




Seating

Special Tool(s)

 <p>ST2574-A</p>	Flex Probe Kit 105-R025D or equivalent
 <p>ST3093-A</p>	Fluke 77-IV Digital Multimeter FLU77-4 or equivalent
 <p>ST2834-A</p>	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool

Principles of Operation

Power Seats

Each power seat uses a 6-way power seat track and 3 electric motors directly controlled by a seat-mounted, 6-way seat control switch for horizontal (forward/rearward), front height and rear height adjustment.

The power lumbar motor pulls and releases a cable in the lumbar assembly to move the backrest in and out.

The power seat motors are hardwired to the seat control and lumbar switches. The circuits are normally at ground through the seat control switch. An individual motor is switched to voltage and ground when a specific adjustment position is selected. Power seats operate independently from the ignition position.

Heated Seats

The heated seat switches and indicators are part of the Front Controls Interface Module (FCIM) . The heated seat system operates independently from the other systems controlled by the FCIM and HVAC module.

When a heated seat button is pressed, the FCIM illuminates the heated seat indicator and transmits a system request message to the HVAC module on the module communication network. The HVAC module receives the message and provides ground to the driver or passenger heated seat relay coil circuit to operate the heated seat. The heated seat system can only operate if both modules are communicating correctly on the communication network and the engine is running.

The driver and passenger heated seat relays are located underneath the driver seat cushion frame. With the ignition ON, voltage is supplied from the Smart Junction Box (SJB) to each heated seat relay coil. Battery voltage is also supplied to the heated seat relay contacts (hot at all times). When energized, the heated seat relay coil closes the relay contact to supply battery voltage from the Battery Junction Box (BJB) to the cushion heater mat. The cushion and backrest heater mats are wired in series and each backrest heater mat is directly connected to ground to complete the electrical circuit to heat a seat.

Each cushion heater mat contains a thermostatic switch that closes when cold to complete the heater grid circuit and heat the seat. When hot, the thermostatic switch opens the heater grid circuit and allows the seat to cool. The heated seat indicator illuminates continuously while the thermostatic switch cycles open and closed. The thermostatic switch is serviceable only as part of a new heater mat.

The HVAC module monitors the heated seat relay coil ground circuits for an open, short to ground and short to voltage. If a circuit fault is detected, a DTC is set and the HVAC module disables the affected seat by removing circuit ground to the heated seat relay coil (refer to the HVAC Module DTC Chart in this section). The HVAC module also transmits a network communication message to the FCIM to deactivate the heated seat indicator. PIDs are available in the FCIM using the scan tool to verify heated seat switch operation.

The seat should be occupied to correctly test for normal operation. Temperature measuring devices do not provide an accurate method for testing heated seat operation as surface temperatures are subject to human and environmental characteristics. Correct testing requires heater mat resistance measurements which have tight tolerances affecting heat cycle time length.

The heated seat system does not time-out and will remain on until selected off or engine is off.

Inspection and Verification

1. Verify the customer concern by operating the power seat or heated seat functions.
2. Visually inspect for obvious signs of mechanical or electrical damage.

Visual Inspection Chart

Mechanical	Electrical
<ul style="list-style-type: none"> • Switch(es) • Seat tracks obstructed or damaged • Recliner assembly damaged (backrest frame) • Power lumbar assembly damaged • Seat cushion or backrest trim cover damaged (heated seat heater mats) 	<ul style="list-style-type: none"> • Smart Junction Box (SJB) fuse 43 (10A) (heated seats) • Battery Junction Box (BJB) fuses: <ul style="list-style-type: none"> ▪ 16 (20) (heated seats) ▪ 32 (30A) (driver power seat and power lumbar) ▪ 31 (30A) (passenger power seat) • Loose, corroded or damaged connectors • Wiring harness • Seat control switch • Lumbar control switch • Heated seat switch [part of Front Controls Interface Module (FCIM)] • Heated seat relays • Power seat motor assembly (seat track) • Backrest or cushion heater mat • <u>FCIM</u> • HVAC module

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. If the concern is with the power seat, verify the symptom and GO to [Symptom Chart](#).

5. **NOTE:** *Make sure to use the latest scan tool software release.*

If the concern is with the heated seat and the cause is not visually evident, connect the scan tool to the Data Link Connector (DLC) .

6. **NOTE:** *The Vehicle Communication Module (VCM) LED prove out confirms power and ground from the DLC are provided to the VCM .*

- If the scan tool does not communicate with the VCM :
- check the VCM connection to the vehicle.
 - check the scan tool connection to the VCM .
 - refer to [Section 418-00](#), No Power To The Scan Tool, to diagnose no power to the scan tool.

7. If the scan tool does not communicate with the vehicle:
 - verify the ignition is ON.
 - verify the scan tool operation with a known good vehicle.
 - refer to [Section 418-00](#) to diagnose no response from the PCM.

8. Carry out the network test.
 - If the scan tool responds with no communication for one or more modules, refer to [Section 418-00](#).
 - If the network test passes, retrieve and record on-demand and continuous memory DTCs.

9. Clear the continuous DTCs and carry out the self-test diagnostics for the HVAC module.

10. If the DTCs retrieved are related to the concern, go to HVAC Module DTC Chart. For all other DTCs, refer to [Section 419-10](#).

11. If no DTCs related to the concern are retrieved, GO to [Symptom Chart](#).

DTC Chart

HVAC Module DTC Chart

NOTE: This module utilizes a 5-character DTC followed by a 2-character failure type code. The failure type code provides information about specific fault conditions such as opens or shorts to ground. Continuous Memory Diagnostic Trouble Codes (CMDTCs) have an additional 2-character DTC status code suffix to assist in determining DTC history.

DTC	Description	Action to Take
B1030: 11	Left Front Seat Heater Circuit Short To Ground	GO to Pinpoint Test G.
B1030: 12	Left Front Seat Heater Circuit Short To Battery	GO to Pinpoint Test G.
B1030: 13	Left Front Seat Heater Circuit Open	GO to Pinpoint Test G.
B1032: 11	Right Front Seat Heater Circuit Short To Ground	GO to Pinpoint Test H.
B1032: 12	Right Front Seat Heater Circuit Short To Battery	GO to Pinpoint Test H.
B1032: 13	Right Front Seat Heater Circuit Open	GO to Pinpoint Test H.
All Other DTCs	—	REFER to the Master DTC Chart in Section 419-10.

Symptom Chart

Symptom Chart

Condition	Possible Causes	Action
• The power seat is inoperative — driver	<ul style="list-style-type: none"> • Fuse • Circuitry • Seat control switch 	• GO to Pinpoint Test A.
• The power seat is inoperative — passenger	<ul style="list-style-type: none"> • Fuse • Circuitry • Seat control switch 	• GO to Pinpoint Test B.
• The power seat does not move horizontally/vertically — driver	<ul style="list-style-type: none"> • Circuitry • Seat control switch • Seat track height adjuster • Seat track 	• GO to Pinpoint Test C.
• The power seat does not move horizontally/vertically — passenger	<ul style="list-style-type: none"> • Circuitry • Seat control switch • Seat track height adjuster • Seat track 	• GO to Pinpoint Test D.
• The power lumbar is inoperative	<ul style="list-style-type: none"> • Fuse • Circuitry • Lumbar control switch • Lumbar assembly 	• GO to Pinpoint Test E.
• The heated seats are inoperative	<ul style="list-style-type: none"> • Fuse • Circuitry • Front Controls Interface Module (FCIM) • HVAC module 	• GO to Pinpoint Test F.
• The heated seat is inoperative/does not operate correctly — driver	<ul style="list-style-type: none"> • Circuitry • Cushion heater mat • Backrest heater mat • Heated seat relay • <u>FCIM</u> • HVAC module 	• GO to Pinpoint Test G.
• The heated seat is inoperative/does not operate correctly — passenger	<ul style="list-style-type: none"> • Circuitry • Cushion heater mat • Backrest heater mat • Heated seat relay • <u>FCIM</u> 	• GO to Pinpoint Test H.

