

HORN

TABLE OF CONTENTS

	page		page
HORN - ELECTRICAL DIAGNOSTICS	1	HORN - SERVICE INFORMATION	9

HORN - ELECTRICAL DIAGNOSTICS

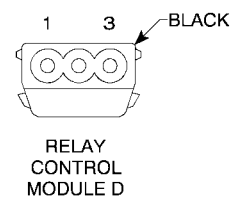
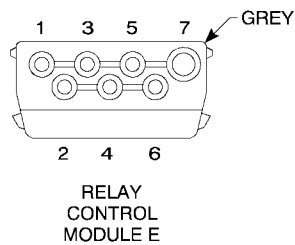
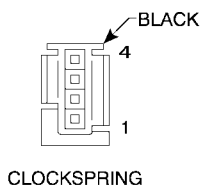
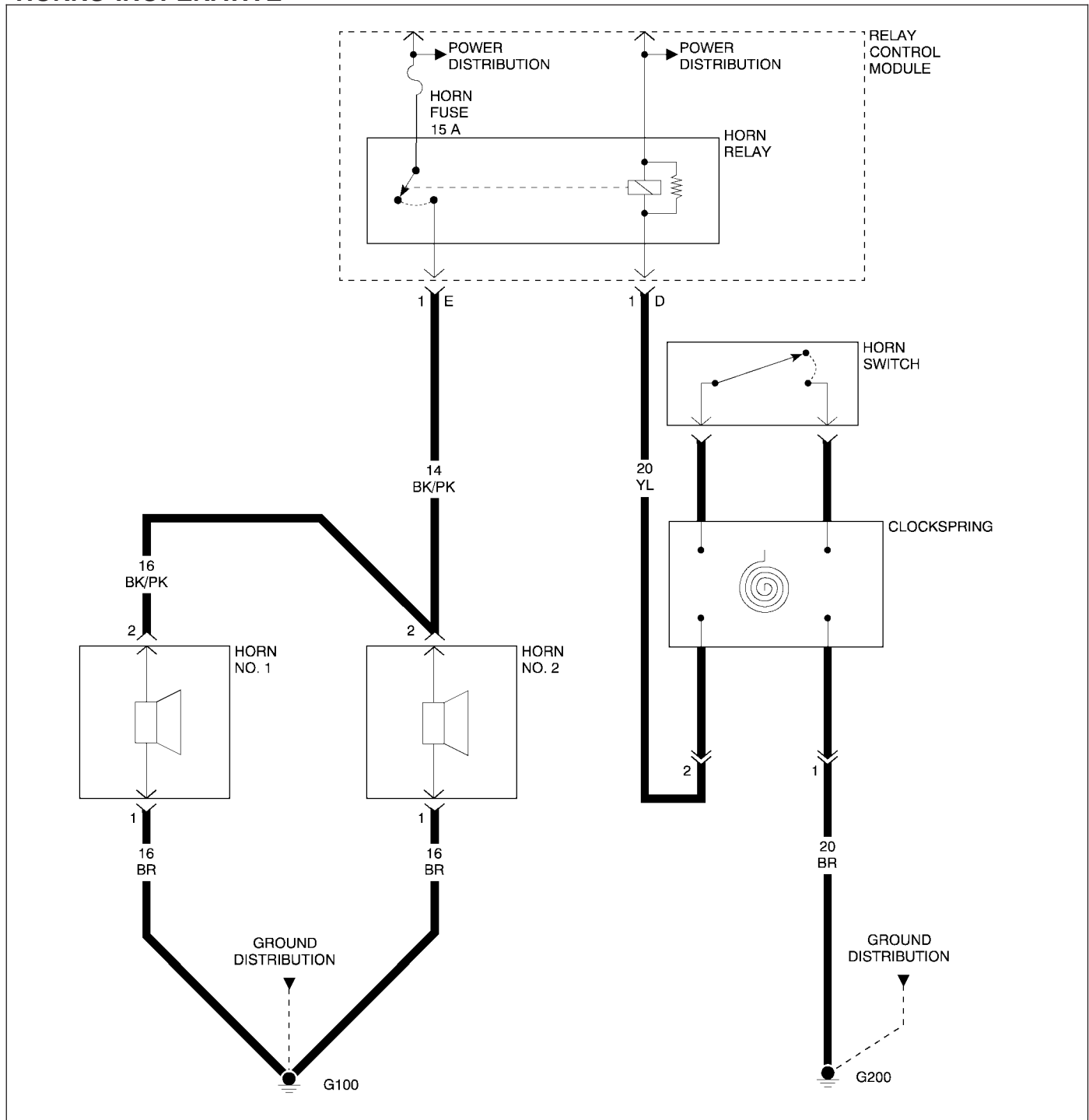
TABLE OF CONTENTS

	page		page
HORN - ELECTRICAL DIAGNOSTICS		*HORNS ALWAYS ON	5
DIAGNOSIS AND TESTING		BODY VERIFICATION TEST	7
*HORNS INOPERATIVE	2	SCHEMATICS AND DIAGRAMS	8

