

# HEATED SYSTEMS

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## HEATED GLASS - ELECTRICAL DIAGNOSTICS

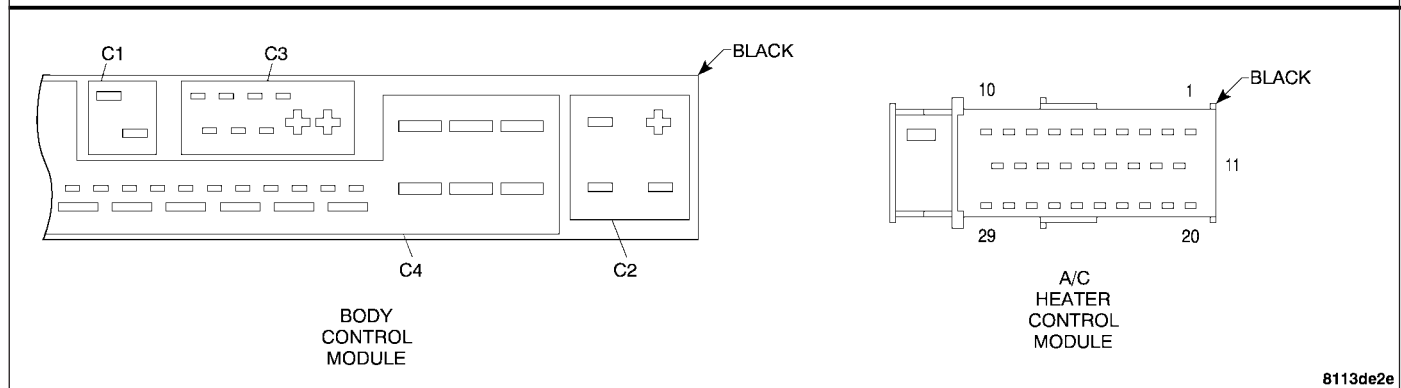
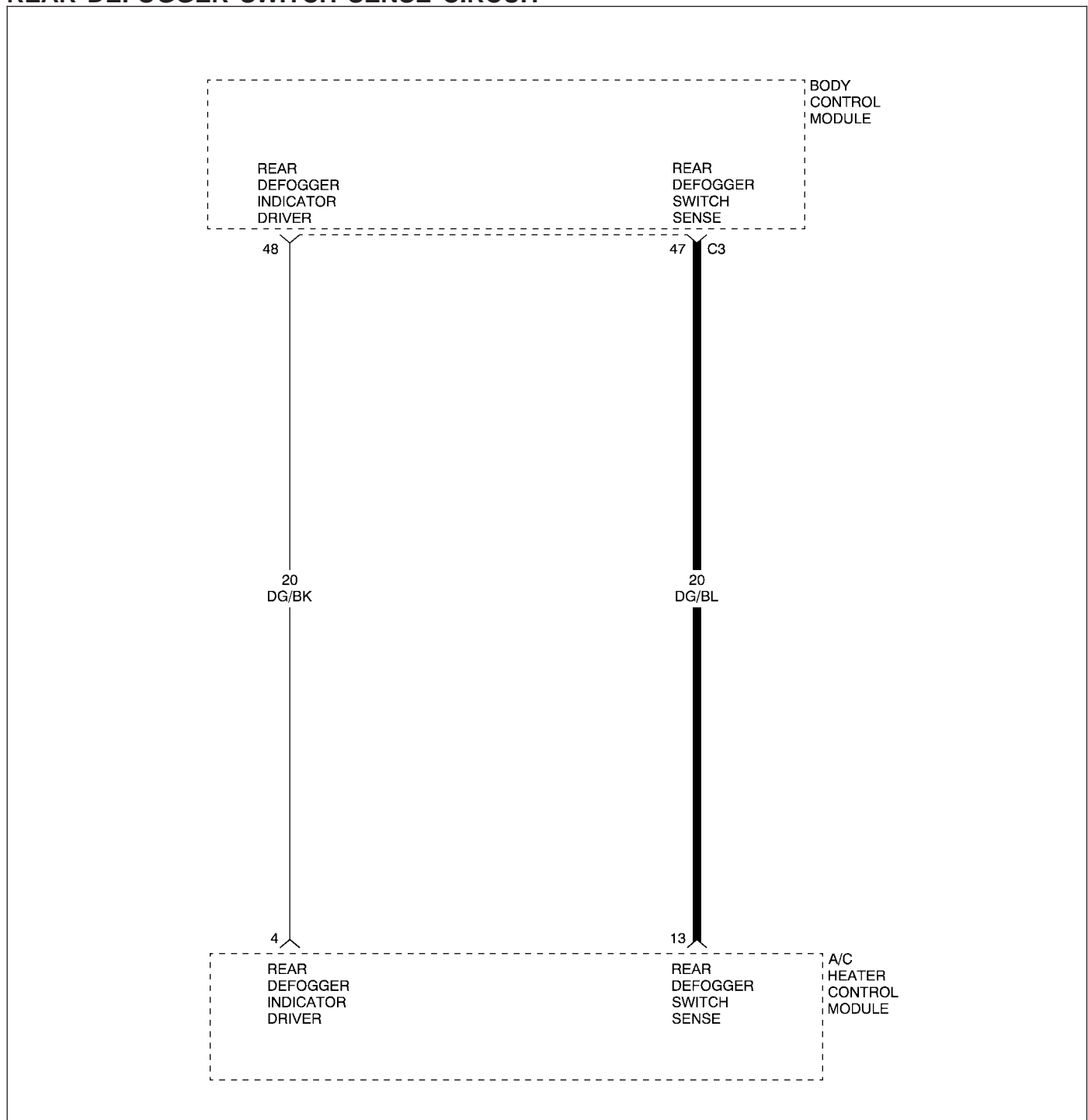
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## HEATED GLASS - ELECTRICAL DIAGNOSTICS

### DIAGNOSIS AND TESTING

REAR DEFOGGER SWITCH SENSE CIRCUIT



## REAR DEFOGGER SWITCH SENSE CIRCUIT — CONTINUED

### When Monitored and Set Condition

- When Monitored: With the ignition on.
- Set Condition: The Body Control Module (BCM) detects a short to power, ground, or an open on the Rear Defogger Switch Sense circuit.

POSSIBLE CAUSES
REAR DEFOGGER SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
REAR DEFOGGER SWITCH SENSE CIRCUIT SHORT TO GROUND
REAR DEFOGGER SWITCH SENSE CIRCUIT OPEN
BODY CONTROL MODULE

For a complete Heated Glass Circuit Diagram Refer to Page 8G-9.

### Diagnostic Test

#### 1. MEASURE THE RESISTANCE OF THE REAR DEFOGGER SWITCH SENSE CIRCUIT

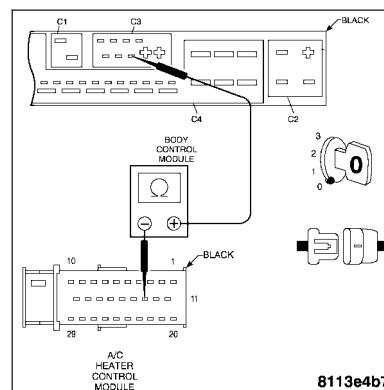
Turn the ignition off.  
 Disconnect the BCM harness connector.  
 Disconnect the A/C Heater Control Module harness connector.

**Note: Check connector - Clean/repair as necessary.**

Measure the resistance of the Rear Defogger Switch Sense circuit from the BCM harness connector to the A/C Heater Control Module harness connector.

**Is the resistance below 5.0 ohms?**

- Yes** >> Go to 2
- No** >> Repair the Rear Defogger Switch Sense circuit for an open.  
 Perform BODY VERIFICATION TEST.

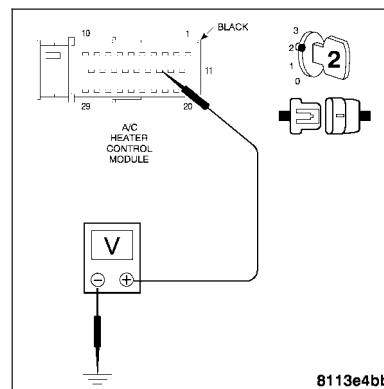


#### 2. MEASURE THE VOLTAGE OF THE REAR DEFOGGER SWITCH SENSE CIRCUIT

Turn the ignition on.  
 Measure the voltage of the Rear Defogger Switch Sense circuit at the A/C Heater Control Module harness connector.

**Is voltage present?**

- Yes** >> Repair the Rear Defogger Switch Sense circuit for a short to voltage.  
 Perform BODY VERIFICATION TEST.
- No** >> Go to 3



**REAR DEFOGGER SWITCH SENSE CIRCUIT — CONTINUED****3. MEASURE THE RESISTANCE OF THE REAR DEFOGGER SWITCH SENSE CIRCUIT**

Turn the ignition off.

Measure the resistance between ground and the Rear Defogger Switch Sense circuit.

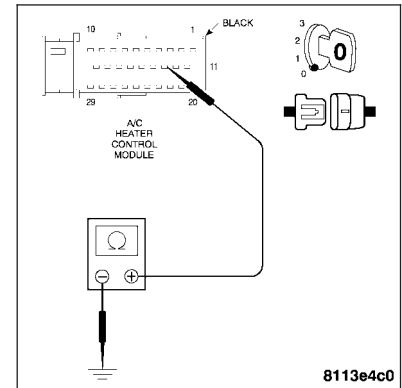
**Is the resistance below 10 kohms?**

**Yes** >> Repair the Rear Defogger Switch Sense circuit for a short to ground.

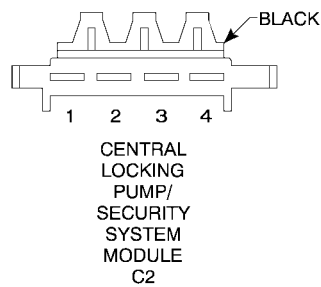
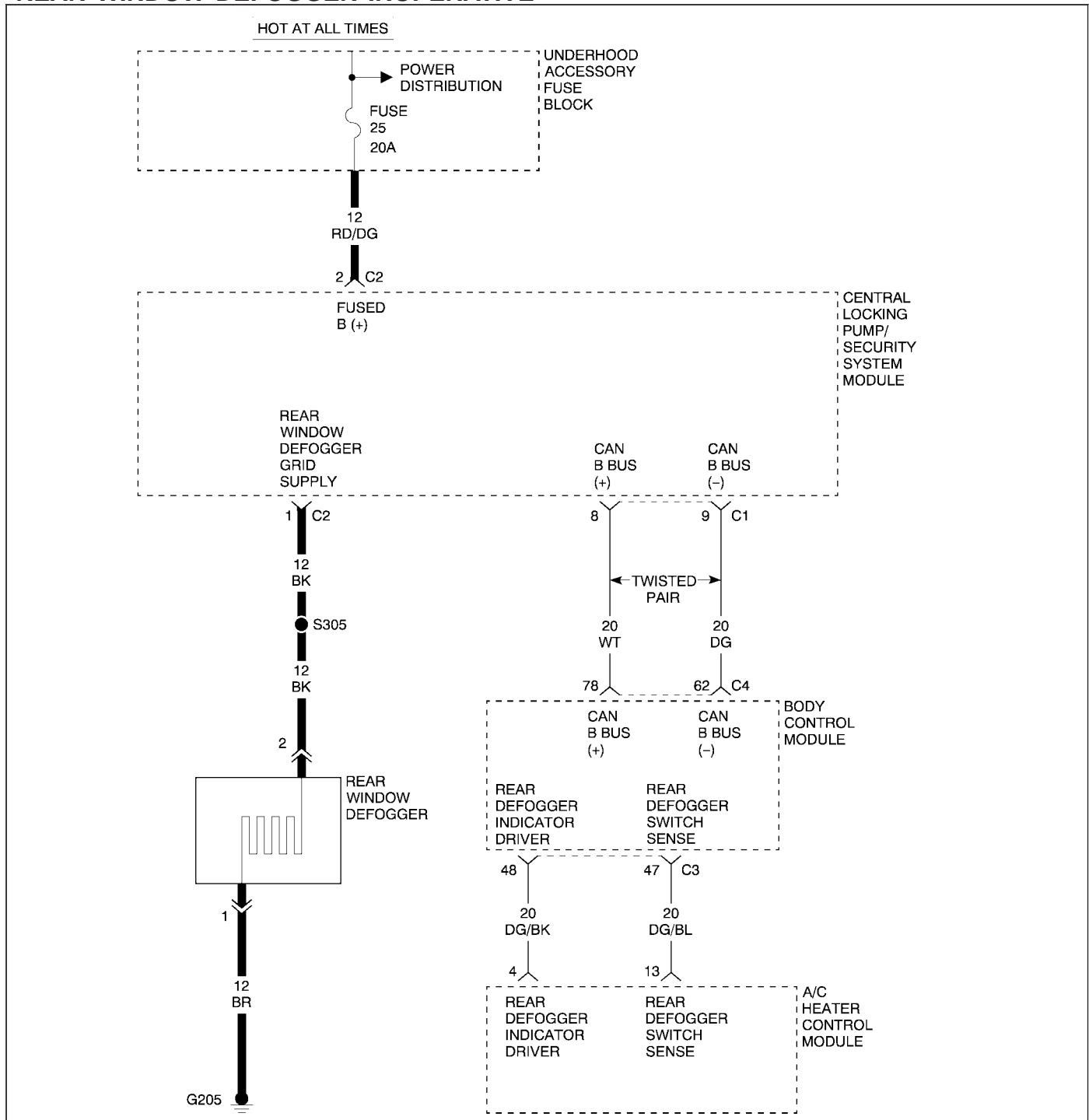
Perform BODY VERIFICATION TEST.

