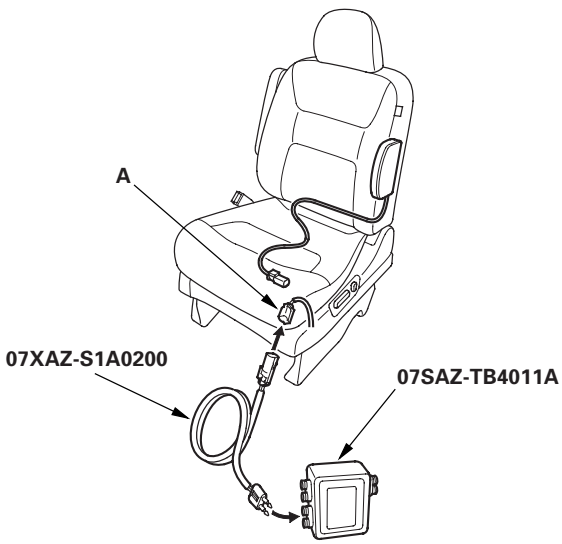
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the left side wire harness 2P connector (A) from the driver's side airbag.



5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-38).

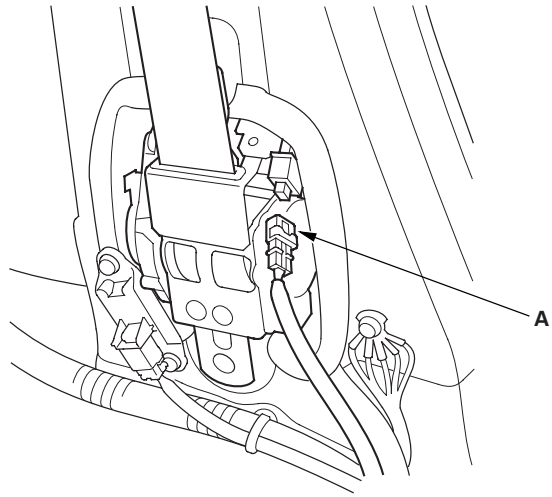
   Is DTC 31-1x indicated?

   YES—Go to step 9.

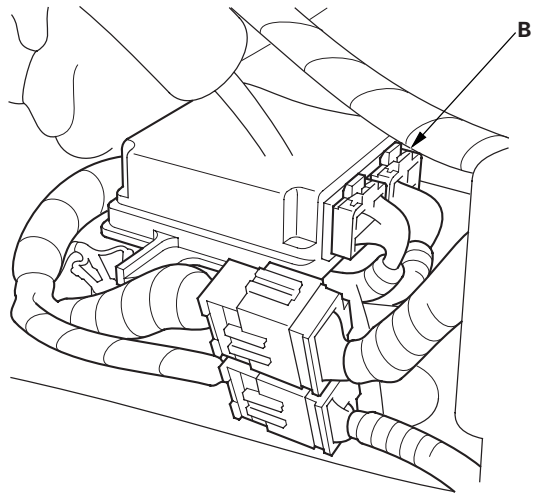
   NO—Open or increased resistance in the driver's side airbag inflator; replace the driver's side airbag (see page 23-372).■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors from the side wire harness (A).



11. Disconnect SRS unit connector B (28P) from the SRS unit. Do not disconnect the special tool from the left side wire harness 2P connector.



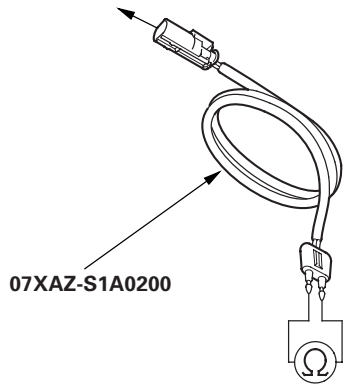
(cont'd)

DTC Troubleshooting (cont'd)

12. Disconnect the SRS inflator simulator from SRS simulator lead E.

13. Check resistance between the terminals of SRS simulator lead E. There should be 1.0 Ω or less.

LEFT SIDE WIRE HARNESS 2P CONNECTOR

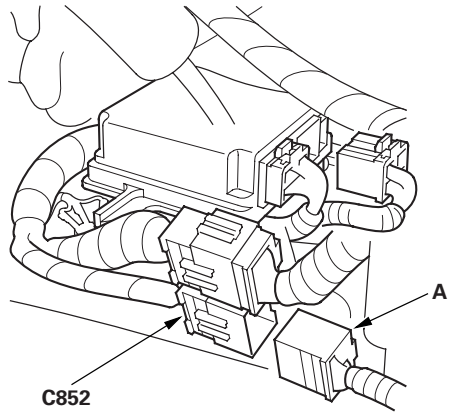


Is the resistance as specified?

YES—Faulty SRS unit or poor contact at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-384). ■

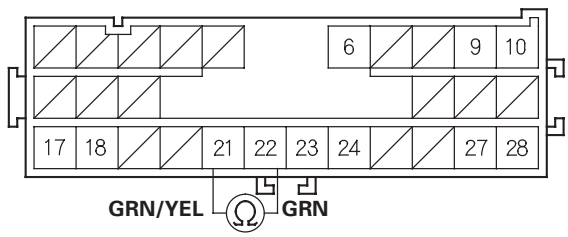
NO—Go to step 14.

14. Disconnect the SRS floor harness 28P connector (A) from SRS floor subharness C852.



15. Check resistance between the No. 21 and No. 22 terminals of the SRS floor harness 28P connector. There should be 1.0 Ω or less.

SRS FLOOR HARNESS 28P CONNECTOR



Terminal side of male terminals

Is the resistance as specified?

YES—Open or increased resistance in the SRS floor subharness or left side wire harness; replace the faulty harness. ■

NO—Open or increased resistance in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 31-3x (31-30 to 31-39, 31-3A to 31-3F): Short to Another Wire or Decreased Resistance in Driver's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200
- SRS short canceler 070AZ-SAA0100

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

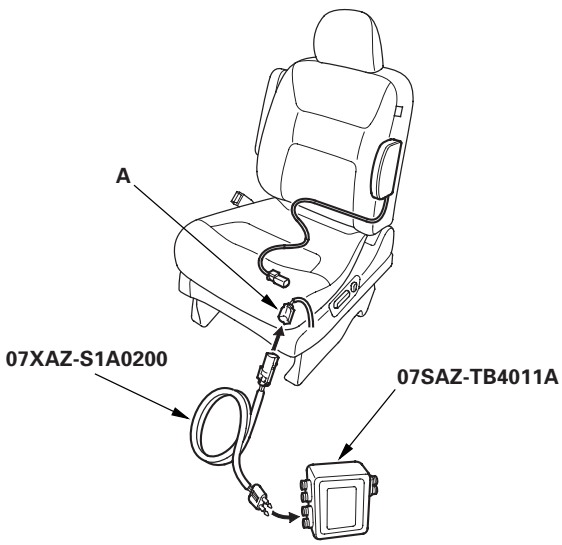
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the left side wire harness 2P connector (A) from the driver's side airbag.



5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-38).

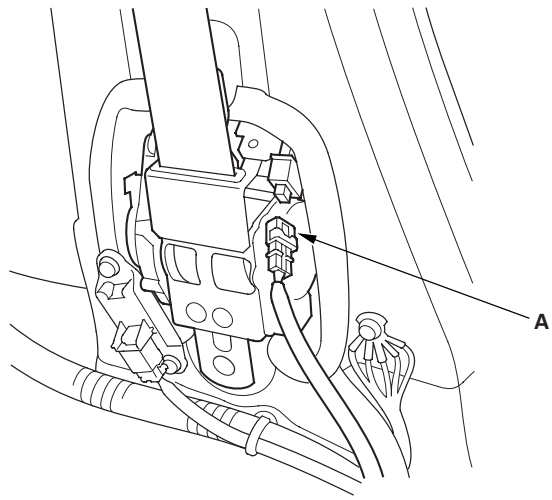
   Is DTC 31-3x indicated?

   YES—Go to step 9.

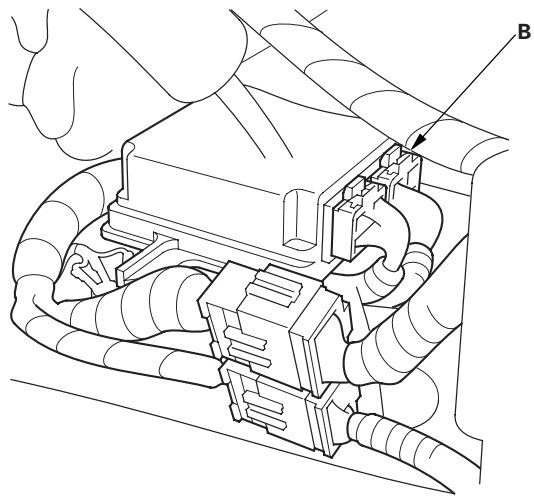
   NO—Short to another wire in the driver's side airbag inflator; replace the driver's side airbag. ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors from the side wire harness (A).



11. Disconnect SRS unit connector B (28P) from the SRS unit.



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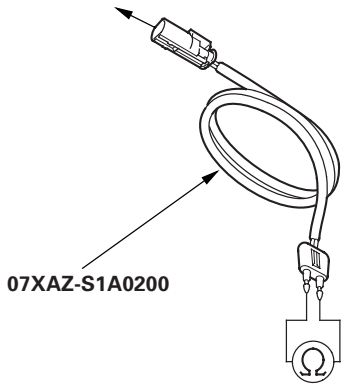
DTC Troubleshooting (cont'd)

12. Disconnect the SRS inflator simulator from SRS simulator lead E.

13. Connect the special tool (070AZ-SAA0100) to No. 21 and No. 22 terminals of SRS unit connector B (28P) (see page 23-26).

14. Check resistance between the terminals of SRS simulator lead E. There should be an open circuit, or at least 1 MΩ.

LEFT SIDE WIRE HARNESS 2P CONNECTOR

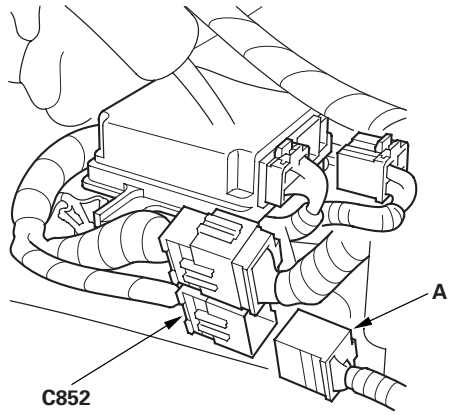


Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

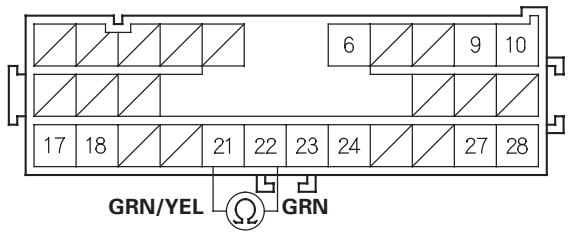
NO—Go to step 15.

15. Disconnect the SRS floor harness 28P connector (A) from SRS floor subharness C852.



16. Check resistance between the No. 21 and No. 22 terminals of the SRS floor harness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR HARNESS 28P CONNECTOR



Terminal side of male terminals

Is the resistance as specified?

YES—Short in the SRS floor subharness or left side wire harness; replace the faulty harness. ■

NO—Short in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 31-8x (31-80 to 31-89, 31-8A to 31-8F): Short to Power in Driver's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

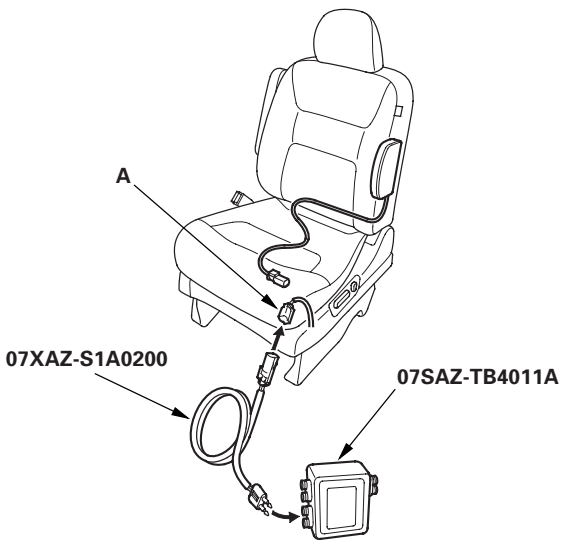
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the left side wire harness 2P connector (A) from the driver's side airbag.



5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-38).

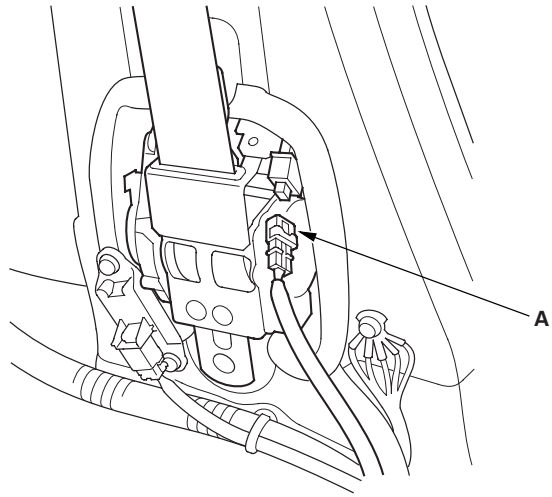
   Is DTC 31-8x indicated?

   YES—Go to step 9.

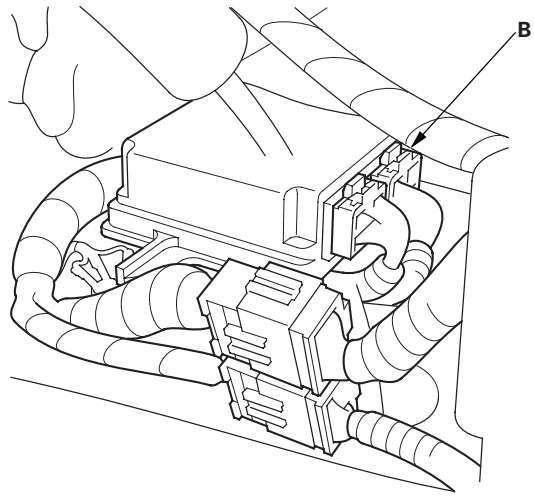
   NO—Short to power in the driver's side airbag inflator; replace the driver's side airbag (see page 23-372). ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors from the side wire harness (A).



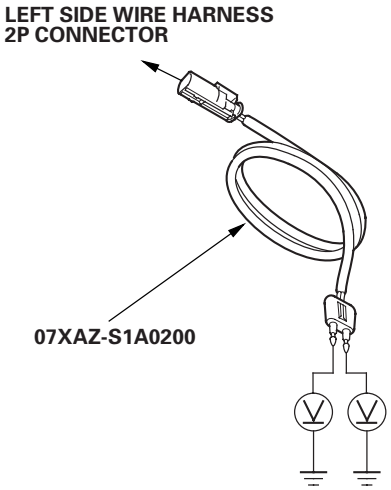
11. Disconnect SRS unit connector B (28P) from the SRS unit.



(cont'd)

DTC Troubleshooting (cont'd)

12. Reconnect the battery negative cable.
13. Disconnect the SRS inflator simulator from the SRS simulator lead E.
14. Turn the ignition switch ON (II).
15. Check for voltage between each terminal of SRS simulator lead E and body ground. There should be 0.5 V or less.

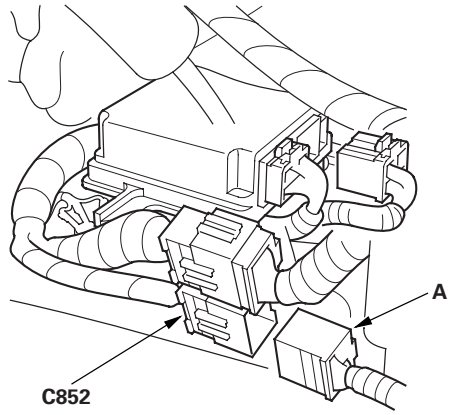


Is the voltage as specified?

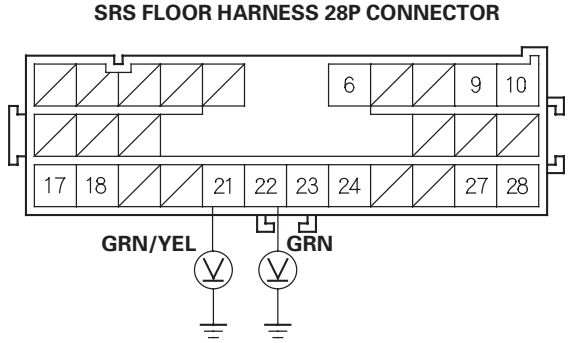
YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO—Go to step 16.

16. Turn the ignition switch OFF.
17. Disconnect the SRS floor harness 28P connector (A) from the SRS floor subharness C852.



18. Turn the ignition switch ON (II).
19. Check for voltage between the No. 21 terminal of the SRS floor harness 28P connector and body ground, and between the No. 22 terminal and body ground. There should be 0.5 V or less.



Terminal side of male terminals

Is the voltage as specified?

YES—Short to power in the SRS floor subharness or left side wire harness; replace the faulty harness. ■

NO—Short to power in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 31-9x (31-90 to 31-99, 31-9A to 31-9F): Short to Ground in Driver's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

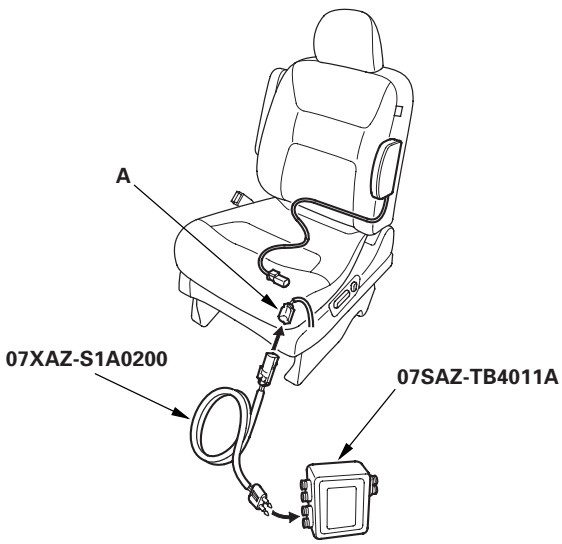
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the left side wire harness 2P connector (A) from the driver's side airbag.



5. Connect the special tool (2 Ω connector) to the left side wire harness 2P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-38).

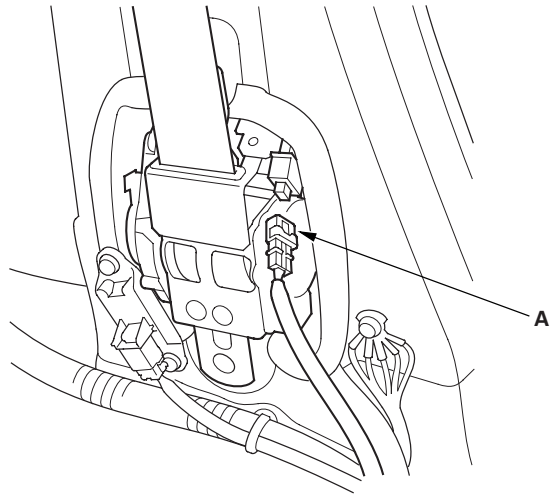
   Is DTC 31-9x indicated?

   YES—Go to step 9.

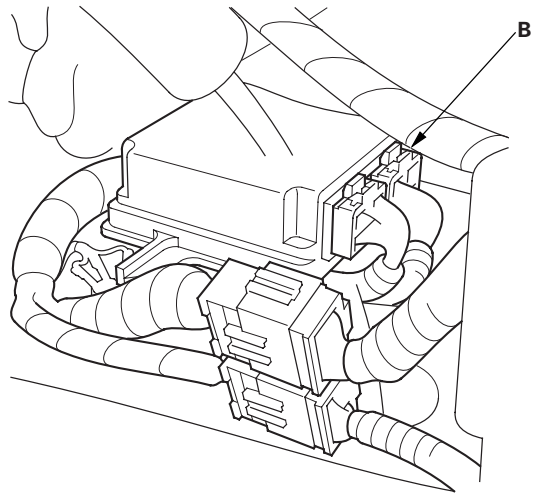
   NO—Short to ground in the driver's side airbag inflator; replace the driver's side airbag (see page 23-372). ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors from the side wire harness (A).



11. Disconnect SRS unit connector B (28P) from the SRS unit.

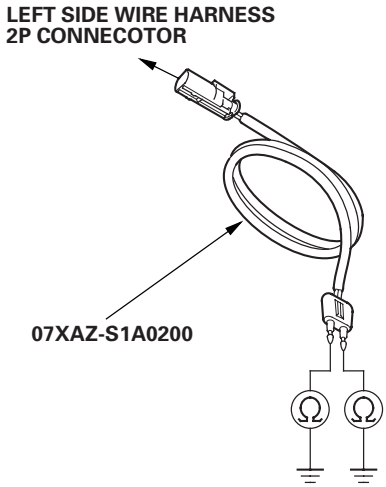


(cont'd)

DTC Troubleshooting (cont'd)

12. Disconnect the SRS inflator simulator from SRS simulator lead E.

13. Check resistance between each terminal of SRS simulator lead E and body ground. There should be an open circuit, or at least 1 MΩ.

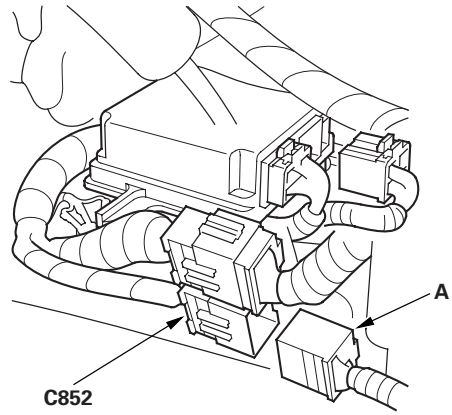


Is the resistance as specified?

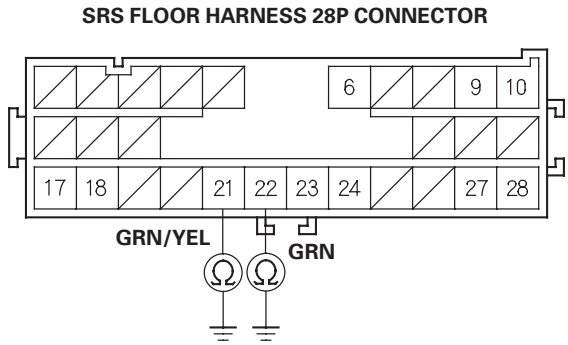
YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO—Go to step 14.

14. Disconnect the SRS floor harness 28P connector (A) from the SRS floor subharness C852.



15. Check resistance between the No. 21 terminal of the SRS floor harness 28P connector and body ground, and between the No. 22 terminal and body ground. There should be an open circuit, or at least 1 MΩ.



Terminal side of male terminals

Is the resistance as specified?

YES—Short to ground in the SRS floor subharness or left side wire harness; replace the faulty harness. ■

NO—Short to ground in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 32-1x (32-10 to 32-19, 32-1A to 32-1F): Open or Increased Resistance in Front Passenger's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

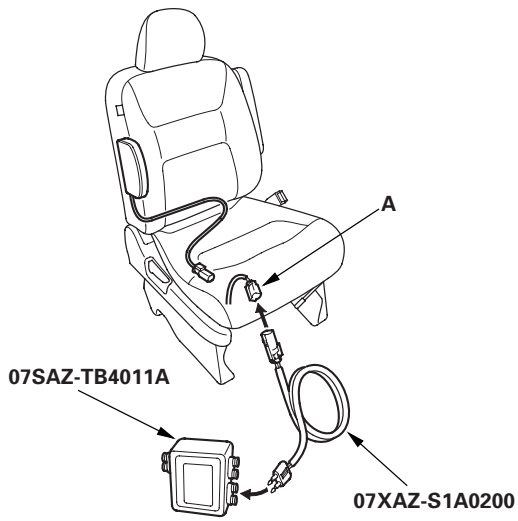
   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the right side wire harness 2P connector (A) from the front passenger's side airbag.



5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-38).

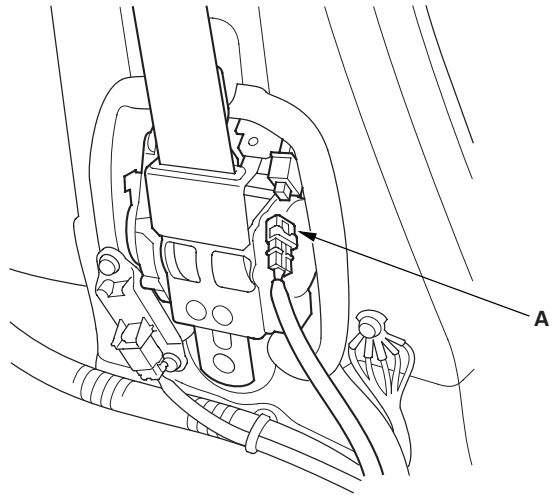
   Is DTC 32-1x indicated?

   YES — Go to step 9.

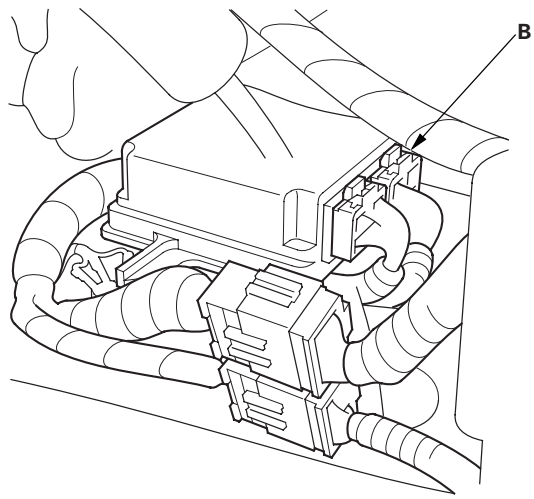
   NO — Open or increased resistance in the front passenger's side airbag inflator, replace the front passenger's side airbag (see page 23-372). ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors from the side wire harness (A).



11. Disconnect SRS unit connector B (28P) from the SRS unit. Do not disconnect the special tool from the right side wire harness 2P connector.



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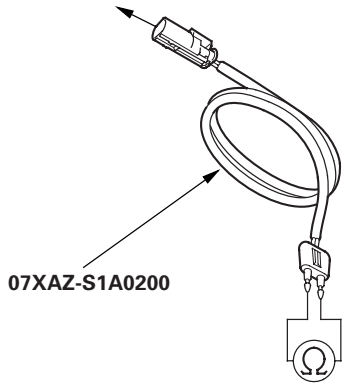
DTC Troubleshooting (cont'd)

12. Disconnect the SRS inflator simulator from SRS simulator lead E.

13. Check resistance between the terminals of SRS simulator lead E. There should be 1.0 Ω or less.

RIGHT SIDE WIRE HARNESS 2P CONNECOTOR

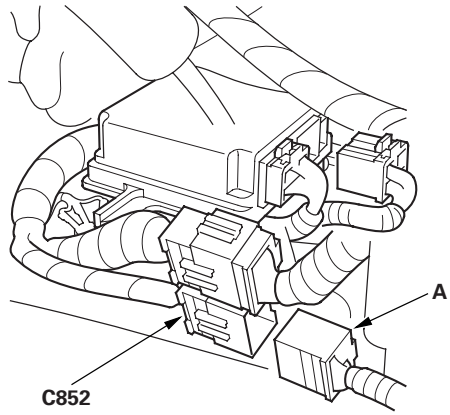


Is the resistance as specified?

YES—Faulty SRS unit or poor contact at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-384). ■

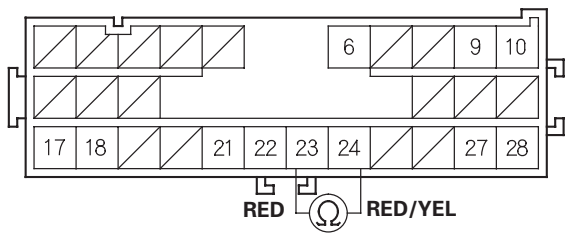
NO—Go to step 14.

14. Disconnect the SRS floor harness 28P connector (A) from SRS floor subharness C852.



15. Check resistance between the No. 23 and No. 24 terminals of the SRS floor harness 28P connector. There should be 1.0 Ω or less.

SRS FLOOR HARNESS 28P CONNECTOR



Terminal side of male terminals

Is the resistance as specified?

YES—Open or increased resistance in the SRS floor subharness or right side wire harness; replace the faulty harness. ■

NO—Open or increased resistance in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 32-3x (32-30 to 32-39, 32-3A to 32-3F): Short to Another Wire or Decreased Resistance in Front Passenger's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200
- SRS short canceler 070AZ-SAA0100

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

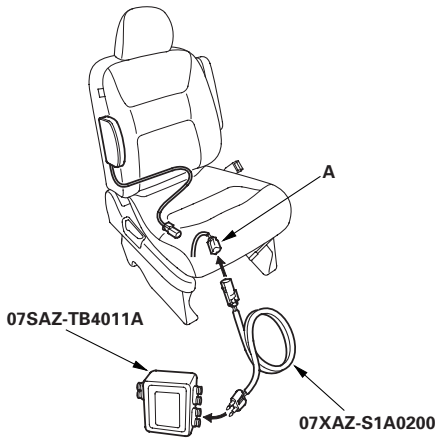
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the right side wire harness 2P connector (A) from the front passenger's side airbag.



5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-38).

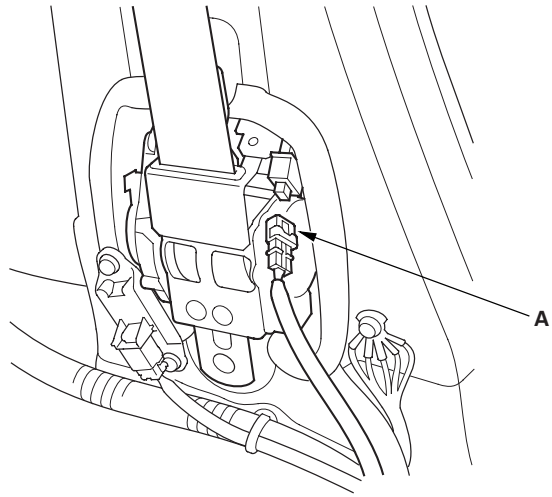
   Is DTC 32-3x indicated?

   YES—Go to step 9.

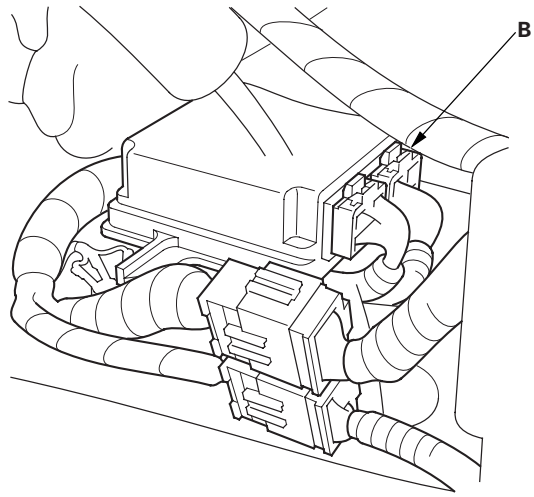
   NO—Short to another wire in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 23-372). ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors from the side wire harness (A).



11. Disconnect SRS unit connector B (28P) from the SRS unit.



(cont'd)

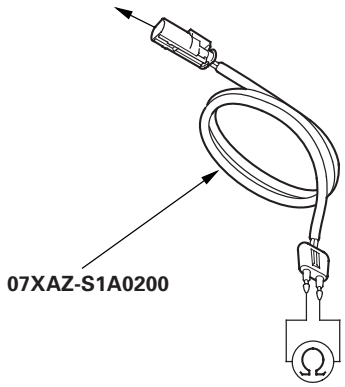
DTC Troubleshooting (cont'd)

12. Disconnect the SRS inflator simulator from SRS simulator lead E.

13. Connect the special tool (070AZ-SAA0100) to No. 23 and No. 24 terminals of SRS unit connector B (28P) (see page 23-26).

14. Check resistance between the terminal of SRS simulator lead E. There should be an open circuit, or at least 1 MΩ.

RIGHT SIDE WIRE HARNESS 2P CONNECTOR

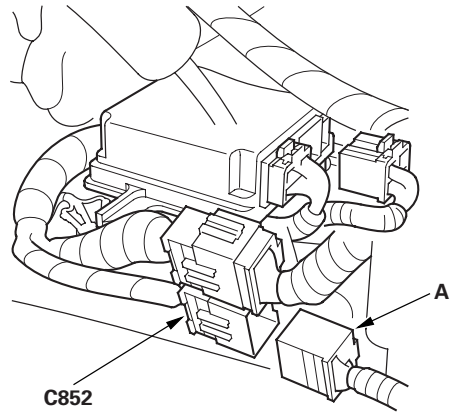


Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

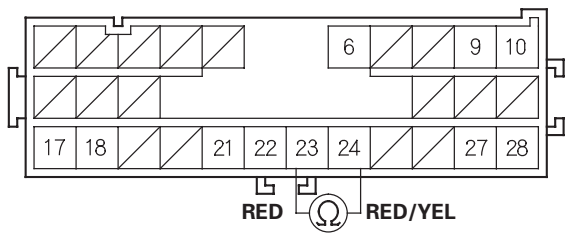
NO—Go to step 15.

15. Disconnect the SRS floor harness 28P connector (A) from the SRS floor subharness C852.



16. Check resistance between the No. 23 and No. 24 terminals of the SRS floor harness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR HARNESS 28P CONNECTOR



Terminal side of male terminals

Is the resistance as specified?

YES—Short in the SRS floor subharness or right side wire harness; replace the faulty harness. ■

NO—Short in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 32-8x (32-80 to 32-89, 32-8A to 32-8F): Short to Power in Front Passenger's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

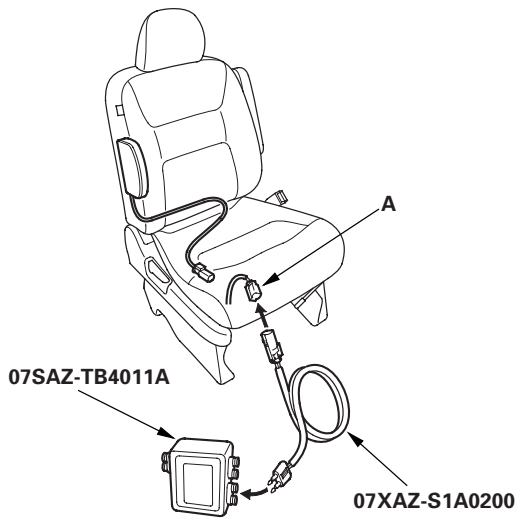
   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the right side wire harness 2P connector (A) from the front passenger's side airbag.



5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-38).

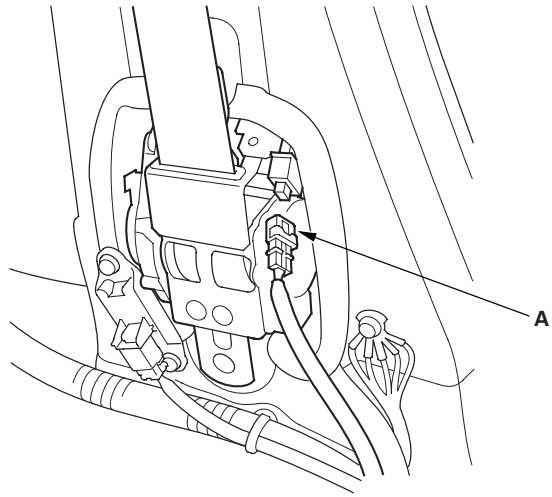
   Is DTC 32-8x indicated?

   YES — Go to step 9.

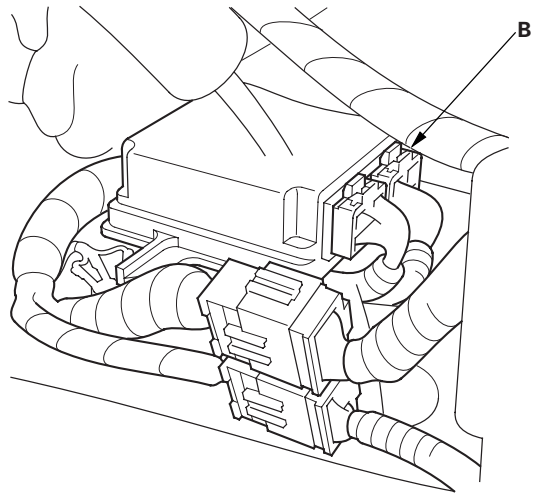
   NO — Short to power in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 23-372). ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors, from the side wire harness (A).



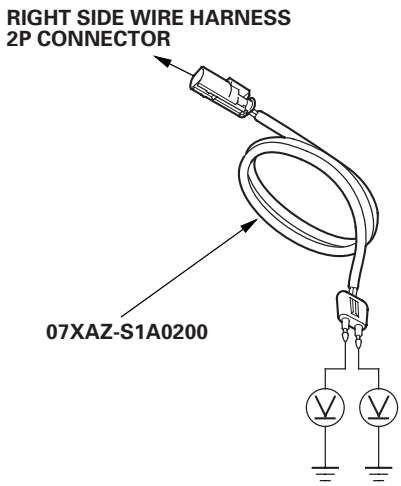
11. Disconnect SRS unit connector B (28P) from the SRS unit.



(cont'd)

DTC Troubleshooting (cont'd)

12. Reconnect the battery negative cable.
13. Disconnect the SRS inflator simulator from SRS simulator lead E.
14. Turn the ignition switch ON (II).
15. Check for voltage between each terminal of SRS simulator lead E and body ground. There should be 0.5 V or less.

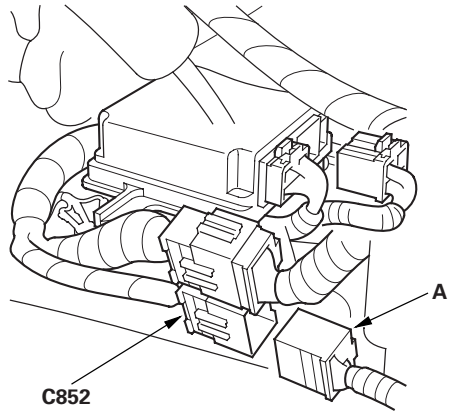


Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

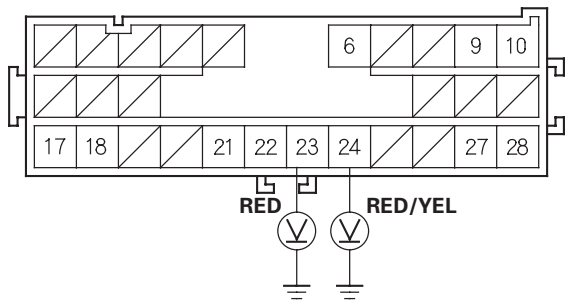
NO—Go to step 16.

16. Turn the ignition switch OFF.
17. Disconnect the SRS floor harness 28P connector (A) from SRS floor subharness C852.



18. Turn the ignition switch ON (II).
19. Check for voltage between the No. 23 terminal of the SRS floor harness 28P connector and body ground, and between the No. 24 terminal and body ground. There should be 0.5 V or less.

SRS FLOOR HARNESS 28P CONNECTOR



Terminal side of male terminals

Is the voltage as specified?

YES—Short to power in the SRS floor subharness or right side wire harness; replace the faulty harness. ■

NO—Short to power in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 32-9x (32-90 to 32-99, 32-9A to 32-9F): Short to Ground in Front Passenger's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead E 07XAZ-S1A0200

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

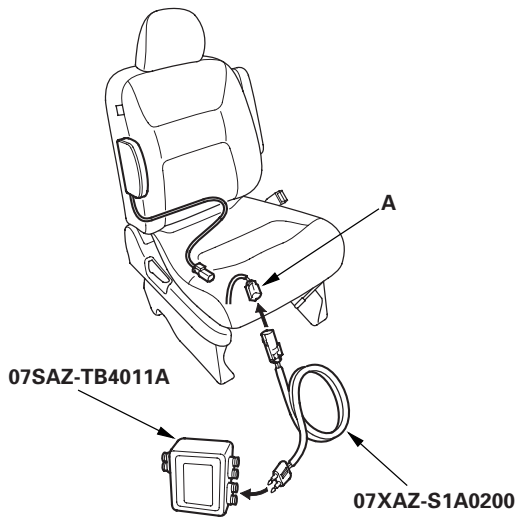
   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect the right side wire harness 2P connector (A) from the front passenger's side airbag.



5. Connect the special tool (2 Ω connector) to the right side wire harness 2P connector.

6. Reconnect the battery negative cable.

7. Erase the DTC memory.

8. Read the DTC (see page 23-38).

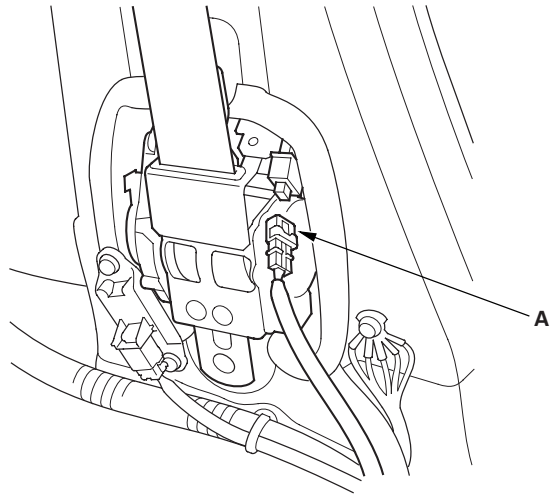
   Is DTC 32-9x indicated?

   YES — Go to step 9.

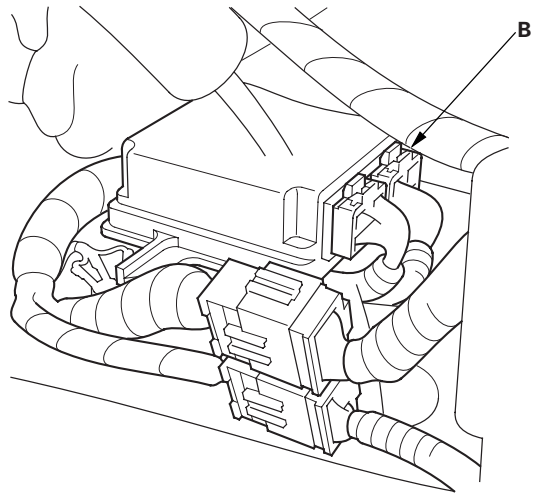
   NO — Short to ground in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 23-372). ■

9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors from the side wire harness (A).



11. Disconnect SRS unit connector B (28P) from the SRS unit.

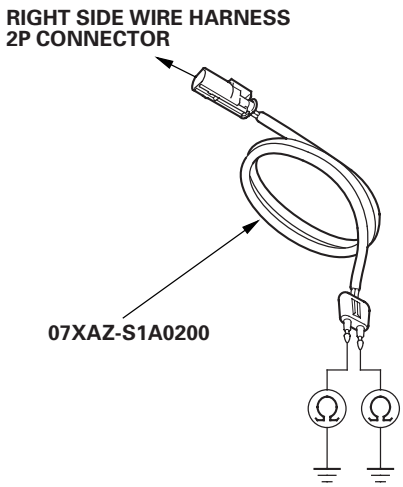


(cont'd)

DTC Troubleshooting (cont'd)

12. Disconnect the SRS inflator simulator from SRS simulator lead E.

13. Check resistance between each terminal of SRS simulator lead E and body ground. There should be an open circuit, or at least 1 MΩ.

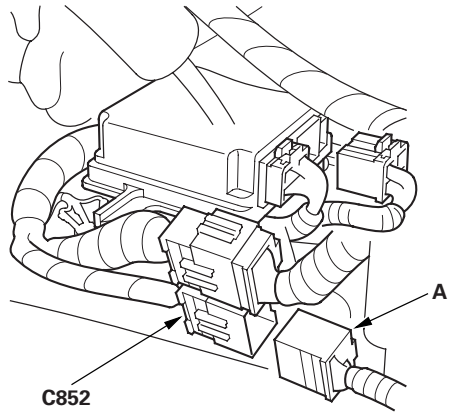


Is the resistance as specified?

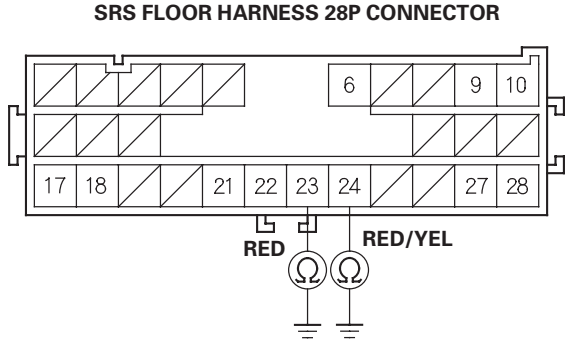
YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO—Go to step 14.

