

2013 STEERING

Steering Wheel and Column - Cruze

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Intermediate Steering Shaft Bolt	34	25 lb ft
Steering Column Nut	22 + 45 degrees (1)	16 lb ft + 45 degrees (1)
Steering Wheel Bolt	30	22 lb ft
1 = Use NEW fastener.		

ADHESIVES, FLUIDS, LUBRICANTS, AND SEALERS

Adhesives, Fluids, Lubricants, and Sealers

Application	Type of Material	GM Part Number	
		United States	Canada
Intermediate Steering Shaft Lower Bolt Thread Locking Adhesive	Medium Strength Threadlocker - Blue Loctite® 242	12345382	10953489
Intermediate Steering Shaft Upper Bolt Thread Locking Adhesive	Medium Strength Threadlocker - Blue Loctite® 242	12345382	10953489
Steering Wheel Bolt Thread Locking Adhesive	Medium Strength Threadlocker - Blue Loctite® 242	12345382	10953489

SCHEMATIC WIRING DIAGRAMS

COLUMN LOCK WIRING SCHEMATICS

ULS Wiring Schematics

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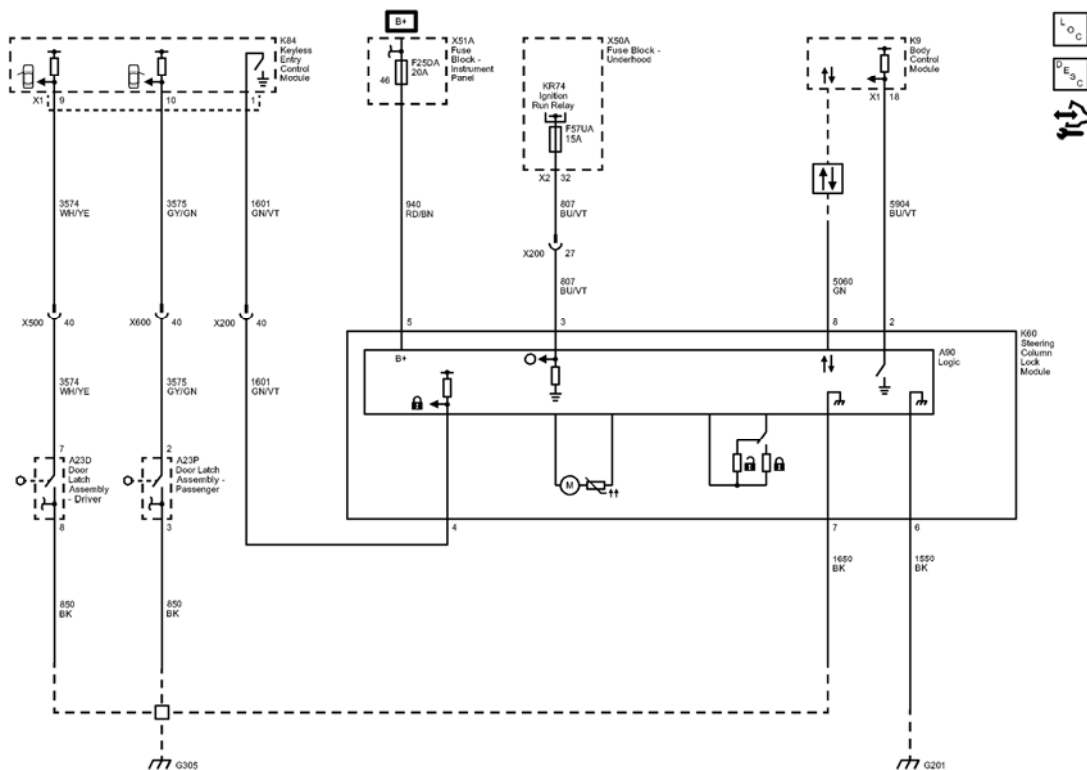


Fig. 1: Column Lock Wiring Schematics
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
3574	Driver Door Open Switch Signal
3574_WH/YE	3574 WH/YE
CAV_7	7
CAV_9	9
CONN_X1	X1
3575	Co_Driver Door Open Switch Signal
3575_GY/GN	3575 GY/GN
CAV_2	2
CAV_10	10
1601	Steering Column Lock Signal
1601_GN/VT	1601 GN/VT
CAV_4	4
CAV_1	1
940_RD/BN	940 RD/BN
CAV_5	5

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807	OFF /Accessory Voltage
807_BU/VT	807 BU/VT
CAV_3	3
CAV_32	32
CONN_X2	X2
5060	Low Speed GMLAN Serial Data
5060_GN	5060 GN
CAV_8	8
5904	Steering Column Lock Status Signal
5904_BU/VT	5904 BU/VT
CAV_2	2
CAV_18	18
CONN_X1	X1
850	Ground
850_BK	850 BK
CAV_8	8
850_BK	850 BK
CAV_3	3
1650	Ground
1650_BK	1650 BK
CAV_7	7
1550	Ground
1550_BK	1550 BK
CAV_6	6
3574_WH/YE	3574 WH/YE
3575_GY/GN	3575 GY/GN
1601_GN/VT	1601 GN/VT
807_BU/VT	807 BU/VT
CAV_40	40
CAV_40	40
CAV_40	40
CAV_27	27
Data_Communication_Schematics_REF	Data Communication Schematics
CAV_46	46
X500	X500
X600	X600
X200	X200
X200	X200
F25DA	F25DA 20A

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F57UA	F57UA 15A
K9	
X50A	
X51A	
A90	Logic
A23P	
A23D	
K60	(ULS)
KR74	
K84	(ATH)

DIAGNOSTIC INFORMATION AND PROCEDURES

SYMPTOMS - STEERING WHEEL AND COLUMN

NOTE: Review the system operation in order to familiarize yourself with the system functions.

Refer to Steering Wheel and Column Description and Operation.

Symptoms List

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

- High Telescoping Effort
- Looseness in Steering Column
- Noise in Steering Column
- Steering Column Tilt Function Inoperative

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 <u>Symptoms - Steering Wheel and Column</u>
2	Verify that the steering column tilt function is inoperative. Does the steering column tilt function operate normally?	System OK	Go to Step 3
	If equipped, verify that the following components are not seized or corroded: • Tilt pivot pins		

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3	Tilt head lock shoes		
	Are the components seized or corroded?	Go to Step 7	Go to Step 4
4	Inspect the tilt pivot pins for binding. 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. 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. Was the steering column wiring harness routed correctly?	Go to Step 11	Go to Step 10
7	Replace the steering column. Refer to <u>Steering Column Replacement</u> . 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 <u>Steering Column Replacement</u> . Did you complete the repair?	Go to Step 11	-
9	If serviceable, replace the tilt spring. Did you complete the repair?	Go to Step 11	-
10	Route the steering column wiring harness to the correct location. Did you correctly route the wiring harness?	Go to Step 11	-
11	Operate the steering column tilt function in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

HIGH TELESOPING EFFORT

High Telescoping Effort

Condition	Action
The steering shaft assembly is bent or damaged.	If necessary, replace the steering column. Refer to <u>Steering Column Replacement</u> .

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		Go to <u>Steering Wheel and Column Description and</u>

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	necessary inspections?	Go to Step 2	<u>Operation</u>
2	Verify that noise is present in the steering column during operation. 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: - Steering column mounting fasteners for looseness - Steering column mounting features are sheared Are the steering column mounting features loose?	Go to Step 8	Go to Step 4
4	Inspect the SIR/SRS coil for noise. Is the SIR/SRS coil noisy?	Go to Step 09	Go to Step 5
5	Inspect the lock plate retaining ring for correct installation. Is the lock plate retaining ring installed incorrectly?	Go to Step 10	Go to Step 6
6	Inspect the steering column upper and lower bearings for the following conditions: - Damage - Lubrication - Wear - Proper seating Are the bearings in need of repair or replacement?	Go to Step 11	Go to Step 7
7	NOTE: This is best evaluated while driving the vehicle, turning the steering and applying the brake pedal. Inspect the intermediate steering shaft for noise. Is the intermediate steering shaft noisy?	Go to Step 12	Go to Step 13
	NOTE: If the steering column mounting is damaged or sheared, the steering column will need to be replaced. Refer to <u>Steering</u>		

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	<u>Column Replacement.</u>		
8	Tighten the steering column mounting fastener to specifications. Refer to <u>Fastener Tightening Specifications</u> . Did you complete the repair?	Go to Step 13	-
9	Replace the SIR/SRS coil. Refer to <u>Airbag Steering Wheel Module Replacement</u> . Did you complete the repair?	Go to Step 13	-
10	Install the lock plate retaining ring correctly. Did you complete the repair?	Go to Step 13	-
11	NOTE: If the steering column upper and/or lower bearings are not serviceable, the steering column will need to be replaced. Refer to <u>Steering Column Replacement</u> . Replace the upper and/or lower bearing, if serviceable. Did you complete the repair?	Go to Step 13	-
12	Replace the appropriate intermediate steering shaft component. Refer to <u>Intermediate Steering Shaft Replacement</u> . Did you complete the repair?	Go to Step 13	-
13	Operate the system in order to verify the repair. 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 <u>Steering Wheel and Column Description and Operation</u>
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. - Steering column mounting fasteners for looseness - Steering column mounting features are sheared		