**No** >> Replace the Body Control Module. **Refer to Page 8E-72.**

Perform BODY VERIFICATION TEST.



**\*REAR WINDOW DEFOGGER INOPERATIVE**



**\*REAR WINDOW DEFOGGER INOPERATIVE — CONTINUED**

POSSIBLE CAUSES
REAR WINDOW DEFOGGER FUSED B(+) CIRCUIT OPEN
REAR WINDOW DEFOGGER GRID OPEN
REAR WINDOW DEFOGGER GRID GROUND CIRCUIT OPEN
CENTRAL LOCKING PUMP/SECURITY SYSTEM MODULE

For a complete Heated Glass Circuit Diagram **Refer to Page 8G-9.**

**Diagnostic Test****1. INSPECT THE REAR WINDOW DEFOGGER INDICATOR ON THE A/C HEATER CONTROL MODULE**

Turn the ignition on.

Activate the Rear Window Defogger.

**Is the rear window defogger indicator blinking?**

**Yes** >> Lower the electrical load on the vehicle until the light stops blinking. Once the rear window defogger indicator stops blinking, the system will resume normal operation.  
Perform BODY VERIFICATION TEST.

**No** >> Go to 2

**2. MEASURE REAR WINDOW DEFOGGER FUSED B(+) CIRCUIT VOLTAGE**

**Note: Inspect Fuse 25 located in the Underhood Accessory Fuse Block. If the fuse is open, repair the cause of the open fuse before continuing.**

Turn the ignition off.

Disconnect the Central Locking Pump/Security System Module (CLP/SSM) harness connector.

**Note: Check connector - Clean/repair as necessary.**

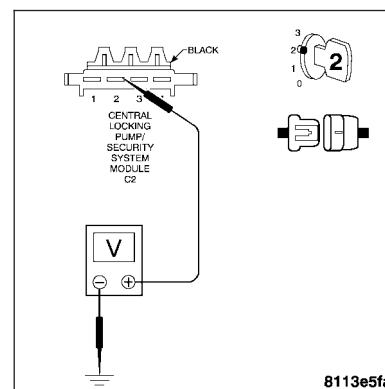
Turn the ignition on.

Measure the voltage of the Fused B(+) circuit at the CLP/SSM harness connector.

**Is the voltage above 10 volts?**

**Yes** >> Go to 3

**No** >> Repair the CLP/SSM Fused B(+) circuit for an open.  
Perform BODY VERIFICATION TEST.



**\*REAR WINDOW DEFOGGER INOPERATIVE — CONTINUED**

**3. MEASURE REAR WINDOW DEFOGGER GRID VOLTAGE**

Turn the ignition off.

Disconnect the Rear Window Defogger Grid harness connector terminal 1.

**Note: Check connector - Clean/repair as necessary.**

Reconnect the CLP/SSM harness connector.

Turn the ignition on.

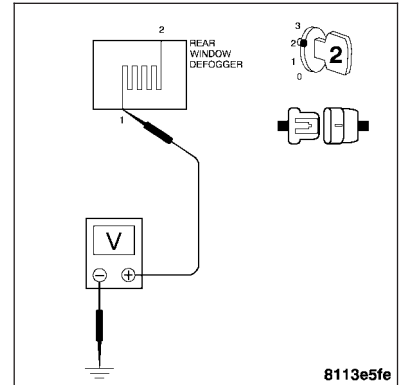
Activate the Rear Window Defogger.

Measure the voltage at the Rear Window Defogger Grid harness connector terminal 1.

**Is the voltage above 10 volts?**

**Yes** >> Repair the Rear Window Defogger Ground circuit for an open.  
Perform BODY VERIFICATION TEST.

**No** >> Go to 4



**4. MEASURE REAR WINDOW DEFOGGER SUPPLY CIRCUIT VOLTAGE**

Turn the ignition off.

Disconnect the Rear Window Defogger Grid harness connector terminal 2.

**Note: Check connector - Clean/repair as necessary.**

Turn the ignition on.

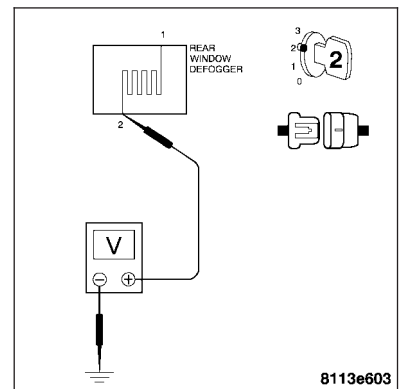
Activate the Rear Window Defogger.

Measure the voltage at the Rear Window Defogger Grid harness connector terminal 2.

**Is the voltage above 10 volts?**

**Yes** >> Repair or replace the Rear Window Defogger Grid. Refer to Page 8G-13.  
Perform BODY VERIFICATION TEST.

**No** >> Go to 5



**5. MEASURE REAR WINDOW DEFOGGER SUPPLY CIRCUIT RESISTANCE**

Turn the ignition off.

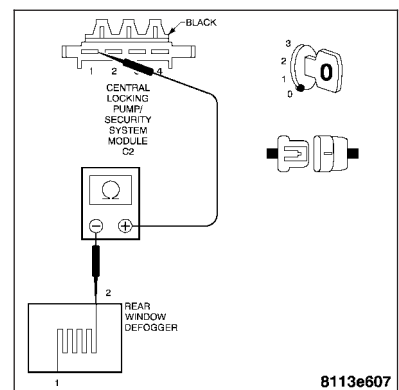
Disconnect the CLP/SSM harness connector.

Measure the resistance of the Rear Window Defogger Grid Supply circuit from the CLP/SSM harness connector to the Rear Window Defogger Grid harness connector terminal 2.

**Is the resistance below 5.0 ohms?**

**Yes** >> Replace the Central Locking Pump/Security System Module. Refer to Page 8Q-48.  
Perform BODY VERIFICATION TEST.

**No** >> Repair the Rear Window Defogger Grid Supply circuit for an open.  
Perform BODY VERIFICATION TEST.



## BODY VERIFICATION TEST

### 1.

---

Turn the ignition off.

Disconnect all jumper wires and reconnect all previously disconnected components and connectors.

**Note: If the SKREEM or the PCM was replaced, refer to the service information for proper programming procedures.**

If the Body Control Module was replaced, turn the ignition on for 15 seconds (to allow the new BCM to learn VIN) or engine may not start.

Program all RKE transmitters and other options as necessary.

With the DRB III®, erase all Diagnostic Trouble Codes (DTCs) from ALL modules. Start the engine and allow it to run for 2 minutes. Operate all functions of the system that caused the original complaint.

Ensure that all accessories are turned off and the battery is fully charged.

Turn the ignition off and wait 5 seconds. Turn the ignition on and using the DRB III®, read DTCs from ALL modules.

Are any DTCs present or is the original complaint still present?

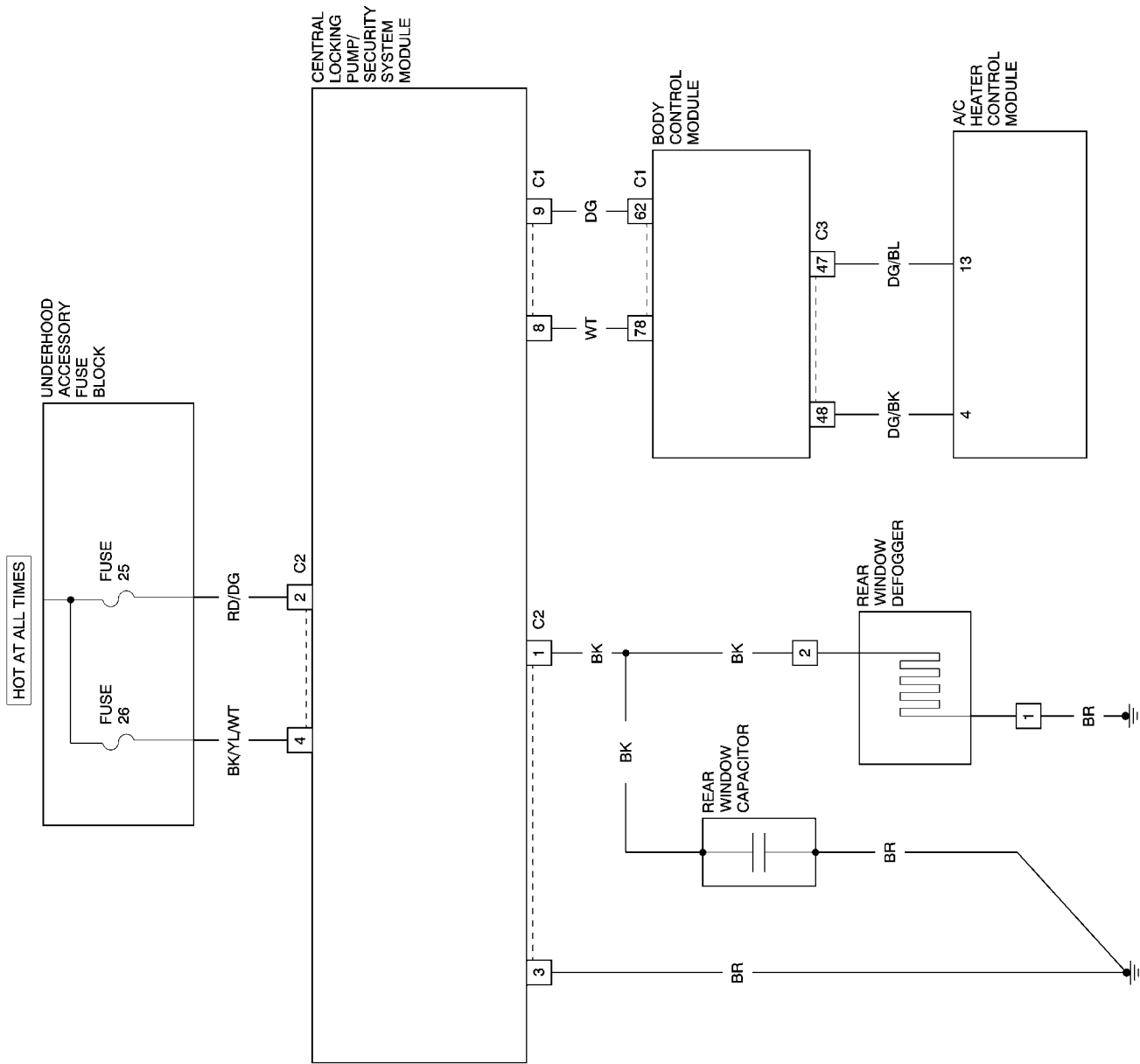
#### **Are any DTCs present?**

**YES** >> Repair is not complete, refer to appropriate symptom.

**NO** >> Repair is complete.

**SCHEMATICS AND DIAGRAMS**

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**REAR WINDOW DEFOGGER CIRCUIT DIAGRAM**

## HEATED GLASS - SERVICE INFORMATION

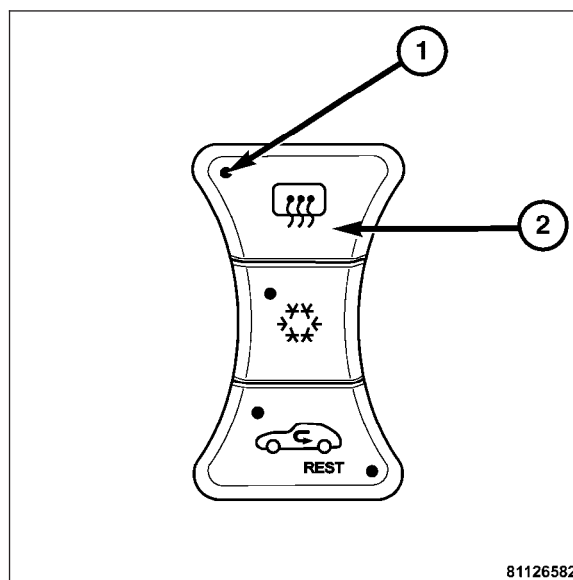
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## HEATED GLASS - SERVICE INFORMATION

### DESCRIPTION

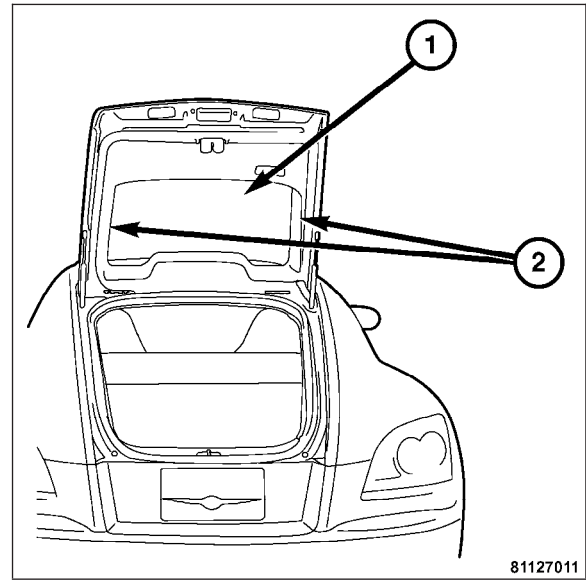
Electric rear window defogger is standard equipment. A push button rear window defogger switch (2) located in the center console turns the system ON and is illuminated with instrumentation lighting for easy night time use. An LED (1) in the push button switch illuminates when the rear window defogger is working. When energized, a grid on the inside of the liftgate window heats up to help clear the outside surface of ice, snow or fog.



