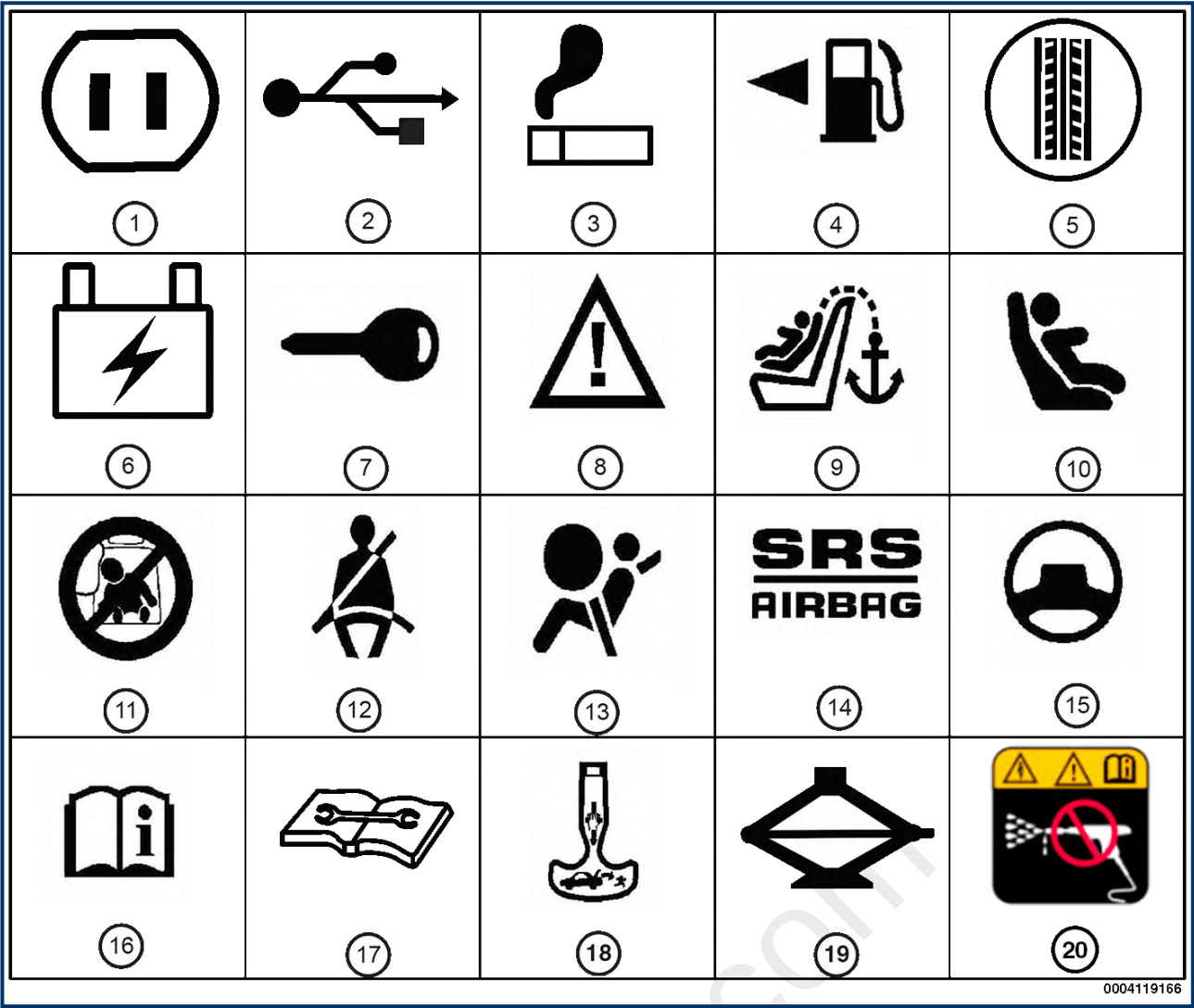


DESCRIPTION

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

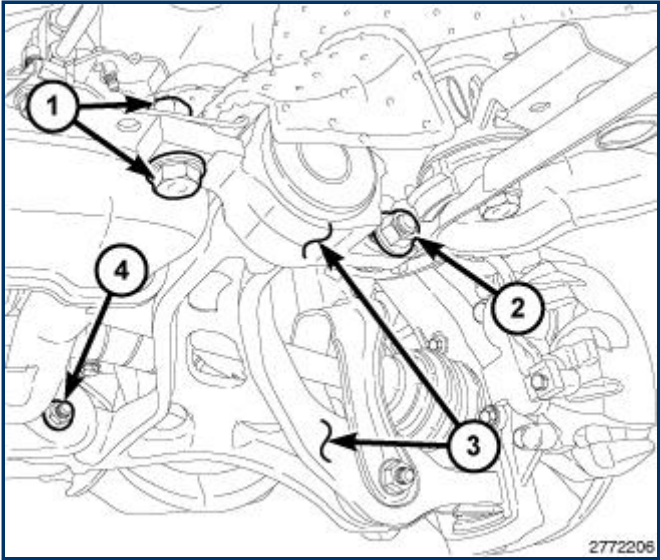
INSTALLATION

WARNING: All pressurized air suspension components contain high pressure air (up to 220 psig). Use extreme caution when inspecting for leaks. Wear safety goggles and adequate protective clothing when inspecting or servicing the air suspension system. A sudden release of air under this amount of pressure can cause possible serious or fatal injury.

