# 2007 STEERING

## Steering Wheel and Column - Outlook

## SPECIFICATIONS

### FASTENER TIGHTENING SPECIFICATIONS

### Fastener Tightening Specifications

| Application | Specification | |
|---|---|---|
| | Metric | English |
| Intermediate Steering Shaft Bolt | 22 N.m | 16 lb ft |
| Steering Column Bolt | 27 N.m | 20 lb ft |
| Steering Column Lower Trim Cover Bolt | 2 N.m | 18 lb in |
| Steering Column Nut | 27 N.m | 20 lb ft |
| Steering Wheel Bolt | 50 N.m | 37 lb ft |

## DIAGNOSTIC INFORMATION AND PROCEDURES

### DIAGNOSTIC STARTING POINT - STEERING COLUMN

Begin the system diagnosis by reviewing the system Description and Operation. Refer to **Steering Wheel and Column Description and Operation**. Reviewing the Description and Operation information will help you determine the correct symptom diagnostic procedure when a malfunction exists. Reviewing the Description and Operation information will also help you determine if the condition described by the customer is normal operation. Refer to **Symptoms - Steering Wheel and Column** in order to identify the correct procedure for diagnosing the system and where the procedure is located.

### SYMPTOMS - STEERING WHEEL AND COLUMN

Review the system description and operation in order to familiarize yourself with the system functions. Refer to **Steering Wheel and Column Description and Operation**.

#### Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the steering wheel and column.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

**Symptoms List**

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

- **Ignition Key Cannot Be Removed from the Ignition Lock Cylinder**
- **Ignition Key Cannot Turn or Sticks in Any Position**
- **Noise in Steering Column**
- **Steering Column Tilt Function Inoperative**
- **High Shift Effort**
- **Looseness in Steering Column**

**STEERING COLUMN TILT FUNCTION INOPERATIVE**

## Steering Column Tilt Function Inoperative

| Step | Action | Yes | No |
|---|---|---|---|
| 1 | Did you review the Steering Wheel and Column Description and Operation and perform the necessary inspections? | Go to **Step 2** | Go to **Steering Wheel and Column Description and Operation** |
| 2 | Verify that the steering column tilt function is inoperative.<br>Does the steering column tilt function operate normally? | System OK | Go to **Step 3** |
| 3 | Verify that the Following Components are not seized or corroded.<br>• Tilt Pivot Pins<br>• Tilt Head Lock Shoes<br>Are the components seized or corroded? | Go to **Step 7** | Go to **Step 4** |
| 4 | Inspect the tilt pivot pins for binding.<br>Are the tilt pivot pins binding? | Go to **Step 8** | Go to **Step 5** |
| 5 | Inspect for a weak or broken steering column tilt spring.<br>Is the steering column tilt spring weak or | | |

| | | | |
|---|---|---|---|
| | broken? | Go to **Step 9** | Go to **Step 6** |
| 6 | Inspect the steering column wiring harness routing for tightness. | Go to **Step 10** | Go to **Step 11** |
| 7 | Replace the steering column. Refer to **Steering Column Replacement**.<br>Did you complete the repair? | Go to **Step 11** | - |
| 8 | If serviceable, replace the pivot pins. If not serviceable replace the steering column. Refer to **Steering Column Replacement**.<br>Did you complete the repair? | Go to **Step 11** | - |
| 9 | Replace the tilt spring.<br>Did you complete the repair? | Go to **Step 11** | - |
| 10 | Route the steering column wiring harness to the correct location.<br>Did you correctly rout the wiring harness? | Go to **Step 11** | - |
| 11 | Operate the steering column tilt function in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

**NOISE IN STEERING COLUMN**

## Noise in Steering Column

| Step | Action | Yes | No |
|---|---|---|---|
| 1 | Did you review the Steering Wheel and Column Description and perform the necessary inspections? | Go to **Step 2** | Go to **Steering Wheel and Column Description and Operation** |
| 2 | Verify that noise is present in the steering column during operation.<br>Is noise present in the steering column during operation? | Go to **Step 3** | System OK |
| 3 | Inspect the steering column mounting features for the following conditions.<br>• Steering Column Mounting Fasteners for looseness.<br>• Steering Column Mounting | | |

| | | | |
|---|---|---|---|
| | Features are sheared.<br><br>Are the steering column mounting features loose? | Go to **Step 9** | Go to **Step 4** |
| 4 | Inspect the SIR/SRS coil for noise.<br>Is the SIR/SRS coil noisy? | Go to **Step 10** | Go to **Step 5** |
| 5 | Inspect the lock plate retaining ring for correct installation<br>Is the lock plate retaining ring installed incorrectly? | Go to **Step 11** | Go to **Step 6** |
| 6 | Inspect the steering column upper and lower bearings for the following conditions.<br>• Damage<br>• Lubrication<br>• Wear<br>• Proper seating<br><br>Are the bearings in need of repair or replacement? | Go to **Step 12** | Go to **Step 7** |
| 7 | Inspect the tilt joint for lubrication, if equipped.<br>Is the tilt joint lubricated | Go to **Step 13** | Go to **Step 8** |
| 8 | **IMPORTANT:**<br>**This is best evaluated while driving the vehicle, turning the steering and applying the brake pedal.**<br><br>Inspect the steering column intermediate shaft for noise.Is the steering column intermediate shaft noisy? | Go to **Step 14** | Go to **Step 15** |
| | **IMPORTANT:**<br>**If the steering column mounting feature is damaged or sheared, the steering column will need to be replaced. Refer to Steering Column Replacement.** | | |

| | | | |
|---|---|---|---|
| 9 | Tighten the steering column mounting fastener to specifications. Refer to **Fastener Tightening Specifications**.Did you complete the repair? | Go to **Step 15** | - |
| 10 | Replace the SIR/SRS coil. Refer to **Inflatable Restraint Steering Wheel Module Replacement** .<br>Did you complete the repair? | Go to **Step 15** | - |
| 11 | Install the lock plate retaining ring correctly.<br>Did you complete the repair? | Go to **Step 15** | - |
| 12 | **IMPORTANT:**<br>**If the steering column upper and/or lower bearings are not serviceable, the steering column will need to be replaced. Refer to Steering Column Replacement.**<br><br>Replace the upper and/or lower bearings, if serviceable? | Go to **Step 15** | - |
| 13 | Lubricate the tilt joint.<br>Did you complete the repair? | Go to **Step 15** | - |
| 14 | Replace the appropriate steering intermediate shaft component.<br>Did you complete the repair? | Go to **Step 15** | - |
| 15 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

**HIGH SHIFT EFFORT**

## High Shift Effort

| Step | Action | Yes | No |
|---|---|---|---|
| DEFINITION: Abnormally high shift effort is required to shift the transmission out of the Park (P) position. | | | |
| 1 | Did you review the Steering Wheel and Column Description and Operation? | | Go to **Steering Wheel and Column Description and** |

| | | | |
|---|---|---|---|
| | | Go to **Step 2** | **Operation** |
| 2 | Verify that a high column shift effort is required in order to shift out of the PARK position.<br>Does the column shifter operate normally? | System OK | Go to **Step 3** |
| 3 | Inspect for worn or worn or damaged automatic transmission range selector shift cable.<br>Is the Transmission range selector shift cable worn or damaged? | Go to **Step 6** | Go to **Step 4** |
| 4 | Inspect the automatic transmission range selector shift cable for binding or mis-adjustment.<br>Is the automatic transmission range selector shift cable binding or mis-adjusted? | Go to **Step 7** | Go to **Step 5** |
| 5 | Inspect the column linear shift assembly for damage.<br>Is the column linear shift assembly damaged? | Go to **Step 8** | Go to **Step 9** |
| 6 | Replace the automatic transmission range selector shift cable.<br>Did you complete the repair? | Go to **Step 9** | - |
| 7 | Adjust the automatic transmission range selector shift cable.<br>Did you complete the repair? | Go to **Step 9** | - |
| 8 | **IMPORTANT:**<br>**If the column linear shift assembly is not serviceable, then the steering column will need to be replaced. Refer to Steering Column Replacement**<br><br>Replace the column linear shift assembly, if serviceable.Did you complete the replacement? | Go to **Step 9** | - |
| 9 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

**LOOSENESS IN STEERING COLUMN**

## Looseness in Steering Column

| Step | Action | Yes | No |
|---|---|---|---|
| 1 | Did you review the Steering Wheel and Column Description and Operation and perform the necessary inspections? | Go to **Step 2** | Go to **Steering Wheel and Column Description and Operation** |
| 2 | Verify that the steering column is loose. Is the steering column loose? | Go to **Step 3** | System OK |
| 3 | Inspect the steering column mounting features for the following conditions.<br>• Steering Column Mounting Fasteners for looseness.<br>• Steering Column Mounting Features are sheared.<br>Are the steering column mounting features loose? | Go to **Step 5** | Go to **Step 4** |
| 4 | Inspect the upper and/or lower bearings for looseness. Are any of the bearings worn or loose? | Go to **Step 7** | Go to **Step 8** |
| 5 | **IMPORTANT:** **If the steering column mounting feature is damaged or sheared, the steering column will need to be replaced. Refer to Steering Column Replacement.**<br>Tighten the steering column mounting fastener to specifications. Refer to **Fastener Tightening Specifications**. Did you complete the repair? | Go to **Step 8** | - |
| 6 | Replace the steering column. Refer to **Steering Column Replacement**. Did you complete the replacement? | Go to **Step 8** | - |
| | **IMPORTANT:** | | |

| | | | |
|---|---|---|---|
| 7 | **If the steering column upper and/or lower bearings are not serviceable, the steering column will need to be replaced. Refer to Steering Column Replacement.**<br><br>Replace the upper and/or lower bearings, if serviceable.Did you complete the repair? | Go to **Step 8** | - |
| 8 | Operate the steering column in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## REPAIR INSTRUCTIONS

### INTERMEDIATE STEERING SHAFT BOOT REPLACEMENT

#### Removal Procedure

**NOTE: Secure the steering wheel utilizing a strap to prevent rotation. Locking of the steering column will prevent damage and a possible malfunction of the SIR system. The steering wheel must be secured in position before disconnecting the following components:**

- **The steering column**
- **The intermediate shaft**
- **The steering gear**

**After disconnecting these components, do not move the front tires and wheels. Failure to follow these procedures may cause improper alignment of some components during installation and result in possible damage to the SIR coil.**

1. Turn the steering wheel to the straight forward position and lock it in place.
2. Remove the left front tire/wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
3. Disengage the intermediate steering shaft boot from the power steering gear and the intermediate steering shaft upper seal.

