

2014 GENERAL INFORMATION

Vehicle Data - Dart

VEHICLE INFORMATION

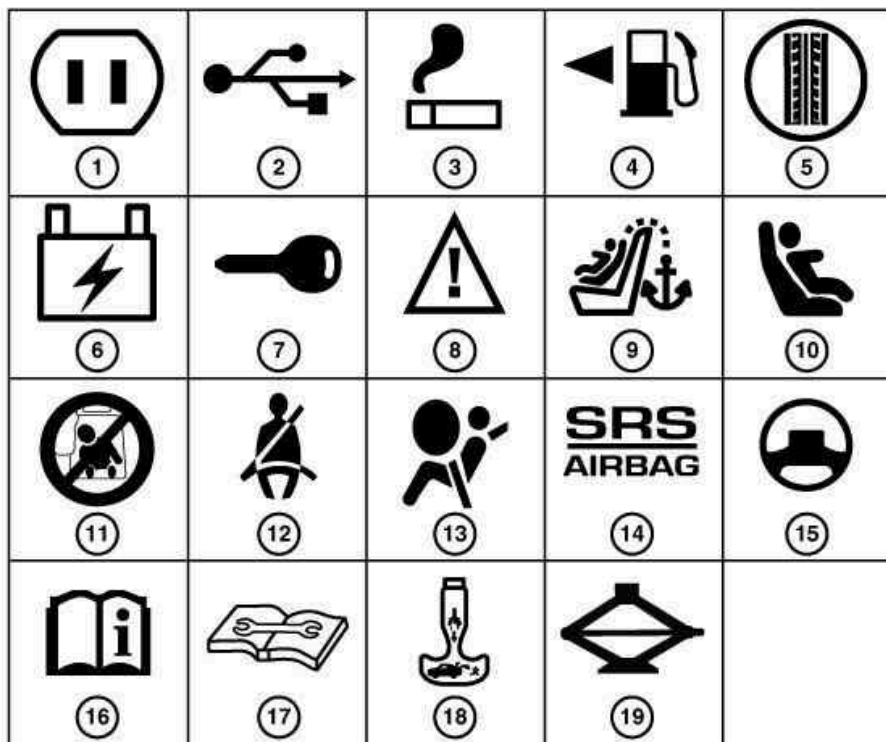
INTERNATIONAL VEHICLE CONTROL AND DISPLAY SYMBOLS

DESCRIPTION

DESCRIPTION

Chrysler LLC uses international symbols to identify various systems on the vehicle.

The graphic symbols illustrated are used to identify various instrument controls, vehicle controls and service information references. The symbols correspond to the controls and displays that are located on the instrument panel and throughout the vehicle.



2454316

**Fig. 1: Information Symbols**  
 Courtesy of CHRYSLER GROUP, LLC

INTERNATIONAL INFORMATION SYMBOL IDENTIFICATION

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
1	115-Volt Power Inverter	11	Side Airbag
2	USB Connector	12	Seat Belt
3	Lighter	13	Airbag
4	Fuel Fill Side	14	Supplemental Restraint System
5	Spare Tire Winch	15	Power Steering Fluid

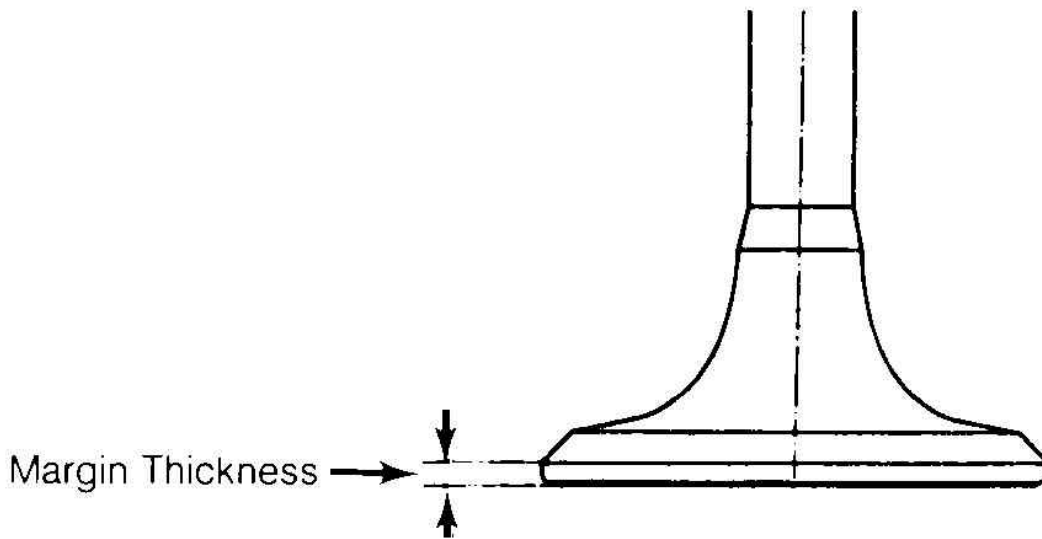
CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL



95C12999

**Fig. 9: Measuring Valve Head Margin**

Resurface valve to proper angle specification using valve grinding machine. Follow manufacturer's instructions for valve grinding machine. Specifications may indicate a different valve face angle than seat angle. Measure valve margin after grinding. Replace valve if not within specification. Valve stem tip can be refinished using valve grinding machine.

**Valve Lapping**

During valve lapping of recently designed valves, be sure to follow manufacturer's recommendations. Surface hardening and materials used with some valves do not permit lapping. Lapping process will remove excessive amounts of the hardened surface.

Valve lapping is done to ensure adequate sealing between valve face and seat. Use either a hand drill or lapping stick with suction cup attached.

Moisten and attach suction cup to valve. Lubricate valve stem and guide. Apply a thin coat of fine valve grinding compound between valve and seat. Rotate lapping tool between the palms or with hand drill.

Lift valve upward off the seat and change position often. This is done to prevent grooving of valve seat. Lap valve until a smooth polished seat is obtained. Thoroughly clean grinding compound from components. Valve-to-valve seat concentricity should be checked. See **VALVE SEAT CONCENTRICITY**.

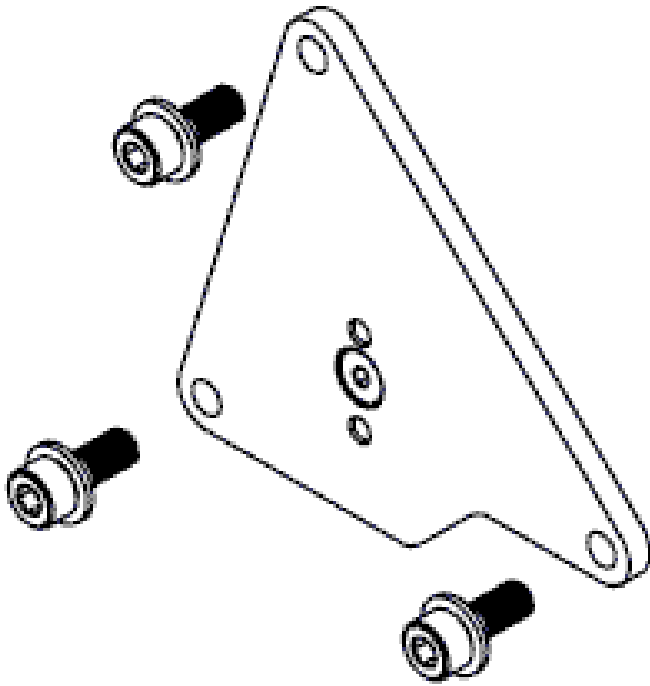
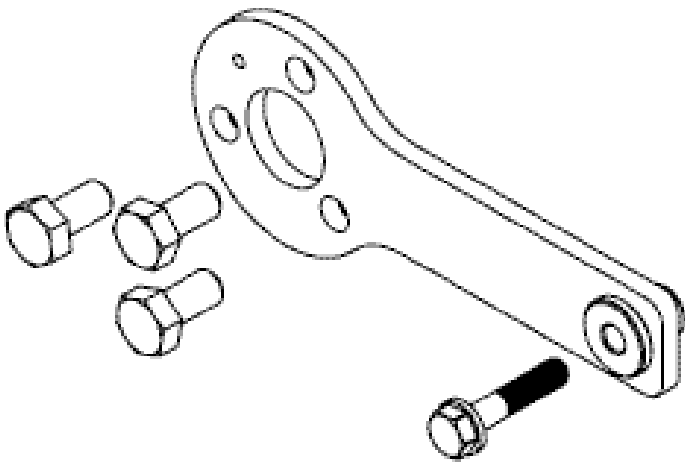
**CAUTION: Valve guides must be in good condition and free of carbon deposits prior to valve seat grinding. Some engines contain an induction hardened valve seat. Excessive material removal will damage valve seats.**

**Valve Seat Grinding**

**NOTE:** This is **GENERAL** information. This article is not intended to be specific to any unique situation or individual vehicle configuration. The purpose of this Trouble Shooting information is to provide a list of common causes to problem symptoms. For model-specific Trouble Shooting, refer to **SUBJECT**, **DIAGNOSTIC**, or **TESTING** articles available in the section(s) you are accessing.

### BASIC GASOLINE ENGINE - MECHANICAL TROUBLE SHOOTING CHART

CONDITION & POSSIBLE CAUSE	CORRECTION
<b>Engine Lopes At Idle</b>	
Intake manifold-to-head leaks	Replace manifold gasket, See ENGINES
Blown head gasket	Replace head gasket, See ENGINES
Worn timing gears, chain or sprocket	Replace gears, chain or sprocket
Worn camshaft lobes	Replace camshaft, See ENGINES
Overheated engine	Check cooling system, See COOLING
Blocked crankcase vent valve	Remove restriction
Leaking EGR valve	Repair leak and/or replace valve
Faulty fuel pump	Replace fuel pump
<b>Engine Has Low Power</b>	
Leaking fuel pump	Repair leak and/or replace fuel pump
Excessive piston-to-bore clearance	Install larger pistons, See ENGINES
Sticking valves or weak valve springs	Check valve train components, See ENGINES
Incorrect valve timing	Reset valve timing, See ENGINES
Worn camshaft lobes	Replace camshaft, See ENGINES
Blown head gasket	Replace head gasket. See ENGINES.
Clutch slipping	Adjust pedal and/or replace components, See ENGINES
Engine overheating	Check cooling system, See COOLING
Auto. Trans. pressure regulator valve faulty	Replace pressure regulator valve
Auto. Trans. fluid level too low	Add fluid as necessary
Improper vacuum diverter valve operation	Replace vacuum diverter valve
Vacuum leaks	Inspect vacuum system and



10277 - Tool, Camshaft Timing Locking

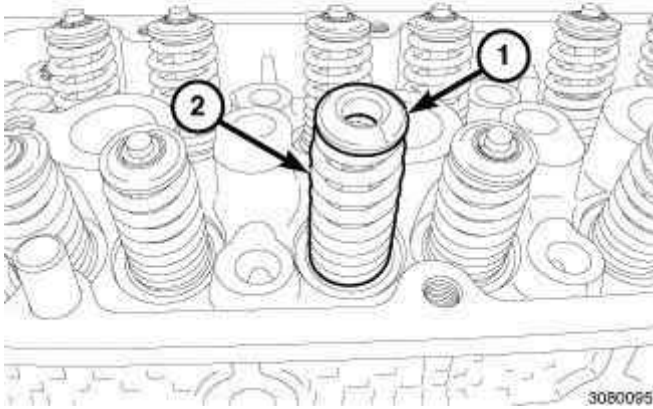
Courtesy of CHRYSLER GROUP, LLC

**NOTE:** Typical valve configuration shown in illustration.

The valve stem oil seals (1) are made of elastomer over-molded steel in a non-integrated type guide mounted configuration. The seal is not held in place by the valve spring (2). The valve stem seals are not reusable if removed from the valve guides (3), they must be replaced. Always coat the valve seals with clean engine oil before installing the valves.

#### REMOVAL

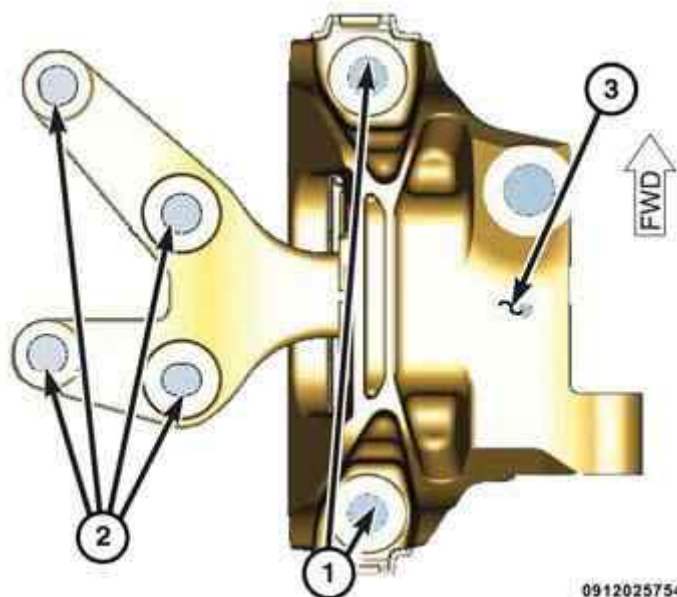
#### REMOVAL



**Fig. 229: Valve Spring & Retainer**  
Courtesy of CHRYSLER GROUP, LLC

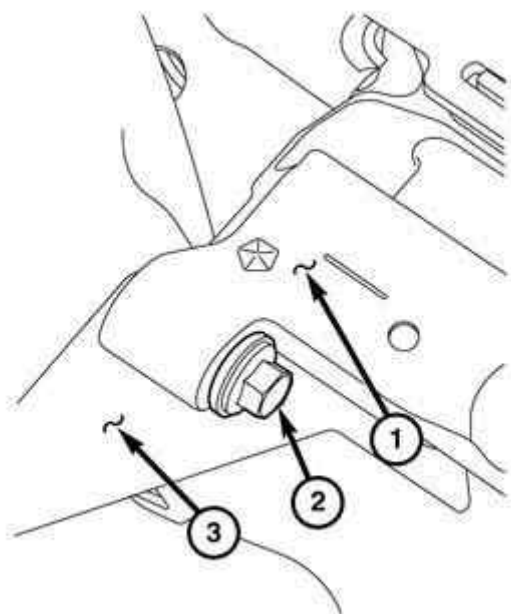
**NOTE:** If the springs are to be reused, identify their positions so that they can be reassembled into their original locations. Number 2 cylinder exhaust valve spring shown in illustration, all other valve springs similar.

1. Remove the valve spring(s) (2). Refer to **SPRING(S), VALVE, REMOVAL** .



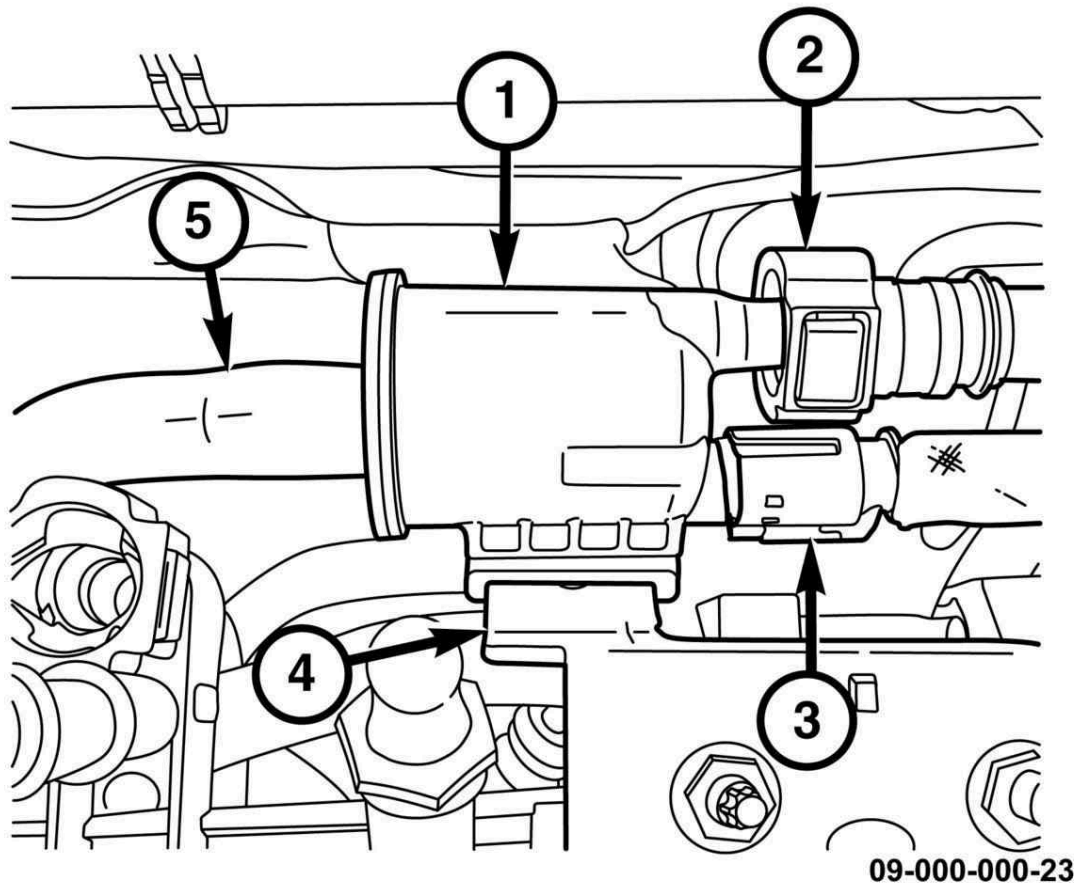
**Fig. 383: Mount To Frame Bolts & Mount To Timing Cover Bolts**  
 Courtesy of CHRYSLER GROUP, LLC

6. Remove the three mount to timing cover bolts (2).
7. Remove the two mount to frame bolts (1).



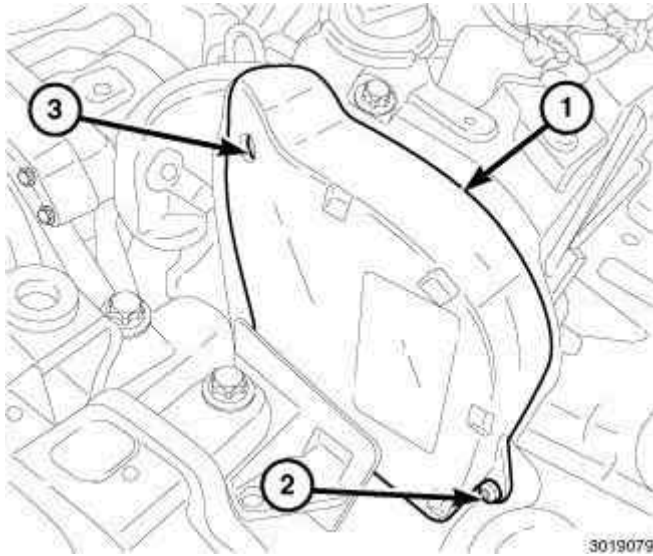
**Fig. 384: Strut Tower, Mount & Bolt**  
 Courtesy of CHRYSLER GROUP, LLC

8. Loosen, **but do not remove** the mount (1) to strut tower (3) bolt (2).



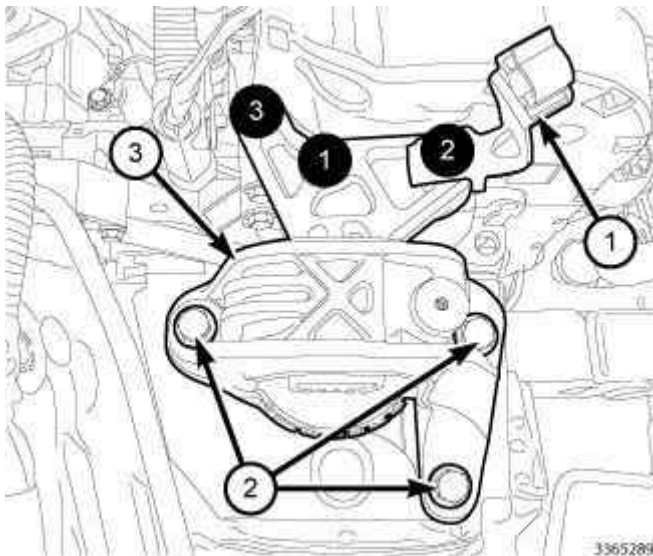
**Fig. 564: Purge Flow Control Solenoid & Bracket**  
Courtesy of CHRYSLER GROUP, LLC

26. Disengage and reposition the purge flow control solenoid (1) from the bracket (4).



**Fig. 733: Upper Timing Belt Cover & Bolts**  
Courtesy of CHRYSLER GROUP, LLC

16. Install the upper timing belt cover (1) with two bolts (2 and 3) tightened to 9 N.m (80 in. lbs.).

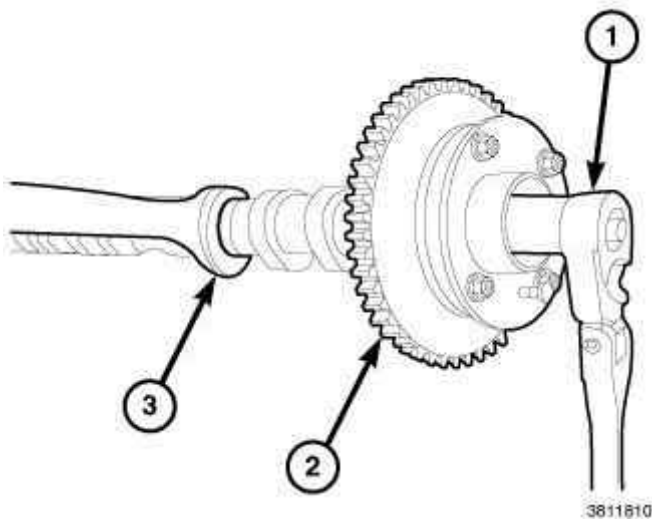


**Fig. 734: RH Engine Mount Isolator, Support Bracket & Bolts With Tightening Sequence**  
Courtesy of CHRYSLER GROUP, LLC

17. Install the RH engine mount isolator (3) and support bracket (1) to the engine mount bracket with three bolts. Tighten the isolator to engine bracket bolts in the sequence shown in illustration to 60 N.m (44 ft. lbs.).
18. Install the RH engine mount isolator (3) to the body with three bolts (2). Tighten the isolator to body bolts (2) to 60 N.m (44 ft. lbs.).

**OPERATION**

The Variable Valve Timing (VVT) assemblies are actuated with engine oil pressure. The oil flow to the VVT assemblies are controlled by two Oil Control Valves (OCV). There is an OCV and Camshaft Position Sensor (CMP) for each camshaft. The OCV's consist of a Pulse Width Modulated (PWM) solenoid and a spool valve. The PCM actuates the OCV to control oil flow through the spool valve into the VVT assemblies. The VVT assembly consists of a rotor, stator, and sprocket. The stator is connected to the timing chain through the sprocket. The rotor is connected to the camshaft. Oil flow in to the VVT assembly rotates the rotor with respect to the stator, thus rotating the camshaft with respect to the timing chain. Thus, the VVT assemblies change valve timing by changing the relationship between the camshaft and the timing chain. An integral oil pressure activated pin is used to lock base camshaft timing for engine start up. Oil pressure releases the pin and allows the PCM to control cam timing once the engine is running. An infinitely variable valve timing position can be achieved within the limits of the hardware. The CMP monitors the position of the camshaft with respect to the crankshaft and provides feedback to the PCM.

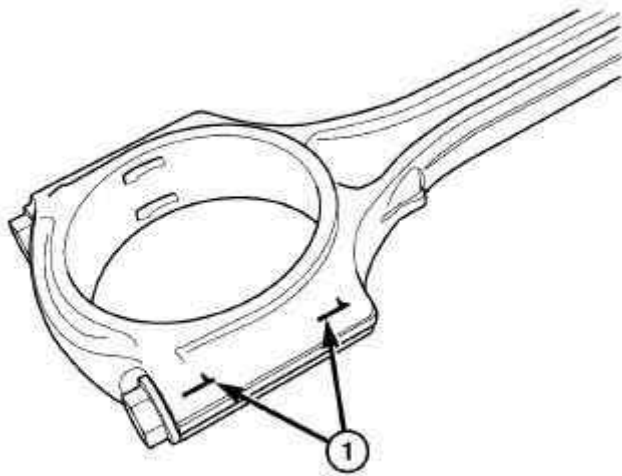
**REMOVAL****REMOVAL**

**Fig. 82: Removing/Installing Camshaft Phaser**  
Courtesy of CHRYSLER GROUP, LLC

**NOTE:** Intake camshaft shown in illustration, exhaust cam similar.

1. Remove the camshafts . Refer to **CAMSHAFT, ENGINE, REMOVAL** .
2. Remove the retaining bolt from the camshaft phaser (2) while holding the camshaft in place with a wrench (3) on the camshaft flats.
3. Remove the phaser assembly (2) from camshaft.

**INSTALLATION****INSTALLATION**



811318c11

**Fig. 253: Connecting Rod To Cylinder Identification**  
Courtesy of CHRYSLER GROUP, LLC

5. If necessary, remove the top ridge of the cylinder bores with a reliable ridge reamer before removing the pistons from the engine block. **Be sure to keep the tops of pistons covered during this operation.** Pistons and connecting rods must be removed from the top of the engine block. When removing piston and connecting rod assemblies from the engine, rotate the crankshaft CW so that each connecting rod is centered in the cylinder bore.