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	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 6	Go to Step 7
5	NOTE: If the steering column mounting feature is damaged or sheared, the steering column will need to be replaced. Refer to <u>Steering Column Replacement</u>. Tighten the steering column mounting fasteners to specifications. Refer to <u>Fastener Tightening Specifications</u> . Did you complete the repair?	Go to Step 7	-
6	NOTE: If the steering column upper and/or lower bearings are not serviceable, the steering will need to be replaced. Refer to <u>Steering Column Replacement</u>. Replace the upper and/or lower bearings, if serviceable. Did you complete the repair?	Go to Step 7	-
7	Operate the steering column in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

REPAIR INSTRUCTIONS

INTERMEDIATE STEERING SHAFT REPLACEMENT

Removal Procedure

CAUTION: With wheels of the vehicle facing straight ahead, secure the steering wheel utilizing steering column anti-rotation pin, steering column lock, or 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(s)
- The steering gear

After disconnecting these components, do not rotate the steering wheel or move the front tires and wheels. Failure to follow this procedure may cause the SIR coil assembly to become un-centered and cause possible

damage to the SIR coil. If you think the SIR coil has become un-centered, refer to your specific SIR coil's centering procedure to re-center SIR Coil.

1. Disable the supplemental inflatable restraint system. Refer to **SIR Disabling and Enabling** .
2. Turn the steering wheel to the straight forward position and support it from movement.

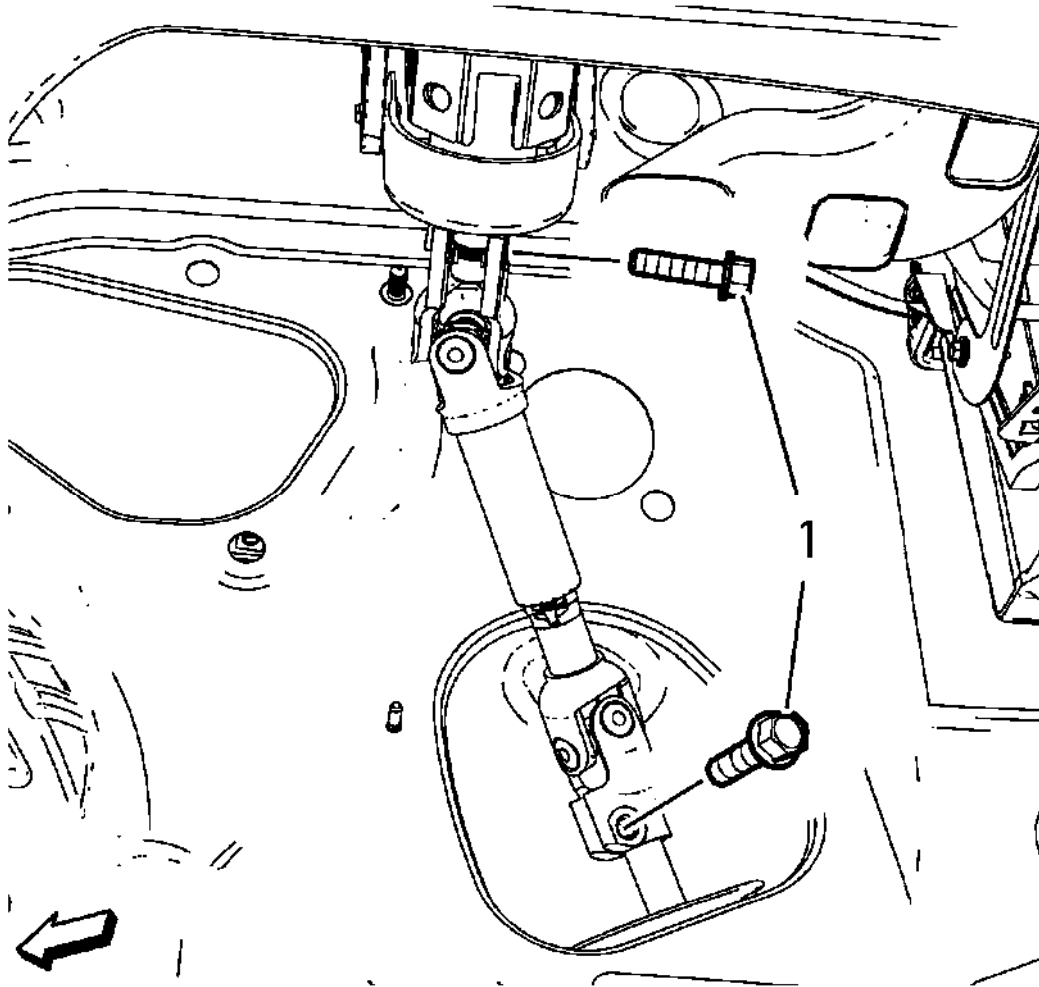


Fig. 2: Lower Steering Intermediate Shaft Bolts
Courtesy of GENERAL MOTORS COMPANY

