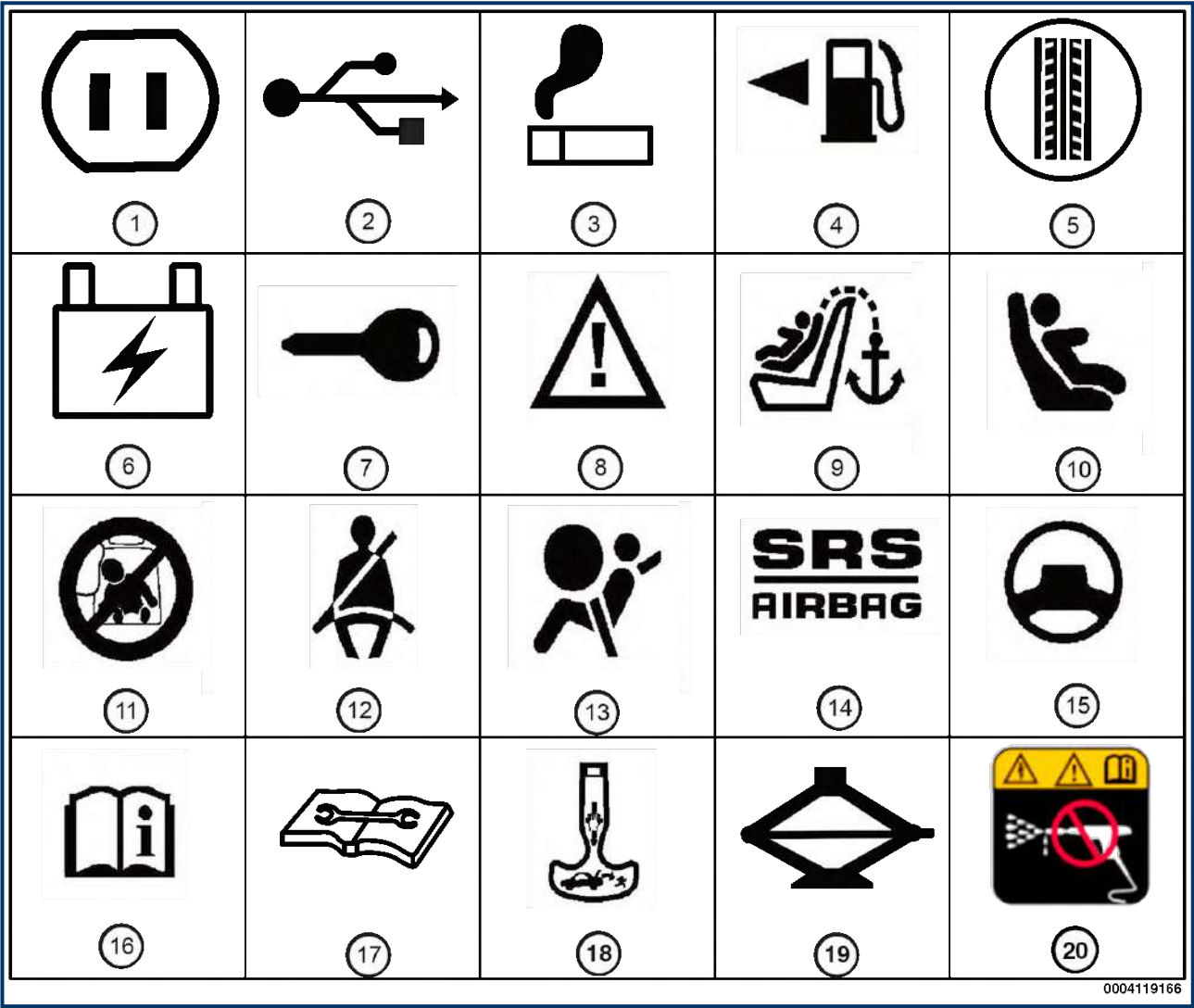


DESCRIPTION

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

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



INFORMATION SYMBOLS

INTERNATIONAL INFORMATION SYMBOL IDENTIFICATION

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
1	115-Volt Power Inverter	11	Side Airbag
2	USB Connector	12	Seat Belt
3	Lighter	13	Airbag
4	Fuel Fill Side	14	Supplemental Restraint System
5	Spare Tire Winch	15	Power Steering Fluid
6	Fuse	16	See Owner's Manual
7	Key Activate (Power Outlet)	17	See Appropriate Service Manual Section
8	Warning	18	Emergency Release Handle
9	Child Seat Tether Anchor	19	Jack/Jack Tools Location
10	Lower Anchors and Tether for Children (LATCH)	20	No Power Washing

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
10	Seat Belt Reminder	42	Sway Bar Disconnect Indicator
11	Airbag Warning Light	43	Front Axle Lock
12	Passenger Airbag Off	44	Rear Axle Lock
13	Failure Of Anti-Lock Braking System	45	Park Asist Indicator
14	Hybrid Electric Vehicle (HEV) Brake Regenerative Light	46	Park Brake Indicator
15	Electronic Throttle Control	47	Electronic Stability Control/Traction Control Off
16	HEV Service Light	48	Trailer Brake System Off
17	Engine Oil	49	Diesel Exhaust Fluid
18	Battery Charging	50	Coolant Level
19	Glow Plug/Intake Air Heated	51	Fuel Cap
20	Power Steering Fluid	52	Electric Power Steering (EPS)
21	Engine Coolant Temperature	53	Icy Road Condition
22	Malfunction Indicator Light	54	Electric Vehicle Plug In State
23	Transmission Oil Temperature Light	55	Vehicle Theft Alarm
24	Diesel Exhaust Brake	56	Stored Warnings
25	High Beam	57	Master Warning Light
26	Front Fog Light	58	Electric Vehicle System Service
27	Rear Fog Light	59	Lane Departure Warning Indicator
28	Cargo Lamp	60	Tailgate Ajar Indicator
29	Exterior Bulb Failure	61	Service Forward Collision Warning
30	Door Ajar	62	Turtle Limited Torque Warning
31	Liftgate Open	63	Service Required/Call For Service Warning
32	Brake System Warning Parking Brake	64	Audio System Failure