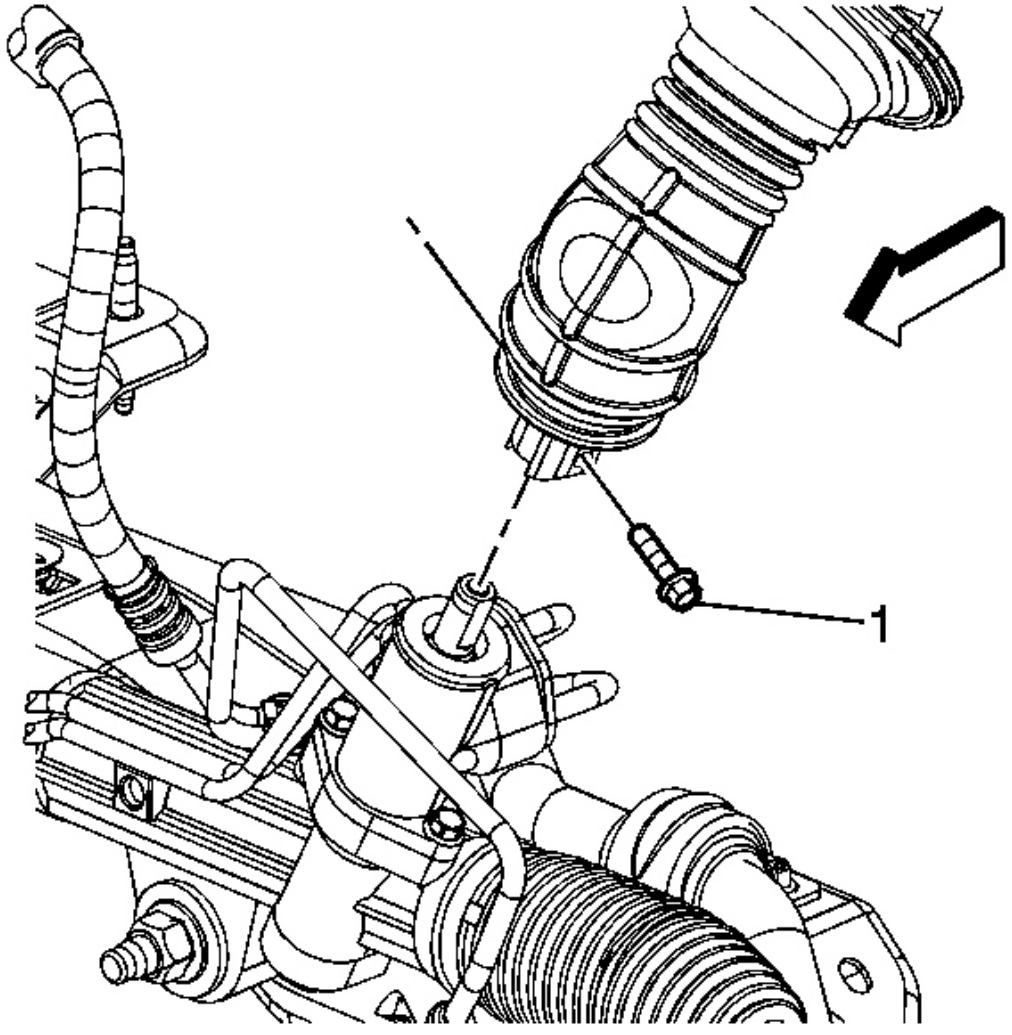



**Fig. 1: Identifying Intermediate Steering Shaft Bolt**
**Courtesy of GENERAL MOTORS CORP.**

4. Remove the intermediate steering shaft bolt (1) and separate the intermediate steering shaft from the power steering gear.

