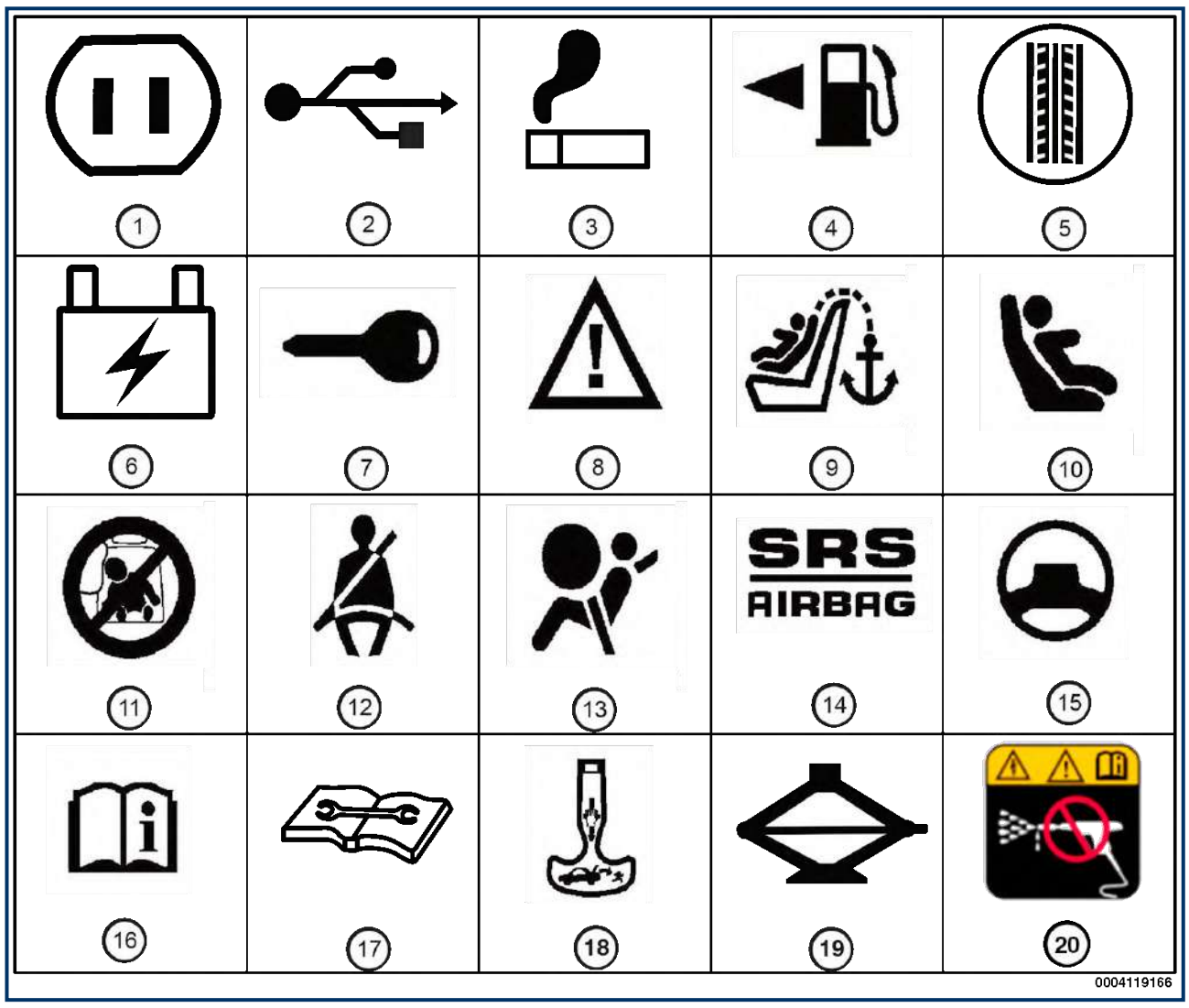
DESCRIPTION

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

INTEGRATED CENTER STACK

DESCRIPTION



1 - ICS Module

The Integrated Center Stack (ICS) Module is located in the mid-level of the center stack, just below the Display Screen Module (DSM).

This ICS module is available in one configuration, which includes the Heating, Ventilation and Air Conditioning (HVAC) controls and front and rear defrost controls.

The switch housing and the push buttons are constructed of molded plastic. Each push button has a smooth finish and is clearly identified with the appropriate text and International Control and Display Symbol icons. Several of the push buttons feature Light Emitting Diode (LED) units to give the vehicle operator an indication when the function of that switch is currently active. The back of the switch housing has an integral connector receptacle containing terminal pins that connect the switch to the vehicle electrical system through a dedicated take out and connector of the instrument panel wire harness. Panel lamps dimmer controlled illumination lamps integral to the circuit board within the switch provide back lighting for visibility at night, but these lamps are not serviceable.

OPERATION

The ICS module is the user interface for HVAC and defrost features in the vehicle.