DIAGNOSIS AND TESTING - BLIND SPOT MONITOR SYSTEM

WARNING:

To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbags, airbag curtains, knee blocker, seat belt tensioner, impact sensor or instrument panel component diagnosis or service. Disconnect the Intelligent Battery Sensor (IBS)/negative battery cable assembly from the negative battery post, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

The following textual messages related to the Blind Spot Monitor (BSM) system may appear within the Instrument Panel Cluster (IPC):

- **BLIND SPOT SYSTEM OFF** - This message to the vehicle operator when the ignition first transitions to the ON status indicates that the BSM system has been turned off using the Setup Menu of the Radio.
- **SERVICE BLIND SPOT SYSTEM** - This message to the vehicle operator while the ignition status is ON indicates that the BSM system is unavailable due to a monitored system fault or faults.
- **BLIND SPOT SYSTEM TEMPORARILY UNAVAILABLE** - This message to the vehicle operator while the ignition status is ON indicates that the BSM system is temporarily unavailable as a result of one of the following:
 1. **Sensor Blockage** - The amber BSM visual icon in both outside rear view mirrors will be illuminated as long as blockage exists or until the ignition status transitions to OFF, whichever occurs first.
 2. **Monitored System Fault** - The BSM system has detected a monitored system fault condition and has stored a Diagnostic Trouble Code (DTC). The amber BSM visual icon will be illuminated in both outside rear view mirrors for as long as the condition exists or until the ignition status transitions to OFF, whichever occurs first.

NOTE:

If the **BLIND SPOT SYSTEM TEMPORARILY UNAVAILABLE** message is received for a minimum of 5 minutes, please verify that sensor enclosures on the sides of the tail lamps where the radar sensors are located is not blocked by snow, ice or road debris. If the area is blocked, remove the blockage and cycle the ignition.

NOTE:

If the vehicle has experienced any trauma in the sensor enclosures on the sides of the tail lamps where the sensors are located, even if the fascia is not damaged, the radar sensor may have become misaligned. A misaligned radar sensor will result in the BSM system not operating properly.

To calibrate the Blind Spot Sensor:

1. Drive the vehicle over 13 mph (20 kp/h) on a straight path for longer than one minute.

Once this criteria is met, both mirror Light Emitting Diodes (LEDs) will go from active to off and the DTC will store. The DTC can now be cleared.

Outputs

- B(+) to power seat motors
- Ground path to the power seat motors
- IPC telltale message to BCM for gating to IPC
- Easy exit strategy data to the ETM

Memory Seat Switch

[Component Index](#)

When one of the two driver memory seat switches is pressed, a resistance signal is sent to the DCM which communicates with the MSM over the CAN-IHS data bus. A memory setting is saved by pressing the “set” button, then pressing either the memory “1” or “2” button within five seconds of pressing the “set” button.

The memory switch has four positions:

- Set
- Recall 1
- Recall 2
- Not pressed

Radio Frequency Hub (RF-Hub) Module

[Component Index](#)

The RF-Hub receives a memory trigger input from the RKE transmitter or the PE door handle. In either event, the RF-Hub validates the RKE transmitter, and if valid, sends the request over the CAN bus to the BCM for gating to the MSM.

Inputs

- RKE or PE induced memory requests

Outputs

- RKE or PE induced memory recall event triggers to the BCM for gating to the MSM

Remote Keyless Entry (RKE) Transmitter

[Component Index](#)

The MSM allows programming RKE transmitters to a memory position. The ETM will display a personalization menu entry that will allow the customer to select if they want the memory seat, mirror, and radio settings to return to the memory set position when the RKE transmitter UNLOCK button is pressed. When the ETM wakes up on CAN-IHS, the ETM recalls the state of the RKE Linked To Memory feature. The MSM will program only one memory position to a RKE transmitter. The MSM allows programming of up to eight different RKE transmitters to a single memory position.

The RF-Hub is used to validate RKE transmitter before allowing the memory request. The RF-Hub sends the memory recall via RKE transmitter request to the BCM for gating.

Seat Position Sensors - Integral to the Seat Track Motors

[Component Index](#)

The MSM uses the hardwired signals from the seat position sensors to determine the power seat motor position. These sensors are integrated into the seat motors themselves.

information to the microcontroller within the ORC.

The ORC microcontroller continuously monitors all of the passive restraint system electrical circuits to determine the system readiness. If the ORC detects a monitored system fault, it sets a DTC and controls the airbag indicator operation accordingly. The acceleration type and pressure type side impact sensors for each side of the vehicle are connected in series (daisy-chained) to the ORC. The impact sensors on each side of the vehicle receive battery current and ground through dedicated left and right sensor plus and minus circuits from the ORC. The impact sensors and the ORC communicate by modulating the voltage in the sensor plus circuit.

The hardwired circuits between the impact sensors and the ORC may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the impact sensors or the electronic controls and communication between other modules and devices that provide some features of the SRS. The most reliable, efficient and accurate means to diagnose the acceleration type impact sensors or the electronic controls and communication related to impact sensor operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

The acceleration type impact sensors cannot be repaired or adjusted and, if damaged or ineffective, they must be replaced.