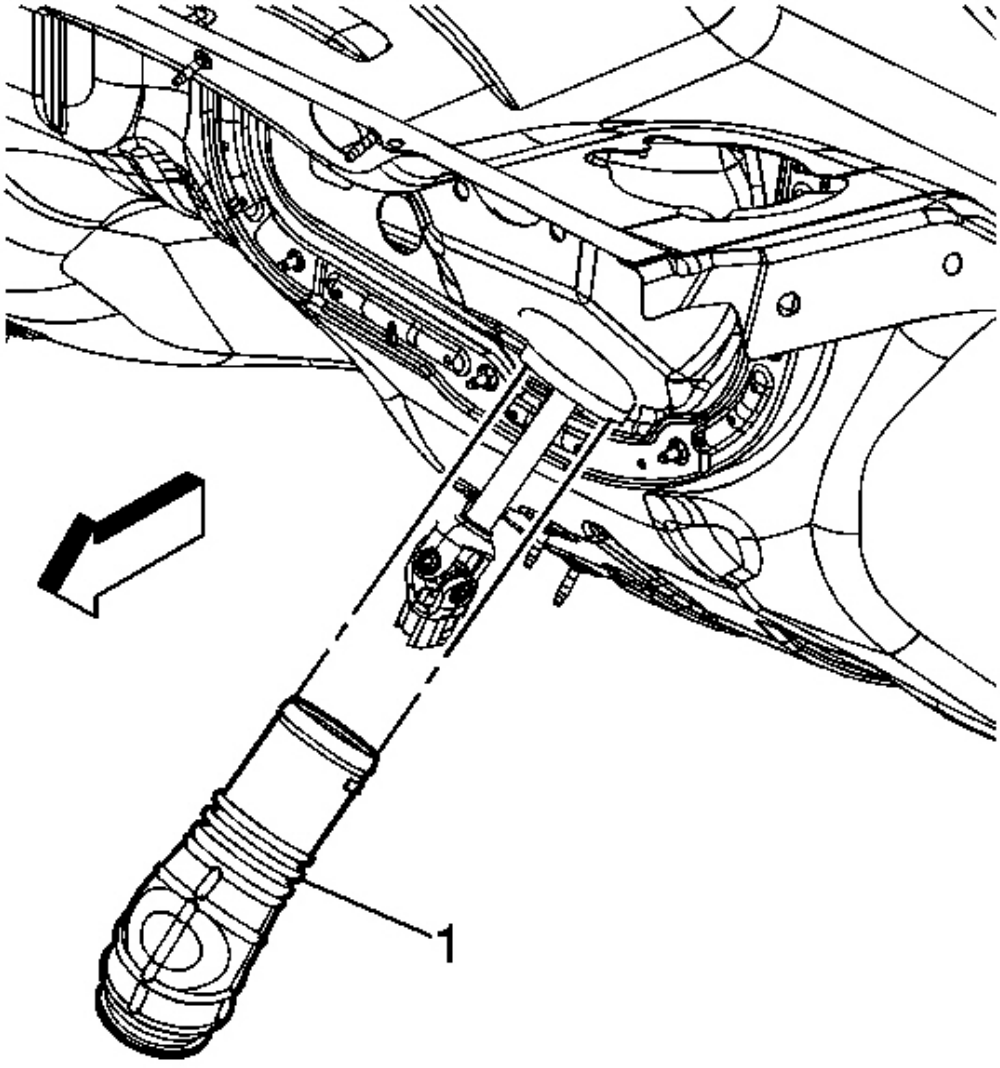



**Fig. 2: Identifying Intermediate Steering Shaft Boot**
**Courtesy of GENERAL MOTORS CORP.**

**IMPORTANT: Do not tear the intermediate steering shaft boot.**

5. Remove the intermediate steering shaft boot (1).

**Installation Procedure**

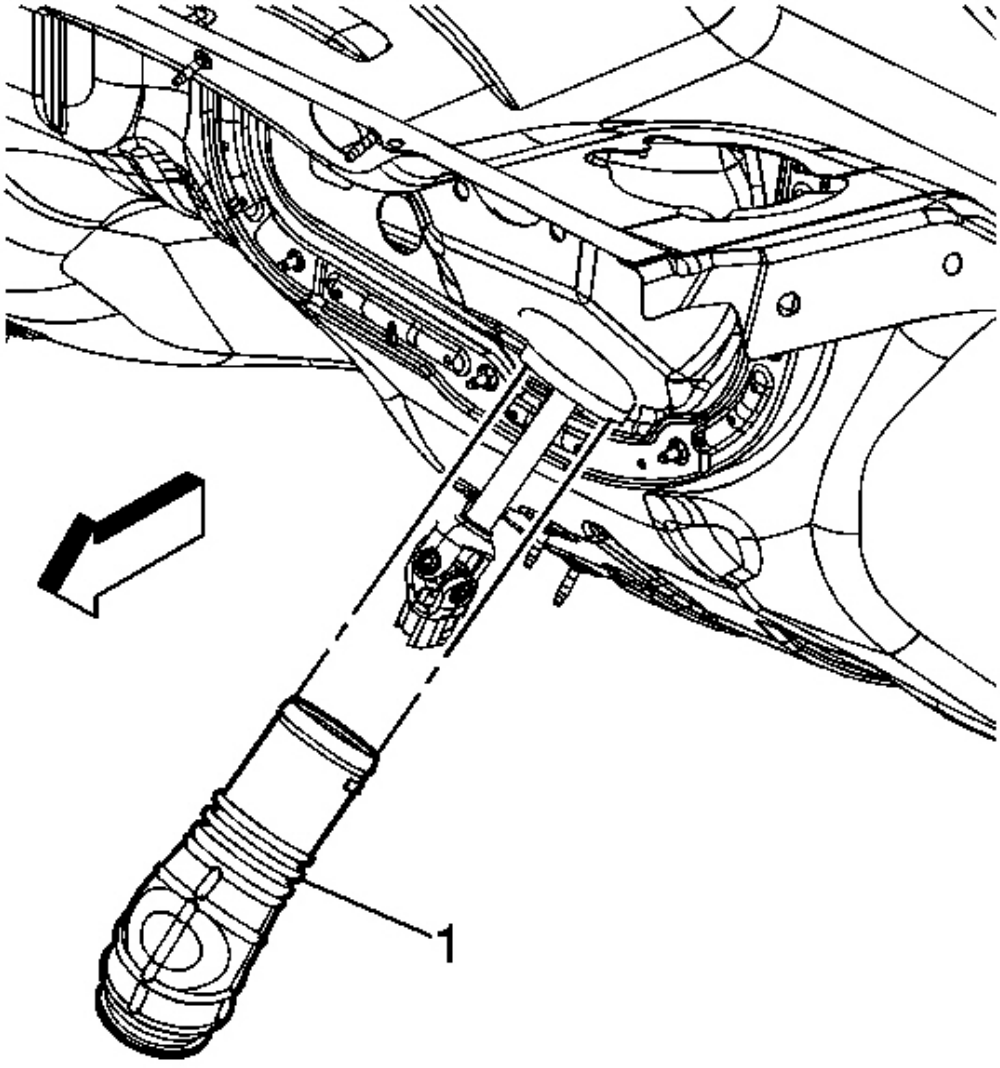



**Fig. 3: Identifying Intermediate Steering Shaft Boot**
**Courtesy of GENERAL MOTORS CORP.**

1. Install the intermediate steering shaft boot (1).

**NOTE: Refer to Fastener Notice .**

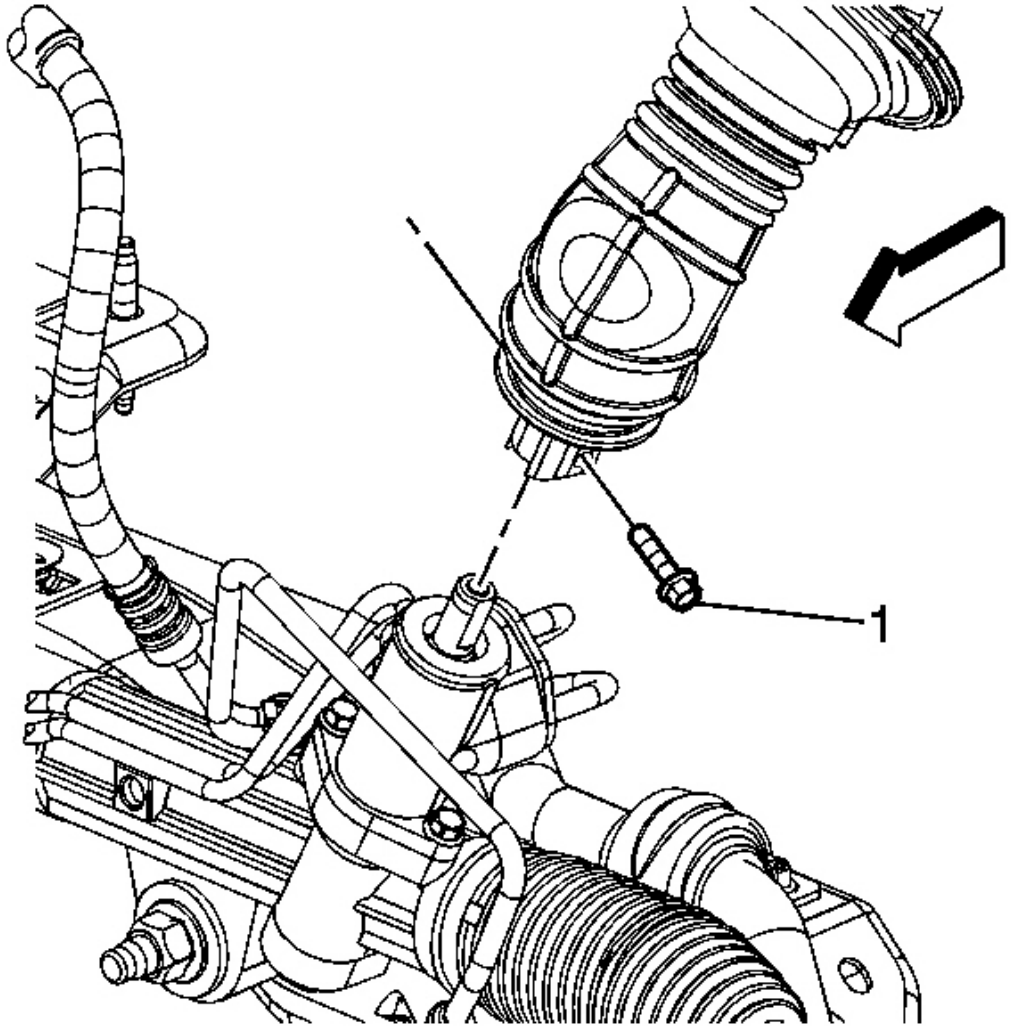



**Fig. 4: Identifying Intermediate Steering Shaft Bolt**
**Courtesy of GENERAL MOTORS CORP.**

2. Install the intermediate steering shaft to the power steering gear and install the intermediate steering shaft bolt (1).

   **Tighten:** Tighten the bolt to 22 N.m (16 lb ft).

**IMPORTANT: Install intermediate steering shaft boot in the exact position**

**it came out.**

3. Install the intermediate steering shaft boot to the power steering gear and the intermediate steering shaft upper seal.
4. Install the left front tire/wheel assembly. Refer to **Tire and Wheel Removal and Installation** .

**INTERMEDIATE STEERING SHAFT REPLACEMENT**

**Removal Procedure**

**NOTE: Secure the steering wheel utilizing a strap to prevent rotation. Locking of the steering column will prevent damage and a possible malfunction of the SIR system. The steering wheel must be secured in position before disconnecting the following components:**

- **The steering column**
- **The intermediate shaft**
- **The steering gear**

**After disconnecting these components, do not move the front tires and wheels. Failure to follow these procedures may cause improper alignment of some components during installation and result in possible damage to the SIR coil.**

1. Turn the steering wheel to the straight forward position and lock it in place.
2. Disengage the intermediate steering shaft boot from the steering gear and the intermediate steering shaft upper seal.

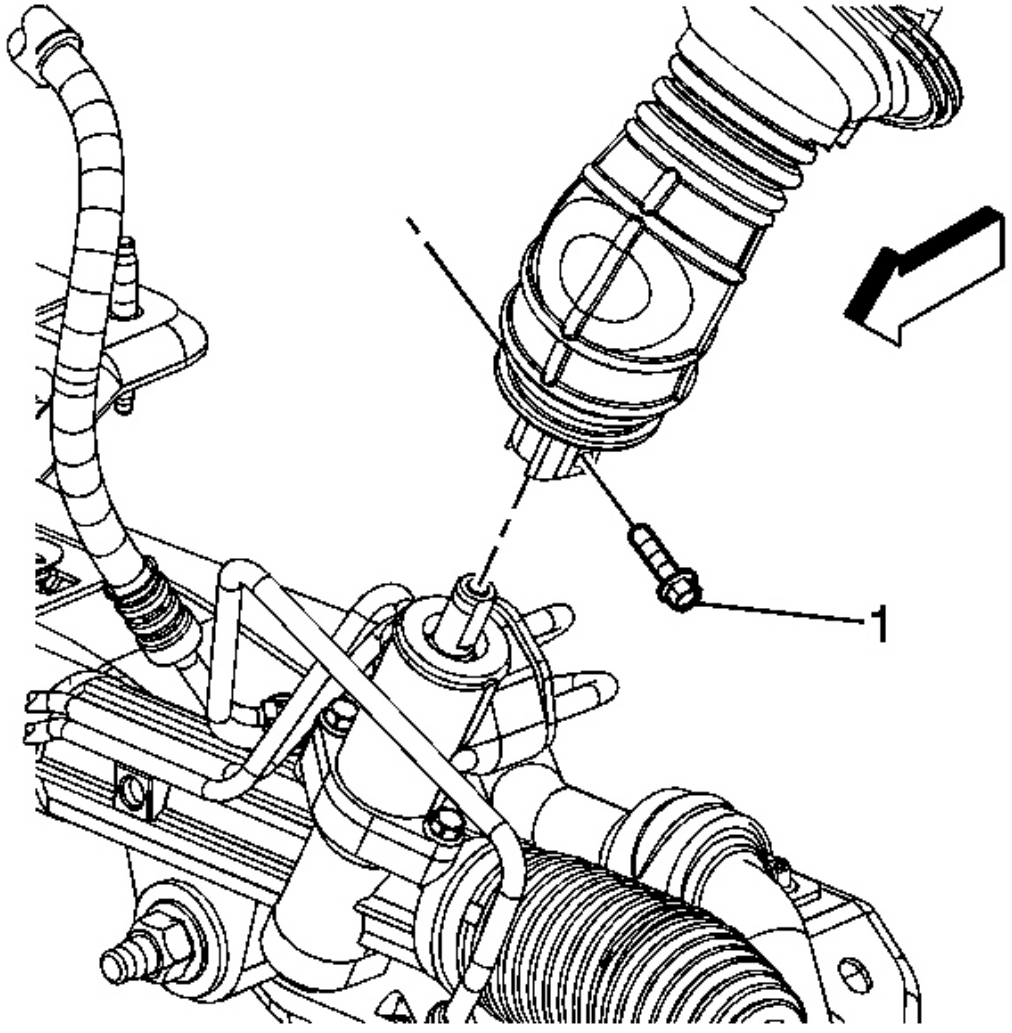



**Fig. 5: Identifying Intermediate Steering Shaft Bolt**
**Courtesy of GENERAL MOTORS CORP.**

3. Remove the intermediate steering shaft bolt (1) and separate the intermediate steering shaft from the steering gear.
4. Remove the left side instrument panel insulator panel. Refer to **Instrument Panel Insulator Panel Replacement - Left Side** .

