

2008 Isuzu Ascender LS

2008 Accessories & Equipment Horns - Ascender & Envoy

2008 Accessories & Equipment

Horns - Ascender & Envoy

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	Specification	
	Metric	English
Bolt that Retains the Horn to the Body	10 N.m	88 lb in

SCHEMATIC & ROUTING DIAGRAMS

HORN SCHEMATICS

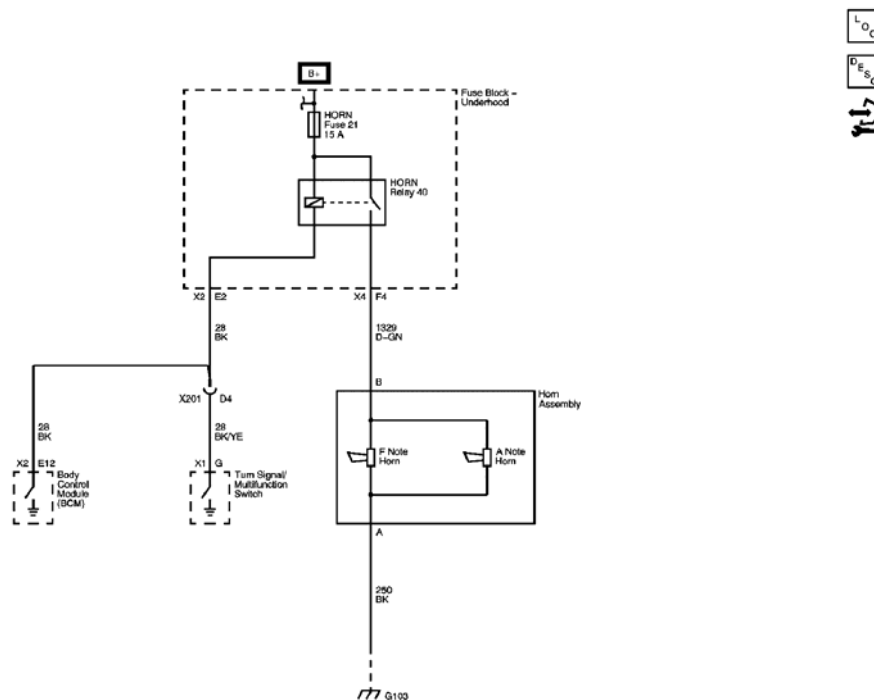


Fig. 1: Horn Schematic

Courtesy of GENERAL MOTORS CORP.

DIAGNOSTIC INFORMATION & 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.

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 **Horns Malfunction** in order to diagnose the symptom.

HORNS MALFUNCTION

Diagnostic Instructions

2008 Isuzu Ascender LS

2008 Accessories & Equipment Horns - Ascender & Envoy

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Horn Relay B+	2	2	-	-
Horn Relay Control	1	2	2	-
Horn Control	2	2	1	-
Horn Switch Ground	-	2	2	-
Horn Ground	-	2	2	-
1. Horn Always On 2. Horn Inoperative				

Circuit/System Description

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 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.

Diagnostic Aids

If diagnosing a Horn - Poor Tone condition, inspect the following:

- Debris or water in the horn assembly
- Proper horn mounting hardware torque- Refer to **Fastener Tightening Specifications**.
- Debris in the joint where the horns attach to the vehicle

Reference Information

Schematic Reference

Horn Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Horns System Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON, press and release the steering wheel horn pad. The horns should sound and emit a clear and even tone only when the horn pad is pressed.
 - If the horns do not sound when the horn pad is pressed or continues sounding after the horn pad is released, refer to **Horn Switch Circuit Test**.
 - If the sound emitted from the horns is not clear and even, refer to **Horn - Poor Tone**.
2. Command the horns ON and OFF with the scan tool. The horns should turn ON and OFF when changing between the commanded states.
 - If the horns do not turn ON and OFF when changing between the commanded states, refer to **Horn Circuit Test**.