PRESSURE TYPE

Two pressure type front door side impact sensors are used on this vehicle, one each for the left and right sides of the vehicle. These sensors are mounted remotely from the impact sensor that is internal to the ORC. Each side sensor is secured with two screws and is sealed by a resilient gasket to a front door hardware module carrier. The sensors are concealed behind the front door trim panel within the passenger compartment.

The right and left front door side impact sensors are identical in construction and calibration. The impact sensor housing has an integral connector receptacle, two integral mounting tabs and an integral hood-like water shield. The water shield extends through a hole in the hardware module carrier to the interior of the door cavity and protects the sensor orifice from contamination. A cavity in the center of the molded plastic impact sensor housing contains the electronic circuitry of the sensor, which includes an electronic communication chip and the pressure sensor.

The housing cavity is filled with a potting material to seal and protect the internal electronic circuitry and components. The pressure type side impact sensors are each connected to the vehicle electrical system through a dedicated take out and connector of the door wire harness.

The pressure type door side impact sensors recognize a side impact in the door area by monitoring changes in pressure within the door cavity. A sudden pressure wave is created as the door collapses during an impact event. Each sensor also contains an electronic communication chip that allows the unit to communicate the sensor status as well as sensor fault information to the microcontroller within the ORC.

The ORC microcontroller continuously monitors all of the passive restraint system electrical circuits to determine the system readiness. If the ORC detects a monitored system fault, it sets a DTC and controls the airbag indicator operation accordingly. The pressure type and acceleration type side impact sensors for each side of the vehicle are connected in series (daisy-chained) to the ORC. The impact sensors each receive battery current and ground through dedicated left and right sensor plus and minus circuits from the ORC. The impact sensors and the ORC communicate by modulating the current in the sensor plus circuit.

The hardwired circuits between the pressure type door side impact sensors and the ORC may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the impact sensors or the electronic controls and communication between other modules and devices that provide features of the SRS. The most reliable, efficient and accurate means to diagnose the pressure type impact sensors or the electronic controls and communication related to impact sensor operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

These pressure type door side impact sensors cannot be adjusted or repaired and, if damaged or ineffective, they must be replaced.

Occupant Detection Sensor (ODS)

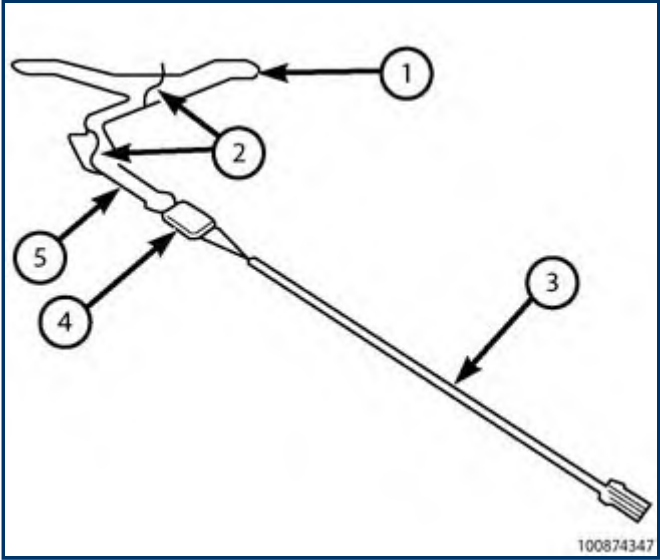
Component Index

An Occupant Detection Sensor (ODS) is located directly below the passenger side front seat cushion trim cover. This sensor provides information to the Occupant Restraint Controller (ORC) used for control of the passenger belt alert feature.

The ODS consists of a flexible clear plastic sensor mat (1) containing several resistive membrane, force sensing resistor cells that is secured by two adhesive patches (2) to the top surface of the seat cushion foam. The adhesive patches on the ODS are a one time only material and cannot be reactivated or reused if removed.

A short, two-conductor pigtail wire and connector (3) connect the sensor to the vehicle electrical system through a dedicated take out and connector of the seat wire harness. A hot melt adhesive block (4) encapsulates and protects the connections between the electrical conductors in the tail (5) of the sensor mat and the pigtail wires as well as a diagnostic resistor.

The ODS cannot be adjusted or repaired, and must be replaced if damaged or ineffective.



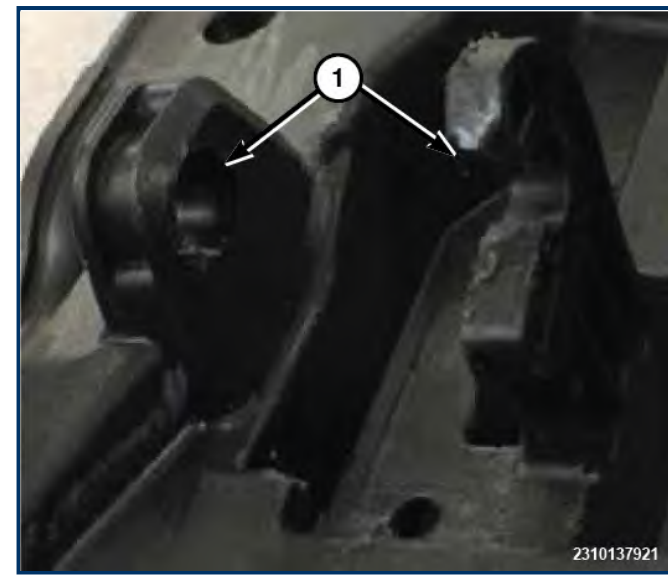
Occupant Restraint Controller (ORC)