14. Disconnect the SRS floor harness 28P connector (A) from SRS floor subharness C852 .



15. Check resistance between the No. 23 terminal of the SRS floor harness 28P connector and body ground, and No. 24 terminal and body ground. There should be an open circuit, or at least 1 MΩ.



Terminal side of male terminals

Is the resistance as specified?

YES—Short to ground in the SRS floor subharness or right side wire harness; replace the faulty harness. ■

NO—Short to ground in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 41-1x (41-10 to 41-19, 41-1A to 41-1F): No Signal from the Left Front Impact Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead H 07YAZ-S3AA100

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Check the connections between SRS unit connector A (28P) and the SRS unit, and between the left engine compartment wire harness 2P connector and the left front sensor (see page 23-20), and at connectors C851 and C304.

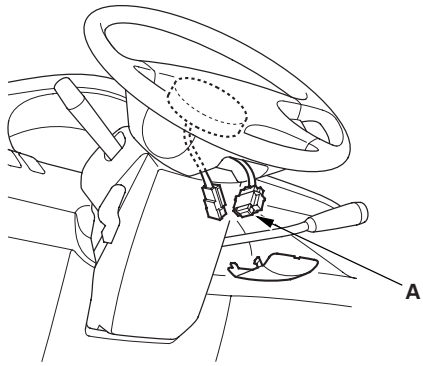
   Are the connections OK?

   YES — Go to step 4.

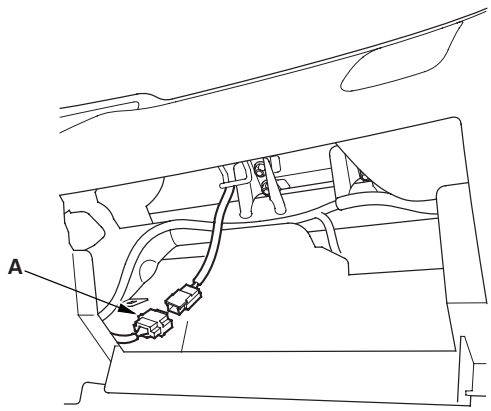
   NO — Repair the poor connections and retest. If DTC 41-1x is still present, go to step 4.

4. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

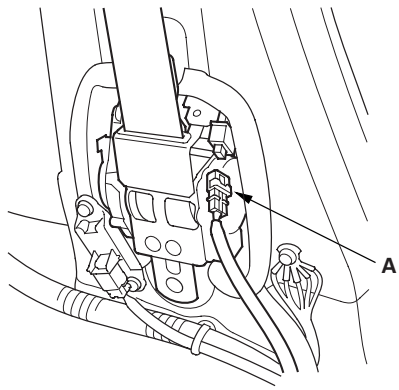
5. Disconnect the driver's airbag 4P connector from the cable reel (A).



6. Disconnect the front passenger's airbag 4P connector from the SRS main harness (A).



7. Disconnect both seat belt tensioner 2P connectors from the side wire harness (A).



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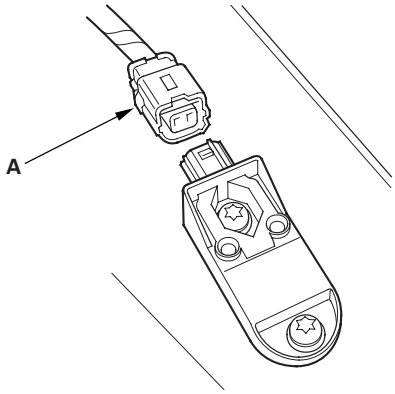
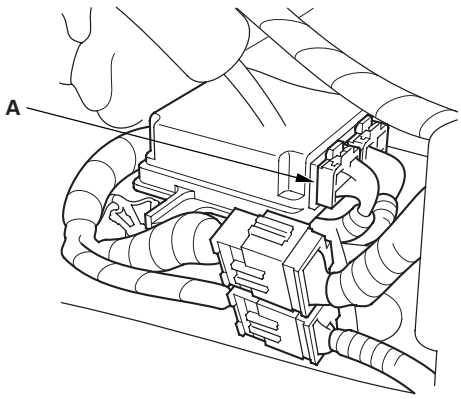
DTC Troubleshooting (cont'd)

8. Disconnect the engine compartment left wire harness 2P connector (A) from the left front impact sensor.

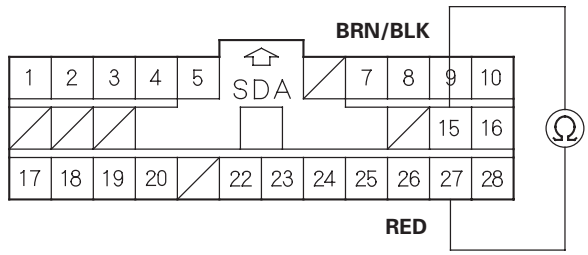


9. Disconnect SRS unit connector A (28P) from the SRS unit.



10. Check resistance between the No. 15 and No. 27 terminals of SRS unit connector A (28P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES — Go to step 11.

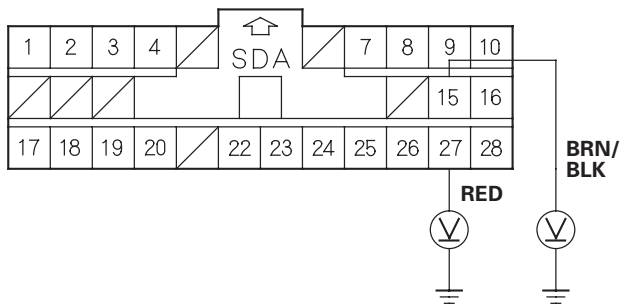
NO — Go to step 17.

11. Reconnect the battery negative cable.

12. Turn the ignition switch ON (II).

13. Check for voltage between the No. 27 terminal of SRS unit connector A (28P) and body ground, and between the No. 15 terminal and body ground. There should be 1 V or less.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

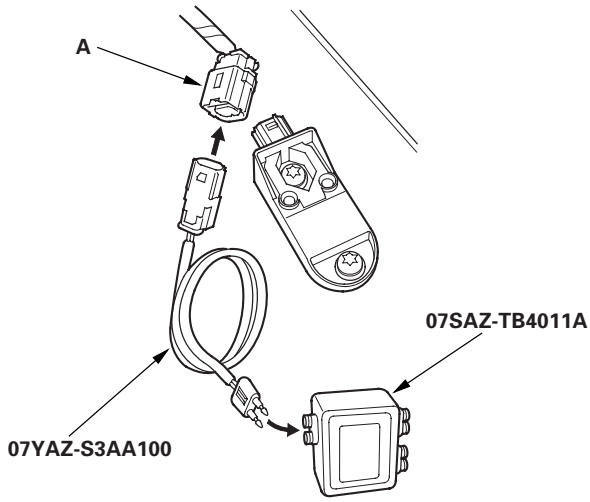
Is the voltage as specified?

YES — Go to step 14.

NO — Go to step 19.

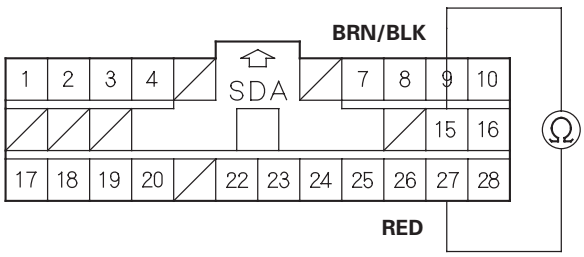
14. Turn the ignition switch OFF.

15. Connect the special tool (jumper connector) to the engine compartment left wire harness 2P connector (A).



16. Check resistance between the No. 15 and No. 27 terminals of SRS unit connector A (28P). There should be 1 Ω or less.

SRS UNIT CONNECTOR A (28P)



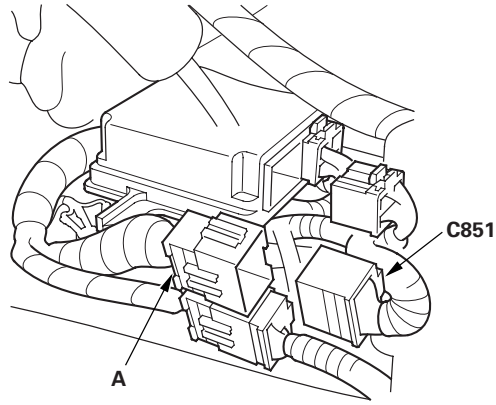
Wire side of female terminals

Is the resistance as specified?

YES—Faulty left front impact sensor or SRS unit. Replace the left front impact sensor; if the problem is still present, replace the SRS unit (see page 23-384). ■

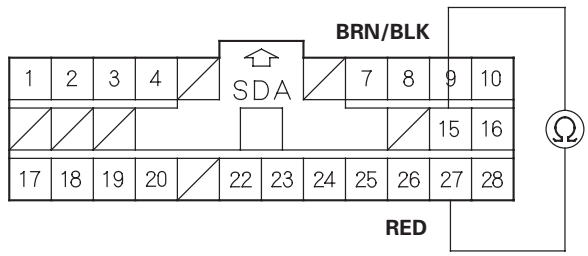
NO—Go to step 23.

17. Disconnect the SRS floor harness 28P connector (A) from SRS main harness connector C851.



18. Check resistance between the No. 15 and No. 27 terminals of the SRS unit connector A (28P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Short in the left engine compartment wire harness or SRS main harness; replace the faulty harness. ■

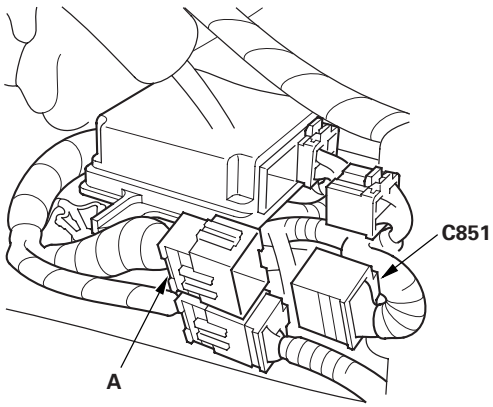
NO—Short in the SRS floor harness; replace the SRS floor harness. ■

(cont'd)

DTC Troubleshooting (cont'd)

19. Turn the ignition switch OFF.

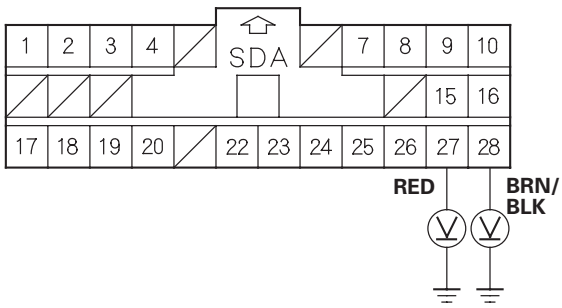
20. Disconnect the SRS floor harness 28P connector (A) from SRS main harness connector C851.



21. Turn the ignition switch ON (II).

22. Check for voltage between the No. 27 terminal of SRS unit connector A (28P) and body ground, and between the No. 28 terminal and body ground. There should be 1 V or less.

SRS UNIT CONNECTOR A (28P)



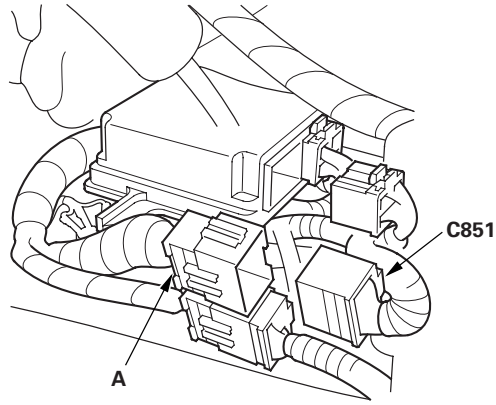
Wire side of female terminals

Is the voltage as specified?

YES—Short to power in the engine compartment left wire harness or SRS main harness; replace the faulty harness. ■

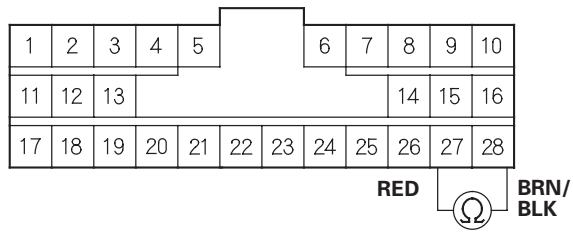
NO—Short to power in the SRS floor harness; replace the SRS floor harness. ■

23. Disconnect the SRS floor harness 28P connector (A) from SRS main harness connector C851.



24. Check resistance between the No. 27 and No. 28 terminals of the SRS main harness 28P connector. There should be 1 Ω or less.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS floor harness; replace the SRS floor harness. ■

NO—Faulty left engine compartment wire harness or SRS main harness; replace the faulty harness. ■

'03-04 Models

DTC 42-1x (42-10 to 42-19, 42-1A to 42-1F): No Signal from the Right Front Impact Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead H 07YAZ-S3AA100

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Check the connections between SRS unit connector A (28P) and the SRS unit, between the engine compartment right wire harness 2P connector and the right front impact sensor (see page 23-20), and at connectors C851 and C205.

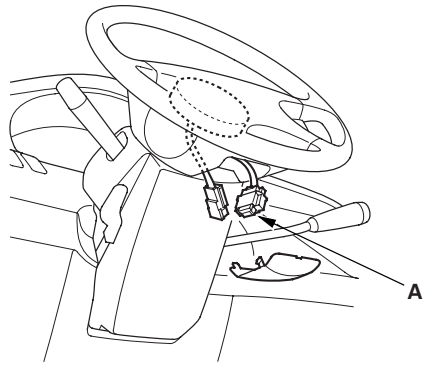
   Are the connections OK?

   YES — Go to step 4.

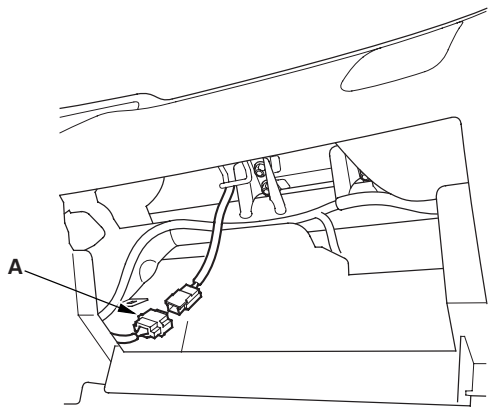
   NO — Repair the poor connections and retest. If DTC 42-1x is still present, go to step 4.

4. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

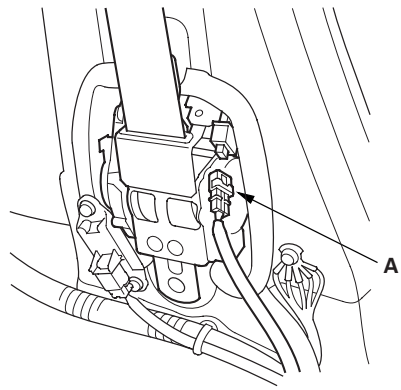
5. Disconnect the driver's airbag 4P connector from the cable reel (A).



6. Disconnect the front passenger's airbag 4P connector from the SRS main harness (A).



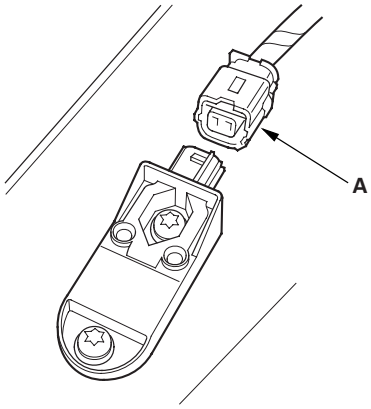
7. Disconnect both seat belt tensioner 2P connectors from the side wire harness (A).



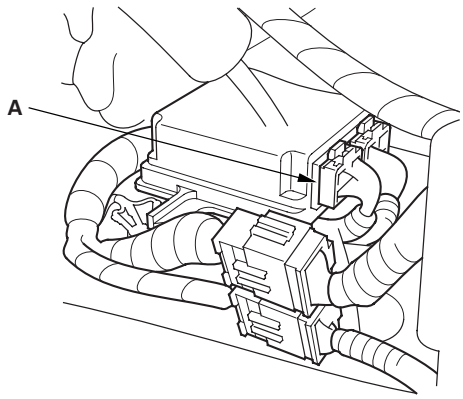
(cont'd)

DTC Troubleshooting (cont'd)

8. Disconnect the engine compartment right wire harness 2P connector (A) from the right front impact sensor.

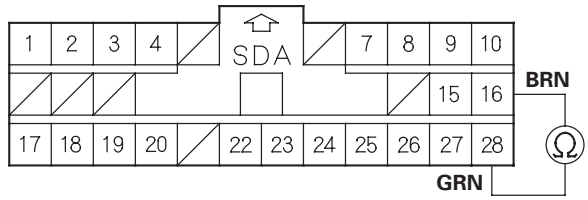


9. Disconnect SRS unit connector A (28P) from the SRS unit.



10. Check resistance between the No. 16 and No. 28 terminals of SRS unit connector A (28P). There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES — Go to step 11.

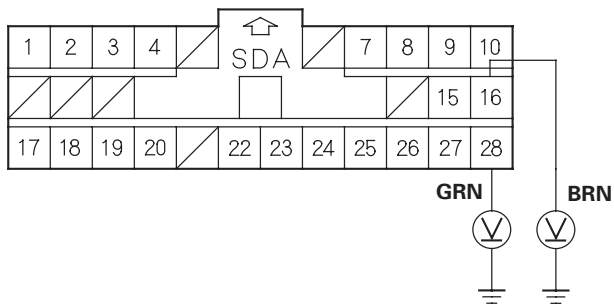
NO — Go to step 17.

11. Reconnect the battery negative cable.

12. Turn the ignition switch ON (II).

13. Check for voltage between the No. 28 terminal of SRS unit connector A (28P) and body ground, and between the No. 16 terminal and body ground. There should be 1 V or less.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

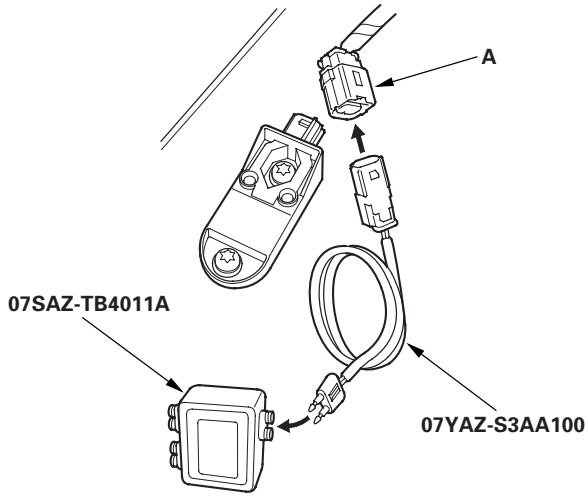
Is the voltage as specified?

YES — Go to step 14.

NO — Go to step 19.

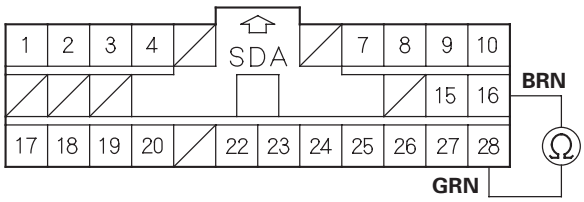
14. Turn the ignition switch OFF.

15. Connect the special tool (jumper connector) to the engine compartment right wire harness 2P connector (A).



16. Check resistance between the No. 16 and No. 28 terminals of SRS unit connector A (28P). There should be 1 Ω or less.

SRS UNIT CONNECTOR A (28P)



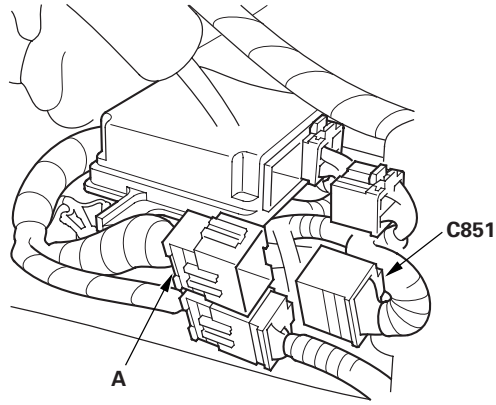
Wire side of female terminals

Is the resistance as specified?

YES—Faulty right front impact sensor or SRS unit. Replace the right front impact sensor; if the problem is still present, replace the SRS unit (see page 23-384). ■

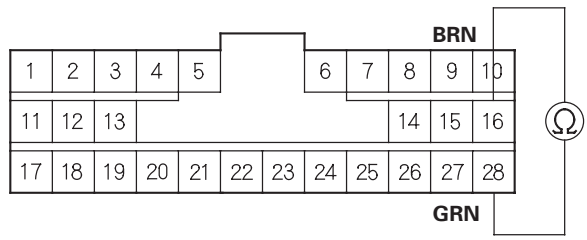
NO—Go to step 23.

17. Disconnect the SRS main harness 28P connector (A) from SRS floor harness connector C851.



18. Check resistance between the No. 16 and No. 28 terminals of the SRS main harness 28P connector. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Short in the SRS floor harness; replace the SRS floor harness. ■

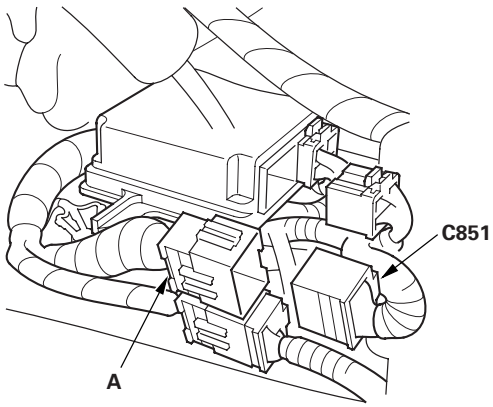
NO—Short in the engine compartment right wire harness or SRS main harness; replace the faulty harness. ■

(cont'd)

DTC Troubleshooting (cont'd)

19. Turn the ignition switch OFF.

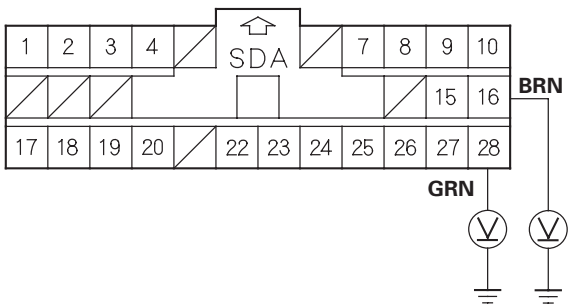
20. Disconnect the SRS floor harness 28P connector (A) from SRS main harness connector C851.



21. Turn the ignition switch ON (II).

22. Check for voltage between the No. 16 terminal of SRS unit connector A (28P) and body ground, and between the No. 28 terminal and body ground. There should be 1 V or less.

SRS UNIT CONNECTOR A (28P)



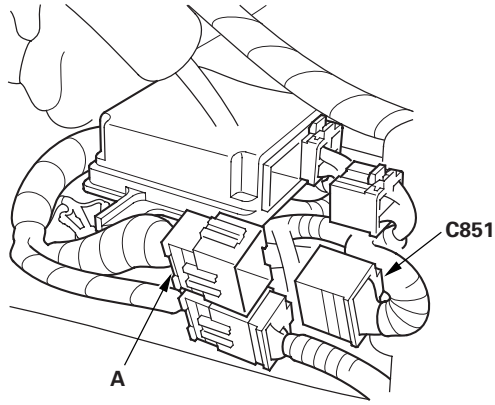
Wire side of female terminals

Is the voltage as specified?

YES—Short to power in the engine compartment right wire harness or SRS main harness; replace the faulty harness. ■

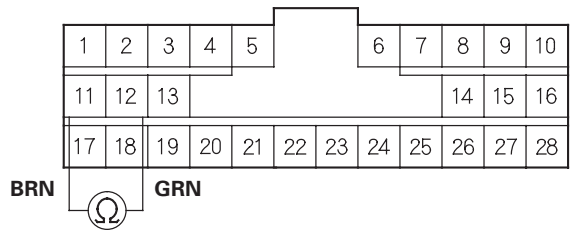
NO—Short to power in the SRS floor harness; replace the SRS floor harness. ■

23. Disconnect the SRS floor harness 28P connector (A) from SRS main harness connector C851.



24. Check resistance between the No. 11 and No. 12 terminals of the SRS main harness 28P connector. There should be 1 Ω or less.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS floor harness; replace the SRS floor harness. ■

NO—Faulty right engine compartment wire harness or SRS main harness; replace the faulty harness. ■

'03-04 Models

DTC 41-2x (41-20 to 41-29, 41-2A to 41-2F), 41-3x (41-30 to 41-39, 41-3A to 41-3F), 41-8x(41-80 to 41-89, 41-8A to 41-8F), 41-Bx (41-B0 to 41-B9, 41-BA to 41-BF): Internal Failure of the Left Front Impact Sensor

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the left front impact sensor (see page 23-388). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'03-04 Models

DTC 42-2X (42-20 to 42-29, 42-2A to 42-2F), 42-3X (42-30 to 42-39, 42-3A to 42-3F), 42-8X (42-80 to 42-89, 42-8A to 42-8F), 42-BX (42-B0 to 42-B9, 42-BA to 42-BF): Internal Failure of the Right Front Impact Sensor

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the right front impact sensor (see page 23-388). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 43-1x (43-10 to 43-19, 43-1A to 43-1F): No Signal from the Driver's Side Impact Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead H 07YAZ-S3AA100

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES – Go to step 3.

   NO – Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

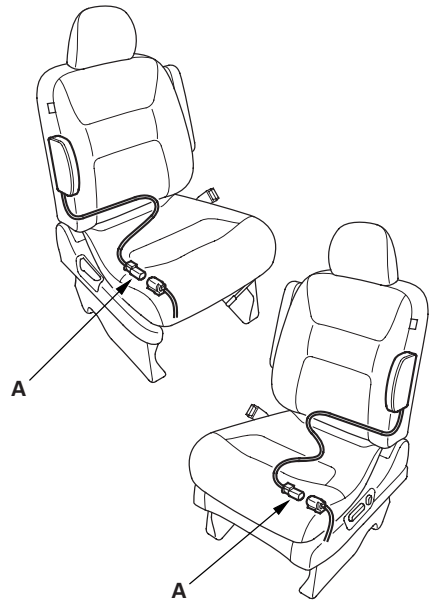
4. Check the connection between the left side wire harness 2P connector and the driver's side impact sensor.

   Is the connection OK?

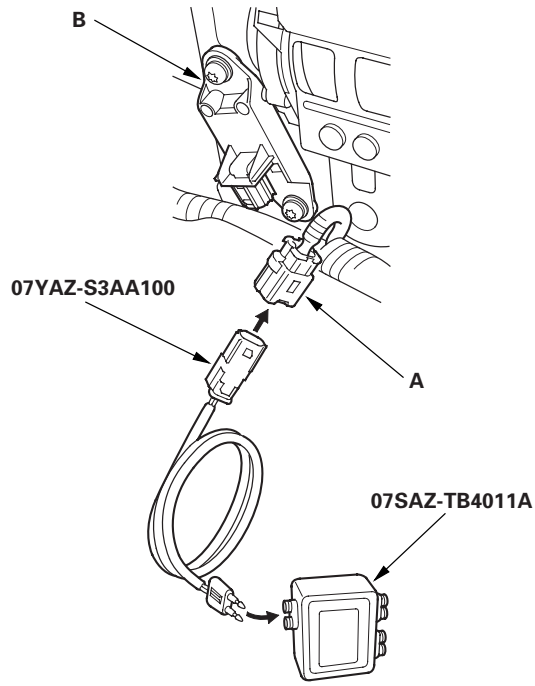
   YES – Go to step 5.

   NO – Replace the driver's side impact sensor and/or the left side wire harness, as needed. ■

5. Disconnect the driver's side airbag and front passenger's side airbag 2P connectors (A).

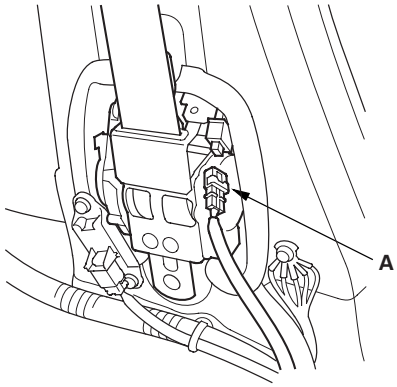


6. Disconnect the left side wire harness 2P connector (A) from the driver's side impact sensor (B).

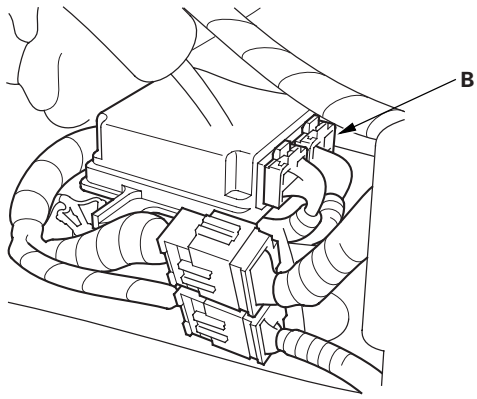


7. Connect the special tool (jumper connector) to the left side wire harness 2P connector.

8. Disconnect the both seat belt tensioner 2P connectors from the side wire harness (A).

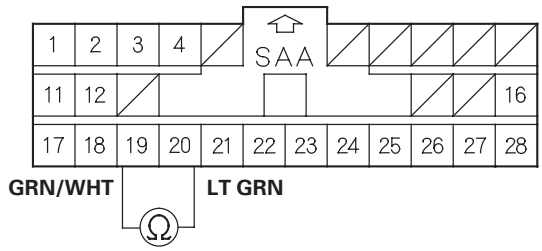


9. Disconnect SRS unit connector B (28P) from the SRS unit.



10. Check resistance between the No. 19 and No. 20 terminals of SRS unit connector B (28P). There should be 0 — 1.0 Ω.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

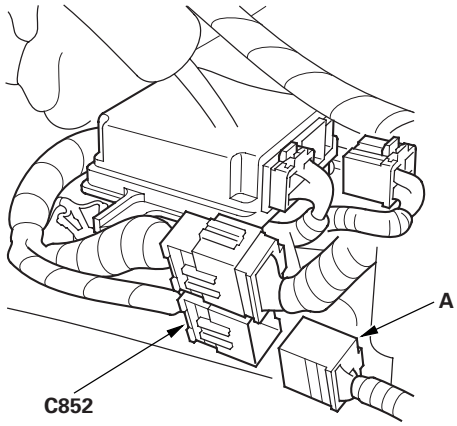
YES — Faulty driver's side impact sensor or SRS unit; replace the driver's side impact sensor (see page 23-386). If the problem is still present, replace the SRS unit (see page 23-384). ■

NO — Go to step 11.

(cont'd)

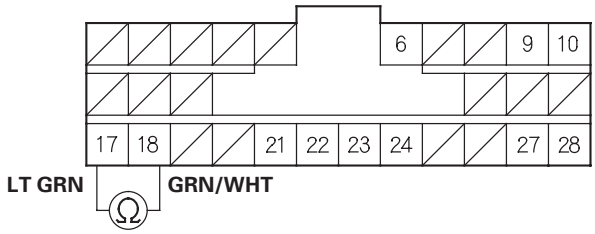
DTC Troubleshooting (cont'd)

11. Disconnect the SRS floor harness 28P connector (A) from SRS floor subharness 28P connector C852.



12. Check resistance between the No. 18 and No. 17 terminals of the SRS floor subharness 28P connector. There should be 0—1.0 Ω.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Open in the SRS floor harness; replace the SRS floor harness. ■

NO—Open in the SRS floor subharness or left side wire harness; replace the faulty harness. ■

'03-04 Models

DTC 44-1x (44-10 to 44-19, 44-1A to 44-1F): No Signal from the Front Passenger's Side Impact Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead H 07YAZ-S3AA100

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES — Go to step 3.

   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

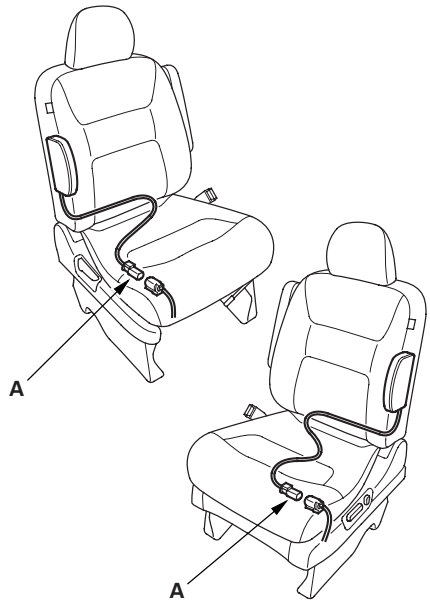
4. Check the connection between the right side wire harness 2P connector and the front passenger's side impact sensor.

   Is the connection OK?

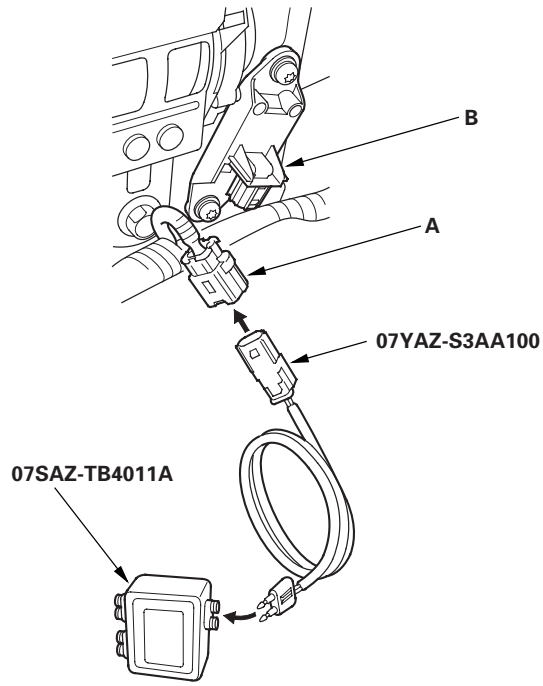
   YES — Go to step 5.

   NO — Poor contact between the right side wire harness 2P connector and the front passenger's side impact sensor; replace the front passenger's side impact sensor and/or the right side wire harness, as needed. ■

5. Disconnect the driver's side airbag and front passenger's side airbag 2P connectors (A).



6. Disconnect the right side wire harness 2P connector (A) from the front passenger's side impact sensor (B).

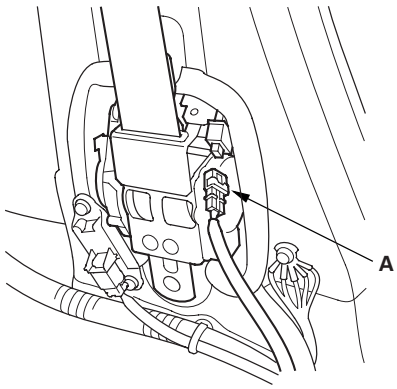


(cont'd)

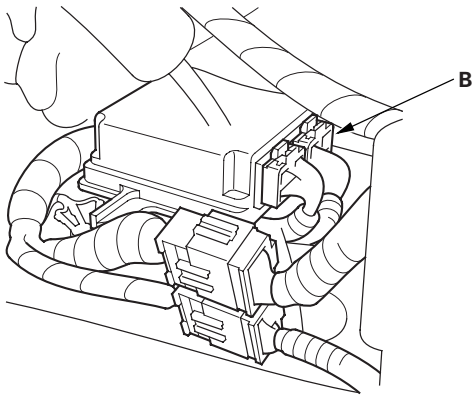
DTC Troubleshooting (cont'd)

7. Connect the special tool (jumper connector) to the right side wire harness 2P connector.

8. Disconnect the both seat belt tensioner connectors from the side wire harness (A).

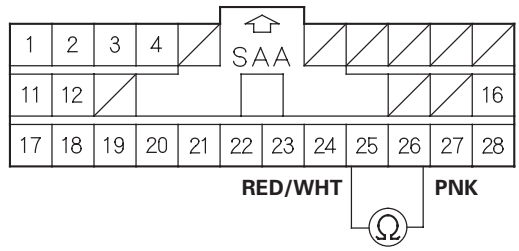


9. Disconnect SRS unit connector B (28P) from the SRS unit.



10. Check resistance between the No. 25 and No. 26 terminals of SRS unit connector B (28P). There should be 0 — 1.0 Ω.

SRS UNIT CONNECTOR B (28P)



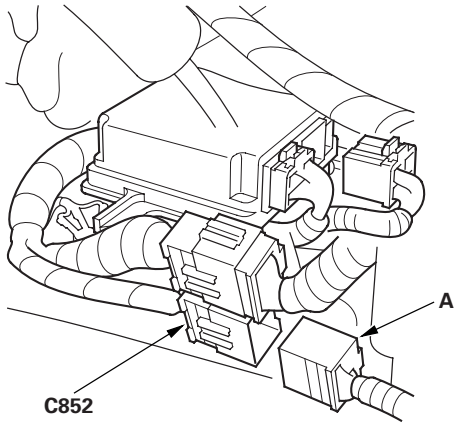
Wire side of female terminals

Is the resistance as specified?

YES — Faulty front passenger's side impact sensor or SRS unit; replace the front passenger's side impact sensor (see page 23-386). If the problem is still present, replace the SRS unit (see page 23-384). ■

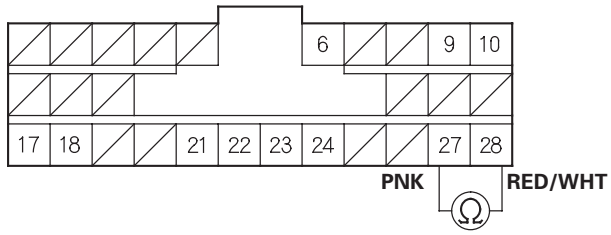
NO — Go to step 11.

11. Disconnect the SRS floor harness 28P connector (A) from SRS floor subharness 28P connector C852.



12. Check resistance between the No. 28 and No. 27 terminals of the SRS floor subharness 28P connector. There should be 0 — 1.0 Ω.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES — Open in the SRS floor harness; replace the SRS floor harness. ■

NO — Open in the SRS floor subharness or right side wire harness; replace the faulty harness. ■

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 43-2x (43-20 to 43-29, 43-2A to 43-2F), 43-3x (43-30 to 43-39, 43-3A to 43-3F), 43-8x (43-80 to 43-89, 43-8A to 43-8F), 43-Bx (43-B0 to 43-B9, 43-BA to 43-BF): Internal Failure of the Driver's Side Impact Sensor

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the driver's side impact sensor (see page 23-386). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'03-04 Models

DTC 44-2x (44-20 to 44-29, 44-2A to 44-2F), 44-3x (44-30 to 44-39, 44-3A to 44-3F), 44-8x (44-80 to 44-89, 44-8A to 44-8F), 44-Bx (44-B0 to 44-B9, 44-BA to 44-BF): Internal Failure of the Front Passenger's Side Impact Sensor

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the front passenger's side impact sensor (see page 23-386). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'03-04 Models

DTC 51-2x (51-20 to 51-29, 51-2A to 51-2F), 51-4x (51-40 to 51-49, 51-4A to 51-4F):
Internal Failure of the SRS Unit

NOTE: Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead.

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-384). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'03-04 Models

DTC 52-8x (52-80 to 52-89, 52-8A to 52-8F), 52-9x (52-90 to 52-99, 52-9A to 52-9F):
Internal Failure of the SRS Unit

NOTE: Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead.

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-384). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 52-Ax (52-A0 to 52-A9, 52-AA to 52-AF), 52-Bx (52-B0 to 52-B9, 52-BA to 52-BF), 52-Cx (52-C0 to 52-C9, 52-CA to 52-CF):
Internal Failure of the SRS Unit

NOTE: Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead.

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-384). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'03-04 Models

DTC 52-Dx (52-D0 to 52-D9, 52-DA to 52-DF), 52-Ex (52-E0 to 52-E9, 52-EA to 52-EF), 52-Fx (52-F0 to 52-F9, 52-FA to 52-FF):
Internal Failure of the SRS Unit

NOTE: Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead.

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-384). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'03-04 Models

DTC 53-1x (53-10 to 53-19, 53-1A to 53-1F), 53-2x (53-20 to 53-29, 53-2A to 53-2F):
Internal Failure of the SRS Unit

NOTE: Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead.

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-384). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'03-04 Models

DTC 53-3x (53-30 to 53-39, 53-3A to 53-3F), 53-4x (53-40 to 53-49, 53-4A to 53-4F):
Internal Failure of the SRS Unit

NOTE: Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead.

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-384). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 54-1x (54-10 to 54-19, 54-1A to 54-1F), 54-2x (54-20 to 54-29, 54-2A to 54-2F), 54-3x (54-30 to 54-39, 54-3A to 54-3F), 54-4x (54-40 to 54-49, 54-4A to 54-4F):
Internal Failure of the SRS Unit

NOTE: Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead.

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-384). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'03-04 Models

DTC 54-5x (54-50 to 54-59, 54-5A to 54-5F), 54-6x (54-60 to 54-69, 54-6A to 54-6F), 54-7x (54-70 to 54-79, 54-7A to 54-7F):
Internal Failure of the SRS Unit

NOTE: Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead.

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-384). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'03-04 Models

DTC 55-1x (55-10 to 55-19, 55-1A to 55-1F), 55-2x (55-20 to 55-29, 55-2A to 55-2F):
Internal Failure of the SRS Unit

NOTE: Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead.

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-384). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'03-04 Models

DTC 55-3x (55-30 to 55-39, 55-3A to 55-3F), 55-4x (55-40 to 55-49, 55-4A to 55-4F):
Internal Failure of the SRS Unit

NOTE: Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead.

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-384). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

DTC Troubleshooting (cont'd)

'03-04 Models

DTC D1-11, D2-11, D3-11, D4-11, D7-11, E2-11, E4-11, F1-11 F2-11, F3-11, F4-11: Airbags, Side airbags, and/or Seat Belt Tensioners Deployed.

The SRS unit must be replaced after any airbags and/or tensioners have deployed (see page 23-384). ■

'03-04 Models

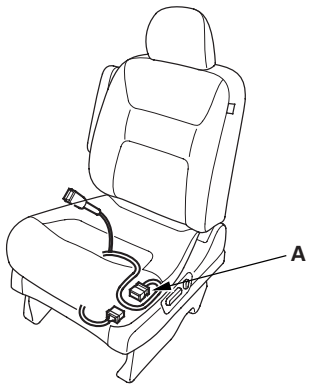
DTC 61-1x (61-10 to 61-19, 61-1A to 61-1F):
Open in Driver's Seat Belt Buckle Switch

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), then buckle and unbuckle the driver's seat belt several times.
3. Read the DTC (see page 23-38).

   Is DTC 61-1x indicated?

   YES—Go to step 4.

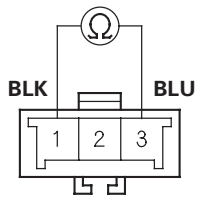
   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
4. Turn the ignition switch OFF.
5. Disconnect the driver's seat belt buckle switch 3P connector (A).



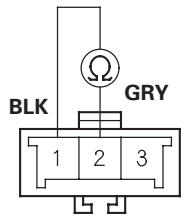
6. Buckle the driver's seat belt.

   • Check resistance between the No. 1 and No. 3 terminals of the driver's seat belt buckle switch 3P connector. There should be 0—1 Ω.
   • Check resistance between the No. 1 and No. 2 terminals of the same connector. There should be an open circuit, or at least 1 MΩ.

DRIVER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

Are the resistance readings as specified?

YES—Go to step 7.

NO—Replace the driver's seat belt buckle assembly, then clear the DTC. ■

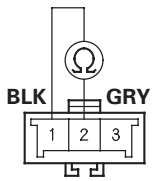
(cont'd)

DTC Troubleshooting (cont'd)

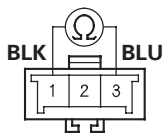
7. Unbuckle the driver's seat belt.

   - Check resistance between the No. 1 and No. 2 terminals of the driver's seat belt buckle switch 3P connector. There should be 0—1 Ω.
   - Check resistance between the No. 1 and No. 3 terminals of the same connector. There should be an open circuit, or at least 1 MΩ.

DRIVER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

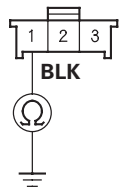
Is the resistance as specified?

YES—Go to step 8.

NO—Replace the driver's seat belt buckle assembly, then clear the DTC. ■

8. Check resistance between the No. 1 terminal of the driver's seat wire harness (with power seat) or left side wire harness (without power seat) 3P connector and body ground. There should be 0—1 Ω.

DRIVER'S SEAT WIRE HARNESS 3P CONNECTOR (WITH POWER SEAT)
LEFT SIDE WIRE HARNESS 3P CONNECTOR (WITHOUT POWER SEAT)



Wire side of female terminals

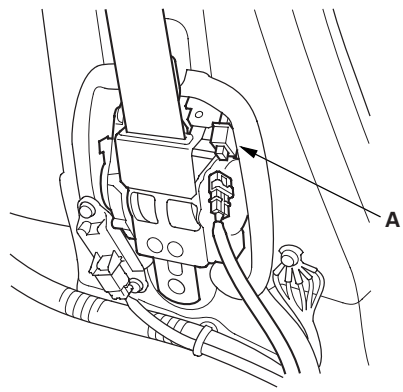
Is the resistance as specified?