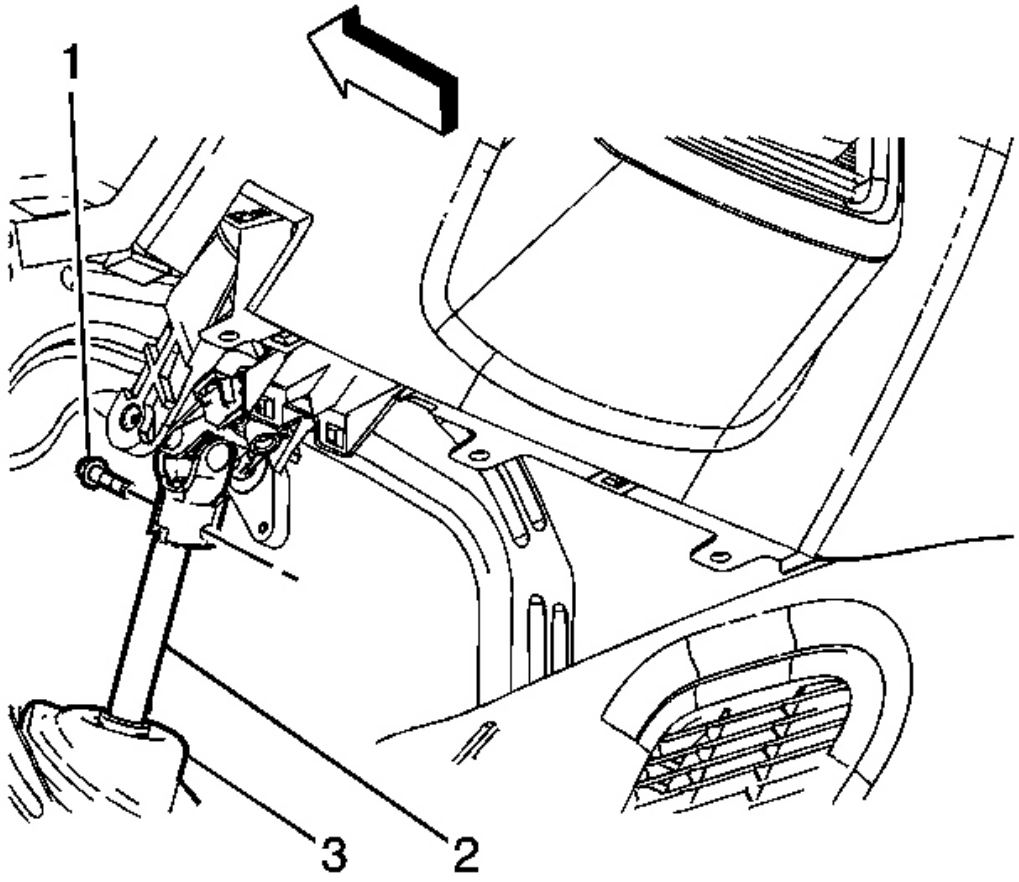



**Fig. 6: Identifying Intermediate Steering Shaft**
**Courtesy of GENERAL MOTORS CORP.**

5. Remove the intermediate steering shaft bolt (1) at the steering column, separate the intermediate steering shaft (2) and pull the intermediate steering shaft upper seal (3) from its place.

**IMPORTANT: Spreading both ends of the new or removed intermediate steering shaft while out of the vehicle will help with the installation.**

6. Remove the intermediate steering shaft from inside the vehicle.

**Installation Procedure**

1. Install the intermediate steering shaft from inside the vehicle.

**NOTE: Refer to Fastener Notice .**

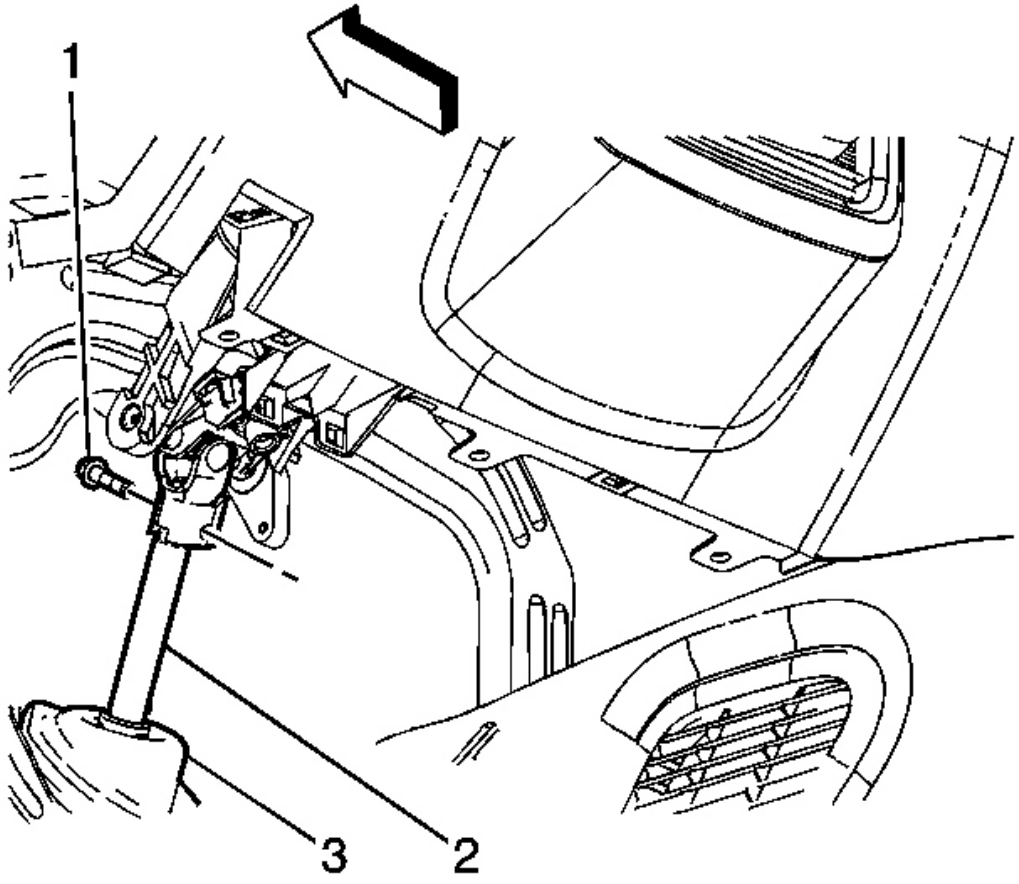



**Fig. 7: Identifying Intermediate Steering Shaft**
**Courtesy of GENERAL MOTORS CORP.**

2. Install the intermediate steering shaft (2) to the steering column, install the intermediate steering shaft bolt (1) and install the intermediate steering shaft upper seal (3) back in place.

