

2009 Dodge Journey R/T

2009 ACCESSORIES AND EQUIPMENT Totally Integrated Power Module (TIPM) - Electrical Diagnostics - Journey

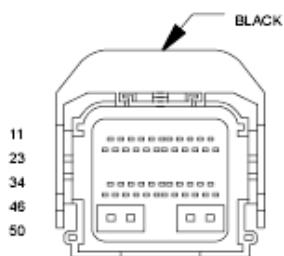
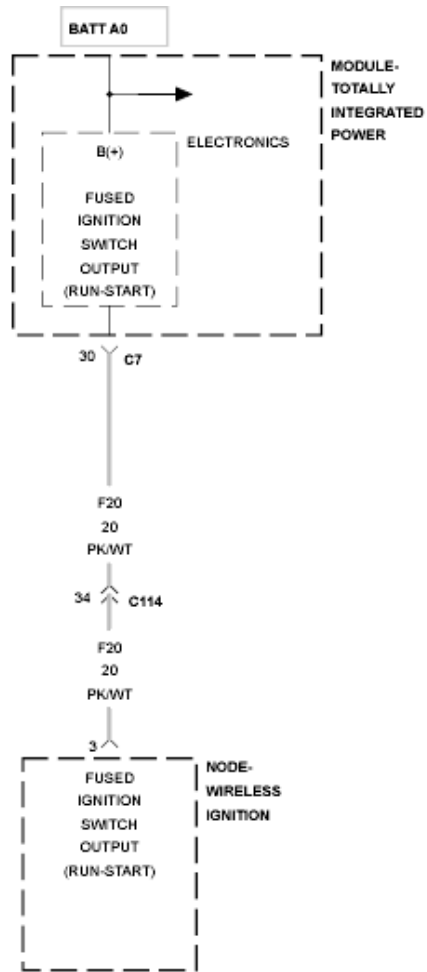
2009 ACCESSORIES AND EQUIPMENT

Totally Integrated Power Module (TIPM) - Electrical Diagnostics - Journey

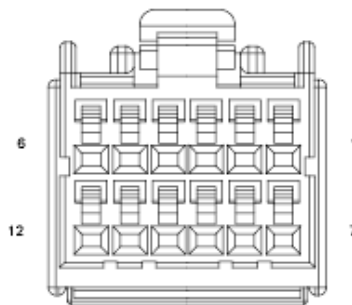
B2101-IGNITION RUN/START INPUT LOW

2009 Dodge Journey R/T

2009 ACCESSORIES AND EQUIPMENT Totally Integrated Power Module (TIPM) - Electrical Diagnostics - Journey



MODULE-TOTALLY INTEGRATED POWER C7



NODE-WIRELESS IGNITION

Fig. 1: Fused Ignition Switch Circuit Schematic
Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

With the ignition switch on.

- **Set Condition:**

The (TIPM) has detected the ignition switch input voltage below a calibrated value.

Possible Causes
(F20) FUSED IGNITION SWITCH OUTPUT (RUN-START) CIRCUIT SHORTED TO GROUND WIRELESS IGNITION NODE (WIN) TOTALLY INTEGRATED POWER MODULE (TIPM)

DIAGNOSTIC TEST

1. CHECK FOR ACTIVE DTC

NOTE: Check to make sure the battery and charging system are operating properly. Battery and/or charging system problems may cause these DTCs to set.

NOTE: Diagnose any related Powertrain DTC(s) before continuing.

1. Turn the ignition on.
2. Using the scan tool, read TIPM DTC(s).

Does the scan tool display this DTC as active?

Yes

- Go to step 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. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

2. CHECK OPERATION OF THE TIPM

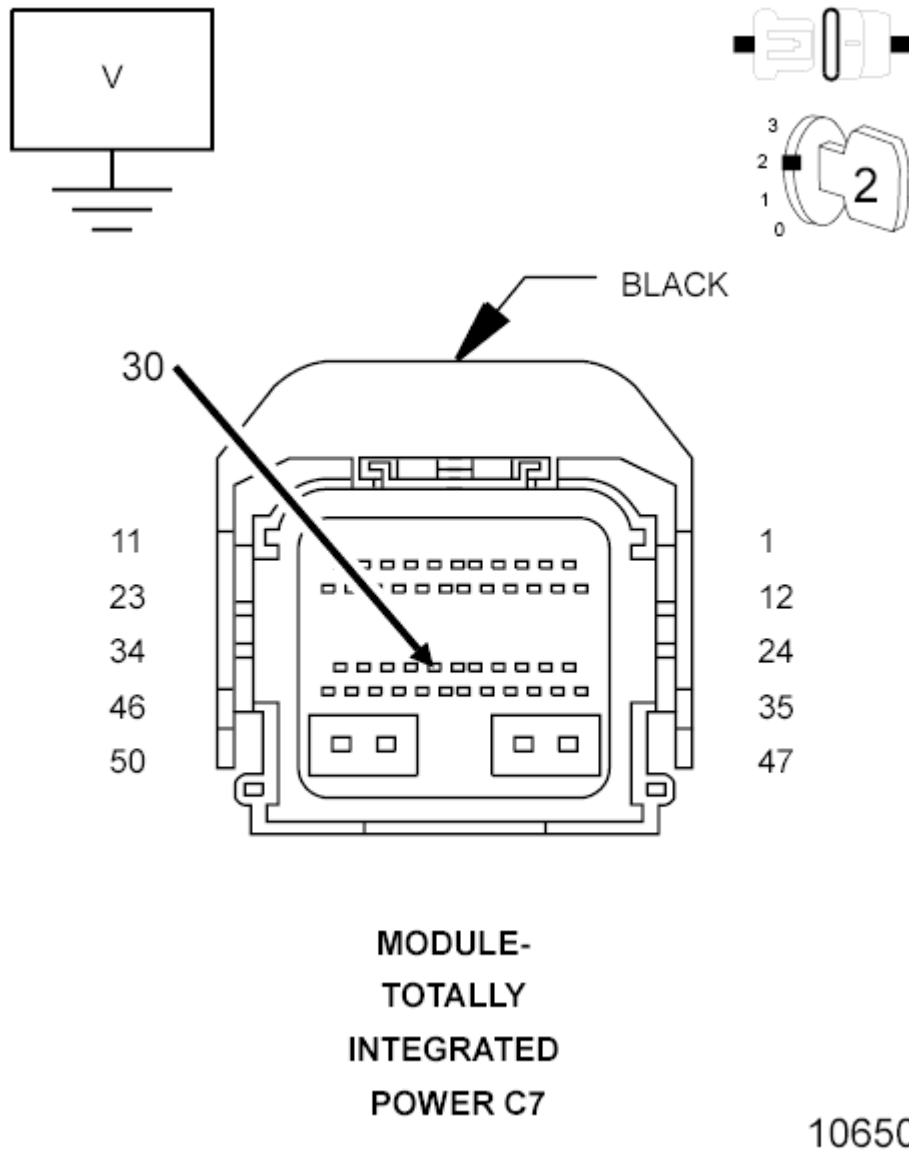


Fig. 2: Measuring Voltage Of Fused Ignition Run-Start Output Circuit At TIPM C7 Harness Connector

Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the TIPM C7 harness connector.
3. Turn the ignition on.
4. Measure the voltage of the (F20) Fused Ignition Run-Start Output circuit at the TIPM C7 harness connector.

Is the voltage above 10.0 volts?

Yes

- Replace the TIPM in accordance with the service information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Go to step 3

3. (F20) IGNITION RUN/START OUTPUT CIRCUIT SHORT TO GROUND

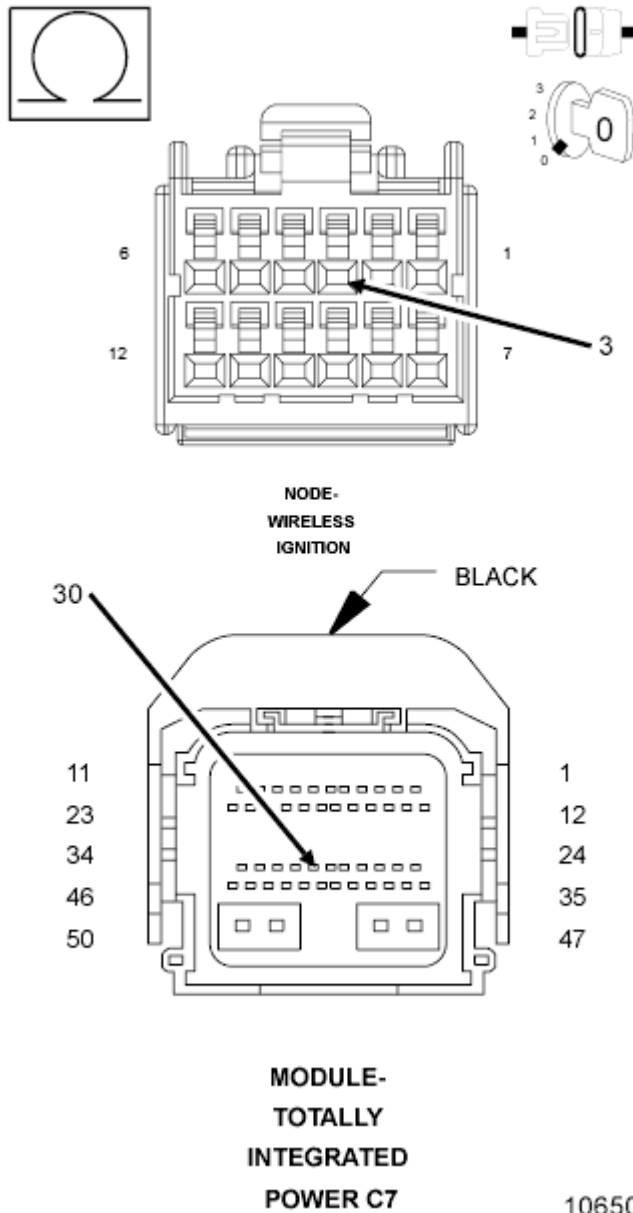


Fig. 3: Measuring Resistance Between Ground Of Fused Ignition Run-Start Output Circuit

Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the WIN harness connector.
3. Measure the resistance between ground of the (F20) Fused Ignition Run-Start Output circuit.

Is the resistance below 10K Ohms?

Yes

- Repair the (F20) Fused Ignition Run-Start Output circuit for a short to ground.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

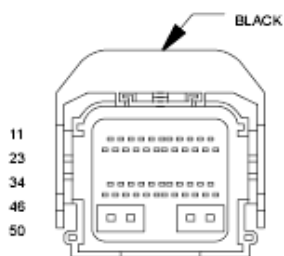
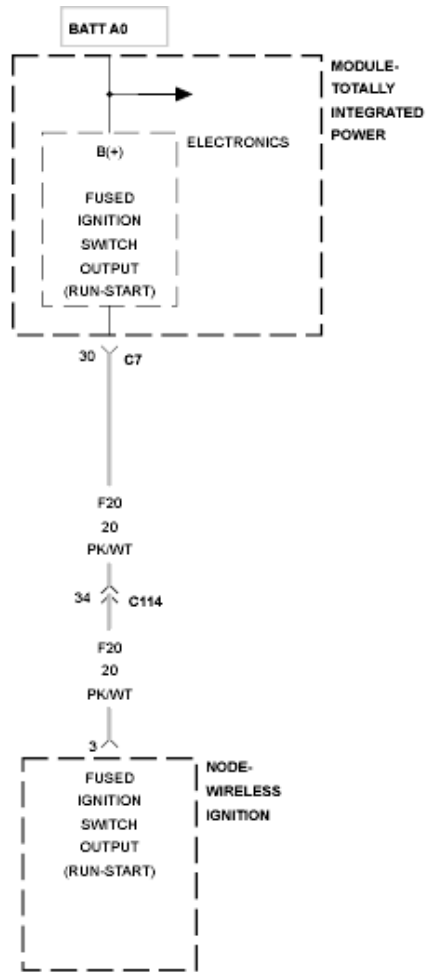
No

- Replace the WIN in accordance with the service information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

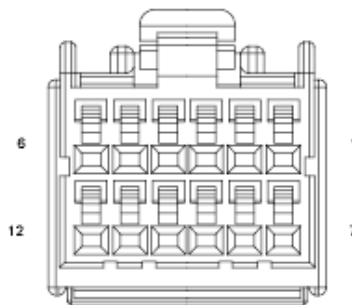
B2102-IGNITION RUN/START INPUT HIGH

2009 Dodge Journey R/T

2009 ACCESSORIES AND EQUIPMENT Totally Integrated Power Module (TIPM) - Electrical Diagnostics - Journey



MODULE-TOTALLY INTEGRATED POWER C7



NODE-WIRELESS IGNITION

Fig. 4: Fused Ignition Switch Circuit Schematic
Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

With the ignition switch on.

- **Set Condition:**

The Totally Integrated Power Module (TIPM) has detected the (F20) Fused Ignition Switch Input voltage above a calibrated value.

Possible Causes
(F20) FUSED IGNITION SWITCH OUTPUT (RUN-START) CIRCUIT
WIRELESS IGNITION NODE (WIN)
TOTALLY INTEGRATED POWER MODULE (TIPM)

DIAGNOSTIC TEST

1. CHECK FOR ACTIVE DTC

NOTE: Check to make sure the battery and charging system are operating properly. Battery and/or charging system problems may cause these DTCs to set.

NOTE: Diagnose any charging or battery system DTCs set in the Powertrain Control Module (PCM) or Engine Control Module (ECM) DTC(s) before continuing.

1. Turn the ignition on.
2. Using the scan tool, read TIPM DTC(s).

Does the scan tool display this DTC as active?

Yes

- Go to step 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.

2. **(F20) FUSED IGNITION SWITCH OUTPUT (RUN-START) SHORTED TO BATTERY VOLTAGE**

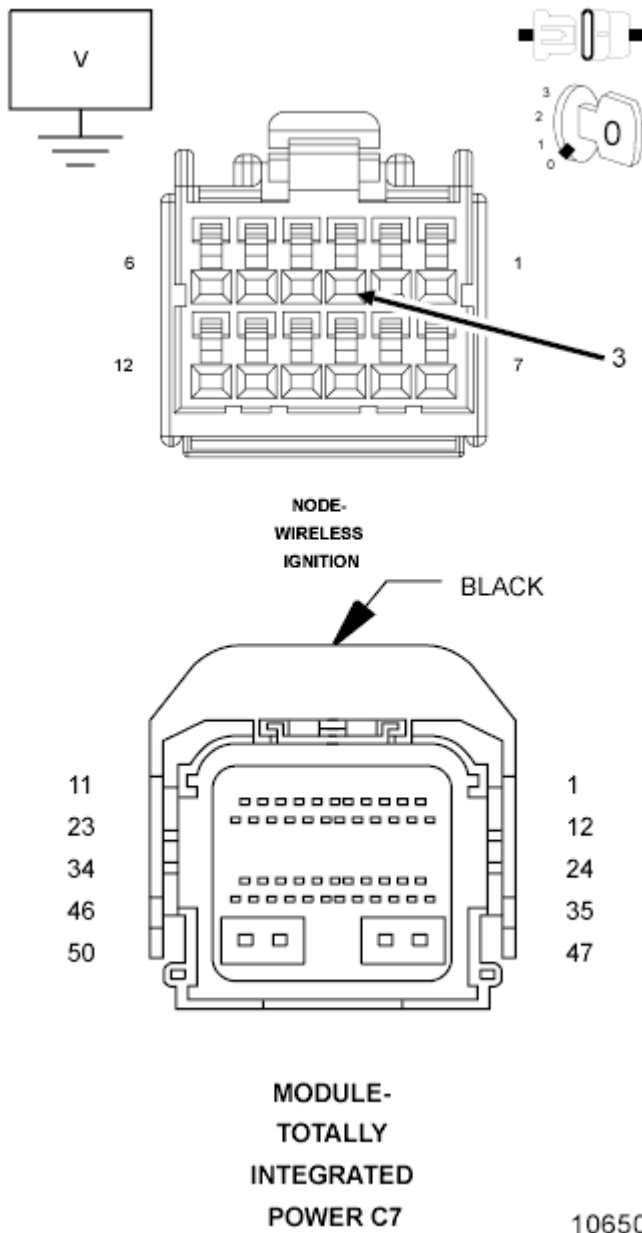


Fig. 5: Measuring Voltage Of Fused Ignition Switch Output (Run-Start) Circuit In WIN Harness Connector

Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the TIPM C7 harness connector.
3. Disconnect the WIN harness connector.

4. Measure the voltage of the (F20) Fused Ignition Switch Output (Run-Start) circuit in the WIN harness connector.

Is there any voltage present?

Yes

- Repair the (F20) Fused Ignition Switch Output (Run-Start) circuit for an short to battery voltage.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Go to step 3

3. CHECK WIN FOR AN INTERNAL SHORTED TO VOLTAGE

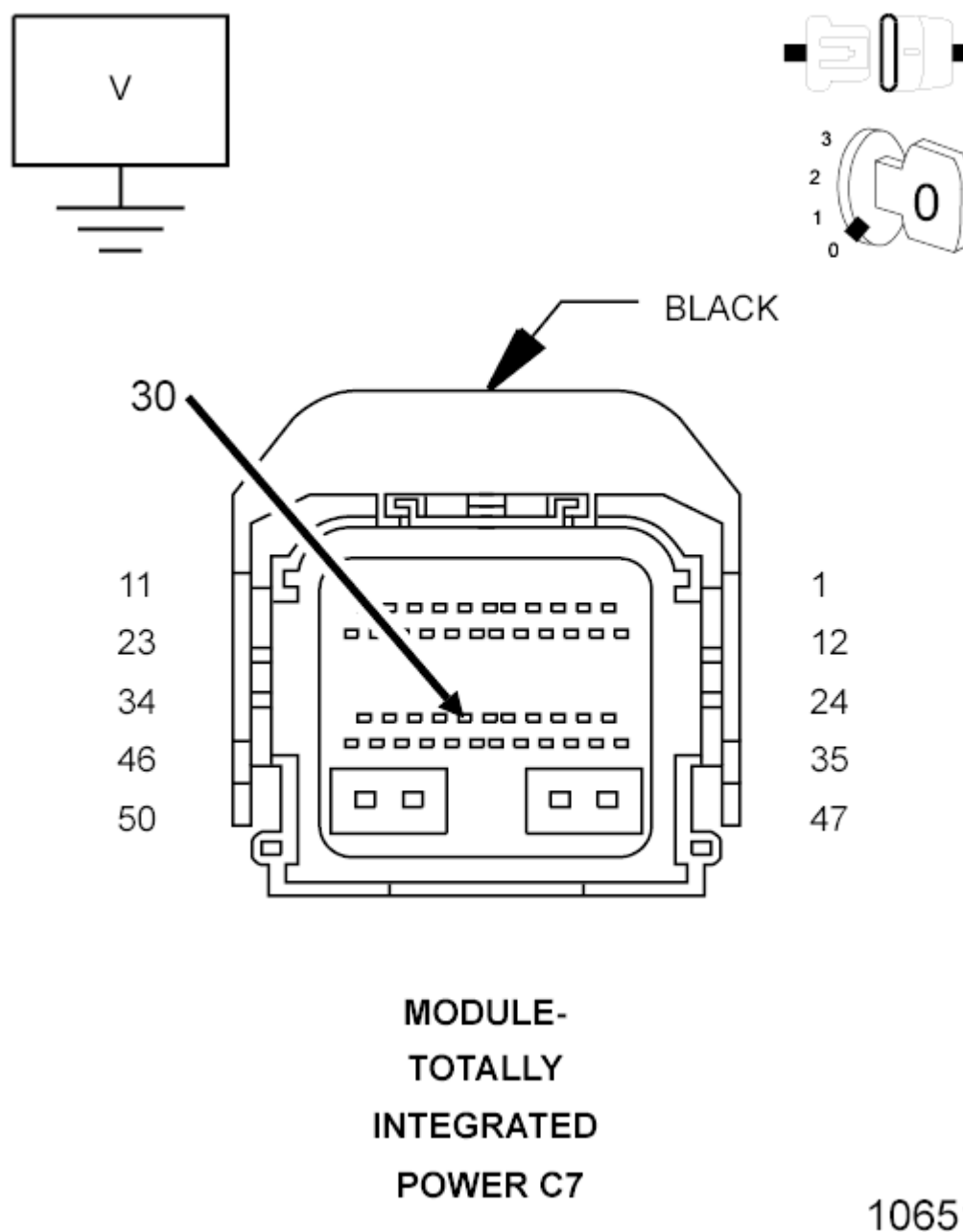


Fig. 6: Measuring Voltage Of Fused Ignition Switch Output (Run-Start) Circuit In TIPM C7 Harness Connector
Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Reconnect the WIN harness connector.
3. Measure the voltage of the (F20) Fused Ignition Switch Output (Run-Start) circuit in the TIPM C7 harness connector.

Is voltage present?

Yes

- Replace the WIN in accordance with the service information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Replace the TIPM in accordance with the service information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

B210D-BATTERY VOLTAGE LOW

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

With the ignition on.

- **Set Condition:**

Battery voltage less than 9 volts for approximately 5 to 6 seconds.

Possible Causes
RESISTANCE IN THE BATTERY POSITIVE CIRCUIT
RESISTANCE IN THE GENERATOR CASE GROUND
GENERATOR OPERATION
(K20) GENERATOR FIELD CONTROL CIRCUIT OPEN
(K20) GENERATOR FIELD CONTROL CIRCUIT SHORTED TO GROUND
GROUND CIRCUIT OPEN
PCM

DIAGNOSTIC TEST**1. CHECK FOR ANY POWERTRAIN CONTROL MODULES DTCS**

NOTE: Make sure the Battery is in good condition. Using the Midtronics Battery Tester, test the Battery before continuing.

NOTE: Inspect the vehicle for after market accessories that may exceed the Generator System output.

NOTE: Make sure the generator drive belt is in good operating condition.

NOTE: Inspect the fuses in the TIPM. If an open fuse is found, use the wire diagram/schematic as a guide, inspect the wiring and connectors for damage.

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

Does the scan tool display any active PCM DTCs?

Yes

- Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure** for the diagnostic test procedure.

No

- Check the above conditions that can cause a low voltage condition. Repair as necessary.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

B210E-BATTERY VOLTAGE HIGH

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

• When Monitored:

With the ignition on.

• Set Condition:

Battery voltage greater than 16 volts for approximately 5 to 6 seconds.

Possible Causes
(K20) GENERATOR FIELD CONTROL CIRCUIT SHORTED TO BATTERY VOLTAGE GENERATOR PCM

DIAGNOSTIC TEST

1. CHECK FOR ANY POWERTRAIN CONTROL MODULES DTCS

NOTE: Make sure the Battery is in good condition. Using the Midtronics Battery Tester, test the Battery before continuing.

NOTE: Inspect the vehicle for after market accessories that may exceed the Generator System output.

NOTE: Make sure the generator drive belt is in good operating condition.

NOTE: Inspect the fuses in the TIPM. If an open fuse is found, use the wire diagram/schematic as a guide, inspect the wiring and connectors for damage.

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

Does the scan tool display any active PCM DTCs?

Yes

- Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure** for the diagnostic test procedure.

No

- Check the above conditions that can cause a high voltage condition. Repair as necessary.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

B2142 IGNITION OFF DRAW (IOD) FUSE NOT PRESENT

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

• When Monitored:

With the Ignition on. This DTC will set only if vehicle has less that 50 miles on it. After 50 miles, DTC B219F will set.

• Set Condition:

Ignition Off Draw (IOD) Fuse not installed in the Totally Integrated Power Module (TIPM).

Possible Causes
IOD FUSE

DIAGNOSTIC TEST

1. CHECK FOR ACTIVE DTC

1. With the scan tool, record and erase DTCs.
2. Cycle the ignition switch from off to on, leaving the ignition off for a minimum of 30 seconds.
3. With the scan tool, read the active DTCs.

Does the scan tool display this DTC as active?

Yes

- Go to step 2

No

- If the DTC is stored, check for an intermittent condition. Using the wiring diagram/schematic as a guide, visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.

2. IOD FUSE INSTALLED

1. Verify IOD Fuse installed in TIPM.

Is IOD Fuse present?

Yes

- Go to step 3

No

- Install the IOD Fuse.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

3. IOD FUSE BLOWN CHECK

Is IOD Fuse blown?

Yes

- Replace the IOD Fuse.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Test complete.

B219A-IGNITION UNLOCK RUN/START CONTROL CIRCUIT

OVERCURRENT

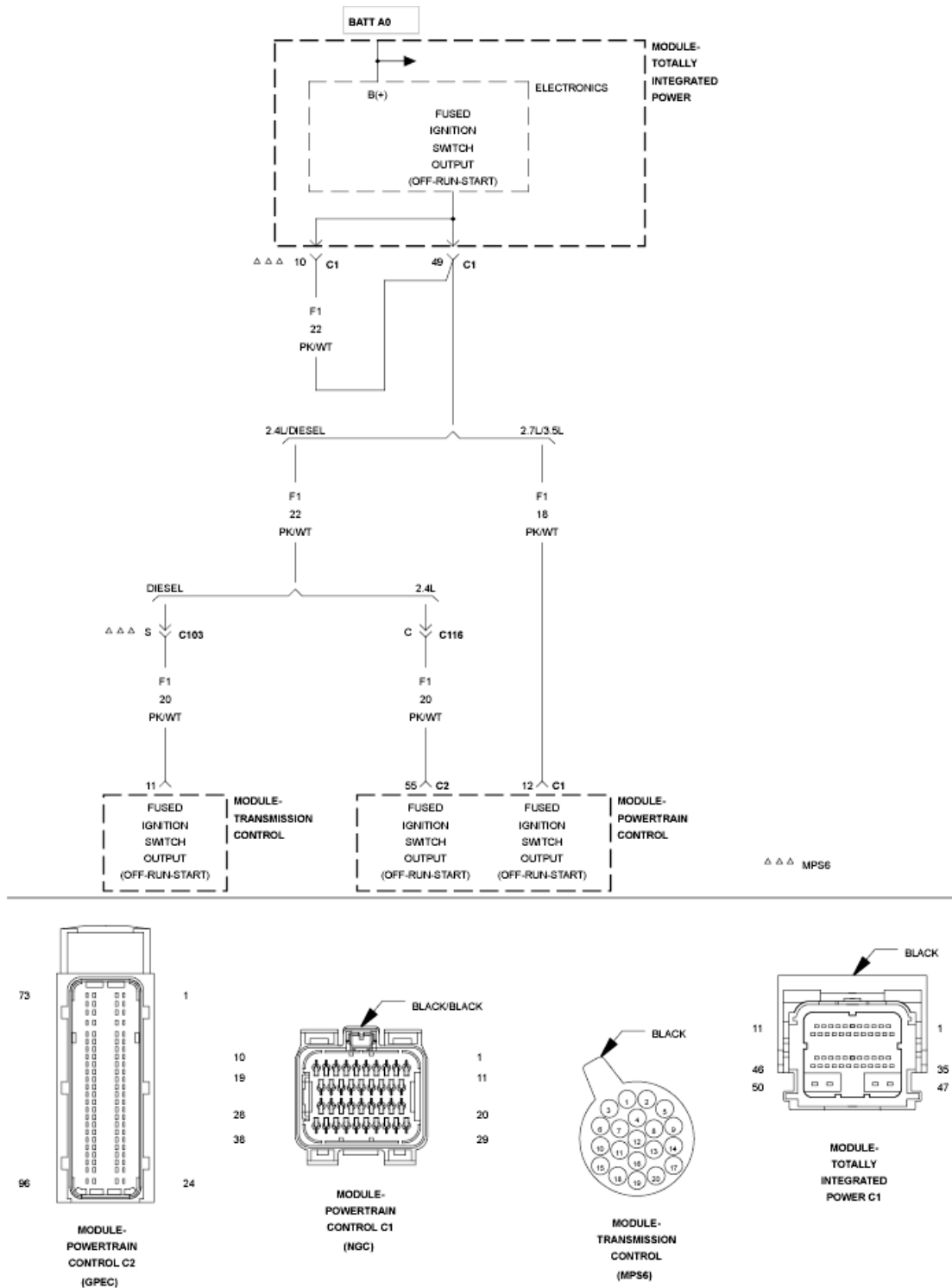


Fig. 7: Fused Ignition Switch Output (Off-Run-Start) Circuit Schematic
 Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

With the ignition on.

- **Set Condition:**

Over current condition detected on the (F1) Fused Ignition Switch Output (Off-Run-Start) circuit.

Possible Causes
TERMINAL DAMAGE OR CORROSION HIGH RESISTANCE ON THE (F1) IGNITION SWITCH OUTPUT (OFF-RUN-START) CIRCUIT TOTALLY INTEGRATED POWER MODULE (TIPM)

DIAGNOSTIC TEST

1. CHECK FOR ACTIVE DTC

1. With the scan tool, record and erase DTCs.
2. Cycle the ignition switch from off to on, leaving the ignition off for a minimum of 30 seconds.
3. With the scan tool, read the active DTCs.

Does the scan tool display this DTC as active?

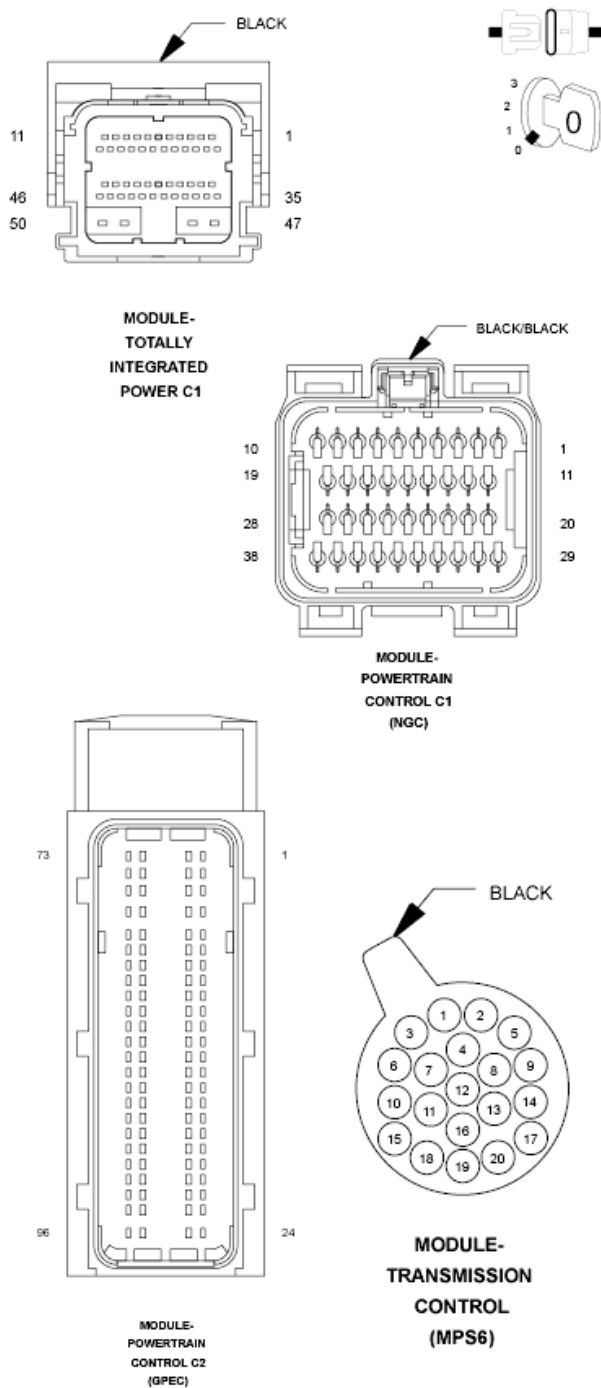
Yes

- Go to step 2

No

- If the DTC is stored, check for an intermittent condition. Using the **SYSTEM WIRING DIAGRAMS** as a guide, visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.

2. INSPECT THE TIPM, PCM, AND SHIFT LEVER ASSEMBLY (NAG1) TERMINALS AND WIRE HARNESS FOR A CONDITION CAUSING HIGH CIRCUIT RESISTANCE



106519

Fig. 8: TIPM, PCM & TCM Harness Connector
Courtesy of CHRYSLER LLC

1. Turn the ignition off.

2. Disconnect the TIPM C1 harness connector.
3. Disconnect the PCM (NGC) C1 harness connector.
4. Disconnect the PCM (GPEC) C2 harness connector.
5. Disconnect the Transmission Control Module (TCM) (Diesel only) harness connector.
6. Inspect the connector terminals for signs of corrosion build up and damage.
7. Visually inspect the wiring harness for any chafed, pierced, pinched or partially broken wires hidden in the wire insulation.

Were any of the above conditions found?

Yes

- Repair as necessary.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Replace the TIPM in accordance with the service information
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

B219F IGNITION OFF DRAW (IOD) FUSE BLOWN

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

• **When Monitored:**

With the ignition on. This DTC will only set if vehicle has over 50 miles on it.

• **Set Condition:**

IOD Fuse not installed or blown.

Possible Causes
IOD FUSE NOT INSTALLED
IOD FUSE BLOWN

DIAGNOSTIC TEST

1. CHECK FOR ACTIVE DTC

1. With the scan tool, record and erase DTC's.
2. Cycle the ignition switch from off to on, leaving the ignition off for a minimum of 30 seconds.

3. With the scan tool, read the active DTC's.

Does the scan tool display this DTC as active?

Yes

- Go to step 2

No

- If the DTC is stored, check for an intermittent condition. Using the **SYSTEM WIRING DIAGRAMS** as a guide, visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.