Pinpoint Tests

NOTICE: Use the correct probe adapter(s) from the Flex Probe Kit when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

NOTICE: Most faults are due to connector and/or wiring concerns. Carry out a thorough inspection and verification before proceeding with the pinpoint test.

NOTE: The air bag warning indicator illuminates when the correct Restraints Control Module (RCM) fuse is removed and the ignition is ON.

NOTE: The Supplemental Restraint System (SRS) must be fully operational and free of faults before releasing the vehicle to the customer.

Refer to Inspection and Verification and the Symptom Chart for direction to the appropriate pinpoint test.

Pinpoint Test A: The Power Seat is Inoperative — Driver

Refer to Wiring Diagrams Cell [120](#) , Power Seats for schematic and connector information.

Normal Operation

The seat control switch is supplied battery voltage on circuit SBB32 (VT/RD) and ground on circuit GD133 (BK). The seat control switch then supplies voltage and ground to the appropriate circuits to operate the seat motors.

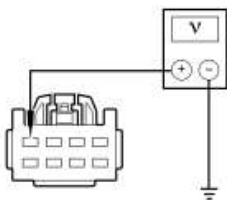
This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- Seat control switch

PINPOINT TEST A : THE POWER SEAT IS INOPERATIVE — DRIVER

A1 CHECK FOR VOLTAGE TO THE SEAT CONTROL SWITCH

- Ignition OFF.
 - Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
 - Disconnect: Driver Seat Side Air Bag C367 .
 - Disconnect: Driver Seat Control Switch C360 .
 - **⚠ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.**
- Connect the battery ground cable. Refer to [Section 414-01](#).
- Measure the voltage between driver seat control switch [C360](#) Pin 4, circuit SBB32 (VT/RD), harness side and ground.



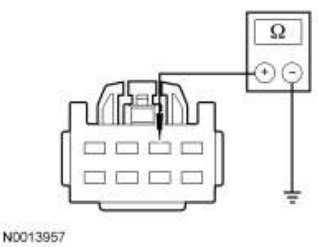
N0013956

Is the voltage greater than 10 volts?

Yes	GO to A2 .
No	VERIFY Battery Junction Box (BJB) fuse 32 (30A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

A2 CHECK THE SEAT CONTROL SWITCH GROUND CIRCUIT FOR AN OPEN

- Measure the resistance between driver seat control switch [C360](#) Pin 2, circuit GD133 (BK), harness side and ground.



Is the resistance less than 5 ohms?

Yes	INSTALL a new seat control switch. REFER to Seat Control Switch in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

Pinpoint Test B: The Power Seat is Inoperative — Passenger

Refer to Wiring Diagrams Cell [120](#) , Power Seats for schematic and connector information.

Normal Operation

The seat control switch is supplied battery voltage on circuit SBB31 (WH/RD) and ground on circuit GD139 (BK/YE). The seat control switch then supplies voltage and ground to the appropriate circuits to operate the seat motors.

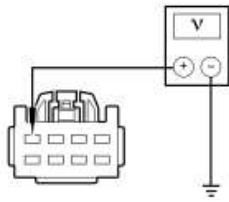
This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- Seat control switch

PINPOINT TEST B : THE POWER SEAT IS INOPERATIVE — PASSENGER

B1 CHECK FOR VOLTAGE TO THE SEAT CONTROL SWITCH

- Ignition OFF.
- Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Passenger Seat Side Air Bag C337 .
- Disconnect: Passenger Seat Control Switch C3190 .
- **⚠ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.**
Connect the battery ground cable. Refer to [Section 414-01](#).
- Measure the voltage between passenger seat control switch [C3190](#) Pin 4, circuit SBB31 (WH/RD), harness side and ground.



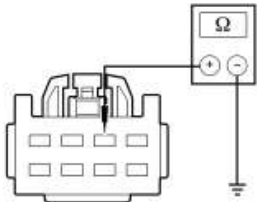
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Is the voltage greater than 10 volts?

Yes	GO to B2 .
No	VERIFY Battery Junction Box (BJB) fuse 31 (30A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

B2 CHECK THE SEAT CONTROL SWITCH GROUND CIRCUIT FOR AN OPEN

- Measure the resistance between passenger seat control switch [C3190](#) Pin 2, circuit GD139 (BK/YE), harness side and ground.



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Is the resistance less than 5 ohms?

Yes	INSTALL a new seat control switch. REFER to Seat Control Switch in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

Pinpoint Test C : The Power Seat Does Not Move Horizontally/Vertically — Driver

Refer to Wiring Diagrams Cell [120](#) , Seating for schematic and connector information.

Normal Operation

The seat control switch supplies battery voltage and ground to 1 of 3 power seat track motors through horizontal motor circuits CPS23 (GN/VT) and CPS28 (GN), front height motor circuits CPS24 (GY) and CPS25 (WH/VT) or rear height motor circuits CPS26 (YE/BU) and CPS27 (BU/BN) to move the seat in the desired direction.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- Seat control switch
- Seat track height adjuster

- Seat track motor

PINPOINT TEST C : THE POWER SEAT DOES NOT MOVE HORIZONTALLY/VERTICALLY — DRIVER

C1 CHECK THE HORIZONTAL MOTOR FOR CORRECT OPERATION

- Operate the seat control switch forward and rearward.

Does the seat move horizontally?

Yes	If only the front height adjust operates, GO to C2 . If only the rear height adjust operates, GO to C6 .
No	GO to C10 .

C2 CHECK THE REAR HEIGHT MOTOR FOR OPERATION

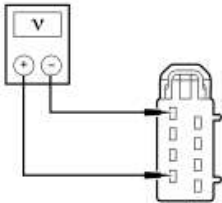
- Operate the seat control switch rear height button up and down while feeling and listening for the rear height motor to operate.

Is the rear height motor attempting to move the rear of the seat up and down?

Yes	INSTALL new power seat track front and rear height adjusters. REFER to Seat Track Height Adjuster in this section. TEST the system for normal operation.
No	GO to C3 .

C3 CHECK THE VOLTAGE TO THE REAR HEIGHT MOTOR

- Ignition OFF.
- Depower the [SRS](#) . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Driver Seat Side Air Bag C367 .
- Disconnect: Driver Power Seat Motor Assembly C353 .
- **⚠ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.**
- Connect the battery ground cable. Refer to [Section 414-01](#).
- Measure the voltage between driver power seat motor assembly [C353](#) Pin 8, circuit CPS26 (YE/BU) and [C353](#) Pin 2, circuit CPS27 (BU/BN), harness side, while operating the seat control switch rear height up and down.



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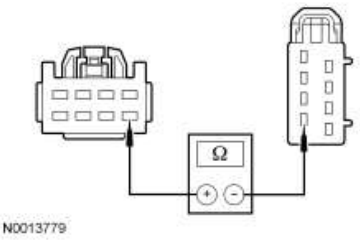
Is the voltage greater than 10 volts when the seat control switch is toggled in both directions and 0 volt in the rest position?