**CAUTION: DO NOT use a number stamp or a punch to mark connecting rods or caps, as damage to connecting rods could occur**

**NOTE: Connecting rods and bearing caps are not interchangeable and should be marked before removing to ensure correct reassembly.**

6. Mark connecting rod and bearing cap positions (1) using a permanent ink marker or scribe tool.

**oil leaks are present.**

- **Oil leakage is not the same as oil consumption and all external leakage must be eliminated before any action can be taken to verify and/or correct oil consumption complaints.**
- **Verify that the engine has the correct oil level dipstick and dipstick tube installed.**
- **Verify that the engine is not being run in an overfilled condition. Check the oil level 15 minutes after a hot shutdown with the vehicle parked on a level surface. In no case should the level be above MAX or the FULL mark on the dipstick.**

**OIL CONSUMPTION TEST**

1. Check the oil level at least 15 minutes after a hot shutdown.
2. If the oil level is low, top off with the proper viscosity and API service level engine oil. Add one bottle of MOPAR® 4-In-1 Leak Detection Dye into the engine oil.
3. Tamper proof the oil pan drain plug, oil filter, dipstick and oil fill cap.
4. Record the vehicle mileage.
5. Instruct the customer to drive the vehicle as usual.
6. Ask the customer to return to the servicing dealer after accumulating 500 miles, Check the oil level at least 15 minutes after a hot shutdown. If the oil level is half way between the "FULL" and "ADD" mark continue with the next step.
7. Using a black light, re-check for any external engine oil leaks, repair as necessary, if no external engine oil leaks are present, continue with oil consumption diagnosis.

**OIL CONSUMPTION DIAGNOSIS**

1. Check the positive crankcase ventilation (PCV) system. Make sure the system is not restricted and the PCV valve has the correct part number and correct vacuum source (18-20 in. Hg at idle below 3000 ft. above sea level is considered normal).
2. Perform a cylinder compression test and cylinder leak down test using the standard leak down gauge following manufacturers suggested best practices.

**NOTE: Verify the spark plugs are not oil saturated. If the spark plugs are oil saturated and compression is good it can be assumed the valve seals or valve guides are at fault.**

3. If one or more cylinders have more than 15% leak down further engine tear down and inspection will be required.

**TOP 19 REASONS THAT MAY LEAD TO ENGINE OIL CONSUMPTION**

**1. Tapered and Out-of-Round Cylinders**

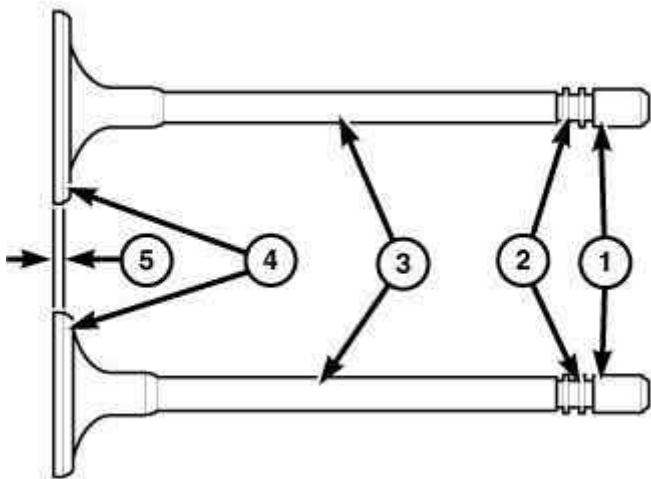
The increased piston clearances permit the pistons to rock in the worn cylinders. While tilted momentarily, an abnormally large volume of oil is permitted to enter on one side of the piston. The rings, also tilted in the cylinder, permit oil to enter on one side. Upon reversal of the piston on each stroke, some of this oil is passed into the combustion chamber.

**2. Distorted Cylinders**

- 1 - SEAT WIDTH
- 2 - FACE ANGLE
- 3 - SEAT ANGLE
- 4 - SEAT CONTACT AREA

The intake and exhaust valves have a 44.5 to 45 degree face angle (1). The valve seats (2) have a 45 to 45.5 degree face angle.

#### VALVES

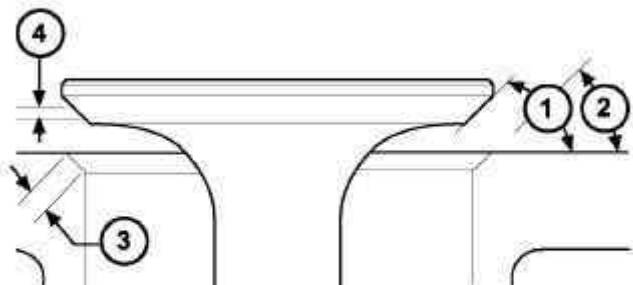


2755802

**Fig. 135: Inspecting Valve Margin**  
Courtesy of CHRYSLER GROUP, LLC

Inspect the remaining margin (5) after the valves are refaced. Refer to **ENGINE SPECIFICATIONS**.

#### VALVE SEATS

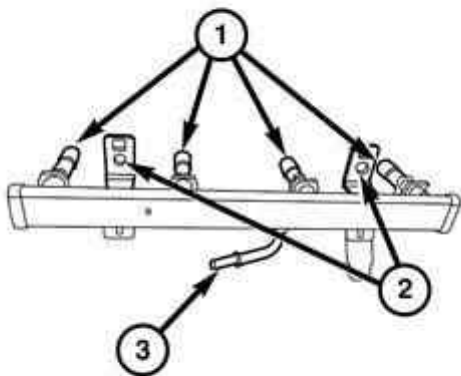


808c3e98

**Fig. 136: Valve Face & Seat**

**Fig. 294: Intake Manifold Upper Support Bracket, Bolts & Nuts**  
Courtesy of CHRYSLER GROUP, LLC

11. Remove the throttle body bracket bolts (3), loosen the nuts (2). Allow the throttle body bracket bolts to remain with the intake manifold.



091469530

**Fig. 295: Fuel Injectors & Rail**  
Courtesy of CHRYSLER GROUP, LLC

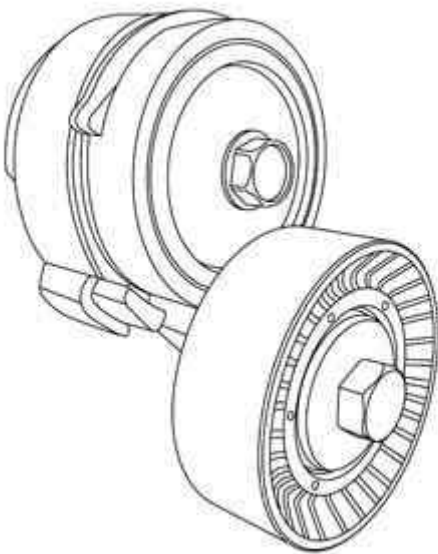
12. Disconnect the fuel injector electrical connectors (1).
13. Disconnect fuel line at rail (3).
14. Remove the two bolts at the fuel rail (2).

2. Install the inner wheel splash shield.
3. Install the right front wheel.
4. Connect the negative battery.
5. Install the engine cover.

**TENSIONER, BELT**

**DESCRIPTION**

**DESCRIPTION**



070870807

**Fig. 35: Belt Tensioner**  
Courtesy of CHRYSLER GROUP, LLC

Correct drive belt tension is required to ensure optimum performance of the belt driven engine accessories. If specified tension is not maintained, belt slippage may cause; engine overheating, loss of air conditioning performance, reduced generator output rate, and greatly reduced belt life.

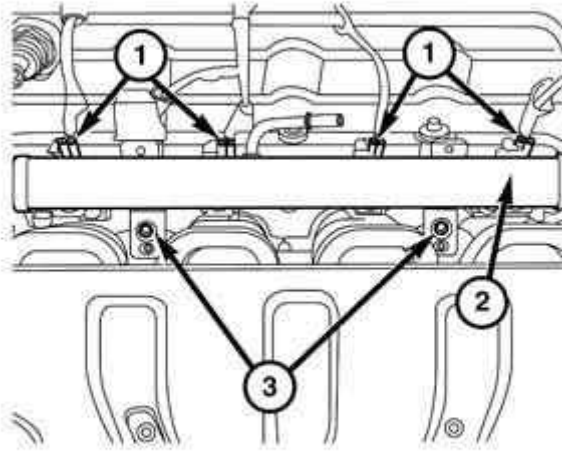
It is not necessary to adjust belt tension. The tensioner maintains correct accessory drive belt tension at all times.

**OPERATION**

**OPERATION**

**WARNING: The automatic belt tensioner assembly is spring loaded. Do not attempt to disassemble the tensioner assembly.**

The automatic belt tensioner maintains correct belt tension using a coiled spring within the tensioner housing. The spring applies pressure to the tensioner arm pressing the arm into the belt keeping the belt



140169663

**Fig. 44: Fuel Rail, Connectors & Bolts**  
 Courtesy of CHRYSLER GROUP, LLC

4. Install the fuel rail (2). Tighten bolts (3) to 7 N.m (62 in. lbs.).
5. Connect and lock the wire harness connectors (1).
6. Connect the fuel line to fuel rail.
7. Install the purge control valve (Refer to VALVE, PURGE CONTROL/INSTALLATION ).
8. Install the air cleaner resonator. Refer to RESONATOR, AIR CLEANER, INSTALLATION .
9. Connect the negative battery cable.
10. Use the Scan Tool Fuel System Test to pressurize the fuel system. Check for leaks.

## SENDING UNIT AND SENSOR, FUEL LEVEL

### DESCRIPTION

### DESCRIPTION

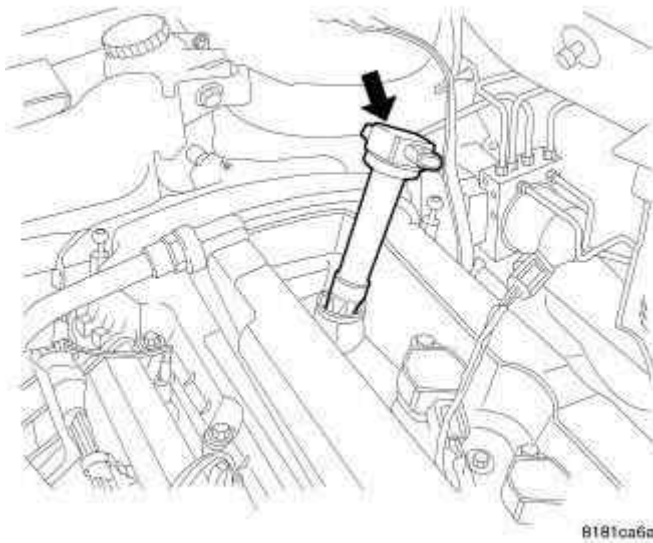
The fuel gauge sending unit (fuel level sensor) is attached to the fuel pump module. The sending unit consists of a float, an arm, and a variable resistor.

The sending unit/fuel level sensor is not serviceable. If the fuel level sensor sending unit has failed, the fuel pump module will need to be replaced. Refer to MODULE, FUEL PUMP, REMOVAL.

## TANK, FUEL

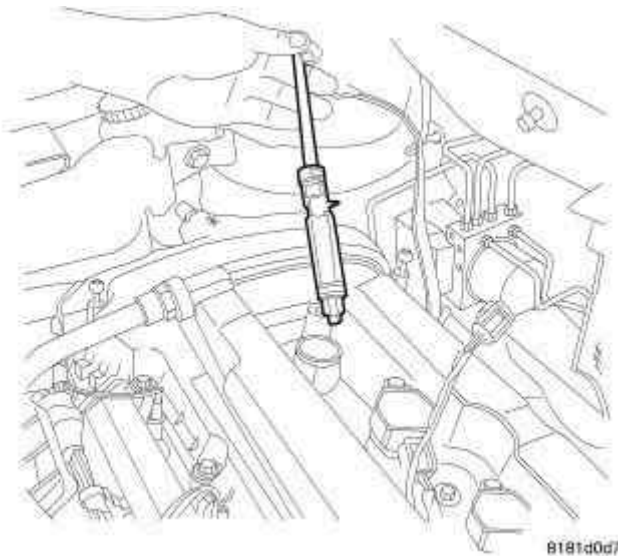
### REMOVAL

### REMOVAL



**Fig. 36: Removing/Installing Ignition Coil**  
Courtesy of CHRYSLER GROUP, LLC

4. Twist the ignition coil then pull straight up.



**Fig. 37: Spark Plug Removed**  
Courtesy of CHRYSLER GROUP, LLC

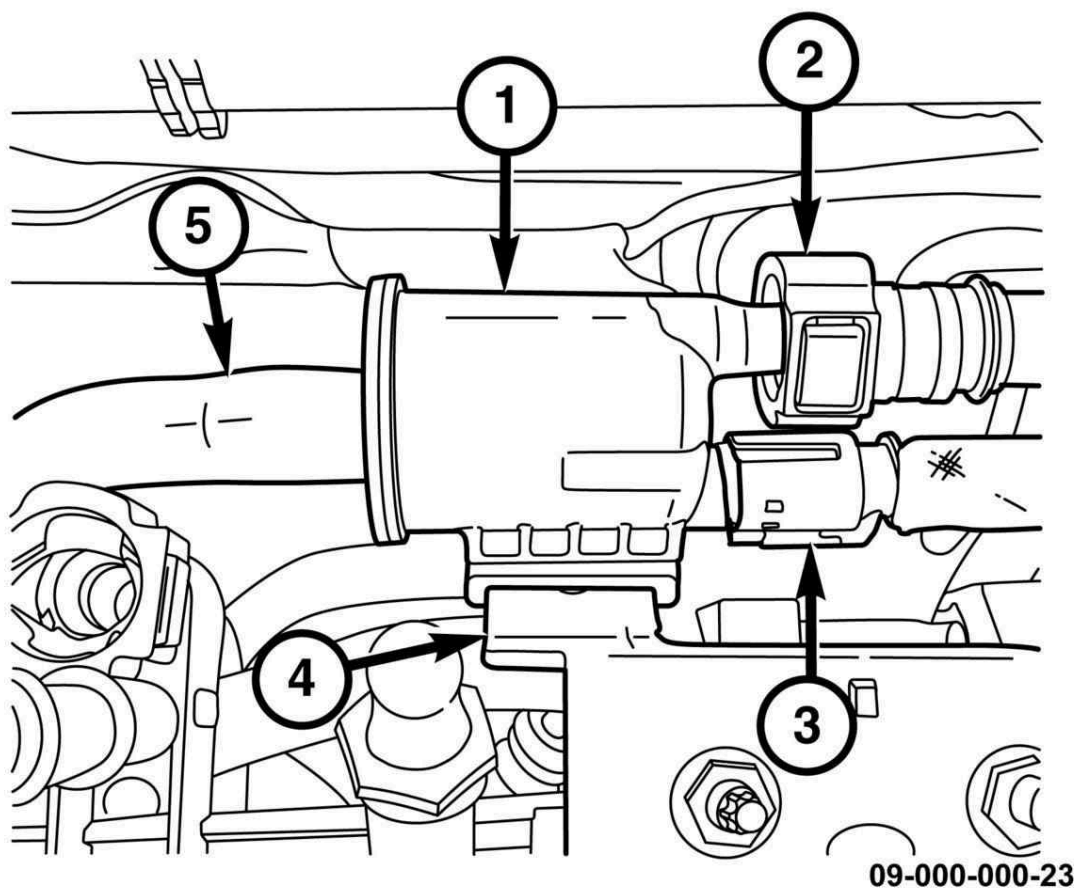
**NOTE:** Prior to loosening the spark plug, use compressed air to blow out any debris that might be in the spark plug tube.

5. Remove the spark plug using a quality socket with a rubber or foam insert.
6. Inspect the spark plug condition.

## INSTALLATION

2.0/2.4L

**CAUTION:** Handle the spark plugs with care. Do not drop or force the spark plugs



**Fig. 14: Purge Flow Control Solenoid & Bracket**  
Courtesy of CHRYSLER GROUP, LLC

3. Disconnect the purge control valve (1) wire harness connector (3).
4. Disconnect the vapor line (2) from the purge control valve (1). Refer to **FITTING, QUICK CONNECT, STANDARD PROCEDURE**.
5. Disconnect the vacuum hose (5) from purge control valve (1).
6. Remove the purge control valve (1) from the intake manifold support bracket (4).

#### REMOVAL

**NOTE:** The sensor voltage should be approximately 5.0 volts (plus or minus 0.1 volts) with the connector disconnected.

Does the scan tool display the voltage as described above?

**Yes**

- Verify that there is good pin to terminal contact in the MAP/IAT Sensor and Powertrain Control Module connectors. If OK, replace the MAP/Intake Air Temperature Sensor.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST**.

**No**

- Go To 3

**3. CHECK THE (K21) IAT SENSOR SIGNAL FOR A SHORT TO GROUND**

1. Turn the ignition off.
2. Disconnect the PCM C2 harness connector.
3. Measure the resistance between ground and the (K21) IAT Sensor Signal circuit at the MAP Sensor harness connector.

Is the resistance above 10k Ohms?

**Yes**

- Go To 4

**No**

- Repair the (K21) IAT Sensor Signal circuit for a short to ground.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST**.

**4. CHECK FOR THE (K21) IAT SENSOR SIGNAL SHORTED TO THE (K900) SENSOR GROUND CIRCUIT**

1. Measure the resistance between the (K21) IAT Sensor Signal circuit and the (K900) Sensor Ground circuit in the MAP Sensor harness connector.

Is the resistance above 10k Ohms?

**Yes**

- Go To 5

**No**

- Repair the short between the (K900) Sensor Ground circuit and the (K21) IAT Sensor Signal circuit.

mV indicates a lean fuel mixture. The Powertrain Control Module (PCM) makes short term and long term fuel corrections to maintain stoichiometric fuel/air ratio for best catalytic converter efficiency. Short term fuel correction is based on upstream O2 Sensor output and is designed for quick engine response. The long term fuel correction compensated for variations in the engine specifications, sensor tolerances and component aging and is designed to correct rich and lean conditions over a longer period of time.

For an aged O2 Sensor, the response rate to the air/fuel change is slower than when it was new. The O2 Sensor tends to move less with the same air/fuel changes in a given time frame. Therefore by observing the activity of voltage readings from the upstream O2 Sensor, the quality of the O2 Sensor can be detected.

**WHEN MONITORED**

With the engine running in closed loop mode, the ambient/battery temperature above -6.7°C (20°F) and altitude below 2590.8 m (8500 ft).

**SET CONDITION**

If the Powertrain Control Module (PCM) multiplies short term compensation by long term adaptive and a purge fuel multiplier and the result is below a certain value for 30 seconds over two trips, a freeze frame is stored, the MIL illuminates and a trouble code is stored. Two Trip Fault. Three good trips to turn off the MIL.

**POSSIBLE CAUSES**

Possible Causes
O2 SENSOR HEATER OPERATION
EVAP PURGE SOLENOID OPERATION
O2 SENSOR SIGNAL CIRCUIT
O2 SENSOR RETURN CIRCUIT
O2 SENSOR
MAP SENSOR
ECT SENSOR
ENGINE MECHANICAL
FUEL FILTER/PRESSURE REGULATOR
POWERTRAIN CONTROL MODULE (PCM)

**Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .**

**DIAGNOSTIC TEST**

**1. ACTIVE DTC**

**NOTE: Check for contaminates that may have damaged an O2 Sensor: contaminated fuel, unapproved silicone, oil and coolant.**

1. Start the engine.
2. Allow the engine to reach normal operating temperature.

- Perform the INTERMITTENT DTC Diagnostic Procedure. Refer to **INTERMITTENT CONDITION** .

**2. CHECK THE AIR FILTER**

1. Turn the ignition off.
2. Remove and inspect the Air Filter and housing inlet for snow, soiling or excessive dirt and debris which may cause air flow restriction.

Were any of these problems found?

**Yes**

- Replace the Air Filter or remove the obstruction.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Go To 3

**3. CHECK FOR INTAKE SYSTEM LEAKS OR RESTRICTIONS**

**NOTE: Damaged, restricted or poorly connected Intake System and Turbocharger System related tubes can cause this DTC to set.**

1. Inspect all air intake, crankcase vent and Turbocharger related hoses/tubes and clamps for leaks or damage.
2. Inspect all boost pressure system hoses for leaks or restrictions.
3. Inspect the Intercooler Assembly for signs of a leak.

Were any problems found?

**Yes**

- Repair or replace as necessary.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Go To 4

**4. CHECK FOR EXHAUST SYSTEM RESTRICTIONS**

1. Inspect the complete exhaust system for damaged, bent or clogged pipes that can cause exhaust system restrictions and excessive back pressure.

Were any problems found?

**Yes**

3. With the scan tool, read DTCs.

**NOTE:** It may be necessary to drive the vehicle to meet the conditions to set this DTC, try to repeat the conditions in which the fault originally set by reviewing the Freeze Frame data.

Is the DTC Active or Pending at this time?

**Yes**

- Go To 2

**No**

- Perform the INTERMITTENT CONDITION diagnostic procedure. Refer to **INTERMITTENT CONDITION** .

## 2. VISUALLY INSPECT CATALYTIC CONVERTER

1. Inspect the Catalytic Converter for the following damage:
  - Damaged Catalytic Converter, dents or holes.
  - Severe discoloration caused by overheating the Catalytic Converter.
  - Catalytic Converter broke internally.
  - Inspect both ends of the converter, inlet and outlet.
  - Leaking Catalytic Converter.

Were any problems found?

**Yes**

- Replace the Catalytic Converter. Repair the condition that may have caused the failure.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Go To 3

## 3. CHECK THE O2 SENSOR VOLTAGE READINGS

**NOTE:** This DTC will set due to poor engine performance as well as a faulty O2 Sensor. If the vehicle exhibits any fuel system or driveability issues, or has any other driveability DTCs present, repair those concerns before proceeding with this test.

1. Turn the ignition off.
2. Disconnect the O2 Sensor 1/1 harness connector.
3. Connect the Wide-band O2 Sensor Diagnostic Connector 10367 in-line of the O2 Sensor 1/1 harness connector.

Were any problems found?

**Yes**

- Repair as necessary.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Go To 3

### 3. VACUUM LEAKS

**WARNING: When the engine is operating, do not stand in direct line with the fan. Do not put your hands near the pulleys, belts, or fan. Do not wear loose clothing. Failure to follow these instructions can result in possible serious or fatal injury.**

1. Start the engine.
2. Inspect the engine for internal leaks.
3. Inspect any external components that can create a vacuum leak. Inspect the following items, but not limited too:
  - Vacuum supply lines
  - Brake Booster
  - Purge Solenoid
  - Engine seals

Were any vacuum leaks found?

**Yes**

- Repair the vacuum leak as necessary.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Go To 4

### 4. THROTTLE BODY OPERATION

1. Inspect the throttle body for carbon build up, other restrictions, and a bent throttle plate using a straight edge.
2. If the throttle plate does not close entirely it may be bent and needs to be replaced.

**WARNING: When the engine is operating, do not stand in direct line with the fan. Do not put your hands near the pulleys, belts, or fan. Do not wear loose clothing. Failure to follow these**

**Yes**

- Go To 3

**No**

- Replace the A/C Clutch Relay.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**3. CHECK THE (C13) A/C CLUTCH CONTROL CIRCUIT FOR A SHORT TO VOLTAGE**

1. Turn the ignition off.
2. Remove the A/C Relay.
3. Disconnect the PCM C1 harness connector.
4. Turn the ignition on.
5. Measure the resistance between the (C13) A/C Clutch Relay Control circuit and all other circuits at the PCM C1 harness connector.

Is the resistance above 10k Ohms between the (C13) A/C Clutch Relay Control circuit and all other circuits?

**Yes**

- Go To 4

**No**

- Repair the (C13) A/C Clutch Control circuit for a short to the circuit that measured below 10k Ohms.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**4. POWERTRAIN CONTROL MODULE (PCM)**

1. Using the wiring diagram/schematic as a guide, inspect the wiring and connectors between the Relay and the Powertrain Control Module (PCM).
2. Look for any chafed, pierced, pinched or partially broken wires.
3. Look for broken, bent, pushed out or corroded terminals. Verify that there is good pin to terminal contact in the related connectors.
4. Perform any Technical Service Bulletins that may apply.

Were any problems found?

**Yes**

- Repair as necessary.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

**Yes**

- Repair as necessary.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Replace and program the Powertrain Control Module in accordance with the service information. Refer to **MODULE, POWERTRAIN CONTROL, REMOVAL** .
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**P1034-00-CYLINDER 4 OIL SUPPLY SOLENOID VALVE DRIVER VOLTAGE IMPLAUSIBLE**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

Variable Valve Actuator (VVA) Solenoid is a normally open solenoid. The PCM provides 12 volts to close the solenoid. The position of the VVA Solenoid determines the intake valve timing and lift. This change on valve action is similar to creating a change in the camshaft lobe profile affecting lift and duration of the valve opening.

**WHEN MONITORED**

Engine running.

**SET CONDITION**

The Powertrain Control Module (PCM) measures the time needed to turn on the VVA Solenoid. When the PCM recognizes that the VVA Solenoids switch on time is too fast or too slow a fault is set. One trip fault.

**POSSIBLE CAUSES**

Possible Causes
VVA SOLENOID

**Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .**

**DIAGNOSTIC TEST****1. ACTIVE DTC**

**NOTE: If the P1523 DTC is present, diagnose and repair that DTC before continuing with this test procedure.**

1. Start the engine and allow it to idle.
2. With a scan tool, read the DTCs.

Is the DTC active at this time?

**Yes**

- Go To 2

**No**

- Perform the INTERMITTENT CONDITION diagnostic procedure. Refer to INTERMITTENT CONDITION .

**2. CHECK THE ENGINE OIL**

**NOTE: The actuators will not operate if the oil pressure is too low or too high.**

1. Check the engine for the following:
  - LOW ENGINE OIL

Were any problems found?