2. IOD FUSE

1. Verify IOD Fuse installed in TIPM.

Is IOD Fuse present?

Yes

- Go to step 3

No

- Replace the IOD Fuse.
- Perform BODY VERIFICATION TEST VER 1. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

3. IOD FUSE BLOWN

1. Verify IOD Fuse is blown.

Is IOD Fuse blown?

Yes

- Using the **SYSTEM WIRING DIAGRAMS** to diagnose for a short to ground condition.
- Perform BODY VERIFICATION TEST VER 1. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

No

- Test complete.

B222C-VEHICLE CONFIGURATION NOT PROGRAMMED

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

With the ignition on.

- **Set Condition:**

The Totally Integrated Power Module is not configured correctly to the vehicle.

Possible Causes
TOTALLY INTEGRATED POWER MODULE NOT CONFIGURED CORRECTLY
TOTALLY INTEGRATED POWER MODULE

DIAGNOSTIC TEST

1. CHECK FOR ACTIVE DTC

1. With the scan tool, read the active DTC's.
2. Cycle the ignition switch from off to on at least 5 times, leaving the ignition on for a minimum of 90 seconds per cycle.
3. With the scan tool, read the active DTC's.

Does the scan tool display this DTC as active?

Yes

- Go to step 2

No

- If the DTC is stored, check for an intermittent condition. Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.

2. CONFIGURE THE TIPM TO THE VEHICLE

1. With the scan tool enter program network configuration and program the TIPM to the vehicle configuration.
2. With the scan tool, erase TIPM DTC's.
3. Cycle the ignition switch from off to on at least 5 times, leaving the ignition on for a minimum of 90 seconds per cycle.
4. With the scan tool, read the active DTC's.

Does the scan tool display this DTC as active?

Yes

- Inspect the wiring and connectors for damage or shorted circuits. If ok, replace and program the Totally Integrated Power Module in accordance with the service information.

- Perform the BODY VERIFICATION TEST - VER 1. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Repair is complete.

B2206-CURRENT VIN MISSING/MISMATCH

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

• When Monitored:

With the ignition on.

• Set Condition:

A PCM from another vehicle has been installed in the vehicle.

Possible Causes
PCM FROM ANOTHER VEHICLE INSTALLED

DIAGNOSTIC TEST

1. PCM FROM ANOTHER VEHICLE INSTALLED

NOTE: This DTC is set when a PCM from another vehicle is installed into the current vehicle.

Has another PCM been installed?

Yes

- Replace the PCM in accordance with the service information.
- Perform BODY VERIFICATION TEST VER 1. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

No

- Go to step 2

2. OTHER CAN-C MODULES SET VIN MISMATCH

Is VIN Mismatch DTC set in other CAN-C modules?

Yes

- Replace the PCM in accordance with the service information.
- Perform BODY VERIFICATION TEST VER 1. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

No

- Replace the TIPM in accordance with the service information.
- Perform BODY VERIFICATION TEST VER 1. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

B2215-FRONT CONTROL MODULE INTERNAL (TOTALLY INTEGRATED POWER MODULE)

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

• When Monitored:

Continuously.

• Set Condition:

The Totally Integrated Power Module detects an internal fault.

Possible Causes
TOTALLY INTEGRATED POWER MODULE (TIPM)

DIAGNOSTIC TEST

1. REPLACE THE TOTALLY INTEGRATED POWER MODULE IF DTC IS ACTIVE

1. With the scan tool, read the active DTC's.

Does the scan tool display this DTC as active?

Yes

- Replace and program the Totally Integrated Power Module in accordance with the service information.
- Perform the BODY VERIFICATION TEST - VER 1. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- If the DTC is stored, check for an intermittent condition. Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.

B230D-REAR WIPER PARK SWITCH INPUT CIRCUIT LOW (STUCK LOW)

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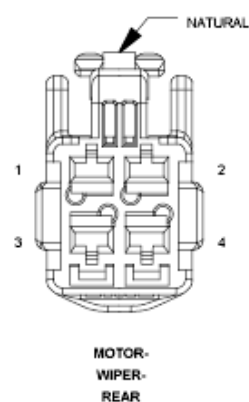
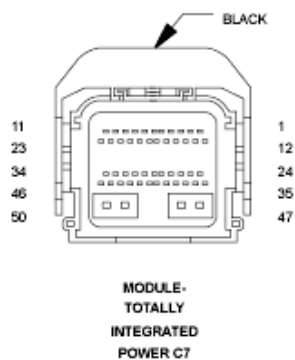
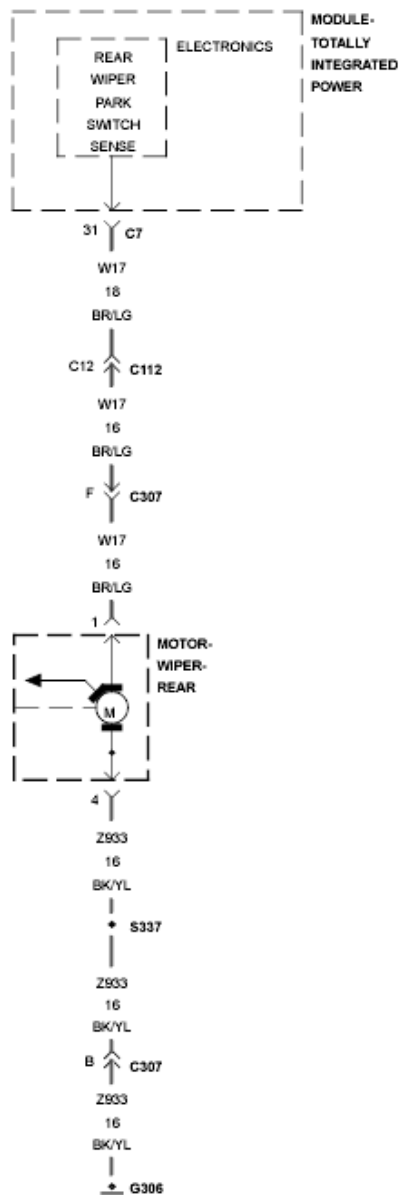


Fig. 9: Rear Wiper Park Switch Sensor Circuit
 Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

With the ignition on.

- **Set Condition:**

The Totally Integrated Power Module (TIPM) detects a short to ground on the Rear Wiper Park Switch Sense circuit.

Possible Causes
(W17) REAR WIPER PARK SWITCH SENSE CIRCUIT SHORTED TO GROUND REAR WIPER MOTOR TOTALLY INTEGRATED POWER MODULE (TIPM)

DIAGNOSTIC TEST

1. INTERMITTENT CONDITION

1. Turn the ignition on.
2. With the scan tool, clear all DTCs.
3. Turn the Rear Wipers on then off.
4. With the scan tool, read DTCs.

Does the scan tool display this DTC as active?

Yes

- Go to step 2

No

- The condition that caused this symptom is currently not present. 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. Repair as necessary.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

2. REAR WIPER MOTOR

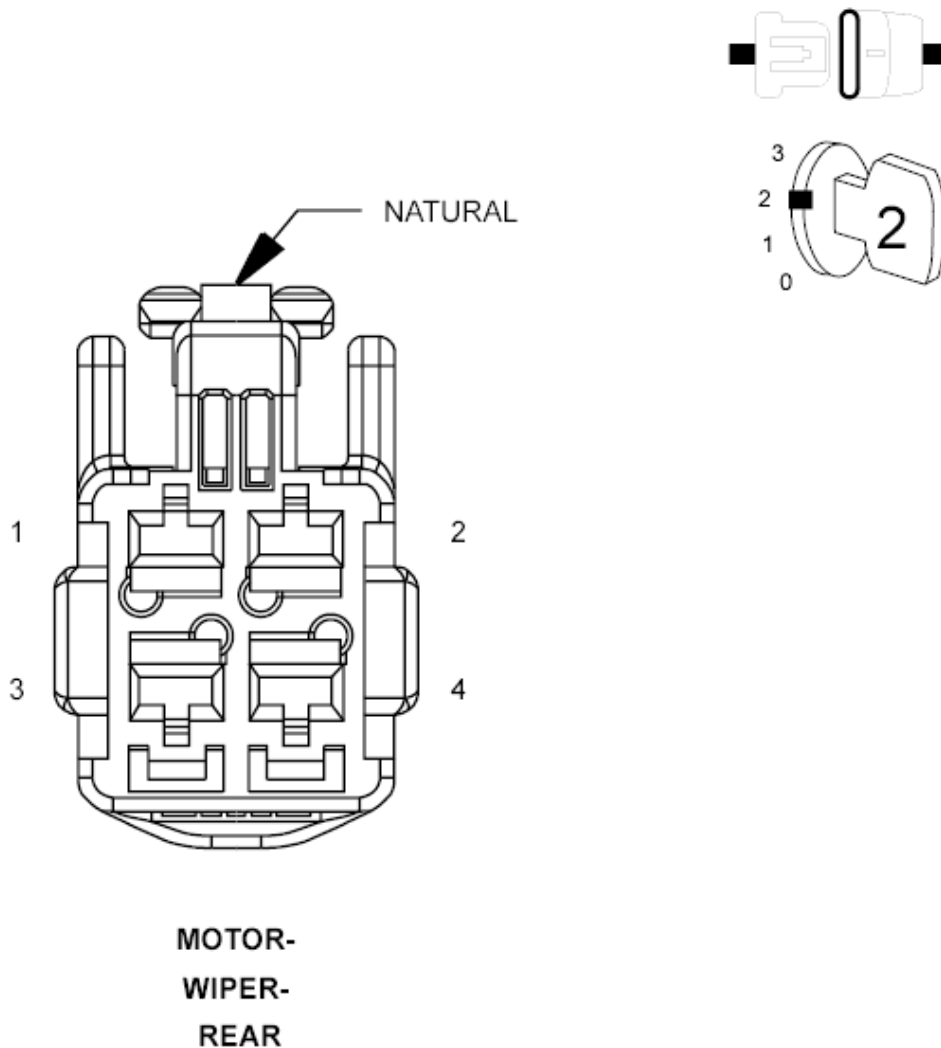


Fig. 10: Rear Wiper Motor Harness Connector

Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the Rear Wiper Motor harness connector.
3. Turn the ignition on.
4. With the scan tool, read the Rear Wiper Park Switch Sense.

Does the Rear Wiper Park Switch Sense display: True?

Yes

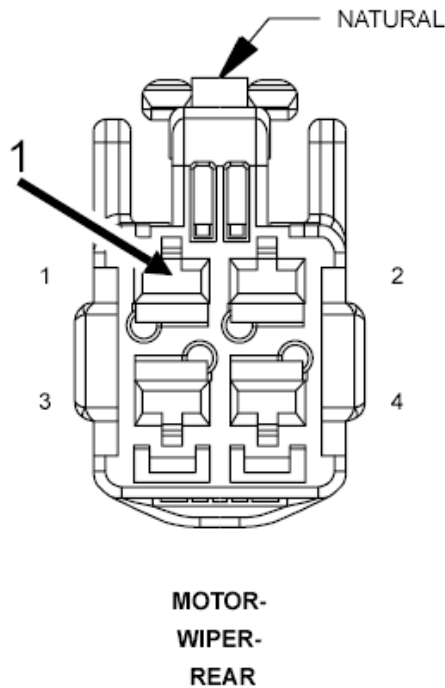
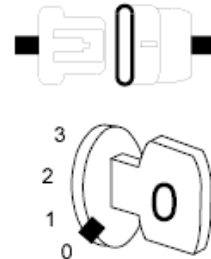
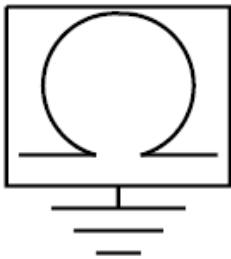
- Replace the Rear Wiper Motor in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE**,

Totally Integrated Power (TIPM) - Standard Procedure .

No

- Go to step 3

3. CHECK (W17) REAR WIPER PARK SWITCH SENSE CIRCUIT FOR A SHORT TO GROUND



106799

Fig. 11: Measuring Resistance Between Ground And Rear Wiper Park Switch Sensor Circuit
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the TIPM C7 harness connector.
3. Measure the resistance between ground and the (W17) Rear Wiper Park Switch Sense Circuit.

Is the resistance above 10k Ohms?

Yes

- Replace the Totally Integrated Power Module (TIPM) in accordance with the service information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Repair the (W7) Wiper Park Switch Sense circuit for a short to ground.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

B230E-REAR WIPER PARK SWITCH INPUT CIRCUIT HIGH (STUCK HIGH)

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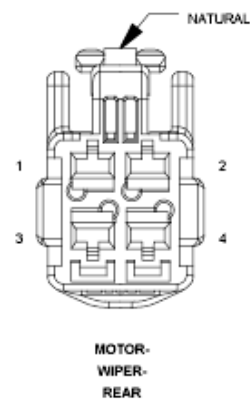
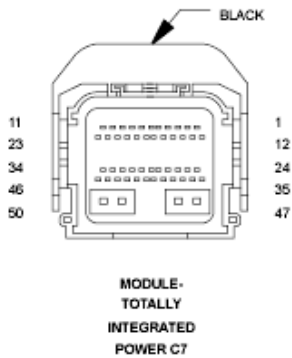
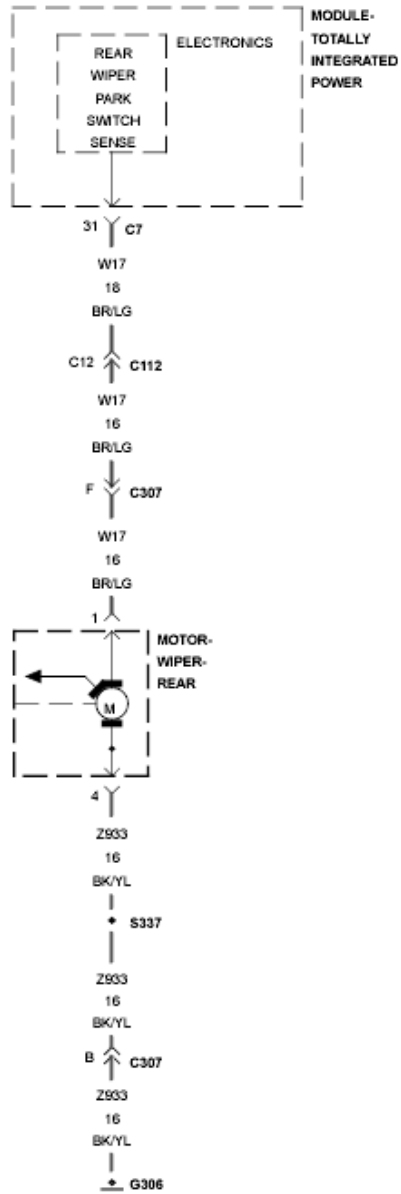


Fig. 12: Rear Wiper Park Switch Sensor Circuit
Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

With the ignition on.

- **Set Condition:**

The Totally Integrated Power Module (TIPM) does not detect a change from High to Low voltage on the Rear Wiper Park Switch Sense Circuit.

Possible Causes
(W17) REAR WIPER PARK SWITCH SENSE CIRCUIT OPEN
(W17) REAR WIPER PARK SWITCH SENSE CIRCUIT SHORTED TO VOLTAGE
REAR WIPER MOTOR
TOTALLY INTEGRATED POWER MODULE (TIPM)

DIAGNOSTIC TEST

1. INTERMITTENT CONDITION

1. Turn the ignition on.
2. With the scan tool, clear all DTCs.
3. Cycle the Wiper Switch on and off three times.
4. With the scan tool, read DTCs.

Does the scan tool display this DTC as active?

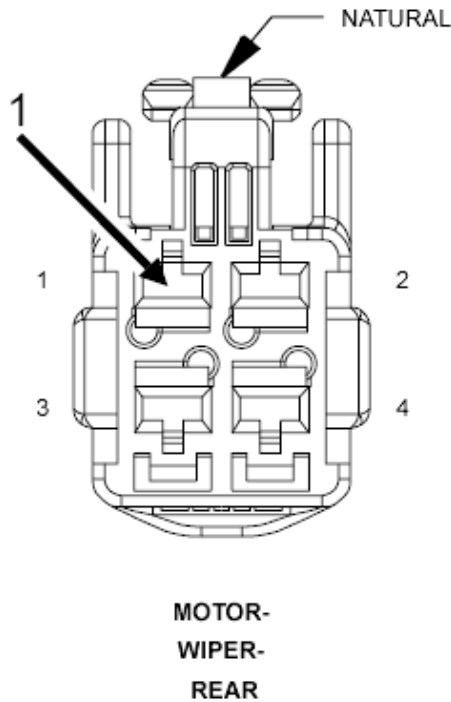
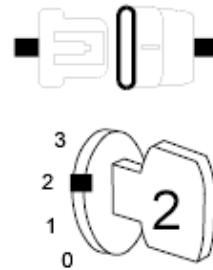
Yes

- Go to step 2

No

- The condition that caused this symptom is currently not present. 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. Repair as necessary.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

2. (W17) WIPER PARK SWITCH SENSE CIRCUIT SHORTED TO VOLTAGE



106803

Fig. 13: Using 12-Volt Test Light Connected To Ground To Probe Rear Wiper Park Switch Sensor Circuit

Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the Rear Wiper Motor harness connector.
3. Turn the ignition on.
4. Using a 12-volt test light connected to ground, probe the (W17) Rear Wiper Park Switch Sense circuit.

Does the test light illuminate brightly?

Yes

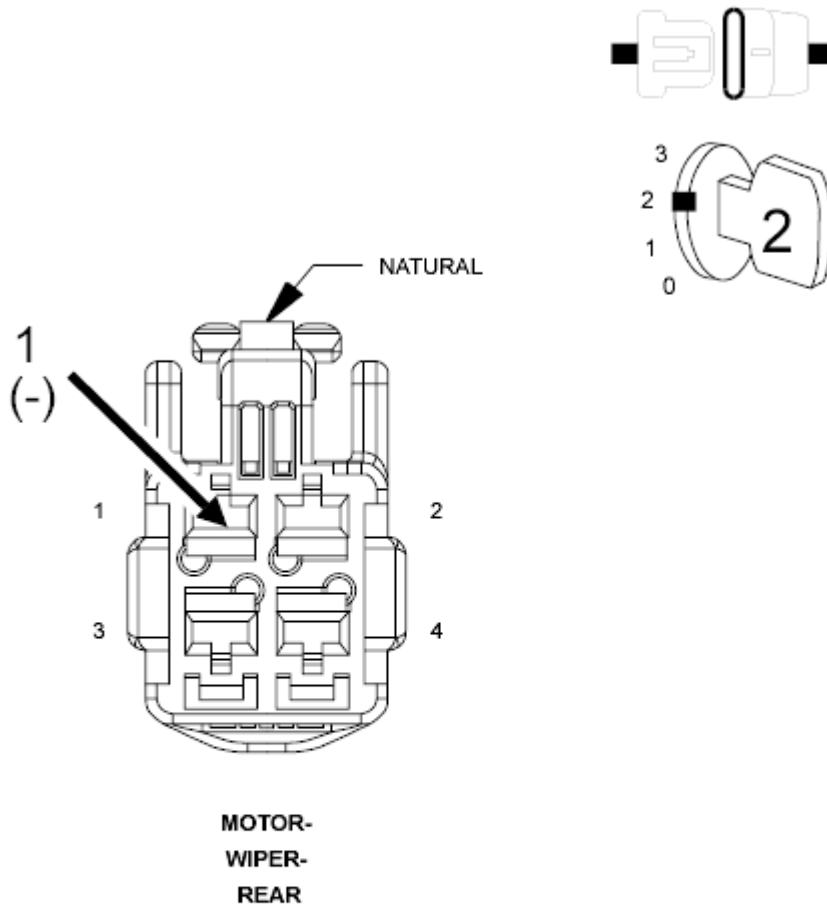
- Repair the (W17) Rear Wiper Park Switch Sense circuit for a short to voltage.

- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**.

No

- Go to step 3

3. CHECK THE REAR WIPER MOTOR



106805

Fig. 14: Rear Wiper Motor Harness Connector
Courtesy of CHRYSLER LLC

1. Connect a jumper wire between the (W17) Rear Wiper Park Switch Sense circuit and ground.

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2. With the scan tool, read the Rear Wiper Park Switch Sense.

Does the Rear Wiper Park Switch Sense display: True?

Yes

- Replace the Rear Wiper Motor in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Go to step 4

4. **(W17) REAR WIPER PARK SWITCH SENSE CIRCUIT OPEN**

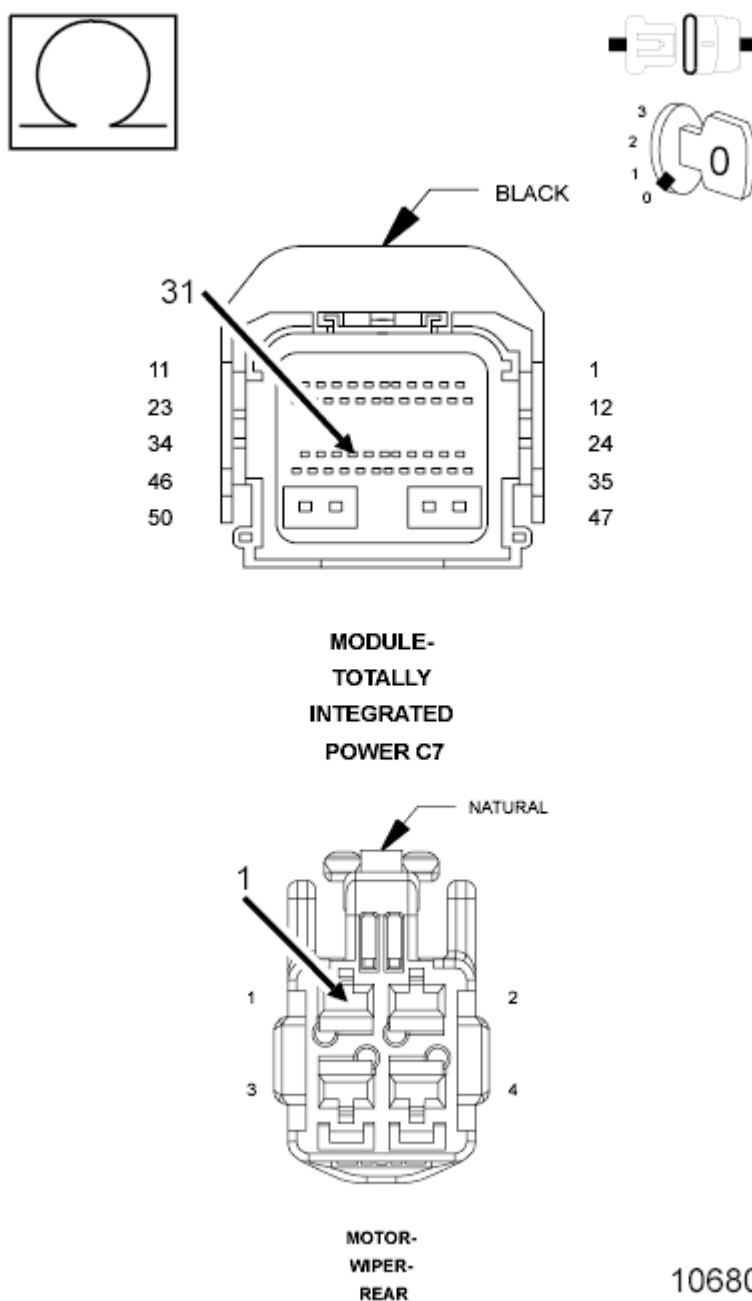


Fig. 15: Measuring Resistance Of Rear Wiper Park Switch Sensor Circuit
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the TIPM C7 harness connector.
3. Measure the resistance of the (W17) Rear Wiper Park Switch Sense circuit between the Rear Wiper Motor harness connector and the TIPM C7 harness connector.

Is the resistance below 10.0 Ohms?

Yes

- Replace the Totally Integrated Power Module (TIPM) in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

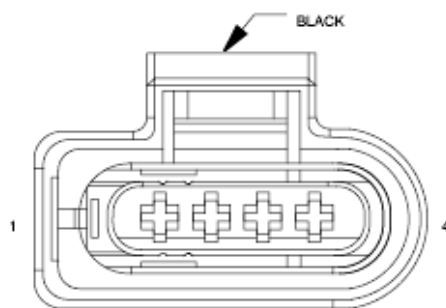
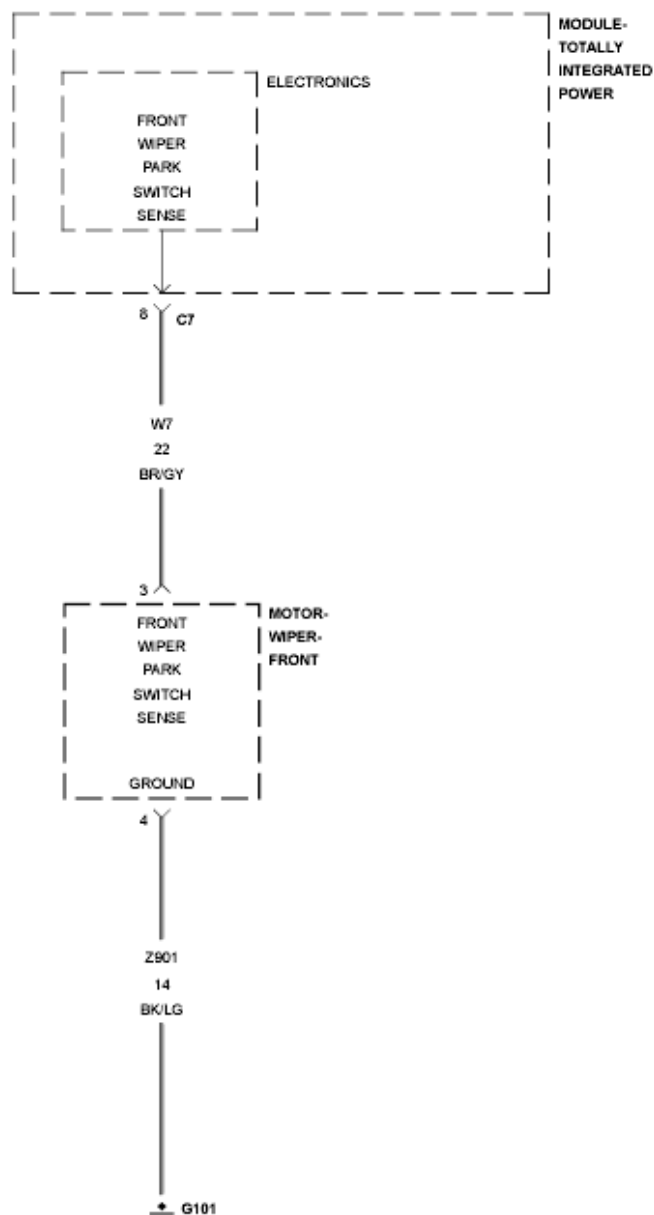
No

- Repair the (W17) Rear Wiper Park Switch Sense circuit for an open.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

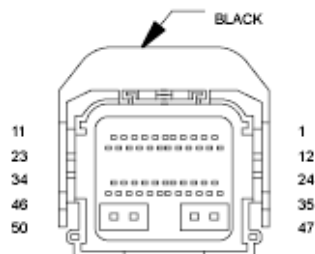
B2304-WIPER PARK SWITCH INPUT CIRCUIT LOW (STUCK LOW)

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**MOTOR-
WIPER-**



**MODULE-
TOTALLY**

Fig. 16: Wiper Park Switch Sensor Circuit
Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

With the ignition on.

- **Set Condition:**

The Totally Integrated Power Module (TIPM) detects a short to ground on the Wiper Park Switch Sense circuit.

Possible Causes
(W7) WIPER PARK SWITCH SENSE CIRCUIT SHORTED TO GROUND FRONT WIPER MOTOR TOTALLY INTEGRATED POWER MODULE (TIPM)

DIAGNOSTIC TEST

1. INTERMITTENT CONDITION

1. Turn the ignition on.
2. With the scan tool, clear all DTCs.
3. Cycle the Wiper Switch on and off three times.
4. With the scan tool, read DTCs.

Does the scan tool display this DTC as active?

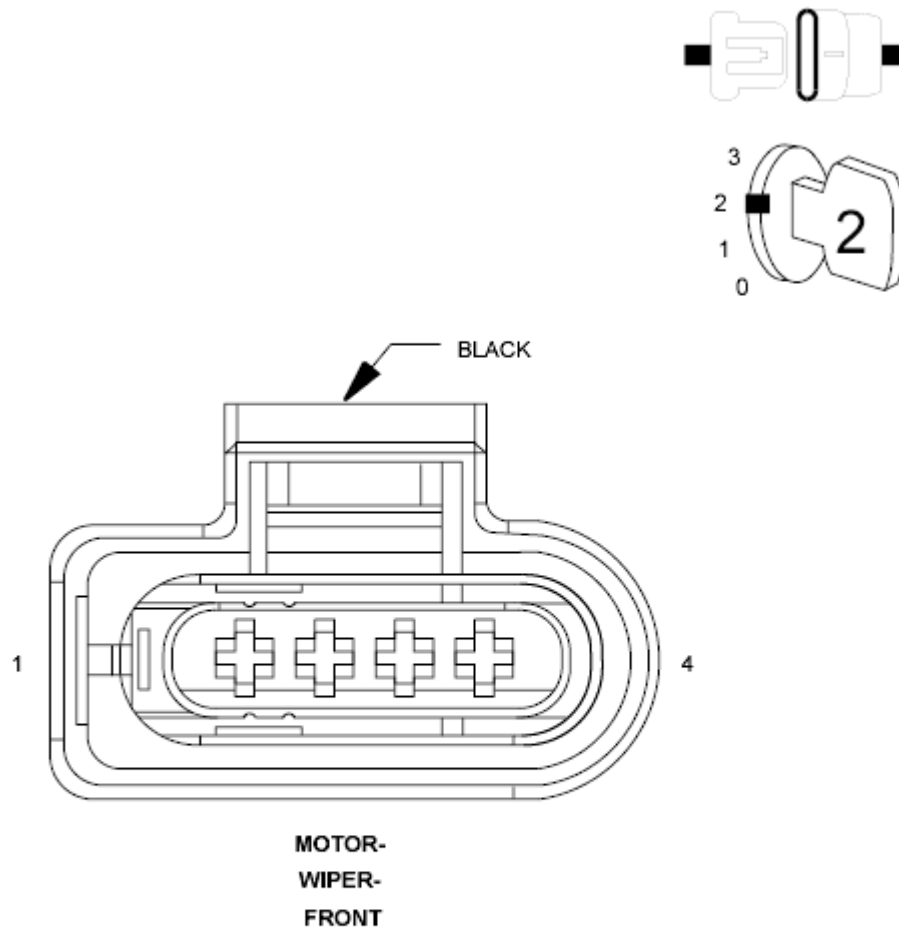
Yes

- Go to step 2

No

- The condition that caused this symptom is currently not present. 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. Repair as necessary.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

2. FRONT WIPER MOTOR



106781

Fig. 17: Front Wiper Motor Harness Connector
Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the Front Wiper Motor harness connector.
3. Turn the ignition on.
4. Wait 30 seconds.
5. With the scan tool, read the Front Wiper Park Switch Sense.

Does the Front Wiper Park Switch Sense display: False?

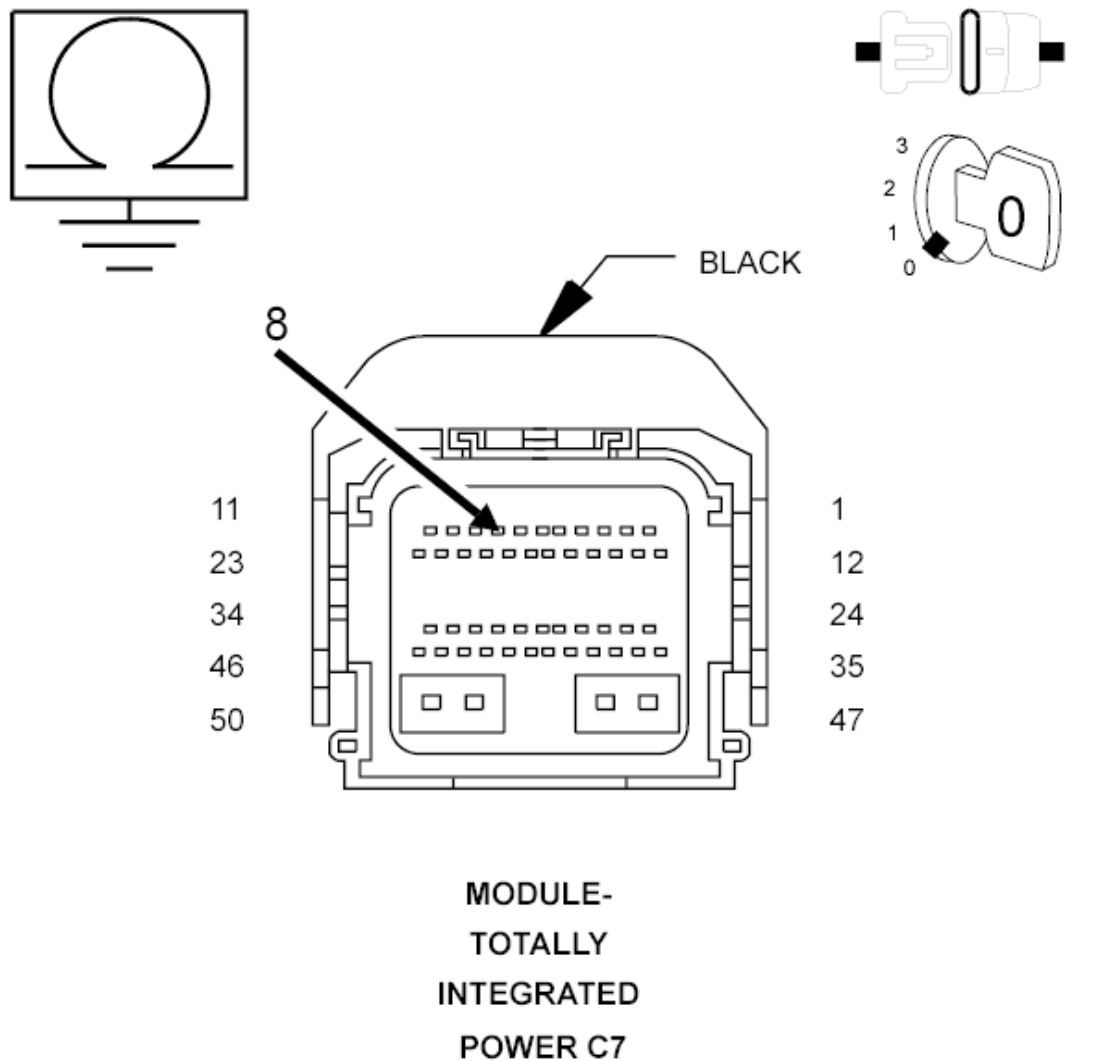
Yes

- Replace the Front Wiper Motor in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**.