HORN - ELECTRICAL DIAGNOSTICS

DIAGNOSIS AND TESTING

***HORNS INOPERATIVE**



***HORNS INOPERATIVE — CONTINUED**

POSSIBLE CAUSES
FUSED B(+) CIRCUIT OPEN
HORNS SWITCH CIRCUIT OPEN
RELAY CONTROL MODULE
CLOCKSPRING
GROUND CIRCUIT OPEN
HORNS

For a complete Horns Circuit Diagram, Refer to Page 8H-8.

Diagnostic Test

1. TEST THE HORNS

Note: Inspect the Horn Fuse located in the Relay Control Module. If the fuse is open, repair the cause of the open fuse before continuing.

Turn the ignition off.

Disconnect the Relay Control Module connector "E".

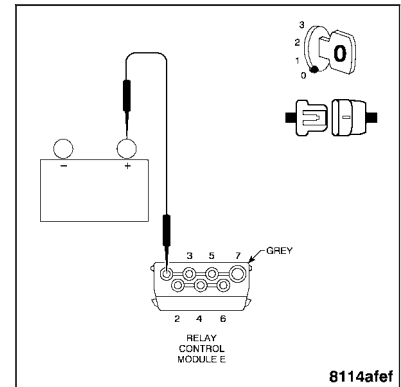
Note: Check connectors - Clean/repair as necessary.

Connect a fused jumper wire from cavity 1 of the Relay Control Module connector "E" to B(+).

Did the Horns sound?

Yes >> Go to 3

No >> Go to 2



2. MEASURE HORNS CIRCUIT RESISTANCE

Disconnect the Horns harness connectors.

Note: Check connectors - Clean/repair as necessary.

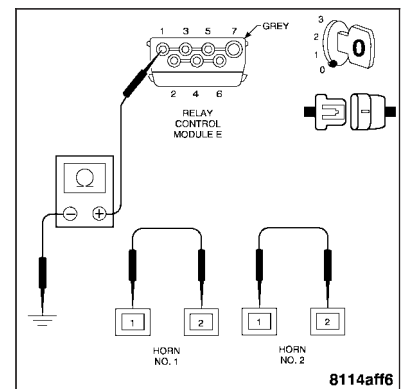
Install jumper wires into the Horns harness connectors between cavity 1 and cavity 2.

Measure the resistance between cavity 1 of the Relay Control Module harness connector "E" and ground.

Is the resistance below 5.0 ohms?

Yes >> Replace the Horns. Refer to Page 8H-11.
Perform BODY VERIFICATION TEST.

No >> Repair the Horns circuit for an open.
Perform BODY VERIFICATION TEST.



HORNS INOPERATIVE — CONTINUED*3. MEASURE HORNS SWITCH CIRCUIT RESISTANCE**

WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.

WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.

Disconnect the Driver airbag.

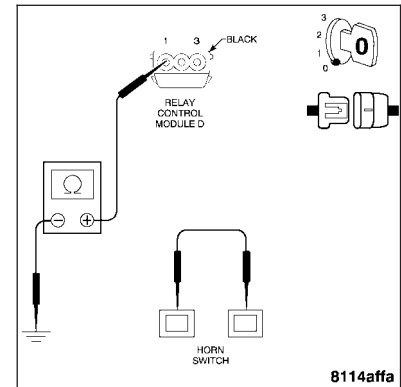
Note: Check connector - Clean/repair as necessary.

Disconnect the Relay Control Module harness connector "D".

Note: Check connectors - Clean/repair as necessary.

Connect a jumper wire between the Horn Switch connector cavities.

Measure the resistance of the Horns Switch circuit between cavity 1 of the Relay Control Module connector "D" and ground.



Is the resistance below 5.0 ohms?

Yes >> Replace the Relay Control Module. **Refer to Page 8W-97-4.**

Perform BODY VERIFICATION TEST.

No >> Go to 4

4. MEASURE HORNS SWITCH CIRCUIT RESISTANCE

WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.