**Yes**

- Perform the appropriate repair.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Replace the Throttle Body Assembly. Refer to **THROTTLE BODY, REMOVAL** . Disconnect the Battery when replacing the Throttle Body Assembly. After installation is complete, use a scan tool and perform the THROTTLE BODY SELF LEARN.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**P16A5-00-ETC MOTOR SELF LEARNING (SPRING OPENING)**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

**WHEN MONITORED**

With the ignition on and the Throttle Body Self Learn procedure completed.

**SET CONDITION**

When the Powertrain Control Module (PCM) detects that the Throttle Blade is not in the correct position when it is checked during the throttle opening spring test phase. One trip fault and the code will set within five seconds. ETC light is flashing.

**POSSIBLE CAUSES**

Possible Causes
COKING OR BLOCKAGE OF THE THROTTLE PLATE
ETC MOTOR/THROTTLE BODY

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to **PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE** .

**DIAGNOSTIC TEST**

1. **ACTIVE DTC**

**NOTE:** Diagnose any repair any Throttle Position Sensor or 5-Volt Supply DTCs before continuing.

1. Turn the ignition on.

**NOTE:** The PCM tests the ETC Motor by opening and closing the Throttle

Control circuit for 0.16 seconds.

**POSSIBLE CAUSES**

Possible Causes
O2 SENSOR 1/1 POSITIVE CURRENT CONTROL CIRCUIT OPEN OR HIGH RESISTANCE
O2 SENSOR
POWERTRAIN CONTROL MODULE (PCM)

**Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .**

**DIAGNOSTIC TEST****1. ACTIVE DTC**

1. Turn the Ignition on.
2. With the scan tool, record then clear DTCs.
3. Start the engine and road test until it reaches normal operating temperature.
4. With the scan tool, read the pending, active or stored DTCs.

Did any active or pending O2 Sensor DTCs return?

**Yes**

- Go To 2

**No**

- Perform the INTERMITTENT CONDITION diagnostic procedure. Refer to INTERMITTENT CONDITION .

**2. CHECK THE O2 SENSOR CIRCUIT FOR AN OPEN OR HIGH RESISTANCE**

1. Turn the ignition off.
2. Disconnect the PCM C1 harness connector.
3. Measure the resistance of the (K89) O2 Sensor 1/1 Positive Current Control circuit between the O2 Sensor 1/1 harness connector and the PCM Connector.

Is the resistance below 5.0 Ohms?

**Yes**

- Go To 3

**No**

- Repair the (K89) O2 Sensor 1/1 Positive Current Control circuit for an open or high resistance.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to POWERTRAIN

1. Ignition on, engine not running.
2. With the scan tool, read ACC DTCs.

Is the DTC active at this time?

**Yes**

- Go To 2

**No**

- The conditions that caused this code to set are not present at this time. Using the wiring diagram/schematic as a guide, inspect the wiring and connectors, pay particulate attention the CAN circuits.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**2. VERIFY SCM IS ACTIVE ON CAN C BUS**

1. With the scan tool, select ECU View.
2. Verify that the SCM is active on the bus.

Is the SCM active on the bus?

**Yes**

- Go To 3

**No**

- Refer to **DIAGNOSIS AND TESTING** and perform the NO RESPONSE FROM SCM diagnostic procedure.

**3. CHECK FOR ACTIVE OR STORED DTCs IN SCM**

1. With the scan tool, read SCM DTCs.

Are any DTCs active or stored in the SCM?

**Yes**

- Refer to **DIAGNOSIS AND TESTING** and perform the appropriate diagnostic procedure.

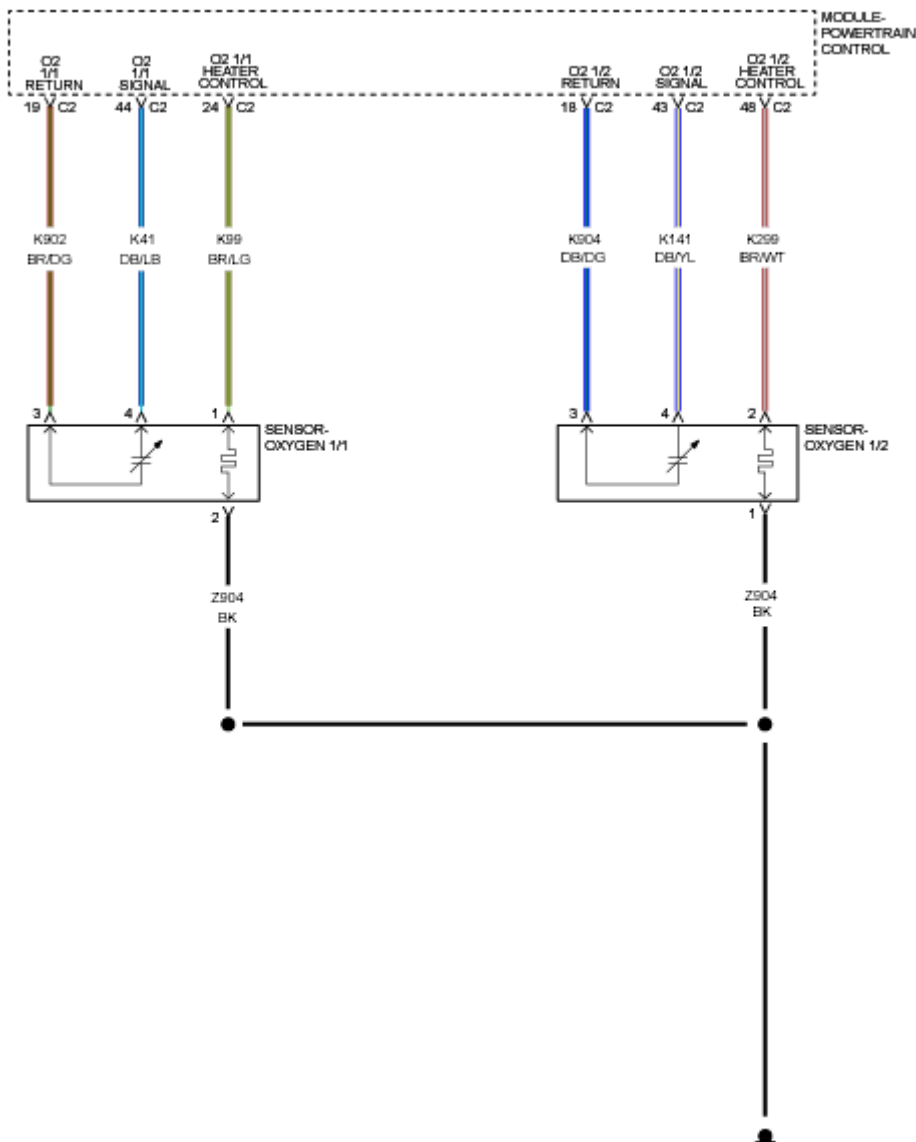
**No**

- Go To 3

**4. CHECK FOR ACTIVE OR STORED COMMUNICATION DTCs IN BCM**

1. With the scan tool, read BCM DTCs.

Are any active or stored SCM Communication DTCs set in the BCM?



**Fig. 26: Oxygen Sensors Circuit Diagram**  
 Courtesy of CHRYSLER GROUP, LLC

**WHEN MONITORED**

With the engine running, battery voltage between 10.5 and 15.75 volts, ASD Relay powered on, and DTC P0038 is not active.

**SET CONDITION**

The Powertrain Control Module (PCM) detects that the Oxygen Sensor 1/2 Heater Control circuit is shorted low.

**POSSIBLE CAUSES**

**POSSIBLE CAUSES**

(K141) O2 SENSOR 1/2 SIGNAL CIRCUIT SHORTED TO THE (K904) O2 SENSOR 1/2 RETURN CIRCUIT

(K141) O2 SENSOR 1/2 SIGNAL CIRCUIT SHORTED TO THE (Z904) GROUND CIRCUIT

OXYGEN SENSOR 1/2

POWERTRAIN CONTROL MODULE (PCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

#### DIAGNOSTIC TEST

##### 1. OXYGEN SENSOR 1/2 VOLTAGE

1. Start the engine and allow it to reach normal operating temperature.

**WARNING: When the engine is operating, do not stand in direct line with the fan. Do not put your hands near the pulleys, belts or fan. Do not wear loose clothing. Failure to follow these instructions may result in possible serious or fatal injury.**

2. With a scan tool, monitor the O2 Sensor 1/2 volts.

Is the voltage less than 2.1 volts?

**Yes**

- Go To 2

**No**

- Perform the INTERMITTENT CONDITION diagnostic procedure. Refer to INTERMITTENT CONDITION .

##### 2. (K141) O2 SENSOR 1/2 SIGNAL CIRCUIT SHORTED TO GROUND

1. Turn the ignition off.
2. Disconnect the Oxygen Sensor 1/2 harness connector.
3. Disconnect the Powertrain Control Module (PCM) C2 harness connector.
4. Measure the resistance between ground and the (K141) O2 Sensor 1/2 Signal circuit in the Oxygen Sensor 1/2 harness connector.

Is the resistance below 100 Ohms?

**Yes**

- Repair the (K141) O2 Sensor 1/2 Signal circuit for a short to ground.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to POWERTRAIN VERIFICATION TEST .

**No**

- Vacuum leaks.
- Restriction in the air induction or exhaust system.
- Internal engine component malfunction.
- Moisture on ignition system components.
- Insufficient fuel.
- Low quality fuel.
- Manual transmission bog.
- Towing overload.

Were any problems found?

**Yes**

- Repair as necessary.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Go To 3

### 3. CHECKING THE FUEL DELIVERY SYSTEM

1. Perform the diagnostic procedures for FUEL PRESSURE LEAK DOWN and FUEL DELIVERY SYSTEM OUTPUT - FLOW TEST. Refer to **DIAGNOSIS AND TESTING** .

Were any problems found?

**Yes**

- Repair as necessary in accordance with the Service Information.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Go To 4

### 4. CHECKING THE IGNITION COIL OPERATION

1. Perform the diagnostic procedure for CHECKING THE IGNITION COIL OPERATION. Refer to **DIAGNOSIS AND TESTING** .

Were any problems found?

**Yes**

- Repair as necessary in accordance with the Service Information.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**NOTE:** Because a hot vehicle can conceal a potential leak, allow the vehicle to reach ambient temperature before continuing with this procedure.

**NOTE:** A loose gas cap could caused this DTC to set. Make sure the gas cap is tight and in good condition.

**NOTE:** If the customer is experiencing an early fuel shut off during the fuel filling process in addition to DTC P0440, P0441, or P0452, check for restrictions in the EVAP Purge tubes/hoses as well as the Fresh Air Filter before continuing.

1. Start the engine.
2. Allow the engine to idle.
3. Using the scan tool, perform the ESIM FORCED MONITOR TEST. Allow the test to run until complete.
4. Using the scan tool, read DTCs.

Is the DTC Active or Pending at this time?

**Yes**

- Go To 3

**No**

- Test complete, the condition or conditions that originally set this DTC are not present at this time. Using the wiring diagrams as a guide, check all related splices and connectors for signs of water intrusion, corrosion, pushed out or bent terminals, and correct pin tension.
- Perform the INTERMITTENT CONDITION diagnostic procedure. Refer to **INTERMITTENT CONDITION** .

### 3. ESIM SWITCH STATE

1. With a scan tool, read the ESIM Switch state.
2. Remove the gas cap.

Does the ESIM Switch state change from 'Closed' to 'Open' when the gas cap was removed?

**Yes**

- Go To 4

**No**

- Go To 7

### 4. EVAP PURGE HOSE/TUBE OBSTRUCTION

1. Turn the ignition off.
2. Inspect the Evaporative Purge hose/tube for proper routing and installation between the EVAP

- Repair the (B135) Brake Signal 1 circuit for a short to ground.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**5. (B135) BRAKE SIGNAL 1 CIRCUIT OPEN OR HIGH RESISTANCE**

1. Measure the resistance of the (B135) Brake Signal 1 circuit between the Brake Switch harness connector and the PCM C1 harness connector.

Is the resistance below 5.0 Ohms?

**Yes**

- Go To 6

**No**

- Repair the (B135) Brake Signal 1 circuit for an open circuit or high resistance.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**6. (A103) STOP LAMP SWITCH BATTERY FEED CIRCUIT OPEN OR HIGH RESISTANCE**

1. Measure the resistance of the (A103) Stop Lamp Switch Battery Feed circuit between the Brake Switch harness connector and the PCM C1 harness connector.

Is the test light illuminated and bright?

**Yes**

- Go To 11

**No**

- Repair the (A103) Stop Lamp Switch Battery Feed circuit for an open circuit or high resistance.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**7. (B134) BRAKE SIGNAL 2 CIRCUIT SHORTED TO VOLTAGE**

1. Disconnect the Brake Switch harness connector.
2. Measure for voltage on the (B134) Brake Signal 2 circuit at the Brake Switch harness connector.

Is there any voltage present?

**Yes**

- Repair the (B134) Brake Signal 2 circuit for a short to voltage.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**Yes**

- Repair as necessary.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Replace and program the Powertrain Control Module in accordance with the service information.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**P0850-PARK/NEUTRAL SWITCH PERFORMANCE**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

**WHEN MONITORED**

Continuously with the transmission in Park, Neutral, or Drive and not in Limp-in mode.

**SET CONDITION**

This code will set if the Powertrain Control Module (PCM) detects an irrational Park/Neutral switch state. Two trip fault. Three good trips to turn off the MIL.

**POSSIBLE CAUSES****POSSIBLE CAUSES**

P/N SIGNAL CIRCUIT SHORTED TO VOLTAGE OR GROUND  
DTCS PRESENT IN THE TRANSMISSION CONTROL MODULE (TCM)  
POWERTRAIN CONTROL MODULE (PCM)

**Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .**

**DIAGNOSTIC TEST****1. DTC IS ACTIVE**

1. Start the engine and allow it to reach normal operating temperature.

**WARNING:** When the engine is operating, do not stand in direct line with the fan. Do not put your hands near the pulleys, belts or fan. Do not wear loose clothing. Failure to follow these instructions may result in possible serious or fatal injury.

**NOTE:** It may be necessary to test drive the vehicle in order to get this DTC to reset.

- Perform the INTERMITTENT CONDITION diagnostic procedure. Refer to **INTERMITTENT CONDITION** .

**2. CHECK THE FUEL DELIVERY SYSTEM**

1. Perform the diagnostic procedures for FUEL PRESSURE LEAK DOWN and FUEL DELIVERY SYSTEM OUTPUT - FLOW TEST. Refer to **DIAGNOSIS AND TESTING** .

Were any problems found?

**Yes**

- Repair as necessary in accordance with the Service Information.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Go To 3

**3. CHECK THE ENGINE COOLANT TEMPERATURE SENSOR OPERATION**

1. Perform the diagnostic procedure for CHECKING THE ENGINE COOLANT TEMPERATURE SENSOR OPERATION.

Were any problems found?

**Yes**

- Repair as necessary in accordance with the Service Information.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Go To 4

**4. CHECK THE MAP SENSOR OPERATION**

1. Perform the diagnostic procedure for CHECKING THE MAP SENSOR OPERATION. Refer to **DIAGNOSIS AND TESTING** .

Were any problems found?

**Yes**

- Repair as necessary in accordance with the Service Information.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Go To 5

**NOTE:** For this test to be valid, the thermostat must be operating correctly.

**NOTE:** This test works best if performed on a cold engine (cold soak)

1. Ignition on, engine not running.
2. With the scan tool, read the Engine Coolant Temperature Sensor value. If the engine was allowed to sit overnight (cold soak), the temperature value should be a sensible value that is somewhere close to the ambient temperature.

**NOTE:** If engine coolant temperature is above 82°C (180°F), allow the engine to cool until 65°C (150°F) is reached.

3. Start the Engine.
4. During engine warm-up, monitor the Engine Coolant Temperature value. The temp value change should be a smooth transition from start up to normal operating temp 82°C (180°F). The value should reach at least 82°C (180°F).

Did the ECT value increase smoothly and reach at least 82°C (180°F)?

**Yes**

- Go To 6

**No**

- Verify that there is good pin to terminal contact in the ECT Sensor and Powertrain Control Module connectors. Replace the Engine Coolant Temperature Sensor if no problems were found with the connectors.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST**.

#### 6. EVAP PURGE SOLENOID OPERATION

1. Turn the ignition off.
2. Disconnect the vacuum hoses at the Evap Purge Solenoid.
3. Using a hand vacuum pump, apply 5 in. Hg. to the "ENGINE" side of the Evap Purge Solenoid.
4. Turn the ignition on.
5. Using the scan tool, actuate the Evap Purge Solenoid to the ON position.

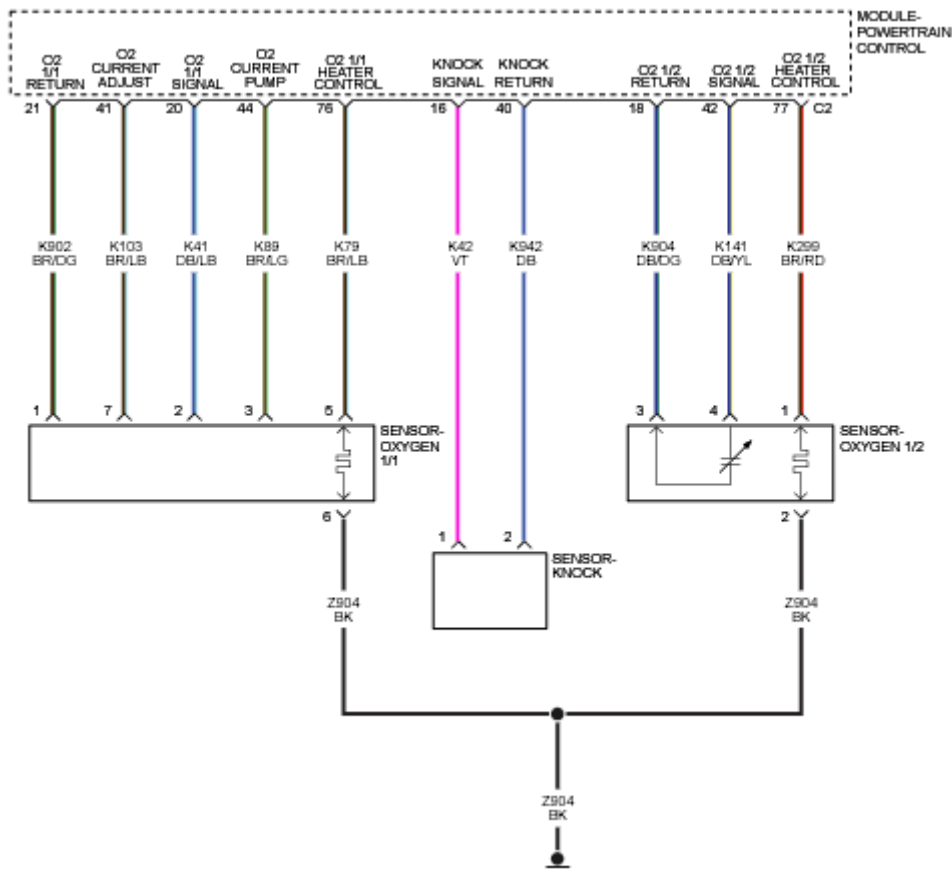
**NOTE:** The vacuum should drop when the solenoid is actuated.

Does the solenoid function as described above?

**Yes**

- Go To 7

**No**



**Fig. 3: O2 & Knock Sensors Circuit Diagram**  
 Courtesy of CHRYSLER GROUP, LLC

**THEORY OF OPERATION**

For the Wideband O2 Sensor to deliver accurate readings the sensing elements must be heated. A Positive Temperature Coefficient (PTC) element inside the O2 Sensor heats up as current passes through it. This allows the system to enter Closed Loop quickly. The Powertrain Control Module (PCM) turns on this circuit based on Engine Coolant Temperature (ECT) and engine loads. The PCM monitors the O2 Sensor's heater for proper operation. If a malfunction occurs the circuit is turned off and a DTC will set.

**WHEN MONITORED**

With the engine running, battery voltage between 10.5 and 15.75 volts, ASD Relay powered on, and DTC P0031 is not active.

**SET CONDITION**

The Powertrain Control Module (PCM) detects an open (heater resistance 40 ohms or more) in the Oxygen Sensor 1/1 heater control circuit for at least 2.16 seconds. Two Trip Fault.

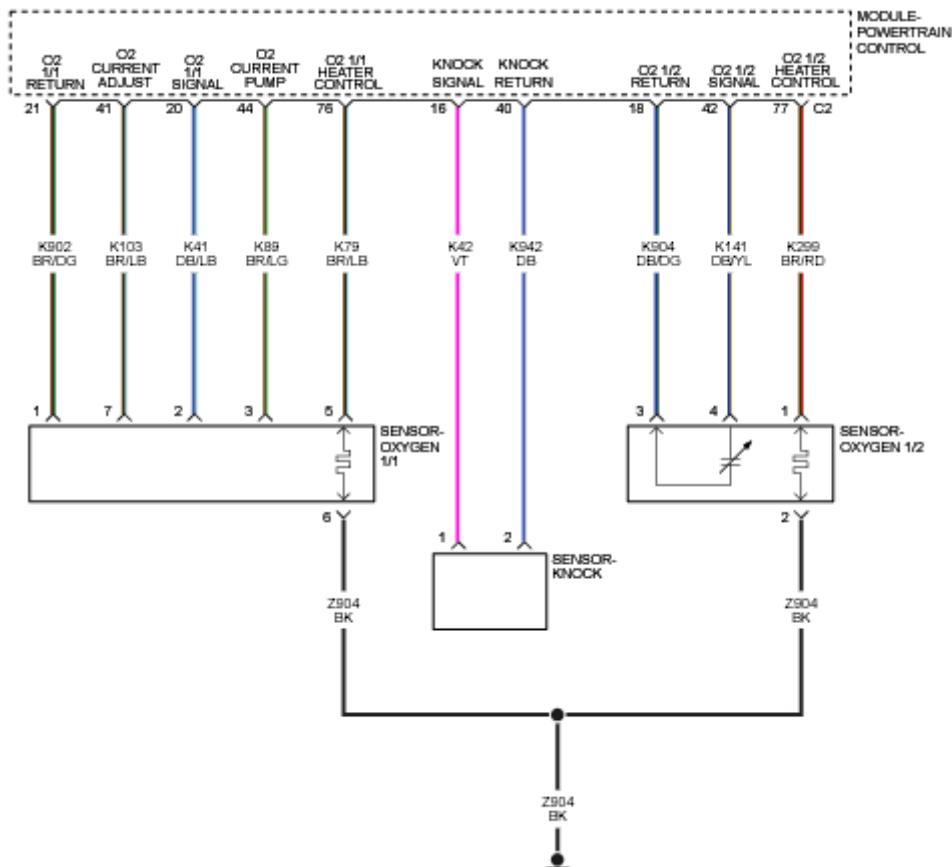
**POSSIBLE CAUSES**

Possible Causes

- Replace the Oxygen Sensor in accordance with the service information. Refer to **SENSOR, OXYGEN, REMOVAL** .
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**P0140-O2 SENSOR 1/2 SIGNAL INACTIVE**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .



**Fig. 36: O2 & Knock Sensors Circuit Diagram**

Courtesy of CHRYSLER GROUP, LLC

**THEORY OF OPERATION**

The Oxygen Sensors (O2 Sensor) are used for fuel control and catalyst monitoring. Each O2 Sensor measures the oxygen content of the exhaust stream. When the engine is started, the Powertrain Control Module (PCM) operates in an Open Loop mode, ignoring the O2 Sensor signal voltage while calculating the air-to-fuel ratio. The heating elements inside each O2 Sensor heats the sensor to bring it to operating conditions faster. This allows the system to enter Closed Loop earlier and the PCM to calculate the air-to-fuel ratio sooner. While the engine runs, the O2 Sensor heats up and begins to generate a voltage within a range of 0-1, 275 mV. Once sufficient O2 Sensor voltage fluctuation is observed by the PCM, Closed Loop is entered. The PCM uses the O2 Sensor voltage to determine the air-to-fuel ratio. An O2 Sensor voltage that increases toward 1, 000 mV indicates a rich fuel mixture. An O2 Sensor voltage that decreases toward 0 mV indicates a lean fuel mixture. The Powertrain Control Module (PCM) makes short term and long term

**1. CHECK FOR APPLICABLE TSB**

1. Check for any applicable TSBs that may apply for this issue.

Were any TSBs applicable?

**Yes**

- Perform the applicable TSB. Erase the DTC and perform the verification test.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Go To 2

**2. DTC IS ACTIVE**

**NOTE: Diagnose and repair any 5-Volt reference DTCs before continuing with this test procedure.**

1. Turn the ignition on.
2. Read and copy the DTCs and Freeze Frame Data.
3. Start the engine, or crank the engine for 10 seconds.

**NOTE: If the vehicle starts and runs, wiggle test the wiring and see if problem duplicates or the fault sets.**

Is the status Active for this DTC?