3. Remove the upper and lower intermediate steering shaft bolts (1).

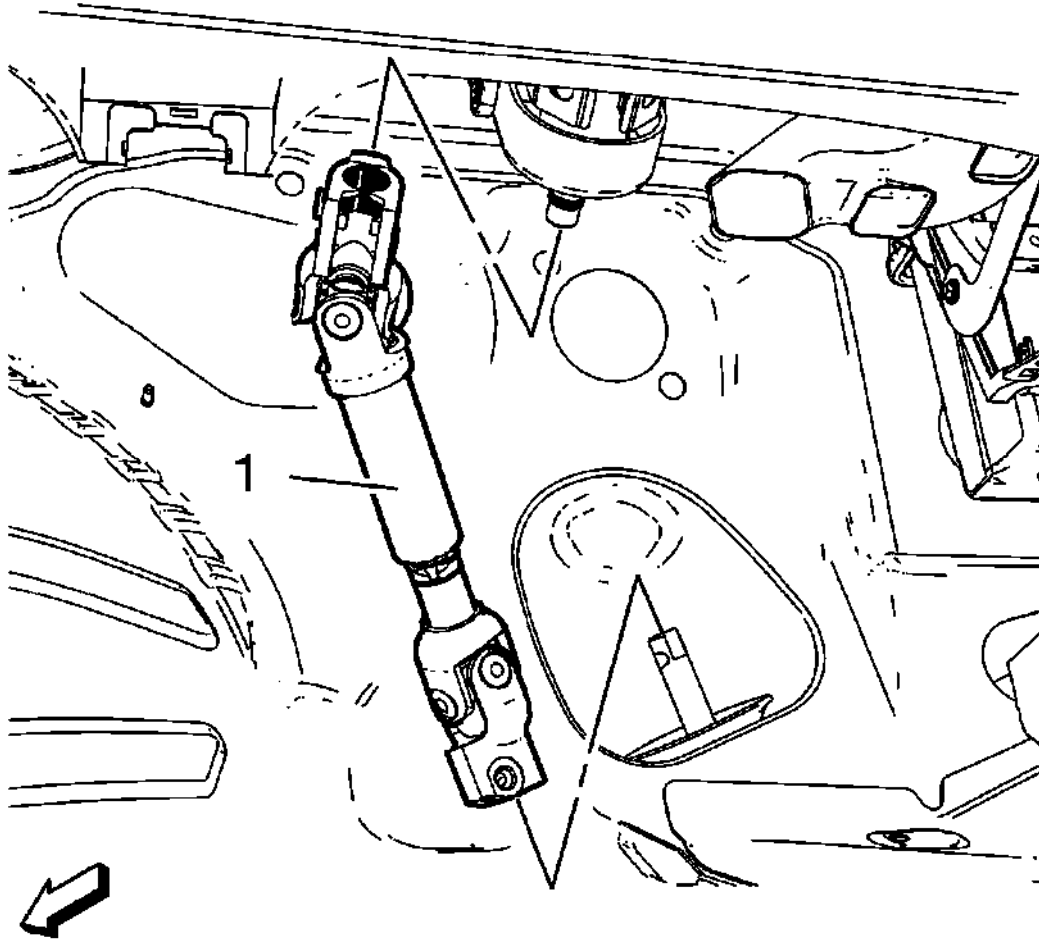


Fig. 3: View Of Intermediate Steering Shaft
Courtesy of GENERAL MOTORS COMPANY

4. Remove the intermediate steering shaft (1).

Installation Procedure

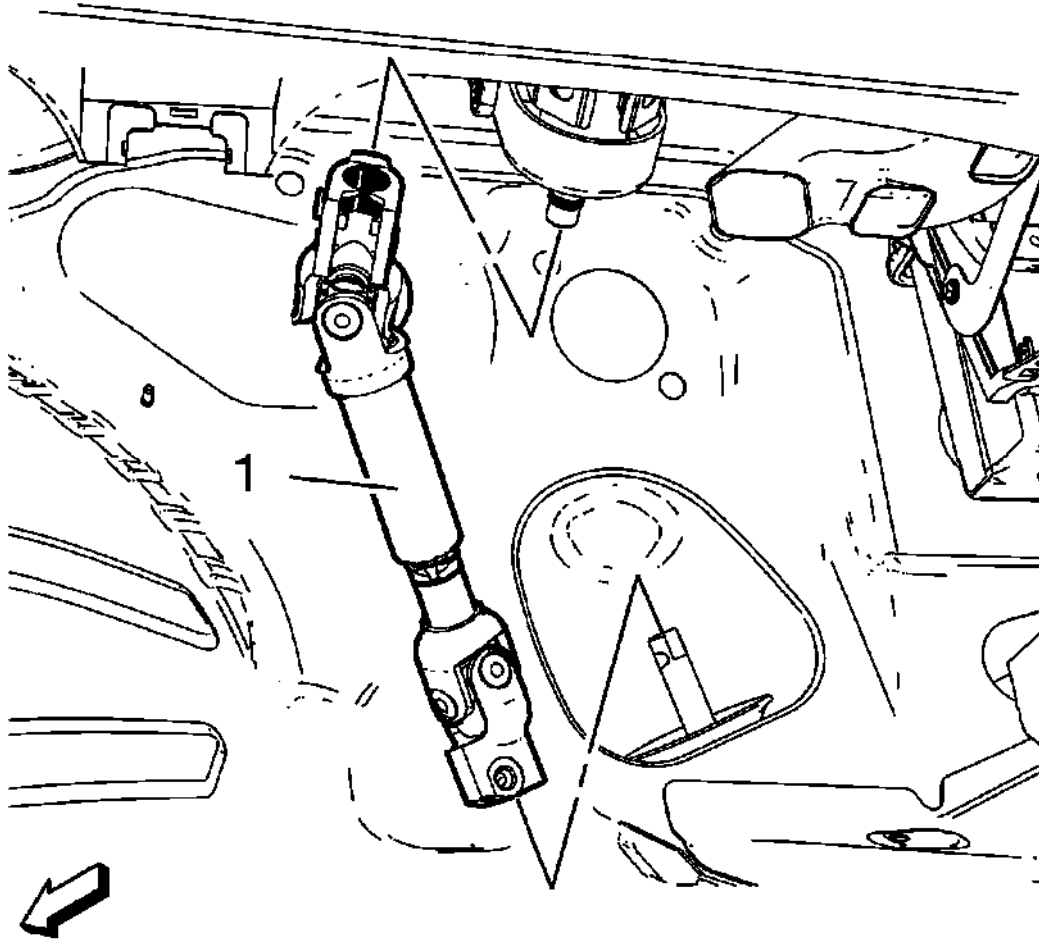


Fig. 4: View Of Intermediate Steering Shaft
Courtesy of GENERAL MOTORS COMPANY

1. Install the intermediate steering shaft (1).

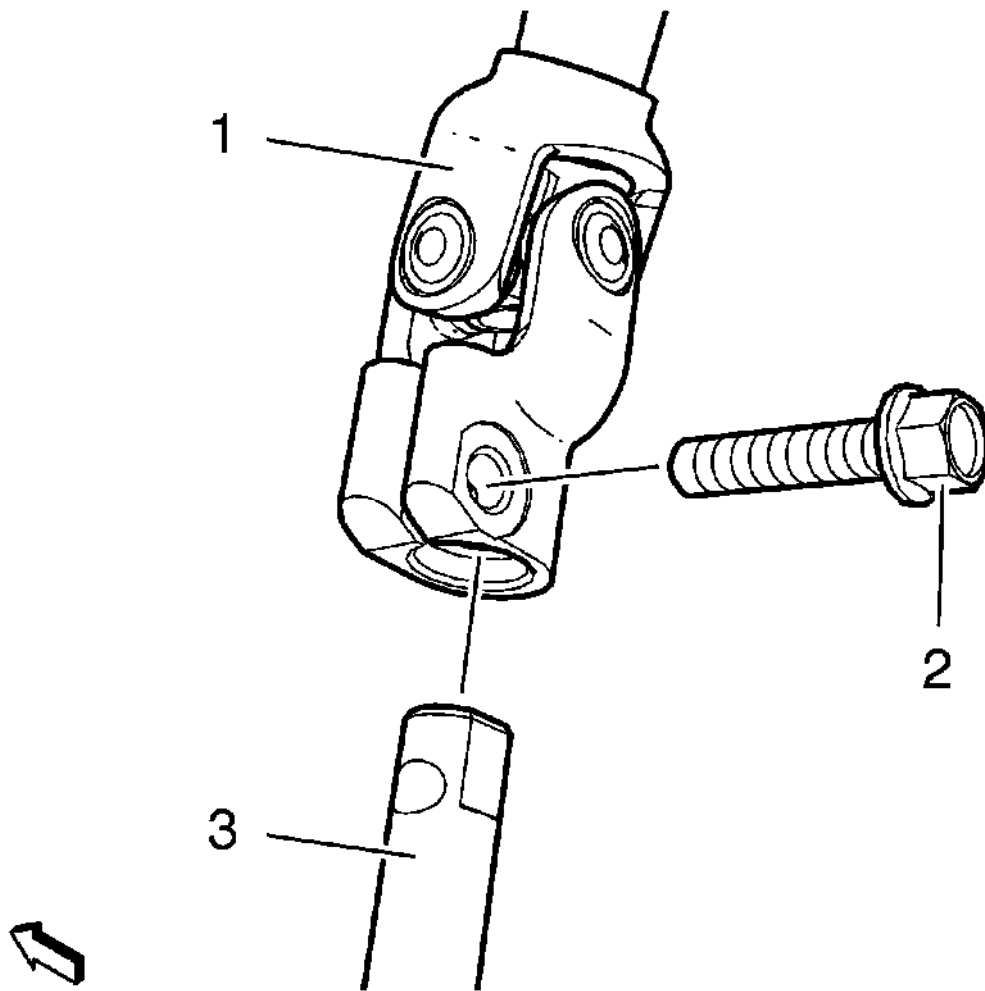


Fig. 5: Universal Joint, Steering Gear Pinion And Lower Bolt
Courtesy of GENERAL MOTORS COMPANY

2. Push the upper universal joint onto the steering column carefully.
3. Push down the lower universal joint onto the steering gear pinion.
4. Insert the lower bolt (2) with thread lock compound. Refer to **Adhesives, Fluids, Lubricants, and Sealers**.