Circuit/System Testing

Horn Switch Circuit Test

1. Ignition OFF, disconnect the HORN relay.
2. Ignition ON, verify that a test lamp does not illuminate between the relay controlled output circuit terminal and ground.
 - If the test lamp illuminates, test the output circuit for a short to voltage.
3. Verify that a test lamp illuminates between the relay coil B+ circuit terminal and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance. If the circuit tests normal and the HORN fuse is open, test the relay controlled output circuit terminal for a short to ground. If the circuit tests normal, test or replace the HORN relay.
4. Verify that a test lamp illuminates between the relay switch B+ circuit terminal and ground.
 - If the test lamp does not illuminate, test the B+ circuit for an open/high resistance.
5. Disconnect the harness connector at the horn assembly.
6. Test for less than 1 ohm between the horn assembly ground circuit terminal A and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
7. Connect the harness connector at the horn assembly.
8. Connect a 15A fused jumper wire between the relay switch B+ circuit terminal and the relay controlled

2008 Isuzu Ascender LS

2008 Accessories & Equipment Horns - Ascender & Envoy

output circuit terminal. Verify the horns are activated.

- If the horns do not activate, test the output circuit for an open/high resistance. If the circuit tests normal, test or replace the horn assembly.
9. Connect a test lamp between the relay coil B+ circuit terminal and the relay coil control circuit terminal.
 10. Press and release the steering wheel horn pad. The test lamp should turn ON and OFF when changing between the commanded states.
 - If the test lamp is always ON, test the control circuit for a short to ground. If the circuit tests normal, inspect for a sticking horn switch.
 - If the test lamp is always OFF, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, inspect for an open horn switch.
 11. If all circuits test normal, test or replace the HORN relay.

Horn - Poor Tone

1. Ignition OFF, disconnect the harness connector at the horn assembly.
2. Test for less than 1 ohm between the horn ground circuit terminal A and ground.
 - If greater than the specified range, test the ground circuit for a high resistance.
3. Disconnect the X4 harness connector at the underhood fuse block.
4. Test for less than 1 ohm between the control circuit terminal F4 at the underhood fuse block and the control circuit terminal B at the horn assembly.
 - If greater than the specified range, test the control circuit for a high resistance.
5. If all circuits test normal, test or replace the horn assembly.

Horn Circuit Test

1. Ignition OFF, disconnect the HORN relay.
2. Connect a test lamp between the relay coil B+ circuit terminal and the relay coil control circuit terminal.
3. Ignition ON, command the horns 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 ON, test the control circuit for a short to ground. If the circuit tests normal, replace the BCM.
 - If the test lamp is always OFF, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.

Component Testing

Horn

1. Ignition OFF, disconnect the harness connector at the horn assembly.
2. Install a 15A fused jumper wire between the control terminal B and 12 volts. Install a jumper wire between the ground terminal A and ground. Verify the horns emit a clear and even tone.
 - If the sound emitted is not clear and even, replace the horn assembly.

Relay Test

1. Ignition OFF, disconnect the HORN relay.
2. Test for 60-180 ohms between terminals 85 and 86.
 - If not within the specified range, replace the relay.
3. Test for infinite resistance between the following terminals:
 - 30 and 86
 - 30 and 87
 - 30 and 85
 - 85 and 87
 - If not the specified value, replace the relay.
4. Install a 30-amp fused jumper wire between relay terminal 85 and 12 volts. Install a jumper wire between relay terminal 86 and ground. Test for less than 2 ohms between terminals 30 and 87.
 - If greater than the specified range, replace the relay.

Repair Procedures

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

- **Horn Replacement**
- **Relay Replacement (Attached to Wire Harness)** or **Relay Replacement (Within an Electrical Center)**
- **Horn Switch Replacement**
- **Control Module References** for BCM replacement, setup, and programming