**Yes**

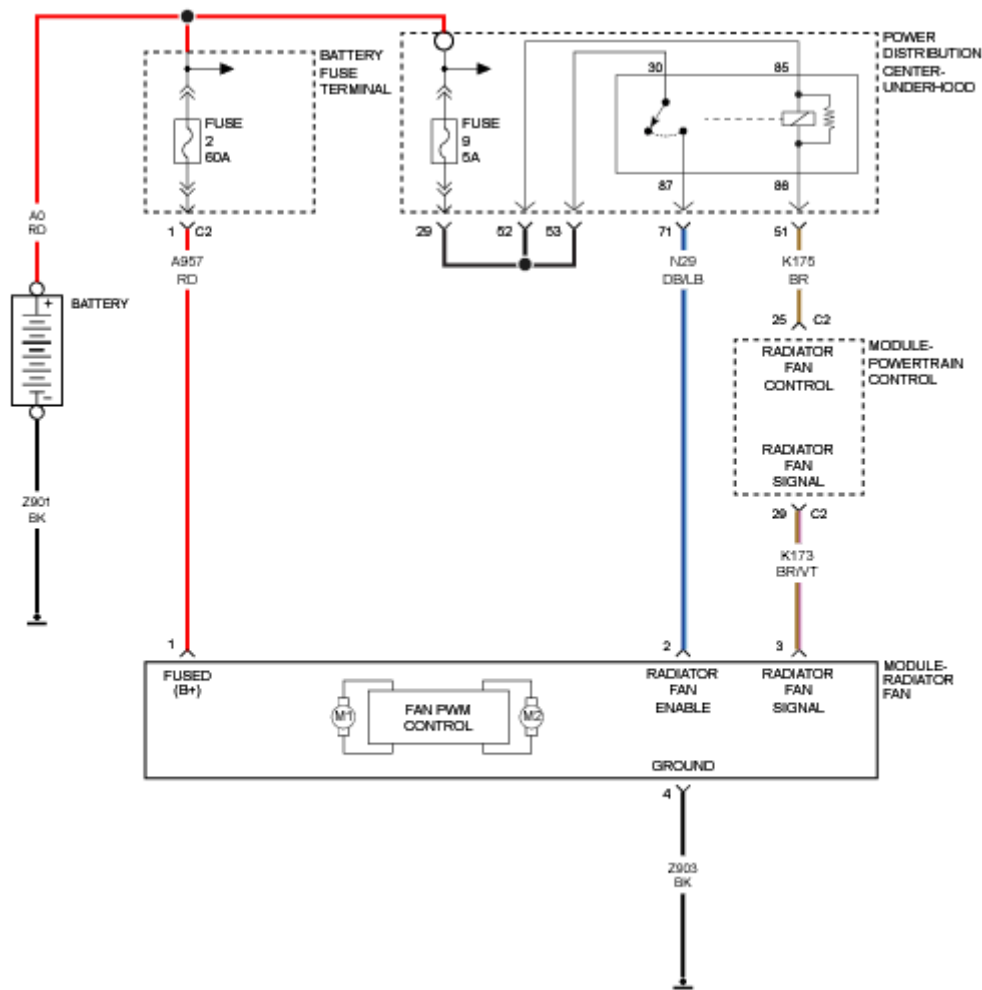
- Go To 5

**No**

- Go To 3

**3. WIRE HARNESS/CKP SENSOR INSPECTION**

1. Turn the ignition off.
2. Disconnect the harness connectors at the PCM and Crank Sensor and inspect for wire chaffing or rub conditions, terminals pushed out on the wiring connector, bent terminals at the PCM and Crank Sensor, water in the connector cavities, presence of corrosion on the terminals of the connectors or components.
3. Visually inspect the mounting area of Crank Sensor for debris/damage or a loose sensor. Remove the Crank Sensor and inspect the end of the sensor for signs of damage or debris. Rotate the engine and if possible, inspect the target wheel for any signs of damage. Reinstall the Crank Sensor and ensure that the sensor is properly installed and torqued to proper specification.



**Fig. 88: Radiator Fan Module Circuit Diagram**  
 Courtesy of CHRYSLER GROUP, LLC

**THEORY OF OPERATION**

The Radiator Fan Module is a smart device which controls the PCM Radiator Fan speed. The Radiator Fan Module receives a continuous wake-up signal from the Radiator Fan Relay output. The Powertrain Control Module (PCM) controls the Radiator Fan Relay via a LSD to close the relay on the wake-up signal. The PCM communicates with the Radiator Fan Module through a Pulse-Width Modulated (PWM) signal. The PCM communicates the desired fan speed using the PWM circuit. The PWM Radiator Fan can be operated between 10% duty cycle (Low speed) and 92% duty cycle (High speed). The Radiator Fan Module relays internal fault messages to the PCM using the same PWM circuit.

If the wake-up signal between the Radiator Fan Relay and the Radiator Fan Module is lost after Radiator Fan Module is initialized, the fan defaults to high speed.

**WHEN MONITORED**

With the ignition on. Battery voltage greater than 10.0 volts.

**SET CONDITION**

5. Measure the resistance between the (K31) Fuel Pump Control circuit and all other 5 volt and 12 volt supply circuits at the GPEC Adaptor.

Is the resistance above 10k Ohms between the (K31) Fuel Pump Control circuit and all other 5 volt and 12 volt supply circuits?

**Yes**

- Go To 3

**No**

- Repair the (K31) Fuel Pump Control circuit for a short to the circuit that measured below 10k Ohms.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

### 3. CHECK THE (K31) FUEL PUMP CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (K31) Fuel Pump Control circuit in the GPEC Adaptor.

Is the resistance above 10k Ohms?

**Yes**

- Go To 4

**No**

- Repair the short to ground in the (K31) Fuel Pump Control circuit.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

### 4. CHECK THE (K31) FUEL PUMP CONTROL CIRCUIT FOR AN OPEN/HIGH RESISTANCE

1. Measure the resistance of the (K31) Fuel Pump Control circuit between the Fuel Pump Relay connector in the PDC and the GPEC Adaptor.

Is the resistance below 5.0 Ohms?

**Yes**

- Go To 5

**No**

- Repair the (K31) Fuel Pump Control circuit for an open or high resistance.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

### 5. FUEL PUMP RELAY

Is the resistance between 0.5 and 1.0 Ohms?

**Yes**

- Go To 3

**No**

- Verify that there is good pin to terminal contact in the VVA Solenoid connectors. Check for broken, bent, pushed out or corroded terminals.
- Check for any Technical Service Bulletins that may apply.
- If no issues were found, replace the Variable Valve Actuator Assembly in accordance with the service information. Refer to **ASSEMBLY, VARIABLE VALVE ACTUATION, REMOVAL** .
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**3. CHECK FOR EXCESSIVE RESISTANCE IN THE (N32) VVA SOLENOID 1 SIGNAL CIRCUIT**

1. Disconnect the PCM C2 harness connector.

**CAUTION: Do not probe the PCM harness connectors. Probing the PCM harness connectors will damage the PCM terminals resulting in poor terminal to pin connection. Install the GPEC Diagnostic Adaptor to perform the diagnosis.**

2. Connect the (special tool #10436, Adapter, GPEC Diagnostic).
3. Measure the resistance of the (N32) VVA Solenoid 1 Signal circuit between the VVA Solenoid 1 harness connector and the GPEC Adaptor.

Is the resistance below 5.0 Ohms?

**Yes**

- Go To 4

**No**

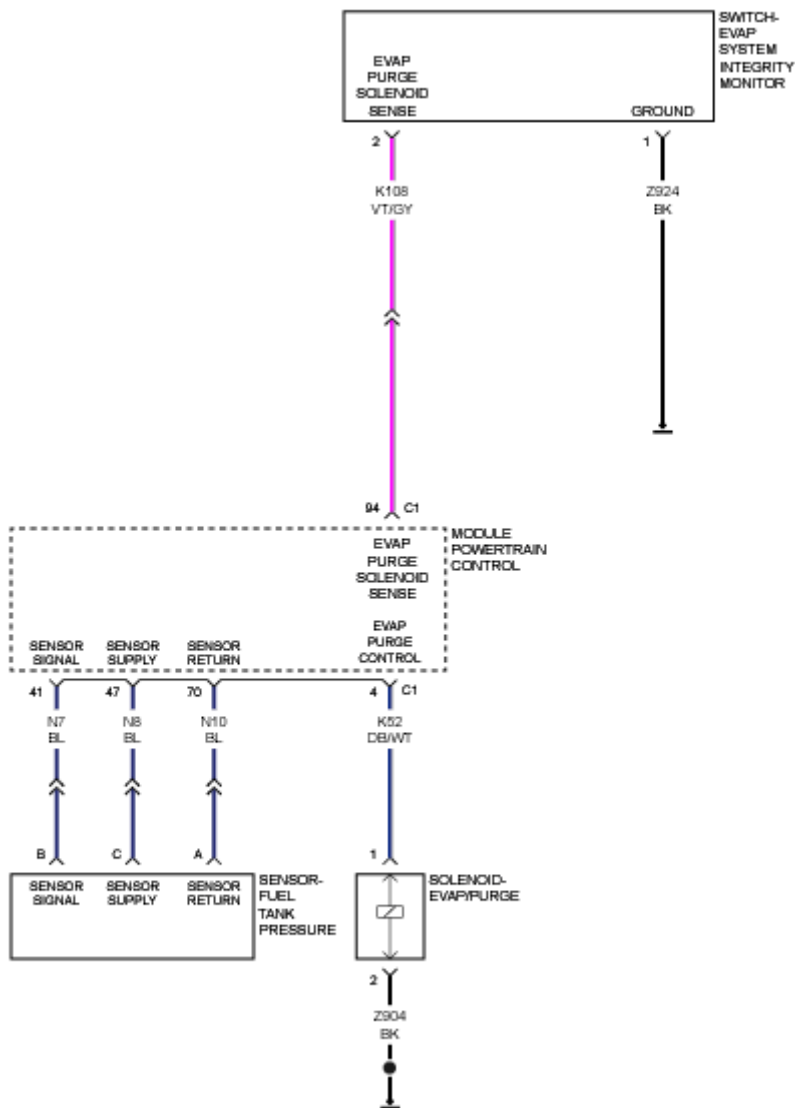
- Repair the excessive resistance in the (N32) VVA Solenoid 1 Signal circuit.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**4. CHECK FOR EXCESSIVE RESISTANCE IN THE (N33) VVA SOLENOID 1 RETURN CIRCUIT**

1. Measure the resistance of the (N33) VVA Solenoid 1 Return circuit between the VVA Solenoid 1 harness connector and the GPEC Adaptor.

Is the resistance below 5.0 Ohms?

**Yes**



**Fig. 14: ESIM Switch, Purge Solenoid & FTP Sensor Circuit Diagram**  
 Courtesy of CHRYSLER GROUP, LLC

**WHEN MONITORED**

Ignition Key on. Battery voltage greater than 10.38 volts.

**SET CONDITION**

The Fuel Tank Pressure Sensor (FTP) signal voltage is greater than 4.94 volts for 20.4 seconds. One trip fault. Three good trips to turn off the MIL.

**POSSIBLE CAUSES**

POSSIBLE CAUSES
(N8) FTP SENSOR 5-VOLT SUPPLY CIRCUIT OPEN OR HIGH RESISTANCE
(N7) FTP SENSOR SIGNAL CIRCUIT SHORTED TO VOLTAGE

No

- Perform the INTERMITTENT CONDITION diagnostic procedure. Refer to **INTERMITTENT CONDITION** .

**2. THROTTLE PLATE INSPECTION**

1. Turn the ignition off.
2. Remove the air cleaner assembly.
3. Check for any signs of a foreign material (ice or dirt) on the throttle plate or in the throttle bore that can cause the throttle plate to stick or not open.
4. Attempt to manually open the throttle plate. Use an appropriate tool that will not damage or mar the throttle body.

Were any problems found?

Yes

- Repair as necessary or replace the Throttle Body Assembly. Disconnect the battery when replacing the Throttle Body Assembly. After installation is complete, use a scan tool and select the ETC Relearn function.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

No

- Go To 3

**3. THROTTLE POSITION SENSOR 1 AND THROTTLE POSITION SENSOR 2 BOTH EQUAL 2.5 VOLTS**

1. With a scan tool, perform the Throttle Follower test and monitor both Throttle Position Sensor voltages.

Are both Throttle Position Sensor readings stuck at 2.5 volts?

Yes

- Check the Throttle Position Sensor Signal circuits for excessive resistance, being shorted together, or being shorted to the Sensor Ground circuit.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

No

- Go To 4

**4. CHECK FOR THE (K448) ETC MOTOR (+) CIRCUIT SHORTED TO ANOTHER VOLTAGE SUPPLY CIRCUIT**

1. Turn the ignition off.
2. Disconnect the Throttle Body harness connector.
3. Disconnect the PCM C2 harness connector.

- Go To 4

**No**

- Repair is complete.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

#### 4. POWERTRAIN CONTROL MODULE (PCM)

**NOTE:**        **Before continuing, check the PCM harness connector terminals for corrosion, damage, or terminal push out. Repair as necessary.**

1. Using the wiring diagram/schematic as a guide, inspect the wiring and connectors between the O2 Sensor and the Powertrain Control Module (PCM).
2. Look for any chafed, pierced, pinched or partially broken wires.
3. Look for broken, bent, pushed out or corroded terminals. Verify that there is good pin to terminal contact in the O2 Sensor and Powertrain Control Module harness connectors.
4. Perform any Technical Service Bulletins that may apply.

Were there any problems found?

**Yes**

- Repair as necessary.
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

**No**

- Replace and program the Powertrain Control Module in accordance with the service information. Refer to **MODULE, POWERTRAIN CONTROL, REMOVAL** .
- Perform the POWERTRAIN VERIFICATION TEST. Refer to **POWERTRAIN VERIFICATION TEST** .

#### **P2252-O2 SENSOR 1/1 NEGATIVE CURRENT CONTROL CIRCUIT LOW**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

5. Press and hold the RESUME/ACCEL Switch. The vehicle speed should increase by at least 3 km/h (2 mph).
6. Press and hold the COAST switch. The vehicle speed should decrease.
7. Using caution, press and release the brake pedal. The speed control should disengage.
8. Bring the vehicle speed back up to 56 km/h (35 mph).
9. Press the RESUME/ACCEL switch. The speed control should resume the previously set speed.
10. Hold down the SET switch. The vehicle should decelerate.
11. Make sure vehicle speed is greater than 56 km/h (35 mph) and release the SET Switch. The vehicle should adjust and set a new vehicle speed.
12. Press and release the CANCEL switch. The speed control should disengage.
13. Bring the vehicle speed back up above 56 km/h (35 mph) and engage speed control.
14. Turn the Speed Control Off. (Cruise light will be off). The speed control should disengage.

**NOTE:            OVERSHOOT/UNDERSHOOT FOLLOWING SPEED CONTROL SET.**

15. If the vehicle operator repeatedly presses and releases the SET button with their foot off of the accelerator (referred to as "lift foot set"), the vehicle may accelerate and exceed the desired set speed by up to 8 km/h (5 mph).
16. It may also decelerate to less than the desired set speed, before finally achieving the desired set speed.
17. The Speed Control System has an adaptive strategy that compensates for vehicle-to-vehicle variations in speed control cable lengths.
18. When the speed control is set with the vehicles operators foot off of the accelerator pedal, the speed control thinks there is excessive speed control cable slack and adapts accordingly.
19. If the "lift foot sets" are continually used, a speed control overshoot/undershoot condition will develop.
20. To "unlearn" the overshoot/undershoot condition, the vehicle operator has to press and release the set button while maintaining the desired set speed using the accelerator pedal (not decelerating or accelerating).
21. Then turn the cruise control switch to the OFF position (or press the CANCEL button if equipped) after waiting 10 seconds.
22. This procedure must be performed approximately 10-15 times to completely unlearn the overshoot/undershoot condition.

Did the Speed Control pass the above test?

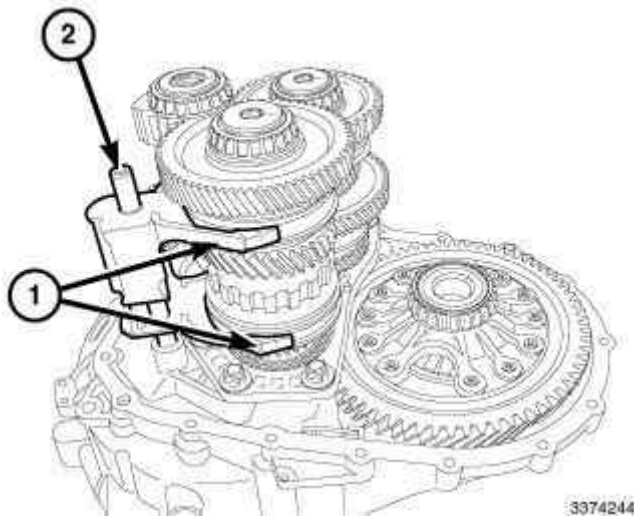
**Yes**

- Repair is complete.

**No**

- Check for any related Technical Service Bulletins. Perform the appropriate Diagnostic Procedure. Refer to **DTC INDEX** .

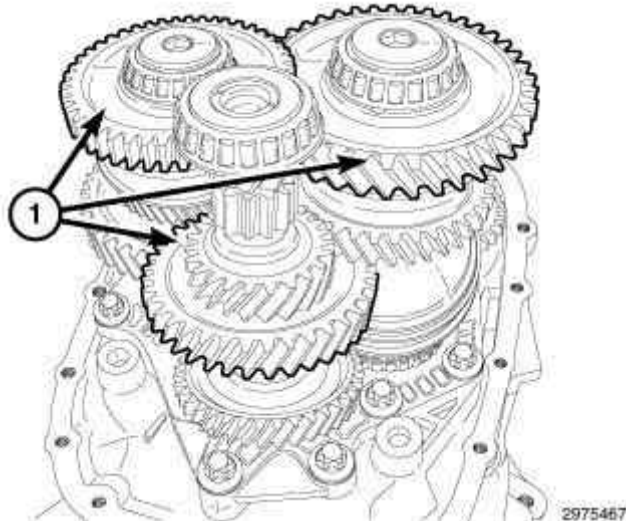
### 3. POWERTRAIN VERIFICATION TEST 2



**Fig. 77: 1-3-6 Shifter Fork Pivot Pin & Shifter Fork Assembly**  
Courtesy of CHRYSLER GROUP, LLC

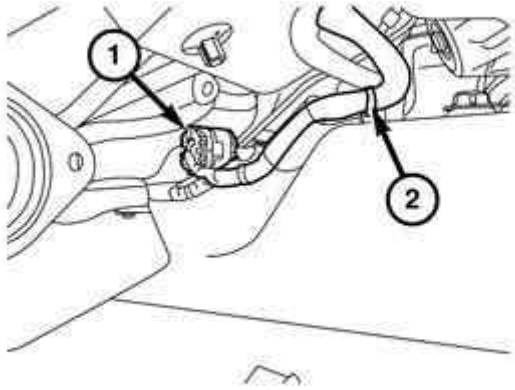
**NOTE:** The shifter fork and pin can be removed as an assembly.

- 43. Remove the 1-3-6 shifter fork pivot pin (2).
- 44. Remove the 1-3-6 shifter fork assembly (1).



**Fig. 78: Output And Main Shafts**  
Courtesy of CHRYSLER GROUP, LLC

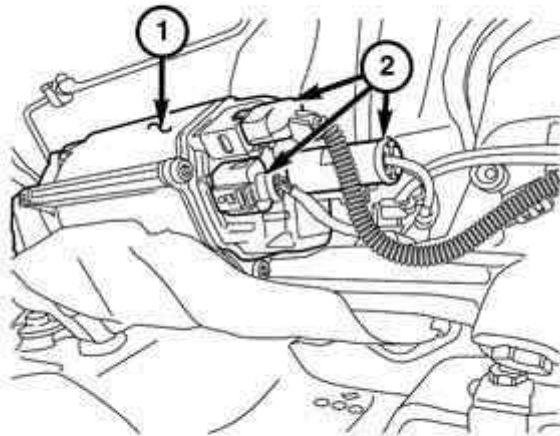
- 45. Remove the shafts (1) as a group.



191069436

**Fig. 249: Front Bearing Snap Ring**  
Courtesy of CHRYSLER GROUP, LLC

7. Remove the front bearing snap ring (1).



191069435

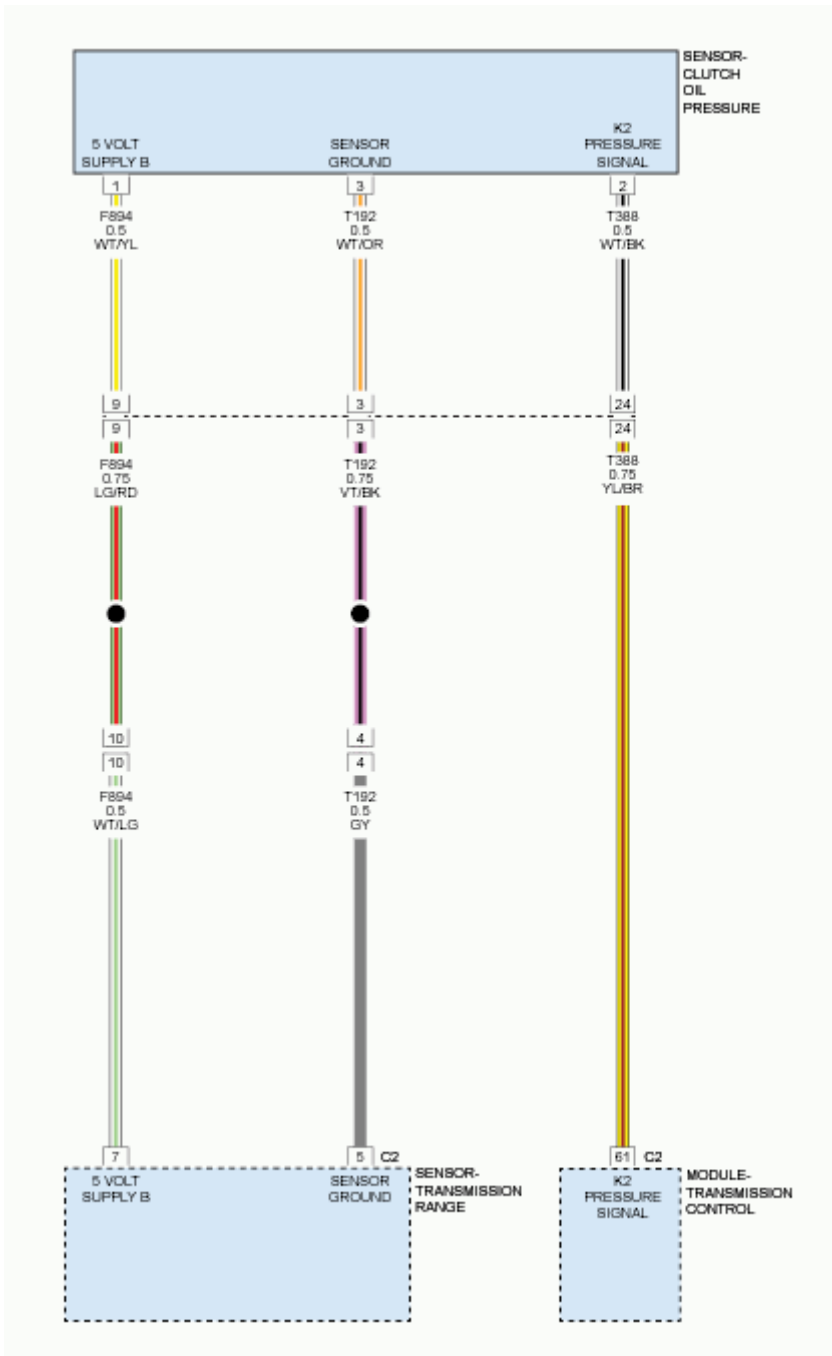
**Fig. 250: Removing Front Bearing**  
Courtesy of CHRYSLER GROUP, LLC

8. Remove the front bearing (1) using (special tool #1130, Splitter, Bearing/Gear).

## ASSEMBLY

## 2014 Dodge Dart Limited

2014 AUTOMATIC TRANSMISSION Transmission Control Module (TCM) - Electrical Diagnostics, C635 DDCT - Dart



**Fig. 16: Transmission Fluid Pressure Sensor Circuit Diagram**  
 Courtesy of CHRYSLER GROUP, LLC

### THEORY OF OPERATION

This diagnostic compares the output signal of the even clutch pressure sensor to threshold values representing the limits of normal sensor operation. When the signal is out of range the diagnostic will be considered failing.

### WHEN MONITORED

Ignition key is ON or the TCM control unit is in power-on state. The engine is not in cranking mode.

## 2014 Dodge Dart Limited

2014 AUTOMATIC TRANSMISSION Transmission Control Module (TCM) - Electrical Diagnostics, C635 DDCT - Dart

Ignition key is ON or the TCM control unit is in power-on state. The engine is not in cranking mode.

Power supply must be between 7 volts and 24 volts and Main Micro Processor (MMP) supply diagnostics have not failed.

The Sensor Power Supply 2 (VS2) to the Gear Shift Position Sensor "B" has no electrical failure.

### SET CONDITION

#### PWM Duty Cycle Fixed Value

This diagnostic compares the duty cycle of the output PWM signal of the sensor to a high and low threshold. If the duty cycle value is continuously fixed between 4% and 6%, the diagnostic determines that a sensor internal failure has occurred (i.e. the magnet reference is lost).

#### PWM Duty Cycle Check Range

This diagnostic compares the duty cycle of the output PWM signal of the sensor to a high and low threshold. If the duty cycle value is more than 90% or less than 10%, but not between 4% and 6% (PWM Duty Cycle Fixed Value), the diagnostic determines that the signal is out of range.