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## OPERATION

When the rear window defogger switch is pressed with the ignition switch turned to the ON/RUN position, electrical current from fuses 25 and 26 in the Underhood Accessory Fuse Block is applied to a series of horizontal silver-ceramic grid lines (1) through the two vertical bus bars (2) on the glass inside surface. When the circuit is operating, the grid lines provide heat in the form of resistance. The heat is transferred to the outside surface to clear fog or snow. The grid lines comprise a parallel electrical circuit and are bonded to the glass permanently. Both the horizontal grid lines (1) and the vertical bus bars (2) are highly resistant to abrasion. However, it is possible for an open circuit to occur in an individual grid line resulting in no current flow. Care should be taken when cleaning the glass or removing foreign materials, decals or stickers. Normal glass cleaning solvents or hot water is recommended for cleaning. The grid lines and bus bars are repairable if they become damaged. For complete heated grid line and bus bar repair instructions see rear window defogger grid standard procedure in this section. **Refer to Page 8G-13.**



## DIAGNOSIS AND TESTING - REAR WINDOW DEFOGGER SYSTEM

For complete heated glass electrical diagnosis with schematics and diagrams, see the appropriate heated glass electrical diagnostics in this section.

The operation of the electrically heated rear window defogger system can be confirmed in the following manner:

1. Turn the ignition switch to the ON/RUN position.
2. Press the defogger switch to the ON position. The rear window defogger operation can be checked by feeling the rear window glass. A distinct difference in temperature between the grid lines and the adjacent clear glass can be detected within three to four minutes of operation.
3. Using a 12-volt DC voltmeter, contact the rear glass heating grid terminal (right side) with the negative lead and the opposite terminal (left side) with the positive lead. The voltmeter should read battery voltage.

The above checks will confirm system operation. Illumination of the defogger switch indicator lamp means that there is electrical current available at the A/C - Heater Control Module but does not confirm that the electrical current is reaching the rear glass heating grid lines.

If the defogger system does not operate, the problem should be isolated in the following manner:

1. Confirm that the ignition switch is in the ON/RUN position.
2. Ensure that the rear glass heating grid feed and ground wires are connected to the glass. Confirm that the ground wire has continuity to ground.
3. Check fuses 25 and 26 in the Underhood Accessory Fuse Block. The fuses must be tight in their receptacles and all electrical connections must be clean and secure.

When the above steps have been completed and the rear glass heating grid is still inoperative, one or more of the following is faulty:

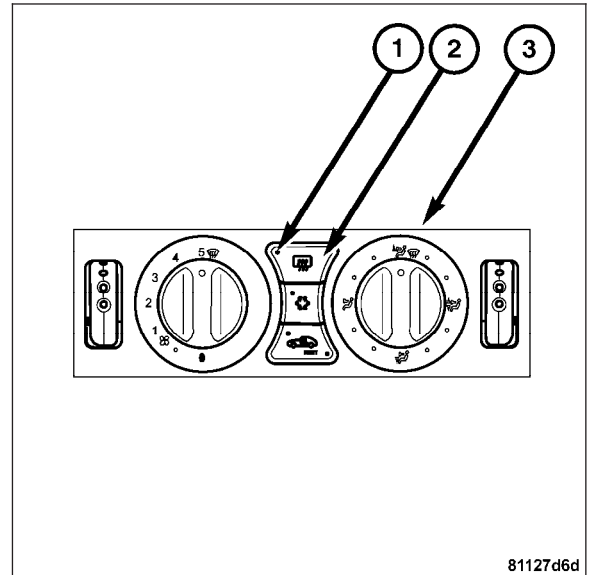
- Defogger switch
- A/C - Heater Control Module circuitry
- Rear window grid lines (all grid lines would have to be broken or one of the feed wires disconnected for the entire system to be inoperative)

## REAR WINDOW DEFOGGER SWITCH

### REMOVAL

**WARNING: REFER TO RESTRAINTS BEFORE ATTEMPTING ANY DOOR, SEAT, STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.**

The rear window defogger switch (2) is an integrated part of the A/C Heater Control Module (3). For complete rear window defogger switch removal procedures, see heater control removal in the HVAC section. Refer to Page 24-79.



### INSTALLATION

The rear window defogger switch is an integrated part of the A/C Heater Control Module. For complete rear window defogger switch installation procedures, heater control installation in the Heating and Air Conditioning section of this manual Refer to Page 24-81.

## REAR WINDOW DEFOGGER GRID

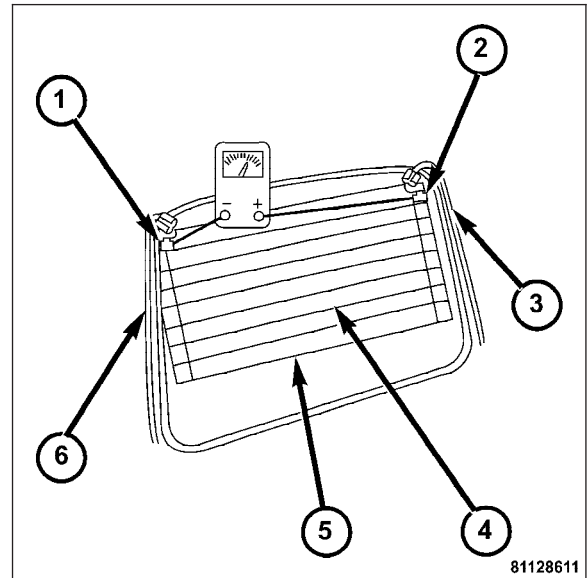
### DIAGNOSIS AND TESTING - REAR WINDOW DEFOGGER GRID

For complete rear window defogger grid electrical diagnosis with schematics and diagrams, see heated glass electrical diagnostics in this section. Refer to Page 8G-9.

To detect breaks in the grid lines, the following procedure is required:

1. Turn the ignition switch to the ON/RUN position. Press the defogger switch to the ON position. The indicator lamp in the defogger switch should light. If OK, go to step 2. If not OK, see heated glass electrical diagnostics in this section.

2. Using a 12-volt DC voltmeter, contact a good body ground point with the negative lead. With the positive lead, contact the vertical bus bar (1) on the left side of the vehicle. The voltmeter should read battery voltage. If OK, go to step 2. If not OK, repair the open circuit to the A/C - Heater Control Module as required.
3. With the negative lead of the voltmeter, contact the vertical bus bar (2) on the right side of the vehicle. The voltage reading should not change. If OK, go to step 3. If not OK, repair the circuit to ground as required.
4. Connect the negative lead of the voltmeter to the right side bus bar (2) and touch each grid line (5) at its midpoint (4) with the positive lead. A reading of approximately six volts indicates a line is good. A reading of zero volts indicates a break in the grid line (5) between the midpoint (4) of the grid line and the left side bus bar (1). A reading of ten to fourteen volts indicates a break between the midpoint (4) of the grid line and the right side bus bar (2). Move the positive lead on the grid line (5) towards the break and the voltage reading will change as soon as the break is crossed.

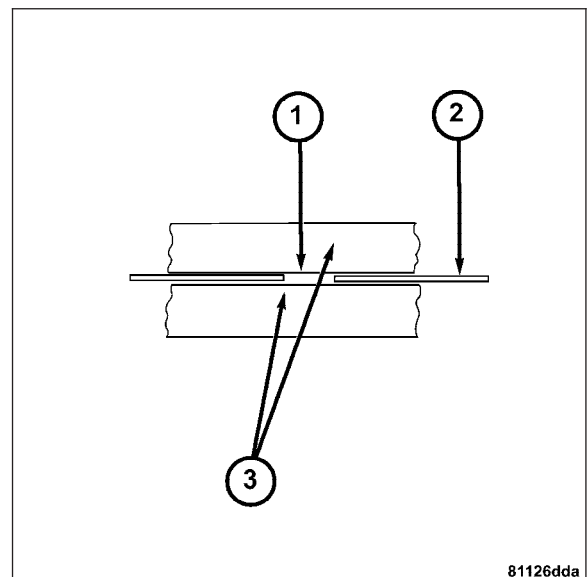


## STANDARD PROCEDURE - REAR GLASS HEATING GRID REPAIR

Repair of the rear glass heating grid lines, bus bars, terminals or pigtail wires can be accomplished using a Mopar® Rear Window Defogger Repair Kit (Part Number 4267922) or equivalent.

**WARNING: MATERIALS CONTAINED IN THE REPAIR KIT MAY CAUSE SKIN OR EYE IRRITATION. THE KIT CONTAINS EPOXY RESIN AND AMINE TYPE HARDENER, WHICH ARE HARMFUL IF SWALLOWED. AVOID CONTACT WITH THE SKIN AND EYES. FOR SKIN CONTACT, WASH THE AFFECTED AREAS WITH SOAP AND WATER. FOR CONTACT WITH THE EYES, FLUSH WITH PLENTY OF WATER. DO NOT TAKE INTERNALLY. IF TAKEN INTERNALLY, INDUCE VOMITING AND CALL A PHYSICIAN IMMEDIATELY. USE WITH ADEQUATE VENTILATION. DO NOT USE NEAR FIRE OR FLAME. CONTAINS FLAMMABLE SOLVENTS. KEEP OUT OF THE REACH OF CHILDREN.**

1. Mask the repair area (3) so that the conductive epoxy can be applied neatly. Extend the epoxy application onto the grid line (2) or the bus bar on each side of the break (1).



2. Follow the instructions in the repair kit for preparing the damaged area.
3. Remove the package separator clamp and mix the two conductive epoxy components thoroughly within the packaging. Fold the package in half and cut the center corner to dispense the epoxy.

4. For grid line repairs, mask the area to be repaired with masking tape or a template.
5. Apply the epoxy through the slit in the masking tape or template. Overlap both ends of the break by at least 19 millimeters (0.75 inch).
6. For a terminal or pigtail wire replacement, mask the adjacent areas so the epoxy can be extended onto the adjacent grid line as well as the bus bar. Apply a thin layer of epoxy to the area where the terminal or pigtail wire was fastened and onto the adjacent grid line.
7. Apply a thin layer of conductive epoxy to the terminal or bare wire end of the pigtail and place it in the proper location on the bus bar. To prevent the terminal or pigtail wire from moving while the epoxy is curing, it must be wedged or clamped.
8. Carefully remove the masking tape or template.

**CAUTION: Do not allow the glass surface to exceed 204° C (400° F) or the glass may fracture.**

9. Allow the epoxy to cure 24 hours at room temperature or use a heat gun that will not over heat the glass. Hold the heat gun approximately 25.4 centimeters (10 inches) from the repair.
10. After the conductive epoxy is properly cured, remove the wedge or clamp from the terminal or pigtail wire. Do not attach the wire harness connectors until the curing process is complete.
11. Check the operation of the rear window defogger glass heating grid.