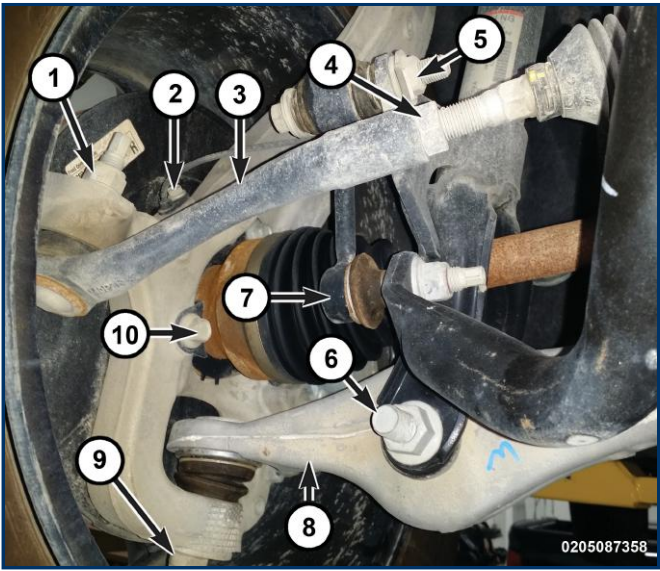
WARNING: Before performing any service on the air suspension system, the system must be disabled to prevent the system from changing ride height. Before any given component is to be serviced it must be deflated. Servicing the air suspension system without the system disabled, or with pressure in any specific component, can cause possible serious or fatal injury.

NOTE: If equipped with four wheel drive, position the halfshaft if removed with the lower control arm.

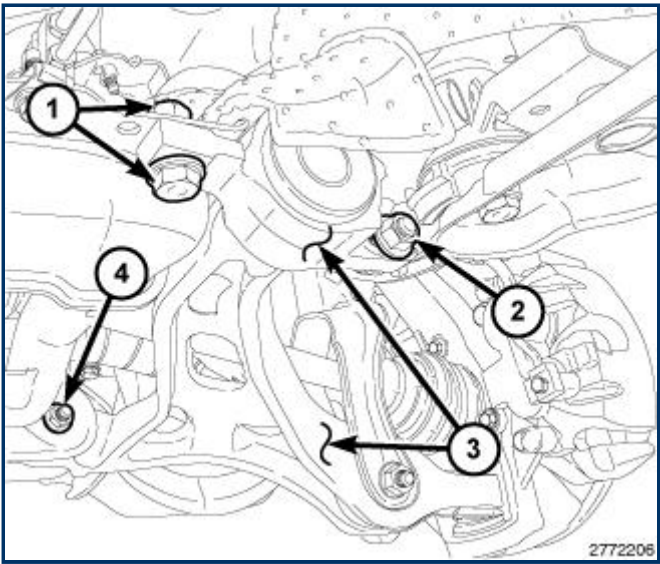
- 1. Position the lower control arm to the cradle.
- 2. Install a **NEW** lower control arm rear pivot vertical bolt and nut (1). Do not tighten.
- 3. Install a **NEW** lower control arm front pivot nut and bolt (4). Do not tighten.



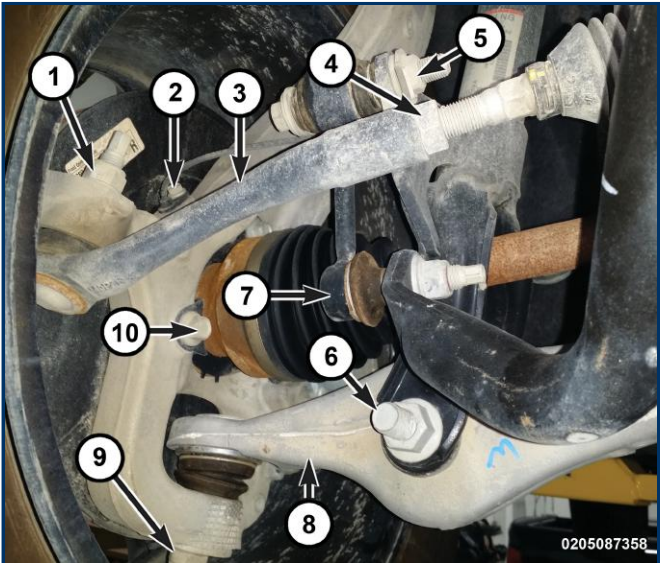
- 4. Install a **NEW** clevis bracket to lower control arm bolt (6) and nut. Do not tighten.
- 5. Install the knuckle ([Refer to 02 - Front Suspension/Front/KNUCKLE, Steering - Installation](#)).



- 6. Support the outside of the lower control arm with a suitable holding fixture, and raise to normal ride height.
- 7. Tighten the lower control arm rear pivot **vertical bolt** and nut (1) to the proper ([Torque Specifications](#)), and tighten the lower control arm rear pivot **horizontal bolt** and nut (2) to the proper ([Torque Specifications](#)).
- 8. Tighten the lower control arm front pivot nut and bolt (4) to the proper ([Torque Specifications](#)).



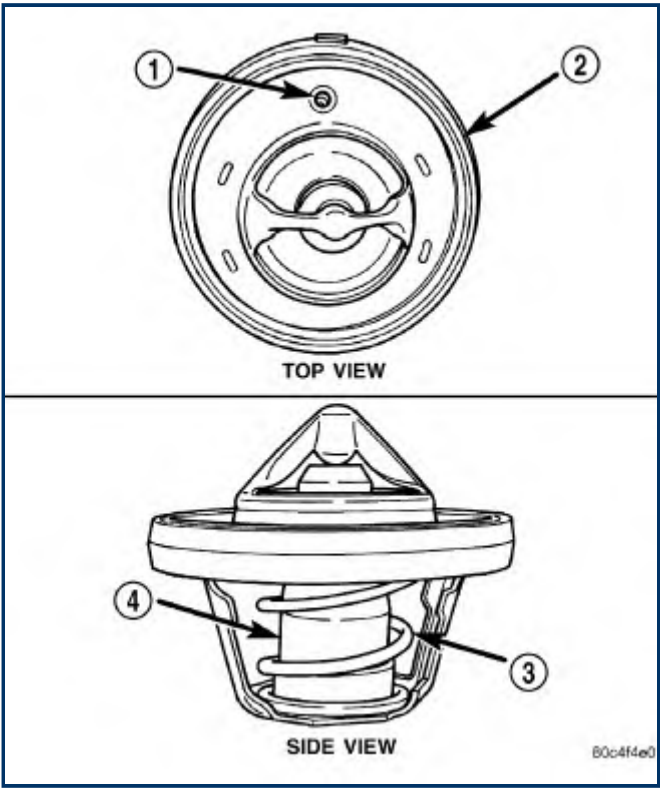
- 9. Tighten the clevis bracket to lower control arm bolt (6) to the proper ([Torque Specifications](#)).
- 10. Install the tire and wheel assembly ([Refer to 22 - Tires and Wheels/Wheels - Standard Procedure](#)).
- 11. Remove the supports and lower the vehicle.
- 12. If equipped with air suspension, with a scan tool, using the routines under the Air Suspension Control Module (ASCM), perform the following:
 - Fill Spring From Reservoir/Complete Fill on the air suspension spring on the side where the lower control arm was installed.
 - Run the Air Mass Calculation routine on the air suspension system.
 - If necessary, add to the system or deflate to atmosphere using the ASCM routines, then repeat the Air Mass Calculation routine again until system responds with Air Mass OK (188 - 216 bar-liters).
 - Enable the air suspension system.
- 13. If equipped with air suspension, perform the ASCM Verification Test ([Refer to 28 - DTC-Based Diagnostics/MODULE, Air Suspension Control \(ASCM\) - Standard Procedure](#)).
- 14. Perform wheel alignment ([Refer to 02 - Front Suspension/Wheel Alignment - Standard Procedure](#)).