### POSSIBLE CAUSES

Possible Causes
(F894) 5 VOLT SUPPLY B CIRCUIT OPEN
(T47) 2-4 POSITION SIGNAL CIRCUIT OPEN
(T191 AND T192) SENSOR GROUND CIRCUIT OPEN
(T47) 2-4 POSITION SIGNAL CIRCUIT SHORTED TO GROUND
2-4 POSITION SENSOR
TRANSMISSION CONTROL MODULE (TCM)

**Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to C635 DDCT PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .**

### DIAGNOSTIC TEST

#### 1. CHECK TO SEE IF DTC P1C9D IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

**Yes**

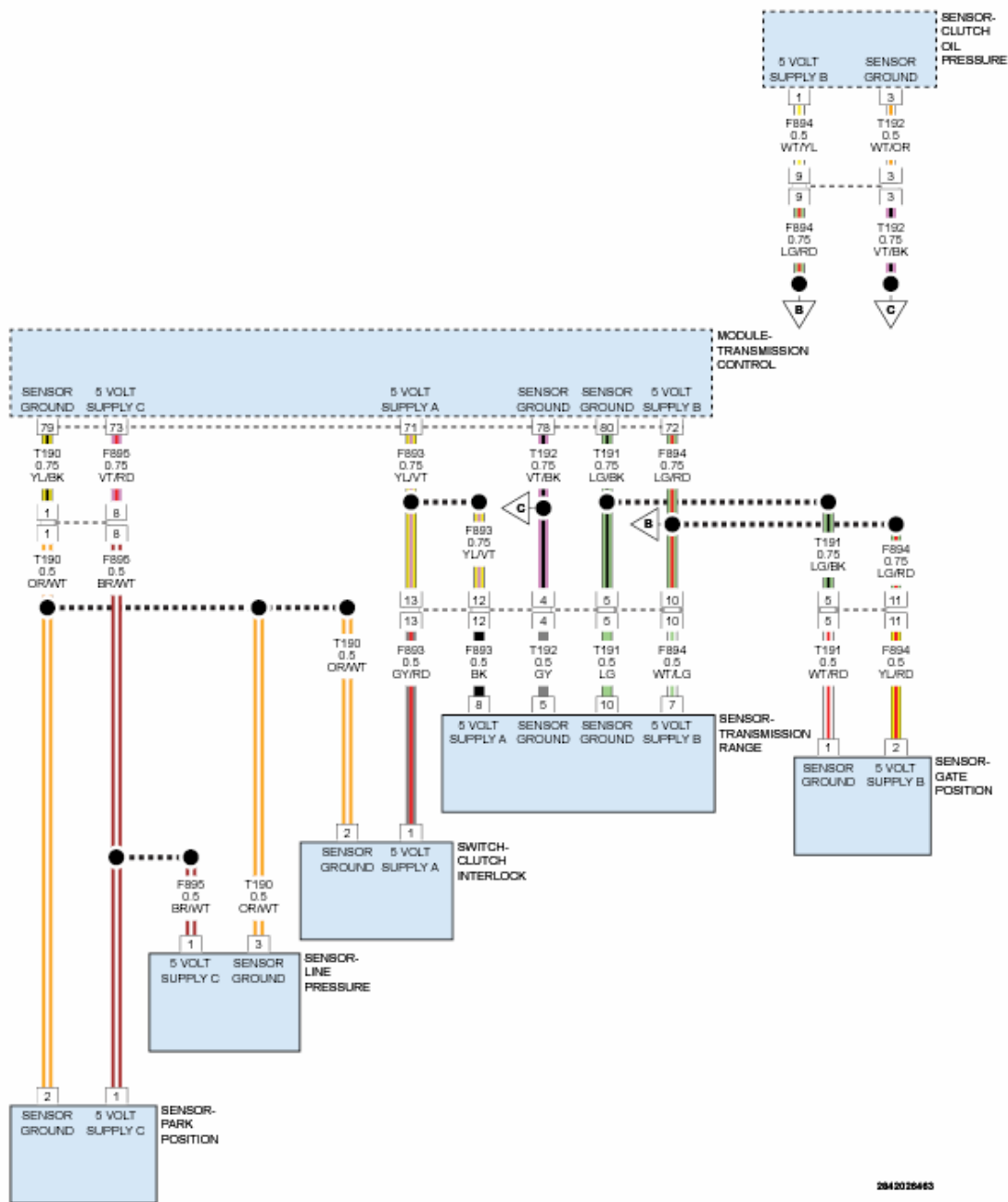
CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL



**Fig. 5: Sensor Power Supply Circuit Diagram**  
 Courtesy of CHRYSLER GROUP, LLC

**THEORY OF OPERATION**

This diagnostic checks for the electrical faults of the sensor power supplies, sensor module or the connecting wiring. These electrical faults may include short to battery, short to ground and open circuit. There are three different sensor power supplies, named VS1, VS2 and VS3 which are provided by an integrated circuit internal to the Transmission Control Module (TCM). The 1st-3rd actuator position sensor, the 5th-RV actuator position sensor and the odd clutch position sensor are supplied by VS1. The even clutch pressure sensor, the 2nd-4th actuator position sensor, the 6th actuator position sensor and the gate select position sensor are supplied by VS2. The hydraulic pressure sensor, the odd and even clutch speed sensors and the park position sensor are supplied by VS3. A self diagnostic is performed by the integrated circuit on each power supply. The diagnostic continuously checks the result of the internal integrated circuit test by reading

- Perform the C635 DDCT TRANSMISSION VERIFICATION TEST. Refer to **C635 DDCT TRANSMISSION VERIFICATION TEST** .

### U11DA-00-LOST DRIVER BRAKE TORQUE REQUEST DATA

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

#### THEORY OF OPERATION

This diagnostic checks the availability of the brake torque level signal which is sent by the Anti-lock Braking System (ABS) module via a CAN message. The diagnostic checks the availability by checking the valid bit.

#### WHEN MONITORED

Ignition key is ON and the engine is not in cranking mode.

Power supply must be between 7 volts and 24 volts.

The Bus OFF failure is not present, the CAN communication between the TCM and ABS module is not lost, there are no dual port RAM faults and the CAN message was read at least once.

Parity check and Toggle bit check of the message have not failed.

#### SET CONDITION

When the signal is not available, the ABS module sends an SNA default value to the TCM. If the TCM reads this value then DTC U11DA is set.

#### POSSIBLE CAUSES

Possible Causes
PCM - INTERNAL ERROR
ABS - INTERNAL ERROR

Always perform the **Pre-Diagnostic Troubleshooting** procedure before proceeding. Refer to **C635 DDCT PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE** .

#### DIAGNOSTIC TEST

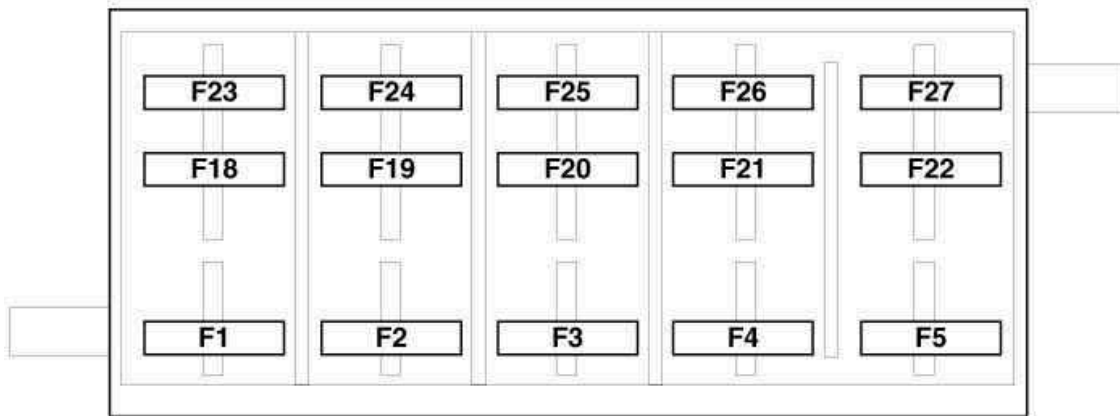
##### 1. CHECK FOR BCM CAN BUS DTCS

1. With the scan tool, read BCM DTCS.

Are any BCM CAN BUS DTCS present?

Yes

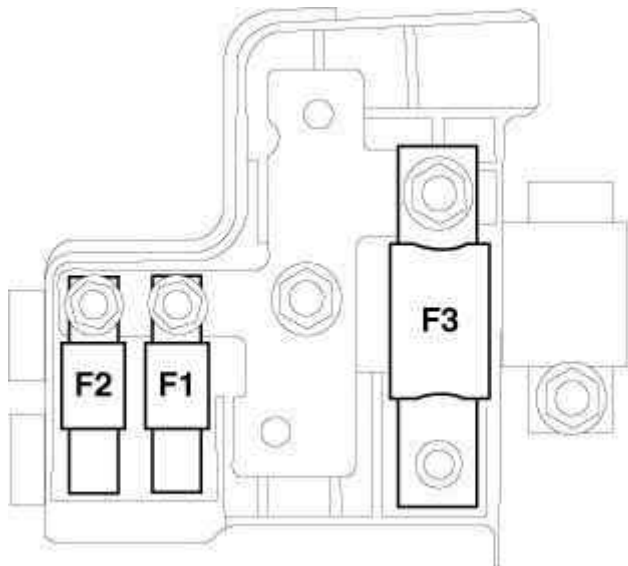
- Refer to the **DIAGNOSTIC CODE INDEX** and perform the appropriate diagnostic procedure. Perform the diagnostic procedure for DTC U0001-CAN C BUS first if it is present



3817231

**Fig. 136: Transfer Drive Assembly**  
Courtesy of CHRYSLER GROUP, LLC

1. Place the transfer drive assembly (1) into position in the transaxle case.



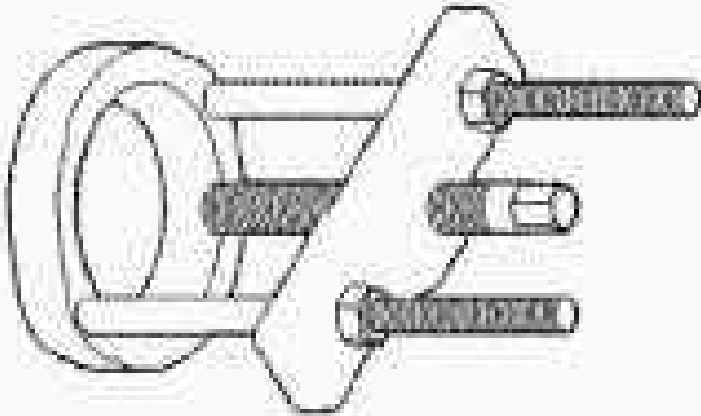
3815784

**Fig. 137: Transfer Drive Assembly & Bolts**  
Courtesy of CHRYSLER GROUP, LLC

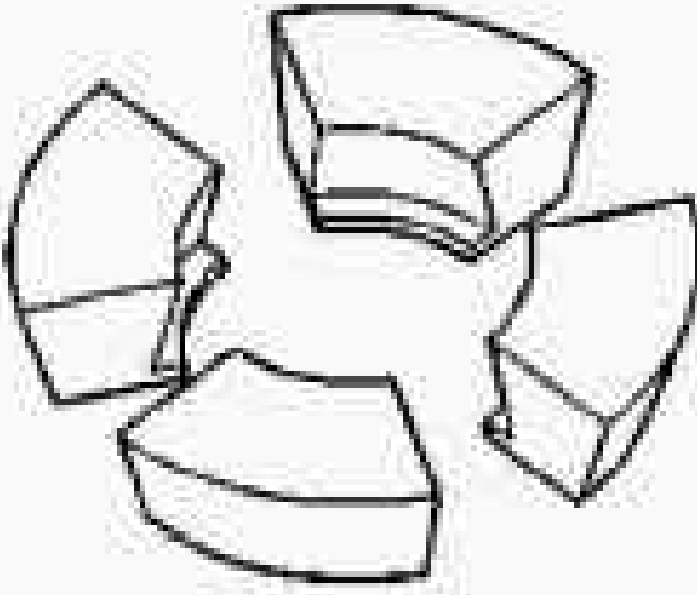
2. Install three bolts (2) to hold transfer drive assembly (1) to the transaxle housing.

Refer to **SPECIFICATIONS**.

3. Install **NEW** inside and outside D-ring seals into the low & reverse brake piston (1).
4. Using specified transaxle fluid, lubricate the low & reverse brake piston (1) D-ring seals.

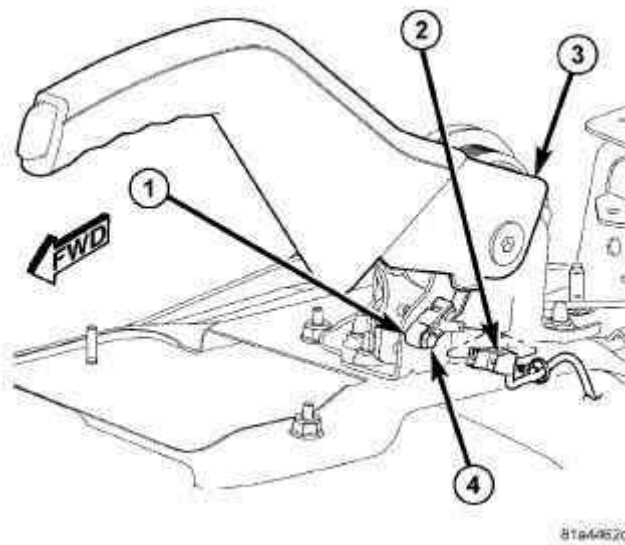


C-293-PA - Puller, Press  
(Originally Shipped In Kit Number(s)  
8418, 8837, C-293-M.)



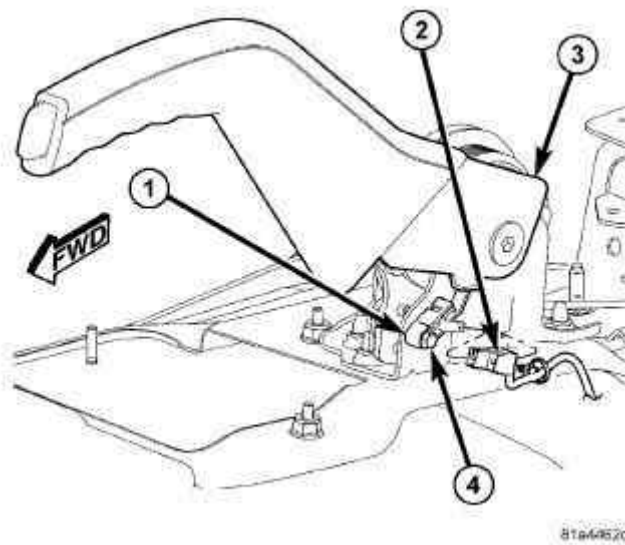
C-293-39 - Block Set, Puller  
(Originally Shipped In Kit Number(s)  
8418, C-293-M, DD-914-CLT-L.)

C-293-48 - Block Set, Puller  
(Originally Shipped In Kit Number(s)  
8418, 8837, C-293-M, DD-914-CLT-  
L.)



**Fig. 468: Overdrive Clutch, Special Tool #8285 & Balance Piston**  
 Courtesy of CHRYSLER GROUP, LLC

8. Position tool (special tool #8285, Compressor, Spring) (2) on the overdrive clutch balance piston.
9. Compress the overdrive clutch return spring until the snap-ring groove is open to receive the snap-ring.



**Fig. 469: Balance Piston, Piston & Snap-Ring**  
 Courtesy of CHRYSLER GROUP, LLC

10. Using a suitable snap-ring pliers (1), install the snap-ring (2) to hold the balance piston into the piston.

greater than or equal to 200 rpm for 1 second time or for 4 occurrences.

**POSSIBLE CAUSES**

Possible Causes
INTERNAL TRANSMISSION PROBLEM TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to **6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE** .

**DIAGNOSTIC TEST**

**CHECK FOR INTERNAL TRANSMISSION PROBLEM**

**NOTE:** Transmission gear ratio errors can be caused by intermittent speed sensor (s) errors. If there are any speed sensor DTCs set, perform the speed sensor diagnostic test before diagnosing any gear ratio error DTC. Review the event data and the When Monitored and Set Conditions for the DTC and attempt to duplicate the condition the DTC set.

1. Determine if there are any Transmission mechanical problems present.
2. Remove the Transmission Oil Pan and inspect for excessive debris or a plugged Transmission Oil Filter.
3. Inspect valve body for foreign material.

Is there any Transmission mechanical problems present?

**Yes**

- Repair as necessary in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

**No**

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

**P0734-00-GEAR 4 SHIFT INCORRECT RATIO**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

**THEORY OF OPERATION**

**WHEN MONITORED**

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 volts and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

No variable force solenoid circuit failures.

Solenoid control duty cycle is 0%.

**SET CONDITION**

The failure is detected if the measured solenoid feedback current is greater than 50 mA but less than or equal to 550 mA of the commanded solenoid current for 320 ms.

**POSSIBLE CAUSES****Possible Causes**

BANK 2 SOLENOID POWER CIRCUIT SHORTED TO GROUND  
(T801) SHIFT SOLENOID E (5) CONTROL CIRCUIT SHORTED TO GROUND  
SHIFT SOLENOID E (5)  
TRANSMISSION CONTROL MODULE (TCM)

**Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE.**

**DIAGNOSTIC TEST****1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

**Yes**

- Go To 2

**No**

signs of excessive wear.

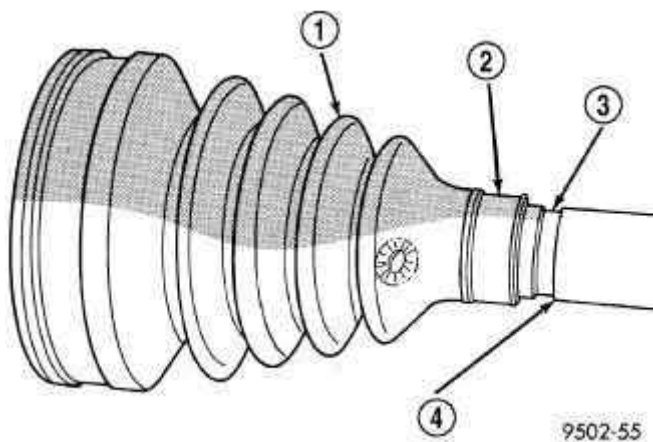
**If any parts show signs of excessive wear, the halfshaft assembly will require replacement. Component parts of these halfshaft assemblies are not serviceable.**

## INSTALLATION

### INSTALLATION

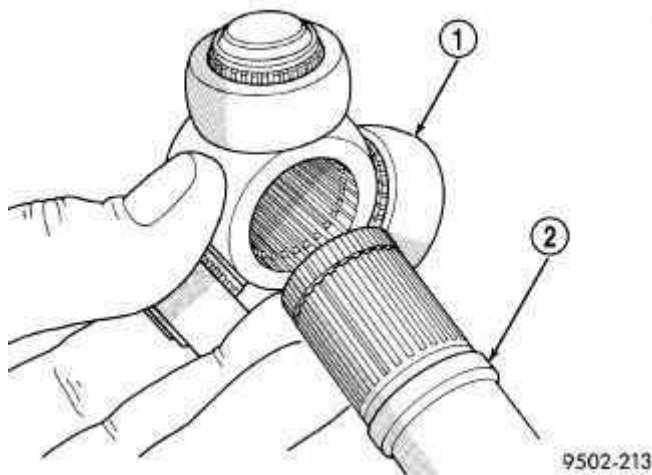
**NOTE:** If the tripod joint bearings or housing is damaged due to loss of lubricant

1. Place new small clamp on Tripod boot.



**Fig. 38: Sealing Boot Installation On Interconnecting Shaft**  
Courtesy of CHRYSLER GROUP, LLC

2. Insert end of interconnecting shaft (4) into small end (2) of tripod boot (1).
3. Slide tripod boot up the interconnecting shaft (4) to gain access to the splined end of the interconnecting shaft.



**Fig. 39: Spider Assembly Installation On Interconnecting Shaft**  
Courtesy of CHRYSLER GROUP, LLC

Were any problems found?

**Yes**

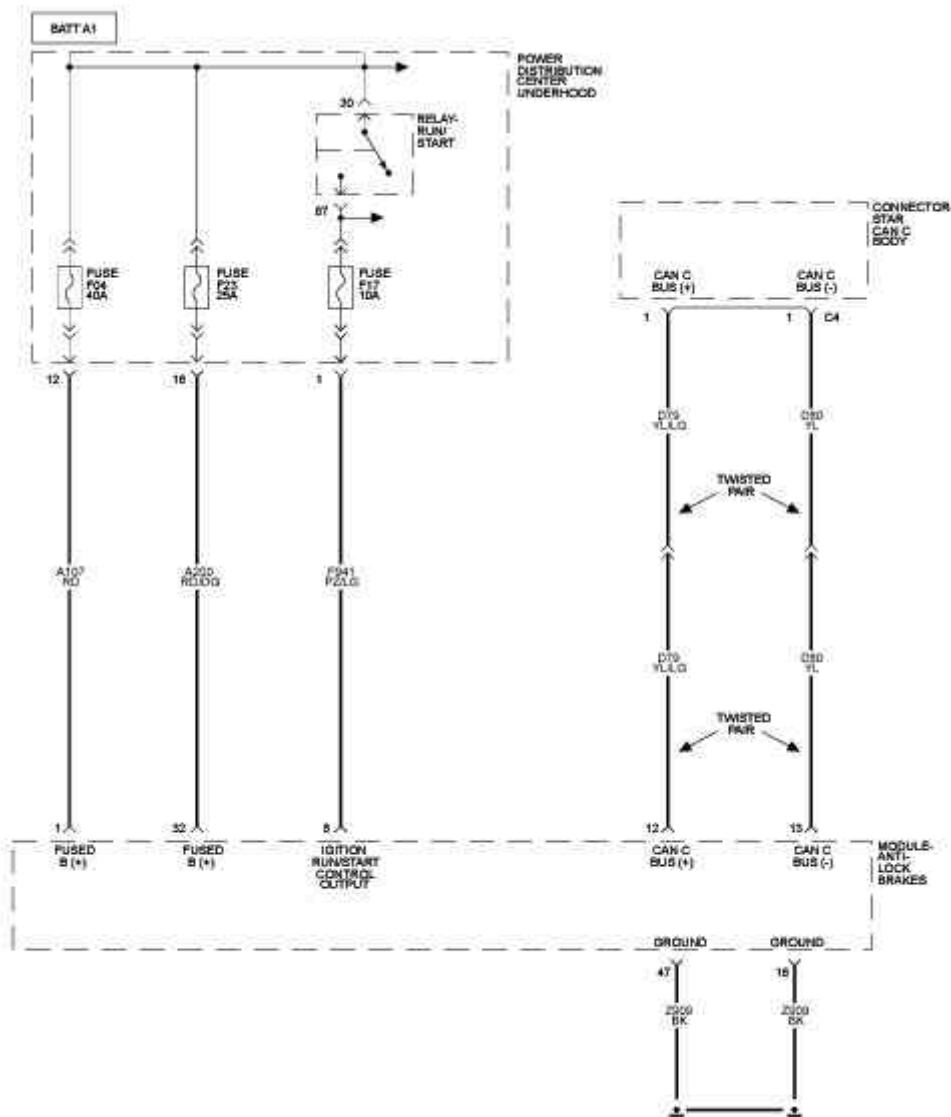
- Repair as necessary.
- Perform the ABS VERIFICATION TEST. Refer to **STANDARD PROCEDURE**.

**No**

- Replace the Integrated Control Unit (ICU) in accordance with the Service Information. Refer to **INTEGRATED CONTROL UNIT (ICU), REMOVAL**.
- Perform the ABS VERIFICATION TEST. Refer to **STANDARD PROCEDURE**.

**C0020-16-ABS PUMP MOTOR CONTROL - CIRCUIT VOLTAGE BELOW THRESHOLD**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .



- Repair as necessary.
- Perform the ABS VERIFICATION TEST. Refer to **STANDARD PROCEDURE**.

**No**

- Replace the Anti-lock Brake System (ABS) Module in accordance with service information. Refer to **MODULE, ANTI-LOCK BRAKE SYSTEM, REMOVAL**.
- Perform the ABS VERIFICATION TEST. Refer to **STANDARD PROCEDURE**.

**C006A-62-MULTI-AXIS ACCELERATION SENSOR - SIGNAL COMPARE FAILURE**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

**WHEN MONITORED**

When ignition is on and vehicle speed is above 15 km/h (9 mph).

**SET CONDITION**

When the Anti-lock Brake System (ABS) Module detects that one of the three Dynamics Sensor signals does not agree with the calculated value.

**NOTE:**        **The Dynamics Sensor is internal to the Occupant Restraint Controller (ORC).**

**POSSIBLE CAUSES**

<b>Possible Causes</b>
OCCUPANT RESTRAINT CONTROLLER (ORC)
ANTI-LOCK BRAKE SYSTEM (ABS) MODULE/INTEGRATED CONTROL UNIT (ICU)

**DIAGNOSTIC TEST**

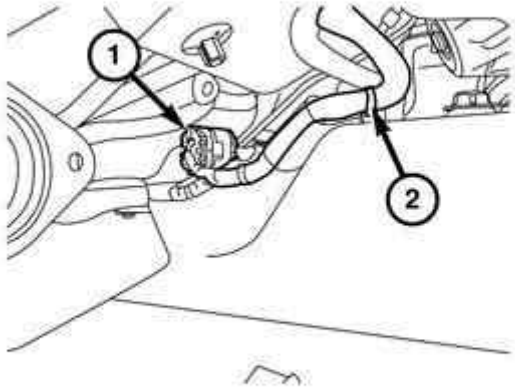
**1. VERIFY THE DTC IS ACTIVE**

1. Perform any Technical Service Bulletins (TSBs) that may apply.
2. Ignition on, engine not running.
3. With the scan tool, read and record the ABS DTCs.
4. With the scan tool, erase ABS DTCs.

**WARNING: To avoid possible serious or fatal injury, check brake capability is available before road testing.**

5. Test drive the vehicle by turning left or right in a curving manner at a velocity between 15 and 35 km/h (9 and 22 mph).
6. Park the vehicle on level ground.
7. With the scan tool, read the ABS DTCs.