YES—Go to step 9.

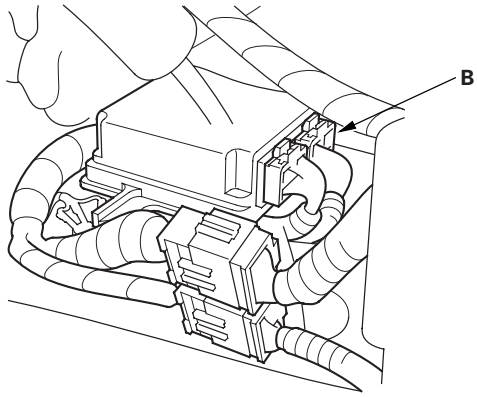
NO—Open in the driver's seat wire harness (with power seat), left side wire harness (without power seat) or poor ground connection at G551. If G551 is OK, replace the faulty harness. ■

9. Disconnect the battery negative cable and wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors (A).



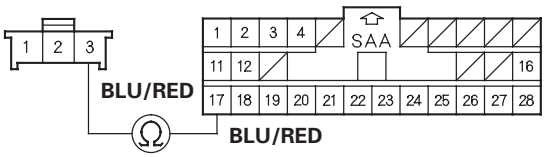
11. Disconnect SRS unit connector B (28P) from the SRS unit.



12. Check resistance between the No. 17 terminal of SRS unit connector B (28P) and the No. 3 terminal of the driver's seat wire harness (with power seat) or left side wire harness (without power seat) 3P connector. There should be 0—1 Ω.

DRIVER'S SEAT WIRE HARNESS 3P CONNECTOR (WITH POWER SEAT) LEFT SIDE WIRE HARNESS 3P CONNECTOR (WITHOUT POWER SEAT)

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

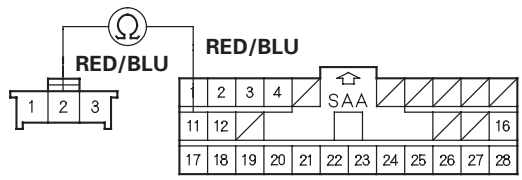
YES—Go to step 13.

NO—Open in the driver's seat wire harness (with power seat), left side wire harness, dashboard wire harness A, SRS main harness or SRS floor harness; replace the faulty harness. ■

13. Check resistance between the No. 11 terminal of SRS unit connector B (28P) and the No. 2 terminal of the driver's seat wire harness (with power seat) or left side wire harness (without power seat) 3P connector. There should be 0—1 Ω.

DRIVER'S SEAT WIRE HARNESS 3P CONNECTOR (WITH POWER SEAT) LEFT SIDE WIRE HARNESS 3P CONNECTOR (WITHOUT POWER SEAT)

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Replace the SRS unit (see page 23-384). ■

NO—Open in the driver's seat wire harness (with power seat), left side wire harness, dashboard wire harness A, SRS main harness or SRS floor harness or multiplex control unit, or poor connection at the left side wire harness, the driver's under-dash fuse/relay box, and the multiplex control unit. Check the connection at the left side wire harness, the driver's under-dash fuse/relay box, and the multiplex control unit. If the connection is OK, replace the faulty harness or part. ■

DTC Troubleshooting (cont'd)

'03-04 Models

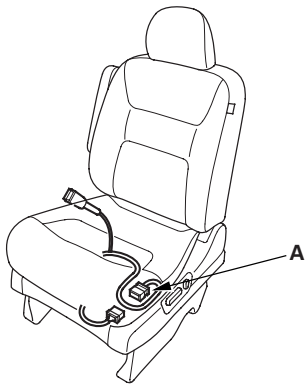
DTC 61-2x (61-20 to 61-29, 61-2A to 61-2F):
Short in Driver's Seat Belt Buckle Switch

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), then buckle and unbuckle the driver's seat belt several times.
3. Read the DTC (see page 23-38).

   Is DTC 61-2x indicated?

   YES—Go to step 4.

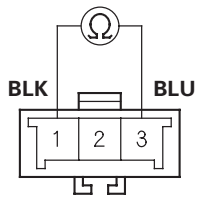
   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
4. Turn the ignition switch OFF.
5. Disconnect the driver's seat belt buckle switch 3P connector (A).



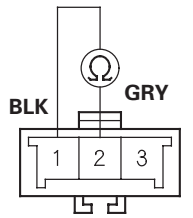
6. Buckle the driver's seat belt.

   • Check resistance between the No. 1 and No. 3 terminals of the driver's seat belt buckle switch 3P connector. There should be 0—1 Ω.
   • Check resistance between the No. 1 and No. 2 terminals of the same connector. There should be an open circuit, or at least 1 MΩ.

DRIVER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

Are the resistance readings as specified?

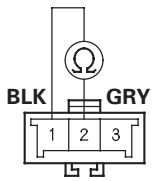
YES—Go to step 7.

NO—Replace the driver's seat belt buckle assembly, then clear the DTC. ■

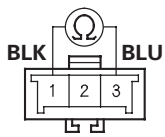
7. Unbuckle the driver's seat belt.

   - Check resistance between the No. 1 and No. 2 terminals of the driver's seat belt buckle switch 3P connector. There should be 0 — 1 Ω.
   - Check resistance between the No. 1 and No. 3 terminals of the same connector. There should be an open circuit, or at least 1 MΩ.

DRIVER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

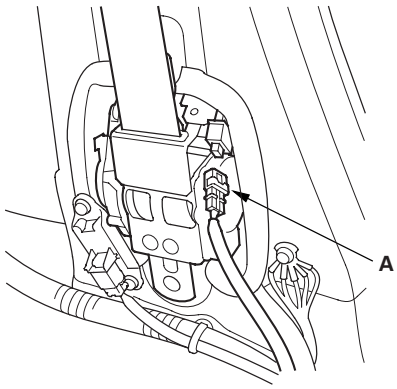
Is the resistance as specified?

YES — Go to step 8.

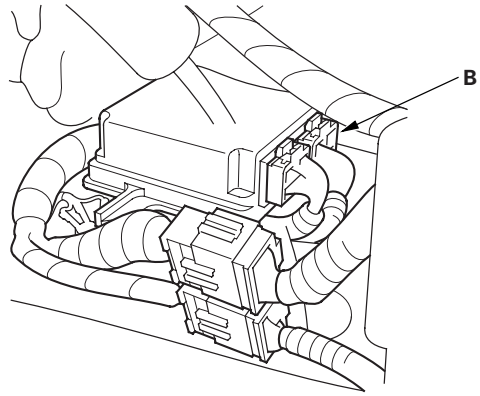
NO — Replace the driver's seat belt buckle assembly, then clear the DTC. ■

8. Disconnect the negative cable from the battery.

9. Disconnect both seat belt tensioner 2P connectors from the side wire harness (A).



10. Disconnect SRS unit connector B (28P) from the SRS unit, dashboard wire harness connector C (16P) from the gauge assembly, and the driver's multiplex control unit from the driver's under-dash fuse/relay box.

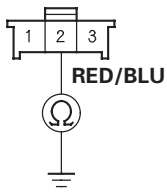


(cont'd)

DTC Troubleshooting (cont'd)

11. Check resistance between the No. 2 terminal of the driver's seat wire harness (with power seat) or left side wire harness (without power seat) 3P connector and body ground. There should be an open circuit, or at least 1 MΩ.

DRIVER'S SEAT WIRE HARNESS 3P CONNECTOR (WITH POWER SEAT)
LEFT SIDE WIRE HARNESS 3P CONNECTOR (WITHOUT POWER SEAT)



Wire side of female terminals

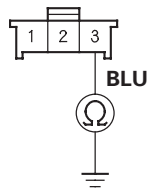
Is the resistance as specified?

YES—Go to step 12.

NO—Short to ground in the driver's seat wire harness (with power seat), left side wire harness, dashboard wire harness A, SRS main harness, SRS floor harness or multiplex control unit, or gauge assembly; replace the faulty harness or part. ■

12. Check resistance between the No. 3 terminal of the driver's seat wire harness (with power seat) or left side wire harness (without power seat) 3P connector and body ground. There should be an open circuit, or at least 1 MΩ.

DRIVER'S SEAT WIRE HARNESS 3P CONNECTOR (WITH POWER SEAT)
LEFT SIDE WIRE HARNESS 3P CONNECTOR (WITHOUT POWER SEAT)



Wire side of female terminals

Is the resistance as specified?

YES—Replace the SRS unit (see page 23-384). ■

NO—Short to ground in the driver's seat wire harness (with power seat), dashboard wire harness A, SRS main harness or SRS floor harness; replace the faulty harness. ■

'03-04 Models

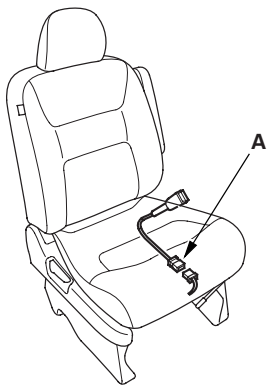
DTC 62-1x (62-10 to 62-19, 62-1A to 62-1F): Open in Front Passenger's Seat Belt Buckle Switch

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), then buckle and unbuckle the front passenger's seat belt several times.
3. Read the DTC (see page 23-38).

   Is DTC 62-1x indicated?

   YES—Go to step 4.

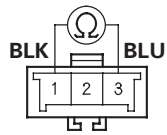
   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
4. Turn the ignition switch OFF.
5. Disconnect the front passenger's seat belt buckle switch 3P connector (A).



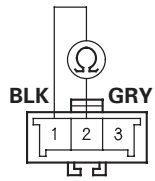
6. Buckle the front passenger's seat belt.

   • Check resistance between the No. 1 and No. 3 terminals of the front passenger's seat belt buckle switch 3P connector. There should be 0—1 Ω.
   • Check resistance between the No. 1 and No. 2 terminals of the same connector. There should be an open circuit, or at least 1 MΩ.

FRONT PASSENGER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

Is the resistance as specified?

YES—Go to step 7.

NO—Replace the front passenger's seat belt buckle assembly, then clear the DTC. ■

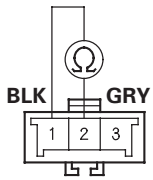
(cont'd)

DTC Troubleshooting (cont'd)

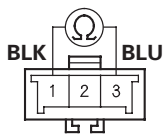
7. Unbuckle the front passenger's seat belt.

   • Check resistance between the No. 1 and No. 2 terminals of the front passenger's seat belt buckle switch 3P connector. There should be 0—1 Ω.
   • Check resistance between the No. 1 and No. 3 terminals of the same connector. There should be an open circuit, or at least 1 MΩ.

FRONT PASSENGER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

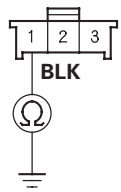
Is the resistance as specified?

YES—Go to step 8.

NO—Replace the front passenger's seat belt buckle assembly, then clear the DTC. ■

8. Check resistance between the No. 1 terminal of the passenger's seat wire harness (with seat heater) or right side wire harness (without seat heater) 3P connector and body ground. There should be 0—1 Ω.

PASSENGER'S SEAT WIRE HARNESS 3P CONNECTOR (WITH SEAT HEATER)
RIGHT SIDE WIRE HARNESS 3P CONNECTOR (WITHOUT SEAT HEATER)



Wire side of female terminals

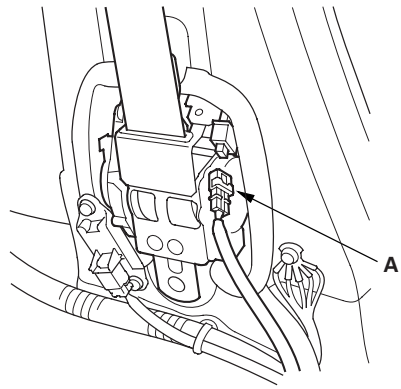
Is the resistance as specified?

YES—Go to step 9.

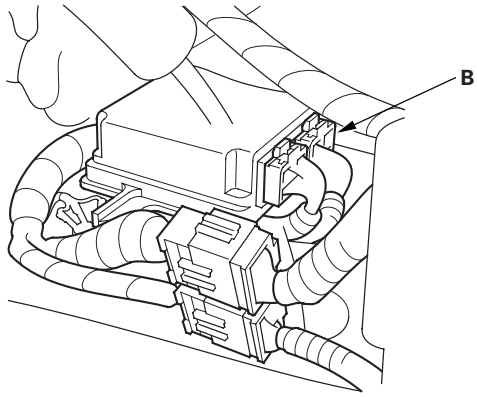
NO—Open in the passenger's seat wire harness (with seat heater), right side wire harness (without seat heater) or poor ground connection at G581. If G581 is OK, replace the faulty harness. ■

9. Disconnect the negative cable from the battery.

10. Disconnect both seat belt tensioner 2P connectors from the side wire harness (A).



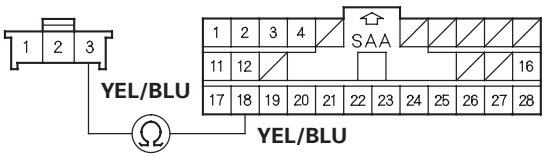
11. Disconnect SRS unit connector B (28P) from the SRS unit.



12. Check resistance between the No. 18 terminal of SRS unit connector B (28P) and the No. 3 terminal of the passenger's seat wire harness (with seat heater) or right side wire harness (without seat heater) 3P connector. There should be 0—1 Ω.

PASSENGER'S SEAT WIRE HARNESS 3P CONNECTOR (WITH SEAT HEATER) RIGHT SIDE WIRE HARNESS 3P CONNECTOR (WITHOUT SEAT HEATER)

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

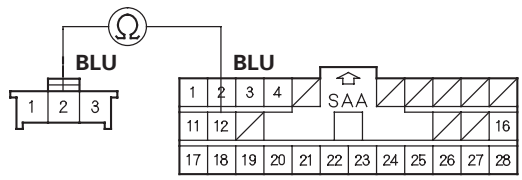
YES—Go to step 13.

NO—Open in the passenger's seat wire harness (with seat heater), right side wire harness, dashboard wire harness A, SRS main harness or SRS floor harness; replace the faulty harness. ■

13. Check resistance between the No. 12 terminal of SRS unit connector B (28P) and the No. 2 terminal of the passenger's seat wire harness (with seat heater) or right side wire harness (without seat heater) 3P connector. There should be 0—1 Ω.

PASSENGER'S SEAT WIRE HARNESS 3P CONNECTOR (WITH SEAT HEATER) RIGHT SIDE WIRE HARNESS 3P CONNECTOR (WITHOUT SEAT HEATER)

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Replace the SRS unit (see page 23-384). ■

NO—Open in the passenger's seat wire harness (with seat heater), right side wire harness, dashboard wire harness A, SRS main harness, or SRS floor harness; replace the faulty harness. ■

DTC Troubleshooting (cont'd)

'03-04 Models

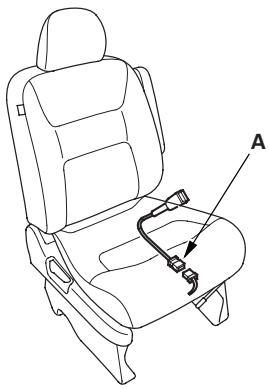
DTC 62-2x (62-20 to 62-29, 62-2A to 62-2F): Short in Front Passenger's Seat Belt Buckle Switch

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), then buckle and unbuckle the front passenger's seat belt several times.
3. Read the DTC (see page 23-38).

   Is DTC 62-2x indicated?

   YES—Go to step 4.

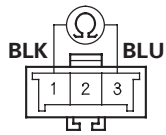
   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
4. Turn the ignition switch OFF.
5. Disconnect the front passenger's seat belt buckle switch 3P connector (A).



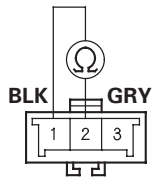
6. Buckle the front passenger's seat belt.

   • Check resistance between the No. 1 and No. 3 terminals of the front passenger's seat belt buckle switch 3P connector. There should be 0—1 Ω.
   • Check resistance between the No. 1 and No. 2 terminals of the same connector. There should be an open circuit, or at least 1 MΩ.

FRONT PASSENGER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

Is the resistance as specified?

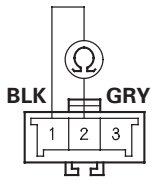
YES—Go to step 7.

NO—Replace the front passenger's seat belt buckle assembly, then clear the DTC. ■

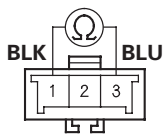
7. Unbuckle the front passenger's seat belt.

   • Check resistance between the No. 1 and No. 2 terminals of the front passenger's seat belt buckle switch 3P connector. There should be 0 — 1 Ω.
   • Check resistance between the No. 1 and No. 3 terminals of the same connector. There should be an open circuit, or at least 1 MΩ.

FRONT PASSENGER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

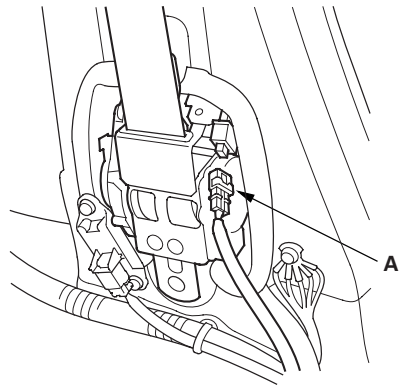
Is the resistance as specified?

YES — Go to step 8.

NO — Replace the front passenger's seat belt buckle assembly, then clear the DTC. ■

8. Disconnect the battery negative cable and wait for 3 minuites.

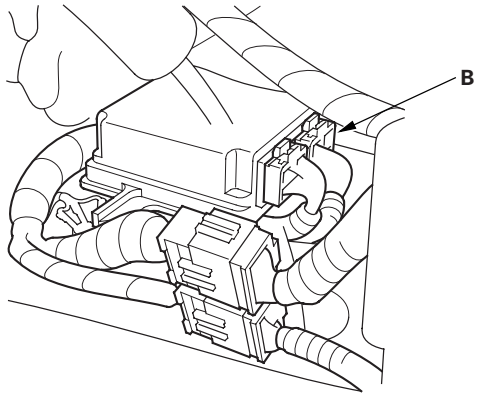
9. Disconnect both seat belt tensioner 2P connectors from the side wire harness (A).



(cont'd)

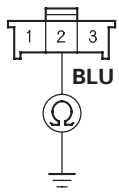
DTC Troubleshooting (cont'd)

10. Disconnect SRS unit connector B (28P) from the SRS unit.



11. Check resistance between the No. 2 terminal of the passenger's seat wire harness (with seat heater) or right side wire harness (without seat heater) 3P connector and body ground. There should be an open circuit, or at least 1 MΩ.

PASSENGER'S SEAT WIRE HARNESS 3P CONNECTOR (WITH SEAT HEATER)
RIGHT SIDE WIRE HARNESS 3P CONNECTOR (WITHOUT SEAT HEATER)



Wire side of female terminals

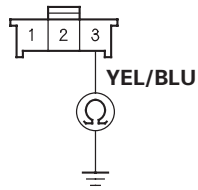
Is the resistance as specified?

YES—Go to step 12.

NO—Short to ground in the passenger's seat wire harness (with seat heater), right side wire harness, dashboard wire harness A, SRS main harness or SRS floor harness; replace the faulty harness. ■

12. Check resistance between the No. 3 terminal of the passenger's seat wire harness (with seat heater) or right side wire harness (without seat heater) 3P connector and body ground. There should be an open circuit, or at least 1 MΩ.

PASSENGER'S SEAT WIRE HARNESS 3P CONNECTOR (WITH SEAT HEATER)
RIGHT SIDE WIRE HARNESS 3P CONNECTOR (WITHOUT SEAT HEATER)



Wire side of female terminals

Is the resistance as specified?

YES—Replace the SRS unit (see page 23-384). ■

NO—Short to ground in the passenger's seat wire harness (with seat heater), right side wire harness, dashboard wire harness A, SRS main harness or SRS floor harness; replace the faulty harness. ■

'03-04 Models

DTC 71-1x (71-10 to 71-19, 71-1A to 71-1F): Open in the Driver's Seat Position Sensor

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

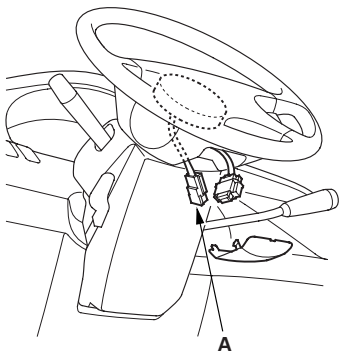
   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Check the connection between the driver's seat wire harness 2P connector (with power seat) or driver's seat position sensor subharness 2P connector (without power seat) and the driver's seat position sensor.
4. Erase the DTC memory.
5. Read the DTC (see page 23-38).

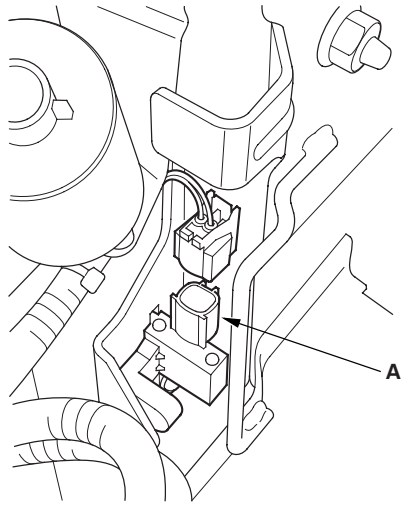
   Is DTC 71-1x indicated?

   YES—Go to step 6.

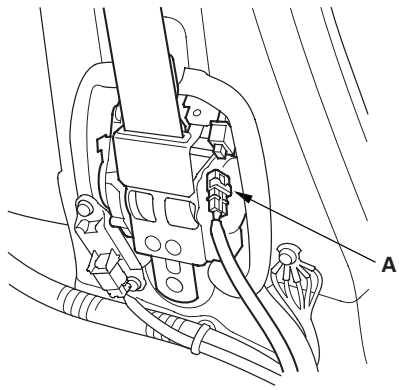
   NO—Repair the poor connections and retest. If DTC 71-1x is still present, go to step 6.
6. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
7. Disconnect the driver's airbag 4P connector (A) from the cable reel.



8. Disconnect the driver's seat wire harness 2P connector (with power seat) or driver's seat position sensor subharness 2P connector (without power seat) from the driver's seat position sensor (A).



9. Connect the special tool (jumper connector) to the driver's seat wire harness 2P connector (with power seat) or driver's seat position sensor subharness 2P connector (without power seat).
10. Disconnect both seat belt tensioner 2P connectors from the side wire harness 2P connectors (A).



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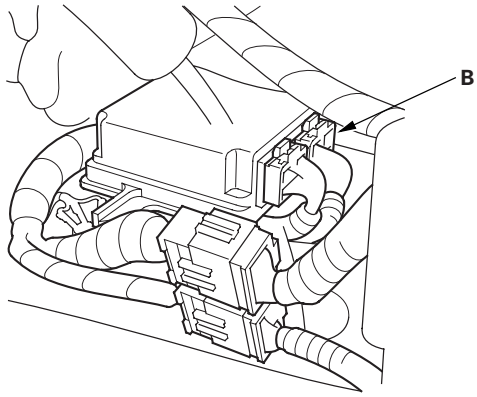
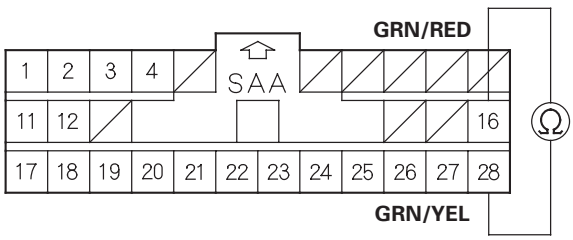
DTC Troubleshooting (cont'd)

11. Disconnect SRS unit connector B (28P) from the SRS unit.



12. Check resistance between the No. 16 and No. 28 terminals of SRS unit connector B (28P). There should be 0 — 1.0 Ω.

SRS UNIT CONNECTOR B (28P)



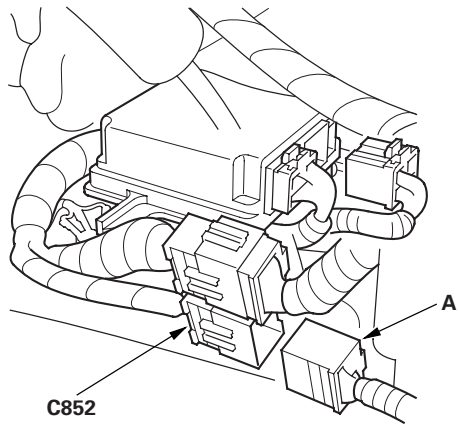
Wire side of female terminals

Is the resistance as specified?

YES — Faulty driver's seat position sensor or SRS unit; replace the driver's seat position sensor (see page 23-392). If the problem is still present, replace the SRS unit (see page 23-384). ■

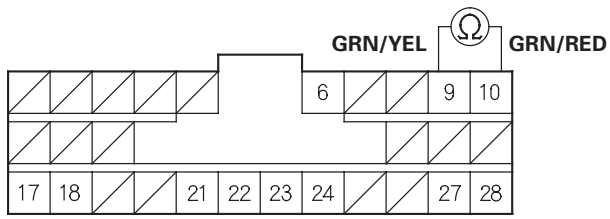
NO — Go to step 13.

13. Disconnect SRS floor harness 28P connector (A) from the SRS floor subharness connector C852.



14. Check resistance between the No. 9 and No. 10 terminals of SRS floor subharness 28P connector. There should be 0 — 1.0 Ω.

SRS FLOOR SUBHARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

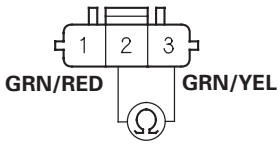
YES — Open in the SRS floor harness; replace the SRS floor harness. ■

NO — Go to step 15.

15. Disconnect SRS floor subharness 3P connector C558 from the left side wire harness.

16. Check resistance between the No. 2 and No. 3 terminals of left side wire harness 3P connector. There should be 0 — 1.0 Ω.

LEFT SIDE WIRE HARNESS 3P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

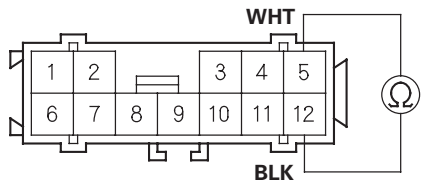
YES — Open in the SRS floor subharness; replace the SRS floor subharness. ■

NO — Go to step 17.

17. Disconnect the left side wire harness 12P connector C552 from the driver's seat wire harness (with power seat) or the left side wire harness 2P connector C559 from the driver's seat position sensor subharness (without power seat).

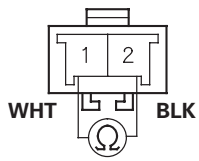
18. Check resistance between the No. 5 and No. 12 terminals of the driver's seat wire harness 12P connector (with power seat) or between the No. 1 and No. 2 terminals of the driver's seat position sensor subharness 2P connector (without power seat). There should be 0 — 1.0 Ω.

DRIVER'S SEAT WIRE HARNESS 12P CONNECTOR (WITH POWER SEAT)



Terminal side of male terminals

DRIVER'S SEAT POSITION SENSOR SUBHARNESS 2P CONNECTOR (WITHOUT POWER SEAT)



Terminal side of male terminals

Is the resistance as specified?

YES — Open in the left side wire harness; replace the left side wire harness. ■

NO — Open in the driver's seat wire harness (with power seat) or driver's seat position sensor subharness (without power seat); replace the faulty harness. ■

DTC Troubleshooting (cont'd)

'03-04 Models

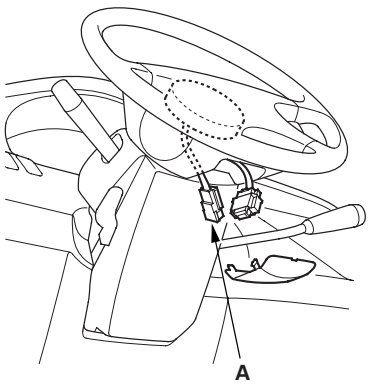
DTC 71-2x (71-20 to 71-29, 71-2A to 71-2F): Short to ground in the Driver's Seat Position Sensor

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

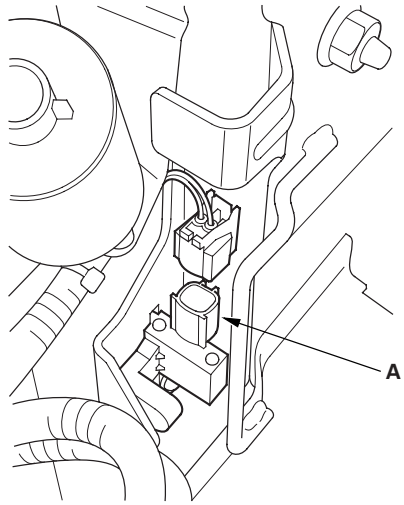
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector (A) from the cable reel.



5. Disconnect the driver's seat wire harness 2P connector (with power seat) or driver's seat position sensor 2P connector (without power seat) from the driver's seat position sensor (A).



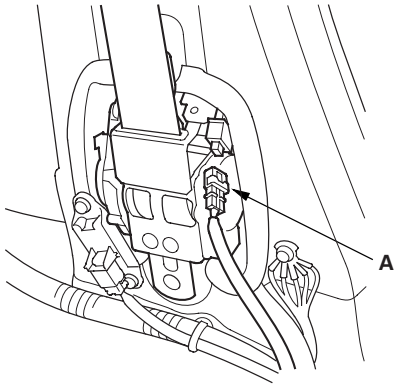
6. Reconnect the battery negative cable.
7. Erase the DTC memory.
8. Read the DTC (see page 23-38).

   Is DTC 71-2x indicated?

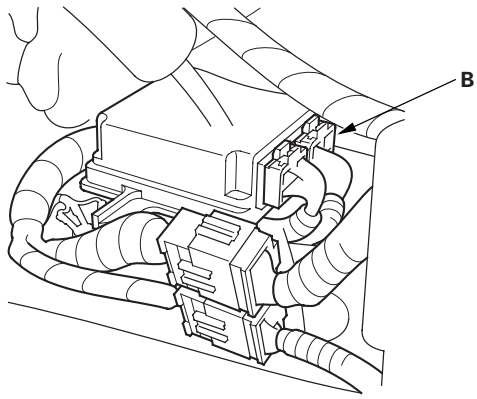
   YES—Go to step 9.

   NO—Faulty driver's seat position sensor; replace the driver's seat position sensor. ■
9. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors from the side wire harness 2P connectors (A).

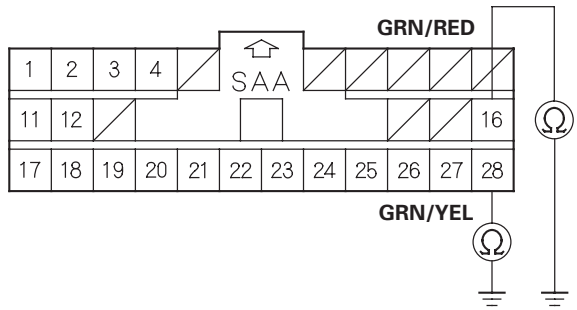


11. Disconnect SRS unit connector B (28P) from the SRS unit.



12. Check resistance between the No. 16 terminal of SRS unit connector B (28P) and body ground, and the No. 28 terminal and body ground. There should an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



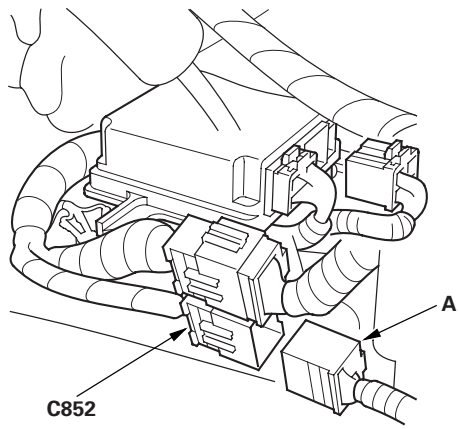
Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit, or poor contact at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 23-384). ■

NO—Go to step 13.

13. Disconnect SRS floor subharness 28P connector (A) from the SRS floor harness connector C852.

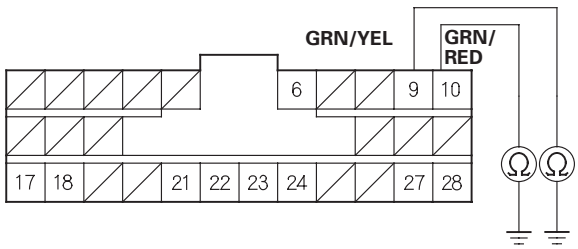


(cont'd)

DTC Troubleshooting (cont'd)

14. Check resistance between the No. 9 terminal of SRS floor subharness 28P connector C852 and body ground, and the No. 10 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

SRS FLOOR SUBHARNESS 28P CONNECTOR C852



Wire side of female terminals

Is the resistance as specified?

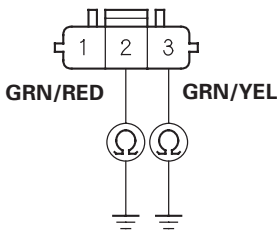
YES — Short to ground in the SRS floor harness; replace the SRS floor harness. ■

NO — Go to step 15.

15. Disconnect SRS floor subharness 3P connector C558 from the left side wire harness.

16. Check resistance between the No. 2 terminal of left side wire harness 3P connector C558 and body ground, and the No. 3 terminal and body ground. There should be an open circuit, or at least 1 MΩ.

LEFT SIDE WIRE HARNESS 3P CONNECTOR C558



Wire side of female terminals

Is the resistance as specified?

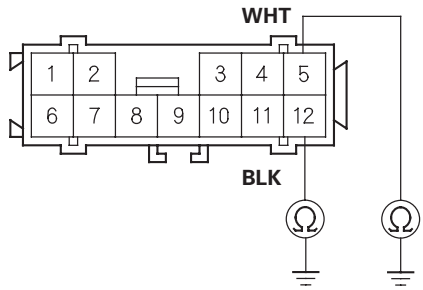
YES — Short to ground in the SRS floor subharness; replace the SRS floor subharness. ■

NO — Go to step 17.

17. Disconnect left side wire harness 12P connector C 552 from driver's seat wire harness (with power seat) or left side wire harness 2P connector C559 from the seat position sensor subharness (without power seat).

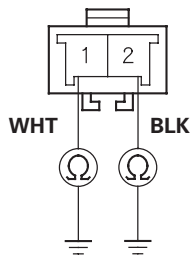
18. Check resistance between the No. 5 terminal of driver's seat wire harness 12P connector C552 and body ground, and the No. 12 terminal and body ground (with power seat) or between the No. 1 terminal of seat position sensor subharness 2P connector C559 and body ground, and the No. 2 terminal and body ground (without power seat). There should be an open circuit, or at least 1 MΩ.

DRIVER'S SEAT WIRE HARNESS 12P CONNECTOR C552 (WITH POWER SEAT)



Terminal side of male terminals

DRIVER'S SEAT POSITION SENSOR SUBHARNESS C559 2P CONNECTOR (WITHOUT POWER SEAT)



Terminal side of male terminals

Is the resistance as specified?

YES — Short to ground in the left side wire harness; replace the left side wire harness. ■

NO — Short to ground in the driver's seat wire harness (with power seat) or seat position sensor subharness (without power seat); replace the faulty harness. ■

'03-04 Models

DTC 81-61: No Signal from Front Passenger's Weight Sensor Unit

DTC 81-62: Non-stipulated Response Data

1. Make sure nothing is on the front passenger's seat.
2. Calibrate the front passenger's weight sensors unit (see page 23-42).
3. Erase the DTC memory (see page 23-39).
4. Read the DTC (see page 23-38).

   Is DTC 81-61 or 81-62 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
5. Check the connection between the right side wire harness 6P connector and the front passenger's weight sensor unit.
6. Erase the DTC.
7. Read the DTC.

   Is DTC 81-61 or 81-62 indicated?

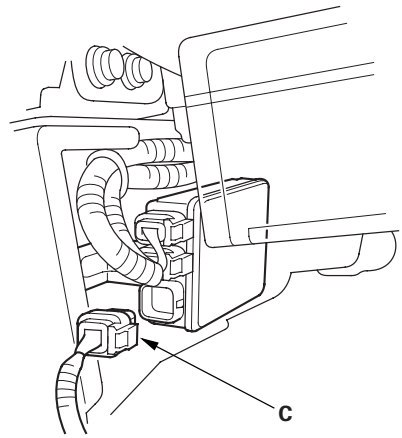
   YES—Go to step 8.

   NO—Repair the poor connections and retest. If DTC 81-61 or 81-62 is still present, go to step 8.
8. Turn the ignition switch OFF.
9. Check the No. 11 (10A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

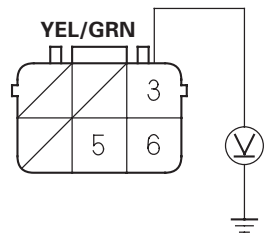
   YES—Go to step 10.

   NO—Replace the fuse, then turn the ignition switch ON (II). If the fuse blows again, check for a short in the No. 11 (10A) fuse circuit (dashboard wire harness, right side wire harness). ■
10. Disconnect the right side wire harness 6P connector C from the front passenger's weight sensor unit.



11. Turn the ignition switch ON (II).
12. Check for voltage between the No. 3 terminal of the right side wire harness 6P connector C and body ground. There should be battery voltage.

RIGHT SIDE WIRE HARNESS 6P CONNECTOR C



Wire side of female terminals

   Is there battery voltage?

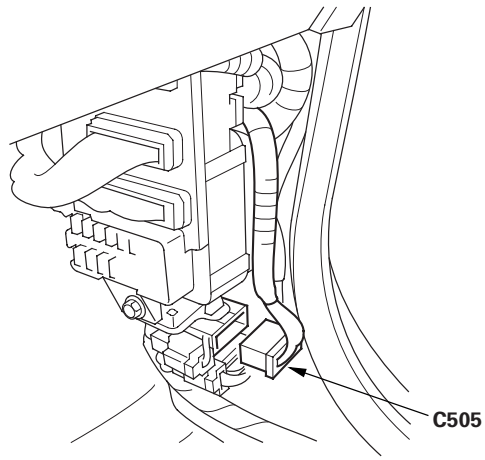
   YES—Go to step 17.

   NO—Go to step 13.
13. Turn the ignition switch OFF.

(cont'd)

DTC Troubleshooting (cont'd)

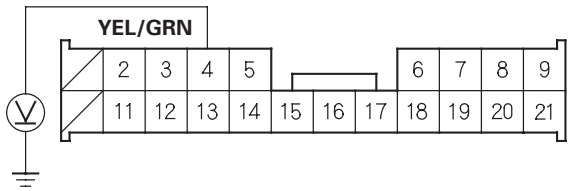
14. Disconnect dashboard wire harness A 21P connector C505 from the right side wire harness.



15. Turn the ignition switch ON (II).

16. Check for voltage between the No. 4 terminal of dashboard wire harness A 21P connector C505 and body ground. There should be battery voltage.

DASHBOARD WIRE HARNESS A 21P CONNECTOR C505



Wire side of female terminals

Is there battery voltage?

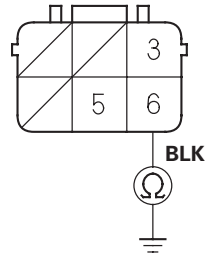
YES—Open in the YEL/GRN wire of the right side wire harness; replace the right side wire harness. ■

NO—Open in the YEL/GRN wire of the dashboard wire harness; replace the faulty harness. ■

17. Turn the ignition switch OFF.

18. Check resistance between the No. 6 terminal of the right side wire harness 6P connector C and body ground. There should be 0—1.0 Ω.

RIGHT SIDE WIRE HARNESS 6P CONNECTOR C



Wire side of female terminals

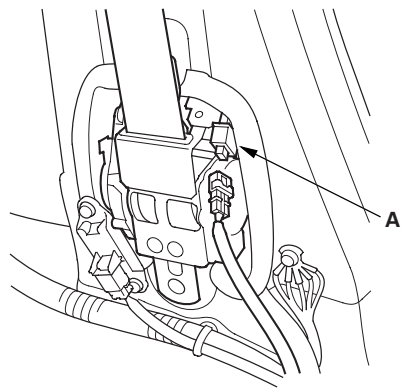
Is the resistance as specified?

YES—Go to step 19.

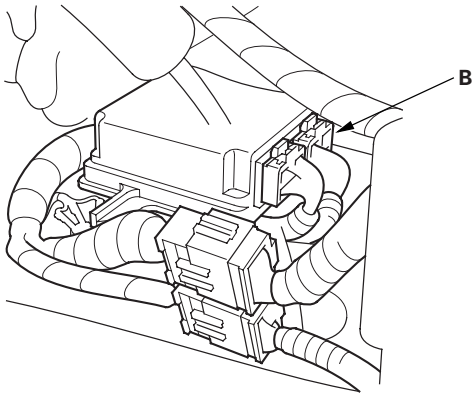
NO—Open in the BLK wire of the right side wire harness; check for poor ground connection at G851. If the connection is OK, replace the right side wire harness. ■

19. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

20. Disconnect both seat belt tensioner 2P connectors (A).

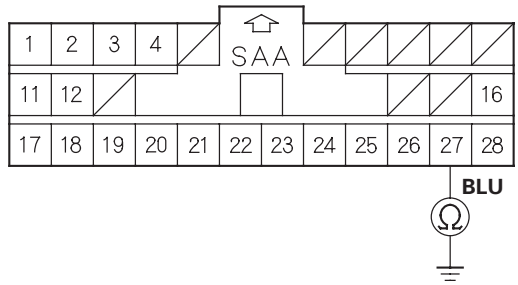


21. Disconnect SRS unit connector B (28P) from the SRS unit, and OPDS unit connector D (8P) from the OPDS unit.



22. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

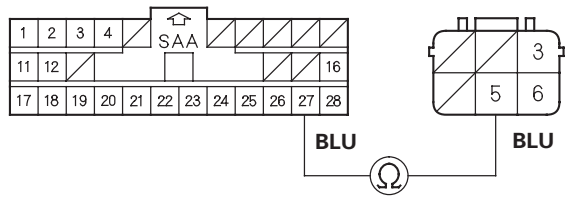
Is the resistance as specified?

YES—Go to step 23.

NO—Go to step 30.

23. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and the No. 5 terminal of the right side wire harness 6P connector C. There should be 0—1.0 Ω.

SRS UNIT CONNECTOR B (28P) **RIGHT SIDE WIRE HARNESS 6P CONNECTOR C**



Wire side of female terminals

Is the resistance as specified?

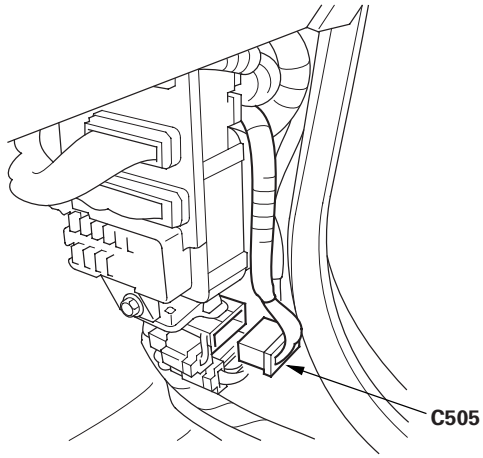
YES—Faulty front passenger's weight sensors unit or SRS unit; replace the front passenger's weight sensors unit (see page 23-391). If the problem is still present, replace the SRS unit (see page 23-391).■

NO—Go to step 24.

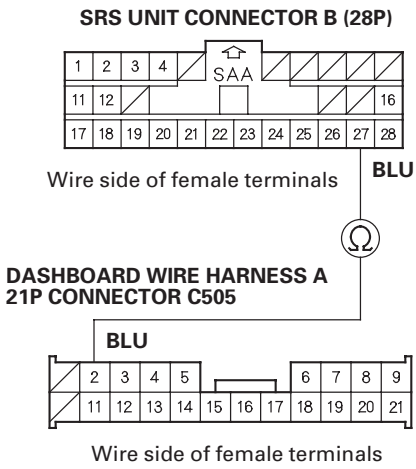
(cont'd)

DTC Troubleshooting (cont'd)

24. Disconnect dashboard wire harness A 21P connector C505 from the right side wire harness.



25. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and the No. 2 terminal of dashboard wire harness A 21P connector C505. There should be 0 — 1.0 Ω.

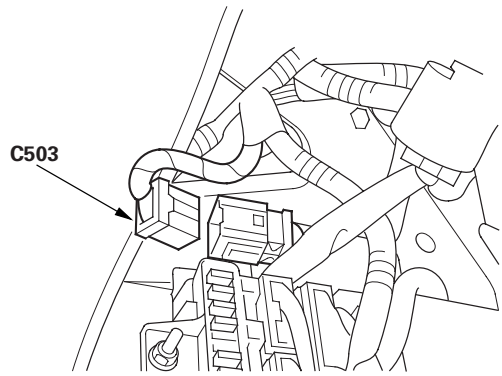


Is the resistance as specified?