No

- Go to step 3

3. **CHECK (W7) WIPER PARK SWITCH SENSE CIRCUIT FOR A SHORT TO GROUND**



106783

Fig. 18: Measuring Resistance Between Ground And Wiper Park Sensor Circuit
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the TIPM C7 harness connector.

3. Measure the resistance between ground and the (W7) Wiper Park Sense Circuit.

Is the resistance above 10k Ohms?

Yes

- Replace the Totally Integrated Power Module (TIPM) in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

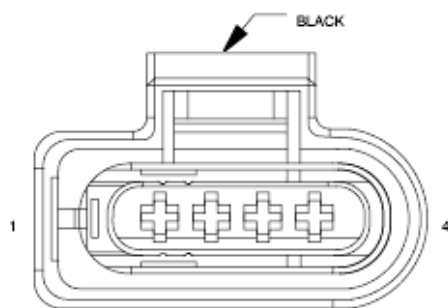
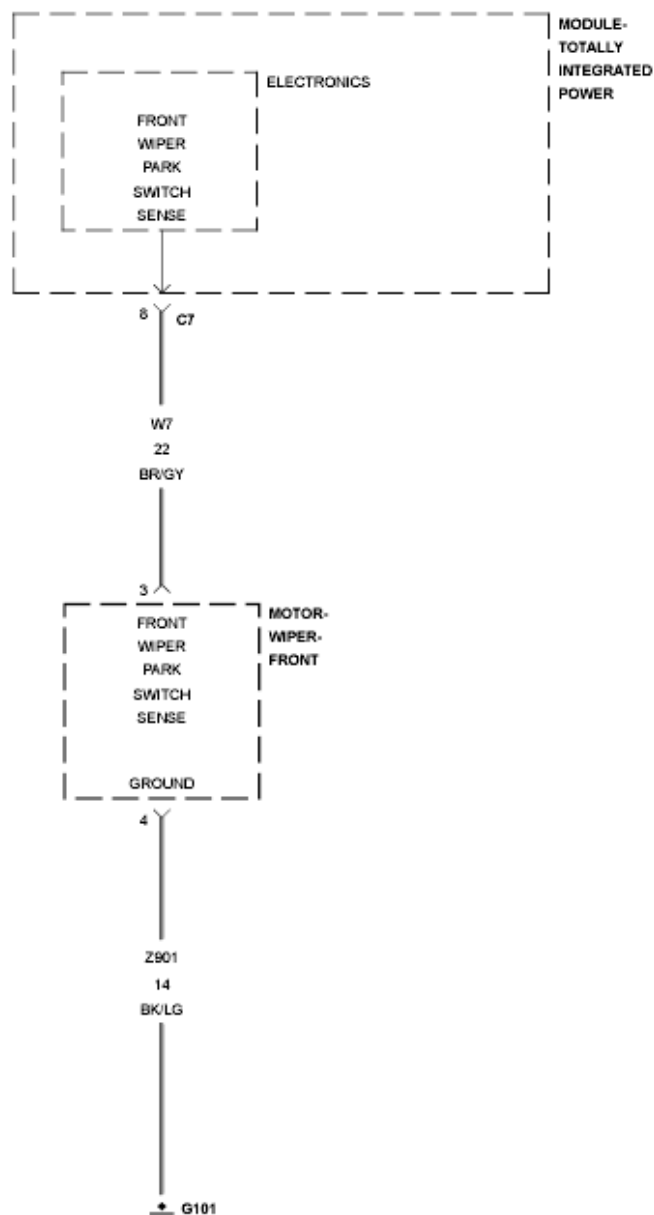
No

- Repair the (W7) Wiper Park Switch Sense circuit for a short to ground.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

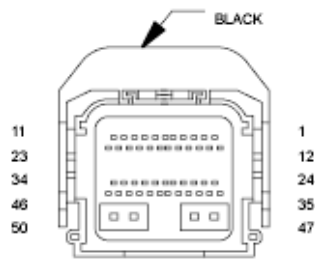
B2305-WIPER PARK SWITCH INPUT CIRCUIT HIGH (STUCK HIGH)

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MOTOR-WIPER-FRONT



MODULE-TOTALLY INTEGRATED POWER

Fig. 19: Wiper Park Switch Sensor Circuit
Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

With the ignition on.

- **Set Condition:**

The Totally Integrated Power Module (TIPM) does not detect a change from High to Low voltage on the Wiper Park Switch Sense Circuit.

Possible Causes
(W7) WIPER PARK SWITCH SENSE CIRCUIT OPEN
(W7) WIPER PARK SWITCH SENSE CIRCUIT SHORTED TO VOLTAGE
FRONT WIPER MOTOR
TOTALLY INTEGRATED POWER MODULE (TIPM)

DIAGNOSTIC TEST

1. INTERMITTENT CONDITION

1. Turn the ignition on.
2. With the scan tool, clear all DTCs.
3. Cycle the Wiper Switch on and off three times.
4. With the scan tool, read DTCs.

Does the scan tool display this DTC as active?

Yes

- Go to step 2

No

- The condition that caused this symptom is currently not present. 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. Repair as necessary.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

2. (W7) WIPER PARK SWITCH SENSE CIRCUIT SHORTED TO VOLTAGE

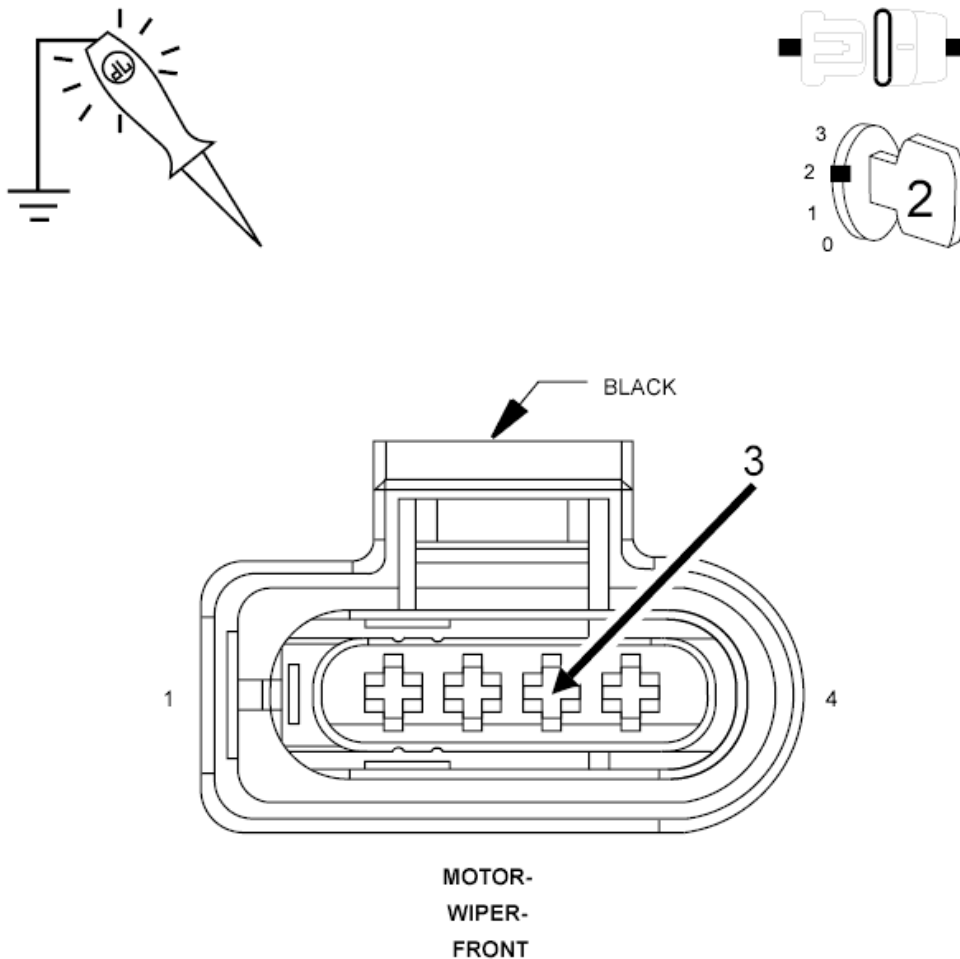


Fig. 20: Using 12-Volt Test Light Connected To Ground To Probe Wiper Park Switch Sensor Circuit

Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the Front Wiper Motor harness connector.
3. Turn the ignition on.
4. Using a 12-volt test light connected to ground, probe the (W7) Wiper Park Switch Sense circuit.

Does the test light illuminate brightly?

Yes

- Repair the (W7) Wiper Park Switch Sense circuit for a short to voltage.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**.

No

- Go to step 3

3. CHECK THE FRONT WIPER MOTOR

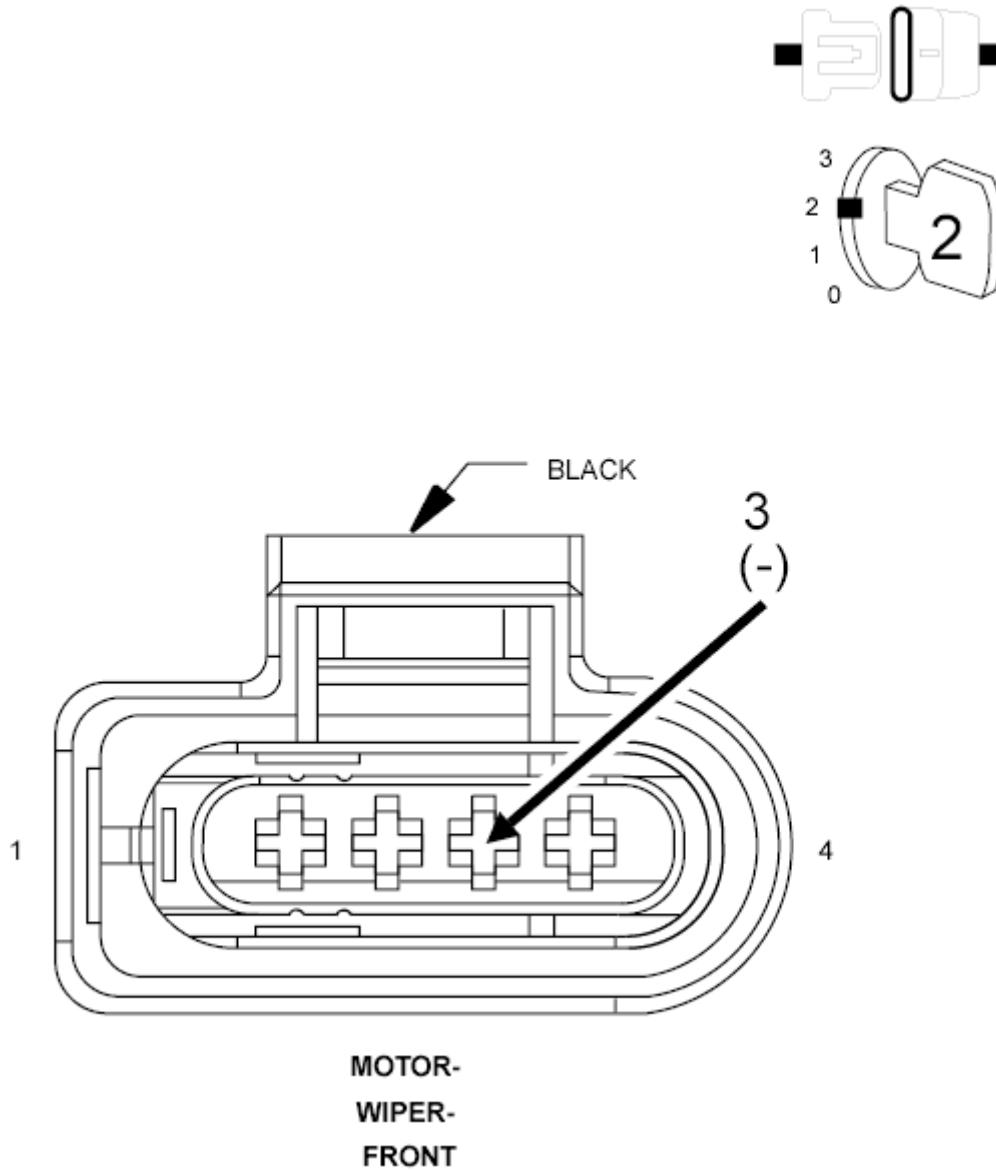


Fig. 21: Front Wiper Motor Harness Connector
Courtesy of CHRYSLER LLC

1. Connect a jumper wire between the (W7) Wiper Park Switch Sense circuit and ground.
2. With the scan tool, read the Front Wiper Park Switch Sense.

Does the Front Wiper Park Switch Sense display: True?

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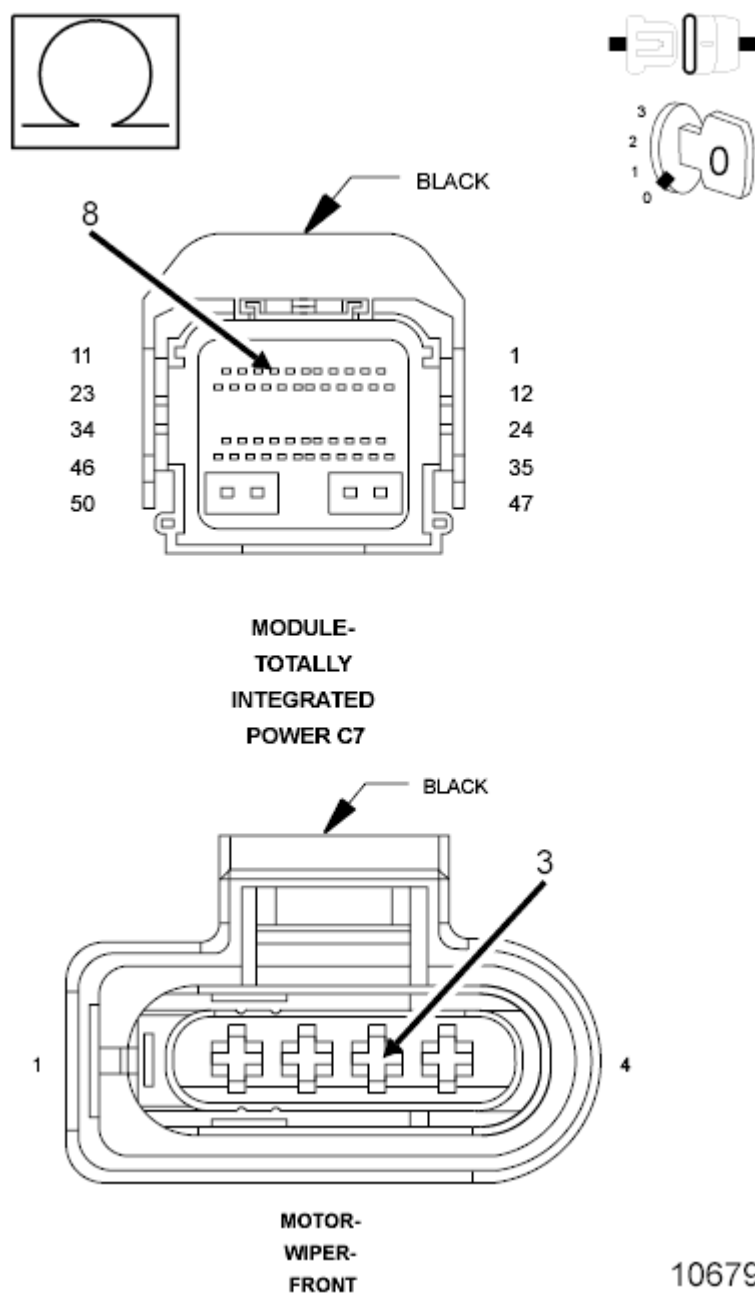
Yes

- Replace the Front Wiper Motor in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Go to step 4

4. CHECK (W7) WIPER PARK SWITCH SENSE CIRCUIT FOR AN OPEN



106791

Fig. 22: Measuring Resistance Of Wiper Park Switch Sensor Circuit
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the TIPM C7 harness connector.
3. Measure the resistance of the (W7) Wiper Park Switch Sense circuit between the Front Wiper Motor harness connector and the TIPM C7 harness connector.

Is the resistance below 10.0 Ohms?

Yes

- Replace the Totally Integrated Power Module (TIPM) in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Repair the (W7) Wiper Park Switch Sense circuit for an open.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

B2307-WASHER SWITCH INPUT CIRCUIT LOW

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**
- With the ignition on.
- **Set Condition:**
- When the Instrument Cluster detects a short condition.

Possible Causes
MULTIFUNCTION SWITCH (G194) WASH/BEAM SELECT SWITCH SIGNAL CIRCUIT OPEN INSTRUMENT CLUSTER

DIAGNOSTIC TEST

1. INTERMITTENT CONDITION

1. Turn the ignition on.
2. With the scan tool, clear all CCN DTCs.
3. Turn the Washers ON then OFF.
4. With the scan tool, read the Washer DTCs.

Does the scan tool read: B2307-WIPER MODE SWITCH INPUT CIRCUIT LOW?

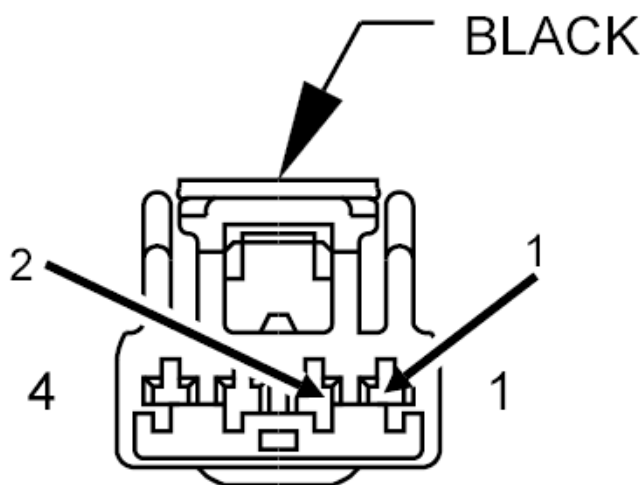
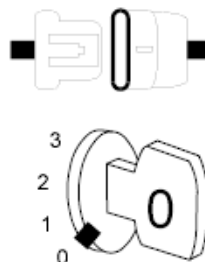
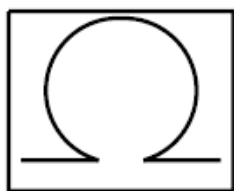
Yes

- Go to step 2

No

- The condition that caused the symptom is currently not present. Inspect the related wiring for a possible intermittent condition. Look for any chafed, pierced, pinched or partially broken wires.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

2. MULTIFUNCTION SWITCH



SWITCH- MULTIFUNCTION

186848

Fig. 23: Measuring Internal Resistance Of Multifunction Switch Between L900 And G194 Circuits
Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the Multifunction Switch harness connector.
3. Make sure the Multifunction Switch is in the OFF position.
4. Measure the internal resistance of the Multifunction Switch between the L900 and G194 circuits.

Does the Switch measure more than 5.0 Ohms?

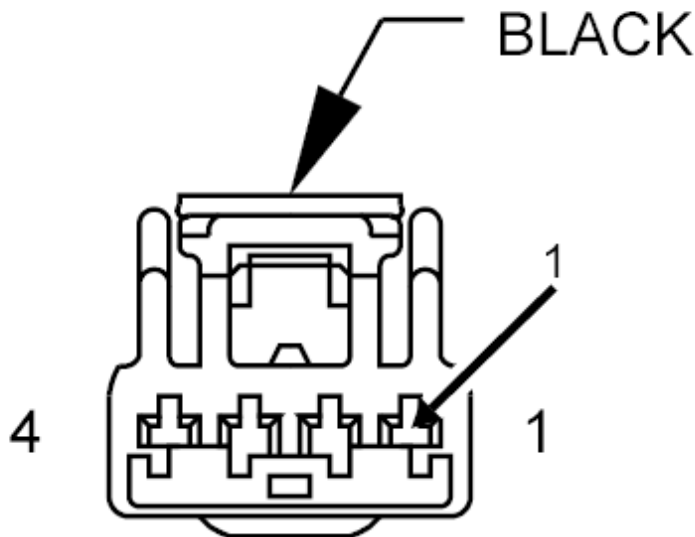
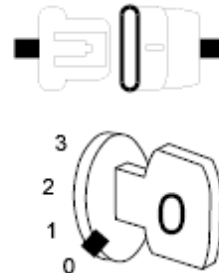
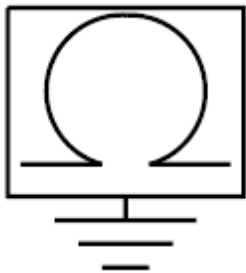
Yes

- Replace the Multifunction Switch in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

No

- Go to step 3

3. INSTRUMENT CLUSTER



**SWITCH-
MULTIFUNCTION**

186850

Fig. 24: Measuring Resistance Of Wash/Beam Select Switch Circuit To Ground

Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the Multifunction Switch connector.
3. Disconnect the Instrument Cluster C4 harness connector.
4. Measure the resistance of the (G194) Wash/Beam Select Switch circuit to ground.

Is the resistance below 5.0 Ohms?

Yes

- Repair the (G194) Wash/Beam Select Switch Signal circuit for a short to ground condition.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

No

- Replace the Instrument Cluster in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

B2323-HEADLAMP WASHER MOTOR CONTROL CIRCUIT LOW

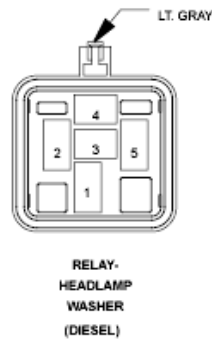
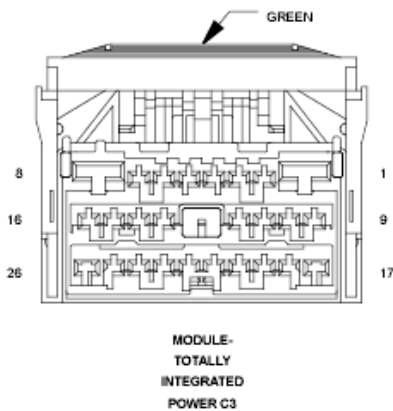
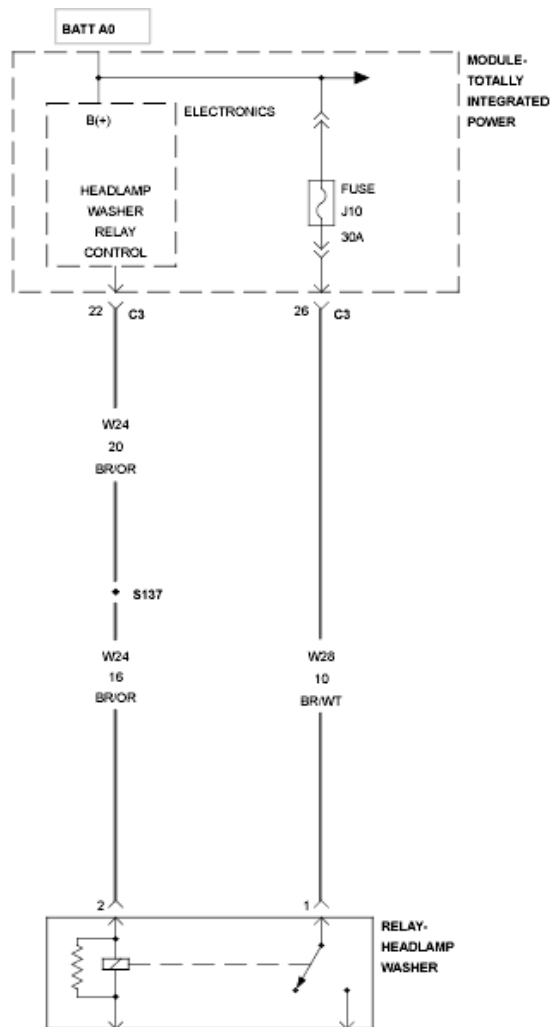


Fig. 25: Headlamp Washer Motor Control Circuit Schematic
Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

With the Headlamp Washers activated.

- **Set Condition:**

When the Totally Integrated Power Module (TIPM) detects an shorted low condition.

Possible Causes
(W28) HEADLAMP WASHER RELAY SUPPLY CIRCUIT OPEN
(W24) HEADLAMP WASHER RELAY CONTROL CIRCUIT SHORTED TO GROUND
HEADLAMP WASHER RELAY
HEADLAMP WASHER MOTOR
TOTALLY INTEGRATED POWER MODULE (TIPM)

DIAGNOSTIC TEST

1. INTERMITTENT CONDITION

1. Turn the ignition on.
2. With the scan tool, clear all DTCs.
3. Turn the Headlamp Washers on.
4. With the scan tool read DTCs.

Does the scan tool display this DTC as active?

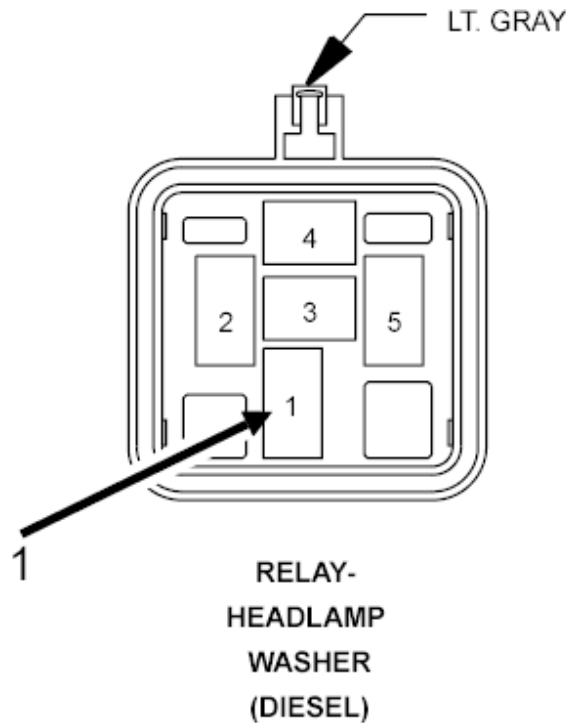
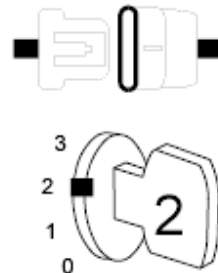
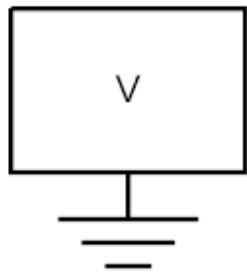
Yes

- Go to step 2

No

- The condition that caused this symptom is currently not present. 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. Repair as necessary.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

2. (W28) HEADLAMP WASHER RELAY SUPPLY CIRCUIT OPEN



106813

Fig. 26: Measuring Voltage On Headlamp Washer Relay Supply Circuit At Headlamp Washer Relay

Courtesy of CHRYSLER LLC

NOTE: Check all fuses and circuit breakers before proceeding with the diagnosis of this DTC.

1. Turn the ignition off.
2. Remove the Headlamp Washer relay.
3. Turn the ignition on.
4. Measure the voltage on the (W28) Headlamp Washer Relay Supply circuit at the Headlamp Washer relay.

Is the voltage above 10.0 volts?

Yes

- Go to step 3

No

- Repair the (W28) Headlamp Washer Relay Supply circuit for an open.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

3. HEADLAMP WASHER RELAY

1. Turn the ignition off.
2. Replace the Headlamp Washer relay with a known good relay.
3. Turn the ignition on.
4. With the scan tool, clear all DTCs.
5. Activate the Headlamp Washers.
6. With the scan tool, read the DTCs.

Does the scan tool display this DTC as active?

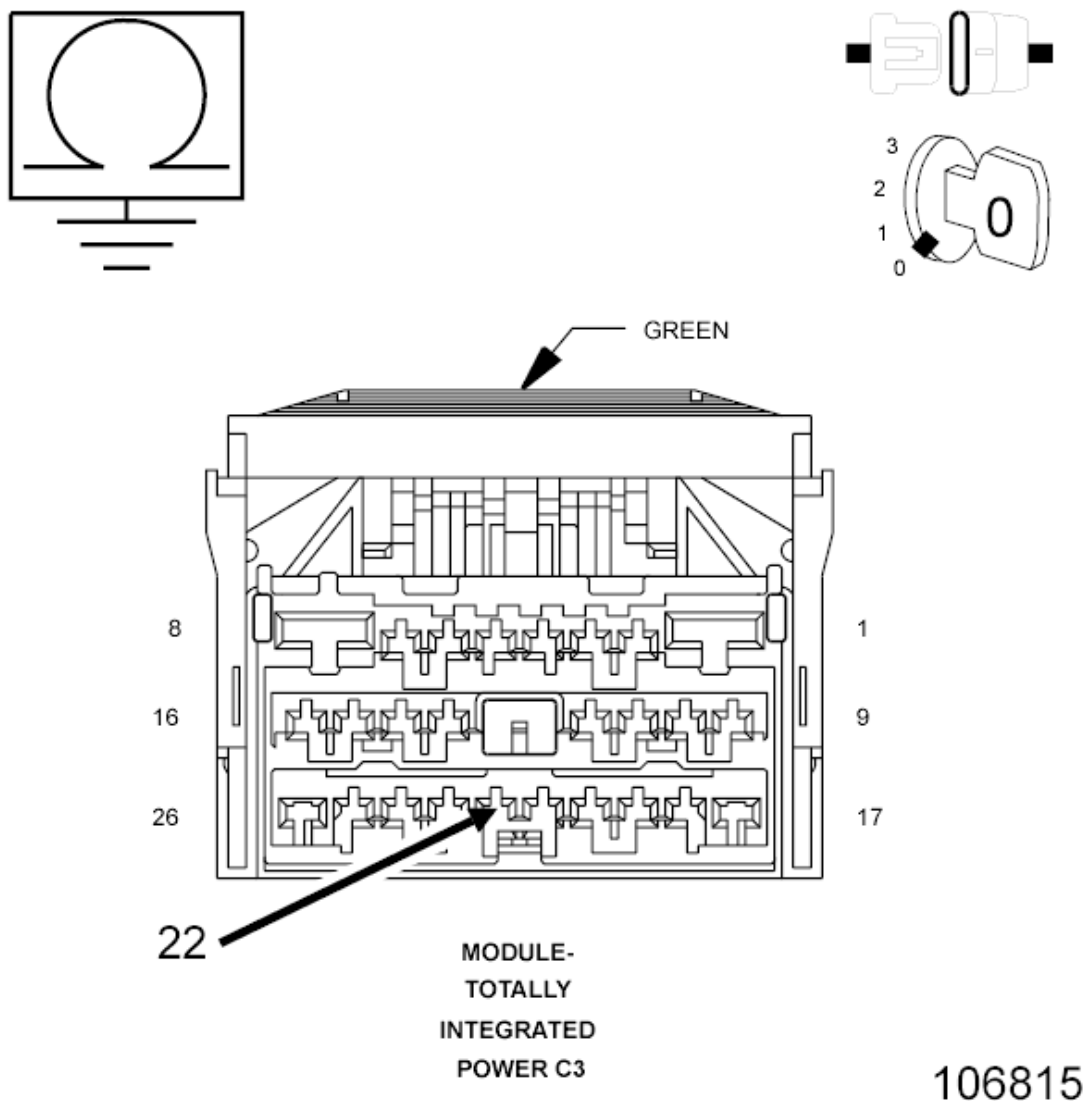
Yes

- Go to step 4

No

- Replace the Headlamp Washer relay in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

4. (W24) HEADLAMP WASHER RELAY CONTROL CIRCUIT SHORT TO GROUND



106815

Fig. 27: Measuring Resistance To Ground Of Headlamp Washer Relay Control Circuit
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the TIPM C3 Connector.
3. Measure the resistance to ground of the (W24) Headlamp Washer Relay Control circuit.

Is the resistance below 5.0 Ohms?