5.7L/6.4L

CAUTION: Do not operate an engine without a thermostat, except for servicing or testing.

- A pellet-type thermostat controls the operating temperature of the engine by controlling the amount of coolant flow to the radiator. On all engines the thermostat is closed at a designated temperature. Above this temperature, coolant is allowed to flow to the radiator. This provides quick engine warm up and overall temperature control.
- The thermostat is closed below 200°F (93°C).
- The thermostat starts to open at temperatures between 200°F (93°C) to 207°F (97°C). Above this temperature, coolant is allowed to flow to the radiator and engine oil cooler. This provides quick engine warm up and overall temperature control.
- The thermostat is fully open at 222°F (106°C).
- The same thermostat is used for winter and summer seasons. An engine should not be operated without a thermostat, except for servicing or testing. Operating without a thermostat causes other problems. These are: longer engine warm-up time, unreliable warm-up performance, increased exhaust emissions and crankcase condensation. This condensation can result in sludge formation.
- The thermostat has an air bleed vent located on its flange. The air bleed vent (1) and the locator dimple on the thermostat seal provide for proper positioning of the thermostat in the inlet housing.



DIAGNOSIS AND TESTING - HORN 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.

NOTE: A continuously sounding horn is immediately resolved by disconnecting the wiring at the horns.

HORN SYSTEM DIAGNOSIS		
CONDITION	POSSIBLE CAUSES	CORRECTION
HORNS SOUND CONTINUOUSLY	1. Ineffective horn feed circuit. 2. Ineffective horn switch return circuit. 3. Ineffective horn relay. 4. Ineffective horn switch. 5. Ineffective Body Control Module (BCM) inputs or outputs.	1. Test and repair shorted horn feed circuit if required. 2. Test and repair shorted horn switch return circuit if required. 3. Test and replace the horn relay, which is integral to the Power Distribution Center (PDC), if required. 4. Test and replace the shorted horn switch (Driver AirBag/DAB) if required. 5. Use a diagnostic scan tool to test the BCM inputs and outputs. Refer to the appropriate diagnostic information.
HORNS SOUND INTERMITTENTLY AS THE STEERING WHEEL IS ROTATED	1. Ineffective horn switch return circuit. 2. Ineffective horn switch.	1. Test and repair intermittently shorted horn switch return circuit if required. 2. Test and replace the intermittently open or shorted horn switch (DAB) if required.
HORNS DO NOT SOUND	1. Ineffective horn ground circuit. 2. Ineffective horn feed circuit. 3. Ineffective horn relay. 4. Ineffective horns. 5. Ineffective horn switch feed circuit. 6. Ineffective horn switch return circuit. 7. Ineffective horn switch. 8. Ineffective BCM inputs or outputs.	1. Test and repair open horn ground circuit if required. 2. Test and repair open horn feed circuit if required. 3. Test and replace the horn relay, which is integral to the PDC, if required. 4. Test and replace open horns if required. 5. Test and repair open horn switch feed circuit if required. 6. Test and repair open horn switch return circuit if required. 7. Test and replace the open horn switch (DAB) if required. 8. Use a diagnostic scan tool to test the BCM inputs and outputs. Refer to the appropriate diagnostic information.

UCONNECT + SIRIUSXM GUARDIAN

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 hardwired circuits between componenThe hardwired circuits between components related to the Radio Receiver Module (RRM) and the Uconnect® + SiriusXM® Guardian™ system may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, 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](#)).

However, conventional diagnostic methods will not prove conclusive in diagnosing the RRM or the electronic controls and communication between modules and other devices that provide some features of the Uconnect® + SiriusXM® Guardian™ system.

A Light Emitting Diode (LED) indicator between the inside rearview mirror pushbuttons indicate the status of the Uconnect® + SiriusXM® Guardian™ embedded cellular device. Any fault indication is accompanied by a popup screen in the RRM electronic touchscreen display. The following indicators are provided whenever the status of the ignition switch is ON or Accessory (ACC):

- **Solid Green** - No active call.
- **Flashing Green** - A Uconnect® Care or SOS call is active.
- **Solid Red** - A CAN, embedded cellular device, cellular antenna, or wiring fault has been detected.
- **Off** - No power supply to the rearview mirror.

In addition to the LED indicator on the mirror, one of the following error messages may appear in the RRM touchscreen display. These error messages will coincide with a solid red mirror LED indication.

- **Critical VIN Error** - This message typically indicates the radio data was not provisioned with the back end database or that critical data within the RRM is missing. The diagnosis of this type of failure will require the assistance of the network provider.

1. Enter the **Dealer Mode** menu using one of three methods, depending on the radio in the vehicle.

NOTE:

*The preferred method of recording the information requested below for the Uconnect® Care network engineer is to take a picture of each screen using a cellphone camera to transfer that picture to the network engineer (or Star agent).