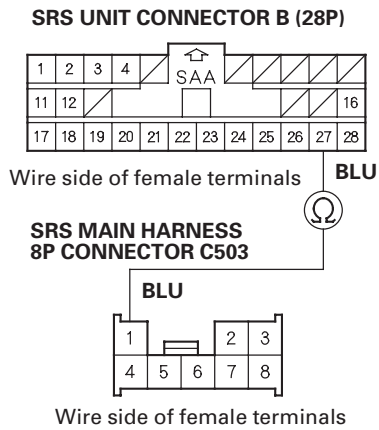
YES — Open in the BLU wire of the right side wire harness; replace the right side wire harness. ■

NO — Go to step 26.

26. Disconnect SRS main harness 8P connector C503 from dashboard wire harness A.



27. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and the No. 1 terminal of SRS main harness 8P connector C503. There should be 0 — 1.0 Ω.

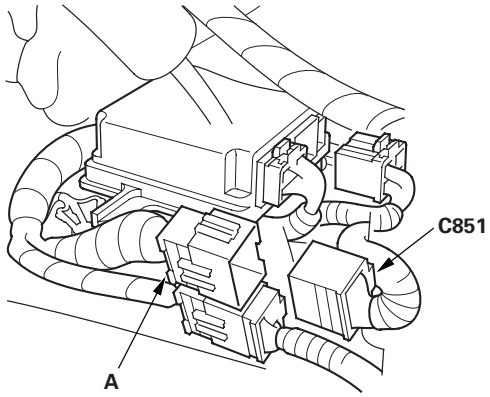


Is the resistance as specified?

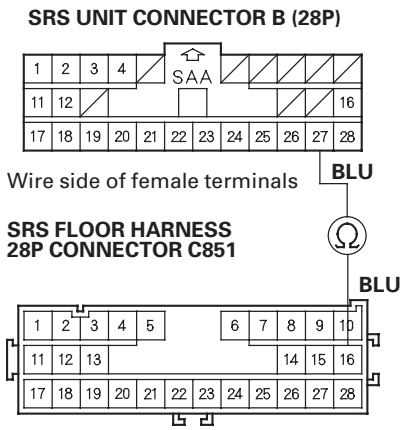
YES — Open in the BLU wire of dashboard wire harness A; replace dashboard wire harness A. ■

NO — Go to step 28.

28. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



29. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and the No. 16 terminal of SRS floor harness 28P connector C851. There should be 0 — 1.0 Ω.

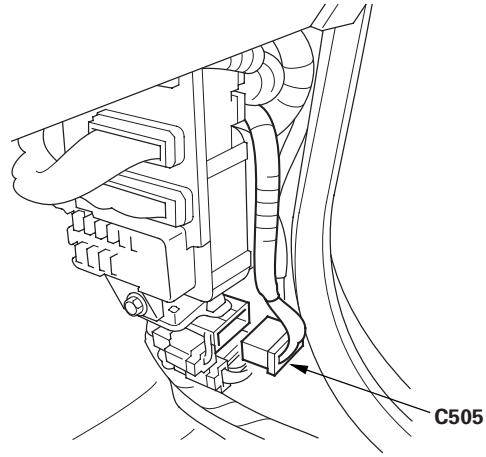


Is the resistance as specified?

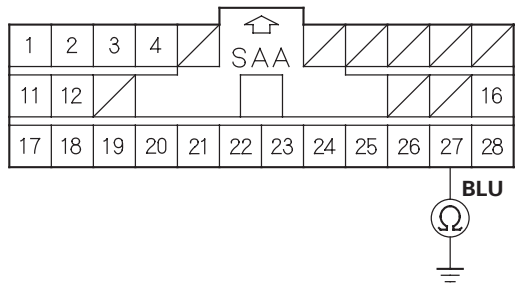
YES — Open in the BLU wire of the SRS main harness; replace the SRS main harness. ■

NO — Open in the BLU wire of the SRS floor harness; replace the SRS floor harness. ■

30. Disconnect dashboard wire harness A 21P connector C505 from the right side wire harness.



31. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and body ground. There should be an open circuit, or at least 1 MΩ.



Is the resistance as specified?

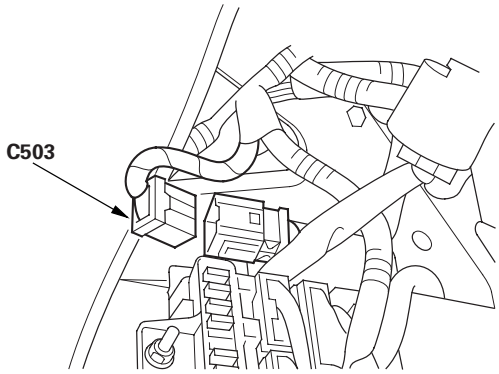
YES — Short to ground in the right side wire harness; replace the right side wire harness. ■

NO — Go to step 32.

(cont'd)

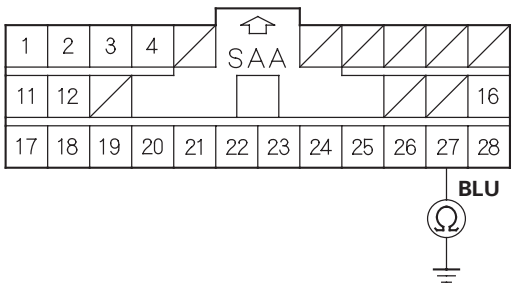
DTC Troubleshooting (cont'd)

32. Disconnect SRS main harness 8P connector C503 from dashboard wire harness A.



33. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



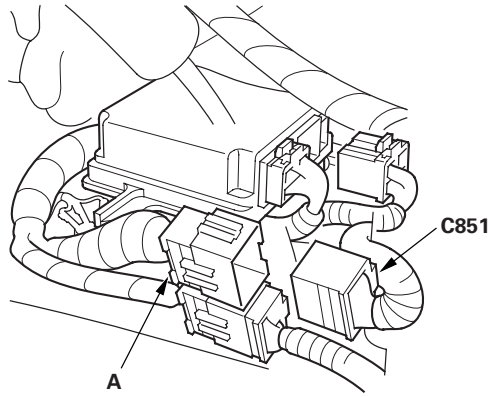
Wire side of female terminals

Is the resistance as specified?

YES—Short to ground in dashboard wire harness A; replace dashboard wire harness A. ■

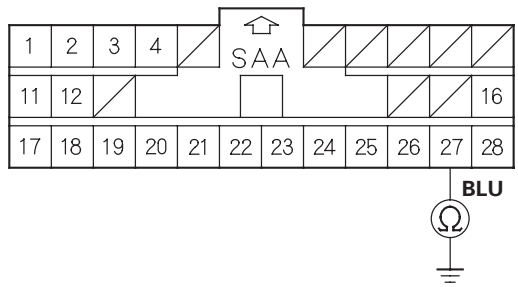
NO—Go to step 34.

34. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



35. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Short to ground in the SRS main harness; replace the SRS main harness. ■

NO—Short to ground in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 85-61: No Signal from the OPDS Unit

DTC 85-62: Non-stipulated Response Data

1. Make sure nothing is on the front passenger's seat.
2. Erase the DTC memory (see page 23-38).
3. Initialize the OPDS unit (see page 23-41).
4. Read the DTC.

   Is DTC 85-61 or 85-62 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

5. Check the connection between the OPDS unit harness 8P connector and the OPDS unit.
6. Erase the DTC.
7. Initialize the OPDS unit.
8. Read the DTC.

   Is DTC 85-61, or 85-62 indicated?

   YES—Go to step 9.

   NO—Repair the poor connections and retest. If DTC 85-61 or 85-62 is still present, go to step 9.

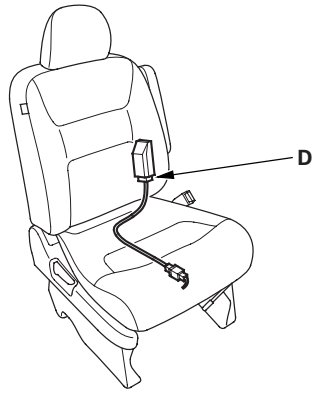
9. Turn the ignition switch OFF.
10. Check the No. 11 (10A) fuse in the driver's under-dash fuse/relay box.

    Is the fuse OK?

    YES—Go to step 11.

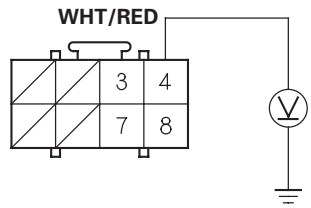
    NO—Replace the fuse, then turn the ignition switch ON (II). If the fuse blows again, check for a short in the No. 11 (10A) fuse circuit (dashboard wire harness, right side wire harness, passenger's seat wire harness (with seat heater), or OPDS unit harness). ■

11. Disconnect the OPDS unit harness 8P connector D from the OPDS unit.



12. Turn the ignition switch ON (II).
13. Check for voltage between the No. 4 terminal of the OPDS unit harness 8P connector and body ground. There should be battery voltage.

OPDS UNIT HARNESS 8P CONNECTOR D



Wire side of female terminals

Is there battery voltage?

YES—Go to step 18.

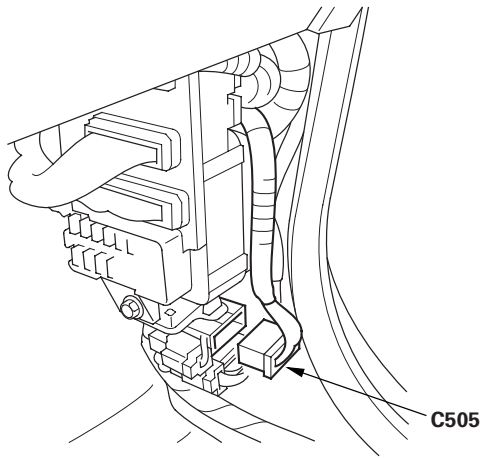
NO—Go to step 14.

14. Turn the ignition switch OFF.

(cont'd)

DTC Troubleshooting (cont'd)

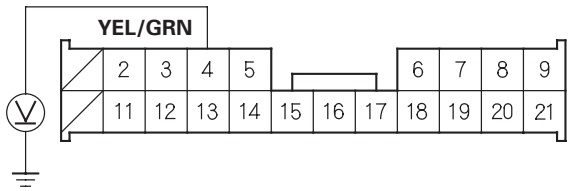
15. Disconnect dashboard wire harness A 21P connector C505 from the right side wire harness.



16. Turn the ignition switch ON (II).

17. Check for voltage between the No. 4 terminal of dashboard wire harness A 21P connector C505 and body ground. There should be battery voltage.

DASHBOARD WIRE HARNESS A 21P CONNECTOR C505



Wire side of female terminals

Is there battery voltage?

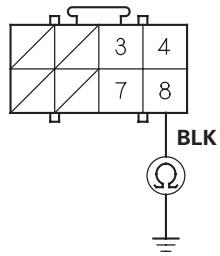
YES—Open in the YEL/GRN wire of the right side wire harness, passenger's seat wire harness (with seat heater), or OPDS unit harness; replace the faulty harness. ■

NO—Open in the YEL/GRN wire of the dashboard wire harness; replace the faulty harness. ■

18. Turn the ignition switch OFF.

19. Check resistance between the No. 8 terminal of the OPDS unit harness 8P connector D and body ground. There should be 0—1.0 Ω.

OPDS UNIT HARNESS 8P CONNECTOR D



Wire side of female terminals

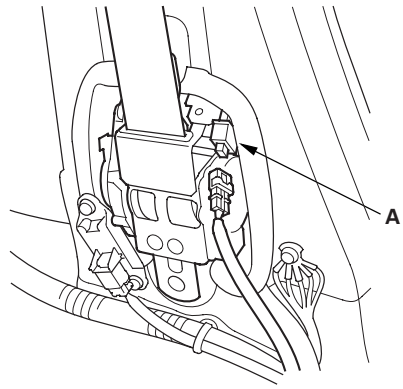
Is the resistance as specified?

YES—Go to step 20.

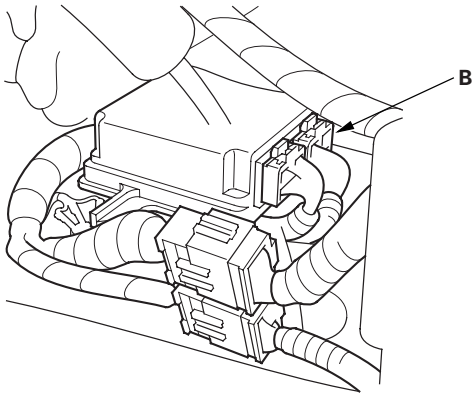
NO—Open in the BLK wire of the right side wire harness, passenger's seat wire harness (with seat heater), or OPDS unit harness; check for poor ground connection at G581. If the connection is OK, replace the faulty harness. ■

20. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

21. Disconnect both seat belt tensioner 2P connectors (A).

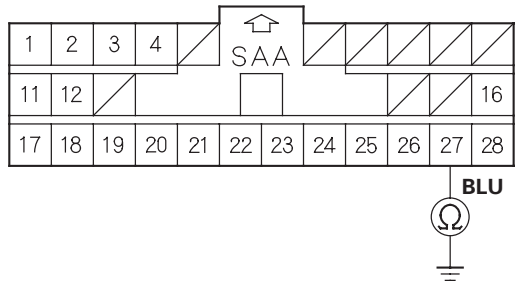


22. Disconnect SRS unit connector B (28P) from the SRS unit and connector C (6P) from the passenger's seat weight sensor unit.



23. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

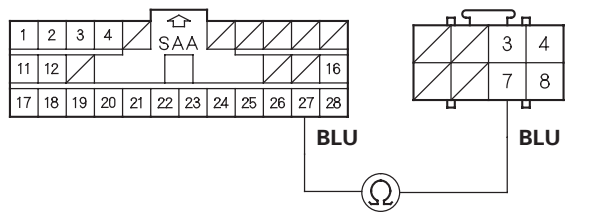
Is the resistance as specified?

YES—Go to step 24.

NO—Go to step 31.

24. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and the No. 7 terminal of the OPDS unit harness 8P connector D. There should be 0—1.0 Ω.

SRS UNIT CONNECTOR B (28P) **OPDS UNIT HARNESS 8P CONNECTOR D**



Wire side of female terminals

Is the resistance as specified?

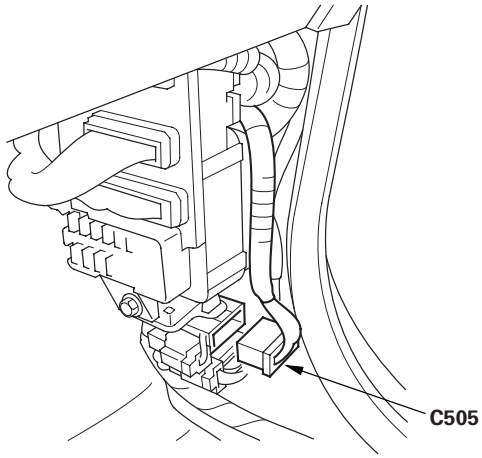
YES—Faulty OPDS unit or SRS unit; replace the OPDS unit (see page 23-387). If the problem is still present, replace the SRS unit (see page 23-382). ■

NO—Go to step 25.

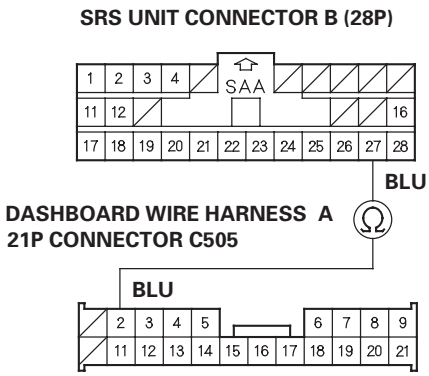
(cont'd)

DTC Troubleshooting (cont'd)

25. Disconnect dashboard wire harness A 21P connector C505 from the right side wire harness.



26. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and the No. 2 terminal of dashboard wire harness A 21P connector C505. There should be 0 — 1.0 Ω.



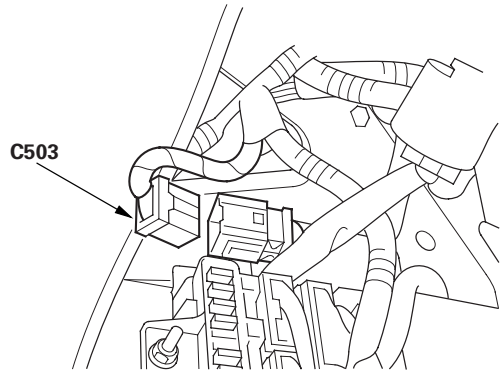
Wire side of female terminals

Is the resistance as specified?

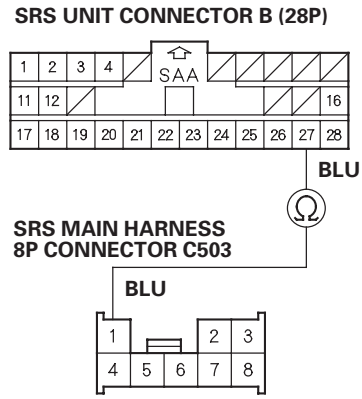
YES — Open in the BLU wire of the right side wire harness, passenger's seat wire harness (with seat heater), or OPDS unit harness; replace the faulty harness. ■

NO — Go to step 27.

27. Disconnect SRS main harness 8P connector C503 from dashboard wire harness A.



28. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and the No. 1 terminal of SRS main harness 8P connector C503. There should be 0 — 1.0 Ω.



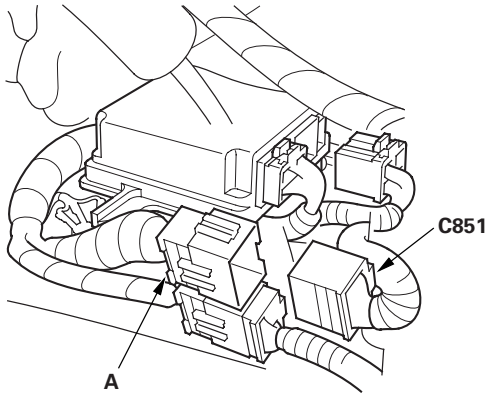
Wire side of female terminals

Is the resistance as specified?

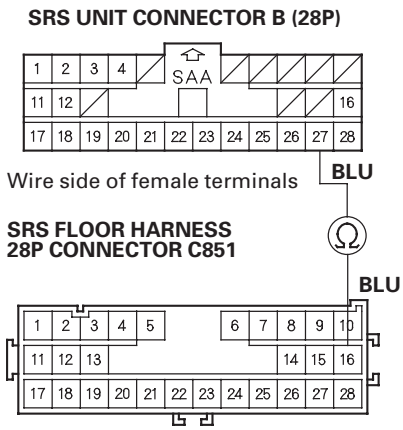
YES — Open in the BLU wire of dashboard wire harness A; replace dashboard wire harness A. ■

NO — Go to step 29.

29. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



30. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and the No. 16 terminal of SRS floor harness 28P connector C851. There should be 0 — 1.0 Ω.

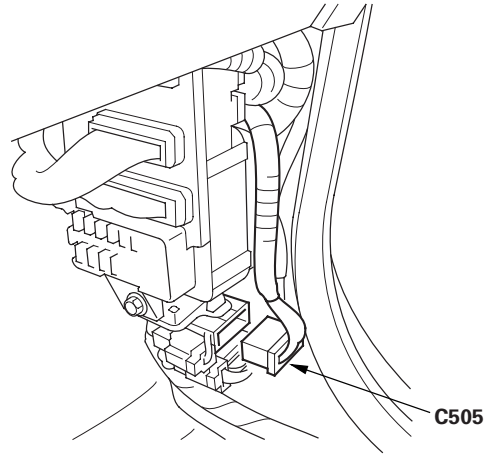


Is the resistance as specified?

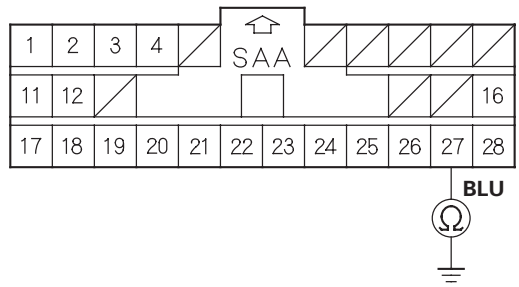
YES — Open in the BLU wire of the SRS main harness; replace the SRS main harness. ■

NO — Open in the BLU wire of the SRS floor harness; replace the SRS floor harness. ■

31. Disconnect dashboard wire harness A 21P connector C505 from the right side wire harness.



32. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and body ground. There should be an open circuit, or at least 1 MΩ.



Is the resistance as specified?

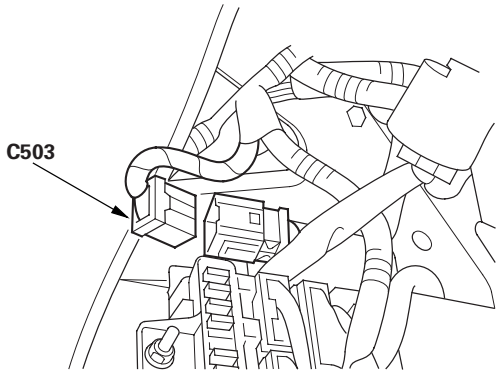
YES — Short to ground in the right side wire harness, passenger's seat wire harness (with power seat), or OPDS unit harness; replace the faulty harness. ■

NO — Go to step 33.

(cont'd)

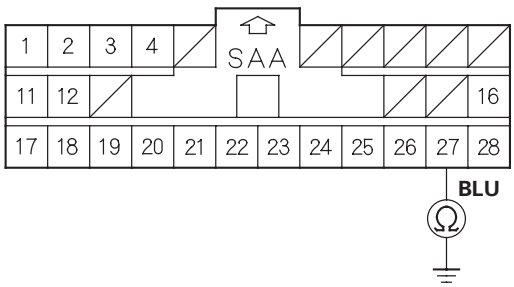
DTC Troubleshooting (cont'd)

33. Disconnect SRS main harness 8P connector C503 from dashboard wire harness A.



34. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



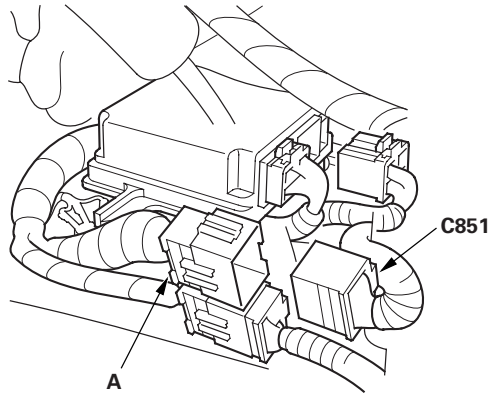
Wire side of female terminals

Is the resistance as specified?

YES—Short to ground in dashboard wire harness A; replace dashboard wire harness A. ■

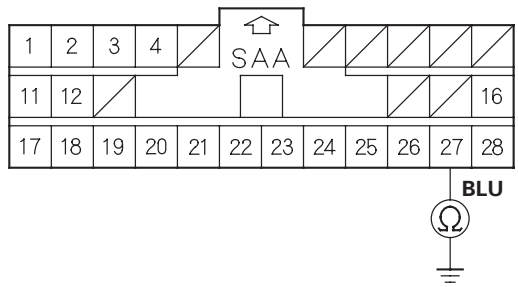
NO—Go to step 35.

35. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



36. Check resistance between the No. 27 terminal of SRS unit connector B (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Short to ground in the SRS main harness; replace the SRS main harness. ■

NO—Short to ground in the SRS floor harness; replace the SRS floor harness. ■

'03-04 Models

DTC 81-4x (81-40 to 81-49, 81-4A to 81-4F), 81-5x (81-50 to 81-59, 81-5A to 81-5F), 81-63, 81-64: Internal Failure of the Front Passenger's Weight Sensor Unit

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the front passenger's weight sensor unit (see page 23-391). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

'03-04 Models

DTC 85-4x (85-40 to 85-49, 85-4A to 85-4F), 85-5x (85-50 to 85-59, 85-5A to 85-5F), 85-63, 85-64: Internal Failure of the OPDS Unit

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the OPDS unit (see page 23-387). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 81-79: Front Passenger's Weight Sensors Drift Check Failure

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Turn the ignition switch OFF, and go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Make sure nothing is on the front passenger's seat.
4. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?

   YES—The system is OK. ■

   NO—Remove the seat assembly (see page 20-81) and front passenger's weight sensors, then reinstall them. Calibrate the front passenger's weight sensor unit (see page 23-42). Retry the troubleshooting. ■

'03-04 Models

DTC 85-79: OPDS Sensor Drift Check Failure

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Turn the ignition switch OFF, and go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Make sure nothing is on the front passenger's seat.
4. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?

   YES—The system is OK. ■

   NO—Initialize the OPDS (see page 23-41). If the problem is still present, replace the OPDS unit (see page 23-387). ■

'03-04 Models

DTC 86-1x (86-10 to 86-19, 86-1A to 86-1F):
Faulty Seat-back Sensor

DTC 86-2x (86-20 to 86-29, 86-2A to 86-2F):
Faulty Support Sensor

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Check the connection at the OPDS sensor harness connector and the OPDS unit connector.

   Are the connections OK?

   YES—Go to step 4.

   NO—Reconnect the OPDS sensor harness connector, and clear the DTC. ■

4. Replace the OPDS sensor/seat back foam (see page 20-102), and reinitialize the OPDS (see page 23-41).

5. Erase the DTC memory, then check for DTC 86-1x or 86-2x.

   Is DTC 86-1x or 86-2x indicated?

   YES—Go to step 6.

   NO—The system is OK. ■

6. Replace the OPDS unit (see page 23-387), and reinitialize the OPDS.

7. Erase the DTC memory, then check for DTC 86-1x or 86-2x.

   Is DTC 86-1x or 86-2x indicated?

   YES—Replace the SRS unit (see page 23-384). ■

   NO—The system is OK. ■

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 87-31: The Side Airbag Cutoff Indicator Does Not Come On

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the side airbag cutoff indicator stay on?

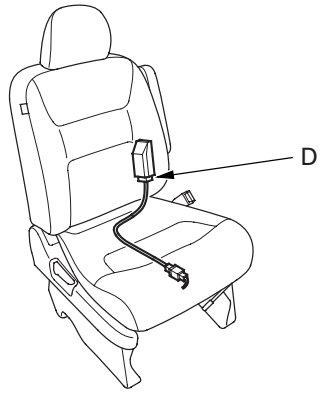
   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Make sure nothing is on the front passenger's seat.
4. Check the No. 9 (10A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

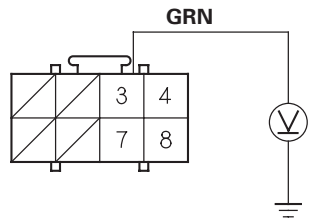
   YES—Go to step 5.

   NO—Repair the short to ground in the No. 9 (10A) fuse circuit. ■
5. Disconnect the OPDS unit harness 8P connector D from the OPDS unit.



6. Turn the ignition switch ON (II).
7. Check for voltage between the No. 3 terminal of the OPDS unit harness 8P connector D and body ground. There should be battery voltage.

OPDS UNIT HARNESS 8P CONNECTOR D



Wire side of female terminals

Is there battery voltage?

YES—Faulty OPDS unit; replace the OPDS unit (see page 23-387).

NO—Go to step 8.

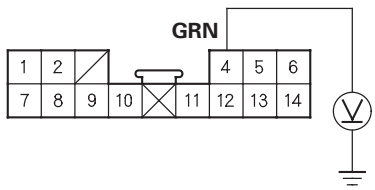
8. Turn the ignition switch OFF.

9. Backprobe the No. 4 terminal of gauge assembly connector A (14P). Do not disconnect gauge assembly connector A (14P) from the gauge assembly (see page 22-100).

10. Turn the ignition switch ON (II).

11. Check for voltage between the No. 4 terminal of gauge assembly connector A (14P) and body ground. There should be battery voltage.

GAUGE ASSEMBLY CONNECTOR A (14P)



Wire side of female terminals

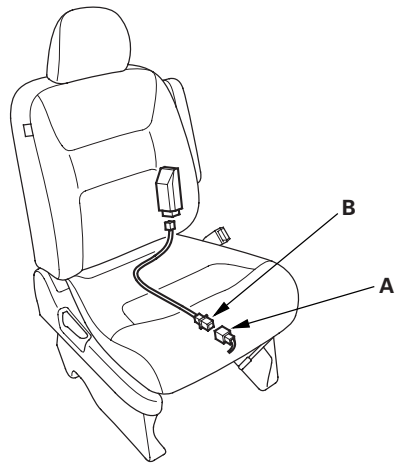
Is there battery voltage?

YES — Go to step 12.

NO — Go to step 16.

12. Turn the ignition switch OFF.

13. Disconnect the right side wire harness 4P connector (A) from the OPDS unit harness 4P connector (B).



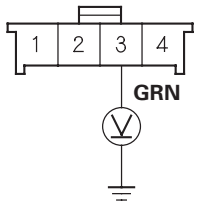
(cont'd)

DTC Troubleshooting (cont'd)

14. Turn the ignition switch ON (II).

15. Check for voltage between the No. 3 terminal of the passenger's seat wire harness 4P (with seat heater) or right side wire harness 4P (without seat heater) connector C861 and body ground. There should be battery voltage.

PASSENGER'S SEAT WIRE HARNESS 4P CONNECTOR C861 (WITH SEAT HEATER)
RIGHT SIDE WIRE HARNESS 4P CONNECTOR C861 (WITHOUT SEAT HEATER)



Wire side of female terminals

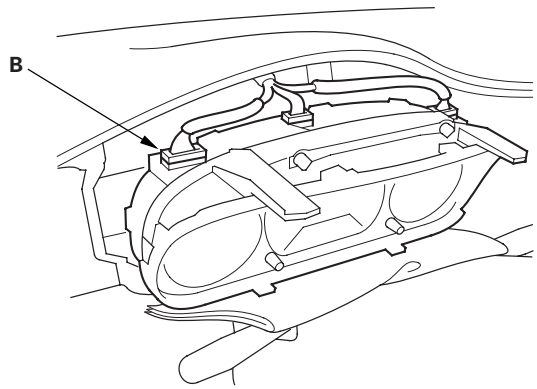
Is there battery voltage?

YES—Poor contact at the passenger's seat wire harness 4P (with seat heater) or right side wire harness 4P (without seat heater) and OPDS unit harness 4P connectors or an open in the OPDS unit harness. Check the connection between the passenger's seat wire harness 4P (with seat heater) or right side wire harness 4P (without seat heater) and OPDS unit harness 4P connectors; if the connection is OK, replace the OPDS unit harness. ■

NO—Poor contact at gauge assembly connector A (14P) or an open in the dashboard wire harness A, right side wire harness or passenger's seat wire harness (with seat heater). Check gauge assembly connector A (14P); if the connections are OK, replace the faulty harness. ■

16. Turn the ignition switch OFF.

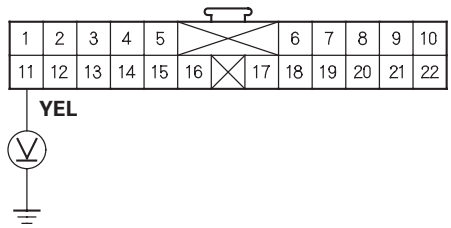
17. Disconnect gauge assembly connector B (22P) from the gauge assembly.



18. Turn the ignition switch ON (II).

19. Check for voltage between the No. 11 terminal of gauge assembly connector B (22P) and body ground. There should be battery voltage.

GAUGE ASSEMBLY CONNECTOR B (22P)



Wire side of female terminals

Is there battery voltage?

YES—Faulty side airbag cutoff indicator circuit; replace the gauge assembly. ■

NO—Open in the dashboard wire harness A; replace dashboard wire harness A. ■

'03-04 Models

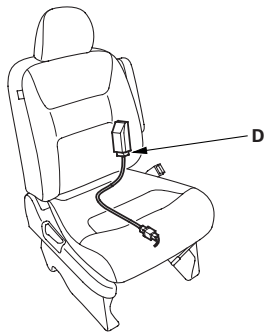
DTC 87-32: The Side Airbag Cutoff Indicator Stays On

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the side airbag cutoff indicator stay on?

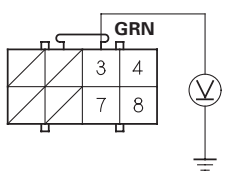
   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Make sure nothing is on the front passenger's seat.
4. Disconnect the OPDS unit harness 8P connector D from the OPDS unit.



5. Turn the ignition switch ON (II).
6. Check for voltage between the No. 3 terminal of the OPDS unit harness 8P connector D and body ground. There should be battery voltage.

OPDS UNIT HARNESS 8P CONNECTOR D



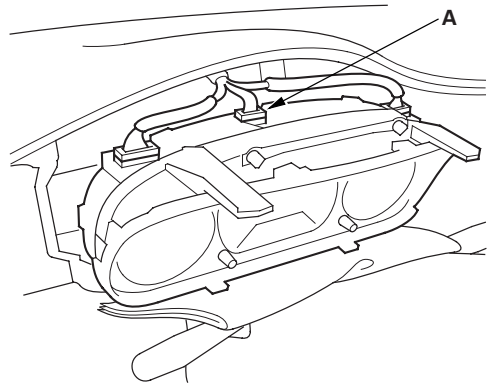
Wire side of female terminals

Is there battery voltage?

YES—Faulty OPDS unit; replace the OPDS unit (see page 23-387).

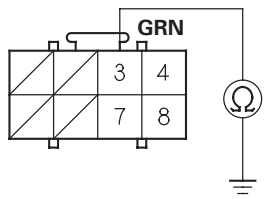
NO—Go to step 7.

7. Turn the ignition switch OFF.
8. Disconnect gauge assembly connector A (14P) from the gauge assembly (see page 22-100).



9. Check resistance between the No. 3 terminal of OPDS unit harness 8P connector D and body ground. There should be an open circuit, or at least 1 MΩ.

OPDS UNIT HARNESS 8P CONNECTOR D



Wire side of female terminals

Is the resistance as specified?

YES—Short to ground in the gauge assembly; replace the gauge assembly. ■

NO—Short to ground in the OPDS unit harness, passenger's seat wire harness (with seat heater), right side wire harness, or dashboard wire harness A; replace the faulty harness. ■

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 91-1x (91-10 to 91-19, 91-1A to 91-1F):
Open in SRS Indicator Circuit

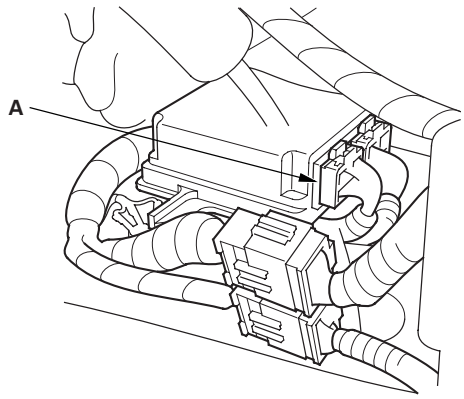
NOTE : If the SRS indicator does not come on, go to '' The SRS Indicator Does Not Come On '' in the symptom troubleshooting.

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

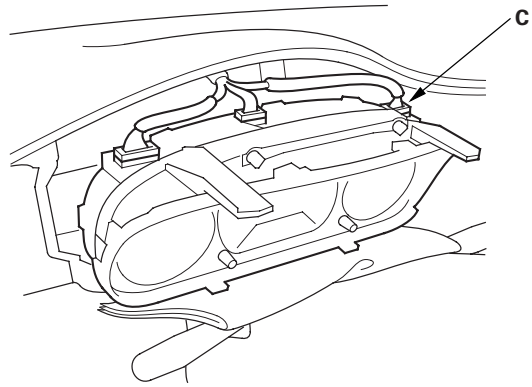
   Does the SRS indicator stay on?

   YES — Go to step 3.

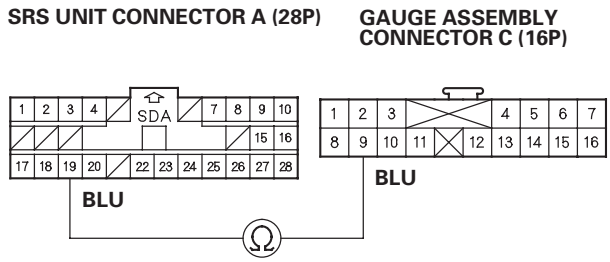
   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
4. Disconnect SRS unit connector A (28P) from the SRS unit.



5. Remove the gauge assembly (see page 22-100). Disconnect gauge assembly connector C (16P) from the gauge assembly.



6. Check resistance between the No. 19 terminal of SRS unit connector A (28P) and the No. 9 terminal of gauge assembly connector C (16P). There should be 0 — 1.0 Ω.



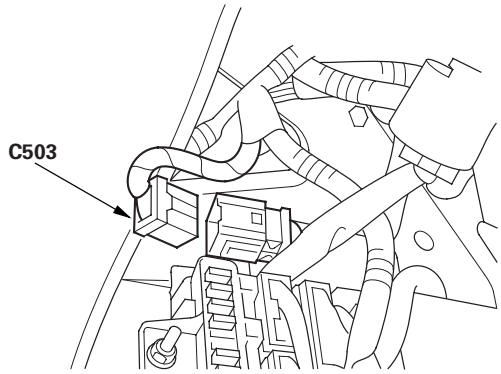
Wire side of female terminals

Is the resistance as specified?

YES — Go to step 11.

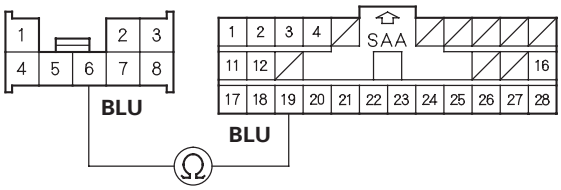
NO — Go to step 7.

7. Disconnect the SRS main harness 8P connector C503 from the dashboard wire harness A.



8. Check resistance between the No. 19 terminal of SRS unit connector A (28P) and the No. 6 terminal of SRS main harness 8P connector C503. There should be 0 — 1.0 Ω.

SRS MAIN HARNESS 8P CONNECTOR C503 **SRS UNIT CONNECTOR A (28P)**



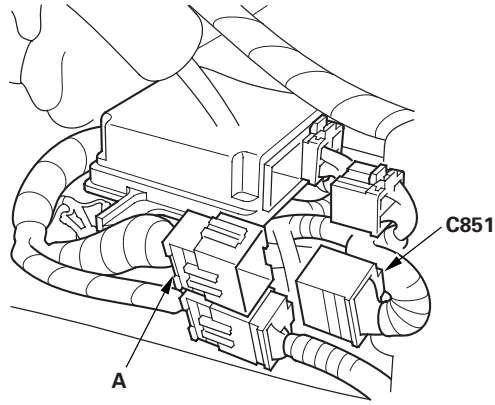
Wire side of female terminals

Is the resistance as specified?

YES — Open in dashboard wire harness A; replace dashboard wire harness A. ■

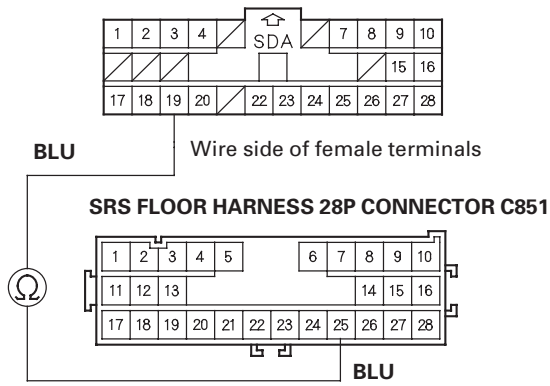
NO — Go to step 9.

9. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



10. Check resistance between the No. 19 terminal of SRS unit connector A (28P) and the No. 25 terminal of SRS floor harness 28P connector C851. There should be 0 — 1.0 Ω.

SRS UNIT CONNECTOR A (28P)



Terminal side of male terminals

Is the resistance as specified?

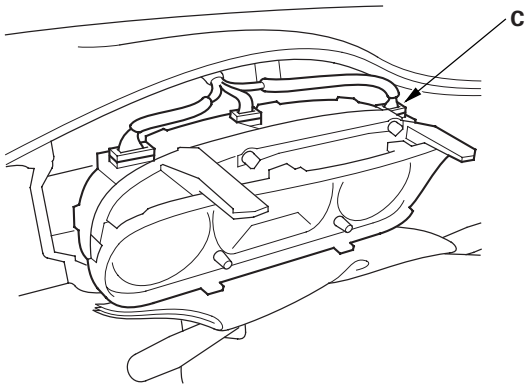
YES — Open in the SRS main harness; replace the SRS main harness. ■

NO — Open in the SRS floor harness; replace the SRS floor harness. ■

(cont'd)

DTC Troubleshooting (cont'd)

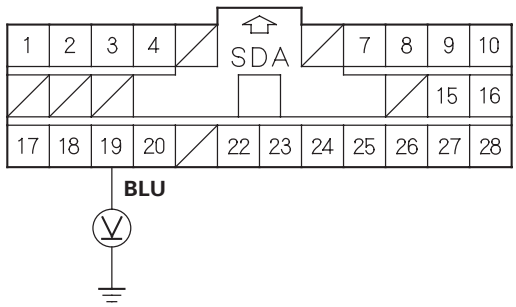
11. Reconnect gauge assembly connector C (16P).



12. Reconnect the battery negative cable.

13. Connect a voltmeter between the No. 19 terminal of SRS unit connector A (28P) and body ground. Turn the ignition switch ON (II), and measure voltage. There should be 1.6 V or less.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the voltage as specified?

YES—Open in the SRS indicator circuit or poor contact at gauge assembly connector C (16P) and the gauge assembly; if the connection is OK, replace the gauge assembly. ■

NO—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

'03-04 Models

DTC 91-2x (91-20 to 91-29, 91-2A to 91-2F): Short in SRS Indicator Circuit

1. Erase the DTC memory (see page 23-39).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

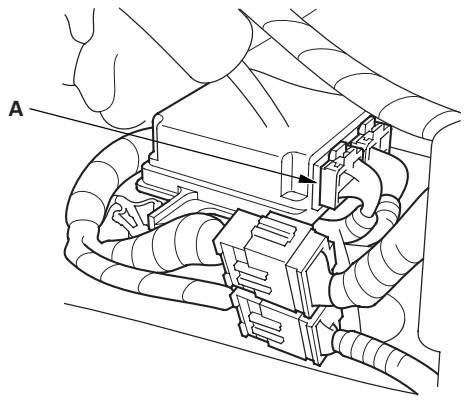
   Does the SRS indicator stay on?

   YES — Go to step 3.

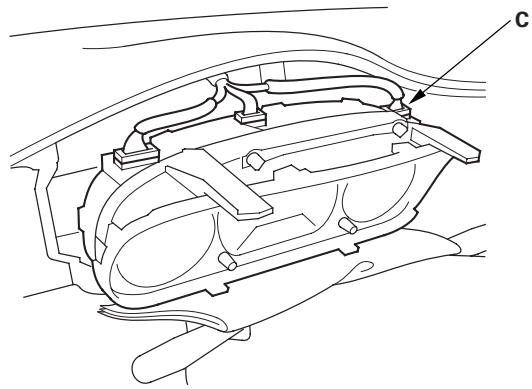
   NO — Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).

3. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

4. Disconnect SRS unit connector A (28P) from the SRS unit.

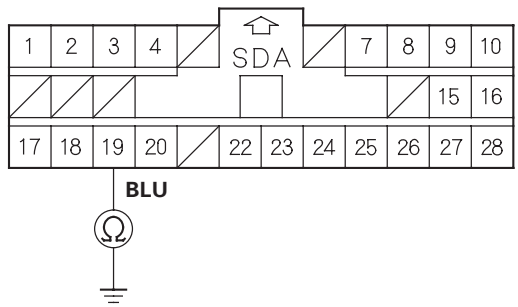


5. Remove the gauge assembly (see page 22-100). Disconnect gauge assembly connector C (16P) from the gauge assembly.



6. Check resistance between the No. 19 terminal of SRS unit connector A (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

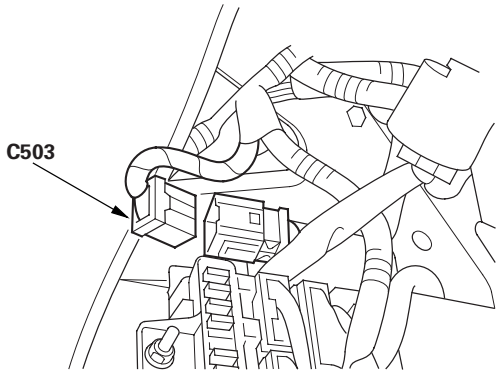
YES — Go to step 11.

NO — Go to step 7.