Component Index

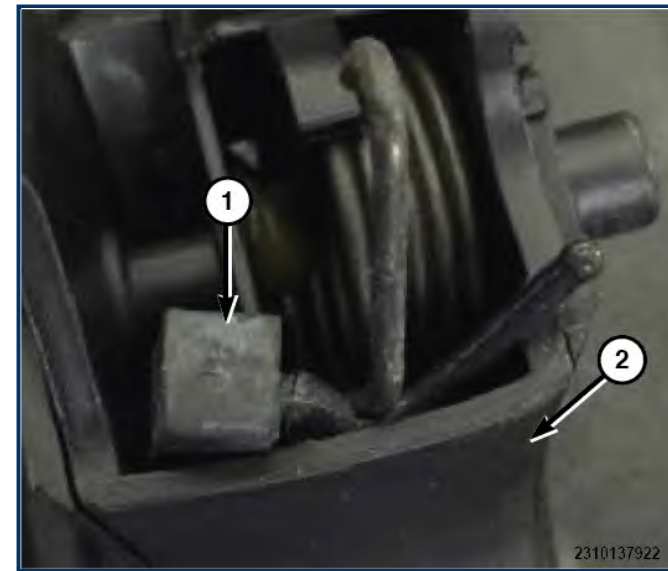
The ORC is located on the floor panel center tunnel near the dash panel in front of the center floor console.

Inputs:

- Ignition switch status
- Impact sensor status
- Seat track position sensor data
- Seat belt buckle status
- ORC fault status
- ORC environmental fault status
- ORC operational mode status
- ORC ignition status
- Lateral acceleration status
- Lateral acceleration fault status
- Longitudinal acceleration status
- Longitudinal acceleration fault status
- Calculated average vehicle speed
- Calculated average vehicle speed fault
- Crash signal
- Crash signal confirmation
- Impact type, severity and direction information
- Passenger seat occupancy status
- Wheel speed sensors status



12. Remove the rubber bumper (1) from the handle (2) and set aside for reinstallation.



INSTALLATION

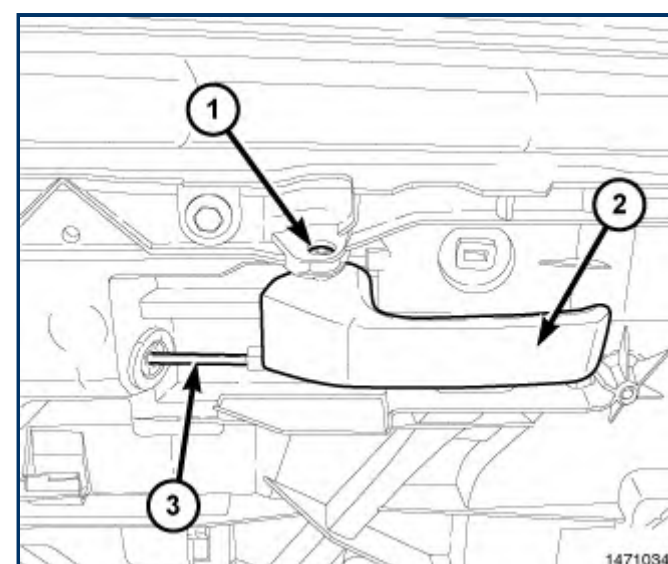
1. Place the handle into position at the door and verify the return spring is positioned in the groove as shown.



2. Engage upper pivot point (1) then rotate into snapped position when handle (2) is at rest position.



3. Connect the control rod (3) to the handle (2).
4. Install the handle mounting screw (1).



5. Install the rubber bumper (1)
6. Verify handle operation.

IN-CAR TEMPERATURE SENSOR

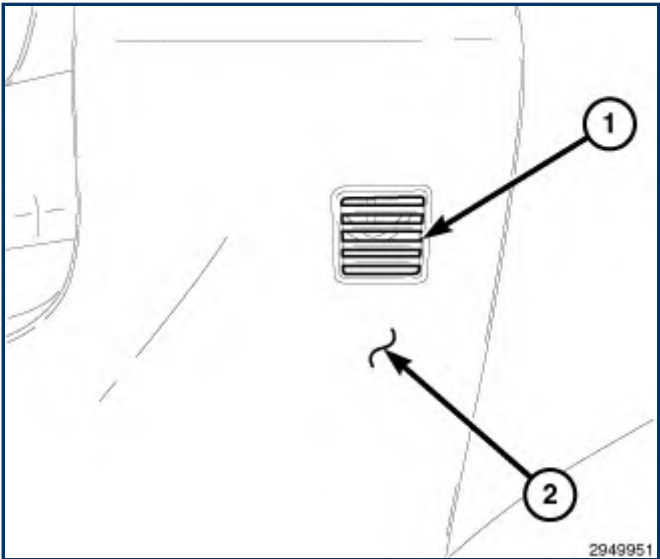
NOTE: For complete circuit diagrams, see Wiring Information. The wiring information includes wiring diagrams, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds. For proper wire repair, ([Refer to 29 - Non-DTC Diagnostics/Circuit Testing Procedures/Standard Procedure](#)) and connector repair procedures, ([Refer to 29 - Non-DTC Diagnostics/Circuit Testing Procedures/Removal](#)) and ([Refer to 29 - Non-DTC Diagnostics/Circuit Testing Procedures/Installation](#)).

Using a scan tool, check for Diagnostic Trouble Codes (DTCs) related to the in-car temperature sensor and the A/C heater module. If any DTCs are found, repair as necessary ([Refer to 28 - DTC-Based Diagnostics/HVAC - Diagnosis and Testing](#)). If no DTCs are found, perform the two following tests. Replace the in-car temperature sensor if the sensor fails either test.

ASPIRATOR MOTOR TEST

The in-car temperature sensor uses an aspirator motor to draw air from the passenger compartment and flow the air over the temperature thermistor. Test the motor as follows.