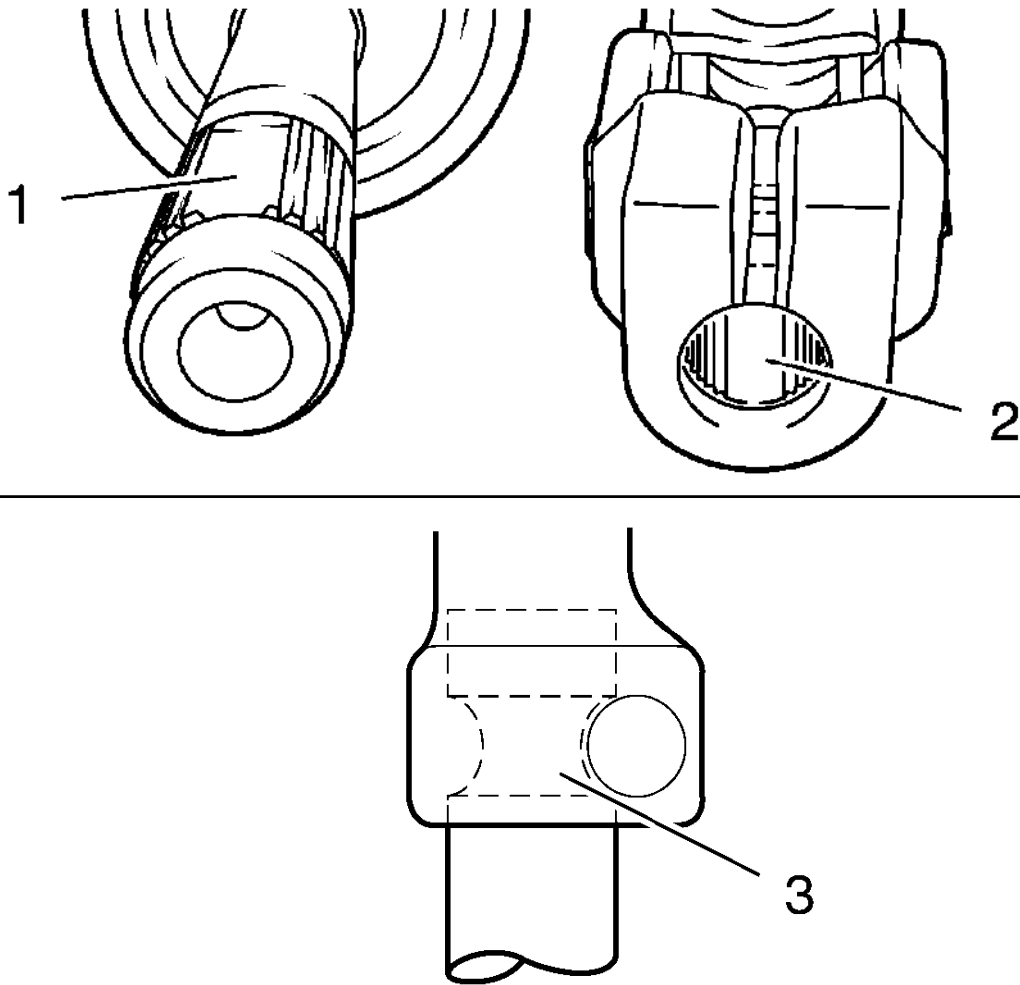


Fig. 6: Universal Joint And Steering Pinion Attachment Points

Courtesy of GENERAL MOTORS COMPANY

NOTE: The recess (2) of the fine tothing in the universal joint have to align precisely with the recess (1) of the fine tothing on the steering pinion. The bore in the universal joint has to align with the groove on the steering pinion (3).

5. Push the universal joint onto the steering pinion carefully as described in the above note.

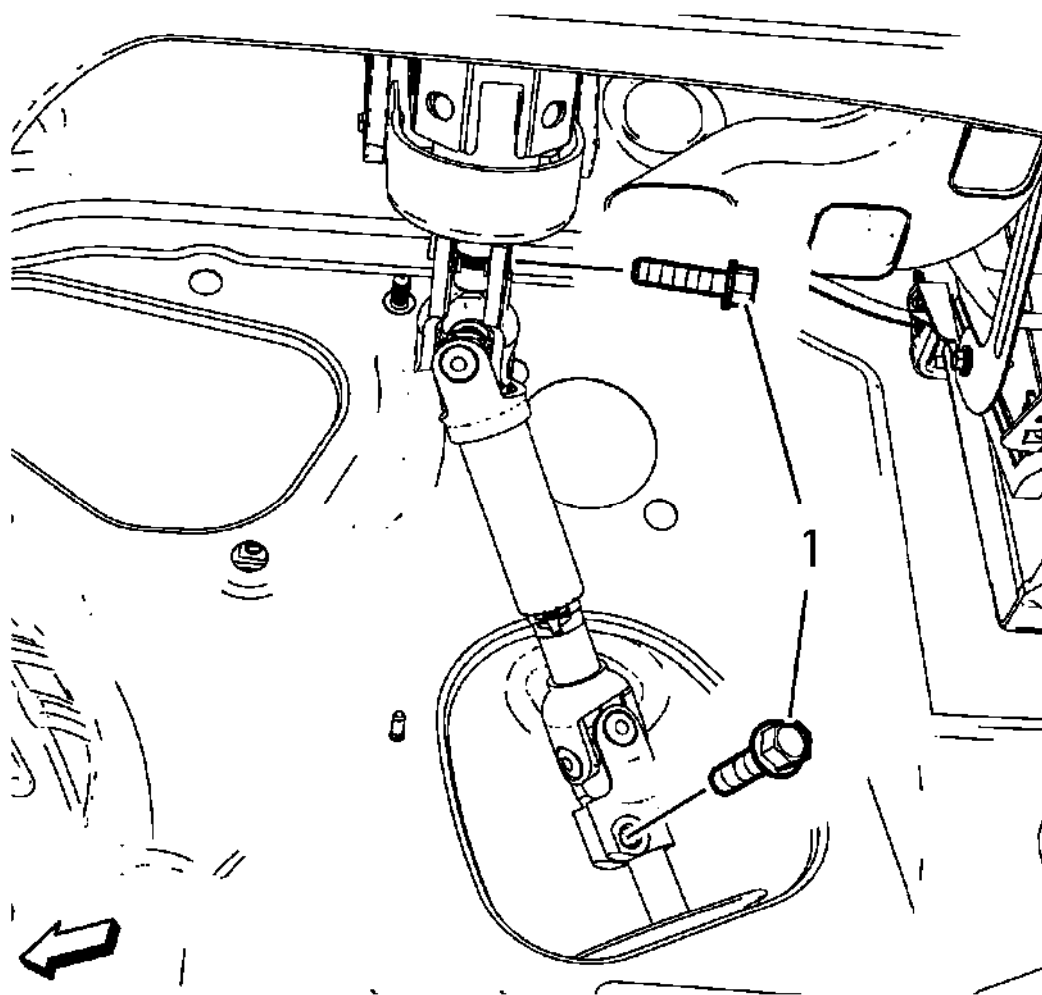


Fig. 7: Lower Steering Intermediate Shaft Bolts

Courtesy of GENERAL MOTORS COMPANY

6. Apply thread lock adhesive to upper shaft bolt. Refer to **Adhesives, Fluids, Lubricants, and Sealers**.

CAUTION: Refer to **Fastener Caution** .

7. Install the upper and lower intermediate steering shaft bolts (1) and tighten to 34 N.m (25 lb ft).
8. Center the steering angle sensor. Refer to **Steering Angle Sensor Centering** .

STEERING COLUMN UPPER TRIM COVER REPLACEMENT

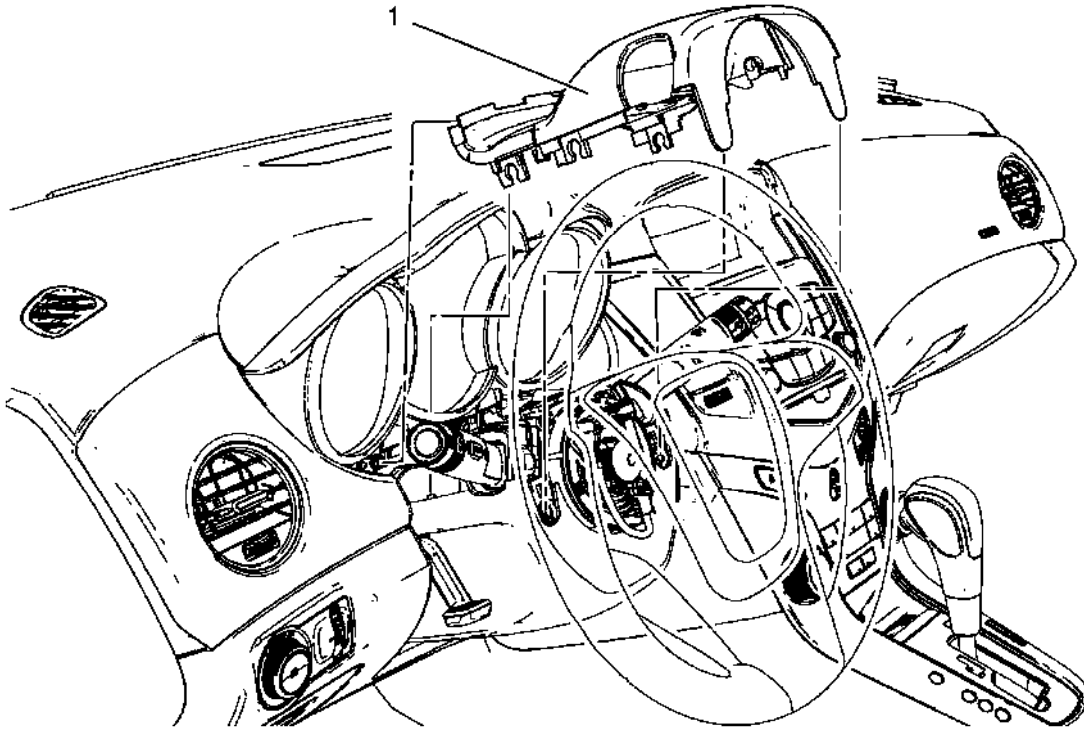


Fig. 8: View Of Steering Column Upper Trim Cover
Courtesy of GENERAL MOTORS COMPANY

Steering Column Upper Trim Cover Replacement

Callout	Component Name
Preliminary Procedures Disable the SIR system. Refer to <u>SIR Disabling and Enabling</u> .	
1	Steering Column Upper Trim Cover Procedure 1. Unclip the steering column upper trim cover from the steering column lower trim cover. 2. Disengage the steering column upper trim cover flexible part from instrument cluster. 3. Carefully pull plastic part rearward from instrument cluster.