(cont'd)

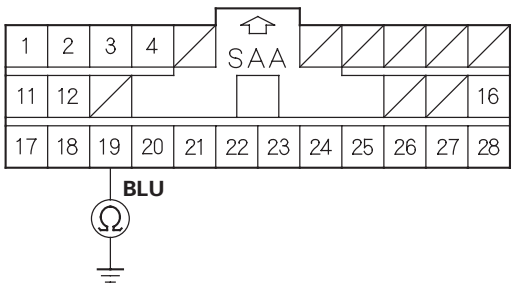
DTC Troubleshooting (cont'd)

7. Disconnect SRS main harness 8P connector C503 from dashboard wire harness A.



8. Check resistance between the No. 19 terminal of SRS unit connector A (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



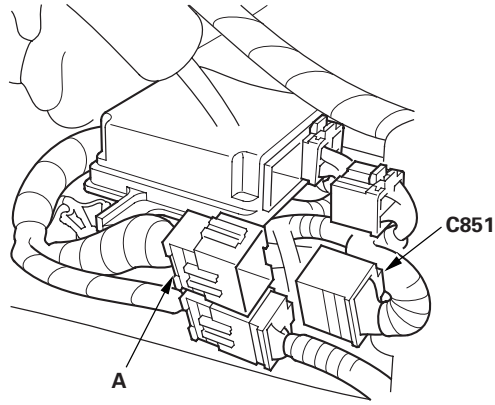
Wire side of female terminals

Is the resistance as specified?

YES — Short to ground in dashboard wire harness A; replace dashboard wire harness A. ■

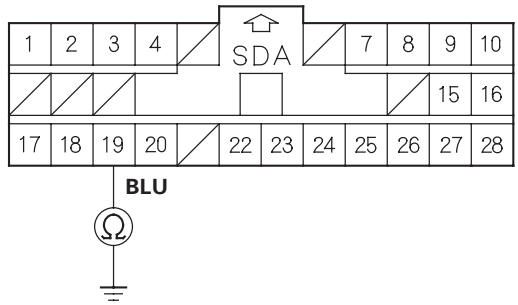
NO — Go to step 9.

9. Disconnect SRS floor harness 28P connector (A) from the SRS main harness connector C851.



10. Check resistance between the No. 19 terminal of SRS unit connector A (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



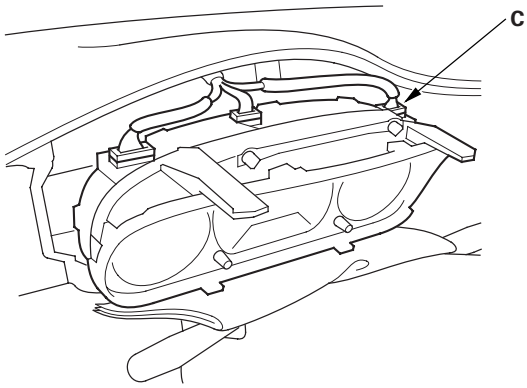
Wire side of female terminals

Is the resistance as specified?

YES — Short to ground in the SRS main harness; replace the SRS main harness. ■

NO — Short to ground in the SRS floor harness; replace the SRS floor harness. ■

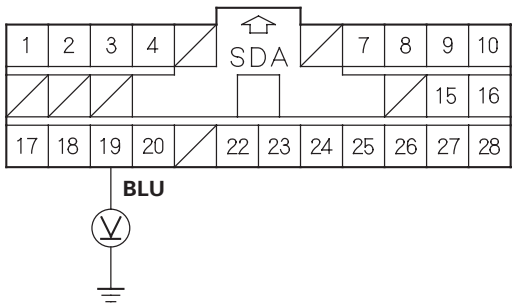
11. Reconnect gauge assembly connector C (16P).



12. Reconnect the battery negative cable.

13. Connect a voltmeter between the No. 19 terminal of SRS unit connector A (28P) and body ground. Turn the ignition switch ON (II), and measure voltage. There should be 1.6 V or less.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the voltage as specified?

YES—Short to ground in SRS indicator circuit or poor contact at gauge assembly connector C (16P) and the gauge assembly; if the connection is OK, replace the gauge assembly. ■

NO—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

DTC Troubleshooting (cont'd)

'03-04 Models

DTC 92-1x (92-10 to 92-19, 92-1A to 92-1F):
Open in Passenger Airbag Cutoff Indicator

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the passenger airbag cutoff indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Check the connection between the dashboard wire harness A 4P connector and the passenger's airbag cutoff indicator.
4. Erase the DTC memory.
5. Read the DTC (see page 23-38).

   Is DTC 92-1x indicated?

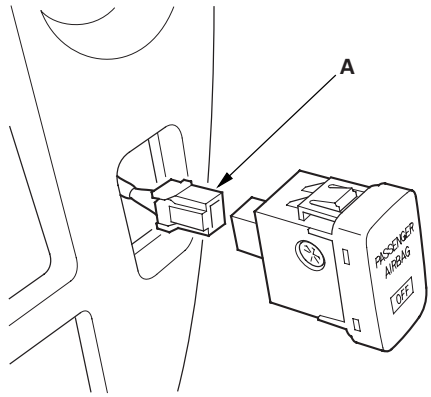
   YES—Go to step 6.

   NO—The system is OK; if DTC 92-1x is still present, go to step 6.
6. Check the No. 9 (10A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

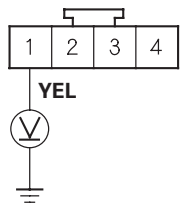
   YES—Go to step 7.

   NO—Replace the fuse, then turn the ignition switch ON (II). If the fuse blows again, check for a short in the No. 9 (10A) fuse circuit (dashboard wire harness A).■
7. Disconnect the dashboard wire harness A 4P connector from the passenger's airbag cutoff indicator.



8. Turn the ignition switch ON (II).
9. Check for voltage between the No. 1 terminal of the dashboard wire harness A 4P connector and body ground. There should be battery voltage.

DASHBOARD WIRE HARNESS A 4P CONNECTOR



Wire side of female terminals

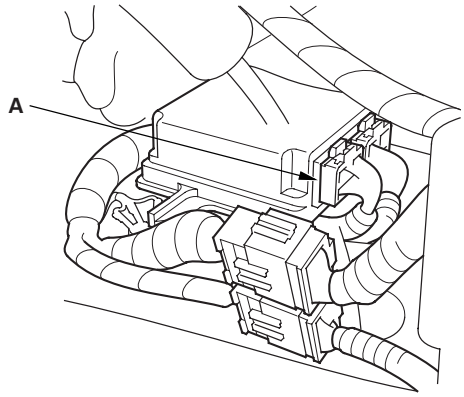
Is there battery voltage?

YES—Go to step 10.

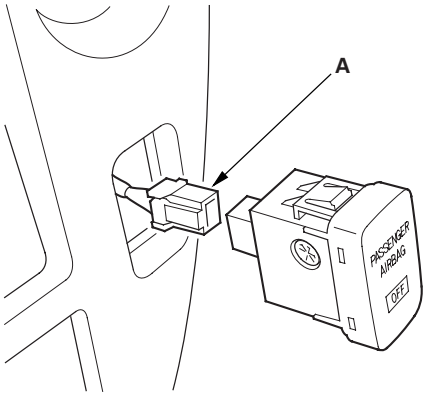
NO—Open in dashboard wire harness A; replace dashboard wire harness A.■

10. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

11. Disconnect SRS unit connector A (28P) from the SRS unit.



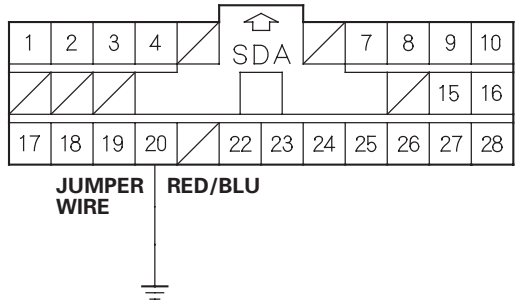
12. Reconnect the dashboard wire harness A 4P connector to the passenger's airbag cutoff indicator.



13. Reconnect the battery negative cable.

14. Connect the No. 20 terminal of SRS unit connector A (28P) to body ground with a jumper wire.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

15. Turn the ignition switch ON (II).

16. Check the passenger's airbag cutoff indicator.

Does the passenger's airbag cutoff indicator come on?

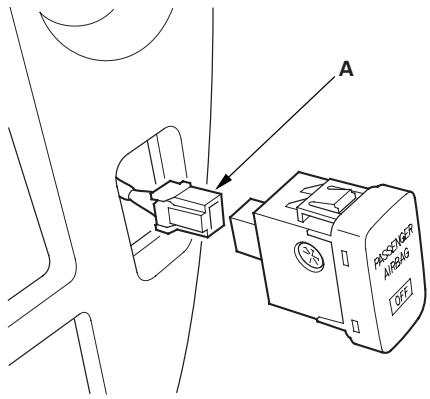
YES—Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO—Go to step 17.

17. Turn the ignition switch OFF.

18. Disconnect the jumper wire.

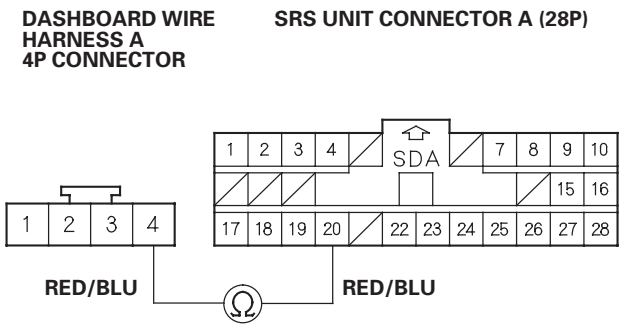
19. Disconnect the dashboard wire harness A 4P connector from the passenger's airbag cutoff indicator again.



(cont'd)

DTC Troubleshooting (cont'd)

20. Check resistance between the No. 4 terminal of the dashboard wire harness A 4P connector and the No. 20 terminal of SRS unit connector A (28P). There should be 0 — 1.0 Ω.

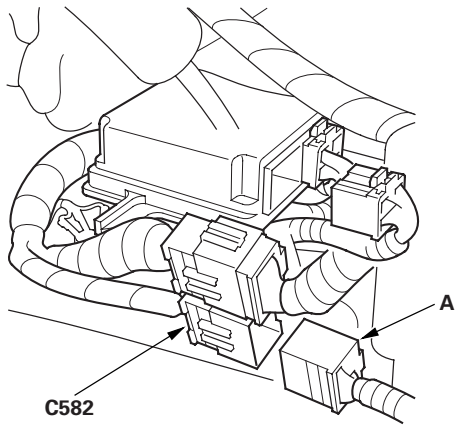


Is the resistance as specified?

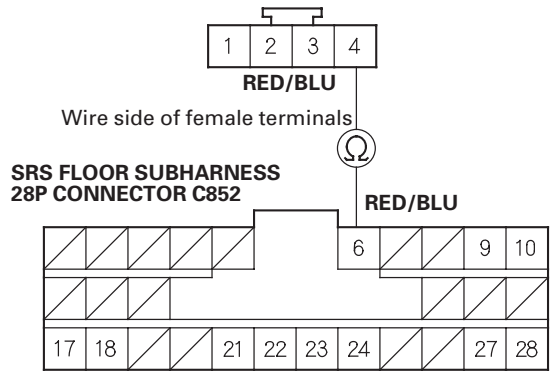
YES — Faulty passenger's airbag cutoff indicator; replace the passenger's airbag cutoff indicator. ■

NO — Go to step 21.

21. Disconnect SRS floor subharness 28P connector (A) from the SRS floor harness connector C582.



22. Check resistance between the No. 4 terminal of the dashboard wire harness A 4P connector and the No. 6 terminal of SRS floor subharness 28P connector C852. There should be 0 — 1.0 Ω.



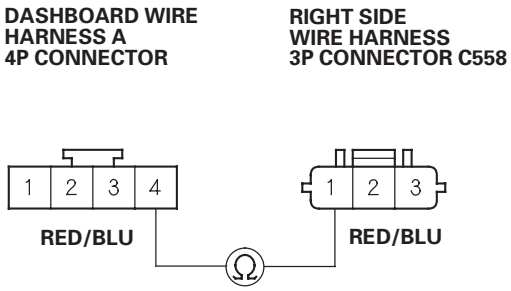
Is the resistance as specified?

YES — Open in the SRS floor harness; replace the SRS floor harness. ■

NO — Go to step 23.

23. Disconnect left side wire harness 3P connector C558 from the SRS floor subharness.

24. Check resistance between the No. 4 terminal of the dashboard wire harness A 4P connector and the No. 1 terminal of right side wire harness 3P connector C558. There should be 0 — 1.0 Ω.



Wire side of female terminals

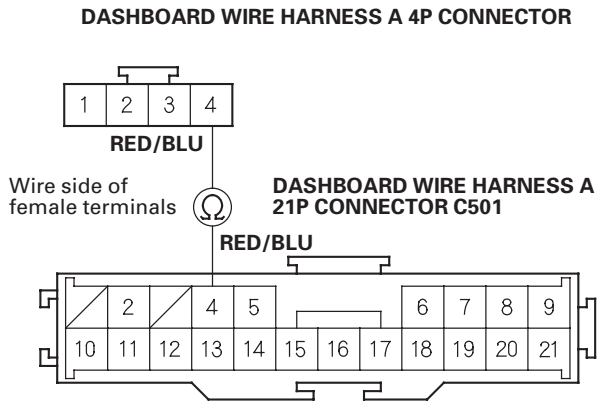
Is the resistance as specified?

YES — Open in the SRS floor subharness; replace the SRS floor subharness. ■

NO — Go to step 25.

25. Disconnect dashboard wire harness A 21P connector C501 from the left side wire harness.

26. Check resistance between the No. 4 terminal of the dashboard wire harness A 4P connector and the No. 4 terminal of dashboard wire harness A 21P connector C501. There should be 0 — 1.0 Ω.



Terminal side of female terminals

Is the resistance as specified?

YES — Open in the left side wire harness; replace the left side wire harness. ■

NO — Open in dashboard wire harness A; replace dashboard wire harness A. ■

DTC Troubleshooting (cont'd)

'03-04 Models

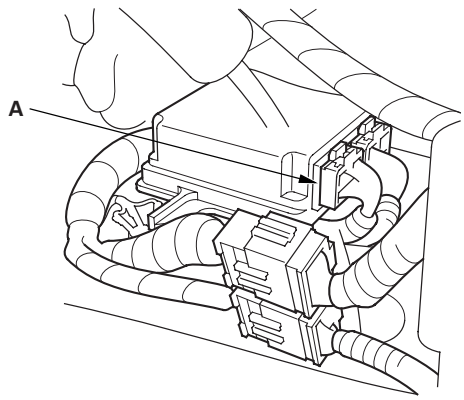
DTC 92-2x (92-20 to 92-29, 92-2A to 92-2F):
Short in Passenger Airbag Cutoff Indicator

1. Erase the DTC memory (see page 23-39).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the passenger airbag cutoff indicator stay on?

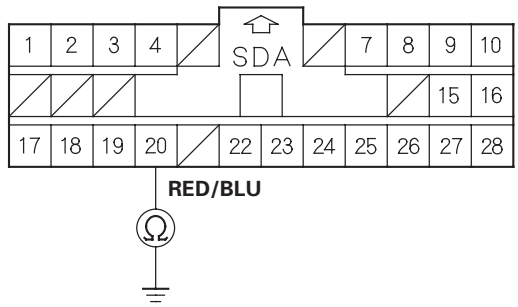
   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-39).
3. Disconnect the dashboard wire harness A 4P connector from the passenger airbag cutoff indicator.
4. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.
5. Disconnect SRS unit connector A (28P) from the SRS unit.



6. Check resistance between the No. 20 terminal of SRS unit connector A (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

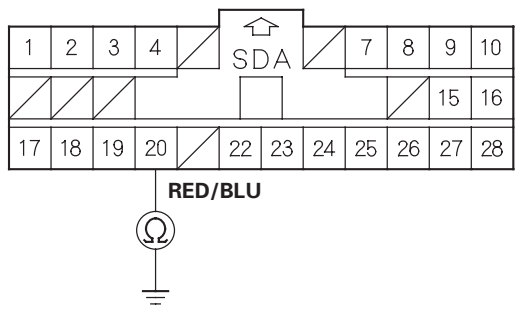
Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-384).■

NO—Go to step 7.

7. Disconnect dashboard wire harness A 21P connector C501 from the left side wire harness.
8. Check resistance between the No. 20 terminal of SRS unit connector A (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

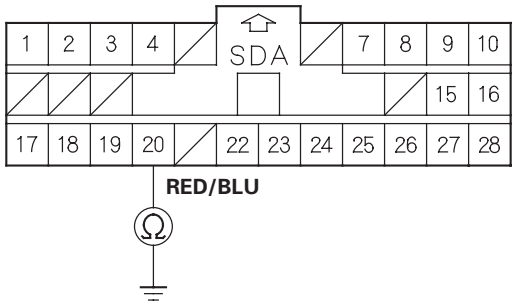
YES—Short to ground in dashboard wire harness A; replace dashboard wire harness A.■

NO—Go to step 9.

9. Disconnect left side wire harness 3P connector C558 from the SRS floor subharness.

10. Check resistance between the No. 20 terminal of SRS unit connector A (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



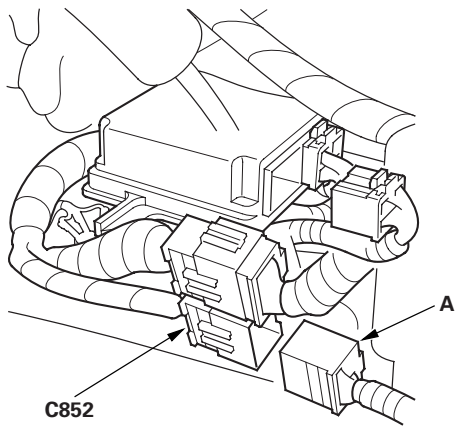
Wire side of female terminals

Is the resistance as specified?

YES—Short to ground in the left side wire harness; replace the left side wire harness. ■

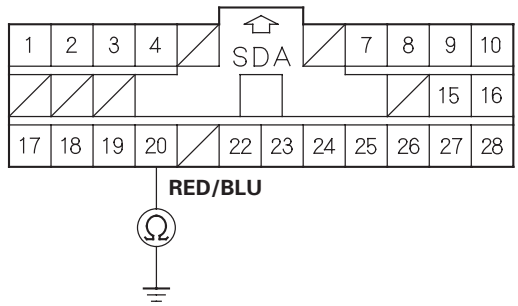
NO—Go to step 11.

11. Disconnect SRS floor subharness 28P connector (A) from the SRS floor harness connector C852.



12. Check resistance between the No. 20 terminal of SRS unit connector A (28P) and body ground. There should be an open circuit, or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Short to ground in the SRS floor subharness; replace the SRS floor subharness. ■

NO—Short to ground in the SRS floor harness; replace the SRS floor harness. ■

DTC Troubleshooting (cont'd)

'03-04 Models

A1-1x (A1-10 to A1-19, A1-1A to A1-1F):
Faulty Power Supply (VA line)

1. Check the No. 1 (15A) fuse in the driver's under-dash fuse/relay box.

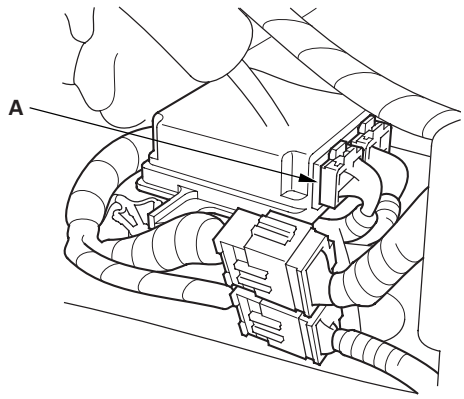
   Is the fuse OK?

   YES—Go to step 2.

   NO—Short to ground in the driver's under-dash fuse/relay box No. 1 (15A) fuse circuit. ■

2. Turn the ignition switch OFF. Disconnect the battery negative cable.

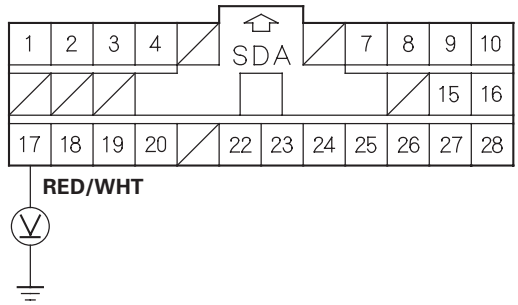
3. Disconnect SRS unit connector A (28P) from the SRS unit.



4. Reconnect the battery negative cable.

5. Connect a voltmeter between the No. 17 terminal of SRS unit connector A (28P) and body ground. Turn the ignition switch ON (II), and measure voltage. There should be battery voltage.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

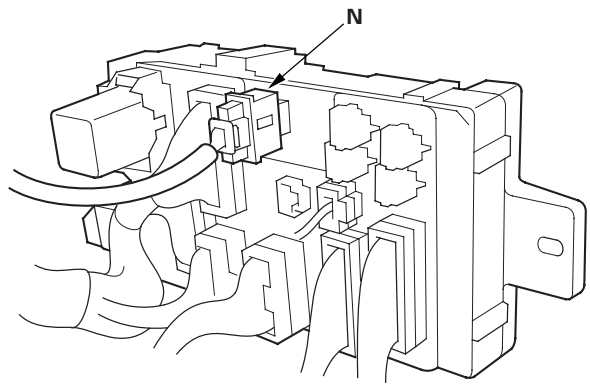
Is there battery voltage?

YES—Faulty SRS unit or poor connect at SRS unit connector A (28P) and the SRS unit; check the connection. If the connection is OK, replace the SRS unit. ■

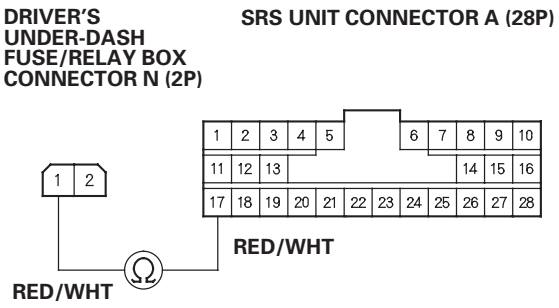
NO—Go to step 6.

6. Turn the ignition switch OFF.

7. Disconnect driver's under-dash fuse/relay box connector N (2P).



8. Check resistance between the No. 1 terminal of driver's under-dash fuse/relay box connector N (2P) and the No. 17 terminal of SRS unit connector A (28P). There should be 0 — 1.0 Ω.



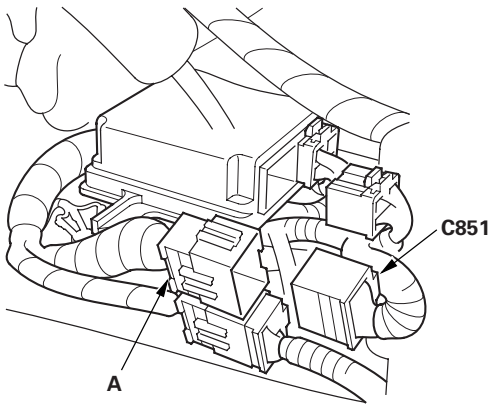
Wire side of female terminals

Is the resistance as specified?

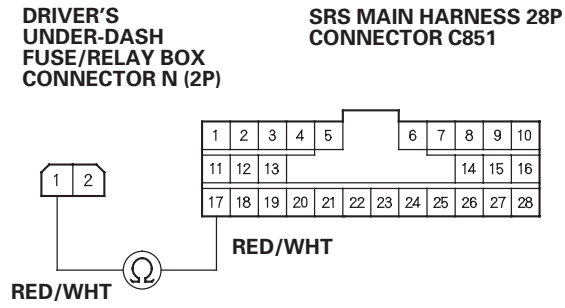
YES — Open in the driver's under-dash fuse/relay box or poor contact at driver's under-dash fuse/relay box connector N (2P) and the driver's under-dash fuse/relay box; check the connection. If the connection is OK, replace the driver's under-dash fuse/relay box. ■

NO — Go to step 9.

9. Disconnect SRS main harness 28P connector (A) from the SRS floor harness connector C851.



10. Check resistance between the No. 1 terminal of driver's under-dash fuse/relay box connector N (2P) and the No. 17 terminal of SRS main harness 28P connector C851. There should be 0 — 1.0 Ω.



Wire side of female terminals

Is the resistance as specified?

YES — Open in the SRS floor harness; replace the SRS floor harness. ■

NO — Open in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

'03-04 Models

DTC A2-1x (A2-10 to A2-19, A2-1A to A2-1F): Faulty power supply (VB line)

1. Check the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 11.

   NO—Go to step 2.

2. Replace the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

3. Turn the ignition switch ON (II) and wait for 30 seconds. Then turn the ignition switch OFF.

4. Check the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

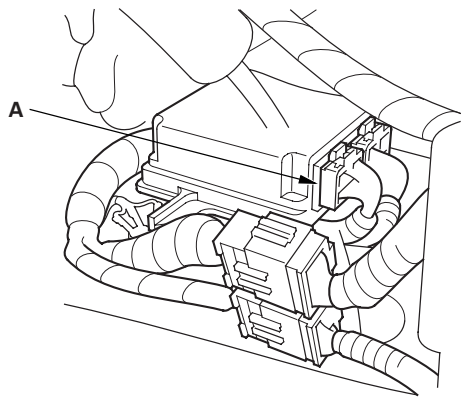
   YES—The system is OK at this time. ■

   NO—Go to step 5.

5. Replace the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

6. Disconnect the battery negative cable.

7. Disconnect SRS unit connector A (28P) from the SRS unit.



8. Reconnect the battery negative cable.

9. Turn the ignition switch ON (II) and wait for 30 seconds. Then turn the ignition switch OFF.

10. Check the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

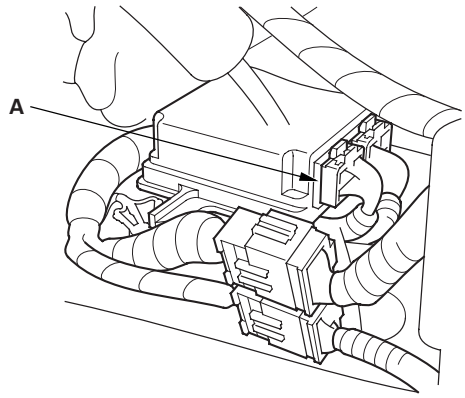
    Is the fuse OK?

    YES—Short to ground in the SRS unit; replace the SRS unit (see page 23-384). ■

    NO—Short to ground in the driver's under-dash fuse/relay box No. 2 (10A) fuse line, short to ground in the SRS main harness or SRS floor harness; replace the driver's under-dash fuse/relay box, or faulty harness. ■

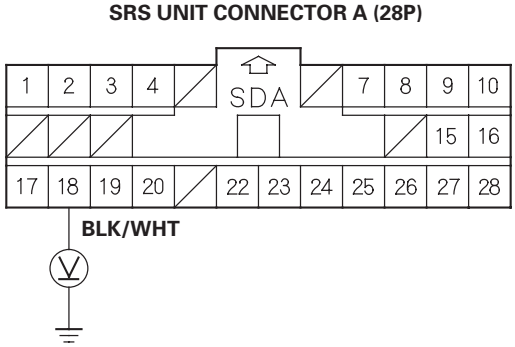
11. Turn the ignition switch OFF. Disconnect the battery negative cable.

12. Disconnect SRS unit connector A (28P) from the SRS unit.



13. Reconnect the battery negative cable.

14. Connect a voltmeter between the No. 18 terminal of SRS unit connector A (28P) and body ground. Turn the ignition switch ON (II), and measure voltage. There should be battery voltage.



Wire side of female terminals

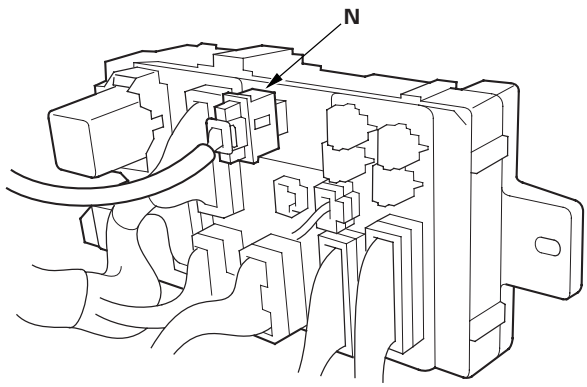
Is there battery voltage?

YES—Faulty SRS unit or poor contact at SRS unit connector A (28P) and the SRS unit; check the connection. If the connection is OK, replace the SRS unit.■

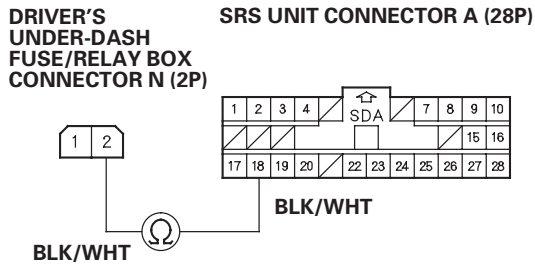
NO—Go to step 15.

15. Turn the ignition switch OFF.

16. Disconnect driver's under-dash fuse/relay box connector N (2P).



17. Check resistance between the No. 2 terminal of driver's under-dash fuse/relay box connector N (2P) and the No. 18 terminal of SRS unit connector A (28P). There should be 0—1.0 Ω.



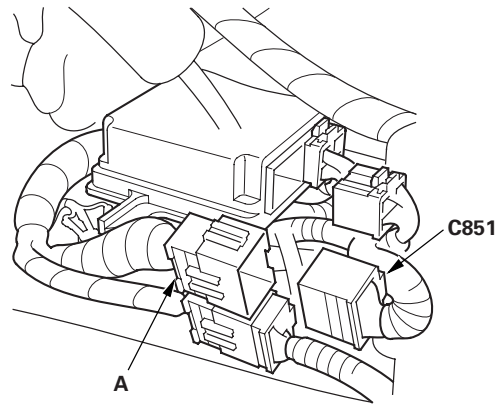
Wire side of female terminals

Is the resistance as specified?

YES—Open in the driver's under-dash fuse/relay box or poor contact at driver's under-dash fuse/relay box connector N (2P) and the driver's under-dash fuse/relay box; check the connection. If the connection is OK, replace the driver's under-dash fuse/relay box.■

NO—Go to step 18.

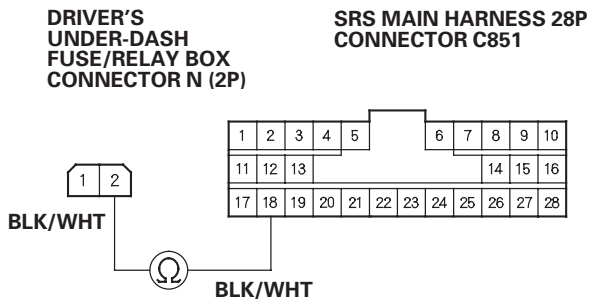
18. Disconnect SRS main harness 28P connector (A) from the SRS floor harness connector C851.



(cont'd)

DTC Troubleshooting (cont'd)

19. Check resistance between the No. 2 terminal of driver's under-dash fuse/relay box connector N (2P) and the No. 18 terminal of SRS main harness 28P connector C851. There should be 0 — 1.0 Ω.



Wire side of female terminals

Is the resistance as specified?

YES — Open in the SRS floor harness; replace the SRS floor harness. ■

NO — Open in the SRS main harness; replace the SRS main harness. ■

Symptom Troubleshooting

'99-01 Models

When the ignition key is turned to the ON (II) position, the SRS control unit performs a self-test that takes about 6 seconds. During the self-test, there is not any voltage from the control unit going to the SRS indicator circuit. This turns the indicator on. If the self-test is OK, the control unit will send about 8.5 V to the SRS indicator circuit. This turns the indicator off.

SRS indicator doesn't come on

1. Turn the ignition switch ON (II), and check to see if the other indicators come on (brake system, etc.).

   Do the other indicators come on?

   YES — Go to step 5.

   NO — Go to step 2.

2. Check the No. 9 (7.5A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

   YES — Go to step 4.

   NO — Go to step 3.

3. Replace the No. 9 (7.5A) fuse, and check to see if the SRS indicator comes on.

   Does the SRS indicator come on?

   YES — The system is OK. ■

   NO — Go to step 4.

4. Check for an open in the wire harness between fuse No. 9 (7.5A) and the gauge assembly, and repair it. Check that the SRS indicator comes on.

   Does the SRS indicator come on?

   YES — The system is OK. ■

   NO — Go to step 5.

5. Turn the ignition switch OFF.

6. Remove the gauge assembly.

7. Check for a blown SRS indicator bulb.

   Is the SRS indicator bulb OK?

   YES — Go to step 9.

   NO — Go to step 8.

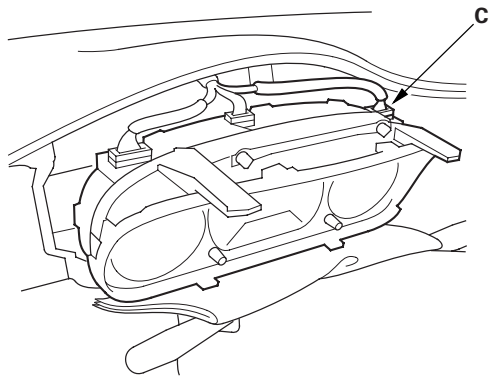
8. Replace the bulb, and reconnect the gauge assembly connectors. Then turn the ignition switch ON (II).

   Does the SRS indicator come on?

   YES — The system is OK. ■

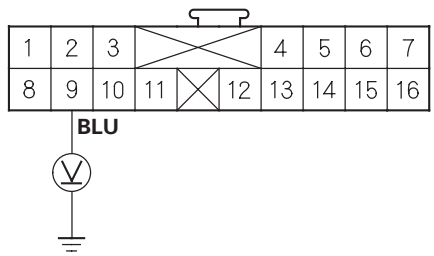
   NO — Go to step 9.

9. Turn the ignition switch OFF, and disconnect the gauge assembly connector C (16P) from the gauge assembly.



10. Connect a voltmeter between the No. 9 terminal (+) of the gauge assembly connector C (16P) and body ground.

GAUGE ASSEMBLY CONNECTOR C (16P)



Wire side of female terminals

(cont'd)

Symptom Troubleshooting (cont'd)

11. Turn the ignition switch ON (II), and measure voltage.

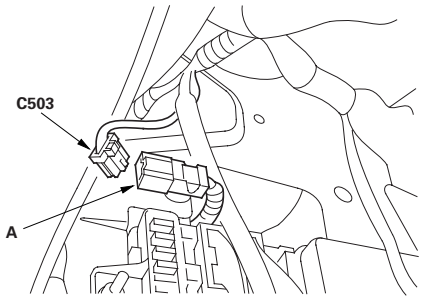
    Is there 8.5 V or less for 6 seconds after the ignition switch has been turned ON (II)?

    YES—Faulty SRS indicator circuit in the gauge assembly; replace the SRS indicator circuit board in the gauge assembly. ■

    NO—Go to step 12.

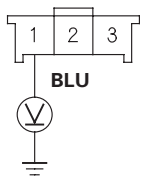
12. Turn the ignition switch OFF.

13. Disconnect the dashboard wire harness 3P connector C503 from the SRS main harness (A).



14. Connect a voltmeter between the No. 1 terminal of the SRS main harness 3P connector and body ground.

SRS MAIN HARNESS 3P CONNECTOR



Wire side of female terminals

15. Turn the ignition switch ON (II), and measure the voltage.

    Is there 8.5 V or more for 6 seconds after the ignition switch has been turned ON (II)?

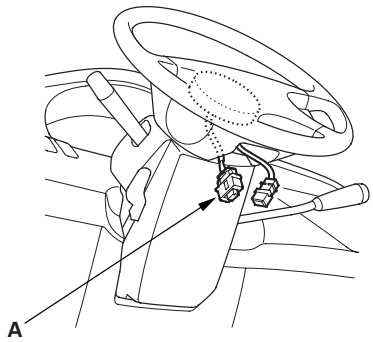
    YES—Short to power in the BLU wire of the SRS main harness; repair the harness. ■

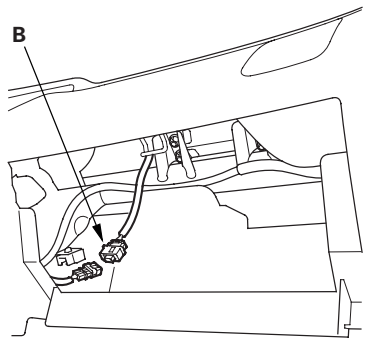
    NO—Go to step 16.

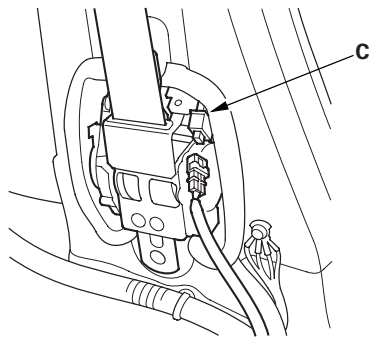
16. Turn the ignition switch OFF.

17. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait 3 minutes.

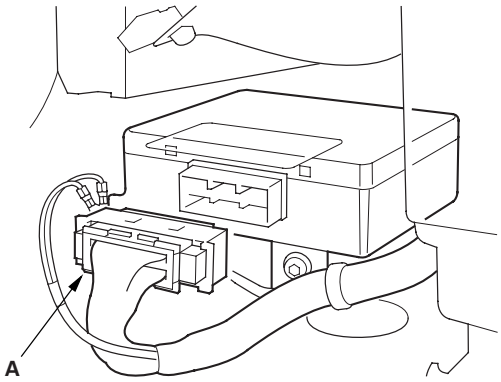
18. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and both seat belt tensioner 2P connectors (C).





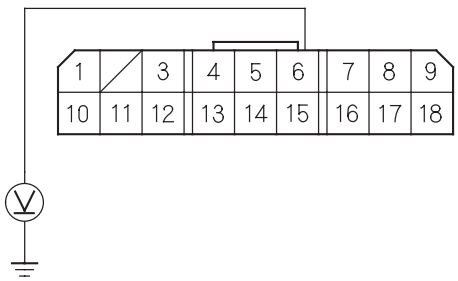


19. Disconnect the SRS main harness 18P connector (A) from the SRS unit.



20. Connect a voltmeter between the No. 6 terminal (+) of the SRS main harness 18P connector and body ground.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

21. Turn the ignition switch ON (II), and measure the voltage. There should be 0.5 V or less.

Is voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Short to power in the BLU wire of the SRS main harness; replace the harness. ■

Symptom Troubleshooting (cont'd)

'99-01 Models

SRS indicator stays on when in ''SCS'' menu method

NOTE:
- If you cannot retrieve DTCs with the HDS using the SRS menu method, retrieve the flash codes with the Tester in SCS mode (see page 23-36).
- A new SRS unit must sense the entire system is OK before completing its initial self-test. The most common cause of an incomplete self-test is the failure to replace all deployed parts after a collision, in particular, seat belt tensioners.
- An incomplete self-test prevents the HDS from retrieving DTCs, although flash codes are available in the Tester's SCS mode.

1. Erase the DTC memory by ''SCS'' menu method (see page 23-38).

   Does the SRS indicator go off while the DTC memory is erased?

   YES — Go to step 37.

   NO — Go to step 2.

2. Check the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

   YES — Go to step 17.

   NO — Go to step 3.

3. Replace the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

4. Turn the ignition switch ON (II) and wait for 30 seconds. Then turn the ignition switch OFF.

5. Check the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

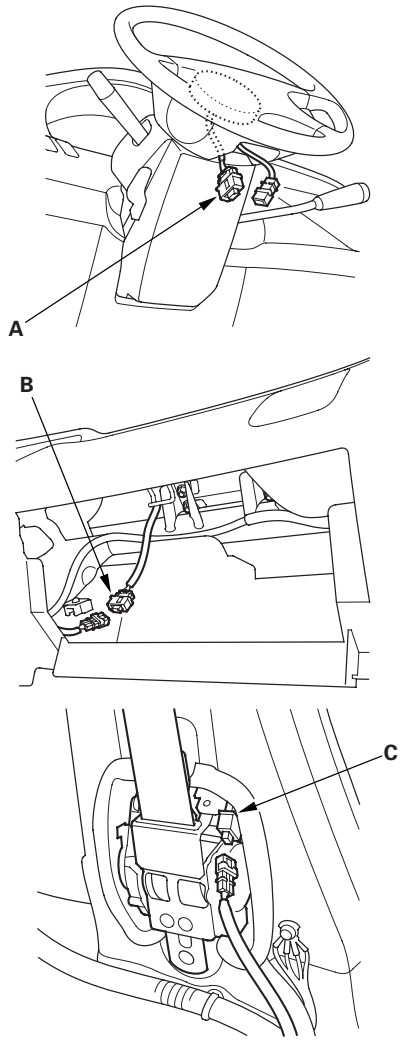
   YES — The system is OK at this time. ■

   NO — Go to step 6.

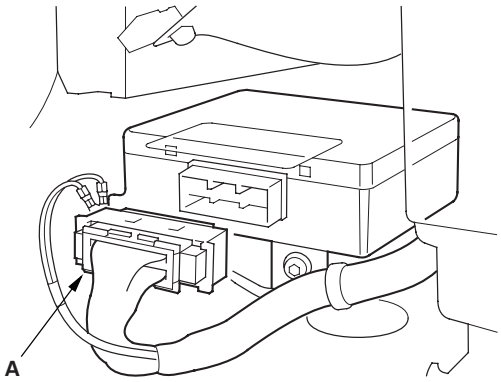
6. Replace the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

7. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

8. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and both seat belt tensioner 2P connectors (C).



9. Disconnect the SRS main harness 18P connector (A) from the SRS unit.



10. Reconnect the negative battery cable.

11. Turn the ignition switch ON (II), and wait for 30 seconds. Then turn the ignition switch OFF.

12. Check the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

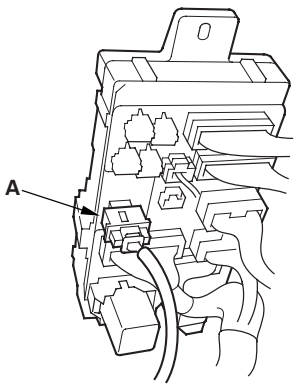
    Is the fuse OK?

    YES—Short to ground in the SRS unit; replace the SRS unit. ■

    NO—Go to step 13.

13. Replace the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

14. Disconnect the SRS main harness 2P connector (A) from the driver's under-dash fuse/relay box.



15. Turn the ignition switch ON (II), and wait for 30 seconds. Then turn the ignition switch OFF.

16. Check the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

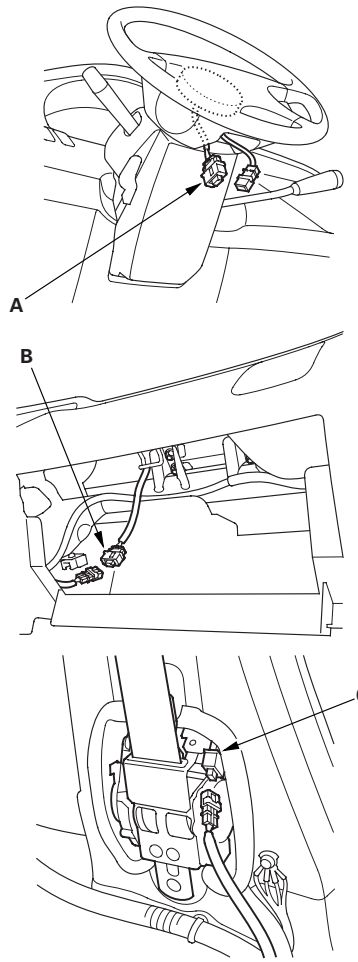
    Is the fuse OK?

    YES—Short to ground in the dashboard wire harness; replace the dashboard wire harness. ■

    NO—Short to ground in the driver's under-dash fuse/relay box No. 2 (10A) fuse line; replace the driver's under-dash fuse/relay box or repair it. ■

17. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

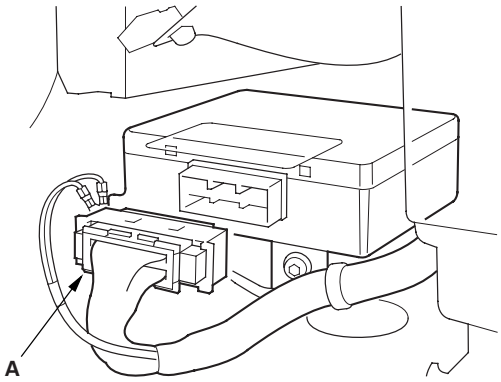
18. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and both seat belt tensioner 2P connectors (C).



(cont'd)

Symptom Troubleshooting (cont'd)

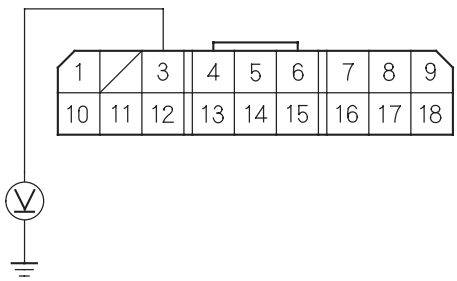
19. Disconnect the SRS main harness 18P connector (A) from the SRS unit.