Yes

- Repair the (W24) Headlamp Washer Relay Control circuit for a short to ground.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Replace the Totally Integrated Power Module (TIPM) in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

B2324-HEADLAMP WASHER MOTOR CONTROL CIRCUIT HIGH

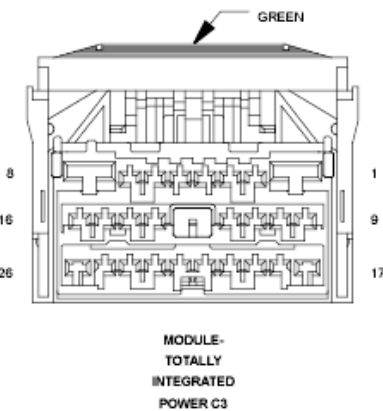
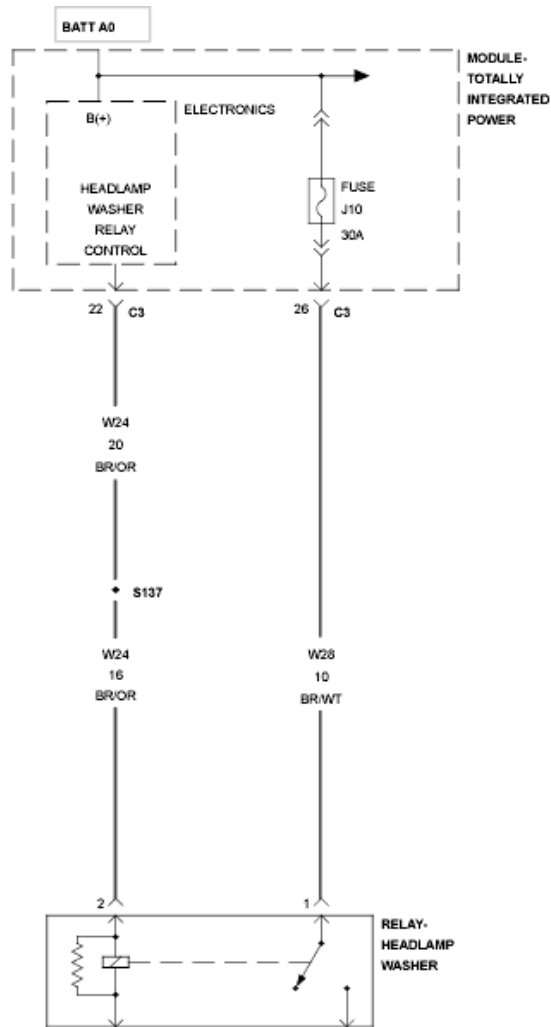


Fig. 28: Headlamp Washer Motor Control Circuit Schematic
Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

With the Headlamp Washers activated.

- **Set Condition:**

When the Totally Integrated Power Module (TIPM) detects an high condition.

Possible Causes
(W24) HEADLAMP WASHER RELAY CONTROL CIRCUIT OPEN
(W24) HEADLAMP WASHER RELAY CONTROL CIRCUIT SHORTED TO VOLTAGE
(W23) HEADLAMP WASHER MOTOR CONTROL CIRCUIT OPEN
(W23) HEADLAMP WASHER MOTOR CONTROL CIRCUIT SHORTED TO VOLTAGE
HEADLAMP WASHER RELAY
TOTALLY INTEGRATED POWER MODULE (TIPM)

DIAGNOSTIC TEST

1. INTERMITTENT CONDITION

1. Turn the ignition on.
2. With the scan tool, clear all DTCs.
3. Turn the Headlamp Washers on.
4. With the scan tool, read DTCs.

Does the scan tool display active: B2324-HEADLAMP WASHER MOTOR CONTROL CIRCUIT HIGH?

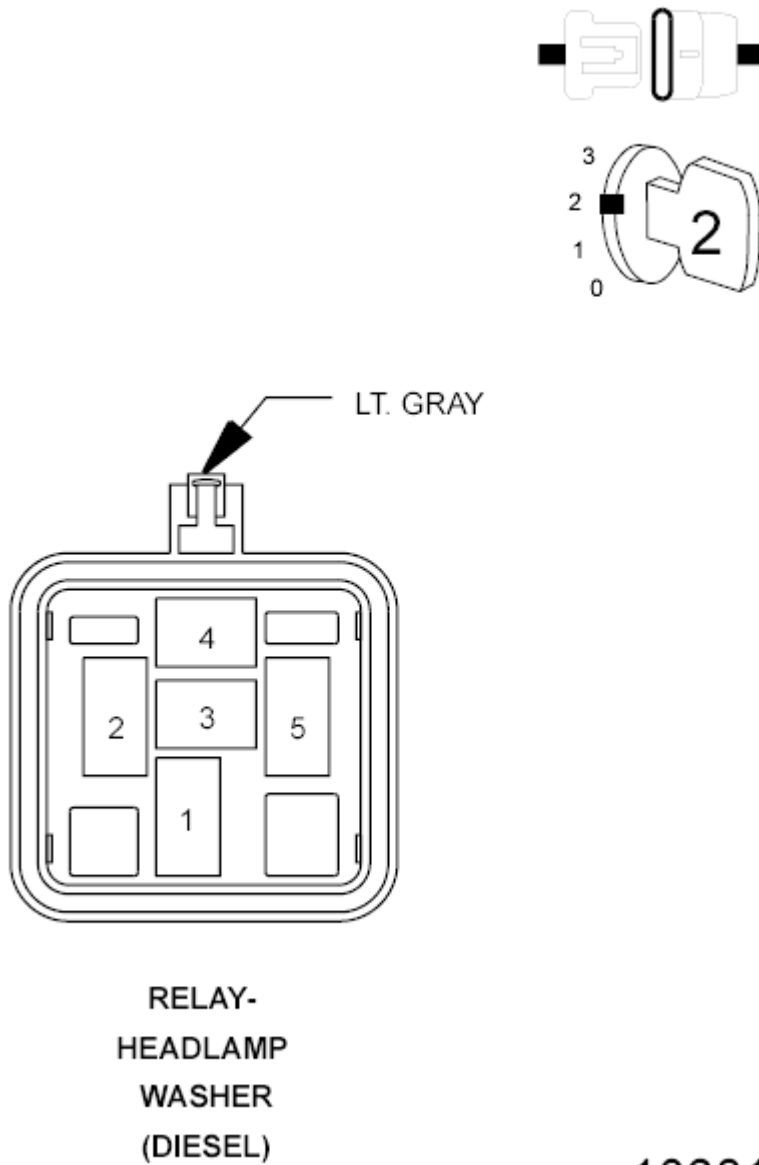
Yes

- Go to step 2

No

- The condition that caused this symptom is currently not present. 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. Repair as necessary.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

2. CHECK HEADLAMP WASHER RELAY



106819

Fig. 29: Headlamp Washer Relay
Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Remove the Headlamp Washer relay.
3. Turn the ignition on.
4. Turn the Headlamp Washers on.
5. With the scan tool, read DTCs.

Does the scan tool display active: B2324-HEADLAMP WASHER MOTOR CONTROL CIRCUIT

HIGH?

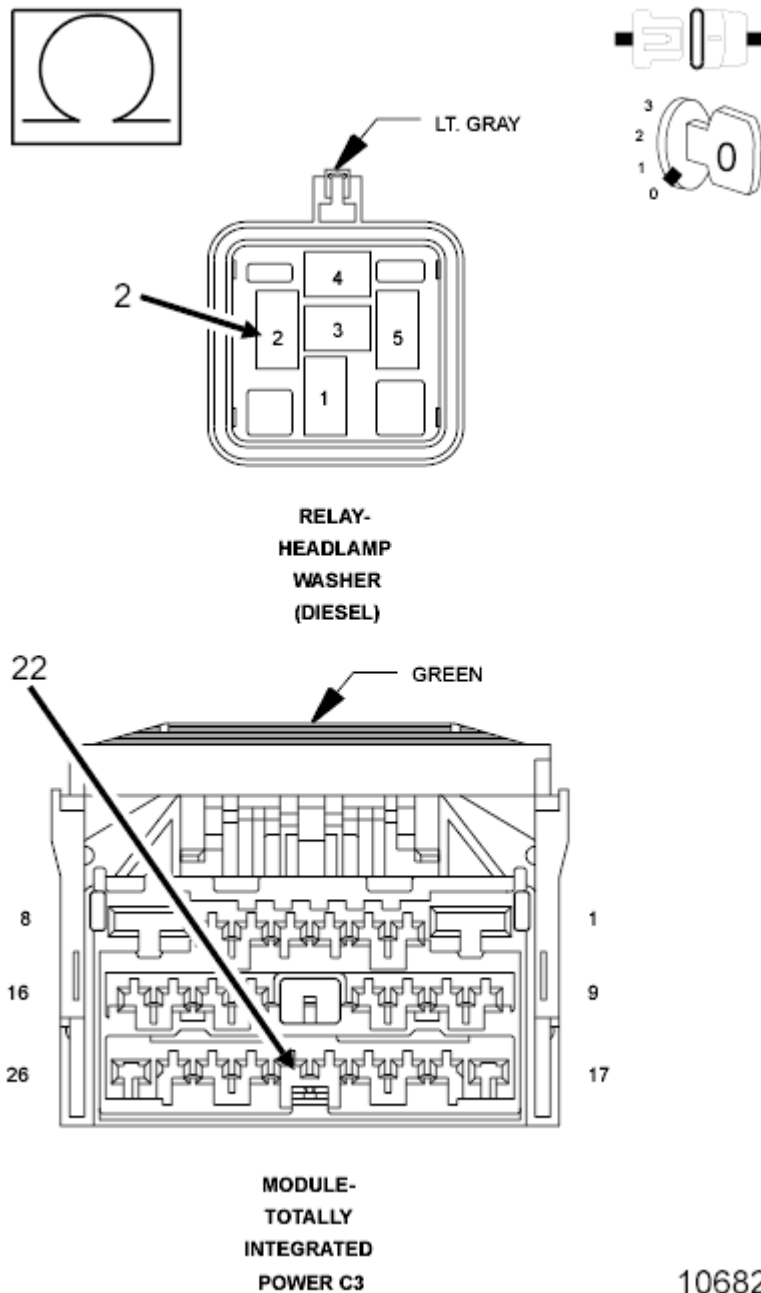
Yes

- Go to step 3

No

- Go to step 5

3. (W24) HEADLAMP WASHER RELAY CONTROL CIRCUIT OPEN



106821

Fig. 30: Measuring Resistance Of Headlamp Washer Relay Control Circuit
Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the TIPM C3 harness connector.
3. Measure the resistance of the (W24) Headlamp Washer Relay Control circuit between the Headlamp Washer Relay connector and the TIPM C3 harness connector.

Is the resistance below 10.0 Ohms?

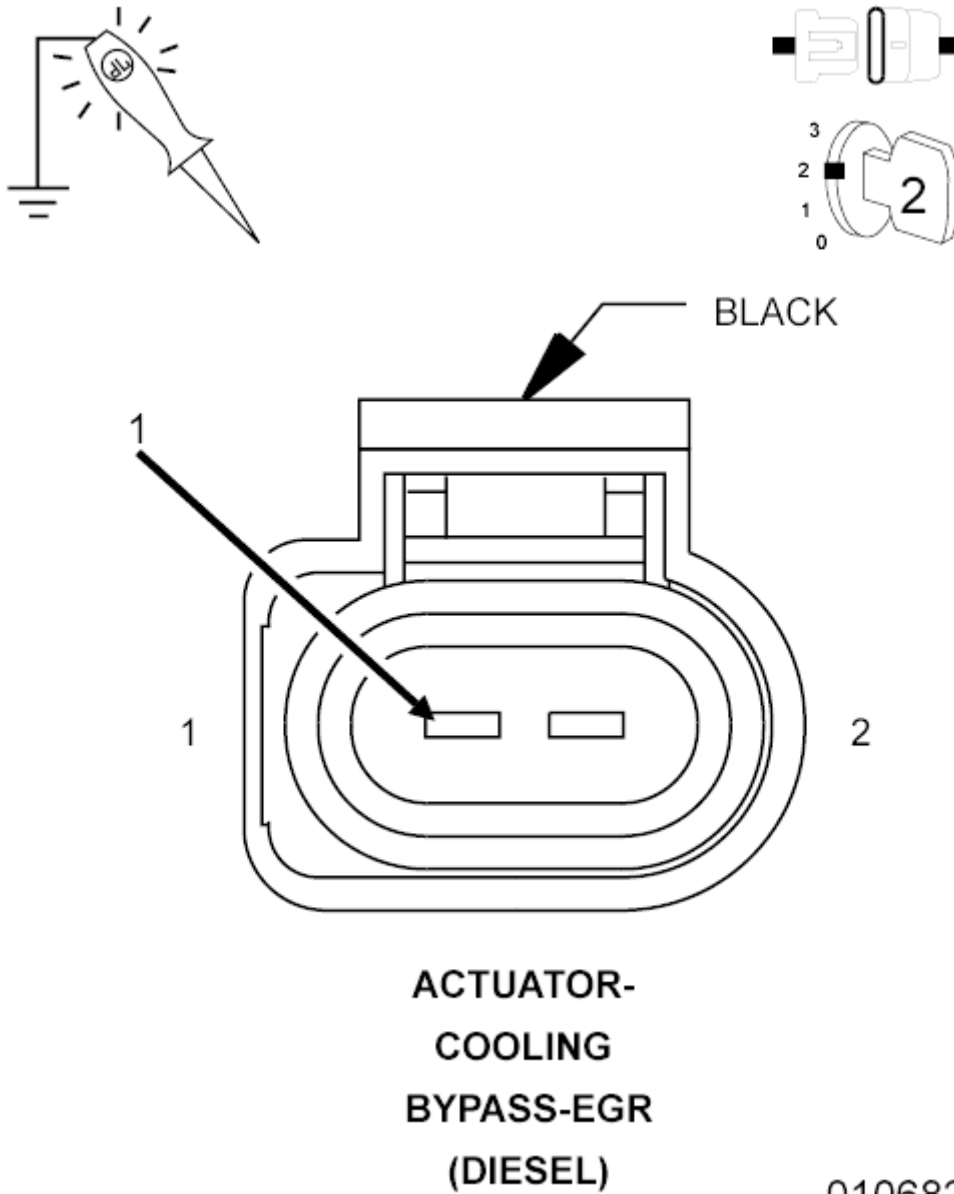
Yes

- Go to step 4

No

- Repair the (W24) Headlamp Washer Relay Control circuit for an open.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**.

4. (W24) HEADLAMP WASHER RELAY CONTROL CIRCUIT SHORTED TO VOLTAGE



0106823

Fig. 31: Measuring For Voltage On Headlamp Washer Relay Control Circuit

Courtesy of CHRYSLER LLC

1. Turn the ignition on.
2. Measure for voltage on the (W24) Headlamp Washer Relay Control circuit.

Is the voltage above 10.0 volts?

Yes

- Repair the (W24) Headlamp Washer Relay Control circuit for a short to voltage.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Replace the Totally Integrated Power Module (TIPM) in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

5. HEADLAMP WASHER RELAY

1. Turn the ignition off.
2. Replace the Headlamp Washer relay with a known good relay.
3. Turn the ignition on.
4. Turn the Headlamp Washers on.
5. With the scan tool, read DTCs.

Does the scan tool display active: B2324-HEADLAMP WASHER MOTOR CONTROL CIRCUIT HIGH?

Yes

- Go to step 6

No

- Test Complete.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

6. (W23) HEADLAMP WASHER MOTOR CONTROL CIRCUIT OPEN

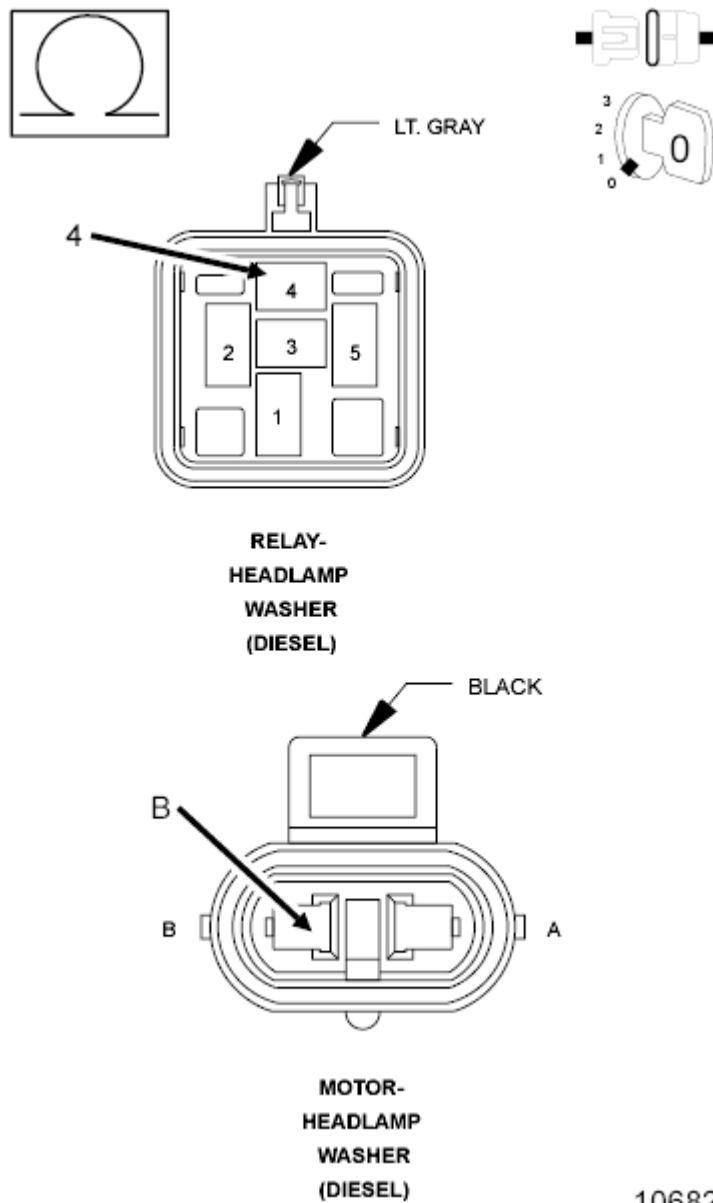


Fig. 32: Measuring Resistance Of Headlamp Washer Motor Control Circuit
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Remove the Headlamp Washer relay.
3. Disconnect the Headlamp Washer Motor harness connector.
4. Measure the resistance of the (W23) Headlamp Washer Motor Control circuit at the Headlamp Washer Motor harness connector and the Headlamp Washer Relay connector.

Is the resistance below 10.0 Ohms?

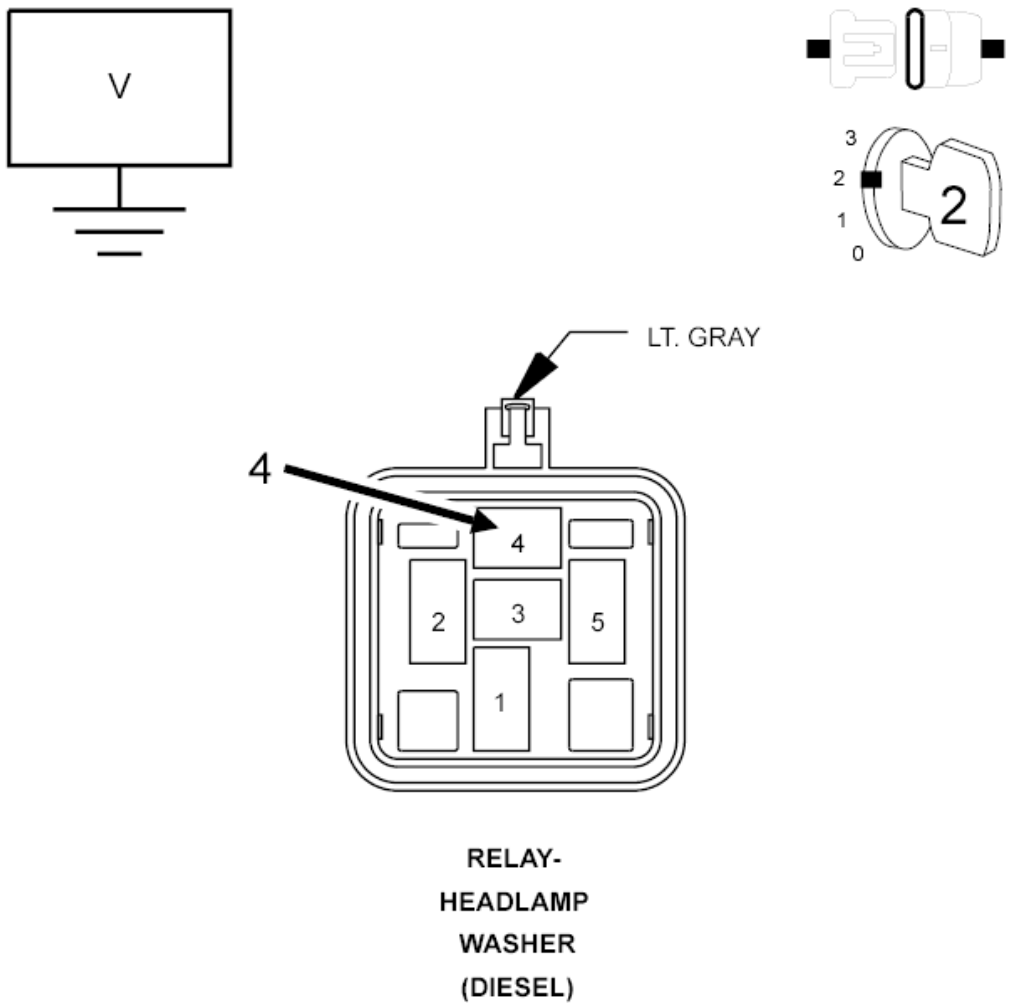
Yes

- Go to step 7

No

- Repair the (W23) Headlamp Washer Motor Control circuit for an open.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**.

7. (W23) HEADLAMP WASHER MOTOR CONTROL CIRCUIT SHORTED TO VOLTAGE



106827

Fig. 33: Measuring Voltage On Headlamp Washer Motor Control Circuit
 Courtesy of CHRYSLER LLC

1. Turn the ignition on.
2. Measure the voltage on the (W23) Headlamp Washer Motor Control circuit.

Is the voltage above 10.0 volts?

Yes

- Repair the (W23) Headlamp Washer Motor Control circuit for a short to voltage.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

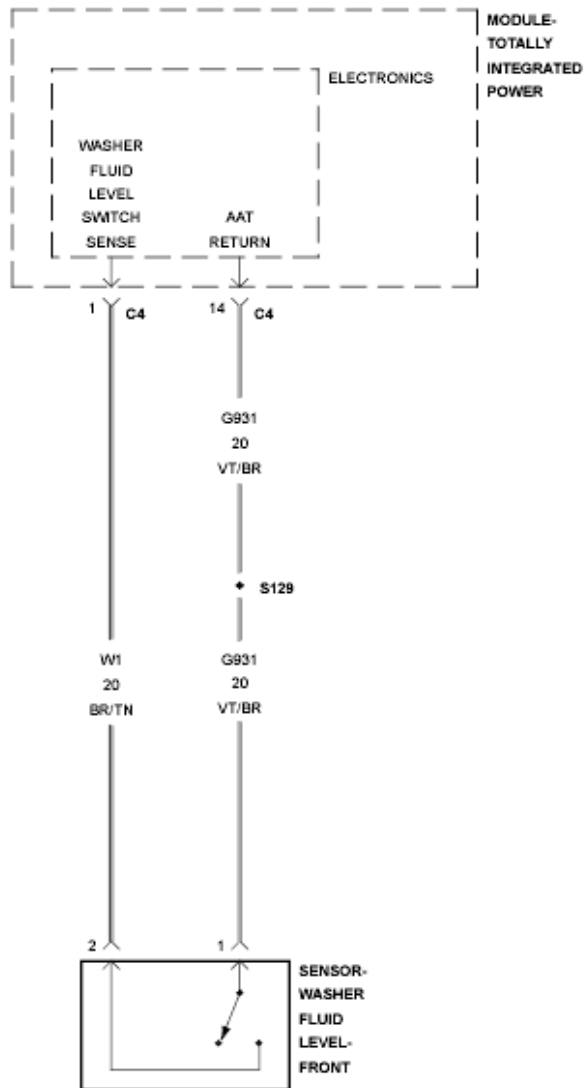
No

- Replace the Headlamp Washer Motor in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

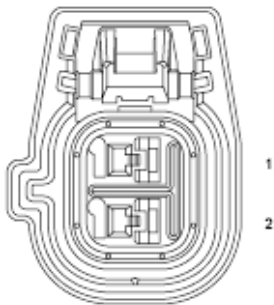
B2328-WASHER FLUID LEVEL SENSOR CIRCUIT HIGH

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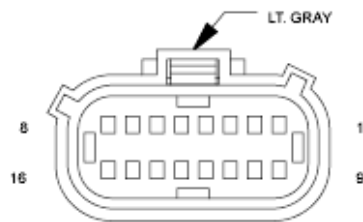
2009 ACCESSORIES AND EQUIPMENT Totally Integrated Power Module (TIPM) - Electrical Diagnostics - Journey



satelettronica



SENSOR-
WASHER
FLUID LEVEL-FRONT



MODULE-
TOTALLY
INTEGRATED
POWER

Fig. 34: Washer Fluid Level Sensor Circuit Schematic
 Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

Continuously.

- **Set Condition:**

When the Totally Integrated Power Module (TIPM) detects an HIGH condition.

Possible Causes
(W1) WASHER FLUID LEVEL SENSOR CIRCUIT OPEN
(W1) WASHER FLUID LEVEL SENSOR CIRCUIT SHORTED TO VOLTAGE
(G931) SENSOR GROUND CIRCUIT OPEN
WASHER FLUID LEVEL SENSOR SWITCH
TOTALLY INTEGRATED POWER MODULE

DIAGNOSTIC TEST

1. INTERMITTENT CONDITION

1. Turn the ignition on.
2. With the scan tool, clear all DTC's.
3. Turn the Windshield Washers on.
4. With the scan tool read DTC's.

Does the scan tool display this DTC as active?

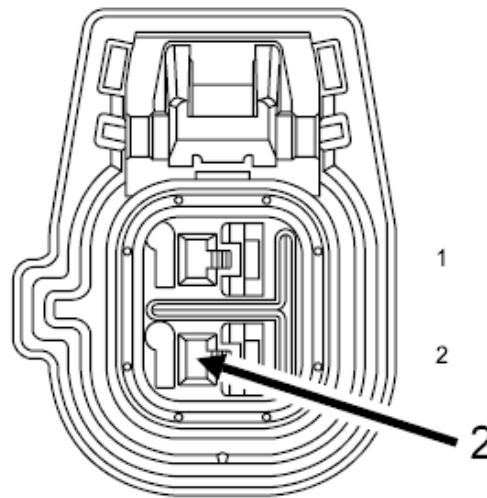
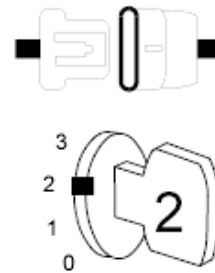
Yes

- Go to step 2

No

- The condition that caused this symptom is currently not present. 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. Repair as necessary.
- Perform the BODY VERIFICATION TEST - VER 1. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

2. (W1) WASHER FLUID LEVEL SENSOR CIRCUIT SHORTED TO VOLTAGE



SENSOR-
WASHER
FLUID
LEVEL-
FRONT

106833

Fig. 35: Using 12-Volt Test Light To Probe Washer Fluid Level Sensor Circuit
Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the Washer Fluid Level Sensor Switch harness connector.
3. Turn the Ignition on.
4. Using a 12-volt test light, probe the (W1) Washer Fluid Level Sensor circuit.

Does the test light illuminate brightly?

Yes

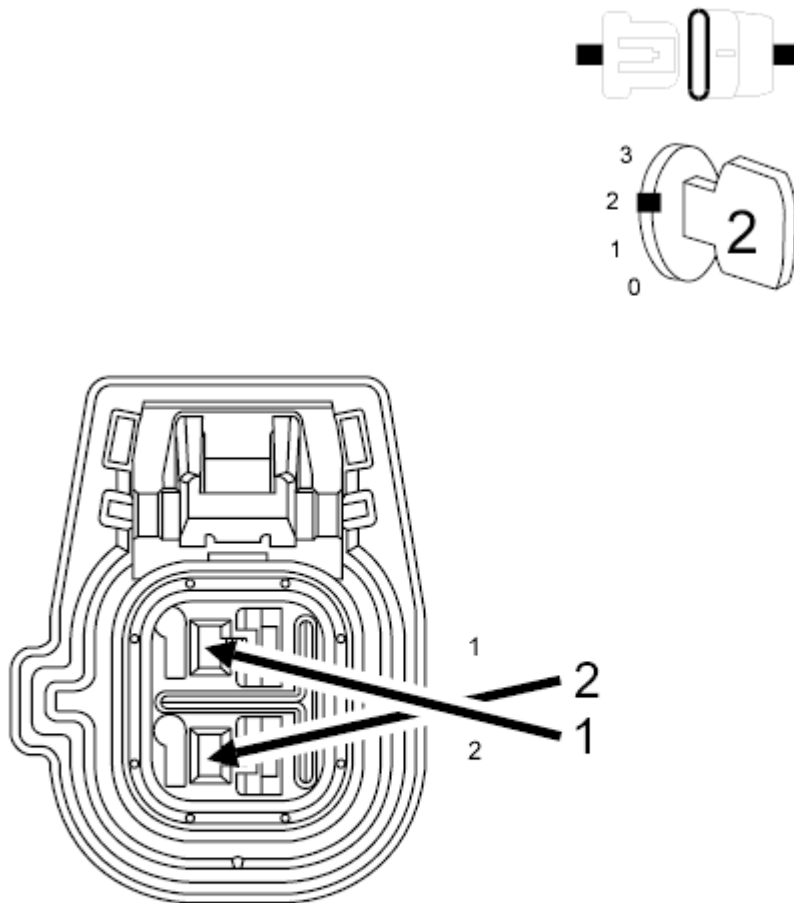
- Repair the (W1) Washer Fluid Level Sensor circuit for a short to voltage.
- Perform the BODY VERIFICATION TEST - VER 1. See **DTC-Based**

Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure

No

- Go to step 3

3. **JUMPER THE (W1) WASHER FLUID LEVEL SENSOR CIRCUIT TO THE (G931) SENSOR GROUND AND CHECK THE VOLTAGE**



SENSOR-
WASHER
FLUID
LEVEL-
FRONT

106835

Fig. 36: Washer Fluid Level Sensor Switch Harness Connector
Courtesy of CHRYSLER LLC

1. Connect a jumper between the (W1) Washer Fluid Level Sensor Circuit and the (G931) Sensor

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Ground circuit.

2. With the scan tool, read Washer Fluid Level Sensor voltage.

Does the Washer Fluid Level Sensor voltage read: 0.0 volts, Normal level?

Yes

- Replace the Washer Fluid Level Sensor Switch in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST - VER 1. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

No

- Go to step 4

4. (W1) WASHER FLUID LEVEL SENSOR CIRCUIT OPEN

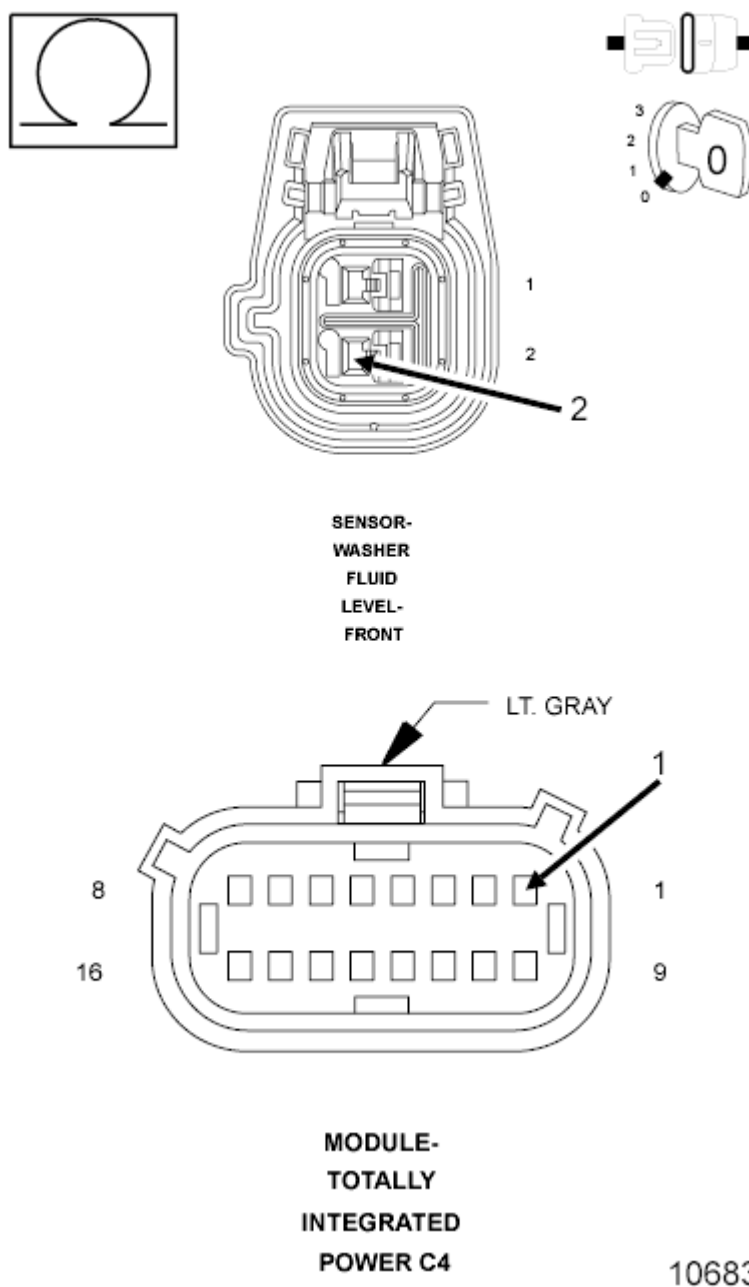


Fig. 37: Measuring Resistance Of Washer Fluid Level Sensor Circuit
Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the TIPM C4 harness connector.
3. Disconnect the Washer Fluid Level Sensor harness connector.
4. Measure the resistance of the (W1) Washer Fluid Level Sensor circuit at the Washer Fluid Level Sensor harness connector and the TIPM C4 harness connector.

