

2004 ACCESSORIES & EQUIPMENT

Horns - SRX

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Horn and Bracket Assembly to the Body	9 N.m	80 lb in

SCHEMATIC AND ROUTING DIAGRAMS

HORNS SCHEMATIC ICONS

Horns Schematic Icons

Icon	Icon Definition
	CAUTION: When performing service on or near the SIR components or the SIR wiring, the SIR system must be disabled. Refer to SIR Disabling and Enabling Zones. Failure to observe the correct procedure could cause deployment of the SIR components, personal injury, or unnecessary SIR system repairs.

HORNS SCHEMATICS

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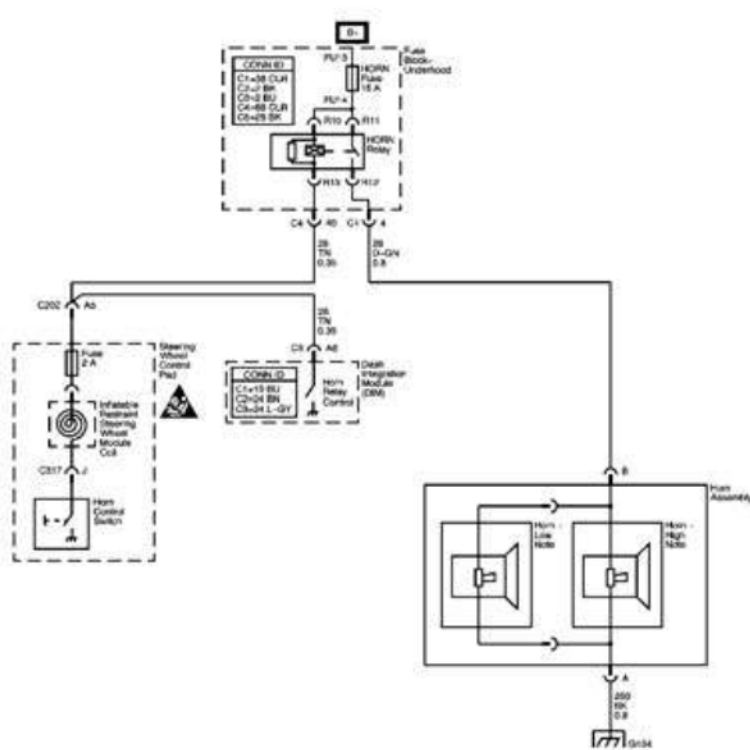


Fig. 1: Horns Schematics

Courtesy of GENERAL MOTORS CORP.