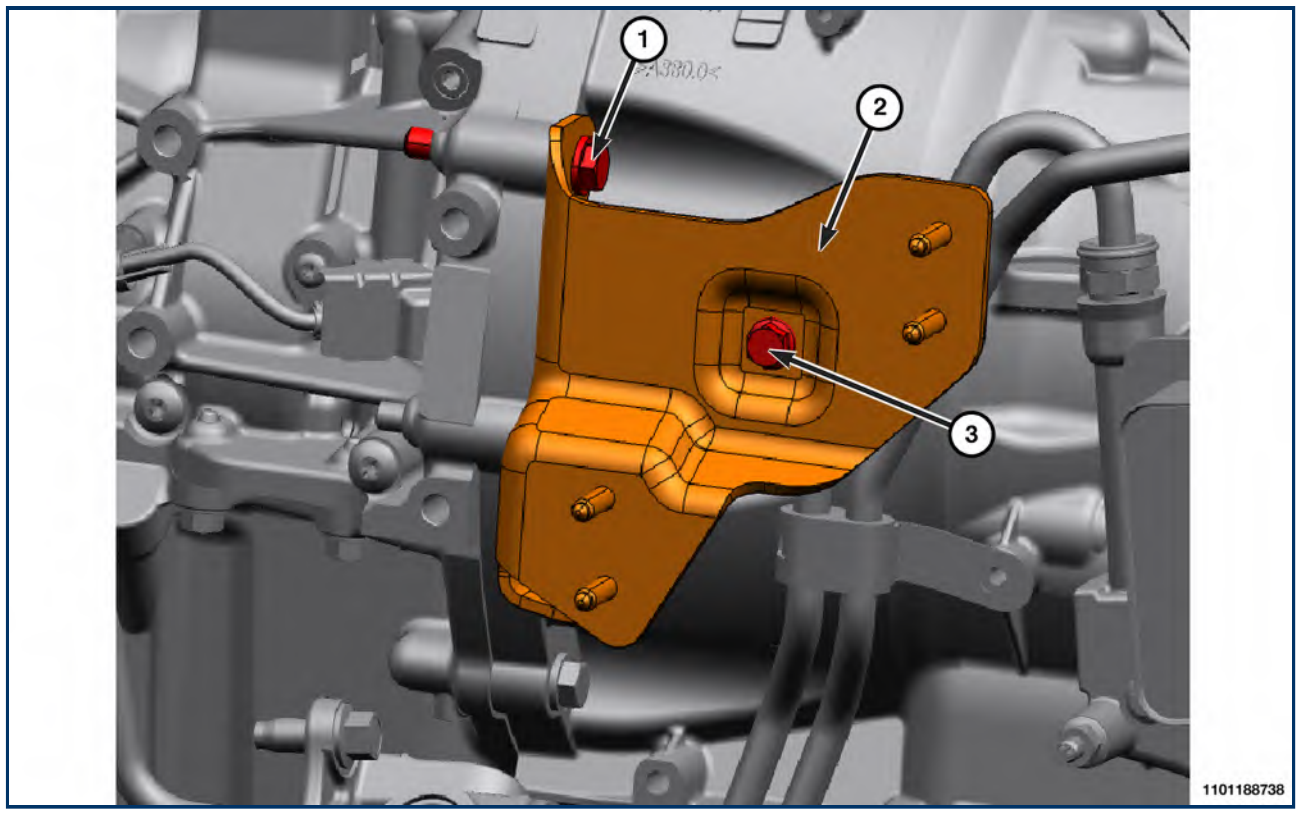
The ICS module allows manual control of multiple vehicle systems. The ICS module communicates on the Controller Area Network – Interior High Speed (CAN-IHS) data bus and controls all connected vehicle systems via CAN messages.

The ICS module receives fused B(+) from a fuse in the Interior Power Distribution Center (IPDC) and ground through a connection at the body sheet metal.

The individual controls located in the ICS module cannot be adjusted or repaired. If any control on the ICS module or control indicator lamp is inoperative or damaged, the entire ICS module must be replaced (Refer to 08 - Electrical/8E - Electronic Control Modules/MODULE, Integrated Center Stack/Removal and Installation) .

The individual controls located in the radio touchscreen cannot be adjusted or repaired. If a radio touchscreen control or control indicator lamp is inoperative or damaged, the entire radio or radio Display Screen Module (DSM) must be replaced, as equipped (Refer to 08 - Electrical/8E - Electronic Control Modules/RADIO/Removal and Installation) or (Refer to 08 - Electrical/8E - Electronic Control Modules/MODULE, Display Screen/Removal and Installation) .

Prior to replacing an ICS module, check for any Diagnostic Trouble Codes (DTCs) related to the affected system, and run any related calibration procedures to verify that the concern is not a calibration issue (Refer to 28 - DTC-Based Diagnostics/HVAC - Standard Procedure) .

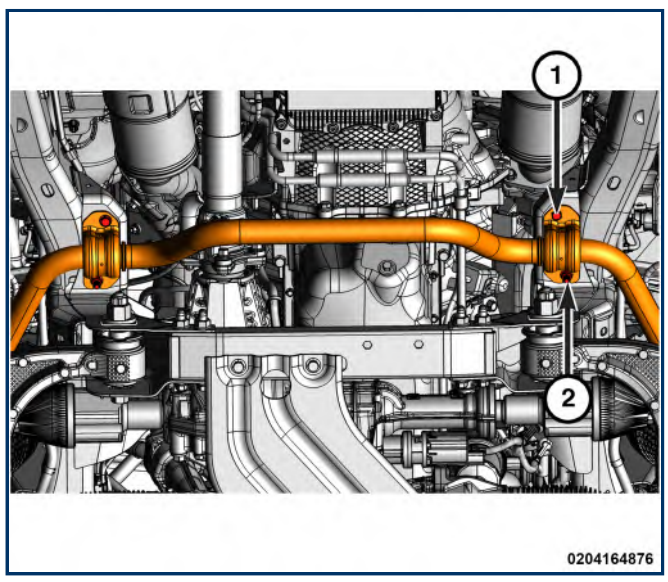


1 - Exhaust Bracket to Transmission Bell Housing Bolts

2 - Exhaust Bracket

3 - Exhaust Bracket to Transmission Bolt

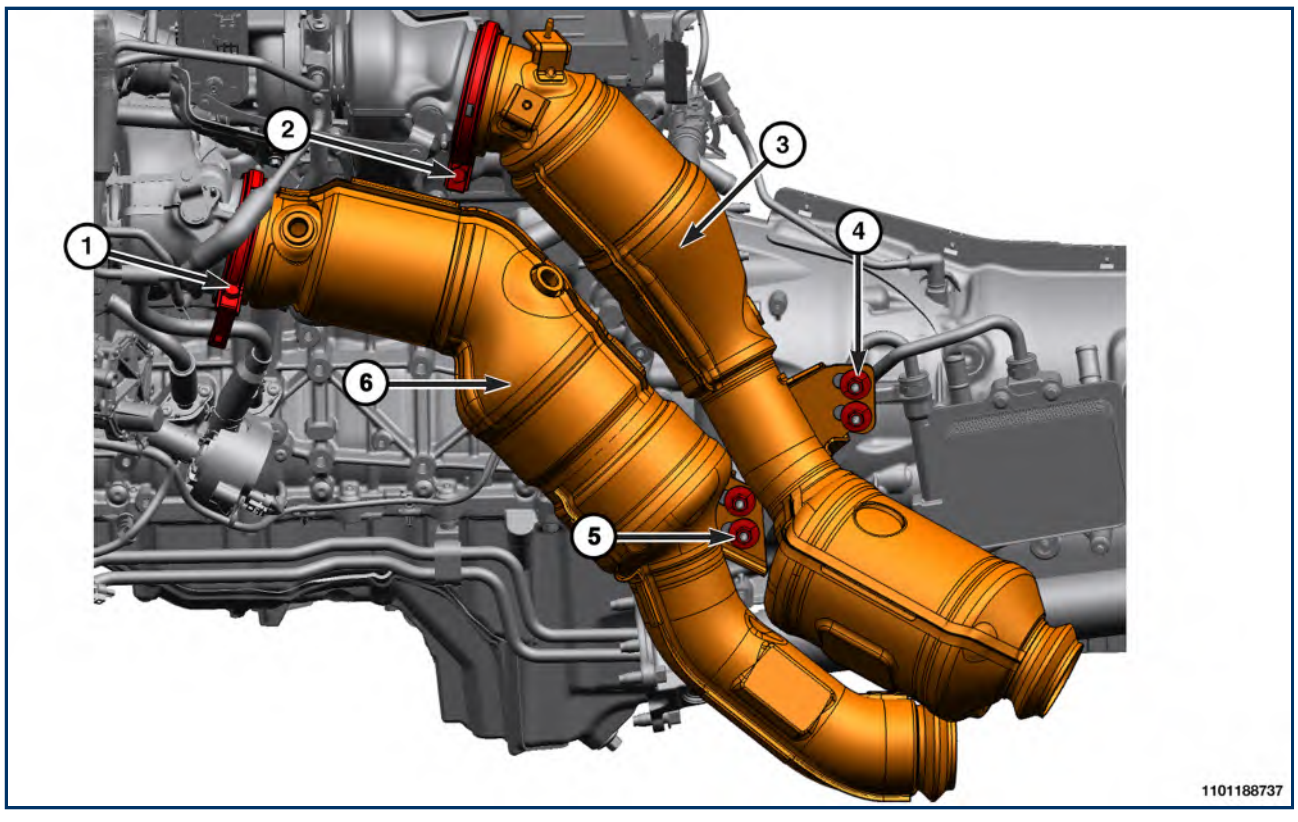
18. Remove the stabilizer bar bolts, nuts and reposition the stabilizer bar.