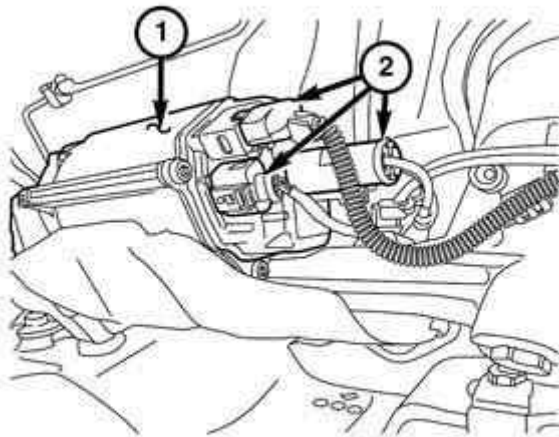
Is the DTC active at this time?



191069436

**Fig. 36: Steering Gear Connector & Tie Strap**  
Courtesy of CHRYSLER GROUP, LLC

6. Connect the steering harness connector (1) to the body harness connector at the bottom of the dash panel.
7. Install the tie strap (2) to the crossmember.



191069435

**Fig. 37: Steering Gear Control Module & Harness Connectors**  
Courtesy of CHRYSLER GROUP, LLC

8. Connect the harness connectors (2) at the steering gear module (1).

**Fig. 7: Lower Control Arm Rear Vertical Bolt & Nut**  
Courtesy of CHRYSLER GROUP, LLC

1. Install the lower control arm in the front suspension crossmember.
2. Install a **NEW** rear bolt (2) and **NEW** nut (1) to attach the lower control arm to the crossmember but do not tighten to specification at this time.



020566027

**Fig. 8: Lower Control Arm Front Horizontal Bolt**  
Courtesy of CHRYSLER GROUP, LLC

3. Install a **NEW** front bolt (1) attaching the lower control arm to the crossmember.
4. Lower the vehicle and install a floor jack under the control arm. Raise the jack until the lower control arm is at ride height and tighten the following bolts:
  - Front Lower Control Arm Horizontal Bolt (1): 100 N.m Plus 135° (74 ft. lbs. Plus 135°).
  - Rear Lower Control Arm Vertical Bolt: 80 N.m Plus 75° (59 ft. lbs Plus 75°).

## REMOVAL

1. Raise and support the vehicle so that tire and wheel assembly clears ground level. Refer to **HOISTING, STANDARD PROCEDURE**.
2. Remove the five wheel mounting (lug) bolts.
3. Remove the tire and wheel assembly from the hub.

## INSTALLATION

### INSTALLATION

**WARNING: Installing wheels without good metal-to-metal contact with the mounting surface could cause loosening of the wheel mounting (lug) bolts. This could adversely affect the safety and handling of the vehicle.**

1. Never use oil or grease on studs or wheel mounting (lug) bolts.

Clean the wheel mounting surfaces, removing any build-up of corrosion. It is important to have good metal-to-metal contact between the wheel and vehicle.

2. Install and lightly snug all five wheel mounting (lug) bolts. **Do not tighten at this time**.
3. Remove the support and lower the vehicle.
4. Progressively tighten all wheel mounting (lug) bolts in a star pattern to the following specifications:
  - Steel Wheels: 120 N.m (89 ft. lbs.).
  - Aluminum Wheels: 125 N.m (92 ft. lbs.).

## TIRE PRESSURE MONITORING

### DESCRIPTION

#### DESCRIPTION

The Tire Pressure Monitoring (TPM) system monitors air pressure in the four road tires (excludes spare). Pressure in the spare tire is monitored in case of a matching spare with sensor. Sensor transmissions occur if there is a significant change in pressure. RFHM has to be awake when sensor transmits to monitor spare pressure.

The TPM system consists of tire pressure monitoring sensors attached to each road wheel through the valve stem mounting hole, an electronic display, and an indicator lamp. The system communicates through the RF Hub Module.

The receiver circuit for the TPM system is integrated into the RF Hub. The RF Hub decodes the RF signals transmitted by each of the vehicle's tire pressure sensors. The decoded information is used to determine if "warning" or "fault" conditions exist within the TPM system.

Upon detection of a warning or fault condition, the RF Hub will send a request to the module that controls the indicator lamp and the text display via the vehicle bus system to illuminate or flash the indicator lamp.

**Yes**

- Repair the (X292) Right Front Door Speaker (-) circuit for a short to voltage.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**No**

- Replace the Amplifier in accordance with the Service Information. Refer to **AMPLIFIER, REMOVAL** .
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**B146F-13-CHANNEL 4 AUDIO SPEAKER OUTPUT - CIRCUIT OPEN**

This Diagnostic Trouble Code (DTC) sets if a Direct Current (DC) offset occurs on the speaker output circuit when the ignition is cycled on. The Amplifier shall set a DTC after a maturity rate of four to six seconds.

**POSSIBLE CAUSES**

Possible Causes
AMPLIFIER

**DIAGNOSTIC TEST****CHECK FOR AN INTERMITTENT CONDITION**

1. Turn the ignition on and open one of the front doors.

**NOTE:**        **A front door must remain open whenever checking or erasing Amplifier DTCs.**

2. With the scan tool, record and erase the Amplifier DTCs.
3. Cycle the ignition switch from on to off, wait five seconds and then back to on.
4. Turn the Radio on.
5. Adjust the speakers to the rear and center.
6. With the scan tool, read the active Amplifier DTCs.

Does the scan tool display active: B143C-92-CHANNEL 10 AUDIO SPEAKER OUTPUT - PERFORMANCE OR INCORRECT OPERATION?

**Yes**

- Replace the Amplifier in accordance with the Service Information. Refer to **AMPLIFIER, REMOVAL** .
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**No**

- Test complete, the condition or conditions that originally set this DTC are not present at this time. Using the wiring diagrams as a guide, check all related splices and connectors for signs of water intrusion, corrosion, pushed out or bent terminals and correct pin tension.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**B14C8-11-CHANNEL 12 AUDIO SPEAKER OUTPUT - CIRCUIT SHORT TO GROUND**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

4. Using a 12-volt test light connected to ground, check the (A933) Fused B(+) circuit in the Radio C2 harness connector.
5. The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.

Does the test light illuminate brightly?

**Yes**

- Go To 4

**No**

- Repair the open or excessive resistance in the (A933) Fused B(+) circuit.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**4. CHECK THE (Z911) GROUND CIRCUIT FOR AN OPEN OR EXCESSIVE RESISTANCE**

1. Using a 12-volt test light connected to 12-volts, check the (Z911) Ground circuit in the Radio C2 harness connector.
2. The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.

Does the test light illuminate brightly?

**Yes**

- Replace the Radio in accordance with the Service Information. Refer to **RADIO, REMOVAL** .
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**No**

- Repair the open or excessive resistance in the (Z911) Ground circuit.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**B210B-17-SYSTEM VOLTAGE - CIRCUIT VOLTAGE ABOVE THRESHOLD**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

**Possible Causes**

(X303) LEFT REAR SPEAKER (+) CIRCUIT SHORTED TO VOLTAGE

(X393) LEFT REAR SPEAKER (-) CIRCUIT SHORTED TO VOLTAGE

RADIO

**DIAGNOSTIC TEST**

**1. CHECK FOR AN INTERMITTENT CONDITION**

**NOTE:**        **A front door must remain open whenever checking or erasing Radio DTCs.**

1. Using the scan tool, record and erase the Radio DTCs.
2. Cycle the ignition switch from on to off, wait five seconds and then back to on.
3. Turn the radio on and set the volume to 25.
4. Adjust the speakers to the Rear and center.
5. Using the scan tool, read the active Radio DTCs.

Does the scan tool display active: B1408-12-REAR LEFT AUDIO SPEAKER OUTPUT - CIRCUIT SHORT TO BATTERY?

**Yes**

- Go To 2

**No**

- Test complete, the condition or conditions that originally set this DTC are not present at this time. Using the wiring diagrams as a guide, check all related splices and connectors for signs of water intrusion, corrosion, pushed out or bent terminals and correct pin tension.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**2. CHECK FOR VOLTAGE ON THE (X303) LEFT REAR SPEAKER (+) CIRCUIT**

1. Turn the ignition off.
2. Disconnect the Radio harness connector.
3. Disconnect the Left Rear Speaker harness connector.
4. Turn the ignition on.
5. Measure for voltage between the (X303) Left Rear Speaker (+) circuit and ground.

Is there any voltage present?

**Yes**

- Repair the (X303) Left Rear Speaker (+) circuit for a short to voltage.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

1. CHECK FOR POWERTRAIN CONTROL MODULE (PCM) DTCs

**NOTE:** Make sure the battery is fully charged before proceeding.

1. Using the scan tool, read the active PCM DTCs.

Are there any battery or charging system DTCs present?

**Yes**

- Refer to **DTC INDEX** and perform the appropriate diagnostic procedure.

**No**

- Go To 2

2. TEST FOR AN INTERMITTENT CONDITION

1. Using the scan tool, record and erase the Radio DTCs.
2. Start the engine.
3. Allow the engine to idle for two minutes.
4. Using the scan tool, read the Radio DTCs.

Does the scan tool display: B210A-16-SYSTEM VOLTAGE - CIRCUIT VOLTAGE BELOW THRESHOLD?

**Yes**

- Go To 3

**No**

- Test complete, the condition or conditions that originally set this DTC are not present at this time. Using the wiring diagrams as a guide, check all related splices and connectors for signs of water intrusion, corrosion, pushed out or bent terminals, and correct pin tension.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

3. CHECK THE (A933) FUSED B(+) CIRCUIT FOR AN OPEN OR EXCESSIVE RESISTANCE

**NOTE:** Check the fuse in the Junction Block for an open. If the fuse is open, make sure to check for a short to ground prior to replacing the fuse.

1. Turn the ignition off.
2. Disconnect the Radio C2 harness connector.
3. Ignition on, engine not running.
4. Using a 12-volt test light connected to ground, check the (A933) Fused B(+) circuit in the Radio C2 harness connector.
5. The test light must illuminate brightly. Compare the brightness to that of a direct connection to

## 2014 Dodge Dart Limited

2014 ACCESSORIES AND EQUIPMENT Body - Interior & Exterior - Dart

PVC	Polyvinyl Chloride	Apex, Geon, Vinylite	Body Moldings, Wire Insulation, Steering Wheels
RIM	Reaction Injected Molded Polyurethane	RIM, Bayflex	Front Fascias, Modular Windows
RRIM	Reinforced Reaction Injected Molded	PUR, RRIM	Fascias, Body Panels, Body Trims
TPE	Thermo Polyethylene	TPE, Hytrel, Bexloy-V	Fascias, Bumpers, Claddings
TPO	Thermopolyolefin	Polytrope, Renflex, Santoprene, Visaflex, ETA, Apex, TPO, Shields, Claddings	Bumpers, End Caps, Telcar, Rubber, Strips, Sight, Interior B-Pillar
TPP	Thermo-Polypropylene	TPP	Bumpers
TPU	Thermopolyurethane, Polyester	TPU, Hytrel, Texin, Estane	Bumpers, Body Side, Moldings, Fenders, Fascias

### PANEL SECTIONING

If it is required to section a large panel for a plastic repair, it will be necessary to reinforce the panel. To bond two plastic panels together, a reinforcement must overlap both panels. The panels must be "V'd" at a 20 degree angle. The area to be reinforced should be washed, then sanded. Be sure to wipe off any excess soap and water when finished. Lightly sand or abrade the plastic with an abrasive pad or sandpaper. Blow off any dust with compressed air or wipe with a clean dry rag.

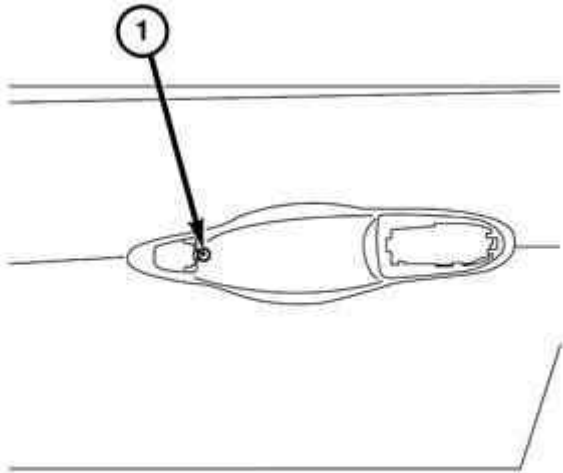
When bonding plastic panels, Follow repair material manufacturers recommendations. Be sure that enough adhesive has been applied to allow squeeze out and to fill the full bond line. Once the pieces have been brought together, do not move them until the adhesive is cured. The assembly can be held together with clamps, rivets, etc. A faster cure can be obtained by heating with a heat lamp or heat gun. After the parts have been bonded and have had time to cure, rough sand the seam and apply the final adhesive filler to the area being repaired. Smooth the filler with a spreader, wooden tongue depressor, or squeegee. For fine texturing, a small amount of water can be applied to the filler surface while smoothing. The cured filler can be sanded as necessary and, as a final step, cleanup can be done with soapy water. Wipe the surface clean with a dry cloth allowing time for the panel to dry before moving on with the repair.

### PANEL REINFORCEMENT

Structural repair procedures for rigid panels with large cracks and holes will require a reinforcement backing. Reinforcements can be made with several applications of glass cloth saturated with structural adhesive. Semi-rigid or flexible repair materials should be used for semi-rigid or flexible backing reinforcement. Open meshed fiberglass dry wall tape can be used to form a reinforcement. The dry wall tape allows the resin to penetrate through and make a good bond between the panel and the adhesive. Structurally, the more dry wall tape used, the stronger the repair.

Another kind of repair that can be done to repair large cracks and holes is to use a scrap piece of similar plastic and bond with structural adhesive. The reinforcement should cover the entire break and should have a generous amount of overlap on either side of the cracked or broken area.

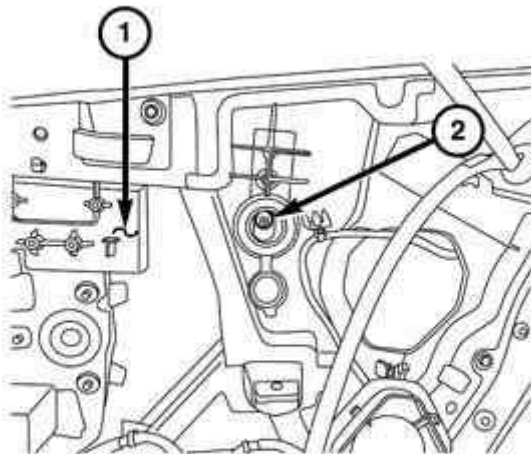
When repairing plastic, the damaged area is first "V'd" out, or beveled. Large bonding areas are desirable when repairing plastic because small repairs are less likely to hold permanently. Beveling the area around a



231068509

**Fig. 154: Exterior Door Handle Fastener**  
Courtesy of CHRYSLER GROUP, LLC

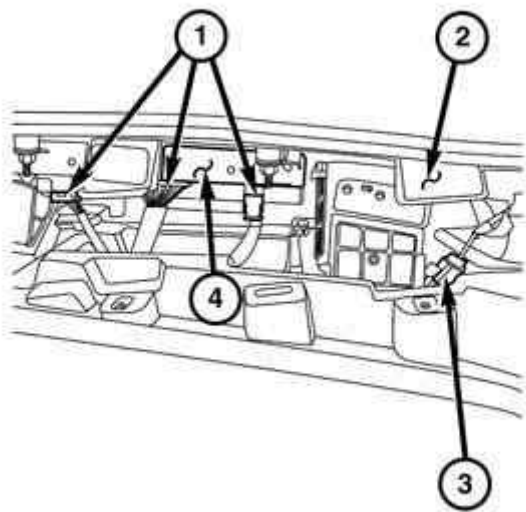
9. Install the outside handle bracket fastener (1) and tighten securely.
10. Install the exterior handle. Refer to **HANDLE, EXTERIOR, INSTALLATION**.



231168783

**Fig. 155: Carrier Plate & Glass Fastener**  
Courtesy of CHRYSLER GROUP, LLC

11. Remove the tape holding the glass up and lower the glass onto the regulator.
12. Apply a medium grade threadlocker adhesive to the glass fastener threads per manufacture



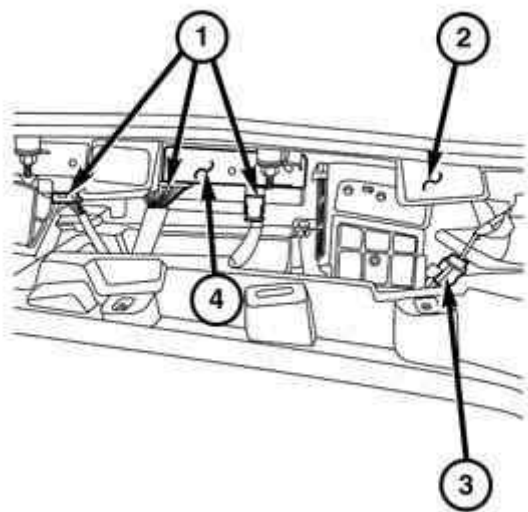
231568812

**Fig. 336: Cluster Bezel, Center Stack Display & Connectors**  
Courtesy of CHRYSLER GROUP, LLC

14. Disconnect the center stack display (4) wiring connectors (1), if so equipped.
15. Disconnect the cluster bezel (2) wiring connector (3).
16. Remove the cluster bezel (2) from the vehicle.

**INSTALLATION**

**INSTALLATION**



231568812

1. Place the rearview mirror over the aluminum button in the upper center of the windshield.
2. Twist the mirror base onto the button in a counter clockwise direction to attach the mirror.

**NOTE:** Mirror must be fully seated or wedged onto the button before rotating.

**NOTE:** Mirror must be rotated in a counter clockwise direction to prevent the mirror from touching the rain sensor.

3. Position the rain sensor wire harness back into place and secure accordingly.
4. Connect the electrical connector (1) and install the trim cover.

**NOTE:** Rain sensor connection should be verified prior to install the mirror trim covers.

5. Install the mirror trim and harness trim covers

**NOTE:** Failure to calibrate the Smartbeam camera may diminish system performance and cause Diagnostic Trouble Codes (DTCs) to set.

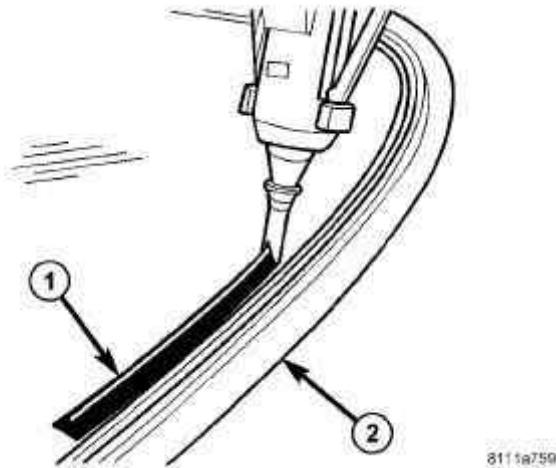
6. Perform the Smartbeam System Calibration Procedure. Refer to SMART BEAM, STANDARD PROCEDURE .
7. Connect the negative battery cable.

#### REAR VIEW MIRROR BUTTON

**NOTE:** The rear view mirror button is permanently bonded to the inside of the windshield glass. If the button should become separated from the glass, it may be re-bonded using the following procedure. This procedure requires the use of a Rear View Mirror Adhesive kit that is available through Mopar® in single application packages that include a two-part adhesive and an accelerant with applicator.

1. Mark the proper position for the mirror button on the outside of the windshield glass with a wax pencil. The residual adhesive on the inside of the glass from the prior mirror button installation can be used as a guide.
2. Clean the button contact area on the inside of the glass. Use a mild powdered cleanser on a cloth saturated with rubbing alcohol. Finally, clean the glass with a paper towel dampened with alcohol.
3. Sand the bonding surface (the smaller side) of the support button with fine grit-sandpaper. Wipe the button surface clean with a paper towel.
4. Apply accelerant to the bonding surface of the button according to the following instructions:
  - Crush the accelerant vial to saturate the felt applicator.
  - Remove the paper sleeve.
  - Apply accelerant to the bonding surface of the button.
  - Allow the accelerant to dry for five minutes.
  - Do not touch the button bonding surface after the accelerant has been applied.

15. Apply pinch weld primer 15 mm (0.75 in.) wide (1) around the backlite fence (2). Allow at least three minutes drying time.
16. Using a flashlight, verify that the primer is completely and evenly installed along the backlite fence.
17. Re-prime any area that is not fully and evenly primed.

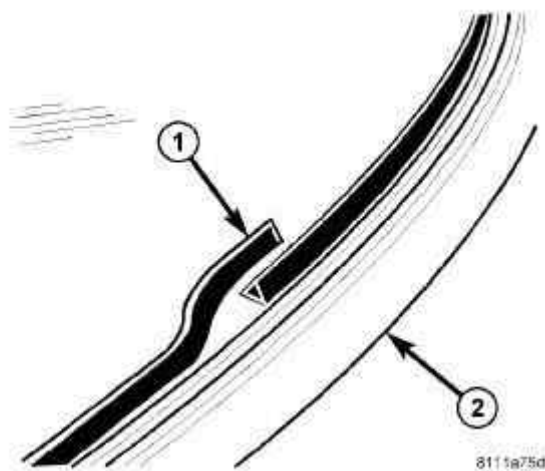


**Fig. 698: Applying Windshield Adhesive**  
 Courtesy of CHRYSLER GROUP, LLC

**CAUTION:** Always apply the bead of adhesive to the backlite. Always install the backlite within 5 minutes after applying the adhesive.

**NOTE:** If the original urethane adhesive has been exposed for more than 12 hours, the entire adhesive area will need to be re-primed prior to installing new adhesive.

18. Apply approximately a 10 mm (0.4 in.) wide bead of adhesive (1) with a triangular nozzle approximately 6 mm (0.230 in.) from the edge of the glass (2) starting at the bottom center of the backlite.



**Fig. 699: Identifying Windshield Adhesive Overlap**

Lamp lighting system. A ground path for the lamps is present through the harness to the body sheet metal. For additional information on the Park Lamps operation. Refer to **OPERATION** .

#### WHEN MONITORED

With the ignition on and the park lamps active.

#### SET CONDITION

When the Body Control Module (BCM) detects a low condition on the (L3) License Plate Lamp Driver circuit.

#### POSSIBLE CAUSES

Possible Causes
(L3) LICENSE PLATE LAMP DRIVER CIRCUIT SHORTED TO GROUND LICENSE PLATE LAMP BODY CONTROL MODULE (BCM)

#### DIAGNOSTIC TEST

##### 1. CHECK FOR AN ACTIVE DTC

1. Turn the ignition on.
2. Turn the Park Lamps on.
3. With the scan tool, read DTCs.

Does the scan tool display this DTC as active?

##### Yes

- Go To 2

##### No

- Test complete. The condition or conditions that originally set this DTC are not present at this time. Using the wiring diagrams as a guide, check all related splices and connectors for signs of water intrusion, corrosion, pushed out or bent terminals and correct pin tension.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

##### 2. ATTEMPT TO SET THE OPPOSITE DTC

1. Turn the Park Lamps off.
2. Turn the ignition off.
3. Disconnect the License Plate Lamp harness connector.
4. Turn the ignition on.
5. Turn the Park Lamps on.
6. With the scan tool, read DTCs.

**1. CHECK FOR AN ACTIVE DTC**

1. Turn the ignition on.
2. With the scan tool, read DTCs.

Does the scan tool display this DTC as active?

**Yes**

- Go To 2

**No**

- Test complete. The condition or conditions that originally set this DTC are not present at this time. Using the wiring diagrams as a guide, check all related splices and connectors for signs of water intrusion, corrosion, pushed out or bent terminals and correct pin tension.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**2. CHECK THE (W3) WIPER LOW SPEED CONTROL OUTPUT CIRCUIT FOR A SHORT TO VOLTAGE**

1. Turn the ignition off.
2. Disconnect the Front Wiper Motor harness connector.
3. Turn the ignition on.
4. Measure the voltage of the (W3) Wiper Low Speed Control Output circuit.

Is voltage present?

**Yes**

- Repair the short to voltage in the (W3) Wiper Low Speed Control Output circuit.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**No**

- Go To 3

**3. CHECK FOR VOLTAGE ON THE (W3) WIPER LOW SPEED CONTROL OUTPUT CIRCUIT WITH LOW SPEED WIPERS TURNED ON**

1. Turn the Low Speed Wipers on.
2. Measure the voltage of the (W3) Wiper Low Speed Control Output circuit.

Is the voltage greater than 10.0 volts?

**Yes**

- Replace the Front Wiper Motor in accordance with the Service Information. Refer to **MOTOR, WIPER, REMOVAL** .
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**Possible Causes**

(F923) FUSED IGNITION RUN CONTROL OUTPUT CIRCUIT OPEN  
(Z911) GROUND CIRCUIT OPEN  
(D404) LIN BUS CIRCUIT OPEN  
LIGHT RAIN SENSOR MODULE (LRSM)

**DIAGNOSTIC TEST**

**1. CHECK FOR AN ACTIVE DTC**

1. Turn the ignition on.
2. With the scan tool, read DTCs.

Does the scan tool display this DTC as active?

**Yes**

- Go To 2

**No**

- Test complete, the condition or conditions that originally set this DTC are not present at this time. Using the wiring diagrams as a guide, check all related splices and connectors for signs of water intrusion, corrosion, pushed out or bent terminals, and correct pin tension.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**2. CHECK THE (F923) FUSED IGNITION RUN CONTROL OUTPUT CIRCUIT FOR AN OPEN**

1. Turn the ignition off.
2. Disconnect the Inside Rearview Mirror harness connector.
3. Turn the ignition on.
4. Using a 12-volt test light connected to ground, check the (F923) Fused Ignition Run Control Output circuit at the Inside Rearview Mirror harness connector.

Does the test light illuminate brightly?

**Yes**

- Go To 3

**No**

- Repair the open or short to ground in the (F923) Fused Ignition Run Control Output circuit.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**3. CHECK THE (Z911) GROUND CIRCUIT FOR AN OPEN**

1. Turn the ignition off.

**WHEN MONITORED**

With the ignition on.