Is the resistance below 10.0 ohms?

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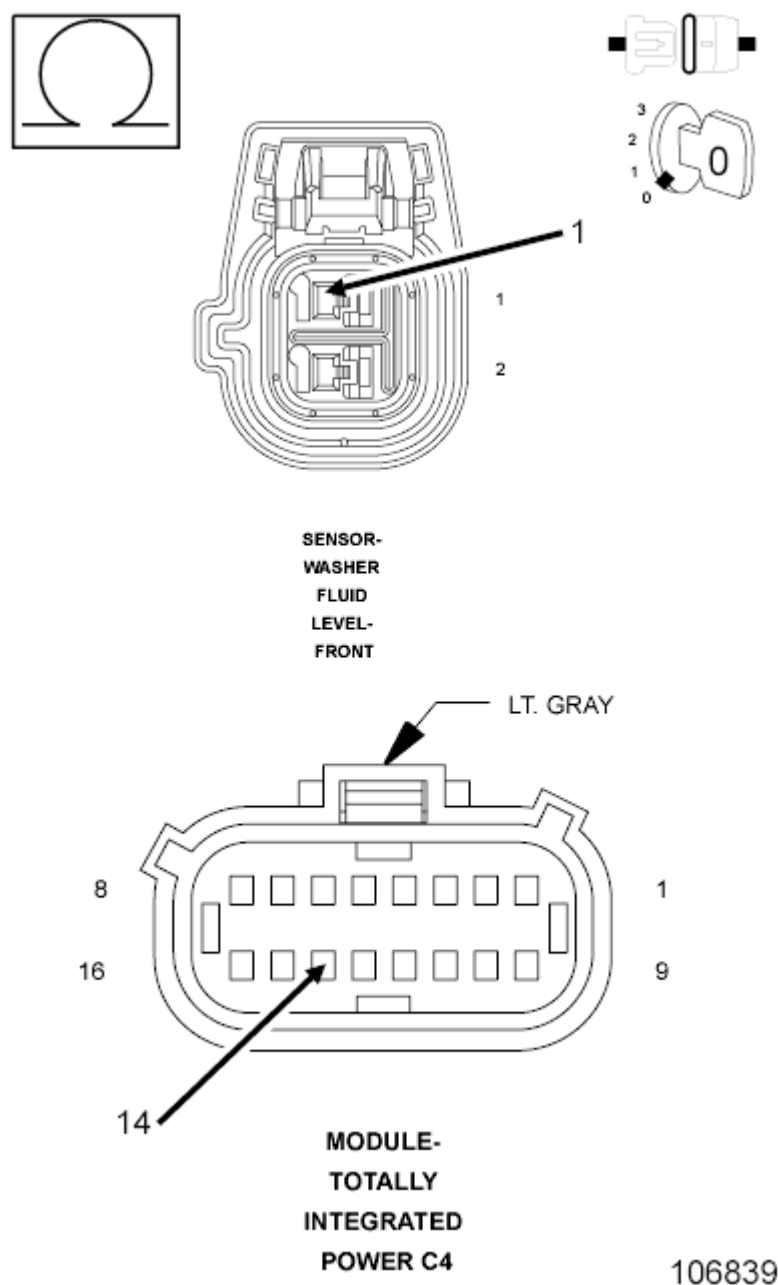
Yes

- Go to step 5

No

- Repair the (W1) Washer Fluid Level Sensor circuit for an open.
- Perform the BODY VERIFICATION TEST - VER 1. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

5. (G931) SENSOR GROUND OPEN



106839

Fig. 38: Measuring Resistance Of Sensor Ground At Washer Fluid Level Sensor Harness Connector And TIPM C4 Harness Connector
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Measure the resistance of the (G931) Sensor Ground at the Washer Fluid Level Sensor harness connector and the TIPM C4 harness connector.

Is the resistance below 10.0 ohms?

Yes

- Replace the Totally Integrated Power Module (TIPM) in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST - VER 1. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

No

- Repair the (G931) Sensor Ground for an open.
- Perform the BODY VERIFICATION TEST - VER 1. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**

C1008-BRAKE FLUID LEVEL CIRCUIT HIGH

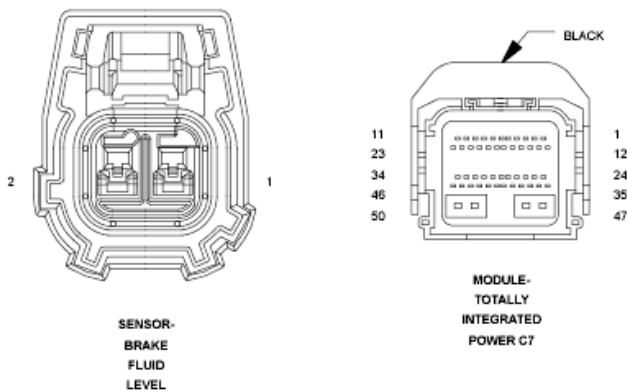
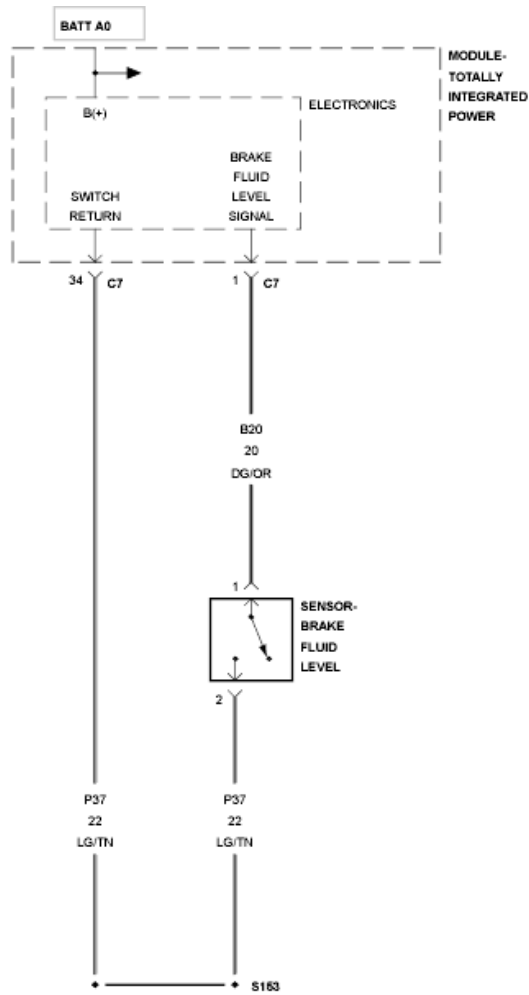


Fig. 39: Brake Fluid Level Circuit Schematic
Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

- **When Monitored:**

With the ignition on.

- **Set Condition:**

When the Totally Integrated Power Module (TIPM) detects the Brake Fluid Level Circuit voltage is greater than expected for more than five seconds.

Possible Causes
(B20) BRAKE FLUID LEVEL SIGNAL CIRCUIT OPEN
(B20) BRAKE FLUID LEVEL SIGNAL CIRCUIT SHORTED TO BATTERY VOLTAGE
BRAKE FLUID LEVEL SWITCH INTERNAL FAILURE
(P37) SWITCH RETURN CIRCUIT OPEN
TOTALLY INTEGRATED POWER MODULE (TIPM)

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

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

Does the scan tool display this DTC as active?

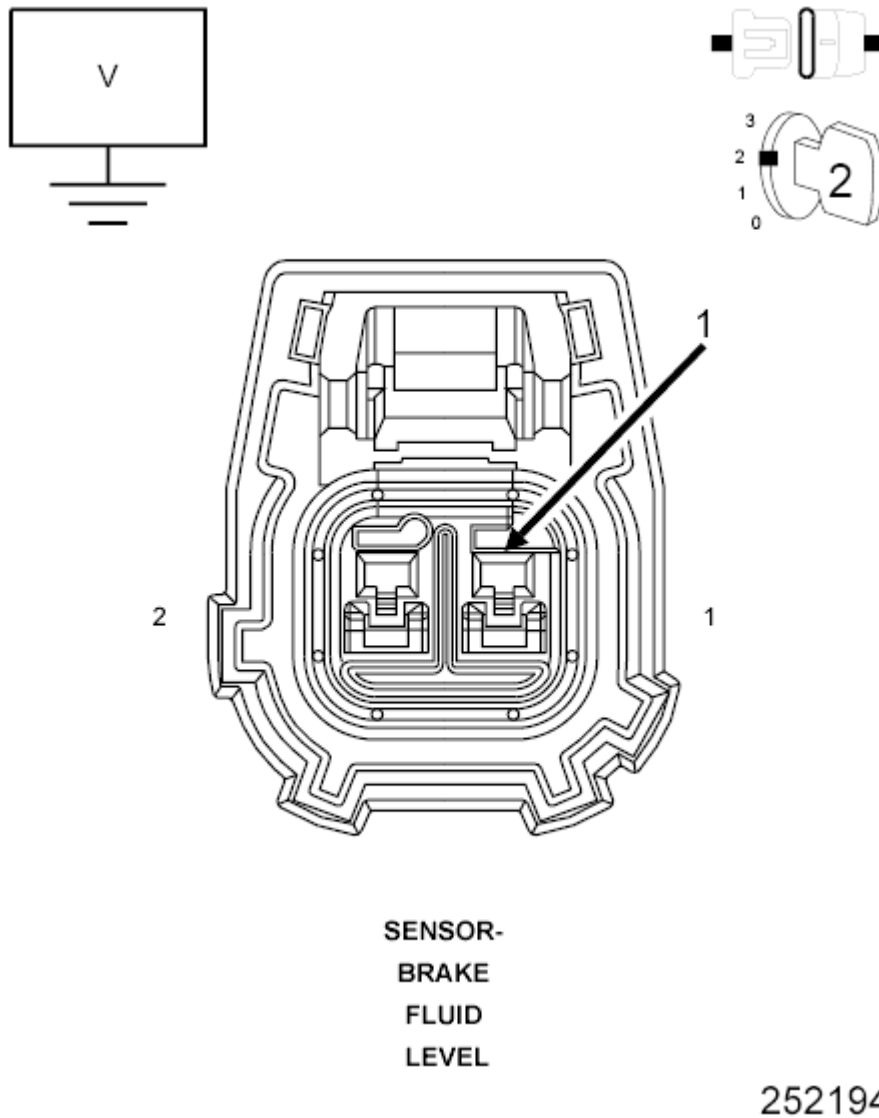
Yes

- Go to step 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. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

2. CHECK THE (B20) BRAKE FLUID LEVEL SIGNAL CIRCUIT FOR A SHORT TO VOLTAGE



2521946

Fig. 40: Measuring Voltage Between Ground And Brake Fluid Level Signal Circuit
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the Brake Fluid Level Sensor harness connector.
3. Disconnect the TIPM C7 harness connector.
4. Turn the ignition on.
5. Measure the voltage between ground and the (B20) Brake Fluid Level Signal circuit.

Is there any voltage present?

Yes

- Repair the short to voltage in the (B20) Brake Fluid Level Signal circuit.

- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure**.

No

- Go to step 3

3. CHECK THE (B20) BRAKE FLUID LEVEL SIGNAL CIRCUIT OPEN

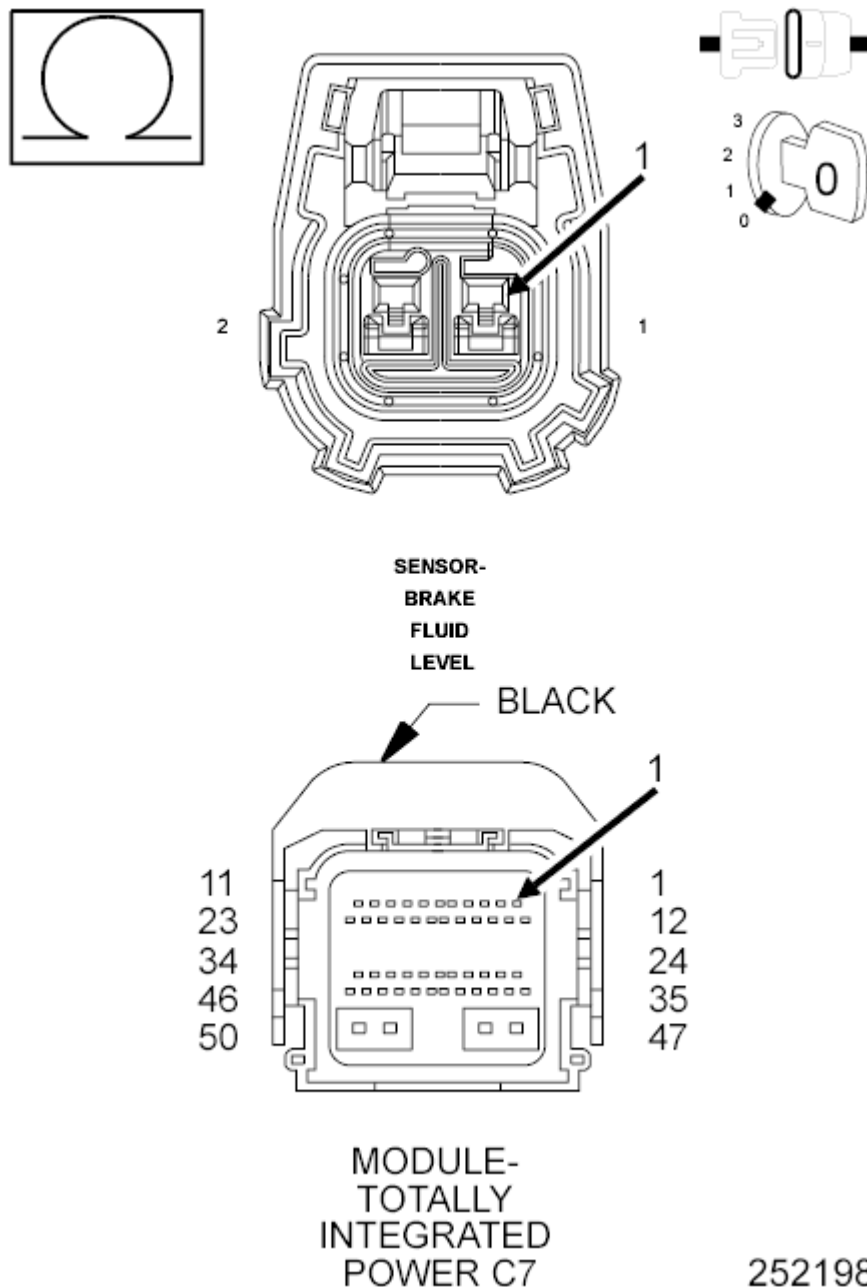


Fig. 41: Measuring Resistance Of Brake Fluid Level Signal Circuit
 Courtesy of CHRYSLER LLC

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2009 ACCESSORIES AND EQUIPMENT Totally Integrated Power Module (TIPM) - Electrical Diagnostics - Journey

1. Turn the ignition off.
2. Measure the resistance of the (B20) Brake Fluid Level Signal circuit between the Brake Fluid Level Sensor harness connector and the TIPM C7 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go to step 4

No

- Repair the open in the (B20) Brake Fluid Level Signal circuit.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

4. CHECK THE (P37) SWITCH RETURN CIRCUIT FOR AN OPEN

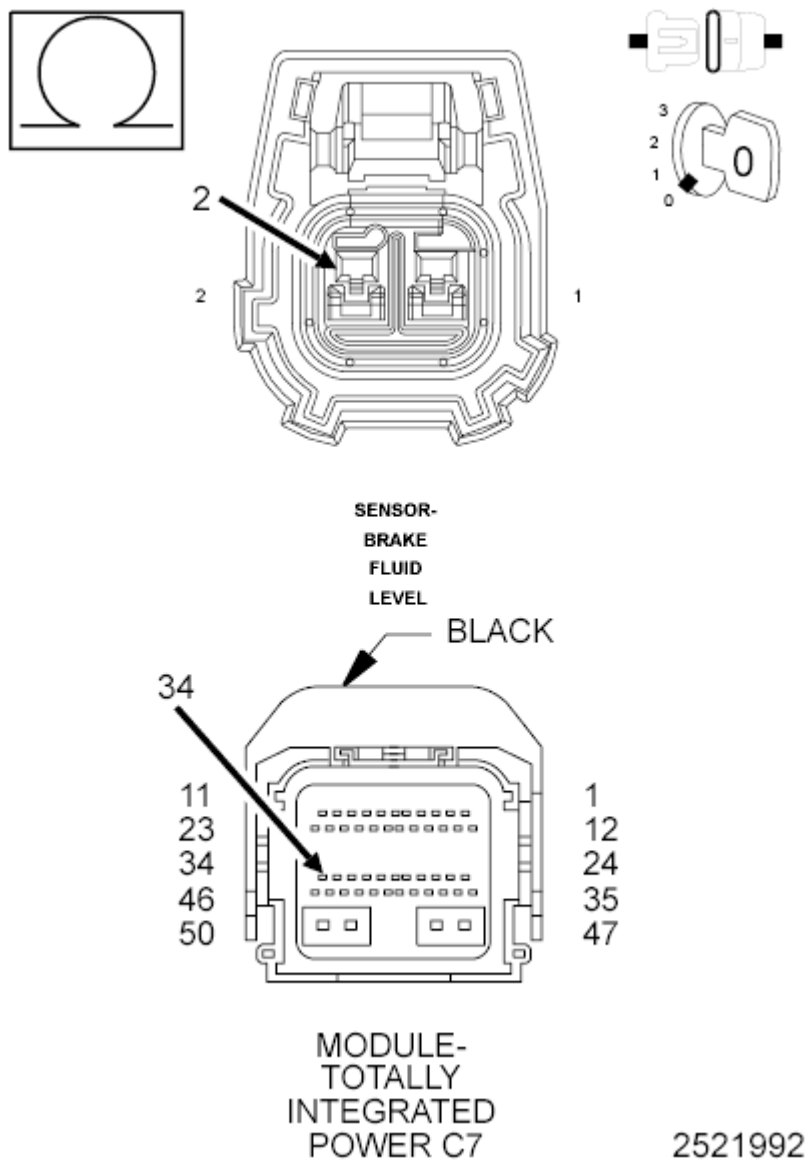


Fig. 42: Measuring Resistance Of Switch Return Circuit

Courtesy of CHRYSLER LLC

1. Measure the resistance of the (P37) Switch Return circuit between the Brake Fluid Level Sensor harness connector and the TIPM C7 harness connector.

Is the resistance below 5.0 Ohms?

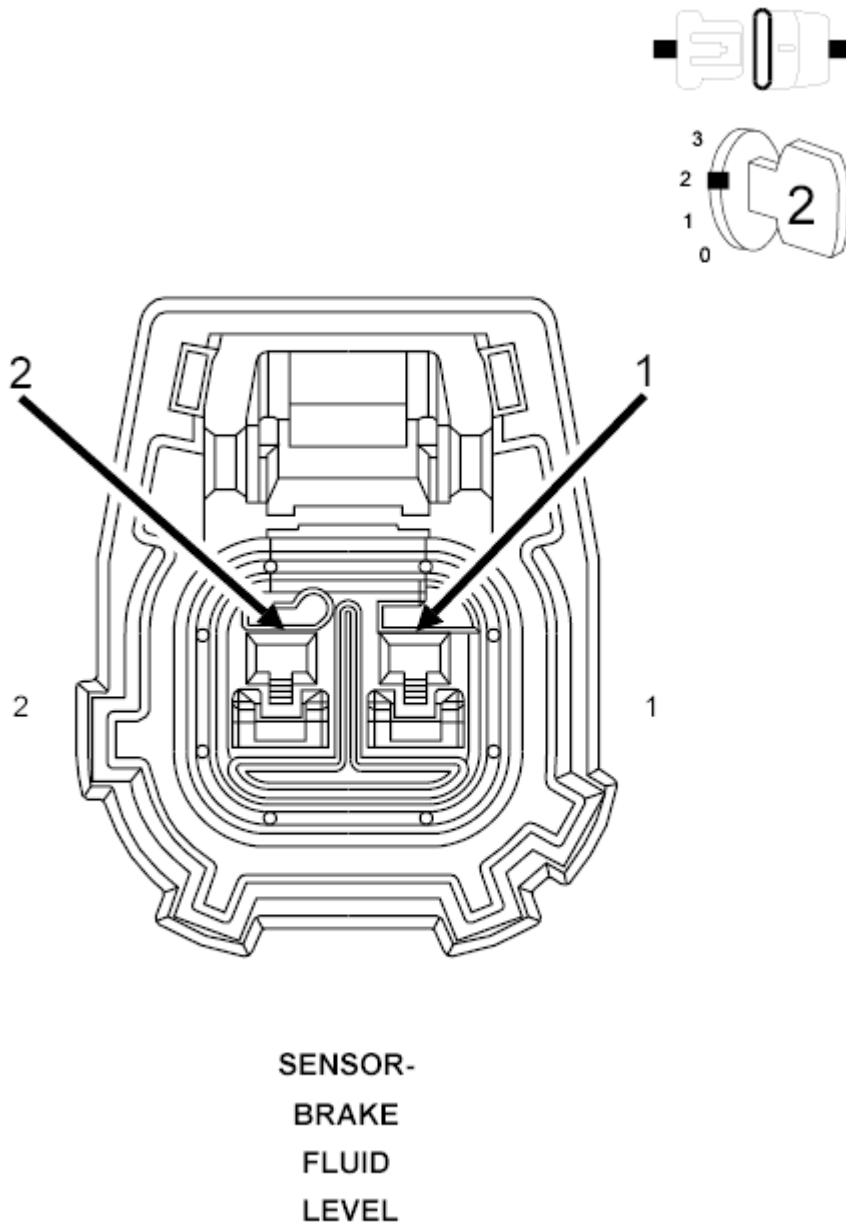
Yes

- Go to step 5

No

- Repair the open in the (P37) Switch Return circuit.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

5. BRAKE FLUID LEVEL SWITCH INTERNAL FAILURE



2522021

Fig. 43: Brake Fluid Level Sensor Harness Connector
Courtesy of CHRYSLER LLC

1. Reconnect the TIPM C7 harness connector.

2. Connect a jumper wire between the (B20) Brake Fluid Level Signal circuit and the (P37) Switch Return circuit in the Brake Fluid Level Sensor harness connector.
3. Turn the ignition on.
4. With the scan tool, read the Brake Fluid Level Voltage.

Is the voltage below 1.0 volt?

Yes

- Replace the Brake Fluid Level Sensor in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

No

- Replace the TIPM in accordance with the Service Information.
- Perform the BODY VERIFICATION TEST. See **DTC-Based Diagnostics/MODULE, Totally Integrated Power (TIPM) - Standard Procedure** .

P0072-AMBIENT AIR TEMPERATURE SENSOR CIRCUIT LOW - NGC

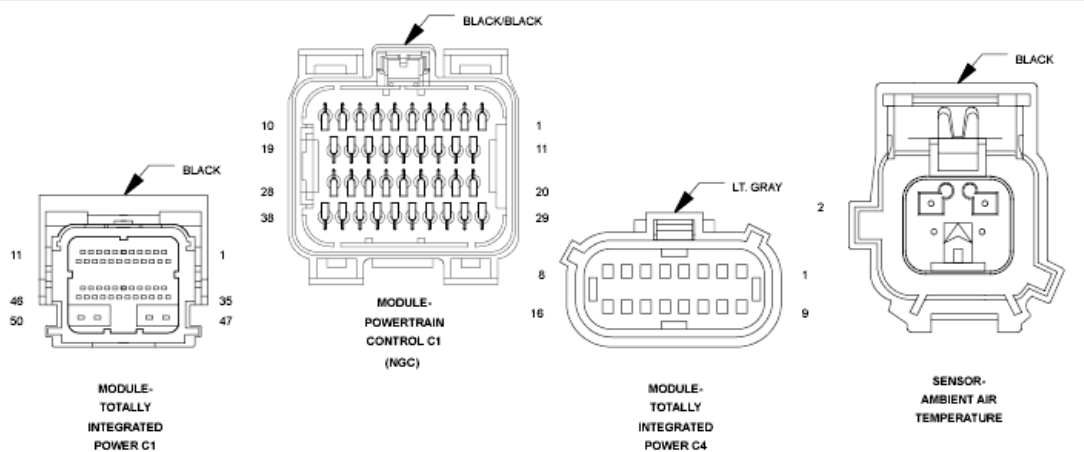
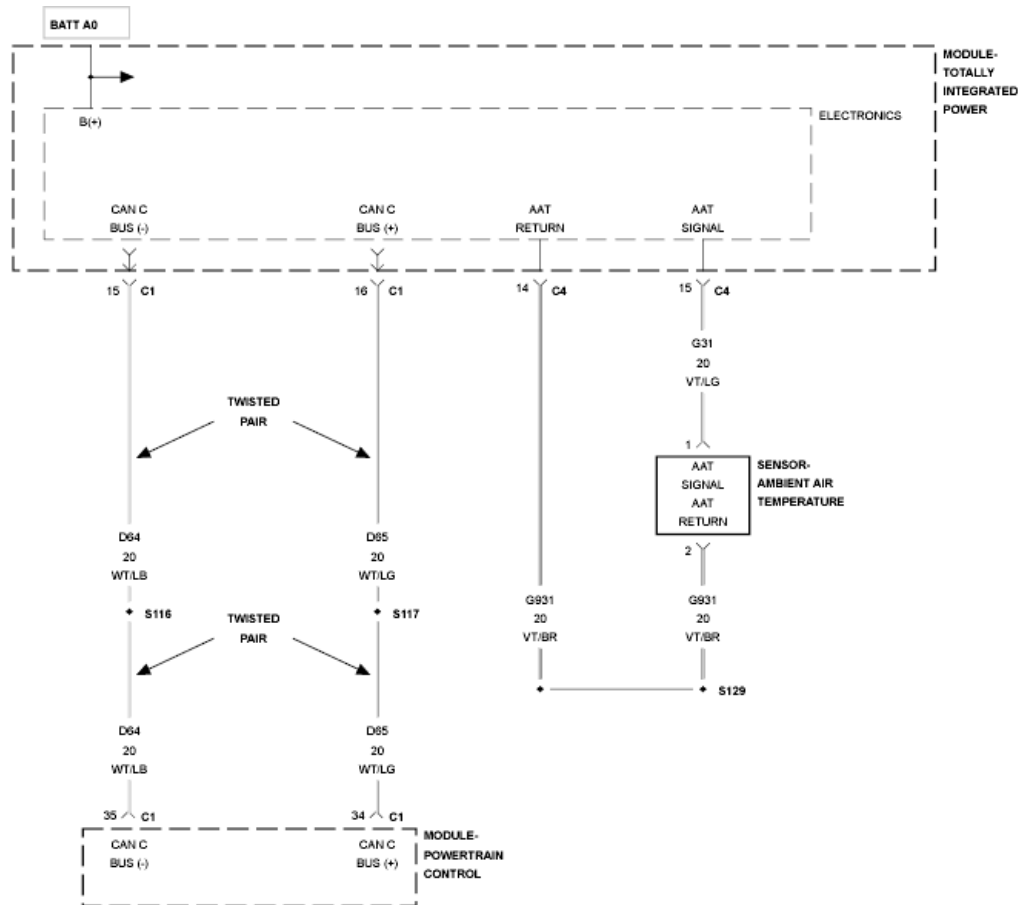


Fig. 44: Ambient Air Temperature Sensor Circuit Schematic
Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS**.

- **When Monitored:**

With the ignition on and battery voltage greater than 10.4 volts.

• **Set Condition:**

The PCM detects that the Ambient Air Temperature Sensor input voltage is below the minimum acceptable value.

Possible Causes
(G31) AAT SIGNAL CIRCUIT SHORTED TO GROUND
(G31) AAT SIGNAL CIRCUIT SHORTED TO THE (G931) AAT SENSOR GROUND
EXCESSIVE RESISTANCE IN THE (G31) AAT SIGNAL CIRCUIT
AMBIENT AIR TEMPERATURE SENSOR
TOTALLY INTEGRATED POWER MODULE (TIPM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure

DIAGNOSTIC TEST

1. DTC IS ACTIVE

NOTE: Diagnose any CAN - C Communication DTCs before continuing.

NOTE: Diagnose and repair any system voltage DTCs before continuing with this test.

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 the scan tool, select View DTCs.

Is the DTC Active at this time?

Yes

- Go to step 2

No

- Refer to the *CHECKING FOR AN INTERMITTENT DTC Diagnostic Procedure. Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure

2. (G31) AAT SIGNAL CIRCUIT SHORTED TO GROUND

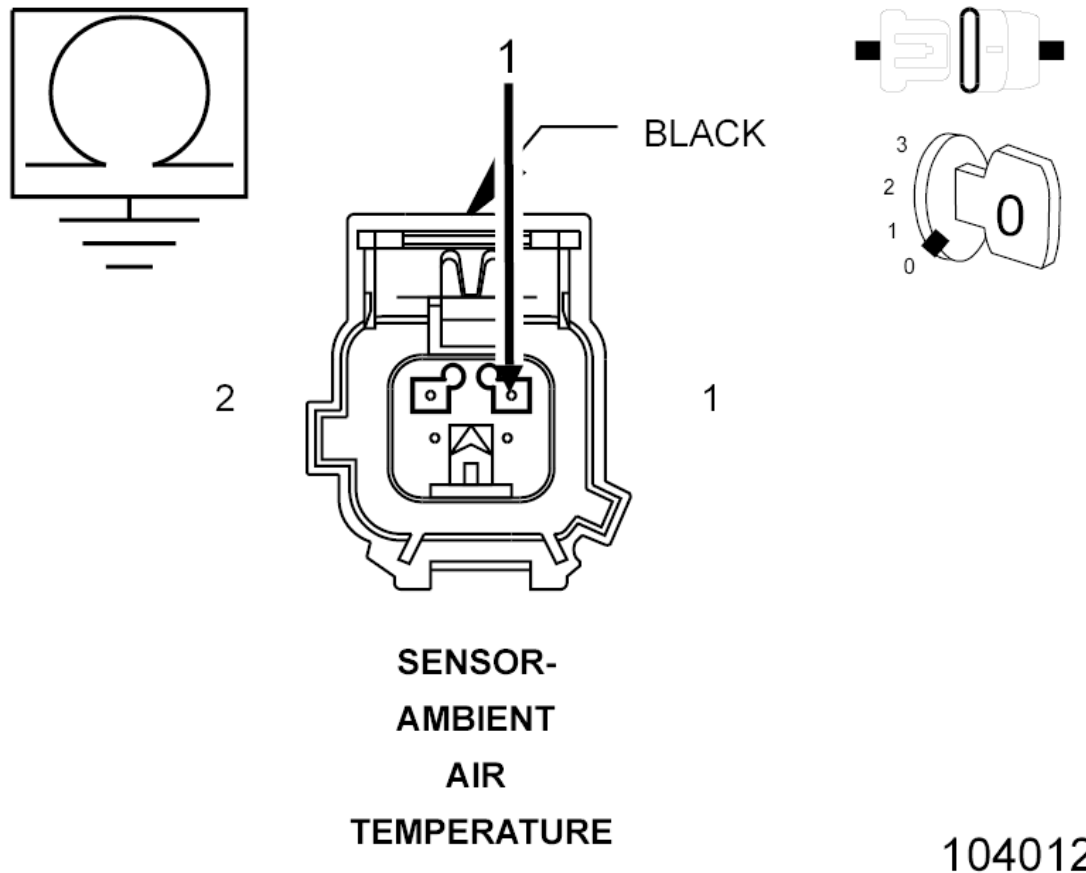


Fig. 45: Measuring Resistance Between Ground And AAT Signal Circuit In Ambient Air Temperature Sensor Harness Connector
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the Ambient Air Temperature Sensor connector.
3. Disconnect the C4 Totally Integrated Power Module (TIPM) harness connector.
4. Measure the resistance between ground and the (G31) AAT Signal circuit in the Ambient Air Temperature Sensor harness connector.

Is the resistance above 100 ohms?

