

## 2004 ACCESSORIES & EQUIPMENT

### Horns - Vue

## SPECIFICATIONS

### FASTENER TIGHTENING SPECIFICATIONS


#### Fastener Tightening Specifications

Application	Specification	
	Metric	English
Horn Bracket Bolt	10 N.m	89 lb in

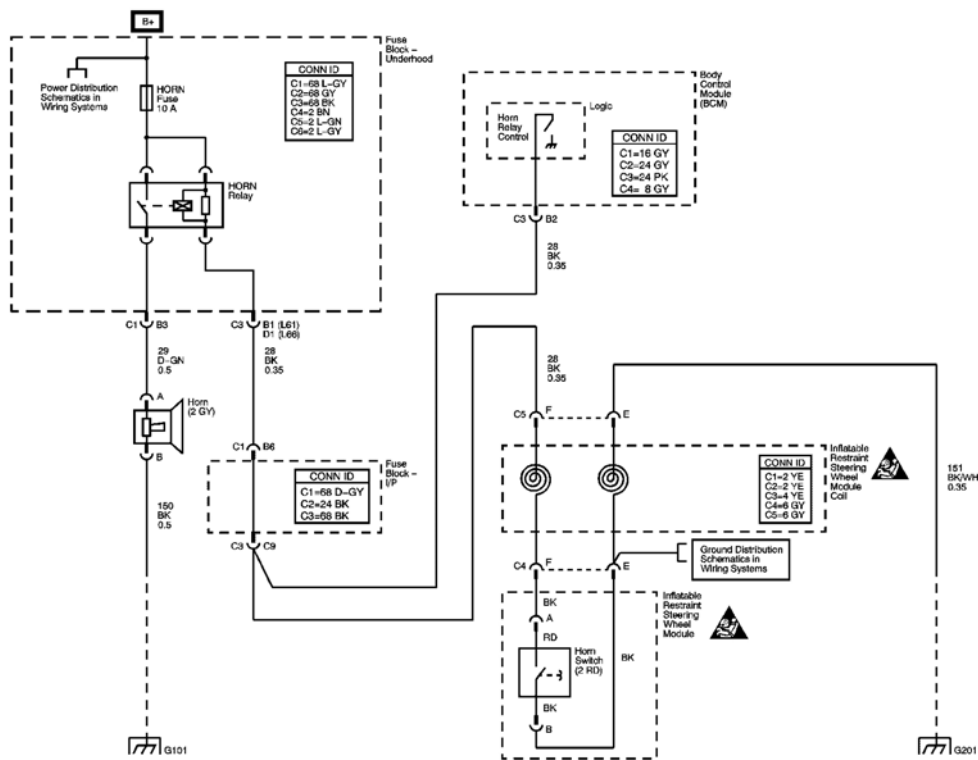
## SCHEMATIC AND ROUTING DIAGRAMS

### HORNS SCHEMATIC ICONS

#### Horns Schematic Icons

Icon	Icon Definition
	<p><b>CAUTION:</b> 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.</p>