REPAIR INSTRUCTIONS**HORN REPLACEMENT****Removal Procedure**

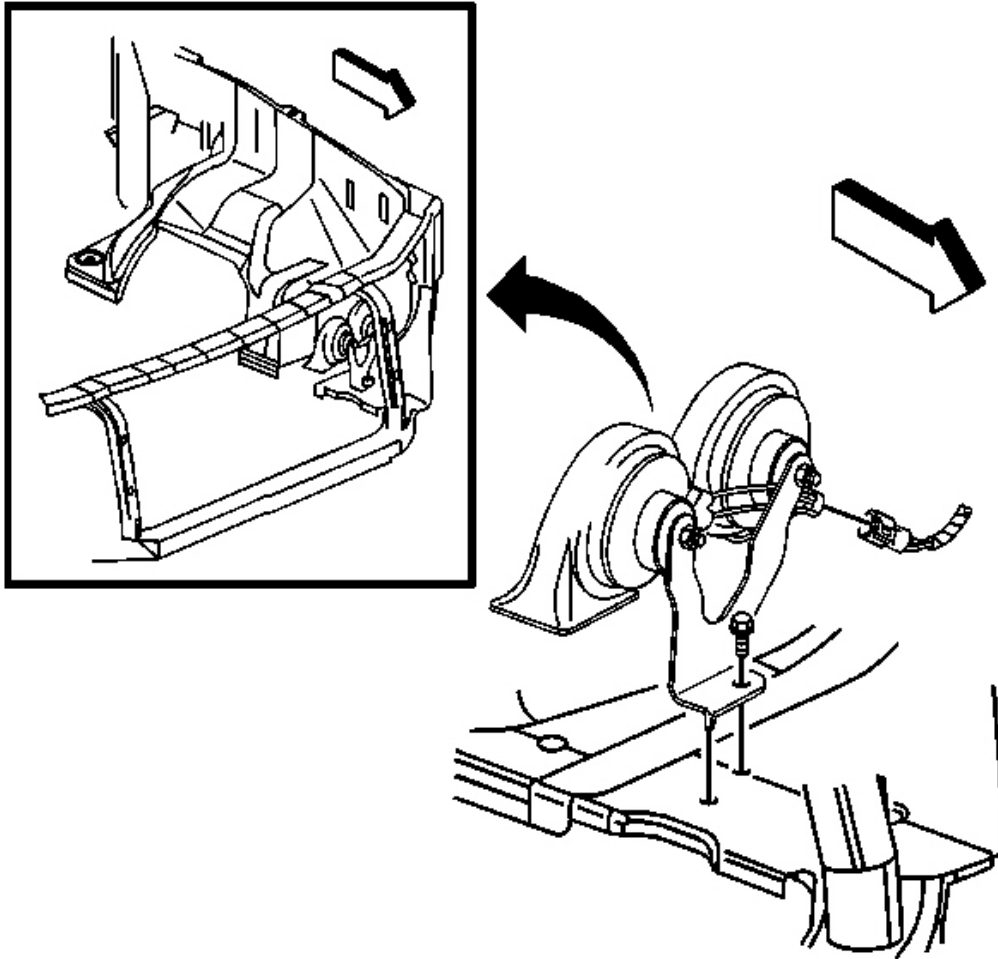


Fig. 2: View Of Horn Assembly
Courtesy of GENERAL MOTORS CORP.

1. Remove the battery ventilation hose from the battery carrier.
2. Disconnect the horn assembly electrical connector.
3. Remove the bolt that retains the horn assembly to the body.
4. Remove the horn assembly from the body.

