

## 0A-6 GENERAL INFORMATION

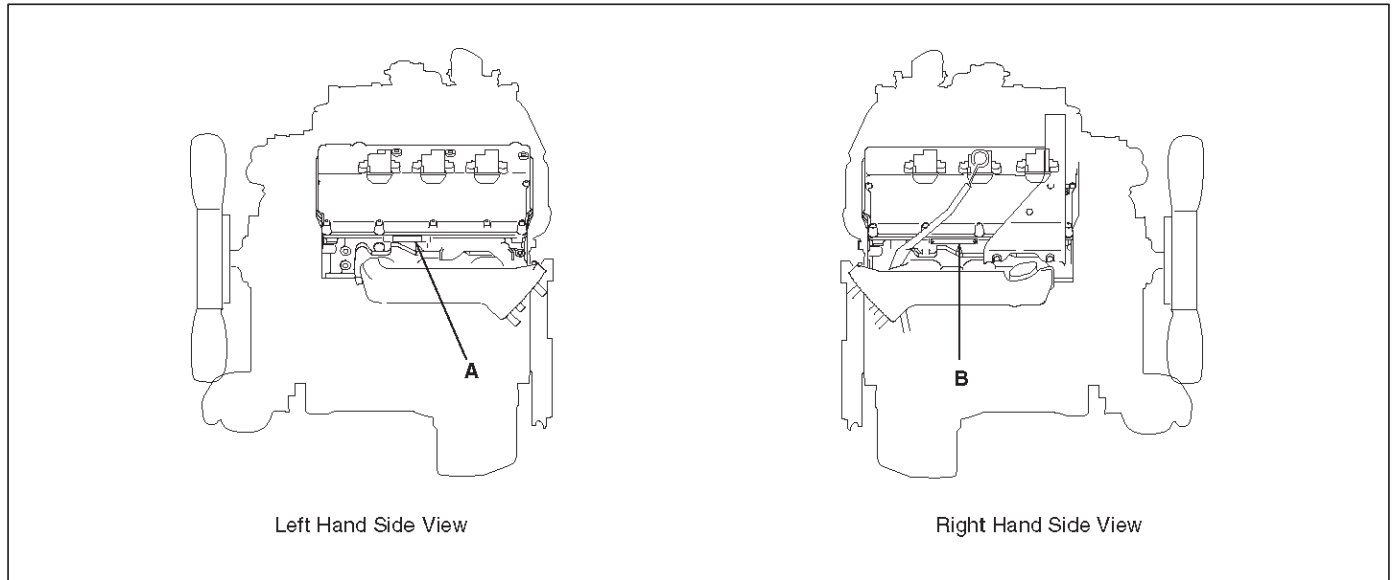
### Anti Theft Stamping/Label/Plate Location

The stamping, label and plate locations are indicated by arrows in the illustration below.

#### NOTE:

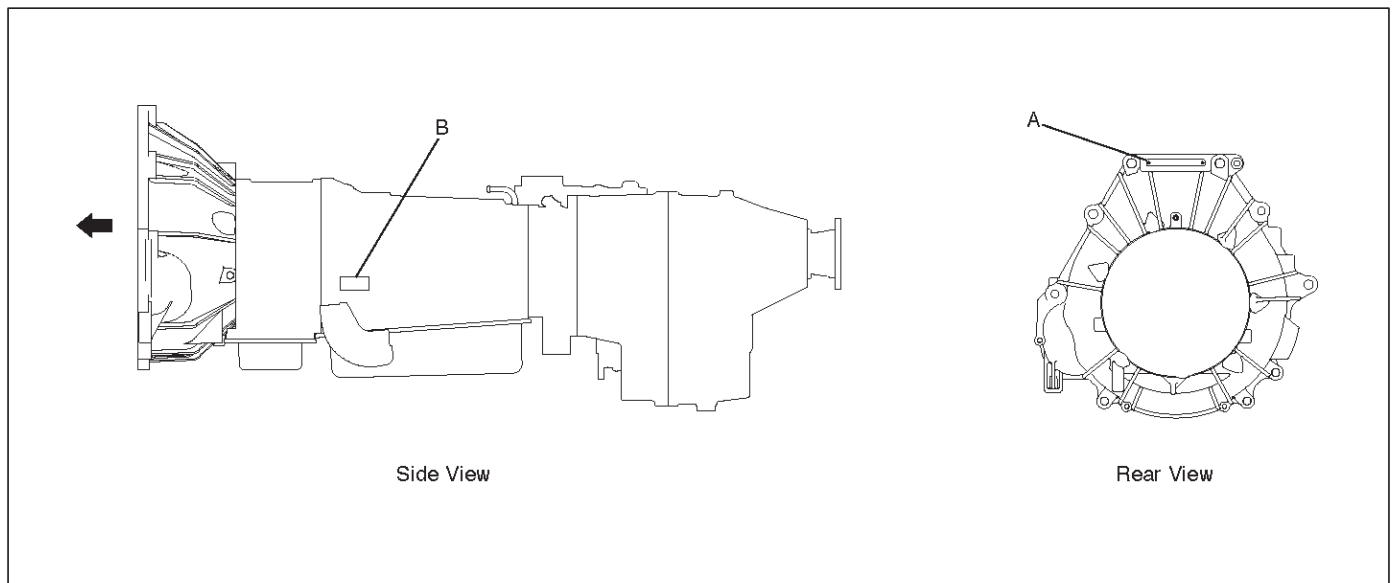
- A. VIN plate locations for production.
- B. Stamping locations for service parts.

#### Engine



901RW195

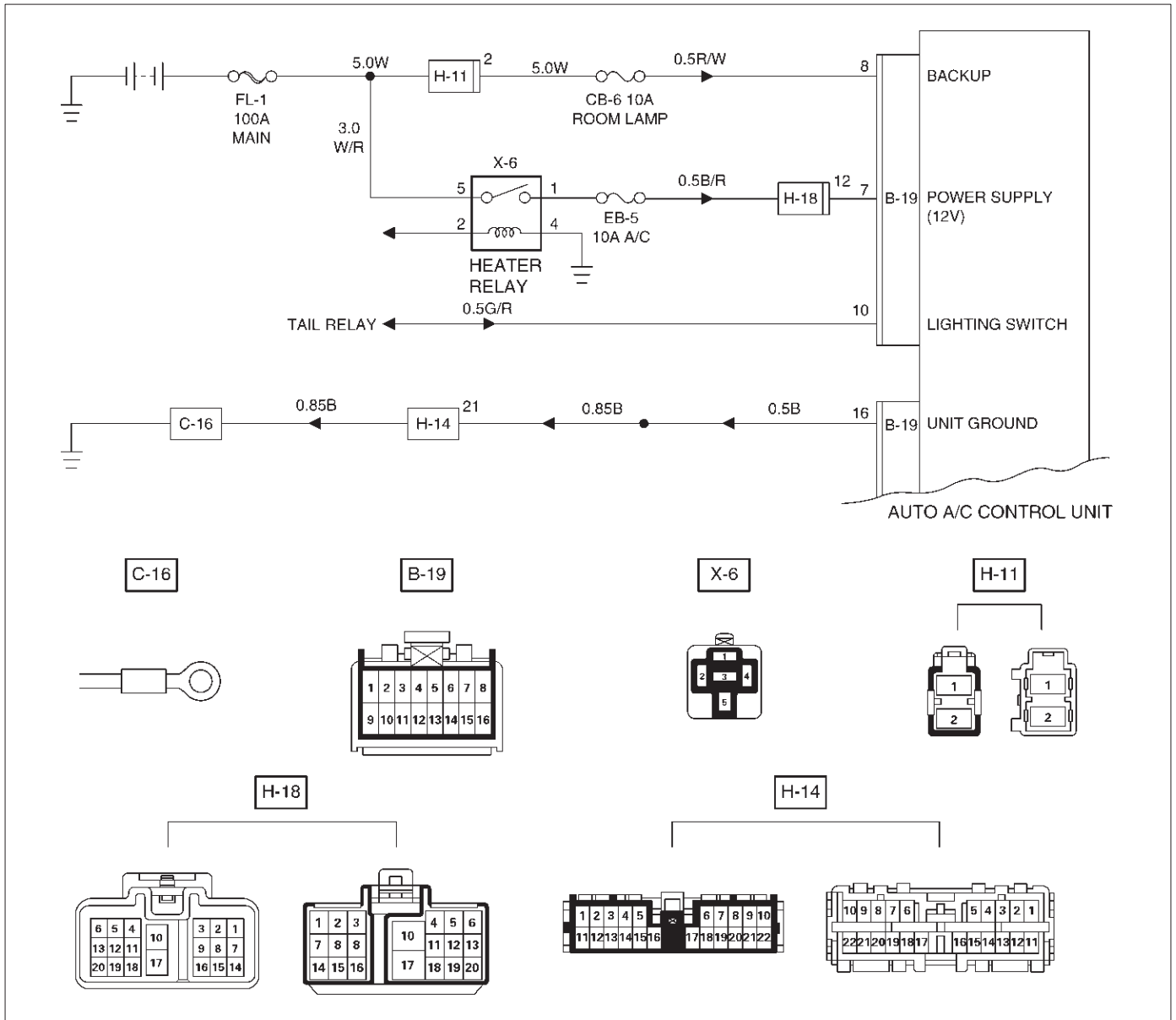
#### Automatic Transmission (THM)