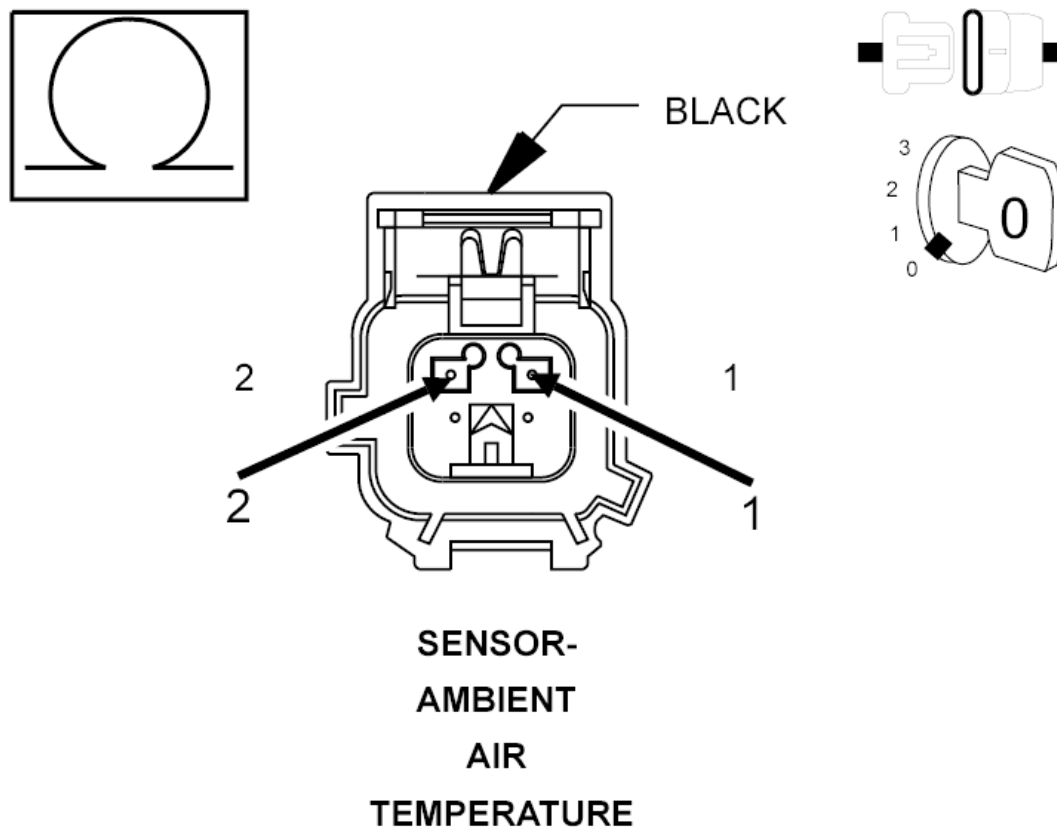
Yes

- Go to step 3

No

- Repair the short to ground in the (G31) AAT Signal circuit for a short to ground.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

3. (G31) AAT SIGNAL CIRCUIT SHORTED TO (G931) AAT SENSOR GROUND CIRCUIT



104014

Fig. 46: Measuring Resistance Between AAT Signal Circuit And AAT Sensor Ground Circuit
Courtesy of CHRYSLER LLC

1. Measure the resistance between the (G31) AAT Signal circuit and the (G931) AAT Sensor Ground circuit in the Ambient Air Temperature Sensor harness connector.

Is the resistance above 100 ohms?

Yes

- Go to step 4

No

- Repair the short between the (G31) AAT Signal circuit and the (G931) AAT Sensor Ground circuit.

- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

4. EXCESSIVE RESISTANCE IN THE (G31) AAT SIGNAL CIRCUIT

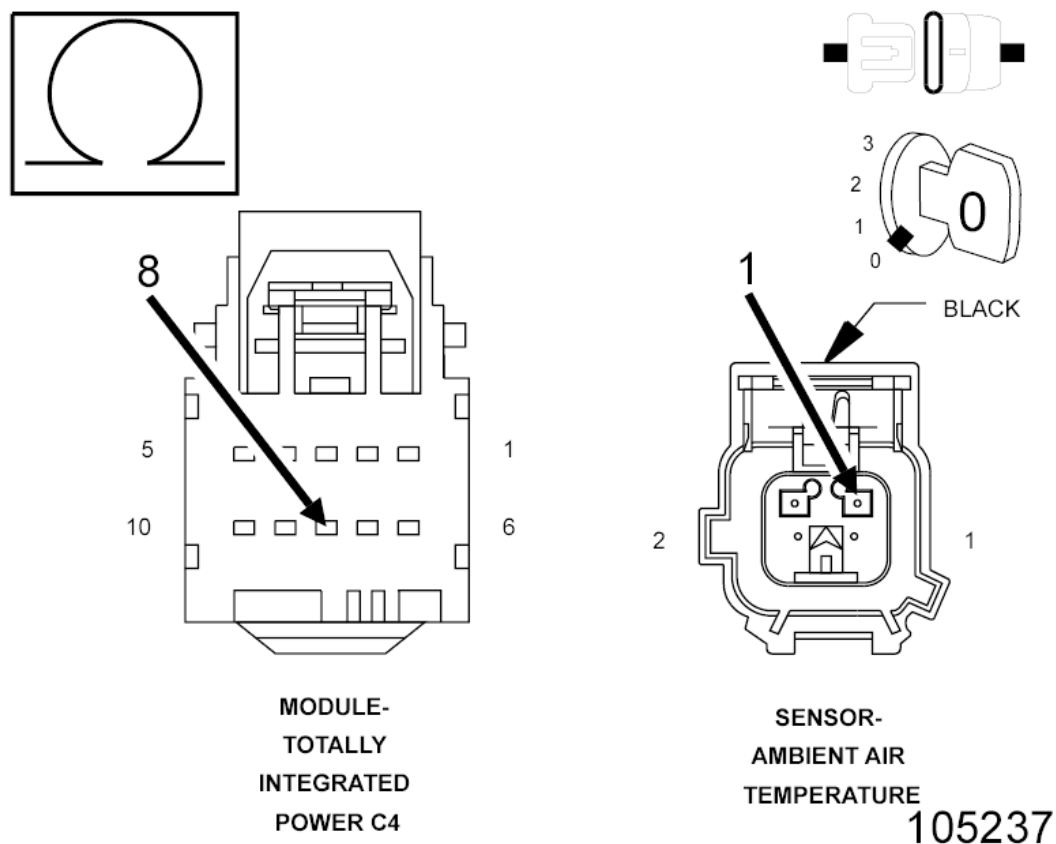


Fig. 47: Measuring Resistance Of AAT Signal Circuit

Courtesy of CHRYSLER LLC

1. Measure the resistance of the (G31) AAT Signal circuit between the Ambient Air Temperature Sensor harness connector and the C4 Totally Integrated Power Module (TIPM) harness connector.

Is the resistance below 5.0 ohms?

Yes

- Go to step 5

No

- Repair the excessive resistance in the (G31) AAT Signal circuit.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

5. AMBIENT AIR TEMPERATURE SENSOR

1. Turn the ignition off.
2. Connect the C4 Totally Integrated Power Module (TIPM) harness connector.
3. Turn the ignition on.
4. With the scan tool, read the Ambient Air Temperature Sensor signal voltage.

Is the voltage above 4.5 volts with the Ambient Air Temperature Sensor harness disconnected?

Yes

- Verify that there is good pin to terminal contact in the AAT Sensor and TIPM harness connectors. Replace the Ambient Temperature Sensor if no problems were found with the connectors.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

No

- Go to step 6

6. TOTALLY INTEGRATED POWER MODULE (TIPM)

1. Using the **SYSTEM WIRING DIAGRAMS** as a guide, inspect the wiring and connectors between the Ambient Air Temperature Sensor and the Totally Integrated Power Module (TIPM).
2. Look for any chafed, pierced, pinched, or partially broken wires.
3. Look for broken, bent, pushed out or corroded terminals.
4. Verify that there is good pin to terminal contact in the AAT Sensor and TIPM connectors.
5. Monitor the scan tool data relative to this circuit and wiggle test the wiring and connectors.
6. Look for the data to change or for the DTC to reset during the wiggle test.
7. Refer to any Technical Service Bulletins that may apply.

Were any problems found?

Yes

- Repair as necessary.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

No

- Replace and program the Totally Integrated Power Module (TIPM) in accordance with the Service Information.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

P0072-AMBIENT AIR TEMPERATURE SENSOR CIRCUIT LOW - GPEC

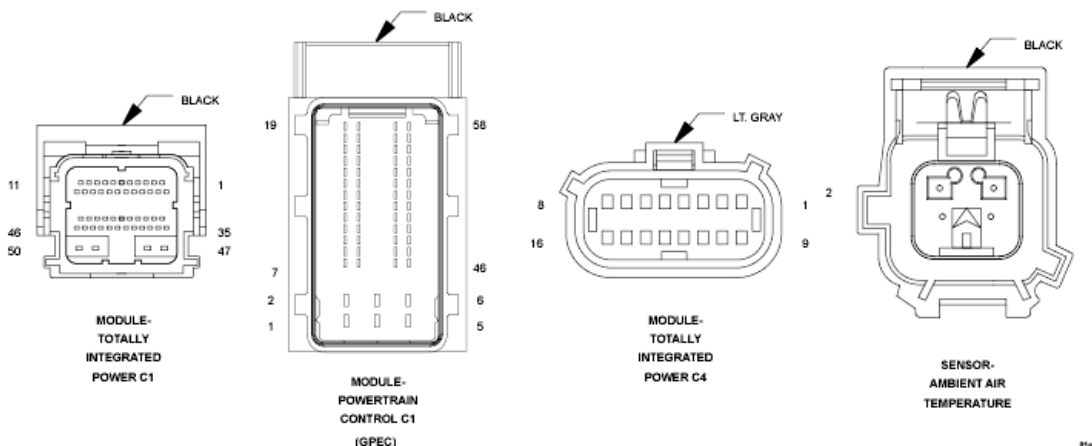
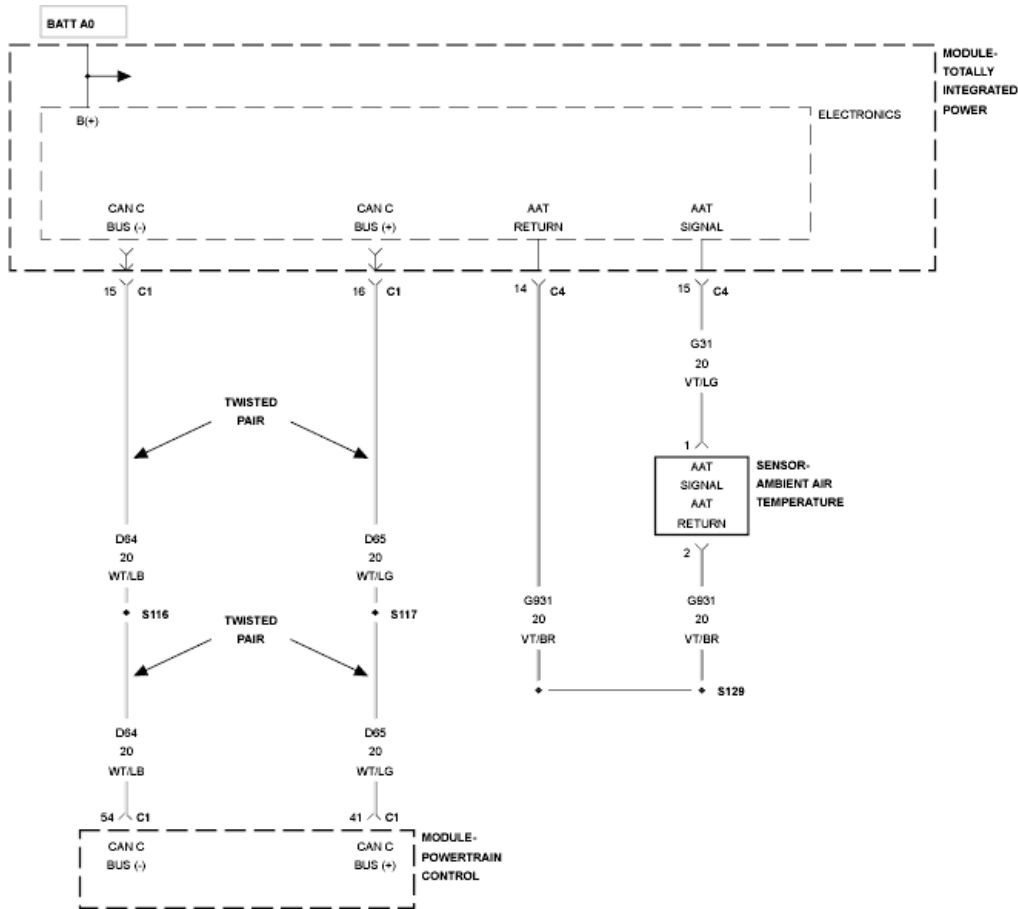


Fig. 48: Ambient Air Temperature Sensor Circuit Schematic
 Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS** .

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2009 ACCESSORIES AND EQUIPMENT Totally Integrated Power Module (TIPM) - Electrical Diagnostics - Journey

- **When Monitored:**

With the ignition on and battery voltage greater than 10.4 volts.

- **Set Condition:**

The PCM detects that the Ambient Air Temperature Sensor input voltage is below the minimum acceptable value.

Possible Causes
INTERMITTENT DTC (G31) AAT SIGNAL CIRCUIT SHORTED TO GROUND (G31) AAT SIGNAL CIRCUIT SHORTED TO (G931) AAT SENSOR GROUND (G31) AAT SIGNAL CIRCUIT OPEN OR HIGH RESISTANCE AMBIENT AIR TEMPERATURE SENSOR TOTALLY INTEGRATED POWER MODULE (TIPM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure

DIAGNOSTIC TEST

1. DTC IS ACTIVE

NOTE: Diagnose any CAN - C Communication DTCs before continuing.

NOTE: Diagnose and repair any system voltage DTCs before continuing with this test.

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 the scan tool, select View DTCs.

Is the status Active for this DTC?

Yes

- Go to step 2

No

- Refer to the *CHECKING FOR AN INTERMITTENT DTC Diagnostic Procedure. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

2. (G31) AAT SIGNAL CIRCUIT SHORTED TO GROUND

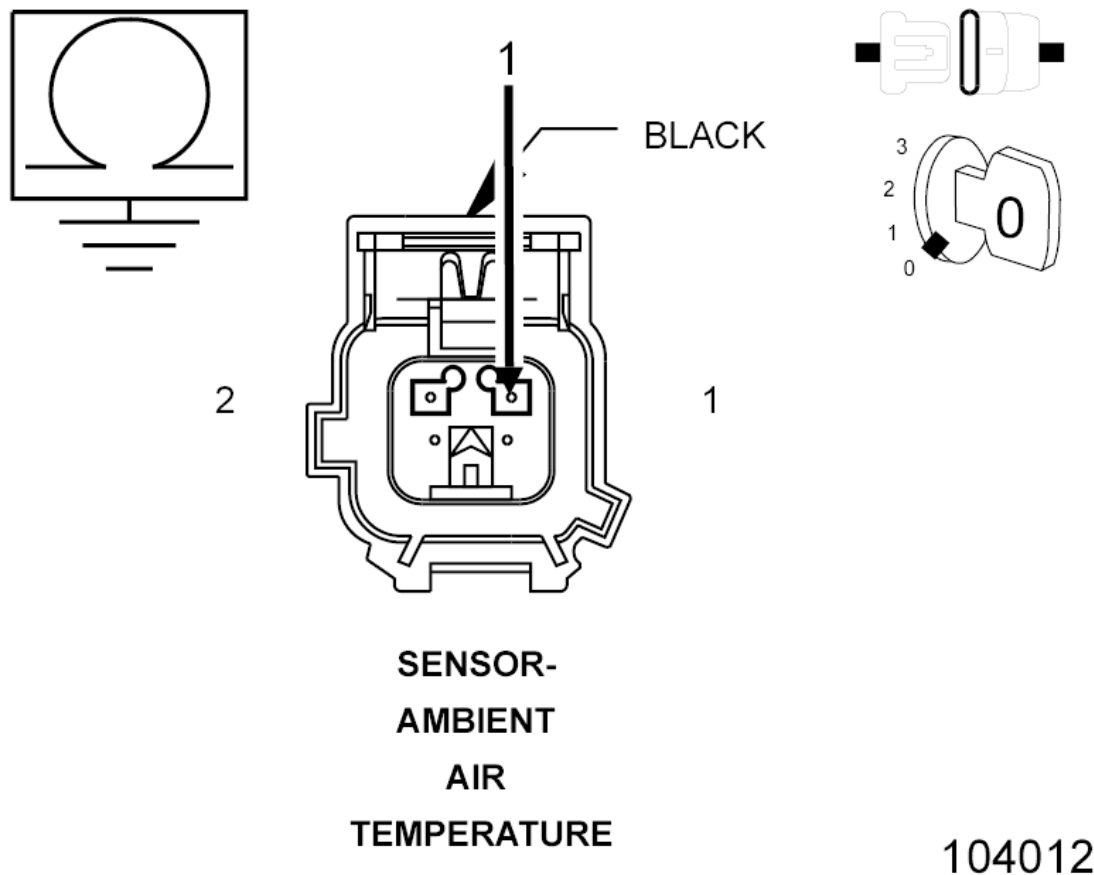


Fig. 49: Measuring Resistance Between Ground And AAT Signal Circuit In Ambient Air Temperature Sensor Harness Connector

Courtesy of CHRYSLER LLC

- Turn the ignition off.
- Disconnect the Ambient Air Temperature Sensor connector.
- Disconnect the Totally Integrated Power Module (TIPM) connector.
- Measure the resistance between ground and the (G31) AAT Signal circuit in the Ambient Air Temperature Sensor harness connector.

Is the resistance above 100 ohms?

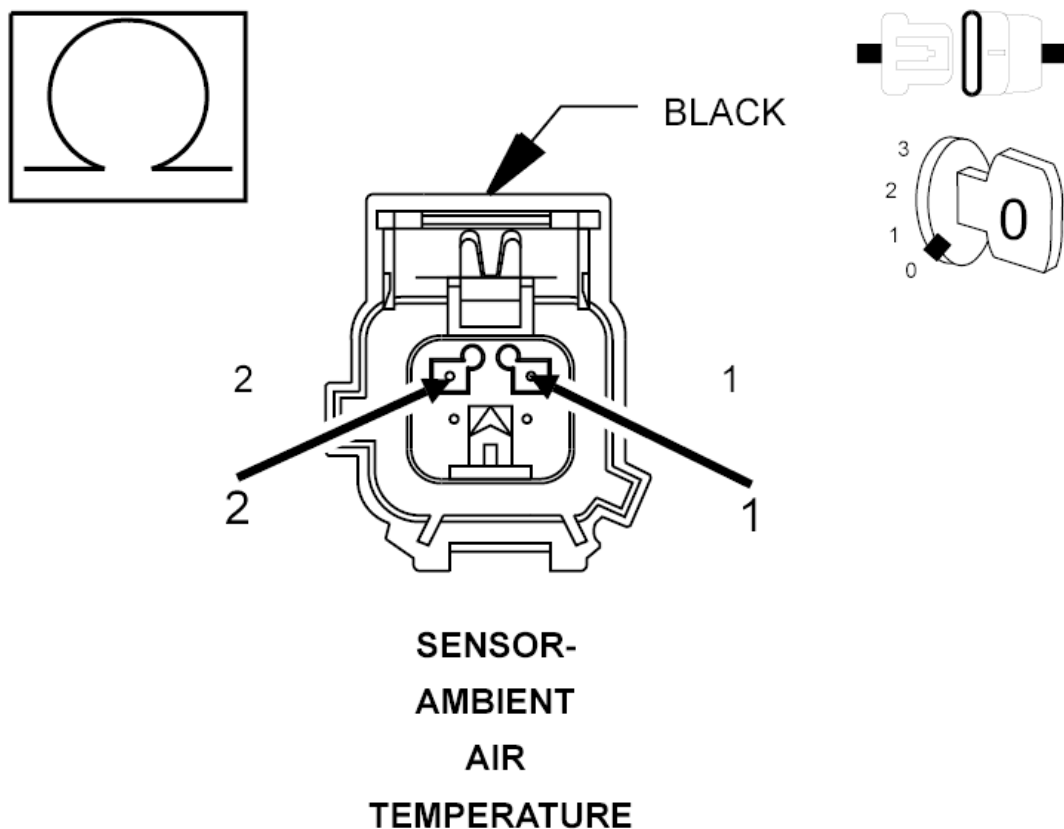
Yes

- Go to step 3

No

- Repair the (G31) AAT Signal circuit for a short to ground.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

3. (G31) AAT SIGNAL CIRCUIT SHORTED TO (G931) AAT SENSOR GROUND CIRCUIT



104014

Fig. 50: Measuring Resistance Between AAT Signal Circuit And AAT Sensor Ground Circuit
 Courtesy of CHRYSLER LLC

1. Measure the resistance between the (G31) AAT Signal circuit and the (G931) AAT Sensor Ground circuit in the Ambient Air Temperature Sensor harness connector.

Is the resistance above 100 ohms?

Yes

- Go to step 4

1. Measure the resistance of the (G31) AAT Signal circuit between the Ambient Air Temperature

Sensor harness connector and the Totally Integrated Power Module (TIPM) harness connector.

Is the resistance below 5.0 ohms?

Yes

- Go to step 5

No

- Repair the (G31) AAT Signal circuit for an open circuit or high resistance.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

5. AMBIENT AIR TEMPERATURE SENSOR

1. Turn the ignition off.
2. Connect the Totally Integrated Power Module (TIPM) connector.
3. Turn the ignition on.
4. With the scan tool, read the Ambient Air Temperature Sensor signal voltage.

Is the voltage above 4.5 volts with the Ambient Air Temperature Sensor harness disconnected?

Yes

- Replace the Ambient Air Temperature Sensor in accordance with the service information.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

No

- Go to step 6

6. TOTALLY INTEGRATED POWER MODULE (TIPM)

1. Using the **SYSTEM WIRING DIAGRAMS** as a guide, inspect the wiring and connectors between the Ambient Air Temperature Sensor and the Totally Integrated Power Module (TIPM).
2. Look for any chafed, pierced, pinched, or partially broken wires.
3. Look for broken, bent, pushed out or corroded terminals.
4. Monitor the scan tool data relative to this circuit and wiggle test the wiring and connectors.
5. Look for the data to change or for the DTC to reset during the wiggle test.
6. Refer to any Technical Service Bulletins that may apply.

Were any problems found?

Yes

- Repair as necessary.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

No

- Replace and program the Totally Integrated Power Module (TIPM) in accordance with the Service Information.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

P0072-AMBIENT AIR TEMPERATURE SIGNAL VOLTAGE TOO LOW



- **When Monitored:**

With the ignition on.

• **Set Condition:**

The Ambient Air Temperature Sensor signal is at 0 volts.

Possible Causes

(G31) AMBIENT AIR TEMP SENSOR SIGNAL CIRCUIT SHORTED TO GROUND
(G31) AMBIENT AIR TEMP SENSOR SIGNAL CIRCUIT SHORTED TO (G931) SENSOR GROUND
AMBIENT AIR TEMPERATURE SENSOR
TOTALLY INTEGRATED POWER MODULE

DIAGNOSTIC TEST

1. CHECK FOR ACTIVE DTC

NOTE: If the ECM detects and stores a DTC, the ECM also stores the engine/vehicle operating conditions under which the DTC was set. Some of these conditions are displayed on the scan tool at the same time the DTC is displayed.

NOTE: Before erasing stored DTCs, record these conditions. Attempting to duplicate these conditions may assist when checking for an active DTC.

1. Turn the ignition on.
2. With the scan tool, erase TIPM DTCs.
3. Monitor the scan tool for TIPM DTCs for at least 2 minutes.

Did this DTC set again?

Yes

- Go To step 2

No

- Refer to the INTERMITTENT DTC Diagnostic Procedure. Refer to **DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure**

2. AMBIENT AIR TEMPERATURE SENSOR

1. Turn the ignition off.
2. Disconnect the Ambient Air Temperature Sensor harness connector.
3. Turn the ignition on.

4. Monitor the scan tool for TIPM DTCs for at least 2 minutes.

Does the scan tool display P0073 AMB AIR TEMP SENSOR SIGNAL VOLTAGE TOO HIGH?

Yes

- Replace the Ambient Air Temperature Sensor.
- Perform the ECM VERIFICATION TEST. Refer to **DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure** .

No

- Go To step 3

3. (G31) AMBIENT AIR TEMP SENSOR SIGNAL CIRCUIT SHORTED TO GROUND

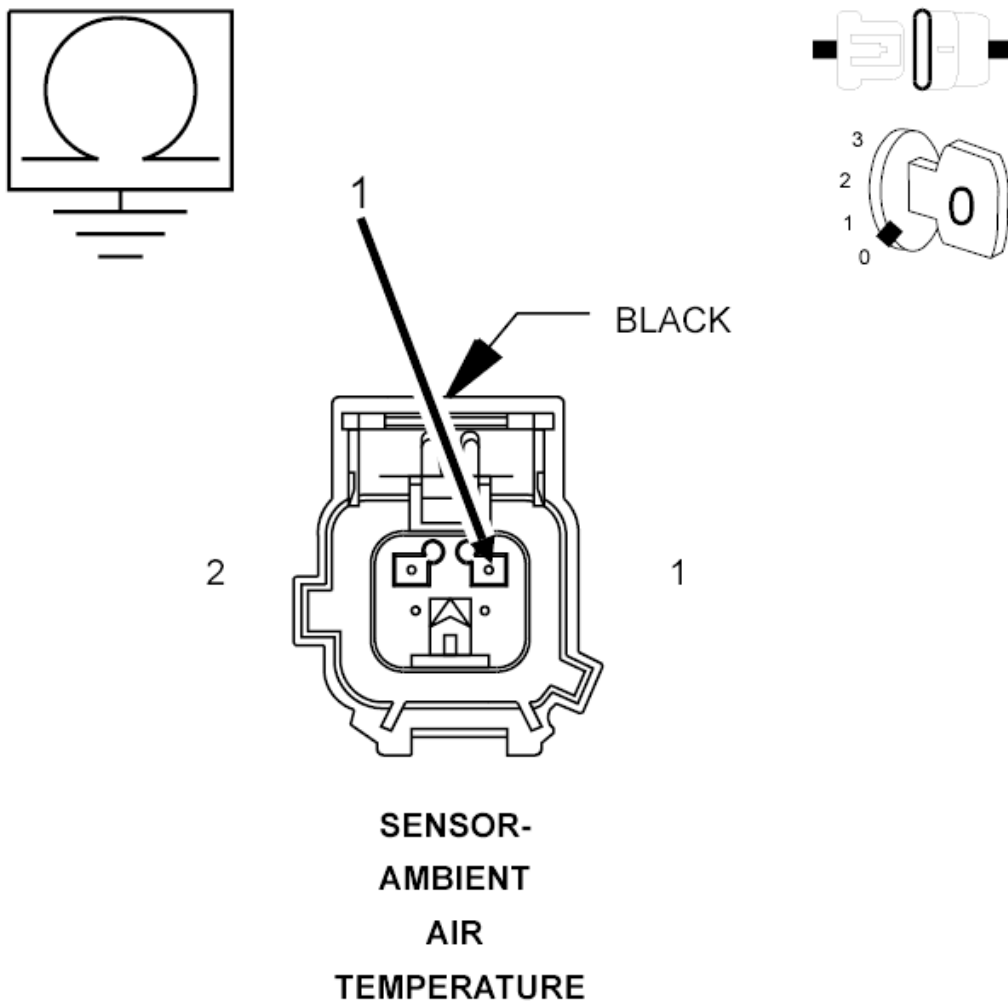


Fig. 53: Measuring Resistance Between Ground And Ambient Air Temperature Sensor Signal Circuit

Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the TIPM harness connectors.
3. Measure the resistance between ground and the (G31) Ambient Air Temperature Sensor Signal circuit.

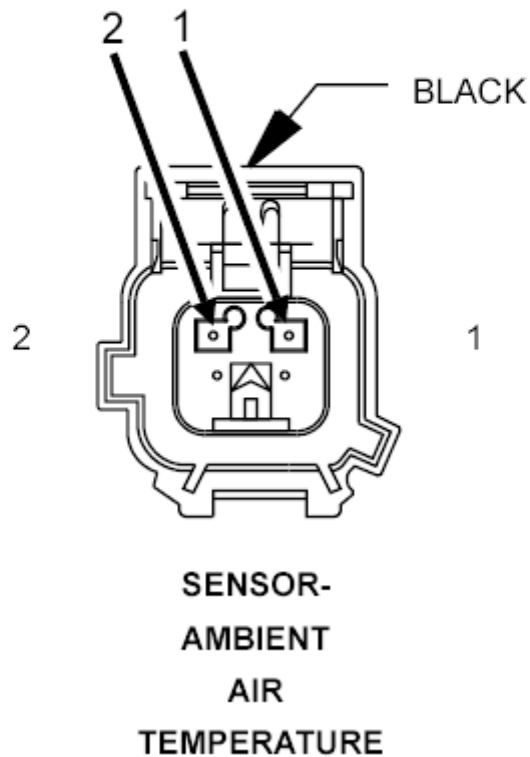
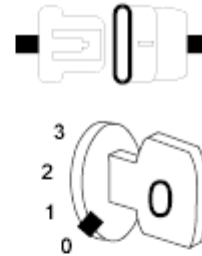
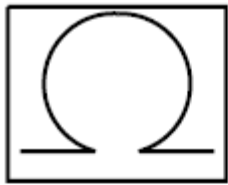
Is the resistance below 1000 ohms?

Yes

- Repair the (G31) Ambient Air Temperature Sensor Signal circuit for a short to ground.
- Perform the ECM VERIFICATION TEST. Refer to **DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure** .

No

- Go To step 4
4. **(G31) AMBIENT AIR TEMP SENSOR SIGNAL CIRCUIT SHORTED TO (G931) SENSOR GROUND**



102966

Fig. 54: Measuring Resistance Between Ambient Air Temperature Sensor Signal Circuit And Sensor Ground Circuit

Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Measure the resistance between the (G31) Ambient Air Temperature Sensor Signal circuit and the (G931) Sensor Ground circuit.

Is the resistance below 1000 ohms?

Yes

- Repair the (G31) Ambient Air Temperature Sensor Signal circuit for a short to the (G931) Sensor Ground circuit.
- Perform the ECM VERIFICATION TEST. Refer to **DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure** .

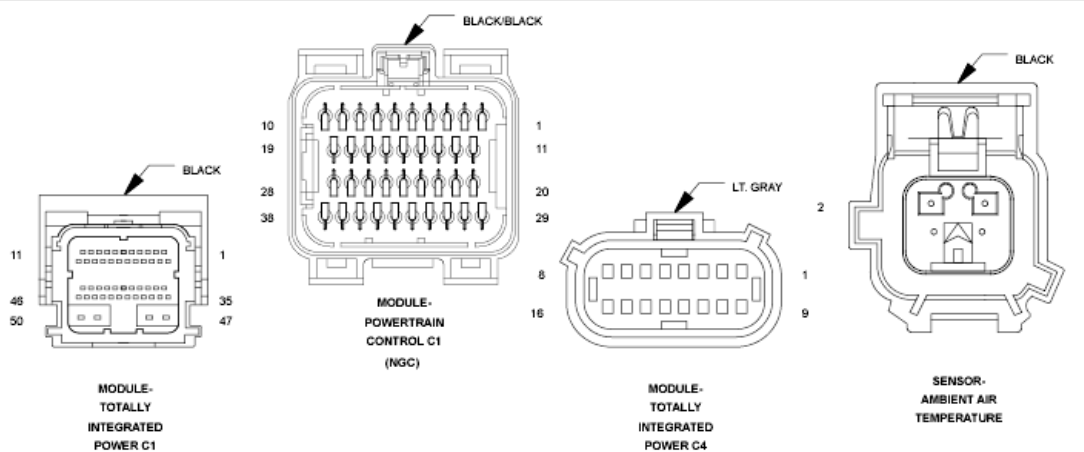
No

- Replace and reprogram the TIPM.
- Perform the ECM VERIFICATION TEST. Refer to **DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure** .

P0073-AMBIENT AIR TEMPERATURE SENSOR CIRCUIT HIGH - NGC



- **When Monitored:**



2009 Dodge Journey R/T

2009 ACCESSORIES AND EQUIPMENT Totally Integrated Power Module (TIPM) - Electrical Diagnostics - Journey

With the ignition on and battery voltage greater than 10.4 volts.

• Set Condition:

The PCM detects that the Ambient Air Temperature Sensor input voltage is above the maximum acceptable value.

Possible Causes

(G31) AAT SIGNAL CIRCUIT SHORTED TO VOLTAGE
(G31) AAT SIGNAL CIRCUIT OPEN
(G931) AAT SENSOR GROUND CIRCUIT OPEN
AMBIENT AIR TEMPERATURE SENSOR
TOTALLY INTEGRATED POWER MODULE (TIPM)
POWERTRAIN CONTROL MODULE (PCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure

DIAGNOSTIC TEST

1. DTC IS ACTIVE

NOTE: Diagnose any CAN - C Communication DTCs before continuing.

NOTE: Diagnose and repair any system voltage DTCs before continuing with this test.

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 the scan tool, select View DTCs.

Is the DTC Active at this time?