**SET CONDITION**

Incorrect steering torque data received from the Electronic Power Steering Module.

**POSSIBLE CAUSES**

Possible Causes
NO COMMUNICATION WITH THE ELECTRONIC POWER STEERING MODULE
DTCS STORED OR ACTIVE IN THE BCM
BODY CONTROL MODULE (BCM)

**DIAGNOSTIC TEST**

**1. CHECK FOR AN ACTIVE DIAGNOSTIC TROUBLE CODE (DTC)**

1. Turn the ignition on.
2. With the scan tool, read active DTCs.

Does the scan tool display this DTC as active?

**Yes**

- Go To 2

**No**

- The condition that caused this code to set is not present at this time. Check for an intermittent condition by inspecting the related wiring harness for chafed, pierced, pinched, and partially broken wires. Also inspect the related connectors for broken, bent, pushed out, spread, corroded, or contaminated terminals.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**2. VERIFY THE ELECTRONIC POWER STEERING MODULE IS ACTIVE ON THE CAN BUS**

1. With the scan tool, verify that the Electronic Power Steering Module is active on the bus.

Is the Electronic Power Steering Module active on the bus?

**Yes**

- Replace and program the BCM in accordance with the Service Information. Refer to **MODULE, BODY CONTROL, REMOVAL** .
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**No**

No

- Repair the (P688) Right Front Heated Seat Temp Sense circuit for an open.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**6. CHECK THE (P968) HEATED SEAT SENSOR RETURN CIRCUIT FOR AN OPEN**

1. Measure the resistance of the (P968) Heated Seat Sensor Return circuit between the CSWM C2 harness connector and the Right Seat Cushion Heater harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Replace the Comfort Seat and Wheel Module (CSWM) in accordance with the Service Information. Refer to **MODULE, COMFORT SEAT AND WHEEL, REMOVAL** .
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

No

- Repair the (P968) Heated Seat Sensor Return circuit for an open.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**7. CHECK THE WIRING AND CONNECTORS**

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits.
3. Check all related splices and connectors for signs of water intrusion, corrosion, pushed out or bent terminals, and correct pin tension.
4. With the scan tool, check for any Environmental Data to help identify the conditions in which the DTC was set.
5. Check for Service Information Tune-ups or Service Bulletins for any possible causes that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

No

- Test complete.

**B210C-17-BATTERY VOLTAGE INPUT - CIRCUIT VOLTAGE ABOVE THRESHOLD**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

**No**

- Repair the open in the (Z911) Ground circuit.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**4. CHECK THE (D177) OR (D178) CAN IHS BUS (125K) CIRCUIT FOR AN OPEN**

1. Measure the resistance of the (D178) CAN IHS Bus (125K) (-) circuit between the Radio C1 harness connector and the CAN IHS IP Star Connector C5 harness connector.
2. Measure the resistance of the (D177) CAN IHS Bus (125K) (+) circuit between the Radio C1 harness connector and the CAN IHS IP Star Connector C5 harness connector.

Is resistance below 5.0 Ohms on both circuits?

**Yes**

- Replace the Radio Module in accordance with the Service Information. Refer to **RADIO, REMOVAL** .
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**No**

- Repair the open in the (D177) or (D178) CAN IHS Bus (125K) circuit. Inspect the connector for damage.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**STORED LOST COMMUNICATION DTCS**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

**WHEN MONITORED**

With the ignition on for at least five seconds.

Battery voltage between 10 and 16 volts.

Body Control Module (BCM) is configured correctly.

**SET CONDITION**

Bus messages not received for approximately two to five seconds.

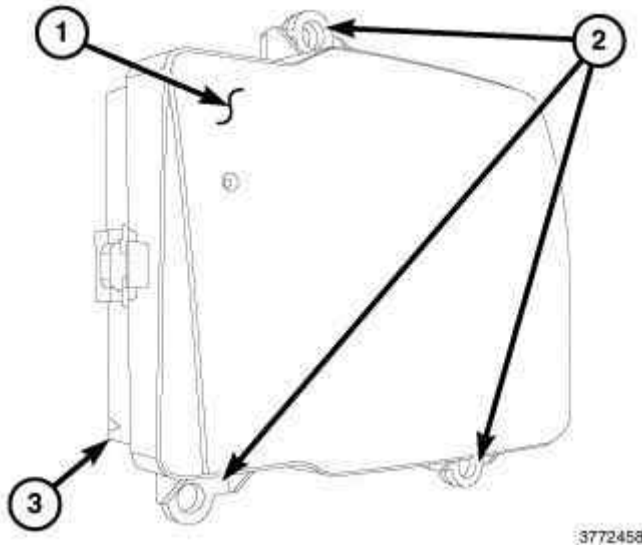
**POSSIBLE CAUSES**

<b>Possible Causes</b>
CAN C BUS CIRCUITS OPEN OR SHORT
CAN C INTERIOR BUS CIRCUITS OPEN OR SHORT
DTCS RELATED TO BATTERY VOLTAGE, IGNITION, OR VIN MESSAGES
BCM NOT CONFIGURED CORRECTLY
POWER OR GROUND FROM THE REPORTING MODULE

## MODULE, LOCAL INTERFACE NETWORK

### DESCRIPTION

### DESCRIPTION



**Fig. 35: Local Interface Network Module**  
Courtesy of CHRYSLER GROUP, LLC

The Local Interface Network (LIN) module (1) is a LIN slave node located within the right horizontal spoke of the steering wheel, behind the spoke bezel. This module is used on all vehicles not equipped with the optional speed control (also known as cruise control) system. On vehicles equipped with optional speed control, the LIN module is integral to the speed control switch pod. The entire LIN module including its mounting provisions and its electrical connection are concealed beneath the spoke bezel. There are no visible components of the module above the steering wheel spoke bezel.

The LIN module housing is constructed of molded black plastic. The module and a mounting adapter plate are secured through three integral mounting tabs (2) and a molded plastic mounting adapter plate to mounting bosses on the back of the spoke bezel by three screws. The mounting adapter plate is also secured to the steering wheel spoke by a single screw installed through a clearance hole in the rear trim cover of the steering wheel, and by two screws within the steering wheel hub cavity. A connector receptacle (3) integral to the inboard end of the module housing connects the LIN slave node circuitry to the vehicle electrical system through a dedicated take out and connector of the steering wheel wire harness.

The LIN module cannot be adjusted or repaired. If the module or any function of the LIN slave node is ineffective or damaged, the entire LIN module unit must be replaced.

### OPERATION

### OPERATION

The Local Interface Network (LIN) module contains the circuitry of a LIN slave node, which provides source current for and communicates the switch or sensor states of the Electronic Vehicle Information Center (EVIC) switches, the remote radio switches and the horn switch over the LIN data bus to the LIN master node and Controller Area Network (CAN) gateway integral to the Steering Control Module (SCM).

**2014 ACCESSORIES AND EQUIPMENT**

**Hands Free System - Service Information - Dart**

**DESCRIPTION**

**DESCRIPTION**

Refer to **MODULE, CONVERGENCE TELEMATICS, DESCRIPTION** .

**WHEN MONITORED**

Continuously when the ignition is on.

The battery voltage between 10.0 and 16.0 volts.

Body Control Module (BCM) is configured correctly.

**SET CONDITION**

Whenever the CAN B Bus (+) or CAN B Bus (-) circuit is open, shorted to voltage or shorted to ground.

**POSSIBLE CAUSES**

<b>Possible Causes</b>
CAN B BUS (+) AND (-) CIRCUIT OPEN
CAN B BUS (+) CIRCUIT SHORTED TO VOLTAGE
CAN B BUS (-) CIRCUIT SHORTED TO VOLTAGE
CAN B BUS (+) CIRCUIT SHORTED TO GROUND
CAN B BUS (-) CIRCUIT SHORTED TO GROUND
CAN B BUS (+) CIRCUIT SHORTED TO CAN B BUS (-) CIRCUIT
ANY CAN B BUS MODULE

**DIAGNOSTIC TEST**

**CHECK FOR AN ACTIVE DIAGNOSTIC TROUBLE CODE (DTC)**

1. Turn the ignition on.
2. With the scan tool, read active DTCs.

Does the scan tool display this DTC as active?

**Yes**

- Refer to **DTC INDEX** and perform the U0019-88-CAN B BUS OFF diagnostic procedure.

**No**

- Refer to **DIAGNOSIS AND TESTING** and perform the Stored Lost Communication DTCs diagnostic procedure.

the vehicle. The BCM also sends electronic **deck lid ajar switch status** messages to other electronic modules in the vehicle over the Controller Area Network (CAN) data bus.

The deck lid ajar switch as well as the hard wired inputs and outputs of the switch may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information.

**WHEN MONITORED**

With the ignition on and the vehicle in reverse.

**SET CONDITION**

The Park Assist Module detects a short to ground on the Park Assist Sensor Signal circuit.

**POSSIBLE CAUSES**

<b>Possible Causes</b>
PARK ASSIST SENSOR DISCONNECTED
PARK ASSIST SENSOR SIGNAL CIRCUIT SHORTED TO GROUND
PARK ASSIST SENSOR SIGNAL CIRCUIT SHORTED TO THE PARK ASSIST SENSOR GROUND CIRCUIT
PARK ASSIST SENSOR SIGNAL CIRCUIT OPEN
PARK ASSIST SENSOR SUPPLY CIRCUIT OPEN
PARK ASSIST SENSOR
PARK ASSIST MODULE

**DIAGNOSTIC TEST**

**1. CHECK FOR AN ACTIVE DIAGNOSTIC TROUBLE CODE (DTC)**

**NOTE:**        **A disconnected sensor will set this DTC. Verify the Park Assist Sensor is connected before proceeding with this diagnostic procedure.**

1. Turn the ignition on.
2. With the scan tool, read DTCs.

Does the scan tool display this DTC as active?

**Yes**

- Go To 2

**No**

- Test complete, the condition or conditions that originally set this DTC are not present at this time. Using the wiring diagrams as a guide, check all related splices and connectors for signs of water intrusion, corrosion, pushed out or bent terminals, and correct pin tension.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**2. CHECK THE VOLTAGE OF THE (X700) PARK ASSIST SENSOR SUPPLY CIRCUIT**

1. Turn the ignition off.
2. Disconnect the Park Assist Sensor.
3. Turn the ignition on.

**clean and dry.**

**RANGE**

Normal FOBIK Remote Keyless Entry (RKE) transmitter operation range for vehicles manufactured for domestic markets is up to 20 meters (66 feet) away from the vehicle. On vehicles manufactured for export markets, normal FOBIK transmitter operation range is up to 10 meters (33 feet) away from the vehicle. If a domestic market vehicle is equipped with the optional factory-installed Remote Start System, the normal FOBIK transmitter operation range is increased to up to 91 meters (300 feet). Please note that the actual FOBIK transmitter range values may be better or worse than specified above, depending upon many possible variables in the environment at the specific time and location that any FOBIK transmission is attempted.

Is the resistance below 2.0 Ohms?

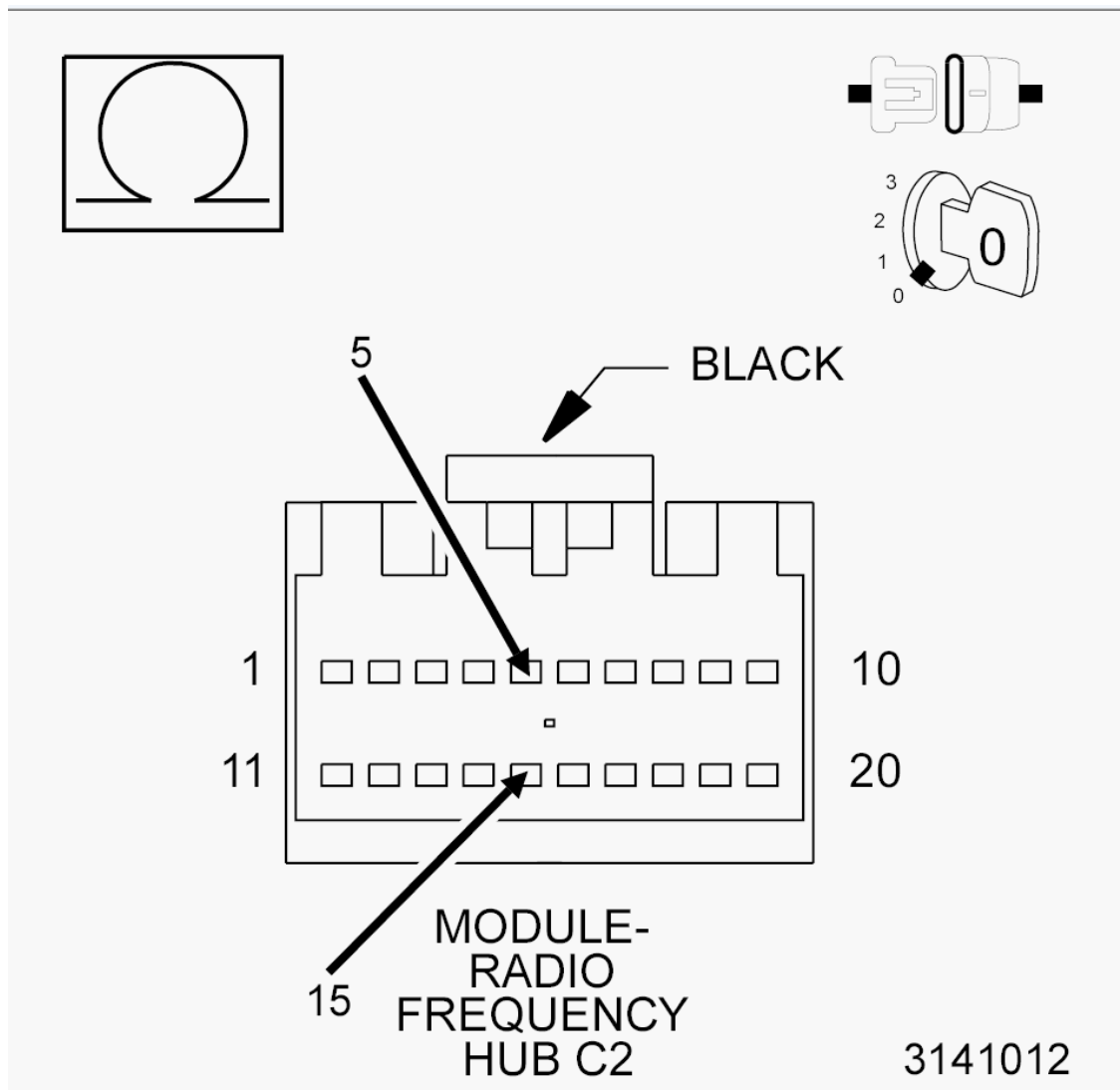
**Yes**

- Go To 5
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE**.

**No**

- Repair the open in the (D921) Passive Entry Antenna 1 Return circuit.
- Perform the BODY VERIFICATION TEST. Refer to **STANDARD PROCEDURE**.

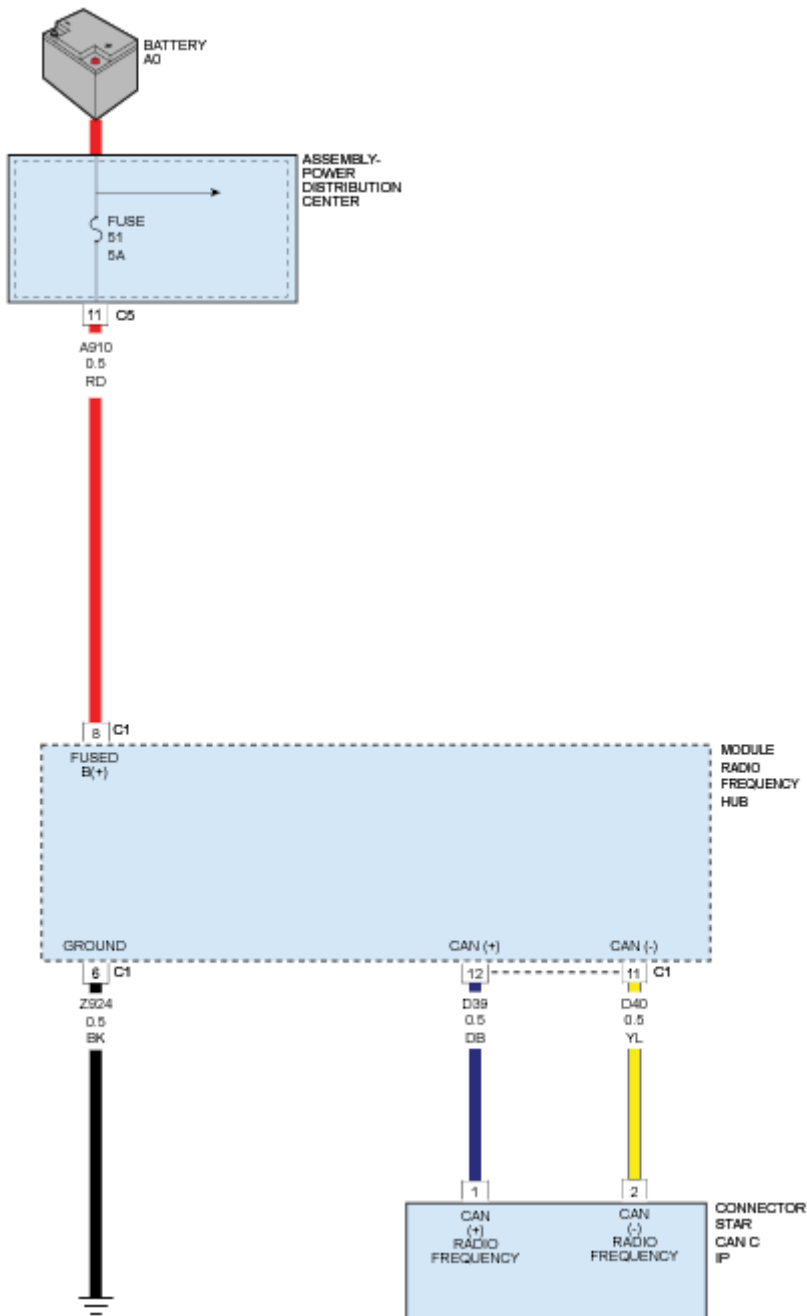
5. **(D920) PASSIVE ENTRY ANTENNA 1 SIGNAL CIRCUIT SHORTED TO THE (D921) PASSIVE ENTRY ANTENNA 1 RETURN CIRCUIT**



**Fig. 11: Measuring Resistance Between Passive Entry Antenna 1 Signal Circuit & Passive Entry Antenna 1 Return Circuit**

Courtesy of CHRYSLER GROUP, LLC

Measure the resistance between the (D920) Passive Entry Antenna 1 Signal circuit and the (D921)



**Fig. 62: Radio Frequency Hub Module - Circuit Diagram**  
 Courtesy of CHRYSLER GROUP, LLC

**WHEN MONITORED**

The first 10 seconds after the ignition is turned to run.

**SET CONDITION**

When the Body Control Module (BCM) sends a message that the system voltage is below 10.0 volts for over 15 seconds, this code will set.

**POSSIBLE CAUSES**

Information. Refer to **SENSOR, TIRE PRESSURE MONITORING (TPM), REMOVAL** .

- Perform the TPM SENSOR VERIFICATION TEST. Refer to **STANDARD PROCEDURE**.

No

- Go To 4

4. **TIRE PRESSURE MONITORING (TPM) SENSOR INTERNAL FAULT - MISMATCHED ID**

**NOTE:** If the TPM Sensor IDs do not match, it may be necessary to move the vehicle to a location away from other TPM Sensors and repeat this step.

1. Use a TPM-RKE Analyzer (special tool #CH9936, Analyzer, TPM/RKE) to verify the TPM Sensor IDs match what is programmed into the RF-Hub Module. The TPM Sensor Identifications are located under "Data Display" for the RF-Hub Module.

Do the TPM Sensor IDs match what is stored in the RF-Hub Module?

Yes

- Replace the Radio Frequency (RF Hub) Module in accordance with the Service Information. Refer to **MODULE, RADIO FREQUENCY (RF HUB), REMOVAL** .
- Perform the RADIO FREQUENCY HUB (RF-HUB) VERIFICATION TEST. Refer to **STANDARD PROCEDURE**.

No

- Test complete.
- Perform the TPM SENSOR VERIFICATION TEST. Refer to **STANDARD PROCEDURE**.

5. **TIRE PRESSURE MONITORING (TPM) SENSOR INTERNAL FAULT SET**

**NOTE:** Some vehicles will not receive the TPM Sensor data when the vehicle is stationary. The vehicle may need to be driven at speeds greater than 32 km/h (20 mph) for about five minutes in order to receive TPM Sensor data.

1. Starting with the left front wheel, deflate the tire to 20 PSI, wait two minutes, and check the scan tool for changes to any compensated tire pressure values.
2. Look for a tire location with a non-responsive TPM Sensor ID.
3. Repeat this test on each wheel on the vehicle until the TPM Sensor in question has been identified.

Has the TPM Sensor been located?

Yes

Control Module/ECM) is located on the inboard side of the battery tray in the left front corner of the engine compartment. Refer to **MODULE, POWERTRAIN CONTROL, DESCRIPTION** .

- **Radio Frequency Hub Module** - The Radio Frequency Hub Module (RFHM) (also known as the RF Hub) is located on the shelf panel support beneath the shelf panel trim behind the rear seat back. Refer to **MODULE, RADIO FREQUENCY (RF HUB), DESCRIPTION** .
- **Sentry Key Transponder** - A Sentry Key transponder microchip is located within each key or FOB with Integrated Key (FOBIK). Refer to **KEY, TRANSPONDER, DESCRIPTION**.

## VEHICLE THEFT ALARM

The Vehicle Theft Alarm (VTA) is factory-installed optional equipment on this model. VTA is available in two different configurations; base and premium. The base system provides perimeter vehicle protection by monitoring the vehicle doors, the ignition and the trunk. In vehicles built for certain markets where it is required equipment, the perimeter protection also includes monitoring of the hood. The premium system adds vehicle interior intrusion and anti-tilt protection to the features found in the base system. If unauthorized vehicle access, intrusion or tampering is detected with either of these systems, the vehicle horn is pulsed as an audible deterrent and certain exterior lamps are flashed as a visual deterrent.

The VTA includes the following major components, which are described in further detail elsewhere in this service information:

- **Ajar Switches** - An ajar switch is integral to the latch mechanism of each front or rear door and the deck lid. Refer to **SWITCH, DOOR AJAR, DESCRIPTION** . A hood ajar switch is integral to the hood latch mechanism of vehicles built for sale in certain export markets where it is required equipment, or in vehicles equipped with the optional remote start system. Refer to **SWITCH, HOOD AJAR, DESCRIPTION**.
- **Body Control Module** - The Body Control Module (BCM) is concealed within the instrument panel outboard of the steering column. Refer to **MODULE, BODY CONTROL, DESCRIPTION** .
- **Instrument Cluster** - The Instrument Cluster (IC) (also known as the Instrument Panel Cluster/IPC) is located in the instrument panel above the steering column and directly in front of the driver. Refer to **DESCRIPTION** .
- **Ultrasonic And Anti-tilt Module** - In vehicles equipped with the premium VTA, an Ultrasonic and Anti-tilt Module (UAM) (also known as the Intrusion Transceiver Module/ITM) is located on and concealed above the Center High-Mounted Stop Lamp (CHMSL) trim cover on the headliner near the center of the upper back glass opening.

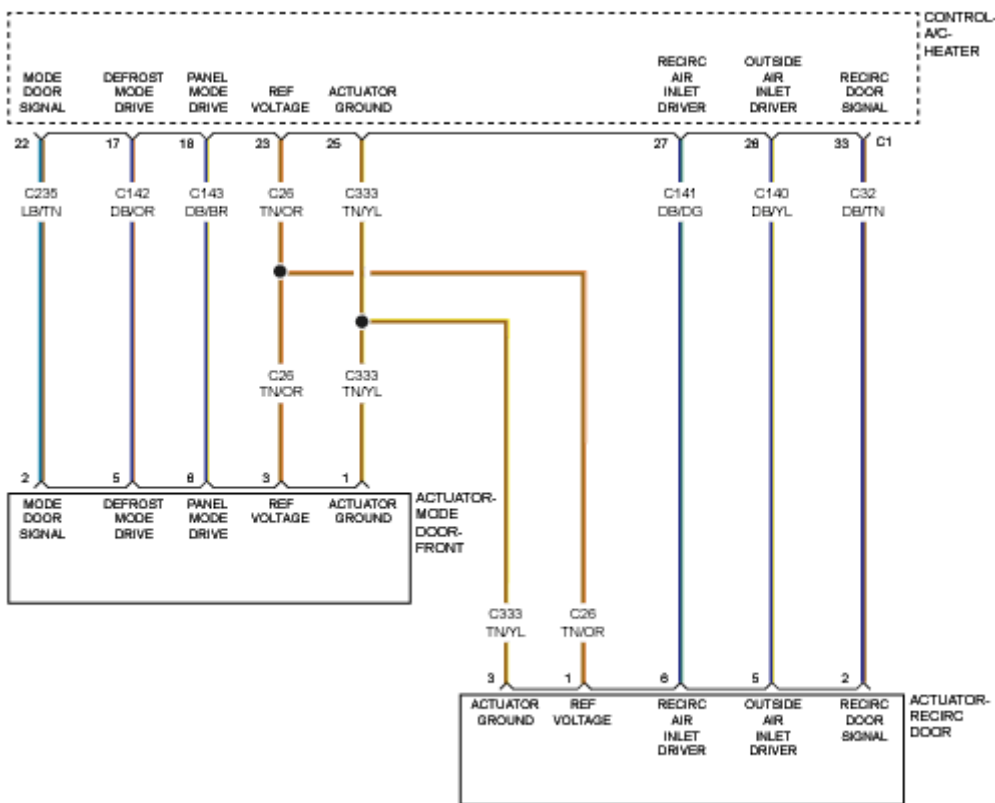
## OPERATION

### VEHICLE THEFT SECURITY SYSTEM

The Vehicle Theft Security System (VTSS) is comprised of two primary subsystems: Sentry Key Immobilizer System (SKIS) and Vehicle Theft Alarm (VTA). Additional operational details of each of these subsystems can be found elsewhere within this service information.