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## Auto Air Conditioner Control Unit Power Supply Diagnosis

This check is required because a trouble on the auto amplifier (control unit) power supply circuit or grounding circuit prevents accurate troubleshooting.

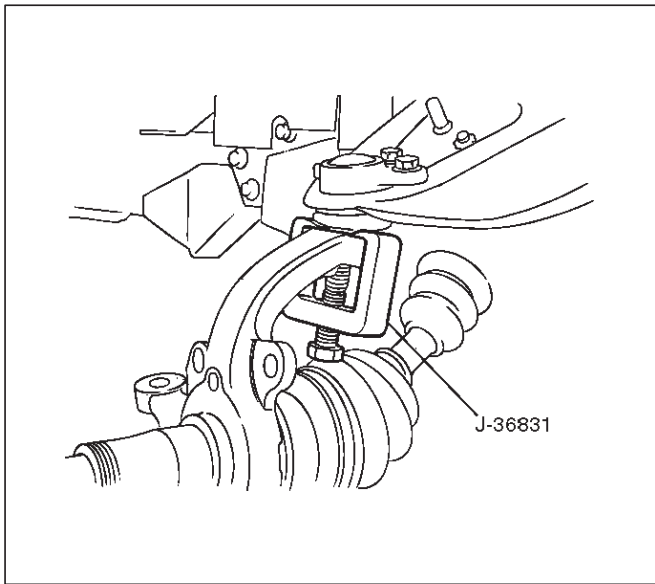


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Condition	Possible cause	Correction
Power source does not supply to auto air conditioner control unit.	—	Refer to Chart A

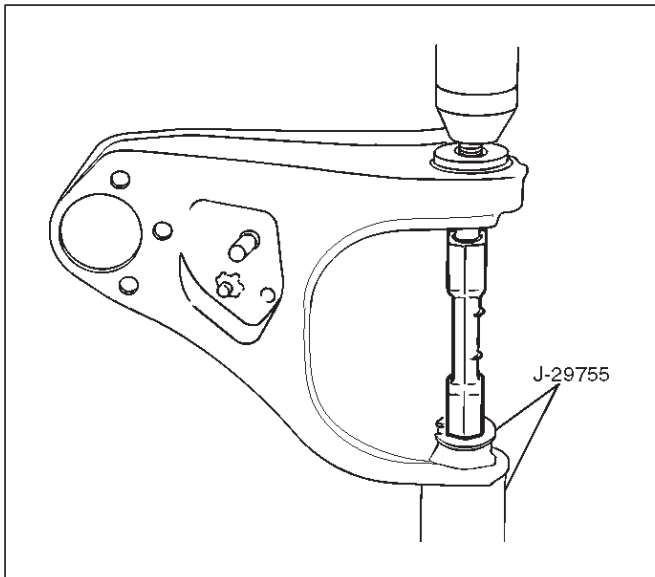
## 3C-16 FRONT SUSPENSION

**CAUTION:** Be careful not to break the ball joint boot.

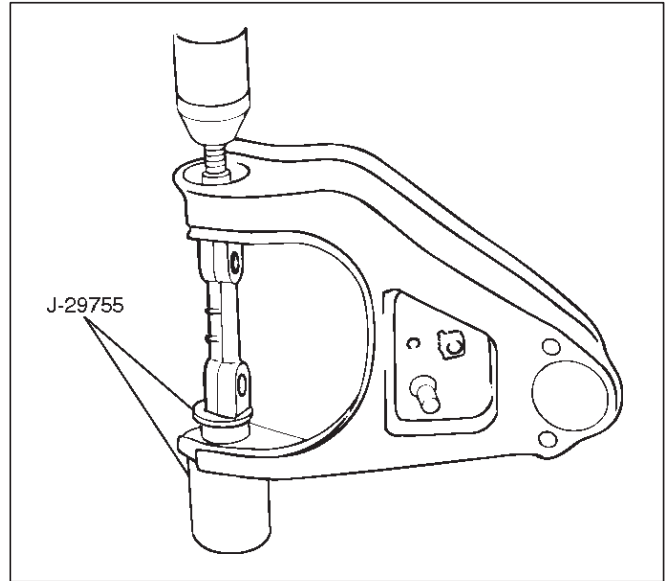


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7. Remove upper ball joint.
8. Remove bolt and plate.
9. Remove nut assembly.
10. Remove camber shims and note the positions and number of shims.
11. Remove caster shims and note the positions and number of shims.
12. Remove upper control arm assembly.
13. Remove nut.
14. Remove plate.
15. Remove bushing by using remover J-29755.



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16. Remove fulcrum pin.