# HEATED MIRRORS - ELECTRICAL DIAGNOSTICS

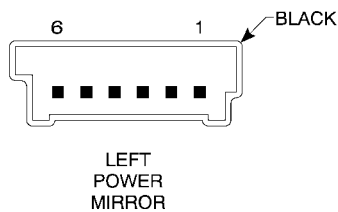
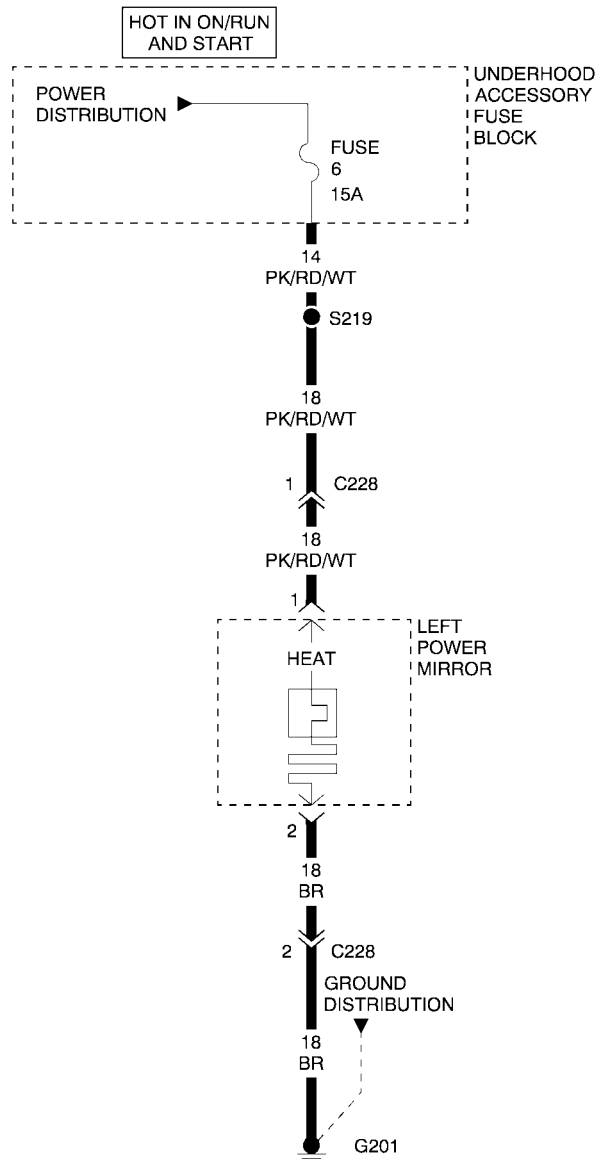
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## **HEATED MIRRORS - ELECTRICAL DIAGNOSTICS**

### **DIAGNOSIS AND TESTING**

**\*LEFT HEATED MIRROR INOPERATIVE**



**\*LEFT HEATED MIRROR INOPERATIVE — CONTINUED**

POSSIBLE CAUSES
LEFT MIRROR HEATER ELEMENT FUSED B(+) CIRCUIT OPEN
LEFT MIRROR HEATER ELEMENT GROUND CIRCUIT OPEN
LEFT MIRROR HEATER ELEMENT

For a complete Heated Mirrors Circuit Diagram Refer to Page 8G-21.

**Diagnostic Test**

**1. MEASURE LEFT MIRROR HEATER ELEMENT FUSED B(+) CIRCUIT VOLTAGE**

Turn the ignition off.

Disconnect the Left Power Mirror harness connector.

**Note: Check connector - Clean/repair as necessary.**

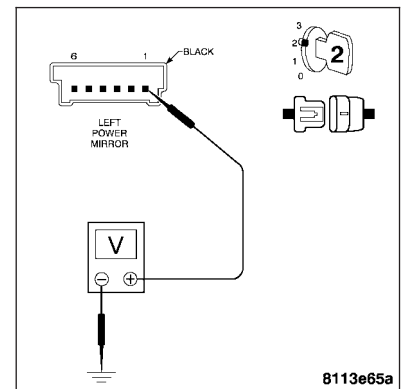
Turn the ignition on.

Measure the voltage of the Fused B(+) circuit at the Left Power Mirror harness connector.

**Is the voltage above 10 volts?**

**Yes** >> Go to 2

**No** >> Repair the Left Mirror Heater Element Fused B(+) circuit for an open.  
Perform BODY VERIFICATION TEST.



**2. MEASURE LEFT MIRROR HEATER ELEMENT GROUND CIRCUIT RESISTANCE**

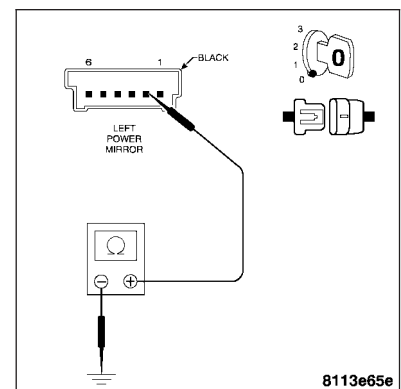
Turn the ignition off.

Measure the resistance between ground and the Left Mirror Heater Element Ground circuit.

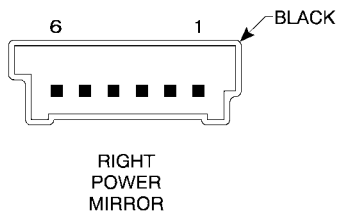
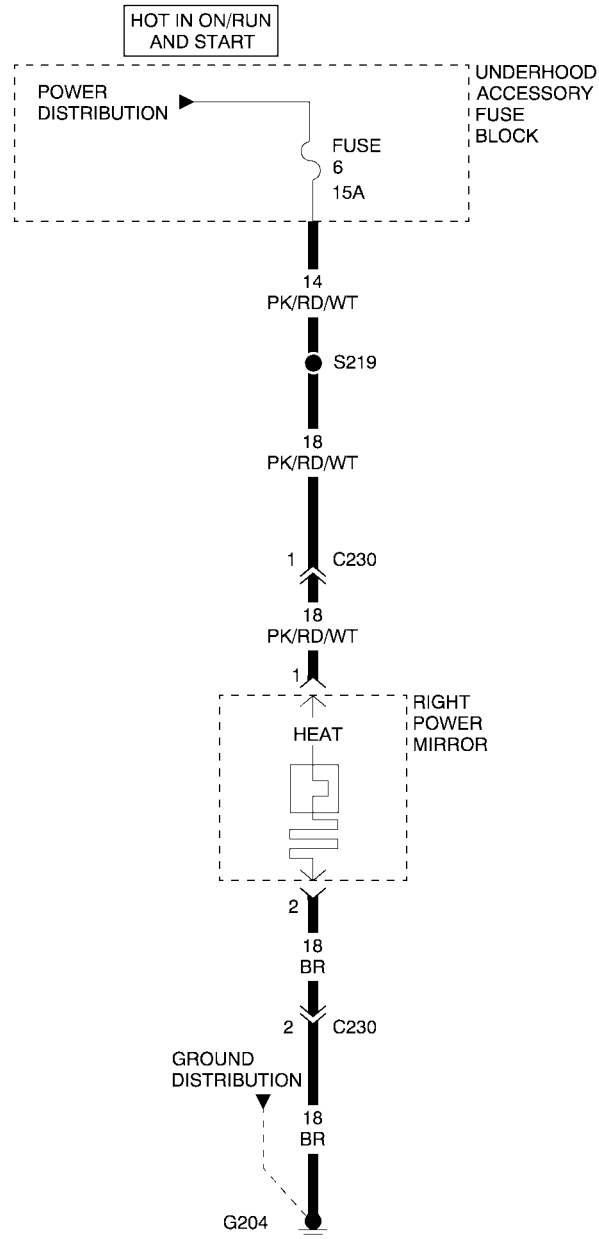
**Is the resistance below 5.0 ohms?**

**Yes** >> Replace the Left Power Mirror. Refer to Page 8N-72.  
Perform BODY VERIFICATION TEST.

**No** >> Repair the Left Mirror Heater Element Ground circuit for an open.  
Perform BODY VERIFICATION TEST.



**\*RIGHT HEATED MIRROR INOPERATIVE**



**\*RIGHT HEATED MIRROR INOPERATIVE — CONTINUED**

POSSIBLE CAUSES
RIGHT MIRROR HEATER ELEMENT FUSED B(+) CIRCUIT OPEN
RIGHT MIRROR HEATER ELEMENT GROUND CIRCUIT OPEN
RIGHT MIRROR HEATER ELEMENT

For a complete Heated Mirrors Circuit Diagram Refer to Page 8G-21.

**Diagnostic Test**

**1. MEASURE RIGHT MIRROR HEATER ELEMENT FUSED B(+) CIRCUIT VOLTAGE**

Turn the ignition off.

Disconnect the Right Power Mirror harness connector.

**Note: Check connector - Clean/repair as necessary.**

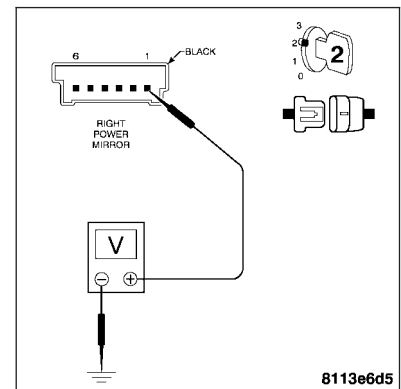
Turn the ignition on.

Measure the voltage of the Fused B(+) circuit at the Right Power Mirror harness connector.

**Is the voltage above 10 volts?**

**Yes** >> Go to 2

**No** >> Repair the Right Mirror Heater Element Fused B(+) circuit for an open.  
Perform BODY VERIFICATION TEST.



**2. MEASURE RIGHT MIRROR HEATER ELEMENT GROUND CIRCUIT RESISTANCE**

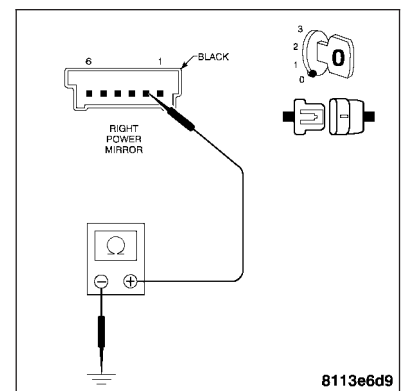
Turn the ignition off.

Measure the resistance between ground and the Right Mirror Heater Element Ground circuit.

**Is the resistance below 5.0 ohms?**

**Yes** >> Replace the Right Power Mirror. Refer to Page 8N-72.  
Perform BODY VERIFICATION TEST.

**No** >> Repair the Right Mirror Heater Element Ground circuit for an open.  
Perform BODY VERIFICATION TEST.



## BODY VERIFICATION TEST

### 1.

---

Turn the ignition off.

Disconnect all jumper wires and reconnect all previously disconnected components and connectors.

**Note: If the SKREEM or the PCM was replaced, refer to the service information for proper programming procedures.**

If the Body Control Module was replaced, turn the ignition on for 15 seconds (to allow the new BCM to learn VIN) or engine may not start.

Program all RKE transmitters and other options as necessary.

With the DRB III®, erase all Diagnostic Trouble Codes (DTCs) from ALL modules. Start the engine and allow it to run for 2 minutes. Operate all functions of the system that caused the original complaint.

Ensure that all accessories are turned off and the battery is fully charged.

Turn the ignition off and wait 5 seconds. Turn the ignition on and using the DRB III®, read DTCs from ALL modules.

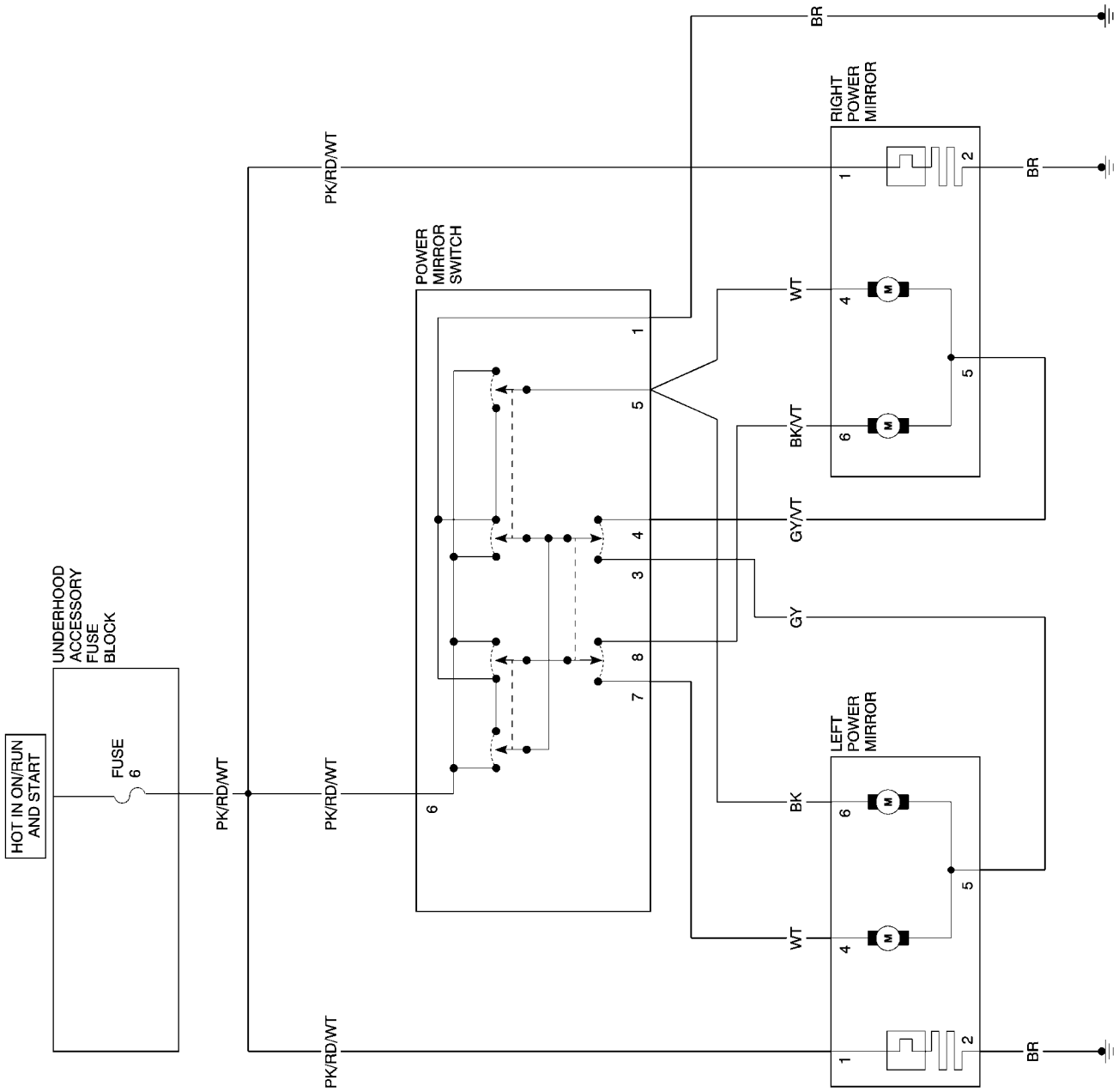
Are any DTCs present or is the original complaint still present?

#### **Are any DTCs present?**

**YES** >> Repair is not complete, refer to appropriate symptom.

**NO** >> Repair is complete.

### SCHEMATICS AND DIAGRAMS



HEATED MIRRORS CIRCUIT DIAGRAM

8115186c

# HEATED MIRRORS - SERVICE INFORMATION

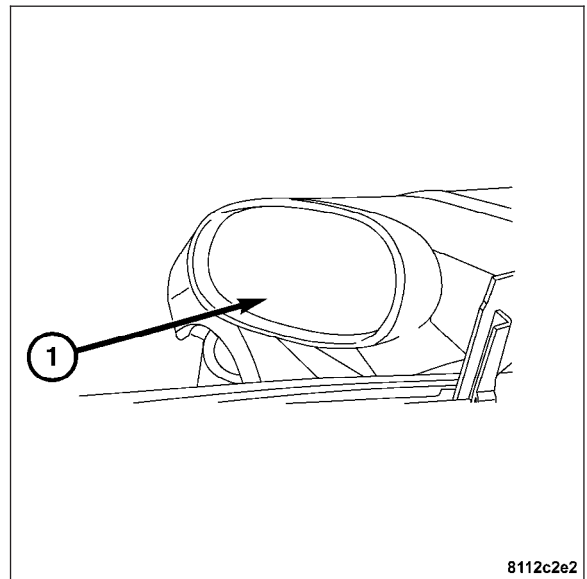
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## HEATED MIRRORS - SERVICE INFORMATION

### DESCRIPTION

The exterior mirrors are equipped with heater elements located behind the mirror glass (1) on each sideview mirror. With the ignition switch turned to the ON/RUN or START positions, the sideview mirror heater elements are powered. The heater elements behind each sideview mirror cannot be repaired. If faulty or damaged, the entire sideview mirror assembly must be replaced. For complete sideview mirror removal procedures, see sideview mirror removal in this section. Refer to Page 8N-72.



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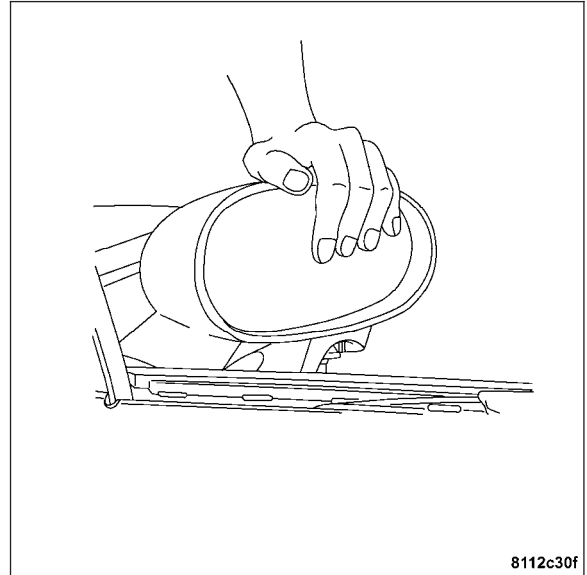
### OPERATION

The exterior mirror heater elements receive power through fuse 6 in the Underhood Accessory Fuse Block any time the ignition switch is turned to the ON/RUN or START position.

### DIAGNOSIS AND TESTING

The operation of the heated mirror system can be confirmed in the following manner:

- Turn the ignition switch to the ON/RUN position. The heated mirror operation can be checked by feeling the outside rear view mirror glass. A distinct difference in temperature between the unheated and heated mirror glass can be detected within three to four minutes of system activation.



If no difference in temperature can be detected on the side-view mirror glass surface, refer to heated mirror electrical diagnostics in this section.

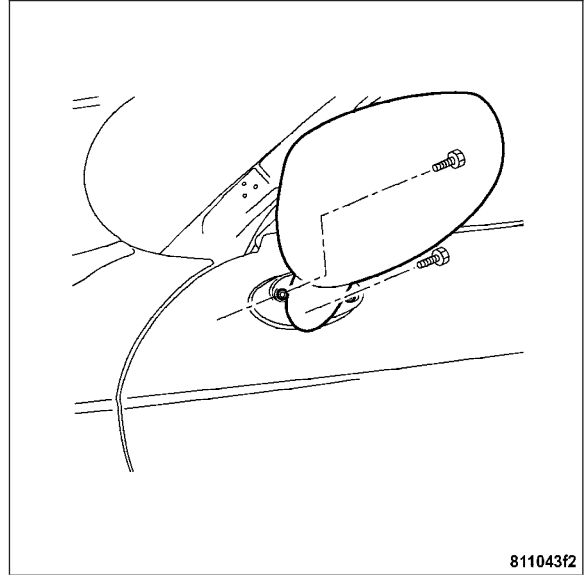
**Note:** If the interior dome lamp dims or flickers while a door is opened and the ignition switch is in the ON/RUN position, inspect the door wire harness section that flexes near the door hinge. It is possible to have an intermittent open or short circuit in the mirror heating grid B+ or ground circuits when the door is not in a stationary position.

## HEATED MIRROR GRID

### DESCRIPTION

**WARNING:** REFER TO RESTRAINTS BEFORE ATTEMPTING ANY DOOR, SEAT, STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

The heated mirror grid is attached to the back of the sideview mirror glass and cannot be adjusted or repaired. If faulty or damaged, the entire sideview mirror assembly must be replaced as a unit. For complete sideview mirror removal procedures, see sideview mirror removal. **Refer to Page 8N-72.**



# HEATED SEATS - ELECTRICAL DIAGNOSTICS

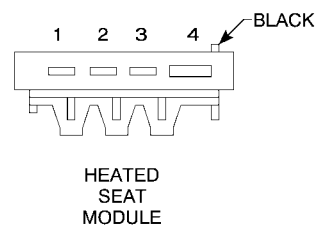
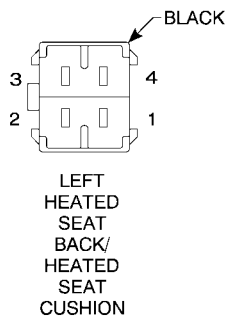
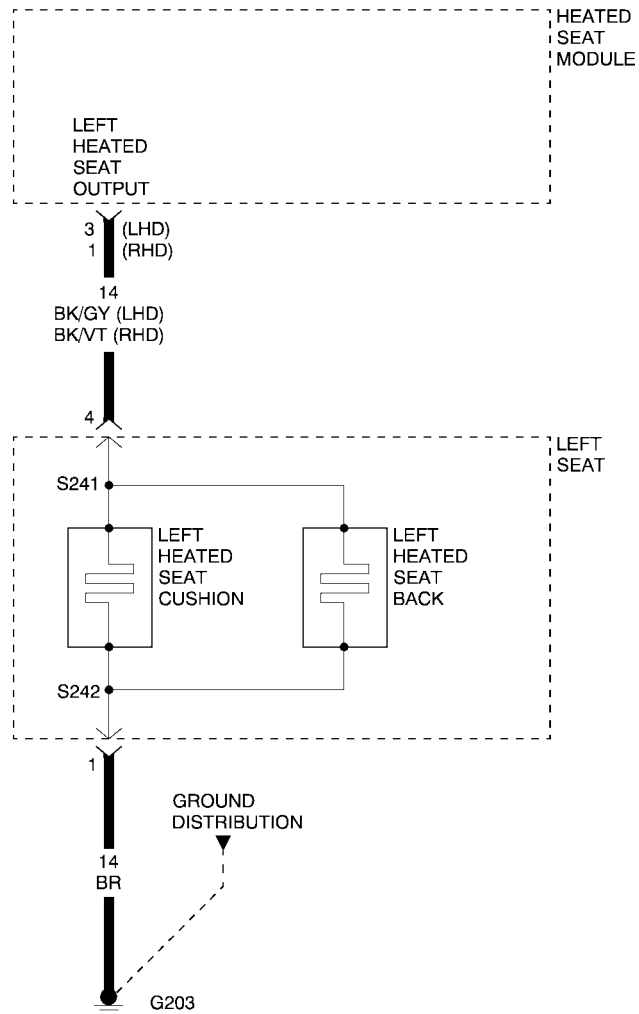
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## HEATED SEATS - ELECTRICAL DIAGNOSTICS

### DIAGNOSIS AND TESTING

**\*LEFT HEATED SEAT INOPERATIVE**



**\*LEFT HEATED SEAT INOPERATIVE — CONTINUED**

POSSIBLE CAUSES
LEFT SEAT BACK/CUSHION HEATER ELEMENT
LEFT HEATED SEAT OUTPUT CIRCUIT OPEN
LEFT HEATED SEAT GROUND CIRCUIT OPEN
HEATED SEAT MODULE

For a complete Heated Seats Circuit Diagram Refer to Page 8G-35.

**Diagnostic Test**

**1. TEST THE LEFT HEATED SEAT**

Turn the ignition off.  
 Disconnect the Heated Seat Module harness connector.

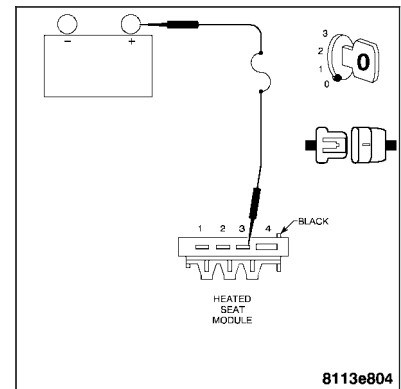
**Note: Check connector - Clean/repair as necessary.**

Connect a fused jumper wire from B(+) to cavity 3 (LHD) of the Heated Seat Module harness connector.

**With the jumper wire connected, does the Left Heated Seat warm up?**

**Yes** >> Replace the Heated Seat Module. Refer to Page 8G-41.  
 Perform BODY VERIFICATION TEST.

**No** >> Go to 2



**2. MEASURE LEFT HEATED SEAT OUTPUT CIRCUIT RESISTANCE**

Disconnect the Left Heated Seat Back/Heated Seat Cushion harness connector.

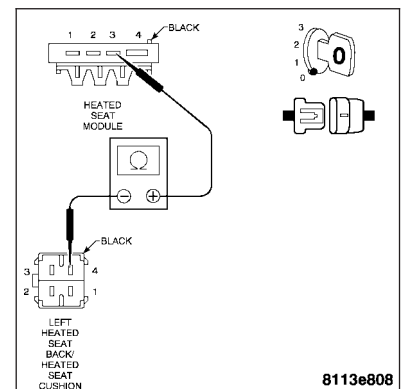
**Note: Check connector - Clean/repair as necessary.**

Measure the resistance of the Left Heated Seat Output circuit from the Heated Seat Module harness connector to the Left Heated Seat Back/Heated Seat Cushion harness connector.

**Is the resistance below 5.0 ohms?**

**Yes** >> Go to 3

**No** >> Repair the Left Heated Seat Output circuit for an open.  
 Perform BODY VERIFICATION TEST.



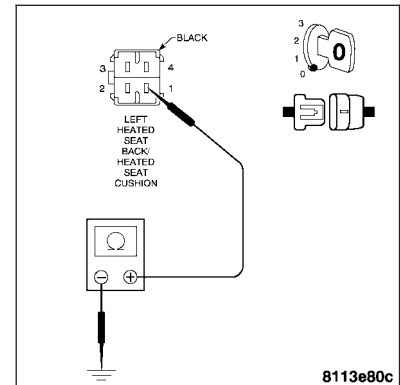
**\*LEFT HEATED SEAT INOPERATIVE — CONTINUED****3. MEASURE LEFT HEATED SEAT GROUND CIRCUIT RESISTANCE**

Measure the resistance between ground and the Left Heated Seat Ground circuit.

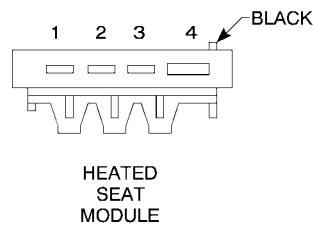
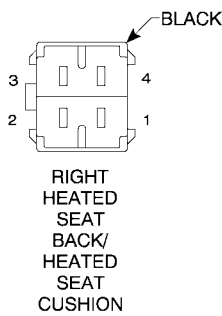
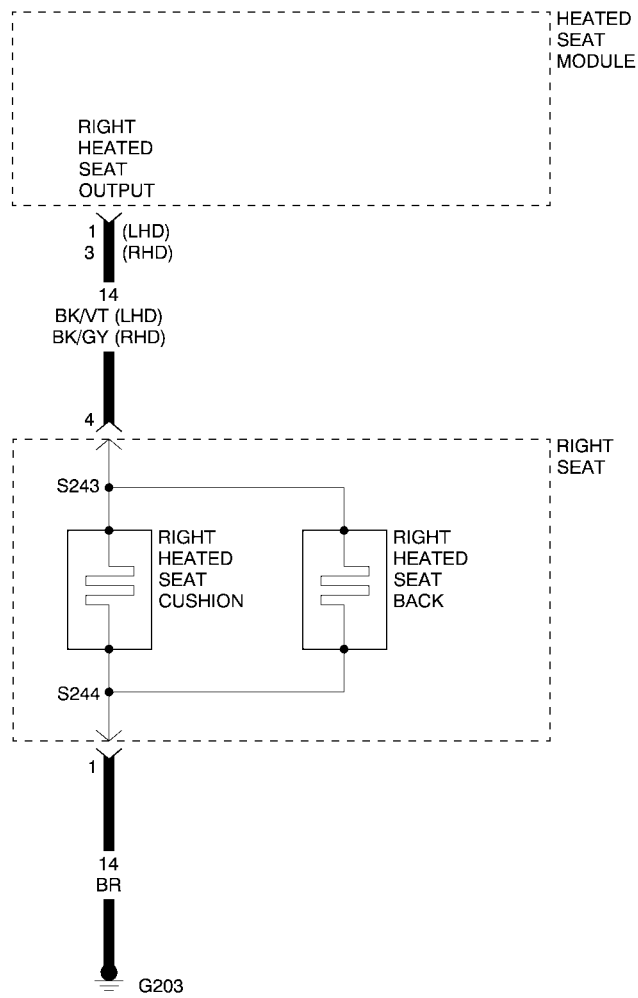
**Is the resistance below 5.0 ohms?**

**Yes** >> Replace the Left Heated Seat Back/Heated Seat Cushion Element. **Refer to Page 8G-40.**  
Perform BODY VERIFICATION TEST.

**No** >> Repair the Left Heated Seat Ground circuit for an open.  
Perform BODY VERIFICATION TEST.



**\*RIGHT HEATED SEAT INOPERATIVE**



**\*RIGHT HEATED SEAT INOPERATIVE — CONTINUED****POSSIBLE CAUSES**

RIGHT SEAT BACK/CUSHION HEATER ELEMENT  
 RIGHT HEATED SEAT OUTPUT CIRCUIT OPEN  
 RIGHT HEATED SEAT GROUND CIRCUIT OPEN  
 HEATED SEAT MODULE

For a complete Heated Seats Circuit Diagram **Refer to Page 8G-35.**

**Diagnostic Test****1. TEST THE RIGHT HEATED SEAT**

Turn the ignition off.

Disconnect the Heated Seat Module harness connector.

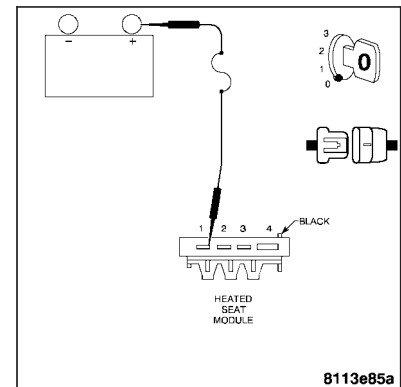
**Note: Check connector - Clean/repair as necessary.**

Connect a fused jumper wire from B(+) to cavity 1 (LHD) of the Heated Seat Module harness connector.

**With the jumper wire connected, does the Right Heated Seat warm up?**

**Yes** >> Replace the Heated Seat Module. **Refer to Page 8G-41.**  
 Perform BODY VERIFICATION TEST.

**No** >> Go to 2

**2. MEASURE RIGHT HEATED SEAT OUTPUT CIRCUIT RESISTANCE**

Disconnect the Right Heated Seat Back/Heated Seat Cushion harness connector.

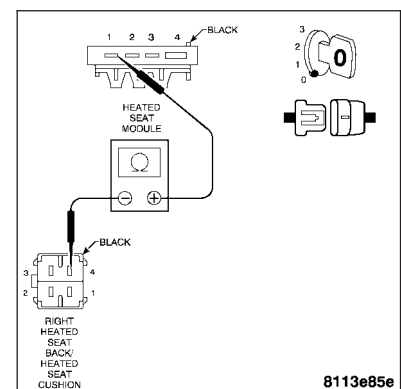
**Note: Check connector - Clean/repair as necessary.**

Measure the resistance of the Right Heated Seat Output circuit between the Heated Seat Module harness connector and the Right Heated Seat Back/Heated Seat Cushion harness connector.

**Is the resistance below 5.0 ohms?**

**Yes** >> Go to 3

**No** >> Repair the Right Heated Seat Output circuit for an open.  
 Perform BODY VERIFICATION TEST.



**\*RIGHT HEATED SEAT INOPERATIVE — CONTINUED**

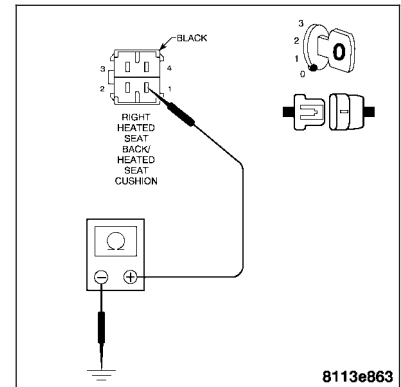
**3. MEASURE RIGHT HEATED SEAT GROUND CIRCUIT RESISTANCE**

Measure the resistance between ground and the Right Heated Seat Ground circuit.

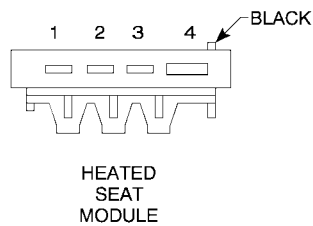
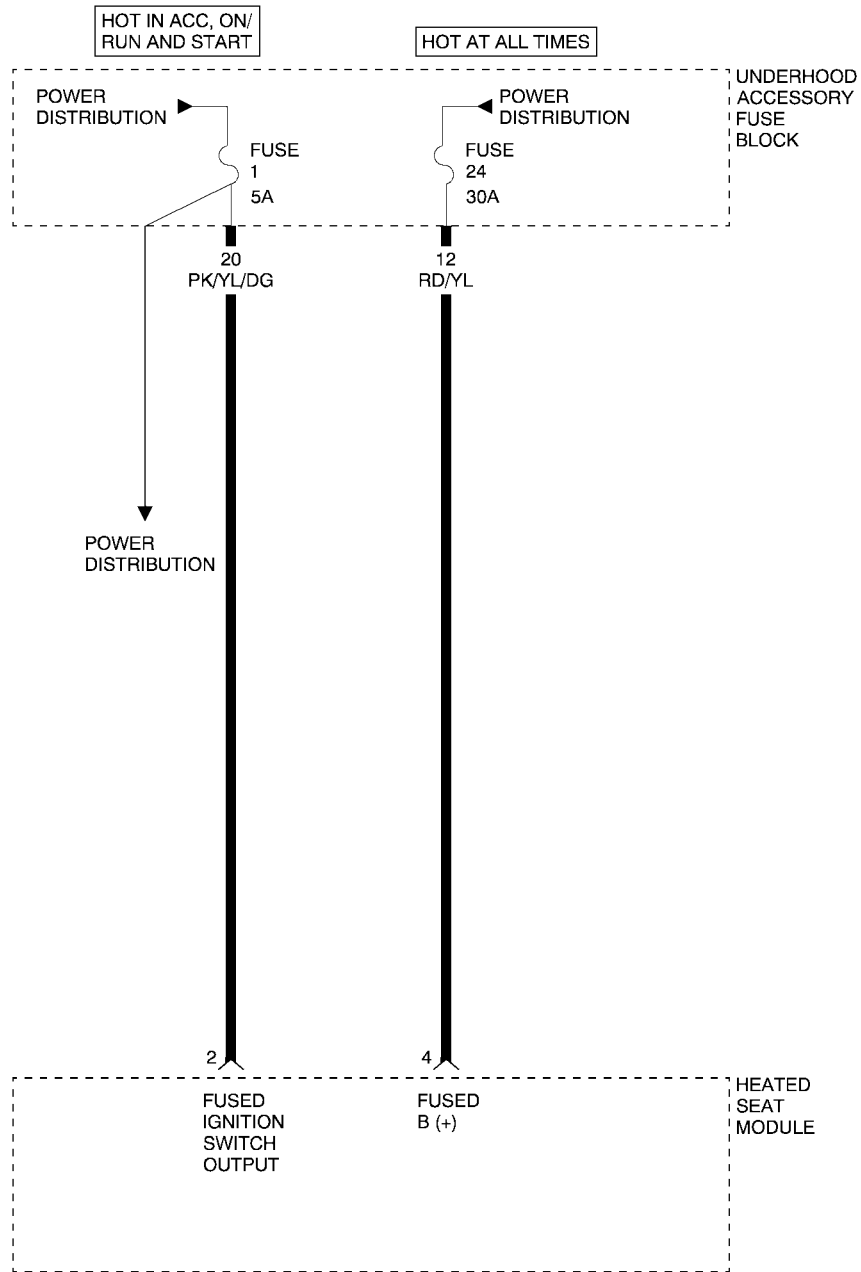
**Is the resistance below 5.0 ohms?**

**Yes** >> Replace the Right Heated Seat Back/Heated Seat Cushion Element. **Refer to Page 8G-40.**  
Perform BODY VERIFICATION TEST.

**No** >> Repair the Right Heated Seat Ground circuit for an open.  
Perform BODY VERIFICATION TEST.



**\*BOTH HEATED SEATS INOPERATIVE**



**\*BOTH HEATED SEATS INOPERATIVE — CONTINUED**

POSSIBLE CAUSES
FUSED B(+) CIRCUIT OPEN
FUSED IGNITION SWITCH OUTPUT CIRCUIT OPEN
HEATED SEAT MODULE

For a complete Heated Seats Circuit Diagram Refer to Page 8G-35.

**Diagnostic Test**

**1. MEASURE HEATED SEAT MODULE FUSED B(+) CIRCUIT VOLTAGE**

**Note:** Inspect Fuse 1 and Fuse 24 located in the Underhood Accessory Fuse Block. If either fuse is open, repair the cause of the open fuse before continuing.

Turn the ignition off.

Disconnect the Heated Seat Module harness connector.

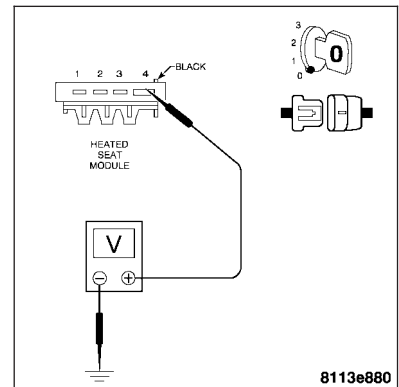
**Note:** Check connector - Clean/repair as necessary.

