# 2007 ACCESSORIES & EQUIPMENT

## Horns - Avalanche, Escalade, Suburban, Tahoe & Yukon

## SPECIFICATIONS

### FASTENER TIGHTENING SPECIFICATIONS

**Fastener Tightening Specifications**

| Application | Specification | |
|---|---|---|
| | Metric | English |
| Horn Bolt | 9 N.m | 80 lb in |
| Horn Switch Contact Bolt | 8 N.m | 71 lb in |

## SCHEMATIC AND ROUTING DIAGRAMS

### HORN SCHEMATICS

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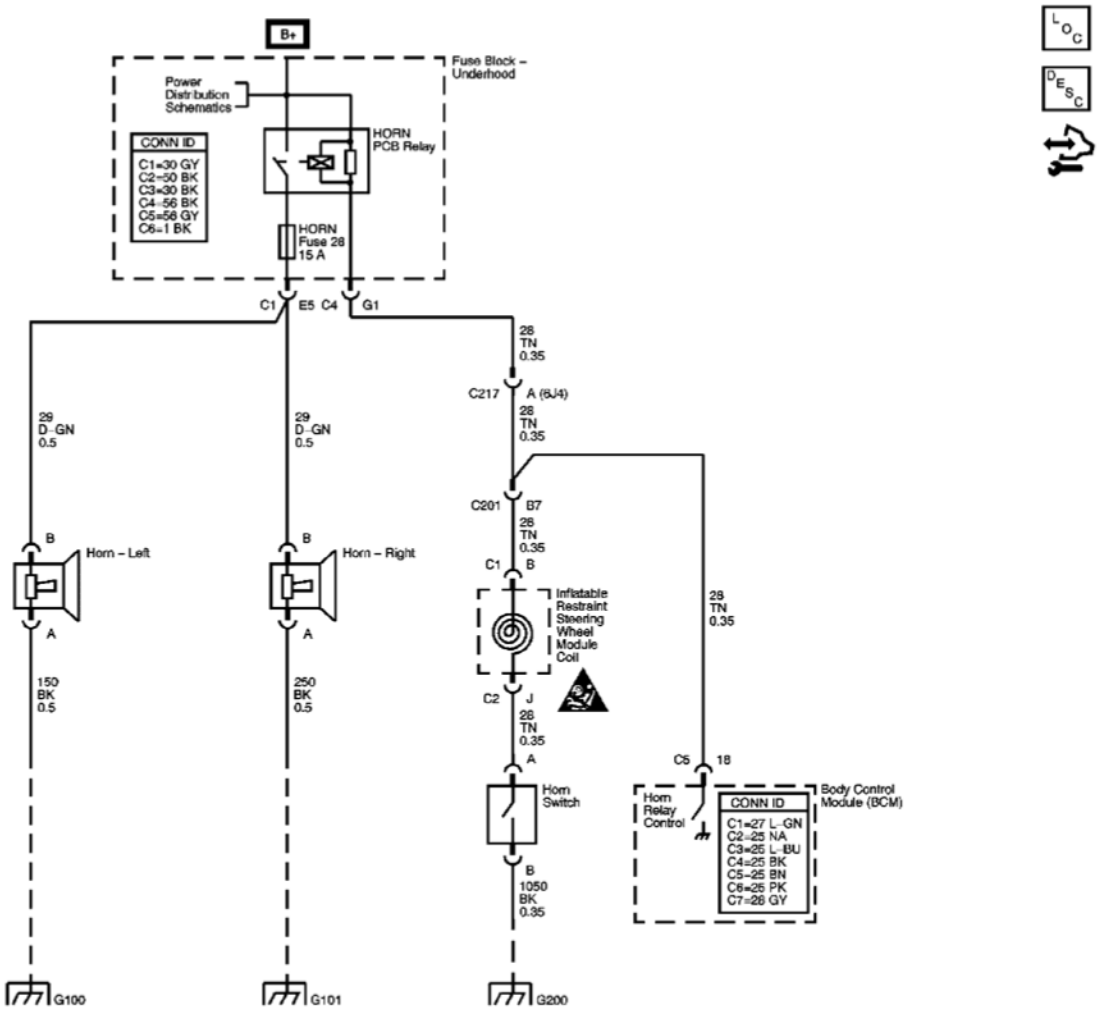