- **Method One**With the radio ON, enter the **Dealer Mode** menu by selecting the driver temperature up, temperature down, and front defrost buttons simultaneously until the menu appears (about 5-8 seconds).
- **Method Two**With the radio ON, enter the **Dealer Mode** menu by pressing the SCREEN OFF button, then immediately lightly press both lower corners of the display screen until the menu appears (about 5-10 seconds).
- **Method Three**With the radio ON, enter the **Dealer Mode** menu by pressing the SCREEN OFF button, then immediately lightly press the lower left and upper right corners of the display screen until the menu appears (about 5-10 seconds).

- a. Navigate through the **System Information** menu to the **Radio Part Information** menu.
- b. *Write down/photograph the **Serial Number**, **Software Version** and **Application Version** (as applicable to the radio in the vehicle) listed on the **Radio Part Information** menu. The serial number begins with a **T**.

2. Navigate back to the **Dealer Mode** menu.The network engineer will need the connectivity information which is dependent on the radio in the vehicle. The method of obtaining this information is by using one of two methods: **Method One**

- a. Navigate through the **##Menu Basic** menu to the **##RTN#** menu.
- b. *Write down/photograph the **MDN** number listed on the **##RTN#** menu.
- c. *Write down/photograph the **MEID** number listed on the **##RTN#** menu.

Method Two

- a. Navigate through the **Service Information** menu to the **Connectivity (Information)** menu.
- b. *Write down/photograph the **MSISDN** number listed on the **Connectivity (Information)** menu.
- c. *Write down/photograph the **IMEI** number listed on the **Connectivity (Information)** menu.
- d. *Write down/photograph the **ICCID** number listed on the **Connectivity (Information)** menu.

3. Place a call to Uconnect® Care. Provide your dealer code, name, call back number and the Vehicle Identification Number (VIN). Request a ticket be opened with the network engineers to assist with Uconnect® + SiriusXM® Guardian™ diagnostics. A ticket will be opened with the network engineers and a call back will occur within 15 minutes for additional assistance and diagnostics. If there is no call back within 15 minutes, create a STAR case and submit the pictures and information along with scan and configuration reports.

- **Vehicle Phone Requires Service** - This message can indicate a fault with the antenna, the inside rearview mirror, communication with the Occupant Restraint Controller (ORC) module, or any of the hardwired circuits between these components. Check for an active or stored Diagnostic Trouble Code (DTC) for any of the listed components. Follow all of the steps found in the diagnostic information for the retrieved DTC and fully check the hardwired circuitry associated with the DTC. If no DTC can be retrieved, an internal failure within the RRM may exist.

NOTE:

Validation and diagnosis of many of the conditions listed below will require access to both the paired Bluetooth® device and the Personal Identification Number (PIN) needed for that device.

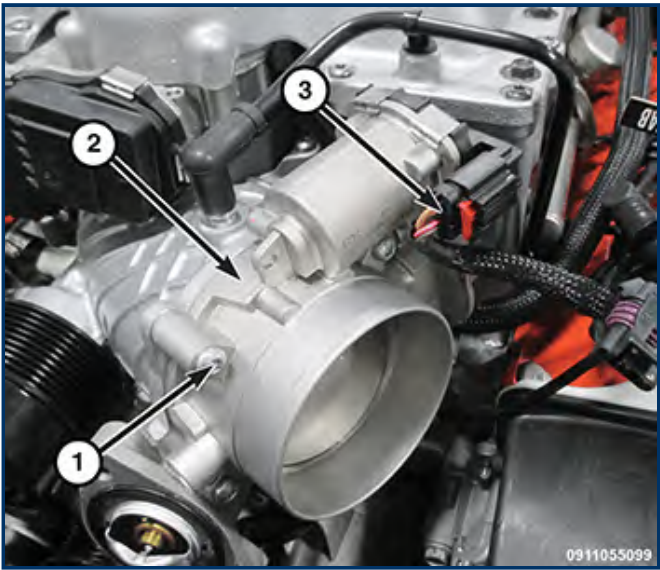
UCONNECT + SIRIUSXM GUARDIAN DIAGNOSIS		
CONDITION	POSSIBLE CAUSES	CORRECTION
POOR VOICE RECOGNITION	1. User is not waiting for the beep tone acknowledgment before issuing voice commands.	1. Be certain the user knows to wait for the acknowledgment beep tone before issuing voice commands.
	2. User is not issuing voice commands in a smooth and	2. Be certain the user is issuing voice commands in a normal, smooth and consistent speaking voice. The Advanced Speech Recognition (ASR) engine is designed to recognize

6.2L

CAUTION:

Do not use spray (carb) cleaners on any part of the throttle body. Do not apply silicone lubricants to any part of the throttle body.

- 1. Disconnect and isolate the negative battery cable. If equipped with an Intelligent Battery Sensor (IBS), disconnect the IBS connector first before disconnecting the negative battery cable.
- 2. Remove the air cleaner body [\(Refer to 09 - Engine/Air Intake System/BODY, Air Cleaner - Removal\)](#).
- 3. Disconnect the throttle body (2) wire harness connector (3).
- 4. Remove bolts (1) the throttle body (2) from the supercharger.

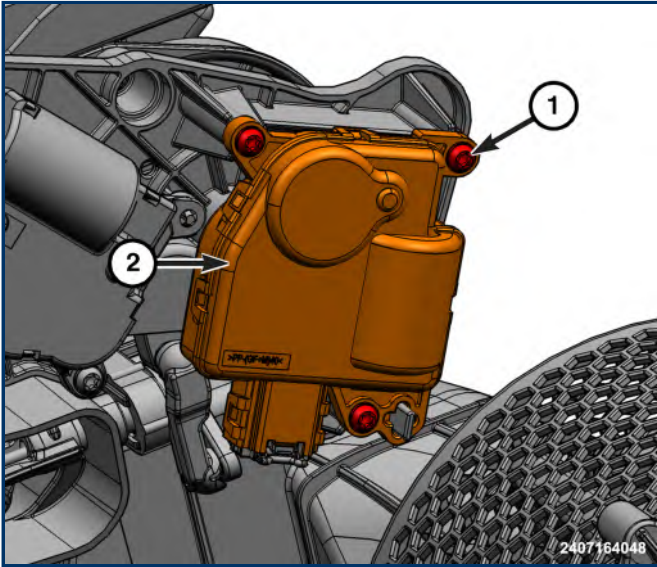
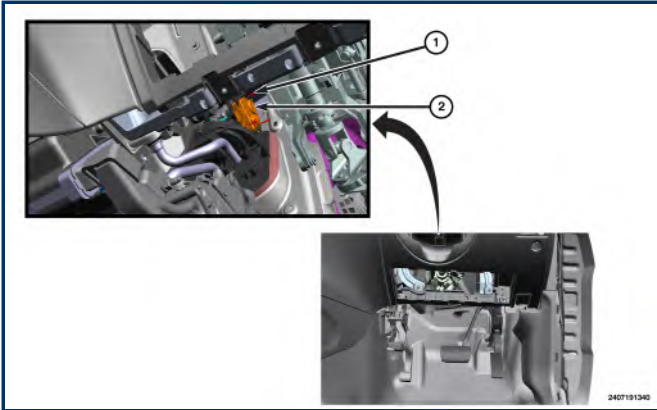