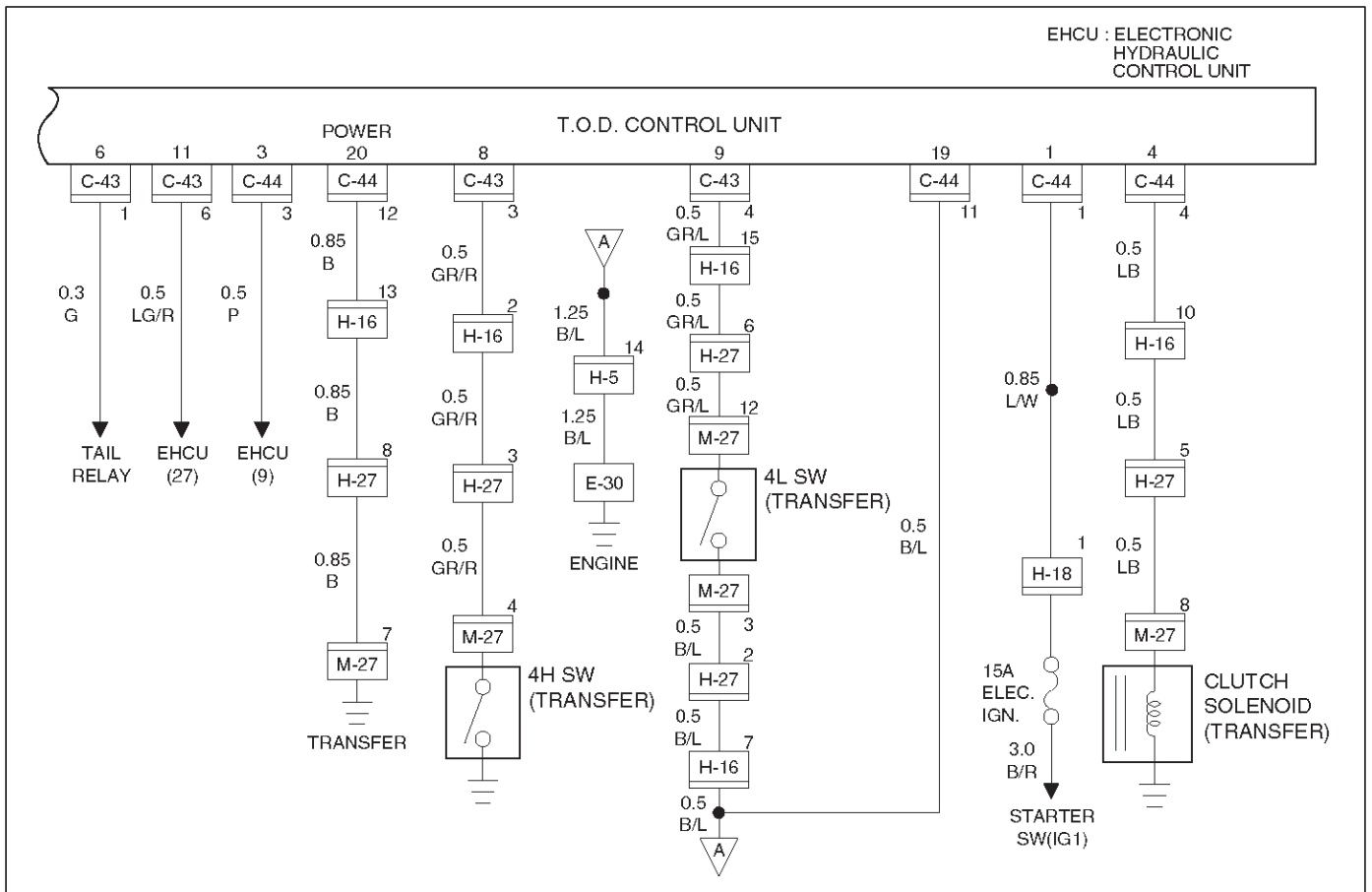
### Inspection and Repair

Make necessary parts replacement if wear, damage, corrosion or any other abnormal conditions are found through inspection.

Check the following parts:

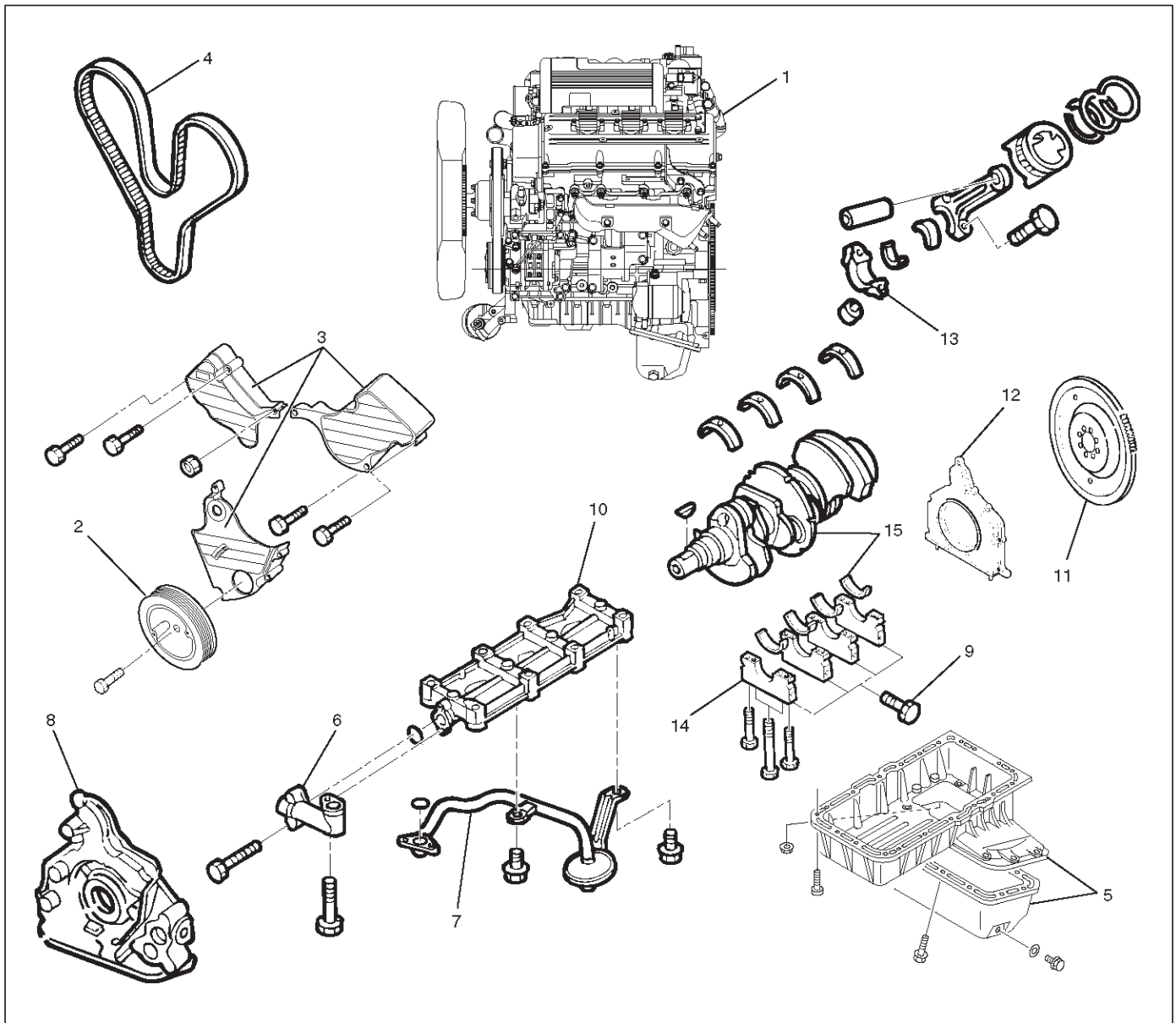
- Upper control arm
- Bushing
- Fulcrum pin

Chart 2	The 4WD mode is not active.
Function of circuit	—
Fail condition	The rear wheels spin in the TOD mode, so the driving torque is not transmitted to the front wheels. The indicator lamps will not show the 4L and TOD status.



## Crankshaft and Main Bearings

### Removal



F06RW010

#### Legend

- |                            |                                  |
|----------------------------|----------------------------------|
| (1) Engine Assembly        | (8) Oil Pump Assembly            |
| (2) Crankshaft Pulley      | (9) Cylinder Body Side Bolt      |
| (3) Timing Belt Cover      | (10) Oil Gallery                 |
| (4) Timing Belt            | (11) Flywheel                    |
| (5) Crankcase with Oil Pan | (12) Rear Oil Seal Retainer      |
| (6) Oil Pipe               | (13) Connecting Rod Cap          |
| (7) Oil Strainer           | (14) Crankshaft Main Bearing Cap |
|                            | (15) Crankshaft and Main Bearing |

#### 1. Remove engine assembly.

○Refer to removal procedure for Engine Assembly in this manual.

#### 2. Remove timing belt.

○Refer to removal procedure for Timing Belt in this manual.

#### 3. Remove oil pan and crankcase.

○Refer to removal procedure for Oil Pan and Crankcase in this manual.