20. Reconnect the battery negative cable.

21. Connect a voltmeter between the No. 3 terminal of SRS main harness 18P connector and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

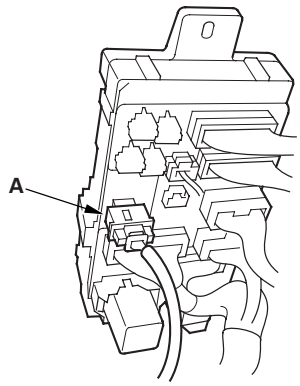
Is there battery voltage.?

YES—Go to step 25.

NO—Go to step 22.

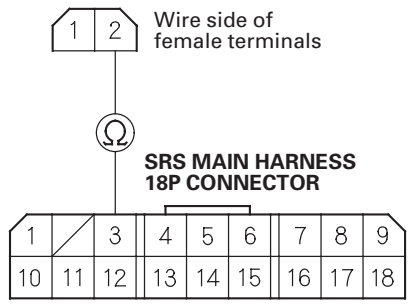
22. Turn the ignition switch OFF.

23. Disconnect the SRS main harness 2P connector (A) from the under-dash fuse/relay box.



24. Check resistance between the No. 3 terminal of SRS main harness 18P connector and the No. 2 terminal of the SRS main harness 2P connector. There should be 0—1.0 Ω.

SRS MAIN HARNESS 2P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Open in the driver's under-dash fuse/relay box or poor contact at the SRS main harness 2P connector; check the connection. If the connection is OK, replace the driver's under-dash fuse/relay box. ■

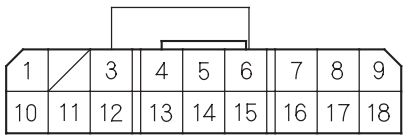
NO—Open in the SRS main harness; replace the SRS main harness. ■

25. Turn the ignition switch OFF.

26. Connect the No. 3 terminal and the No. 6 terminal of the SRS main harness 18P connector with a jumper wire.

SRS MAIN HARNESS 18P CONNECTOR

JUMPER WIRE



Wire side of female terminals

27. Turn the ignition switch ON (II).

28. Check the SRS indicator.

Does the SRS indicator go off?

YES — Faulty SRS unit; replace the SRS unit. ■

NO — Go to step 29.

29. Turn the ignition switch OFF.

30. Disconnect the jumper wire between the No. 3 terminal and the No. 6 terminal of the SRS main harness 18P connector.

31. Check the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

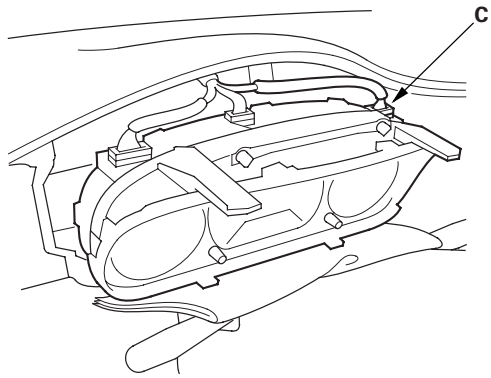
Is the fuse OK?

YES — Go to step 35.

NO — Go to step 32.

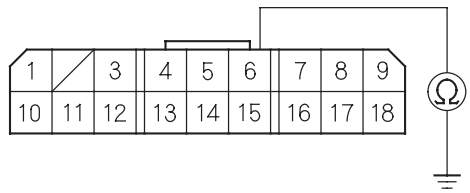
32. Replace the No. 2 (10A) fuse in the driver's under-dash fuse/relay box.

33. Disconnect the gauge assembly connector C (16P) from the gauge assembly.



34. Check resistance between the No. 6 terminal of SRS main harness 18P connector and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

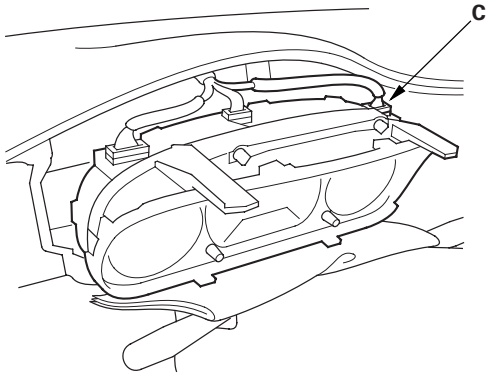
YES — Faulty SRS indicator circuit in the gauge assembly; replace the gauge assembly. ■

NO — Short to ground in the SRS main harness or in the dashboard wire harness; replace the faulty harness. ■

(cont'd)

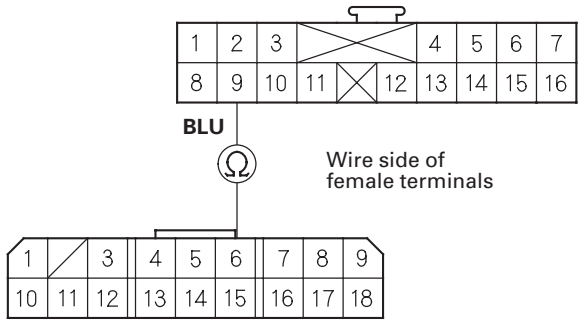
Symptom Troubleshooting (cont'd)

35. Disconnect the gauge assembly connector C (16P) from the gauge assembly.



36. Check resistance between the No. 9 terminal of the gauge assembly connector C (16P) and the No. 6 terminal of the SRS main harness 18P connector. There should be 1 Ω or less.

GAUGE ASSEMBLY CONNECTOR C (16P)



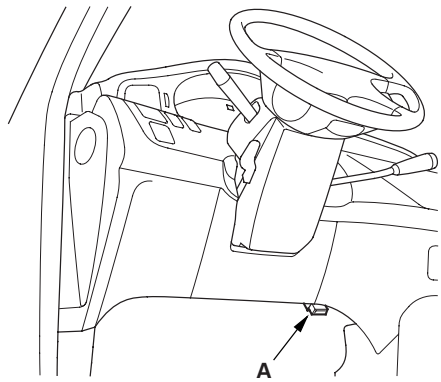
SRS MAIN HARNESS 18P CONNECTOR

Is the resistance as specified?

YES—Faulty SRS indicator circuit in the gauge assembly or poor contact at the gauge assembly connector C (16P). Check the connection. If the connection is OK, replace the circuit board in the gauge assembly. ■

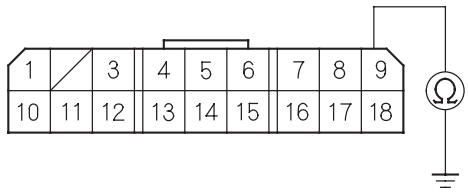
NO—Open in the SRS main harness or in the dashboard wire harness; replace the faulty harness. ■

37. Connect the HDS to the Data Link Connector (16P) (A) and follow the Tester's prompts in the ''SCS'' menu.



38. Check resistance between the No. 9 terminal of SRS main harness 18P connector and body ground. There should be 0 — 1.0 Ω.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES — Faulty SRS unit or poor contact at the SRS main harness 18P connector; check the connection at the SRS main harness 18P connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-382). ■

NO — Open in the SCS line between the No. 9 terminal of the SRS main harness 18P connector and the No. 9 terminal (brown wire) of the Data Link Connector (DLC) (16P), or open between the No. 4 terminal of the Data Link Connector (DLC) (16P) and body ground, then continue troubleshooting. ■

Symptom Troubleshooting (cont'd)

'99-01 Models

SRS indicator stays on, but no DTCs are stored (NEC SRS unit only)

1. Check the No. 1 (15A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 14.

   NO—Go to step 2.

2. Replace the No. 1 (15A) fuse in the driver's under-dash fuse/relay box.

3. Turn the ignition switch ON (II), and wait for 30 seconds. Then turn the ignition switch OFF.

4. Check the No. 1 (15A) fuse in the driver's under-dash fuse/relay box.

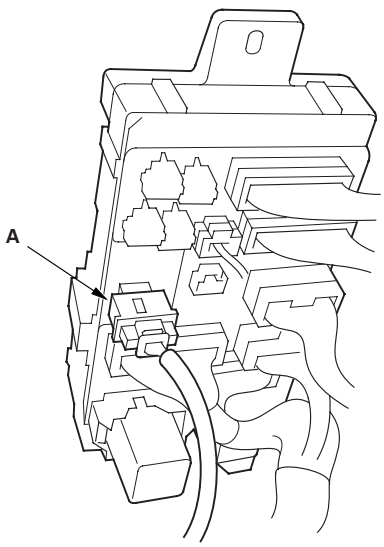
   Is the fuse OK?

   YES—The system is OK at this time. ■

   NO—Go to step 5.

5. Replace the No. 1 (15A) fuse in the driver's under-dash fuse/relay box.

6. Disconnect the SRS main harness 2P connector (A) from the driver's under-dash fuse/relay box.



7. Turn the ignition switch ON (II) and wait for 30 seconds, then turn the ignition switch OFF.

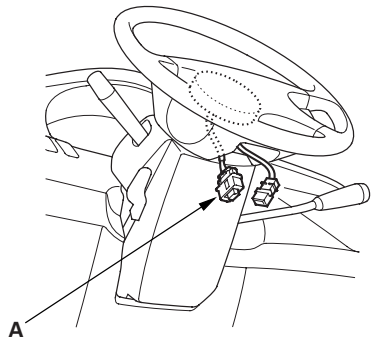
8. Check the No. 1 (15A) fuse in the driver's under-dash fuse/relay box.

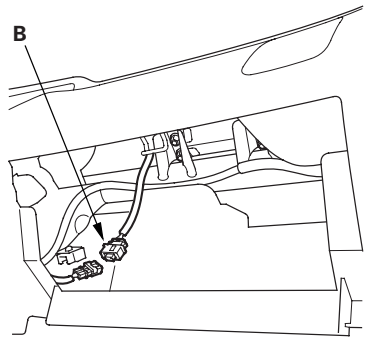
   Is the fuse OK?

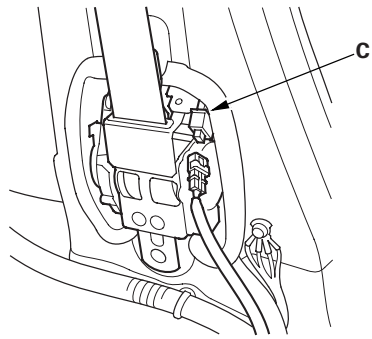
   YES—Go to step 9.

   NO—Short to ground in the No. 1 (15A) fuse line. ■

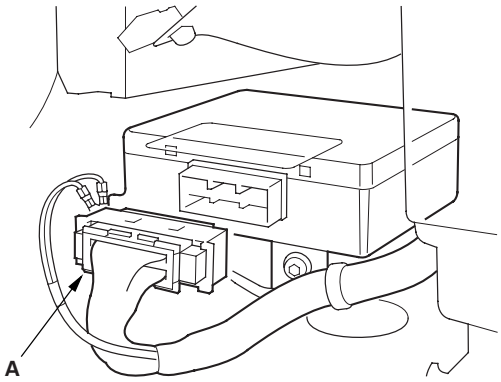
9. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and both seat belt tensioner 2P connectors (C).







10. Disconnect the SRS main harness 18P connector (A) from the SRS unit.



11. Reconnect the SRS main harness 2P connector to the driver's under-dash fuse/relay box.

12. Turn the ignition switch ON (II), and wait for 30 seconds. Then turn the ignition switch OFF.

13. Check the No. 1 (15A) fuse in the driver's under-dash fuse/relay box.

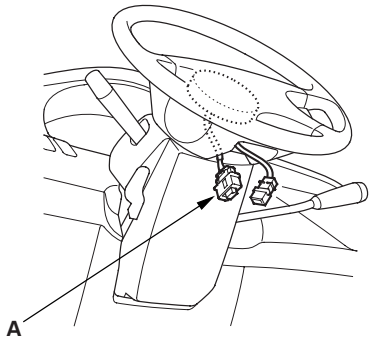
    Is the fuse OK?

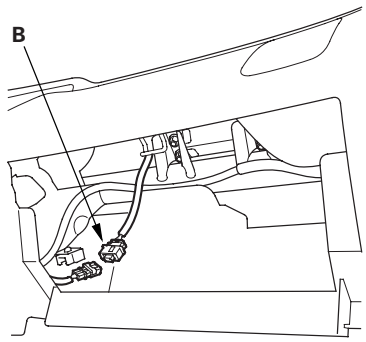
    YES—Short to ground in the SRS unit; replace the SRS unit (see page 23-382). ■

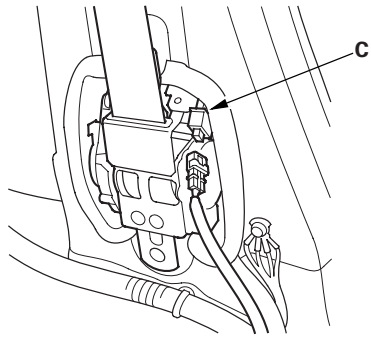
    NO—Short to ground in the SRS main harness; replace the SRS main harness. ■

14. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

15. Disconnect the driver's airbag connector (A), front passenger's airbag connector (B), and both seat belt tensioner 2P connectors (C).







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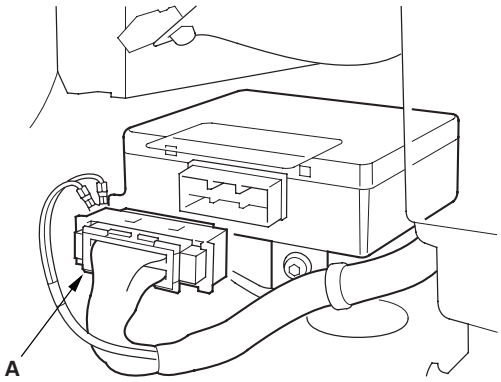
Symptom Troubleshooting (cont'd)

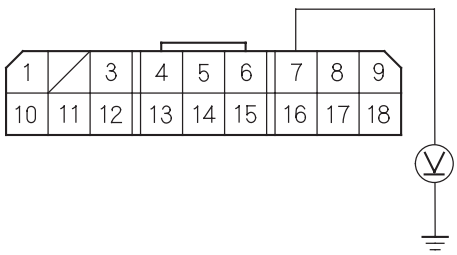
16. Disconnect the SRS main harness 18P connector (A) from the SRS unit.



17. Reconnect the negative battery cable.

18. Connect a voltmeter between the No. 7 terminal of the SRS main harness 18P connector and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage.

SRS MAIN HARNESS 18P CONNECTOR



Wire side of female terminals

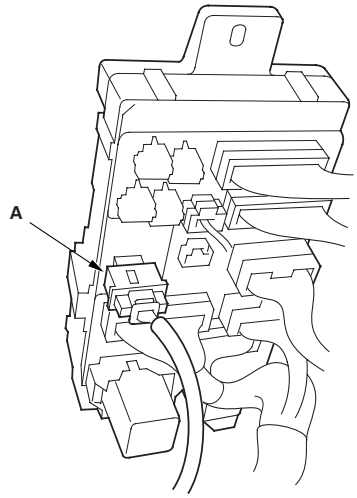
Is there battery voltage?

YES—Faulty SRS unit or poor contact at the SRS main harness 18P connector; check the connection. If the connection is OK, replace the SRS unit. ■

NO—Go to step 19.

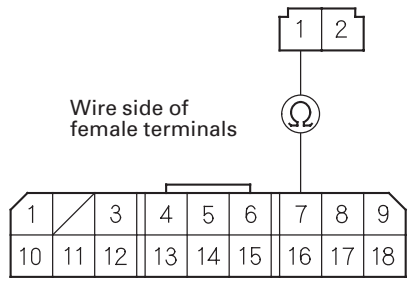
19. Turn the ignition switch OFF.

20. Disconnect the SRS main harness 2P connector (A) from the driver's under-dash fuse/relay box.



21. Check resistance between the No. 7 terminal of the SRS main harness 18P connector and the No. 1 terminal of the SRS main harness 2P connector. There should be 0—1.0 Ω.

SRS MAIN HARNESS 2P CONNECTOR



SRS MAIN HARNESS 18P CONNECTOR

Is resistance as specified?

YES—Open in the driver's under-dash fuse/relay box or poor contact at the SRS main harness 2P connector; check the connection. If the connection is OK, replace the driver's under-dash fuse/relay box or repair it. ■

NO—Open in the SRS main harness; replace the SRS main harness. ■

'02 Model

SRS indicator doesn't come on

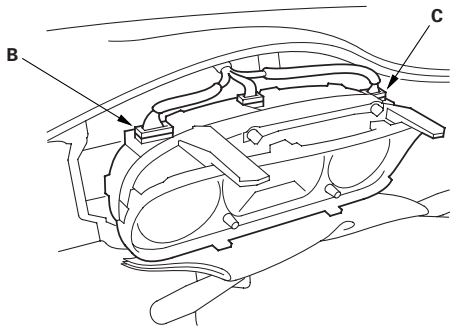
1. Turn the ignition switch ON (II), and see if the other indicators come on (brake system, etc.).

   Do the other indicators come on?

   YES — Go to step 2.

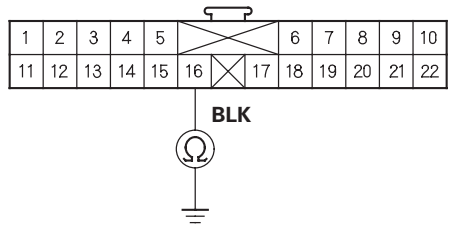
   NO — Go to step 8.

2. Turn the ignition switch OFF, then remove the gauge assembly (see page 22-100). Disconnect gauge assembly connector B (22P), and C (16P) from the gauge assembly.



3. Check resistance between the No. 16 terminal of gauge assembly connector B (22P) and body ground. There should be 0 — 1.0 Ω.

GAUGE ASSEMBLY CONNECTOR B (22P)



Wire side of female terminals

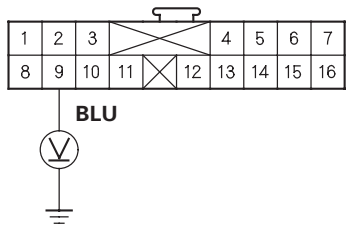
Is the resistance as specified?

YES — Go to step 4.

NO — Open in the BLK wire of the dashboard wire harness or faulty body ground terminal (G503). If the body ground terminal is OK, replace the dashboard wire harness. ■

4. Check for voltage between the No. 9 terminal of gauge assembly connector C (16P) and body ground within the first 6 seconds after turning the ignition switch ON (II). There should be 8.5 V or less.

GAUGE ASSEMBLY CONNECTOR C (16P)



Wire side of female terminals

Is the voltage as specified?

YES — Faulty SRS indicator circuit in the gauge assembly; replace the gauge assembly. ■

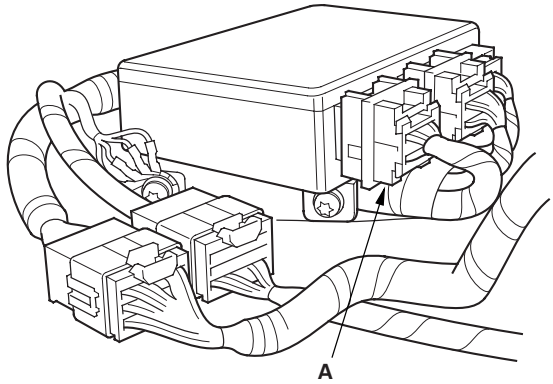
NO — Go to step 5.

(cont'd)

Symptom Troubleshooting (cont'd)

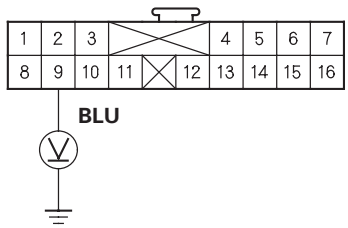
5. Turn the ignition switch OFF.

6. Disconnect SRS unit connector A (18P) from the SRS unit .



7. Connect a voltmeter between the No. 9 terminal of gauge assembly connector C (16P) and body ground. Turn the ignition switch ON (II), and measure voltage. There should be 0.5 V or less.

GAUGE ASSEMBLY CONNECTOR C (16P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO—Go to step 12.

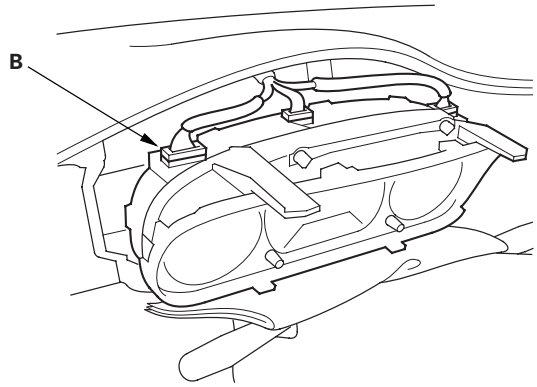
8. Turn the ignition switch OFF. Check the No. 9 (10A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Go to step 11.

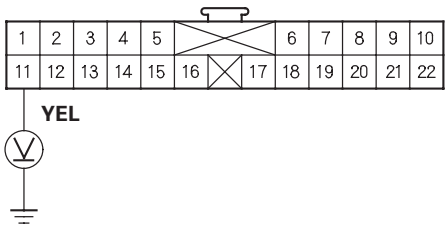
NO—Go to step 9.

9. Disconnect gauge assembly connector B (22P) from the gauge assembly (see page 22-100).



10. Connect a voltmeter between the No. 11 terminal of gauge assembly connector B (22P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage.

GAUGE ASSEMBLY CONNECTOR B (22P)



Wire side of female terminals

Is there battery voltage?

YES—Faulty SRS indicator circuit in the gauge assembly or poor contact at gauge assembly connector B (22P) and the gauge assembly; if the connection is OK, replace the gauge assembly. ■

NO—Open in the under-dash fuse/relay box No. 9 (10A) fuse line, or open in the YEL wire of the dashboard wire harness. If the under-dash fuse/relay box is OK, replace the faulty harness. ■

11. Replace the No. 9 (10A) fuse, and check to see if the SRS indicator comes on.

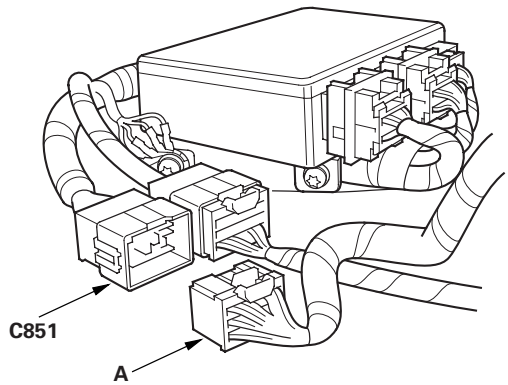
Does the SRS indicator come on?

YES—The system is OK at this time. ■

NO—Repair the short to ground in the under-dash fuse/relay box No. 9 (10A) fuse line. ■

12. Turn the ignition switch OFF.

13. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



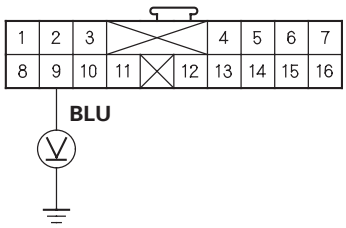
(cont'd)

Symptom Troubleshooting (cont'd)

14. Turn the ignition switch ON (II).

15. Connect a voltmeter between the No. 9 terminal of gauge assembly connector C (16P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be 0.5 V or less.

GAUGE ASSEMBLY CONNECTOR C (16P)



Wire side of female terminals

Is the voltage as specified?

YES—Short to power in the SRS floor harness; replace the SRS floor harness. ■

NO—Short to power in the BLU wire of the dashboard wire harness or in the SRS main harness; replace the faulty harness. ■

'02 Model

SRS indicator stays on when in ''SCS'' menu method

NOTE:
- If you cannot retrieve DTCs with the HDS using the SRS menu method, retrieve the flash codes with the Tester in SCS mode (see page 23-36).
- A new SRS unit must sense the entire system is OK before completing its initial self-test. The most common cause of an incomplete self-test is the failure to replace all deployed parts after a collision, in particular, seat belt tensioners.
- An incomplete self-test prevents the HDS from retrieving DTCs, although flash codes are available in the Tester's SCS mode.

1. Erase the DTC memory (see page 23-38).

   Does the SRS indicator go off when the DTC memory is erased?

   YES—Go to step 42.

   NO—Go to step 2.

2. Check the No. 2 (10A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 19.

   NO—Go to step 3.

3. Replace the No. 2 (10A) fuse in the under-dash fuse /relay box.

4. Turn the ignition switch ON (II), and wait for 30 seconds. Then turn the ignition switch OFF.

5. Check the No. 2 (10A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

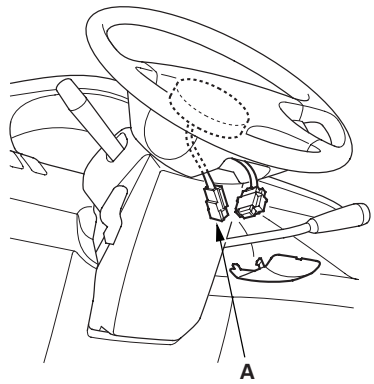
   YES—The system is OK at this time. ■

   NO—Go to step 6.

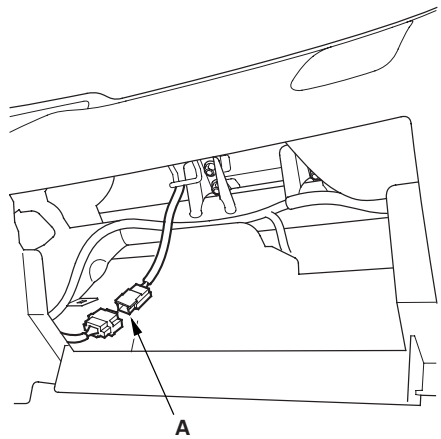
6. Replace the No. 2 (10A) fuse in the under-dash fuse /relay box.

7. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

8. Disconnect the driver's airbag 4P connector (A).



9. Disconnect the front passenger's airbag 4P connector (A).



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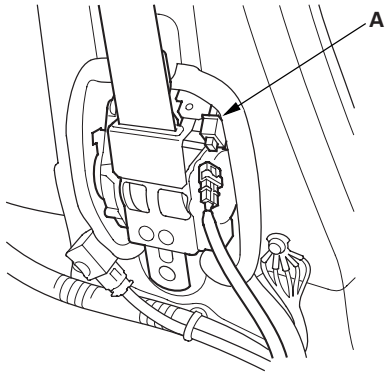
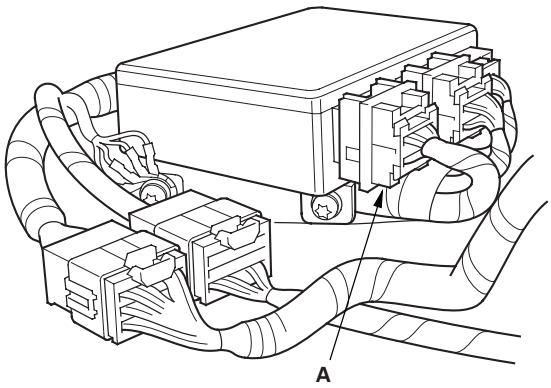
Symptom Troubleshooting (cont'd)

10. Disconnect both seat belt tensioner 2P connectors (A).



11. Disconnect SRS unit connector A (18P) from the SRS unit.



12. Reconnect the negative battery cable.

13. Turn the ignition switch ON (II), and wait for 30 seconds. Then turn the ignition switch OFF.

14. Check the No. 2 (10A) fuse in the under-dash fuse/relay box.

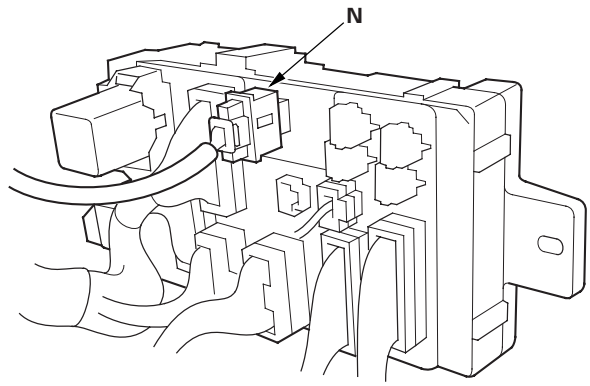
    Is the fuse OK?

    YES—Short to ground in the SRS unit; replace the SRS unit (see page 23-382). ■

    NO—Go to step 15.

15. Replace the No. 2 (10A) fuse in the under-dash fuse/relay box.

16. Disconnect the driver's under-dash fuse/relay connector N from the under-dash fuse/relay box.



17. Turn the ignition switch ON (II), and wait for 30 seconds. Then turn the ignition switch OFF.

18. Check the No. 2 (10A) fuse in the under-dash fuse/relay box.

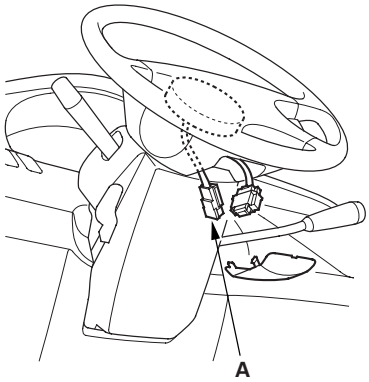
    Is the fuse OK?

    YES—Short to ground in the SRS main harness or SRS floor harness; replace the faulty harness. ■

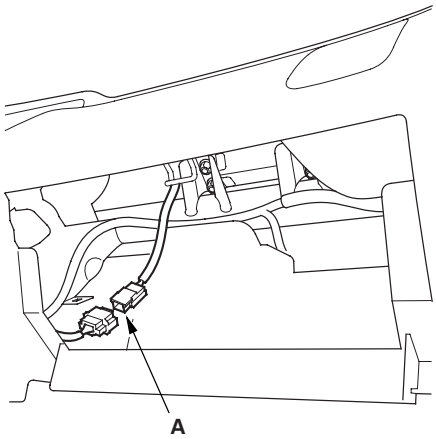
    NO—Short to ground in the under-dash fuse/relay box; replace the under-dash fuse/relay box. ■

19. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait for 3 minutes.

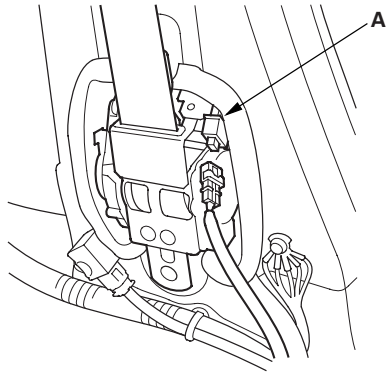
20. Disconnect the driver's airbag 4P connector (A).



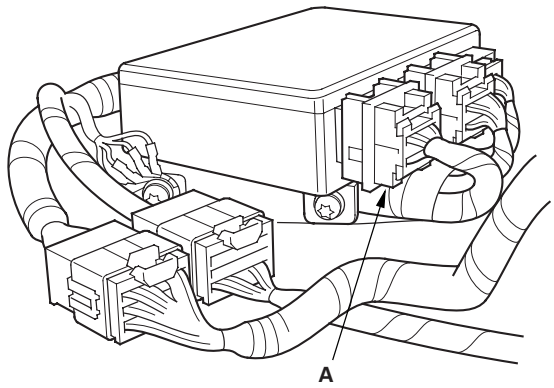
21. Disconnect the front passenger's airbag 4P connector (A).



22. Disconnect both seat belt tensioner 2P connectors (A).



23. Disconnect SRS unit connector A (18P) from the SRS unit.



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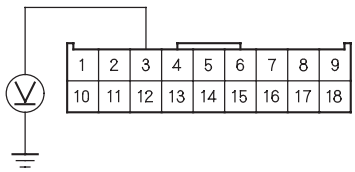
Symptom Troubleshooting (cont'd)

24. Reconnect the battery negative cable.

25. Connect a voltmeter between the No. 3 terminal of SRS unit connector A (18P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage.

SRS UNIT CONNECTOR A (18P)



Wire side of female terminals

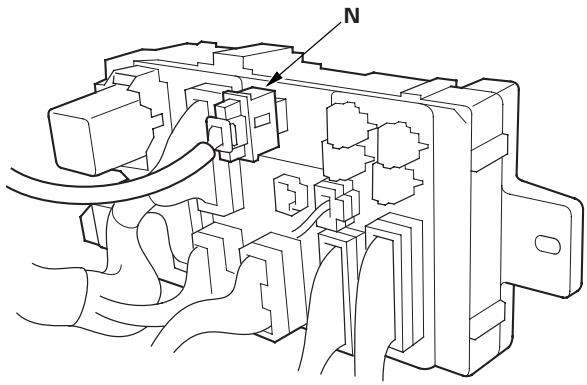
Is there battery voltage?

YES—Go to step 29.

NO—Go to step 26.

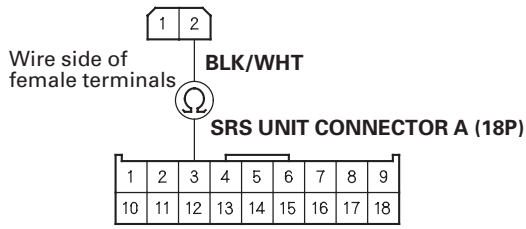
26. Turn the ignition switch OFF.

27. Disconnect the driver's under-dash fuse/relay box connector N from the under-dash fuse/relay box.



28. Check resistance between the No. 3 terminal of SRS unit connector A (18P) and the No. 2 terminal of the dashboard wire harness 2P connector. There should be 0—1.0 Ω.

DASHBOARD WIRE HARNESS 2P CONNECTOR



Wire side of female terminals

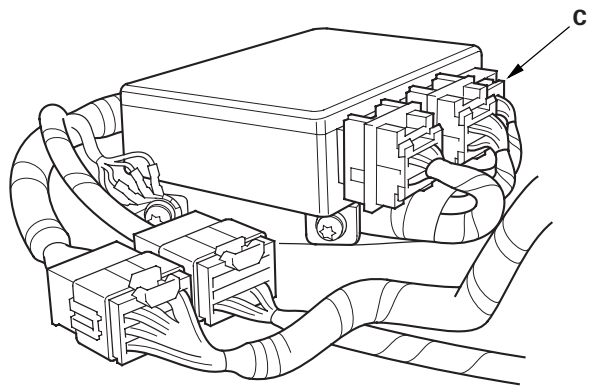
Is the resistance as specified?

YES—Open in the under-dash fuse/relay box or poor contact at the SRS main harness 2P connector; check the connection. If the connection is OK, replace the under-dash fuse/relay box. ■

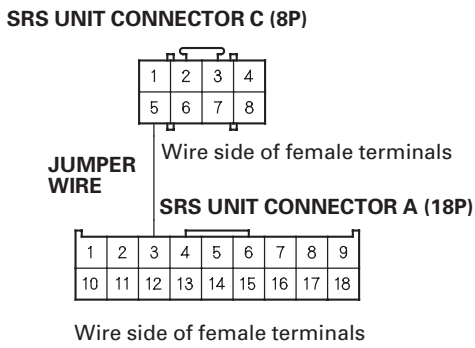
NO—Open in SRS main harness or SRS floor harness; replace the faulty harness. ■

29. Turn the ignition switch OFF.

30. Disconnect SRS unit connector C (8P) from the SRS unit.



31. Connect the No. 3 terminal of SRS unit connector A (18P) and the No. 5 terminal of the SRS unit connector C (8P) with a jumper wire.



32. Turn the ignition switch ON (II).

33. Check the SRS indicator.

Does the SRS indicator go off?

YES — Faulty SRS unit; replace the SRS unit (see page 23-382). ■

NO — Go to step 34.

34. Turn the ignition switch OFF.

35. Disconnect the jumper wire between the No. 3 terminal of SRS unit 18P connector A (18P) and the No. 5 terminal of the SRS unit connector C (8P).

36. Check the No. 2 (10A) fuse in the under-dash fuse/relay box.

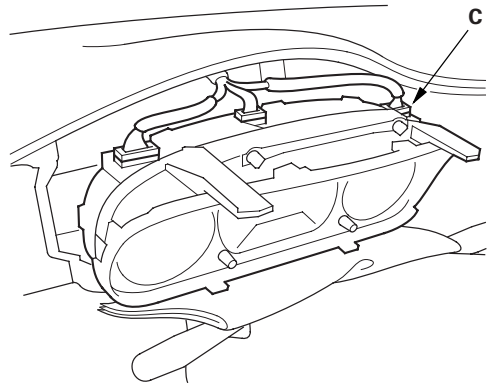
Is the fuse OK?

YES — Go to step 40.

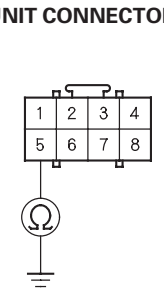
NO — Go to step 37.

37. Replace the No. 2 (10A) fuse in the under-dash fuse /relay box.

38. Remove the gauge assembly (see page 22-100), then disconnect gauge assembly connector C (16P) from the gauge assembly.



39. Check resistance between the No. 5 terminal of SRS unit connector C (8P) and body ground. There should be an open circuit, or at least 1 MΩ.



Is the resistance as specified?

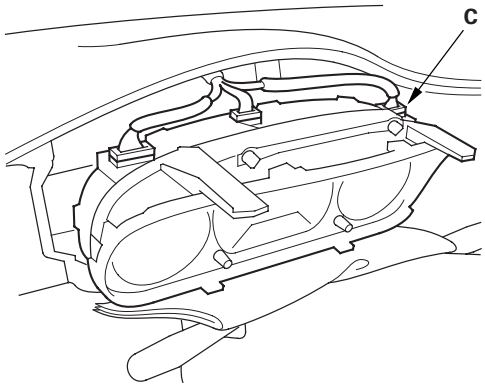
YES — Faulty SRS indicator circuit in the gauge assembly; replace the gauge assembly. ■

NO — Go to step 45.

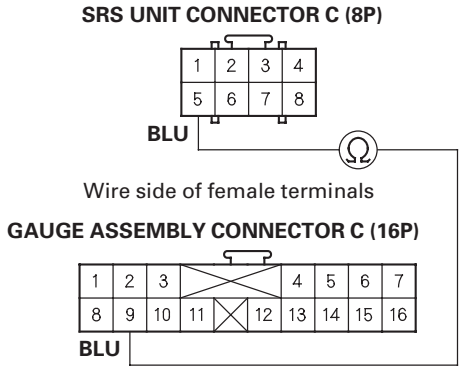
(cont'd)

Symptom Troubleshooting (cont'd)

40. Remove the gauge assembly (see page 22-100), then disconnect gauge assembly connector C (16P) from the gauge assembly.



41. Check resistance between the No. 9 terminal of gauge assembly connector C (16P) and the No. 5 terminal of SRS unit connector C (8P). There should be 1 Ω or less.

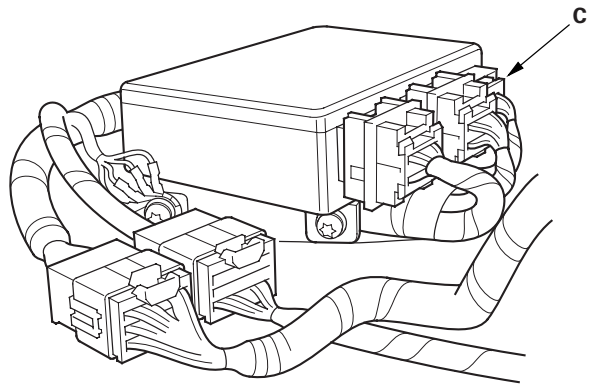


Is the resistance as specified?

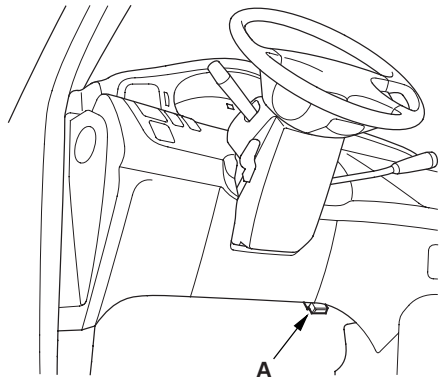
YES—Faulty SRS indicator circuit in the gauge assembly or poor contact at gauge assembly connector C (16P); check the connection. If the connection is OK, replace the gauge assembly. ■

NO—Go to step 47.

42. Disconnect SRS unit connector C (8P) from the SRS unit.

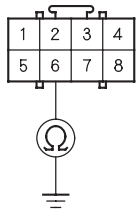


43. Connect the HDS to the Data Link Connector (16P) (A), and follow the Tester's prompts in the "SCS" menu.



44. Check resistance between the No. 6 terminal of SRS unit connector C (8P) and body ground. There should be 0 — 1.0 Ω.

SRS UNIT CONNECTOR C (8P)



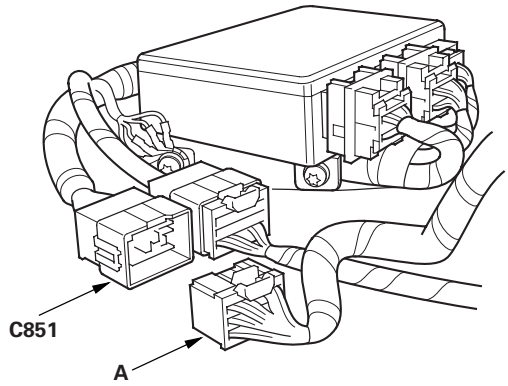
Wire side of female terminals

Is the resistance as specified?

YES — Faulty SRS unit or poor contact at SRS unit connector C (8P); check the connection. If the connection is OK, replace the SRS unit (see page 23-382). ■

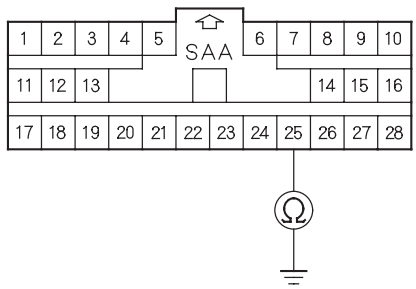
NO — Open in the SCS line between the No. 6 terminal of SRS unit connector C (8P) and the No. 9 terminal (BRN wire) of the Data Link Connector (DLC) (16P), or open between the No. 4 terminal of the Data Link Connector (DLC) (16P) and body ground. Repair the open wire(s). ■

45. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



46. Check resistance between the No. 25 terminal of SRS main harness 28P connector and body ground. There should be an open circuit, or at least 1 MΩ.

SRS MAIN HARNESS 28P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

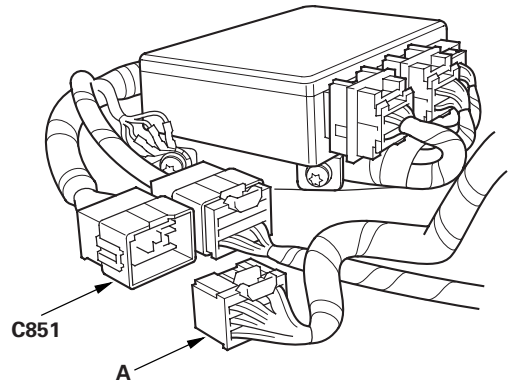
YES — Short to ground in the SRS floor harness; replace the SRS floor harness. ■

NO — Short to ground in the BLU wire of the dashboard wire harness or in the SRS main harness; replace the faulty harness. ■

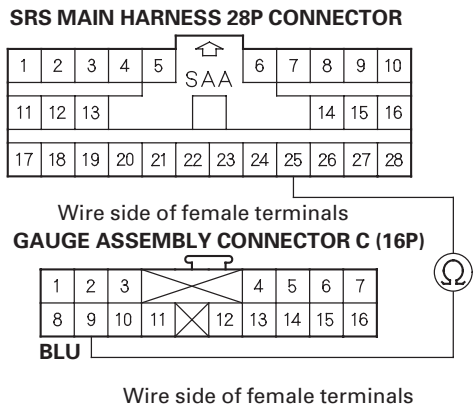
(cont'd)

Symptom Troubleshooting (cont'd)

47. Disconnect the SRS main harness 28P connector (A) from the SRS floor harness 28P connector C851.



48. Check resistance between the No. 9 terminal of gauge assembly connector C (16P) and the No. 25 terminal of the SRS main harness 28P connector. There should be 1 Ω or less.



Is the resistance as specified?

YES — Open in the SRS floor harness; replace the SRS floor harness. ■

NO — Open in the BLU wire of the dashboard wire harness or in the SRS main harness; replace the faulty harness. ■

'03-04 Models

SRS indicator doesn't come on

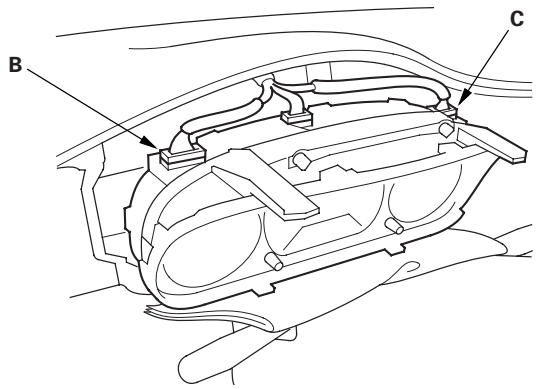
1. Turn the ignition switch ON (II), and see if the other indicators come on (brake system, etc.).

   Do the other indicator come on?

   YES — Go to step 2.