1. Place the ignition in the RUN position.
2. Place a small piece of newspaper in front of the aspirator motor opening grille, located on the steering column opening cover. If the paper sticks to the grille, the aspirator motor is operating properly. The piece of paper should be only large enough to cover the opening.
3. If the paper does not stick to the grille, check the in-car temperature sensor electrical connections and wiring. If connections and wiring are OK, replace the in-car temperature sensor.



1 - Opening Grille

2 - Steering Column Opening Cover

TEMPERATURE THERMISTOR TEST

The in-car temperature sensor uses a temperature thermistor to provide resistance values that correlate with temperature change. Test the thermistor as follows.

1. Remove the in-car temperature sensor and place it on a workbench ([Refer to 24 - Heating and Air Conditioning/Controls/SENSOR, Temperature, In-Car/Removal and Installation](#)).
2. Note the current ambient air temperature of the work area.
3. Use an ohm meter and check the resistance between pins 1 and 2 of the in-car temperature sensor. Compare the temperature of the work area to the found resistance value. The resistance should be within specifications as listed in the Resistance and Temperature chart. If not OK, replace the in-car temperature sensor.

RESISTANCE AND TEMPERATURE

Air Temperature Range	Low Resistance Range (kohm)	High Resistance Range (kohm)
-21° to -15°C (-5° to 5°F)	292 ± 1.0	223 ± 0.9
-14° to -9°C (6° to 15°F)	198 ± 0.9	161 ± 0.8
-8° to -4°C (16° to 25°F)	144 ± 0.8	123 ± 0.8
-3° to 1°C (26° to 35°F)	111 ± 0.7	95 ± 0.7
2 to 7°C (36° to 45°F)	86 ± 0.7	70 ± 0.6
8 to 12°C (46° to 55°F)	64 ± 0.6	55 ± 0.5
13° to 18°C (56° to 65°F)	51 ± 0.5	42 ± 0.4

B143C-12-ANC MICROPHONE 2-CIRCUIT SHORT TO BATTERY

For a complete AUDIO SYSTEM BASE/PREMIUM wiring diagram, [\(refer to the Wiring Information\)](#).

Active Noise Cancelation Microphone Positions

Theory of Operation - Amplifier with ANC

The Amplifier (AMP) may have an internal Active Noise Cancellation Module (ANC) if equipped with Sales Code JLW.

The Amplifier performs the creation of sound waves from the vehicle’s speakers to cancel engine related noises from the passenger compartment. The module creates these sound waves in proportion to engine RPM and inputs from the interior microphones. The ANC module receives engine RPM signals from a direct hard wired engine RPM signal circuit from the PCM. The Radio has audio signal circuits coming from the radio to the Amplifier and then the Amplifier converts the signals to amplified signals to the individual speakers. The ANC module uses 4 microphones located in the headliner for ANC inputs to listen for engine noises in the interior compartment. The Amplifier controls and monitors the speaker output circuits for a concern when the ignition is cycled on.

The speakers are manufactured from different components, depending on the level of the audio system. Make sure any serviced speakers are similar to the one being removed. When the vehicle is identified and configured for use with a separate Amplifier, the Radio audio circuits feed into the Amplifier as audio inputs.

For additional information regarding the description and operation of the Audio System. [\(Refer to 08 - Electrical/8A - Audio/Video/Entertainment/Connectivity/Description\)](#) and [\(Refer to 08 - Electrical/8E - Electronic Control Modules/AMPLIFIER/Description\)](#).

When Monitored and Set Conditions

When Monitored: This diagnostic runs continuously when the following condition is met:

- With the ignition on.

Set Conditions:

- The Amplifier (AMP) detects a short to battery voltage on either the ANC Microphone 2 (+) or the ANC Microphone 2 (-) circuits.

Default Actions:

- The Active Noise Cancellation (ANC) function is muted.

Possible Causes
ANC MICROPHONE 2 (+/-) CIRCUIT SHORTED TO BATTERY VOLTAGE AMPLIFIER

Always perform the PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE before proceeding. [\(Refer to 28 - DTC-Based Diagnostics/Standard Procedure\)](#).

Diagnostic Test

1. READ AND RECORD DTCS AND ENVIRONMENTAL DATA - ERASE DTCS AND CHECK FOR DTC TO RETURN

Test Information

NOTE: Make sure the Radio is turned on.

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

Did the DTC return?

Yes

- Go To [2](#)

No

- Perform the appropriate INTERMITTENT CONDITION diagnostic procedure. [\(Refer to 28 - DTC-Based Diagnostics/Standard Procedure\)](#).

2. CHECK THE (X462) ANC MICROPHONE 2 (+) CIRCUIT FOR A SHORT TO VOLTAGE

Test Information

B0001-11-DRIVER FRONTAL SQUIB 1 CONTROL-CIRCUIT SHORT TO GROUND

For a complete RESTRAINT SYSTEMS wiring diagram, ([refer to the Wiring Information](#)).

Theory of Operation

When powered, the Occupant Restraint Controller (ORC) sends a test current to the squibs to verify the integrity of the squib and wiring. These circuits are maintained in a floating configuration at the ORC (connected to neither power or ground) as protection against inadvertent deployment.

- When Monitored:**

The ORC Module sends out a 40 mA diagnostic current on each squib voltage supply circuit at power up, and every 100 ms thereafter while the ignition is on.

- Set Condition:**

This Diagnostic Trouble Code (DTC) sets when the ORC detects a short to ground on the driver airbag squib circuit for more than 2.5 seconds. This DTC transitions from active to stored when the ORC sees a recovery from a short to ground for greater than 2.5 seconds.