Installation Procedure

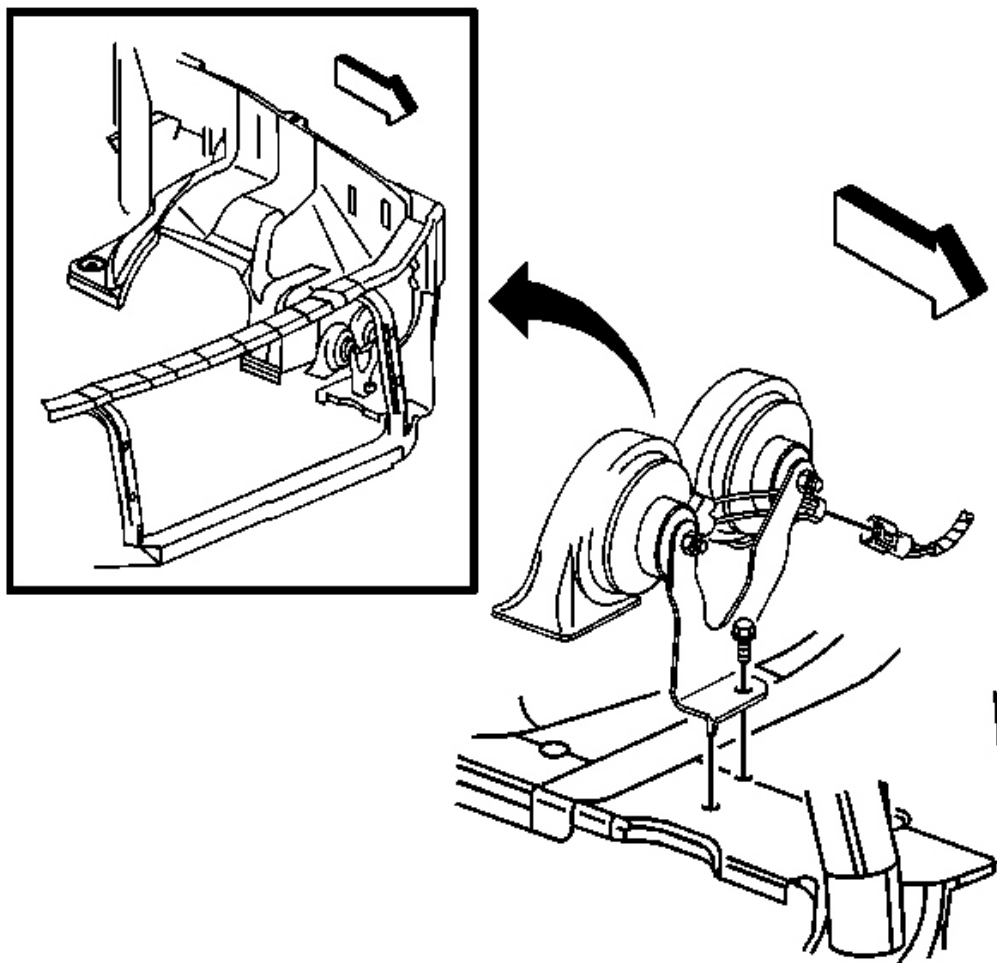


Fig. 3: View Of Horn Assembly
Courtesy of GENERAL MOTORS CORP.

1. Install the horn assembly to the body.

NOTE: Refer to Fastener Notice .

2. Install the bolt that retains the horn assembly to the body.

Tighten: Tighten the bolt to 10 N.m (88 lb in).

3. Connect the horn assembly electrical connector.

2008 Isuzu Ascender LS

2008 Accessories & Equipment Horns - Ascender & Envoy

4. Install the battery ventilation hose to the battery carrier.

HORN SWITCH REPLACEMENT

Removal Procedure

CAUTION: Refer to Servicing the SIR System Caution.

1. Disable the SIR system. Refer to SIR Disabling and Enabling .
2. Remove the Inflatable Restraint Steering Wheel module. Refer to Inflatable Restraint Steering Wheel Module Replacement .