Yes	INSTALL a new power seat track. REFER to Seat Track — Power in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the SRS . REFER to Section 501-20B .
No	GO to C4 .

C4 CHECK THE REAR HEIGHT MOTOR CIRCUIT FOR AN OPEN

- Disconnect: Driver Seat Control Switch C360 .

- Measure the resistance between driver seat control switch [C360](#) Pin 5, circuit CPS26 (YE/BU), harness side and driver power seat motor assembly [C353](#) Pin 8, circuit CPS26 (YE/BU), harness side.

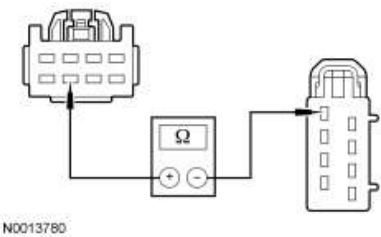


Is the resistance less than 5 ohms?

Yes	GO to C5 .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

C5 CHECK THE REAR HEIGHT MOTOR CIRCUIT FOR AN OPEN

- Measure the resistance between driver seat control switch [C360](#) Pin 7, circuit CPS27 (BU/BN), harness side and driver power seat motor assembly [C353](#) Pin 2, circuit CPS27 (BU/BN), harness side.



Is the resistance less than 5 ohms?

Yes	INSTALL a new driver seat control switch. REFER to Seat Control Switch in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

C6 CHECK THE FRONT HEIGHT MOTOR FOR OPERATION

- Operate the seat control switch front height button up and down while feeling and listening for the front height motor to operate.

Is the front height motor attempting to move the front of the seat up and down?

Yes	INSTALL new power seat track front and rear height adjusters. REFER to Seat Track Height Adjuster in this section. TEST the system for normal operation.
No	GO to C7 .

C7 CHECK FOR VOLTAGE TO THE FRONT HEIGHT MOTOR

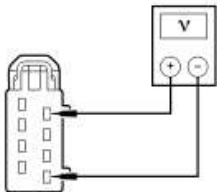
- Ignition OFF.
- Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).

- Disconnect: Driver Seat Side Air Bag C367 .
- Disconnect: Driver Power Seat Motor Assembly C353 .

⚠️ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.

Connect the battery ground cable. Refer to [Section 414-01](#).

- Measure the voltage between driver power seat motor assembly [C353](#) Pin 1, circuit CPS24 (GY) and [C353](#) Pin 7, circuit CPS25 (WH/VT), harness side while operating the driver seat control switch front height up and down.



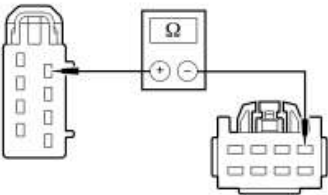
N0013781

Is the voltage greater than 10 volts when the seat control switch is toggled in both directions and 0 volt in the rest position?

Yes	INSTALL a new power seat track. REFER to Seat Track — Power in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	GO to C8 .

C8 CHECK THE FRONT HEIGHT MOTOR CIRCUIT FOR AN OPEN

- Disconnect: Driver Seat Control Switch C360 .
- Measure the resistance between driver seat control switch [C360](#) Pin 1, circuit CPS24 (GY), harness side and driver power seat motor assembly [C353](#) Pin 1, circuit CPS24 (GY), harness side.



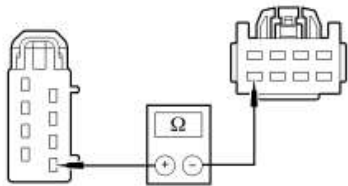
N0013782

Is the resistance less than 5 ohms?

Yes	GO to C9 .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

C9 CHECK THE FRONT HEIGHT MOTOR CIRCUIT FOR AN OPEN

- Measure the resistance between driver seat control switch [C360](#) Pin 8, circuit CPS25 (WH/VT), harness side and driver power seat motor assembly [C353](#) Pin 7, circuit CPS25 (WH/VT), harness side.



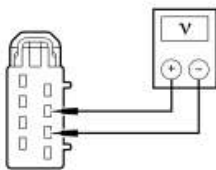
N0013783

Is the resistance less than 5 ohms?

Yes	INSTALL a new driver seat control switch. REFER to Seat Control Switch in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

C10 CHECK FOR VOLTAGE TO THE HORIZONTAL MOTOR

- Ignition OFF.
- Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Driver Seat Side Air Bag C367 .
- Disconnect: Driver Power Seat Motor Assembly C353 .
- ⚠️ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.**
Connect the battery ground cable. Refer to [Section 414-01](#).
- Measure the voltage between driver power seat motor assembly [C353](#) Pin 3, circuit CPS23 (GN/VT) and [C353](#) Pin 5, circuit CPS28 (GN), harness side while operating the seat control switch forward and rearward.



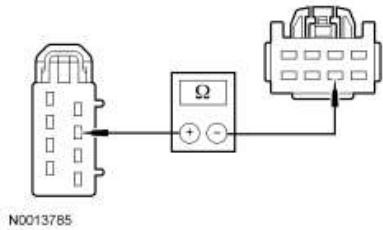
N0013784

Is the voltage greater than 10 volts when the seat control switch is toggled in both directions and 0 volt in the rest position?

Yes	INSTALL a new power seat track. REFER to Seat Track — Power in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	GO to C11 .

C11 CHECK THE HORIZONTAL MOTOR CIRCUIT FOR AN OPEN

- Disconnect: Driver Seat Control Switch C360 .
- Measure the resistance between driver seat control switch [C360](#) Pin 6, circuit CPS23 (GN/VT), harness side and driver power seat motor assembly [C353](#) Pin 3, circuit CPS23 (GN/VT), harness side.

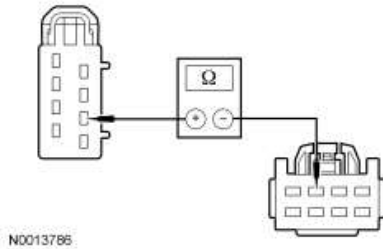


Is the resistance less than 5 ohms?

Yes	GO to C12 .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

C12 CHECK THE HORIZONTAL MOTOR CIRCUIT FOR AN OPEN

- Measure the resistance between driver seat control switch [C360](#) Pin 3, circuit CPS28 (GN), harness side and driver power seat motor assembly [C353](#) Pin 5, circuit CPS28 (GN), harness side.



Is the resistance less than 5 ohms?

Yes	INSTALL a new driver seat control switch. REFER to Seat Control Switch in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

Pinpoint Test D: The Power Seat Does Move Horizontally/Vertically — Passenger

Refer to Wiring Diagrams Cell [120](#) , Seating for schematic and connector information.

Normal Operation

The seat control switch supplies battery voltage and ground to 1 of 3 power seat track motors through horizontal motor circuits CPS33 (WH) and CPS38 (GN/BU), front height motor circuits CPS34 (GY/BU) and CPS35 (VT/GN) or rear height motor circuits CPS36 (YE/GY) and CPS37 (WH/BU) to move the seat in the desired direction.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- Seat control switch
- Seat track height adjuster
- Seat track motor

PINPOINT TEST D : THE POWER SEAT DOES NOT MOVE HORIZONTALLY/VERTICALLY — PASSENGER

D1 CHECK THE HORIZONTAL MOTOR FOR CORRECT OPERATION

- Operate the passenger seat control switch to the forward and rearward positions.