Possible Causes
(R43) DRIVER SQUIB 1 LINE 2 CIRCUIT SHORTED TO GROUND
(R45) DRIVER SQUIB 1 LINE 1 CIRCUIT SHORTED TO GROUND
STEERING CONTROL MODULE
DRIVER AIRBAG
OCCUPANT RESTRAINT CONTROLLER (ORC) MODULE

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. ([Refer to 28 - DTC-Based Diagnostics/CONTROLLER, Occupant Restraint \(ORC\) - Standard Procedure](#)).

Diagnostic Test

1. READ AND RECORD DTCS AND ENVIRONMENTAL DATA - ERASE DTCS AND CHECK FOR THE DTC TO RETURN

Test Information

Did the DTC return?

Yes

- Go To [2](#)

No

- Perform the RESTRAINTS SYSTEM INTERMITTENT TEST. ([Refer to 28 - DTC-Based Diagnostics/CONTROLLER, Occupant Restraint \(ORC\) - Standard Procedure](#)).

2. CHECK THE RELATED CONNECTORS AT THE CONTROLLER AND THE SUSPECT DEVICE

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

- Disconnect the Squib connector and the related Occupant Restraint Controller (ORC) connector.
- Re-seat both connectors verifying Connector Position Assurance (CPA) latching is secure. Turn the ignition on and re-test for the DTC.

NOTE: Review Supplemental Restraint System Wiring Repairs if any connection or wiring failures are found. ([Refer to 10 - Restraints/Standard Procedure](#))

Did the DTC return?

Yes

- Go To [3](#)

No

- Repair the poor connection.
- Perform the RESTRAINTS SYSTEM VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/CONTROLLER, Occupant Restraint \(ORC\) - Standard Procedure](#)).

3. CHECK FOR A FAULTY SQUIB

Is the resistance below 3.0 Ohms?

Yes

- Go To [7](#)

No

- Repair the circuit for an open or high resistance.
- Perform the HVAC VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/HVAC - Standard Procedure](#))_.

7. CHECK THE RIGHT FLOOR DUCT TEMPERATURE SENSOR

Temperature vs Resistance

Temperature	Resistance
-40°C (-40°F)	98,008Ω - 103,892Ω
-30°C (-22°F)	51,739Ω - 54,461Ω
-20°C (-4°F)	28,469Ω - 29,773Ω
-10°C (14°F)	16,277Ω - 16,921Ω
0°C (32°F)	9,632Ω - 9,958Ω
10°C (50°F)	5,866Ω - 6,054Ω
20°C (68°F)	3,703Ω - 3,791Ω
30°C (86°F)	2,389Ω - 2,445Ω
40°C (104°F)	1,576Ω - 1,620Ω
50°C (122°F)	1,064Ω - 1,098Ω

1. Disconnect the Right Floor Duct Temperature Sensor harness connector.
2. Note the ambient temperature. If necessary, allow the sensor to acclimate for the most accurate reading.
3. Measure the resistance across the Signal and Sensor Ground terminals at the sensor.
4. Compare the resistance reading to the Temperature vs. Resistance table.

Is the resistance within specification for the temperature?

Yes

- Go To [8](#)

No

- Replace the Right Floor Duct Temperature Sensor in accordance with the Service Information. ([Refer to 24 - Heating and Air Conditioning/Controls/SENSOR, Temperature, Air Outlet/Removal and Installation](#))_.
- Perform the HVAC VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/HVAC - Standard Procedure](#))_.

8. CHECK RELATED HARNESS CONNECTIONS

1. Disconnect all HVAC Module harness connectors.
2. Disconnect all related in-line harness connections (if equipped).
3. Disconnect the related component harness connectors.
4. Inspect harness connectors, component connectors, and all male and female terminals for the following conditions:
 - Proper connector installation.
 - Damaged connector locks.
 - Corrosion.
 - Other signs of water intrusion.
 - Weather seal damage (if equipped).
 - Bent terminals.
 - Overheating due to a poor connection (terminal may be discolored due to excessive current draw).
 - Terminals that have been pushed back into the connector cavity.
 - Perform a terminal drag test on each connector terminal to verify proper terminal tension.

Repair any conditions that are found.

5. Reconnect all HVAC Module harness connectors. Be certain that all harness connectors are fully seated and the connector locks are fully engaged.
6. Reconnect all in-line harness connectors (if equipped). Be certain that all connectors are fully seated and the connector locks are fully engaged.
7. Reconnect all related component harness connectors. Be certain that all connectors are fully seated and the connector locks are fully engaged.
8. With the scan tool, erase DTCs.
9. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
10. With the scan tool, read HVAC Module DTCs.

+ Test Information

Is there any voltage present?

Yes

- Repair the circuit for a short to voltage. Use the wiring diagram as a guide to trace the circuit and look for any in-line connectors to help isolate the location of the short.
- Perform the ABS VERIFICATION TEST.([Refer to 28 - DTC-Based Diagnostics/MODULE, Antilock Brake \(ABS\) - Standard Procedure](#)).

No

- Go To [7](#)

7. ISOLATE AND CHECK THE (B2) WHEEL SPEED SENSOR (+) CIRCUIT FOR AN OPEN/HIGH RESISTANCE

+ Test Information

Is the resistance below 3.0 Ohms?

Yes

- Go To [8](#)

No

- Repair the circuit for an open/high resistance.
- Perform the ABS VERIFICATION TEST.([Refer to 28 - DTC-Based Diagnostics/MODULE, Antilock Brake \(ABS\) - Standard Procedure](#)).

8. ISOLATE AND CHECK THE (B1) WHEEL SPEED SENSOR (-) CIRCUIT FOR AN OPEN/HIGH RESISTANCE

+ Test Information

Is the resistance below 3.0 Ohms?

Yes

- Go To [9](#)

No

- Repair the circuit for an open/high resistance.
- Perform the ABS VERIFICATION TEST.([Refer to 28 - DTC-Based Diagnostics/MODULE, Antilock Brake \(ABS\) - Standard Procedure](#)).