STEERING COLUMN LOWER TRIM COVER REPLACEMENT

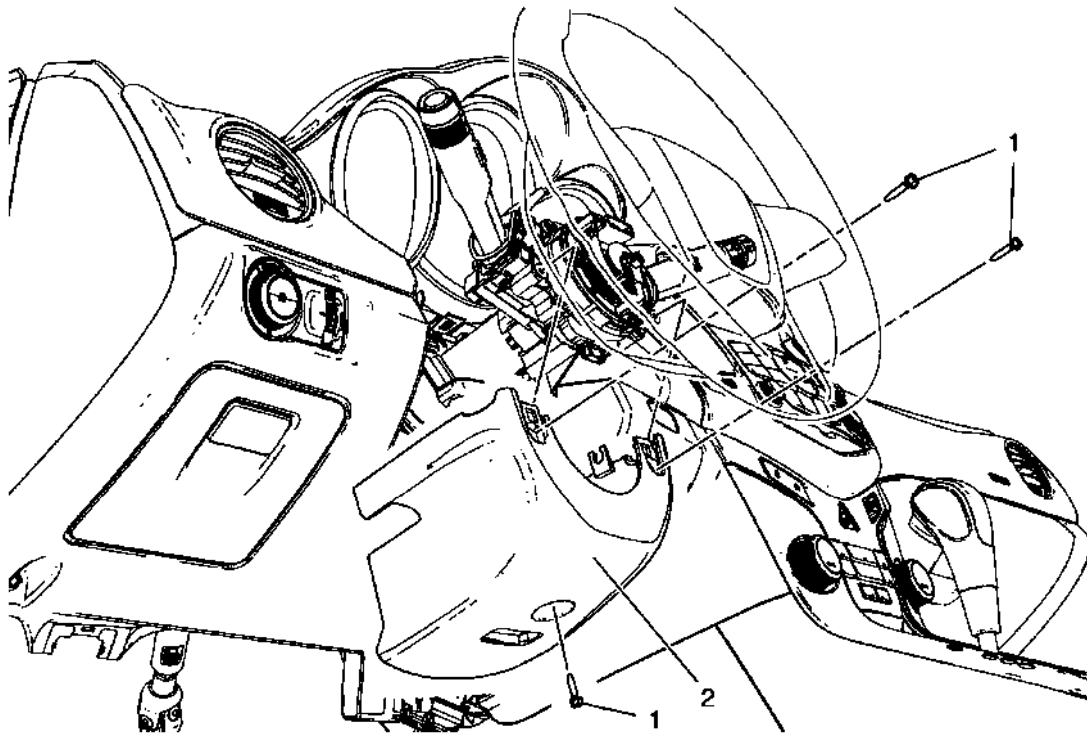
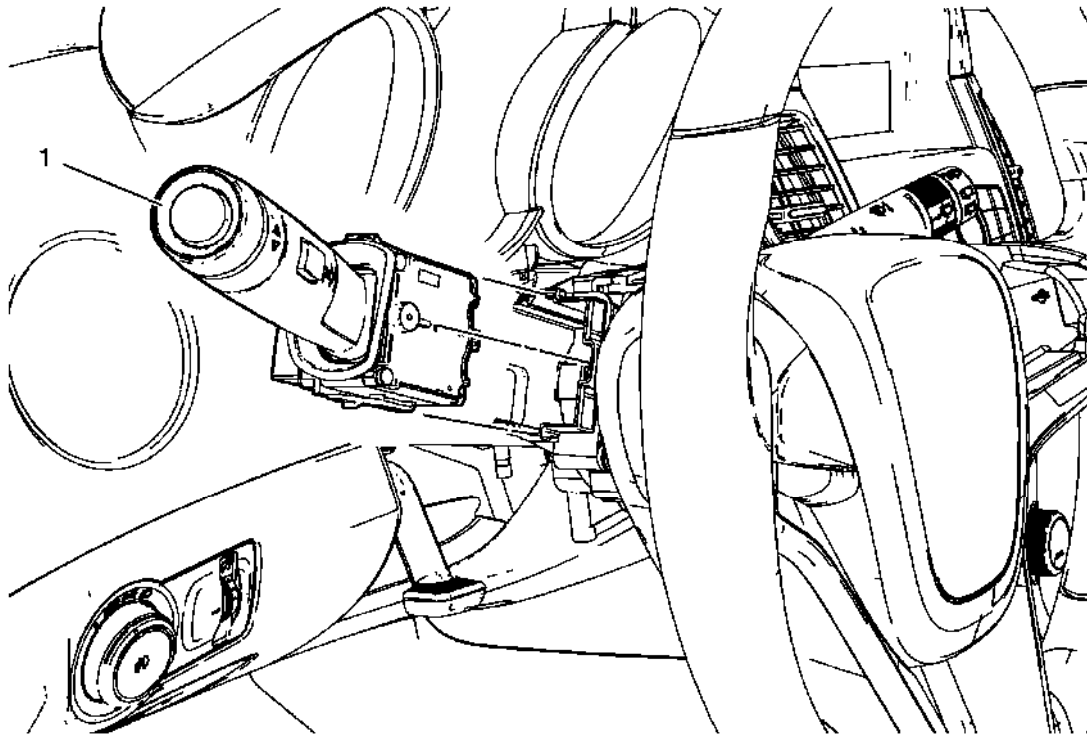


Fig. 9: View Of Steering Column Lower Trim Cover And Bolts
Courtesy of GENERAL MOTORS COMPANY

Steering Column Lower Trim Cover Replacement

Callout	Component Name
Preliminary Procedure Remove the steering column upper trim cover. Refer to <u>Steering Column Upper Trim Cover Replacement</u> .	
1	Steering Column Lower Trim Cover Bolt (Qty: 3) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 N.m (22 lb in)
2	Steering Column Lower Trim Cover Procedure Turn the steering wheel until the bolts are reachable.

TURN SIGNAL SWITCH REPLACEMENT

**Fig. 10: View Of Turn Signal Switch**

Courtesy of GENERAL MOTORS COMPANY

Turn Signal Switch Replacement

Callout	Component Name
Preliminary Procedure Remove the steering column lower trim cover. Refer to <u>Steering Column Lower Trim Cover Replacement</u> .	
1	Turn Signal Switch Procedure 1. Disconnect any electrical connectors as needed. 2. Release the plastic retaining tabs to release the turn signal switch from switch bracket.

TURN SIGNAL SWITCH BRACKET REPLACEMENT

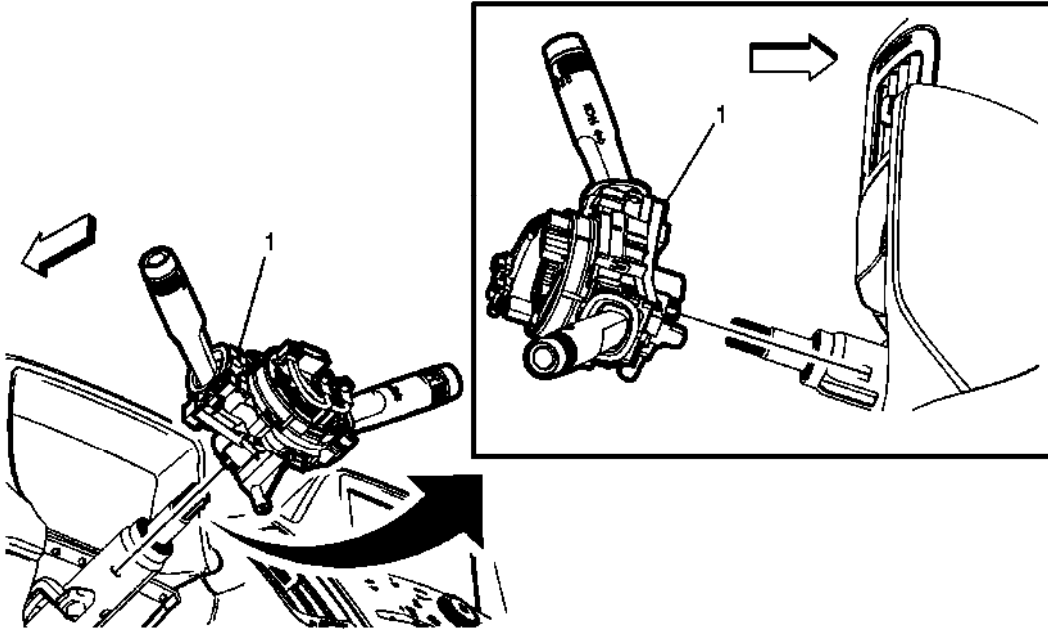


Fig. 11: Turn Signal Switch Bracket

Courtesy of GENERAL MOTORS COMPANY

Turn Signal Switch Bracket Replacement

Callout	Component Name
Preliminary Procedures	
1. Remove the steering wheel. Refer to <u>Steering Wheel Replacement</u>. 2. Remove the upper trim cover and the lower trim cover from the steering column. Refer to <u>Steering Column Lower Trim Cover Replacement</u>.	
1	Turn Signal Switch Bracket Procedure 1. Disconnect any electrical connectors as necessary. 2. Release the 2 tabs in order to release the turn signal switch bracket from the steering column. 3. Transfer any parts as necessary. Refer to the following procedures: • <u>Turn Signal Switch Replacement</u> • <u>Windshield Wiper and Washer Switch Replacement</u> • <u>Steering Wheel Airbag Coil Replacement</u> • <u>Steering Angle Sensor Replacement</u>