COMPONENT LOCATOR

HORNS COMPONENT VIEWS

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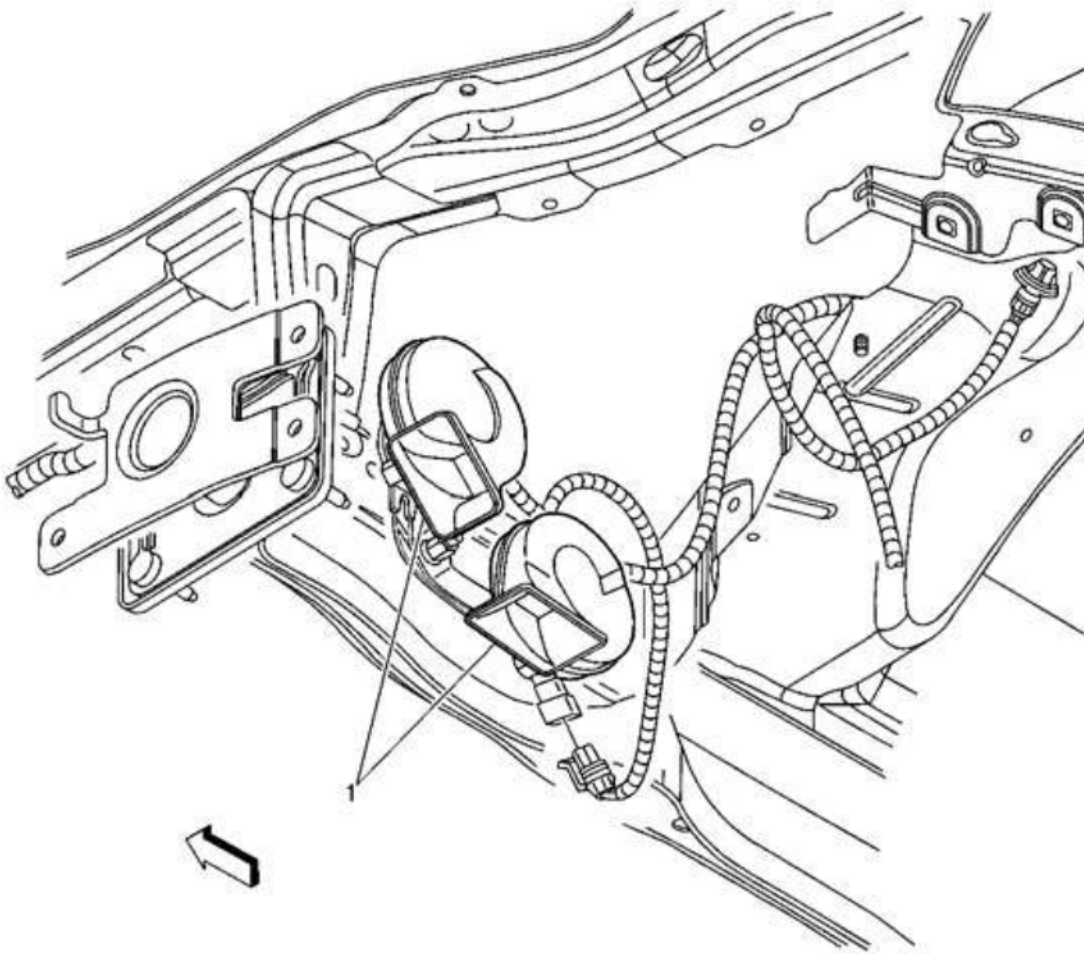


Fig. 2: Left Front Of Engine Compartment Component View
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 2

Callout	Component Name
1	Horns

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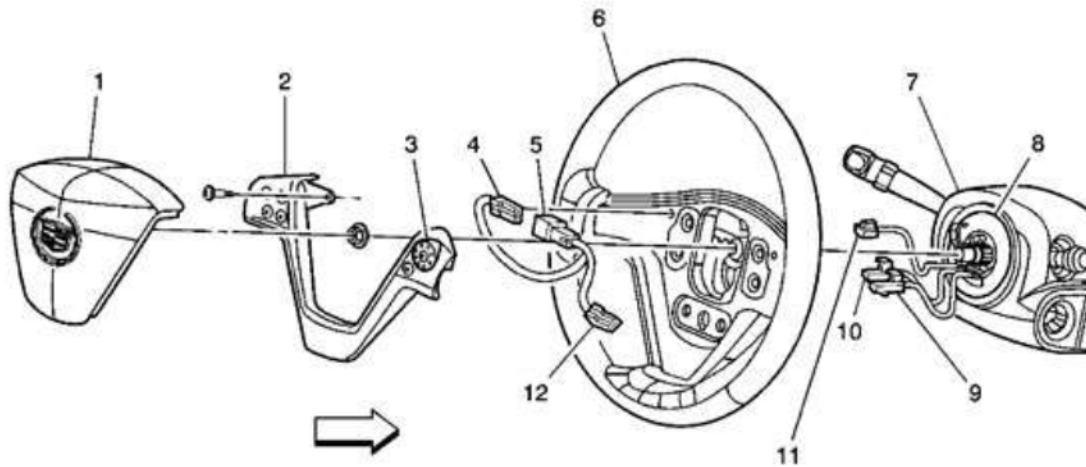


Fig. 3: Steering Wheel Components Component View
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 3

Callout	Component Name
1	Inflatable Restraint Steering Wheel Module/Horn Switch
2	Steering Wheel Controls - Left
3	Steering Wheel Controls - Right
4	Steering Wheel Controls - Left Connector
5	C208
6	Steering Wheel
7	Steering Column
8	Inflatable Restraint Steering Wheel Module Coil
9	Inflatable Restraint Steering Wheel Module Connector C1
10	Inflatable Restraint Steering Wheel Module Connector C2
11	C208
12	Steering Wheel Controls - Right Connector