Does the seat move horizontally?

Yes	GO to D2 .
No	GO to D11 .

D2 DETERMINE THE SEAT HEIGHT ADJUST FAILURE

- Determine the seat height adjust failure.

Does the seat front or rear height adjust up and down?

Yes	If only the front height adjust operates, GO to D3 . If only the rear height adjust operates, GO to D7 .
No	INSTALL a new seat control switch. REFER to Seat Control Switch in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

D3 CHECK THE REAR HEIGHT MOTOR FOR OPERATION

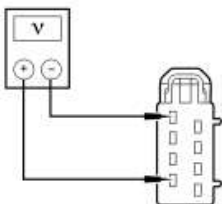
- Operate the seat control switch rear height button up and down while feeling and listening for the rear height motor to operate.

Is the rear height motor attempting to move the rear of the seat up and down?

Yes	INSTALL new power seat track front and rear height adjusters. REFER to Seat Track Height Adjuster in this section. TEST the system for normal operation.
No	GO to D4 .

D4 CHECK FOR VOLTAGE TO THE REAR HEIGHT MOTOR

- Ignition OFF.
- Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Passenger Seat Side Air Bag C337 .
- Disconnect: Passenger Power Seat Motor Assembly C3015 .
- ⚠ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.**
Connect the battery ground cable. Refer to [Section 414-01](#).
- Measure the voltage between passenger power seat motor assembly [C3015](#) Pin 8, circuit CPS36 (YE/GY) and [C3015](#) Pin 2, circuit CPS37 (WH/BU), harness side, while operating the seat control switch rear height up and down.



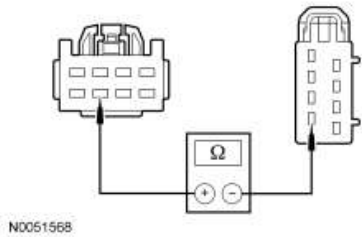
N0013778

Is the voltage greater than 10 volts when the seat control switch is toggled in both directions and 0 volt in the rest position?

Yes	INSTALL a new power seat track. REFER to Seat Track — Power in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	GO to D5 .

D5 CHECK THE REAR HEIGHT MOTOR CIRCUIT FOR AN OPEN

- Disconnect: Passenger Seat Control Switch C3190 .
- Measure the resistance between passenger seat control switch [C3190](#) Pin 7, circuit CPS36 (YE/GY), harness side and passenger power seat motor assembly [C3015](#) Pin 8, circuit CPS36 (YE/GY), harness side.

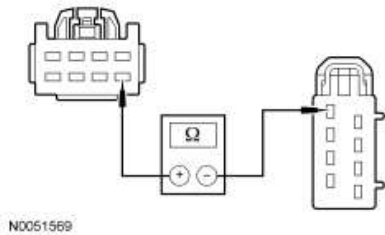


Is the resistance less than 5 ohms?

Yes	GO to D6 .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

D6 CHECK THE REAR HEIGHT MOTOR CIRCUIT FOR AN OPEN

- Measure the resistance between passenger seat control switch [C3190](#) Pin 5, circuit CPS37 (WH/BU), harness side and passenger power seat motor assembly [C3015](#) Pin 2, circuit CPS37 (WH/BU), harness side.



Is the resistance less than 5 ohms?

Yes	INSTALL a new passenger seat control switch. REFER to Seat Control Switch in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

D7 CHECK THE FRONT HEIGHT MOTOR FOR OPERATION

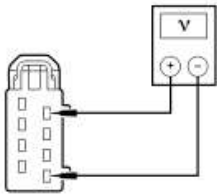
- Operate the seat control switch front height button up and down while feeling and listening for the front height motor to operate.

Is the front height motor attempting to move the front of the seat up and down?

Yes	INSTALL new power seat track front and rear height adjusters. REFER to Seat Track Height Adjuster in this section. TEST the system for normal operation.
No	GO to D8 .

D8 CHECK FOR VOLTAGE TO THE FRONT HEIGHT MOTOR

- Ignition OFF.
 - Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
 - Disconnect: Passenger Seat Side Air Bag C337 .
 - Disconnect: Passenger Power Seat Motor Assembly C3015 .
 - **⚠️ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.**
- Connect the battery ground cable. Refer to [Section 414-01](#).
- Measure the voltage between passenger power seat motor assembly [C3015](#) Pin 1, circuit CPS34 (GY/BU) and [C3015](#) Pin 7, circuit CPS35 (VT/GN), harness side while operating the passenger seat control switch front height up and down.



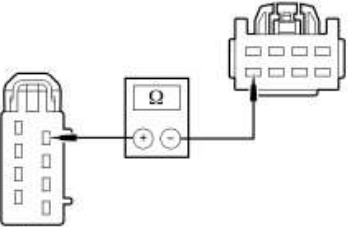
N0013781

Is the voltage greater than 10 volts when the seat control switch is toggled in both directions and 0 volt in the rest position?

Yes	INSTALL a new power seat track. REFER to Seat Track — Power in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the SRS . REFER to Section 501-20B .
No	GO to D9 .

D9 CHECK THE FRONT HEIGHT MOTOR CIRCUIT FOR AN OPEN

- Disconnect: Passenger Seat Control Switch C3190 .
- Measure the resistance between passenger seat control switch [C3190](#) Pin 8, circuit CPS34 (GY/BU), harness side and passenger power seat motor assembly [C3015](#) Pin 1, circuit CPS34 (GY/BU), harness side.



N0051570

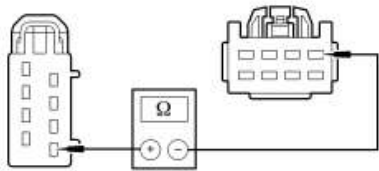
Is the resistance less than 5 ohms?

Yes	GO to D10 .
-----	-----------------------------

No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
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D10 CHECK THE FRONT HEIGHT MOTOR CIRCUIT FOR AN OPEN

- Measure the resistance between passenger seat control switch [C3190](#) Pin 1, circuit CPS35 (VT/GN), harness side and passenger power seat motor assembly [C3015](#) Pin 7, circuit CPS35 (VT/GN), harness side.



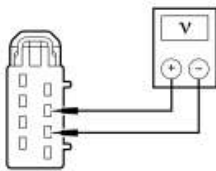
N0051571

Is the resistance less than 5 ohms?

Yes	INSTALL a new passenger seat control switch. REFER to Seat Control Switch in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

D11 CHECK FOR VOLTAGE TO THE HORIZONTAL MOTOR

- Ignition OFF.
 - Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
 - Disconnect: Passenger Seat Side Air Bag C337 .
 - Disconnect: Passenger Power Seat Motor Assembly C3015 .
 - **⚠ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.**
- Connect the battery ground cable. Refer to [Section 414-01](#).
- Measure the voltage between passenger power seat motor assembly [C3015](#) Pin 3, circuit CPS33 (WH) and [C3015](#) Pin 5, circuit CPS38 (GN/BU), harness side while operating the seat control switch forward and rearward.



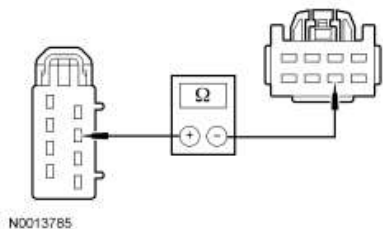
N0013784

Is the voltage greater than 10 volts when the seat control switch is toggled in both directions and 0 volt in the rest position?