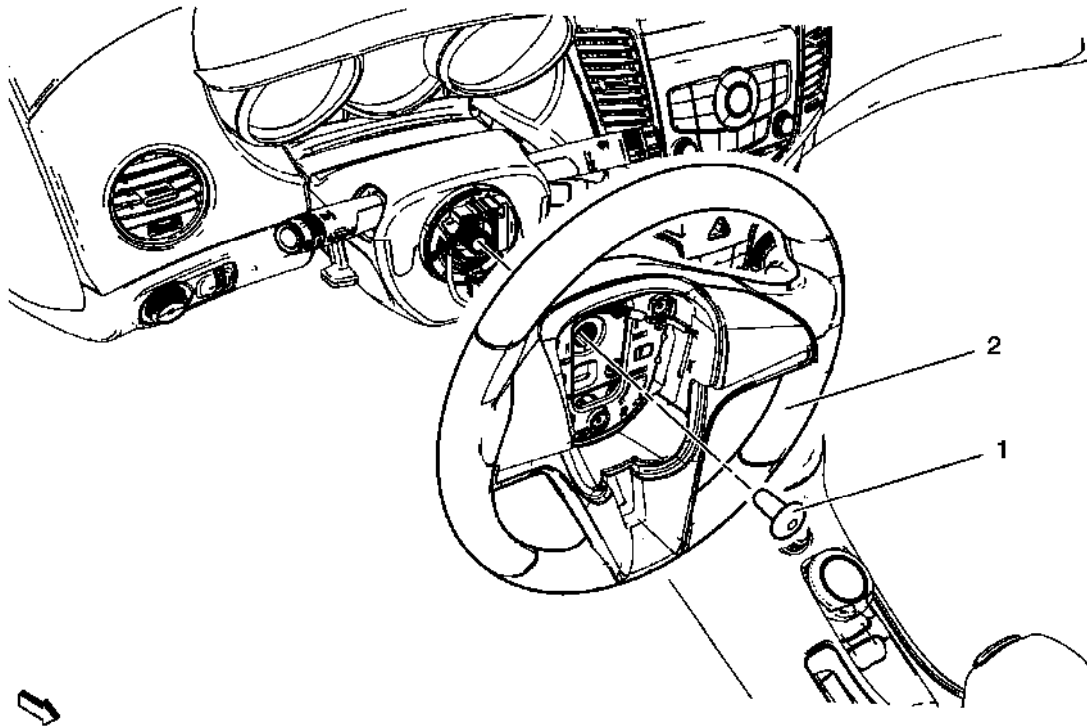


Fig. 12: View Of Steering Wheel And Bolt
Courtesy of GENERAL MOTORS COMPANY

Steering Wheel Replacement

Callout	Component Name
Preliminary Procedure Remove the inflatable restraint steering wheel module. Refer to <u>Airbag Steering Wheel Module Replacement</u> .	
1	Steering Wheel Bolt CAUTION: Refer to <u>Fastener Caution</u> . Procedure 1. Clean thread of the bolt. 2. Apply locking compound to the thread. Refer to <u>Adhesives, Fluids, Lubricants, and Sealers</u> Tighten 30 N.m (23 lb ft)
	Steering Wheel Procedure

2

1. Disconnect electrical connectors as needed.
2. Remove the steering wheel carefully.

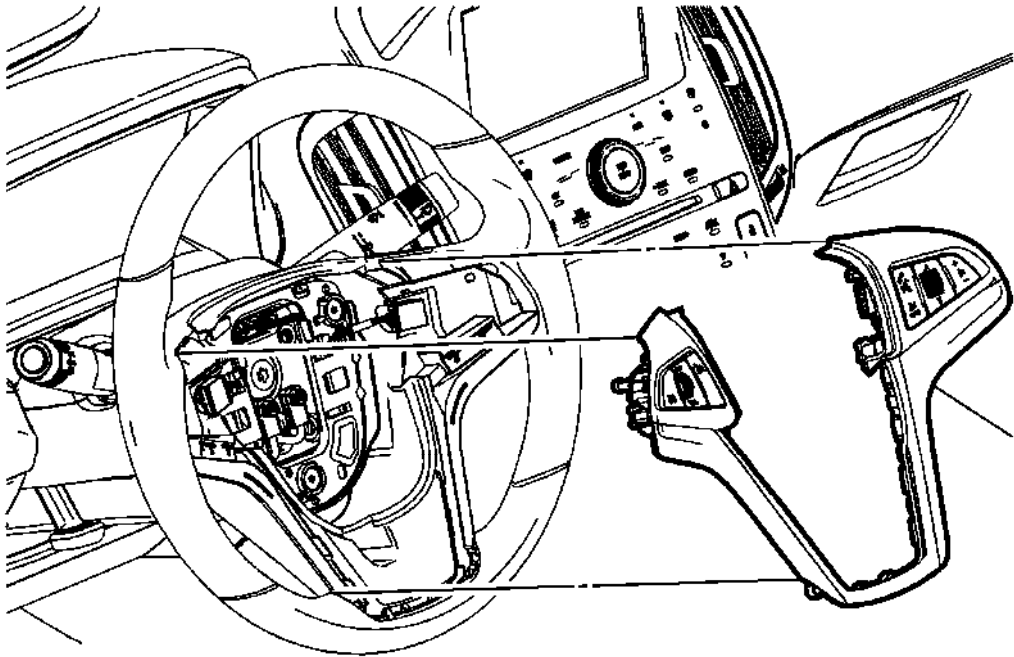
STEERING WHEEL SPOKE LOWER COVER REPLACEMENT

Fig. 13: Steering Wheel Spoke Lower Cover
Courtesy of GENERAL MOTORS COMPANY

Steering Wheel Spoke Lower Cover Replacement

Callout	Component Name
Preliminary Procedure Remove the steering wheel inflatable restraint module. Refer to Airbag Steering Wheel Module Replacement .	
1	Steering Wheel Lower Cover Procedure 1. Use a trim tool in order to remove the steering wheel lower cover and the components covering the spokes of the steering wheel. 2. Disconnect any electrical connectors as necessary. 3. Transfer any parts as necessary. Refer to Cruise Control Switch Replacement , and to Radio Control Switch Replacement - Steering Wheel as necessary.

STEERING COLUMN REPLACEMENT**Special Tools****EN-45059** Angle Meter

For equivalent regional tools, refer to **Special Tools**.

CAUTION: With wheels of the vehicle facing straight ahead, secure the steering wheel utilizing steering column anti-rotation pin, steering column lock, or 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 steering shaft coupling
- The intermediate shaft(s)

After disconnecting these components, do not rotate the steering wheel or move the front tires and wheels. Failure to follow this procedure may cause the SIR coil assembly to become un-centered and cause possible damage to the SIR coil. If you think the SIR coil has become un-centered, refer to your specific SIR coil's centering procedure to re-center SIR Coil.

CAUTION: Once the steering column is removed from the car, the column is extremely susceptible to damage. Dropping the column on its end could collapse the steering shaft or loosen the plastic injections which maintain column rigidity. Leaning on the column could cause the jacket to bend or deform. Any of the above damage could impair the column's collapsible design. If it is necessary to remove the steering wheel, use only the specified steering wheel puller. Under no conditions should the end of the shaft be hammered upon as hammering could loosen plastic injections which maintain column rigidity.

Removal Procedure

1. If equipped, remove the inflatable restraint instrument panel lower module. Refer to **Instrument Panel Lower Airbag Replacement - Driver Side**.
2. Remove the intermediate steering shaft. Refer to **Intermediate Steering Shaft Replacement**.
3. Remove the turn signal switch bracket. Refer to **Turn Signal Switch Bracket Replacement**.
4. If equipped, remove the ignition and start switch housing. Refer to **Ignition and Start Switch Housing Replacement**.
5. Disconnect electrical connectors as needed.

NOTE: Install tie straps between the tilt lever bracket and the base of the steering

column to prevent the steering column jacket from pulling apart. The tilt lever **MUST** be in the **LOCK (FULL UP)** position during the steering column removal and installation to ensure that the tilt lever bracket remains rigid. Also install tie straps around the tilt lever and the steering column jacket to keep the tilt lever in the **LOCK** position. Do not bend the steering column energy absorbing straps located on the upper steering column mounting bracket.