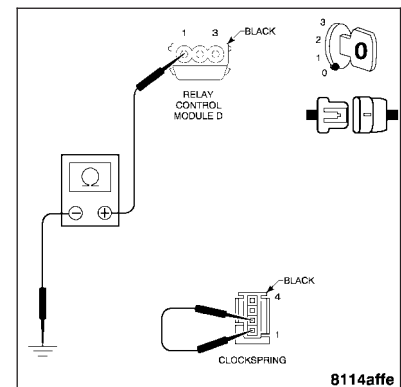
WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.

Disconnect the Clockspring harness connector.

Note: Check connector - Clean/repair as necessary.

Connect a jumper wire between cavities 1 and 2 of the Clockspring harness connector.

Measure the resistance of the Horns Switch circuit between cavity 1 of the Relay Control Module connector "D" and ground.



Is the resistance below 5.0 ohms?

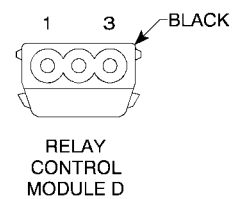
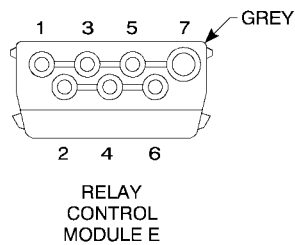
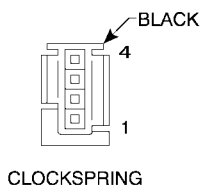
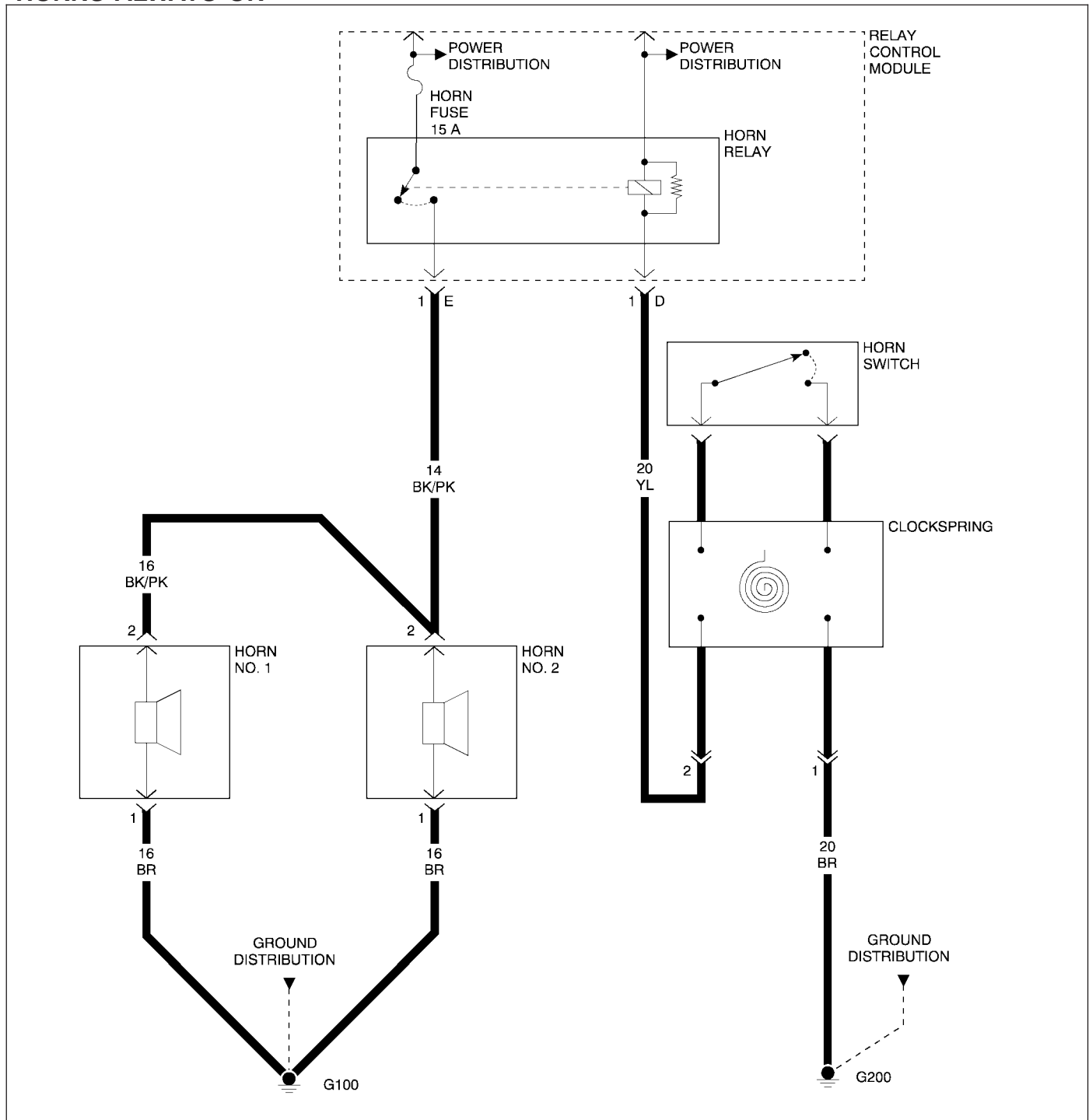
Yes >> Replace the Clockspring. **Refer to Page 8O-94.**

Perform BODY VERIFICATION TEST.