Yes	INSTALL a new power seat track. REFER to Seat Track — Power in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	GO to D12 .

D12 CHECK THE HORIZONTAL MOTOR CIRCUIT FOR AN OPEN

- Disconnect: Passenger Seat Control Switch C3190 .
- Measure the resistance between passenger seat control switch [C3190](#) Pin 6, circuit CPS33 (WH), harness side and driver power seat motor assembly [C3015](#) Pin 3, circuit CPS33 (WH), harness side.

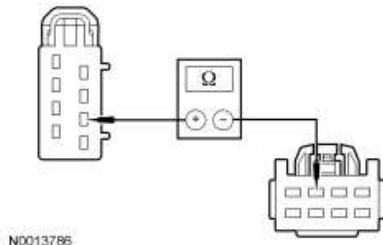


Is the resistance less than 5 ohms?

Yes	GO to D13 .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

D13 CHECK THE HORIZONTAL MOTOR CIRCUIT FOR AN OPEN

- Measure the resistance between passenger seat control switch [C3190](#) Pin 3, circuit CPS38 (GN/BU), harness side and driver power seat motor assembly [C3015](#) Pin 5, circuit CPS38 (GN/BU), harness side.



Is the resistance less than 5 ohms?

Yes	INSTALL a new passenger seat control switch. REFER to Seat Control Switch in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

Pinpoint Test E: The Power Lumbar is Inoperative

Refer to Wiring Diagrams Cell [120](#) , Seating for schematic and connector information.

Normal Operation

The lumbar control switch is supplied battery voltage on circuit SBB32 (VT/RD) and ground on circuit GD133 (BK). When the lumbar control switch is pressed, voltage and ground are supplied to the power lumbar motor on circuits CPS65 (WH/GN) and CPS64 (BN/VT) to move the lumbar assembly in or out.

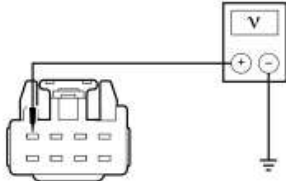
This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- Lumbar control switch
- Power lumbar assembly

PINPOINT TEST E : THE POWER LUMBAR IS INOPERATIVE

E1 CHECK THE LUMBAR CONTROL SWITCH FOR VOLTAGE

- Ignition OFF.
- Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Driver Seat Side Air Bag C367 .
- Disconnect: Lumbar Control Switch C361 .
- **⚠️ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.**
- Connect the battery ground cable. Refer to [Section 414-01](#).
- Measure the voltage between lumbar control switch [C361](#) Pin 4, circuit SBB32 (VT/RD), harness side and ground.



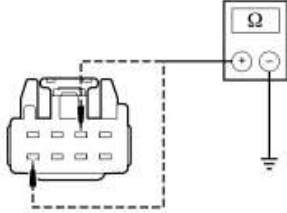
N0013787

Is the voltage greater than 10 volts?

Yes	GO to E2 .
No	VERIFY Battery Junction Box (BJB) fuse 32 (30A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

E2 CHECK THE GROUND CIRCUIT FOR AN OPEN

- Measure the resistance between:
 - lumbar control switch [C361](#) Pin 2, circuit GD133 (BK), harness side and ground.
 - lumbar control switch [C361](#) Pin 8, circuit GD133 (BK), harness side and ground.



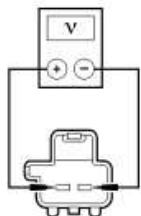
N0013788

Are the resistances less than 5 ohms?

Yes	GO to E3 .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

E3 CHECK FOR VOLTAGE TO THE LUMBAR MOTOR

- Connect: Lumbar Control Switch C361 .
- Disconnect: Power Lumbar Motor C366 .
- Measure the voltage between power lumbar motor [C366](#) Pin 1, circuit CPS64 (BN/VT), harness side and power lumbar motor [C366](#) Pin 2, circuit CPS65 (WH/GN), harness side.



N0103025

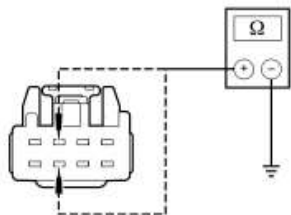
- Operate the power lumbar control switch in both directions.

Is the voltage greater than 10 volts in both directions?

Yes	INSTALL a new power lumbar assembly. REFER to Lumbar Assembly in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	GO to E4 .

E4 CHECK THE LUMBAR MOTOR CIRCUITS FOR A SHORT TO GROUND

- Disconnect: Lumbar Control Switch C361 .
- Measure the resistance between:
 - lumbar control switch [C361](#) Pin 3, circuit CPS64 (BN/VT), harness side and ground.
 - lumbar control switch [C361](#) Pin 7, circuit CPS65 (WH/GN), harness side and ground.



N0013790

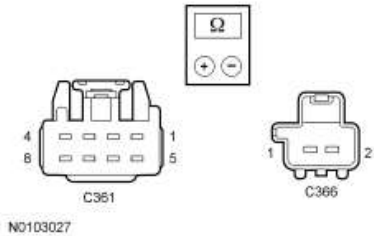
Are the resistances greater than 10,000 ohms?

Yes	GO to E5 .
No	REPAIR the circuit(s). TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

E5 CHECK THE LUMBAR MOTOR CIRCUITS FOR AN OPEN

- Measure the resistance between power lumbar switch C361, harness side and power lumbar motor C366, harness side, using the following chart:

Power Lumbar Switch	Circuit	Power Lumbar Motor
C361 Pin 3	CPS64 (BN/VT)	C366 Pin 1
C361 Pin 7	CPS65 (WH/GN)	C366 Pin 2



Are the resistances less than 5 ohms?

Yes	INSTALL a new lumbar control switch. REFER to Lumbar Control Switch in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit(s). TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

Pinpoint Test F: The Heated Seats are Inoperative

Normal Operation

With the ignition ON, voltage is supplied from the Smart Junction Box (SJB) to each heated seat relay coil on circuit CBP43 (GY). Battery voltage is also supplied to the heated seat relay contacts (hot at all times) on circuit SBB16 (VT/RD). When the heated seat buttons are pressed, the Front Controls Interface Module (FCIM) illuminates the heated seat indicators and transmits a system request message to the HVAC module on the communication network. The HVAC module provides ground to heated seat relay coil circuits CHS30 (GN/YE) (driver) and CHS29 (WH/BU) (passenger) to operate the system. The engine must be running and both modules must be communicating correctly for the system to operate.

The HVAC module monitors the heated seat relay coil circuits for open, short to ground and short to voltage. If circuit faults are detected and DTCs are set for both seats, the HVAC module removes ground from the relay coils to disable the system (refer to HVAC Module DTC Chart in this section). The HVAC module also transmits network communication messages to the [FCIM](#) to deactivate the heated seat indicators. PIDs are available in the [FCIM](#) using a scan tool to check the heated seat switches and confirm correct module communication.

The heated seat system does not time-out and remains on until switched off or the engine is off.

This pinpoint test is intended to diagnose the following:

- Fuse(s)
- Wiring, terminals or connectors
- [FCIM](#)
- HVAC module

PINPOINT TEST F : THE HEATED SEATS ARE INOPERATIVE

F1 CHECK THE HEATED SEAT INDICATORS

- Start the engine.
- Operate both heated seats on and off.