**Fig. 1: Horn Schematic**
**Courtesy of GENERAL MOTORS CORP.**

## COMPONENT LOCATOR

### HORN COMPONENT VIEWS

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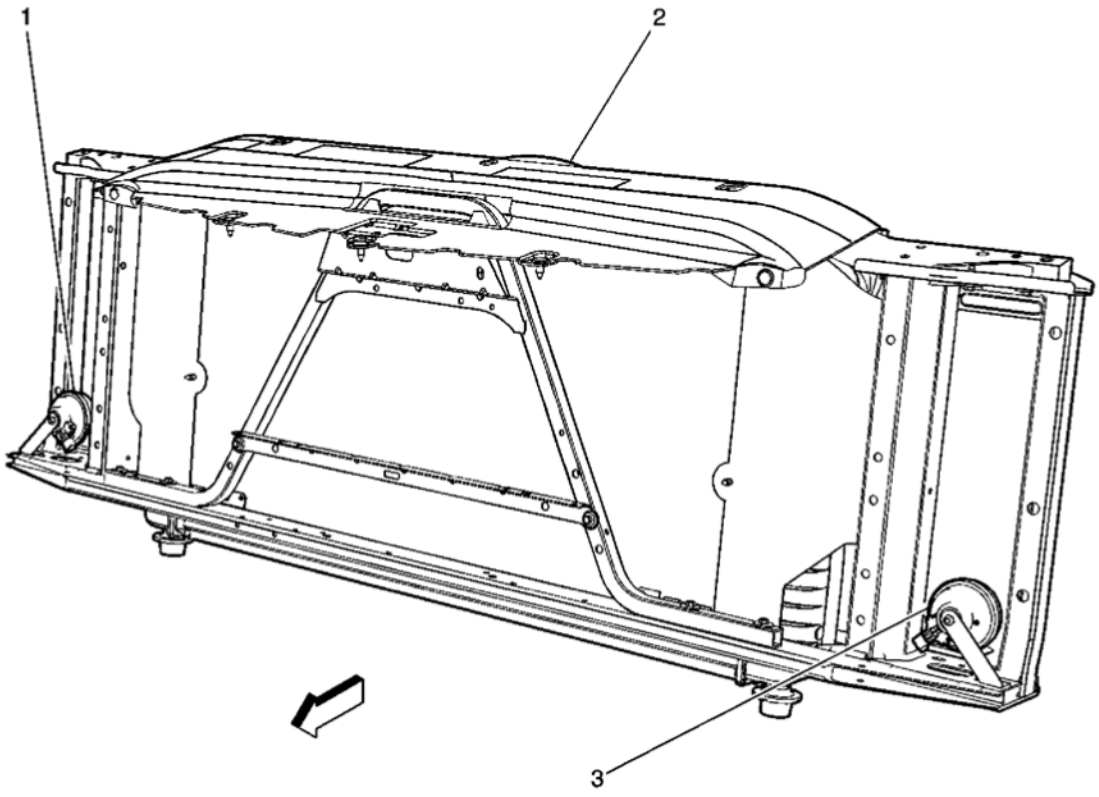


**Fig. 2: Horns**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 2**

| Callout | Component Name |
|---|---|
| 1 | Horn - Right |
| 2 | Radiator Core Support |
| 3 | Horn - Left |

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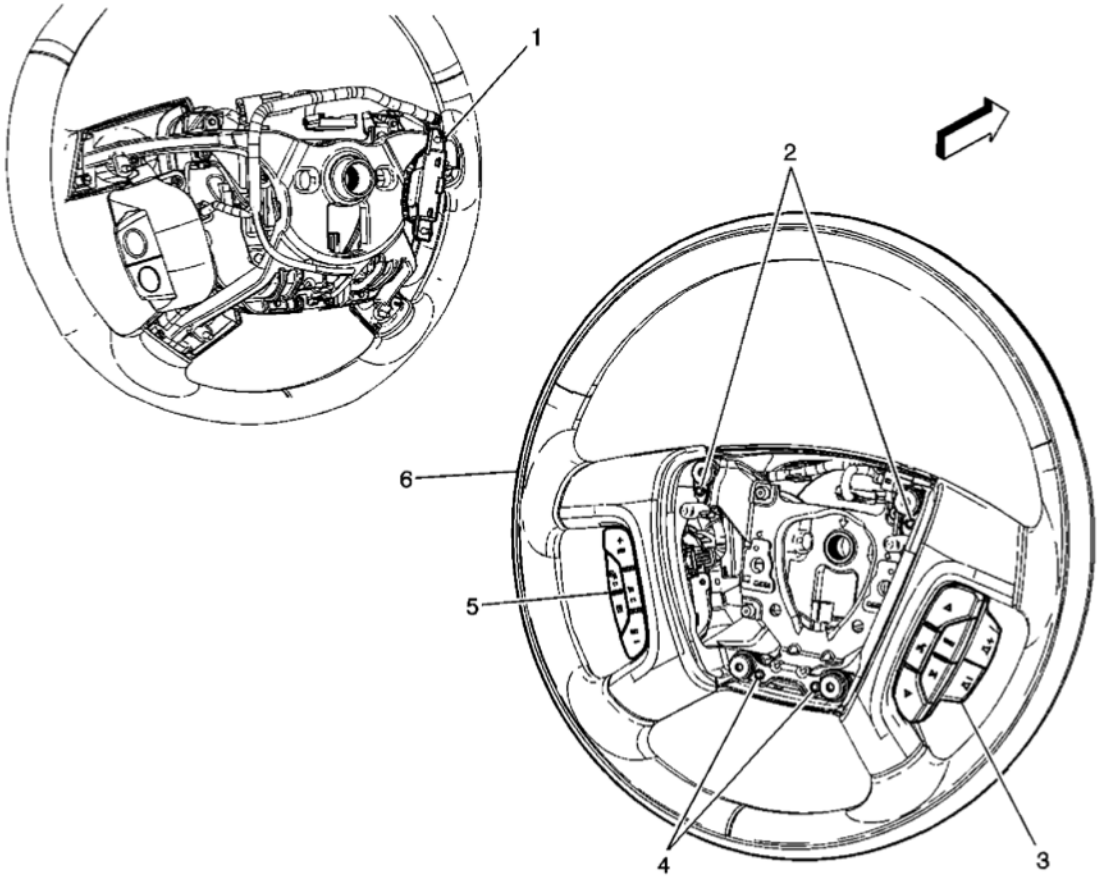