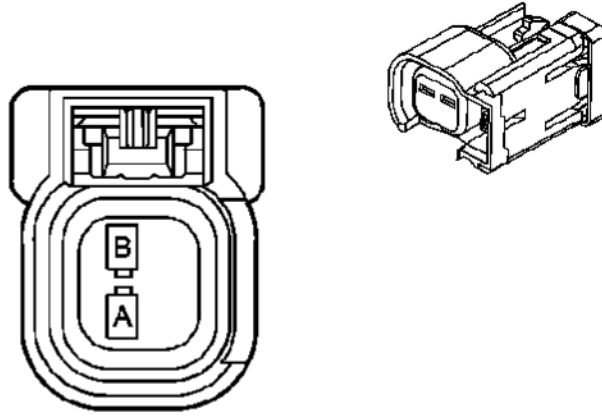
HORNS CONNECTOR END VIEWS

Horn Assembly Terminal Identification

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Connector Part Information

- 15305086
- 2-Way F Metri-Pack 150 Series (BK)

Pin	Wire Color	Circuit No.	Function
A	BK	250	Ground
B	D-GN	29	Horn Control

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - HORNS

Begin the system diagnosis with **Diagnostic System Check - Horns** . The Diagnostic System Check will provide the following information:

- The identification of the control module(s) which command the system.
- The ability of the control module(s) to communicate through the serial data circuit.
- The identification of any stored diagnostic trouble codes (DTCs) and their status.

The use of the Diagnostic System Check will identify the correct procedure for diagnosing the system and where the procedure is located.

DIAGNOSTIC SYSTEM CHECK - HORNS

Test Description

The numbers below refer to the step numbers on the diagnostic table.

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2: Lack of communication may be due to a partial malfunction of the class 2 serial data circuit or due to a total malfunction of the class 2 serial data circuit. The specified procedure will determine the particular condition.

4: The presence of DTCs which begin with "U" indicate some other module is not communicating. The specified procedure will compile all the available information before tests are performed.

Diagnostic System Check - Horns

Step	Action	Yes	No
1	Install a scan tool. Does the scan tool power up?	Go to Step 2	Go to <u>Scan Tool Does Not Power Up</u> in Data Link Communications
2	1. Turn ON the ignition, with the engine OFF. 2. Attempt to establish communication with the body control module (BCM). Does the scan tool communicate with the BCM?	Go to Step 3	Go to <u>Scan Tool Does Not Communicate with Class 2 Device</u> in Data Link Communications
3	Select the BCM display DTCs function on the scan tool. Does the scan tool display any DTCs?	Go to Step 4	Go to <u>Symptoms - Horns</u>
4	Does the scan tool display any DTCs which begin with a "U"?	Go to <u>Scan Tool Does Not Communicate with Class 2 Device</u> in Data Link Communications	Go to Step 5
5	Does the scan tool display DTC B1000 or B1004?	Go to <u>Diagnostic Trouble Code (DTC) List</u> in Body Control System	Go to Step 6
6	Does the scan tool display DTC B1339 or B1349?	Go to <u>Diagnostic Trouble Code (DTC) List</u> in	

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		Body Control System	Go to Step 7
7	Does the scan tool display DTC B1482, B1483, B1507 or B1508?	Go to <u>Diagnostic Trouble Code (DTC) List</u> in Engine Electrical	Go to <u>Symptoms - Horns</u>

SYMPTOMS - HORNS

IMPORTANT: Review the system operation in order to familiarize yourself with the system functions. Refer to **Horns System Description and Operation** .

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the horn system. Refer to **Checking Aftermarket Accessories** in Wiring Systems.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.
- Perform the following if a horn buzzes or has a harsh tone:
 - Inspect for debris in the joint where the horn fastens to the vehicle.
 - Test the torque of the horn mounting hardware. The horn mounting hardware should be tightened to a torque of 10 N.m (7 lb ft).

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- **Horns Always On**
- **Horns Inoperative**
- **Horns Inoperative - One Horn**
- **Horns - Poor Tone**

HORNS ALWAYS ON**Test Description**

The numbers below refer to the step numbers on the diagnostic table.