6. Install tie straps as described above.

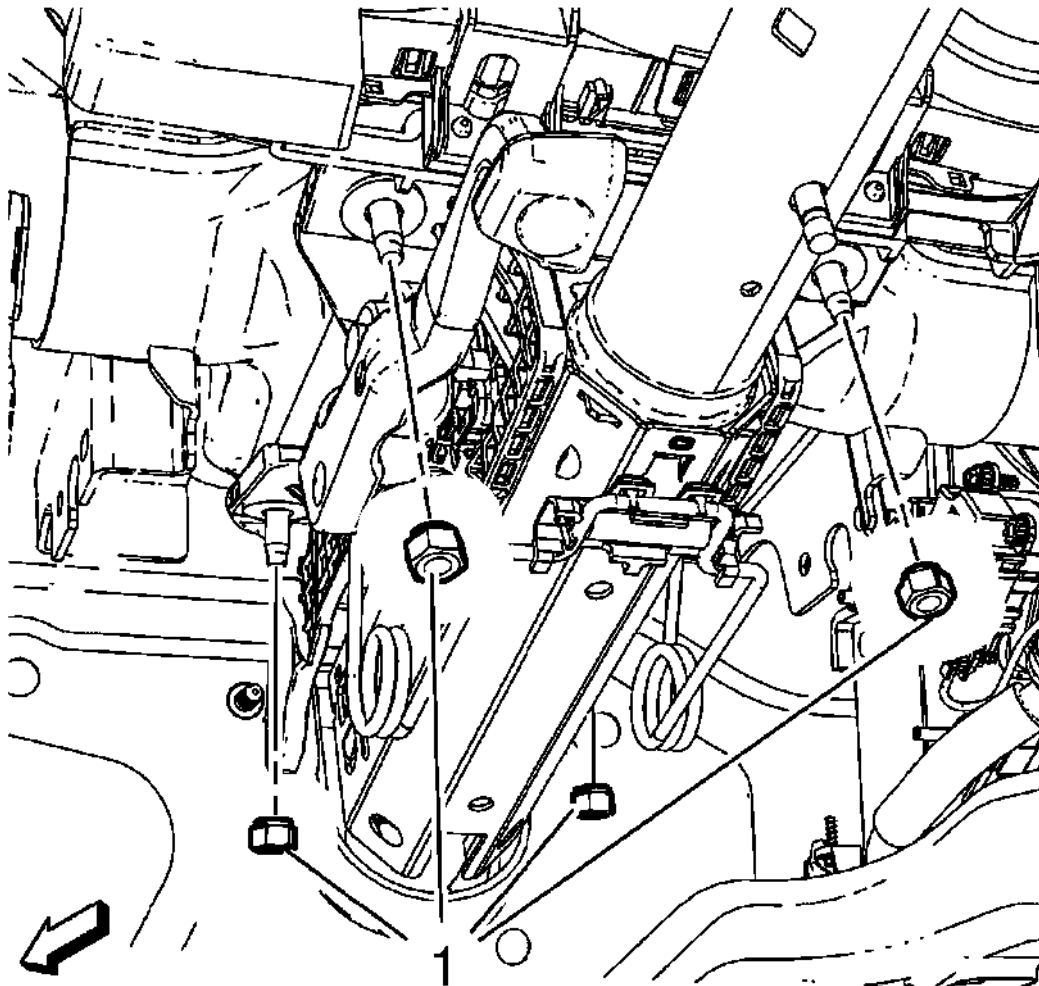


Fig. 14: Steering Column Nuts

Courtesy of GENERAL MOTORS COMPANY

7. Remove and DISCARD the 4 steering column nuts (1).

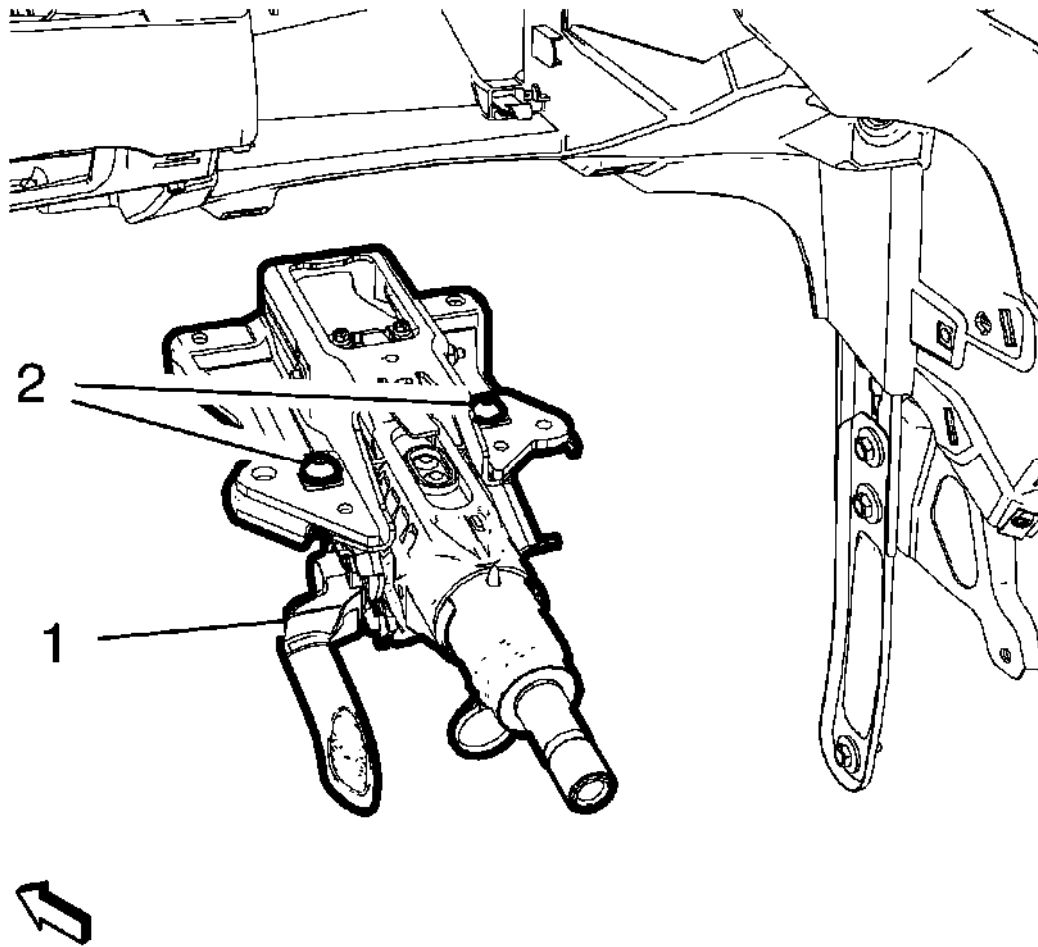


Fig. 15: Steering Column Tie Strap Bolts
Courtesy of GENERAL MOTORS COMPANY

WARNING: The steering column tie strap bolts are torque sensitive and tightened during vehicle production. Do not loosen or tighten the tie strap bolts during service because damage to the steering column may result. A damaged steering column might lead to a vehicle malfunction and personal injury or death if the vehicle is in a crash.

8. Remove the steering column (1). The steering column tie strap bolts (2) may never be touched as mentioned in the danger above.