**Fig. 3: Steering Wheel Components**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 3**

| Callout | Component Name |
|---|---|
| 1 | Horn Switch |
| 2 | Heated Steering Wheel Control Module (KA9) |
| 3 | Steering Wheel Control Switch Assembly - Right (UK3) |
| 4 | Steering Wheel Control Switch Assembly - Left (K34/KA9) |
| 5 | Horn Switch |

## HORN CONNECTOR END VIEWS

**Horn - Left**

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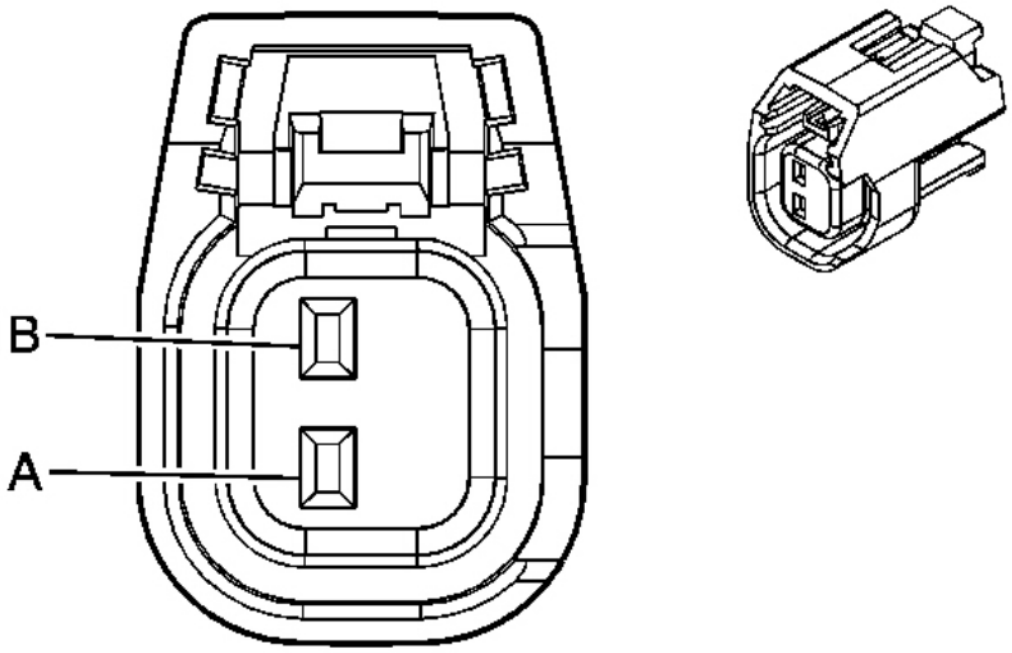


**Fig. 4: Horn - Left Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Horn - Left Connector Parts Information**

**Connector Part Information**

- OEM: 15419715
- Service: 88988313
- Description: 2-Way F GT 150 Series Sealed (GY)

**Terminal Part Information**

- Terminal/Tray: 12191819/8
- Core/Insulation Crimp: 2/A
- Release Tool/Test Probe: 15315247/J-35616-2A (GY)

**Horn - Left Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | BK | 150 | Ground |
| B | D-GN | 29 | Horn Control |

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**Horn - Right**

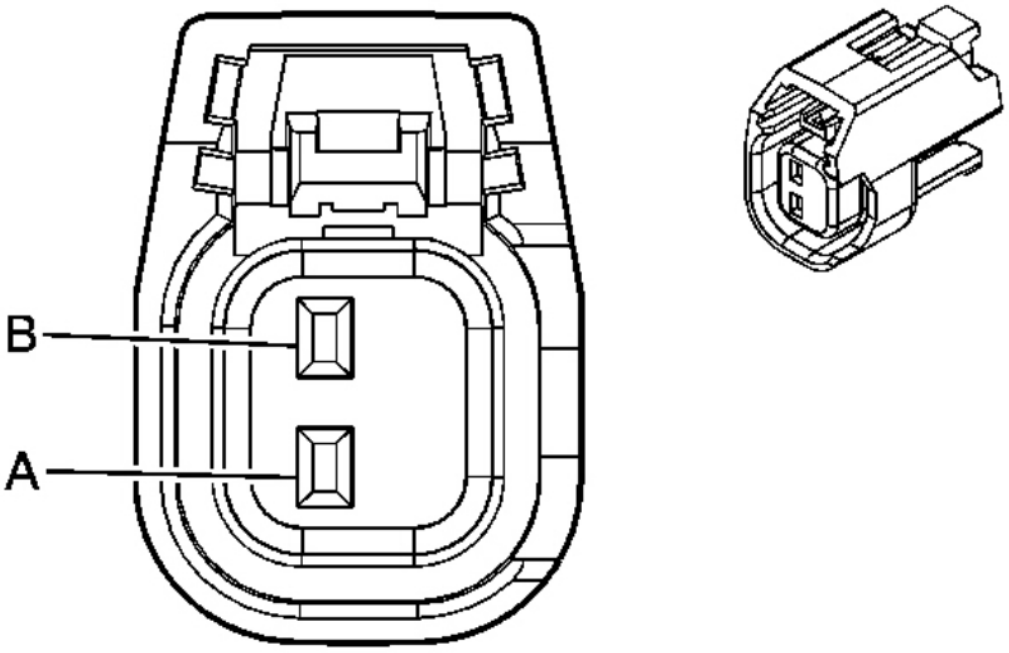


**Fig. 5: Horn - Right Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Horn - Right Connector End View Parts Information**

**Connector Part Information**

- OEM: 15419715
- Service: 88988313
- Description: 2-Way F GT 150 Series Sealed (GY)

**Terminal Part Information**

- Terminal/Tray: 12191819/8
- Core/Insulation Crimp: 2/A
- Release Tool/Test Probe: 15315247/J-35616-2A (GY)

**Horn - Right Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | BK | 250 | Ground |
| B | | | |

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| | | | |
|---|---|---|---|
| B | D-GN | 29 | Horn Control |

# DIAGNOSTIC INFORMATION AND PROCEDURES

## DIAGNOSTIC STARTING POINT - HORNS

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

- The identification of the control modules which command the system
- The ability of the control modules 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.

## SCAN TOOL OUTPUT CONTROLS

**Body Control Module (BCM)**

| Scan Tool Output Control | Additional Menu Selection(s) | Description |
|---|---|---|
| Horn | Miscellaneous Test | The BCM Energizes the horn relay for 5 seconds when you select On or until you select Off. |

## 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.

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.

**Body Control Module (BCM)**

| Scan Tool Parameter | Data List | Units Displayed | Typical Data Value |
|---|---|---|---|
| **Ignition ON/Engine OFF** | | | |
| Horn Relay Command | Outputs | Off/On | Off |

## SCAN TOOL DATA DEFINITIONS

### Battery Voltage

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

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### Horn Relay Command

The scan tool displays Off/On. The horn output indicates the state that the control module has commanded for the relay.

### DTC B2750

#### DTC Descriptor

### DTC B2750 00

Horn Relay Coil Circuit

#### Diagnostic Fault Information

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

### DTC B2750

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Horn Relay Control | B2750 00 | B2750 00 | B2750 00 | - |
| Horn Control | 2 | 2 | 1 | - |
| Horn Ground | - | 2 | - | - |
| Horn Switch Ground | - | 2 | - | - |

1. Horns Always ON
2. Horns Inoperative

#### Circuit/System Description

The body control module (BCM) controls the horn relay by grounding the control circuit of the horn relay coil energizing the relay. When the horn relay is energized, the horn relay contacts close applying voltage through the horn fuse and the horn control circuit to the horns.

#### Conditions for Running the DTC

The DTC can only set only when the output is actively being requested by the BCM.

#### Conditions for Setting the DTC

The BCM detects a short to ground, open, or short to voltage in the horn relay control circuit for approximately 125 milliseconds.

#### Action Taken When the DTC Sets

The BCM disables the output to the horn relay until the next ignition cycle.

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#### Conditions for Clearing the DTC

- The DTC clears when the fault is no longer detected.
- The current DTC will become history when the request for the output is removed.
- The history DTC will clear after 50 consecutive fault-free ignition cycles have occurred.

#### Reference Information

##### Schematic Reference

**Horn Schematics**

##### Connector End View Reference

**Horn Connector End Views**

### Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

### Scan Tool Reference

- **Scan Tool Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

#### Circuit/System Verification

Ignition ON, use scan tool Horn output control to command the horn relay On. The Horn Relay Command output data parameter should display On and the horn should sound.

#### Circuit/System Testing

1. Ignition OFF, disconnect the C4 harness connector at the underhood fuse block.
2. Connect a test lamp between the harness connector terminal G1 and battery voltage.
3. Command the horn ON and OFF with a scan tool. The test lamp should turn ON and OFF when changing between the commanded states.
    - If the test lamp is always OFF, test the horn relay control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.
    - If the test lamp is always ON, test the horn relay control circuit for a short to ground. If the circuit tests normal, replace the BCM.

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4. If all circuits/connectors test normal, replace the underhood fuse block.

**Repair Procedures**

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Underhood Electrical Center or Junction Block Replacement**
- **Control Module References** for BCM replacement, setup, and programming

## SYMPTOMS - HORNS

**IMPORTANT: The following steps must be completed before using the symptom tables:**

1. Perform **Diagnostic System Check - Vehicle** before using the symptom tables in order to verify that all of the following are true:
   - There are no DTCs set.
   - The control modules can communicate via the serial data link.
2. 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** .
- 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** .

**Symptom List**

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

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

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## HORNS ALWAYS ON

### Diagnostic Fault Information

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**Horns Always On**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Horn Relay Control | B2750 00 | B2750 00 | B2750 00 | - |
| Horn Control | 2 | 2 | 1 | - |
| Horn Ground | - | 2 | - | - |
| Horn Switch Ground | - | 2 | - | - |
| 1. Horns Always ON<br>2. Horns Inoperative | | | | |

### Circuit/System Description

When the horn button is pressed, ground is applied through the horn switch contacts and the horn relay control circuit to the coil side of the relay. The horn relay coil is then energized, causing the relay switch contacts to close applying voltage through the horn fuse and the horn control circuit to the horns. For theft deterrent functions, the body control module (BCM) also controls the horn relay by applying ground to the relay control circuit to the relay.

### Reference Information

#### Schematic Reference

**Horn Schematics**

#### Connector End View Reference

**Horn Connector End Views**

### Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

### Scan Tool Reference

- **Scan Tool Output Controls**
- **Scan Tool Data List**

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- **Scan Tool Data Definitions**

**Circuit/System Verification**

Ignition ON, use scan tool Horn output control to command the horn relay On. The Horn Relay Command output data parameter should display On and the horn should sound.

**Circuit/System Testing**

1. Remove the HORN fuse from the underhood fuse block. The horns should turn OFF
   - If the horns remain on, repair the short to voltage in the horn control circuit.
2. Ignition OFF, disconnect the BCM connector C5.
3. Test for a ground signal at the horn relay control terminal of the BCM connector.
   - If a ground signal is not present, replace the underhood fuse block.

**IMPORTANT: The horn switch is located under the inflatable restraint steering wheel module. To disable the SIR system refer to SIR Disabling and Enabling .**

4. Ignition OFF, disconnect the horn switch and test the switch for shorted contacts.
   - If the switch does not function properly, replace.
5. Test for a short to ground in the horn relay control circuit.
   - If the circuits/connectors test normal, replace the BCM.

**Repair Procedures**

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Horn Switch Replacement**
- **Underhood Electrical Center or Junction Block Replacement**
- **Control Module References** for the body control module replacement, setup, and programming

## HORNS INOPERATIVE

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**Horns Inoperative**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Horn Relay Control | B2750 00 | B2750 00 | B2750 00 | - |
| Horn Control | 2 | 2 | 1 | - |
| Horn Ground | - | 2 | - | - |

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| | | | | |
|---|---|---|---|---|
| Horn Switch Ground | - | 2 | - | - |
| 1. Horns Always ON<br>2. Horns Inoperative | | | | |

**Circuit/System Description**

When the horn button is pressed, ground is applied through the horn switch contacts and the horn relay control circuit to the coil side of the relay. The horn relay coil is then energized, causing the relay switch contacts to close applying voltage through the horn control circuit to the horns. For theft deterrent functions, the body control module (BCM) also controls the horn relay by applying ground to the relay control circuit to the relay.

**Reference Information**

**Schematic Reference**

**Horn Schematics**

**Connector End View Reference**

**Horn Connector End Views**

**Electrical Information Reference**

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

**Scan Tool Reference**

- **Scan Tool Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Verification**

Ignition ON, use scan tool Horn output control to command the horn relay On. The Horn Relay Command output data parameter should display On and the horn should sound.

**Circuit/System Testing**

1. Ignition OFF, test for less than 1.0 ohm of resistance between each horn ground circuit terminal A and ground.
    - If greater than 1.0 ohm, test the ground circuit for an open/high resistance.
2. If the HORN fuse in the underhood fuse block is open, disconnect the horns and test the horn control

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circuit for a short to ground.
   - If the circuit tests normal, reconnect one horn and retest the circuit.
   - If the circuit tests normal again, replace the disconnected horn. If a short to ground is now present, replace the connected horn.
3. Test for voltage at the horn connectors.
   - If voltage is present, replace the horns.
4. Test the horn control circuit for an open or high resistance.
5. Ignition OFF, disconnect the underhood fuse block connector C4.
6. Activate the horn switch while testing for a ground signal at the horn relay control terminal G1 of the disconnected underhood fuse block harness connector.
   - If a ground signal is present, replace the underhood fuse block.

**IMPORTANT: The horn switch is located under the inflatable restraint steering wheel module. To disable the SIR system refer to SIR Disabling and Enabling .**

7. Disconnect the horn switch and test the switch for proper continuity.
   - If the switch does not function properly, replace.
8. Test for an open or high resistance in the horn relay control circuit and the horn switch ground circuit.
   - If the circuits/connectors test normal, replace the inflatable restraint steering wheel module coil.

**Repair Procedures**

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Horn Replacement - Left Side**
- **Horn Replacement - Right Side**
- **Underhood Electrical Center or Junction Block Replacement**
- **Horn Switch Replacement**
- **Inflatable Restraint Steering Wheel Module Coil Centering**

## HORNS INOPERATIVE - ONE HORN

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**Horns Inoperative - One Horn**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Horn Relay Control | B2750 00 | B2750 00 | B2750 00 | - |
| Horn Control | 2 | 2 | 1 | - |
| Horn Ground | - | 2 | - | - |

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| | | | | |
|---|---|---|---|---|
| Horn Switch Ground | - | 2 | - | - |
| 1. Horns Always ON<br>2. Horns Inoperative | | | | |

**Circuit/System Description**

When the horn button is pressed, ground is applied through the horn switch contacts and the horn relay control circuit to the coil side of the relay. The horn relay coil is then energized, causing the relay switch contacts to close applying voltage through the horn control circuit to the horns. For theft deterrent functions, the body control module (BCM) also controls the horn relay by applying ground to the relay control circuit to the relay.

**Reference Information**

**Schematic Reference**

**Horn Schematics**

**Connector End View Reference**

**Horn Connector End Views**

**Electrical Information Reference**

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

**Scan Tool Reference**

- **Scan Tool Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Verification**

Ignition ON, use scan tool Horn output control to command the horn relay On. The Horn Relay Command output data parameter should display On and both horns should sound.

**Circuit/System Testing**

1. Ignition OFF, test for less than 1.0 ohm of resistance between the inoperative horn ground circuit terminal A and ground.
    - If greater than 1.0 ohm, test the ground circuit for an open/high resistance.
2. Test for voltage at the inoperative horn connector B.

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- If voltage is present, replace the inoperative horn.

3. Repair the open or high resistance in the horn control circuit.

#### Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Horn Replacement - Left Side**
- **Horn Replacement - Right Side**

### HORNS - POOR TONE

#### Diagnostic Fault Information

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

#### Circuit/System Description

Battery positive voltage is applied at all times to the horn relay coil and horn relay switch. Pressing the horn switch applies ground to the horn relay control circuit. The body control module (BCM) also may apply ground to the horn relay control circuit. When the horn relay control circuit is grounded, the horn relay is energized and battery positive voltage is applied to the horn via the horn control circuit. The horn will sound as long as ground is applied to the horn relay control circuit.

#### Diagnostic Aids

- Inspect for any debris or water in the horn assembly.
- Test the horn mounting hardware for proper torque. Refer to **Fastener Tightening Specifications**.
- Inspect for debris in the joint where the horns attach to the vehicle.

#### Reference Information

##### Schematic Reference

**Horn Schematics**

##### Connector End View Reference

**Horn Connector End Views**

**Electrical Information Reference**

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

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### Scan Tool Reference

- **Scan Tool Data List**
- **Scan Tool Data Definitions**
- **Scan Tool Output Controls**

#### Circuit/System Verification

1. Press the horn switch. The horn relay should click and the horn should sound as long as the horn switch is pressed.
2. Turn ON the ignition. With a scan tool, command the BCM Horn Output. The horn relay should click and the horn should sound while commanded ON and stop sounding when commanded OFF.

#### Circuit/System Testing

1. Verify the horn mounting hardware is tightened to the proper torque. Refer to **Fastener Tightening Specifications**.
    - If the mounting hardware is not tightened to the proper torque, retorque the fastener to spec.
2. Ignition OFF, disconnect the harness connector at the horn assembly.
3. Test for less than 1.0 ohm of resistance between the ground circuit terminal A and ground.
    - If greater than 1.0 ohm, test the ground circuit for a high resistance.
4. If all circuits test normal, test or replace the horn assembly.

#### Component Testing

Install a 15-amp fused jumper wire between the control terminal B and 12 volts. Momentarily install a jumper wire between the ground terminal A and ground. The horn should emit a clear and even tone.

- If the horn does not emit and clear and even tone, replace the horn assembly.

#### Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Horn Replacement - Left Side**
- **Horn Replacement - Right Side**

## REPAIR INSTRUCTIONS

### HORN REPLACEMENT - LEFT SIDE

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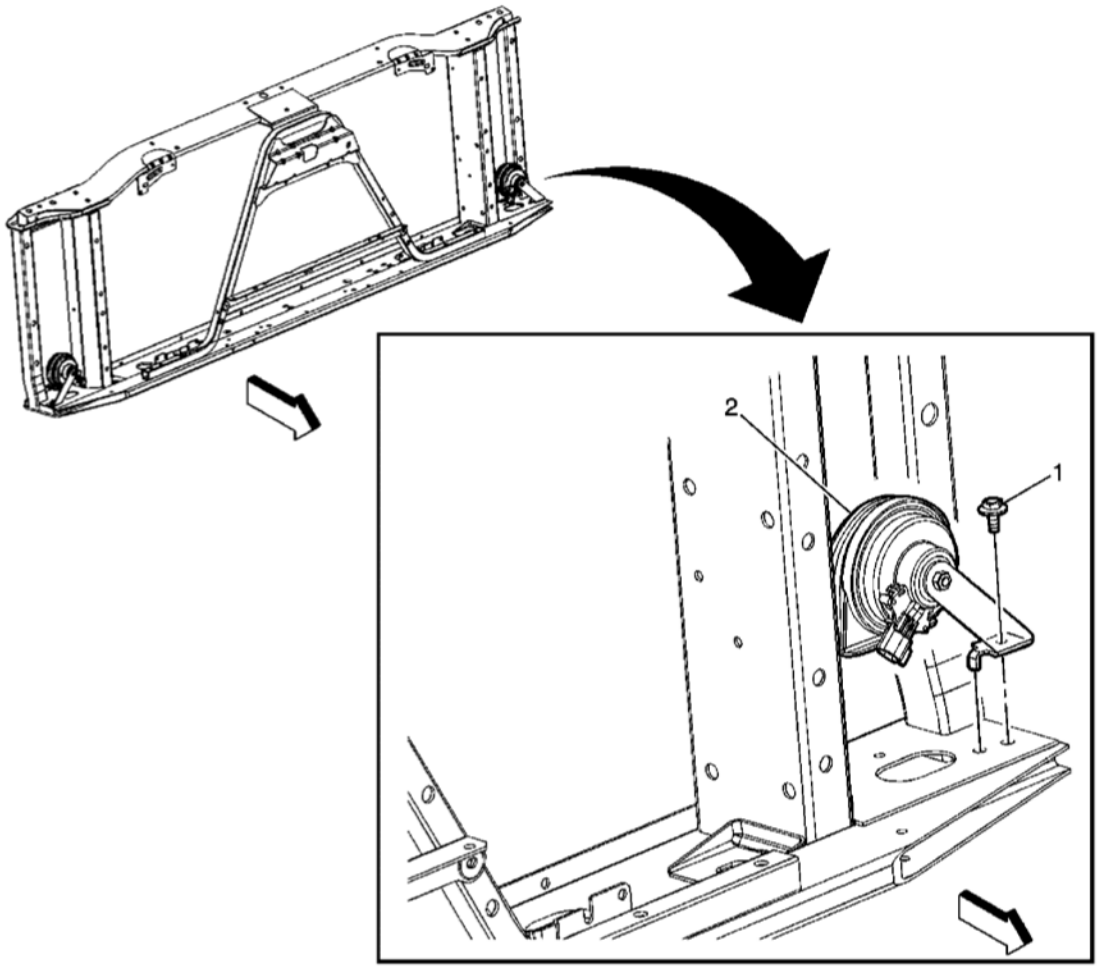


**Fig. 6: View Of Left Horn Assembly & Mount Bolt**
**Courtesy of GENERAL MOTORS CORP.**

**Horn Replacement - Left Side**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:**<br>Remove the left headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)** . | |
| 1 | Horn Mount Bolt<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 9 N.m (80 lb in) |
| 2 | Horn Assembly<br>**Tip:** Disconnect the electrical connector. |

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## HORN REPLACEMENT - RIGHT SIDE

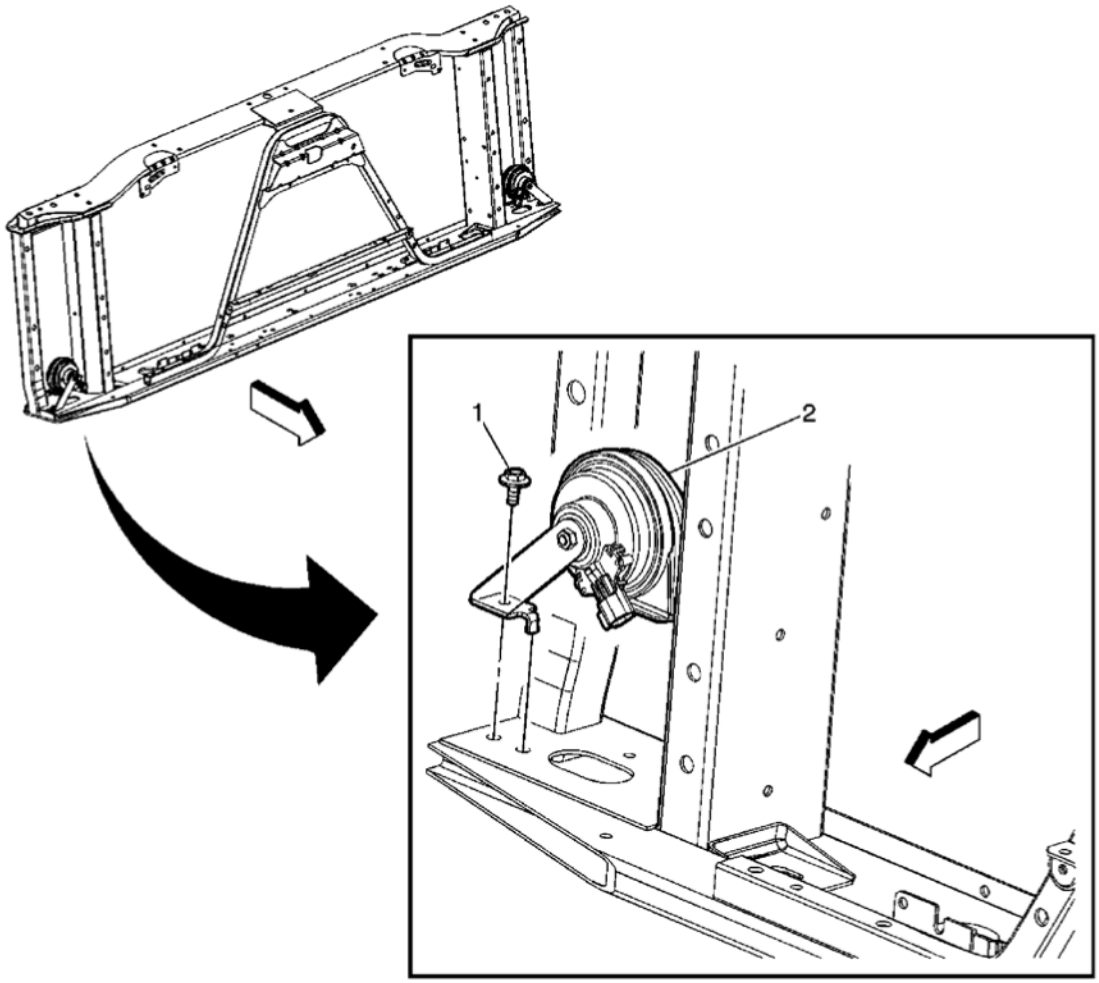


**Fig. 7: View Of Right Horn Assembly & Mount Bolt**
**Courtesy of GENERAL MOTORS CORP.**

**Horn Replacement - Right Side**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:**<br>Remove the right headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)** . | |
| 1 | Horn Mount Bolt<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 9 N.m (80 lb in) |