4: Tests if ground is constantly being applied to the horn relay.

5: The horn relay control circuit includes the horn slip ring and the horn switch. The horn slip ring and horn switch must be tested for a short to ground when testing the relay control circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems.

Horns Always On

Step	Action	Yes	No
1	Did you perform the Horns Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Horns</u>
2	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With a scan tool, command the dash integration module (DIM) Horn Output ON and OFF. Are the horns on at all times?	Go to Step 3	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems
3	1. Turn OFF the ignition. 2. Disconnect the horn relay. Are the horns on at all times?	Go to Step 8	Go to Step 4
4	Connect a test lamp between the battery positive voltage circuit of the horn relay coil and the horn relay control circuit. Does the test lamp illuminate?	Go to Step 5	Go to Step 6
5	Test the horn relay control circuit for a short to ground. The horn relay control circuit includes the horn slip ring and the horn switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 7

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6	Inspect for poor connections at the horn relay. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 9
7	Inspect for poor connections at the harness connector of the DIM. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 10
8	Repair the short to voltage in the horn control circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 11	-
9	Replace the horn relay. Did you complete the replacement?	Go to Step 11	-
10	IMPORTANT: Perform the DIM programming procedure when replacing the DIM. Replace the DIM. Refer to <u>Dash Integration Module Replacement</u> in Body Control System. Did you complete the replacement?	Go to Step 11	-
11	Operate the horns. Do the horns operate properly?	System OK	Go to Step 1

HORNS INOPERATIVE

Test Description

The numbers below refer to the step numbers on the diagnostic table.

4: Verifies that the dash integration module (DIM) is providing ground to the horn relay.

5: Tests for voltage at the battery positive voltage terminal of the horn relay coil.

7: Tests for voltage at the battery positive voltage terminal of the horn relay switch. The SEATS circuit breaker supplies power to the battery positive voltage terminal of the horn relay switch.

13: The horns need maximum current flow to operate properly. A high resistance, greater

than 0.5 ohm, in the horn control circuit or the horn ground circuit could cause operating problems with the horns. Inspect the circuits for faults that would restrict current flow.

15: The horn relay control circuit includes the horn slip ring and the horn switch. The horn slip ring and horn switch must be tested for a high resistance, an open or a short to voltage when testing the relay control circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems.

Horns Inoperative

Step	Action	Yes	No
1	Did you perform the Horns Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Horns</u>
2	Depress the horn switch. Do the horns operate?	Go to Step 3	Go to Step 5
3	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With a scan tool, command the body control module (BCM) Horn Output ON and OFF. Do the horns operate?	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems	Go to Step 4
4	Test the DIM portion of the horn relay control circuit for a high resistance or an open. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 21	Go to Step 11
5	1. Turn OFF the ignition. 2. Disconnect the horn relay. 3. Connect a test lamp between the battery positive voltage circuit of the horn relay coil and a good ground. Does the test lamp illuminate?	Go to Step 6	Go to Step 14
6	1. Connect a test lamp between the battery positive voltage circuit of the horn relay coil and the horn relay control circuit.		

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	2. Depress and hold the horn switch. Does the test lamp illuminate?	Go to Step 7	Go to Step 15
7	Connect a test lamp between the battery positive voltage circuit of the horn relay switch and a good ground. Does the test lamp illuminate?	Go to Step 8	Go to Step 16
8	Momentarily connect a 15 amp fused jumper wire between the battery positive voltage circuit of the horn relay switch and the horn control circuit. Do the horns operate?	Go to Step 12	Go to Step 9
9	1. Reconnect the horn relay. 2. Disconnect either horn connector. 3. Connect a test lamp between the horn control circuit and a good ground. 4. Depress and hold the horn switch. Does the test lamp illuminate?	Go to Step 10	Go to Step 17
10	1. Connect a test lamp between the horn control circuit and the horn ground circuit. 2. Depress and hold the horn switch. Does the test lamp illuminate?	Go to Step 13	Go to Step 18
11	Inspect for poor connections at the harness connector of the DIM. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 21	Go to Step 19
12	Inspect for poor connections at the horn relay. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 21	Go to Step 20
	Repair the high resistance in the horn control		