### HORNS SCHEMATICS



LOC

DESC

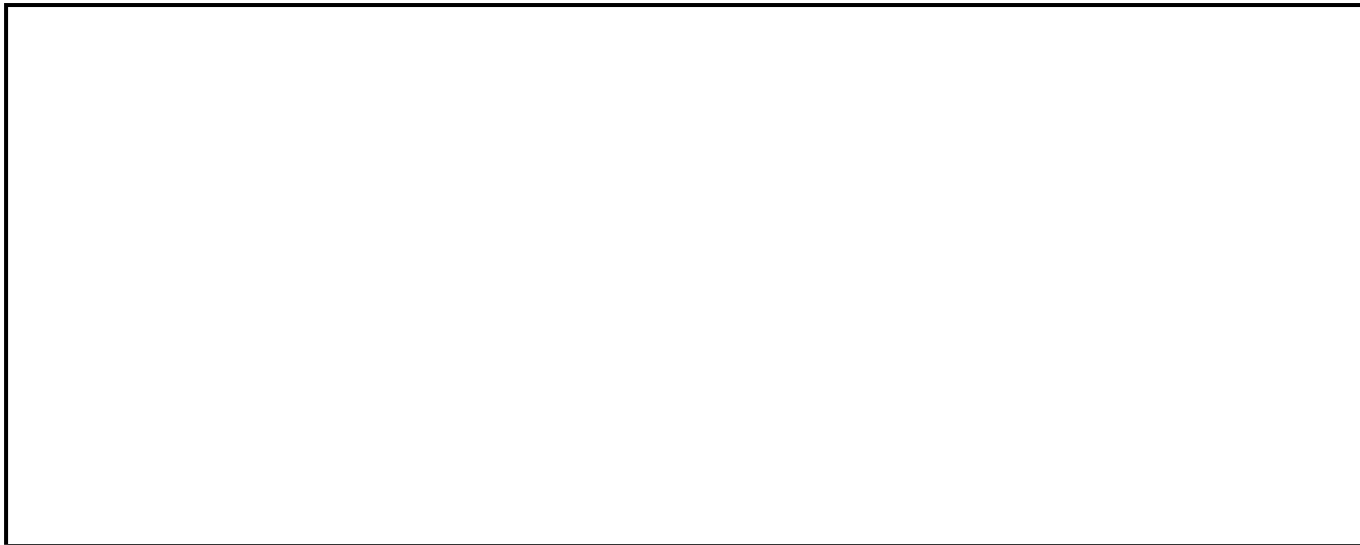
**Fig. 1: Horns Schematics**

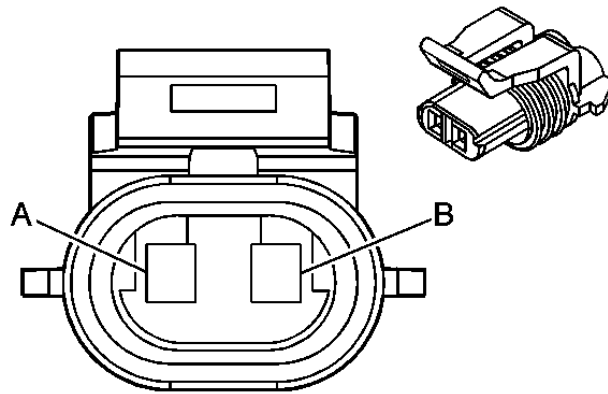
Courtesy of GENERAL MOTORS CORP.

## COMPONENT LOCATOR

### HORNS CONNECTOR END VIEWS

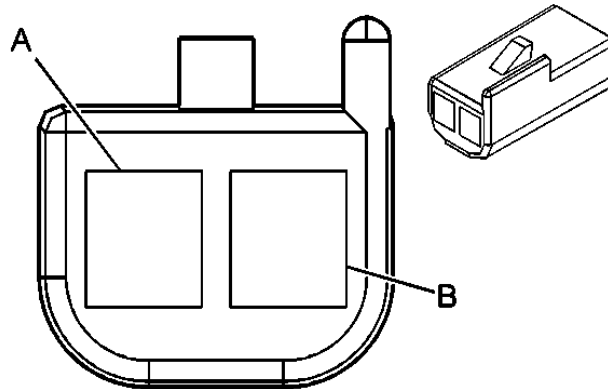
#### Horn Connector End View





<b>Connector Part Information</b>		<ul style="list-style-type: none"> <li>• 12052644</li> <li>• 2-Way F Metri-Pack 150 Series Sealed (GY)</li> </ul>	
Pin	Wire Color	Circuit Number	Function
A	D-GN	29	Horn Control
B	BK	150	Ground

#### Horn Switch Connector End View (Part of the Inflatable Restraint Steering Wheel Module)



<b>Connector Part Information</b>		<ul style="list-style-type: none"> <li>• 12047662</li> <li>• 2-Way F Metri-Pack 150 Series (RD)</li> </ul>	
Pin	Wire Color	Circuit Number	Function
A	BK	-	Horn Relay Control
B	BK	-	Ground

# 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.

**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 <b>Step 2</b>	Go to <b>Scan Tool Does Not Power Up</b> 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 body control module?	Go to <b>Step 3</b>	Go to <b>Scan Tool Does Not Communicate with Class 2 Device</b> in Data Link Communications
3	Select the body control module display DTCs function on the scan tool. Does the scan tool display any DTCs?	Go to <b>Step 4</b>	Go to <b>Symptoms - Horns</b>

4	Does the scan tool display any DTCs which begin with a "U"?	Go to <b><u>Scan Tool Does Not Communicate with Class 2 Device</u></b> in Data Link Communications	Go to <b><u>Diagnostic Trouble Code (DTC) List</u></b> in Body Control System
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## SCAN TOOL OUTPUT CONTROLS

### Scan Tool Output Controls

Scan Tool Output Control	Additional Menu Selection(s)	Description
Horn Relay	Misc. Test	When commanded, the Body Control Module supplies ground to energize the Horn Relay. The Horn should sound if equipped with keyless entry.

## SCAN TOOL DATA LIST

The Horns Scan Tool Data List contains all of the horn related parameters that are available on the scan tool. The parameters in the list are arranged in alphabetical order. The column, "Data List," indicates the location of the parameter within the scan tool menu selections. Use the Horns Scan Tool Data List as directed by a diagnostic table or in order to supplement the diagnostic procedures. Begin all of the diagnostic procedures with **Diagnostic System Check - Horns**.

Use the Scan Tool Data List only after the following is determined:

- There is no published DTC procedure nor published symptom procedure for the customer concern.
- The DTC or symptom diagnostic procedure indicated by the diagnostic system check does not resolve the customer concern.

The Typical Data Values are obtained from a properly operating vehicle under the conditions specified in the first row of the Scan Tool Data List table. Comparison of the parameter values from the suspect vehicle with the Typical Data Values may reveal the source of the customer concern.

### Scan Tool Data List

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
<b>Ignition ON/Engine OFF</b>			
Battery Voltage	Data	Volts	Varies
Horn Output	Outputs	On/Off	Off

## SCAN TOOL DATA DEFINITIONS

### Battery Voltage

The scan tool displays the current state of the battery in volts.

## Horn Output

The horn output indicates the state that the control module has commanded for the relay.