Do all the heated seat indicators operate correctly?

Yes	GO to F4 .
No	GO to F2 .

F2 CHECK SCAN TOOL COMMUNICATION WITH THE FCIM AND MONITOR THE PIDS

- Enter the following diagnostic mode on the scan tool: DataLogger — [FCIM](#) — PIDs .
 - Driver Heated Seat (CC_SW_D_HSEATS)
 - Passenger Heated Seat (CC_SW_P_HSEATS)
- Monitor the [FCIM](#) PIDs while pressing the heated seat switches.

Do the PID values agree with the switch positions?

Yes	GO to F3 .
No	If the FCIM does not communicate with the scan tool, REFER to Section 418-00 to diagnose the module communication error. Otherwise, INSTALL a new FCIM . REFER to Section 415-00 . TEST the system for normal operation.

F3 RETRIEVE FCIM DTCS

- Enter the following diagnostic mode on the scan tool: Self Test — [FCIM](#) .

Are any [FCIM](#) DTCS retrieved?

Yes	For all FCIM DTCS, REFER to the Master DTC Chart in Section 419-10 .
No	GO to F4 .

F4 CHECK SCAN TOOL COMMUNICATION WITH THE HVAC MODULE AND RETRIEVE DTCS

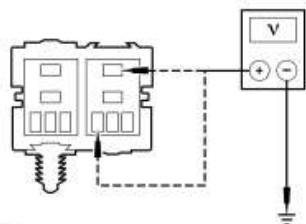
- Enter the following diagnostic mode on the scan tool: Self Test — HVAC module .

Are any HVAC module DTCS retrieved?

Yes	REFER to HVAC Module DTC Chart in this section.
No	If the HVAC module does not communicate with the scan tool, REFER to Section 418-00 to diagnose the module communication error. Otherwise, GO to F5 .

F5 CHECK FOR VOLTAGE TO THE HEATED SEAT RELAY BOX

- Disconnect: Driver Heated Seat Relay .
- Ignition ON.
- Measure the voltage between:
 - heated seat relay box pin 3, circuit SBB16 (VT/RD) and ground.
 - heated seat relay box pin 1, circuit CBP43 (GY) and ground.



Are the voltages greater than 10 volts?

Yes	INSTALL a new HVAC module. REFER to Section 412-01 . REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation.
No	VERIFY Battery Junction Box (BJB) fuse 16 (20A) and <u>SJB</u> fuse 43 (10A) are OK. If OK, REPAIR the circuit(s). If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short. TEST the system for normal operation.

Pinpoint Test G: The Heated Seat is Inoperative/Does Not Operate Correctly — Driver

Normal Operation

When the engine is running and the heated seat button is pressed, the Front Controls Interface Module (FCIM) illuminates the heated seat indicator and transmits a system request message to the HVAC module on the module communication network. The HVAC module receives the message and provides ground to the heated seat relay coil circuit CHS29 (WH/BU) to operate the heated seat. Voltage is supplied to the heated seat relay coil circuit CBP43 (GY) and relay contact circuit SBB16 (VT/RD). The relay energizes and supplies voltage to the cushion heater mat on circuit CHS02 (YE/BU). The cushion and backrest heater mats are connected in series by circuit CHS01 (GY/VT) and ground is supplied to the backrest heater mat circuit GD133 (BK), completing the circuit to heat the seat.

The heated seat switch can be checked using a scan tool to monitor the FCIM PID.

The HVAC module reports the following DTCs for the driver heated seat relay coil circuit CHS29 (WH/BU):

- DTC B1030:11 (Left Front Seat Heater Circuit Short To Ground) — If the driver heated seat relay coil circuit from the HVAC module is shorted to ground, the DTC is set and the seat will heat while the system is off.
- DTC B1030:12 (Left Front Seat Heater Circuit Short To Battery) — If the driver heated seat relay coil circuit from the HVAC module is shorted to voltage, the DTC is set and the seat will not heat.
- DTC B1030:13 (Left Front Seat Heater Circuit Open) — If the driver heated seat relay coil circuit from the HVAC module is open, the DTC is set and the seat will not heat.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- Heated seat relay
- Cushion heater mat
- Backrest heater mat
- FCIM
- HVAC module

PINPOINT TEST G : THE HEATED SEAT IS INOPERATIVE/DOES NOT OPERATE CORRECTLY — DRIVER

G1 CHECK THE HEATED SEAT INDICATOR

- Start the engine.
- Operate the heated seat.

Does the heated seat indicator operate correctly?

Yes	GO to G3 .
No	If the indicator illuminates but does not remain on, GO to G2 . If no indicator illumination and other <u>FCIM</u> functions are inoperative, REFER to Section 415-00 to diagnose the inoperative system(s). Otherwise, INSTALL a new <u>FCIM</u> . REFER to Section 415-00 .

G2 RETRIEVE HVAC MODULE DTCS

- Enter the following diagnostic mode on the scan tool: Self Test — HVAC module .

Are DTCs present?

Yes	If DTC B1030:12, GO to G9 . If DTC B1030:13, GO to G10 .
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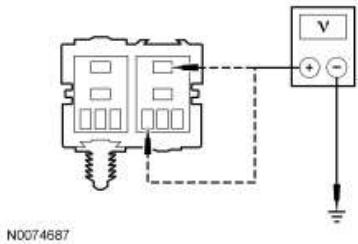
	If DTC B1030:11, GO to G11 . For other DTCs, REFER to HVAC Module DTC Chart in this section.
No	GO to G3 .

G3 CHECK FOR VOLTAGE TO THE HEATED SEAT RELAY

- Ignition OFF.
- Depower the [SRS](#) . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Driver Seat Side Air Bag C367 .
- Disconnect: Driver Heated Seat Relay .
- **⚠️ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.**

Connect the battery ground cable. Refer to [Section 414-01](#).

- Ignition ON.
- Measure the voltage between:
 - driver heated seat relay socket pin 3, circuit SBB16 (VT/RD) and ground.
 - driver heated seat relay socket pin 1, circuit CBP43 (GY) and ground.

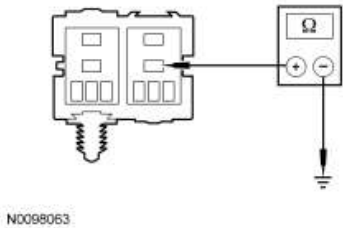


Are the voltages greater than 10 volts?

Yes	GO to G4 .
No	VERIFY Battery Junction Box (BJB) fuse 16 (20A) and Smart Junction Box (SJB) fuse 43 (10A) are OK. If OK, REPAIR the circuit(s). If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag C367. REPOWER the SRS . REFER to Section 501-20B .

G4 CHECK THE HEATER CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure the resistance between driver heated seat relay socket pin 5, circuit CHS02 (YE/BU), harness side and ground.

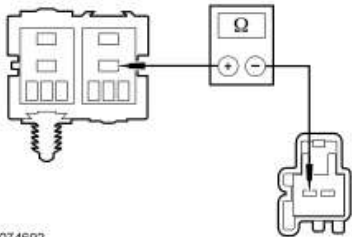


Is the resistance between 2 and 4 ohms?

Yes	INSTALL a new heated seat relay. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	GO to G5 .