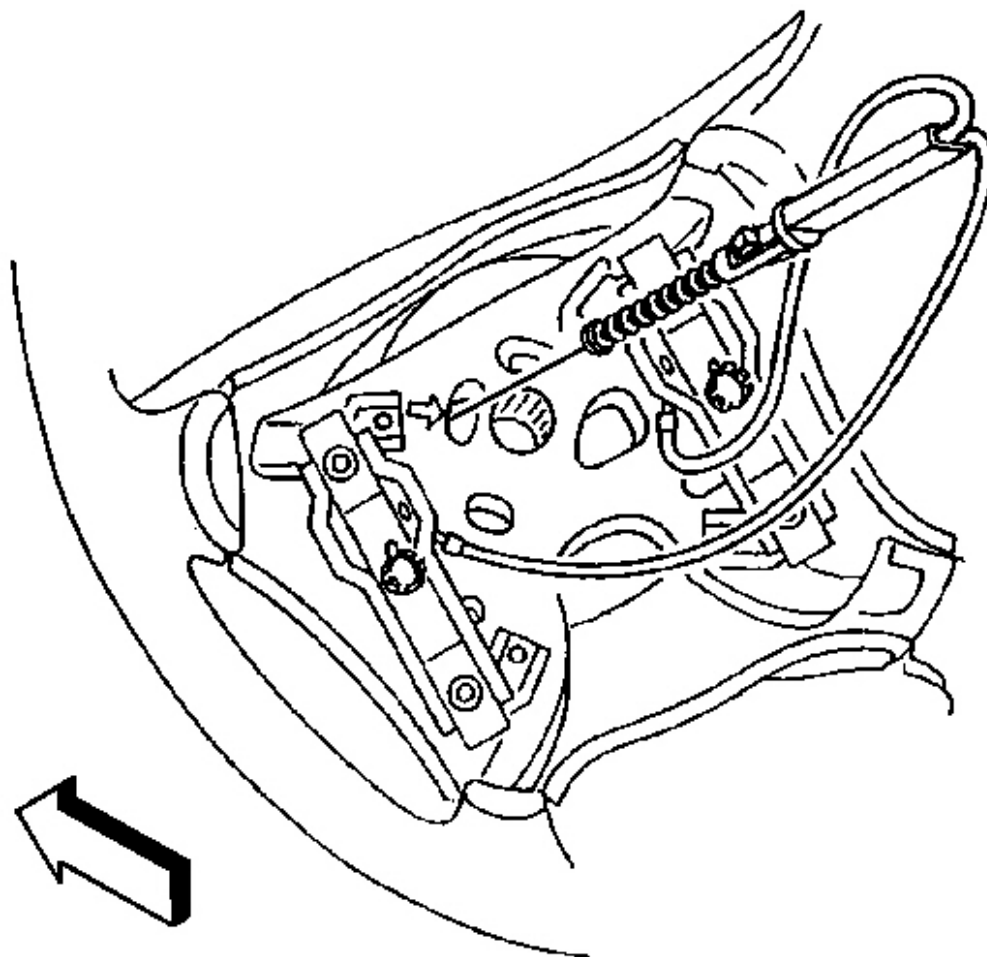


Fig. 4: View Of Horn Plunger At Steering Column
Courtesy of GENERAL MOTORS CORP.

3. Remove the horn plunger from the steering column by pressing inward to the stop and by rotating the plunger 90 degrees.