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13	circuit or the horn ground circuit. A resistance as low as 0.5 ohm could cause operating problems with the horns. Also, though unlikely, it is possible that both horns are defective. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 21	-
14	Repair the open or high resistance in the battery positive voltage circuit of the horn relay coil. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 21	-
15	Repair the open or short to voltage in the horn relay control circuit. The horn relay control circuit includes the horn slip ring and the horn switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 21	-
16	Repair the open or high resistance in the battery positive voltage circuit of the horn relay switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 21	-
17	Repair the open or high resistance in the horn control circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 21	-
18	Repair the open or high resistance in the horn ground circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 21	-
19	IMPORTANT: Perform the DIM programming procedure when replacing the DIM. Replace the DIM. Refer to <u>Dash Integration Module Replacement</u> in Body Control System. Did you complete the repair?	Go to Step 21	-
	Replace the horn relay.		

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20	Did you complete the replacement?	Go to Step 21	-
21	Operate the horns. Do the horns operate properly?	System OK	Go to Step 1

HORNS INOPERATIVE - ONE HORN

Test Description

The number below refers to the step number on the diagnostic table.

9: The horns need maximum current flow to operate properly. A high resistance, greater than 0.5 ohm, in the horn control circuit or the horn ground circuit could cause operating problems with the horns. Inspect the circuits for faults that would restrict current flow.

Horns Inoperative - One Horn

Step	Action	Yes	No
DEFINITION: This diagnostic procedure is for use with systems that have multiple horns in which one of the horns is inoperative.			
1	Did you perform the Horns Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Horns</u>
2	Depress the horn switch. Do all of the horns operate?	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems	Go to Step 3
3	1. Disconnect the inoperative horn. 2. Connect a test lamp between the horn control circuit and a good ground. 3. Depress and hold the horn switch. Does the test lamp illuminate?	Go to Step 4	Go to Step 7
4	1. Connect a test lamp between the horn control circuit and the horn ground circuit. 2. Depress and hold the horn switch.		

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	Does the test lamp illuminate?	Go to Step 5	Go to Step 8
5	Inspect for poor connections at the inoperative horn. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 6
6	1. Connect a 15 amp fused jumper wire between the positive battery terminal and the control terminal of the horn. 2. Connect another jumper wire between the negative battery terminal and the ground terminal of the horn. Does the horn sound?	Go to Step 9	Go to Step 10
7	Repair the open or poor connection in the horn control circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 11	-
8	Repair the open or poor connection in the horn ground circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 11	-
9	Repair the high resistance in the horn control circuit or the horn ground circuit of the horn. A resistance as low as 0.5 ohm could cause operating problems with the horn. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 11	-
10	Replace the inoperative horn. Refer to <u>Horn Replacement</u> . Did you complete the replacement?	Go to Step 11	-
11	Operate the horns. Do the horns operate properly?	System OK	Go to Step 1

HORNS - POOR TONE

Horns - Poor Tone

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Step	Action	Yes	No
1	Did you perform the Horns Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Horns</u>
2	Depress the horn switch. Do the horns have a harsh tone or buzzing?	Go to Step 3	Go to <u>Symptoms - Horns</u>
3	- Test the horn mounting hardware for adequate torque. Refer to <u>Fastener Tightening Specifications</u> . - Inspect the horns for debris in the joint where the horns attach to the vehicle. Did you find and correct the condition?	Go to Step 7	Go to Step 4
4	Perform the following for each of the horns: - Disconnect the horn connector. - Connect a 15 amp fuse jumper wire between the positive battery terminal and the control terminal of the horn. - Connect another jumper wire between the negative battery terminal and the ground terminal of the horn. Does the horn have a harsh tone or buzzing?	Go to Step 6	Go to Step 5
5	Repair the high resistance in the horn control circuit or the horn ground circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 7	-
6	Replace the horn. Refer to <u>Horn Replacement</u> . Did you complete the replacement?	Go to Step 7	-
7	Operate the horns. Do the horns operate properly?	System OK	Go to Step 1

REPAIR INSTRUCTIONS

HORN REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the lower air deflector. Refer to **Air Deflector Replacement - Front** in Bumpers.
3. Loosen the bolt (1) that secures the horn assembly (2) to the body 4 full turns.
4. Grasp the horn assembly (2) on both sides and rock it back and forth in order to pull it forward on the stud.
5. Slide the horn assembly (2) rearward in order to locate the stud in the large portion of the keyhole slot (4).
6. Disconnect the horn electrical connector (3) from the horn assembly (2).
7. Pull the horn assembly (2) outward in order to remove it from the vehicle.