G5 CHECK THE CUSHION HEATER MAT CIRCUIT FOR AN OPEN

- Disconnect: Driver Cushion Heater Mat C3300 .
- Measure the resistance between driver heated seat relay socket pin 5, circuit CHS02 (YE/BU) and driver cushion heater mat [C3300](#) Pin 1, circuit CHS02 (YE/BU), harness side.

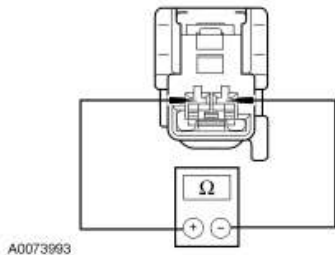


Is the resistance less than 5 ohms?

Yes	GO to G6 .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

G6 CHECK THE CUSHION HEATER MAT FOR AN OPEN

- Measure the resistance between driver cushion heater mat C3300 pins 1 and 2, component side.

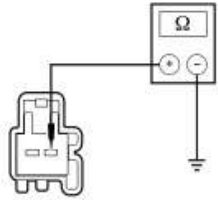


Is the resistance between 1.0 and 1.5 ohm?

Yes	GO to G7 .
No	INSTALL a new driver cushion heater mat. REFER to Seat Cushion Heater Mat in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

G7 CHECK THE GROUND CIRCUIT FOR AN OPEN

- Disconnect: Driver Backrest Heater Mat C3310 .
- Measure the resistance between backrest heater mat [C3310](#) Pin 2, circuit GD133 (BK), harness side and ground.



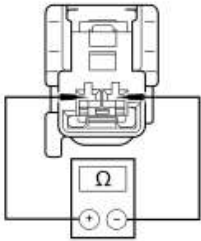
N0040603

Is the resistance less than 5 ohms?

Yes	GO to G8 .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

G8 CHECK THE BACKREST HEATER MAT FOR AN OPEN

- Measure the resistance between backrest heater mat C3310 pins 1 and 2, component side.



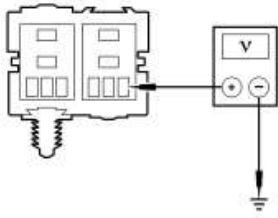
N0042705

Is the resistance between 1.0 and 1.5 ohm?

Yes	REPAIR circuit CHS01 (GY/VT). TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	INSTALL a new backrest heater mat. REFER to Seat Backrest Heater Mat in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

G9 CHECK THE HEATED SEAT RELAY COIL CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Driver Seat Side Air Bag C367 .
- Disconnect: Driver Heated Seat Relay .
- ⚠️ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.**
- Connect the battery ground cable. Refer to [Section 414-01](#).
- Ignition ON.
- Measure the voltage between driver heated seat relay socket pin 2, circuit CHS29 (WH/BU), harness side and ground.



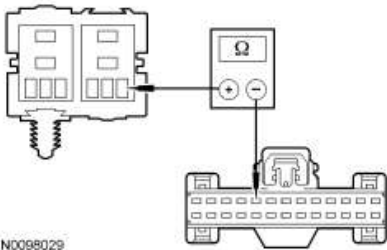
N0098103

Is any voltage present?

Yes	REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation.
No	INSTALL a new heated seat relay. REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

G10 CHECK THE HEATED SEAT RELAY COIL CIRCUIT FOR AN OPEN

- Ignition OFF.
- Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Driver Seat Side Air Bag C367 .
- Disconnect: Driver Heated Seat Relay .
- Disconnect HVAC Module [C294A](#). For electrical connector access, refer to Heating Ventilation Air Conditioning (HVAC) Module removal procedure in [Section 412-01](#).
- Measure the resistance between driver heated seat relay socket pin 2, circuit CHS29 (WH/BU), harness side and HVAC module [C294A](#) Pin 9, circuit CHS29 (WH/BU), harness side.



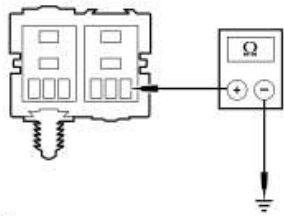
N0098029

Is the resistance less than 5 ohms?

Yes	INSTALL a new heated seat relay. REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

G11 CHECK THE HEATED SEAT RELAY COIL CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Driver Seat Side Air Bag C367 .
- Disconnect: Driver Heated Seat Relay .
- Measure the resistance between driver heated seat relay socket pin 2, circuit CHS29 (WH/BU), harness side and ground.



N0098105

Is the resistance greater than 10,000 ohms?

Yes	INSTALL a new heated seat relay. REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation. CONNECT driver seat side air bag module C367. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

Pinpoint Test H: The Heated Seat is Inoperative/Does Not Operate Correctly — Passenger

Normal Operation

When the engine is running and the heated seat button is pressed, the Front Controls Interface Module (FCIM) illuminates the heated seat indicator and transmits a system request message to the HVAC module on the module communication network. The HVAC module receives the message and provides ground to the heated seat relay coil circuit CHS30 (GY/YE) to operate the heated seat. Voltage is supplied to the heated seat relay coil circuit CBP43 (GY) and relay contact circuit SBB16 (VT/RD). The relay energizes and supplies voltage to the cushion heater mat on circuit CHS07 (GY/BU). The cushion and backrest heater mats are connected in series by circuit CHS06 (BU/BN) and ground is supplied to the backrest heater mat circuit GD139 (BK/YE), completing the circuit to heat the seat.

The heated seat switch can be checked using a scan tool to monitor the [FCIM](#) PID.

The HVAC module reports the following DTCs for the passenger heated seat relay coil circuit CHS30 (GY/YE):

- DTC B1032:11 (Right Front Seat Heater Circuit Short To Ground) — If the passenger heated seat relay coil circuit from the HVAC module is shorted to ground, the DTC is set and the seat will heat while the system is off.
- DTC B1032:12 (Right Front Seat Heater Circuit Short To Battery) — If the passenger heated seat relay coil circuit from the HVAC module is shorted to voltage, the DTC is set and the seat will not heat.
- DTC B1032:13 (Right Front Seat Heater Circuit Open) — If the passenger heated seat relay coil circuit from the HVAC module is open, the DTC is set and the seat will not heat.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- Heated seat relay
- Cushion heater mat
- Backrest heater mat
- [FCIM](#)
- HVAC module

PINPOINT TEST H : THE HEATED SEAT IS INOPERATIVE/DOES NOT OPERATE CORRECTLY — PASSENGER

NOTICE: Do not install a new heater mat on a front passenger seat cushion. Install a new Occupant Classification System (OCS) service kit. Failure to follow this instruction can cause incorrect [OCS](#) system operation. Refer to [Section 501-20B](#) for the Occupant Classification Sensor Removal and Installation procedure.

H1 CHECK THE HEATED SEAT INDICATOR

- Start the engine.
- Operate the heated seat.

Does the heated seat indicator operate correctly?

Yes	GO to H3 .
No	If the indicator illuminates but does not remain on, GO to H2 . If no indicator illumination and other FCIM functions are inoperative, REFER to Section 415-00 to diagnose the inoperative system(s). Otherwise, INSTALL a new FCIM . REFER to Section 415-00 .

H2 RETRIEVE HVAC MODULE DTCS

- Enter the following diagnostic mode on the scan tool: Self Test — HVAC module .

Are DTCs present?

Yes	If DTC B1032:12, GO to H9 . If DTC B1032:13, GO to H10 . If DTC B1032:11, GO to H11 . For other DTCs, REFER to HVAC Module DTC Chart in this section.
No	GO to H3 .