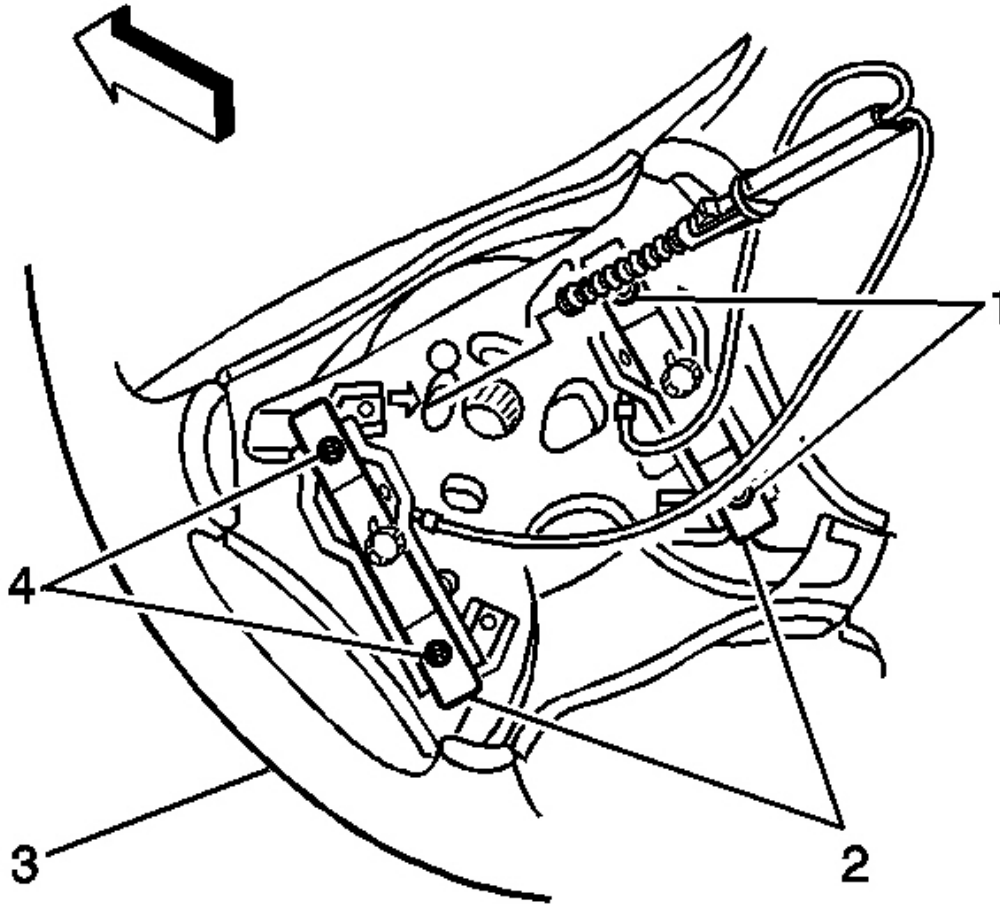


Fig. 5: View of Horn Contact Plate, Steering Wheel & Screws
Courtesy of GENERAL MOTORS CORP.

4. Disconnect the screws (1,4) from the steering wheel (3).
5. Remove the horn switch (2) from the steering wheel (3).

Installation Procedure

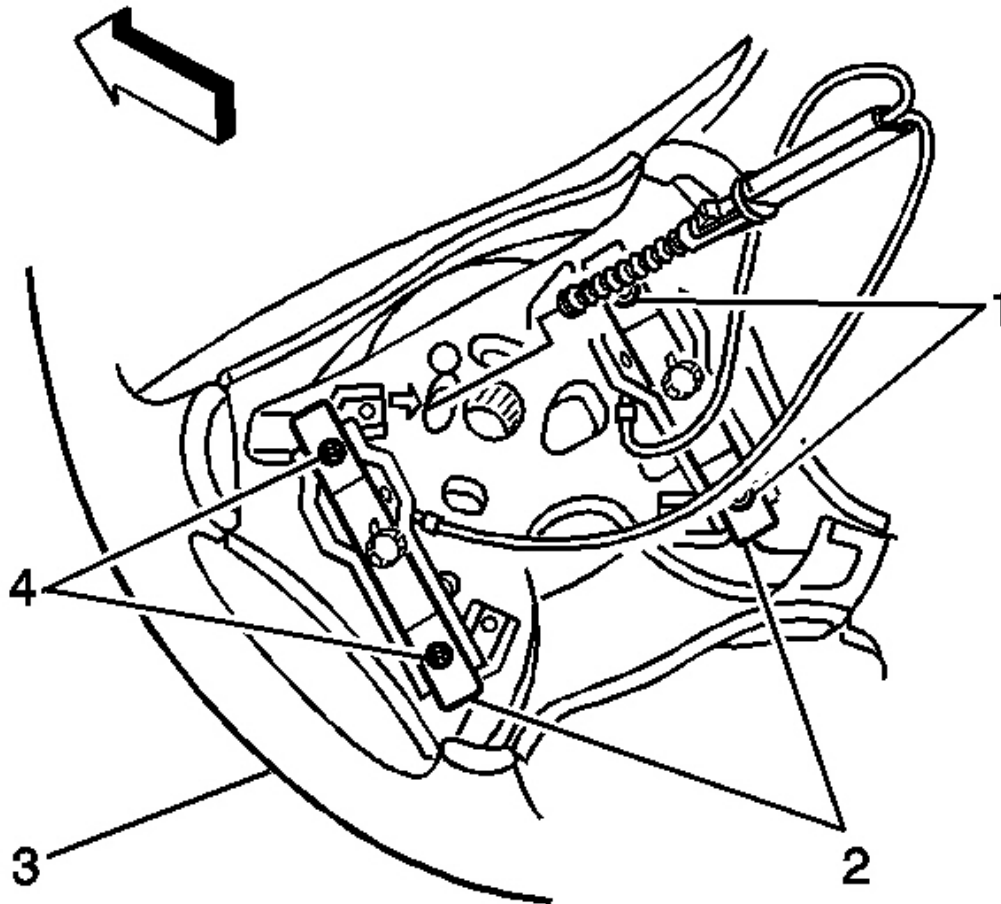


Fig. 6: View of Horn Contact Plate, Steering Wheel & Screws
Courtesy of GENERAL MOTORS CORP.