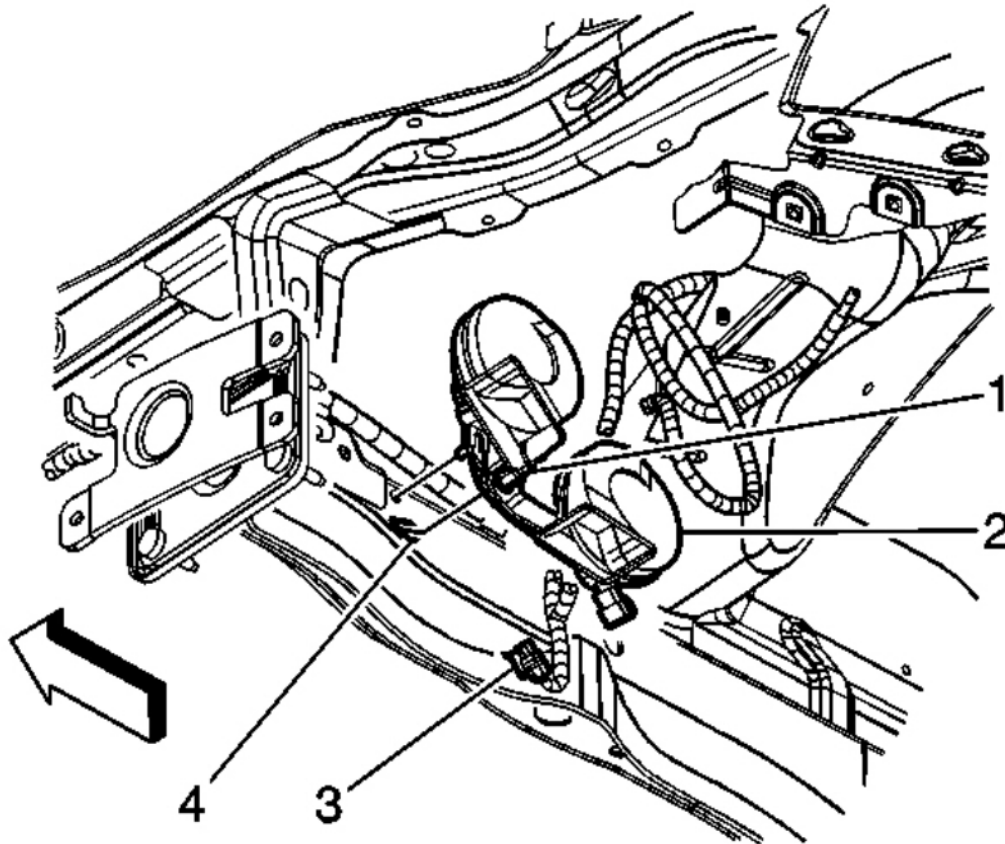


Fig. 4: View Of Horn Assembly
 Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Connect the horn electrical connector (3) to the horn assembly (2).
2. Install the stud of the horn assembly (2) into the large portion of the keyhole slot (4).
3. Slide the horn assembly (2) forward in the keyhole slot (4).