9. CHECK THE (B2) WHEEL SPEED SENSOR (+) CIRCUIT FOR PROPER VOLTAGE AT THE WHEEL SPEED SENSOR (WSS) HARNESS CONNECTOR

+ Test Information

NOTE: Normal operating voltage should be above 9.0 volts.

Does the circuit have the proper voltage present?

Yes

- Go To [10](#)

No

- Go To [11](#)

10. REPLACE THE WHEEL SPEED SENSOR (WSS) AND TEST FOR DTCS

+ Test Information

CAUTION: Make sure braking capability is available before road testing.

1. Road test the vehicle over 40 km/h (25 mph).

NOTE: Vehicle must be driven for several minutes above 40 km/h (25 mph) for set conditions to be meet.

2. With the scan tool, read ABS DTCS.

B17AD-12-REAR LEFT TRAILER TURN LAMP CONTROL-CIRCUIT SHORT TO BATTERY

For a complete TRAILER TOW SYSTEM wiring diagram, [\(refer to the Wiring Information\)](#).

Theory of Operation

Four relays are used to provide voltage to the Trailer Tow connector. The Trailer Tow Relays are used to switch fused battery voltage directly to the Trailer Tow connector when requested. The Trailer Tow Relays are activated through a ground path provided by the Body Control Module (BCM).

When Monitored and Set Conditions

When Monitored: This diagnostic runs continuously when the following conditions are met:

- The ignition is on.
- The battery voltage is between 10.0 and 16.0 volts.

Set Conditions:

- When the Left Turn Lamps are active and the Body Control Module (BCM) detects greater than 0.95 amps on the Left Rear Turn Lamp Control circuit.
 - Four consecutive BCM output retry attempts have failed within the same ignition cycle.

Default Actions:

- The Left Tailer Tow Turn Lamp is inoperative.

Possible Causes
LEFT REAR TURN LAMP CONTROL CIRCUIT SHORTED TO VOLTAGE
LEFT TRAILER TOW RELAY
POWER DISTRIBUTION CENTER (PDC) ASSEMBLY
BODY CONTROL MODULE (BCM)

Always perform the PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE before proceeding. [\(Refer to 28 - DTC-Based Diagnostics/Standard Procedure\)](#).

Diagnostic Test

1. READ AND RECORD DTCS AND ENVIRONMENTAL DATA - ERASE DTCS AND CHECK FOR THE DTC TO RETURN

Test Information

Did the DTC return?

Yes

- Go To [2](#)

No

- Perform the appropriate INTERMITTENT CONDITION diagnostic procedure. [\(Refer to 28 - DTC-Based Diagnostics/Standard Procedure\)](#).

2. DISCONNECT THE POWER DISTRIBUTION CENTER (PDC) ASSEMBLY HARNESS CONNECTOR(S) AND CHECK FOR VOLTAGE ON THE (L655) LEFT REAR TURN LAMP CONTROL CIRCUIT

Test Information

NOTE: When probing a circuit at any harness connector, always use an appropriate probing tool to prevent any possible damage to the harness connector terminals.

Is there any voltage present?

Yes

- Go To [3](#)

No

U1223-00-LOST COMMUNICATION WITH WIRELESS CHARGING PAD MODULE

For a complete LIN BUS SYSTEM wiring diagram, ([refer to the Wiring Information](#)).

For a complete FUSES wiring diagram, ([refer to the Wiring Information](#)).

For a complete GROUNDS wiring diagram, ([refer to the Wiring Information](#)).

When Monitored and Set Conditions

When Monitored: This diagnostic runs continuously when the following conditions are met:

- The ignition is on for greater than five seconds.
- The battery voltage is between 10.0 and 16.0 volts.

Set Conditions:

- When the Body Control Module (BCM) does not receive LIN Bus 3 messages from the Wireless Charging Module for greater than five seconds.

Default Actions:

- Functionality related to the Wireless Charging Module will not update.

Possible Causes
IGNITION RUN ACC CIRCUIT OPEN OR SHORTED TO GROUND
LIN BUS 3 CIRCUIT OPEN
GROUND CIRCUIT OPEN
WIRELESS CHARGING MODULE
BODY CONTROL MODULE (BCM)

Always perform the **PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE** before proceeding. ([Refer to 28 - DTC-Based Diagnostics/Standard Procedure](#)) .

Diagnostic Test

1. READ AND RECORD DTCS AND ENVIRONMENTAL DATA - ERASE DTCS AND CHECK FOR THE DTC TO RETURN

+ Test Information

Did the DTC return?

Yes

- Go To [2](#)

No

- Perform the appropriate INTERMITTENT CONDITION diagnostic procedure. ([Refer to 28 - DTC-Based Diagnostics/Standard Procedure](#)) .

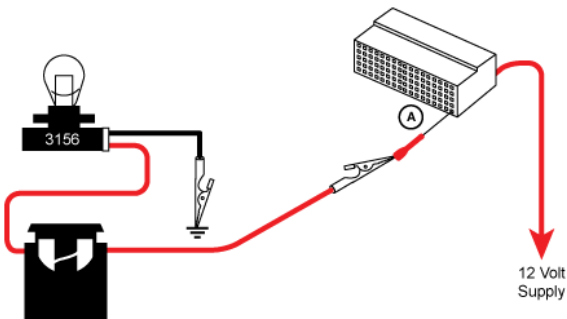
2. DISCONNECT THE WIRELESS CHARGING MODULE HARNESS CONNECTOR AND CHECK THE (F781) IGNITION RUN ACC CIRCUIT FOR AN OPEN OR HIGH RESISTANCE BY LOAD TESTING THE CIRCUIT

+ Test Information

+ Tech Tips/Engineering Notes

NOTE: When probing a circuit at any harness connector, always use an appropriate probing tool to prevent any possible damage to the harness connector terminals.