REMOVAL

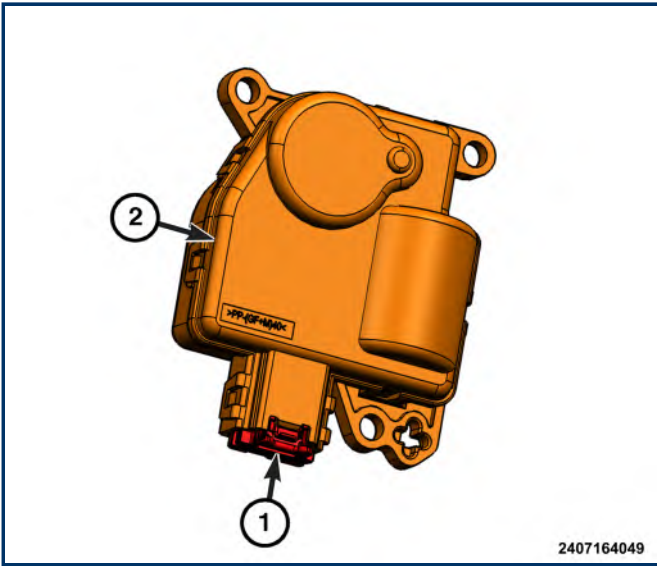
WARNING: Disable the airbag system before attempting any steering wheel, steering column or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis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

DEFROST

1. Remove the glove box and closeout ([Refer to 23 - Body/Instrument Panel/GLOVE BOX, Instrument Panel/Removal](#)).
2. Remove the right side floor distribution duct from the Heating, Ventilation and Air Conditioning (HVAC) housing ([Refer to 24 - Heating and Air Conditioning/Distribution/DUCT, Floor Distribution - Removal](#)).
3. On right hand drive models remove the screws (1) that secure the mode door actuator (2) to the mode door bracket located on the right side of the HVAC housing. The mode door actuator can still be accessed with the steering column in place.
4. On left hand drive models, remove the screws (1) that secure the mode door actuator (2) to the mode door bracket located on the right side of the HVAC housing.