#### 4. Remove oil pipe with O-ring.

#### 5. Remove oil strainer assembly with O-ring.

## Injector Coil Test Procedure (Steps 1-6) and Injector Balance Test Procedure (Steps 7-11) (Cont'd)

Step	Action	Value(s)	Yes	No
5	1. Set injector switch box injector #1. 2. Press the "Push to Start Test" button on the fuel injector tester. 3. Observe the voltage reading on the DVM. <b>IMPORTANT:</b> The voltage reading may rise during the test. 4. Record the lowest voltage observed after the first second of the test. 5. Set the injector switch box to the next injector and repeat steps 2, 3, and 4.  Did any fuel injector have an erratic voltage reading (large fluctuations in voltage that did not stabilize) or a voltage reading above the specified value?	9.5 V	Go to Step 4	Go to Step 6
6	1. Identify the highest voltage reading recorded (other than those above 9.5 V). 2. Subtract the voltage reading of each injector from the highest voltage selected in step 1. Repeat until you have a subtracted value for each injector.  For any injector, is the subtracted Value in step 2 greater than the specified value?	0.6 V	Go to Step 4	Go to Step 7
7	<b>CAUTION: In order to reduce the risk of fire and personal injury, wrap a shop towel around the fuel pressure connection. The towel will absorb any fuel leakage that occurs during the connection of the fuel pressure gauge. Place the towel in an approved container when the connection of the fuel pressure gauge is complete.</b>  1. Connect the J 34730-1 Fuel Pressure Gauge to the fuel pressure test port. 2. Energize the fuel pump using the Tech 2. 3. Place the bleed hose of the fuel pressure gauge into an approved gasoline container. 4. Bleed the air out of the fuel pressure gauge. 5. With the fuel pump running, observe the reading on the fuel pressure gauge.  Is the fuel pressure within the specified values?	296-376 kpa (43-55 psi)	Go to Step 8	Go to Fuel System Diagnosis
8	Turn the fuel pump "OFF."  Does the fuel pressure remain constant?	—	Go to Step 9	Go to Fuel System Diagnosis

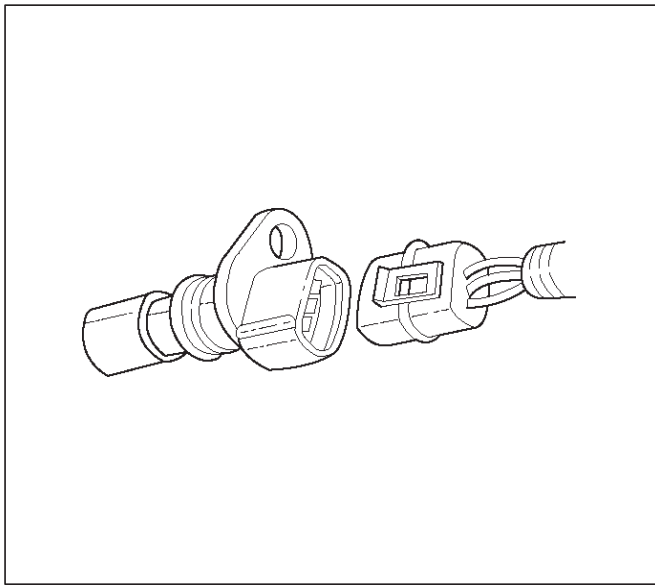
### DTC P0453 – Fuel Tank Pressure Sensor High Voltage

Step	Action	Value(s)	Yes	No
1	Was the "On-Board Diagnostic (OBD) System Check" performed?	—	Go to Step 2	Go to <i>OBD System Check</i>
2	1. Ignition "ON," engine "OFF", review and record Tech 2 Failure Records Data. 2. Operate the vehicle within Failure Records conditions as noted. 3. Using a Tech 2, monitor "DTC" info for DTC P0452 until the DTC P0452 test runs. Note the result. Does the Tech 2 indicates DTC P0452 or P0452/P0107 failed this ignition?	—	P0453/P0108 turn on Go to Step 3 P0452 turns on Go to Step 6	Refer to <i>Diagnostic Aids</i>
3	1. Ignition "OFF". 2. Disconnect connector at the PCM. 3. Ignition "ON". 4. At the PCM connector, measure voltage with a DVM at B1 and B6 terminals. Was the voltage in range of voltage?	4–6 V	Go to Step 4	Go to Step 10
4	1. Ignition "OFF". 2. Connect the PCM connector to the PCM. 3. Disconnect sensor harness at fuel pressure sensor. Measure voltage with a DVM at the end of the tank pressure wiring between 5 V reference terminal and sensor ground terminal. Was the voltage within range?	4–6 V	For P0453 go to Step 6 and for P0108, go to diagnosis section.	Go to Step 5
5	1. Locate open wiring of ground line from the PCM to fuel tank pressure sensor. 2. Repair wiring harness. Is the action complete?	—	Verify repair	—
6	1. Ignition "ON". 2. At the PCM connector, backprobe with a DVM at the sensor output for the voltage. Was voltage within the range?	More than 4.9 V	Go to Step 7	Go to Step 10
7	At the sensor output terminal, backprobe with a DVM at the sensor output. Was the voltage within range?	More than 4.9 V	Go to Step 9	Go to Step 8
8	1. Locate open circuit or short circuit to ground line. 2. Repair the harness. Is the action complete?	—	Verify repair	—

## Electronic Ignition

The electronic ignition system controls fuel combustion by providing a spark to ignite the compressed air/fuel mixture at the correct time. To provide optimum engine performance, fuel economy, and control of exhaust emissions, the PCM controls the spark advance of the ignition system. Electronic ignition has the following advantages over a mechanical distributor system:

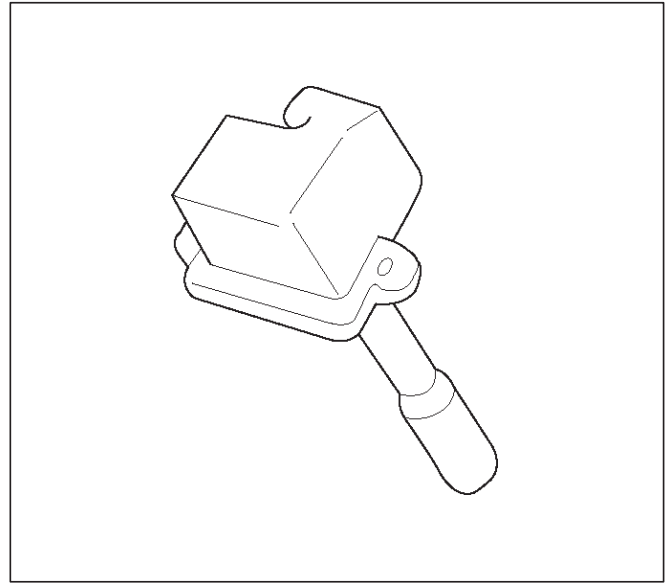
- No moving parts.
- Less maintenance.
- Remote mounting capability.
- No mechanical load on the engine.
- More coil cooldown time between firing events.
- Elimination of mechanical timing adjustments.
- Increased available ignition coil saturation time.



0013

## Ignition Coils

A separate coil-at-plug module is located at each spark plug. The coil-at-plug module is attached to the engine with two screws. It is installed directly to the spark plug by an electrical contact inside a rubber boot. A three-way connector provides 12-volt primary supply from the 15-amp ignition fuse, a ground-switching trigger line from the PCM, and a ground.

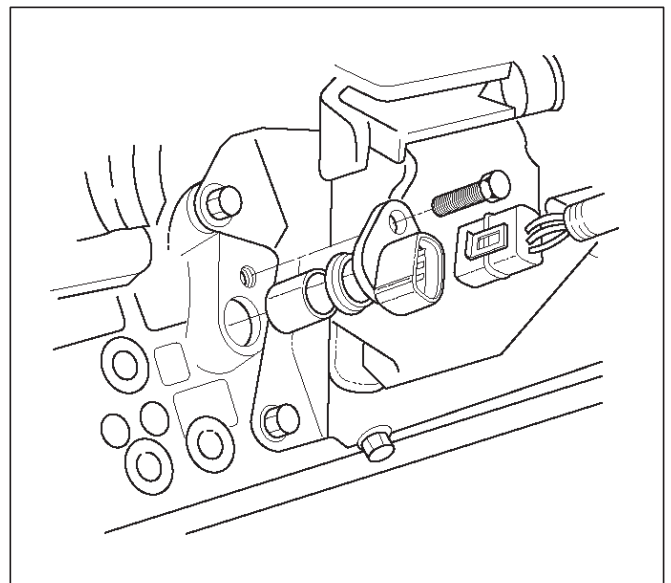


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## Ignition Control

The ignition control (IC) spark timing is the PCM's method of controlling the spark advance and the ignition dwell. The IC spark advance and the ignition dwell are calculated by the PCM using the following inputs:

- Engine speed.
- Crankshaft position (58X reference).
- Camshaft position (CMP) sensor.
- Engine coolant temperature (ECT) sensor.
- Throttle position (TP) sensor.
- Knock signal (knock sensor).
- Park/Neutral position (PRNDL input).
- Vehicle speed (vehicle speed sensor).
- PCM and ignition system supply voltage.
- The crankshaft position (CKP) sensor sends the PCM a 58X signal related to the exact position of the crankshaft.