## DIAGNOSTIC TROUBLE CODE (DTC) LIST

### Diagnostic Trouble Code (DTC) List

DTC	Diagnostic Procedure	Module(s)
B2752	<u>DTC B2752</u>	BCM
B2753	<u>DTC B2753</u>	BCM

### DTC B2752

#### Circuit Description

The vehicle horns are activated whenever ground is applied to the horn relay coil through the horn relay control circuit. Ground may be applied by either of the following:

- Body control module (BCM), if equipped with keyless entry (AU0)
- Horn switch

#### Conditions for Running the DTC

- The body control module system voltage must be between 9.0 and 16.0 volts.
- The BCM is commanding the horn relay to energize or the horn switch is pressed.

#### Conditions for Setting the DTC

The BCM detects a short to ground or an open in the horn relay control circuit for approximately 3 minutes.

#### Action Taken When the DTC Sets

- If the horn relay control circuit is shorted to ground the horns will remain ON at all times.
- If the horn relay control circuit is open the horn will only work with the horn button on the steering wheel.
- The BCM stores DTC B2752 in memory.

#### Conditions for Clearing the DTC

- A current DTC will clear when the fault is no longer present and the ignition switch is cycled.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- A scan tool may be used to clear history and current DTC(s).

#### Diagnostic Aids

- Ensure that the vehicle is equipped with keyless entry (AU0).
- Always begin diagnosis with the first DTC listed on the scan tool.
- The scan tool must display DTC B2752 as a current code before performing these diagnostics.
- Inspect for a sticking horn pad and or switch.
- Perform a visual inspection for loose or poor connections at all related components.

Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

### Test Description

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

**2:** Listen for an audible click when the horn relay operates. Command both the ON and OFF states. Repeat the commands as necessary.

**3:** Tests for voltage at the coil side of the horn relay. The HORN fuse supplies power to the coil side of the horn relay.

**4:** Verifies that the body control module (BCM) is providing ground to the horn relay.

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

### DTC B2752

Step	Action	Yes	No
<b>Schematic Reference: Horns Schematics</b>			
1	Did you perform the Horns Diagnostic System Check?	Go to <b>Step 2</b>	Go to <b>Diagnostic System Check - Horns</b>
2	<ol style="list-style-type: none"> <li>1. Install a scan tool.</li> <li>2. Turn ON the ignition, with the engine OFF.</li> <li>3. With a scan tool, command the horn relay ON and OFF.</li> </ol> Does the horn relay turn ON and OFF with each command?	Go to Diagnostic Aids	Go to <b>Step 3</b>
3	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect the horn relay.</li> <li>3. Turn ON the ignition, with the engine OFF.</li> <li>4. Connect a test lamp between the battery positive voltage circuit of the horn relay coil and a good ground.</li> </ol> Does the test lamp illuminate?	Go to <b>Step 4</b>	Go to <b>Step 10</b>
4	<ol style="list-style-type: none"> <li>1. Connect a test lamp between the control circuit of the horn relay and the battery positive voltage circuit of the horn relay coil.</li> <li>2. With a scan tool, command the horn relay ON and OFF.</li> </ol>		

	Does the test lamp turn ON and OFF with each command?	Go to <b>Step 8</b>	Go to <b>Step 5</b>
5	Does the test lamp remain illuminated with each command?	Go to <b>Step 7</b>	Go to <b>Step 6</b>
6	Test the control circuit of the horn relay for an open. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 9</b>
7	Test the control circuit of the horn relay for a short to ground. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 9</b>
8	Inspect for poor connections at the horn relay. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems. Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 11</b>
9	Inspect for poor connections at the harness connector of the body control module (BCM). Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems. Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 12</b>
10	Repair the battery positive voltage circuit of the horn relay coil. Refer to <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?	Go to <b>Step 13</b>	-
11	Replace the horn relay. Did you complete the replacement?	Go to <b>Step 13</b>	-
12	<b>IMPORTANT:</b> <b>Perform the BCM programming procedure when replacing the BCM.</b>  Replace the BCM. Refer to <b>Body Control Module Replacement</b> in Body Control System. Did you complete the replacement?	Go to <b>Step 13</b>	-
13	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.  Does the DTC reset?	Go to <b>Step 2</b>	System OK

## DTC B2753

### Circuit Description

The vehicle horns are activated whenever ground is applied to the horn relay coil through the horn relay control circuit. Ground may be applied by either of the following:

- Body control module (BCM) if equipped with keyless entry (AU0)



- Horn switch

### Conditions for Running the DTC

- The body control module system voltage must be between 9.0 and 16.0 volts.
- The BCM is commanding the horn relay to energize or the horn switch is pressed.

### Conditions for Setting the DTC

The BCM detects a short to voltage in the horn relay control circuit for approximately 250 milliseconds.

### Action Taken When the DTC Sets

- The horns are inoperative from the BCM and the horn switch.
- The BCM stores DTC B2753 in memory.

### Conditions for Clearing the DTC

- A current DTC will clear when the fault is no longer present and the ignition switch is cycled.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- A scan tool may be used to clear history and current DTC(s).

### Diagnostic Aids

- Ensure that the vehicle is equipped with keyless entry (AU0).
- Always begin diagnosis with the first DTC listed on the scan tool.
- The scan tool must display DTC B2753 as a current code before performing these diagnostics.

### Test Description

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

**2:** Listen for an audible click when the horn relay operates. Command both the ON and OFF states. Repeat the commands as necessary.

**3:** Tests for voltage at the coil side of the horn relay. The HORN fuse supplies power to the coil side of the horn relay.

**4:** Verifies that the body control module (BCM) is providing ground to the horn relay.

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

### DTC B2753

Step	Action	Yes	No
<b>Schematic Reference:</b> <u>Horns Schematics</u>			
1	Did you perform the Horns Diagnostic System Check?		Go to <b>Diagnostic System Check -</b>

		Go to <b>Step 2</b>	<b>Horns</b>
2	<ol style="list-style-type: none"> <li>1. Install a scan tool.</li> <li>2. Turn ON the ignition, with the engine OFF.</li> <li>3. With a scan tool, command the horn relay ON and OFF.</li> </ol> <p>Does the horn relay turn ON and OFF with each command?</p>	Go to Diagnostic Aids	Go to <b>Step 3</b>
3	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect the horn relay.</li> <li>3. Turn ON the ignition, with the engine OFF.</li> <li>4. Connect a test lamp between the battery positive voltage circuit of the horn relay coil and a good ground.</li> </ol> <p>Does the test lamp illuminate?</p>	Go to <b>Step 4</b>	Go to <b>Step 10</b>
4	<ol style="list-style-type: none"> <li>1. Connect a test lamp between the control circuit of the horn relay and the battery positive voltage circuit of the horn relay coil.</li> <li>2. With a scan tool, command the horn relay ON and OFF.</li> </ol> <p>Does the test lamp turn ON and OFF with each command?</p>	Go to <b>Step 8</b>	Go to <b>Step 5</b>
5	Does the test lamp remain illuminated with each command?	Go to <b>Step 7</b>	Go to <b>Step 6</b>
6	<p>Test the control circuit of the horn relay for short to voltage. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 13</b>	Go to <b>Step 9</b>
7	<p>Test the control circuit of the horn relay for a short to ground. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 13</b>	Go to <b>Step 9</b>
8	<p>Inspect for poor connections at the horn relay. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 13</b>	Go to <b>Step 11</b>
9	<p>Inspect for poor connections at the harness connector of the body control module (BCM). Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 13</b>	Go to <b>Step 12</b>
10	<p>Repair the battery positive voltage circuit of the horn relay coil. Refer to <b>Wiring Repairs</b> in Wiring Systems.</p> <p>Did you complete the repair?</p>	Go to <b>Step 13</b>	-
11	<p>Replace the horn relay.</p> <p>Did you complete the replacement?</p>	Go to <b>Step 13</b>	-
	<b>IMPORTANT:</b>		

12	<p><b>Perform the BCM programming procedure when replacing the BCM.</b></p> <p>Replace the BCM. Refer to <b><u>Body Control Module Replacement</u></b> in Body Control System. Did you complete the replacement?</p>	Go to <b>Step 13</b>	-
13	<ol style="list-style-type: none"> <li>1. Use the scan tool in order to clear the DTCs.</li> <li>2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.</li> </ol> <p>Does the DTC reset?</p>	Go to <b>Step 2</b>	System OK

## SYMPTOMS - HORNS

### Test Description

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

**5:** Verifies that the body control module (BCM) is providing ground to the horn relay.

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

**8:** Tests for voltage at the battery positive voltage terminal of the horn relay switch. The HORN fuse supplies power to the battery positive voltage terminal of the horn relay switch.

**16:** 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.

**18:** The horn relay control circuit includes the horn slip ring and the horn switch. The horn slip ring and the 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.

### Symptoms - Horns

Step	Action	Yes	No
1	Did you perform the Horns Diagnostic System Check?	Go to <b>Step 2</b>	Go to <b>Diagnostic System Check - Horns</b>
2	Is the vehicle equipped with keyless entry (AU0)?	Go to <b>Step 3</b>	Go to <b>Step 4</b>
3	<ol style="list-style-type: none"> <li>1. Install a scan tool.</li> <li>2. Turn ON the ignition, with the engine OFF.</li> <li>3. With a scan tool, command the Body Control Module Horn Output ON and OFF.</li> </ol> <p>Does the horn operate?</p>	Go to <b>Step 4</b>	Go to <b>Step 5</b>
	Depress the horn switch.	Go to <b>Testing for</b>	