**Tighten:** Tighten the bolt to 22 N.m (16 lb ft).

3. Install the left side instrument panel insulator panel. Refer to **Instrument Panel Insulator**

**Panel Replacement - Left Side** .

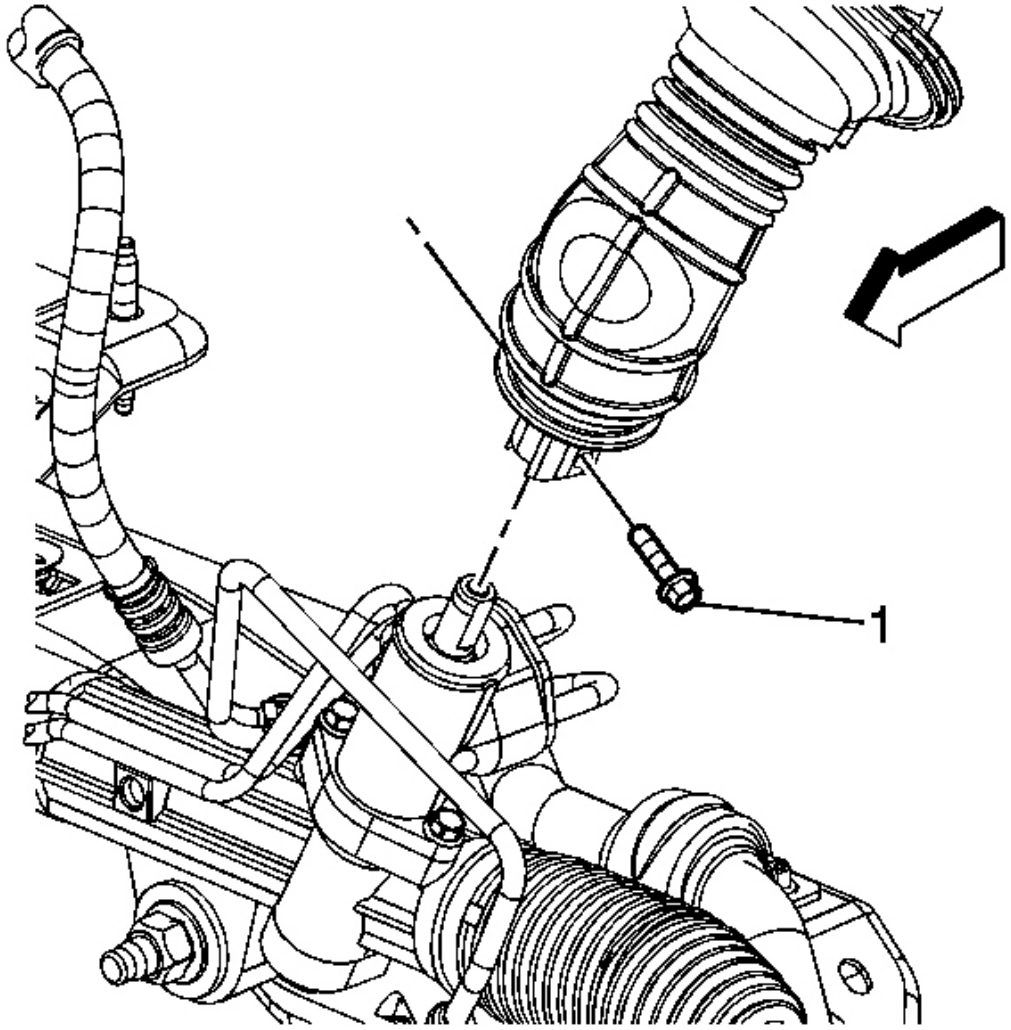



**Fig. 8: Identifying Intermediate Steering Shaft Bolt**
**Courtesy of GENERAL MOTORS CORP.**

4. Install the intermediate steering shaft to the steering gear and install the intermediate steering shaft bolt (1).

   **Tighten:** Tighten the bolt to 22 N.m (16 lb ft).

**IMPORTANT: Do not tear the intermediate steering shaft boot and install it the in the exact position it came out.**

5. Install the intermediate steering shaft boot to the steering gear and the intermediate steering shaft upper seal.

**STEERING COLUMN ACCIDENT DAMAGE INSPECTION**

**Inspection Procedure**

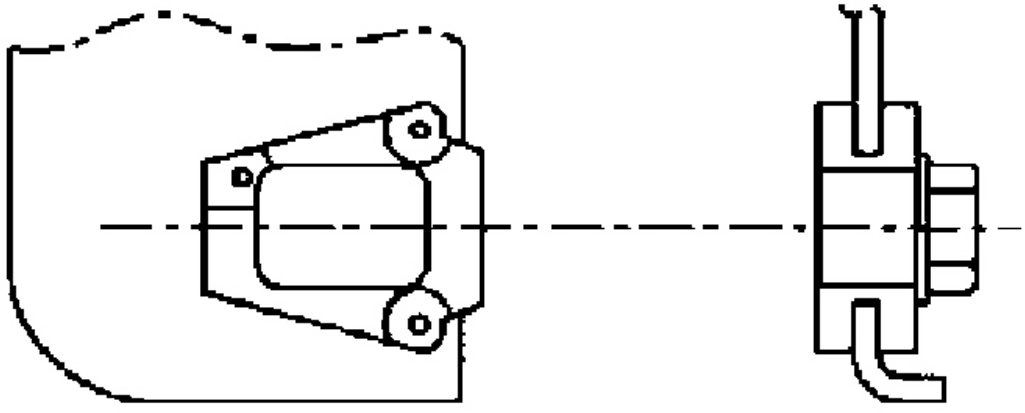


**Fig. 9: View Of Capsules On Steering Column Bracket Assembly**
**Courtesy of GENERAL MOTORS CORP.**

1. Inspect the capsules on the steering column bracket assembly. Verify that the capsules are seated securely in the bracket slots and inspect the capsules for any loose conditions when pushed or pulled by hand. If the capsules are not secure, perform one of the following procedures:
   - If the bracket is bolted to the jacket assembly, replace the bracket.
   - If the bracket is welded to the jacket assembly, replace the jacket assembly.

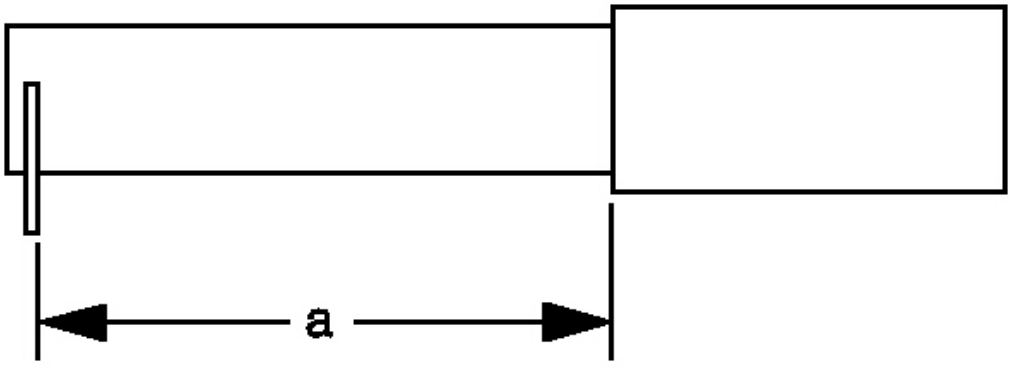



**Fig. 10: Inspecting Jacket Assembly Dimensions**
**Courtesy of GENERAL MOTORS CORP.**

2. Inspect the jacket assembly for collapse by measuring the distance from the lower edge of the upper jacket to a defined point on the lower jacket. If measured dimensions (A), are not within specifications (100 mm), install a steering column.

**STEERING COLUMN UPPER TRIM COVER REPLACEMENT**

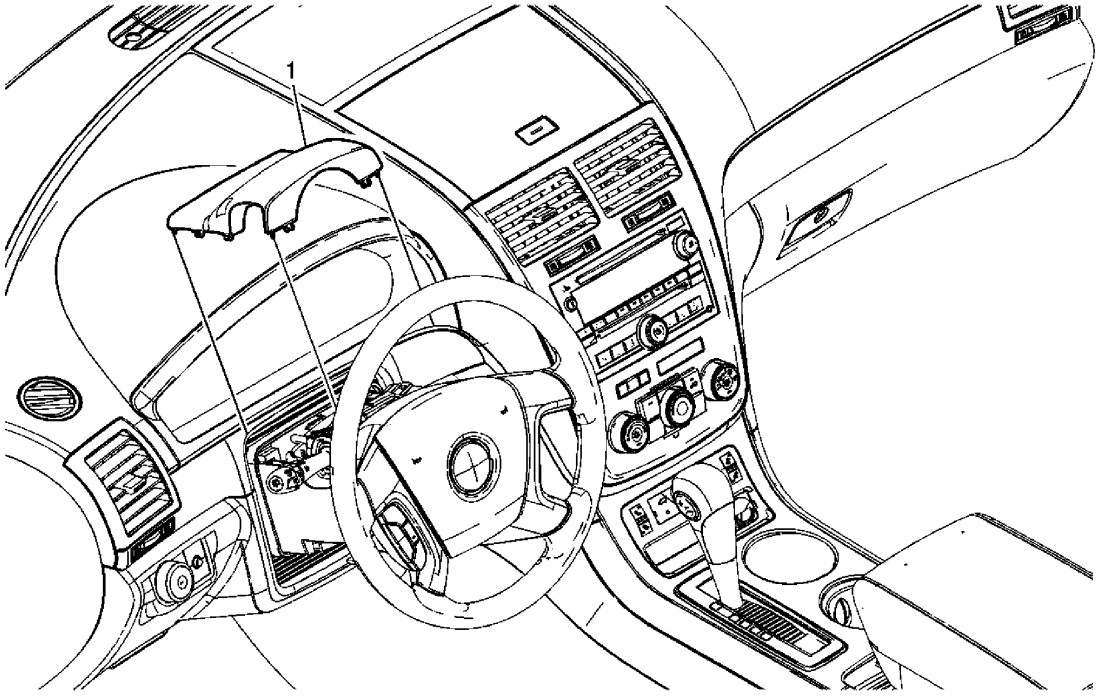



**Fig. 11: Identifying Steering Column Upper Trim Cover**
**Courtesy of GENERAL MOTORS CORP.**

## Steering Column Upper Trim Cover Replacement

| Callout | Component Name |
|---|---|
| 1 | Steering Column Upper Trim Cover<br>**Tip:** Use gentle pressure to dislocate the steering column upper trim cover. |

### STEERING COLUMN LOWER TRIM COVER REPLACEMENT

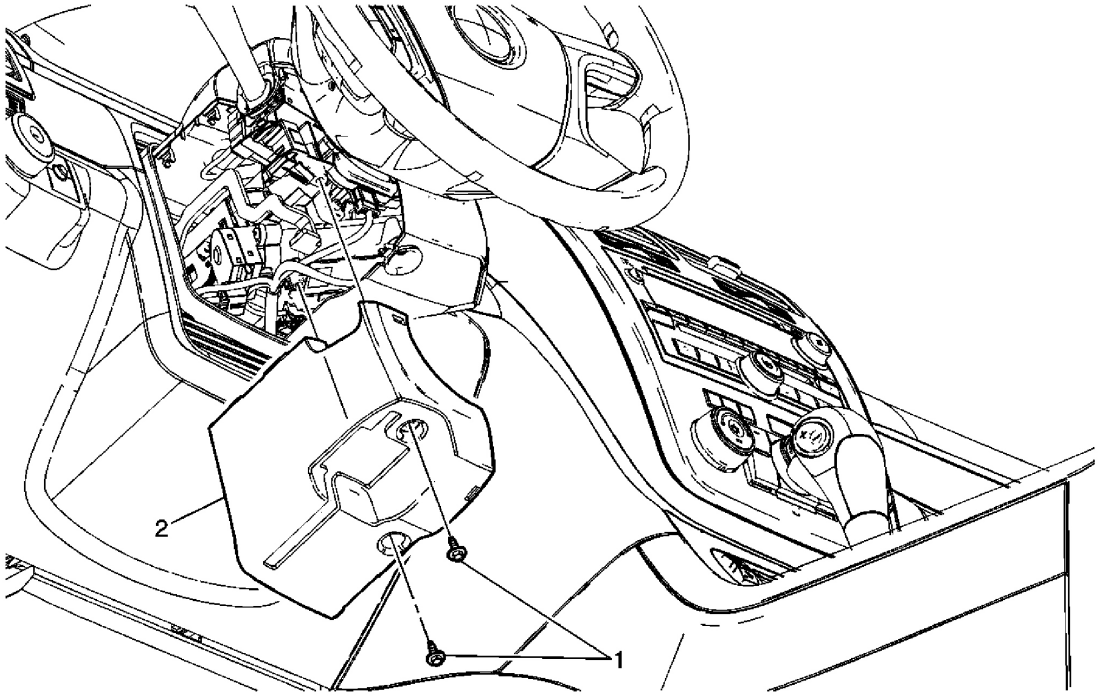



**Fig. 12: Identifying Steering Column Lower Trim Cover**
**Courtesy of GENERAL MOTORS CORP.**

## Steering Column Lower Trim Cover Replacement

| Callout | Component Name |
|---|---|
| 1 | Steering Column Lower Trim Cover Bolt (Qty: 2)<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 2 N.m (18 lb in) |
| 2 | Steering Column Lower Trim Cover<br>**Tip:** Use gentle pressure to dislocate the steering column lower trim cover. |

**TURN SIGNAL SWITCH BRACKET REPLACEMENT**

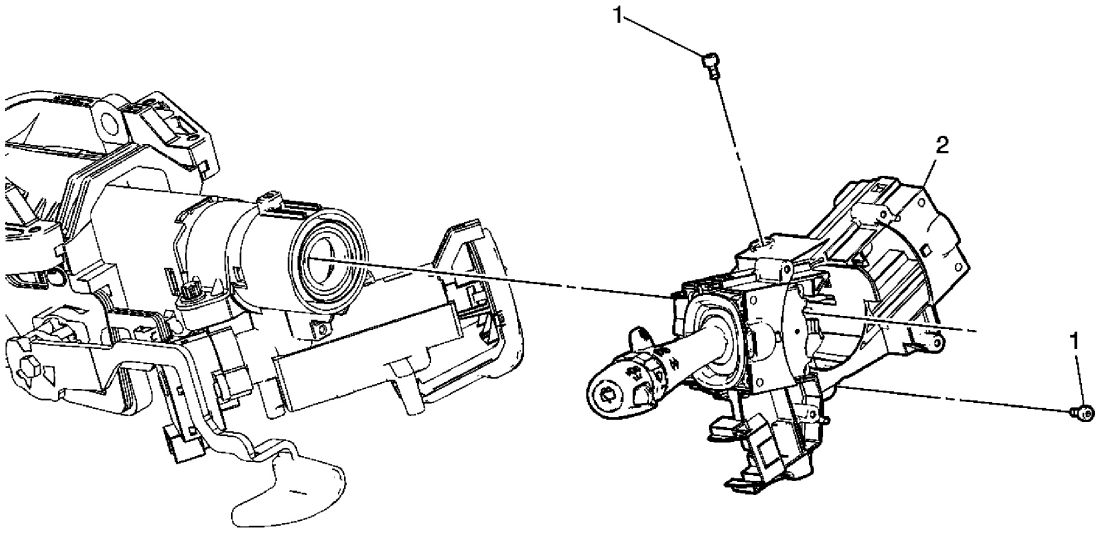



**Fig. 13: Identifying Turn Signal Switch Bracket**
**Courtesy of GENERAL MOTORS CORP.**

**Turn Signal Switch Bracket Replacement**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:**<br>Remove the inflatable restraint steering wheel module coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement** . | |
| 1 | Turn Signal Switch Bracket Bolt (Qty: 2)<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 9 N.m (80 lb in) |
| 2 | Turn Signal Switch Bracket<br><br>**Procedure**<br><br>1. Disconnect any electrical connectors as needed.<br>2. Release the plastic retaining tabs to release the turn signal switch bracket from the steering column. |

**TURN SIGNAL MULTIFUNCTION SWITCH REPLACEMENT**

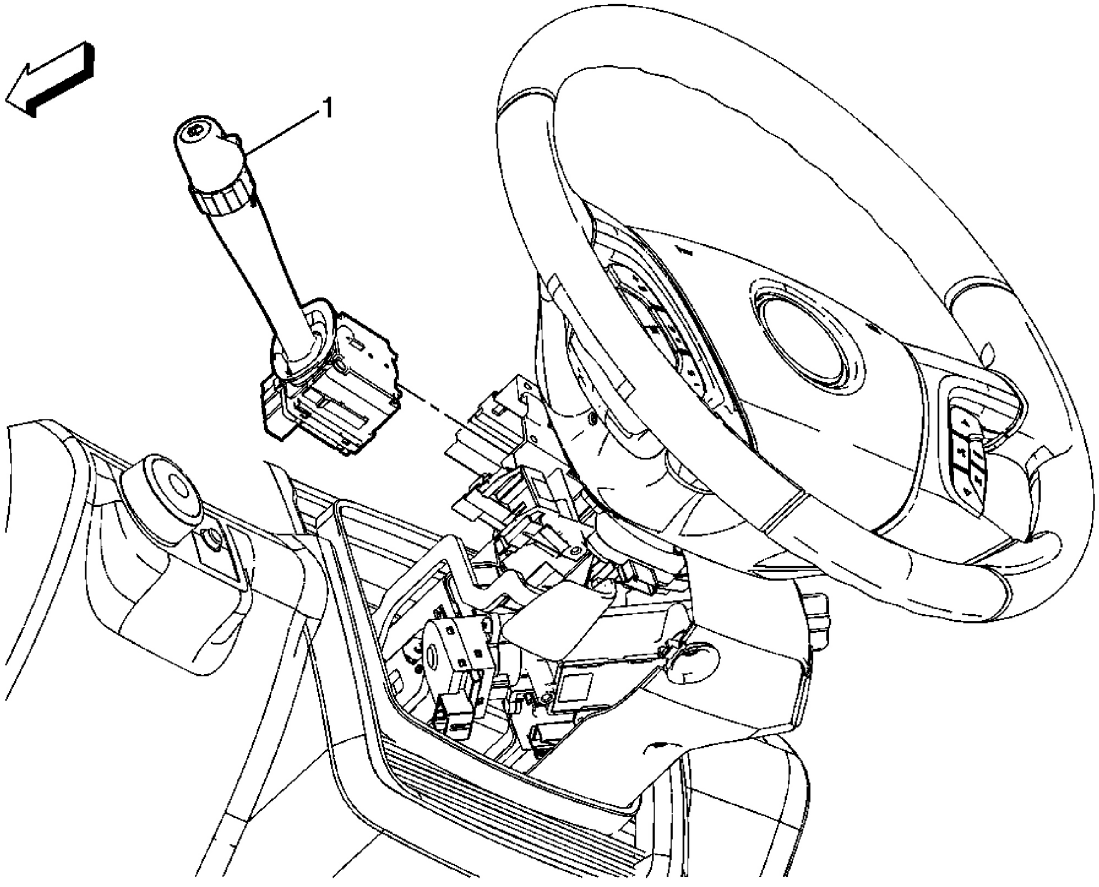



**Fig. 14: Identifying Turn Signal Multifunction Switch**
**Courtesy of GENERAL MOTORS CORP.**

**Turn Signal Multifunction Switch Replacement**

| Callout | Component Name |
|---|---|
| **Preliminary Procedures**<br><br>1. Remove the steering column upper trim cover. Refer to **Steering Column Upper Trim Cover Replacement**.<br>2. Remove the steering column lower trim cover. Refer to **Steering Column Lower Trim Cover Replacement**. | |
| 1 | Turn Signal Multifunction Switch<br><br>**Procedure**<br><br>1. Disconnect any electrical connectors as needed. |

| | |
|---|---|
| | 2. Release the plastic retaining tabs. |

**STEERING WHEEL REPLACEMENT**

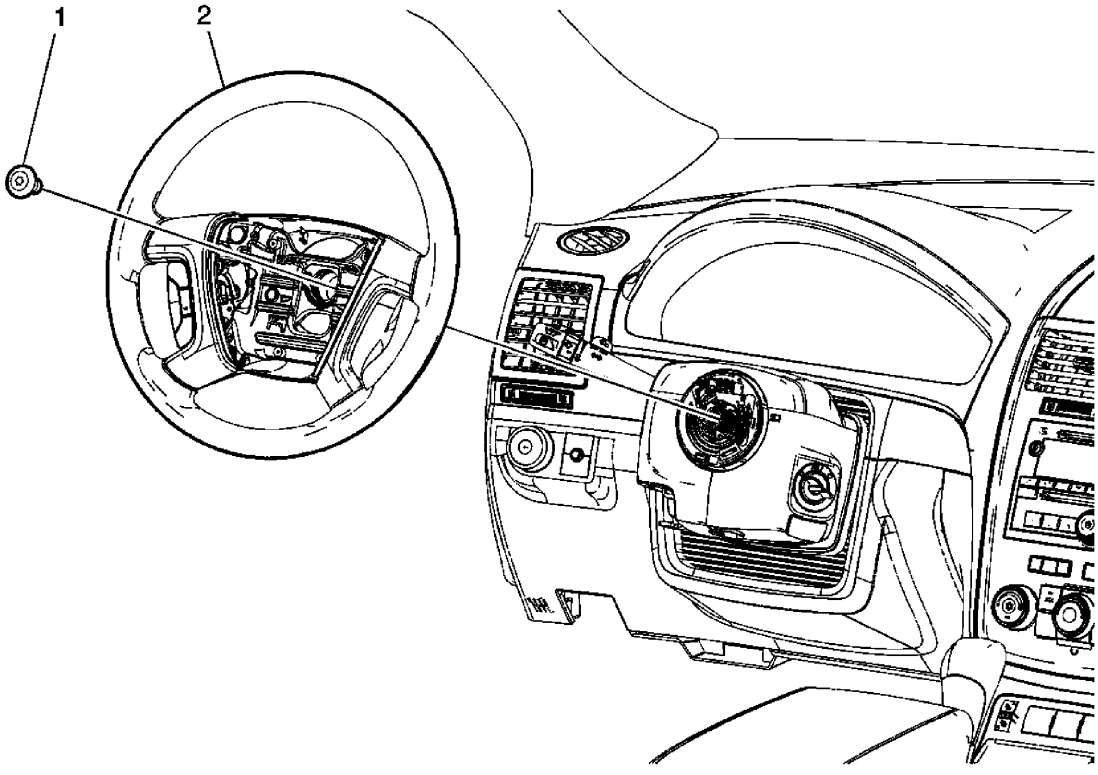



**Fig. 15: Identifying Steering Wheel**
**Courtesy of GENERAL MOTORS CORP.**

**Steering Wheel Replacement**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:**<br>Remove the inflatable restraint steering wheel module. Refer to **Inflatable Restraint Steering Wheel Module Replacement** . | |
| 1 | Steering Wheel Bolt<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 50 N.m (37 lb ft) |
| | Steering Wheel |

| | |
|---|---|
| 2 | **Procedure**<br>1. Disconnect all electrical connectors as needed.<br>2. Remove the steering wheel using puller **J 1859-A** and puller legs **J 42578** . See **Special Tools**.<br>**Special Tools**<br>• **J 1859-A** Steering Wheel Puller<br>• **J 42578** Steering Wheel Puller Legs. See **Special Tools**. |

**STEERING COLUMN REPLACEMENT**

**Removal Procedure**

**NOTE: Secure the steering wheel utilizing a strap to prevent rotation. Locking of the steering column will prevent damage and a possible malfunction of the SIR system. The steering wheel must be secured in position before disconnecting the following components:**

- **The steering column**
- **The intermediate shaft**
- **The steering gear**

**After disconnecting these components, do not move the front tires and wheels. Failure to follow these procedures may cause improper alignment of some components during installation and result in possible damage to the SIR coil.**

1. Remove the left side instrument panel insulator panel. Refer to **Instrument Panel Insulator Panel Replacement - Left Side** .
2. Remove the knee bolster. Refer to **Knee Bolster Replacement** .
3. Remove the instrument panel cluster trim plate bezel. Refer to **Instrument Panel Cluster Trim Plate Bezel Replacement** .
4. Remove the steering column opening filler bolts. Refer to **Steering Column Opening Filler Replacement** .

5. Disconnect all electrical connectors as needed.

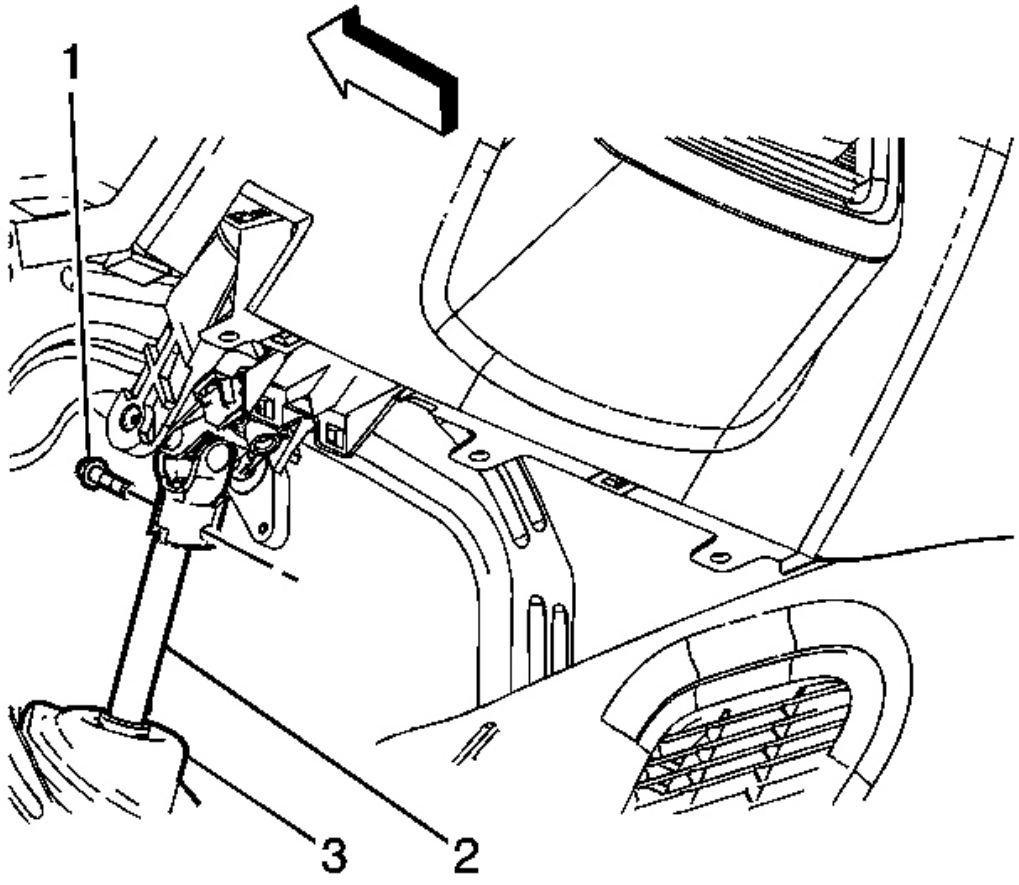



**Fig. 16: Identifying Intermediate Steering Shaft**
**Courtesy of GENERAL MOTORS CORP.**

6. Remove the intermediate steering shaft bolt (1) at the steering column and separate the intermediate steering shaft (2). Do not pull the intermediate steering shaft upper seal (3) from its place.

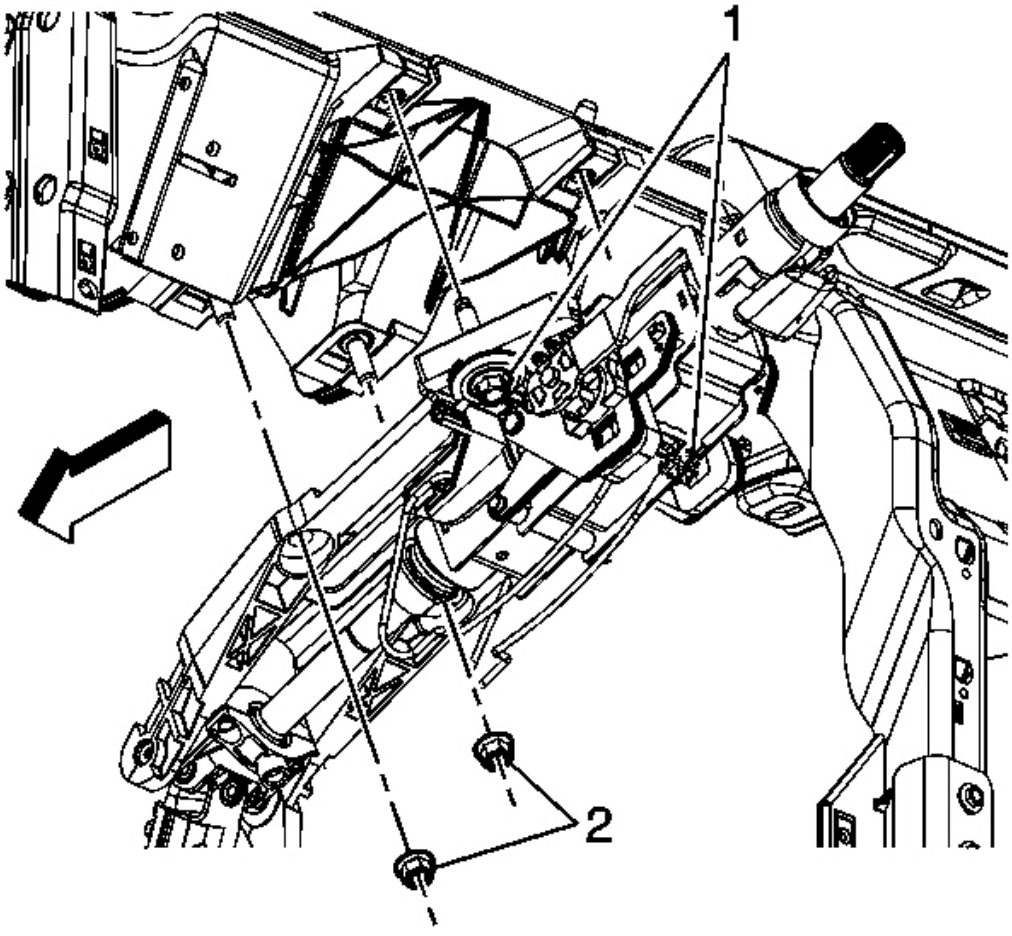



**Fig. 17: Identifying Steering Column Nuts And Bolts**
**Courtesy of GENERAL MOTORS CORP.**

7. Remove the steering column nuts (2) and the steering column bolts (1).
8. Remove the steering column from the vehicle.
9. Transfer any parts as needed.

**Installation Procedure**

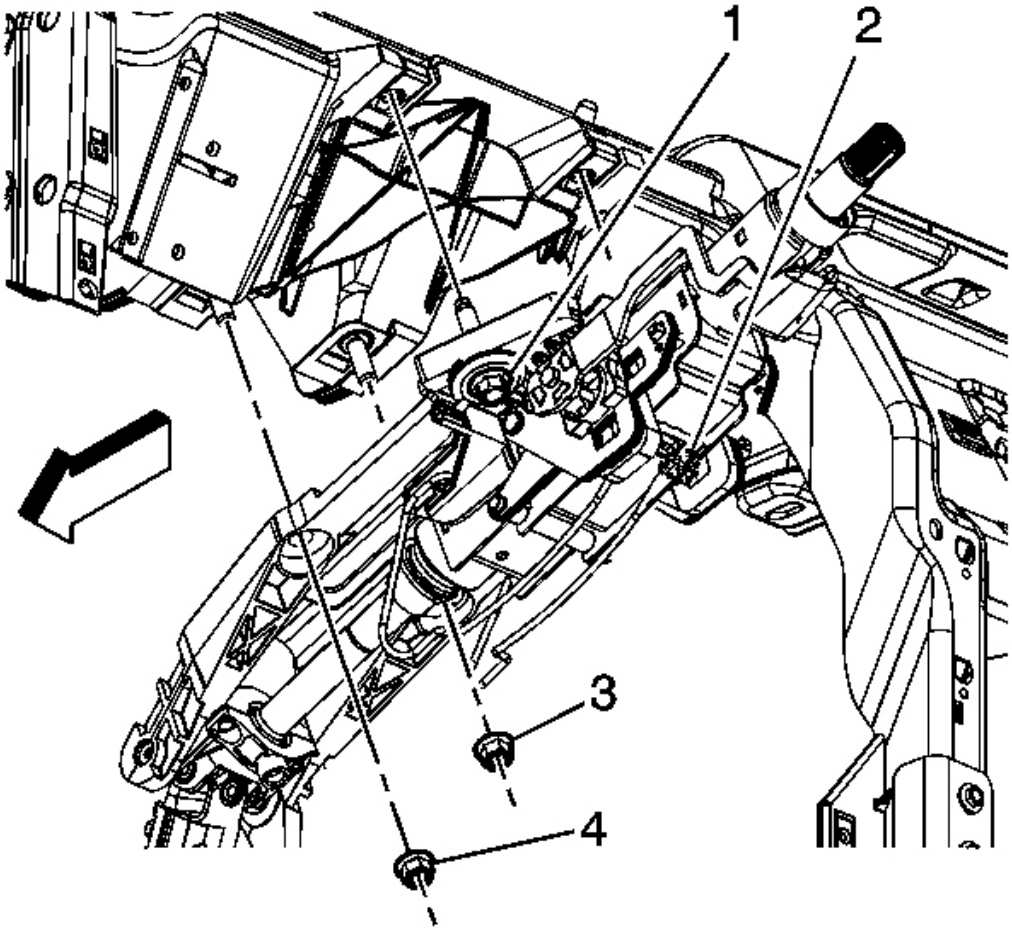



**Fig. 18: Identifying Steering Column Nuts And Bolts**
**Courtesy of GENERAL MOTORS CORP.**

**IMPORTANT: The following sequence MUST be followed. Make sure to hand tighten ONLY in the sequence specified and DO NOT apply any clamping force.**

1. Install the steering column to the vehicle and start the steering column nuts (3, 4) and bolts (1, 2) by hand using the following sequence:
    1. Place the steering column in place.
    2. Hand start the steering column nuts (3, 4).

3. Hand start the steering column bolts (1, 2).
4. Hold the steering column flush against the instrument panel carrier.
5. Hand tighten steering column nut (3).
6. Hand tighten steering column nut (4).
7. Hand tighten steering column bolt (1).
8. Hand tighten steering column bolt (2).

**NOTE: Refer to Fastener Notice .**

**IMPORTANT: The following torque sequence MUST be followed.**

2. Tighten the steering column nuts (3, 4) and bolts (1, 2) in the following sequence:
   1. Tighten steering column nut (3).

      **Tighten:** Tighten the nut to 27 N.m (20 lb ft).

   2. Tighten steering column nut (4).

      **Tighten:** Tighten the nut to 27 N.m (20 lb ft).

   3. Tighten steering column bolt (1).

      **Tighten:** Tighten the bolt to 27 N.m (20 lb ft).

   4. Tighten steering column bolt (2).

      **Tighten:** Tighten the bolt to 27 N.m (20 lb ft).

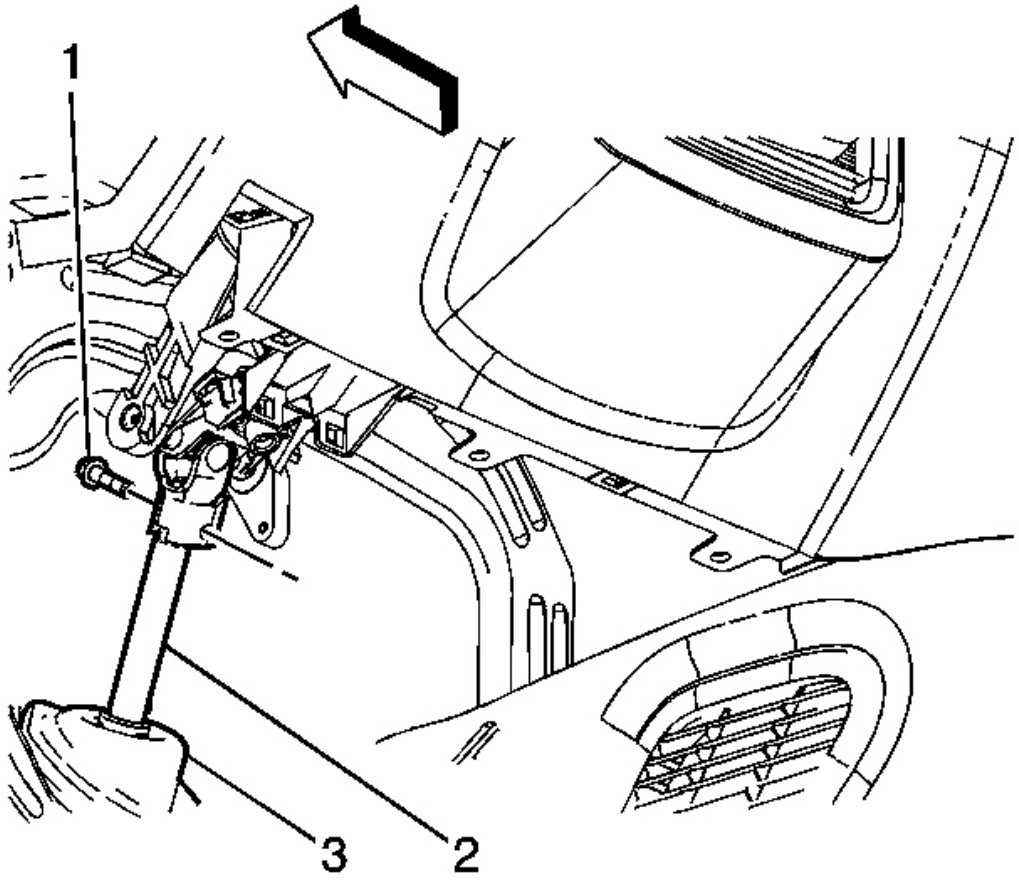



**Fig. 19: Identifying Intermediate Steering Shaft**
**Courtesy of GENERAL MOTORS CORP.**

3. Install the intermediate steering shaft (2) and intermediate steering shaft bolt (1). Make sure the intermediate steering shaft upper seal (3) is seated correctly.
4. Connect all electrical connectors as needed.
5. Install the steering column opening filler bolts. Refer to **Steering Column Opening Filler Replacement** .
6. Install the instrument panel cluster trim plate bezel. Refer to **Instrument Panel Cluster Trim Plate Bezel Replacement** .
7. Install the knee bolster. Refer to **Knee Bolster Replacement** .
8. Install the left side instrument panel insulator panel. Refer to **Instrument Panel Insulator**

**Panel Replacement - Left Side** .

## DESCRIPTION AND OPERATION

### STEERING WHEEL AND COLUMN DESCRIPTION AND OPERATION

The steering wheel and column has 4 primary functions:

- Vehicle steering
- Vehicle security
- Driver convenience
- Driver safety

#### Vehicle Steering

The steering wheel is the first link between the driver and the vehicle. The steering wheel is fastened to a steering shaft within the column. At the lower end of the column, the intermediate shaft connects the column to the steering gear.

#### Vehicle Security, found on Some Vehicle Models

Theft deterrent components are mounted and designed into the steering column. The following components allow the column to be locked in order to minimize theft:

- The ignition switch
- The steering column lock
- The ignition cylinder

#### Driver Convenience

The steering wheel and column may also have driver controls attached for convenience and comfort. The following controls may be mounted on or near the steering wheel or column.

- The turn signal switch
- The hazard switch
- The headlamp dimmer switch
- The wiper/washer switch
- The horn pad/cruise control switch
- The redundant radio/entertainment system controls

- The tilt or tilt/telescoping functions
- The navigation/OnStar® features
- The HVAC controls

**Driver Safety**

The energy-absorbing steering column compresses in the event of a front-end collision, which reduces the chance of injury to the driver. The mounting capsules break away from the mounting bracket in the event of an accident.

**Ignition Lock Cylinder Control Actuator**

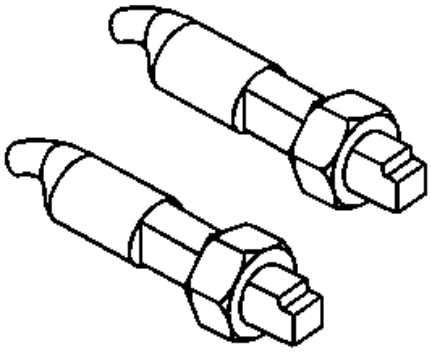
If the vehicle is equipped with a floor mounted console gear shift, it has a ignition lock cylinder control actuator system in the steering column. The ignition lock cylinder control actuator's purpose is to prevent the ignition key from being turned to the OFF position when the transmission is in gear and the vehicle may still be moving. The column ignition lock system consists of a ignition lock cylinder control actuator and a park position switch that is located in the A/T shift lock control switch. The ignition lock cylinder control actuator contains a pin that is spring loaded out to mechanically prevent the ignition key cylinder from being turned to the lock position when the vehicle transmission is not in the Park position. If vehicle power is lost, and/or the transmission is not in the Park position the operator will not be able to turn the ignition key to the lock position and will not be able to remove the ignition key from the column.

## SPECIAL TOOLS AND EQUIPMENT

**SPECIAL TOOLS**

### Special Tools

| Illustration | Tool Number/Description |
|---|---|
|  | J 1859-A<br>Steering Wheel Puller |
| | |

| | |
|---|---|
|  | J 42578<br>Steering Wheel Puller Legs |