NOTE: Compare the brightness of the bulb in the load test tool to that of a direct connection to Battery.



- Repair the short between the circuits that have continuity. Use the wiring diagram as a guide to trace the circuits and look for any in-line connectors to help isolate the location of the short.
- Perform the BODY VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/MODULE, Body Control \(BCM\) - Standard Procedure](#)).

No

- Go To [6](#)

6. ISOLATE AND CHECK THE (P429) HEATED SEAT SENSOR RETURN CIRCUIT FOR AN OPEN OR HIGH RESISTANCE

+ Test Information

NOTE: When probing a circuit at an Electronic Control Unit (ECU) harness connector, always use an appropriate back probing tool to prevent any possible damage to the ECU terminals.

Is the resistance below 3.0 Ohms?

Yes

- Go To [7](#)

No

- Repair the (P429) Heated Seat Sensor Return circuit for an open or high resistance.
- Perform the BODY VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/MODULE, Body Control \(BCM\) - Standard Procedure](#)).

7. ISOLATE AND CHECK THE (P429) HEATED SEAT SENSOR RETURN CIRCUIT FOR A SHORT TO ANOTHER CIRCUIT AT THE CRSM HARNESS CONNECTOR

+ Test Information

NOTE: When probing a circuit at an Electronic Control Unit (ECU) harness connector, always use an appropriate back probing tool to prevent any possible damage to the ECU terminals.

NOTE: With the circuit isolated there should be no continuity between the circuit being tested and any other circuit.

Is there continuity between the (P429) Heated Seat Sensor Return circuit and any other circuit?

Yes

- Repair the short between the circuits that have continuity. Use the wiring diagram as a guide to trace the circuits and look for any in-line connectors to help isolate the location of the short.
- Perform the BODY VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/MODULE, Body Control \(BCM\) - Standard Procedure](#)).

No

- Go To [8](#)

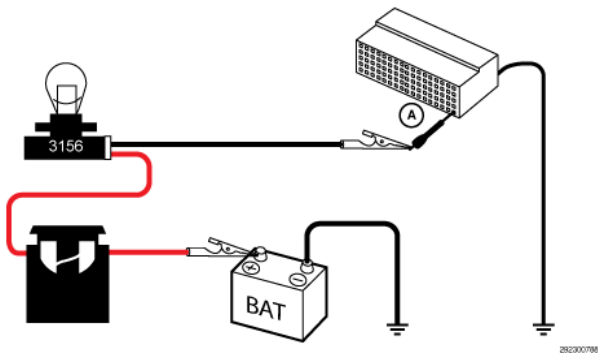
8. CHECK THE (Z909) GROUND CIRCUIT FOR AN OPEN OR HIGH RESISTANCE BY LOAD TESTING THE CIRCUIT

+ Test Information

+ Tech Tips/Engineering Notes

NOTE: When probing a circuit at an Electronic Control Unit (ECU) harness connector, always use an appropriate back probing tool to prevent any possible damage to the ECU terminals.

NOTE: Compare the brightness of the bulb in the load test tool to that of a direct connection to Battery.



Is the load test bulb illuminated and bright?

Yes

- Go To [9](#)

No

- Repair the (Z909) Ground circuit for an open or high resistance.
- Perform the BODY VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/MODULE, Body Control \(BCM\) - Standard Procedure](#)).

B1401-2B-EMERGENCY CALL SPEAKER-WIRES SHORTED TOGETHER

For a complete FLEET TELEMATICS COMMUNICATION wiring diagram, [\(refer to the Wiring Information\)](#).

Theory of Operation

When Monitored and Set Conditions

When Monitored: This diagnostic runs continuously when the following conditions are met:

- With the ignition on.
- Battery voltage between 9.0–16.0 volts.

Set Conditions:

- The Global Telematics Box Module (TBM2) detects a short to each other on a Emergency Assistance Speaker circuit.

Default Actions:

- No Sound from the Emergency Assistance Speaker.
- SOS/Emergency Call Button Red LED on solid.
- Instrument Panel Cluster (IPC) display message “SOS FAIL”.

Possible Causes
EMERGENCY ASSISTANCE SPEAKER SPEAKER (+) CIRCUIT SHORTED TO THE SPEAKER (-) CIRCUIT GLOBAL TELEMATICS BOX MODULE (TBM2)

Always perform the **PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE** before proceeding. [\(Refer to 28 - DTC-Based Diagnostics/Standard Procedure\)](#).

Diagnostic Test

1. READ AND RECORD DTCS AND ENVIRONMENTAL DATA - ERASE DTCS AND CHECK FOR DTC TO RETURN

Test Information

Did the DTC return?

Yes

- Go To [2](#)

No

- Perform the appropriate INTERMITTENT CONDITION diagnostic procedure. [\(Refer to 28 - DTC-Based Diagnostics/Standard Procedure\)](#).

2. CHECK THE OPERATION OF THE EMERGENCY ASSISTANCE SPEAKER

1. Turn the ignition off.
2. Disconnect the Emergency Assistance Speaker harness connector.
3. Measure the resistance of the speaker between the two speaker terminals.

Is the resistance of the speaker less than 4.0 Ohms?

Yes

- Replace the Emergency Assistance Speaker in accordance with the Service Information. [\(Refer to 08 - Electrical/8E - Electronic Control Modules/MODULE, Global Telematics Box/Removal and Installation\)](#).
- Perform the BODY VERIFICATION TEST. [\(Refer to 28 - DTC-Based Diagnostics/MODULE, Body Control \(BCM\) /Standard Procedure\)](#).

No

- Go To [3](#)