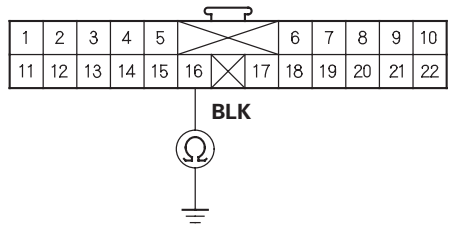
   NO — Go to step 8.

2. Turn the ignition switch OFF, then remove the gauge assembly (see page 22-100). Disconnect gauge assenbly connector B (22P) and C (16P) from the gauge assembly.



3. Check resistance between the No. 16 terminal of gauge assembly connector B (22P) and body ground. There should be 0 — 1.0 Ω.

GAUGE ASSEMBLY CONNECTOR B (22P)



Wire side of female terminals

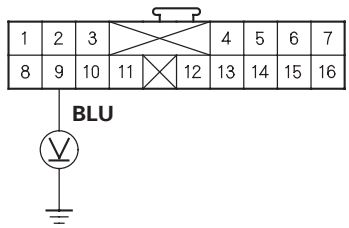
Is the resistance as specified?

YES — Go to step 4.

NO — Open in the BLK wire of the dashboard wire harness or faulty body ground terminal (G503). If the body ground terminal is OK, replace the dashboard wire harness. ■

4. Check for voltage between the No. 9 terminal of gauge assembly connector C (16P) and body ground within the first 6 seconds after turning the ignition switch ON (II). There should be 8.5 V or less.

GAUGE ASSEMBLY CONNECTOR C (16P)



Wire side of female terminals

Is the voltage as specified?

YES — Faulty SRS indicator circuit in the gauge assembly; replace the gauge assembly. ■

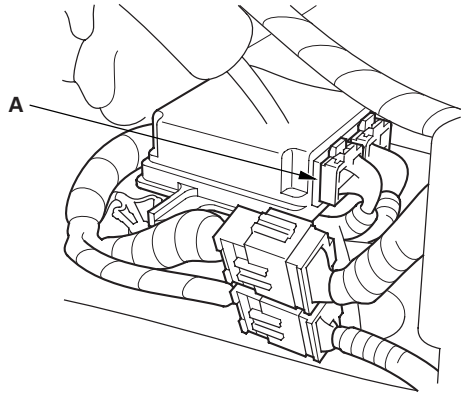
NO — Go to step 5.

(cont'd)

Symptom Troubleshooting (cont'd)

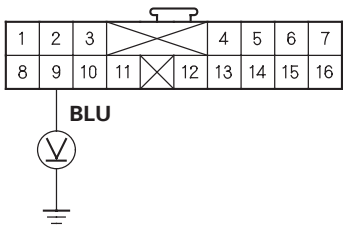
5. Turn the ignition switch OFF.

6. Disconnect SRS unit connector A (18P) from the SRS unit .



7. Connect a voltmeter between the No. 9 terminal of gauge assembly connector C (16P) and body ground. Turn the ignition switch ON (II), and measure voltage. There should be 0.5 V or less.

GAUGE ASSEMBLY CONNECTOR C (16P)



Wire side of female terminals

Is the voltage as specified?

YES — Faulty SRS unit; replace the SRS unit (see page 23-384). ■

NO — Go to step 12.

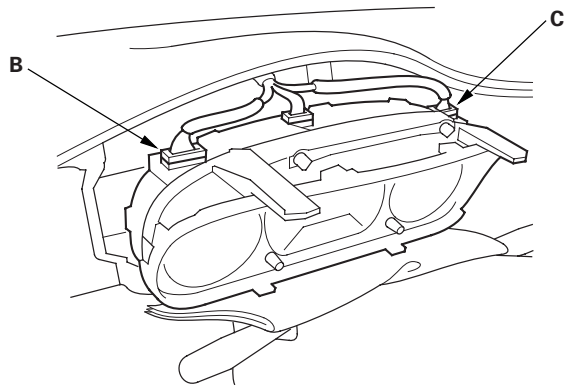
8. Turn the ignition switch OFF. Check the No. 9 (10A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES — Go to step 11.

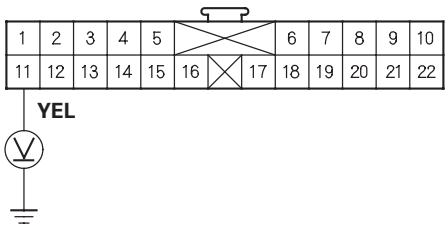
NO — Go to step 9.

9. Remove the gauge assembly (see page 22-100). Disconnect gauge assembly connector B (22P) and C (16P) from the gauge assembly.



10. Connect a voltmeter between the No. 11 terminal of gauge assembly connector B (22P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage.

GAUGE ASSEMBLY CONNECTOR B (22P)



Wire side of female terminals

Is there battery voltage?

YES—Faulty SRS indicator circuit in the gauge assembly or poor contact at gauge assembly connector B (22P) and the gauge assembly; if the connection is OK, replace the gauge assembly. ■

NO—Open in the under-dash fuse/relay box No. 9 (10A) fuse line, or open in the YEL wire of the dashboard wire harness. If the under-dash fuse/relay box is OK, replace the faulty harness. ■

11. Replace the No. 9 (10A) fuse, and check to see if the SRS indicator comes on.

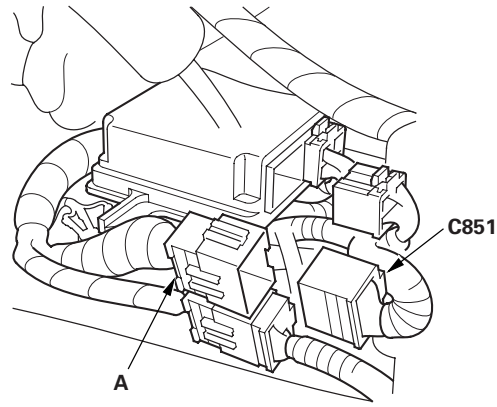
Does the SRS indicator come on?

YES—The system is OK at this time. ■

NO—Repair the short to ground in the under-dash fuse/relay box No. 9 (10A) fuse circuit. ■

12. Turn the ignition switch OFF.

13. Disconnect the SRS floor harness 28P connector (A) from the SRS main harness connector C851.



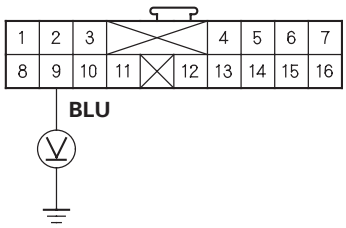
(cont'd)

Symptom Troubleshooting (cont'd)

14. Turn the ignition switch ON (II).

15. Connect a voltmeter between the No. 9 terminal of gauge assembly connector C (16P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be 0.5 V or less.

GAUGE ASSEMBLY CONNECTOR C (16P)



Wire side of female terminals

Is the voltage as specified?

YES—Short to power in the SRS floor harness; replace the SRS floor harness. ■

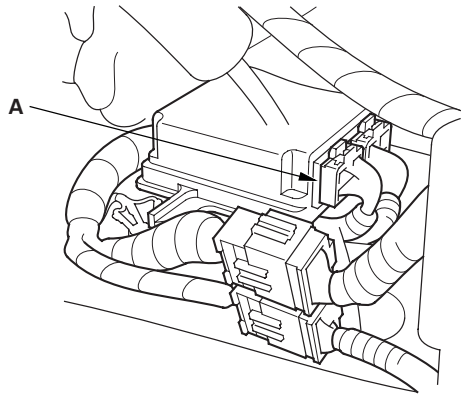
NO—Short to power in the BLU wire of dashboard wire harness A or in the SRS main harness; replace the faulty harness. ■

'03-04 Models

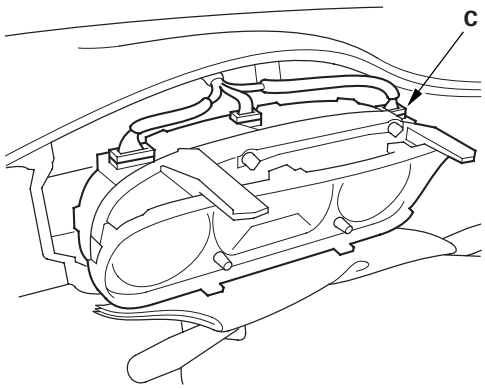
SRS indicator stays on when in "SCS" menu method

1. Disconnect the battery negative cable, and wait for 3 minutes.

2. Disconnect SRS unit connector A (28P) from the SRS unit.

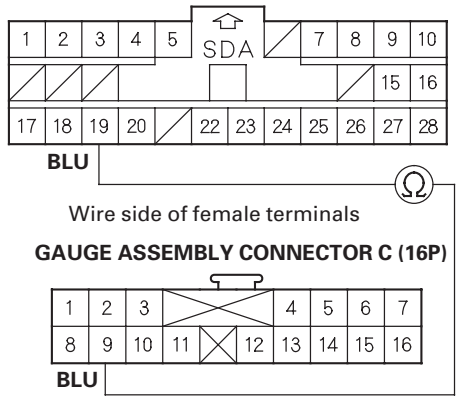


3. Remove the gauge assembly (see page 22-100). Disconnect gauge assembly connector C (16P) from the gauge assembly.



4. Check resistance between the No. 9 terminal of gauge assembly connector C (16P) and the No. 19 terminal of SRS unit connector A (28P). There should be 0 — 1.0 Ω.

SRS UNIT CONNECTOR A (28P)



Is the resistance as specified?

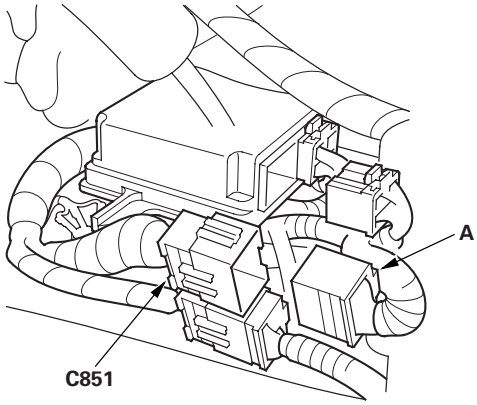
YES — Faulty SRS indicator circuit in the gauge assembly or poor contact at gauge assembly connector C (16P); check the connection. If the connection is OK, replace the gauge assembly. ■

NO — Go to step 5.

(cont'd)

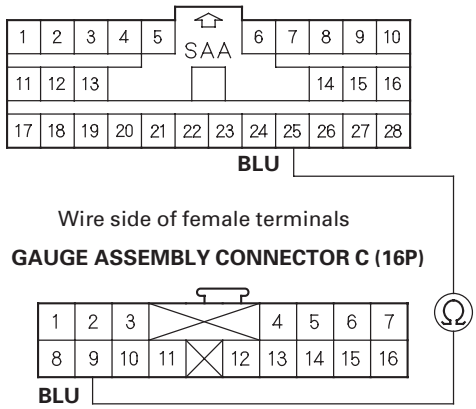
Symptom Troubleshooting (cont'd)

5. Disconnect SRS main harness 28P connector (A) from the SRS floor harness connector C851.



6. Check resistance between the No. 9 terminal of gauge assembly connector C (16P) and the No. 25 terminal of SRS main harness 28P connector . There should be 0 — 1.0 Ω.

SRS MAIN HARNESS 28P CONNECTOR

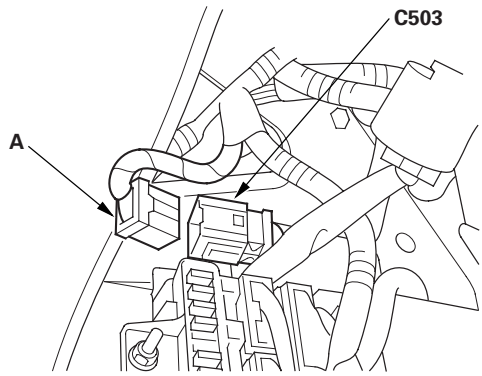


Is the resistance as specified?

YES — Open in the SRS floor harness; replace the SRS floor harness. ■

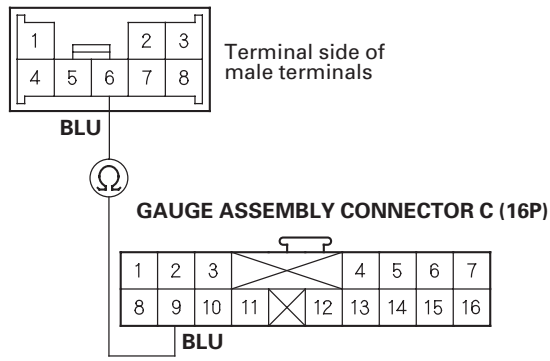
NO — Go to step 7.

7. Disconnect the dashboard wire harness 8P connector C503 from the SRS main harness (A).



8. Check resistance between the No. 9 terminal of gauge assembly connector C (16P) and the No. 6 terminal of the dashboard wire harness 8P connector C503. There should be 0 — 1.0 Ω.

DASHBOARD WIRE HARNESS 8P CONNECTOR C503



Is the resistance as specified?

YES — Open in the SRS main harness; replace the SRS main harness. ■

NO — Open in the dashboard wire harness; replace the dashboard wire harness. ■

Component Replacement/Inspection After Deployment

NOTE: Before doing any SRS repairs, use the HDS method to check for DTCs; refer to the DTC Troubleshooting Index for the less obvious deployed parts (seat belt tensioners, front sensors, side airbag sensors, etc.).

'99-01 Models

After a collision where the front airbags deployed, replace these items:
- SRS unit
- Airbags
- Seat belt tensioners

'02 Model

After a collision where the seat belt tensioners deployed, replace these items:
- Seat belt tensioners
- SRS unit
- Front sensors

After a collision where the front airbag(s) deployed, replace these items:
- SRS unit
- Deployed airbag(s)
- Seat belt tensioners
- Front sensors

After a collision where the side airbag(s) deployed, replace these items:
- SRS unit
- Deployed side airbag(s)
- Side impact sensor(s) for side(s) deployed

'99-02 Models

During the repair process, inspect these areas:
- Inspect all the SRS wire harnesses. Replace, don't repair, any damaged harness.
- Inspect the cable reel for heat damage. If there is any damage, replace the cable reel.

After the vehicle is completely repaired, turn the ignition switch on. If the SRS indicator comes on for about 6 seconds and then goes off, the SRS airbag system is OK. If the indicator does not function properly, use the HDS to read the DTC(s). If this doesn't retrieve any codes, use the Tester's SCS menu method. If the SCS method doesn't work, you may need to install a known-good SRS unit to read the DTC(s). If you still cannot retrieve a code, go to SRS Indicator Circuit Troubleshooting.

'03-04 Models

After a collision where the seat belt tensioners deployed, replace these items:
- Seat belt tensioners
- SRS unit
- Front sensors

After a collision where the front airbag(s) deployed, replace these items:
- SRS unit
- Deployed airbag(s)
- Seat belt tensioners
- Front sensors

After a collision where the side airbag(s) deployed, replace these items:
- SRS unit
- Deployed side airbag(s)
- Side impact sensor(s) for side(s) deployed

'03-04 Models

During the repair process, inspect these areas:
- Inspect all the SRS wire harness. Replace, don't repair, any damaged harness.
- Inspect the cable reel for heat damage. If there is any damage, replace the cable reel.

The operation of the front passenger's weight sensor unit (see page 23-42) must be checked after any of these actions.
- Replacement of front passenger's seat component(s)
- After a vehicle collision

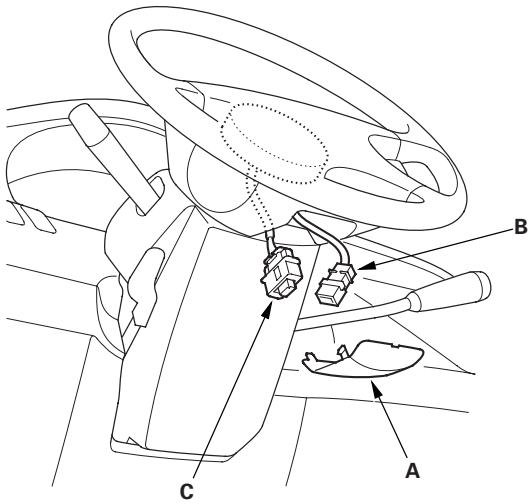
After the vehicle is completely repaired, turn the ignition switch on. If the SRS indicator comes on for about 6 seconds and then goes off, the SRS airbag system is OK. If the indicator does not function properly, use the HDS to read the DTC (see page 23-38).

Driver's Airbag Replacement

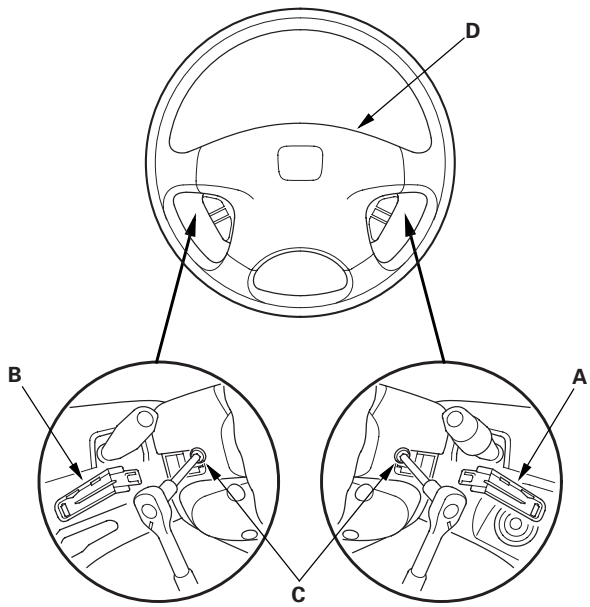
Removal ('99-01 Models)

1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.

2. Remove the access panel (A) from the steering wheel, then disconnect the connector between the cable reel 2P connector (B) and the driver's airbag 2P connector (C).



3. Remove the covers (A, B) from the steering wheel, remove the two Torx bolts (C) using a Torx T30 bit, then remove the driver's airbag (D).

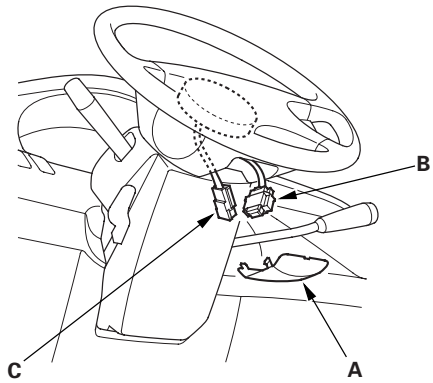


4. Disconnect the horn connector from the steering wheel.

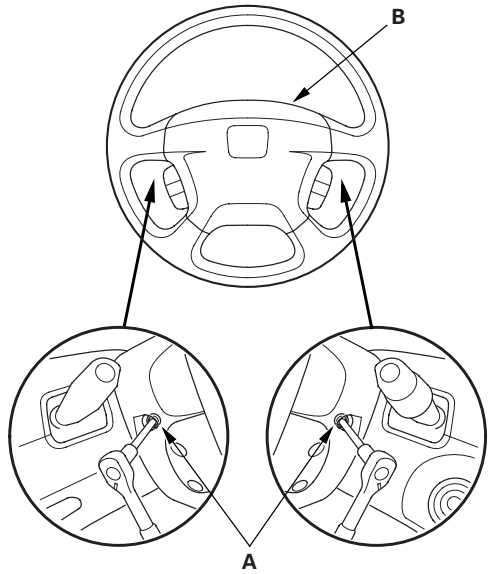
Removal ('02-04 Models)

1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.

2. Remove the access panel (A) from the steering wheel, then disconnect the connector between the cable reel 4P connector (B) and the driver's airbag 4P connector (C).

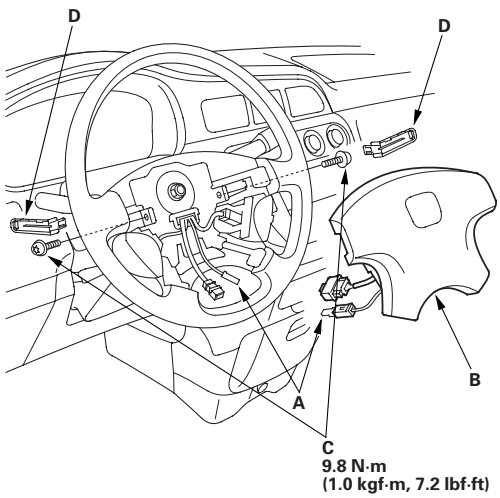


3. Remove the two Torx bolts (A) using a Torx T30 bit, then remove the driver's airbag (B).

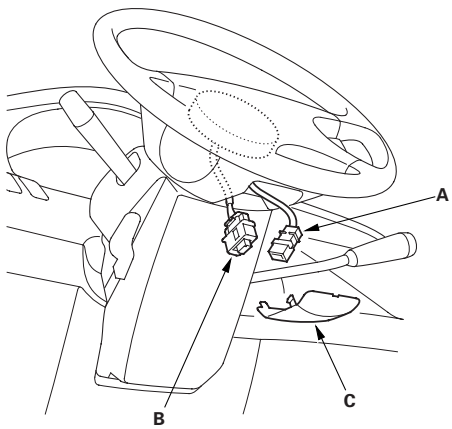


Installation ('99-01 Models)

1. Reconnect the horn connectors (A), then place the new driver's airbag (B) in the steering wheel, and secure it with new Torx bolts (C). Install the covers (D).



2. Connect the cable reel 2P connector (A) to the driver's airbag 2P connector (B), then install the access panel (C) on the steering wheel.



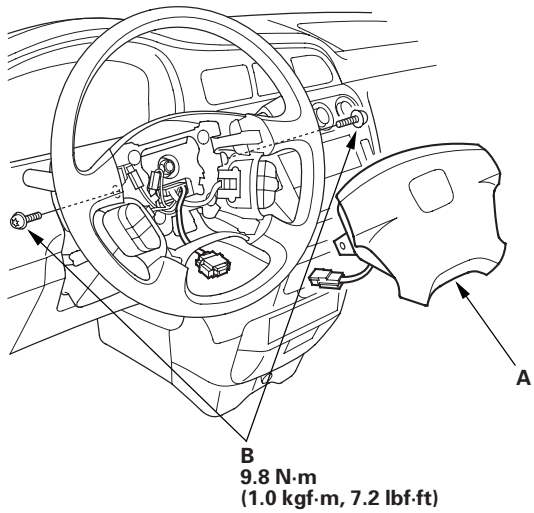
3. Connect the battery negative cable.

4. After installing the airbag, confirm proper system operation:

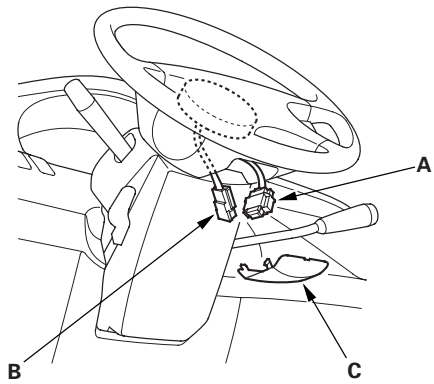
   - Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
   - Make sure the horn button works.

Installation ('02-04 Models)

1. Place the new driver's airbag (A) in the steering wheel, and secure it with new Torx bolts (B).



2. Connect the cable reel 4P connector (A) to the driver's airbag 4P connector (B), then install the access panel (C) on the steering wheel.



3. Connect the battery negative cable.

4. After installing the airbag, confirm proper system operation:

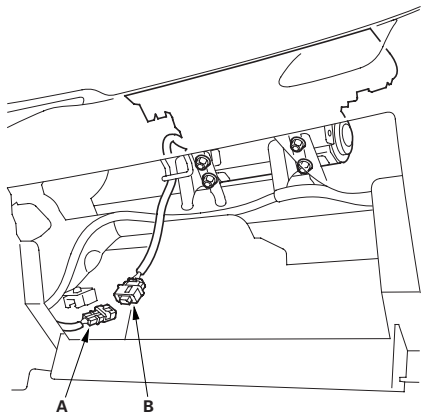
   - Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
   - Make sure the horn button works.

Front Passenger's Airbag Replacement

Removal ('99-01 Models)

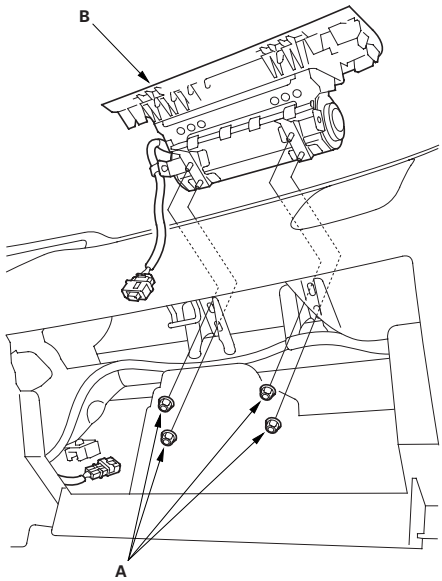
1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.

2. Remove the glove box (see page 20-71), then disconnect the connector between the SRS main harness 2P connector (A) and the front passenger's airbag 2P connector (B).



3. Remove the four mounting nuts (A) from the bracket. Cover the lid and dashboard with a cloth, and pry carefully with a screwdriver to lift the front passenger's airbag (B) out of the dashboard.

   NOTE: The airbag lid has pawls on its side which attach it to the dashboard.

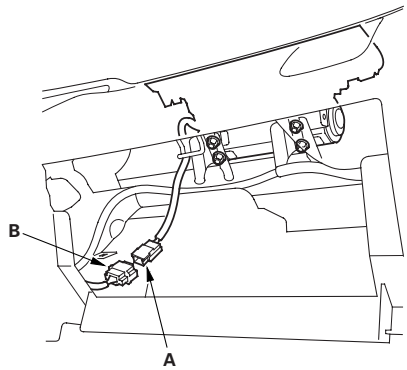


Removal ('02-04 Models)

1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.

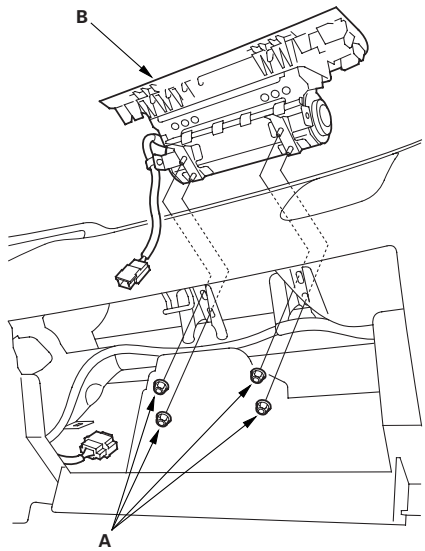
2. Remove the glove box (see page 20-71).

3. Disconnect the connector between the front passenger's airbag 4P connector (A) and the dashboard wire harness B 4P connector (B).



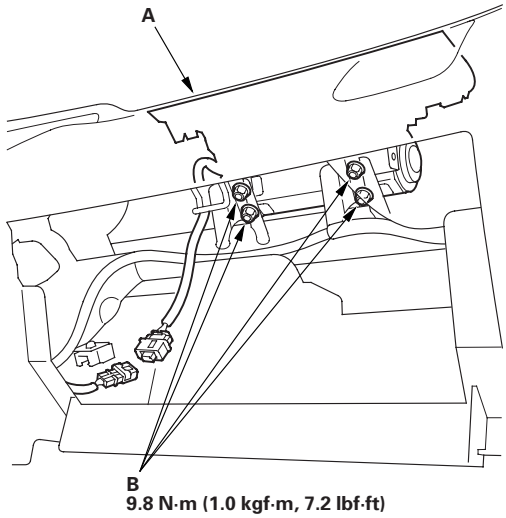
4. Remove the four mounting nuts (A) from the bracket. Cover the lid and dashboard with a cloth, and pry carefully with a screwdriver to lift the front passenger's airbag (B) out of the dashboard.

   NOTE: The airbag lid has pawls on its side which attach it to the dashboard.

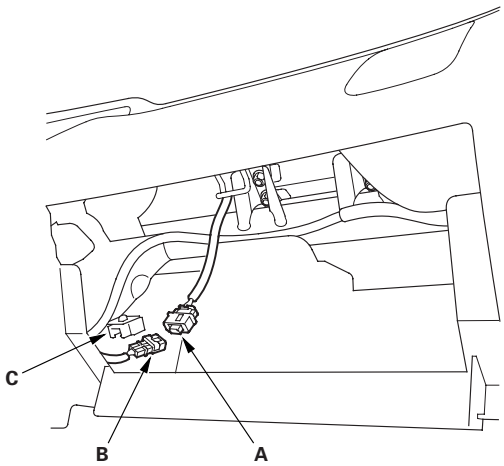


Installation ('99-01 Models)

1. Place the new front passenger's airbag (A) into the dashboard. Tighten the front passenger's airbag mounting nuts (B).



2. Connect the front passenger's airbag 2P connector (A) to the SRS main harness 2P connector (B). Attach the front passenger's airbag connector to the connector holder (C), then reinstall the glove box.

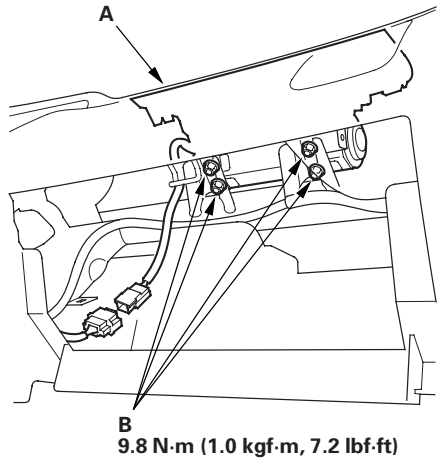


3. Reconnect the battery negative cable.

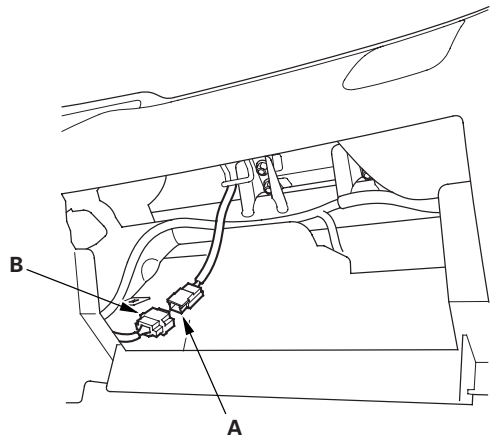
4. After installing the airbag, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Installation ('02-04 Models)

1. Place the new front passenger's airbag (A) into the dashboard. Tighten the front passenger's airbag mounting nuts (B).



2. Connect the front passenger's airbag 4P connector (A) to the SRS main harness 4P connector (B), then reinstall the glove box.



3. Reconnect the battery negative cable.

4. After installing the airbag, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Side Airbag Replacement

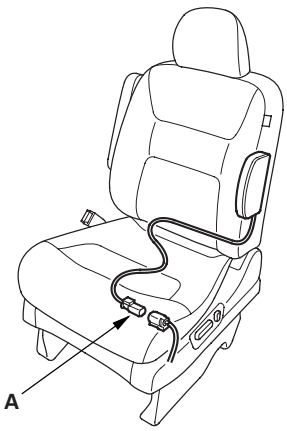
'02-04 Models

NOTE: Review the seat replacement procedure (see page 20-81) before performing repair or service.

Removal

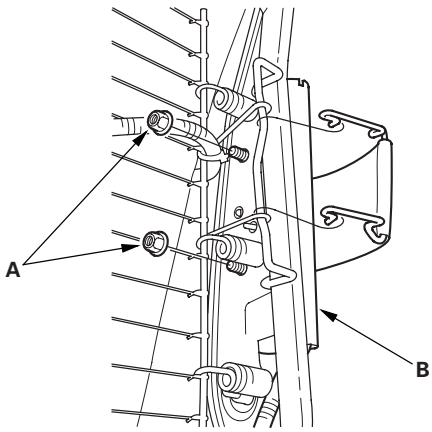
1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.

2. Disconnect the side airbag harness 2P connector (A).



3. Remove the seat assembly (see page 20-81) and seat-back cover (see page 20-102).

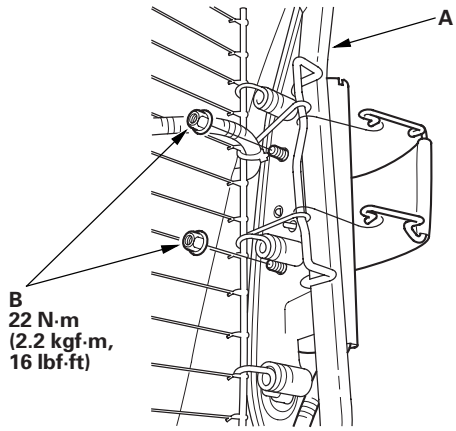
4. Remove the mounting nuts (A) and the side airbag (B).



Installation

NOTE:
- If the side airbag lid is secured by a tape, remove the tape.
- Do not open the lid of the side airbag cover.
- Use new mounting nuts tightened to the specified torque.
- Make sure that the seat-back cover is installed properly. Improper installation may prevent proper deployment.
- Be sure to install the harness wires so they are not pinched or interfering with other parts.

1. Place the new side airbag on the seat-back frame (A). Tighten the side airbag mounting nuts (B).



2. Install the seat-back cover (see page 20-102).

3. Install the seat assembly (see page 20-81), then connect the side airbag harness 2P connector.

4. Move the front seat and the seat-back through their full ranges of movement, making sure the harness wires are not pinched or interfering with other parts.

5. Reconnect the battery negative cable.

6. After installing the side airbag, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Airbag Disposal

Special Tool Required
Deployment tool 07HAZ-SG00500

Before scrapping any airbags, side airbags, or seat belt tensioners, (including those in a whole vehicle to be scrapped), the airbags, side airbags, or seat belt tensioners, must be deployed. If the vehicle is still within the warranty period, the Honda District Service Manager must give approval and/or special instruction before deploying the airbags, or side airbags, seat belt tensioners. Only after the airbags, side airbags, or seat belt tensioners have been deployed (as the result of vehicle collision, for example), can they be scrapped. If the airbags, side airbags, and seat belt tensioners appear intact (not deployed), treat them with extreme caution. Follow this procedure.

Deploying Airbags in the vehicle

If an SRS equipped vehicle is to be entirely scrapped, its airbags, side airbags, and seat belt tensioners, should be deployed while still in the vehicle. The airbags, side airbags and seat belt tensioners should not be considered as salvageable parts and should never be installed in another vehicle.

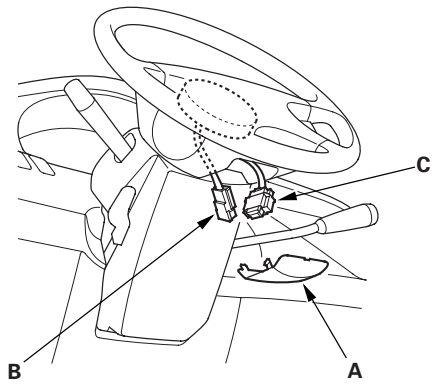
1. Turn the ignition switch OFF, then disconnect the battery negative cable, and wait at least 3 minutes.

2. Confirm that each airbag, side airbag, or seat belt tensioner is securely mounted.

3. Confirm that the special tool is functioning properly by following the check procedure on the tool label.

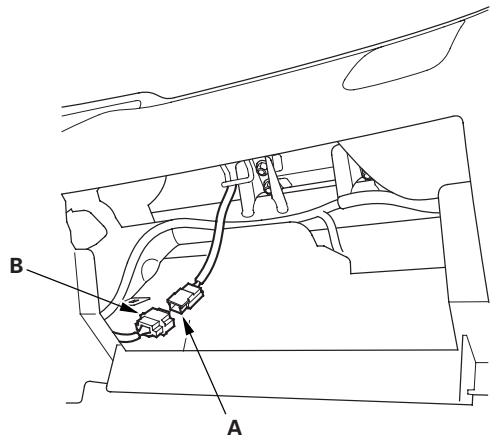
Driver's Airbag

4. Remove the access panel (A), then disconnect the 4P connector between the driver's airbag (B) and the cable reel (C).



Front Passenger's Airbag

5. Remove the glove box (see page 20-71), then disconnect the 4P connector between the front passenger's airbag (A) and dashboard wire harness (B).



(cont'd)

10. Connect a 12 volt battery to the tool.

    - If the green light on the tool comes on, the igniter circuit is defective and cannot deploy the component. Go to Disposal of Damaged Components.
    - If the red light on the tool comes on, the component is ready to be deployed.

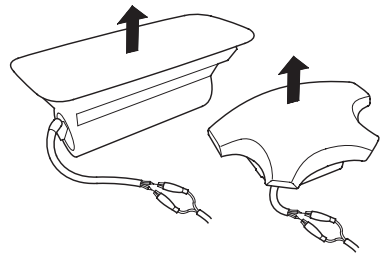
11. Push the tool's deployment switch. The airbags and tensioners should deploy (deployment is both highly audible and visible: a loud noise and rapid inflation of the bag, followed by slow deflation).

    - If the components deploy and the green light on the tool comes on, continue with this procedure.
    - If a component doesn't deploy, yet the green light comes ON, its igniter is defective. Go to Disposal of Damaged Components.
    - During deployment the airbag can become hot enough to burn you. Wait 30 minutes after deployment before touching the airbag.

12. Dispose of the complete airbag. No part of it can be reused. Place it in a sturdy plastic bag (A), and seal it securely.

Deploying Components Out of the Vehicle

If an intact airbag or tensioner has been removed from a scrapped vehicle, or has been found defective or damaged during transit, storage, or service, it should be deployed as follows:



1. Confirm that the special tool is functioning properly by following the check procedure on this page or on the tool label.
2. Position the airbag face up, outdoors, on flat ground, at least 30 feet (10 meters) from any obstacles or people.
3. Follow steps 9, 10, 11, and 12 of the in-vehicle deployment procedure.

Disposal of Damaged Components

1. If installed in a vehicle, follow the removal procedure for the driver's airbag (see page 23-368), front passenger's airbag (see page 23-370), side airbag (see page 23-372), and seat belt tensioner (see page 23-4).
2. In all cases, make a short circuit by twisting together the two inflator wires.
   '02-04 Models:
   NOTE: The driver's and passenger's airbag each have four wires: twist each pair of like-colored wires together
3. Package the component in exactly the same packaging that the new replacement part came in.
4. Mark the outside of the box ''DAMAGED AIRBAG NOT DEPLOYED'', ''DAMAGED SIDE AIRBAG NOT DEPLOYED'' or ''DAMAGED SEAT BELT TENSIONER NOT DEPLOYED'' so it does not get confused with your parts stock.
5. Contact your Honda District Service Manager for how and where to return it for disposal.

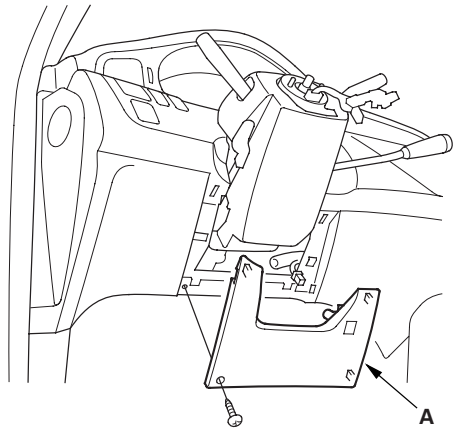
Deployment Tool Check

1. Connect the yellow clips to both switch protector handles on the tool; connect the tool to a battery.
2. Push the operation switch: green means the tool is OK; red means the tool is faulty.
3. Disconnect the battery and the yellow clips.

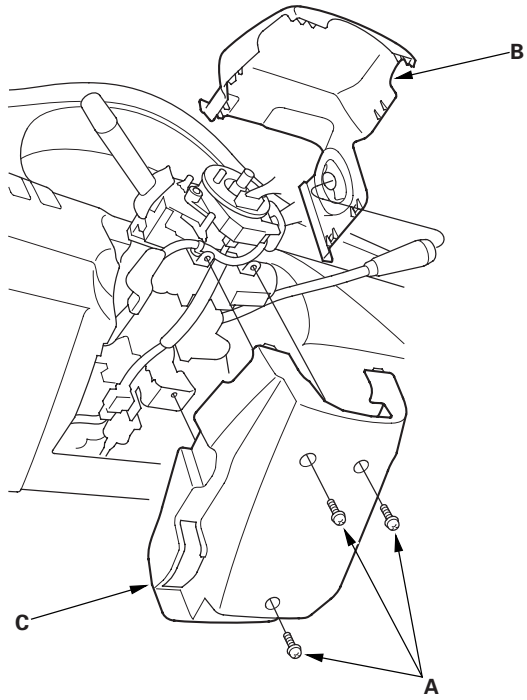
Cable Reel Replacement

Removal ('99-01 Models)

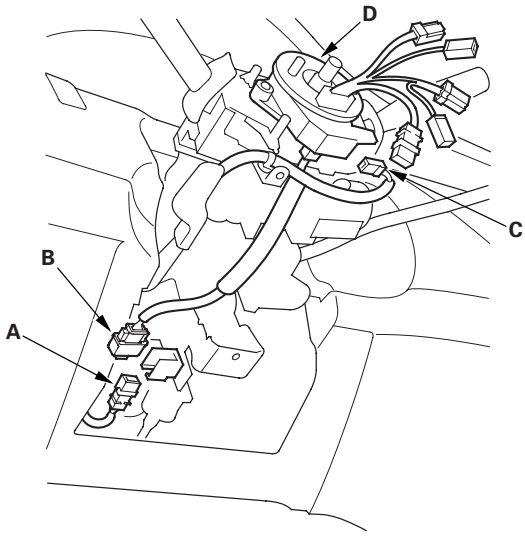
1. Make sure the front wheels are aligned straight ahead.
2. Disconnect the battery negative cable, and wait at least 3 minutes.
3. Remove the driver's airbag (see page 23-368).
4. Remove the steering wheel (see page 17-22).
5. Remove the dashboard lower cover (A).



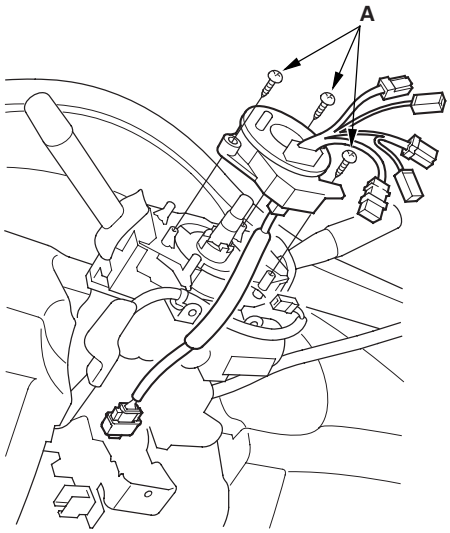
6. Remove the column cover screws (A), then remove the column covers (B, C).



7. Disconnect the SRS main harness 2P connector (A) from the cable reel 2P connector (B), then disconnect the dashboard wire harness 4P connector (C) from the cable reel (D).



8. Remove the screws (A) from the cable reel, then remove the cable reel from the column.



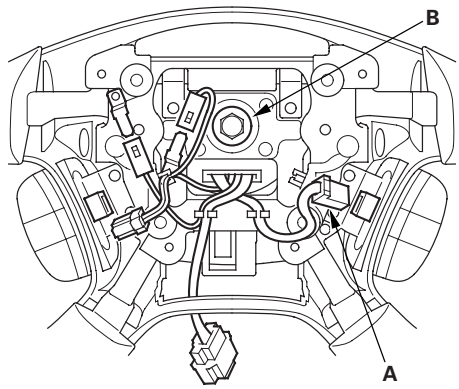
Removal ('02-04 Models)

1. Make sure the front wheels are aligned straight ahead.

2. Disconnect the battery negative cable, and wait at least 3 minutes.

3. Remove the driver's airbag (see page 23-368).

4. Disconnect the connectors (A) from the cruise control set/resume switch, radio remote switch, and horn switch, then remove the steering wheel bolt (B).

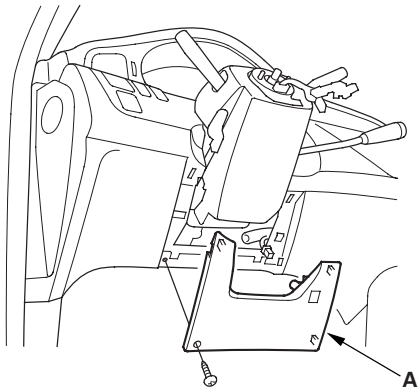


5. Remove the steering wheel with a steering wheel puller (see step 3 on page 17-22). Do not tap on the steering wheel or steering column shaft when removing the steering wheel.