### SENTRY KEY IMMOBILIZER SYSTEM

The Sentry Key Immobilizer System (SKIS) is designed to provide passive protection against unauthorized vehicle use by disabling the engine after about two seconds of running whenever an attempt is made to operate the vehicle using anything other than a key or FOB with Integrated Key (FOBIK) equipped with a



**Fig. 9: Mode & Recirculation Door Actuators Circuit Diagram**  
 Courtesy of CHRYSLER GROUP, LLC

**THEORY OF OPERATION**

After the initial installation of the A/C Heater Module, the controller is calibrated to each individual blend/mode door actuator. These calibrations are stored as in the number of pulses it takes to move the door from one stop to another. The A/C Heater Module drives the Door Actuators by the use of Door Driver circuit and a Common Door Driver circuit and monitors all door actuator pulses to detect door movement in both directions. Most of the door actuators share a common door driver circuit but each door actuator has its own unique driver circuit. Due to shared circuitry, similar Diagnostic Trouble Codes (DTCs) can set at the same time for multiple actuators depending upon the type of circuit malfunction, its location, and the direction the actuator is moving when the malfunction is present. For further information. Refer to **DESCRIPTION**.

**WHEN MONITORED**

Continuously with the ignition on.

**SET CONDITION**

The A/C Heater Module detects an open in the Recirculation Door control circuit. If the A/C Heater Module detects a valid current draw, the DTC will change from Active to Stored and will stay in the controllers memory for 100 ignition cycles.

**POSSIBLE CAUSES**

Possible Causes

A/C HEATER CONTROL

**Always perform the HVAC Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to HVAC PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE.**

**DIAGNOSTIC TEST**

**1. A/C HEATER CONTROL**

1. Turn the ignition on.
2. Using the scan tool, erase HVAC DTCs.
3. Turn the ignition off for 10 seconds, and then turn the ignition on.
4. Slowly Turn the Left Temperature Control from full cold to full hot several times for a minimum of 30 seconds.
5. Using the scan tool, read HVAC DTCs.

Did this DTC reset?

**Yes**

- Replace and program the A/C Heater Control in accordance with the Service Information. Refer to **CONTROL, A/C AND HEATER, REMOVAL** .
- Perform the HVAC VERIFICATION TEST. Refer to **STANDARD PROCEDURE**.

**No**

- Go To 2

**2. CHECK THE WIRING AND CONNECTORS**

1. The conditions necessary to set the DTC are not present at this time.
2. Using the scan tool, check the Environmental Data to help identify the conditions in which the DTC was set.
3. Using the wiring diagrams as a guide, check all related splices and connectors for signs of water intrusion, corrosion, pushed out or bent terminals, and correct pin tension.
4. Wiggle the wiring and connectors while checking for shorted and open circuits.

Were there any problems found?

**Yes**

- Repair as necessary.
- Perform the HVAC VERIFICATION TEST. Refer to **STANDARD PROCEDURE**.

**No**

- Test complete.

**B11F0-11-LEFT FLOOR DUCT TEMPERATURE SENSOR - CIRCUIT SHORT TO GROUND**

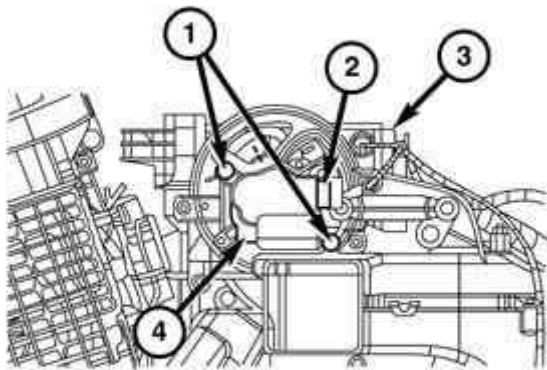
## REMOVAL

## REMOVAL

**WARNING:** Disable the airbag system before attempting any steering wheel, steering column or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

**NOTE:** Illustration shown with instrument panel removed for clarity.

1. Disconnect and isolate the negative battery cable.
2. Remove the convergence telematics module. Refer to **MODULE, CONVERGENCE TELEMATICS, REMOVAL** .



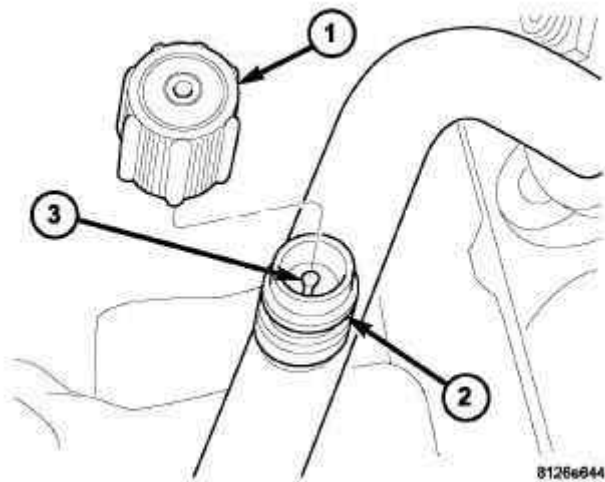
240969744

**Fig. 10: Screws, Connector, Air Distribution Housing & Mode Door Actuator**  
Courtesy of CHRYSLER GROUP, LLC

3. Disconnect the wire harness connector (2) from the mode door actuator (4).
4. Remove the two screws (1) that secure the mode door actuator to the air distribution housing (3).
5. Remove the mode door actuator from the air distribution housing.

## INSTALLATION

## INSTALLATION



**Fig. 130: Identifying A/C Service Port Components**  
 Courtesy of CHRYSLER GROUP, LLC

**NOTE:** Typical A/C service port shown in illustration.

1. Lubricate the valve core (3) with clean refrigerant oil prior to installation. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
2. Remove the tape or plug from the service port (2).

**CAUTION:** A valve core that is not fully seated in the A/C service port can result in damage to the valve during refrigerant system evacuation and charge. Such damage may result in a loss of system refrigerant while uncoupling the charge adapters.

3. Using a Schrader-type valve core tool, install and tighten the valve core into the service port(s).

**CAUTION:** Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system. Failure to follow this caution will result in serious A/C compressor damage.

4. Evacuate the refrigerant system. Refer to **REFRIGERANT SYSTEM EVACUATE**.
5. Charge the refrigerant system. Refer to **REFRIGERANT SYSTEM CHARGE**.

**NOTE:** The protective cap helps aid in service port sealing and helps protect the refrigerant system from contamination. Remember to always reinstall the protective cap onto the service port when refrigerant system service is complete.

6. Install the protective cap (1) onto the service port.

**EVAPORATOR, A/C**

(intensifier) integral to the seat back trim cover and the outboard side of the seat back trim cover. The cushion then expands into the area between the outboard side of the front seat and the front door to form a cushion to protect the front seat occupant during a side impact collision.

Following the SAB deployment, the cushion slowly deflates by venting the inert gas through the loose weave of the cushion fabric, and through a vent in the cushion. After venting is achieved, the deflated cushion hangs down loosely from the outboard side of the front seat back.

The ORC monitors the condition of the front SAB through circuit resistance, and will illuminate the airbag indicator in the Instrument Panel Cluster (IPC) and store a Diagnostic Trouble Code (DTC) for any fault that is detected. Proper diagnosis of the front SAB inflator and squib circuits requires the use of a diagnostic scan tool and may also require the use of the SRS Load Tool special tool along with the appropriate Load Tool Jumpers and Adapters. Refer to the appropriate diagnostic information.

## **REAR**

Each rear Seat AirBag (SAB) (also known as a pelvic and thoracic airbag) is deployed individually by an electrical signal generated by the Occupant Restraint Controller (ORC) to which it is connected through left or right rear SAB line 1 and line 2 (or squib) circuits. The hybrid-type inflator assembly for each SAB contains a small canister of highly compressed inert gas. When the ORC sends the proper electrical signal to the SAB inflator, the electrical energy creates enough heat to ignite chemical pellets within the inflator.

Once ignited, these chemicals burn rapidly and produce the pressure necessary to rupture a containment disk in the inert gas canister. The inflator and inert gas canister are sealed and connected so that all of the released gas is directed into the folded SAB cushion, causing the cushion to inflate. As the cushion inflates it will split the fabric wrap, the intensifier and the outboard side of the seat cushion trim cover, then expand into the area between the outboard side of the rear seat and the rear door to form a cushion to protect the rear seat occupant during a side impact collision.

Following the rear SAB deployment, the cushion slowly deflates by venting the inert gas through the loose weave of the cushion fabric and through a vent in the cushion. After venting is achieved, the deflated cushion hangs down loosely from the outboard side of the rear seat cushion.

The ORC monitors the condition of the rear SAB through circuit resistance, and will illuminate the airbag indicator in the Instrument Panel Cluster (IPC) and store a Diagnostic Trouble Code (DTC) for any fault that is detected. Proper diagnosis of the rear SAB inflator and squib circuits requires the use of a diagnostic scan tool and may also require the use of the SRS Load Tool special tool along with the appropriate Load Tool Jumpers and Adapters. Refer to the appropriate diagnostic information.

## **REMOVAL**

### **FRONT**

**WARNING: To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to follow these**

## STORED DTC

- Perform the RESTRAINTS SYSTEM INTERMITTENT TEST. Refer to **STANDARD PROCEDURE**.

### 2. CHECK FOR SHORTED SQUIB CIRCUITS IN DRIVER AIRBAG

**WARNING:** Turn the ignition off disconnect the 12-volt battery and wait two minutes before proceeding. Failure to follow these instructions may result in possible serious or fatal injury.

1. Disconnect the Driver Airbag Squib connectors.

**WARNING:** Do not place an intact non-deployed airbag face down on a hard surface, the airbag propels into the air if accidentally deployed. Failure to follow these instructions may result in possible serious or fatal injury.

**NOTE:** Check connectors - Clean and repair as necessary.

2. Connect the SRS Load Tool Kit (special tool #8443A, SRS Load Tool) and (special tool #8443-8, Jumper, SRS Load) to the Driver Airbag Squib 1 and Squib 2 connectors.
3. If equipped with the standard key ignition, use this ignition on warning.

**WARNING:** Turn the ignition on, then reconnect the 12-volt battery and wait two minutes before proceeding. Failure to follow these instructions may result in possible serious or fatal injury.

4. If equipped with the keyless ignition, use this ignition on warning.

**WARNING:** Disconnect the 12-volt battery wait two minutes before proceeding, remove the ORC fuses, connect the 12-volt battery, wait two minutes before proceeding. Cycle the ignition to the On position, then reconnect the ORC fuses. Wait two minutes before proceeding. Failure to follow these instructions may result in possible serious or fatal injury.

5. With the scan tool, read the active ORC DTCs.

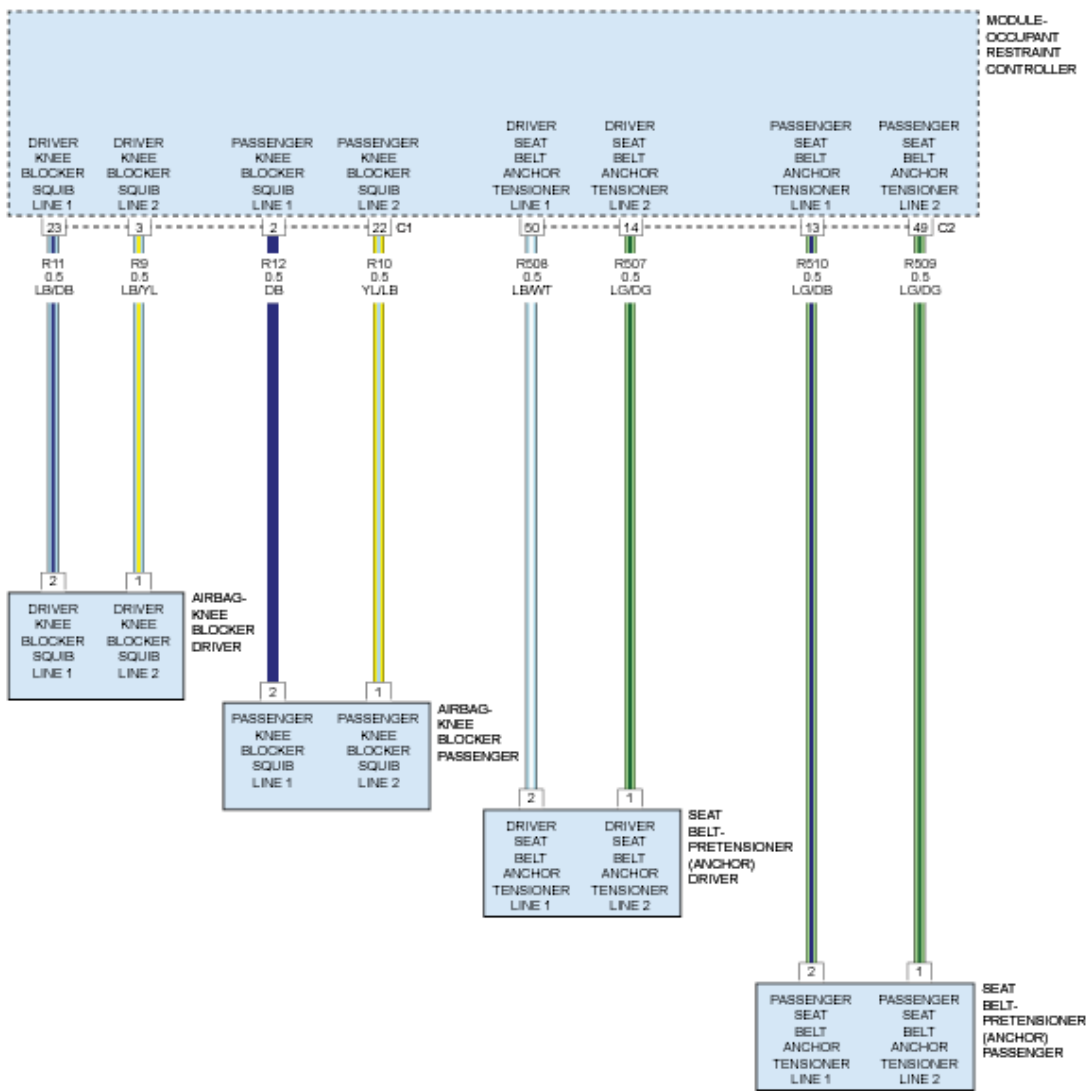
Does the scan tool display: B0002-11-DRIVER FRONTAL SQUIB 2 CONTROL CIRCUIT - SHORT TO GROUND?

**Yes**

- Go To 3

**No**

- Replace the Driver Airbag in accordance with the Service Information. Refer to **AIR**



**Fig. 30: Knee Blocker & Seat Belt Pretensioner Circuit Diagram**  
 Courtesy of CHRYSLER GROUP, LLC

**THEORY OF OPERATION**

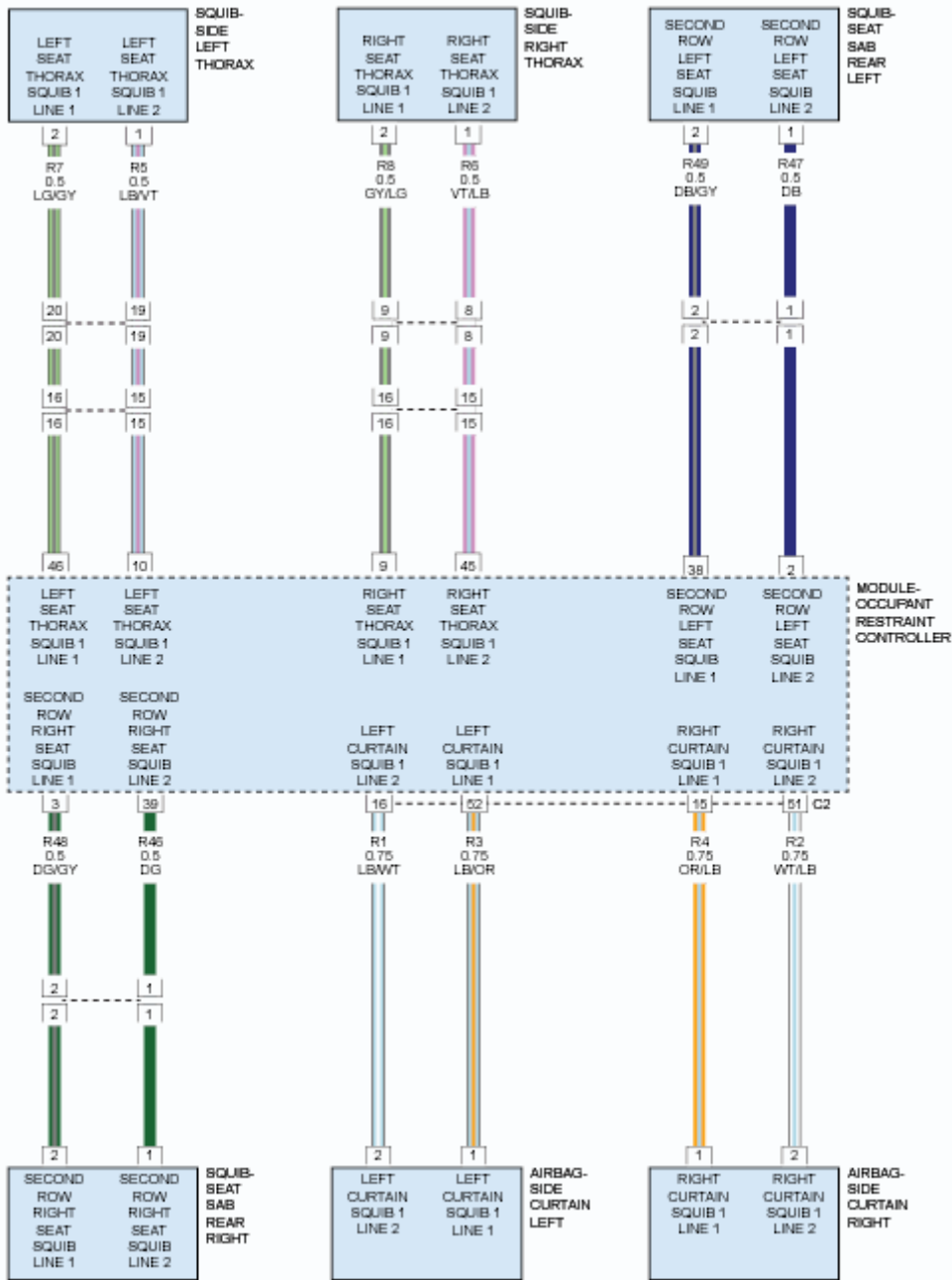
When powered, the Occupant Restraint Controller (ORC) sends a test current to the squibs to verify the integrity of the squib and wiring. These circuits are maintained in a "floating" configuration at the module (connected to neither power nor ground) as protection against inadvertent deployment. Use of the (special tool #8443A, SRS Load Tool) in the tests below substitutes a suspect squib with a known good component. The use of the (special tool #8443-57, Adapter, Supplemental Restraint System Load Tool) provides a test point as well as a method for opening the shorting bar connections within the harness connector. The knee blocker airbags are concealed below the lower edge of the instrument panel, just beneath the steering column opening cover on the driver side or just beneath the glove box door on the passenger side.

**WHEN MONITORED**

The ORC Module sends out a 40 mA diagnostic current on each squib voltage supply circuit at power up, and every 500 ms thereafter while the ignition is on.

**B0038-13-SECOND ROW RIGHT SIDE AIRBAG DEPLOYMENT CONTROL - CIRCUIT OPEN**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .



**Fig. 3: Side, Thorax & Side Curtain Airbag Squib Circuit Diagram**  
 Courtesy of CHRYSLER GROUP, LLC

**THEORY OF OPERATION**

When powered, the Occupant Restraint Controller (ORC) sends a test current to the squibs to verify the integrity of the squib and wiring. These circuits are maintained in a "floating" configuration at the module (connected to neither power nor ground) as protection against inadvertent deployment. Use of the (special tool #8443A, SRS Load Tool) in the tests below substitutes a suspect squib with a known good component.

1. Disconnect the (special tool #8443A, SRS Load Tool) and the (special tool #8443-8, Jumper, SRS Load) from the Passenger Seat Belt Retractor Tensioner C1 harness connector.
2. Disconnect the ORC harness connectors.

**NOTE: Check connectors - Clean and repair as necessary.**

3. Connect the (special tool #8443-57, Adapter, Supplemental Restraint System Load Tool) to the ORC harness connector.
4. Measure the resistance between the (R280) Passenger Seat Belt Retractor Tensioner Line 1 circuit connector C1B cavity 11 and the (R279) Passenger Seat Belt Retractor Tensioner Line 2 circuit connector C1B cavity 47 at the (special tool #8443-57, Adapter, Supplemental Restraint System Load Tool).

Is the resistance below or within 1.5 - 2.18 Ohms?

**Yes**

- Repair the (R280) Passenger Seat Belt Retractor Tensioner Line 1 circuit for a short to the (R279) Passenger Seat Belt Retractor Tensioner Line 2 circuit.
- Perform the RESTRAINTS SYSTEM VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**No**

**WARNING: If the Occupant Restraint Controller (ORC) is dropped at any time, it must be replaced. Failure to take the proper precautions can result in accidental airbag deployment. Failure to follow these instructions may result in possible serious or fatal injury.**

- Replace the ORC in accordance with Service Information. Refer to **MODULE, OCCUPANT RESTRAINT CONTROLLER, REMOVAL** .
- Perform the RESTRAINTS SYSTEM VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

### **B0080-11-DRIVER SEATBELT LOAD LIMITER DEPLOYMENT CONTROL - CIRCUIT SHORT TO GROUND**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

8. Measure the voltage of the (R283) Passenger Occupant Detection Signal circuit between the (special tool #8443-57, Adapter, Supplemental Restraint System Load Tool) connector C1B cavity 27 and connector C1B cavity 19 R730 ground.

Is there any voltage present?

Yes

**NOTE:** The ODS sensor is to be replaced whenever a short to voltage fault has been found in the ODS harness even after the harness repair has been performed.

**WARNING:** Turn the ignition off disconnect the 12-volt battery and wait two minutes before proceeding. Failure to follow these instructions may result in possible serious or fatal injury.

- Repair the (R283) Passenger Occupant Detector Signal circuit for a short to voltage.
- Replace the ODS sensor in accordance with the Service Information.
- Follow the WiTech Scan Tool Miscellaneous Function / Empty Seat Value Relearn and perform a Rezeroing of the OCM.
- Perform the RESTRAINTS SYSTEM VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

No

- Go To 3

3. **CHECK THE (R283) PASSENGER OCCUPANT DETECTOR SIGNAL CIRCUIT FOR A SHORT TO VOLTAGE BETWEEN THE ORC AND THE PASSENGER INLINE UNDERSEAT CONNECTOR**

**WARNING:** Turn the ignition off disconnect the 12-volt battery and wait two minutes before proceeding. Failure to follow these instructions may result in possible serious or fatal injury.

**NOTE:** Check connectors - Clean/Repair as necessary.

1. Disconnect the passenger underseat harness connector.
2. If equipped with the standard key ignition, use this ignition on warning.

**WARNING:** Turn the ignition on, then reconnect the 12-volt battery and wait two minutes before proceeding. Failure to follow these instructions may result in possible serious or fatal injury.

3. If equipped with the keyless ignition, use this ignition on warning.

**WARNING:** Disconnect the 12-volt battery wait two minutes before proceeding, remove the ORC fuses, connect the 12-volt

**NOTE: Check the connectors - Clean and repair as necessary.**

3. Connect the (special tool #8443-57, Adapter, Supplemental Restraint System Load Tool) to the ORC C1 and C2 harness connectors.

**WARNING: Turn the ignition on, then reconnect the 12-volt battery and wait two minutes before proceeding. Failure to follow these instructions may result in possible serious or fatal injury.**

4. Measure the voltage of the (R79) Left Front Impact Sensor Signal circuit and (R81) Left Front Impact Sensor Ground circuit between the (special tool #8443-57, Adapter, Supplemental Restraint System Load Tool) the C1A-17 and C1A-16 terminals and ground.

Is there any voltage present on either circuit?

**Yes**

- Repair the (R79), (R81) Left Front Impact Sensor circuits for a short to voltage.
- Perform the RESTRAINTS SYSTEM VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**No**

- Go To 3

3. **CHECK THE (R79) LEFT FRONT IMPACT SENSOR SIGNAL CIRCUIT FOR A SHORT TO GROUND**

**WARNING: Turn the ignition off disconnect the 12-volt battery and wait two minutes before proceeding. Failure to follow these instructions may result in possible serious or fatal injury.**

1. Measure the resistance of the (R79) Left Front Impact Sensor Signal circuit between the (special tool #8443-57, Adapter, Supplemental Restraint System Load Tool) the C1A-17 terminals and ground.

Is the resistance below 20 Ohms?

**Yes**

- Repair the (R79) Left Front Impact Sensor Signal circuit for a short to ground.
- Perform the RESTRAINTS SYSTEM VERIFICATION TEST. Refer to **STANDARD PROCEDURE** .

**No**

- Go To 4

4. **CHECK THE (R79), (R810) LEFT FRONT IMPACT SENSOR CIRCUITS FOR A SHORT TOGETHER**

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL