

POWER SYSTEMS

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POWER LOCKS - ELECTRICAL DIAGNOSTICS

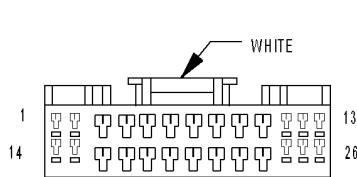
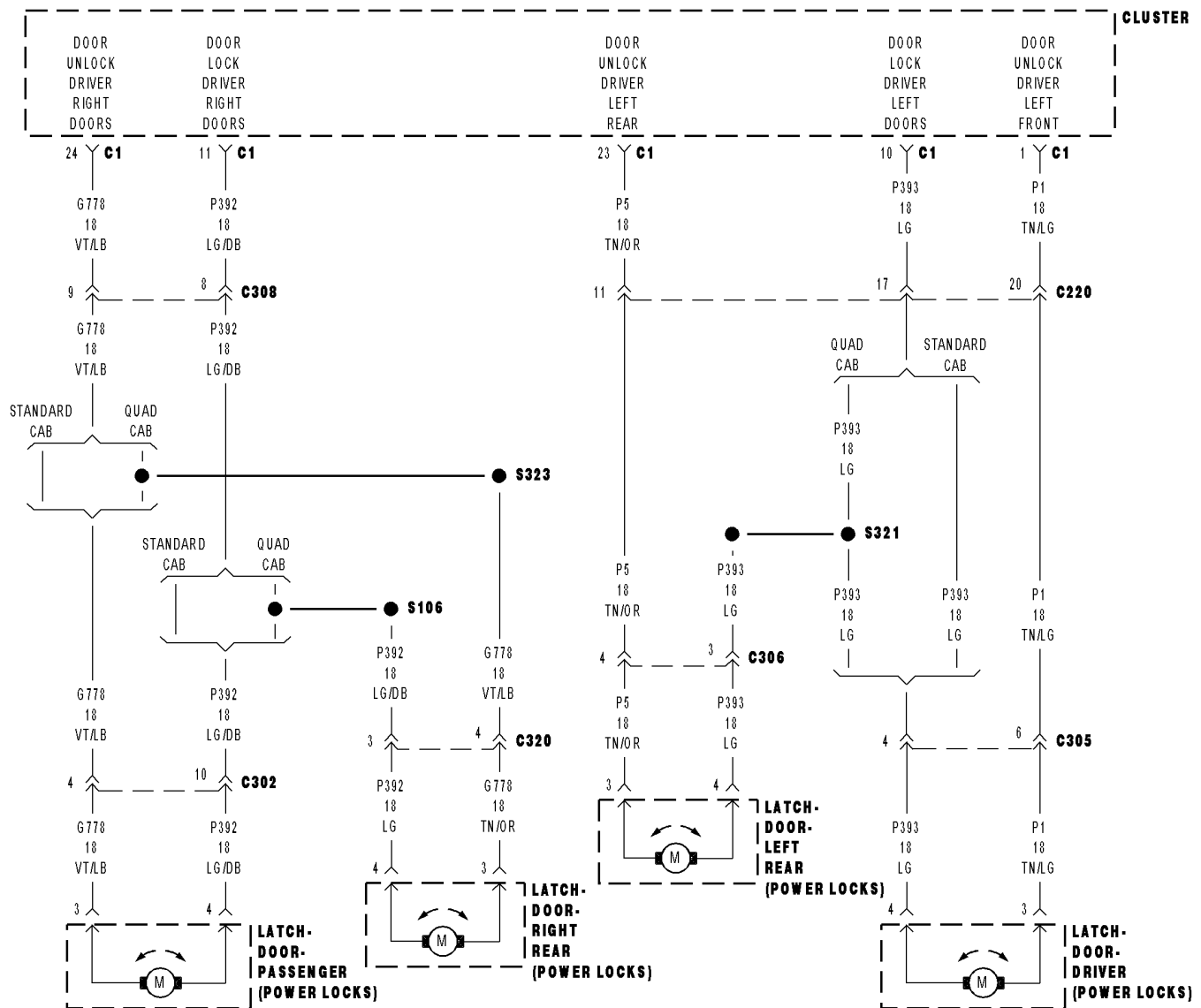
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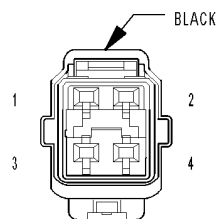
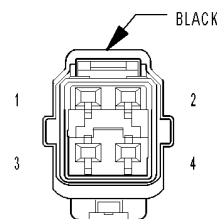
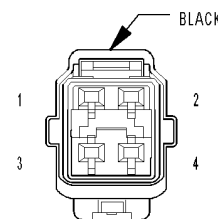
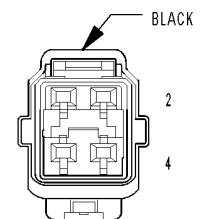
POWER LOCKS - ELECTRICAL DIAGNOSTICS

DIAGNOSIS AND TESTING

ALL DOOR LOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE



CLUSTER C1

LATCH-DOOR-DRIVER
(POWER LOCKS)LATCH-DOOR-LEFT REAR
(POWER LOCKS)LATCH-DOOR-PASSENGER
(POWER LOCKS)LATCH-DOOR-RIGHT REAR
(POWER LOCKS)

ALL DOOR LOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE (CONTINUED)

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS).

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**

Whenever the instrument cluster is awake.

- **Set Condition:**

The instrument cluster monitors the door lock output circuits and when one of them is shorted to ground or to voltage, this code will set. This code will only set when the door locks are actuated.

Possible Causes
(P392) DOOR LOCK DRIVER RIGHT DOORS SHORTED TO (G778) DOOR UNLOCK DRIVER RIGHT DOORS
(P393) DOOR LOCK DRIVER LEFT DOORS SHORTED TO (P5) DOOR UNLOCK DRIVER LEFT REAR
(P393) DOOR LOCK DRIVER LEFT DOORS SHORT TO GROUND
(P392) DOOR LOCK DRIVER RIGHT DOORS SHORT TO GROUND
(P392) DOOR LOCK DRIVER RIGHT DOORS SHORT TO VOLTAGE
(P393) DOOR LOCK DRIVER LEFT DOORS SHORT TO VOLTAGE
DOOR LATCH
INSTRUMENT CLUSTER

Diagnostic Test**1. DTC PRESENT**

Turn the ignition on.

With the DRBIII®, record and erase DTC's.

With the DRBIII®, read DTC's.

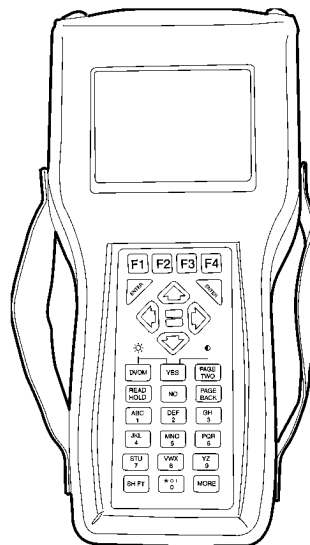
Operate the door locks several times from a door lock switch while monitoring the DRBIII®.

Does the DRBIII® display ALL DOOR LOCK OUTPUT SHORT TO GROUND OR VOLTAGE?

Yes >> Go To 2

No >> Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Check for any possible shorted conditions between the instrument cluster and the door lock motors.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



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ALL DOOR LOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE (CONTINUED)

2. (P392) DOOR LOCK DRIVER RIGHT DOORS SHORTED TO (G778) DOOR UNLOCK DRIVER RIGHT DOORS

NOTE: If only one door motor is inoperative when the door locks are actuated, disconnect that door latch connector and retest to see if the DTC is still active. If it is not, replace that door latch. Turn the ignition off.

Disconnect the Instrument Cluster C1 connector.

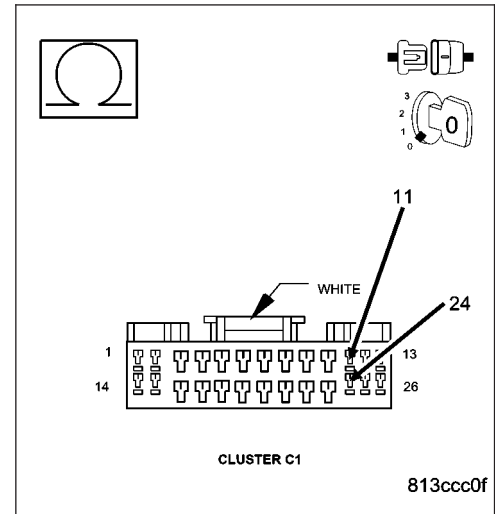
Measure the resistance between the (P392) Door Lock Driver Right Doors circuit and the (G778) Door Unlock Driver Right Doors circuit in the Instrument Cluster connector.

Is the resistance below 1.6 ohms?

Yes >> Repair the (P392) Door Lock Driver Right Doors circuit for a short to the (G778) Door Unlock Driver Right Doors circuit (could be a shorted motor).

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 3



3. (P393) DOOR LOCK DRIVER LEFT DOORS SHORTED TO THE (P5) DOOR UNLOCK DRIVER LEFT REAR

NOTE: If this is a 2 door vehicle, answer NO to the question and continue.

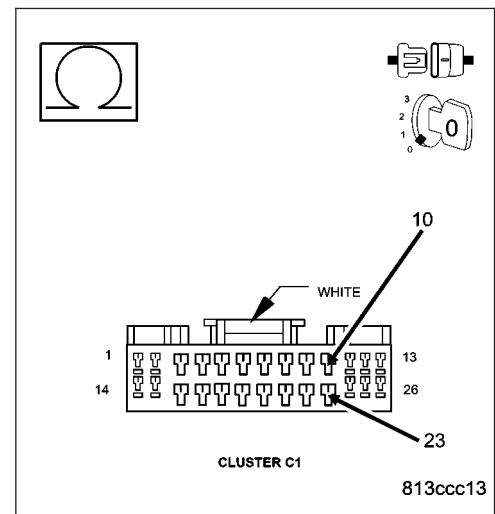
Measure the resistance between the (P393) Door Lock Driver Left Doors circuit and the (P5) Door Unlock Driver Left Rear circuit in the Instrument Cluster connector.

Is the resistance below 2.5 ohms?

Yes >> Repair the (P393) Door Lock Driver Left Doors circuit for a short to the (P5) Door Unlock Driver Left Rear circuit (could be a shorted motor).

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 4



ALL DOOR LOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE (CONTINUED)**4. (P393) DOOR LOCK DRIVER LEFT DOORS SHORT TO GROUND**

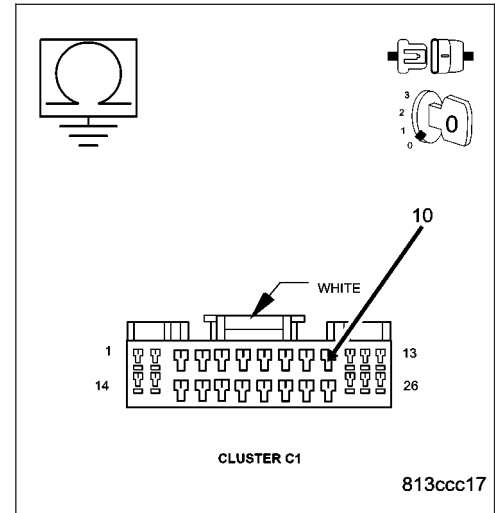
Measure the resistance between ground and the (P393) Door Lock Driver Left Doors circuit in the Instrument Cluster C1 connector.

Is the resistance below 1000.0 ohms?

Yes >> Repair the (P393) Door Lock Driver Left Doors circuit for a short to ground. The short may be in the (P393) Door Lock Driver Left Doors wire, the (P5) Door Unlock Driver Left Rear Wire, instrument panel wiring or one of the left side motors.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 5

**5. (P392) DOOR LOCK DRIVER RIGHT DOORS SHORT TO GROUND**

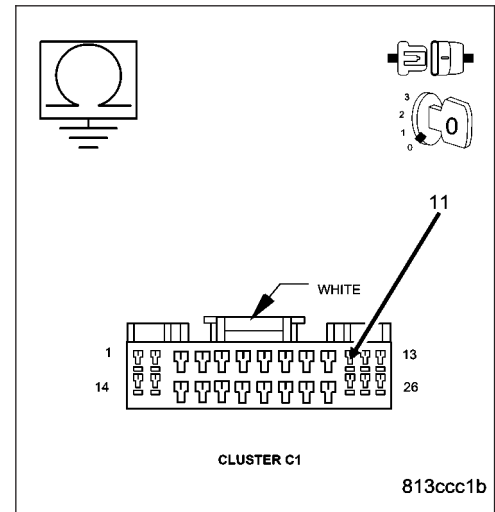
Measure the resistance between ground and the (P392) Door Lock Driver Right Doors circuit in the Instrument Cluster C1 connector.

Is the resistance below 1000.0 ohms?

Yes >> Repair the (P392) Door Lock Driver Right Doors circuit for a short to ground. The short may be in the (P392) Door Lock Driver Right Doors wire, the (G778) Door Unlock Driver Right Doors wire or in a right side motor.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 6



ALL DOOR LOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE (CONTINUED)**6. (P392) DOOR LOCK DRIVER RIGHT DOORS SHORT TO VOLTAGE**

Turn the ignition on.

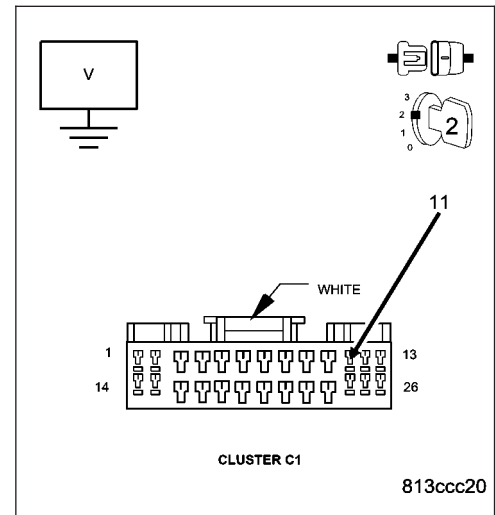
Measure the voltage between ground and the (P392) Door Lock Driver Right Doors circuit.

Is there any voltage present?

Yes >> Repair the (P392) Door Lock or (G778) Unlock Driver Right Doors circuit for a short to voltage.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 7

**7. (P393) DOOR LOCK DRIVER LEFT DOORS SHORT TO VOLTAGE**

Measure the voltage between ground and the (P393) Door Lock Driver Left Doors circuit.

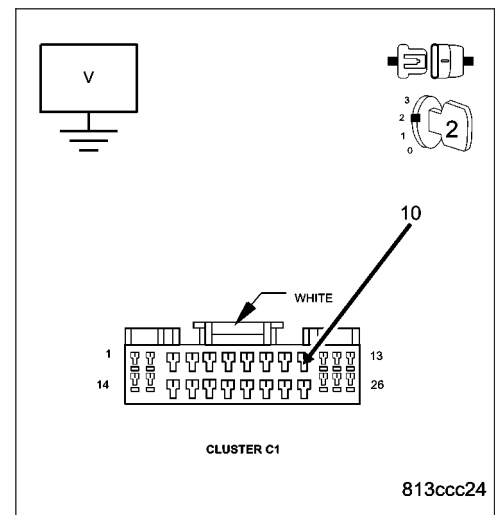
Is there any voltage present?

Yes >> Repair the (P393) Door Lock or (P5) Door Unlock Driver Left Rear or (P1) Door Unlock Driver Left Front circuit for a short to voltage.

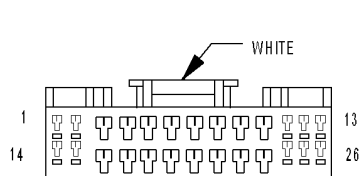
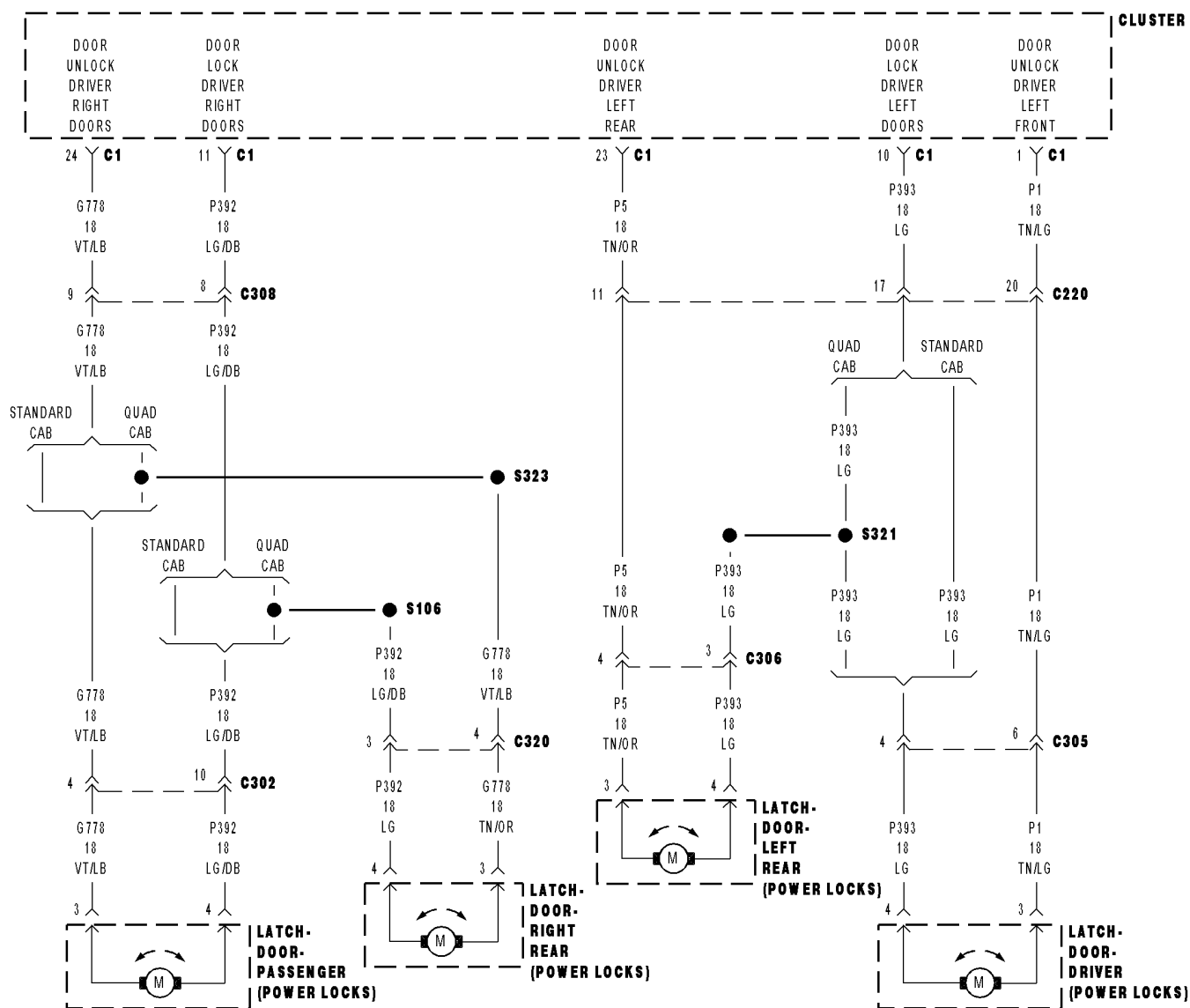
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the Instrument Cluster.

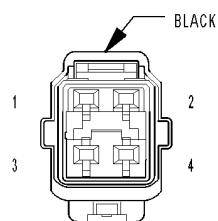
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



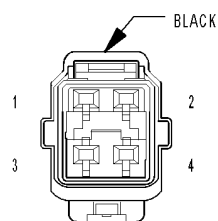
ALL DOOR UNLOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE



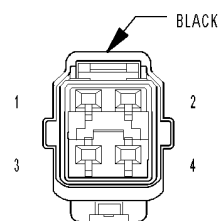
CLUSTER C1



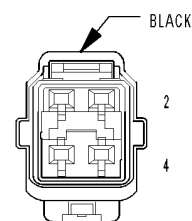
LATCH-DOOR-DRIVER (POWER LOCKS)



LATCH-DOOR-LEFT REAR (POWER LOCKS)



LATCH-DOOR-PASSENGER (POWER LOCKS)



**LATCH-DOOR-
RIGHT REAR
(POWER LOCKS)**

ALL DOOR UNLOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE (CONTINUED)

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS).

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**

Whenever the instrument cluster is awake.

- **Set Condition:**

The instrument cluster monitors the door unlock output circuits and when one of them is shorted to ground or to voltage, this code will set. This code will only set when the door locks are actuated.

Possible Causes
(P392) DOOR LOCK DRIVER RIGHT DOORS SHORTED TO (G778) DOOR UNLOCK DRIVER RIGHT DOORS (P393) DOOR LOCK DRIVER LEFT DOORS SHORTED TO (P5) DOOR UNLOCK DRIVER LEFT REAR DOOR UNLOCK DRIVER RIGHT DOORS CIRCUIT SHORT TO GROUND DOOR UNLOCK DRIVER LEFT REAR CIRCUIT SHORT TO GROUND DOOR UNLOCK DRIVER RIGHT DOORS SHORT TO VOLTAGE DOOR UNLOCK DRIVER LEFT REAR SHORT TO VOLTAGE DOOR LATCH INSTRUMENT CLUSTER

Diagnostic Test**1. DTC PRESENT**

Turn the ignition on.

With the DRBIII®, record and erase DTC's.

With the DRBIII®, read DTC's.

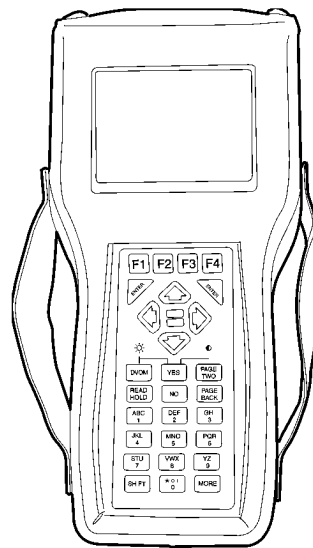
Operate the door locks several times from a door lock switch while monitoring the DRBIII®.

Does the DRBIII® display ALL DOOR UNLOCK OUTPUT SHORT TO GROUND OR VOLTAGE?

Yes >> Go To 2

No >> Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Check for any possible shorted conditions between the instrument cluster and the door lock motors.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/Front CONTROL MODULE - DIAGNOSIS AND TESTING)



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ALL DOOR UNLOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE (CONTINUED)**2. (P392) DOOR LOCK DRIVER RIGHT DOORS SHORTED TO (G778) DOOR UNLOCK DRIVER RIGHT DOORS**

NOTE: If only one motor is inoperative when the door locks are actuated, disconnect that door latch connector and retest to see if the DTC is still present. If it is not, replace that door latch.

Turn the ignition off.

Disconnect the Instrument Cluster C1 connector.

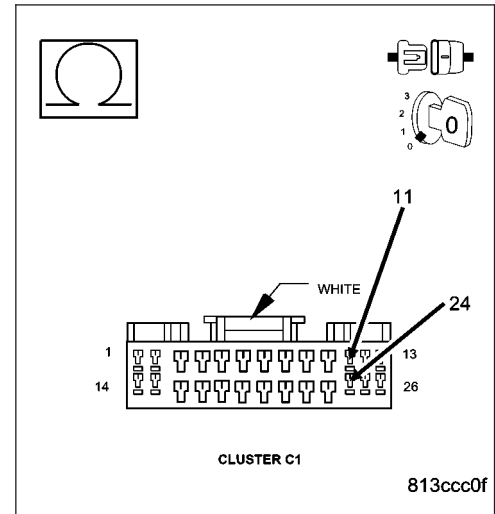
Measure the resistance between the (P392) Door Lock Driver Right Doors circuit and the (G778) Door Unlock Driver Right Doors circuit in the Instrument Cluster connector.

Is the resistance below 1.6 ohms?

Yes >> Repair the (P392) Door Lock Driver Right Doors circuit for a short to the (G778) Door Unlock Driver Right Doors circuit (could be a shorted motor).

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 3

**3. (P393) DOOR LOCK DRIVER LEFT DOORS SHORTED TO (P5) DOOR UNLOCK DRIVER LEFT REAR**

NOTE: If this is a 2 door vehicle, answer NO to the question and continue.

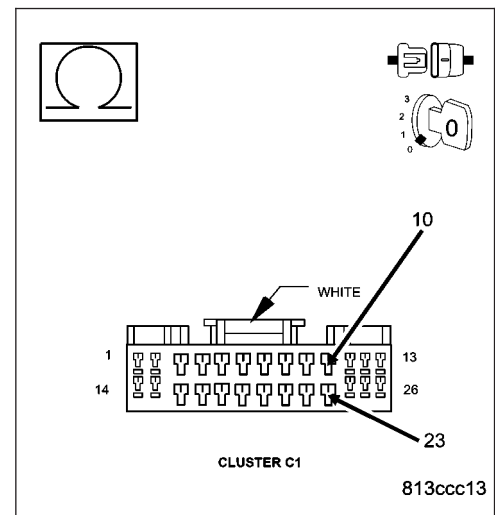
Measure the resistance between the (P393) Door Lock Driver Left Doors circuit and the (P5) Door Unlock Driver Left Rear circuit in the Instrument Cluster connector.

Is the resistance below 2.5 ohms?

Yes >> Repair the (P393) Door Lock Driver Left Doors circuit for a short to the (P5) Door Unlock Driver Left Rear or the (P1) Door Unlock Driver Left Front circuit (could be a shorted motor).

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 4



ALL DOOR UNLOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE (CONTINUED)**4. (G778) DOOR UNLOCK DRIVER RIGHT DOORS CIRCUIT SHORT TO GROUND**

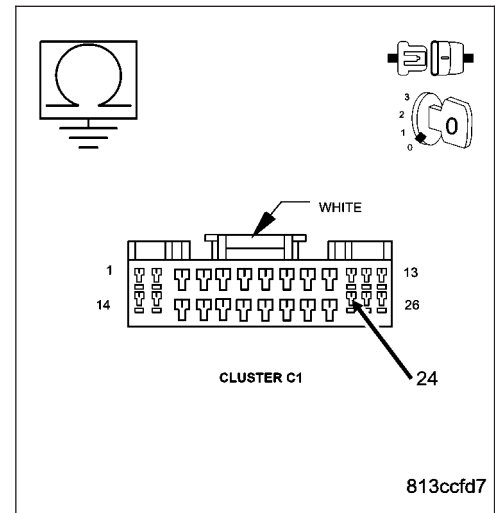
Measure the resistance between ground and the (G778) Door Unlock Driver Right Doors circuit in the Instrument Cluster C1 connector.

Is the resistance below 1000.0 ohms?

Yes >> Repair the (G778) Door Unlock Driver Right Doors circuit for a short to ground. The short may be in the (G778) Door Unlock Driver Right Doors wire, the (P392) Door Lock Driver Right Doors wire or a right side door lock motor.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 5

**5. (P5) DOOR UNLOCK DRIVER LEFT REAR CIRCUIT SHORT TO GROUND**

NOTE: If this is a 2 door vehicle, answer NO to the question and continue.

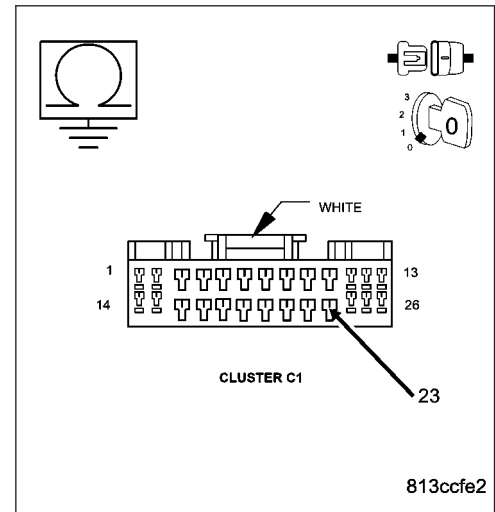
Measure the resistance between ground and the (P5) Door Unlock Driver Left Rear circuit in the Instrument Cluster C1 connector.

Is the resistance below 1000.0 ohms?

Yes >> Repair the (P5) Door Unlock Driver Left Rear circuit for a short to ground. The short may be in the (P5) Door Unlock Driver Left Rear wire, the (P393) Door Lock Driver Left Doors wire or in a left side door lock motor.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 6



ALL DOOR UNLOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE (CONTINUED)**6. (G778) DOOR UNLOCK DRIVER RIGHT DOORS SHORT TO VOLTAGE**

Turn the ignition on.

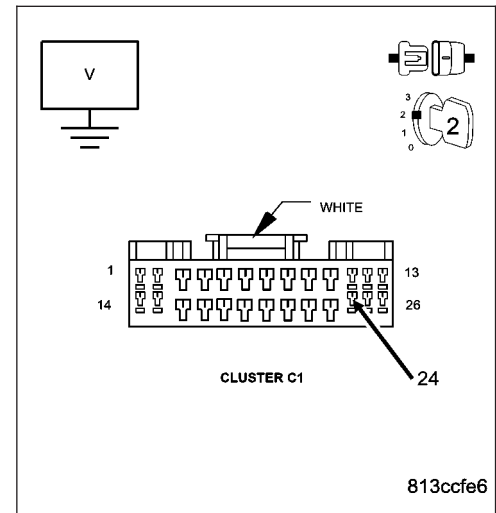
Measure the voltage between ground and the (G778) Door Unlock Driver Right Doors circuit.

Is there any voltage present?

Yes >> Repair the (P392) Door Lock or (G778) Door Unlock Driver Right Doors circuit for a short to voltage.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 7

**7. (P5) DOOR UNLOCK DRIVER LEFT REAR SHORT TO VOLTAGE**

NOTE: If this a 2 Door vehicle, answer NO to the question and continue.

Measure the voltage between ground and the (P5) Door Unlock Driver Left Rear circuit.

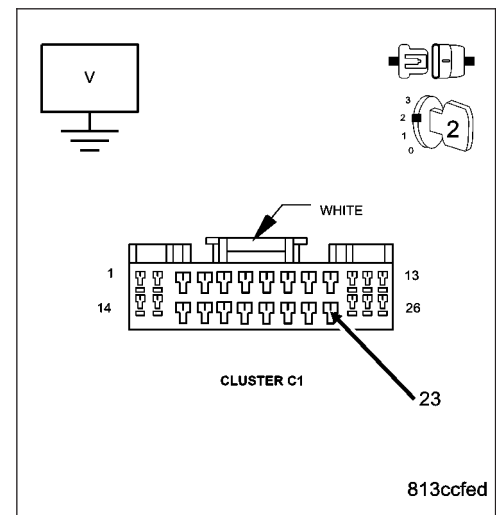
Is there any voltage present?

Yes >> Repair the (P393) Door Lock Driver Left Doors or the (P5) Door Unlock Driver Left Rear circuit for a short to voltage.

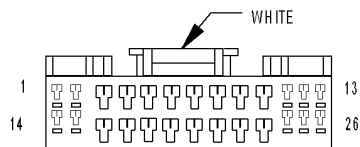
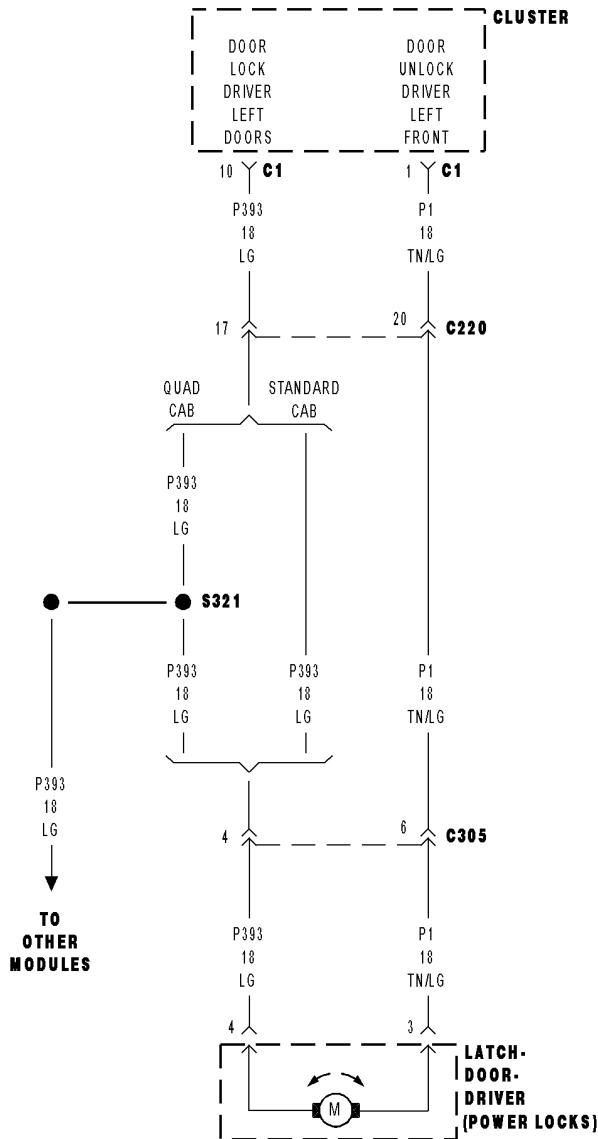
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING).

No >> Replace the Instrument Cluster.

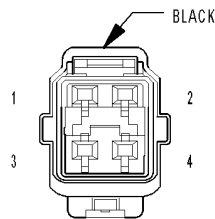
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



DRIVER DOOR UNLOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE



CLUSTER C1



LATCH-DOOR-DRIVER
(POWER LOCKS)

DRIVER DOOR UNLOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE (CONTINUED)

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS)

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**

Whenever the instrument cluster is awake.

- **Set Condition:**

The instrument cluster monitors the driver door unlock output circuit and when it is shorted to ground or to voltage, this code will set. This code will only set when the door locks are actuated.

Possible Causes
(P393) DOOR LOCK DRIVER LEFT DOORS SHORTED TO (P1) DOOR UNLOCK DRIVER LEFT FRONT
(P1) DOOR UNLOCK DRIVER LEFT FRONT WIRE SHORT TO GROUND
(P393) DOOR LOCK DRIVER LEFT DOORS WIRE SHORT TO GROUND
(P393) DOOR LOCK DRIVER LEFT DOORS WIRE SHORTED TO VOLTAGE
(P1) DOOR LOCK DRIVER LEFT FRONT WIRE SHORTED TO VOLTAGE
DRIVER DOOR LATCH
INSTRUMENT CLUSTER

Diagnostic Test

1. DTC PRESENT

Turn the ignition on.

With the DRBIII®, record and erase DTC's.

With the DRBIII®, read DTC's.

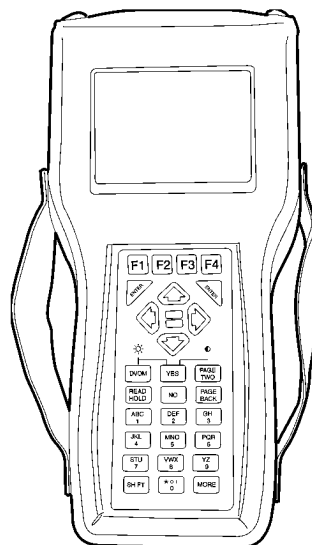
Operate the door locks several times from a door lock switch while monitoring the DRBIII®.

Does the DRBIII® display DRIVER DOOR UNLOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE?

Yes >> Go To 2

No >> Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Check for any possible shorted conditions between the instrument cluster and the driver door lock motor.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



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DRIVER DOOR UNLOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE (CONTINUED)

2. (P393) DOOR LOCK DRIVER LEFT DOORS SHORTED TO (P1) DOOR UNLOCK DRIVER LEFT FRONT

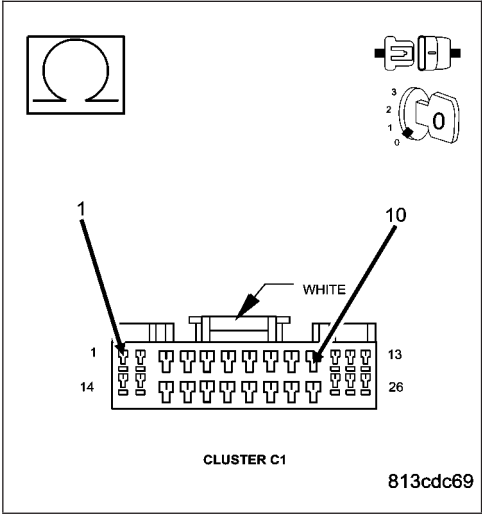
Turn the ignition off.

Disconnect the Instrument Cluster C1 connector.

Measure the resistance between the (P1) Door Unlock Driver Left Front circuit and the (P393) Door Lock Driver Left Doors circuit in the Instrument Cluster C1 connector.

Is the resistance below 3.0 ohms?

- Yes >> Repair the (P393) Door Lock Driver Left Doors circuit for a short to the (P1) Door Unlock Driver Left Front circuit (could be a shorted motor).
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)
- No >> Go To 3

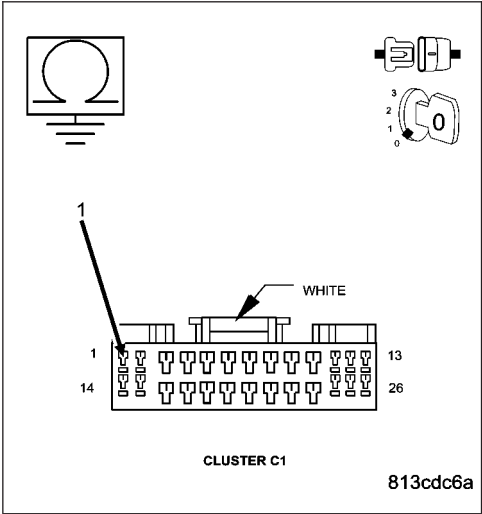


3. (P1) DOOR UNLOCK DRIVER LEFT FRONT CIRCUIT SHORTED TO GROUND

Measure the resistance between ground and the (P1) Door Unlock Driver Left Front circuit in the Instrument Cluster C1 connector.

Is the resistance below 1000.0 ohms?

- No >> Go To 6
- Yes >> Go To 4



DRIVER DOOR UNLOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE (CONTINUED)**4. (P1) DOOR UNLOCK DRIVER LEFT FRONT WIRE SHORT TO GROUND**

Disconnect the Driver Door Lock Motor connector.

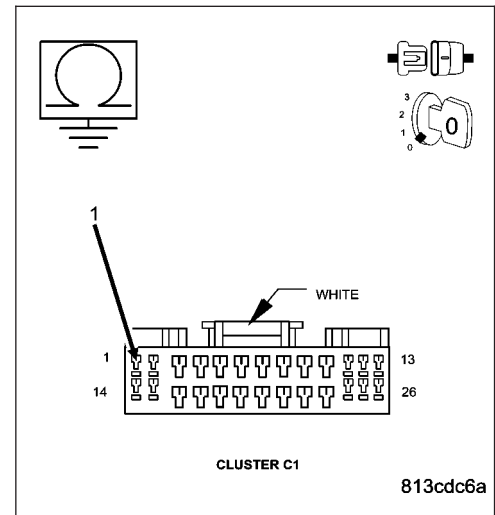
Measure the resistance between ground and the (P1) Door Unlock Driver Left Front wire in the Instrument Cluster C1 connector.

Is the resistance below 1000.0 ohms?

Yes >> Repair the (P1) Door Unlock Driver Left Front wire for a short to ground.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 5

**5. (P393) DOOR LOCK DRIVER LEFT DOORS WIRE SHORT TO GROUND**

Measure the resistance between ground and the (P393) Door Lock Driver Left Doors circuit in the Instrument Cluster C1 connector.

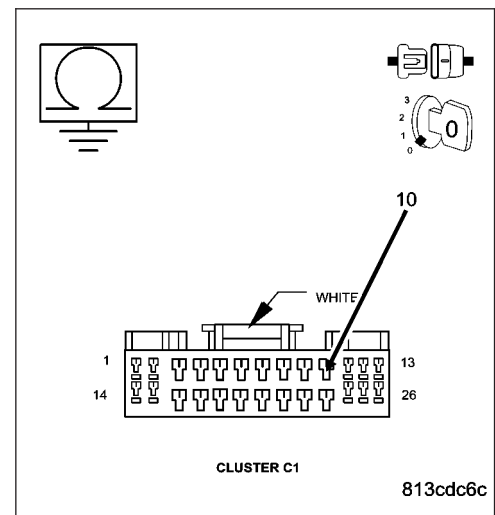
Is the resistance below 1000.0 ohms?

Yes >> Repair the (P393) Door Lock Driver Left Doors wire for a short to ground.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the Driver Door Latch.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



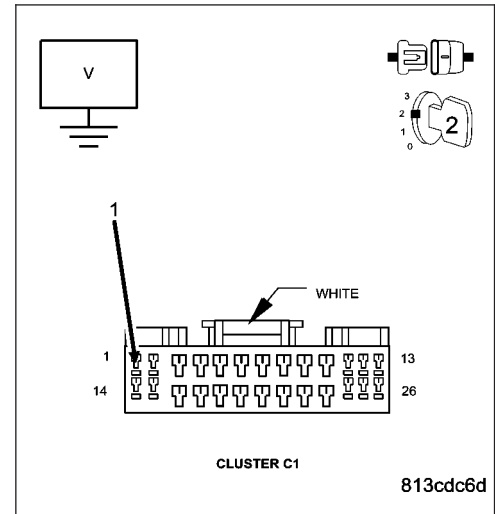
DRIVER DOOR UNLOCK OUTPUT CIRCUIT SHORT TO GROUND OR VOLTAGE (CONTINUED)**6. (P1) DOOR UNLOCK DRIVER LEFT FRONT OR (P393) DOOR LOCK DRIVER LEFT DOORS SHORTED TO VOLTAGE**

Turn the ignition on.

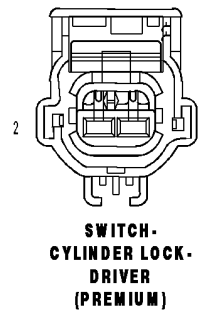
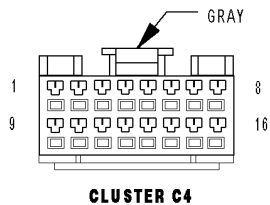
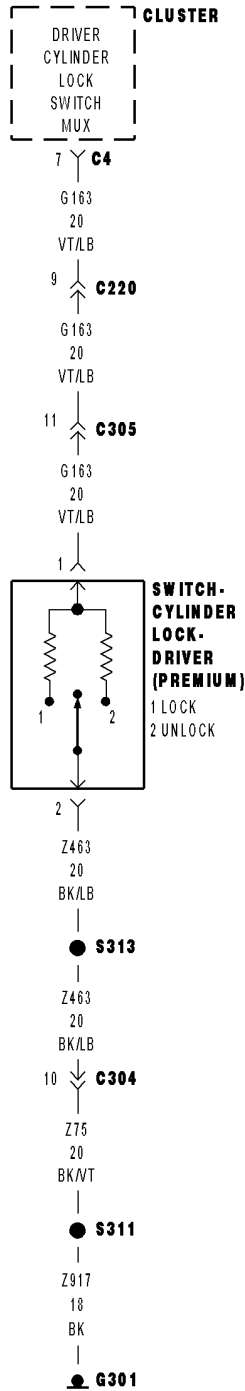
Measure the voltage between ground and the (P1) Door Unlock Driver Left Front circuit.

Is there any voltage present?

- Yes** >> Repair the (P393) Door Lock Driver Left Doors or (P1) Door Unlock Driver Left Front circuit for a short to voltage. Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)
- No** >> Replace the Instrument Cluster. Perform BODY VERIFICATION TEST - VER 1 (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



DRIVER CYLINDER LOCK SWITCH INPUT CIRCUIT SHORTED (WITH VTSS ONLY)



DRIVER CYLINDER LOCK SWITCH INPUT CIRCUIT SHORTED (WITH VTSS ONLY) (CONTINUED)

For the Power Door Locks circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS).

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**

At all times when battery power is supplied to the Instrument Cluster.

- **Set Condition:**

When the Instrument Cluster senses voltage to the driver cylinder lock switch below 0.25 volts for over 10 seconds.

Possible Causes
(G163) DRIVER CYLINDER LOCK SWITCH MUX CIRCUIT SHORT TO GROUND
CYLINDER LOCK SWITCH SHORTED
INSTRUMENT CLUSTER

Diagnostic Test**1. DTC PRESENT**

Turn the ignition on.

With the DRBIII®, record and erase DTC's.

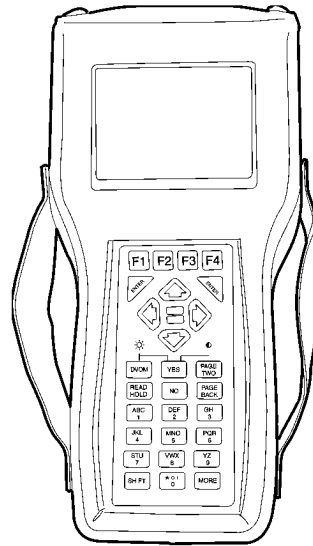
With the DRBIII®, read DTC's.

Operate the door locks several times from the Driver Cylinder Lock Switch by cycling the key clockwise while monitoring the DRBIII®.

Does the DRBIII® display DRIVER CYL LOCK SW INPUT CIRCUIT SHORTED?

Yes >> Go To 2

No >> Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/Front CONTROL MODULE - DIAGNOSIS AND TESTING)



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DRIVER CYLINDER LOCK SWITCH INPUT CIRCUIT SHORTED (WITH VTSS ONLY) (CONTINUED)**2. CYLINDER LOCK SWITCH SHORTED**

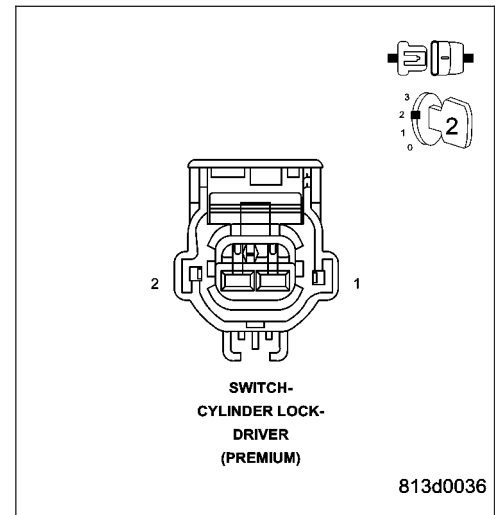
Disconnect the Driver Cylinder Lock Switch connector.

With the DRBIII® in Sensors, read the DRV CYL LOCK SW MUX circuit

Is the voltage above 4.8 volts?

Yes >> Replace the Cylinder Lock Switch.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 3

**3. (G163) DRIVER CYLINDER LOCK SWITCH MUX SHORTED**

Disconnect the Driver Cylinder Lock Switch connector.

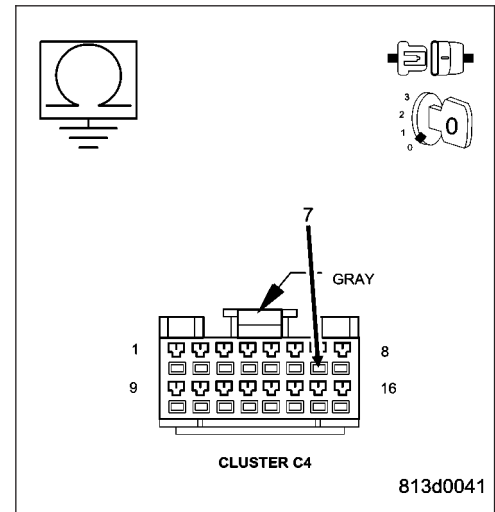
Disconnect the Instrument Cluster C2. connector.

Measure the resistance between (G163) Driver Cylinder Lock Switch Mux circuit and ground.

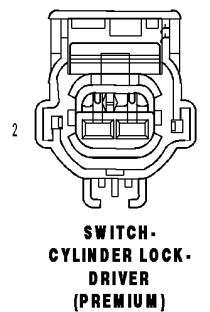
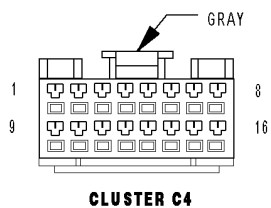
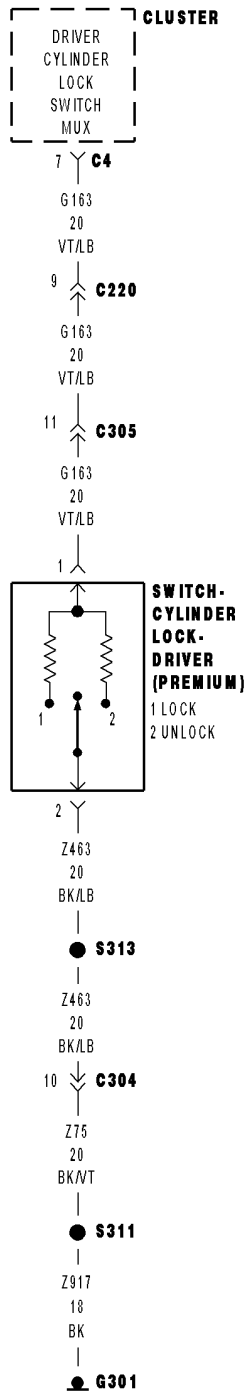
Is the resistance below 1000.0 ohms?

Yes >> Repair the (G163) Driver Cylinder Lock Switch Mux circuit for a short to ground.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the Instrument Cluster. Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



DRIVER CYLINDER LOCK SWITCH INPUT STUCK (WITH VTSS ONLY)



DRIVER CYLINDER LOCK SWITCH INPUT STUCK (WITH VTSS ONLY) (CONTINUED)

For the Power Door Locks circuit diagram. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**

At all times when battery power is supplied to the Instrument Cluster.

- **Set Condition:**

When the Instrument Cluster senses voltage to the driver cylinder lock switch between 1.3 and 3.75 volts for over 10 seconds.

Possible Causes
DRIVER CYLINDER LOCK SWITCH MUX CIRCUIT PARTIAL SHORT TO GROUND
CYLINDER LOCK SWITCH STUCK
INSTRUMENTT CLUSTER

Diagnostic Test**1. DTC PRESENT**

Turn the ignition on.

With the DRBIII®, record and erase DTC's.

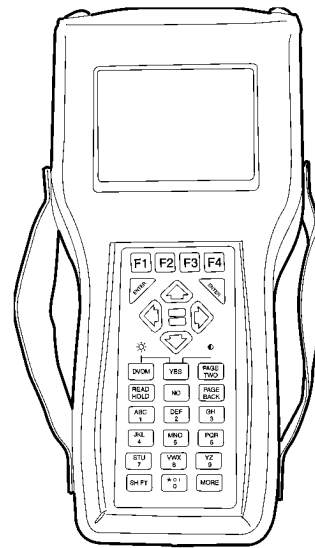
With the DRBIII®, read DTC's.

Operate the door locks several times from the Driver Cylinder Lock Switch by cycling the key in both directions while monitoring the DRBIII®.

Does the DRBIII® display DRV CYL LOCK SW INPUT CIRCUIT STUCK?

Yes >> Go To 2

No >> Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



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2. CYLINDER LOCK SWITCH SHORTED

With the DRBIII® in Sensors, read the DRV CYL LOCK SW MUX circuit

Does the DRBIII® display voltage between 1.3 and 4.15 volts?

No >> Replace the Instrument Cluster.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

Yes >> Go To 3

DRIVER CYLINDER LOCK SWITCH INPUT STUCK (WITH VTSS ONLY) (CONTINUED)**3. (G164) DRIVER CYLINDER LOCK SWITCH MUX SHORTED**

Disconnect the Driver Cylinder Lock Switch connector.

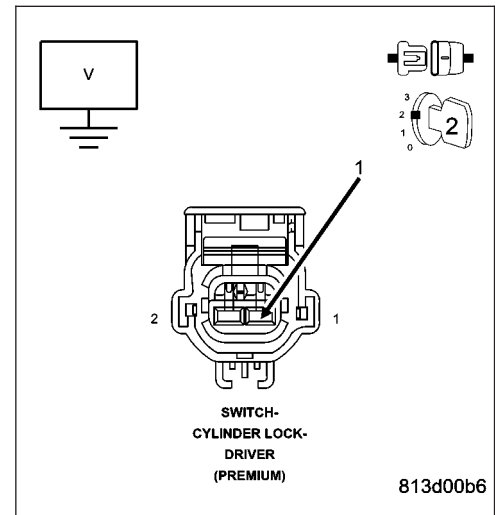
Measure the voltage between (G163) Driver Cylinder Lock Switch Mux circuit and ground.

Is the voltage above 4.9 volts?

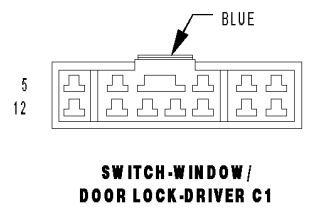
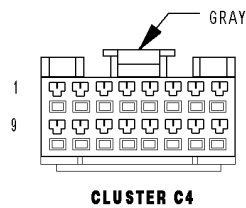
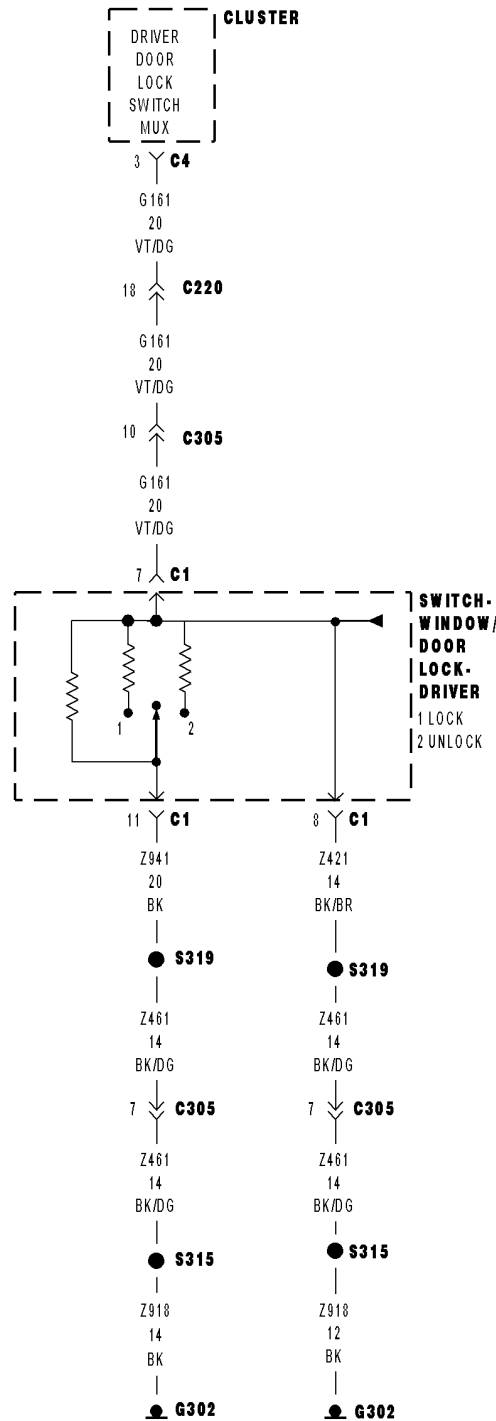
No >> Repair the (G163) Driver Cylinder Lock Switch Mux circuit for a partial short to ground.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

Yes >> Replace the Cylinder Lock Switch. Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



DRIVER DOOR LOCK SWITCH INPUT CIRCUIT OPEN OR SHORT TO VOLTAGE



DRIVER DOOR LOCK SWITCH INPUT CIRCUIT OPEN OR SHORT TO VOLTAGE (CONTINUED)

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS) (Refer to).

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**

At all times when battery power is supplied to the Instrument Cluster.

- **Set Condition:**

When the Instrument Cluster senses voltage to the driver door lock switch above 4.85 volts.

Possible Causes
(G161) DRIVER DOOR LOCK SWITCH WIRE SHORT TO VOLTAGE
(G161) DRIVER DOOR LOCK SWITCH MUX CIRCUIT OPEN
DOOR LOCK SWITCH GROUND OPEN
DOOR LOCK SWITCH SHORT TO VOLTAGE
DOOR LOCK SWITCH OPEN
INSTRUMENT CLUSTER - VOLTAGE TO HIGH
INSTRUMENT CLUSTER - DRIVER DOOR LOCK SWITCH VOLTAGE LOW

Diagnostic Test**1. DTC PRESENT**

Turn the ignition on.

With the DRBIII®, record and erase DTC's.

With the DRBIII®, read DTC's.

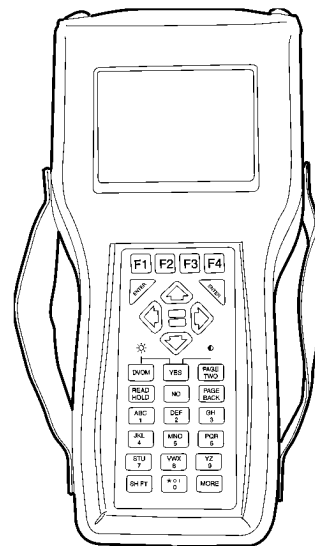
Operate the door locks from the Driver Door Lock Switch while monitoring the DRBIII®.

Does the DRBIII® display DRIVER DOOR LOCK SWITCH INPUT CIRCUIT OPEN OR SHORT TO VOLTAGE?

Yes >> Go To 2

No >> Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Check for any possible loose connections at the instrument cluster and the door lock switch.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/Front Control Module - Diagnosis and Testing)



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DRIVER DOOR LOCK SWITCH INPUT CIRCUIT OPEN OR SHORT TO VOLTAGE (CONTINUED)**2. INSTRUMENT CLUSTER - DRIVER DOOR LOCK SWITCH VOLTAGE LOW**

With the DRBIII® in Sensors, read the DRV DOOR LOCK SW voltage.

Voltage reading is:

Above 5.2 volts

Go To 3

Between 4.9 and 5.1 volts

Go To 5

Below 4.8 volts

Replace the Instrument Cluster.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

3. INSTRUMENT CLUSTER - VOLTAGE TO HIGH

Turn the ignition off.

Disconnect the Instrument Cluster C4 connector.

Turn the ignition on.

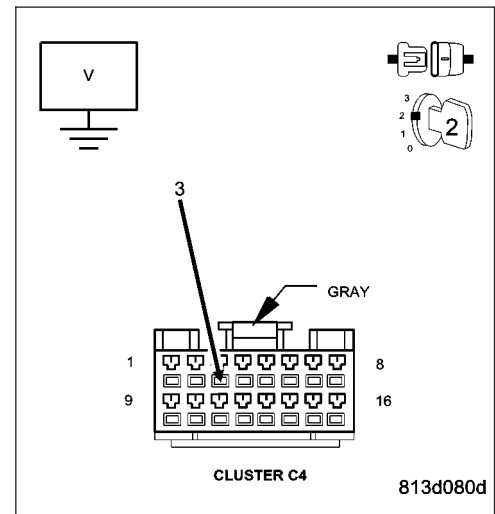
Measure the voltage between (G161) Driver Door Lock Switch Mux circuit and ground.

Is there any voltage present?

Yes >> Go To 4

No >> Replace the Instrument Cluster.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

**4. (G161) DRIVER DOOR LOCK SWITCH WIRE SHORT TO VOLTAGE**

Disconnect the Driver Window/Door Lock Switch C1 connector.

Measure the voltage between the (G161) Driver Door Lock Switch Mux circuit and ground.

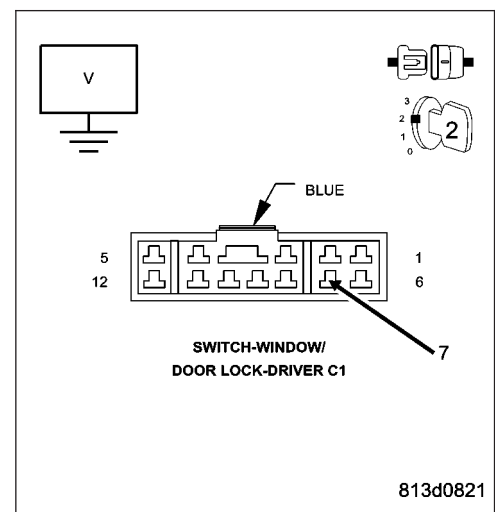
Is there any voltage present?

Yes >> Repair the (G161) Driver Door Lock Switch Mux circuit for a short to voltage.

Perform BODY VERIFICATION TEST - VER 1 (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING).

No >> Replace the Window/Door Lock Switch.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



DRIVER DOOR LOCK SWITCH INPUT CIRCUIT OPEN OR SHORT TO VOLTAGE (CONTINUED)

5. (Z421) and (Z941) DOOR LOCK SWITCH GROUND OPEN

Turn the ignition off.

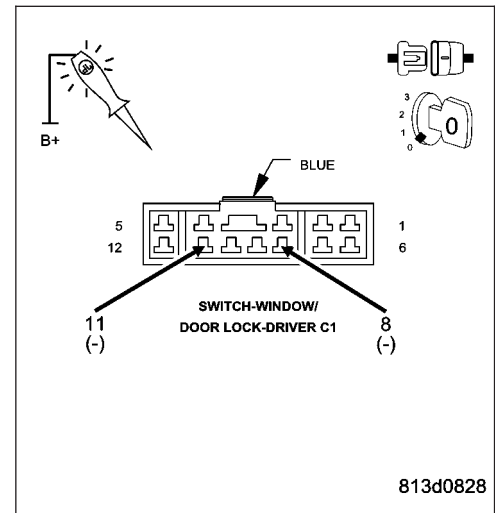
Disconnect the Driver Window/Door Lock Switch C1 connector.

Using a 12-volt test light connected to 12-volts, check both Ground circuits in the Door Module C1 connector.

Does the test light illuminate brightly in both terminals?

Yes >> Go To 6

No >> Repair the (Z421) or (Z941) Ground circuit for an open.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



6. (G161) DRIVER DOOR LOCK SWITCH MUX OPEN

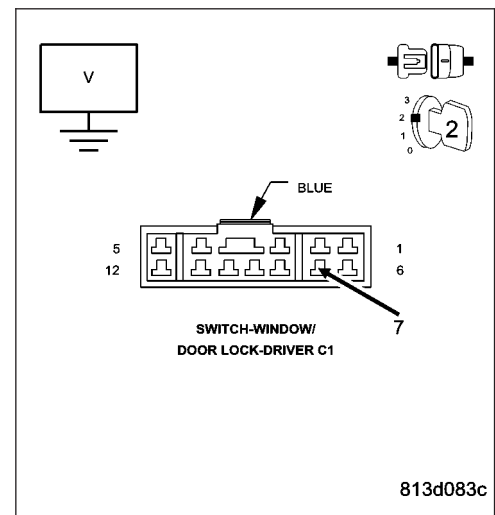
Turn the ignition on.

Measure the voltage between the (G161) Driver Door Lock Switch Mux circuit and ground.

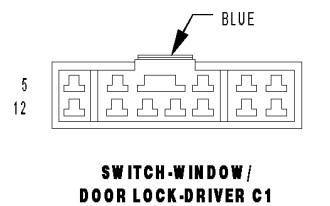
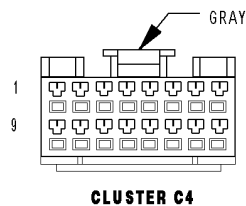
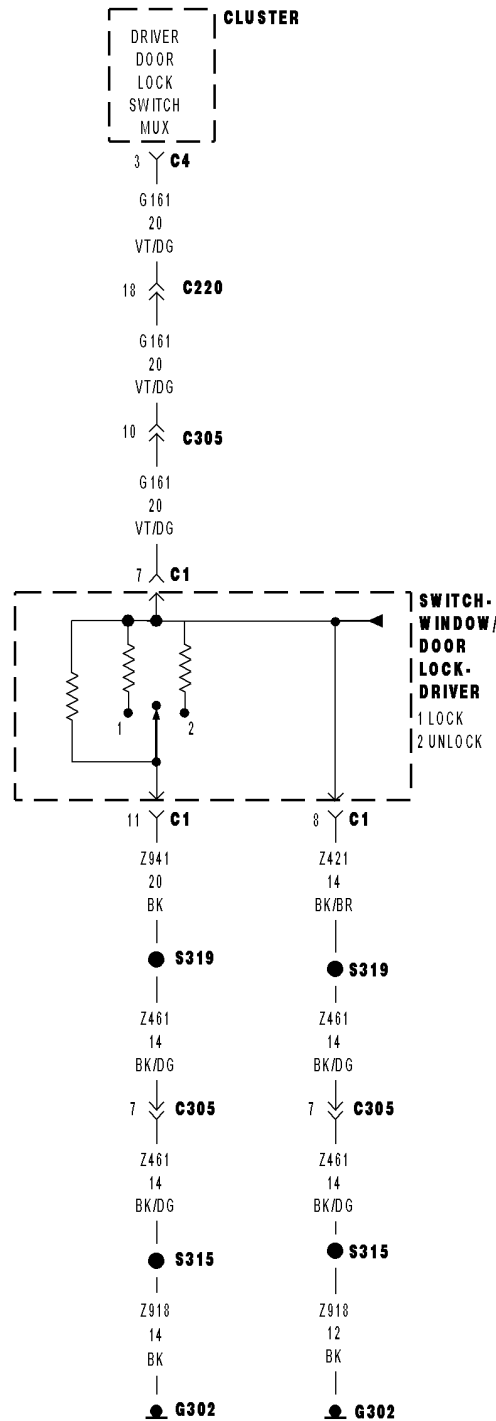
Is the voltage above 4.6 volts?

Yes >> Replace the Driver Window/Door Lock Switch.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Repair the (G161) Driver Door Lock Switch Mux circuit for an open.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



DRIVER DOOR LOCK SWITCH INPUT CIRCUIT SHORTED



DRIVER DOOR LOCK SWITCH INPUT CIRCUIT SHORTED (CONTINUED)

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS).

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**

At all times when battery power is supplied to the Instrument Cluster.

- **Set Condition:**

When the Instrument Cluster senses voltage to the driver door lock switch below .25 volts, the input circuit is not valid and this code will set.

Possible Causes
(G161) DRIVER DOOR LOCK SWITCH MUX CIRCUIT SHORTED TO GROUND
DOOR LOCK SWITCH SHORTED
INSTRUMENT CLUSTER

Diagnostic Test**1. DTC PRESENT**

Turn the ignition on.

With the DRBIII®, record and erase DTC's.

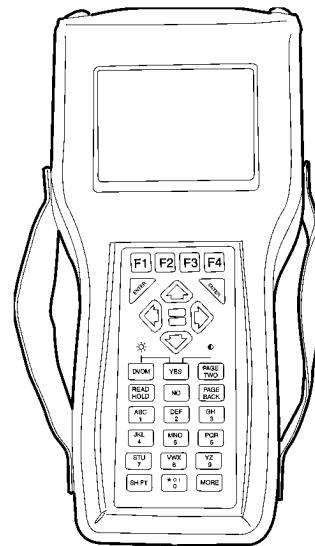
With the DRBIII®, read DTC's.

Operate the door locks several times from the Driver Door Lock Switch while monitoring the DRBIII®.

Does the DRBIII® display DRIVER DOOR LOCK SW INPUT CIRCUIT SHORTED?

Yes >> Go To 2

No >> Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/Front CONTROL MODULE - DIAGNOSIS AND TESTING)



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DRIVER DOOR LOCK SWITCH INPUT CIRCUIT SHORTED (CONTINUED)**2. DOOR LOCK SWITCH SHORTED**

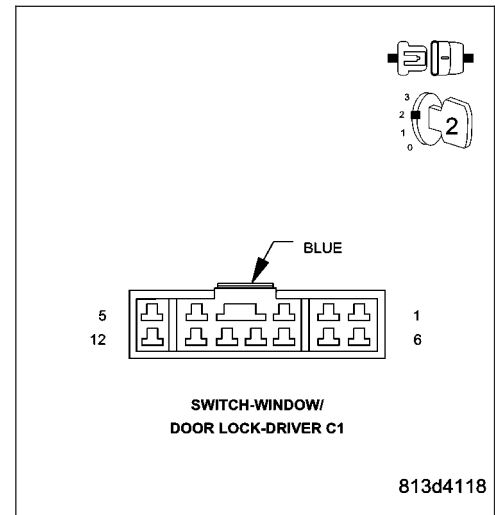
Disconnect the Driver Window/Door Lock Switch C1 connector.

With the DRBIII® in sensors, read the DRV DOOR LOCK SW MUX circuit.

Is the voltage above 4.6 volts?

Yes >> Replace the Driver Window/Door Lock Switch.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 3

**3. (G161) DRIVER DOOR LOCK SWITCH MUX CIRCUIT SHORTED**

Turn the ignition off.

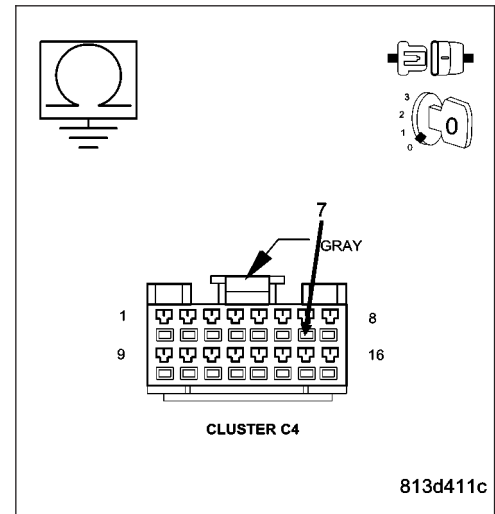
Disconnect the Instrument Cluster C4 connector.

Measure the resistance between the (G161) Driver Door Lock Switch Mux circuit and ground.

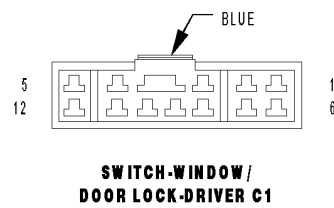
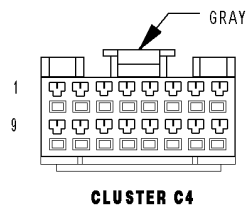
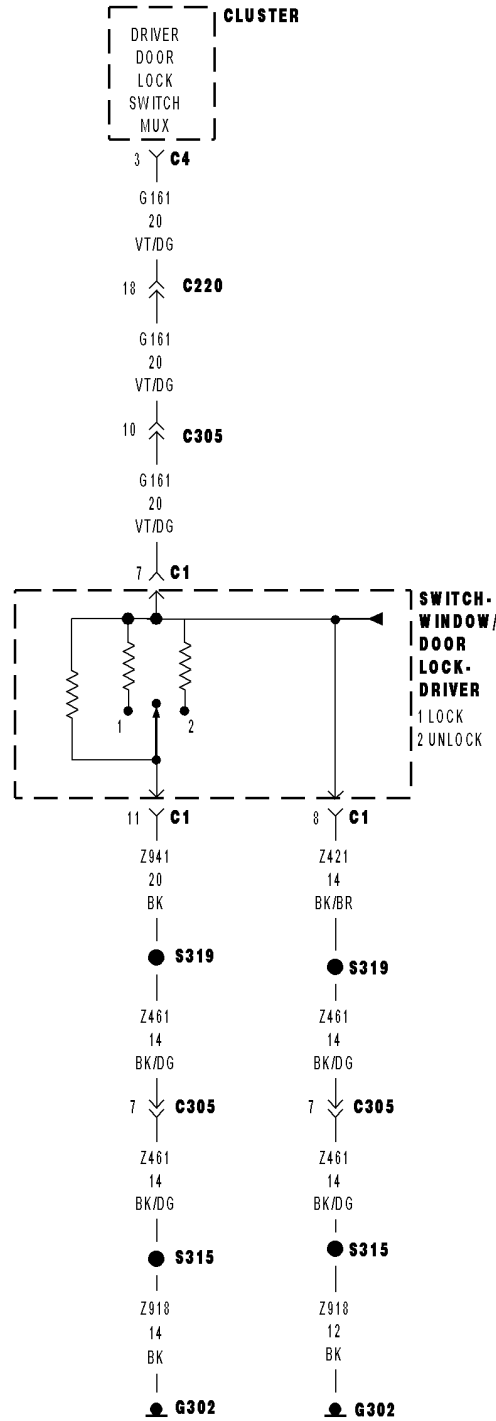
Is the resistance below 1000.0 ohms?

Yes >> Repair the (G161) Driver Door Lock Switch Mux circuit for a short to ground.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the Instrument Cluster.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



DRIVER DOOR LOCK SWITCH INPUT CIRCUIT STUCK



DRIVER DOOR LOCK SWITCH INPUT CIRCUIT STUCK (CONTINUED)

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS).

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**

At all times when battery power is supplied to the Instrument Cluster.

- **Set Condition:**

When the Instrument Cluster senses voltage to the driver door lock switch between 1.3 and 3.75 volts for over 20 seconds, this code will set.

Possible Causes
(G161) DRIVER DOOR LOCK SWITCH MUX CIRCUIT PARTIALLY SHORTED TO GROUND
DOOR LOCK SWITCH SHORTED
INSTRUMENT CLUSTER

Diagnostic Test**1. DTC PRESENT**

Turn the ignition on.

With the DRBIII®, record and erase DTC's.

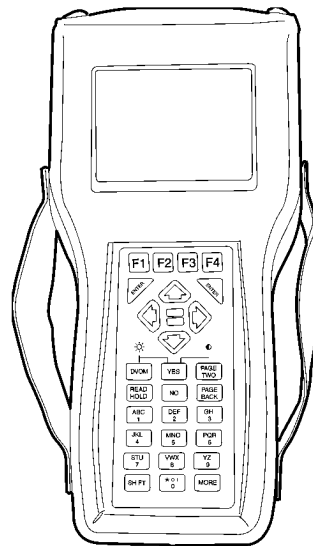
With the DRBIII®, read DTC's.

Operate the door locks several times from the Driver Door Lock Switch while monitoring the DRBIII®.

Does the DRBIII® display DRIVER DOOR LOCK SWITCH INPUT CIRCUIT STUCK?

Yes >> Go To 2

No >> Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Operate the switch several times and check for an occasional sticking problem. Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/Front CONTROL MODULE - DIAGNOSIS AND TESTING)



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DRIVER DOOR LOCK SWITCH INPUT CIRCUIT STUCK (CONTINUED)**2. DOOR LOCK SWITCH STUCK**

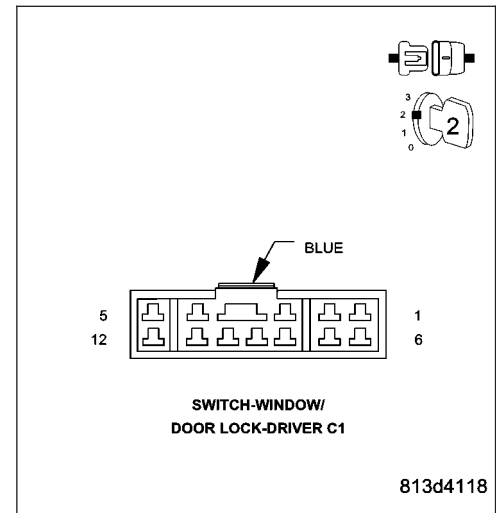
Disconnect the Driver Window/Door Lock Switch C1 connector.

With the DRBIII® in sensors, read the DRV DOOR LOCK SW MUX circuit.

Is the voltage above 4.6 volts?

Yes >> Replace the Driver Window/Door Lock Switch.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 3

**3. (G161) DRIVER DOOR LOCK SWITCH MUX CIRCUIT SHORTED**

Turn the ignition off.

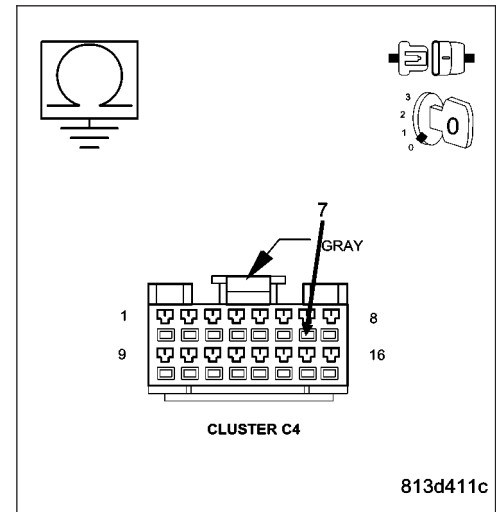
Disconnect the Instrument Cluster C4 connector.

Measure the resistance between the (G161) Driver Door Lock Switch Mux circuit and ground.

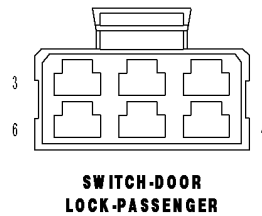
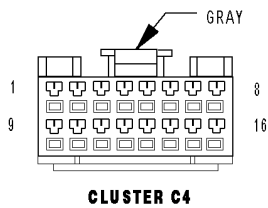
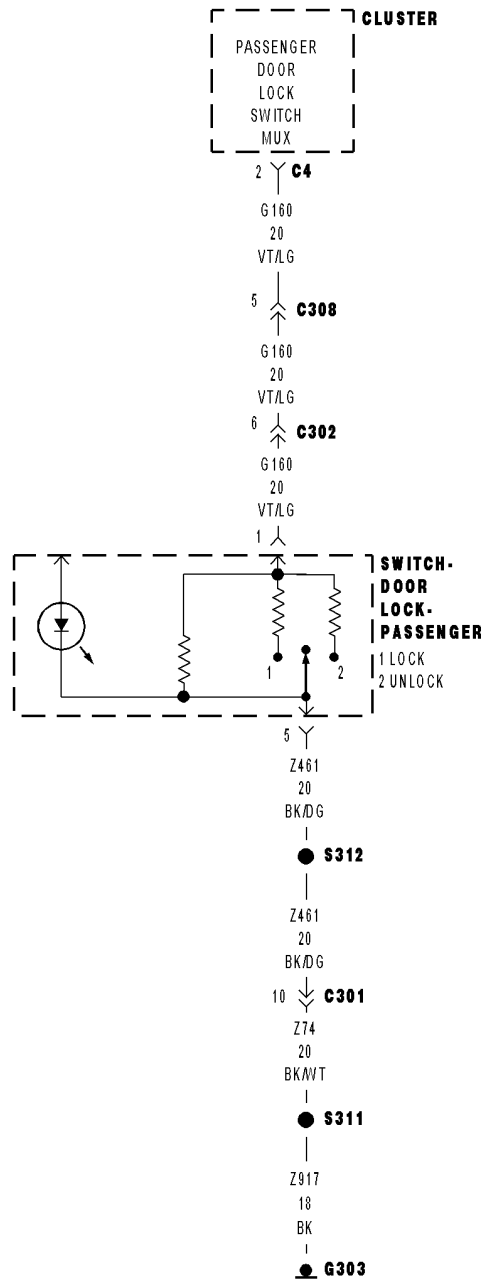
Is the resistance below 10000.0 ohms?

Yes >> Repair the (G161) Driver Door Lock Switch Mux circuit for a partial short to ground.
Perform BODY VERIFICATION TEST - VER 1 (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the Instrument Cluster
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



PASSENGER DOOR LOCK SWITCH INPUT CIRCUIT OPEN OR SHORT TO VOLTAGE



PASSENGER DOOR LOCK SWITCH INPUT CIRCUIT OPEN OR SHORT TO VOLTAGE (CONTINUED)

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS) (Refer to).

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**

At all times when battery power is supplied to the Instrument Cluster.

- **Set Condition:**

When the Instrument Cluster senses voltage on the passenger door lock switch circuit above 4.85 volts, this will set and the input will not be valid.

Possible Causes

(G160) PASSENGER DOOR LOCK SWITCH WIRE SHORT TO VOLTAGE

(G160) PASSENGER DOOR LOCK SWITCH MUX CIRCUIT OPEN

(Z461) DOOR LOCK SWITCH GROUND OPEN

DOOR LOCK SWITCH SHORT TO VOLTAGE

DOOR LOCK SWITCH OPEN

INSTRUMENT CLUSTER - VOLTAGE TO HIGH

INSTRUMENT CLUSTER - PASSENGER DOOR LOCK SWITCH VOLTAGE LOW

Diagnostic Test**1. DTC PRESENT**

With the DRBIII®, record and erase DTC's.

With the DRBIII®, read DTC's.

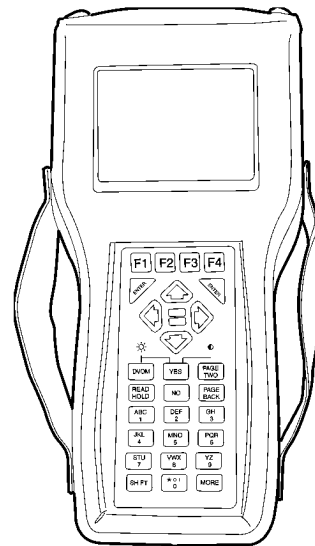
Operate the door locks from the Passenger Door Lock Switch while monitoring the DRBIII®.

Does the DRBIII® display PASSENGER DOOR LOCK SWITCH INPUT CIRCUIT OPEN OR SHORT TO VOLTAGE?

Yes >> Go To 2

No >> Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Check for any possible loose connections at the instrument cluster and the door lock switch.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/Front CONTROL MODULE - DIAGNOSIS AND TESTING)



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PASSENGER DOOR LOCK SWITCH INPUT CIRCUIT OPEN OR SHORT TO VOLTAGE (CONTINUED)**2. INSTRUMENT CLUSTER - PASSENGER DOOR LOCK SWITCH VOLTAGE LOW**

With the DRBIII® in Sensors, read the PASS DOOR LOCK SW voltage.

Voltage reading is:

Above 5.2 volts

Go To 3

Between 4.9 and 5.1 volts

Go To 5

Below 4.8 volts

Replace the Instrument Cluster.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

3. INSTRUMENT CLUSTER - VOLTAGE TO HIGH

Turn ignition off.

Disconnect the Instrument Cluster C4 connector.

Turn ignition on.

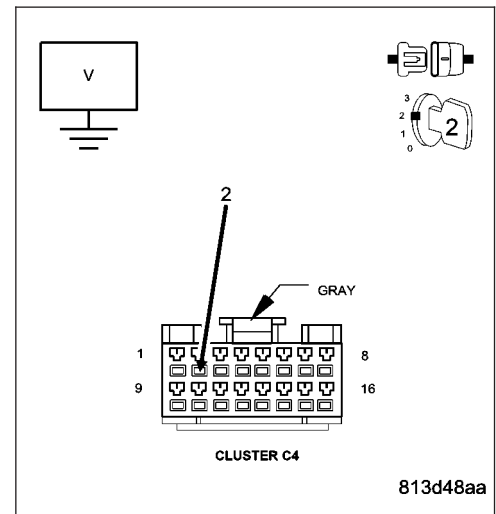
Measure the voltage between (G160) Passenger Door Lock Switch Mux circuit and ground.

Is there any voltage present?

Yes >> Go To 4

No >> Replace the Instrument Cluster.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

**4. (G160) PASSENGER DOOR LOCK SWITCH WIRE SHORT TO VOLTAGE**

Disconnect the Passenger Door Lock Switch connector.

Measure the voltage between the (G160) Passenger Door Lock Switch Mux circuit and ground.

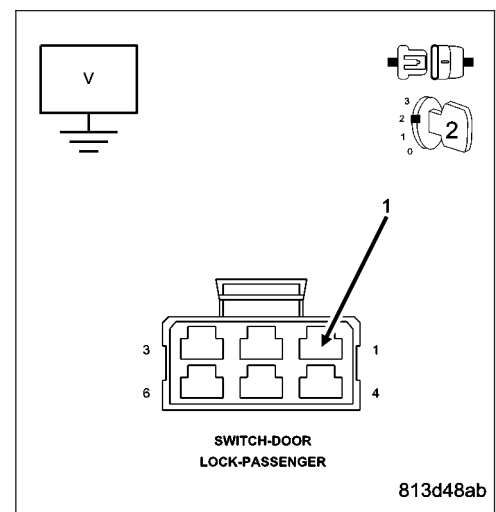
Is there any voltage present?

Yes >> Repair the (G160) Passenger Door Lock Switch Mux circuit for a short to voltage.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the Door Lock Switch.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



PASSENGER DOOR LOCK SWITCH INPUT CIRCUIT OPEN OR SHORT TO VOLTAGE (CONTINUED)**5. (Z461) DOOR LOCK SWITCH GROUND OPEN**

Turn ignition off.

Disconnect the Passenger Door Lock Switch connector.

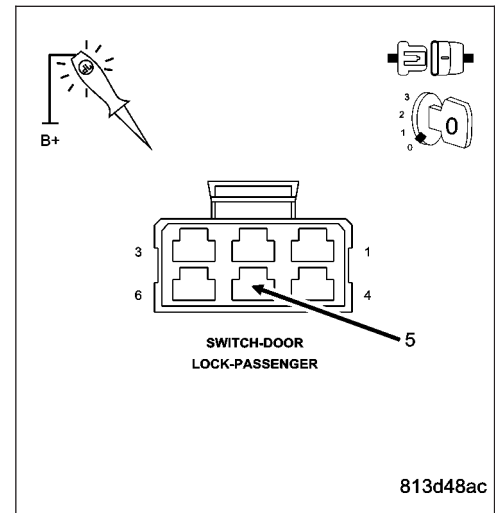
Using a 12-volt test light connected to 12-volts, check the (Z461) Ground circuit in the Door Lock Switch connector.

Does the test light illuminate brightly?

Yes >> Go To 6

No >> Repair the (Z461) Ground circuit for an open.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

**6. (G160) PASSENGER DOOR LOCK SWITCH MUX OPEN**

Turn ignition on.

Measure the voltage between the (G160) Passenger Door Lock Switch Mux circuit and ground.

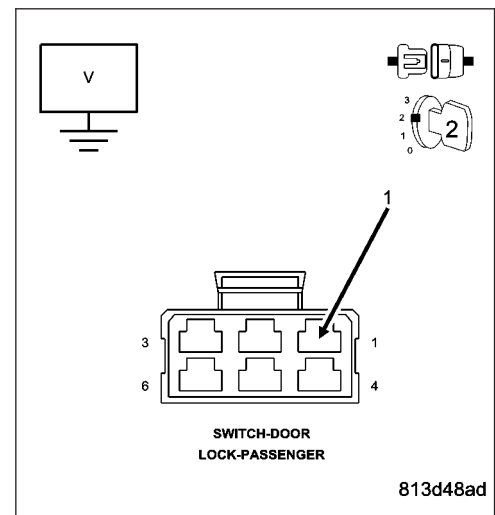
Is the voltage above 4.6 volts?

Yes >> Replace the Passenger Door Lock Switch.

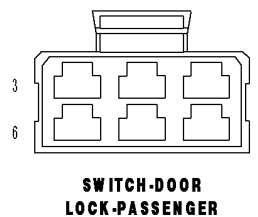
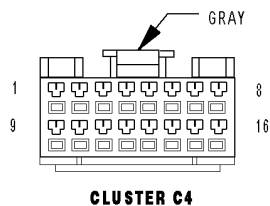
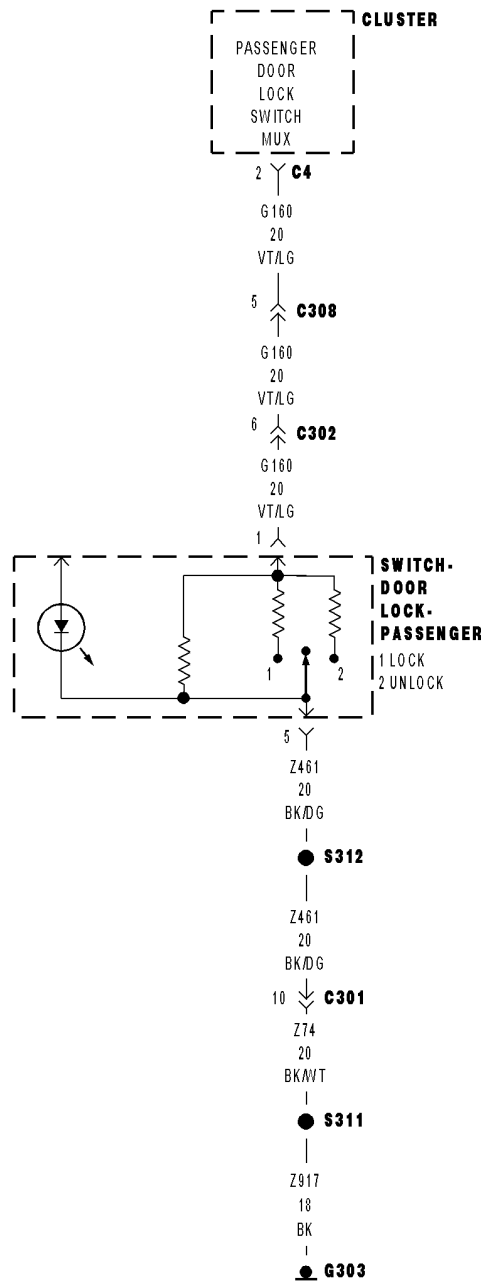
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Repair the (G160) Passenger Door Lock Switch Mux circuit for an open.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



PASSENGER DOOR LOCK SWITCH INPUT CIRCUIT SHORTED



PASSENGER DOOR LOCK SWITCH INPUT CIRCUIT SHORTED (CONTINUED)

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS).

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**

At all times when battery power is supplied to the Instrument Cluster.

- **Set Condition:**

When the Instrument Cluster senses voltage to the passenger door lock switch below .25 volts, the input circuit is not valid and this code will set.

Possible Causes
(G160) PASSENGER DOOR LOCK SWITCH MUX CIRCUIT SHORTED TO GROUND
DOOR LOCK SWITCH SHORTED
INSTRUMENT CLUSTER

Diagnostic Test**1. DTC PRESENT**

Turn the ignition on.

With the DRBIII®, record and erase DTC's.

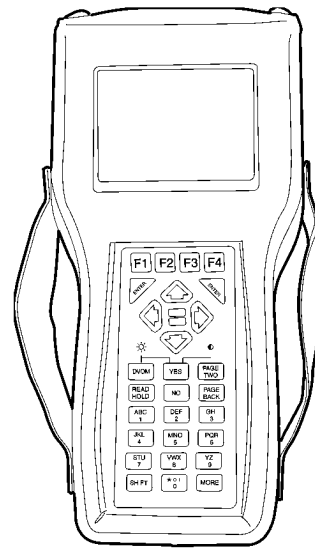
With the DRBIII®, read DTC's.

Operate the door locks several times from the Driver Door Lock Switch while monitoring the DRBIII®.

Does the DRBIII® display PASSENGER DOOR LOCK SW INPUT CIRCUIT SHORTED?

Yes >> Go To 2

No >> Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/Front CONTROL MODULE - DIAGNOSIS AND TESTING)



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PASSENGER DOOR LOCK SWITCH INPUT CIRCUIT SHORTED (CONTINUED)**2. DOOR LOCK SWITCH SHORTED**

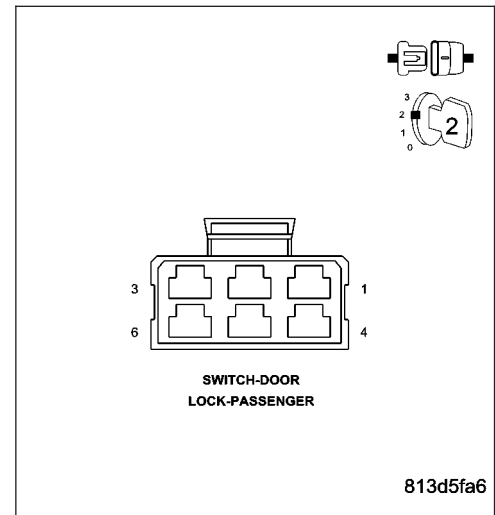
Disconnect the Passenger Door Lock Switch connector.

With the DRBIII® in sensors, read the PASS DOOR LOCK SW MUX circuit.

Is the voltage above 4.6 volts?

Yes >> Replace the Passenger Door Lock Switch.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 3

**3. (G160) PASSENGER DOOR LOCK SWITCH MUX CIRCUIT SHORTED**

Turn the ignition off.

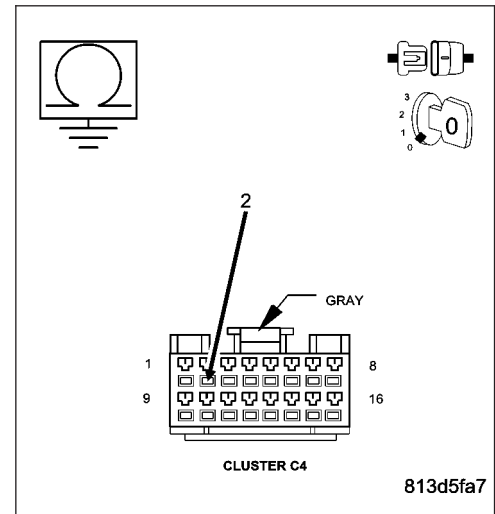
Disconnect the Instrument Cluster C4 connector.

Measure the resistance between the (G160) Passenger Door Lock Switch Mux circuit and ground.

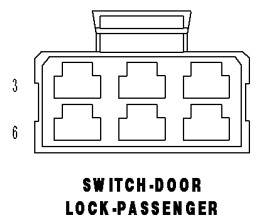
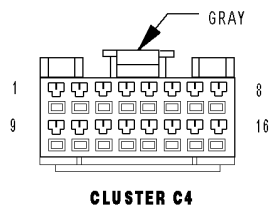
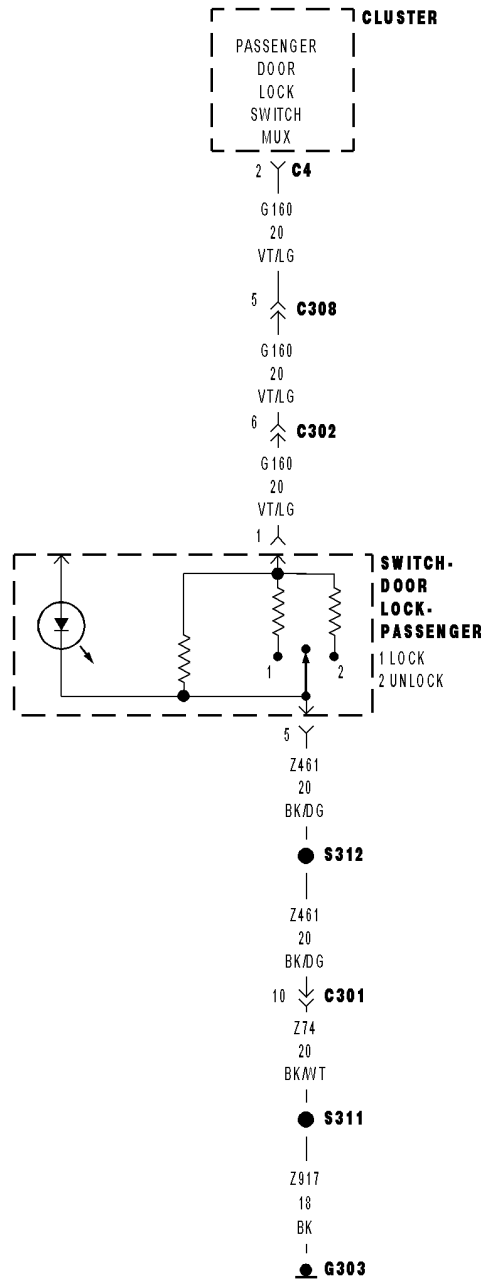
Is the resistance below 1000.0 ohms?

Yes >> Repair the (G160) Passenger Door Lock Switch Mux circuit for a short to ground.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the Instrument Cluster.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



PASSENGER DOOR LOCK SWITCH INPUT CIRCUIT STUCK



PASSENGER DOOR LOCK SWITCH INPUT CIRCUIT STUCK (CONTINUED)

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS).

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**

At all times when battery power is supplied to the Instrument Cluster.

- **Set Condition:**

When the Instrument Cluster senses voltage to the passenger door lock switch between 1.3 and 3.95 volts for over 20 seconds, this code will set.

Possible Causes
(G160) PASSENGER DOOR LOCK SWITCH MUX CIRCUIT PARTIALLY SHORTED TO GROUND
DOOR LOCK SWITCH SHORTED
INSTRUMENT CLUSTER

Diagnostic Test**1. DTC PRESENT**

Turn the ignition on.

With the DRBIII®, record and erase DTC's.

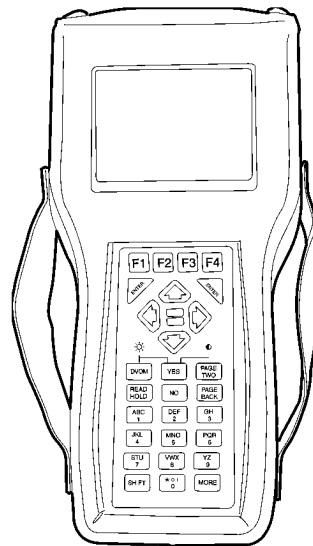
With the DRBIII®, read DTC's.

Operate the door locks several times from the Passenger Door Lock Switch while monitoring the DRBIII®.

Does the DRBIII® display PASSENGER DOOR LOCK SWITCH INPUT CIRCUIT STUCK?

Yes >> Go To 2

No >> Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Operate the switch several times and check for an occasional sticking problem. Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/Front Control Module - Diagnosis and Testing)



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PASSENGER DOOR LOCK SWITCH INPUT CIRCUIT STUCK (CONTINUED)**2. DOOR LOCK SWITCH STUCK**

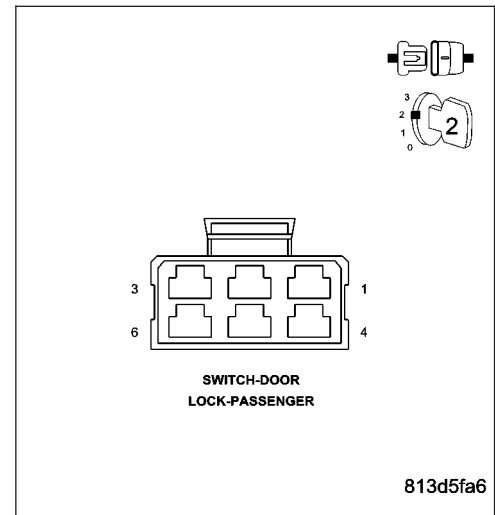
Disconnect the Passenger Door Lock Switch connector.

With the DRBIII® in sensors, read the PASS DOOR LOCK SW MUX circuit.

Is the voltage above 4.6 volts?

Yes >> Replace the Passenger Door Lock Switch.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 3

**3. (G160) PASSENGER DOOR LOCK SWITCH MUX CIRCUIT SHORTED**

Turn the ignition off.

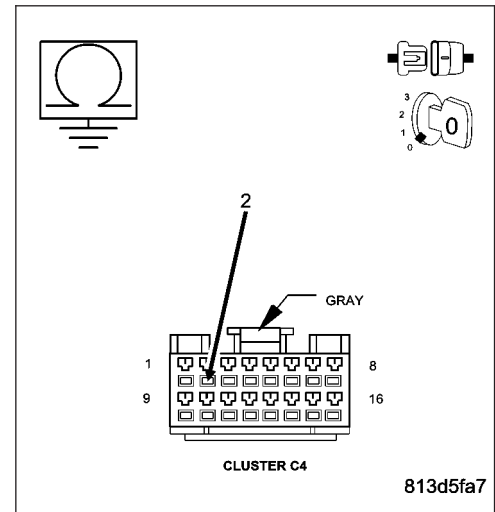
Disconnect the Instrument Cluster C4 connector.

Measure the resistance between the (G160) Passenger Door Lock Switch Mux circuit and ground.

Is the resistance below 10000.0 ohms?

Yes >> Repair the (G160) Passenger Door Lock Switch Mux circuit for a partial short to ground.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the Instrument Cluster.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



RKE FOB BATTERY LOW

For the Power Door Lock circuit diagram. (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS)

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**

Upon activation of any button on the Remote Keyless Entry transmitter (fob).

- **Set Condition:**

The RKE module monitors the input from the fobs and determines if the voltage is within tolerance. If the battery voltage of the RKE fob falls between 2.0 and 3.5 volts the RKE module will communicate this to the Instrument Cluster which in turn will set this code.

Possible Causes
BATTERIES LOW
RKE TRANSMITTER - LOW VOLTAGE OUTPUT

Diagnostic Test

1. CHECK TROUBLE CODE

Turn the ignition on.

Using the RKE transmitter, press the UNLOCK button six times or more.

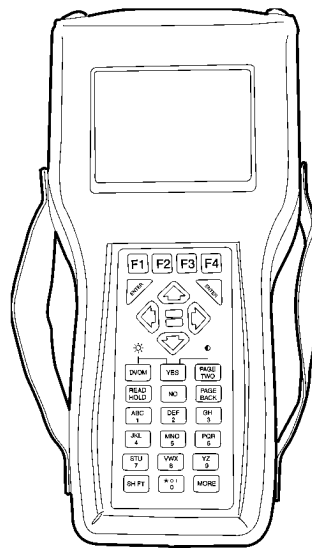
With the DRBIII®, read DTCs.

Does the DRBIII® display RKE KEY FOB BATTERY LOW?

Yes >> Go To 2

No >> Problem is intermittent and not present at this time. Check the other transmitters used with this vehicle to determine which one set the code. Check the voltage of each battery in FOB and ensure they are above 2.9 volts each.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



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2. BATTERIES LOW

Test the voltage of each battery in the RKE transmitter.

Is the voltage at or above 2.9 in each battery?

Yes >> Replace the RKE Transmitter.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the batteries and press the unlock button on the transmitter six times to clear the DTC.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

RKE MODULE COMMUNICATION LINK

For the Power Door Lock circuit diagram. (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS)

For a complete wiring diagram **Refer to Section 8W.**

- **When Monitored:**
Whenever battery power is applied the Instrument Cluster.
- **Set Condition:**
The Instrument Cluster has learned that the vehicle is equipped with Remote Keyless Entry, but then is unable to communicate with that module, this code will set. The Instrument Cluster provides power for the RKE module and communicates by the PCI bus.

Possible Causes
RKE MODULE OPEN
IJNSTRUMENT CLUSTER

Diagnostic Test

1. DTC PRESENT

Turn the ignition on.

With the DRBIII®, record and erase DTC's.

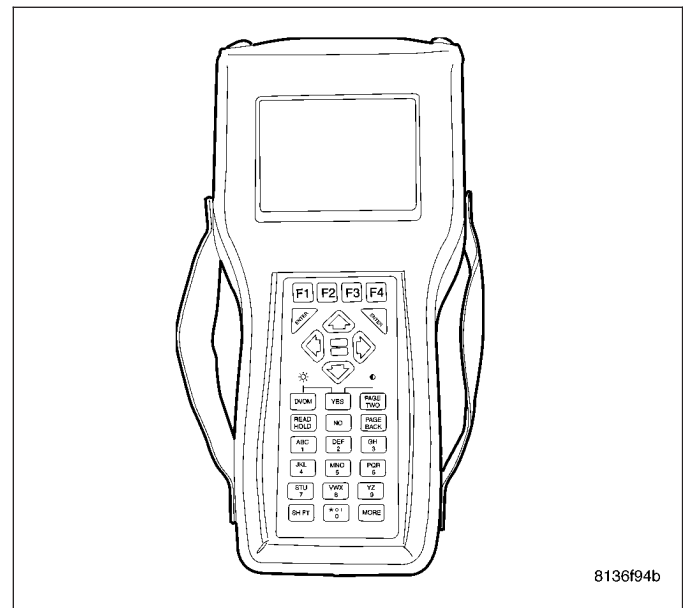
With the DRBIII®, read DTC's.

Operate the door locks several times from the RKE transmitter while observing the DRBIII®.

Does the DRBIII® display RKE MODULE COMM LINK?

Yes >> Go To 2

No >> Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/Front CONTROL MODULE - DIAGNOSIS AND TESTING)



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RKE MODULE COMMUNICATION LINK (CONTINUED)

2. RKE MODULE OPEN

Turn the ignition off.

Remove the Instrument Cluster.

Replace the RKE module with a known good module.

Connect all Cluster connectors.

With the DRBIII®, Program the RKE transmitter.

Operate the door locks using the RKE transmitter.

Do the door locks respond correctly with the RKE transmitter?

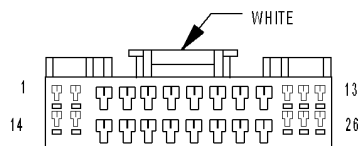
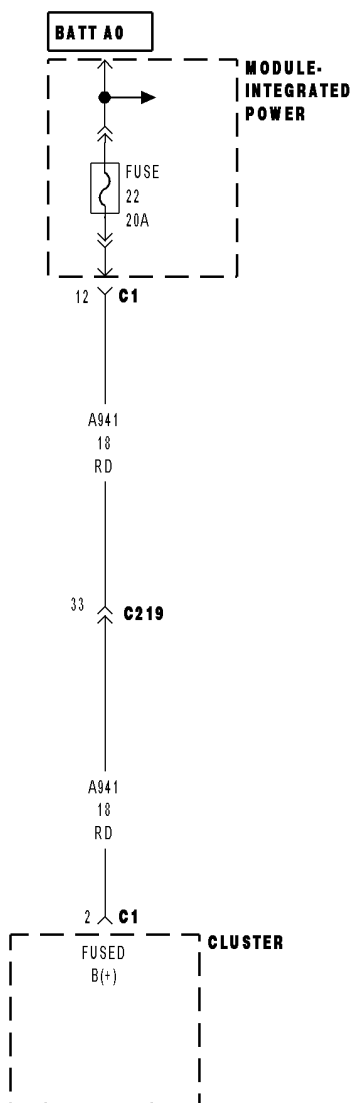
Yes >> Replace the original RKE module.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the Instrument Cluster.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

***ALL DOOR LOCKS INOPERATIVE**



CLUSTER C1

***ALL DOOR LOCKS INOPERATIVE (CONTINUED)**

For the Power Door Locks circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS).

For a complete wiring diagram **Refer to Section 8W.**

Possible Causes
DTC PRESENT FUSE #22 OPEN (A941) FUSE B+ CIRCUIT OPEN INSTRUMENT CLUSTER

Diagnostic Test**1. DTC PRESENT**

Turn the ignition on.

With the DRBIII®, read DTC's.

Does the DRBIII® display any Door Lock or Cluster related DTC's?

Yes >> Refer to the Table of Contents in this section.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 2

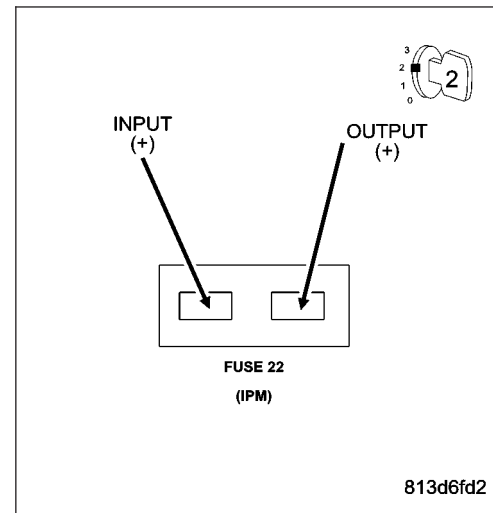
2. FUSE #22 OPEN

Test both sides of fuse #22 in the PDC.

Is there 12 volts on both sides of fuse #22?

Yes >> Go To 3

No >> Replace the fuse if open and retry the system. If the fuse blows, locate and repair a short to the Instrument Cluster. The 12 volt supply to the fuse is a bus bar in the PDC. Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



ALL DOOR LOCKS INOPERATIVE (CONTINUED)*3. (A941) FUSED B+ CIRCUIT OPEN**

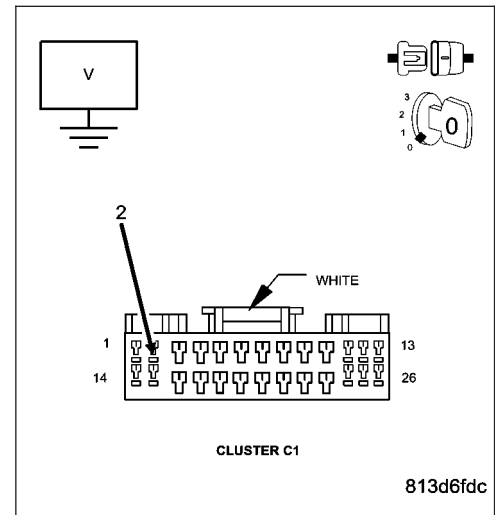
Turn the ignition off.

Remove the instrument cluster.

Measure the voltage between the (A941) Fused B+ circuit and ground (cavity 2 in the C1 connector to ground).

Is the voltage above 10.0 volts on the Fused B+ circuit?

- Yes** >> Replace the Instrument Cluster.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)
- No** >> Repair the Fused B+ circuit for an open.
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



***AUTO (ROLLING) DOOR LOCKS INOPERATIVE**

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS).

For a complete wiring diagram **Refer to Section 8W.**

Possible Causes
DOOR AJAR SWITCH STATUS INCORRECT TPS OR VSS DTC's AUTO DOOR LOCKS NOT ENABLED INSTRUMENT CLUSTER

Diagnostic Test**1. CHECK THE DOOR AJAR SWITCH STATUS**

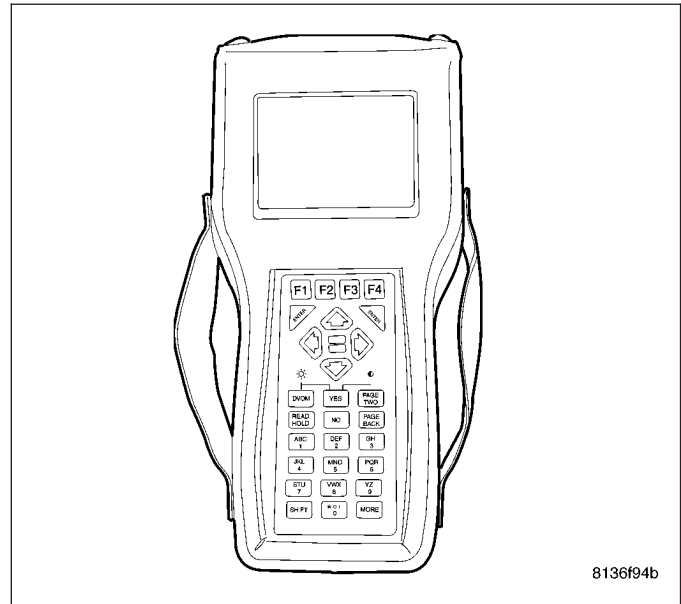
Ensure all doors are closed.

With the DRBIII, enter "Electro/Mech Cluster" then "Input/Output" and observe all of the Door Ajar states.

Does the DRBIII display CLOSED for any door ajar state?

Yes >> Select the appropriate Door Ajar Circuit Shorted: (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - INTERIOR - DIAGNOSIS AND TESTING).

No >> Go To 2



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2. ANY TPS OR VSS RELATED DTC's

With the DRBIII read "Engine" and "Anti-Lock Brakes" DTC's.

Does the DRBIII display any Throttle Position Sensor or Vehicle Speed Sensor related DTC's?

Yes >> Diagnose and repair the DTC's. For gas engines (Refer to 9 - ENGINE - ELECTRICAL DIAGNOSTICS). For diesel engines (Refer to 9 - ENGINE - ELECTRICAL DIAGNOSTICS). For Anti-Lock Brake (Refer to 5 - BRAKES - DIAGNOSIS AND TESTING)

No >> Go To 3

***AUTO (ROLLING) DOOR LOCKS INOPERATIVE (CONTINUED)**

3. ENABLE AUTO DOOR LOCKS

With the DRBIII, enter "Electron/Mech Cluster" then "Miscellaneous" and observe the rolling door lock status.

Does the DRBIII display ROLLING DOOR LOCKS: ENABLED

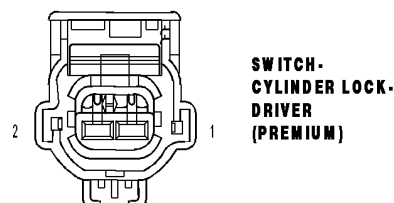
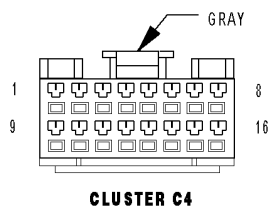
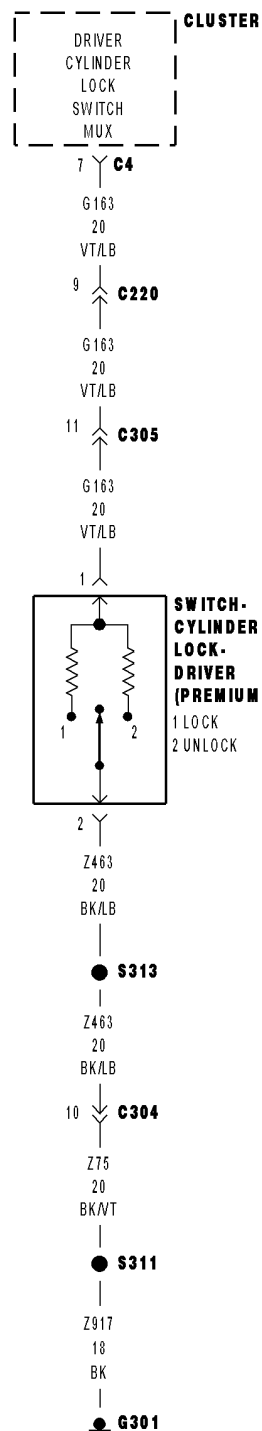
Yes >> Replace the Instrument Cluster.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> With the DRBIII, enable the Auto Door Locks.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

***CYLINDER LOCK SWITCH INOPERATIVE**



***CYLINDER LOCK SWITCH INOPERATIVE (CONTINUED)**

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS).

For a complete wiring diagram **Refer to Section 8W.**

Possible Causes
DTC PRESENT (Z463) CYLINDER LOCK SWITCH GROUND OPEN (G163) CYLINDER LOCK SWITCH MUX CIRCUIT OPEN (G163) CYLINDER LOCK SWITCH MUX WIRE SHORT TO GROUND CYLINDER LOCK SWITCH INSTRUMENT CLUSTER

Diagnostic Test**1. DTC PRESENT**

Turn the ignition on.

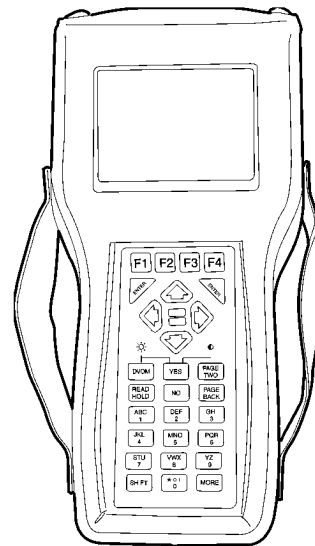
With the DRBIII®, read DTC's.

Are there any Power Door Lock related trouble codes?

Yes >> Refer to symptom list for problems related to Power Door Locks.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/Front CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 2



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CYLINDER LOCK SWITCH INOPERATIVE (CONTINUED)*2. CYLINDER LOCK SWITCH VOLTAGE LOW**

Turn the ignition off.

Disconnect the Cylinder Lock Switch connector.

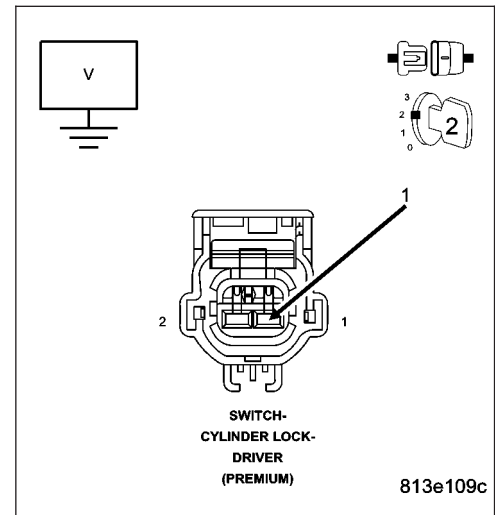
Turn the ignition on.

Measure the voltage between (G163) Cylinder Lock Switch Mux circuit and ground.

Is the voltage between 4.6 and 5.2 volts?

Yes >> Go To 3

No >> Go To 4

**3. (Z463) CYLINDER LOCK SWITCH GROUND OPEN**

Using a 12-volt test light connected to 12-volts, check the (Z463) Ground circuit.

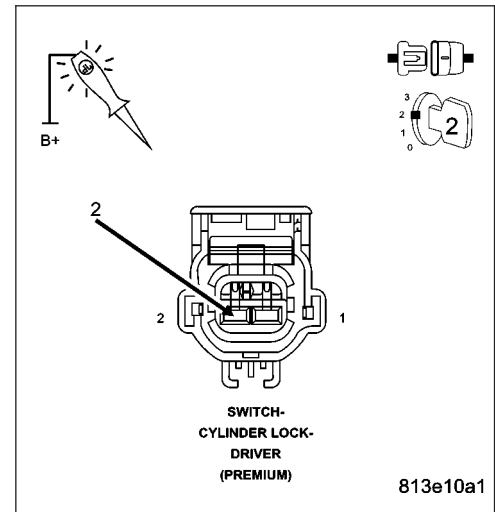
Does the test light illuminate brightly?

Yes >> Replace the Cylinder Lock Switch.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Repair the (Z463) Ground circuit for an open.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



CYLINDER LOCK SWITCH INOPERATIVE (CONTINUED)*4. (G163) CYLINDER LOCK SWITCH MUX OPEN**

Turn the ignition off.

Disconnect the Instrument Cluster C4 connector.

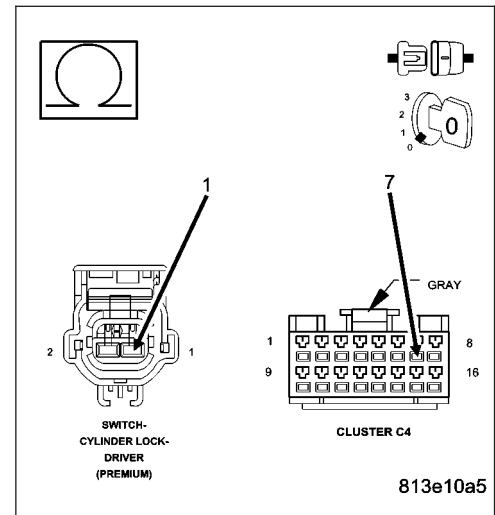
Measure the resistance of the (G163) Cylinder Lock Switch Mux circuit between the Switch connector and the Instrument Cluster connector.

Is the resistance below 5.0 ohms?

Yes >> Go To 5

No >> Repair the (G163) Cylinder Lock Switch Mux circuit for an open.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

**5. (G163) CYLINDER LOCK SWITCH MUX WIRE SHORT TO GROUND**

Measure the resistance between Ground and the (G163) Cylinder Lock Switch Mux circuit in the Cluster C4 connector.

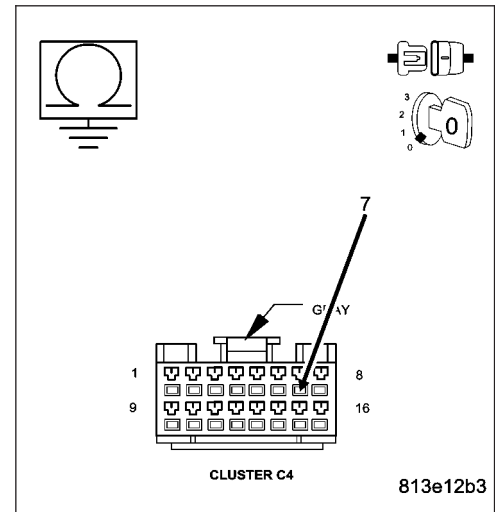
Is the resistance below 1000.0 ohms?

No >> Replace the Instrument Cluster.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

Yes >> Repair the (G163) Cylinder Lock Switch Mux circuit for a short to ground.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



***DOOR LOCK INHIBIT INOPERATIVE**

For a complete wiring diagram **Refer to Section 8W.**

Possible Causes
CHIME INOPERATIVE INSTRUMENT CLUSTER

Diagnostic Test**1. CHIME INOPERATIVE**

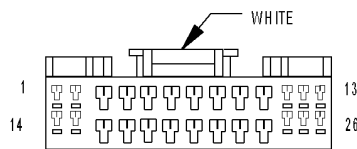
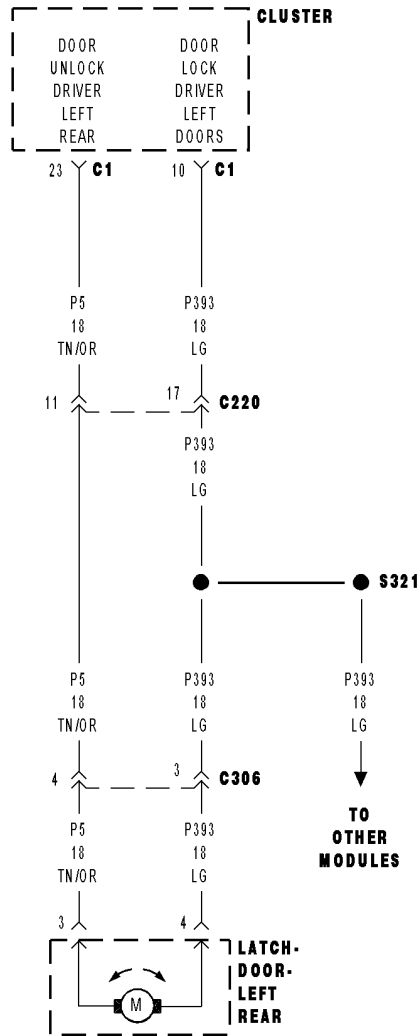
Turn the ignition off but leave the key in the ignition.

Open the drivers door.

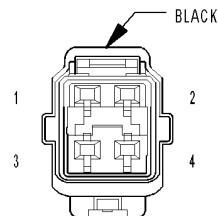
Does the chime sound?

- Yes** >> Replace the Instrument Cluster.Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)
- No** >> Perform the test “*KEY IN IGNITION AND DRIVER’S DOOR OPEN CHIME INOPERATIVE”. (Refer to 8 - ELECTRICAL/CHIME/BUZZER - DIAGNOSIS AND TESTING).
-

***LEFT REAR DOOR FAILS TO LOCK AND UNLOCK**



CLUSTER C1



**LATCH-DOOR-LEFT REAR
(POWER LOCKS)**

***LEFT REAR DOOR FAILS TO LOCK AND UNLOCK (CONTINUED)**

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS)

For a complete wiring diagram **Refer to Section 8W.**

Possible Causes
DTC PRESENT (P393) DOOR LOCK DRIVER LEFT DOORS WIRE OPEN (P5) DOOR UNLOCK DRIVER LEFT REAR WIRE OPEN DOOR LATCH INSTRUMENT CLUSTER

Diagnostic Test**1. DTC PRESENT**

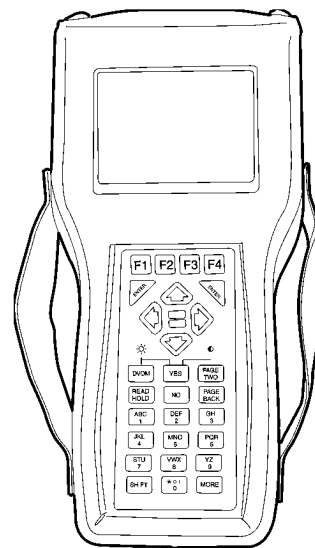
Turn the ignition on.

With the DRBIII®, read DTC's.

Does the DRBIII® display any Door Lock related DTC's?

Yes >> Refer to symptom list for problems related to Power Door Locks to diagnose and repair DTC's.

No >> Go To 2



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LEFT REAR DOOR FAILS TO LOCK AND UNLOCK (CONTINUED)*2. INSTRUMENT CLUSTER**

Turn the ignition off.

Disconnect the Instrument Cluster C1 connector.

Connect a jumper wire between the (P5) Door Unlock Driver Left Rear circuit in the Instrument Cluster C1 connector and ground.

Momentarily connect a fused jumper wire between the Fused B+ circuit and the (P393) Door Lock Driver Left Doors circuit in the Instrument Cluster C1 connector.

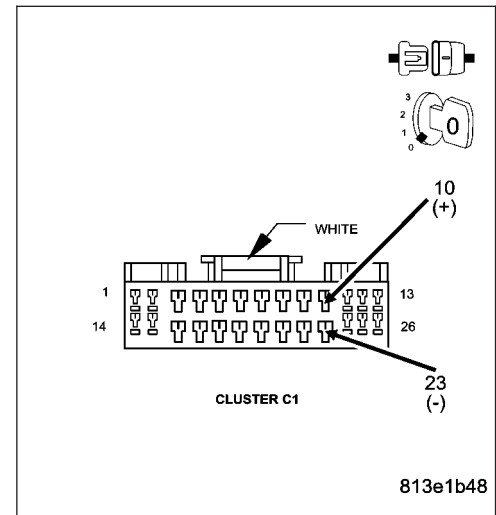
Reverse the jumper wires to drive the motor in the opposite direction.

Did the left doors lock and unlock?

Yes >> Replace the Instrument Cluster.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 3

**3. (P393) DOOR LOCK DRIVER LEFT DOORS WIRE OPEN**

Disconnect the Left Rear Door Latch connector.

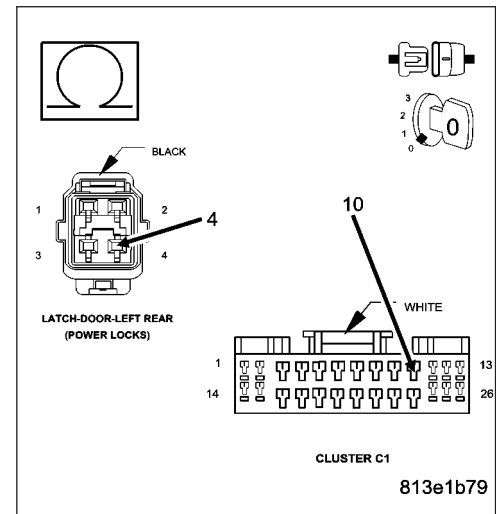
Measure the resistance of the (P393) Door Lock Driver Left Doors circuit between the Instrument Cluster C1 connector and the Door Latch connector.

Is the resistance below 5.0 ohms?

Yes >> Go To 4

No >> Repair the (P393) Door Lock Driver Left Doors wire for an open.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



LEFT REAR DOOR FAILS TO LOCK AND UNLOCK (CONTINUED)*4. (P5) DOOR UNLOCK DRIVER LEFT REAR WIRE OPEN**

Measure the resistance of the (P5) Door Unlock Driver Left Rear circuit between the Instrument Cluster C1 connector and the Door Latch connector.

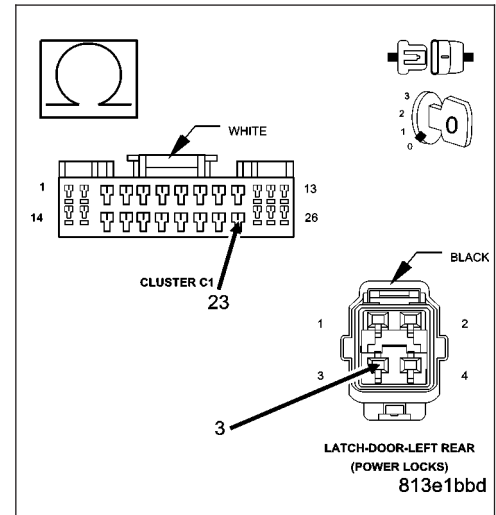
Is the resistance below 5.0 ohms?

Yes >> Replace the Door Latch.

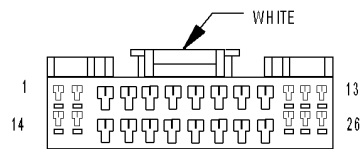
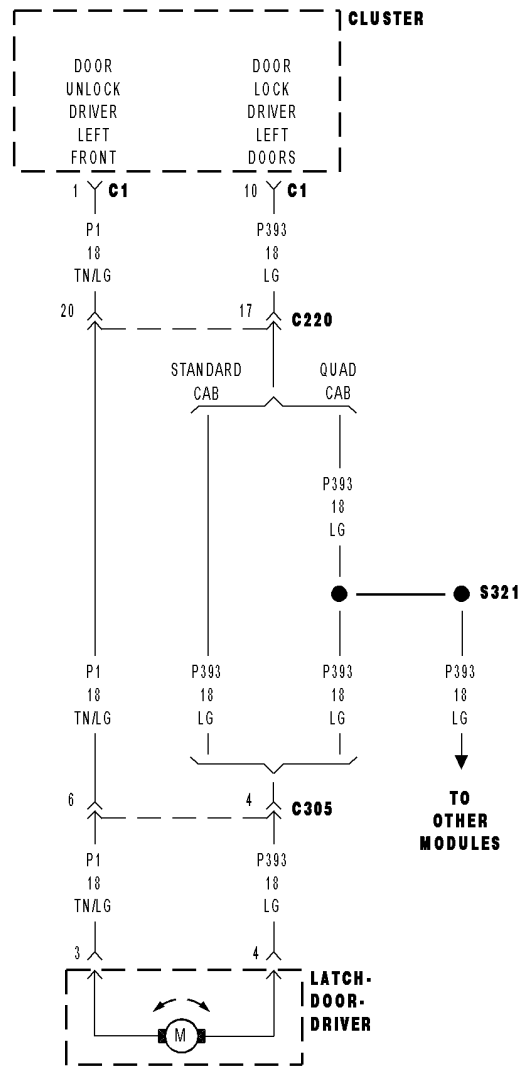
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Repair the (P5) Door Unlock Driver Left Rear wire for an open.

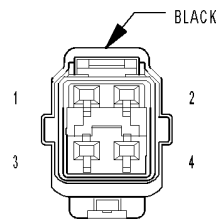
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



***DRIVER DOOR FAILS TO LOCK AND UNLOCK**



CLUSTER C1



**LATCH-DOOR-DRIVER
(POWER LOCKS)**

***DRIVER DOOR FAILS TO LOCK AND UNLOCK (CONTINUED)**

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS)

For a complete wiring diagram **Refer to Section 8W.**

Possible Causes
DTC PRESENT (P393) DOOR LOCK DRIVER LEFT DOORS WIRE OPEN (P1) DOOR UNLOCK DRIVER LEFT FRONT WIRE OPEN DOOR LATCH INSTRUMENT CLUSTER

Diagnostic Test**1. DTC PRESENT**

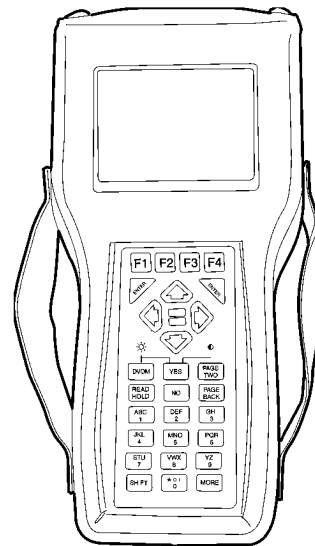
Turn the ignition on.

With the DRBIII®, read DTC's.

Does the DRBIII® display any Door Lock related DTC's?

Yes >> Refer to symptom list for problems related to Power Door Locks and diagnose and repair DTC's.

No >> Go To 2



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DRIVER DOOR FAILS TO LOCK AND UNLOCK (CONTINUED)*2. INSTRUMENT CLUSTER**

Turn the ignition off.

Disconnect the Instrument Cluster C1 connector.

Connect a jumper wire between the (P1) Door Unlock Driver Left Front circuit in the Instrument Cluster C1 connector and ground.

Momentarily connect a fused jumper wire between the Fused B+ circuit and the (P393) Door Lock Driver Left Doors circuit in the Instrument Cluster C1 connector.

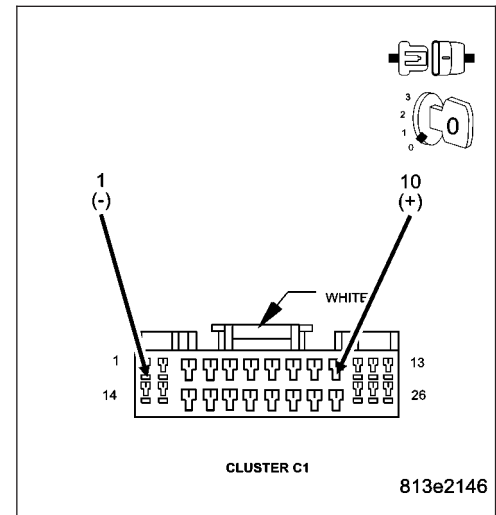
Reverse the jumper wires to drive the motor in the opposite direction.

Did the Driver Door lock and unlock?

Yes >> Replace the Instrument Cluster.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 3

**3. (P393) DOOR LOCK DRIVER LEFT DOORS WIRE OPEN**

Disconnect the Driver Door Latch connector.

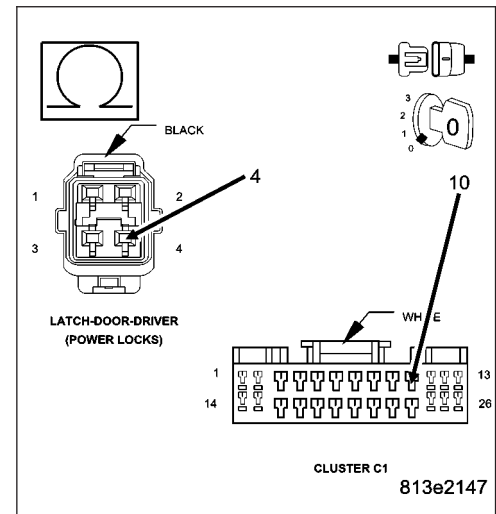
Measure the resistance of the (P393) Door Lock Driver Left Doors circuit between the Instrument Cluster C1 connector and the Door Latch connector.

Is the resistance below 5.0 ohms?

Yes >> Go To 4

No >> Repair the (P393) Door Lock Driver Left Doors wire for an open.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



DRIVER DOOR FAILS TO LOCK AND UNLOCK (CONTINUED)*4. (P1) DOOR UNLOCK DRIVER LEFT FRONT WIRE OPEN**

Measure the resistance of the (P1) Door Unlock Driver Left Front circuit between the Instrument Cluster C1 connector and the Door Latch connector.

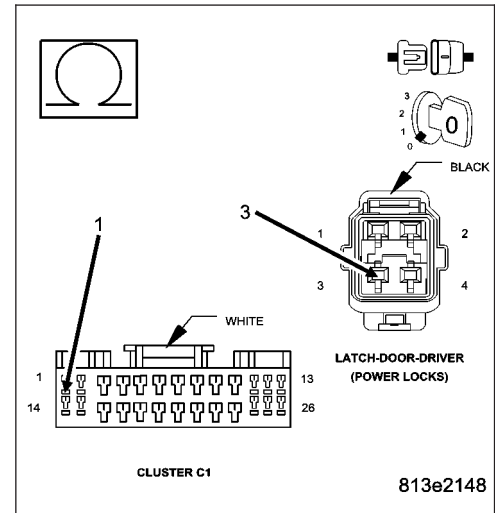
Is the resistance below 5.0 ohms?

Yes >> Replace the Door Latch.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Repair the (P1) Door Unlock Driver Left Front wire for an open.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



***ONE DOOR LOCK MOTOR INOPERATIVE**

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS).

For a complete wiring diagram **Refer to Section 8W.**

Possible Causes
DTC's PRESENT
DOOR LOCK DRIVER OR DOOR UNLOCK DRIVER CIRCUIT OPEN
DOOR LATCH

Diagnostic Test**1. CHECK DOOR LOCK MOTOR CIRCUIT**

With the DRBIII®, read DTCs. If there are any door lock related DTC's, refer to symptom list for problems related to Power Door Locks and diagnose and repair the DTC's..

Disconnect the inoperative Door Latch connector.

Connect a 12 volt test light between the Door Lock Driver and the Door Unlock Driver circuits in the latch connector.

NOTE: Graphic shows Passenger Latch – all others similar.

Operate the door locks several time in the lock and unlock positions from a door lock switch and observe the test light.

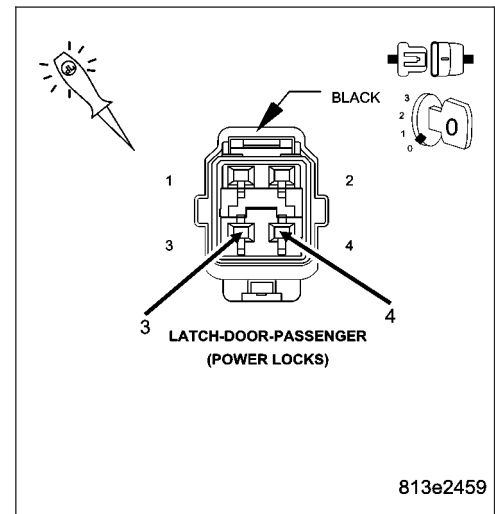
Does the test light illuminate brightly when the locks are actuated in both directions?

Yes >> Replace the Door latch.

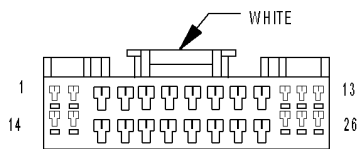
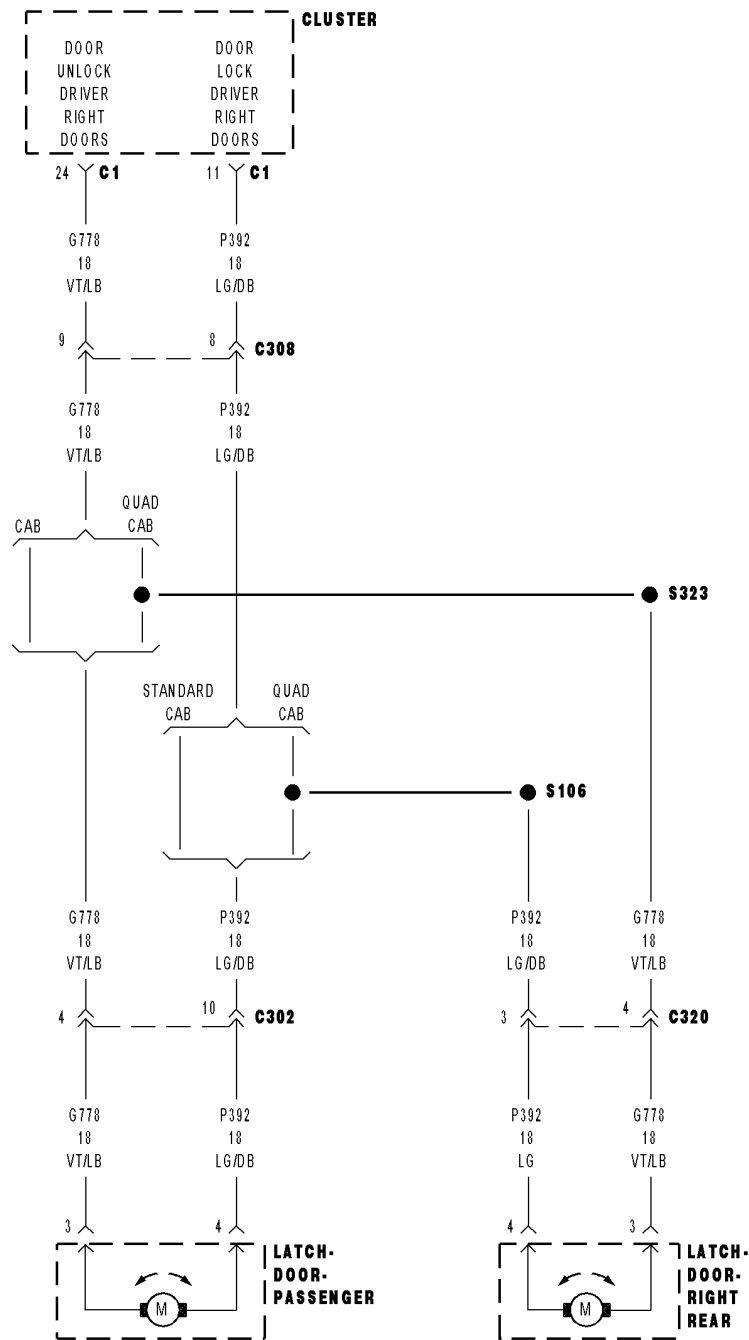
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Repair the appropriate Door Lock Driver or Door Unlock Driver circuit for an open.

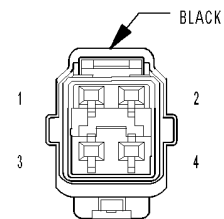
Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



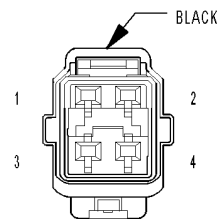
***RIGHT DOORS FAIL TO LOCK AND UNLOCK – QUAD CAB**



CLUSTER C1



**LATCH-DOOR-PASSENGER
(POWER LOCKS)**



**LATCH-DOOR-
RIGHT REAR
(POWER LOCKS)**

***RIGHT DOORS FAIL TO LOCK AND UNLOCK – QUAD CAB (CONTINUED)**

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS)

For a complete wiring diagram **Refer to Section 8W.**

Possible Causes
DTC PRESENT (P392) DOOR LOCK DRIVER RIGHT DOORS WIRE OPEN (G778) DOOR UNLOCK DRIVER RIGHT DOORS WIRE OPEN DOOR LATCH INSTRUMENT CLUSTER

Diagnostic Test**1. DTC PRESENT**

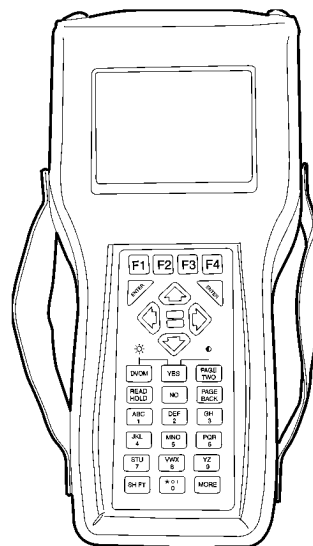
Turn the ignition on.

With the DRBIII®, read DTC's.

Does the DRBIII® display any Door Lock related DTC's?

Yes >> Refer to symptom list for problems related to Power Door Locks and diagnose and repair DTC's.

No >> Go To 2



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RIGHT DOORS FAIL TO LOCK AND UNLOCK – QUAD CAB (CONTINUED)*2. INSTRUMENT CLUSTER**

Turn the ignition off.

Disconnect the Instrument Cluster C1 connector.

Connect a jumper wire between the (G778) Door Unlock Driver Right Doors circuit in the Instrument Cluster C1 connector and ground.

Momentarily connect a fused jumper wire between the Fused B+ circuit and the (P392) Door Lock Driver Right Doors circuit in the Instrument Cluster C1 connector.

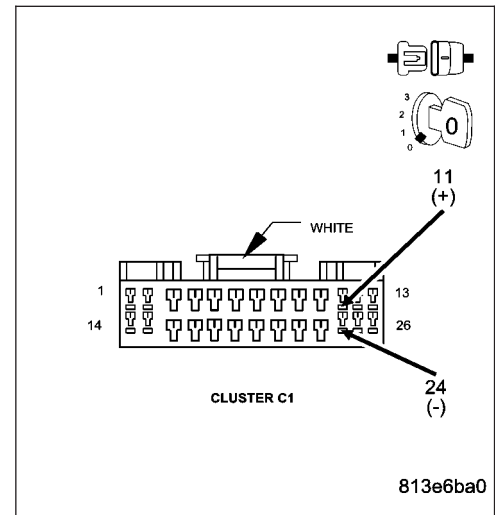
Reverse the jumper wires to drive the motor in the opposite direction.

Did the Right Doors lock and unlock?

Yes >> Replace the Instrument Cluster.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 3

**3. (P392) DOOR LOCK DRIVER RIGHT DOORS WIRE OPEN**

Disconnect the Passenger Door Latch connector.

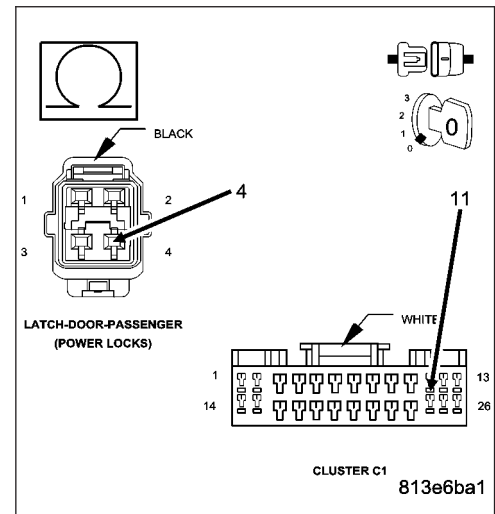
Measure the resistance of the (P392) Door Lock Driver Right Doors circuit between the Instrument Cluster C1 connector and the Passenger Door Latch connector.

Is the resistance below 5.0 ohms?

Yes >> Go To 4

No >> Repair the (P392) Door Lock Driver Right Doors wire for an open.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



RIGHT DOORS FAIL TO LOCK AND UNLOCK – QUAD CAB (CONTINUED)*4. (G778) DOOR UNLOCK DRIVER RIGHT DOORS WIRE OPEN**

Measure the resistance of the (G778) Door Unlock Driver Right Doors circuit between the Instrument Cluster C1 connector and the Passenger Door Latch connector.

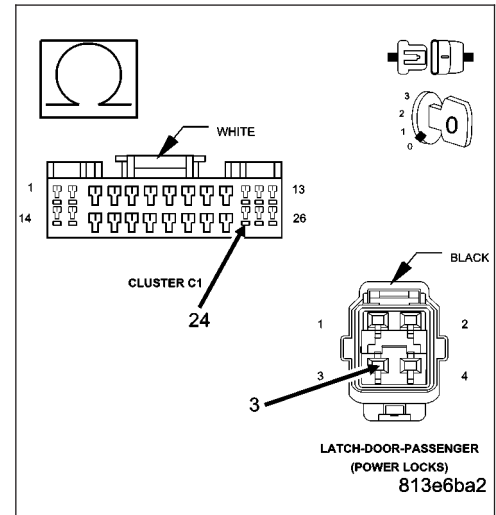
Is the resistance below 5.0 ohms?

Yes >> Replace the Door Latch.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Repair the (G778) Door Unlock Driver Right Doors wire for an open.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)



***RKE INOPERATIVE**

For the Power Door Lock circuit diagram (Refer to 8 - ELECTRICAL/POWER LOCKS - SCHEMATICS AND DIAGRAMS).

For a complete wiring diagram **Refer to Section 8W.**

Possible Causes
DTC PRESENT
TRANSMITTER NOT PROGRAMMED
RKE TRANSMITTER
REMOTE KEYLESS ENTRY MODULE

Diagnostic Test**1. DTC PRESENT**

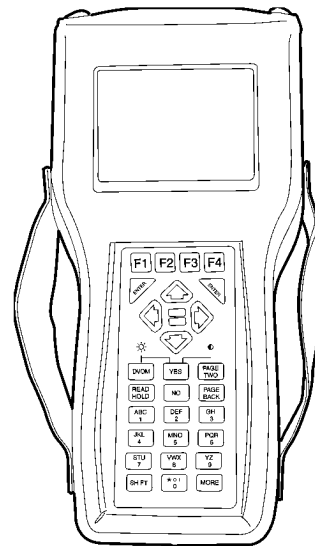
With the DRBIII®, read DTCs.

Attempt to operate the door locks with the RKE transmitter.

Does the DRBIII® display RKE FOB BATTERY LOW?

Yes >> Refer to symptom RKE FOB BATTERY LOW in this category.

No >> Go To 2



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2. 9001 TESTER AVAILABLE

Do you have access to the Miller Special Tool "9001 RF DETECTOR"?

No >> Go To 3

Yes >> Go To 5

RKE INOPERATIVE (CONTINUED)*3. TRANSMITTER NOT PROGRAMMED**

Turn the ignition on.

Place transmission in the Park position.

Ensure Vehicle Theft Security System (if equipped) is in Disarmed Mode.

With the DRBIII®, select ELECTRO/MECH CLUSTER, MISCELLANEOUS, PROGRAM New Fob.

Follow the instructions on the DRBIII screen

Programming mode will last for 30 seconds. To get out of Programming Mode sooner, press PAGE BACK.

Try the door locks using the Transmitter.

Does the RKE System operate properly?

Yes >> Repair complete. Check with the customer to see if the other transmitter(s) are operating properly. They may have to be programmed also.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 4

4. SUBSTITUTE A KNOWN GOOD TRANSMITTER

Secure a known good transmitter.

With the DRBIII®, select ELECTRO/MECH CLUSTER, MISCELLANEOUS, PROGRAM New Fob.

Follow the instructions on the DRBIII screen.

Programming mode will last for 30 seconds. To get out of Programming Mode sooner, press PAGE BACK.

Lock and Unlock the vehicle using the transmitter.

Does the RKE System operate properly?

Yes >> Replace the original transmitter and program all transmitters that will be used with this vehicle.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the Remote Keyless Entry Module and reprogram all transmitters used with this vehicle.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

5. TEST TRANSMITTER WITH TESTER

Using the 9001 RF Detector, follow the instructions on the back of the tester and test the transmitter several times.

Does the signal strength measure "STRONG"?

Yes >> Go To 6

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the transmitter and program all transmitters that will be used with this vehicle.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

***RKE INOPERATIVE (CONTINUED)**

6. PROGRAM RKE TRANSMITTER WITH THE DRBIII®

Turn the ignition on

Place transmission in the Park position.

Ensure Vehicle Theft Security System (if equipped) is in Disarm Mode.

With the DRBIII®, select ELECTRO/MECH CLUSTER, MISCELLANEOUS, then PROGRAM New Fob. Follow the instructions on the screen.

Exit PROGRAM RKE.

Activate the Door Locks using the RKE Transmitter.

NOTE: When repairs are complete, ensure all transmitters used with the vehicle have been programmed.

Did the door locks respond properly to the RKE transmitter commands?

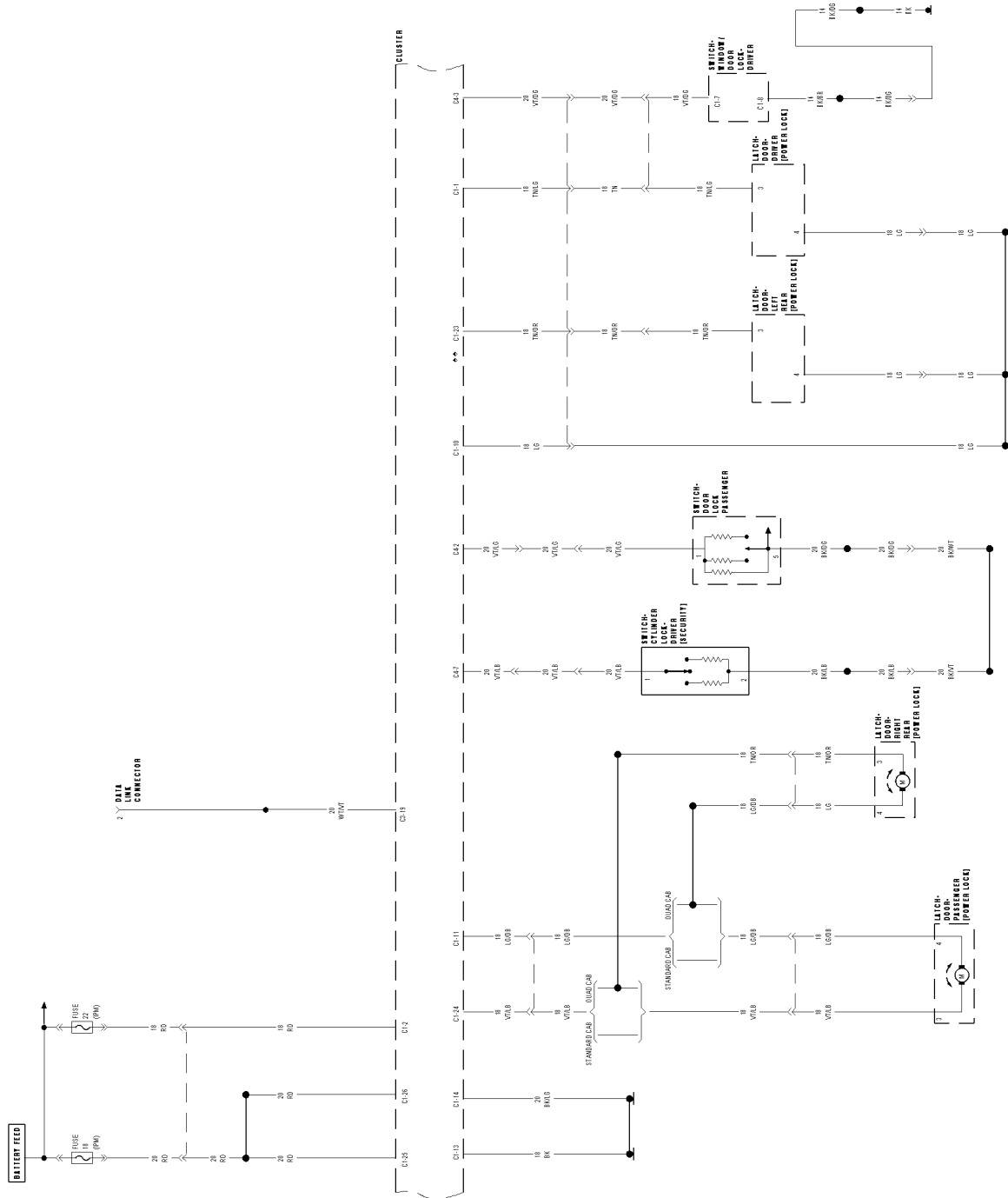
Yes >> Repair complete.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Replace the Remote Keyless Entry Module and reprogram all transmitters used with this vehicle.

Perform BODY VERIFICATION TEST - VER 1. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/FRONT CONTROL MODULE - DIAGNOSIS AND TESTING)

SCHEMATICS AND DIAGRAMS



0.000 CUB

POWER DOOR LOCK SYSTEM

81544100

POWER LOCKS - SERVICE INFORMATION

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POWER LOCKS - SERVICE INFORMATION

DESCRIPTION

POWER LOCKS

The power lock system allows all of the doors to be locked or unlocked electrically by operating a switch on either front door trim panel. The power lock system receives non-switched battery current through a fuse in the Integrated Power Module (IPM), so that the power locks remain operational, regardless of the ignition switch position.

The instrument cluster locks the doors automatically when the vehicle is driven beyond the speed of 25.7 Km/h (15 mph), all doors are closed and the accelerator pedal is depressed. The rolling door lock feature can be disabled if desired.

This vehicle also offers several customer programmable features, which allows the selection of several optional electronic features to suit individual preferences.

The power lock system for this vehicle can also be operated remotely using the available Remote Keyless Entry (RKE) system radio frequency transmitters, if equipped.

Certain functions and features of the power lock system rely upon resources shared with other electronic modules in the vehicle over the Programmable Communications Interface (PCI) data bus network. For proper diagnosis of these electronic modules or of the PCI data bus network, the use of a scan tool and the appropriate diagnostic information are required.

CENTRAL LOCKING/UNLOCKING

The instrument cluster will lock all doors when a cylinder lock switch is activated in the "lock" position. When the instrument cluster receives an unlock command from one of the cylinder lock switches, it will unlock only that door. If the instrument cluster receives a second command within a 5 second period, it will unlock all the remaining doors. The illuminated entry will activate during door unlock.

ENHANCED ACCIDENT RESPONSE

Upon detection of an airbag deployment by way of the PCI bus, the instrument cluster will:

- Immediately disable the power door lock output.
- Unlock all doors by activating the door unlock output for approximately 300 milliseconds.
- After actuating the door unlock output, allow the door lock motors to be activated if the door lock input has been inactive (not erratic) for 2 seconds since the reception of the airbag deployment message.

REMOTE KEYLESS ENTRY

A Radio Frequency (RF) type Remote Keyless Entry (RKE) system is an available factory-installed option on this model. The RKE system allows the use of a remote battery-powered radio transmitter to signal the instrument cluster to actuate the power lock system. The RKE receiver operates on non-switched battery current through a fuse in the Integrated Power Module (IPM), so that the system remains operational, regardless of the ignition switch position.

The RKE transmitters are also equipped with a Panic button. If the Panic button on the RKE transmitter is depressed, the horn will sound and the exterior lights will flash on the vehicle for about three minutes, or until the Panic button is depressed a second time. A vehicle speed of about 25.7 kilometers-per-hour (15 miles-per-hour) will also cancel the panic event.

The RKE system can also perform other functions on this vehicle. If the vehicle is equipped with the optional Vehicle Theft Security System (VTSS), the RKE transmitter will arm the VTSS when the Lock button is depressed, and disarm the VTSS when the Unlock button is depressed.

The RKE system includes two transmitters when the vehicle is shipped from the factory, but the system can retain the vehicle access codes of up to a total of four transmitters. The transmitter codes are retained in the RKE module memory, even if the battery is disconnected. If an RKE transmitter is faulty or lost, new transmitter vehicle access codes can be programmed into the system using a scan tool.

This vehicle also offers several customer programmable features, which allows the selection of several optional electronic features to suit individual preferences. Customer programmable feature options affecting the RKE system include:

- **Remote Unlock Sequence** - Allows the option of having only the driver side front door unlock when the RKE transmitter Unlock button is depressed the first time. The remaining doors unlock when the button is depressed a second time within 5 seconds of the first unlock press. Another option is having all doors unlock upon the first depression of the RKE transmitter Unlock button.
- **Sound Horn on Lock** - Allows the option of having the horn sound a short chirp as an audible verification that the RKE system received a valid Lock request from the RKE transmitter, or having no audible verification.
- **Flash Lights with Lock and Unlock** - Allows the option of having the park lamps flash as an optical verification that the RKE system received a valid Lock request or Unlock request from the RKE transmitter, or having no optical verification.
- **Programming Additional Transmitters** - Allows up to a total of four transmitter vehicle access codes to be stored in the receiver memory.

Certain functions and features of the RKE system rely upon resources shared with other electronic modules in the vehicle over the Programmable Communications Interface (PCI) data bus network. For diagnosis of these electronic modules or of the PCI data bus network, the use of a scan tool and the appropriate diagnostic information are required.

OPERATION

POWER LOCKS

The instrument cluster locks or unlocks the doors when an actuation input signal from a door lock switch or Remote Keyless Entry (RKE) module is received. The instrument cluster turns on the output drivers and provides a voltage level to the door lock motor for a specified time. All passenger doors can be locked or unlocked using a mechanical button mounted on the door trim panel. The drivers door can be locked or unlocked by using the key cylinder.

AUTOMATIC DOOR LOCKS

When the automatic door locks are ENABLED the door locks will lock when the vehicle is moving at about 25.7 Km/h (15 mph), all doors are closed and the accelerator pedal is depressed. This feature can be switched ON or

OFF as desired. When the system is DISABLED the door locks will operate normally, but will not lock automatically when the vehicle is rolling. Once the automatic door locks have been actuated, they will not try to lock the doors again until a door is opened.

DOOR LOCK INHIBIT

If the key is in the ignition, in any position, and either front door is ajar, the doors can not be locked, but the unlock function still operates. Pressing the RKE lock/unlock button under these conditions will result in a normal lock/unlock activation.

After the key is removed from the ignition switch, or the doors are closed, the power door locks will operate normally.

DOOR LOCK CIRCUIT PROTECTION

If the door lock switch is actuated continuously for more than five seconds the instrument cluster will turn the output driver OFF (the instrument cluster would consider the switch stuck). Each lock motor is protected with a Positive Temperature Coefficient device that prevents motor burn out.

REMOTE KEYLESS ENTRY

- **LOCK:** Pressing the LOCK button locks all doors, sounds horn (chirp) once if enabled, flashes the park lamps once if enabled, and arms the Vehicle Theft Security System (VTSS), if enabled. The chirp verifies that the RKE module has sent a message to the instrument cluster for door lock operation. If a door has not been closed before pressing the LOCK button, the vehicle may not be secured and the VTSS (if equipped) will not arm until the door is closed.
- **UNLOCK:** Pressing the UNLOCK button once will unlock the driver's door first if enabled, flashes the park lamps twice if enabled, activates the illuminated entry system, and disarms the Vehicle Theft Security System (VTSS), if equipped. Pressing the UNLOCK button twice within five seconds will unlock all doors, if driver's door first is enabled.
- **PANIC:** Pressing the PANIC button sounds the horns at half second intervals, flashes the exterior lamps, and turns ON the interior lamps. The panic alarm will remain on for three minutes, or until the PANIC button is actuated again or the vehicle speed exceeds 25.7 Km/h (15 mph) will cancel the panic event.

The Remote Keyless Entry Module is capable of retaining the transmitter Vehicle Access Code(s) in its memory even after vehicle power has been interrupted.

DIAGNOSIS AND TESTING

POWER LOCKS

The most reliable, efficient, and accurate means to diagnose the power lock system requires the use of a scan tool and the proper Diagnostic Procedures information.

Refer to the appropriate wiring information.

Following are tests that will help to diagnose the hard wired components and circuits of the power lock system. However, these tests may not prove conclusive in the diagnosis of this system. In order to obtain conclusive testing of the power lock system, the Programmable Communications Interface (PCI) data bus network and all of the electronic modules that provide inputs to, or receive outputs from the power lock system components must be checked.

The instrument cluster will set Diagnostic Trouble Codes (DTC) for the power lock system.

PRELIMINARY DIAGNOSIS

As a preliminary diagnosis for the power lock system, note the system operation while you actuate both the Lock and Unlock functions with the power lock switches and with the Remote Keyless Entry (RKE) transmitter. Then, proceed as follows:

- If the entire power lock system fails to function with either the power lock switches or the RKE transmitter, check the fused B(+) fuse in the Integrated Power Module (IPM).
- If the power lock system functions with both power lock switches, but not with the RKE transmitter, proceed to diagnosis of the Remote Keyless Entry (RKE) system. (Refer to 8 - ELECTRICAL/POWER LOCKS/KEYLESS ENTRY TRANSMITTER - DIAGNOSIS AND TESTING) or (Refer to 8 - ELECTRICAL/POWER LOCKS/REMOTE KEYLESS ENTRY MODULE - DIAGNOSIS AND TESTING).

- If the power lock system functions with the RKE transmitter, but not with one or both power lock switches, proceed to diagnosis of the door lock switches. (Refer to 8 - ELECTRICAL/POWER LOCKS/POWER LOCK SWITCH - DIAGNOSIS AND TESTING).
- If the driver side power lock switch operates only the driver side front door power lock motor, but all other power lock motors operate with the passenger side power lock switch or the RKE transmitter, use a scan tool and the appropriate diagnostic information to diagnose the Programmable Communications Interface (PCI) data bus.
- If only one power lock motor fails to operate with both power lock switches and the RKE transmitter, proceed to diagnosis of the power lock motor. (Refer to 8 - ELECTRICAL/POWER LOCKS/POWER LOCK MOTOR - DIAGNOSIS AND TESTING).

MOTOR - DOOR LOCK

DESCRIPTION

The lock mechanisms are actuated by a reversible electric motor mounted within each door. The power lock motors are integral to the door latch units.

The power lock motors cannot be adjusted or repaired and, if faulty or damaged, the door latch unit must be replaced.

OPERATION

The door lock motors are controlled by the instrument cluster. A positive and negative battery connection to the two motor terminals will cause the motor to move in one direction. Reversing the current will cause the motor to move in the opposite direction.

DIAGNOSIS AND TESTING

DOOR LOCK MOTOR

The most reliable, efficient, and accurate means to diagnose the power lock system requires the use of a scan tool and the proper Diagnostic Procedures information.

Refer to the appropriate wiring information.

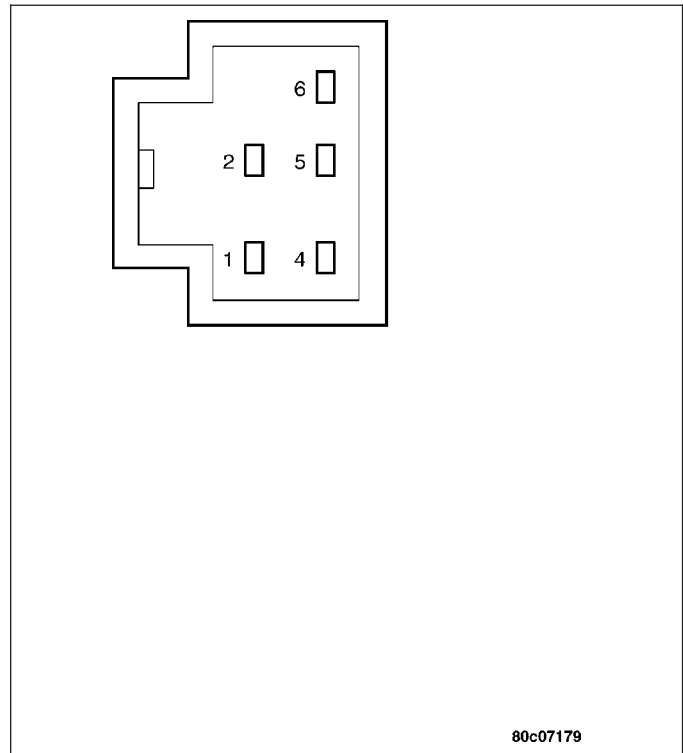
SWITCH - POWER LOCK

DIAGNOSIS AND TESTING

POWER LOCK SWITCH

The Light-Emitting Diode (LED) illumination lamp of the power lock switch receives battery current through a fuse in the Integrated Power Module (IPM) on a fused ignition switch output (run) circuit. The power lock switch on the driver side front door trim panel is integral to the window/lock switch (Refer to 8 - ELECTRICAL/POWER LOCKS/DOOR MODULE - DIAGNOSIS AND TESTING). If the power lock switch operates, but the LED is inoperative, check for battery current at the switch with the ignition switch in the On position. If OK, replace the faulty switch. Refer to the appropriate wiring information.

1. Disconnect and isolate the battery negative cable. Remove the power lock switch from the door trim panel. Disconnect the door wire harness connector for the power lock switch from the switch connector receptacle.
2. Test the power lock switch resistance. See the Power Lock Switch Test chart to determine if the resistance is correct for the switch in each switch position. If not OK, replace the faulty power lock switch as required.



POWER LOCK SWITCH TEST TABLE

SWITCH POSITION	RESISTANCE BETWEEN PINS 1 & 5
NEUTRAL	10 KILOHMS $\pm 1\%$
LOCK	820 OHMS $\pm 5\%$
UNLOCK	330 OHMS $\pm 5\%$

REMOVAL

The power lock switch on the driver side front door trim panel is integral to the window/lock switch. (Refer to 8 - ELECTRICAL/POWER LOCKS/DOOR MODULE - REMOVAL).

1. Disconnect and isolate the battery negative cable.
2. Remove the door trim panel (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - REMOVAL).

3. Remove the switch from the trim panel bezel.

INSTALLATION

1. Insert switch to trim panel bezel.
2. Install door trim panel (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - INSTALLATION).
3. Connect battery negative cable.

MODULE-REMOTE KEYLESS ENTRY

DESCRIPTION

When an RKE lock message is sent to the instrument cluster, the instrument cluster actuates the door locks, the interior lighting is turned off, the horn chirps (if this feature is enabled), the park lamps flash (if this feature is enabled) and, if the vehicle is so equipped, the Vehicle Theft Security System (VTSS) is armed. When an RKE unlock message is sent to the instrument cluster, the instrument cluster actuates the driver side front door (or all doors if this feature is enabled) unlock, the interior lighting is turned on and, if the vehicle is so equipped, the VTSS is disarmed.

When an RKE panic message is sent to the instrument cluster, the instrument cluster actuates the driver side front door (or all doors if this feature is enabled) unlock, the interior lighting is turned on and, if the vehicle is so equipped, the VTSS is disarmed. The panic message will also cause the exterior lamps (including the headlights) to flash, and the horn to sound for about three minutes, or until a second panic message is sent to the instrument cluster. A vehicle speed of about 25.7 kilometers-per-hour (15 miles-per-hour) will also cancel the panic event.

OPERATION

Whenever the vehicle battery power is interrupted, the Remote Keyless Module (RKE) Module will retain all vehicle access codes in its memory. When replacing or adding a key fob transmitter (maximum of 4) a scan tool is required to program the RKE Module to accept the new Vehicle Access Code if a customer owned transmitter is not available.

If a functioning transmitter is available, (Refer to 8 - ELECTRICAL/POWER LOCKS/KEYLESS ENTRY TRANSMITTER - STANDARD PROCEDURE)

DIAGNOSIS AND TESTING

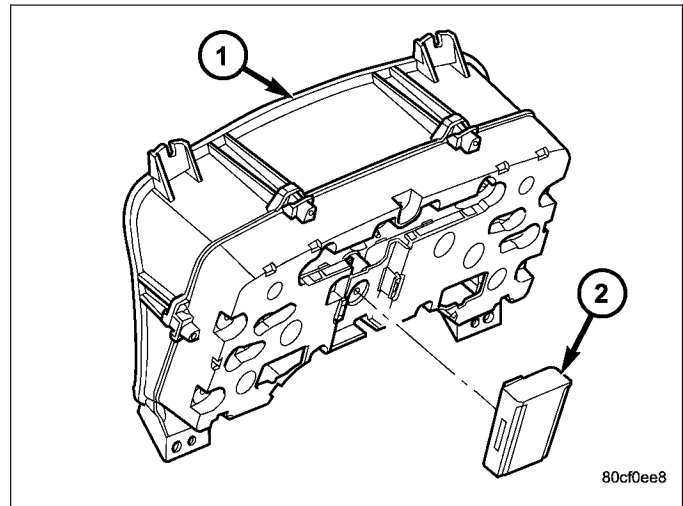
REMOTE KEYLESS ENTRY MODULE

The most reliable, efficient, and accurate means to diagnose the power lock system requires the use of a scan tool and the proper Diagnostic Procedures information.

Refer to the appropriate wiring information.

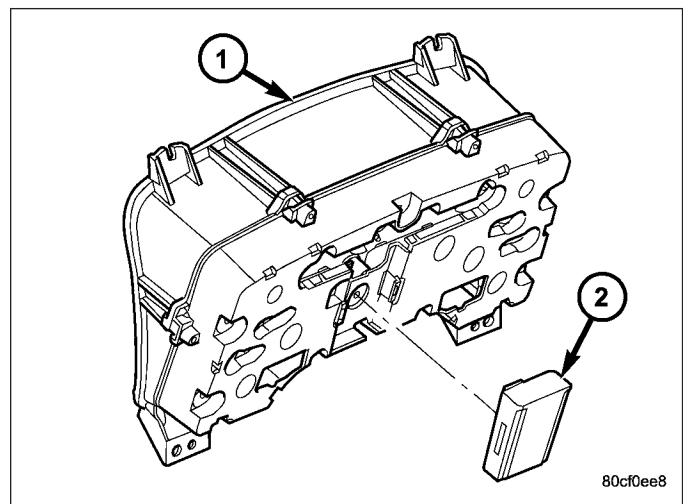
REMOVAL

1. Disconnect and isolate the battery negative cable.
2. Remove the instrument cluster (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - REMOVAL).
3. Remove remote keyless entry module (2) from instrument cluster (1).



INSTALLATION

1. Install remote keyless entry module (2) to instrument cluster (1).
2. Install instrument cluster (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - INSTALLATION).
3. Connect the battery negative cable.



SWITCH - WINDOW/DOOR LOCK

DESCRIPTION

A window/lock switch is used on all models equipped with power locks, power windows, and power mirrors. The window/lock switch houses the following switches:

- **Power Lock Switch** - A two-way, momentary, resistor multiplexed switch to control the power lock system.
- **Power Mirror Selector Switch** - A three-position rocker switch selects the right or left power mirror for adjustment, or turns the power mirror system Off.
- **Power Mirror Adjustment Switches** - Four momentary, arrowhead shaped, directional switches allow the driver to adjust the selected power mirror in the Up, Down, Right, or Left directions.
- **Power Window Lockout Switch** - A two-way, latching, push-button switch allows the vehicle operator to lock out the power window switches on each passenger door so that the passenger door power windows may be operated only from the master switches.
- **Power Window Switches** - A two-way, momentary power window switch for the driver side front door. This switch also has a second detent in the Down direction and internal circuitry to provide an Auto-Down feature for the driver side front door power window. In addition to the power window switch for its own door, there are individual master switches for each passenger door power window.

The window/lock switch also incorporates several green Light-Emitting Diodes (LEDs) that illuminate the power lock and power window switch paddles, and the power mirror switch directional buttons to improve switch visibility.

OPERATION

The window/lock switch combines a power lock switch, a driver power window switch with an Auto-down feature, master switches for each passenger door power window, a power window lockout switch, a power mirror selector switch, and four power mirror adjustment switches in a single unit.

Power Lock Switch

The power lock switch circuitry is connected in series between ground and the driver door switch mux input of the instrument cluster. Each power lock switch position (Lock, Unlock, and Neutral) provides a different resistance value to the instrument cluster input, which allows the instrument cluster to sense the switch position. Based upon the power lock switch input, the instrument cluster controls the battery and ground feed outputs to the individual power lock motors to lock or unlock the door latches. The Light-Emitting Diode (LED) in the power lock switch is connected to battery current through the power window circuit breaker in the Integrated Power Module (IPM) on a fused ignition switch output (run-acc) circuit. The switch will be illuminated whenever the ignition switch is in the On or Accessory positions.

Power Window Switches

The power window switch circuitry is connected to battery current through a circuit breaker in the Integrated Power Module (IPM) on a fused ignition switch output (run-acc) circuit so that the power windows will operate whenever the ignition switch is in the On or Accessory positions. Each two-way, momentary master passenger power window switch provides battery current and ground to the individual power window switches on each passenger door so that the power window switch controls the battery current and ground feeds to its respective power window motor. The switch for the driver side front door power window is labeled "Auto" and includes an auto-down feature. When this switch is depressed to a second momentary detent position and released, the driver door power window is automatically operated through an internal circuit and relay to its fully lowered position. The Auto-down event is cancelled if the switch paddle is depressed a second time in either the Up or Down direction. When the two position window lockout switch is depressed and latched in the lockout position, the battery current feed to each of the individual passenger power window switches is interrupted so that the passenger door power windows can only be operated from the master switches. The window lockout switch also controls the battery current feed for the LED in each passenger power window switch so that the switch will not be illuminated when it is locked out.

Power Mirror Switches

The power mirror switch circuitry is connected to battery current through a fuse in the IPM on a fused B(+) circuit so that the power mirrors remain operational regardless of the ignition switch position. A rocker type selector switch has three positions, one to select the right mirror, one to select the left mirror, and a neutral Off position. After the right or left mirror is selected, one of four directional buttons is depressed to move the selected mirror Up, Down, Right or Left. The power mirror switch circuitry controls the battery current and ground feeds to each of the four (two in each mirror head) power mirror motors. The Light-Emitting Diode (LED) in the power mirror switch is connected to battery current through the power window circuit breaker in the IPM on a fused ignition switch output (run-acc) circuit so that the switch directional buttons will be illuminated whenever the ignition switch is in the On or Accessory positions.

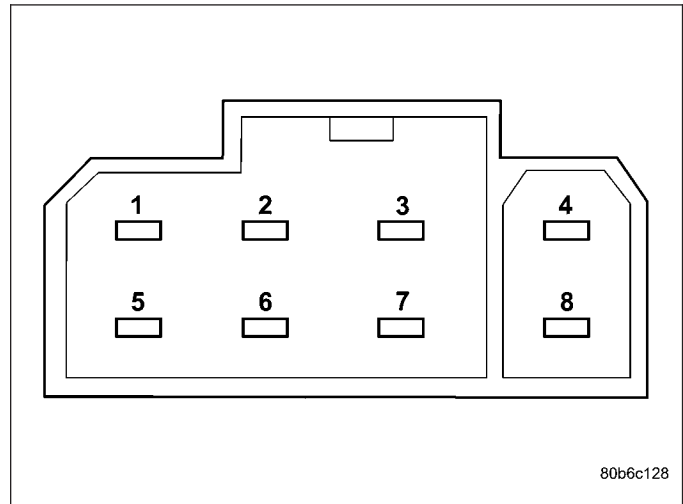
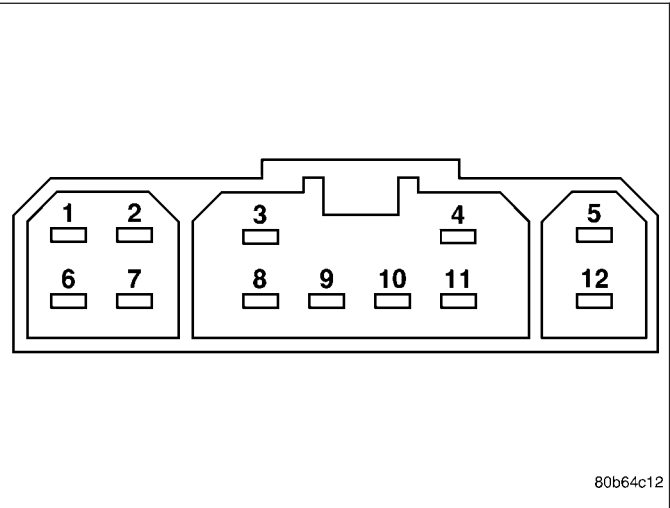
DIAGNOSIS AND TESTING

WINDOW/LOCK SWITCH

The Light-Emitting Diode (LED) illumination lamps for all of the Driver Door Module (DDM) power window, power lock, and power mirror switches receive battery current through the power window circuit breaker in the Integrated Power Module (IPM). If all of the LEDs are inoperative in the DDM, be certain to diagnose the power window system before replacing the switch unit. (Refer to 8 - ELECTRICAL/POWER WINDOWS - DIAGNOSIS AND TESTING). If only one LED in the DDM is inoperative, replace the faulty DDM. If the driver side front door power window operates in a normal manner, but the Auto-Down feature is inoperative, replace the faulty DDM. Refer to the appropriate wiring information.

1. Disconnect and isolate the battery negative cable. Remove the DDM from the door trim panel. Disconnect the door wire harness connectors for the DDM from the DDM connector receptacles.

2. Test the DDM switch continuity. See the Driver Door Module Switch Tests chart to determine if the continuity is correct for the suspect switches in each switch position. If not OK, replace the faulty DDM as required.



DRIVER DOOR MODULE SWITCH TESTS	
POWER LOCK SWITCH	
SWITCH POSITION	RESISTANCE BETWEEN CONNECTOR C-1 PINS 7 & 11
NEUTRAL	10 KILOHMS $\pm$ 1%
LOCK	820 OHMS $\pm$ 5%
UNLOCK	330 OHMS $\pm$ 5%
POWER MIRROR SWITCH	
SWITCH POSITION	CONTINUITY BETWEEN PINS OF CONNECTOR C-2
LEFT MIRROR SELECTED	
UP	PINS 1 & 3
DOWN	PINS 2 & 3
RIGHT	PINS 2 & 3
LEFT	PINS 3 & 6
RIGHT MIRROR SELECTED	

DRIVER DOOR MODULE SWITCH TESTS	
UP	PINS 3 & 7
DOWN	PINS 2 & 3
RIGHT	PINS 2 & 3
LEFT	PINS 3 & 4
POWER WINDOW SWITCH	
SWITCH POSITION	CONTINUITY BETWEEN PINS OF CONNECTOR C-1
NEUTRAL	PINS 1 & 8, PINS 2 & 8, PINS 3 & 8, PINS 4 & 8, PINS 5 & 8, PINS 6 & 8, PINS 8 & 10, PINS 8 & 12
LEFT FRONT UP	PINS 5 & 9
LEFT FRONT DOWN	PINS 9 & 12
RIGHT FRONT UP	PINS 3 & 9
RIGHT FRONT DOWN	PINS 6 & 9
LEFT REAR UP	PINS 4 & 9
LEFT REAR DOWN	PINS 9 & 10
RIGHT REAR UP	PINS 2 & 9
RIGHT REAR DOWN	PINS 1 & 9
POWER WINDOW LOCKOUT SWITCH	
SWITCH POSITION	CONTINUITY BETWEEN
OFF (SWITCH BUTTON RAISED - NOT DEPRESSED)	PIN 9 OF CONNECTOR C-1 & PIN 8 OF CONNECTOR C-2

REMOVAL

1. Disconnect and isolate the battery negative cable.
2. Remove the door trim panel (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - REMOVAL).
3. Remove the switch from the trim panel bezel.

INSTALLATION

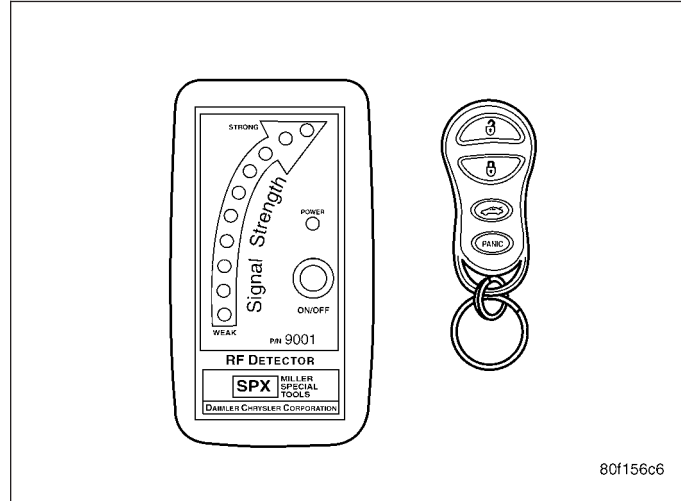
1. Install switch to trim panel bezel.
2. Install door trim panel (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - INSTALLATION).
3. Connect battery negative cable.

TRANSMITTER-REMOTE KEYLESS ENTRY

DIAGNOSIS AND TESTING

REMOTE KEYLESS ENTRY TRANSMITTER

Using special tool 9001, first test to ensure that the transmitter is functioning. Typical testing distance is 2.5 centimeters (1 inch) for Asian transmitters and 30.5 centimeters (12 inches) for all others. To test, position the transmitter as shown. Press any transmitter button, then test each button individually. The tool will beep if a radio signal strength that lights five or more LED's is detected. Repeat this test three times. If transmitter fails any of the test refer to the Diagnostic Procedures information.



STANDARD PROCEDURE

STANDARD PROCEDURE - RKE TRANSMITTER BATTERIES

NOTE: Do not disturb the metal terminal near the batteries. Avoid touching the new batteries. Skin oils may cause battery deterioration. If batteries are touched, clean with rubbing alcohol.

The Remote Keyless Entry (RKE) transmitter case snaps open and shut for battery access. To replace the RKE transmitter batteries:

1. Using a thin coin, gently pry at the notch in the center seam of the RKE transmitter case halves near the key ring until the two halves unsnap. Be careful not to damage the rubber gasket when separating the case halves.
2. Lift the back half of the transmitter case off of the RKE transmitter.
3. Remove the two batteries from the RKE transmitter.
4. Replace the two batteries with new 3V lithium 2016 cell. Install the batteries with the positive terminal up. Reference the "+ SIDE UP" on the inside of the bottom half of the transmitter case.
5. Align the two RKE transmitter case halves with each other, and squeeze them firmly and evenly together until they snap back into place. Test transmitter operation.

STANDARD PROCEDURE - RKE TRANSMITTER CUSTOMER PREFERENCES

AUTOMATIC (ROLLING) LOCKS

The rolling locks feature can be toggled ON/OFF by using a scan tool only.

HORN CHIRP DISABLING / ENABLING

The horn chirp can be toggled using a scan or by using the Remote Keyless Entry (RKE) transmitter that is already programmed to the vehicle.

To DISABLE (cancel) the horn chirp feature:

1. Enter the vehicle and close all doors.
2. Fasten the seat belt (this will cancel the seat belt chime).
3. Turn the ignition to the ON position.

4. Press and hold the LOCK button for 4 seconds. Within 6 seconds with the LOCK button still depressed, press the UNLOCK button. When a single chime is heard, release both buttons.
5. Turn the ignition OFF.
6. Turn the ignition ON or wait 60 seconds.
7. Test the horn chirp feature by pressing the LOCK button.

If a chime is not heard, program mode was canceled before the feature could be disabled. If necessary, repeat the procedure.

To ENABLE the horn chirp feature, repeat the above procedure.

OPTICAL CHIRP (FLASH) DISABLING / ENABLING

The optical chirp can be toggled using a scan tool or by using the Remote Keyless Entry (RKE) transmitter that is already programmed to the vehicle.

To DISABLE (cancel) the optical chirp feature:

1. Enter the vehicle and close all doors.
2. Fasten the seat belt (this will cancel the seat belt chime).
3. Turn the ignition to the ON position.
4. Press and hold the LOCK button for 4 seconds. Within 6 seconds with the LOCK button still depressed, press the PANIC button. When a single chime is heard, release both buttons.
5. Turn the ignition OFF.
6. Turn the ignition ON or wait 60 seconds.
7. Test the optical chirp feature by pressing the LOCK button.

If a chime is not heard, program mode was canceled before the feature could be disabled. If necessary, repeat the procedure.

To ENABLE the optical chirp feature, repeat the above procedure.

UNLOCK SEQUENCE

The unlock sequence can be toggled using a scan tool or by using the Remote Keyless Entry (RKE) transmitter that is already programmed to the vehicle.

To toggle between Driver door first and Unlock all doors function:

1. Enter the vehicle and close all doors.
2. Fasten the seat belt (this will cancel the seat belt chime).
3. Turn the ignition to the ON position.
4. Press and hold the UNLOCK button for 4 seconds. Within 6 seconds with the UNLOCK button still depressed, press the LOCK button. When a single chime is heard, release both buttons.
5. Turn the ignition OFF.
6. Turn the ignition ON or wait 60 seconds.

If a chime is not heard, program mode was canceled before the feature could be disabled. If necessary, repeat the procedure.

To toggle this feature, repeat the above procedure.

STANDARD PROCEDURE - RKE TRANSMITTER PROGRAMING

New Remote Keyless Entry (RKE) transmitters can be programed using the DRB III® scan tool and the proper Diagnostic Procedures manual. The DRB III® scan tool can provide confirmation that the PCI data bus is functional, and that all of the electronic modules are sending and receiving the proper messages on the PCI data bus.

The following procedure can be used as long as one programmed transmitter is available:

NOTE: When entering program mode using that programmed fob, ALL currently programmed fobs will be erased and they will have to be reprogrammed for the vehicle. If program mode is entered and no action is performed, the previously programmed fobs will continue to function.

1. Enter the vehicle and close all doors.

2. Fasten the seat belt (this will cancel the seat belt chime). Turn the ignition to the RUN position.
3. Press and hold the UNLOCK button on a programmed transmitter for 4 to 10 seconds. Within the 4 to 10 seconds with the UNLOCK button still depressed, press the PANIC button for one second. When a single chime is heard, release both buttons. The chime indicates the system is in program mode.
4. Press and release both the LOCK and UNLOCK buttons simultaneously on a fob to be programmed. A single chime will be heard, this indicates the fob has been recognized.
5. Press and release any button on the same fob. A single chime will be heard, this indicates the fob has been programmed.
6. Repeat steps 4 and 5 for up to a total of 4 fobs.
7. Turn the ignition OFF.
8. Turn the ignition ON or wait 60 seconds.

The vehicle will remain in program mode for up to 60 seconds from when the original chime (step 3) was heard. After 60 seconds, all programmed transmitters will function normally.

SPECIFICATIONS

REMOTE KEYLESS ENTRY TRANSMITTER

RANGE

Normal operation range is up to a distance of 3 to 7 meters (10 to 23 ft.) of the vehicle. Range may be better or worse depending on the environment around the vehicle.

POWER MIRRORS - SERVICE INFORMATION

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POWER MIRRORS - SERVICE INFORMATION

DESCRIPTION

AUTOMATIC DAY/NIGHT MIRROR

The automatic day/night mirror system is able to automatically change the reflectance of the inside rear view mirror in order to reduce the glare of headlamps approaching the vehicle from the rear. The automatic day/night rear view mirror receives battery current through a fuse in the Integrated Power Module (IPM) only when the ignition switch is in the On position.

OUTSIDE REAR VIEW MIRROR

The power operated outside rear view mirrors allow the driver to adjust both outside mirrors electrically from the driver side front seat position by operating a switch on the driver side front door trim panel. The power mirrors receive a non-switched battery feed through a fuse in the Integrated Power Module (IPM) so that the system will remain operational, regardless of the ignition switch position.

OPERATION

AUTOMATIC DAY/NIGHT MIRROR

A switch located on the bottom of the automatic day/night mirror housing allows the vehicle operator to select whether the automatic dimming feature is operational. When the automatic day/night mirror is turned on, the mirror switch is lighted by an integral Light-Emitting Diode (LED). The mirror will automatically disable its self-dimming feature whenever the vehicle is being driven in reverse.

OUTSIDE REAR VIEW MIRROR

The heated mirrors include an electric heating grid behind the mirror glass in each outside mirror, which can clear the mirror glass of ice, snow, or fog. (Refer to 8 - ELECTRICAL/HEATED MIRRORS - DESCRIPTION) for more information.

DIAGNOSIS AND TESTING

POWER MIRRORS

WIRING VOLTAGE TEST

The following wiring test determines whether or not voltage is continuous through the body harness to switch.

1. Remove the power mirror switch (Refer to 8 - ELECTRICAL/POWER LOCKS/DOOR MODULE - REMOVAL).
2. Disconnect wire harness connector from back of power mirror switch.
3. Connect the clip end of a 12 volt test light to Pin 5 in the mirror switch harness connector. Touch the test light probe to Pin 3.

If the test light illuminates, the wiring circuit between the battery and switch is OK.

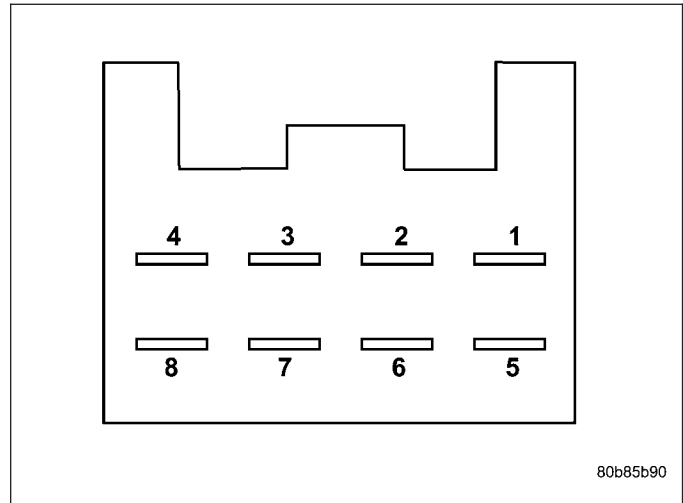
If the lamp does not illuminate, first check fuse in the Integrated Power Module (IPM). If fuse is OK, then check for a broken wire.

Refer to the appropriate wiring information.

POWER MIRROR MOTOR TEST

If the power mirror switch is receiving proper current and ground and mirrors do not operate, proceed with power mirror motor test. Refer to the appropriate wiring information.

1. Remove the power mirror switch (Refer to 8 - ELECTRICAL/POWER LOCKS/DOOR MODULE - REMOVAL).
2. Disconnect wire harness connector to power mirror switch.
3. Using two jumper wires:
 - Connect one to a 12 volt source
 - Connect the other to a good body ground
 - Refer to the Mirror Motor Test Chart for proper wire connections at the switch connector



MIRROR MOTOR TEST CHART

12 VOLTS	GROUND	MIRROR REACTION	
SWITCH CONNECTOR		RIGHT	LEFT
PIN 1	PIN 2	-	UP
PIN 6	PIN 2	-	LEFT
PIN 2	PIN 1	-	DOWN
PIN 2	PIN 6	-	RIGHT
PIN 7	PIN 2	UP	-
PIN 4	PIN 2	LEFT	-
PIN 2	PIN 7	DOWN	-
PIN 2	PIN 4	RIGHT	-

4. If results shown in table are not obtained, check for open or shorted circuit. Replace mirror assembly as necessary.

MIRROR-AUTOMATIC DAY / NIGHT

DESCRIPTION

The automatic day/night mirror uses a thin layer of electrochromic material between two pieces of conductive glass to make up the face of the mirror. When the mirror switch is in the On position, two photocell sensors are used by the mirror circuitry to monitor external light levels and adjust the reflectance of the mirror.

OPERATION

The ambient photocell sensor is located on the forward-facing (windshield side) of the rear view mirror housing, and detects the ambient light levels outside of the vehicle. The headlamp photocell sensor is located inside the rear view mirror housing behind the mirror glass and faces rearward, to detect the level of the light being received at the rear window side of the mirror. When the circuitry of the automatic day/night mirror detects that the difference between the two light levels is too great (the light level received at the rear of the mirror is much higher than that at the front of the mirror), it begins to darken the mirror.

The automatic day/night mirror circuitry also monitors the transmission using an input from the backup lamp circuit. The mirror circuitry is programmed to automatically disable its self-dimming feature whenever it senses that the transmission backup lamp circuit is energized.

The automatic day/night mirror is a completely self-contained unit and cannot be repaired. If faulty or damaged, the entire mirror assembly must be replaced.

DIAGNOSIS AND TESTING

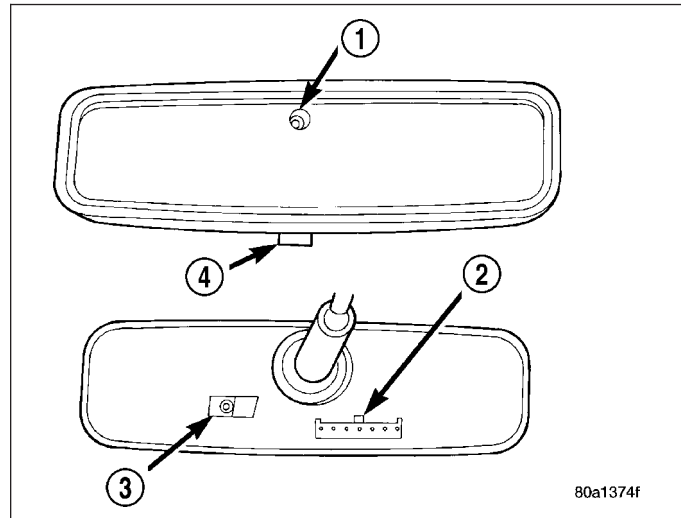
AUTOMATIC DAY / NIGHT MIRROR

For complete circuit diagrams, refer to the appropriate wiring information.

1. Check the fuse in the Integrated Power Module (IPM). If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.
2. Turn the ignition switch to the On position. Check for battery voltage at the fuse in the IPM. If OK, go to Step 3. If not OK, repair the open circuit to the ignition switch as required.
3. Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Unplug the wire harness connector from the automatic day/night mirror. Connect the battery negative cable. Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run/start) circuit cavity of the automatic day/night mirror wire harness connector. If OK, go to Step 4. If not OK, repair the open circuit to the IPM as required.
4. Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Check for continuity between the ground circuit cavity of the automatic day/night mirror wire harness connector and a good ground. There should be continuity. If OK, go to Step 5. If not OK, repair the circuit to ground as required.
5. Connect the battery negative cable. Turn the ignition switch to the On position. Set the parking brake. Place the transmission gear selector lever in the Reverse position. Check for battery voltage at the backup lamp switch output circuit cavity of the automatic day/night mirror wire harness connector. If OK, go to Step 6. If not OK, repair the open circuit as required.
6. Turn the ignition switch to the Off position. Disconnect the battery negative cable. Plug in the automatic day/night mirror wire harness connector. Connect the battery negative cable. Turn the ignition switch to the On position. Place the transmission gear selector lever in the Neutral position. Place the mirror switch in the On (the LED in the mirror switch is lighted) position. Cover the forward facing ambient photocell sensor to keep out any ambient light.

NOTE: The ambient photocell sensor must be covered completely, so that no light reaches the sensor. Use a finger pressed tightly against the sensor, or cover the sensor completely with electrical tape.

7. Shine a light into the rearward facing headlamp photocell sensor. The mirror glass should darken. If OK, go to Step 8. If not OK, replace the faulty automatic day/night mirror unit.
8. With the mirror glass darkened, place the transmission gear selector lever in the Reverse position. The mirror should return to its normal reflectance. If not OK, replace the faulty automatic day/night mirror unit.



SWITCH - POWER MIRROR

DIAGNOSIS AND TESTING

POWER MIRROR SWITCH

The power mirror switch is included with the window/lock switch. (Refer to 8 - ELECTRICAL/POWER LOCKS/DOOR MODULE - DIAGNOSIS AND TESTING).

REMOVAL

The power mirror switch is included with the window/lock switch. (Refer to 8 - ELECTRICAL/POWER LOCKS/DOOR MODULE - REMOVAL).

POWER SEATS - SERVICE INFORMATION

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POWER SEATS - SERVICE INFORMATION

DESCRIPTION

The power seat system allows the driver and front seat passenger to electrically adjust their seating positions using the power seat switches located on the outboard seat cushion side shield of each front seat. The power seat system allows the seating position to be adjusted forward, rearward, front up, front down, rear up, or rear down. The power seat system receives battery current through a fuse in the Integrated Power Module, regardless of the ignition switch position. The power seat system includes the following components:

- Driver Power Seat Switch
- Passenger Power Seat Switch
- Driver Power Seat Track
- Passenger Power Seat Track

Some models equipped with the power seat option also feature a manually operated lumbar support in the seat back. The lumbar support allows the user to adjust lower seat back pressure to achieve optimum comfort and support in the lower lumbar region of the spinal column. The lumbar support is controlled by a knob on the outboard side of the seat back assembly.

OPERATION

The power seat system receives battery current through a 50 amp fuse in the Power Distribution Center (PDC) so that the power seats remain operational, regardless of the ignition switch position.

When a power seat switch is actuated, a battery feed and a ground path are applied through the power seat switch contacts to the appropriate motor or motors. The motor and drive unit operate to move the seat in the selected direction until the switch is released, or until the travel limit of the power seat track is reached. When the switch is moved in the opposite direction, the battery feed and ground path to the motor is reversed through the switch contacts. This causes the motor to run in the opposite direction.

DIAGNOSIS AND TESTING

POWER SEAT SYSTEM

Before any testing of the power seat system is attempted, the battery should be fully-charged and all wire harness connections and pins checked to ensure proper continuity and grounds. Also ensure that the seat being diagnosed is not jammed by foreign material. With the dome lamp on, apply the power seat switch in the direction of the concern. If the dome lamp dims, the seat may be jamming. Check under and behind the seat for binding or obstructions. If the dome lamp does not dim, proceed with testing of the individual components and circuits.

For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

Operate the power seat switch and move the seat in all directions. The seat should move in each of the selected directions.

If the power seat adjuster fails to operate in more than one direction, proceed as follows:

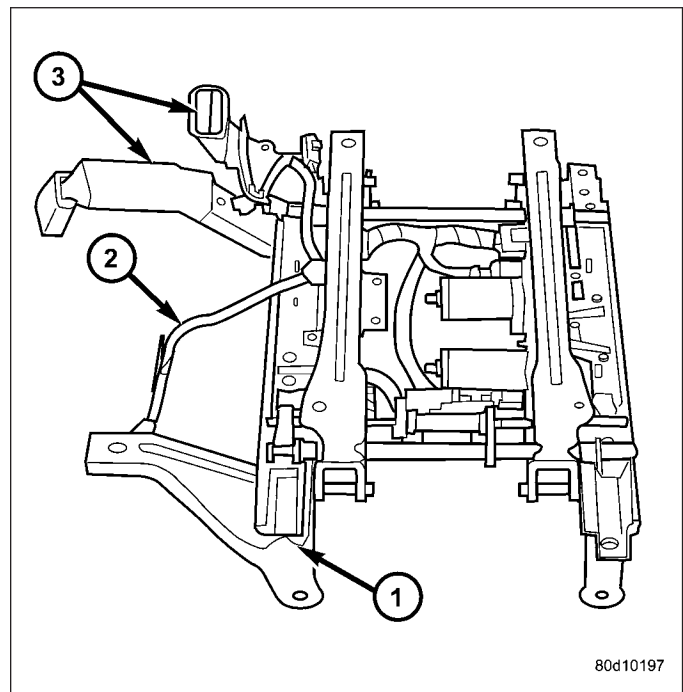
1. Inspect the power seat adjuster motors to ensure the electrical connectors are fully seated to the motors. If OK, go to Step 2. If not OK, connect the electrical connector to the fully seated position.
2. Check the power seat fuse in the integrated power module. If OK, go to Step 3. If not OK, repair the circuit as necessary and replace the inoperative fuse.
3. Remove the power seat switch from the seat cushion side panel. Check for battery voltage at the fused B(+) circuit cavity of the power seat switch wire harness connector. If OK, go to Step 4. If not OK, repair the open circuit to the integrated power module as required.
4. Check for continuity between the ground circuit cavity of the power seat switch wire harness connector and a good ground. There should be continuity. If OK, go to Step 5. If not OK, repair the open circuit to ground as required.
5. (Refer to 8 - ELECTRICAL/POWER SEATS/SEAT SWITCH - DIAGNOSIS AND TESTING). If the switch tests OK, check the wire harness between the power seat switch and the motor. If the circuits check OK, replace the inoperative power seat adjuster assembly. If the circuits are not OK, repair the wire harness as required.

POWER SEAT TRACK

DESCRIPTION

The eight-way power seat option includes a power seat track assembly (1) located under each front seat. The power seat track assembly replaces the standard manually operated seat tracks. The lower half of the power seat track is secured at the front with two bolts to the floor panel seat cross member, and at the rear with two bolts to the floor panel. Four nuts secure the bottom of the seat cushion frame to the upper half of the power seat track unit.

The power seat track assembly cannot be repaired, and is serviced only as a complete assembly. If any component in this assembly is inoperative or damaged, the entire power seat track must be replaced.



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OPERATION

The power seat track unit includes three reversible electric motors that are secured to the upper half of the track unit. Each motor moves the seat adjuster through a combination of worm-drive gearboxes and screw-type drive units.

The front and rear of the seat are operated by two separate vertical adjustment motors. These motors can be operated independently of each other, tilting the entire seat assembly forward or rearward; or, they can be operated in unison by selecting the proper power seat switch functions, which will raise or lower the entire seat assembly. The third motor is the horizontal adjustment motor, which moves the seat track in the forward and rearward directions.

DIAGNOSIS AND TESTING

POWER SEAT TRACK

For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

Operate the power seat switch to move all three seat motors in each direction. The seat should move in each of the selected directions. If the power seat track fails to operate in only one direction, move the seat track a short distance in the opposite direction and test again to be certain that the track is not at its travel limit. If the power seat track still fails to operate in only one direction, (Refer to 8 - ELECTRICAL/POWER SEATS/DRIVER SEAT SWITCH - DIAGNOSIS AND TESTING) for power seat switch diagnosis. If the power seat track fails to operate in more than one direction, proceed as follows:

1. Check the power seat fuse in the integrated power module. If OK, go to Step 2. If not OK, repair the circuit as necessary and replace the inoperative fuse.
2. Remove the power seat switch from the seat. Check for battery voltage at the fused B(+) circuit cavity of the power seat switch wire harness connector. If OK, go to Step 3. If not OK, repair the open circuit to the integrated power module as required.
3. Check for continuity between the ground circuit cavity of the power seat switch wire harness connector and a good ground. There should be continuity. If OK, go to Step 4. If not OK, repair the open circuit to ground as required.
4. Test the power seat switch, (Refer to 8 - ELECTRICAL/POWER SEATS/DRIVER SEAT SWITCH - DIAGNOSIS AND TESTING). If the switch tests OK, check the wire harness between the power seat switch and the motor for shorts or opens. If the circuits check OK, replace the inoperative power seat track (adjuster) assembly. If the circuits are not OK, repair the wire harness as required.

REMOVAL

1. Remove the appropriate seat from the vehicle. (Refer to 23 - BODY/SEATS/SEAT - REMOVAL).
2. Remove the power seat switch from the seat. (Refer to 8 - ELECTRICAL/POWER SEATS/DRIVER SEAT SWITCH - REMOVAL).
3. Remove four seat track mounting nuts from cushion pan.
4. Disconnect the power seat electrical connectors and remove the seat track from the seat cushion.
5. Remove the necessary components that must be transferred to the replacement seat track (seat belt buckles, wire harness, etc.).

INSTALLATION

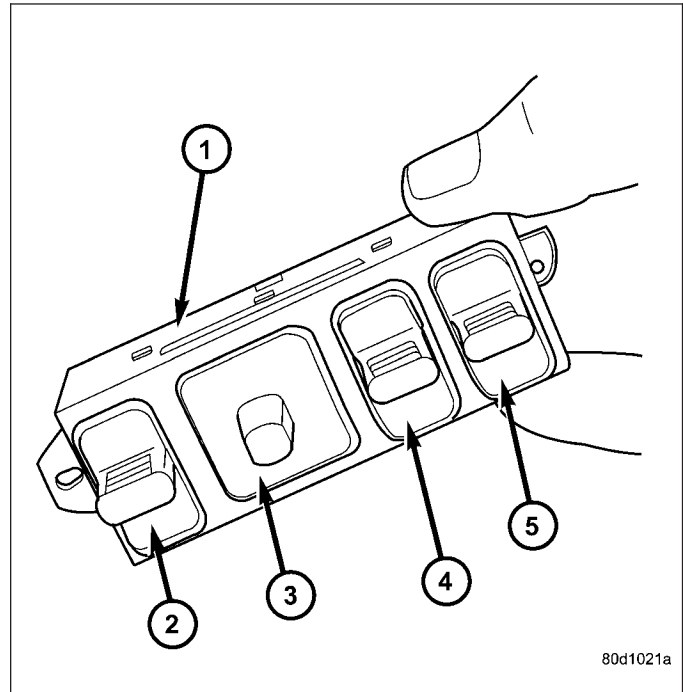
1. Install the necessary components that must be transferred to the replacement seat track (seat belt buckles, wire harness, etc.).
2. Position the seat track and install the retaining nuts on the seat cushion pan studs. Torque the bolts to 25 N·m.
3. Route and connect the power seat electrical connectors on the seat track and cushion pan.
4. Install the power seat switch on the seat. (Refer to 8 - ELECTRICAL/POWER SEATS/DRIVER SEAT SWITCH - INSTALLATION).
5. Install the seat in the vehicle (Refer to 23 - BODY/SEATS/SEAT - INSTALLATION).
6. Connect the battery negative cable.

SWITCH-POWER SEAT

DESCRIPTION

The power seats on this vehicle can be adjusted in eight different directions, up, down, front up, front down, rear up, rear down, rearward and forward. The power seat switch is located on the outboard side of the seat cushion on the seat cushion side shield.

The individual switches in the power seat switch assembly cannot be repaired. If one switch is damaged or inoperative, the entire power seat switch assembly must be replaced.



OPERATION

When a power switch control knob or knobs are actuated, a battery feed and a ground path are applied through the switch contacts to the power seat track adjuster motor. The selected adjuster motor operates to move the seat track or recliner through its drive unit in the selected direction until the switch is released, or until the travel limit of the adjuster is reached. When the switch is moved in the opposite direction, the battery feed and ground path to the motor are reversed through the switch contacts. This causes the adjuster motor to run in the opposite direction.

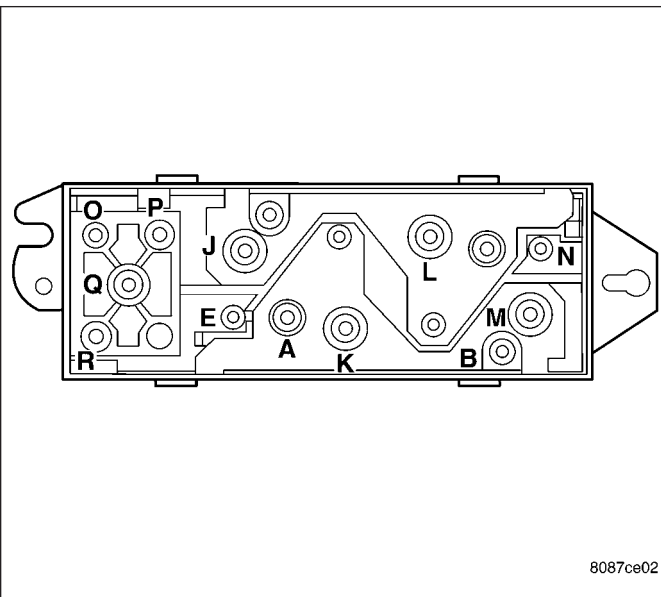
No power seat switch should be held applied in any direction after the adjuster has reached its travel limit. The power seat adjuster motors each contain a self-resetting circuit breaker to protect them from overload. However, consecutive or frequent resetting of the circuit breaker must not be allowed to continue, or the motor may be damaged.

DIAGNOSIS AND TESTING

POWER SEAT SWITCH

For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

1. Disconnect and isolate the battery negative cable.
2. Remove the power seat switch from the power seat.
3. Using an ohmmeter to test the continuity of the power seat switches in each position. Refer to the POWER SEAT SWITCH TEST TABLE. If OK, (Refer to 8 - ELECTRICAL/POWER SEATS/ POWER SEAT TRACK - DIAGNOSIS AND TESTING). If not OK, replace the inoperative power seat switch.



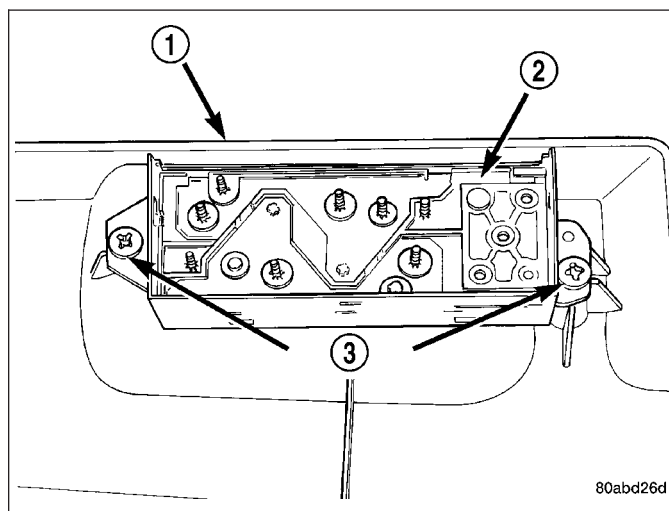
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POWER SEAT SWITCH TEST TABLE

SWITCH POSITION	CONTINUITY BETWEEN
OFF	B-N, B-J, B-M B-E, B-L, B-K
VERTICAL UP (PASSENGER SEAT)	A-J, A-N, B-M, B-E
VERTICAL DOWN(PASSENGER SEAT)	A-E, A-M, B-N, B-E
VERTICAL UP (DRIVER SEAT)	A-E, A-M, B-N, B-J
VERTICAL DOWN (DRIVER SEAT)	A-J, A-N, B-M, B-E
HORIZONTAL FORWARD	A-L, B-K
HORIZONTAL REARWARD	A-K, B-L
FRONT TILT UP	A-M, B-N
FRONT TILT DOWN	A-N, B-M
REAR TILT UP	A-E, B-J
REAR TILT DOWN	A-J, B-E

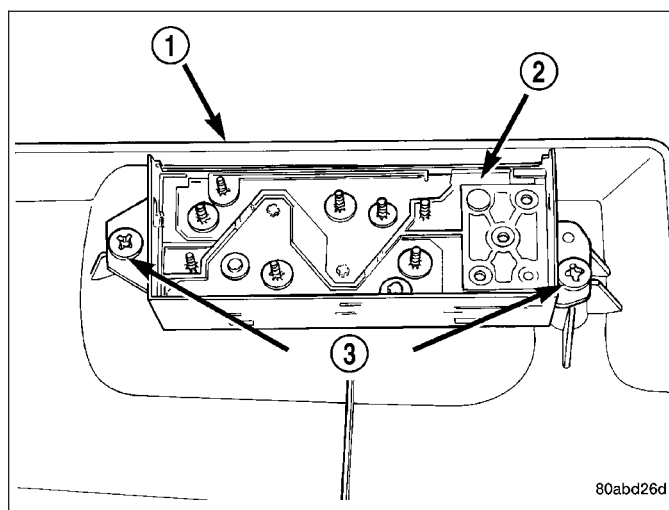
REMOVAL

1. Disconnect and isolate the battery negative cable.
2. Remove the seat cushion side shield from the seat.
3. Pull the switch bezel or side shield unit (1) out from the seat far enough to access the switch wire harness connector. Gently pry the locking tabs of the switch away from the wire harness connector and carefully unplug the connector from the power seat switch module (2).
4. Remove the screws (3) that secure the power seat switch (2) to the side shield unit (1).



INSTALLATION

1. Position the power seat switch (2) on the seat cushion side shield (1) and install the screws (3).
2. Connect the electrical connector.
3. Install the seat cushion side shield on the seat.
4. Connect the battery negative cable.



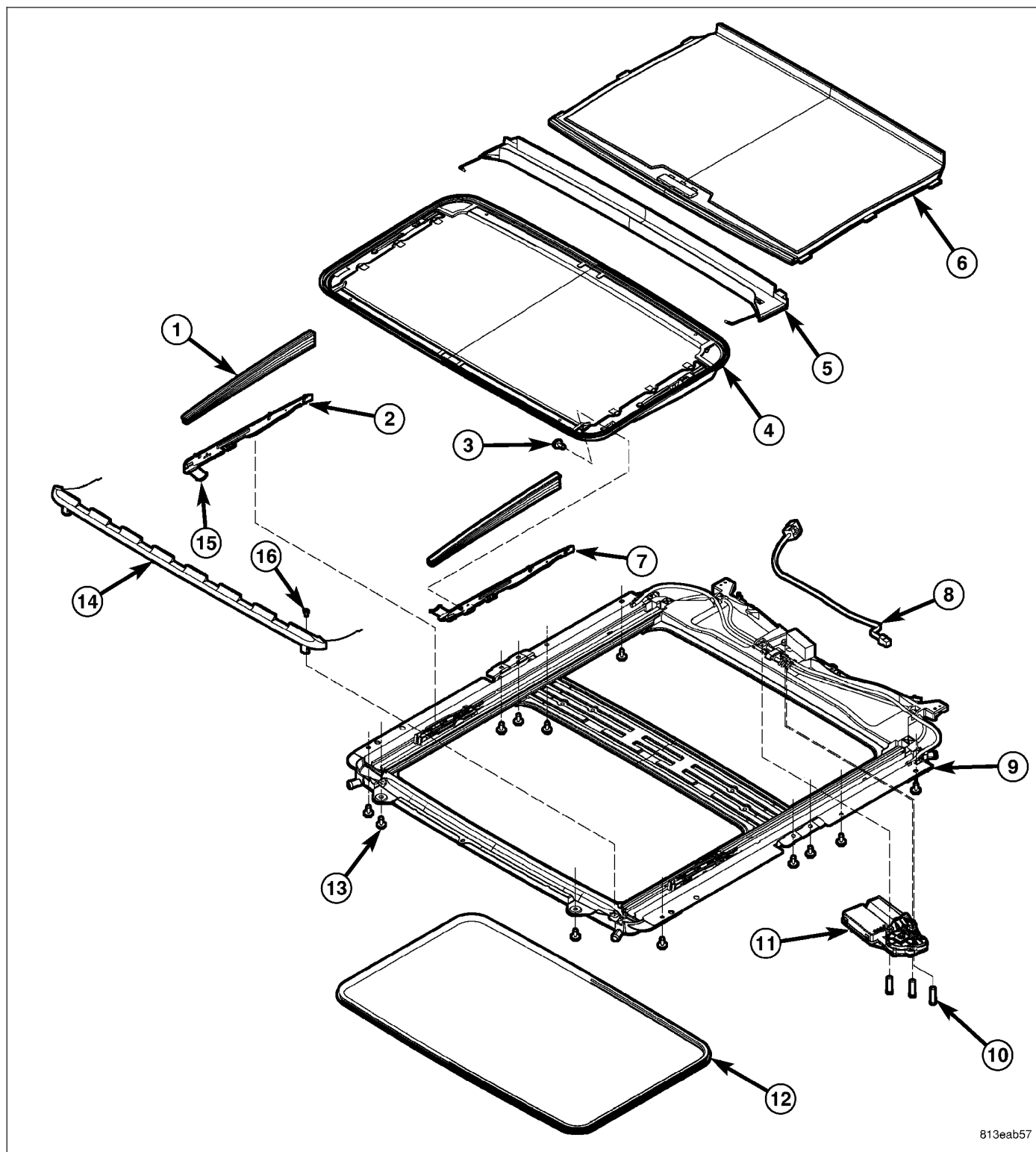
POWER TOP - SUNROOF - SERVICE INFORMATION

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POWER TOP - SUNROOF - SERVICE INFORMATION

DESCRIPTION



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The power sunroof system allows the sunroof to be opened, closed or placed in the vent position electrically by actuating a switch in the overhead console. The sunroof system receives battery feed through a fuse in the Power Distribution Center (PDC). The sunroof will operate normally with the key in any position while the Accessory Delay system is active.

The sunroof glass panel tilts upward at the rear for ventilation and slides rearward under the roof when open. The panel seals flush with the roof in the closed position to eliminate wind noise. The sunroof includes a manual-sliding sunshade to cover the deep-tinted glass panel.

In addition to the standard power sunroof operation, this vehicle offers several additional features. There is an express (one-touch) opening and closing feature as well as Excessive Force Limitation (EFL). The EFL function detects obstacles trapped between the glass and the vehicle roof during a closing motion. Upon sensing an obstacle the EFL function will reverse direction of the glass to allow removal of the obstacle.

The main components of the power sunroof system are:

- The motor/module assembly
- The power sunroof glass and frame assembly
- The power sunroof switch
- The manual-sliding sunshade

OPERATION

This vehicle has a vent, tilt and slide power sunroof system with express (one-touch) open and closing feature. The sunroof system receives constant battery feed through a fuse in the Power Distribution Center (PDC). The sunroof will operate normally with the key in any position while the Accessory Delay system is active. If the sunroof is moving when the key is turned to the START position (crank engine), all motions stop until the key is released, then the previously requested sunroof motion will resume. The sunroof will also complete a requested motion if the Accessory Delay system goes inactive while the motion is in progress.

A combination push-button and rocker switch module mounted in the overhead console controls sunroof operation. The sunroof switch is a rocker design with a push button in the center of the two halves of the rocker. Pressing the rocker towards the front of the car commands the sunroof closed. Pressing the rocker towards the rear of the car commands the sunroof open. Pressing the center push button commands the sunroof up into the vent position (Rear of sunroof glass raises above the vehicle roof with glass still covering the sunroof opening). All switch commands operate with the glass starting in any position. (Refer to 8 - ELECTRICAL/POWER TOP/SWITCH - OPERATION) for additional information.

An electronic control system, integral to the motor/module assembly, provides the express open and close functions. Pressing the "open" or "close" end of the rocker switch moves the sunroof glass panel to the full open or full closed position, respectively. During express closing, anytime an obstacle is detected in the way of the glass, the motor will stop and reverse travel to avoid pinching an occupant's finger, ice in the track, etc. This function is called Excessive Force Limitation (EFL). There are two methods of overriding the EFL function.

1. When three EFL events occur without the glass being allowed to fully close, the next close attempt will only move while the close switch is continuously actuated. This allows the sunroof to be forced closed if multiple close attempts fail.
2. If the sunroof close switch is continuously actuated during an EFL event, through the reversal, and during a two second wait time, then continuing to hold the close switch will cause the roof to move towards close with the EFL protection disabled. This allows the sunroof to be forced closed if it is known that a reversal will occur.

While in EFL override, the closing motion will cease if the sunroof switch is released at any time.

The motor/module is programmed to learn the speed required to drive the panel based on position and recalibrates itself as needed. If the sunroof becomes uncalibrated, it will only respond to the vent switch. If the vent switch is pressed, the glass will move toward vent; if the switch is released, all motion stops. In the event that the sunroof system becomes uncalibrated perform the sunroof position calibration procedure, (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - STANDARD PROCEDURE -SUNROOF POSITION CALIBRATION).

DIAGNOSIS AND TESTING

POWER TOP - SUNROOF

NOTE: If there is no sunroof movement when the "OPEN" or "CLOSED" button are pushed but the sunroof operates when the "VENT" button is pushed and held the sunroof motor/module is out of calibration. Complete the sunroof position calibration procedure prior to performing any sunroof diagnostics, (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - STANDARD PROCEDURE - SUNROOF POSITION CALIBRATION).

Refer to SUNROOF DIAGNOSIS CHART for possible causes. Before beginning sunroof diagnostics verify that all other power accessories are in proper operating condition. If not, a common electrical problem may exist.

Check the condition of the circuit protection and inspect all wiring connector pins for proper engagement and continuity. For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

SUNROOF DIAGNOSIS CHART

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Sunroof completely inoperative.	Inoperative control switch.	Perform sunroof switch diagnostics, (Refer to 8 - ELECTRICAL/POWER TOP/SWITCH - DIAGNOSIS AND TESTING).
	Inoperative circuit ground between sunroof motor/module and body harness.	Inspect ground connections and wiring. Repair as necessary.
	Inoperative power circuit between sunroof motor/module, control switch, and body harness.	Check the condition of the circuit protection and inspect all wiring. Repair as necessary.
	Inoperative sunroof motor/module.	Replace the sunroof motor/module, (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - REMOVAL).
Audible whine when switch is depressed, sunroof does not operate.	Inoperative sunroof motor/module.	Replace the sunroof motor/module, (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - REMOVAL).
	Binding cable.	Repair or replace binding cable as necessary.
Audible clicking or ratcheting when switch is pressed, sunroof does not operate.	Broken or worn drive cable.	Repair or replace binding cable as necessary.
	Worn drive motor gear.	Replace the sunroof motor/module, (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - REMOVAL).
	Sunroof glass panel out of adjustment.	Perform sunroof glass panel adjustment procedure, (Refer to 23 - BODY/SUNROOF/GLASS PANEL - ADJUSTMENTS).
Sunroof vents and opens, but does not close.	Broken or disengaged trough guide.	Repair trough guide as necessary.
	Binding cable.	Repair or replace binding cable as necessary.
	Inoperative sunroof "CLOSE" circuit.	Check the condition of the circuit, connections and wiring. Repair as necessary.
	Inoperative control switch.	Perform sunroof switch diagnostics, (Refer to 8 - ELECTRICAL/POWER TOP/SWITCH - DIAGNOSIS AND TESTING).
	Inoperative sunroof motor/module.	Replace the sunroof motor/module, (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - REMOVAL).

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Sunroof vents, but does not open.	Binding cable or mechanism.	Repair or replace binding cable as necessary.
	Inoperative sunroof "OPEN" circuit.	Check the condition of the circuit, connections and wiring. Repair as necessary.
	Inoperative control switch.	Perform sunroof switch diagnostics, (Refer to 8 - ELECTRICAL/POWER TOP/SWITCH - DIAGNOSIS AND TESTING).
	Inoperative sunroof motor/module.	Replace the sunroof motor/module, (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - REMOVAL).
Sunroof does not vent	Binding cable or mechanism.	Repair or replace binding cable as necessary.
	Inoperative sunroof "VENT" circuit.	Check the condition of the circuit, connections and wiring. Repair as necessary.
	Inoperative control switch.	Perform sunroof switch diagnostics, (Refer to 8 - ELECTRICAL/POWER TOP/SWITCH - DIAGNOSIS AND TESTING).
	Inoperative sunroof motor/module.	Replace the sunroof motor/module, (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - REMOVAL).
Glass movement not consistent or glass does not operate smoothly	Sunroof glass panel out of adjustment.	Perform sunroof glass panel adjustment procedure, (Refer to 23 - BODY/SUNROOF/GLASS PANEL - ADJUSTMENTS).

MOTOR-SUNROOF

DIAGNOSIS AND TESTING

MOTOR/MODULE - SUNROOF

NOTE: If there is no sunroof movement when the "OPEN" or "CLOSED" button are pushed but the sunroof operates when the "VENT" button is pushed and held the sunroof motor/module is out of calibration. Complete the sunroof position calibration procedure prior to performing any sunroof diagnostics, (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - STANDARD PROCEDURE - SUNROOF POSITION CALIBRATION).

The wire harness connectors for the sunroof motor/module are located above the vehicle headliner. Removal of the headliner may be necessary for access to the connector and proper diagnosis of the motor/module, (Refer to 23 - BODY/INTERIOR/HEADLINER - REMOVAL). **For complete circuit diagrams, refer to the appropriate wiring information.** The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

1. Verify that all other power accessories are in proper operating condition. If not, a common electrical problem may exist.
2. Disconnect the sunroof motor/module. Connect a test light between the harness connector pin 6 and a known good ground. The test light should illuminate brightly. If OK, go to Step 3. If not OK repair the ground circuit as necessary.
3. Connect a test light between the harness connector pin 8 and a known good ground. The test light should illuminate brightly. If OK, go to Step 4. If not OK repair the B+ circuit as necessary.

4. Turn the ignition key to the "RUN" position. Connect a test light between the harness connector pin 9 and a known good ground. The test light should illuminate brightly. If OK, go to Step 5. If not OK repair the Accessory Delay circuit as necessary.
5. Using an ohmmeter check the sunroof switch feed circuit for continuity between the sunroof motor/module and sunroof switch. Continuity should be present. If OK replace the inoperative motor/module, (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - REMOVAL). If not OK repair the sunroof switch feed circuit as necessary.

STANDARD PROCEDURE

SUNROOF POSITION CALIBRATION

Press the power sunroof switch (Open, Closed, and Vent). If no movement occurs when either the open switch or closed switch is pressed, but the system does move when the vent button is pressed and held, the system is not calibrated. Perform the following procedure to position calibrate the power sunroof system.

1. Turn the ignition to the RUN position.
2. Press the vent button on the power sunroof switch and hold until the sunroof glass panel has moved to the full vent position and the motor movement has stopped for at least 1 second.
3. Press the close switch on the power sunroof switch and hold for a moment (at least 100ms) and release. The sunroof glass panel should continue travel to the full close position. If the sunroof glass panel does not return to the full close position, refer to the appropriate diagnostic information for full system diagnosis.
4. Verify proper system operation.

EXCESSIVE FORCE LIMITATION (EFL) CALIBRATION

NOTE: Verify the battery is in good condition prior to performing this procedure. Do not leave the vehicle on a battery charger while performing this procedure. If the voltage at the sunroof motor/module drops below 11 volts or exceeds 15 volts at anytime while this procedure is being performed, the Excessive Force Limitation (EFL) function will not be properly calibrated.

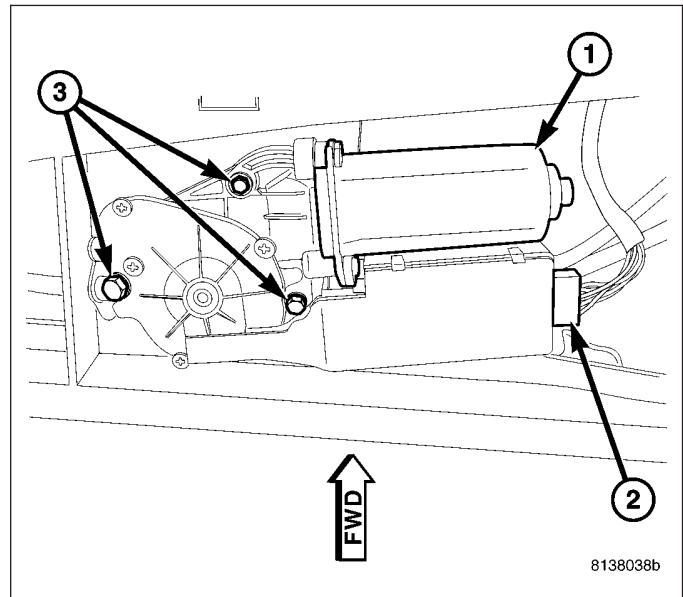
1. Turn the ignition to the RUN position.
2. Press the vent button on the power sunroof switch and hold until the sunroof glass panel has moved to the full vent position and the motor movement has stopped for at least 1 second.
3. Press the close position on the power sunroof switch and release. The sunroof glass panel should continue travel to the full closed position. **This will be considered the first sunroof closed position in a series of four sunroof closes.**
4. Press the vent button on the power sunroof switch and release. The sunroof glass panel should move to the full vent position. After the sunroof motor/module has stopped, press the close position on the power sunroof switch and release. The sunroof glass panel should continue travel to the full closed position. **This will be considered the second sunroof closed position in a series of four sunroof closes.**
5. Continue to move the sunroof glass to the "vent" then "closed" positions two more times so that the sunroof glass has moved to the closed position a total of four times starting with the first sunroof close in step 3.
6. Press the open position on the power sunroof switch and release. The sunroof glass panel should continue travel to the full open position.
7. Press the close position on the power sunroof switch and release. The sunroof glass panel should continue travel to the full closed position. **This will be considered the first sunroof closed position in a series of five sunroof closes.**
8. Press the open position on the power sunroof switch and release. The sunroof glass panel should move to the full open position. After the sunroof motor/module has stopped, press the close position on the power sunroof switch and release. The sunroof glass panel should continue travel to the full closed position. **Continue to move the sunroof glass to the "open" then "closed" position four more times so that the sunroof glass has moved to the closed position a total of five times starting with the first sunroof close in step 7.**

Verify proper EFL calibration by placing a standard pencil at the front of the sunroof and then moving the sunroof to the full closed position. The sunroof should reverse direction upon contact without damage to the pencil.

REMOVAL

WARNING: The Excessive Force Limitation (EFL) feature must be calibrated any time a sunroof motor/module is replaced with a new component. Failure to perform this procedure could result in vehicle damage and/or personal injury. (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - STANDARD PROCEDURE - EXCESSIVE FORCE LIMITATION (EFL) CALIBRATION) for the appropriate procedure.

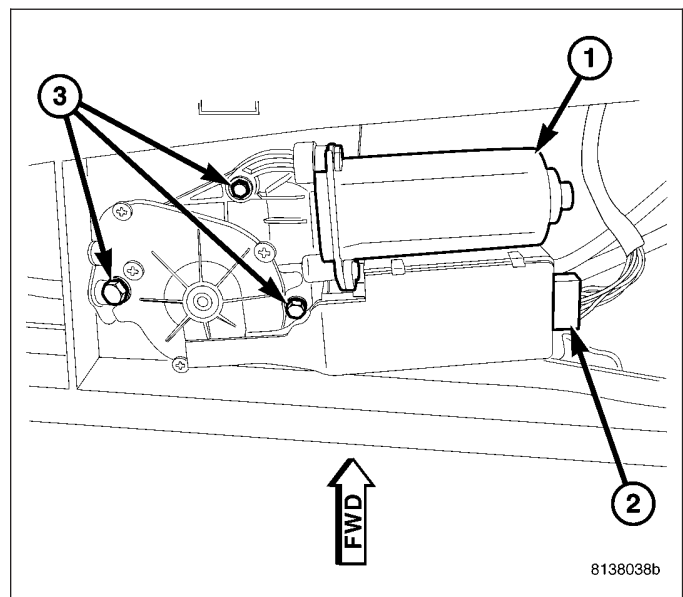
1. Disconnect the battery negative cable.
2. Remove the vehicle headliner, (Refer to 23 - BODY/INTERIOR/HEADLINER - REMOVAL).
3. Remove the power sunroof motor/module electrical connector (2).
4. Remove the retaining screws (3) and remove the motor/module (1) from the vehicle.



INSTALLATION

WARNING: The Excessive Force Limitation (EFL) feature must be calibrated any time a sunroof motor/module is replaced with a new component. Failure to perform this procedure could result in vehicle damage and/or personal injury. (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - STANDARD PROCEDURE - EXCESSIVE FORCE LIMITATION (EFL) CALIBRATION) for the appropriate procedure.

1. Position the power sunroof motor/module (1) in the vehicle.
2. Install the motor/module retaining screws (3). Tighten the screws to 4 N·m (35 in. lbs.).
3. Connect the motor/module electrical connector (2).
4. Connect the battery negative cable and move the sunroof through one open and close cycle to confirm proper system operation.
5. Install the vehicle headliner, (Refer to 23 - BODY/INTERIOR/HEADLINER - INSTALLATION).
6. Perform the sunroof position calibration, (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - STANDARD PROCEDURE - SUNROOF POSITION CALIBRATION).
7. Perform the Excessive Force Limitation (EFL) calibration, (Refer to 8 - ELECTRICAL/POWER TOP/MOTOR - STANDARD PROCEDURE - EXCESSIVE FORCE LIMITATION (EFL) CALIBRATION).



8. Verify proper operation of the power sunroof system.

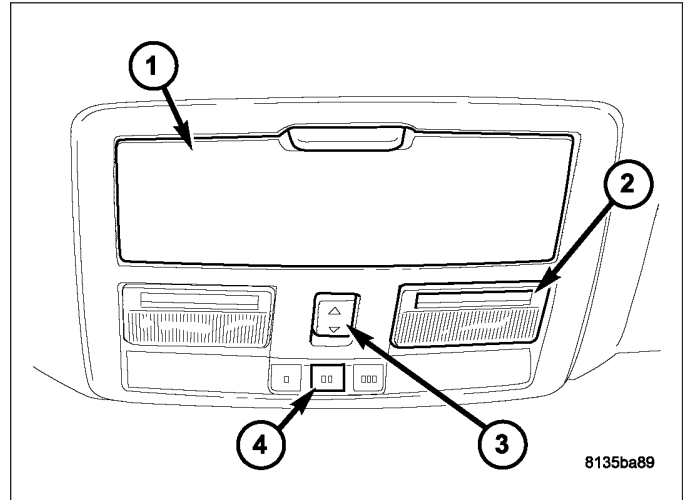
SWITCH - SUNROOF

DESCRIPTION

The power sunroof switch (3) is a combination push-button and rocker switch module mounted in the overhead console. The sunroof switch is a direct contact unit that is directly wired to the sunroof motor/module assembly. The sunroof switch performs the following functions:

- Power sunroof open (back of switch pushed)
- Power sunroof closed (front of switch pushed)
- Power sunroof vent (switch center button pushed)

The power sunroof switch is part of the overhead console assembly and cannot be replaced separately. If the switch is damaged or inoperative the overhead console must be replaced, (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - REMOVAL).



OPERATION

The power sunroof switch is hard wired to the sunroof motor/module assembly. The switch receives battery current from the motor/module when the ignition switch is in the RUN and ACCESSORY positions or the vehicle Accessory Delay System is active. When one of the switch positions is pressed it sends battery current back to the motor/module, signaling it to move the power sunroof to the appropriate position. The motor/module will perform one of the following functions:

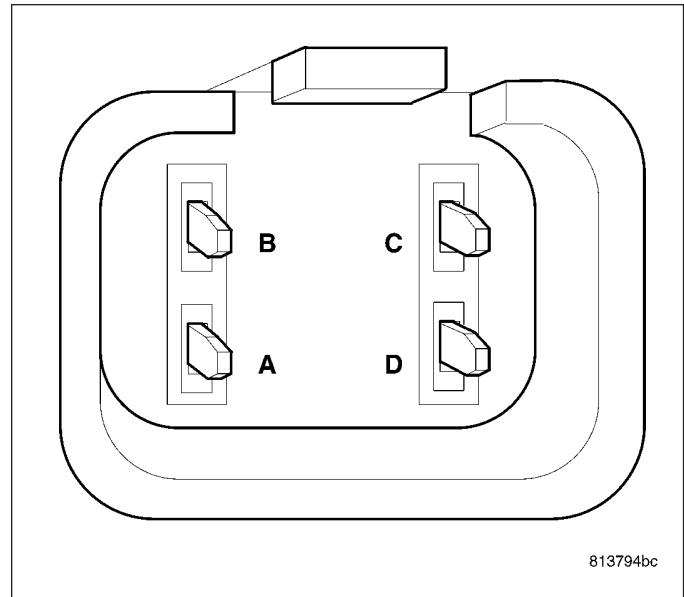
- Power sunroof open (back of switch pushed)
- Power sunroof closed (front of switch pushed)
- Power sunroof vent (switch center button pushed)

DIAGNOSIS AND TESTING

SWITCH - POWER SUNROOF

For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds. If completing the appropriate diagnostic information results in the sunroof switch being inoperative, perform the following test prior to switch replacement.

1. Disconnect and isolate the battery negative cable.
2. Remove the overhead console, (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - REMOVAL).
3. Disconnect the power sunroof switch wire harness connector.
4. Using an ohmmeter, test the continuity of the power sunroof switch in each switch position. Refer to the POWER SUNROOF SWITCH CONTINUITY TABLE . If OK, inspect the wiring harness and connectors for damage. Use a scan tool and the proper Diagnostic Procedures Information to complete diagnosis of the power sunroof system. If not OK, replace the overhead console.

**POWER SUNROOF SWITCH CONTINUITY TABLE**

SWITCH POSITION	CONTINUITY BETWEEN PINS
OFF	NO CONTINUITY
SUNROOF OPEN	B & D
SUNROOF CLOSED	B & C
SUNROOF VENT	B & A

POWER WINDOWS - SERVICE INFORMATION

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POWER WINDOWS - SERVICE INFORMATION

DESCRIPTION

The power window system allows each of the door windows to be raised and lowered electrically by actuating a switch on each door panel. A master switch on the drivers door allows the driver to raise or lower each of the passenger door windows and to lock out the individual switches on the passenger doors from operation. The power window system receives battery feed through a fuse in the Integrated Power Module (IPM) and a circuit breaker located in the instrument panel wiring harness near the park brake pedal, only when the ignition switch is in the RUN or ACCESSORY position.

The window motors are replaced with the window regulator assembly. If the window motors require replacement, the window regulator must be replaced.

OPERATION

WINDOW SWITCH

The power window switches control the battery and ground feeds to the power window motors. The passenger door power window switches receive their battery and ground feeds through the circuitry of the drivers window switch. When the power window lockout switch is in the Lock position, the battery feed for the passenger door window switches is interrupted.

WINDOW MOTOR

Window motors use permanent type magnets. The B+ and ground applied at the motor terminal pins will cause the motor to rotate in one direction. Reversing current through the motor terminals will cause the motor to rotate in the opposite direction.

DIAGNOSIS AND TESTING

POWER WINDOWS

WIRING VOLTAGE TEST

The following wiring test determines whether or not voltage is continuous through the body harness to the front switch.

Refer to the appropriate wiring information.

1. Remove the window/lock switch (Refer to 8 - ELECTRICAL/POWER LOCKS/DOOR MODULE - REMOVAL).
2. Disconnect wire connector from back of switch.
3. Switch ignition to the ON position.
4. Connect the clip end of a 12 volt test light to Pin 14 of the window switch harness connector. Touch the test light probe to Pin 10.
 - If the test light illuminates, the wiring circuit between the battery and switch is OK.
 - If the lamp does not illuminate, first check the fuse in the Integrated Power Module (IPM). Check the circuit breaker located near the park brake pedal. If fuse and circuit breaker are OK, then check for a broken wire.

POWER WINDOW MOTOR TEST

If the power window motor is receiving proper current and ground and does not operate, proceed with motor test.

1. Remove front door trim panel as necessary to gain access to power window motor wire connector (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - REMOVAL).
2. Disconnect power window motor wire connector from door harness.
3. Using two jumper wires, connect one to a battery (+) source and the other to a good ground (-).
4. Connect the Negative (-) jumper probe to one of the motor connector terminals.
5. Momentarily touch the Positive (+) jumper probe to the other motor connector terminal.

When positive probe is connected the motor should rotate in one direction to either move window up or down. If window is all the way up or down the motor will grunt and the inner door panel will flex when actuated in that one direction.

6. Reverse jumper probes at the motor connector terminals and window should now move in opposite direction. If window does not move or grunt, replace the motor.

If window moved completely up or down, reverse the jumper probes and cycle window to the opposite position to verify full operation.

If motor grunts and does not move, verify that regulator is not binding.

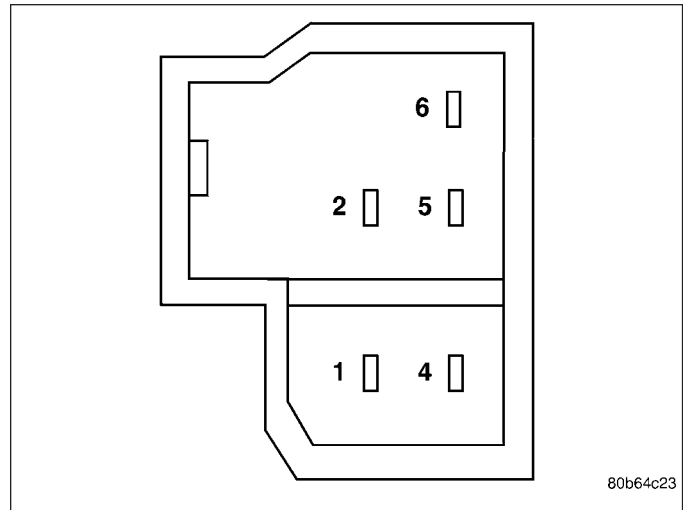
SWITCH - WINDOW

DIAGNOSIS AND TESTING

WINDOW SWITCH

The Light-Emitting Diode (LED) illumination lamps for all of the power window and lock switch and bezel unit switch paddles receive battery current through the power window circuit breaker in the junction block. If all of the LEDs are inoperative in both the power window and lock switch units and the power windows are inoperative, (Refer to 8 - ELECTRICAL/POWER WINDOWS - DIAGNOSIS AND TESTING). If the power windows operate, but any or all of the LEDs are inoperative, the power window and lock switch units with the inoperative LED(s) is faulty and must be replaced. For complete circuit diagrams, refer to the appropriate wiring information.

1. Check the fuse in the Integrated Power Module (IPM) and the circuit breaker located near the park brake pedal. If OK, go to Step 2. If not OK, replace the faulty fuse or circuit breaker.
2. Turn the ignition switch to the On position. Check for battery voltage at the fuse in the Integrated Power Module (IPM). If OK, turn the ignition switch to the Off position and go to Step 3. If not OK, check circuit breaker and repair the circuit to the ignition switch as required.
3. Disconnect and isolate the battery negative cable. Remove the power window switch unit from the door trim panel (passenger doors). The drivers door switch is included with the window/lock switch (Refer to 8 - ELECTRICAL/POWER LOCKS/DOOR MODULE - DIAGNOSIS AND TESTING) for service procedures. Unplug the wire harness connector from the switch unit.
4. Test the power window switch continuity. See the Power Window Switch Continuity charts to determine if the continuity is correct in the Off, Up and Down switch positions. If OK, (Refer to 8 - ELECTRICAL/POWER WINDOWS - DIAGNOSIS AND TESTING). If not OK, replace the faulty switch.

**POWER WINDOW SWITCH CONTINUITY CHART**

SWITCH POSITION	CONTINUITY BETWEEN
NEUTRAL	PIN 2 AND 5, PIN 4 AND 1
UP (FRONT PASSENGER)	PIN 6 AND 5
UP (REAR PASSENGER)	PIN 6 AND 1
DOWN (FRONT PASSENGER)	PIN 6 AND 1
DOWN (REAR PASSENGER)	PIN 6 AND 5

REMOVAL**FRONT PASSENGER**

1. Disconnect and isolate the battery negative cable.
2. Remove the door trim panel (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - REMOVAL).
3. Remove the switch from the trim panel bezel.

REAR PASSENGER

1. Disconnect and isolate the battery negative cable.
2. Remove the door trim panel (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - REMOVAL).
3. Gently pry switch from door trim panel.

INSTALLATION**FRONT PASSENGER**

1. Insert switch to trim panel bezel.
2. Install door trim panel (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - INSTALLATION).
3. Connect battery negative cable.

REAR PASSENGER

1. Install switch to door trim panel
2. Install door trim panel (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - INSTALLATION).
3. Connect battery negative cable.