1 - Stabilizer Bar Bolts

2 - Stabilizer Bar Nuts

19. Remove the front and rear catalytic converter and discard the V-band clamps.



1 - Front Turbocharger to Catalytic Converter V-band Clamp Bolt

2 - Rear Turbocharger to Catalytic Converter V-band Clamp Bolt

3 - Rear Catalytic Converter

4 - Rear Catalytic Converter Bracket Nuts

5 - Rear Catalytic Converter Bracket Nuts

6 - Front Catalytic Converter

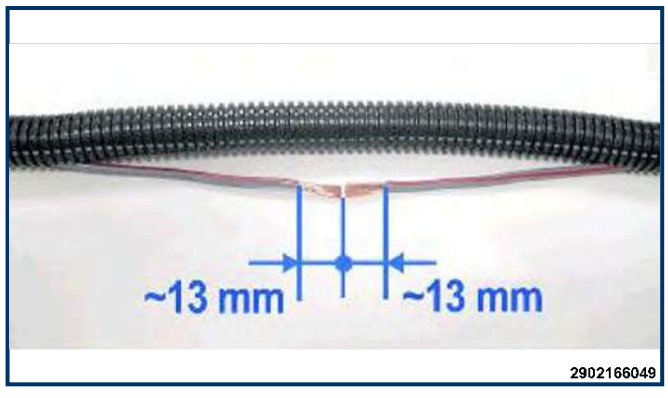
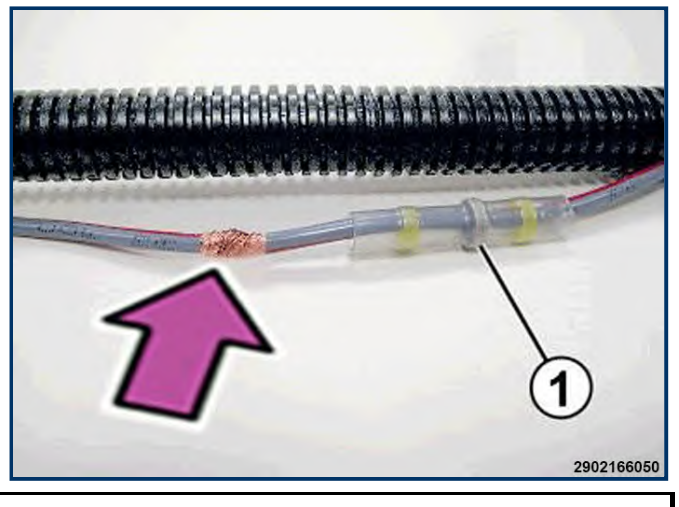


Fig. 15



1 -	Heat shrinking solder sleeve

If the cable that needs to be repaired cannot be overlapped, you need to fit a 150 - 200 mm long cable section (2 - Fig. 16), which should have the same section.

- Cut the cable to repair (1), ensuring an overlapping, on both sides for about 13 mm, as shown.
- Fit two heat seal tubes; overlap the terminals of the cable and twist the strands.

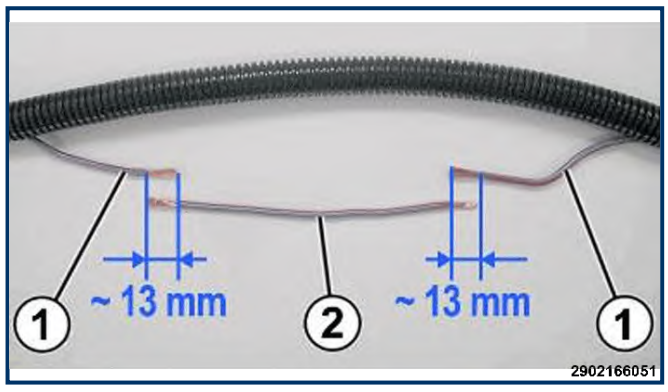
NOTE: Make sure not to exceed the cable outside diameter, as shown in detail.

- Then make the junction, proceeding as described above.

Fig. 16

PARTS AVALABILITY

CAUTION:
For the junction of the cables, use only the heat seal tubes shown in the Parts Availability table, depending on the section of the cables.



NOTE: **Refer to ePER Catalogue to identify any spare parts needed to conduct the repair.**

Descrizione	N. ordinazione
Heat seal tube for 0.1 ÷ 0.35 mm² sections	11105380 (*)
Heat seal tube for 0.5 ÷ 1.0 mm² sections	11105485 (*)
Heat seal tube for 1.0 ÷ 2.0 mm² sections	11105582 (*)
Heat seal tube for 2.5 ÷ 4.0 mm² sections	11105681 (*)
Heat seal tube for head junction for 1.0 ÷ 2.0 mm² sections	11517085 (**)
Heat seal tube for head junction for 2.5 ÷ 4.0 mm² sections	11517282 (**)
Heat seal tube for head junction for 4.5 ÷ 6.0 mm² sections	11516983 (**)
Heat shield	2000029200
Cable stripper	2000027100
Terminal extractors case	2000042600
(*) Each pack contains 20 sleeves	
(**) Each pack contains 5 sleeves	