Measure the voltage of the Fused B(+) circuit at the Heated Seat Module harness connector.

**Is the voltage above 10 volts?**

**Yes** >> Go to 2

**No** >> Repair the Heated Seat Module Fused B(+) circuit for an open.  
Perform BODY VERIFICATION TEST.



**2. MEASURE HEATED SEAT MODULE FUSED IGNITION SWITCH OUTPUT CIRCUIT VOLTAGE**

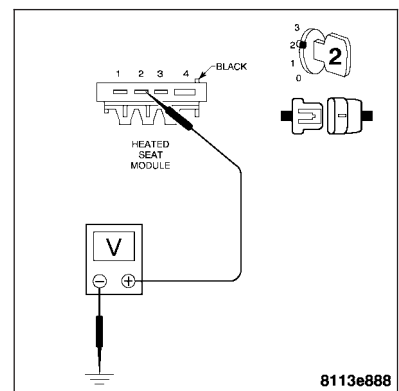
Turn the ignition on.

Measure the voltage of the Fused Ignition Switch Output circuit at the Heated Seat Module harness connector.

**Is the voltage above 10 volts?**

**Yes** >> Replace the Heated Seat Module. Refer to Page 8G-41.  
Perform BODY VERIFICATION TEST.

**No** >> Repair the Heated Seat Module Fused Ignition Switch Output circuit for an open.  
Perform BODY VERIFICATION TEST.



## BODY VERIFICATION TEST

### 1.

---

Turn the ignition off.

Disconnect all jumper wires and reconnect all previously disconnected components and connectors.

**Note: If the SKREEM or the PCM was replaced, refer to the service information for proper programming procedures.**

If the Body Control Module was replaced, turn the ignition on for 15 seconds (to allow the new BCM to learn VIN) or engine may not start.

Program all RKE transmitters and other options as necessary.

With the DRB III®, erase all Diagnostic Trouble Codes (DTCs) from ALL modules. Start the engine and allow it to run for 2 minutes. Operate all functions of the system that caused the original complaint.

Ensure that all accessories are turned off and the battery is fully charged.

Turn the ignition off and wait 5 seconds. Turn the ignition on and using the DRB III®, read DTCs from ALL modules.

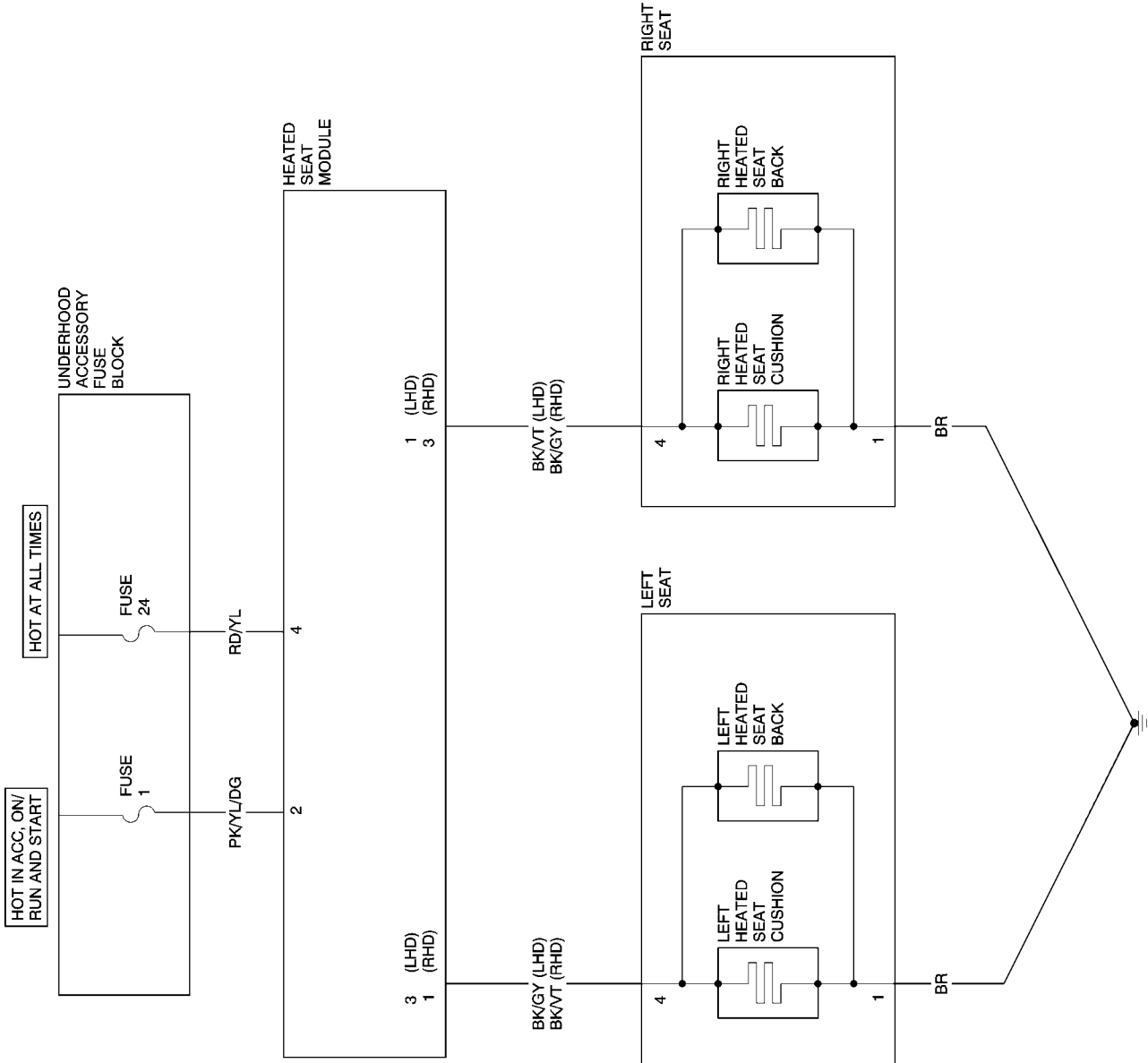
Are any DTCs present or is the original complaint still present?

#### **Are any DTCs present?**

**YES** >> Repair is not complete, refer to appropriate symptom.

**NO** >> Repair is complete.

# SCHEMATICS AND DIAGRAMS



**HEATED SEATS CIRCUIT DIAGRAM**

# HEATED SEATS - SERVICE INFORMATION

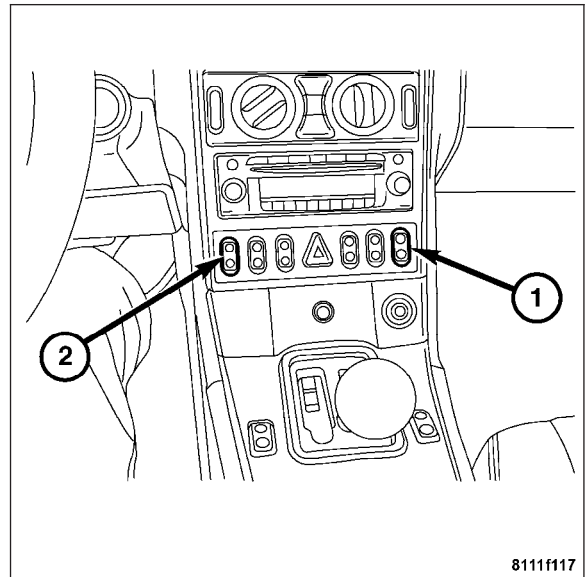
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DESCRIPTION .....	39		
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## HEATED SEATS - SERVICE INFORMATION

### DESCRIPTION

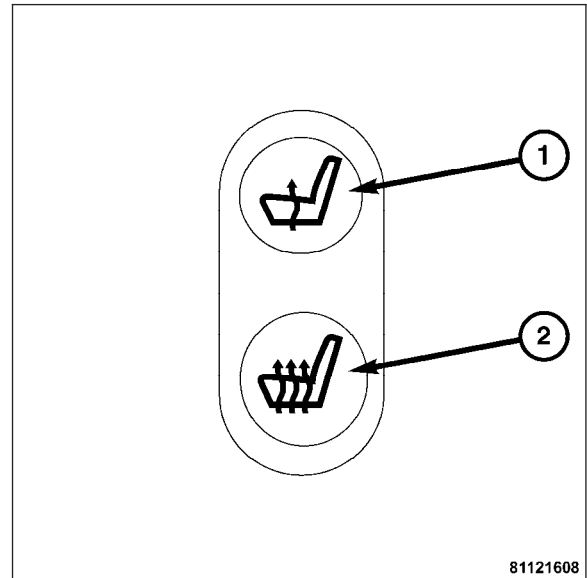
Electrically heated seats are standard equipment on this model. Each seat has a separate control switch (1 and 2) located in the center console and individual heating elements, one set within the seat cushion, and the other within the seat back. The heated seat system features two heating stages. Stage one is for normal heating operation and stage two is for quick heat-up. Each control switch (1 and 2) contains LED lights that indicate the heating stage the switch is in.



### OPERATION

The heated seat system will operate only when the ignition switch is in the ACC or ON/RUN position. The heated seat module receives switched power through fuse 1 and non-switched power through fuse 24 in the Underhood Accessory Fuse Block. Individual illuminated heated seat switches control each seat and are designed as toggle switches that return automatically to their original position after being pressed. The switches and control module for the heated seats are consolidated into a block with other switches to form a switch group. Switch illumination is provided through instrumentation lighting. The heated seat control module controls the differing electrical power consumption requirements of the heated seats in each heating stage and heating time.

The heated seats are switched from heating stage two to heating stage one automatically after 5 minutes and completely switched off after approximately 30 minutes of continuous operation. Heating stage one (1) is indicated by a single LED being illuminated within the switch and heating stage two (2) is indicated by two LEDs being illuminated. If the battery voltage drops below 11 volts, the heated seats are deactivated automatically and are prevented from being activated again until sufficient battery voltage is available. This state is indicated by a flashing LED in the heated seat switch. The heated seat elements are bonded to either the seat cushions or seat covers and are serviced only with their respective assemblies.



## DIAGNOSIS AND TESTING

Before testing the individual components of the heated seat system, ensure the battery is fully charged, then check the following:

- If the heated seat switch LED indicators do not illuminate with the ignition switch in the ACC or ON/RUN position and the switch pressed, check fuse 1 and fuse 24 in the Underhood Accessory Fuse Block. If OK, see heated seat electrical diagnostics in this section. **Refer to Page 8G-35.** If not OK, repair the shorted circuit or component as required and replace the fuse.
- If the heated seat switch LED indicators illuminate but the heating elements do not heat, inspect the heated seat system harness connections for looseness or corrosion. Clean and tighten all the connections to ensure proper circuit continuity and ground paths as necessary, then retest the system. For complete heated seat diagnosis, see heated seat diagnostics in this section. **Refer to Page 8G-35.**

**Note:** The heated seat system utilizes a unique low voltage cut-off feature. This feature deactivates the power seat system anytime the available system voltage is below 11 volts. Be certain to check the vehicle electrical system for proper operation anytime the heated seat system appears inoperable.

## HEATED SEAT SWITCH

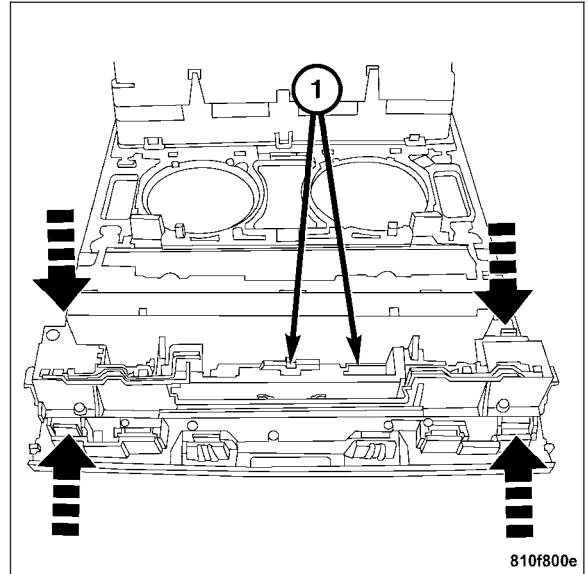
### REMOVAL

**WARNING:** REFER TO RESTRAINTS BEFORE ATTEMPTING ANY DOOR, SEAT, STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

**Note:** The heated seat switches and heated seat control module are integral and serviced together.

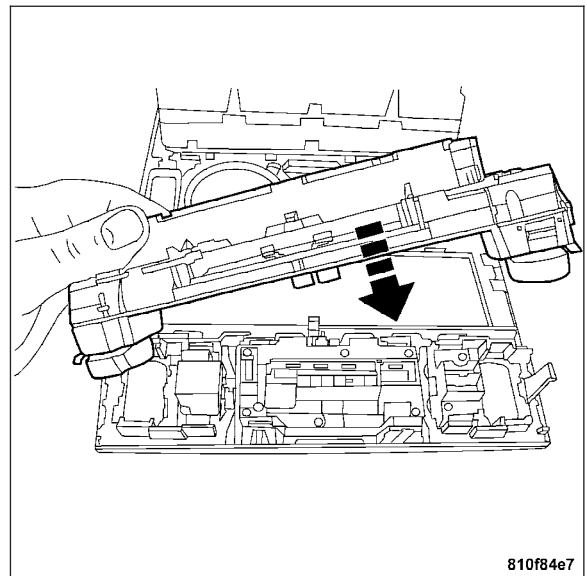
1. Disconnect the negative battery cable.