TS22909



## 7A1-80 TRANSMISSION CONTROL SYSTEM (4L30-E)

### DTC P1850 Brake Band Apply Solenoid Malfunction (Cont'd)

Step	Action	Yes	No
9	1. Disconnect the J1 (RED) PCM Connector. 2. Using the J39200 DVOM, measure the resistance between PCM connector terminals J1-A16 and J3-E14.  Is the resistance within 10-12 ohms?	Go to Step 26	Go to Step 10
10	1. Disconnect the transmission 16-way connector H-9. 2. Using the J39200 DVOM, measure the resistance between terminal H9-13 and H9-15.  Is the resistance within 10-12 ohms?	Go to Step 17	Go to Step 11
11	1. Disconnect the transmission main case connector M-7. 2. Using the J39200 DVOM, measure the resistance between terminals M7-2(B) and M7-4(C).  Is the resistance within 10-12 ohms?	Go to Step 20	Go to Step 21
12	Using the J39200 DVOM, check continuity between PCM terminal J1-A16 and ground.  Is there a continuity?	Go to Step 14	Go to Step 26
13	1. Disconnect the transmission 16-way connector H-9. 2. Using the J39200 DVOM, measure the resistance between terminal H9-13 and H9-15.  Is the resistance within 10-12 ohms?	Go to Step 24	Go to Step 15
14	1. Disconnect the transmission 16-way connector H-9. 2. Using the J39200 DVOM, check continuity between terminal H9-13 and ground.  Is there a continuity?	Go to Step 16	Go to Step 22
15	1. Disconnect the transmission main case connector M-7. 2. Using the J39200 DVOM, measure the resistance between terminals M7-2(B) and M7-4(C).  Is the resistance within 10-12 ohms?	Go to Step 25	Go to Step 21
16	1. Disconnect the transmission main case connector M-7. 2. Using the J39200 DVOM, check continuity between the terminal M7-2(B) and ground.  Is there a continuity?	Go to Step 18	Go to Step 23
17	The wiring harness between PCM terminal J3-E14 and transmission 16-way connector terminal H9-15 is open.  Was a problem found and corrected?	Go to Step 27	—
18	The brake band apply solenoid is faulty, or the internal wiring harness from the brake band apply solenoid is shorted to ground.  Was a problem found and corrected?	Go to Step 27	—
19	The wiring harness between the transmission 16-way connector terminal H9-15 and the transmission main case connector terminal M7-4(C) is shorted to ground.  Was a problem found and corrected?	Go to Step 27	—
20	The wiring harness between the transmission 16-way connector terminal H9-15 and the transmission main case connector terminal M7-4(C) is open.  Was a problem found and corrected?	Go to Step 27	—
21	The brake band apply solenoid is faulty, or the internal wiring harness from the brake band apply solenoid is open.  Was a problem found and corrected?	Go to Step 27	—

## Windshield Wiper/Washer System

### General Description

The circuit consists of the starter switch, windshield wiper & washer switch, windshield wiper motor, windshield washer motor and windshield intermittent relay alarm & relay control unit.

When the wiper & washer switch is turned on with the starter switch on, the battery voltage is applied to the wiper motor to activate the wiper.

The washer motor squirts glass cleaning fluid while the washer switch is being pushed. The intermittent relay is used to control motion of the wiper.

## Windshield Wiper And Washer Switch

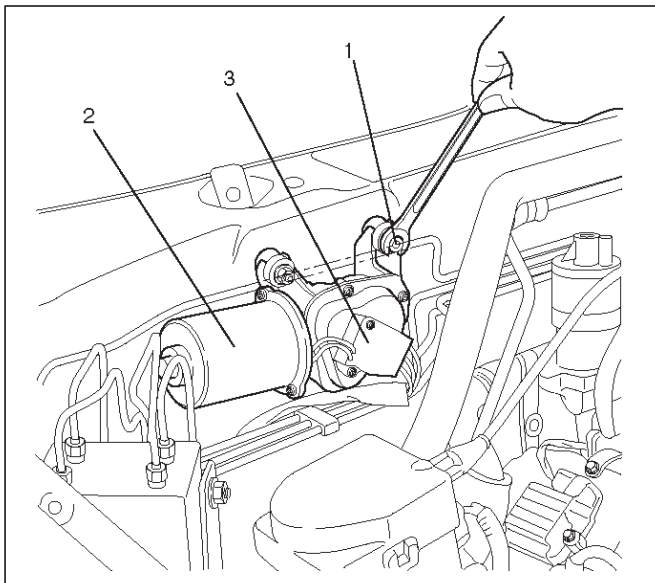
### Removal and Installation

Refer to the Lighting Switch (Combination Switch) in Lighting System section.

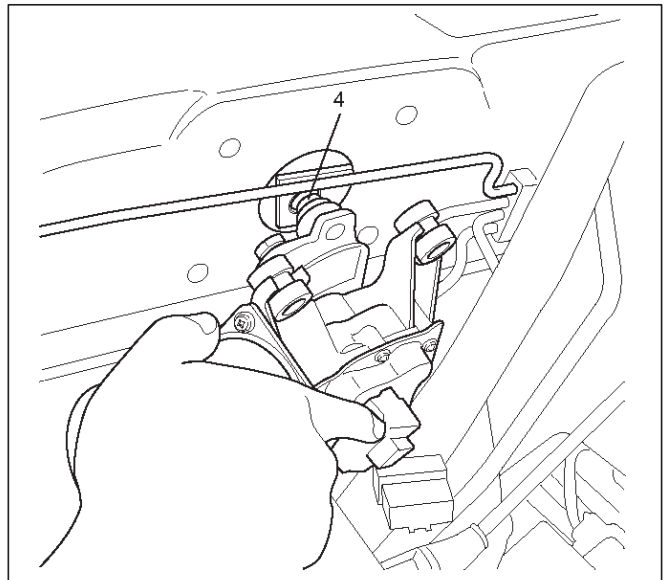
## Windshield Wiper Motor

### Removal

1. Disconnect the battery ground cable.
2. Remove the wiper motor (2).
  - Disconnect the motor connector (3).
  - Remove the 4 mounting bolts (1).