CALL OUT	DESCRIPTION
1	Driver Inflator Knee Airbag Squib
2	• Passenger Airbag (PAB) Frontal Squib#1 • Passenger Airbag (PAB) Frontal Squib#2 • Passenger Airbag (PAB) Frontal Squib#3
3	Driver Airbag (DAB) Frontal Squib #1
4	Driver Airbag (DAB) Frontal Squib #2
5	Driver Airbag (DAB) Frontal Squib #3
6	Passenger Inflator Knee Airbag Squib
7	1st Row Left Side Sear Mounted Airbag (Pelvis/Thorax) Squib
8	1st Row Right Side Sear Mounted Airbag (Pelvis/Thorax) Squib
9	Left Side Curtain Airbag Squib
10	Right Side Curtain Airbag Squib
11	Occupant Restraint Controller Module

Theory of Operation

A Supplemental Restraint System (SRS) is standard factory-installed safety equipment on this vehicle. Available supplemental occupant restraints for this vehicle include both **Active** and **Passive** types. Active restraints are those which require the vehicle occupants to take some action to employ, such as fastening and adjusting a seat belt; while passive restraints require no action by the vehicle occupants to be employed.

The Occupant Restraint Controller (ORC) and the Instrument Panel Cluster (IPC) each contain a microcontroller and programming that allow them to communicate with each other using the Controller Area Network (CAN) data bus. This method of communication is used by the ORC for control of the airbag indicator in the IPC.

ACTIVE RESTRAINTS

The primary passenger restraints in this vehicle are the standard equipment factory-installed seat belts and child restraint anchors. Seat belts and child restraint anchors are referred to as an active restraint because the vehicle occupants are required to physically fasten and properly adjust these restraints in order to benefit from them.

The seat belt retractors may include an inertia-type, emergency locking mechanism as standard equipment. Seat belt retractors with a locking mechanism are capable of mechanically changing from an Emergency Locking Retractor (ELR) to an Automatic Locking Retractor (ALR). The primary function of this feature is to securely accommodate a child seat in the vehicle without the need for a self-cinching seat belt tip half latch plate unit or another supplemental device that would be required to prevent the seat belt webbing from unwinding freely from the retractor spool of an inertia-type emergency locking retractor mechanism. Refer to the Owners Manual Information for a more in-depth location and functionality of ELR/ALR Seatbelts located in the Safety Section.

The emergency and automatic locking mechanisms are integral to the seat belt and retractor unit and are concealed beneath a molded plastic cover located on one side of the retractor spool. These locking mechanisms cannot be adjusted or repaired and, if ineffective or damaged, the entire seat belt and retractor unit must be replaced. For more information on the seat belts in this vehicle, refer to the Safety Section in the Owners Manual.

PASSIVE RESTRAINTS

The passive restraints are referred to as a SRS components because they were designed and are intended to enhance the protection for the occupants of the vehicle **only** when used in conjunction with the seat belts. They are referred to as passive restraints because the vehicle occupants are not required to do anything to make them operate; however, the vehicle occupants must be wearing their seat belts in order to obtain the maximum safety benefit from the factory-installed SRS components.

The SRS electrical circuits are continuously monitored and controlled by a microcontroller and software contained within the ORC. An airbag indicator in the IPC illuminates from four to six seconds as a bulb test each time the status of the ignition transitions to ON or START. Following the bulb test, the airbag indicator is turned ON or OFF by the ORC to indicate the status of the SRS. If the airbag indicator comes ON at any time other than during the bulb test, it indicates that there is a problem in the SRS electrical circuits. Such a problem may cause airbags not to deploy when required, or to deploy when not required.

For additional information regarding the description and operation of the Restraints System (Refer to 10 - Restratints-Description-and-Operation) .

When Monitored and Set Conditions

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

- Ignition on.

Set Conditions:

- The Occupant Restraint Controller (ORC) monitors the squib circuits for multiple circuit failures. If the controller detects a circuit value that is out of the allowable range, the ORC will set this DTC.

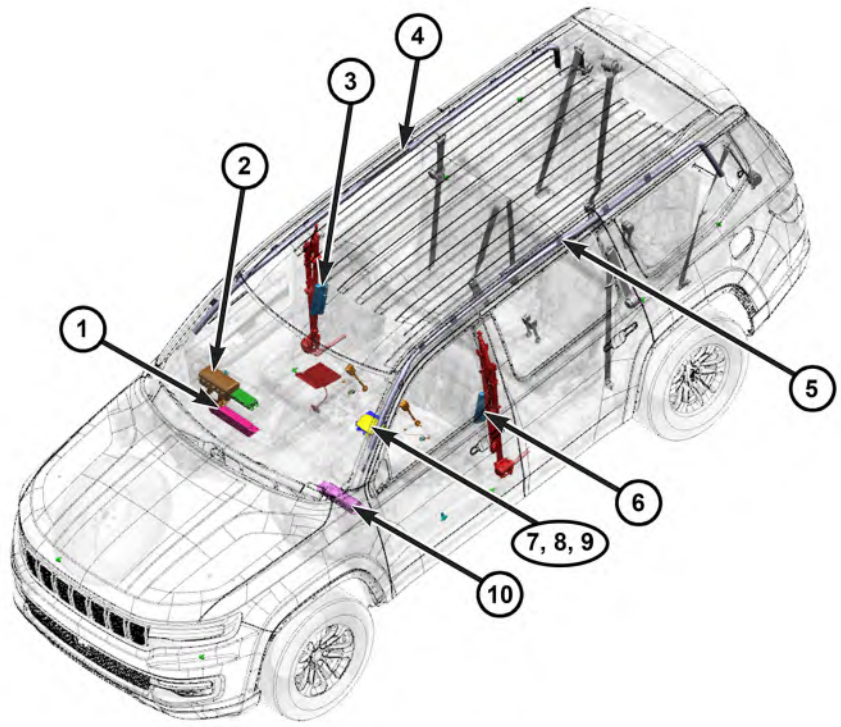
Default Actions:

- In the case that this DTC is set, the squib may still deploy in a crash event.