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Tighten the bolt (1) in order to secure the horn assembly (2) to the body side rail.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

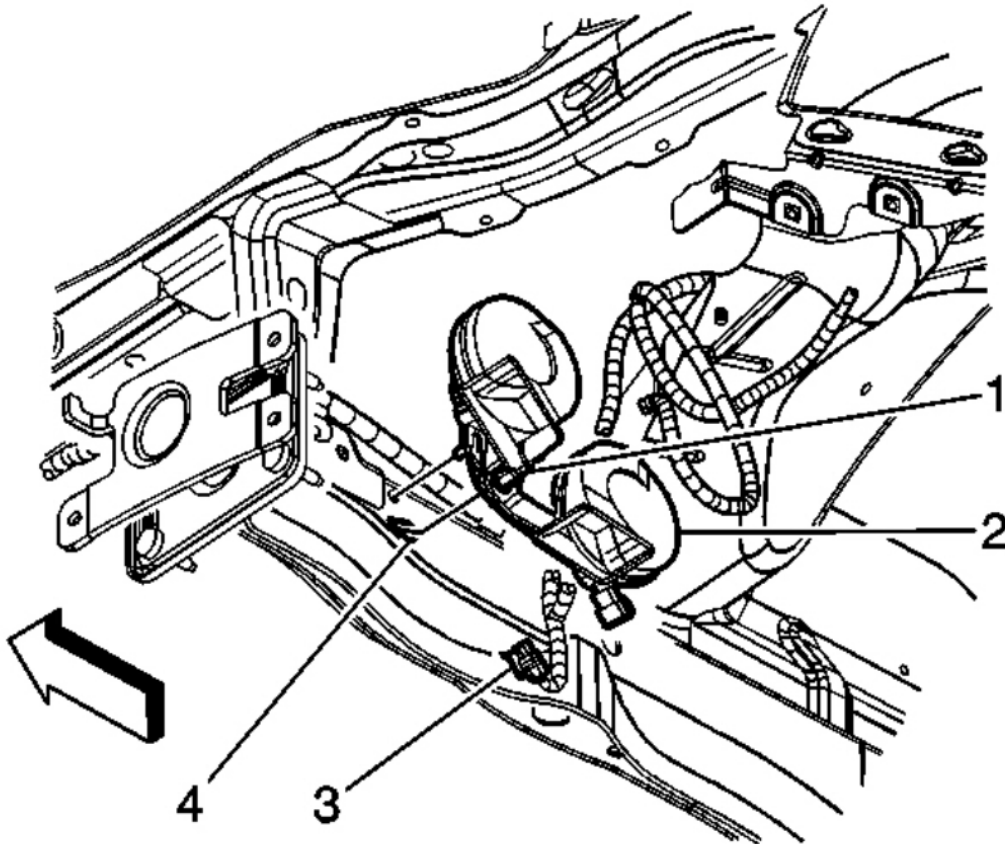


Fig. 5: View Of Horn Assembly
Courtesy of GENERAL MOTORS CORP.

5. Install the lower air deflector. Refer to **Air Deflector Replacement - Front** in Bumpers.
6. Lower the vehicle.

DESCRIPTION AND OPERATION

HORNS SYSTEM DESCRIPTION AND OPERATION

System Description

The horn system consists of the following components:

- HORN fuse
- RADIO fuse
- Horn relay
- Inflatable restraint steering wheel coil
- Horn switch
- Horns
- Body control module (BCM)
- Steering wheel radio control switch

System Operation

The vehicle horn system is activated under the following conditions:

- The horn switch is depressed.
- The body control module (BCM) commands the horns on. The BCM commands the horns on under any of the following conditions:
 - When the content theft deterrent system detects a vehicle intrusion. For further information refer to **Content Theft Deterrent (CTD) Description and Operation** in Theft Deterrent.
 - When the keyless entry system is used to lock the vehicle, a horn chirp may sound to notify the driver that the vehicle has been locked. The notification feature may be enabled or disabled through personalization. For further information refer to **Keyless Entry System Description and Operation** in Keyless Entry.
 - When the OnStar(R) system is used to sound the horns if equipped. For further information, refer to **OnStar Description and Operation** in Cellular Communications.

Circuit Operation

Battery positive voltage is applied at all times to the horn relay coil and the horn relay switch. Pressing the horn switch applies ground to the horn relay control circuit. The BCM may also apply ground to the horn relay control circuit as described above. When the horn relay control circuit is grounded, the horn relay is energized and battery positive voltage is applied to the horns through the horn control circuit. The horns sound as long as ground is applied to the horn relay control circuit.