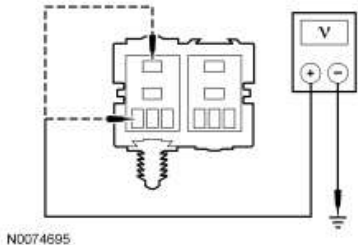
H3 CHECK FOR VOLTAGE TO THE HEATED SEAT RELAY

- Ignition OFF.
- Depower the **SRS** . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Passenger Seat Side Air Bag C337 .
- Disconnect: Passenger Heated Seat Relay .

⚠ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.

Connect the battery ground cable. Refer to [Section 414-01](#).

- Ignition ON.
- Measure the voltage between:
 - passenger heated seat relay socket pin 3, circuit SBB16 (VT/RD) and ground.
 - passenger heated seat relay socket pin 1, circuit CBP43 (GY) and ground.

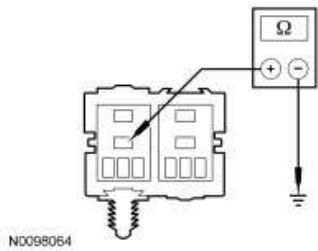


Are the voltages greater than 10 volts?

Yes	GO to H4 .
No	VERIFY Battery Junction Box (BJB) fuse 16 (20A) and Smart Junction Box (SJB) 43 (10A) are OK. If OK, REPAIR the circuit(s). If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the SRS . REFER to Section 501-20B .

H4 CHECK THE HEATER CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure the resistance between passenger heated seat relay socket pin 5, circuit CHS07 (GY/BU), harness side and ground.

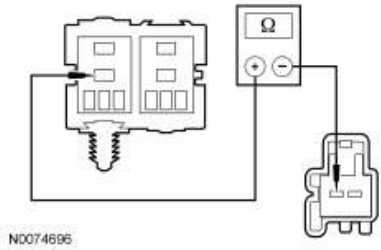


Is the resistance between 2 and 4 ohms?

Yes	INSTALL a new heated seat relay. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the SRS . REFER to Section 501-20B .
No	GO to H5 .

H5 CHECK THE CUSHION HEATER MAT CIRCUIT FOR AN OPEN

- Disconnect: Passenger Cushion Heater Mat C334 .
- Measure the resistance between passenger heated seat relay socket pin 5, circuit CHS07 (GY/BU) and passenger cushion heater mat [C334](#) Pin 1, circuit CHS07 (GY/BU), harness side.

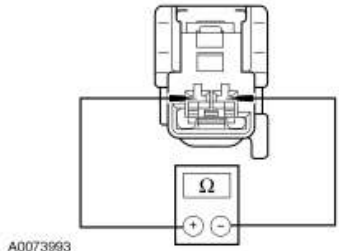


Is the resistance less than 5 ohms?

Yes	GO to H6 .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag C337. REPOWER the SRS . REFER to Section 501-20B .

H6 CHECK THE CUSHION HEATER MAT FOR AN OPEN

- Measure the resistance between passenger cushion heater mat C334 pins 1 and 2, component side.

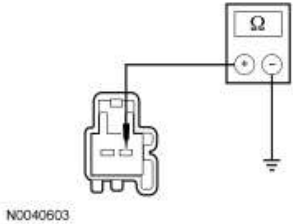


Is the resistance between 1.0 and 1.5 ohm?

Yes	GO to H7 .
No	INSTALL a new passenger cushion heater mat. REFER to Seat Cushion Heater Mat in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

H7 CHECK THE GROUND CIRCUIT FOR AN OPEN

- Disconnect: Passenger Backrest Heater Mat C335 .
- Measure the resistance between backrest heater mat [C335](#) Pin 2, circuit GD139 (BK/YE), harness side and ground.

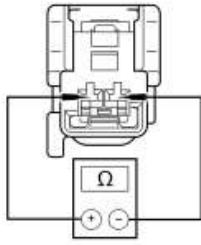


Is the resistance less than 5 ohms?

Yes	GO to H8 .
No	REPAIR the circuit. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

H8 CHECK THE BACKREST HEATER MAT FOR AN OPEN

- Measure the resistance between backrest heater mat C335 pins 1 and 2, component side.



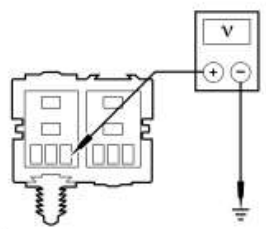
N0042705

Is the resistance between 1.0 and 1.5 ohm?

Yes	REPAIR circuit CHS06 (BU/BN). TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	INSTALL a new backrest heater mat, REFER to Seat Backrest Heater Mat in this section. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

H9 CHECK THE HEATED SEAT RELAY COIL CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Passenger Seat Side Air Bag C337 .
- Disconnect: Passenger Heated Seat Relay .
- **⚠️ WARNING: Make sure no one is in the vehicle and there is nothing blocking or placed in front of any airbag when the battery is connected. Failure to follow these instructions may result in serious personal injury in the event of an accidental deployment.**
Connect the battery ground cable. Refer to [Section 414-01](#).
- Ignition ON.
- Measure the voltage between passenger heated seat relay socket pin 2, circuit CHS30 (GY/YE), harness side and ground.



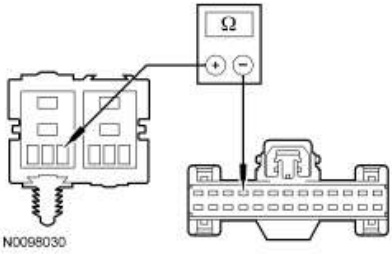
N0098104

Is any voltage present?

Yes	REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	INSTALL a new heated seat relay. REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation. DISCONNECT the battery ground cable. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

H10 CHECK THE HEATED SEAT RELAY COIL CIRCUIT FOR AN OPEN

- Ignition OFF.
- Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Passenger Seat Side Air Bag C337 .
- Disconnect: Passenger Heated Seat Relay .
- Disconnect HVAC Module [C294A](#). For electrical connector access, refer to Heating Ventilation Air Conditioning (HVAC) Module removal procedure in [Section 412-01](#).
- Measure the resistance between passenger heated seat relay socket pin 2, circuit CHS30 (GY/YE), harness side and HVAC module [C294A](#) Pin 10, circuit CHS30 (GY/YE), harness side.

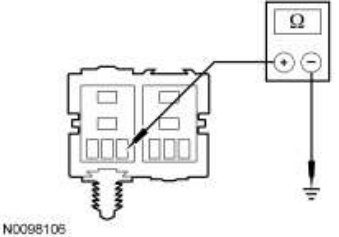


Is the resistance less than 5 ohms?

Yes	INSTALL a new heated seat relay. REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

H11 CHECK THE HEATED SEAT RELAY COIL CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Depower the SRS . Refer to Supplemental Restraint System (SRS) Depowering and Repowering in the General Procedures portion of [Section 501-20B](#).
- Disconnect: Passenger Seat Side Air Bag C337 .
- Disconnect: Passenger Heated Seat Relay .
- Measure the resistance between passenger heated seat relay socket pin 2, circuit CHS30 (GY/YE), harness side and ground.



Is the resistance greater than 10,000 ohms?

Yes	INSTALL a new heated seat relay. REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .
No	REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs. TEST the system for normal operation. CONNECT passenger seat side air bag module C337. REPOWER the <u>SRS</u> . REFER to Section 501-20B .