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| | |
|---|---|
| 2 | Horn Assembly<br>**Tip:** Disconnect the electrical connector. |

**HORN SWITCH REPLACEMENT**

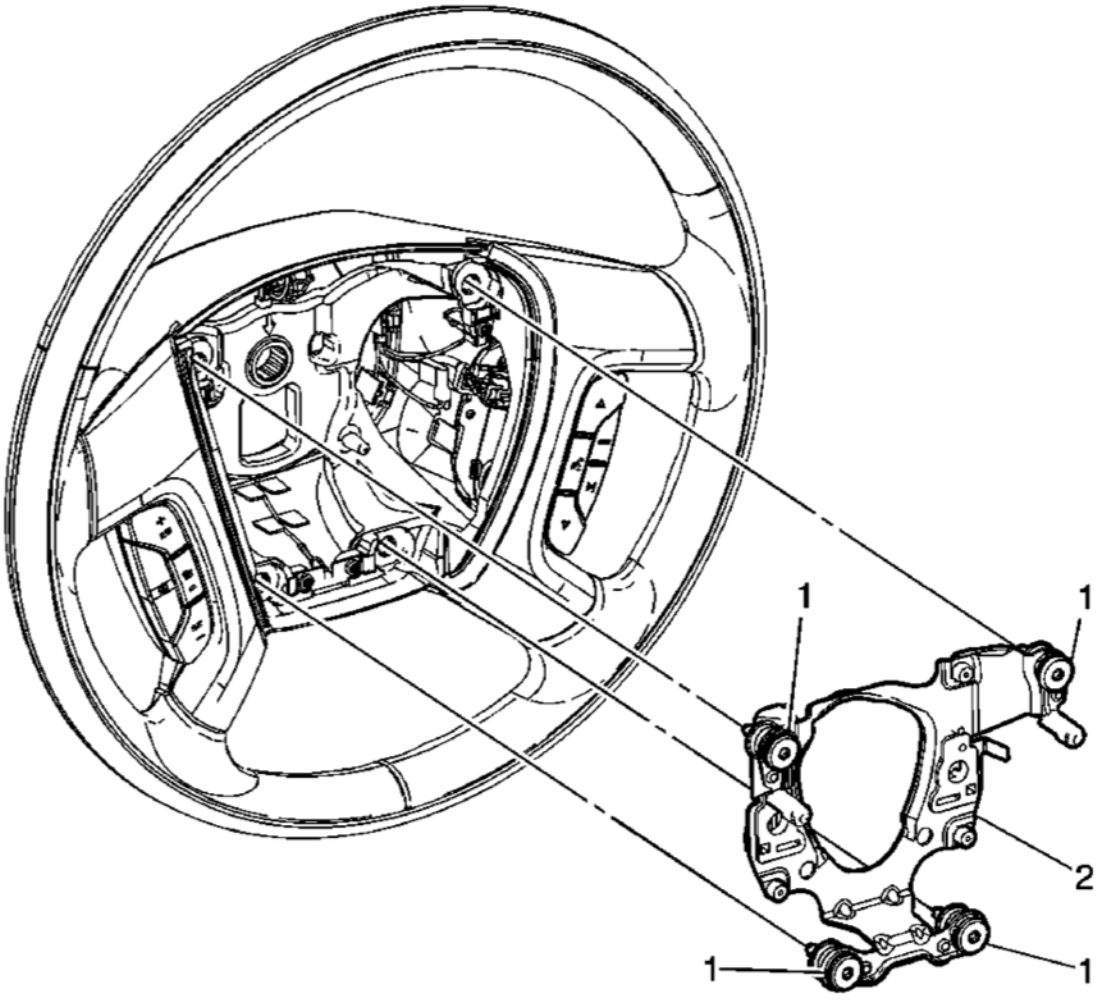


**Fig. 8: View Of Horn Switch Contact & Bolts**
**Courtesy of GENERAL MOTORS CORP.**

**Horn Switch Replacement**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure**<br>1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling** .<br>2. Remove the inflatable restraint steering wheel module. Refer to **Inflatable Restraint Steering Wheel Module Replacement** . | |
| | Horn Switch Contact Bolt (Qty: 4) |

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| | |
|---|---|
| 1 | **CAUTION:**<br>**Refer to SIR Caution .**<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 8 N.m (71 lb in) |
| 2 | Horn Switch Contact<br>**Tip:** Disconnect the electrical connector. |

# DESCRIPTION AND OPERATION

## HORNS SYSTEM DESCRIPTION AND OPERATION

### System Description

The horn system consists of the following components:

- Horn switch
- Horn PCB relay
- Horn assembly
- Body control module (BCM)
- HORN fuse 15 A

### 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** .
  - 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** .

### 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 through the switch contacts and the horn relay control circuit to the coil side of the relay, energizing the relay. Battery voltage is then applied through the switch side of the relay, the horn fuse, and the

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horn control circuit to the horns. The body control module (BCM) may also apply ground to the horn relay control circuit as described above. The horns sound as long as ground is applied to the horn relay control circuit.

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