2. Remove the center console interior trim panel. **Refer to Page 23-173.**
3. Disconnect the heated seat switch harness connectors (1).
4. Press the locking tabs inward and remove the heated seat switches from the interior trim panel.



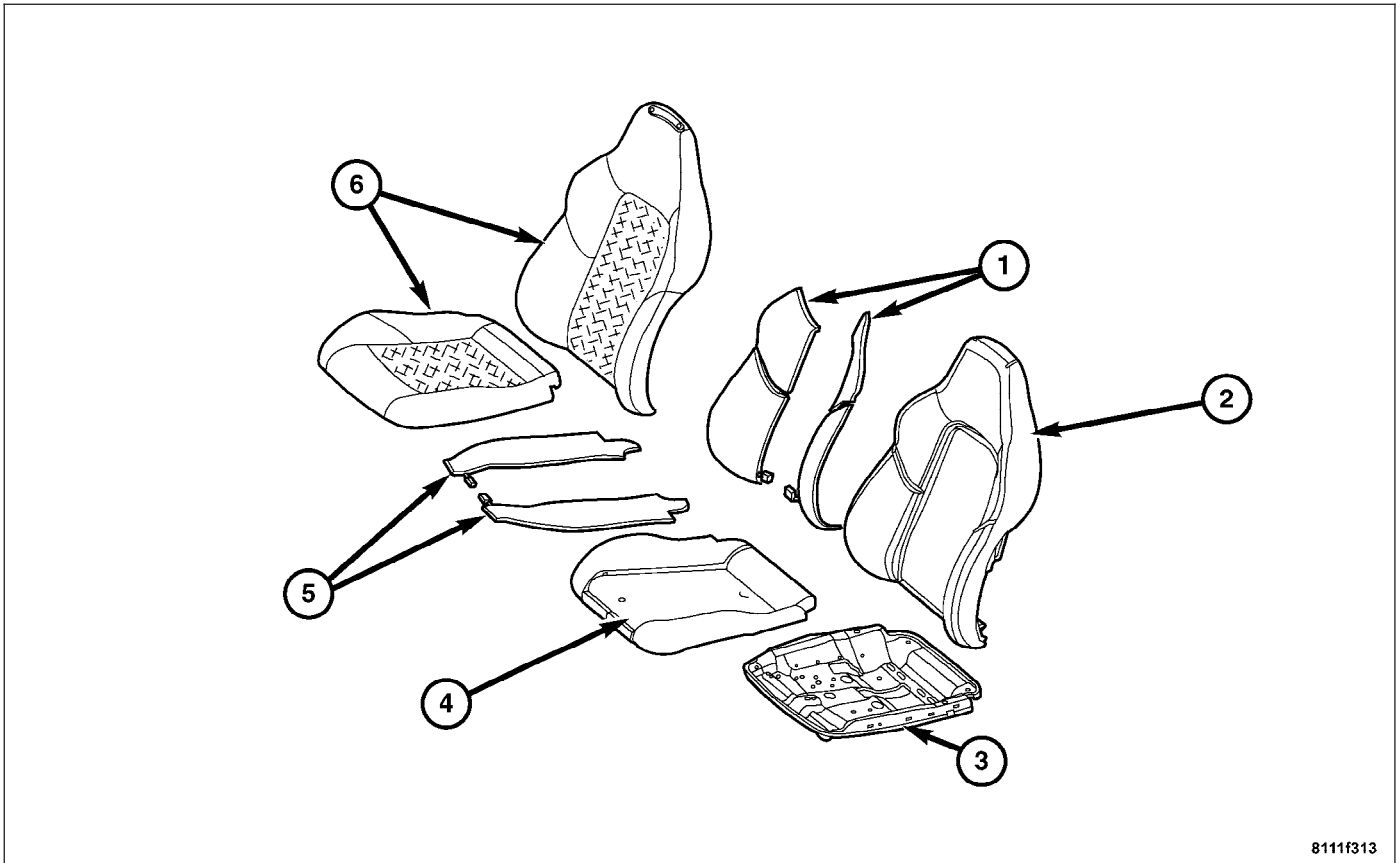
## INSTALLATION

1. Align the heated seat switch with the center console interior trim panel and press together until the locking tabs engage fully.
2. Connect the heated seat switch harness connectors.
3. Install the center console interior trim panel. **Refer to Page 23-183.**
4. Connect the negative battery cable.



## HEATED SEAT ELEMENT

### DESCRIPTION



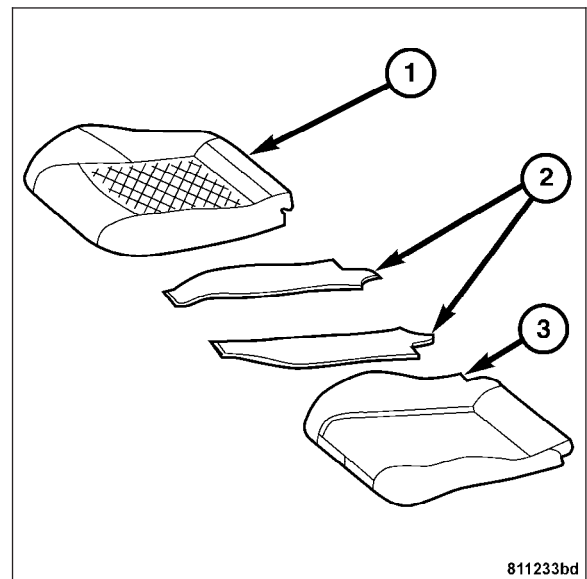
The heated seat elements (1 and 5) are an integrated part of the seat cushion (4) or seat back cushion (2). The heated seat elements are only serviced with the cushion assemblies. The seat covers (6) are serviced separately and are attached to the seat frame (3).

## REMOVAL

### HEATED SEAT CUSHION ELEMENT

**Note:** Disconnect the negative battery cable before removing the seat or attempting seat electrical repair.

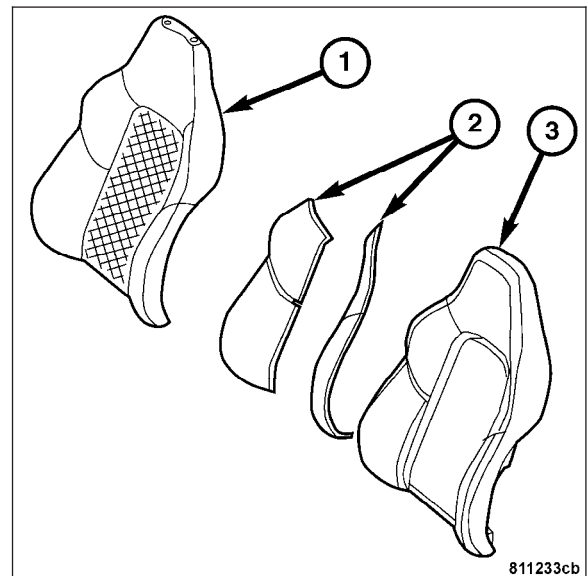
The heated seat cushion element (2) is part of the seat cushion assembly (3). To access the element, the seat must be removed and the seat cover (1) disassembled. For complete seat cushion removal procedures, see seat cushion removal in the body section. **Refer to Page 23-211.**



### REMOVAL - HEATED SEAT BACK ELEMENT

**Note:** Disconnect the negative battery cable before removing the seat or attempting seat electrical repair.

The heated seat back element (2) is part of the seat back assembly (3). To access the element the seat must be removed and the seat cover (1) disassembled. For complete seat back removal procedures, see seat back removal in the body section. **Refer to Page 23-204.**



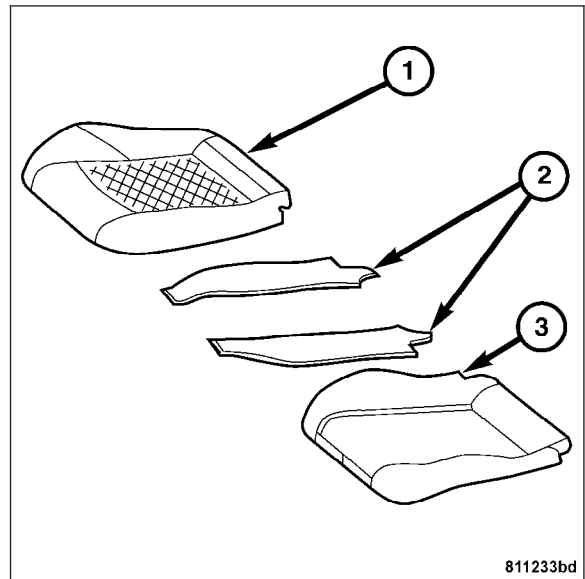
## INSTALLATION

### HEATED SEAT CUSHION ELEMENT

The heated seat cushion element (2) is an integral part of the seat cushion (3). For complete seat cushion installation procedures, see seat cushion installation in the body section. Refer to Page 23-213.

### INSTALLATION - HEATED SEAT BACK ELEMENT

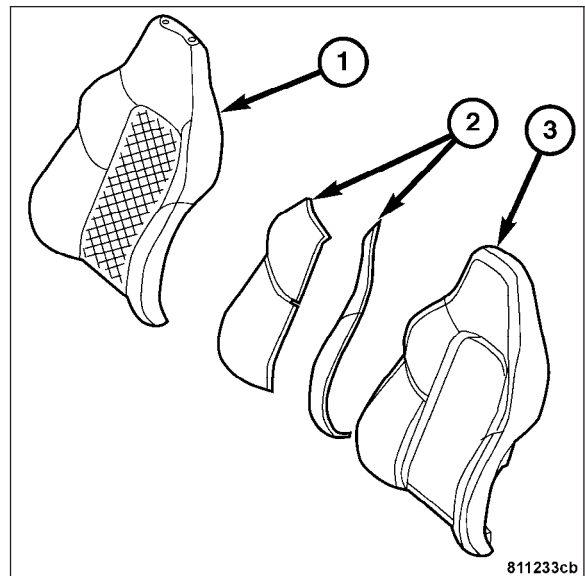
The heated seat back element (2) is an integral part of the seat back cushion (3). For complete seat back installation procedures, see seat back installation in the body section. Refer to Page 23-205.



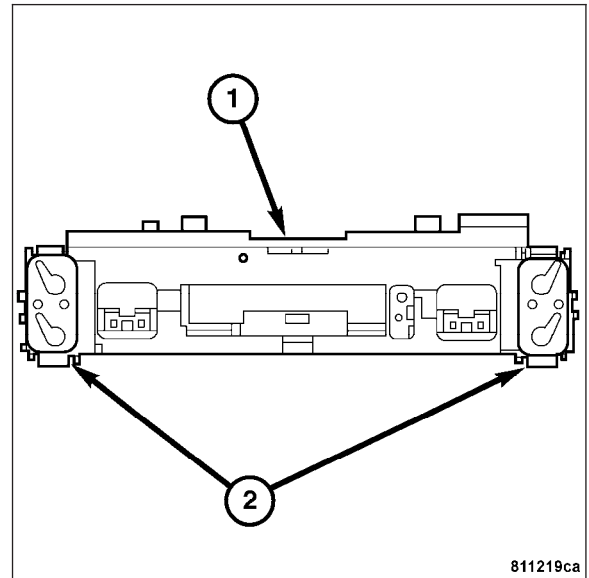
### HEATED SEAT MODULE

#### REMOVAL

**WARNING: REFER TO RESTRAINTS BEFORE ATTEMPTING ANY DOOR, SEAT, STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.**



The heated seat control module (1) is integrated within the heated seat switch (2) assembly. For complete heated seat control module removal procedures, see heated seat switch removal in this section. **Refer to Page 8G-37.**



## INSTALLATION

The heated seat control module is integrated within the heated seat switch assembly. For complete heated seat control module installation procedures, see heated seat switch installation in this section. **Refer to Page 8G-38.**