		<b><u>Intermittent Conditions and Poor Connections</u></b> in Wiring Systems	Go to <b>Step 6</b>
4	Does the horn operate?		
5	Test the body control module (BCM) portion of the horn relay control circuit for a high resistance or an open. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?	Go to <b>Step 25</b>	Go to <b>Step 14</b>
6	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect the horn relay.</li> <li>3. Connect a test lamp between the battery positive voltage circuit of the horn relay coil and a good ground.</li> </ol> Does the test lamp illuminate?	Go to <b>Step 7</b>	Go to <b>Step 17</b>
7	<ol style="list-style-type: none"> <li>1. Connect a test lamp between the battery positive voltage circuit of the horn relay coil and the horn relay control circuit.</li> <li>2. Depress and hold the horn switch.</li> </ol> Does the test lamp illuminate?	Go to <b>Step 8</b>	Go to <b>Step 18</b>
8	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 <b>Step 9</b>	Go to <b>Step 19</b>
9	Momentarily connect a 15 amp fused jumper wire between the battery positive voltage circuit of the horn relay switch and the horn control circuit. Does the horn operate?	Go to <b>Step 15</b>	Go to <b>Step 10</b>
10	<ol style="list-style-type: none"> <li>1. Reconnect the horn relay.</li> <li>2. Disconnect the horn connector.</li> <li>3. Connect a test lamp between the horn control circuit and a good ground.</li> <li>4. Depress and hold the horn switch.</li> </ol> Does the test lamp illuminate?	Go to <b>Step 11</b>	Go to <b>Step 20</b>
11	<ol style="list-style-type: none"> <li>1. Connect a test lamp between the horn control circuit and the horn ground circuit.</li> <li>2. Depress and hold the horn switch.</li> </ol> Does the test lamp illuminate?	Go to <b>Step 12</b>	Go to <b>Step 21</b>
	Inspect for poor connections at the horn. Refer to <b>Testing for Intermittent Conditions and Poor</b>		

12	<p><b>Connections</b> and <b>Connector Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 25</b>	Go to <b>Step 13</b>
13	<ol style="list-style-type: none"> <li>1. Connect a 15 amp fused jumper wire between the positive battery terminal and the control terminal of the horn.</li> <li>2. Connect another jumper wire between the negative battery terminal and the ground terminal of the horn.</li> </ol> <p>Does the horn operate?</p>	Go to <b>Step 16</b>	Go to <b>Step 24</b>
14	<p>Inspect for poor connections at the harness connector of the BCM. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 25</b>	Go to <b>Step 22</b>
15	<p>Inspect for poor connections at the horn relay. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 25</b>	Go to <b>Step 23</b>
16	<p>Repair the high resistance in the horn control circuit or the horn ground circuit. A resistance as low as 0.5 ohm could cause operating problems with the horns. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems.</p> <p>Did you complete the repair?</p>	Go to <b>Step 25</b>	-
17	<p>Repair the open or high resistance in the battery positive voltage circuit of the horn relay coil. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems.</p> <p>Did you complete the repair?</p>	Go to <b>Step 25</b>	-
18	<p><b>IMPORTANT:</b> The horn switch is part of the inflatable restraint steering wheel module. Refer to <b>Inflatable Restraint Steering Wheel Module Replacement in SIR. To disable the SIR system, refer to SIR Disabling and Enabling Zone 3 in SIR.</b></p> <p>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 <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?</p>	Go to <b>Step 25</b>	-
	<p>Repair the open or high resistance in the battery positive voltage circuit of the horn relay switch. Refer</p>		

19	to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?	Go to <b>Step 25</b>	-
20	Repair the open or high resistance in the horn control circuit. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?	Go to <b>Step 25</b>	-
21	Repair the open or high resistance in the horn ground circuit. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?	Go to <b>Step 25</b>	-
22	<b>IMPORTANT:</b> <b>Perform the BCM programming procedure when replacing the BCM.</b>  Replace the BCM. Refer to <b>Body Control Module Replacement</b> in Body Control System. Did you complete the repair?	Go to <b>Step 25</b>	-
23	Replace the horn relay. Did you complete the replacement?	Go to <b>Step 25</b>	-
24	Replace the horn. Refer to <b>Horn Replacement</b> . Did you complete the replacement?	Go to <b>Step 25</b>	-
25	Operate the horn. Does the horn operate properly?	System OK	Go to <b>Step 1</b>

## HORNS ALWAYS ON

### Test Description

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

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

**6:** The horn relay control circuit includes the horn slip ring and the horn switch. The horn slip ring and the horn switch must be tested for a short to ground when testing the relay control circuit.

### Horns Always On

Step	Action	Yes	No
1	Did you perform the Horns Diagnostic System Check?	Go to <b>Step 2</b>	Go to <b>Diagnostic System Check - Horns</b>
2	Is the vehicle equipped with keyless entry (AU0)?	Go to <b>Step 3</b>	Go to <b>Step 4</b>
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		Go to <b>Testing for</b>

	Horn Output ON and OFF.		<b><u>Intermittent Conditions and Poor Connections</u></b> in Wiring Systems
	Is the horn on at all times?	Go to <b>Step 4</b>	
4	1. Turn OFF the ignition. 2. Disconnect the horn relay.  Is the horn on at all times?	Go to <b>Step 9</b>	Go to <b>Step 5</b>
5	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 <b>Step 6</b>	Go to <b>Step 7</b>
6	<b>IMPORTANT:</b> <b>The horn switch is part of the inflatable restraint steering wheel module. Refer to <u>Inflatable Restraint Steering Wheel Module Replacement</u> in SIR. To disable the SIR system refer to <u>SIR Disabling and Enabling Zone 3</u> in SIR.</b>  Test the horn relay control circuit for a short to ground. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> in Wiring Systems. Did you find and correct the condition?	Go to <b>Step 12</b>	Go to <b>Step 8</b>
7	Inspect for poor connections at the horn relay. Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> in Wiring Systems. Did you find and correct the condition?	Go to <b>Step 12</b>	Go to <b>Step 10</b>
8	Inspect for poor connections at the body control module (BCM). Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> in Wiring Systems. Did you find and correct the condition?	Go to <b>Step 12</b>	Go to <b>Step 11</b>
9	Repair the short to voltage in the horn control circuit. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> in Wiring Systems. Did you complete the repair?	Go to <b>Step 12</b>	-
10	Replace the horn relay. Did you complete the replacement?	Go to <b>Step 12</b>	-
11	<b>IMPORTANT:</b> <b>Perform the BCM programming procedure when replacing the BCM.</b>  Replace the BCM. Refer to <b><u>Body Control Module Replacement</u></b> in Body Control System. Did you complete the replacement?	Go to <b>Step 12</b>	-
12	Operate the horn. Does the horn operate properly?	System OK	Go to <b>Step 1</b>

## HORNS INOPERATIVE

## Test Description

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

**5:** Verifies that the body control module (BCM) is providing ground to the horn relay.

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

**8:** Tests for voltage at the battery positive voltage terminal of the horn relay switch. The HORN fuse supplies power to the battery positive voltage terminal of the horn relay switch.

**16:** 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.

**18:** The horn relay control circuit includes the horn slip ring and the horn switch. The horn slip ring and the 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 <b>Step 2</b>	Go to <b>Diagnostic System Check - Horns</b>
2	Is the vehicle equipped with keyless entry (AU0)?	Go to <b>Step 3</b>	Go to <b>Step 4</b>
3	<ol style="list-style-type: none"><li>1. Install a scan tool.</li><li>2. Turn ON the ignition, with the engine OFF.</li><li>3. With a scan tool, command the Body Control Module Horn Output ON and OFF.</li></ol> Does the horn operate?	Go to <b>Step 4</b>	Go to <b>Step 5</b>
4	Depress the horn switch. Does the horn operate?	Go to <b>Testing for Intermittent Conditions and Poor Connections</b> in Wiring Systems	Go to <b>Step 6</b>
5	Test the body control module (BCM) portion of the horn relay control circuit for a high resistance or an open. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?	Go to <b>Step 25</b>	Go to <b>Step 14</b>
6	<ol style="list-style-type: none"><li>1. Turn OFF the ignition.</li><li>2. Disconnect the horn relay.</li><li>3. Connect a test lamp between the battery positive voltage circuit of the horn relay coil and a good ground.</li></ol>		



	Does the test lamp illuminate?	Go to <b>Step 7</b>	Go to <b>Step 17</b>
7	<ol style="list-style-type: none"> <li>1. Connect a test lamp between the battery positive voltage circuit of the horn relay coil and the horn relay control circuit.</li> <li>2. Depress and hold the horn switch.</li> </ol> <p>Does the test lamp illuminate?</p>	Go to <b>Step 8</b>	Go to <b>Step 18</b>
8	<p>Connect a test lamp between the battery positive voltage circuit of the horn relay switch and a good ground.</p> <p>Does the test lamp illuminate?</p>	Go to <b>Step 9</b>	Go to <b>Step 19</b>
9	<p>Momentarily connect a 15 amp fused jumper wire between the battery positive voltage circuit of the horn relay switch and the horn control circuit.</p> <p>Does the horn operate?</p>	Go to <b>Step 15</b>	Go to <b>Step 10</b>
10	<ol style="list-style-type: none"> <li>1. Reconnect the horn relay.</li> <li>2. Disconnect the horn connector.</li> <li>3. Connect a test lamp between the horn control circuit and a good ground.</li> <li>4. Depress and hold the horn switch.</li> </ol> <p>Does the test lamp illuminate?</p>	Go to <b>Step 11</b>	Go to <b>Step 20</b>
11	<ol style="list-style-type: none"> <li>1. Connect a test lamp between the horn control circuit and the horn ground circuit.</li> <li>2. Depress and hold the horn switch.</li> </ol> <p>Does the test lamp illuminate?</p>	Go to <b>Step 12</b>	Go to <b>Step 21</b>
12	<p>Inspect for poor connections at the horn. Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 25</b>	Go to <b>Step 13</b>
13	<ol style="list-style-type: none"> <li>1. Connect a 15 amp fused jumper wire between the positive battery terminal and the control terminal of the horn.</li> <li>2. Connect another jumper wire between the negative battery terminal and the ground terminal of the horn.</li> </ol> <p>Does the horn operate?</p>	Go to <b>Step 16</b>	Go to <b>Step 24</b>
14	<p>Inspect for poor connections at the harness connector of the BCM. Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector</u></b></p>		