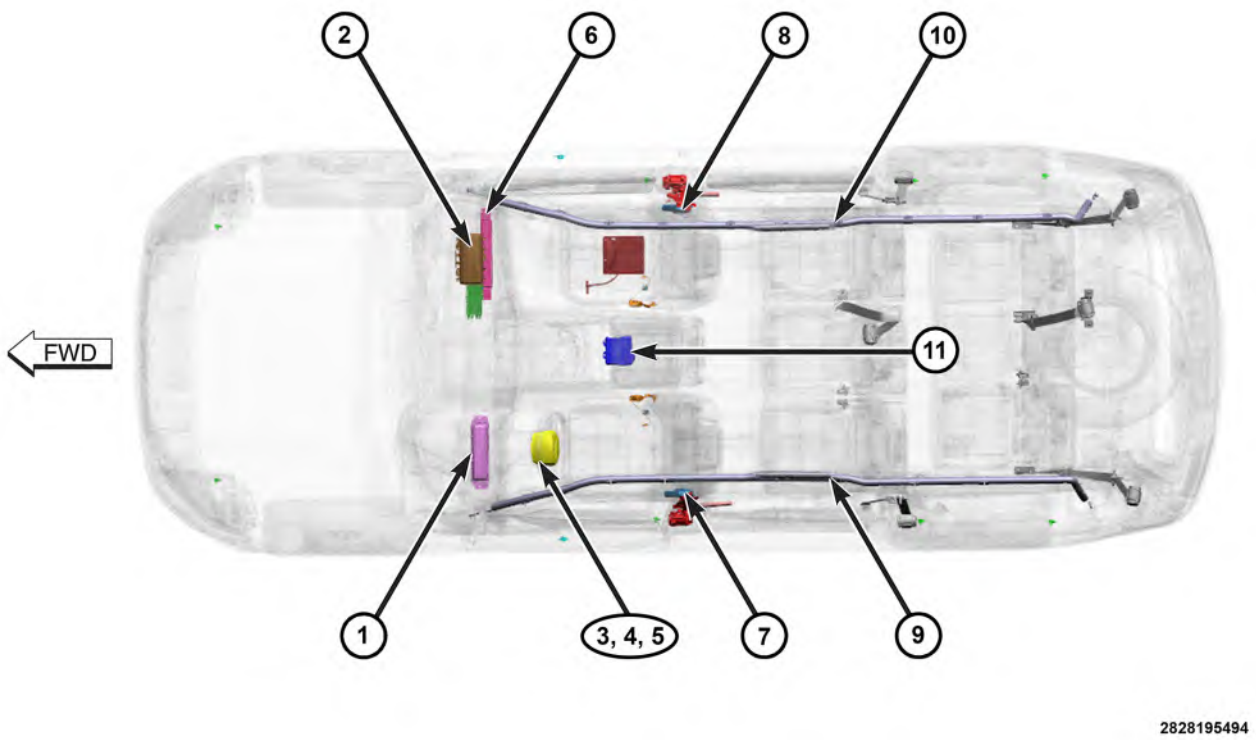
Possible Causes
AIRBAG SQUIB CIRCUIT SHORTED TO ANOTHER SQUIB CIRCUIT

B0010-11-PASSENGER FRONTAL SQUIB 1 CONTROL-CIRCUIT SHORT TO GROUND

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

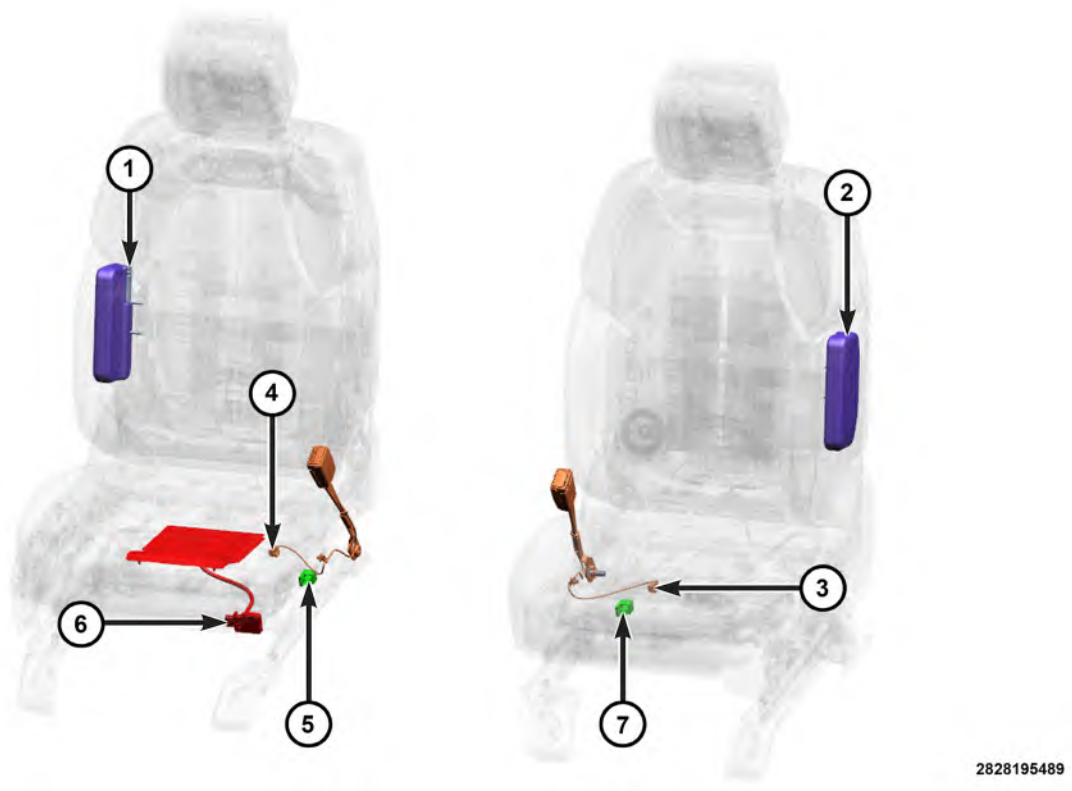


CALL OUT	DESCRIPTION
1	Passenger Inflator Knee Airbag Squib
2	• Passenger Airbag (PAB) Frontal Squib#1 • Passenger Airbag (PAB) Frontal Squib#2 • Passenger Airbag (PAB) Frontal Squib#3
3	1st Row Right Side Sear Mounted Airbag (Pelvis/Thorax) Squib
4	Right Side Curtain Airbag Squib
5	Left Side Curtain Airbag Squib
6	1st Row Left Side Sear Mounted Airbag (Pelvis/Thorax) Squib
7	Driver Airbag (DAB) Frontal Squib #1
8	Driver Airbag (DAB) Frontal Squib #2
9	Driver Airbag (DAB) Frontal Squib #3
10	Driver Inflator Knee Airbag Squib