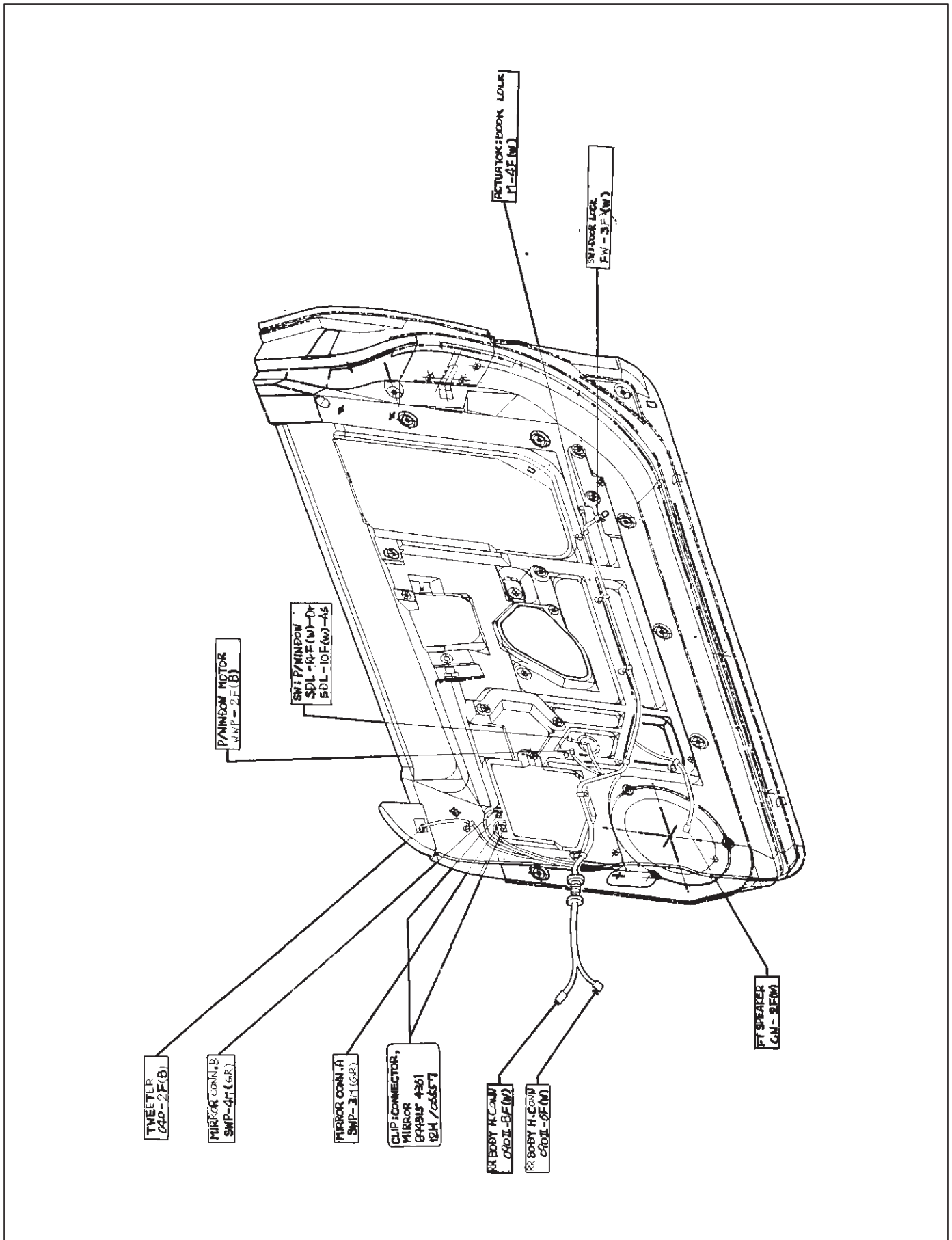
- Remove the crank arm fixing ball (4).



### Installation

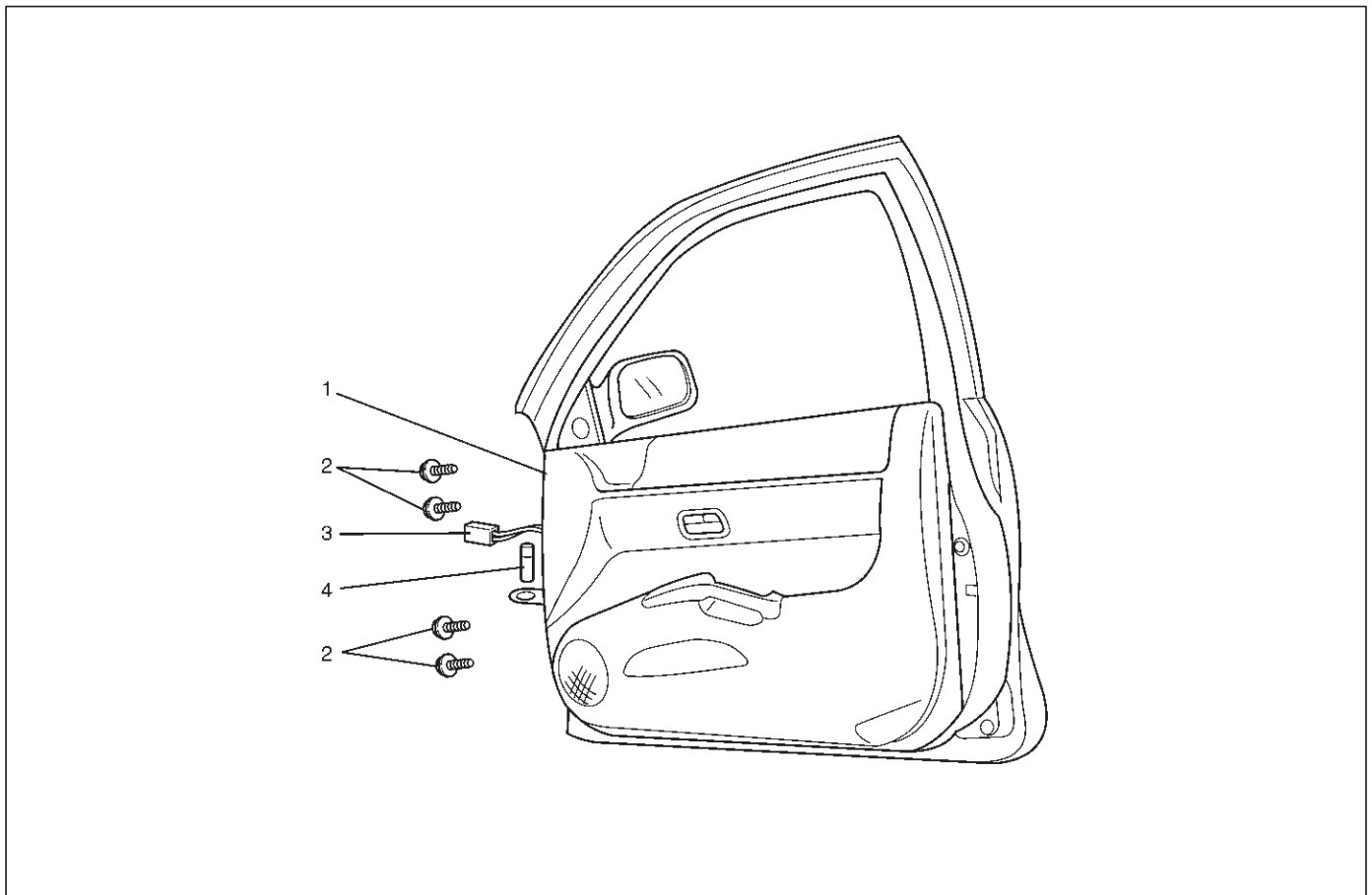
To install, follow the removal steps in the reverse order.

Location-13



## Front Door Assembly

### Parts Location



630RX017

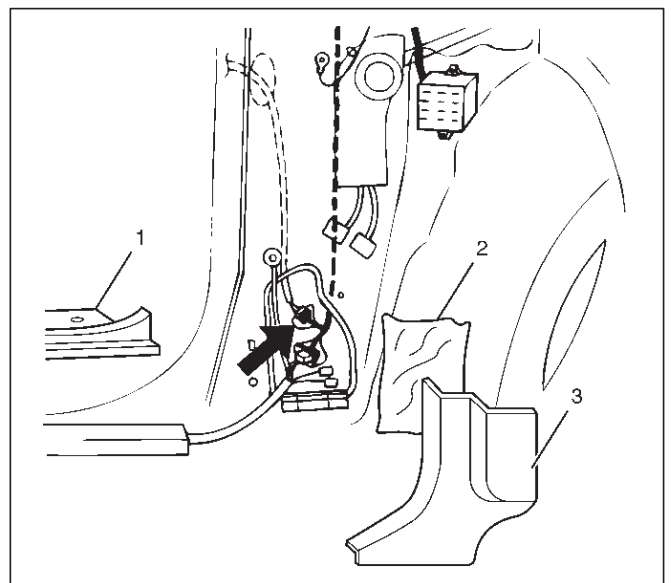
#### Legend

- (1) Front Door Assembly
- (2) Hinge Bolt

- (3) Door Harness Connector
- (4) Door Check Arm Pin

### Removal

1. Disconnect battery ground cable.
2. Remove the door sill plate (1).
  - Remove the clip and four screws.
3. Remove the dash side trim cover (3).
4. Peel the insulator (2) off from the dash side panel and then disconnect the door harness connectors.