	<p><b>Repairs</b> in Wiring Systems. Did you find and correct the condition?</p>	Go to <b>Step 25</b>	Go to <b>Step 22</b>
15	<p>Inspect for poor connections at the horn relay. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems. Did you find and correct the condition?</p>	Go to <b>Step 25</b>	Go to <b>Step 23</b>
16	<p>Repair the high resistance in the horn control circuit or the horn ground circuit. A resistance as low as 0.5 ohm could cause operating problems with the horns. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?</p>	Go to <b>Step 25</b>	-
17	<p>Repair the open or high resistance in the battery positive voltage circuit of the horn relay coil. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?</p>	Go to <b>Step 25</b>	-
18	<p><b>IMPORTANT:</b> <b>The horn switch is part of the inflatable restraint steering wheel module. Refer to <u>Inflatable Restraint Steering Wheel Module Replacement</u> in SIR. To disable the SIR system, refer to <u>SIR Disabling and Enabling Zone 3</u> in SIR.</b></p> <p>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 <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?</p>	Go to <b>Step 25</b>	-
19	<p>Repair the open or high resistance in the battery positive voltage circuit of the horn relay switch. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?</p>	Go to <b>Step 25</b>	-
20	<p>Repair the open or high resistance in the horn control circuit. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?</p>	Go to <b>Step 25</b>	-
21	<p>Repair the open or high resistance in the horn ground circuit. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?</p>	Go to <b>Step 25</b>	-
	<p><b>IMPORTANT:</b> <b>Perform the BCM programming procedure when replacing the BCM.</b></p>		

22	Replace the BCM. Refer to <b>Body Control Module Replacement</b> in Body Control System. Did you complete the repair?	Go to <b>Step 25</b>	-
23	Replace the horn relay. Did you complete the replacement?	Go to <b>Step 25</b>	-
24	Replace the horn. Refer to <b>Horn Replacement</b> . Did you complete the replacement?	Go to <b>Step 25</b>	-
25	Operate the horn. Does the horn operate properly?	System OK	Go to <b>Step 1</b>

## HORNS - POOR TONE

### Horns - Poor Tone

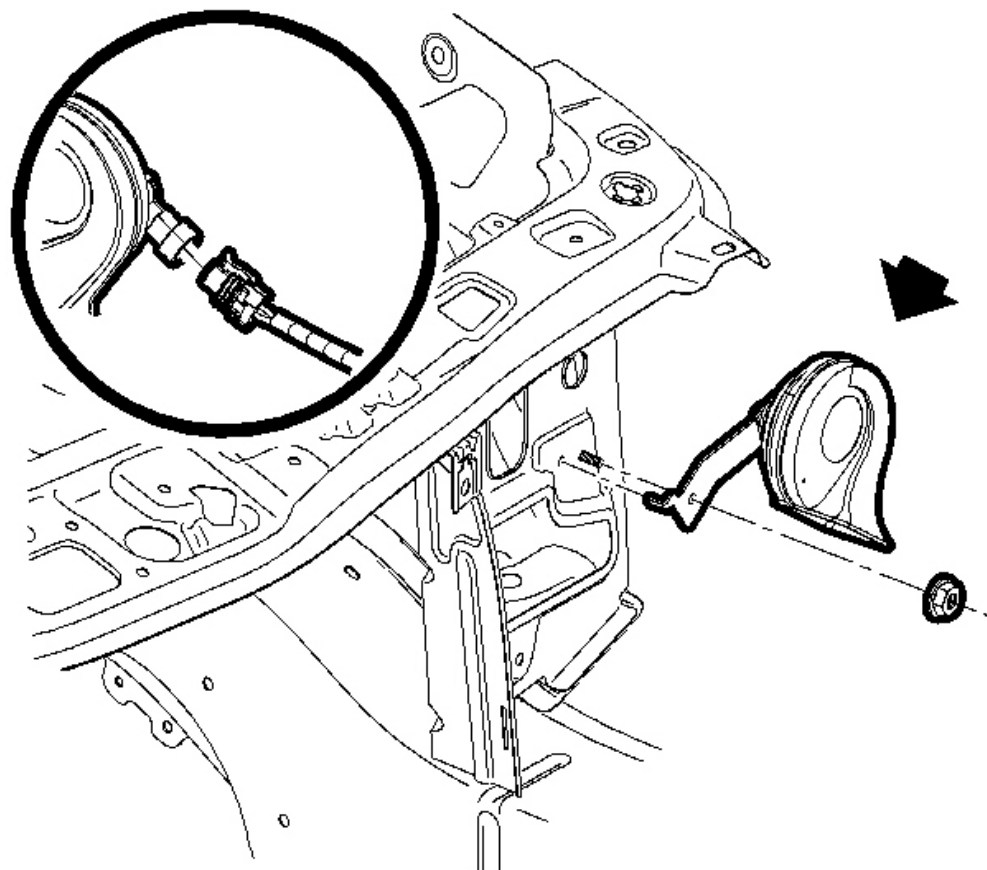
Step	Action	Yes	No
1	Did you perform the Horns Diagnostic System Check?	Go to <b>Step 2</b>	Go to <b>Diagnostic System Check - Horns</b>
2	Depress the horn switch. Does the horn have a harsh tone or buzzing?	Go to <b>Step 3</b>	Go to <b>Symptoms - Horns</b>
3	<ol style="list-style-type: none"> <li>1. Test the horn mounting hardware for adequate torque. The hardware should be tightened to 10 N.m (7 lb ft).</li> <li>2. Inspect the horn for debris in the joint where the horn attaches to the vehicle.</li> </ol> Did you find and correct the condition?	Go to <b>Step 7</b>	Go to <b>Step 4</b>
4	<ol style="list-style-type: none"> <li>1. Disconnect the horn assembly.</li> <li>2. Connect a 15 amp fused jumper wire between the positive battery terminal and the control terminal of the horn assembly.</li> <li>3. Connect another jumper wire between the negative battery terminal and the ground terminal of the horn assembly.</li> </ol> Does the horn assembly have a harsh tone or buzzing?	Go to <b>Step 6</b>	Go to <b>Step 5</b>
5	Repair the high resistance in the horn control circuit or the horn ground circuit. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?	Go to <b>Step 7</b>	-
6	Replace the horn. Refer to <b>Horn Replacement</b> . Did you complete the replacement?	Go to <b>Step 7</b>	-
7	Operate the horn. Does the horn operate properly?	System OK	Go to <b>Step 1</b>

## REPAIR INSTRUCTIONS

## HORN REPLACEMENT

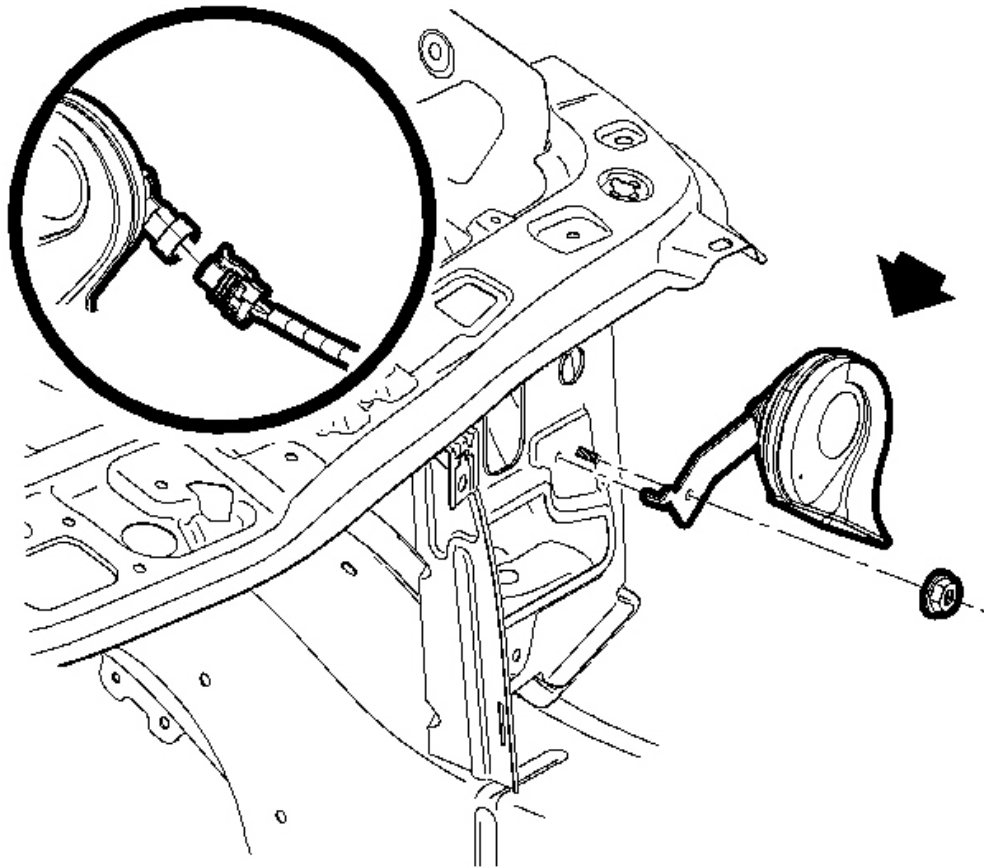
### Removal Procedure

1. Remove the left headlamp assembly. Refer to **Headlamp Assembly or Headlamp Bulb and/or Cornering, Sidemarker, Park, Turn Signal Bulb Replacement** in Lighting Systems.



**Fig. 2: View of Horn, Electrical Connector & Horn Bracket Bolt**  
Courtesy of GENERAL MOTORS CORP.

2. Disconnect the horn electrical connector.
3. Remove the horn bracket bolt.
4. Remove the horn from the front frame rail.



**Fig. 3: View of Horn, Electrical Connector & Horn Bracket Bolt**  
Courtesy of GENERAL MOTORS CORP.

1. Position the horn into the slot in the front frame rail.

**NOTE:** Refer to Fastener Notice in Cautions and Notices.

2. Install the horn bracket bolt.

**Tighten:** Tighten the bolt to 10 N.m (89 lb in).

3. Connect the horn electrical connector.
4. Install the left headlamp assembly. Refer to **Headlamp Assembly or Headlamp Bulb and/or Cornering, Sidemarker, Park, Turn Signal Bulb Replacement** in Lighting Systems.

## DESCRIPTION AND OPERATION

### HORNS SYSTEM DESCRIPTION AND OPERATION

#### System Description

The horn system consists of the following components:

- HORN fuse
- Horn relay
- Horn slip ring
- Horn switch
- Horn assembly
- Body Control Module (BCM)

#### 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 panic button is depressed on the remote control door lock transmitter. For further information refer to **Keyless Entry System Description and Operation** in Keyless Entry.
  - 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.

#### 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.