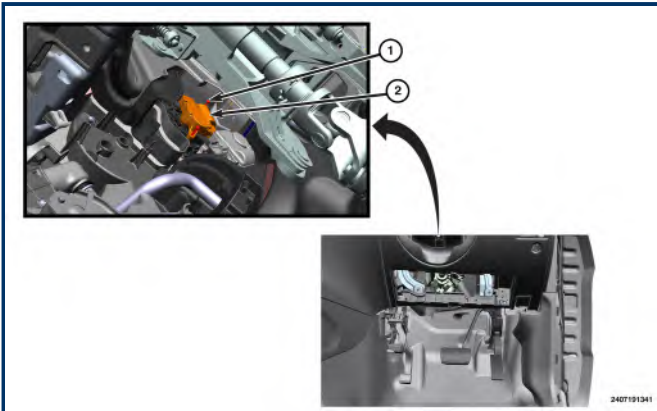


5. Disconnect the wire harness connector (1) from the mode door actuator (2) and remove the actuator from the vehicle.



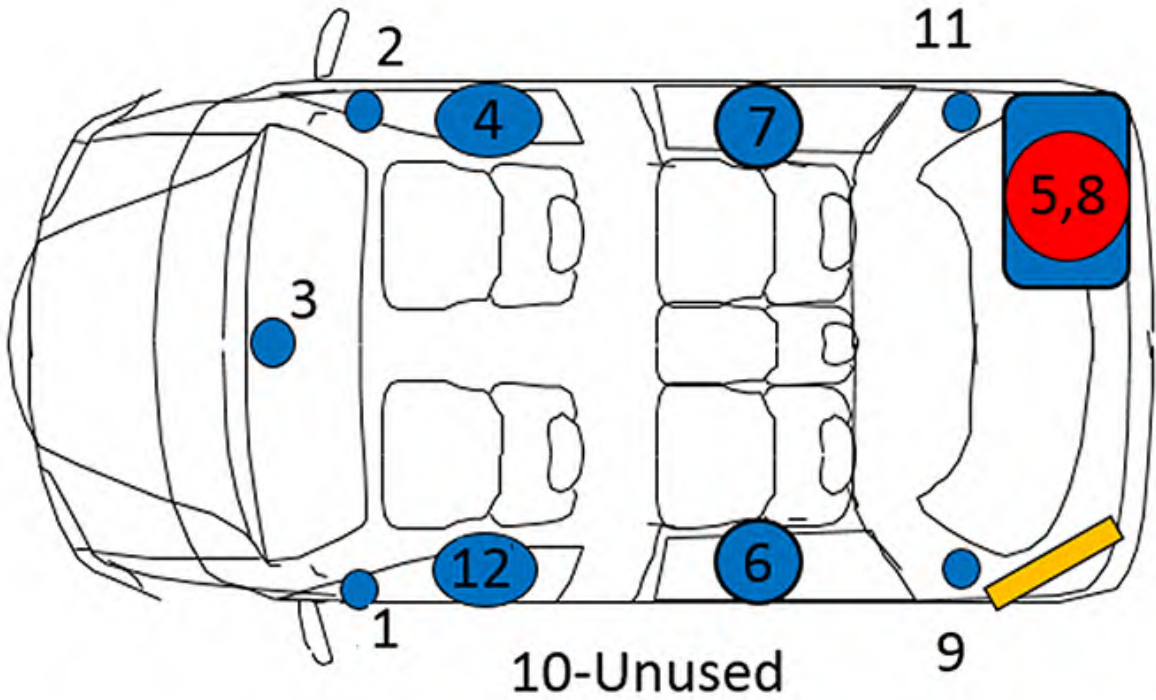
PANEL

1. Remove the glove box and closeout ([Refer to 23 - Body/Instrument Panel/GLOVE BOX, Instrument Panel/Removal](#)).
2. Remove the right side floor distribution duct from the Heating, Ventilation and Air Conditioning (HVAC) housing ([Refer to 24 - Heating and Air Conditioning/Distribution/DUCT, Floor Distribution - Removal](#)).
3. On right hand drive models remove the screws (1) that secure the mode door actuator (2) to the mode door bracket located on the right side of the HVAC housing. The mode door actuator can still be accessed with the steering column in place.
4. Remove the screws (1) that secure the mode door actuator (2) to the mode door bracket located on the right side of the HVAC housing.



SALES CODE	DESCRIPTION
RC3	9 AMPLIFIED SPEAKERS W/SUBWOOFER
*** WITHOUT ***	
JLW	ACTIVE NOISE CONTROL SYSTEM

NOTE: Channel 10 is **not** used in this system configuration below.



2817141772

AUDIO SYSTEM - PREMIUM 1

Vehicle **must** have the following sales code applications for this speaker channel mapping to apply.

SALES CODE	DESCRIPTION
JLW	ACTIVE NOISE CONTROL SYSTEM
AND	
RC3	9 AMPLIFIED SPEAKERS W/SUBWOOFER

NOTE: Channel 10 is **not** used in this system configuration below.

- Repair the Impact/Pressure Sensor circuit(s) for a short to voltage.
- Perform the RESTRAINTS SYSTEM VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/CONTROLLER, Occupant Restraint \(ORC\) - Standard Procedure](#)).

No

- Go To [3](#)

3. CHECK THE IMPACT/PRESSURE SENSOR SIGNAL AND RETURN CIRCUITS FOR A SHORT TO GROUND

1. Check for continuity between ground and both of the Impact/Pressure Sensor Signal circuits at the Impact/Pressure Sensor harness connector.

Is there continuity between ground and either circuit?

Yes

- Repair the Impact/Pressure Sensor Signal circuit(s) for a short to ground.
- Perform the RESTRAINTS SYSTEM VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/CONTROLLER, Occupant Restraint \(ORC\) - Standard Procedure](#)).

No

- Go To [4](#)

4. CHECK THE IMPACT/PRESSURE SENSOR SIGNAL AND RETURN CIRCUITS FOR A SHORT TOGETHER

1. Check for continuity between the signal circuit and the return circuit at the Impact/Pressure Sensor harness connector.

Is there continuity between the signal circuit and the return circuit?

Yes

- Repair the signal circuit for a short to the return circuit.
- Perform the RESTRAINTS SYSTEM VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/CONTROLLER, Occupant Restraint \(ORC\) - Standard Procedure](#)).

No

- Go To [5](#)

5. CHECK THE IMPACT/PRESSURE SENSOR SIGNAL AND RETURN CIRCUITS FOR AN OPEN OR HIGH RESISTANCE

1. Measure the resistance of the Impact/Pressure Sensor signal circuit and the return circuit from the Impact/Pressure Sensor harness connector to the ORC harness connector.

Is the resistance below 1.0 Ohms for both circuits?

Yes

- Go To [6](#)

No

- Repair the Impact/Pressure Sensor signal circuit and/or the return circuit for an open or high resistance.
- Perform the RESTRAINTS SYSTEM VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/CONTROLLER, Occupant Restraint \(ORC\) - Standard Procedure](#)).

6. REPLACE THE IMPACT/PRESSURE SENSOR AND CHECK DTCS

1. Replace the Impact/Pressure Sensor in accordance with the Service Information. ([Refer to 10 - Restraints/SENSOR, Impact/Removal](#)).
2. Operate the vehicle within the conditions that originally set the DTC or use the When Monitored and Set Conditions.
3. With the scan tool, read DTCs.

Did the DTC return?

Yes

WARNING:

If the Occupant Restraint Controller (ORC) is dropped at any time, it must be replaced. Failure to follow these instructions may result in possible serious or fatal injury.

•

- Replace the Occupant Restraint Controller (ORC) in accordance with Service Information. ([Refer to 10 - Restraints/MODULE, Occupant Restraint Controller/Removal](#)).
- Perform the RESTRAINTS SYSTEM VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/CONTROLLER, Occupant Restraint \(ORC\) - Standard Procedure](#)).

No

U0100-00-LOST COMMUNICATION WITH ECM/PCM

NOTE: Perform this diagnostic procedure **ONLY** when the DTC status is “Active”. If the DTC status is “Stored” **DO NOT** proceed with this diagnostic procedure. A “Stored” DTC will not affect the performance of the vehicle.

The COMMUNICATION DIAGNOSTIC PROCEDURE **MUST** be performed before replacing any component(s) or module(s). Perform the COMMUNICATION DIAGNOSTIC PROCEDURE. [. \(Refer to 28 - DTC-Based Diagnostics/MODULE, Body Control \(BCM\) /Standard Procedure\).](#)

C152A-36-RIGHT REAR RIDE HEIGHT SENSOR-SIGNAL FREQUENCY TOO LOW

When Monitored and Set Conditions

When Monitored:

- Battery voltage between 9 and 16 volts.
- ASCM is not in Sleep mode.

Set Conditions:

- The Air Suspension Control Module (ASCM) detects when the Right Rear Ride Height Sensor’s signal frequency is below 588 Hz for more than 1 second.

Default Actions:

- "Service Air Suspension" message displayed.

Possible Causes
INCORRECT RIGHT REAR RIDE HEIGHT SENSOR
RIGHT REAR RIDE HEIGHT SENSOR
AIR SUSPENSION CONTROL MODULE (ASCM)

Always perform the ASCM PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE before proceeding. ([Refer to 28/MODULE-Air Suspension Control-ASCM/Standard Procedure](#)).

1. VERIFY THE DTC IS ACTIVE

1. Turn the ignition on.
2. With the scan tool, record and erase DTCs in the ASCM.
3. With the scan tool, read the DTCs in the ASCM.

Is the DTC active at this time?

Yes

- Go To [2](#)

No

- Go To [3](#)

2. RIGHT REAR RIDE HEIGHT SENSOR

1. Replace the Right Rear Ride Height Sensor in accordance with the Service Information. ([Refer to 02 - Front Suspension/Air Suspension/SENSOR, Height - Removal](#)).
2. With the scan tool, erase the DTCs in the ASCM.
3. With the scan tool, read the DTCs in the ASCM.

Does the DTC remain active?

Yes

- Replace the Air Suspension Control Module (ASCM) in accordance with the Service Information. ([Refer to 08 - Electrical/8E - Electronic Control Modules/MODULE, Air Suspension Control - Removal](#)).
- Perform the ASCM VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/MODULE, Air Suspension Control \(ASCM\) - Standard Procedure](#)).

No

- Test complete, the condition or conditions that originally set this DTC are not present at this time.

3. INTERMITTENT WIRING AND CONNECTORS

1. Using the wiring diagram/schematic as a guide, inspect the wiring harness and connectors.
2. Wiggle test the wiring harness and connectors while monitoring the scan tool data relative to this circuit.
3. Look for the data to change or for the DTC to reset during the wiggle test.

C1093-64-FRONT BRAKE PRESSURE SENSOR - SIGNAL PLAUSABILITY FAILURE

When Monitored and Set Conditions

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

- Ignition on.

Set Conditions:

- Anti-lock Brake System (ABS) Module detects a moderate deceleration without a change in brake pressure.

Default Actions:

- Adaptive Cruise Control (ACC) is disabled.
- Hill Decent Control is disabled.
- Select Speed Control is disabled.

Possible Causes
BRAKE FLUID LEVEL LOW OR CONTAMINATED
AIR IN BRAKE SYSTEM
ANTI-LOCK BRAKE SYSTEM (ABS) MODULE
HYDRAULIC CONTROL UNIT (HCU)

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

1. CHECK FOR AN ACTIVE DTC

NOTE: This DTC must be active for the results of this test to be valid.

- Turn the ignition on.
- With the scan tool, read ABS DTCs and record on the repair order.
- With the scan tool, read and record Freeze Frame information.
- With the scan tool, erase DTCs.
- Start the engine.
- Press the brake pedal firmly and release.
- With the scan tool, read ABS DTCs.

Is the DTC active?

Yes

- Go To [2](#)

No

- Perform the ABS INTERMITTENT CONDITION TEST. ([Refer to 28 - DTC-Based Diagnostics/MODULE, Antilock Brake \(ABS\) - Standard Procedure](#)).

2. MECHANICAL BRAKE SYSTEM INSPECTION

- Turn the ignition off.
- Check the brake fluid level.
- Check the brake fluid for contaminants.
- Check base brake issues.

Were any problems found?

Yes

- Repair as necessary.
- Perform the ABS VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/MODULE, Antilock Brake \(ABS\) - Standard Procedure](#)).

No

NOTE: IMPORTANT: Some ECUs simply pass information from one ECU to the other. In some cases, a U-code DTC may be set that implicates the “pass-through” ECU that sent the information. For example, if an Engine Coolant Temperature (ECT) Sensor DTC is set in the Powertrain Control Module (PCM), the HVAC Module may set an “Implausible Data from BCM” DTC because the BCM is the ECU that normally passes that information from the PCM to the HVAC Module. However, the BCM may not set any DTCs related to the faulted ECT Sensor because the BCM does not use the ECT information. In this case, the PCM ECT DTC should be diagnosed before the Implausible Data DTC. If you suspect a scenario like this, diagnose the non U-code DTC(s) before diagnosing any Implausible Data, Implausible Signal, Missing Message or Invalid Data DTCs. Below are some further examples of different sensors and switches:

- **Sensors**
 - **Adjustable Pedal**
 - **Air Temperature**
 - **Battery**
 - **Blind Spot**
 - **Crankshaft**
 - **Impact**
 - **Park Assist**
 - **Passive Entry**
 - **Rain**
 - **Ride Height**
 - **Seat**
 - **Sun**
 - **Tire Pressure**
 - **Wheel Speed**
- **Switches**
 - **Audio**
 - **Brake / Stop Lamp**
 - **Door Ajar**
 - **Hazard**
 - **Heated**
 - **Hood**
 - **Ignition**
 - **Lighting**
 - **Multifunction**
 - **Power Seat**
 - **PRNDL**
 - **SOS Console**
 - **Speed Control**

1. With the scan tool, check all other ECUs for non-U-code DTCs that are related to the U-code that is set, or related to the customer's concern if the U-code DTC name is not clear about which signal is faulted.

Is a related non U-code DTC set in another ECU?

Yes

- Diagnose the related DTC. Refer to the appropriate Diagnostic Procedure.

No

- Replace the ‘Sending Control Module’ in accordance with the Service Information.
- Perform the appropriate VERIFICATION TEST. If a VERIFICATION TEST is not available for an ECU, perform the BCM VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/MODULE, Body Control \(BCM\) /Standard Procedure](#)).

11. CHECK THE ‘SENDING CONTROL MODULE’ RELATED WIRE HARNESS CONNECTIONS

1. Disconnect all ‘Sending Control Module’ related wire harness connectors.
 2. Disconnect all related in-line wire harness connections (if equipped).
 3. Inspect wire harness connectors, component connectors, and all male and female terminals for the following conditions:
 - Proper connector installation.
 - Damaged connector locks
 - Corrosion
 - 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.
4. Connect all ‘Sending Control Module’ related wire harness connectors. Be certain that all wire harness connectors are fully seated and the connector locks are fully engaged.
 5. Connect all in-line wire harness connectors (if equipped). Be certain that all connectors are fully seated and the connector locks are fully engaged.
 6. With the scan tool, erase DTCs.
 7. Operate the vehicle in the conditions that set the DTC.
 8. With the scan tool, read DTCs.

Did the DTC return?

Yes

- If there is a history of this DTC setting multiple times, replace the ‘Sending Control Module’ in accordance with the Service Information.
- Perform the appropriate VERIFICATION TEST. If a VERIFICATION TEST is not available for an ECU, perform the BCM VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/MODULE, Body Control \(BCM\) /Standard Procedure](#)).

No

B143A-12-MICROPHONE 1-CIRCUIT SHORT TO BATTERY

For a complete EMERGENCY RESPONSE ASSISTANCE SYSTEM wiring diagram, [\(refer to the Wiring Information\)](#).

Theory of Operation

The module incorporates a backup battery with a life expectancy of 5-7 years that will allow the emergency call (eCall) to a Public Safety Answering Point (PSAP) system to continue to work in case of vehicle power interruption. The battery will allow call and data transfer for at least 15 minutes with callback capability for at least one hour after a vehicle emergency. The eCall system uses a single dedicated 70mm speaker for vocal communication with the vehicle occupants during an eCall.

The system will detect an eCall trigger, whether automatic through a crash severe enough or manual at a vehicle occupant’s request by pressing the SOS button. Once triggered, the system will attempt to send an MSD to any public system operated by an MNO and also attempt to establish a voice connection between the vehicle and the PSAP. When connected to the MNO, the vehicle will transfer the vehicle location and VIN.

The system is triggered automatically when the Occupant Restraint Controller (ORC) sends a signal using the Controller Area Network (CAN) - C data bus and / or the Output Digital Serial line. The severity of the crash will determine if an eCall is sent or not. This will include direction of the impact, whether frontal, side, rear or rollover. The system can be manually triggered using the SOS button by the vehicle driver or a passenger. The will actuate the system in the same manner as if it had been triggered automatically by the ORC. When eCall is in operation, the Radio audio will be muted and eCall audio will be heard through the eCall speaker.

The hard wired inputs and outputs may be diagnosed using conventional diagnostic tools and procedures. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the electronic controls and communication between other modules and devices that provide some features of the system. The most reliable, efficient and accurate means to diagnose the electronic controls and communication related to system operation requires the use of a diagnostic scan tool.

In the event that the vehicle battery connection is compromised, a backup battery is mounted within the to ensure the integrity of the system and a continuation of an eCall if the vehicle battery becomes disconnected while a call is in progress. If the backup battery becomes discharged, a message will be indicated in the Instrument Panel Cluster (IPC) and a diagnostic code set in the module. The microcontroller continuously monitors all of the system electrical circuits to determine the system readiness. If the detects a monitored system fault, it sets an active and stored Diagnostic Trouble Code (DTC) and sends electronic messages to the IPC and BCM over the CAN data bus to turn On the indicator. An active fault only remains for the duration of the fault, or in some cases for the duration of the current ignition cycle, while a stored fault causes a DTC to be stored in memory by the module.

For additional details on the description and operation of the system, [\(Refer to 08 - Electrical/8E - Electronic Control Modules/MODULE, Description\)](#) and [\(Refer to 08 - Electrical/8E - Electronic Control Modules/MODULE, Operation\)](#).

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 Emergency Assistance Module (EAM) detects a short to voltage on either the Emergency Microphone (+), the Emergency Microphone (-) circuit, Microphone 1 In (+), or the Microphone 1 In (-) circuits.

Default Actions:

- Inside Rearview Mirror Red LED on solid.
- Instrument Panel Cluster (IPC) display message “SOS FAIL”.

Possible Causes
EMERGENCY MICROPHONE (+/-) CIRCUIT SHORTED TO VOLTAGE
MICROPHONE 1 IN (+/-) CIRCUIT SHORTED TO VOLTAGE
INSIDE REARVIEW MIRROR
RADIO
EMERGENCY ASSISTANCE MODULE (EAM)

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

Diagnostic Test

1. CHECK FOR AN ACTIVE DTC

1. With the scan tool, read Emergency Assistance Module (EAM) DTCs and record on the repair order.
2. With the scan tool, erase DTCs.
3. With the scan tool, read EAM DTCs.

Did the DTC return?

Yes

- Go To [2](#)

C2205-29-STEERING ANGLE SENSOR INTERNAL-SIGNAL INVALID

Theory of Operation

The Steering Column Control Module (SCCM) is located near the top of the Steering Column underneath the Steering Wheel. The SCCM includes the Clockspring, the Multi-Function Switch and a LIN/CAN C Gateway. LIN Bus messages received by the LIN/CAN C Gateway are broadcast over the CAN C Bus to the appropriate modules.

The Steering Angle Sensor (SAS) for this vehicle is integral to the Steering Column Control Module (SCCM).

When Monitored and Set Conditions

When Monitored:

- This diagnostic runs continuously when the ignition is on.

Set Conditions:

- The Steering Column Control Module (SCCM) detects the Steering Angle Sensor (SAS) has set an internal failure.

Default Actions:

- The SAS will be inactive.

Possible Causes
STEERING COLUMN CONTROL MODULE (SCCM)

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

1. CHECK FOR AN ACTIVE DTC

- With the scan tool, read Steering Column Control Module (SCCM) DTCs and record on the repair order.
- Record the Environmental Data and any DTCs.
- With the scan tool, erase DTCs.
- Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
- With the scan tool, read SCCM DTCs.

Did the DTC return?

Yes

- Go to [2](#)

No

- 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. If no problems are found, test complete.
- Perform the BODY VERIFICATION TEST. ([Refer to 28 - DTC-Based Diagnostics/MODULE, Body Control \(BCM\) - Standard Procedure](#)).

2. CHECK RELATED HARNESS CONNECTIONS

- Disconnect all SCCM Module harness connectors.
- Disconnect all related in-line harness connections (if equipped).
- Disconnect the related component harness connectors.
- 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.