No >> Repair the Horns Switch circuit for an open.

Perform BODY VERIFICATION TEST.

***HORNS ALWAYS ON**



HORNS ALWAYS ON — CONTINUED*POSSIBLE CAUSES**

HORNS CIRCUIT SHORT TO BATTERY
 HORNS SWITCH CIRCUIT SHORT TO BATTERY
 RELAY CONTROL MODULE
 CLOCKSPrING

For a complete Horns Circuit Diagram, Refer to Page 8H-8.

Diagnostic Test**1. TEST THE HORNS CIRCUIT**

Turn the ignition off.

Disconnect the Relay Control Module connector "E".

Note: Check connector - Clean/repair as necessary.

Turn the ignition on.

Did the Horns sound?

Yes >> Repair the Horns circuit for a short to voltage.
 Perform BODY VERIFICATION TEST.

No >> Go to 2

2. MEASURE HORNS SWITCH CIRCUIT VOLTAGE

WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.

WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.

Remove the Driver Airbag. Refer to Page 8O-100.

Note: Check connector - Clean/repair as necessary.

Disconnect the Relay Control Module harness connector "D".

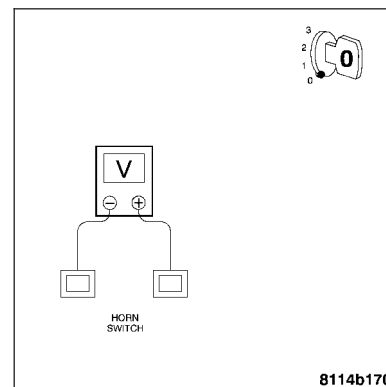
WARNING: TURN THE IGNITION ON, THEN RECONNECT THE BATTERY.

Measure the voltage of the Horns Switch circuit between the Horns Switch connector terminals.

Is voltage present?

Yes >> Repair the Horns Switch circuit for a short to voltage.
 Perform BODY VERIFICATION TEST.

No >> Replace the Relay Control Module. Refer to Page 8W-97-4.
 Perform BODY VERIFICATION TEST.



BODY VERIFICATION TEST

1.

Turn the ignition off.

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

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

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

Program all RKE transmitters and other options as necessary.

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

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

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

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

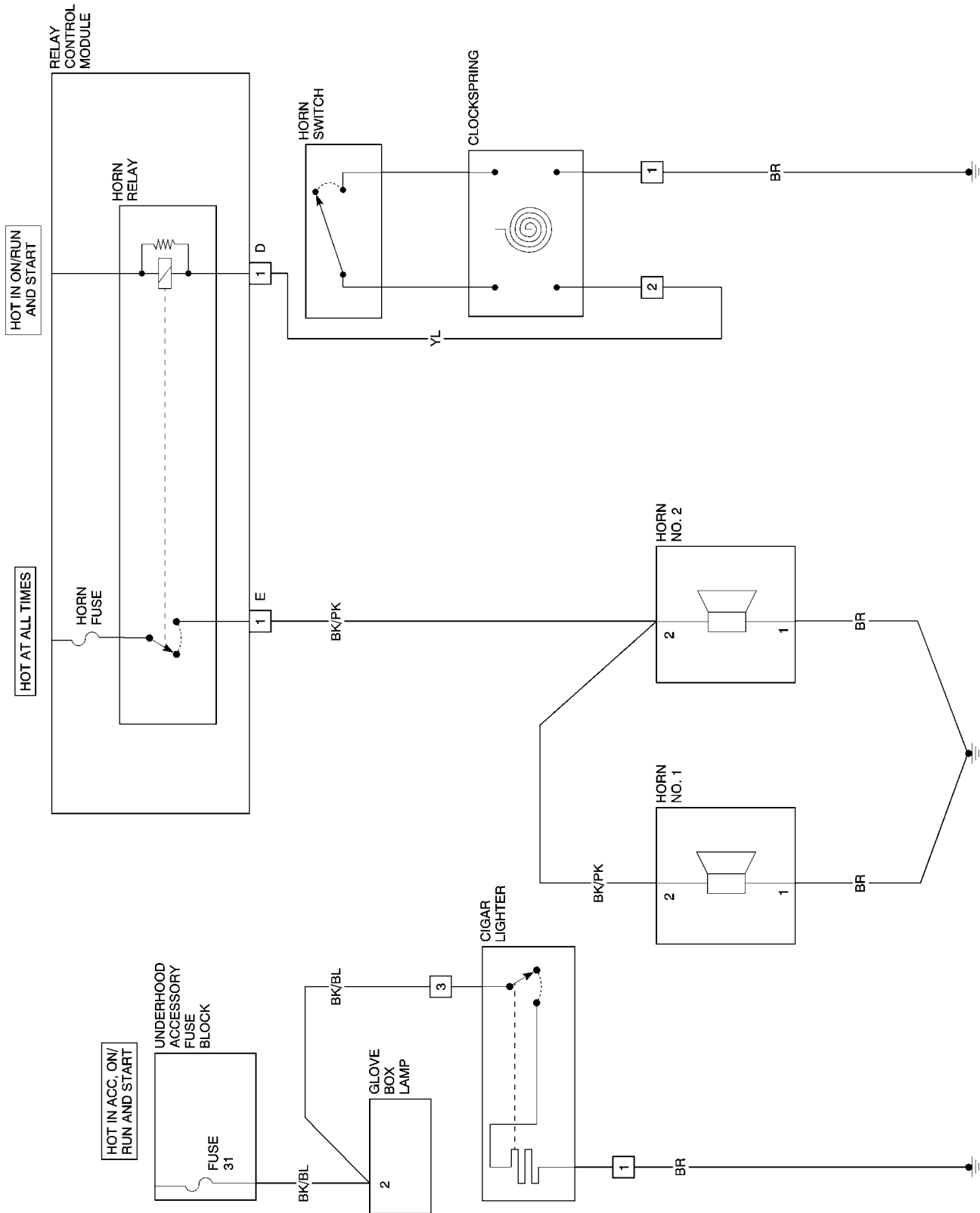
Are any DTCs present?

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

NO >> Repair is complete.

SCHEMATICS AND DIAGRAMS

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HORN CIRCUIT DIAGRAM

HORN - SERVICE INFORMATION

TABLE OF CONTENTS

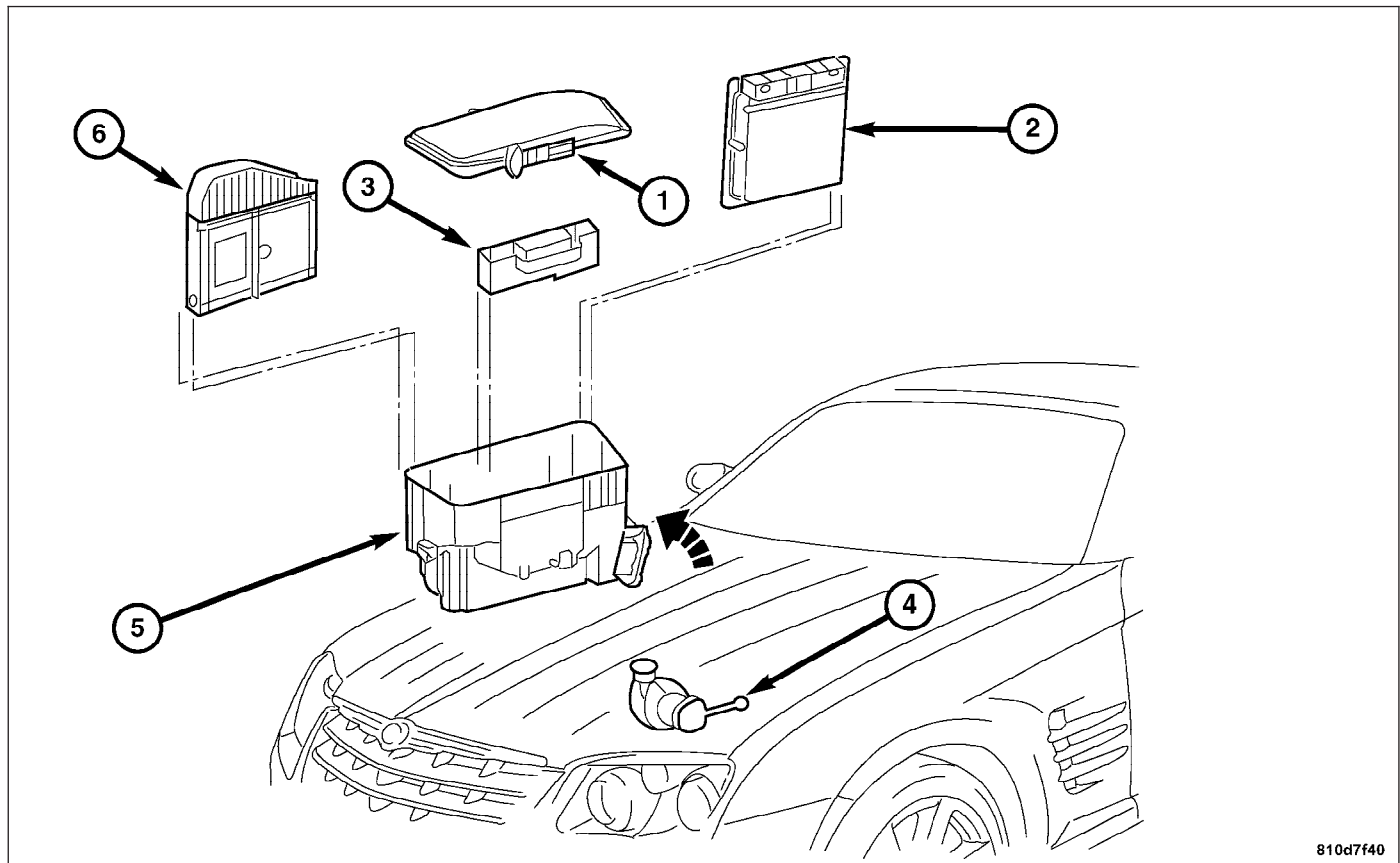
	page		page
HORN - SERVICE INFORMATION		INSTALLATION	12
DESCRIPTION	9	HORN SWITCH	
OPERATION	9	DIAGNOSIS AND TESTING	12
DIAGNOSIS AND TESTING - HORN SYSTEM ..	10	REMOVAL	13
SPECIFICATIONS - HORN	10	INSTALLATION	13
HORN		HORN RELAY	
REMOVAL	11	DESCRIPTION	14

HORN - SERVICE INFORMATION

DESCRIPTION

A dual-note electro-magnetic horn system is standard factory installed equipment on this model. The horn circuit consists of a horn switch, fuse, horn relay, and horns. Both high and low note horn units are located behind the front grille, below and in the center of the radiator core support crossmember.

OPERATION



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- 1 - CONTROL MODULE BOX COVER
- 2 - POWERTRAIN CONTROL MODULE
- 3 - RELAY CONTROL MODULE

- 4 - CONTROL MODULE BOX COOLING FAN
- 5 - CONTROL MODULE BOX
- 6 - BODY CONTROL MODULE

The horn circuit feed is from the fuse to the horn relay within the relay control module (3), both of which are located inside the control module box (5). When the horn switch is depressed, it completes the ground circuit to the horn relay. The horn relay coil closes a set of contacts which allows current to flow to the horns.

DIAGNOSIS AND TESTING - HORN SYSTEM

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

CAUTION: Continuous sounding of horns will cause horn to fail.

For complete horn system diagnosis, see horn electrical diagnostics in this section.

CONDITION	POSSIBLE CAUSES	CORRECTION
HORN SOUNDS CONTINUOUSLY. NOTE: IMMEDIATELY REMOVE FUSE IN CONTROL MODULE BOX AND DISCONNECT HORN	<ol style="list-style-type: none"> 1. Faulty horn relay. 2. Horn control circuit to relay shorted to ground. 3. Pinched horn switch wire under driver airbag module. 4. Faulty horn switch. 	<ol style="list-style-type: none"> 1. Refer to horn electrical diagnostics in this section. 2. Check horn relay circuit for short to ground. 3. Check horn switch harness and repair as necessary. 4. Replace horn switch.
HORN SOUNDS INTERMITTENTLY AS THE STEERING WHEEL IS TURNED	<ol style="list-style-type: none"> 1. Pinched horn switch wire under driver airbag module. 2. Faulty or damaged clockspring. 3. Faulty horn switch. 	<ol style="list-style-type: none"> 1. Check horn switch harness and repair as necessary. 2. Replace clockspring. 3. Replace horn switch.
HORN DOES NOT SOUND	<ol style="list-style-type: none"> 1. Faulty or damaged horn. 2. Faulty horn switch. 	<ol style="list-style-type: none"> 1. Voltage present at horn when horn switch is pressed, replace horn. 2. Replace horn switch.

SPECIFICATIONS - HORN

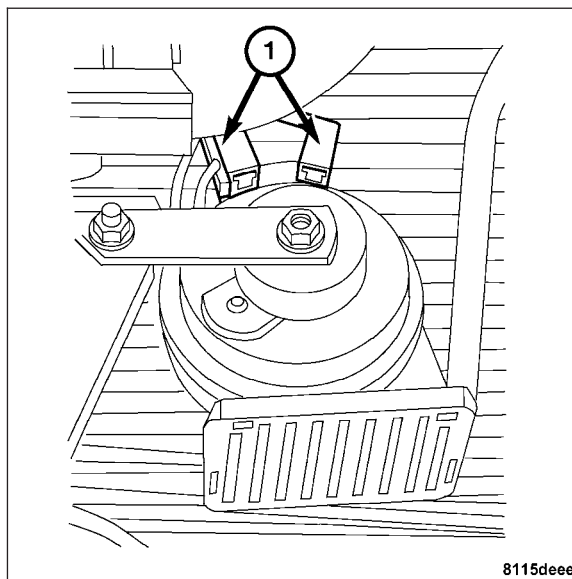
TORQUE SPECIFICATIONS

DESCRIPTION	N-m	Ft. Lbs.	In. Lbs.
HORN MOUNTING BRACKET BOLT	11.3	8.3	100

HORN

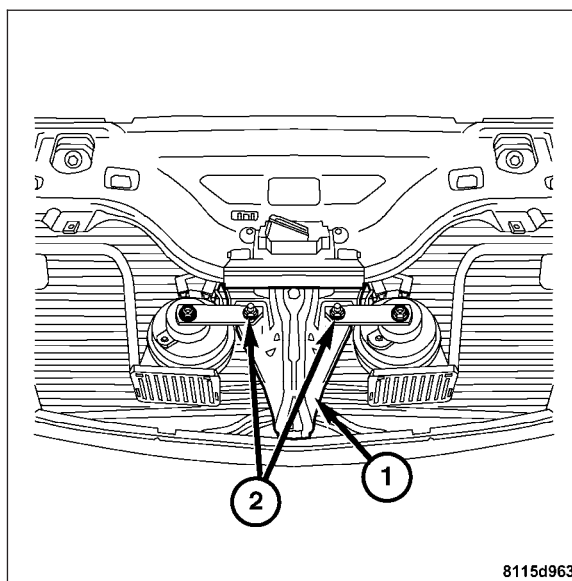
REMOVAL

1. Disconnect the negative battery cable.
2. Remove the grille. **Refer to Page 23-110.**
3. Disconnect the horn harness connector (1).



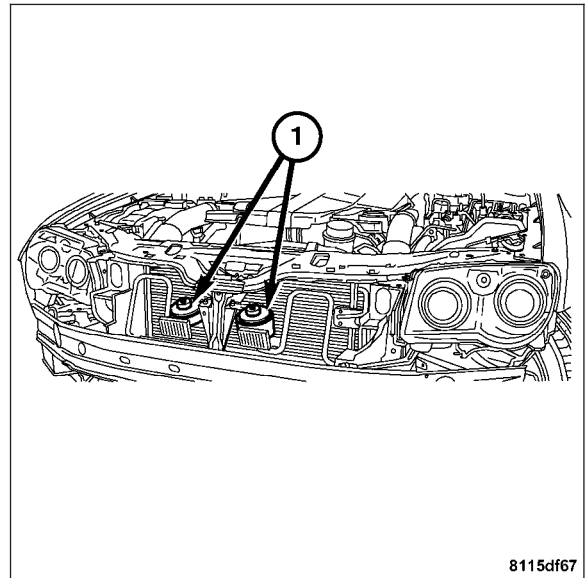
Note: Do not disconnect the horn from the horn mounting bracket.

4. Remove the horn bracket mounting bolt (2) from the core support brace (1), and remove the horn.



INSTALLATION

1. Position the horn(s) (1) onto the vehicle core support and install the horn bracket mounting bolt. Tighten the bolt to 11.3 N·m (100 in. lbs.).
2. Connect the horn harness connector.
3. Install the grille. **Refer to Page 23-111.**
4. Connect the negative battery cable.



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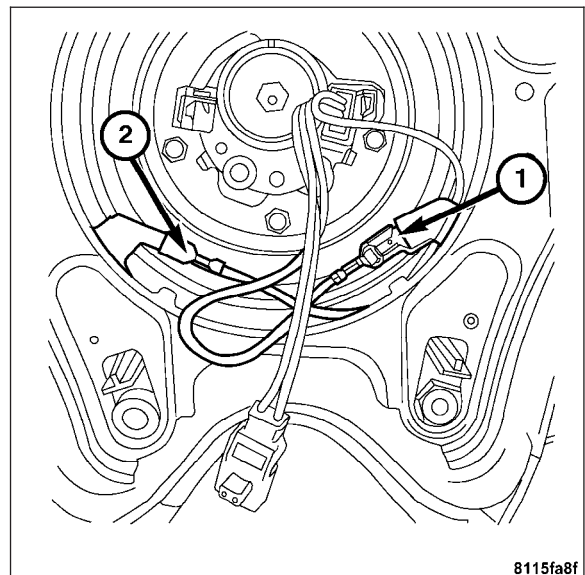
HORN SWITCH

DIAGNOSIS AND TESTING

WARNING: DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, SEAT BELT TENSIONER, SIDE AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIR BAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

The horn switch is comprised of two separate contact plates suspended by pre-loaded springs. It may be tested in the following manner:

1. Disconnect the negative battery cable.
2. Remove the driver airbag. **Refer to Page 80-100.**
3. Disconnect the horn switch harness connectors (1) and (2).
4. Using an ohmmeter, connect one lead to the ground wire terminal (1) and the other lead to the positive wire terminal (2). No continuity should be present.
5. Depress the horn switch outer plate and check for continuity. If no continuity is present between the terminals, replace the switch contact plates.



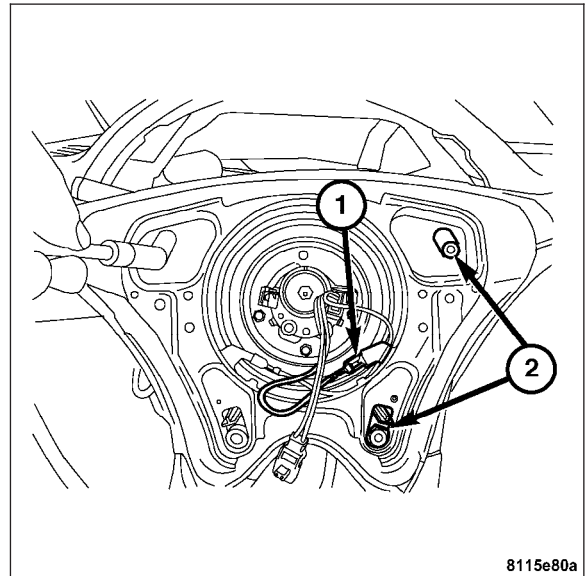
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For complete horn system diagnosis, see horn electrical diagnostics in this section.

REMOVAL

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

1. Disconnect the negative battery cable.
2. Remove the driver airbag. **Refer to Page 80-100.**
3. Disconnect the horn switch harness connector (1).
4. Remove the horn switch retaining nuts (2), and remove the horn switch from the steering wheel.



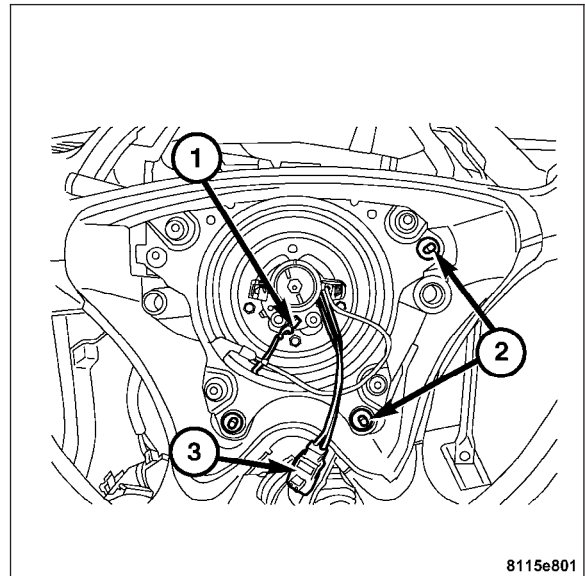
INSTALLATION

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1. Install the horn switch into the steering wheel, then route the driver airbag harness and connector (3) through the opening in the horn switch.

Note: Be sure the horn switch preload springs are centered over the mounting studs (2).

2. Press downward evenly on the horn switch and install the horn switch retaining nuts. Tighten the nuts to 5 N·m (44 in. lbs.).
3. Connect the horn switch harness connector (1).
4. Install the airbag. **Refer to Page 80-100.**
5. Connect the negative battery cable.



HORN RELAY

DESCRIPTION

The horn relay is housed within the relay control module (1) located inside the control module box (3) in the passenger side of the engine compartment. The relay control module also contains the fuse (2) for the horn relay circuitry. The relay control module cannot be adjusted or repaired. If faulty or damaged, the entire module must be replaced as an assembly. For complete relay control module removal procedures, see relay control module removal in the power distribution section.