1. Install the horn switch (2) to the steering wheel (3).

NOTE: Refer to Fastener Notice .

2. Connect the screws (1,4) that secure the contact plate to the steering wheel (3).

Tighten: Tighten the screws to 5.5 N.m (49 lb in).

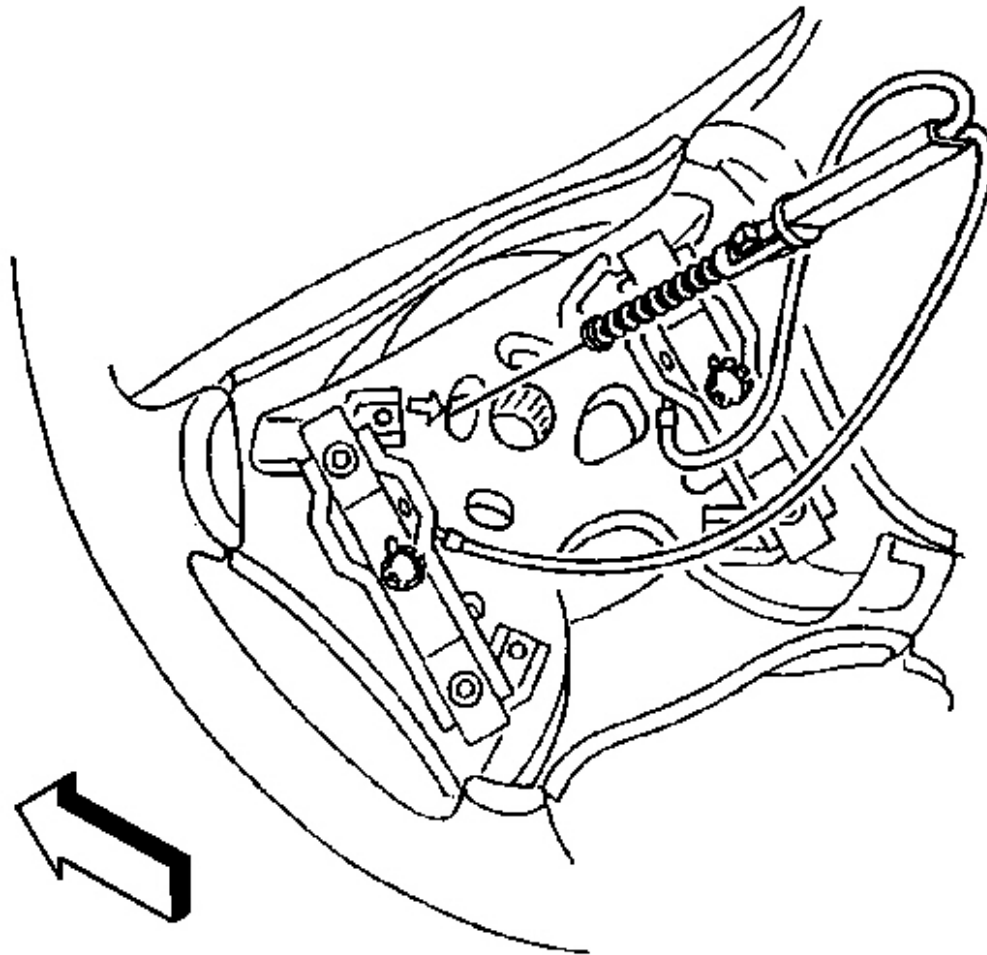


Fig. 7: View Of Horn Plunger At Steering Column
Courtesy of GENERAL MOTORS CORP.

3. Install the horn plunger to the steering column.
4. Install the inflator module. Refer to **Inflatable Restraint Steering Wheel Module Replacement** .
5. Enable the SIR system. Refer to **SIR Disabling and Enabling** .

DESCRIPTION & OPERATION

HORNS SYSTEM DESCRIPTION & OPERATION

System Description

The horn system consists of the following components:

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

System Operation

- The vehicle horns are activated whenever the horn switch is depressed.
- 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** .
 - When the OnStar® system is used to sound the horns if equipped. For further information, refer to **OnStar 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 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 horns through the horn control circuit. The horns sound as long as ground is applied to the horn relay control circuit.