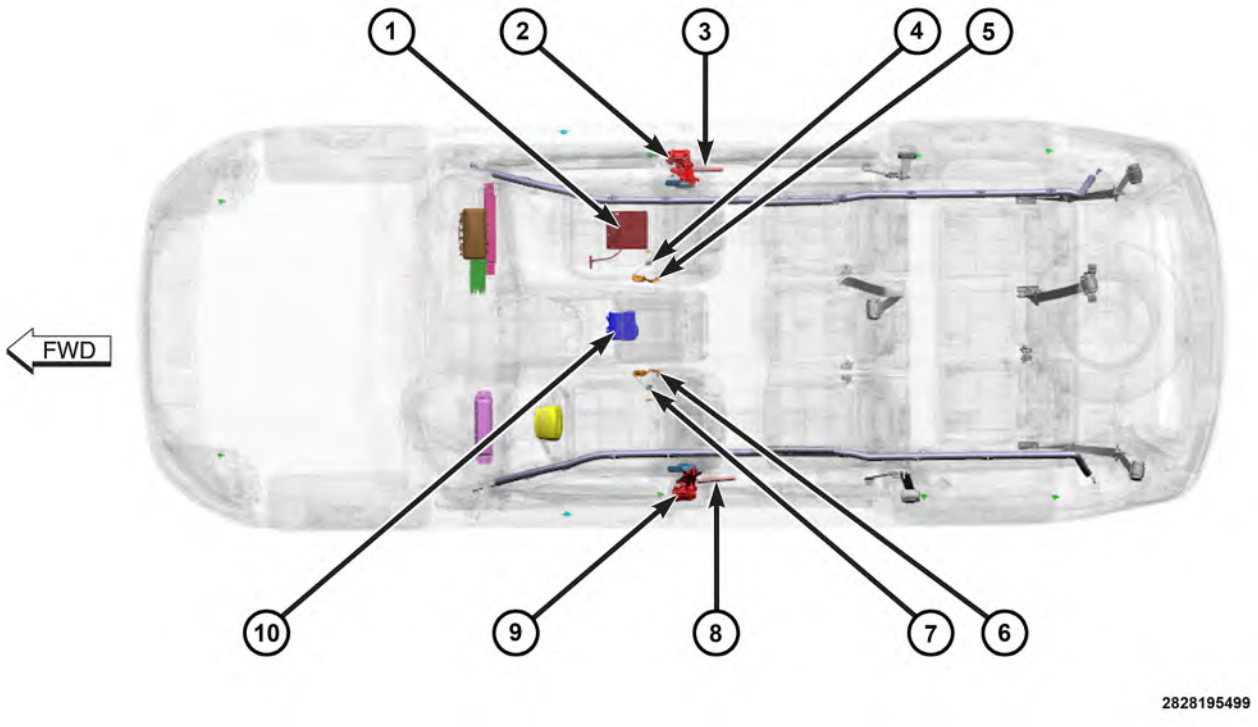


B2734-95-PASSENGER OCCUPANT DETECTION SENSOR-INCORRECT ASSEMBLY

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



CALL OUT	DESCRIPTION
1	Right Side Thorax Airbag
2	Left Side Thorax Airbag
3	Seat Belt-Buckle Tensioner- Left
4	Seat Belt-Buckle Tensioner- Right
5	Seat Track Position Sensor-Right
6	Occupant Detection Sensor
7	Seat Track Position Sensor-Left



CALL OUT	DESCRIPTION
1	Occupant Detection Sensor
2	Seat Belt- Retractor- Right
3	Seat Belt- Retractor Tensioner- Right
4	Seat Belt-Buckle Tensioner- Right

B1058-15-RECIRCULATION DOOR CONTROL-CIRCUIT SHORT TO BATTERY OR OPEN

For a complete HVAC SYSTEM wiring diagram, **(refer to the Wiring Information)**.

Theory of Operation

The Mode and Temperature (Blend) Doors are opened and closed with electric actuators that provide a position signal. There are five circuits that run between each actuator and the HVAC Module:

- 5-Volt Supply
- LIN Signal (IN)
- LIN Signal (OUT)
- 12-Volt Driver Circuit 1
- 12-Volt Driver Circuit 2

The position signal is used by the HVAC module to monitor the door position. If the desired positions cannot be reached during normal operation, a DTC will set. All of the circuits are also monitored, either directly or indirectly, for open/short circuit faults.

When Monitored and Set Conditions

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

- Battery Voltage is between 9V–16V.
- Ignition is on for more than 5 seconds.

Set Conditions:

- Recirculation Door Signal circuit voltage is less than 0.2 volt for more than 3.0 seconds.

Default Actions:

- Recirculation Door Actuator can only be commanded to 0% or 100%. No intermediate positions allowed.

Possible Causes
RECIRCULATION DOOR SIGNAL CIRCUIT OPEN OR HIGH RESISTANCE
RECIRCULATION DOOR SIGNAL CIRCUIT SHORTED TO ANOTHER CIRCUIT
SIGNAL RETURN CIRCUIT OPEN OR HIGH RESISTANCE
RECIRCULATION DOOR ACTUATOR
HVAC MODULE

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 TESTING FOR AN INTERMITTENT CONDITION procedure. (Refer to 28 - DTC-Based Diagnostics/Standard Procedure) .

2. DIAGNOSE AND REPAIR ALL LIN BUS RELATED DTCS PRIOR TO PERFORMING THIS TEST PROCEDURE

1. With the scan tool, read DTCs in all Electronic Control Units (ECUs) and record on the repair order.
2. Cycle the ignition off, wait 10 seconds, then cycle the ignition on.
3. With the scan tool, read the Active DTCs.

3. Turn the ignition off for a minimum of 10.0 seconds.
4. Turn the ignition on.
5. Using the recorded Environmental Data and the When Monitored Conditions above, operate the vehicle in the conditions that set the DTC.
6. With the scan tool, read DTCs.

Did the DTC return?

Yes

- Go To **3**

No

- Perform the BODY VERIFICATION TEST. (Refer to 28 - DTC-Based Diagnostics/MODULE, Body Control (BCM) /Standard Procedure).
- Test complete.

3. CHECK RELATED HARNESS CONNECTIONS

1. Disconnect all AVC 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 AVC 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 AVC DTCs.

Did the DTC return?

Yes

- Replace the Active Vibration Cancellation (AVC) Module in accordance with the Service information. (Refer to 08 - Electrical/8E - Electronic Control Modules/MODULE, Active Vibration Cancellation (AVCM) /Removal and Installation).
- Perform the BODY VERIFICATION TEST. (Refer to 28 - DTC-Based Diagnostics/MODULE, Body Control (BCM) /Standard Procedure).

No

- Perform the BODY VERIFICATION TEST. (Refer to 28 - DTC-Based Diagnostics/MODULE, Body Control (BCM) /Standard Procedure).
- Test complete.

C1517-14-RIGHT VIBRATION SENSOR-CIRCUIT SHORT TO GROUND OR OPEN

For a complete ACTIVE VIBRATION CANCELLATION SYSTEM wiring diagram, **(refer to the Wiring Information)**.

Theory of Operation

The Active Vibration Cancelation (AVC) Module/Active Tuned Mass Module (ATMM) communicates on the Controller Area Network (CAN) C data bus by sending and receiving signals/messages. The AVC has left and right correction sensors and left and right actuators wired directly to the module.

The AVC receives the following signals/messages over the CAN C bus:

- Ignition status message from the Body Control Module (BCM)
- Vehicle speed signal from the Electronic Stability Control Module (ESC)
- Multiple Displacement System (MDS) ON/OFF, Revolutions Per Minute (RPM), and Odometer signals from the Engine Control Module (ECM)/Powertrain Control Module (PCM)
- The AVC receives vehicle configuration data over CAN C bus from the BCM.

The AVC has the following inputs and outputs:

- The AVC receives Hardwired Crank Signal (ATMM BUFFERED CRANK POSITION SIGNAL DATA) from ECM/PCM.
- The AVC receives vibrations signals from left/right AVC correction sensors and AVC provides anti-vibration cancellation signals to the left/right AVC actuators.

For additional information regarding the description and operation of the Active Vibration Cancelation System (Refer to 08 - Electrical/8E - Electronic Control Modules/MODULE, Active Vibration Cancellation (AVCM) /Description).

When Monitored and Set Conditions

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

- Battery voltage is between 9.0 and 16.0 volts.

Set Conditions:

- The Active Vibration Cancellation (AVC) Module detects a low voltage condition (below 0.5 volts) on the Right Vibration Sensor Supply circuit.

Default Actions:

- Cluster will display a message.
- AVC function is inoperative, but will communicate on the CAN BUS for diagnostic purposes only.
- The AVC Module will not activate the vibration reduction function even if the MDS mode is active.

Possible Causes
RIGHT VIBRATION SENSOR SUPPLY CIRCUIT SHORTED TO GROUND
RIGHT VIBRATION SENSOR SUPPLY CIRCUIT OPEN
RIGHT VIBRATION SENSOR
AVC MODULE

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. ISOLATE AND CHECK THE (S199) RIGHT VIBRATION SENSOR SUPPLY CIRCUIT FOR A SHORT TO GROUND

B215C-11 - IGNITION RUN/START 3 CONTROL - CIRCUIT SHORT TO GROUND

For a complete FUSES RELAY wiring diagram, **(refer to the Wiring Information)**.

When Monitored and Set Conditions

When Monitored:

- This diagnostic runs continuously when the Run/Start 3 Relay output is active.

Set Conditions:

- When the Body Control Module (BCM) detects greater than 0.65 amperes on the Run/Start 3 Relay Control circuit.
    - After three consecutive failed retry attempts the BCM will disable the output for the remainder of the ignition cycle.

Default Actions:

- The Run/Start 3 Relay output is inoperative.

Possible Causes
RUN/START 3 RELAY CONTROL CIRCUIT SHORTED TO GROUND
RUN/START 3 RELAY (INTEGRAL TO THE 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**

NOTE:
CLEARING THE DTC AFTER A REPAIR - Perform after a wiring repair or component replacement:

To erase the DTC from the Body Control Module (BCM), the BCM must detect an ignition ON/OFF/ON cycle, making sure the Power Accessory Delay (PAD) is deactivated (driver door opened) after the ignition transitions to the OFF position, along with the normal operation of the system that is associated with this DTC.

Test Information

Is the DTC Active?

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 AND CHECK THE (F551) RUN/START 3 RELAY CONTROL CIRCUIT FOR CONTINUITY TO GROUND**

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.

NOTE: There should be no continuity between ground and the circuit being tested.

Is there continuity between ground and the circuit being tested?

Yes

- Go To **3**

C0596-00-BRAKE BOOSTER MOTOR "A" CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE

When Monitored and Set Conditions

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

- Ignition on.
- No under or over voltage condition present.

Set Conditions:

- Brake System Control Module (BSCM) detected an internal fault.

Default Actions:

- Malfunction Indicator Light (MIL) illuminated.
- Anti-lock Brake System (ABS) indicator light illuminated.
- Electronic Stability Control (ESC) System indicator light illuminated.
- Red Brake Warning indicator light illuminated.
- ABS disabled.
- ESC disabled.
- Brake Boost Assist disabled.

Possible Causes
BRAKE SYSTEM CONTROL MODULE (BSCM) VOLTAGE RELATED DTCS
BRAKE SYSTEM CONTROL MODULE (BSCM)

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

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

1. Perform any Service Bulletins that may apply.
2. Turn the ignition on.
3. For future reference, with the scan tool, run and save a vehicle Scan Report and all related recorded data.
4. With the scan tool, read DTCs and record on the repair order.
5. With the scan tool, read and record Environmental Data to help identify the conditions in which the DTC was set.
6. With the scan tool, erase all DTCs.
7. Turn the ignition off for a minimum of 10.0 seconds.
8. Start the engine.
9. Press the brake pedal firmly and release.
10. With the scan tool, read BSCM DTCs.

Is the DTC active?

Yes

- Go To **2**

No

- Perform the BSCM-INTERMITTENT CONDITION TEST. (Refer to 28 - DTC-Based Diagnostics/MODULE, Brake System Control (BSCM) - Standard Procedure).

2. CHECK FOR BRAKE SYSTEM CONTROL MODULE (BSCM) VOLTAGE RELATED DTCS

1. Refer to the recorded DTCs.

Are there any BSCM voltage related DTCs present?

Yes

- Perform the applicable diagnostic procedure(s). (Refer to 28 - DTC-Based Diagnostics/MODULE, Brake System Control (BSCM) /Diagnosis and Testing).

No

C00CA-11-CAMERA "A" HEATER CONTROL - CIRCUIT SHORT TO GROUND

For a complete ADAPTIVE SPEED CONTROL SYSTEM wiring diagram, **(refer to the Wiring Information)**.

Theory of Operation

The Central ADAS Decision Module (CADM) utilizes a Long Range Front Camera (LRCF) for collecting data and object information.

The LRCF operates a heating element capable of clearing the windshield of fog and frost in front of the camera.

The heating element is activated automatically when the ambient temperature is below a calibrated value.

The duration that the heating element is on is limited by a timer.

When Monitored and Set Conditions

When Monitored:

- Ignition in the run position.
- Central ADAS Decision Module (CADM) input voltage between 6.0 - 16.0 volts.
- Heater HSD is enabled.

Set Conditions:

- The CADM detects a short to ground on the camera heater supply circuit.

Default Actions:

- ADAS features or functionality may be disabled.

Possible Causes
FRONT CAMERA HEATER CONTROL CIRCUIT SHORTED TO GROUND
FRONT CAMERA HEATER CONTROL RELAY
CENTRAL ADAS DECISION MODULE (CADM)

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 TESTING FOR AN INTERMITTENT CONDITION. (Refer to 28 - DTC-Based Diagnostics/Standard Procedure) .

2. **CHECK FOR APPLICABLE SOFTWARE UPDATES AND SERVICE BULLETINS**

Test Information

Were any software updates or service bulletins applicable to the customer concern?

Yes

- Perform the service procedure as necessary.
- Perform the CENTRAL ADAS DECISION MODULE (CADM) - LOW LEVEL - VERIFICATION TEST. (Refer to 28 - DTC-Based Diagnostics/MODULE, Central ADAS Decision (CADM) /Standard Procedure)

No

- Go To **3**

7. With the scan tool, read DTCs.

Did the DTC return?

Yes

- Go To **2**

No

- Perform the TESTING FOR AN INTERMITTENT CONDITION diagnostic procedure. (Refer to 28 - DTC-Based Diagnostics/Standard Procedure) .

2. DISCONNECT THE RIGHT FOLDING SEAT RECLINER SWITCH - ERASE DTCS AND CHECK FOR DTC TO RETURN

1. With the scan tool, erase DTCs.
2. Turn the ignition off.
3. Disconnect the D-Pillar Folding Seat Switch harness connector.
4. Turn the ignition on.
5. Using the recorded Environmental Data and the When Monitored and Set Conditions, operate the vehicle in the conditions that set the DTC.
6. With the scan tool, read DTCs.

NOTE: The same DTC should not set with the harness connector disconnected.

Did the same DTC return?

Yes

- Go To **3**

No

- Replace the Right Folding Seat Recliner Switch in accordance with the Service Information. (Refer to 08 - Electrical/8N - Power Systems/Power Seats/SWITCH, Seat/Removal and Installation) .
- Perform the POWER FOLDING SEAT SYSTEM VERIFICATION TEST. (Refer to 28 - DTC-Based Diagnostics/MODULE, Fold Stow (FSM) - Standard Procedure).

3. CHECK THE (P280) RIGHT FOLDING SEAT RECLINER SWITCH MUX SIGNAL CIRCUIT FOR A SHORT TO GROUND

1. The ignition must be off when checking a circuit for continuity to ground.
2. Isolate the circuit by disconnecting the Electronic Control Unit (ECU) and every component harness connector containing the circuit being tested. **Note:** Use the wiring diagram as a guide to follow the path of the circuit.
3. Connect the negative lead of the DVOM to a known good ground.
4. With the positive lead of the DVOM, probe the circuit being tested at the component harness connector and check for continuity between the circuit and ground.

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

NOTE: There should be no continuity between ground and the circuit being tested.

Is there continuity between ground and the circuit being tested?

Yes

- Repair the circuit for a short to ground.
- 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 POWER FOLDING SEAT SYSTEM VERIFICATION TEST. (Refer to 28 - DTC-Based Diagnostics/MODULE, Fold Stow (FSM) - Standard Procedure).

No

- Go To **4**

4. CHECK THE (P280) RIGHT FOLDING SEAT RECLINER SWITCH MUX SIGNAL CIRCUIT FOR A SHORT TO ANOTHER CIRCUIT AT THE FSM HARNESS CONNECTOR

1. The ignition must be off when performing a resistance check to find a short between circuits.
2. Disconnect the Electronic Control Unit (ECU) and every component harness connector containing the circuit being tested to isolate the circuit. At this time leave all in-line connectors connected. **Note:** Use the wiring diagram as a guide to follow the path of the circuit.
3. Connect one lead of the DVOM to the circuit being tested at the ECU harness connector.
4. With the other lead of the DVOM probe all other circuits at the ECU harness connector.

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

B1632-11-LEFT HIGH BEAM CONTROL-CIRCUIT SHORT TO GROUND

Theory of Operation

The Smart Lighting Module - Left (SLML) and Smart Lighting Module - Right (SLMR) each receive voltage from the Power Distribution Center (PDC) Assembly, through a shared Fused B(+) circuit. A dedicated ground path is provided to the SLML and the SLMR through the wiring harness, attached to the body sheet metal. The Fused Ignition voltage signal from the PDC Assembly is only used by the Smart Lighting Modules (SLMs) to detect when the ignition is On and as a wake-up signal. The SLMs are mounted to the backside of the Front Lamp Assemblies and are serviced separately.

The Front Exterior Lighting system includes the following:

- Headlamp/Fog Lamp Switch
- Multifunction Switch
- Hazard Switch
- Body Control Module (BCM)
- SLML and SLMR
- Front Lamp Assemblies
- Front Sidemarker Lamps

The Body Control Module (BCM) receives all Front Exterior Lighting System activation requests. When the BCM receives an activation request for a Front Exterior Lamp, the BCM sends a CAN-FD Bus message to the SLMs, which activates the requested lamps.

The Smart Lighting Modules (SLMs) control the activation of the following:

- Park/Sidemarker Lamps
- Turn/Hazard Lamps
- Daytime Running Lamps (DRLs)
- Front Fog Lamps
- Low/High Beam Headlamps

NOTE: The hard-wired Turn Lamp circuit between the BCM and SLMs is used as a redundant signal. When the Turn Lamps are activated, the BCM compares the signal on that circuit to the CAN Bus messages received from the SLMs. A DTC will set if the BCM detects the signal and message do not match.

NOTE: If a CAN-FD Bus Loss of Communication fault between the BCM and SLMs is present, and the ignition is On, the Park Lamps and Low Beam Headlamps will always be illuminated. During this fault condition, the BCM will use the redundant hard-wired Turn Lamp circuit to activate the Turn/Hazard Lamps in the SLML and SLMR.

The SLML and SLMR are each equipped with the following internal components and capabilities:

- Temperature sensors
- Cooling fans
- Under/Over temperature protections
- Headlamp de-icing

For additional information on the Exterior Lighting system, (Refer to 08 - Electrical/Lamps/Lighting - Exterior/Description and Operation) .

When Monitored and Set Conditions

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

- The ignition is on.
- The High Beam Lamps are on.

Set Conditions:

- When the Smart Lighting Module Left (SLML) detects a short to ground condition in the Left High Beam Lamp.

Default Actions:

- The Left High Beam Lamp is disabled.

Possible Causes
LEFT FRONT LAMP ASSEMBLY
SMART LIGHTING MODULE LEFT (SLML)

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