Yes

- Go to step 2

No

- Refer to the *CHECKING FOR AN INTERMITTENT DTC Diagnostic Procedure. Refer to

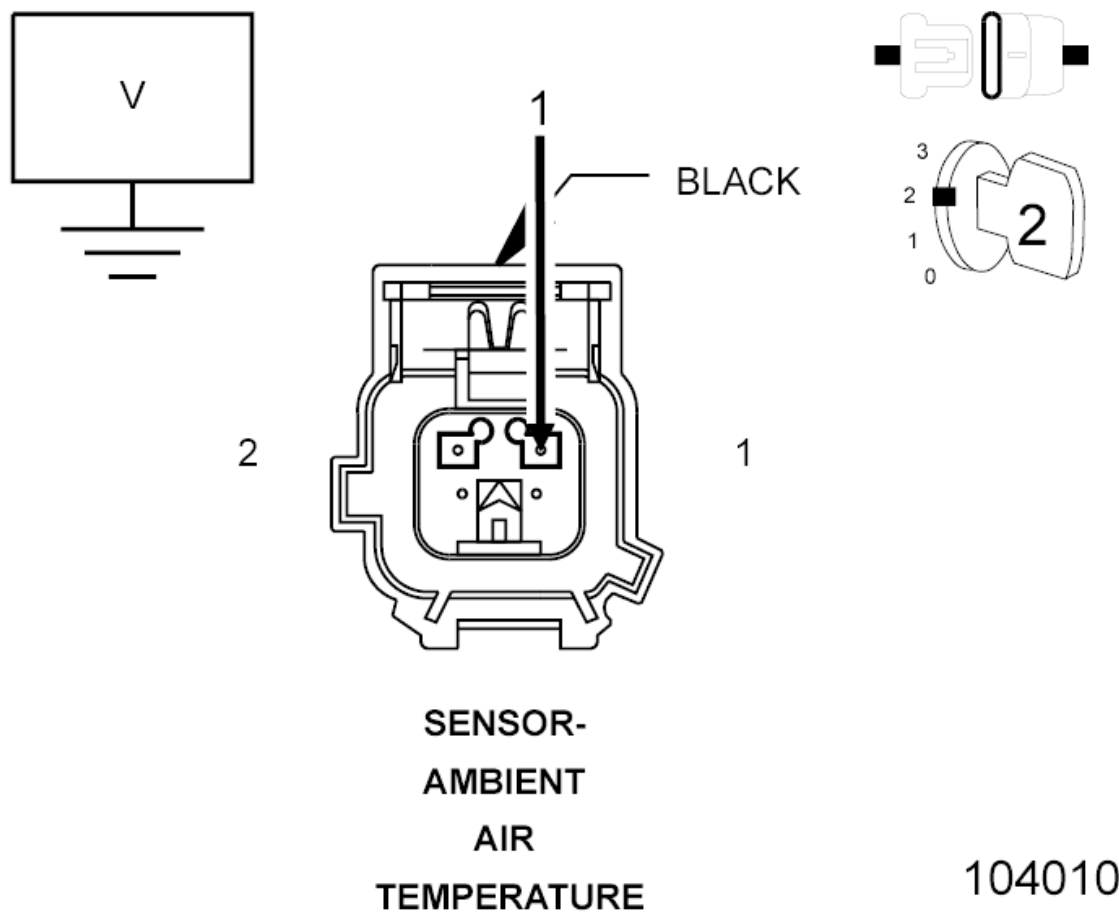
DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**2. (G31) AAT SIGNAL CIRCUIT SHORTED TO VOLTAGE**

Fig. 56: Ambient Air Temperature Sensor Connector
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the Ambient Air Temperature Sensor connector.
3. Disconnect the C4 Totally Integrated Power Module (TIPM) harness connector.
4. Turn the ignition on.
5. Measure the voltage of the (G31) AAT Signal circuit in the Ambient Air Temperature Sensor harness connector.

Is there any voltage present?

Yes

- Repair the short to voltage in the (G31) AAT Signal circuit.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE,**

Powertrain Control (PCM) - Standard Procedure

No

- Go to step 3

3. (G31) AAT SIGNAL CIRCUIT OPEN

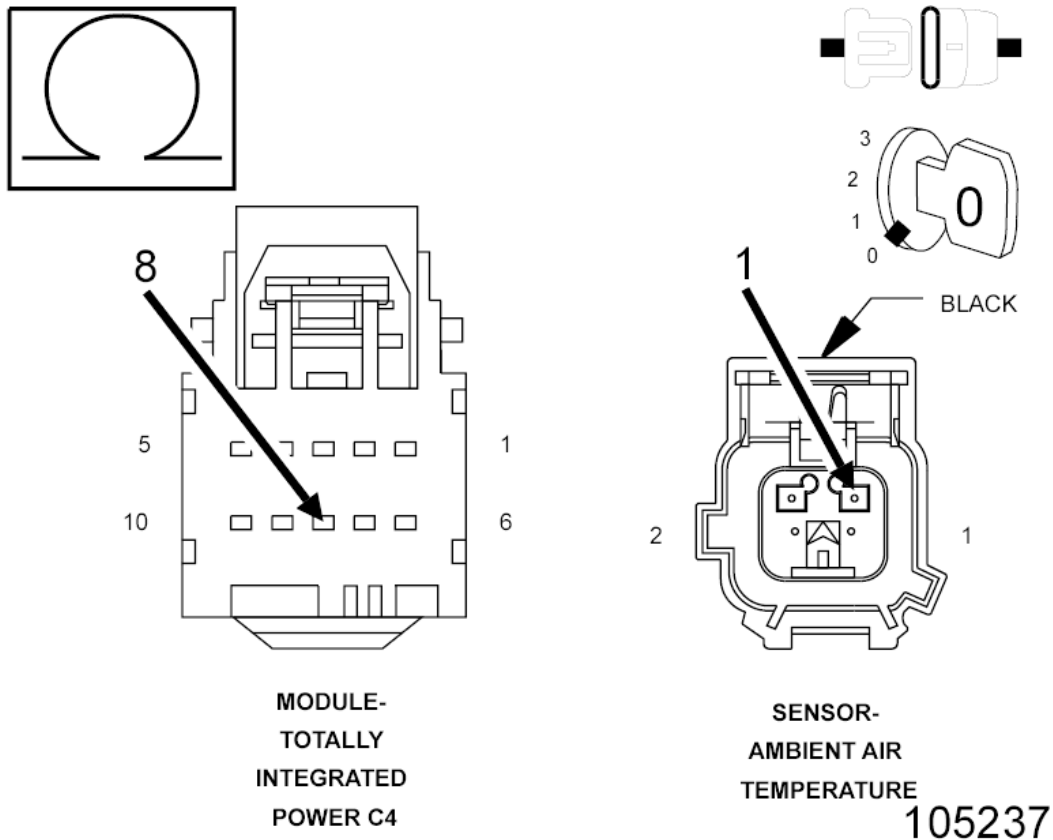


Fig. 57: Measuring Resistance Of AAT Signal Circuit
Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Measure the resistance of the (G31) AAT Signal circuit between the Ambient Air Temperature Sensor harness connector and the C4 Totally Integrated Power Module (TIPM) harness connector.

Is the resistance below 5.0 ohms?

Yes

- Go to step 4

No

- Repair the open in the (G31) AAT Signal circuit.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

4. (G931) AAT SENSOR GROUND CIRCUIT OPEN

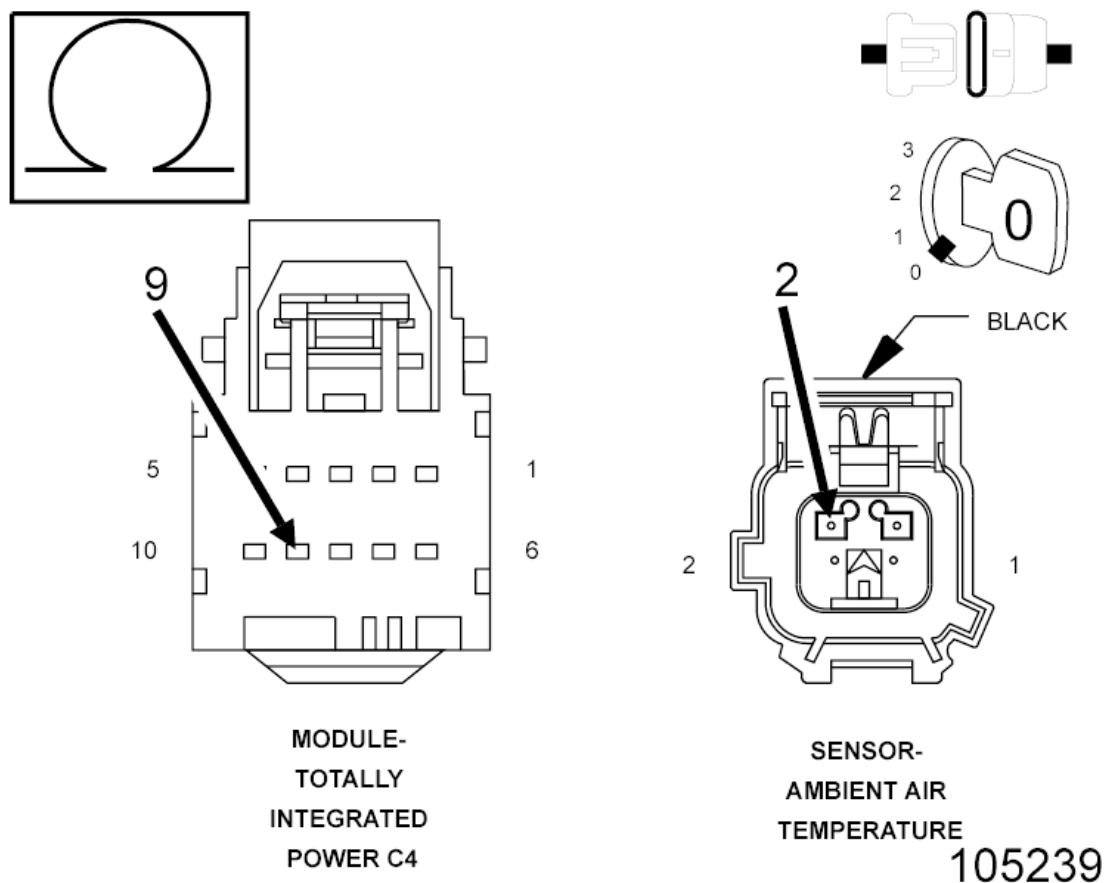


Fig. 58: Measuring Resistance Of AAT Sensor Ground Circuit
 Courtesy of CHRYSLER LLC

1. Measure the resistance of the (G931) AAT Sensor Ground circuit between the Ambient Air Temperature Sensor harness connector and the C4 TIPM harness connector.

Is the resistance below 5.0 ohms?

Yes

- Go to step 5

No

- Repair the open in the (G931) AAT Sensor Ground circuit.

- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

5. AMBIENT AIR TEMPERATURE SENSOR

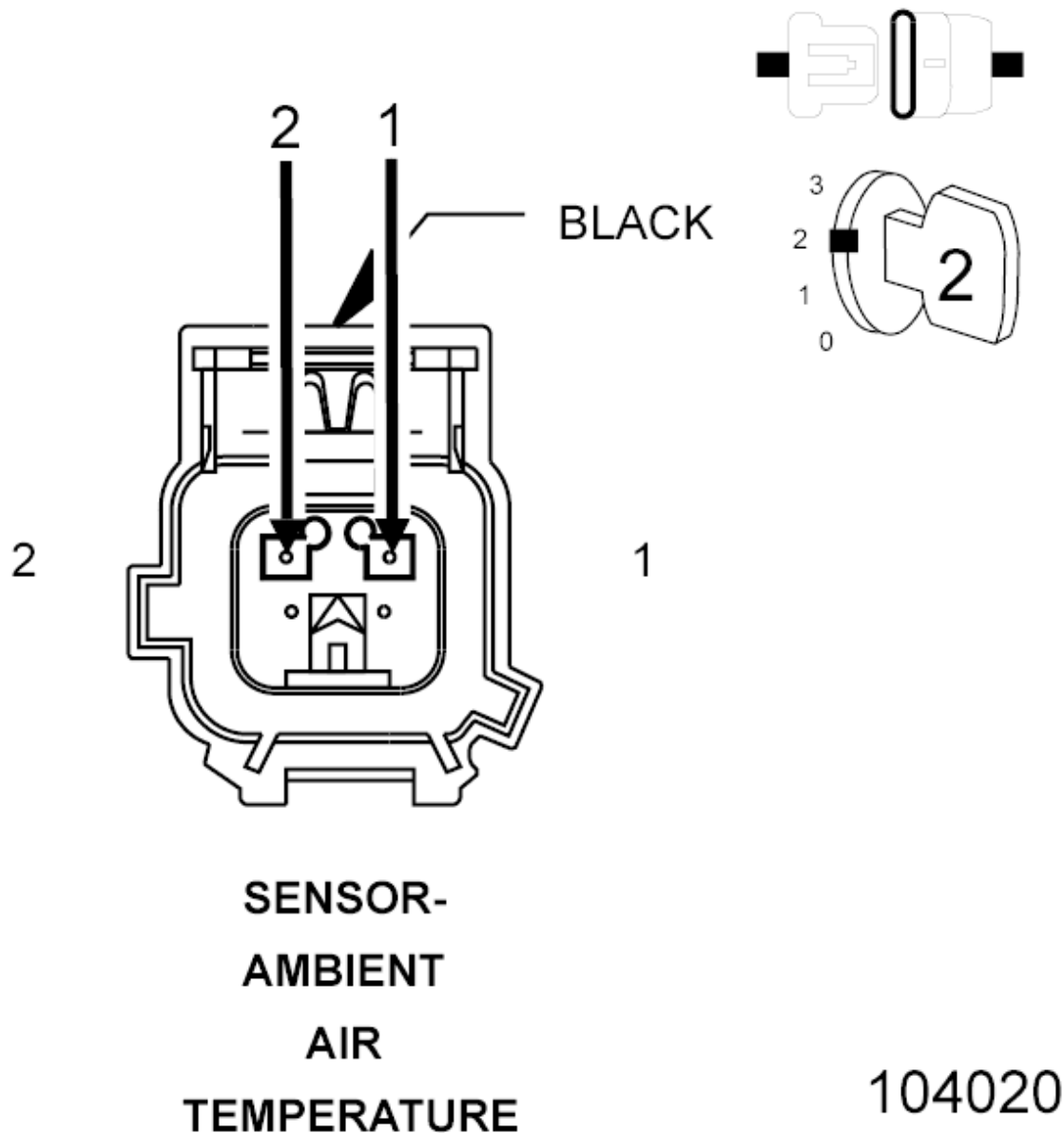


Fig. 59: Ambient Air Temperature Sensor Harness Connector
Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Connect the C4 Totally Integrated Power Module (TIPM) harness connector.
3. Connect a jumper wire between the (G31) AAT Signal circuit and the (G931) AAT Sensor Ground in the Ambient Air Temperature Sensor harness connector.
4. Turn the ignition on.

5. With the scan tool, read the Ambient Air Temperature Sensor signal voltage.

Is the voltage below 1.0 volt with the jumper wire in place?

Yes

- Verify that there is good pin to terminal contact in the AAT Sensor and Totally Integrated Power Module connectors. If OK, replace the Ambient Air Temperature Sensor if no problems were found with the connectors.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

No

- Go to step 6

6. TOTALLY INTEGRATED POWER MODULE (TIPM)

1. Using the **SYSTEM WIRING DIAGRAMS** as a guide, inspect the wiring and connectors between the Ambient Air Temperature Sensor and the Totally Integrated Power Module (TIPM).
2. Look for any chafed, pierced, pinched, or partially broken wires.
3. Look for broken, bent, pushed out or corroded terminals.
4. Verify that there is good pin to terminal contact in the AAT Sensor and Totally Integrated Power Module connectors.
5. Monitor the scan tool data relative to this circuit and wiggle test the wiring and connectors.
6. Look for the data to change or for the DTC to reset during the wiggle test.
7. Refer to any Technical Service Bulletins that may apply.

Were any problems found?

Yes

- Repair as necessary.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

No

- Replace and program the Totally Integrated Power Module (TIPM) in accordance with the Service Information.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

P0073-AMBIENT AIR TEMPERATURE SENSOR CIRCUIT HIGH - GPEC

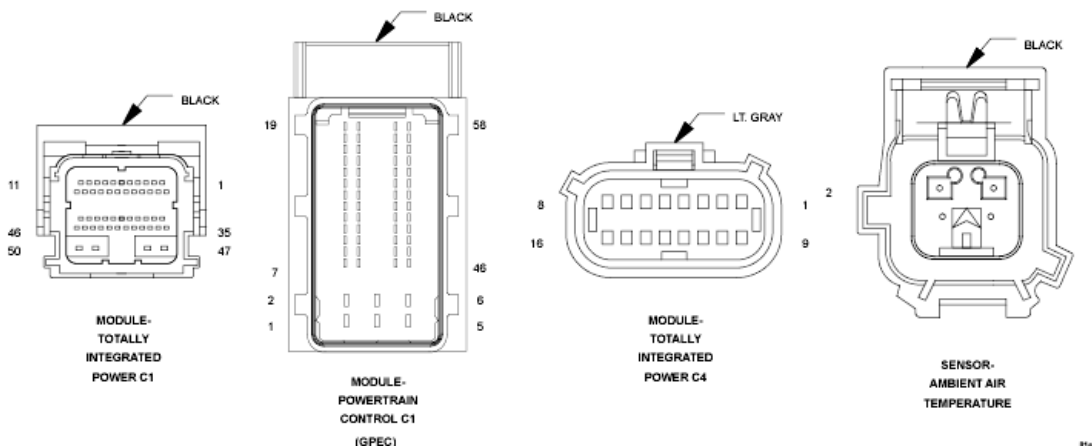
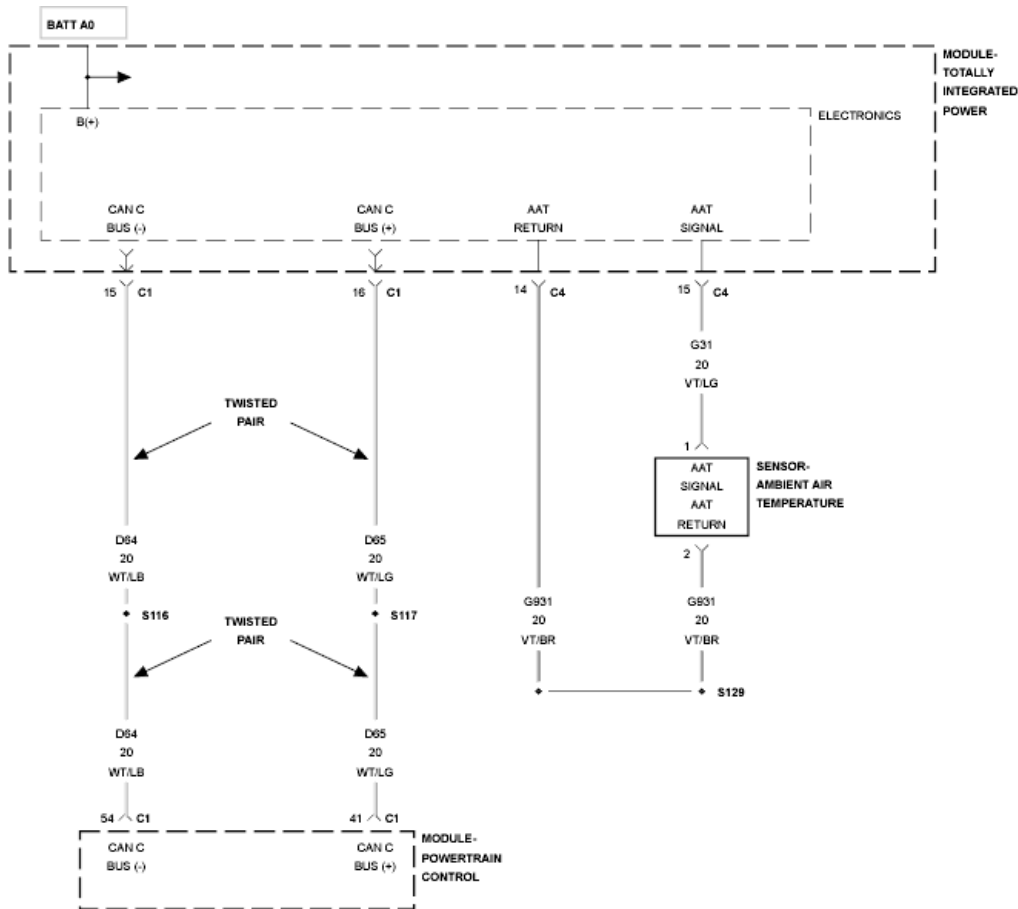


Fig. 60: Ambient Air Temperature Sensor Circuit Schematic
Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS**.

- **When Monitored:**

2009 Dodge Journey R/T

2009 ACCESSORIES AND EQUIPMENT Totally Integrated Power Module (TIPM) - Electrical Diagnostics - Journey

With the ignition on and battery voltage greater than 10.4 volts.

• Set Condition:

The PCM detects that the Ambient Air Temperature Sensor input voltage is above the maximum acceptable value.

Possible Causes

INTERMITTENT DTC

(G31) AAT SIGNAL CIRCUIT SHORTED TO VOLTAGE

(G31) AAT SIGNAL CIRCUIT OPEN OR HIGH RESISTANCE

(G931) AAT SENSOR GROUND CIRCUIT OPEN OR HIGH RESISTANCE

AMBIENT AIR TEMPERATURE SENSOR

POWERTRAIN CONTROL MODULE (PCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure

DIAGNOSTIC TEST

1. DTC IS ACTIVE

NOTE: Diagnose any CAN - C Communication DTCs before continuing.

NOTE: Diagnose and repair any system voltage DTCs before continuing with this test.

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 the scan tool, select View DTCs.

Is the status Active for this DTC?

Yes

- Go to step 2

No

- Refer to the *CHECKING FOR AN INTERMITTENT DTC Diagnostic Procedure. Refer to

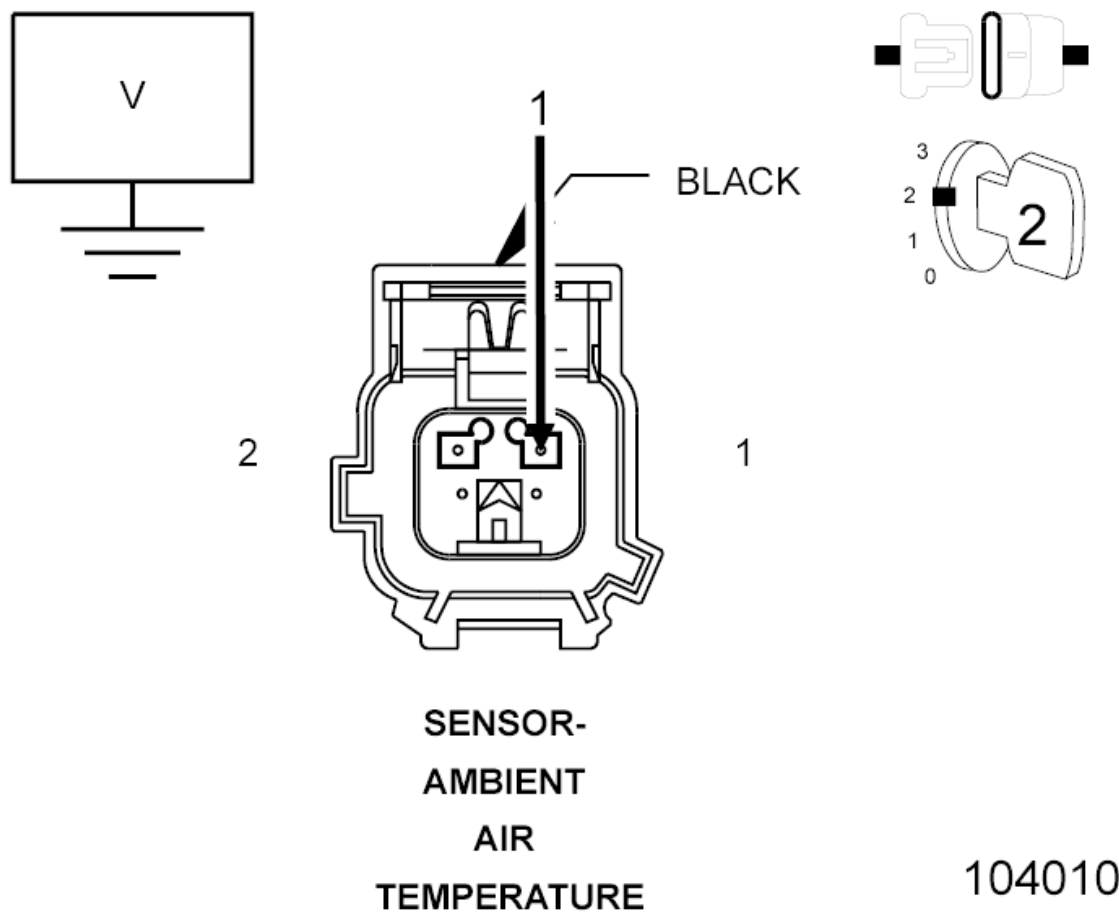
DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**2. (G31) AAT SIGNAL CIRCUIT SHORTED TO VOLTAGE**

Fig. 61: Ambient Air Temperature Sensor Connector
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the Ambient Air Temperature Sensor connector.
3. Disconnect the Powertrain Control Module (PCM) connector.
4. Turn the ignition on.
5. Measure the voltage of the (G31) AAT Signal circuit in the Ambient Air Temperature Sensor harness connector.

Is there any voltage present?

Yes

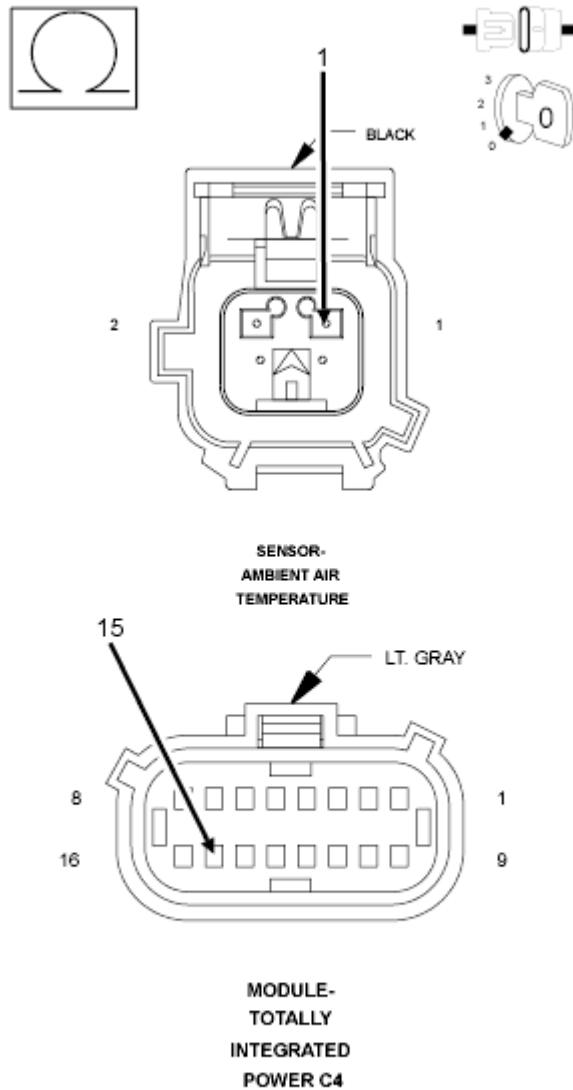
- Repair the (G31) AAT Signal circuit for a short to voltage.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE,**

Powertrain Control (PCM) - Standard Procedure

No

- Go to step 3

3. (G31) AAT SIGNAL OPEN OR HIGH RESISTANCE



104016

Fig. 62: Measuring Resistance Of AAT Signal Circuit
Courtesy of CHRYSLER LLC

1. Turn the ignition off.

2. Measure the resistance of the (G31) AAT Signal circuit between the Ambient Air Temperature Sensor harness connector and the Powertrain Control Module (PCM) harness connector.

Is the resistance below 5.0 ohms?

Yes

- Go to step 4

No

- Repair the (G31) AAT Signal circuit for an open circuit or high resistance.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

4. (G931) AAT SENSOR GROUND CIRCUIT OPEN OR HIGH RESISTANCE

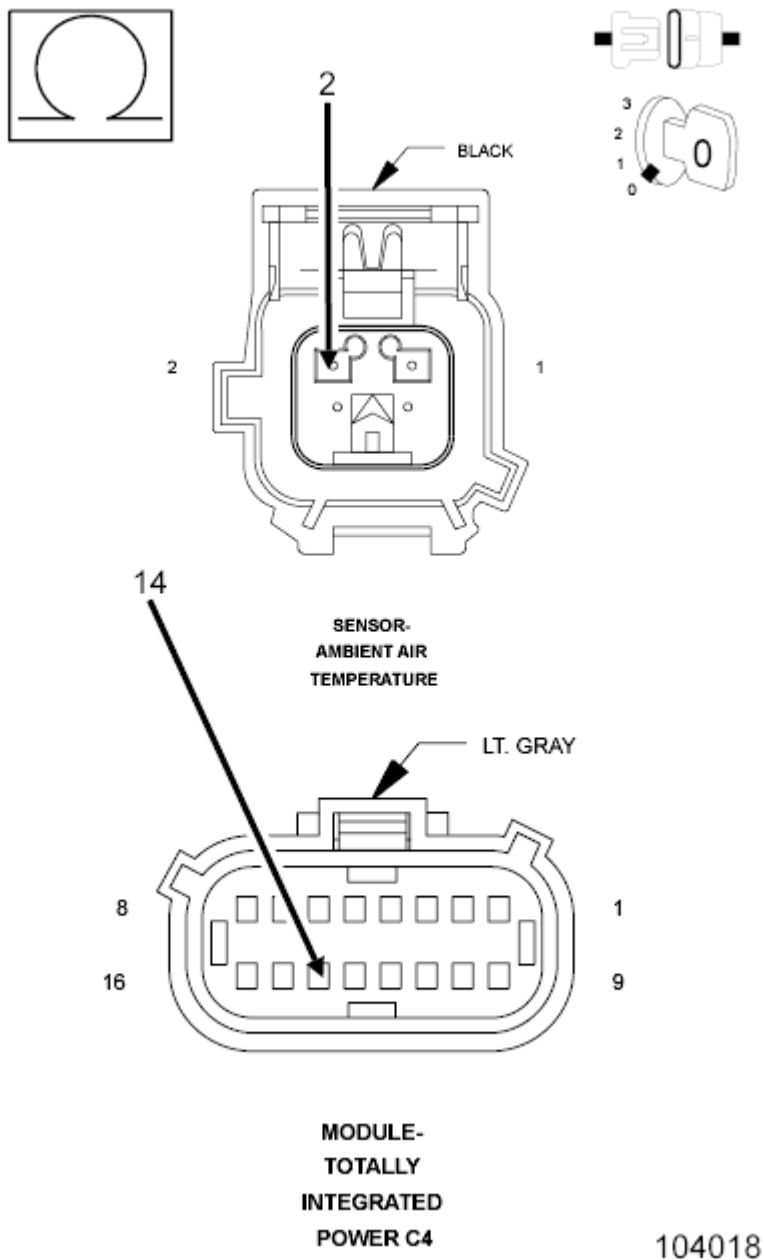


Fig. 63: Measuring Resistance Of AAT Sensor Ground Circuit
Courtesy of CHRYSLER LLC

1. Measure the resistance of the (G931) AAT Sensor Ground circuit between the Ambient Air Temperature Sensor harness connector and the Powertrain Control Module (PCM) harness connector.

Is the resistance below 5.0 ohms?

Yes

- Go to step 5

No

- Repair the (G931) AAT Sensor Ground circuit for an open circuit or high resistance.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

5. AMBIENT AIR TEMPERATURE SENSOR

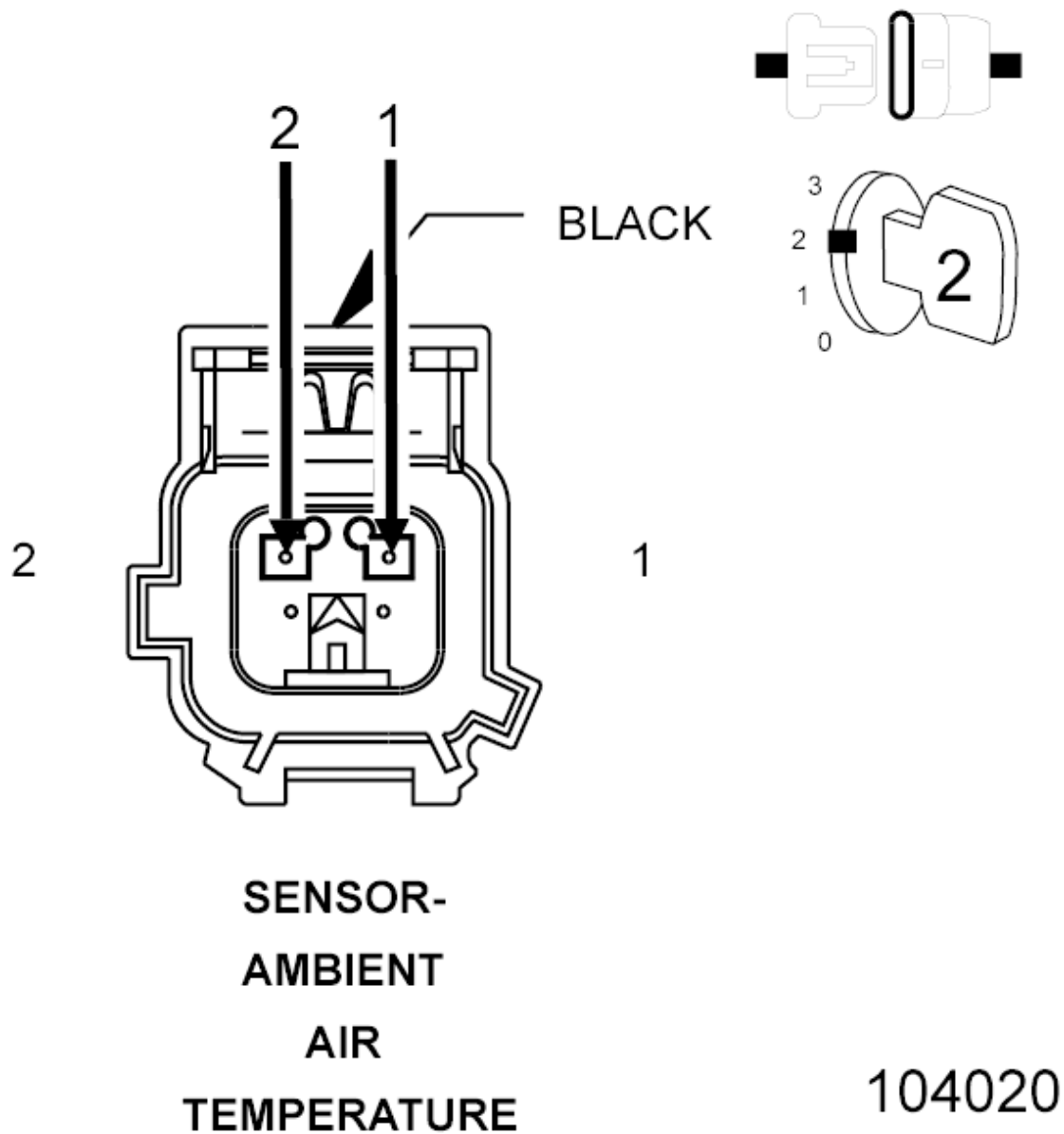


Fig. 64: Ambient Air Temperature Sensor Harness Connector
Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Connect the Powertrain Control Module (PCM) connector.
3. Connect a jumper wire between the (G31) AAT Signal circuit and the (G931) AAT Sensor Ground in the Ambient Air Temperature Sensor harness connector.
4. Turn the ignition on.
5. With the scan tool, read the Ambient Air Temperature Sensor signal voltage.