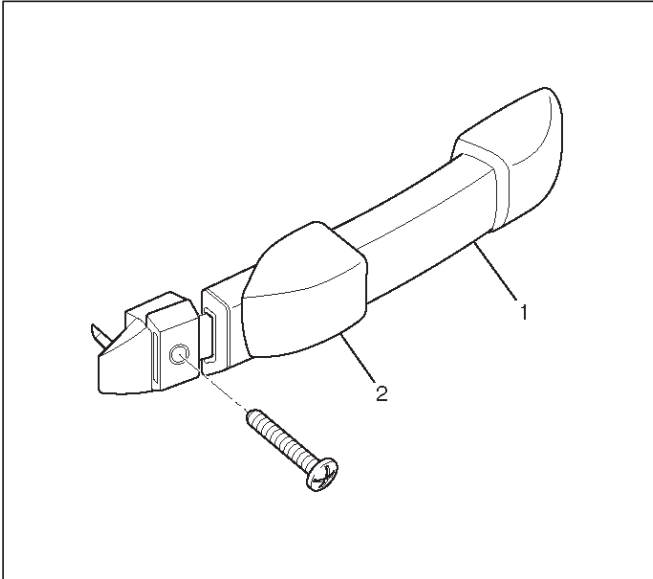


630RX019

## 8J-6 EXTERIOR/INTERIOR TRIM

5. Remove the assist grip(1).

- Move the covers(2) and remove the two fixing screws.



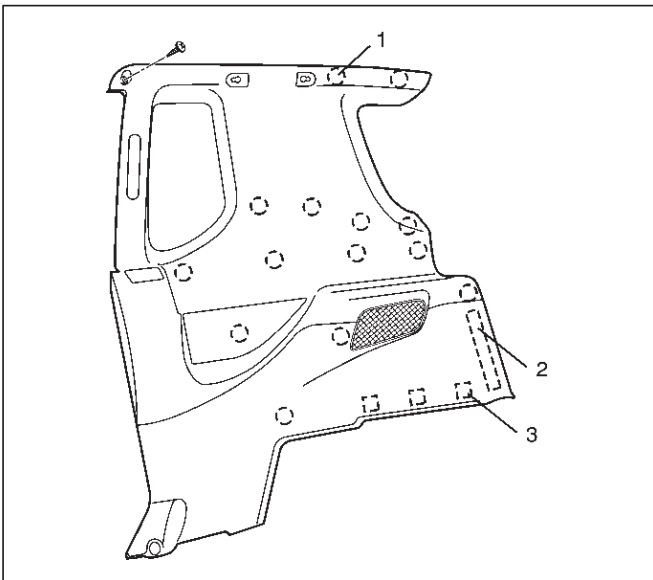
743RX001

6. Remove the front seat belt anchor bolts.

- Remove the upper anchor bolt and the lower anchor bolt.

7. Remove the quarter trim cover.

- Remove the fixing screw and pry the trim cover clips(1) free from the body panel.
- Peel off the trim cover at the adhesive tape(2) and velcro fasteners(3).



643RX001

8. Remove the rear seat belt anchor bolts.

- Remove the upper anchor bolt and the lower anchor bolt.

9. Remove the tailgate weather strip.

10. Remove the rear roof trim cover.

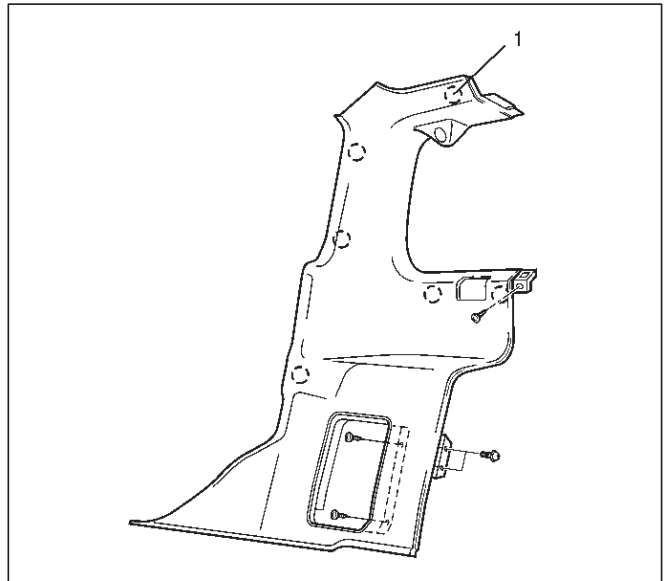
- Pry the trim cover retainers free from the body panel.

11. Remove the luggage rear trim cover.

- Remove the four screws.

12. Remove the luggage side trim cover.

- Remove the five fixing screws.
- Pry the trim cover clips(1) free from the body panel.
- Remove the two clips (RH side).



643RX002

## Installation

To install, follow the removal steps in the reverse order, noting the following point.

1. Tighten the front seat belt upper anchor bolt to the specified torque.

**Torque: 49 N·m (36 lb ft)**

2. Tighten the front seat belt lower anchor bolt and rear seat belt anchor bolts to the specified torque.

**Torque: 39 N·m (29 lb ft)**

## Sensing and Diagnostic Module (SDM)

### Service Precautions

**WARNING: DURING SERVICE PROCEDURES, BE VERY CAREFUL WHEN HANDLING SDM. NEVER STRIKE OR JAR SDM. UNDER SOME CIRCUMSTANCES, IT COULD CAUSE DEPLOYMENT AND RESULT IN PERSONAL INJURY OR IMPROPER OPERATION OF THE SUPPLEMENTAL RESTRAINT SYSTEM (SRS). SDM MOUNTING BRACKET BOLTS MUST BE CAREFULLY TORQUED TO ASSURE PROPER OPERATION. NEVER POWER UP THE SRS WHEN SDM IS NOT RIGIDLY ATTACHED TO THE VEHICLE. THE SDM COULD BE ACTIVATED WHEN POWERED WHILE NOT RIGIDLY ATTACHED TO THE VEHICLE WHICH COULD CAUSE DEPLOYMENT AND RESULT IN PERSONAL INJURY.**

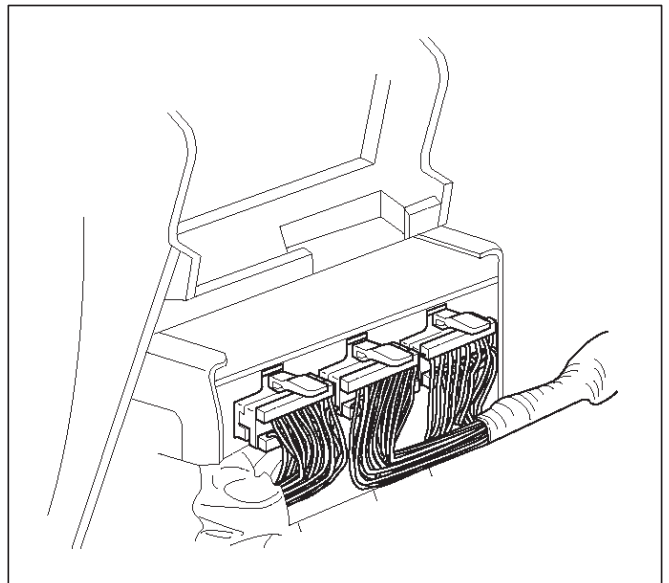
**WARNING: PROPER OPERATION OF THE SENSING AND DIAGNOSTIC MODULE (SDM) REQUIRES THE SDM TO BE RIGIDLY ATTACHED TO THE VEHICLE STRUCTURE AND THAT THE ARROW ON THE SENSOR BE POINTING TOWARD THE FRONT OF THE VEHICLE.**

SDM is specifically calibrated and is keyed to the SDM location SRS wiring harness. Caution should be used to ensure proper location of the SDM. The keying of the SDM to its location and wiring harness connectors should never be modified in the field.

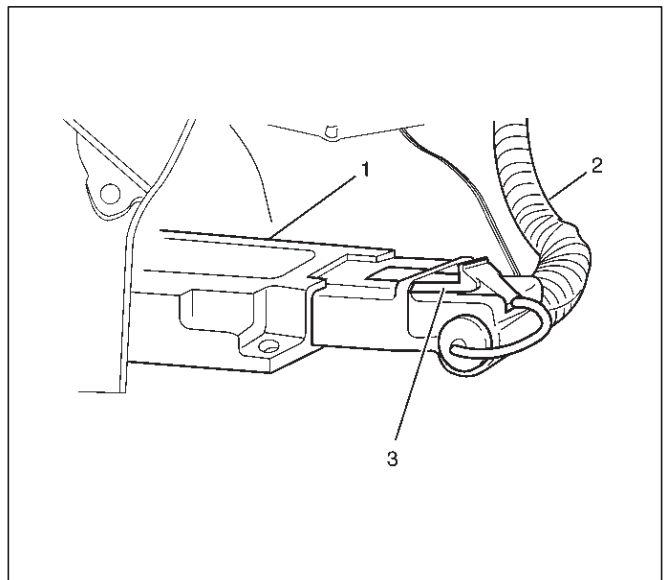
### Removal

1. Disable the SRS. (Refer to "Disable the SRS" in this manual)
2. Remove dressing panel around the radio and disconnect cigar lighter harness.
3. Remove the transfer shift lever knob.
4. Remove the center console.
5. Remove three connector from Powertrain Control Module (PCM).
6. Remove PCM with bracket. (Fixed four bolts)
7. Remove right side stay between instrument panel and floor.
8. Remove driver and passenger seat.
9. Turn over carpet to rear side.

10. Remove air conditioning duct for rear seat. (Transform the duct during removing it)



11. Pull CPA (3) (Connector Position Assurance—red color) out and push connector lock down to disconnect the SDM harness connector (2).
12. Remove the three SDM fixing bolts and remove SDM (1).

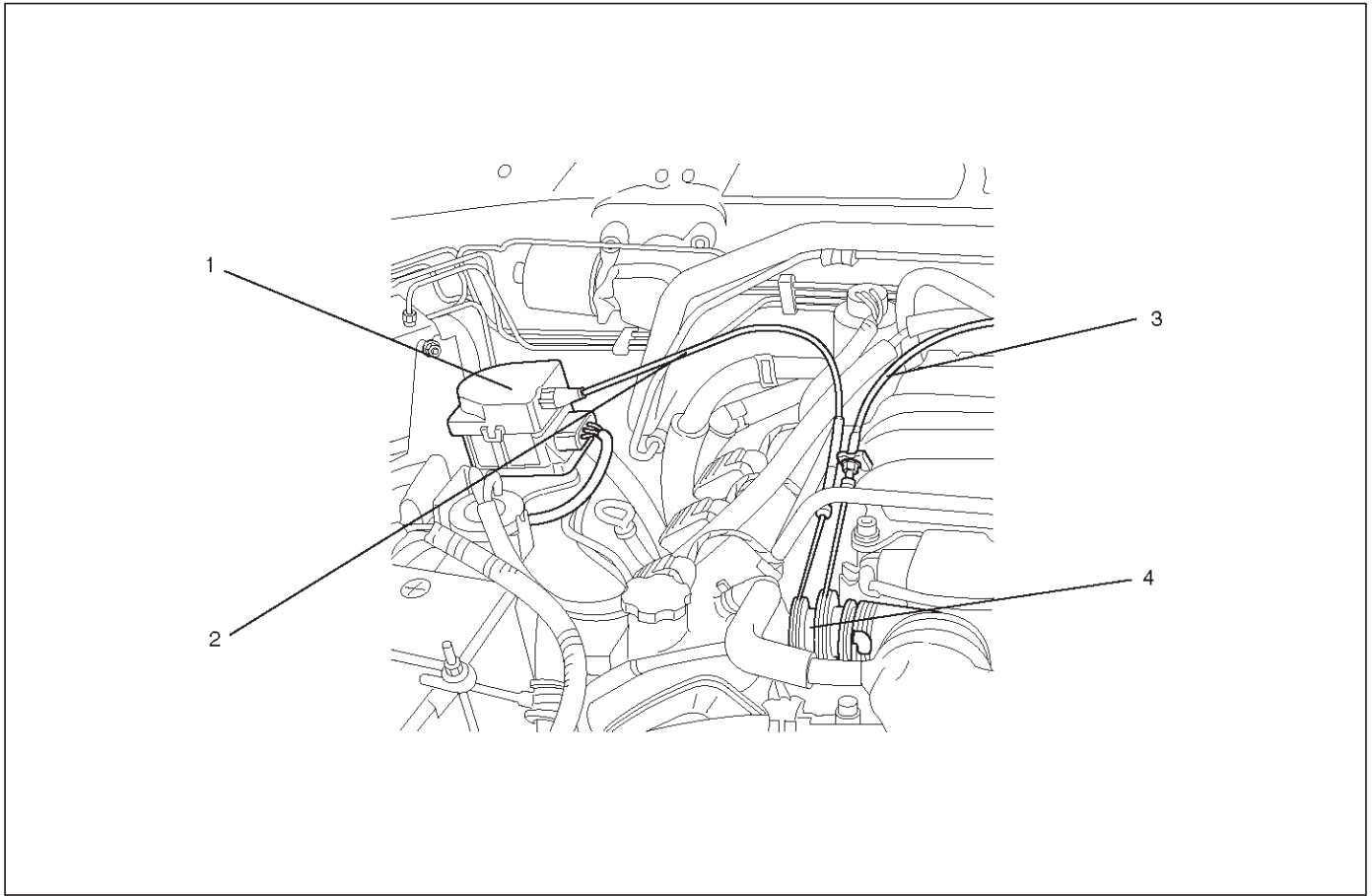


### Installation

1. Install the SDM (1) on bracket and fixing bolts and tighten the fixing bolts to the specified torque.  
**Torque: 10 N·m ± 3 N·m (87 ± 26 lb in)**
2. Connect the SDM harness connector (2) and after that, put CPA into connector (3).
3. Install air conditioning duct for rear seat to normal position.

## Cruise Actuator

### Actuator Cable Diagram



105RX001

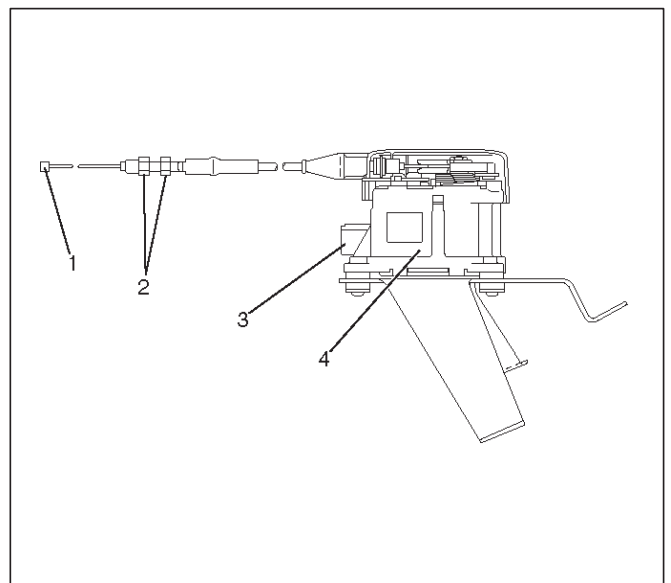
#### Legend

- (1) Cruise Actuator Assembly
- (2) Cruise Control Cable

- (3) Accelerator Cable
- (4) Throttle Link (Cruise Control Side)

### Removal

1. Disconnect the battery ground cable.
2. Remove the cruise actuator assembly (4).
  - Disconnect the connector (3).
  - Remove the cable end (1) from the throttle link (cruise control side).
  - Loosen two fixing nuts (2).
  - Remove three actuator assembly fixing screws.



825RW049