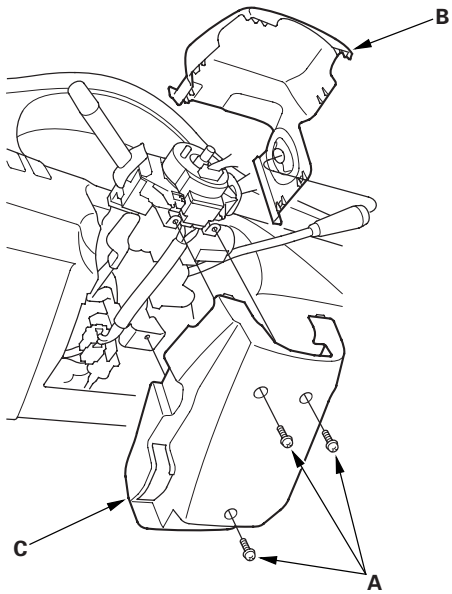
(cont'd)

Cable Reel Replacement (cont'd)

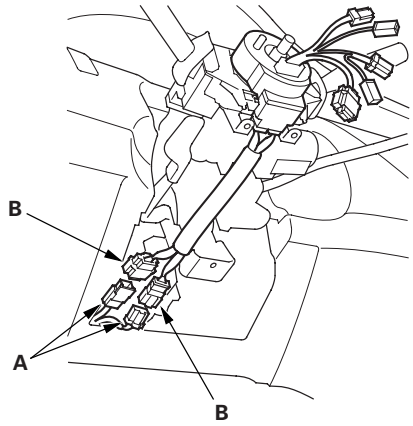
6. Remove the dashboard lower cover (A).



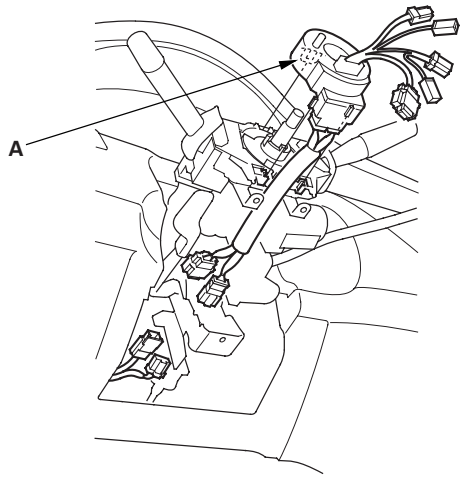
7. Remove the column cover screws (A), then remove the column covers (B, C).



8. Disconnect the SRS main harness 4P connectors (A) from the cable reel 4P connectors (B).



9. Release the tab (A), then remove the cable reel from the column.

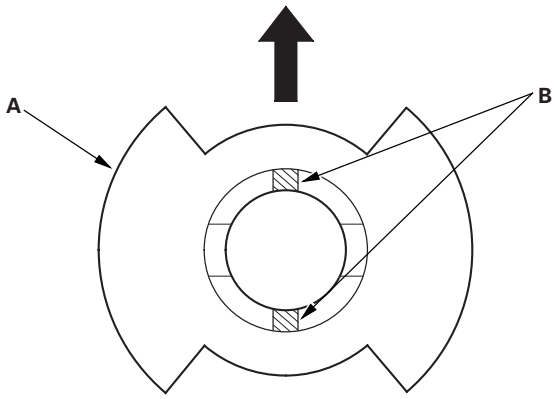


Installation ('99-01 models)

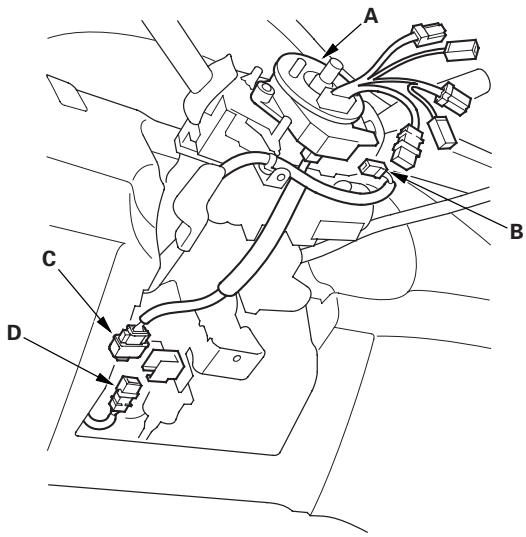
1. Before installing the steering wheel, the front wheels should be aligned straight ahead.

2. Turn the ignition switch OFF. Disconnect the battery negative cable, and wait at least 3 minutes.

3. Set the cancel sleeve (A) so that the projections (B) are aligned vertically.

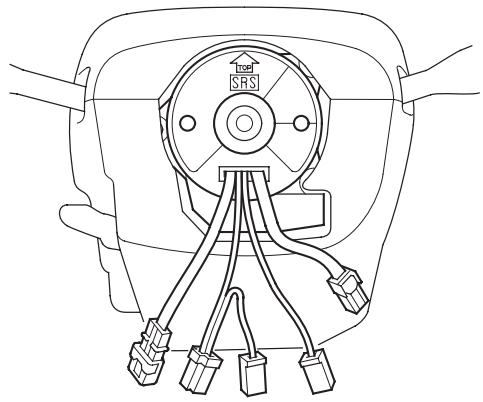


4. Carefully install the cable reel (A) on the steering column shaft. Then connect the 4P connector (B) to the cable reel, and connect the 2P connector (C) to the SRS main harness 2P connector (D).

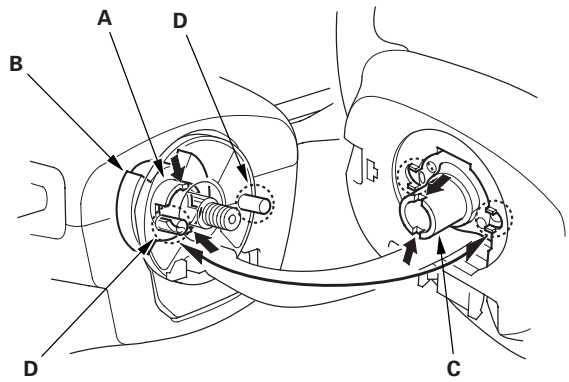


5. Install the steering column covers.

6. If necessary, center the cable reel. (New replacement cable reels come centered.) Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise about 2 1/2 turns until the arrow mark on the cable reel label points straight up.



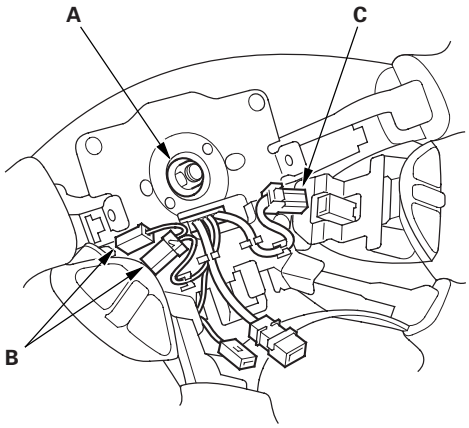
7. Position the two tabs (A) of the turn signal cancel sleeve (B) as shown, and install the steering wheel on to the steering column shaft, making sure the steering wheel hub (C) engages the pins (D) of the cable reel and tabs of the canceling sleeve. Do not tap on the steering wheel or steering column shaft when installing the steering wheel.



(cont'd)

Cable Reel Replacement (cont'd)

8. Install the steering wheel nut (A) and tighten it to 49 N·m (5.0 kgf·m, 36 lbf·ft).



9. Connect the radio remote switch connectors (B), and cruise control switch connector (C).

10. Install the driver's airbag (see step 1 on page 23-369).

11. Reconnect the battery negative cable.

12. After installing the cable reel, confirm proper system operation:

    - Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
    - After the SRS indicator has turned off, turn the steering wheel fully left and right to confirm the SRS indicator does not come on.

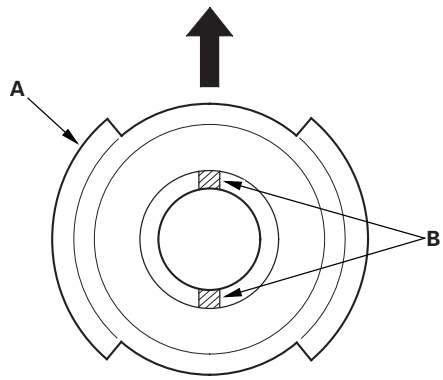
13. Check the horn, radio remote switch, cruise control set/resume switch, and turn signal cancel for proper operation.

Installation ('02-04 Models)

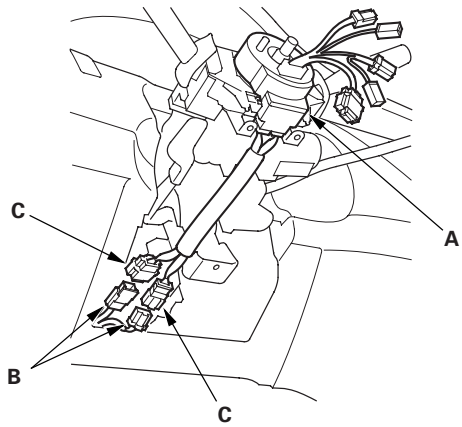
1. Before installing the steering wheel, align the front wheels straight ahead.

2. If not already done, disconnect the battery negative cable, and wait at least 3 minutes.

3. Set the cancel sleeve (A) so that the projections (B) are aligned vertically.

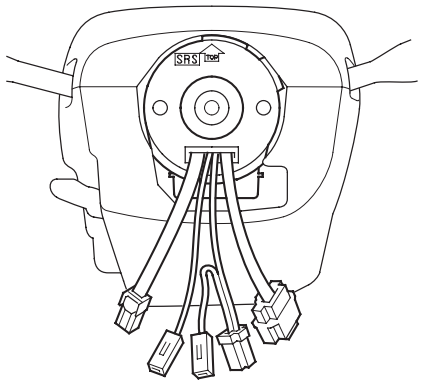


4. Carefully install the cable reel (A) on the steering column shaft. Then connect the SRS main harness 4P connectors (B) to the cable reel connectors (C).

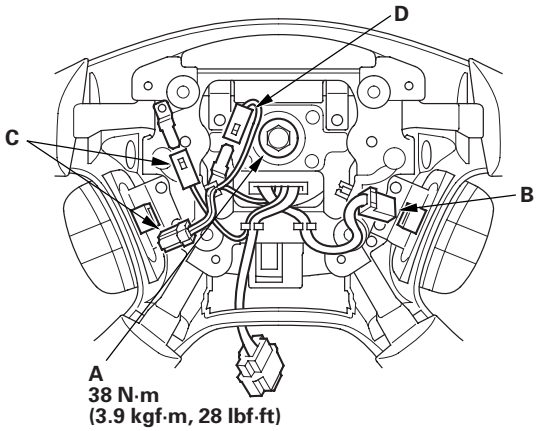


5. Install the steering column covers.

6. If necessary, center the cable reel. (New replacement cable reels come centered.) Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise (about 2 1/2 turns) until the arrow mark on the cable reel label points straight up.



7. Align the projections on the cable reel with the holes on the steering wheel, and install the steering wheel with a new steering wheel bolt (A).



8. Reconnect the cruise control set/resume switch (B), radio remote switch (C), and the horn switch (D).

9. Install the driver's airbag (see page 23-369).

10. Reconnect the battery negative cable.

11. After installing the cable reel, confirm proper system operation:

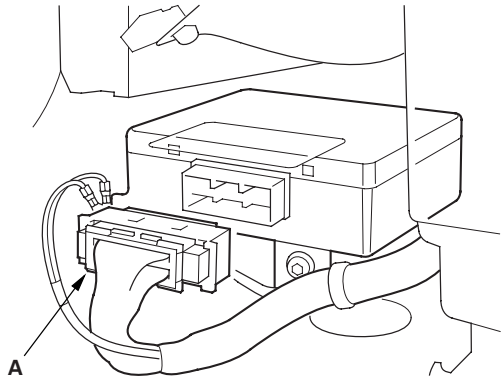
    - Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
    - After the SRS indicator has turned off, turn the steering wheel fully left and right to confirm the SRS indicator does not come on.
    - Make sure the horn button works.

12. Check the horn, radio remote switch, cruise control set/resume switch, and turn signal cancel for proper operation.

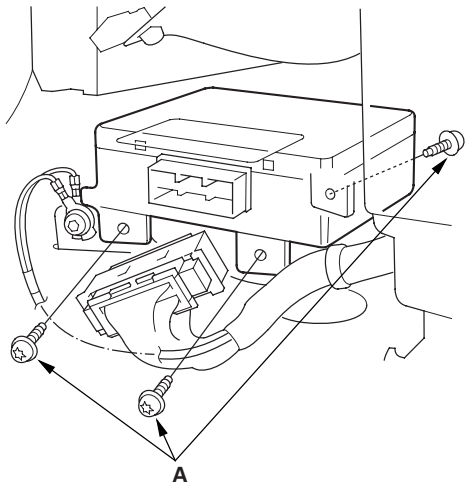
SRS Unit Replacement

Removal ('99-01 Models)

1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.
2. Disconnect the airbag connectors (see page 23-29) and seat belt tensioner connectors (see page 23-29).
3. Remove the center lower pocket (see page 20-67).
4. Disconnect the SRS main harness 18P connector (A) from the SRS unit.

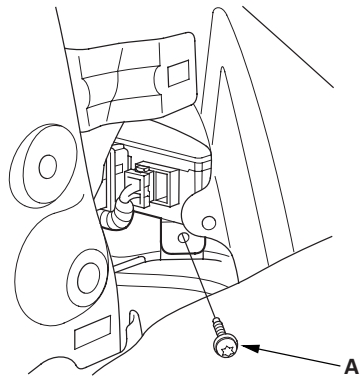


5. Remove the three Torx bolts (A) from the SRS unit, then pull out the SRS unit from the bracket.

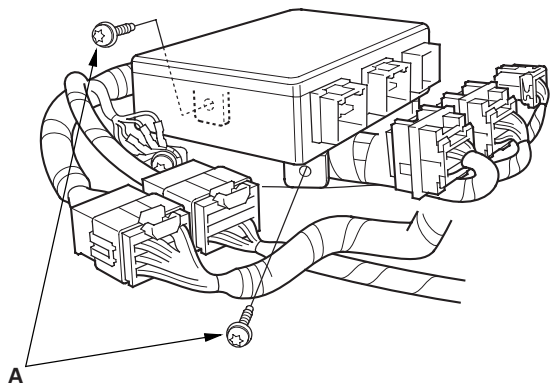


Removal ('02 Model)

1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.
2. Disconnect the driver's and front passenger's airbag connectors (see page 23-30).
3. Disconnect the side airbag connectors (see page 23-31).
4. Disconnect both seat belt tensioner connectors (see page 23-31).
5. Remove the center lower pocket (see page 20-67).
6. Pull down the carpet, then remove the Torx bolt (A) from the SRS unit.



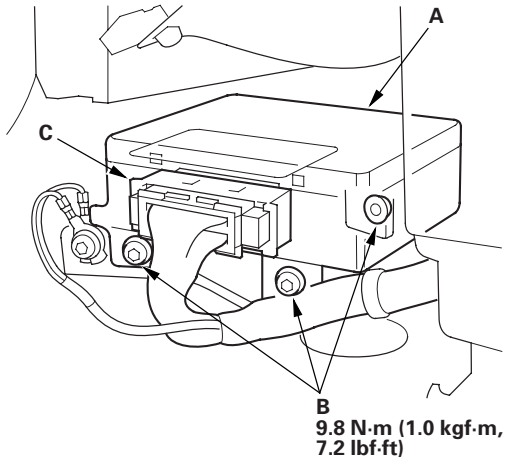
7. Disconnect the connectors and remove the two Torx bolts (A), then pull out the SRS unit from the right side.



Installation ('99-01 Models)

1. Install the new SRS unit (A) with new Torx bolts (B), then connect the SRS main harness 18P connector (C) to the SRS unit; push it into position until it clicks.

   NOTE: When tightening the Torx bolts to the specified torque after replacement, be careful to turn them in so that their heads rest squarely on the brackets.



2. Reinstall the center lower pocket (see page 20-67).

3. Reconnect the airbag connectors (see page 23-29), and seat belt tensioner connectors (see page 23-29).

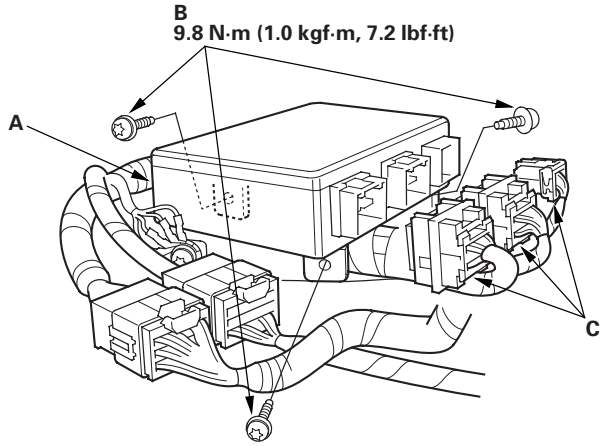
4. Reconnect the battery negative cable.

5. After installing the SRS unit, confirm proper system operation. Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Installation ('02 Model)

1. Install the new SRS unit (A) with Torx bolts (B), then connect the connectors (C) to the SRS unit; push it into position until it clicks.

   NOTE: When tightening the Torx bolts to the specified torque after replacement, be careful to turn them in so that their heads rest squarely on the brackets.



2. Reinstall the dashboard center lower pocket (see page 20-67).

3. Reconnect the driver's and front passenger's airbag connectors (see page 23-30).

4. Reconnect the side airbag connectors (see page 23-31).

5. Reconnect both seat belt tensioner connectors (see page 23-31).

6. Reconnect the battery negative cable.

7. Initialize the OPDS unit (see page 23-40).

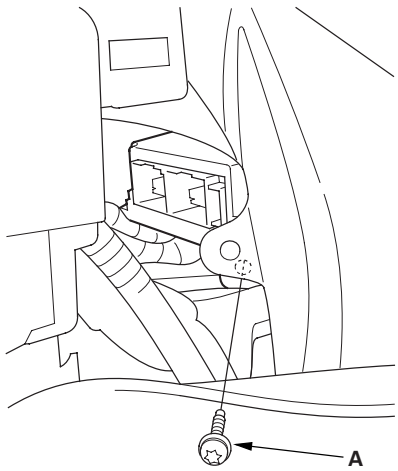
8. After installing the SRS unit, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

(cont'd)

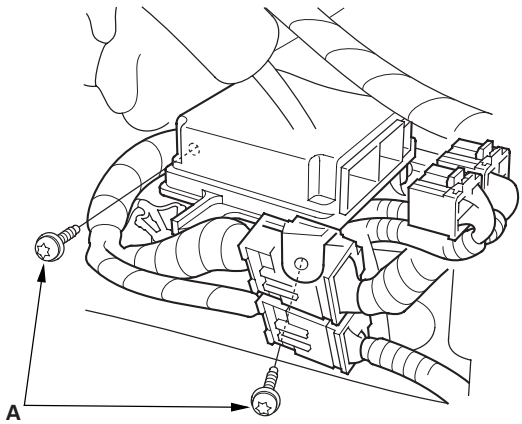
SRS Unit Replacement (cont'd)

Removal ('03-04 Models)

1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.
2. Disconnect both seat belt tensioner connectors (see step 5 on page 23-34).
3. Remove the center lower pocket (see page 20-67).
4. Pull down the carpet, then remove the Torx bolt (A) from the SRS unit.



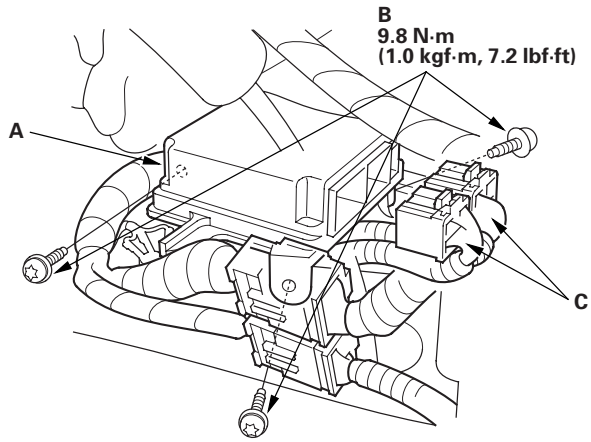
5. Disconnect the connectors and remove the two Torx bolts (A), then pull out the SRS unit from the right side.



Installation ('03-04 Models)

1. Install the new SRS unit (A) with Torx bolts (B), then connect the connectors (C) to the SRS unit; push it into position until it clicks.

   NOTE: When tightening the Torx bolts to the specified torque after replacement, be careful to turn them in so that their heads rest squarely on the brackets.



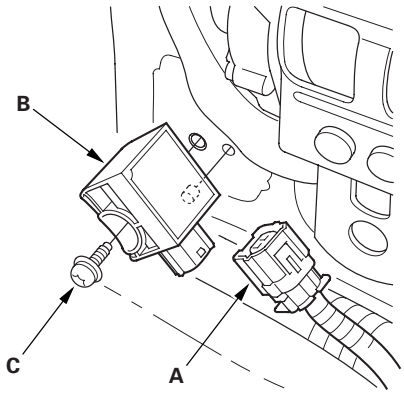
2. Reinstall the dashboard center lower pocket (see page 20-67).
3. Reconnect both seat belt tensioner connectors (see step 5 on page 23-34).
4. Reconnect the battery negative cable.
5. Initialize the OPDS unit (see page 23-41).
6. After installing the SRS unit, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Side Impact Sensor Replacement

Removal ('02 Model)

NOTE:
- Removal of the side impact sensor must be performed according to the precautions/procedures.
- Before disconnecting the side impact sensor 2P connector(s), disconnect the side airbag 2P connector(s).
- Do not turn the ignition switch ON (II), and do not connect the battery cable while replacing the side impact sensor.

1. Disconnect the negative battery cable, and wait at least 3 minutes before beginning work.
2. Remove the seat assembly (see page 20-81).
3. Remove the center pillar lower trim panel (see page 20-58).
4. Disconnect the side wire harness 2P connector (A) from the side impact sensor (B).

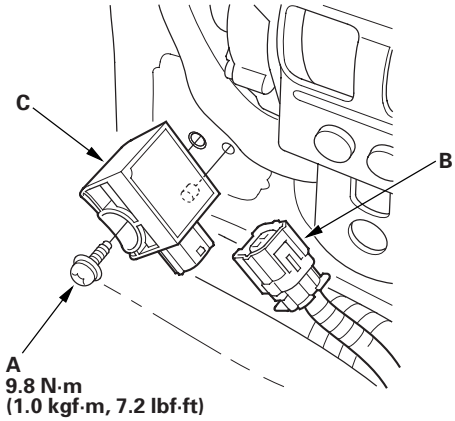


5. Remove the Torx bolt (C) using a Torx T30 bit, then remove the side impact sensor.

Installation ('02 Model)

NOTE:
- Be sure to install the harness wires so they are not pinched or interfering with other parts.
- Do not turn the ignition switch ON (II), and do not connect the battery cable while replacing the side impact sensor.

1. Install the new side impact sensor with a new Torx bolt (A) then connect the side wire harness 2P connector (B) to the side impact sensor (C).



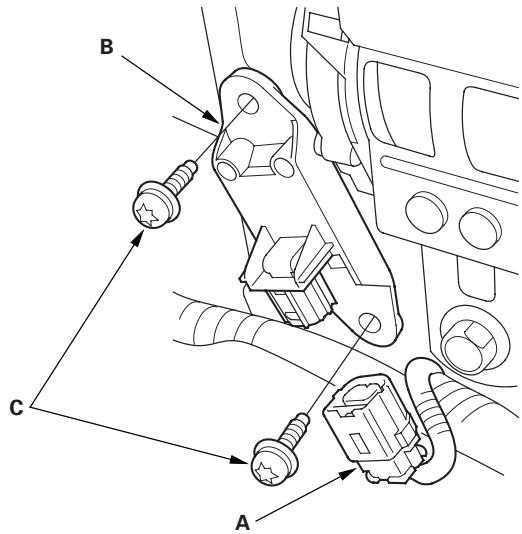
2. Reconnect the battery negative cable.
3. After installing the side impact sensor, confirm proper system operation: Turn the ignition switch ON (II): the SRS indicator should come on for about 6 seconds and then go off.

Side Impact Sensor Replacement (cont'd)

Removal ('03-04 Models)

NOTE:
- Removal of the side impact sensor must be performed according to the precautions/procedures.
- Before disconnecting the side impact sensor 2P connector(s), disconnect the side airbag 2P connector(s).
- Do not turn the ignition switch ON (II), and do not connect the battery cable while replacing the side impact sensor.

1. Disconnect the negative battery cable, and wait at least 3 minutes before beginning work.
2. Remove the seat assembly (see page 20-81).
3. Remove the left rear side trim panel (see page 20-60).
4. Remove the center pillar lower trim panel (see page 20-58).
5. Disconnect the side wire harness 2P connector (A) from the side impact sensor (B).

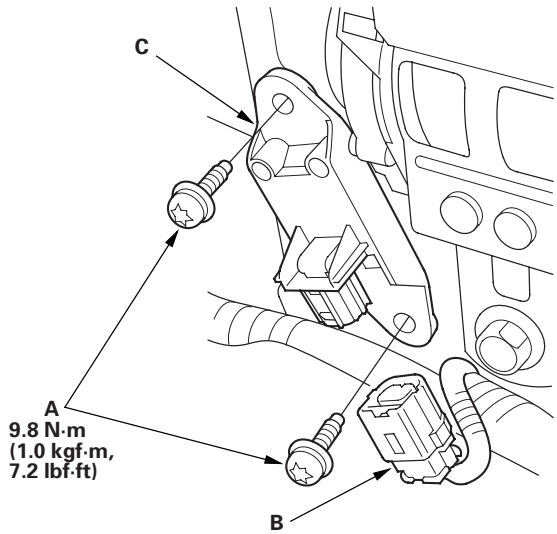


6. Remove the Torx bolts (C) using a Torx T30 bit, then remove the side impact sensor.

Installation ('03-04 Models)

NOTE:
- Be sure to install the harness wires so they are not pinched or interfering with other parts.
- Do not turn the ignition switch ON (II), and do not connect the battery cable while replacing the side impact sensor.

1. Install the new side impact sensor with the Torx bolts (A) then connect the side wire harness 2P connector (B) to the side impact sensor (C).



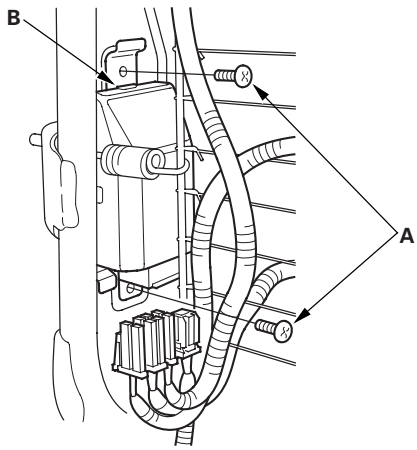
2. Reconnect the battery negative cable.
3. After installing the side impact sensor, confirm proper system operation: Turn the ignition switch ON (II): the SRS indicator should come on for about 6 seconds and then go off.
4. Install all removed parts.

OPDS Unit Replacement

NOTE: Review the seat replacement procedure before performing repair or service.

Removal ('02-04 Models)

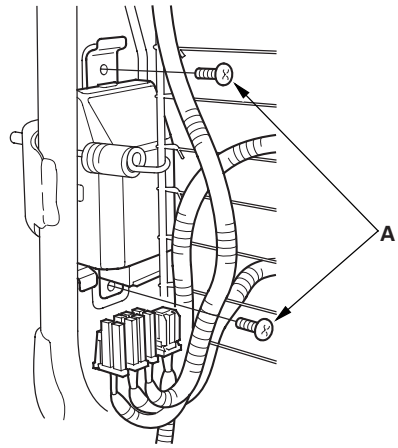
1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.
2. Disconnect the side airbag harness 2P connector (see step 4 on page 23-31).
3. Remove the seat assembly (see page 20-81) and seat-back cover (see page 20-102).
4. Disconnect the OPDS unit harness 8P connector and sensor connectors from the OPDS unit.



5. Remove the two screws (A) and the OPDS unit (B).

Installation ('02-04 Models)

1. Place the new OPDS unit on the seat-back frame. Tighten the two screws (A), and connect the OPDS unit harness 8P connector and sensor connectors to the OPDS unit.



2. Install the seat-back cover (see page 20-102).
3. Install the seat assembly (see page 20-81), then connect the side airbag harness 2P connector.
4. Reconnect the battery negative cable.
5. Set the seat-back in the normal position, and make sure there is nothing on the front passenger's seat.
6. Initialize the OPDS unit.
   - '02 Model (see page 23-40)
   - '03-04 Models (see page 23-41)
7. Calibrate the front passenger's weight sensors unit ('03-04 Models) (see page 23-42).
8. After installing the OPDS unit, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Front Impact Sensor Replacement

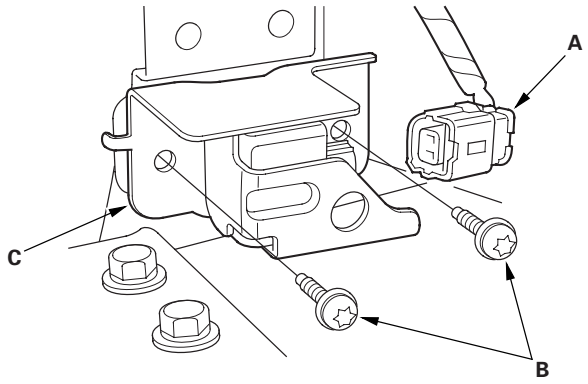
Removal ('02 Model)

NOTE:
- Removal of the front impact sensor must be performed according to the precautions/procedures.
- Before disconnecting the front impact sensor 2P connector(s), disconnect the driver's and front passenger's airbag 4P connectors, and both seat belt tensioner 2P connector(s).
- Do not turn the ignition switch ON (II), and do not connect the battery cable while replacing the front impact sensor.

1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.

2. Remove the front bumper (see page 20-128).

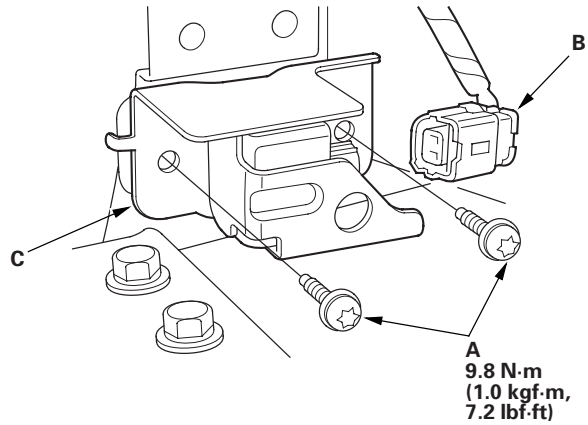
3. Disconnect the side wire harness 2P connector (A), and remove the two Torx bolts (B) using a Torx T30 bit, then remove the front impact sensor (C).



Installation ('02 Model)

NOTE:
- Be sure to install the harness wires so they are not pinched or interfering with other parts.
- Do not turn the ignition switch ON (II), and do not connect the battery cable while replacing the front impact sensor.

1. Install the new front impact sensor with new Torx bolts (A), then connect the engine compartment wire harness 2P connector (B) to the front impact sensor (C).



2. Reconnect the battery negative cable.

3. After installing the front impact sensor, confirm proper system operation: Turn the ignition switch ON (II): the SRS indicator should come on for about 6 seconds and then go off.

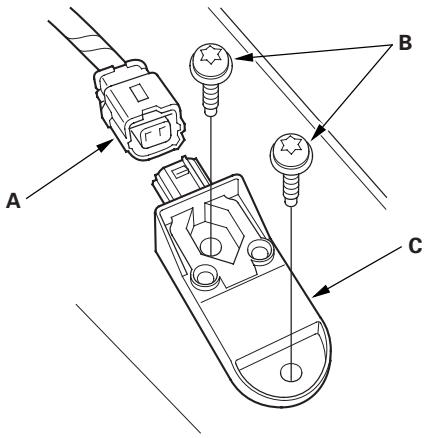
Removal ('03-04 Models)

NOTE:
- Removal of the front sensor must be performed according to the precautions/procedures.
- Before disconnecting the front sensor 2P connector(s), disconnect the driver's and front passenger's airbag 4P connectors, and both seat belt tensioner 2P connector(s).
- Do not turn the ignition switch ON (II), and do not connect the battery cable while replacing the front sensor.

1. Remove the battery, and wait at least 3 minutes before beginning work.

2. Disconnect the evaporative emissions canister hose.

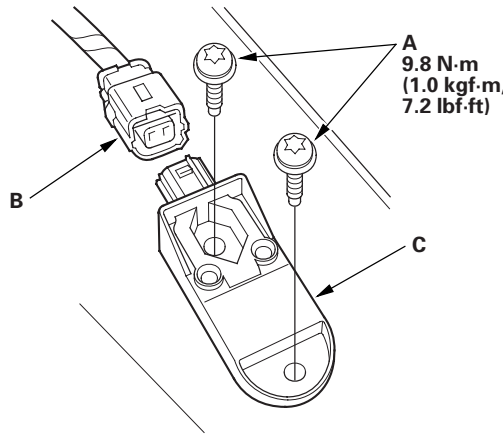
3. Disconnect the engine compartment wire harness 2P connector (A), and remove the two Torx bolts (B) using a Torx T30 bit, then remove the front sensor (C).



Installation ('03-04 Models)

NOTE:
- Be sure to install the harness wires so they are not pinched or interfering with other parts.
- Do not turn the ignition switch ON (II), and do not connect the battery cable while replacing the front sensor.

1. Install the new front sensor with new Torx bolts (A), then connect the engine compartment wire harness 2P connector (B) to the front sensor (C).



2. Reconnect the battery negative cable.

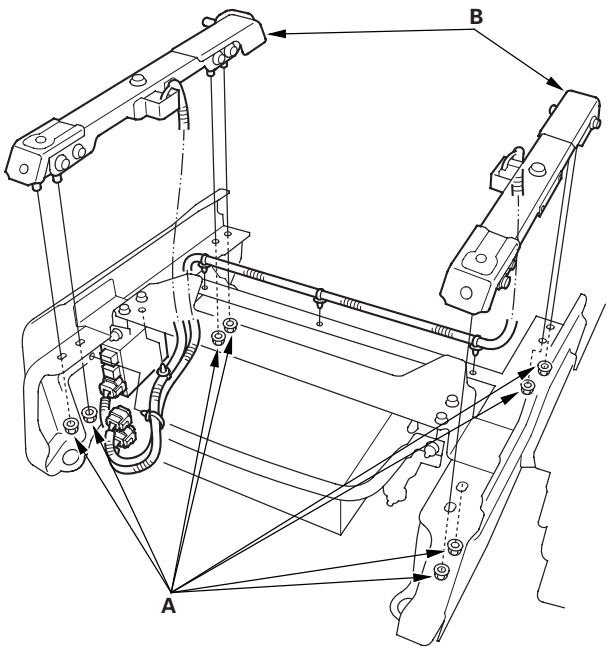
3. After installing the front sensor, confirm proper system operation: Turn the ignition switch ON (II): the SRS indicator should come on for about 6 seconds and then go off.

Front Passenger's Weight Sensor Replacement

Removal ('03-04 Models)

NOTE:
- Removal of the front passenger's weight sensors must be performed according to the precautions/ procedures described at the beginning of this section.
- Before disconnecting the front passenger's weight sensors connectors, disconnect the front passenger's airbag 4P connector..
- Do not turn the ignition switch ON (II), and do not connect the battery cable while replacing the front passenger's weight sensors.

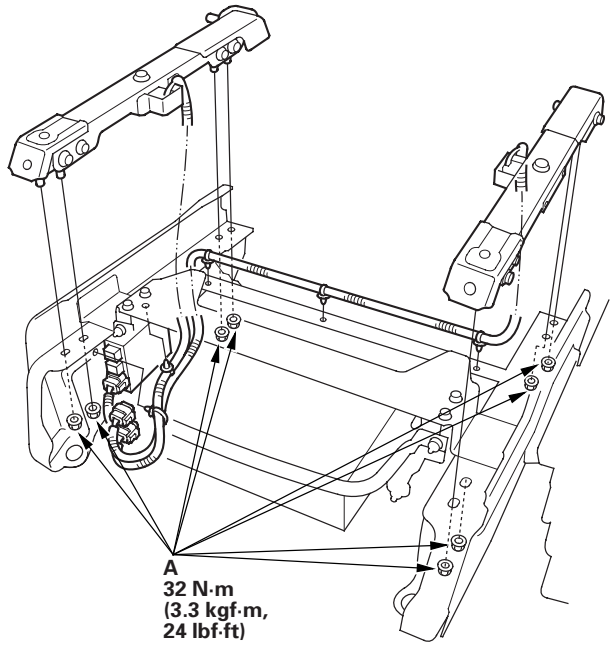
1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.
2. Remove the seat assembly (see page 20-81) and seat riser (see page 20-99).
3. Disconnect the front passenger's weight sensors connectors from the seat weight sensor unit (see page 23-391).
4. Remove the harness clips and mounting nuts (A), then remove the front passenger's weight sensors (B) from the seat riser.



Installation ('03-04 Models)

NOTE:
- Be sure to install the harness wires so they are not pinched or interfering with other parts.
- Do not turn the ignition switch ON (II), and do not connect the battery cable while replacing the front passenger's weight sensors.
- Tighten the mounting nuts from the backside. Improper tightening could cause the airbag system to accidentally deploy, causing damage or injuries.

1. Place the new front passenger's weight sensors on the seat riser. Tighten the mounting nuts (A) from the backside and connect the sensor connectors to the front passenger's weight sensors unit. Then install the harness clips.



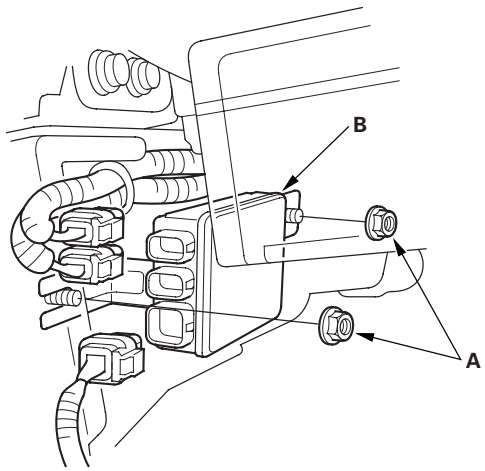
2. Install the seat riser (see page 20-99) and the seat assembly (see page 20-81).
3. Reconnect the battery negative cable.
4. Calibrate the front passenger's weight sensors unit (see page 23-42).
5. After installing the front passenger's weight sensors, confirm proper system operation: Turn the ignition switch ON (II): the SRS indicator should come on for about 6 seconds and then go off.

Front Passenger's Weight Sensor Unit Replacement

NOTE: Review the seat cover replacement procedure (see page 20-102) before performing repair or service.

Removal ('03-04 Models)

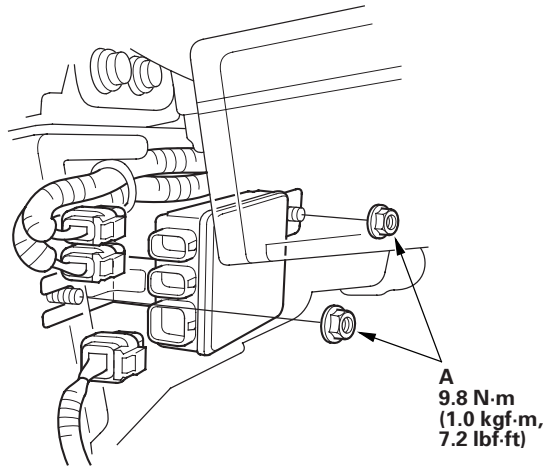
1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.
2. Disconnect the front passenger's airbag 4P connector (see step 3 on page 23-33).
3. Remove the seat assembly (see page 20-81) and seat riser (see page 20-99).
4. Disconnect the connectors. Remove the mounting nuts (A) and the front passenger's weight sensors unit (B) from the seat riser.



Installation ('03-04 Models)

NOTE: Be sure to install the harness wires so they are not pinched or interfering with other parts.

1. Place the new front passenger's weight sensors unit on the seat riser. Tighten the two mounting nuts (A) and connect the connectors to the front passenger's weight sensors unit.



2. Install the seat riser (see page 20-99) and the seat assembly (see page 20-81).
3. Reconnect the front passenger's airbag 4P connector (see step 3 on page 23-33).
4. Reconnect the battery negative cable.
5. Calibrate the front passenger's weight sensors unit (see page 23-42).
6. After installing the front passenger's weight sensors unit, confirm proper system operation: Turn the ignition switch ON (II): the SRS indicator should come on for about 6 seconds and then go off.

Driver's Seat Position Sensor Replacement

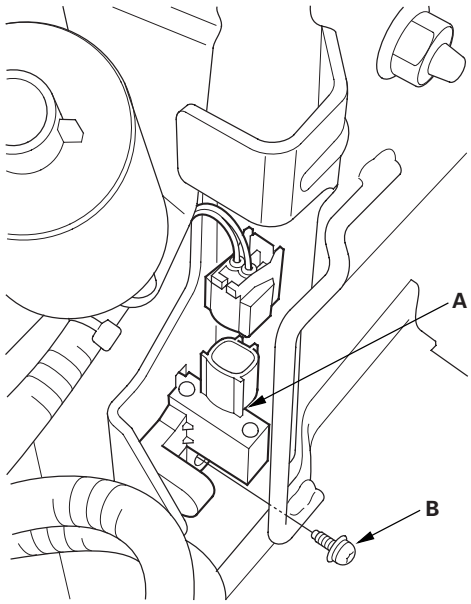
Removal ('03-04 Models)

NOTE:
- Removal of the driver's seat position sensor must be performed according to the precautions/procedures.
- Before disconnecting the driver's seat position sensor 2P connector, disconnect the driver's airbag 4P connector.
- Do not turn the ignition switch ON (II), and do not connect the battery cable while replacing the driver's seat position sensor.

1. Disconnect the battery negative cable, and wait at least 3 minutes before beginning work.

2. Remove the driver's seat assembly (see page 20-81).

3. Disconnect the driver's seat wire harness 2P connector (with power seat), or the driver's seat position sensor subharness 2P connector (without power seat) from the driver's seat position sensor (A).

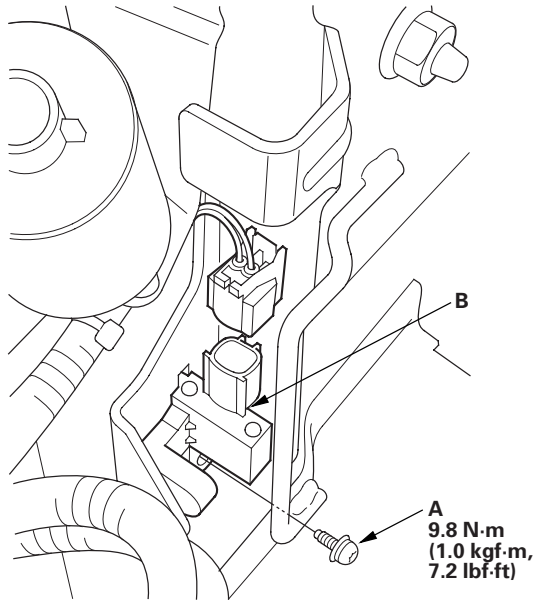


4. Remove the Torx bolt (B) using a Torx T30 bit, then remove the driver's seat position sensor.

Installation ('03-04 Models)

NOTE:
- Be sure to install the harness wires so they are not pinched or interfering with other parts.
- Do not turn the ignition switch ON (II), and do not connect the battery cable while replacing the driver's seat position sensor.
- After installing the driver's seat position sensor, make sure it is clean. Keep it away from dust.

1. Install the new driver's seat position sensor with a new Torx bolt (A) then connect the driver's seat wire harness 2P connector (with power seat), or the driver's seat position sensor subharness 2P connector (without power seat) to the driver's seat position sensor (B).



2. Install the driver's seat assembly (see page 20-81).

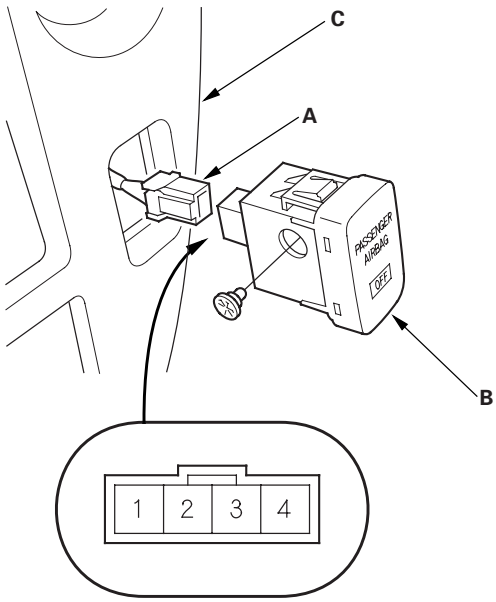
3. Reconnect the battery negative cable.

4. After the driver's seat position sensor has been installed, check its operation with the HDS (see page 23-47).

Passenger's Airbag Cutoff Indicator Bulb Test

'03-04 Models

1. Remove the center panel (see page 20-68).
2. Disconnect the 4P connector (A) from the passenger airbag cutoff indicator (B).



3. Push out the passenger's airbag cutoff indicator from behind the center panel(C).
4. Check for continuity between the No. 2 and No.3 terminals of the indicator. If there is no continuity, replace the bulb.