Is the voltage below 1.0 volt with the jumper wire in place?

Yes

- Replace the Ambient Air Temperature Sensor in accordance with the Service Information.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

No

- Go to step 6

6. POWERTRAIN CONTROL MODULE (PCM)

1. Using the **SYSTEM WIRING DIAGRAMS** as a guide, inspect the wiring and connectors between the Ambient Air Temperature 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.
4. Monitor the scan tool data relative to this circuit and wiggle test the wiring and connectors.
5. Look for the data to change or for the DTC to reset during the wiggle test.
6. Refer to any Technical Service Bulletins that may apply.

Were any problems found?

Yes

- Repair as necessary.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

No

- Replace and program the Powertrain Control Module (PCM) in accordance with the Service Information.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

P0073-AMBIENT AIR TEMPERATURE SIGNAL VOLTAGE TOO HIGH



- **When Monitored:**

With the ignition on.

- **Set Condition:**

The Ambient Air Temperature Sensor signal is above 5.0 volts.

Possible Causes
(G31) AMBIENT AIR TEMP SENSOR SIGNAL CIRCUIT SHORTED TO VOLTAGE (G931) AMBIENT AIR TEMP SENSOR GROUND CIRCUIT OPEN (G31) AMBIENT AIR TEMP SENSOR SIGNAL CIRCUIT OPEN AMBIENT AIR TEMPERATURE SENSOR TOTALLY INTEGRATED POWER MODULE

DIAGNOSTIC TEST

1. CHECK FOR ACTIVE DTC

NOTE: If the ECM detects and stores a DTC, the ECM also stores the engine/vehicle operating conditions under which the DTC was set. Some of these conditions are displayed on the scan tool at the same time the DTC is displayed.

NOTE: Before erasing stored DTCs, record these conditions. Attempting to duplicate these conditions may assist when checking for an active DTC.

1. Turn the ignition on.
2. With the scan tool, erase TIPM DTCs.
3. Turn the ignition off for 10 seconds.
4. Turn the ignition on.
5. Monitor the scan tool for TIPM DTCs.

Did this DTC set again?

Yes

- Go To step 2

No

- Refer to the *INTERMITTENT DTC Diagnostic Procedure. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

2. (G31) AMBIENT AIR TEMP SENSOR SIGNAL CIRCUIT SHORTED TO VOLTAGE

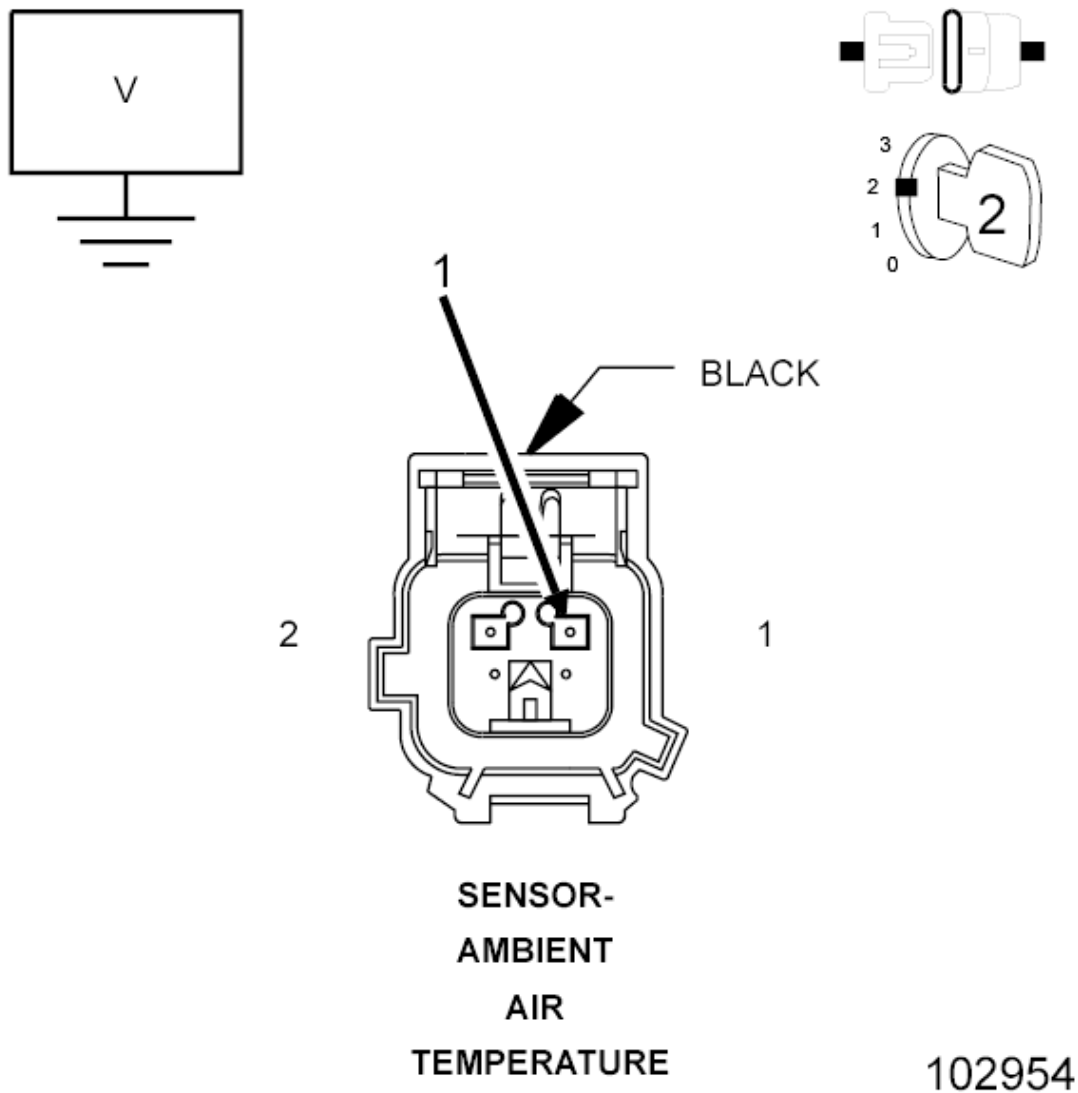


Fig. 66: Measuring Voltage On Ambient Air Temperature Sensor Signal Circuit
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the Ambient Air Temperature Sensor harness connector.
3. Disconnect the TIPM C4 harness connector.
4. Remove the Main Relay.
5. Connect a jumper wire between cavity B7 and cavity B9 of the Main Relay connector.
6. Turn the ignition on.
7. Measure the voltage on the (G31) Ambient Air Temperature Sensor Signal circuit.

NOTE: Remove the jumper wire.

Is there any voltage present?

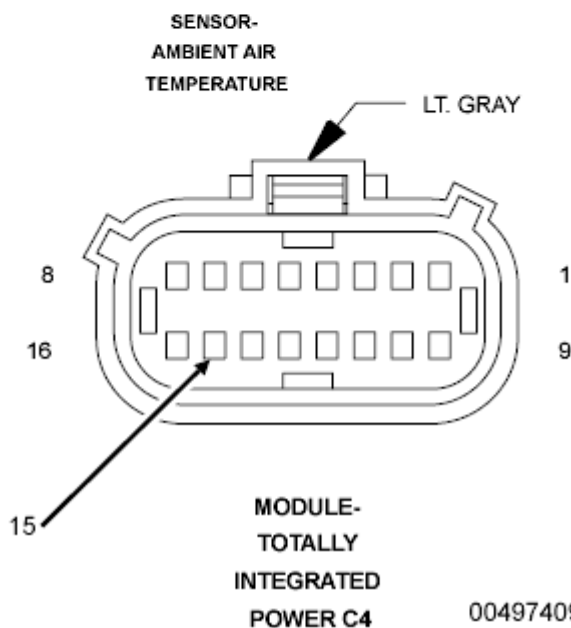
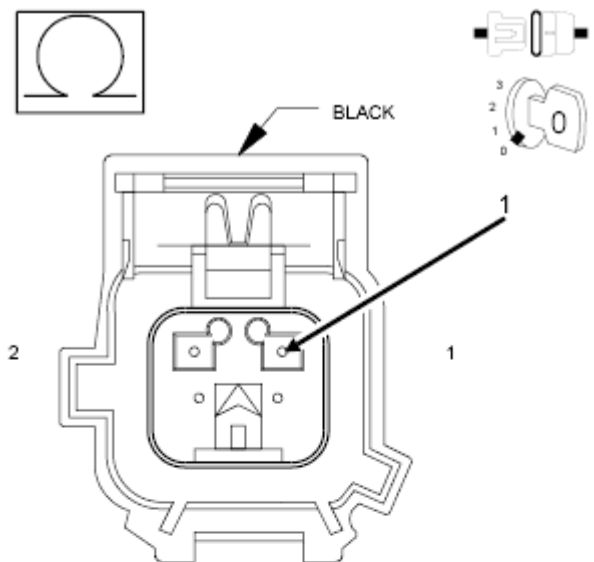
Yes

- Repair the (G31) Ambient Air Temperature Sensor Signal circuit for a short to voltage.
- Perform the ECM VERIFICATION TEST. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure** .

No

- Go To step 3

3. (G31) AMBIENT AIR TEMP SENSOR SIGNAL CIRCUIT OPEN



00497409

Fig. 67: Measuring Resistance Of Ambient Air Temperature Sensor Signal Circuit
Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Measure the resistance of the (G31) Ambient Air Temperature Sensor Signal circuit between TIPM C4 harness connector and the Ambient Air Temperature Sensor harness connector.

Is the resistance below 10.0 ohms?

Yes

- Go To step 4

No

- Repair the (G31) Ambient Air Temperature Sensor Signal circuit for an open.
- Perform the ECM VERIFICATION TEST. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure** .

4. AMBIENT AIR TEMPERATURE SENSOR

1. Reconnect the TIPM C4 harness connector.
2. Connect a jumper wire between the (G31) Ambient Temperature Sensor Signal and the (G931) Sensor Ground circuit in the Ambient Temperature Sensor harness connector.
3. Turn the ignition on.
4. Monitor the scan tool for TIPM DTCs.

Does the scan tool display P0070 AMB TEMP. SENSOR CIRCUIT SIGNAL VOLTAGE TOO LOW?

Yes

- Replace the Ambient Air Temperature Sensor.
- Perform the ECM VERIFICATION TEST. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure** .

No

- Go To step 5

5. (G931) AMBIENT AIR TEMP SENSOR GROUND CIRCUIT OPEN

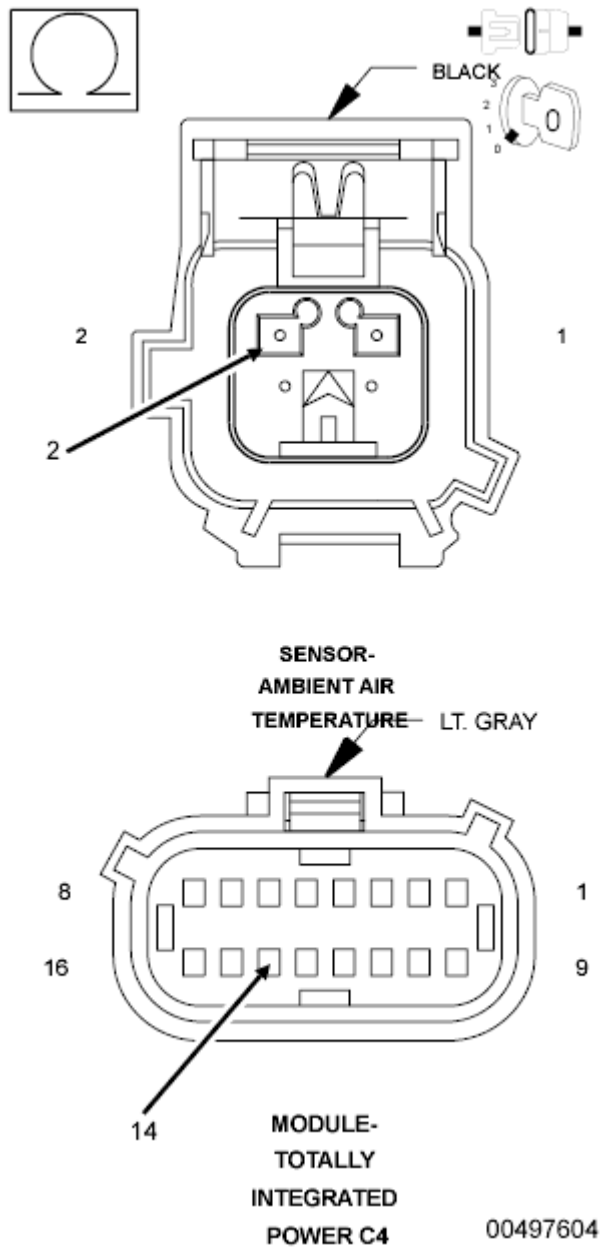


Fig. 68: Measuring Resistance Of Ambient Air Temperature Sensor Ground Circuit
 Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Measure the resistance of the (G931) Ambient Air Temperature Sensor Ground circuit between the TIPM C4 harness connector and the Ambient Air Temperature Sensor harness connector.

Is the resistance below 10.0 ohms?

Yes

2009 Dodge Journey R/T

2009 ACCESSORIES AND EQUIPMENT Totally Integrated Power Module (TIPM) - Electrical Diagnostics - Journey

- Replace and program the TIPM in accordance with the Service Information.
- Perform the ECM VERIFICATION TEST. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure** .

No

- Repair the (G931) Ambient Air Temperature Sensor Ground circuit for an open.
- Perform the ECM VERIFICATION TEST. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure** .

P0462-FUEL LEVEL SENSOR 1 LOW CIRCUIT - NGC

2009 Dodge Journey R/T

2009 ACCESSORIES AND EQUIPMENT Totally Integrated Power Module (TIPM) - Electrical Diagnostics - Journey

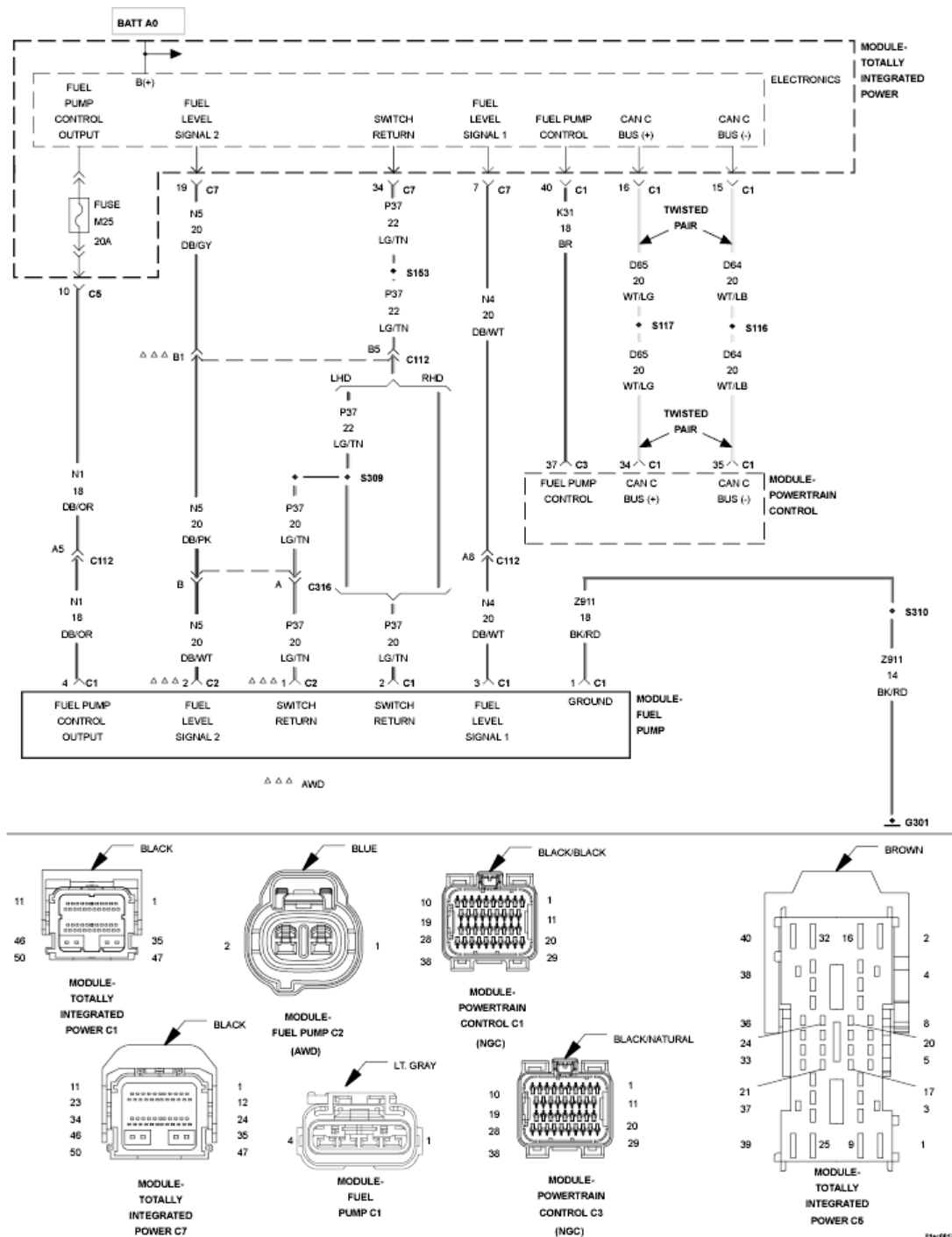


Fig. 69: Fuel Level Sensor Circuit Schematic
Courtesy of CHRYSLER LLC

For complete wiring diagrams refer to **SYSTEM WIRING DIAGRAMS**.

- When Monitored:**

With the ignition on and battery voltage greater than 10.4 volts.

• **Set Condition:**

The PCM detects that the Fuel Level Sensor input voltage is below the minimum acceptable value.

Possible Causes
(N4) FUEL LEVEL SIGNAL 1 CIRCUIT SHORTED TO GROUND
(N4) FUEL LEVEL SIGNAL 1 CIRCUIT SHORTED TO THE (P37) SWITCH RETURN CIRCUIT
EXCESSIVE RESISTANCE IN THE (N4) FUEL LEVEL SIGNAL 1 CIRCUIT
FUEL LEVEL SENSOR
TOTALLY INTEGRATED POWER MODULE (TIPM)
POWERTRAIN CONTROL MODULE (PCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure

DIAGNOSTIC TEST

1. ACTIVE DTC

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 the scan tool, select View DTCs.

NOTE: Diagnose any CAN - C Communication DTCs before continuing.

Is the status Active for this DTC?

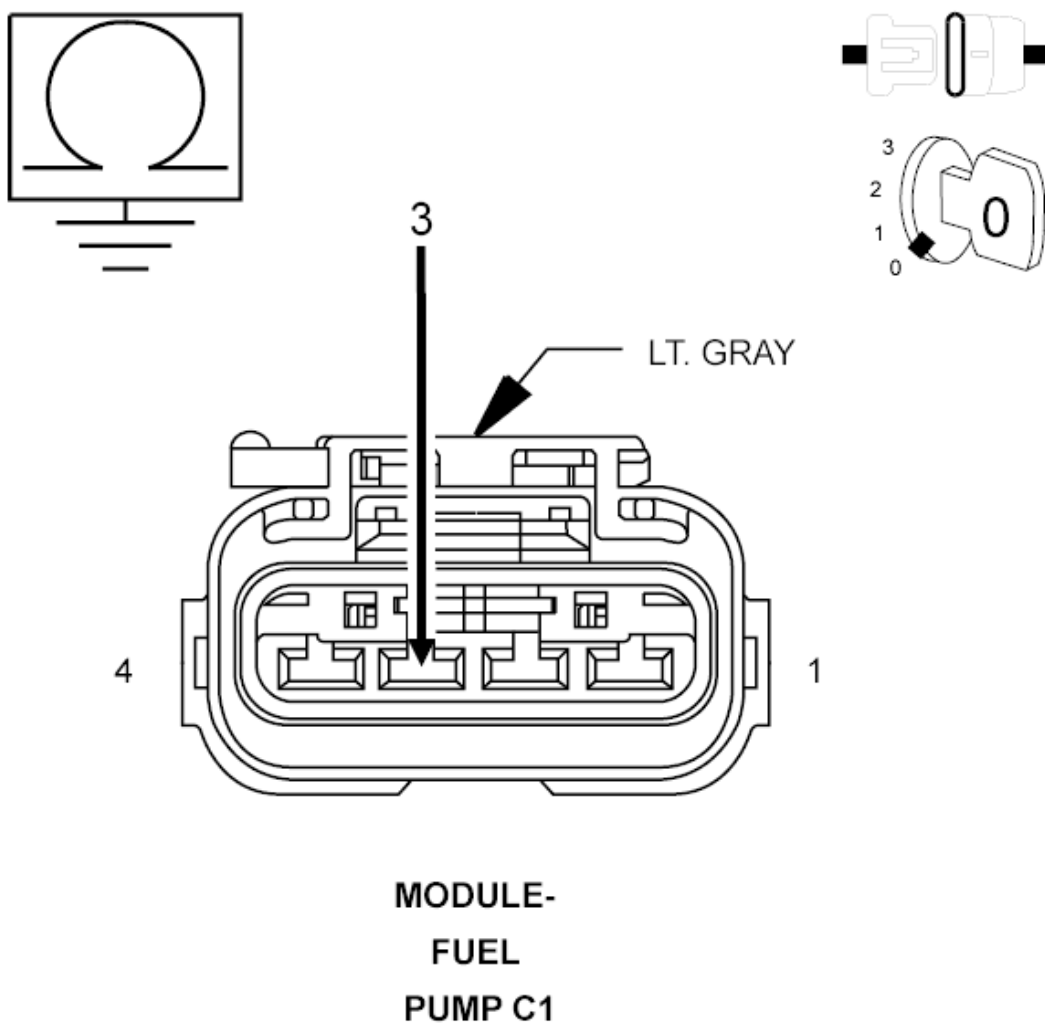
Yes

- Go to step 2

No

- Refer to the *CHECKING FOR AN INTERMITTENT DTC Diagnostic Procedure. Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure

2. (N4) FUEL LEVEL SIGNAL 1 CIRCUIT SHORTED TO GROUND



104534

Fig. 70: Measuring Resistance Between Ground And Fuel Level Signal 1 Circuit In Fuel Level Sensor Harness Connector

Courtesy of CHRYSLER LLC

1. Turn the ignition off.
2. Disconnect the C1 Fuel Pump Module harness connector.
3. Disconnect the C7 Totally Integrated Power Module harness connector.
4. Measure the resistance between ground and the (N4) Fuel Level Signal 1 circuit in the Fuel Level Sensor harness connector.

Is the resistance above 100 ohms?

Yes

- Go to step 3

No

- Repair the short to ground in the (N4) Fuel Level Signal 1 circuit.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

3. (N4) FUEL LEVEL SIGNAL 1 CIRCUIT SHORTED TO THE (P37) SWITCH RETURN CIRCUIT

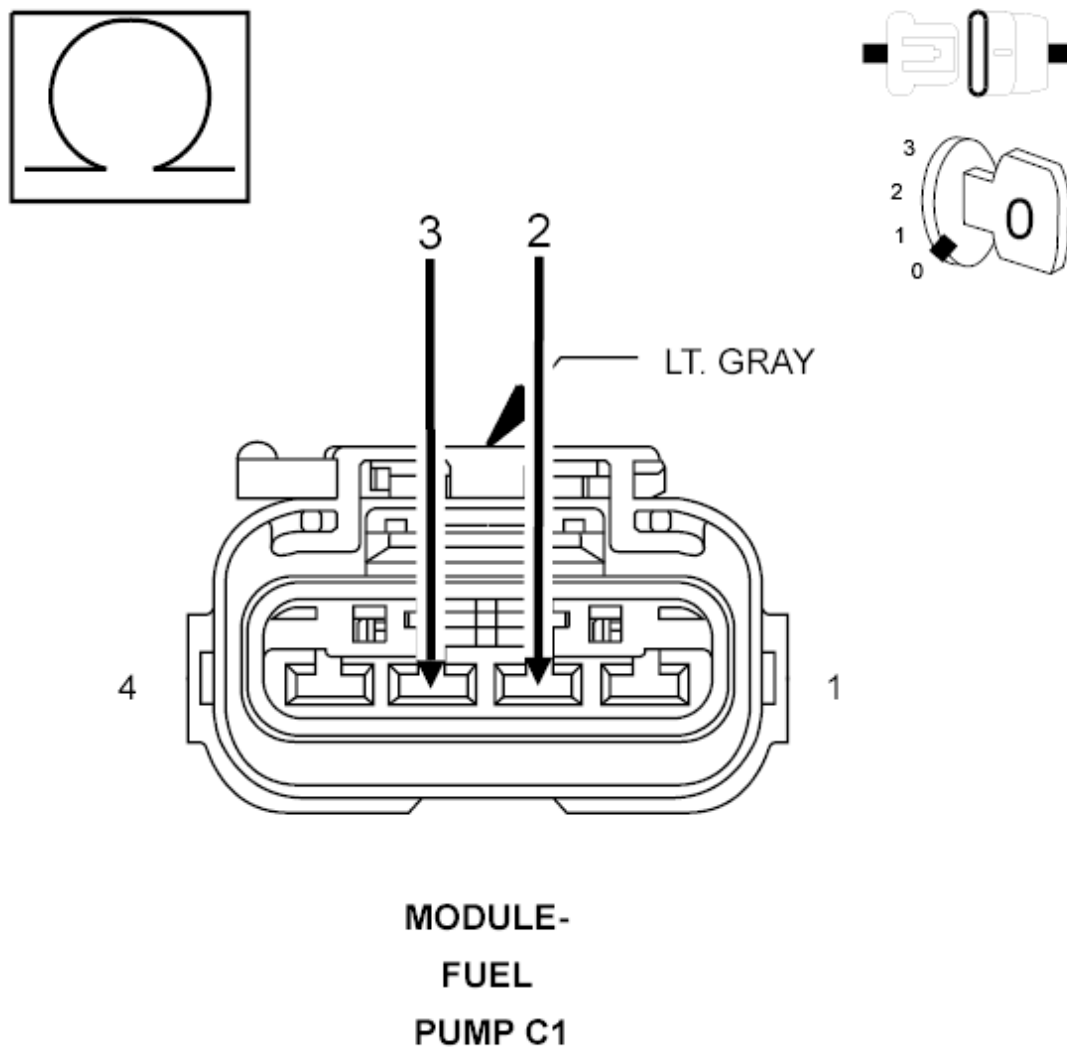


Fig. 71: Measuring Resistance Of Between Switch Return Circuit And Fuel Level Signal 1 Circuit
Courtesy of CHRYSLER LLC

1. Measure the resistance of the between the (P37) Switch Return circuit and the (N4) Fuel Level Signal 1 circuit at the C1 Fuel Pump Module harness connector.

Is the resistance below 5.0 ohms?

Yes

- Go to step 4

No

- Repair the short between the (P37) Switch Return circuit and the (N4) Fuel Level Signal 1 circuit.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

4. EXCESSIVE RESISTANCE IN THE (N4) FUEL LEVEL SIGNAL 1 CIRCUIT

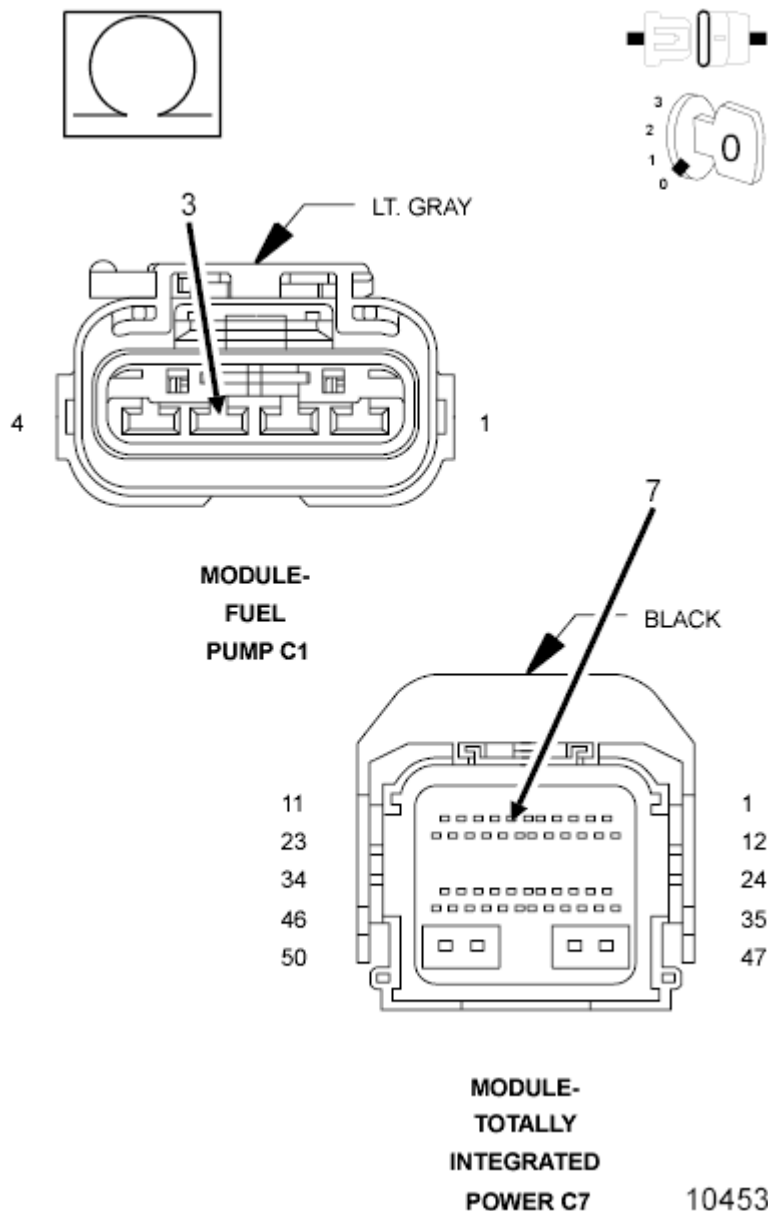


Fig. 72: Measuring Resistance Of Fuel Level Signal 1 Circuit
Courtesy of CHRYSLER LLC

1. Measure the resistance of the (N4) Fuel Level Signal 1 circuit between the Fuel Level Sensor harness connector and the Instrument Cluster (CCN) harness connector.

Is the resistance below 5.0 ohms?

Yes

- Go to step 5

No

- Repair the excessive resistance in the (N4) Fuel Level Signal 1 circuit.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

5. FUEL LEVEL SENSOR

1. Connect the C7 TIPM harness connector.
2. Turn the ignition on.
3. With the scan tool, read the Fuel Level Sensor 1 signal voltage.

Is the voltage above 4.5 volts with the Fuel Level Sensor harness disconnected?

Yes

- Replace the Fuel Level Sensor/Fuel Pump Module in accordance with the service information.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

No

- Go to step 6

6. TOTALLY INTEGRATED POWER MODULE (TIPM)

1. Using the **SYSTEM WIRING DIAGRAMS** as a guide, inspect the wiring and connectors between the Fuel Pump Module and the Totally Integrated Power Module (TIPM).
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 C1 Fuel Pump Module and the C7 TIPM harness connectors.
4. Refer to any Technical Service Bulletins that may apply.

Were any problems found?

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2009 ACCESSORIES AND EQUIPMENT Totally Integrated Power Module (TIPM) - Electrical Diagnostics - Journey

Yes

- Repair as necessary.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**

No

- Replace the Totally Integrated Power Module in accordance with the Service Information.
- Perform the PCM Verification Test. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure**