HORNS

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DESCRIPTION AND OPERATION

INTRODUCTION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAG, SEE GROUP 8M, RESTRAINT SYSTEMS FOR SAFETY PRECAUTIONS. DISCONNECT THE NEGATIVE CABLE FROM THE BATTERY BEFORE SERVICING COMPONENTS INVOLVING THE AIRBAG SYSTEM. ACCIDENTAL DEPLOYMENT OF AIRBAG AND PERSONAL INJURY CAN RESULT.

The horn circuit consists of a horn switch, clockspring, horn relay, horns and Body Control Module (Fig. 1). The horn switch is a membrane switch located in the airbag cover. The horns are located forward of the left front wheel behind the bumper fascia. The horn relay plugs into the junction block. For circuit information and component locations refer to Group 8W, Wiring Diagrams.

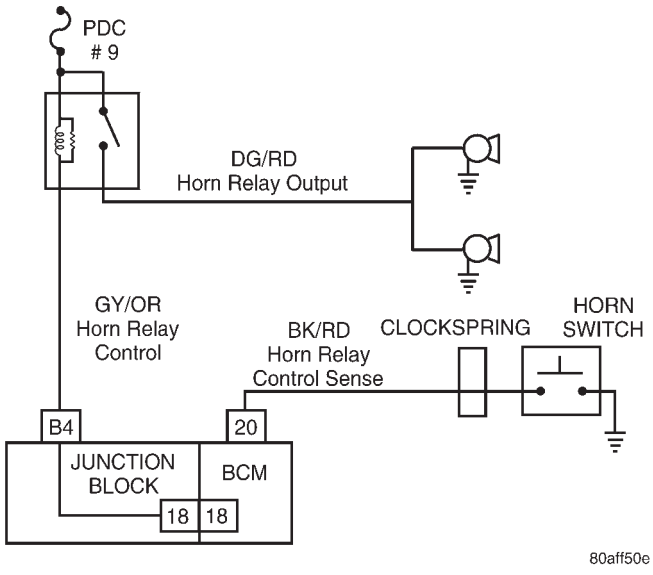

Fig. 1 Horn System

DIAGNOSIS AND TESTING

HORN

(1) Disconnect wire connector at horn.
(2) Using a voltmeter, connect one lead to ground terminal and the other lead to the positive wire terminal (Fig. 3).
(3) Depress the horn switch, battery voltage should be present.
(4) If no voltage, refer to Horn Will Not Sound. If voltage is OK, go to step Step 5.
(5) Using ohmmeter, test ground wire for continuity to ground.
(6) If no ground repair as necessary.
(7) If wires test OK and horn does not sound, replace horn.

HORN RELAY

(1) Remove horn relay.
(2) Using ohmmeter, test between relay connector terminals 85 to 86 for 70 to 75 ohms resistance (Fig. 2). If resistance not OK, replace relay.
(3) Test for continuity between ground and terminal 85 of horn relay.
(a) When the horn switch is not depressed, no continuity should be present.
(b) Continuity to ground when horn switch is depressed.
(c) If continuity is not correct repair horn switch or wiring as necessary, refer to Group 8W, Wiring Diagrams Group 8M Restraint System for Driver's Airbag Module removal procedures.
(4) Using voltmeter, test voltage at:
(a) Terminals 30 and 86 of the horn relay to body ground.
(b) If NO voltage check fuse 7 of the BCM.
(c) If incorrect voltage repair as necessary. Refer to Group 8W, Wiring Diagrams.
(5) Insert a jumper wire between terminal 30 and 87 of the power distribution center.
(a) If horn sounds replace relay.

DIAGNOSIS AND TESTING (Continued)

(b) If the horn does not sound, install horn relay and refer to Horn Test.

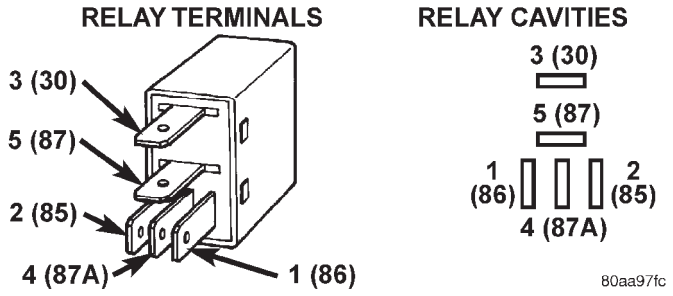

Fig. 2 Horn Relay

HORNS WILL NOT SOUND

Check horn fuse 6 in the Power Distribution Center and fuse 7 in the Junction Block. If fuse is blown refer to FUSE BLOWN section. If fuse is OK, refer to FUSE OK section.

FUSE BLOWN

(1) Verify condition of battery terminals and voltage, refer to Group 8A, Battery. If battery connections and battery charge is OK proceed to Step 2.

(2) Using a voltmeter, test for battery voltage at both sides of horn fuse 7. If voltage is OK, on both sides of fuse, proceed to Fuse OK. If voltage is OK, on one side of fuse, the fuse is blown, proceed to Step 3.

(3) Using a suitable ammeter in place of the fuse, test amperage draw of the horn circuit. If amperage draw is greater than 20 amps without the horn switch depressed, a grounded circuit exists between the fuse and the horn relay. Proceed to Step 4. If amperage draw is greater than 20 amps with the horn switch depressed, a grounded circuit exists between the horn relay and the horn. Proceed to step Step 5.

(4) Remove the horn relay from the Junction Block. If the amperage draw drops to 0 amps, the horn switch or circuit is shorted. Refer to group 8W, Wiring Diagrams for circuit information. If the amperage draw does not drop to 0 amps, repair short at the Junction Block.

(5) Disengage a wire connector from one of the horns. If amperage drops and the connected horn sounds, replace the faulty horn. If amperage does not drop with both horns disconnected and the horn switch depressed, proceed to Step 6.

(6) Using a continuity tester, with the horns disconnected test continuity of the X2 cavity of the horn relay to ground. Refer to Group 8W, Wiring Diagrams for circuit information. If continuity is detected, the circuit is grounded between the Junction Block and the horns. Locate and repair pinched harness.

FUSE OK

(1) Remove the horn relay from the Junction Block.

(2) Using a continuity tester, Depress horn switch and test continuity from the X3 cavity of the horn relay to ground. Refer to Group 8W, Wiring Diagrams for circuit information.

(a) If continuity is detected, proceed to Step 3.

(b) If NO continuity, proceed to Step 4.

(3) Using a suitable jumper wire, jump across the fuse F62 cavity and the X2 cavity of the horn relay in the Junction Block.

(a) If the horn sounds, replace the horn relay.

(b) If the horn does not sound, proceed to Step 4.

(4) Remove airbag/horn pad from steering wheel. Refer to Group 8M, Restraint Systems for proper procedures.

(5) Test continuity across horn switch connectors with horn switch depressed.

(a) If continuity is detected, repair open circuit between the relay and the horn switch.

(b) If NO continuity, replace airbag cover.

(6) Install horn relay into Junction Block.

(7) Disengage wire connectors from horns.

(8) Using a voltmeter, with the horn switch depressed test voltage across horn connector terminals of the wire harness (Fig. 3).

(a) If voltage is detected, replace horns.

(b) If NO voltage, proceed to step Step 9.

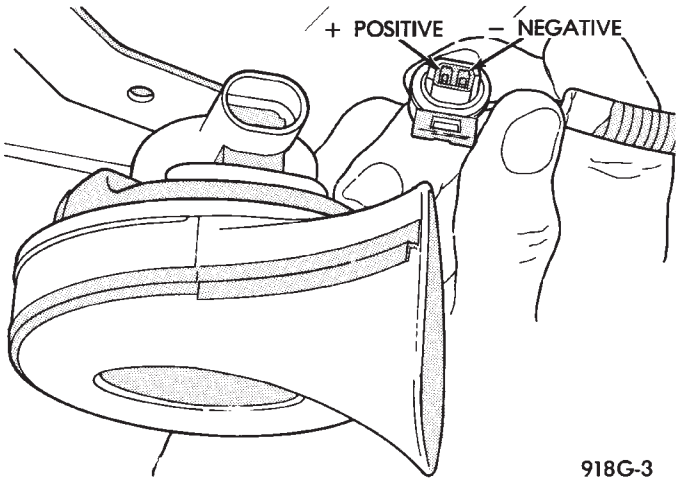

Fig. 3 Horn and Connector

(9) With the horn switch depressed, test for voltage between the X2 circuit and ground.

(a) If voltage OK, repair system ground at right cowl area. Refer to Group 8W, Wiring Diagrams.

(b) If NO voltage, repair open X2 circuit between the relay and the horns.

DIAGNOSIS AND TESTING (Continued)

HORNS SOUND CONTINUOUSLY

CAUTION: Continuous sounding of horns may cause relay to fail.

The horn switch (membrane) sometimes can be the cause without the switch being depressing.

(1) Remove the horn relay from the junction block.

(2) Using a continuity tester, test continuity from the X3 cavity of the horn relay to ground. Refer to Group 8W, Wiring Diagrams for circuit information.

(a) If continuity is detected, proceed to step Step 3.

(b) If NO continuity, replace the horn relay.

(3) Remove the airbag/horn pad from the steering wheel and disengage horn connector.

(4) Install horn relay into junction block.

(a) If horn does not sound, replace airbag cover/ horn pad.

(b) If horn sounds, repair grounded X3 circuit from junction block to clockspring in steering in steering column. Refer to Group 8W, Wiring Diagrams.

HORN SYSTEM

Refer to Horn System Test below. If the horn does not sound, check horn fuse located in the Power Distribution Center. If the fuse is blown, replace with the correct fuse. If the horn fail to sound and the new fuse blows when depressing the horn switch, a short circuit in the horn or the horn wiring between the fuse terminal and the horn is responsible, or a defective horn switch allowed the horn to burn out is responsible.

If the fuse is OK, test horn relay refer to Horn Relay Test.

If the relay is OK, test horn. Refer to Horn System Test.

CAUTION: Continuous sounding of horn may cause horn relay to fail.

Should the horn sound continuously:

- Unplug the horn relay from Power Distribution Center.
- Refer to Horn Relay Test.

Refer to Group 8W, Wiring Diagrams for circuit and wiring information.

HORN SYSTEM TEST

CONDITION	POSSIBLE CAUSE	CORRECTION
Horn sounds continuously. NOTE: Immediately unplug horn relay in the Power Distribution Center (PDC)	(1) Faulty horn relay. (2) Horn control circuit to relay shorted to ground. (3) Pinched horn switch wire under Driver Airbag Module. (4) Defective horn switch	(1) Refer to horn relay test. (2) Check terminal 85 in Junction Block for continuity to ground. If continuity to ground indicates: (a) Steering Wheel horn switch/lead shorted to ground. (b) Wiring harness shorted to ground. Find the short and repair as necessary. (3) Replace Driver Airbag Module. (4) Replace Driver Airbag Module.
Horn sound intermittently as the steering wheel is turned.	(1) Horn relay control circuit X3 is shorted to ground inside steering column or wheel. (2) Pinched horn switch wire under Driver Airbag Module (3) Defective horn switch	(1) Remove Driver Airbag Module and/or wheel. Check for rubbing or loose wire/connector, repair as necessary. (2) Replace Driver Airbag Module. (3) Replace Driver Airbag Module.
Horn does not sound	(1) Check fuse 6 in PDC (2) No Voltage at horn relay terminals 30 & 86, and fuse is OK. (3) Open circuit from terminal 85 of the horn relay to horn switch, X3 circuit. (4) Defective or damaged horn. (5) Defective horn switch	(1) Replace fuse if blown repair as necessary. (2) No voltage, repair the A6 circuit as necessary. (3) Repair circuit as necessary. (4) Voltage at horn when horn switch is pressed, replace horn. (5) Replace Driver Airbag Module.

DIAGNOSIS AND TESTING (Continued)

CONDITION	POSSIBLE CAUSE	CORRECTION
Fuse blows when horn sounds	(1) Short circuit in horn or horn wiring	(1) Remove horn relay, check for shorted horn or horn wiring. Disconnect horn wire harness to isolate short and repair as necessary.
Fuse blows without blowing horn NOTE: For wiring repairs refer to Group 8W, Wire Diagrams.	(1) Short circuit	(1) Remove relay, install new fuse, if fuse does not blow replace horn relay. If fuse blows with relay removed, check for short to ground with ohmmeter on circuit between terminals 30 & 86 and the fuse terminal. Repair as necessary.

REMOVAL AND INSTALLATION

HORN SWITCH

The horn switch is molded into the airbag cover. The horn switch cannot be serviced separately. Refer to Group 8M, Restraint System for Driver Airbag Module Removal and Installation procedures.

HORNS

REMOVAL

(1) Hoist and support the front of the vehicle on safety stands.

(2) From behind the front fascia and forward of the left front wheel, disconnect the wire connectors from horn.

(3) Remove the mount bracket attaching nut from the bottom of radiator closure panel. Do not remove the horn from mounting bracket (Fig. 4).

(4) Separate the horn from vehicle.

INSTALLATION

For installation reverse the above procedures.

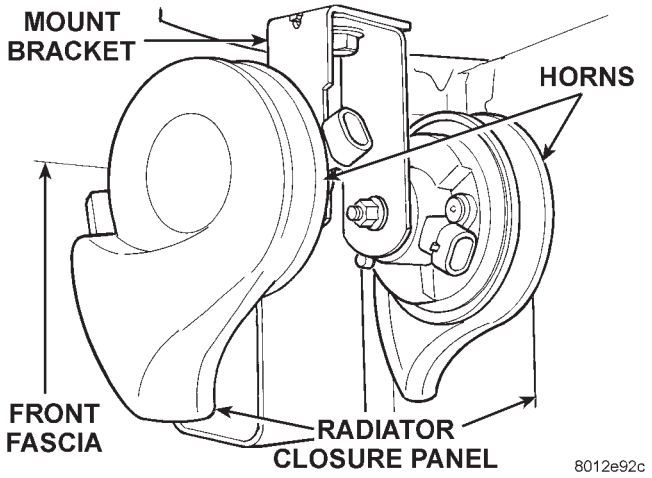

Fig. 4 Horn Removal/Installation