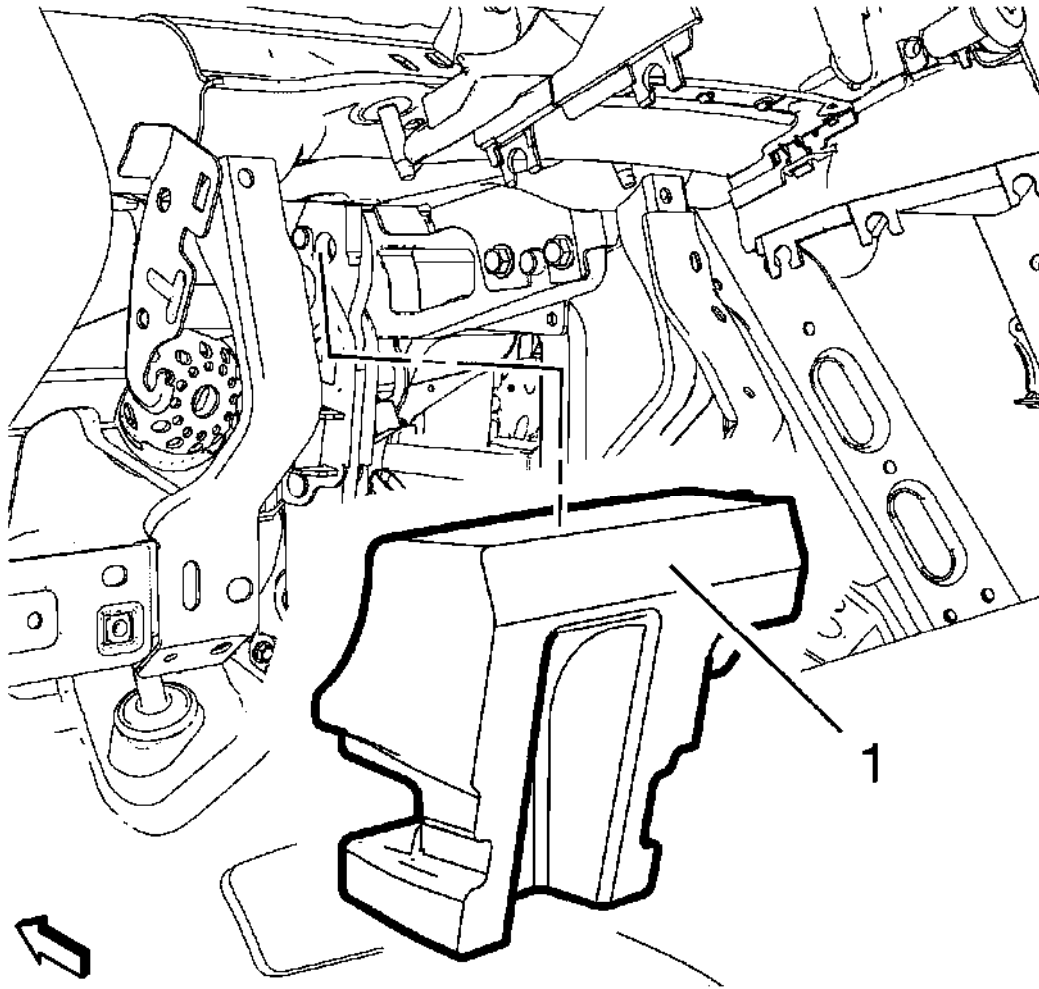


Fig. 16: Steering Column Insulator
Courtesy of GENERAL MOTORS COMPANY

9. Remove the steering column (1) insulator if necessary.

Installation Procedure

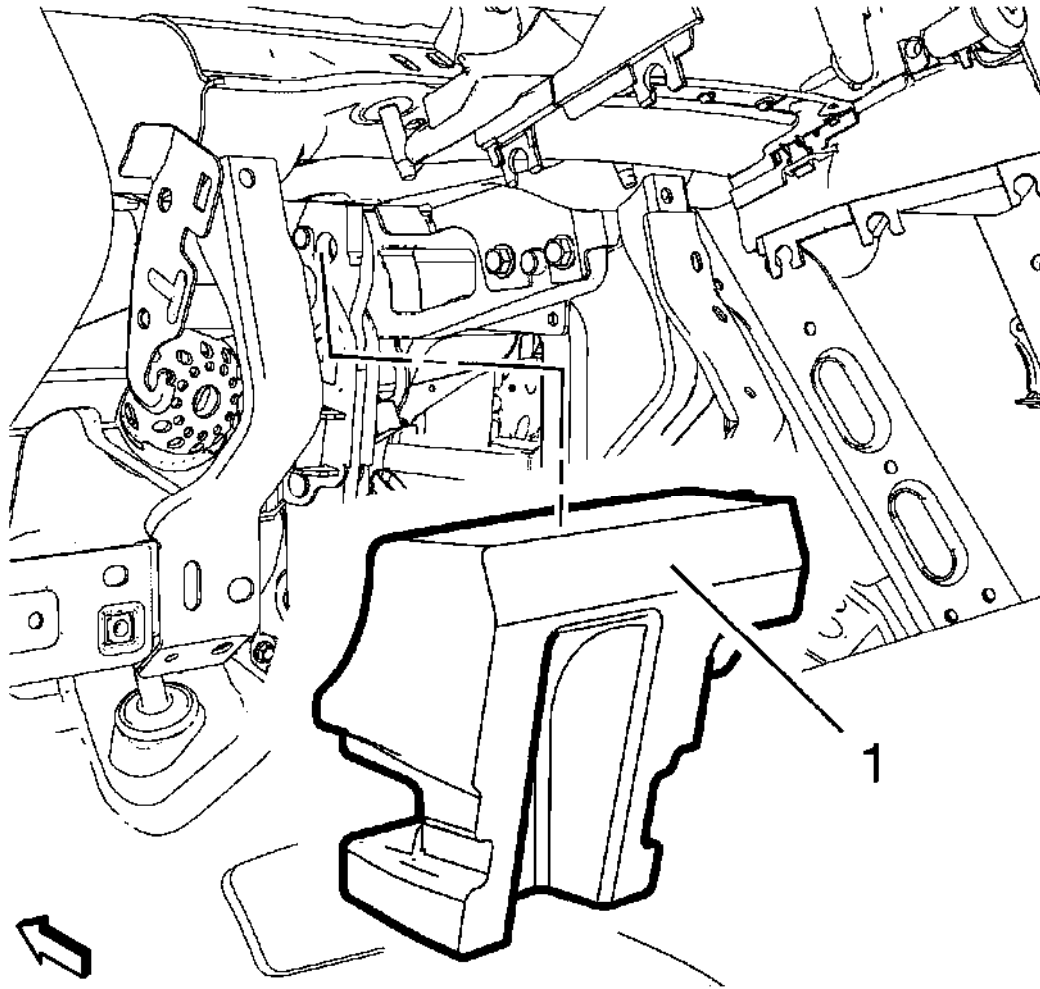


Fig. 17: Steering Column Insulator
Courtesy of GENERAL MOTORS COMPANY

1. Install the steering column (1) insulator if necessary.

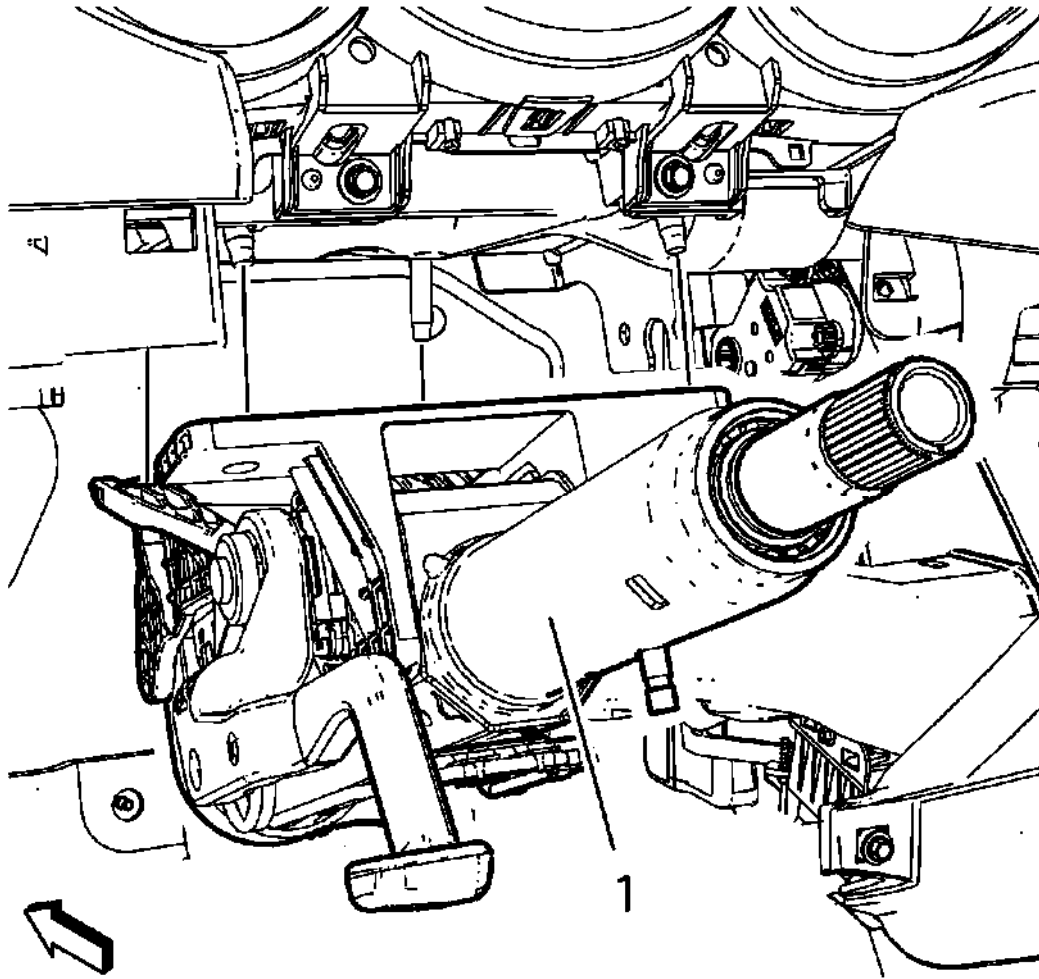


Fig. 18: View Of Steering Column

Courtesy of GENERAL MOTORS COMPANY

NOTE:

- Start all nuts by hand before finalizing any torques.
- Do not bend the steering column energy absorbing straps located on the upper steering column mounting bracket during installation.

2. Install the steering column (1).

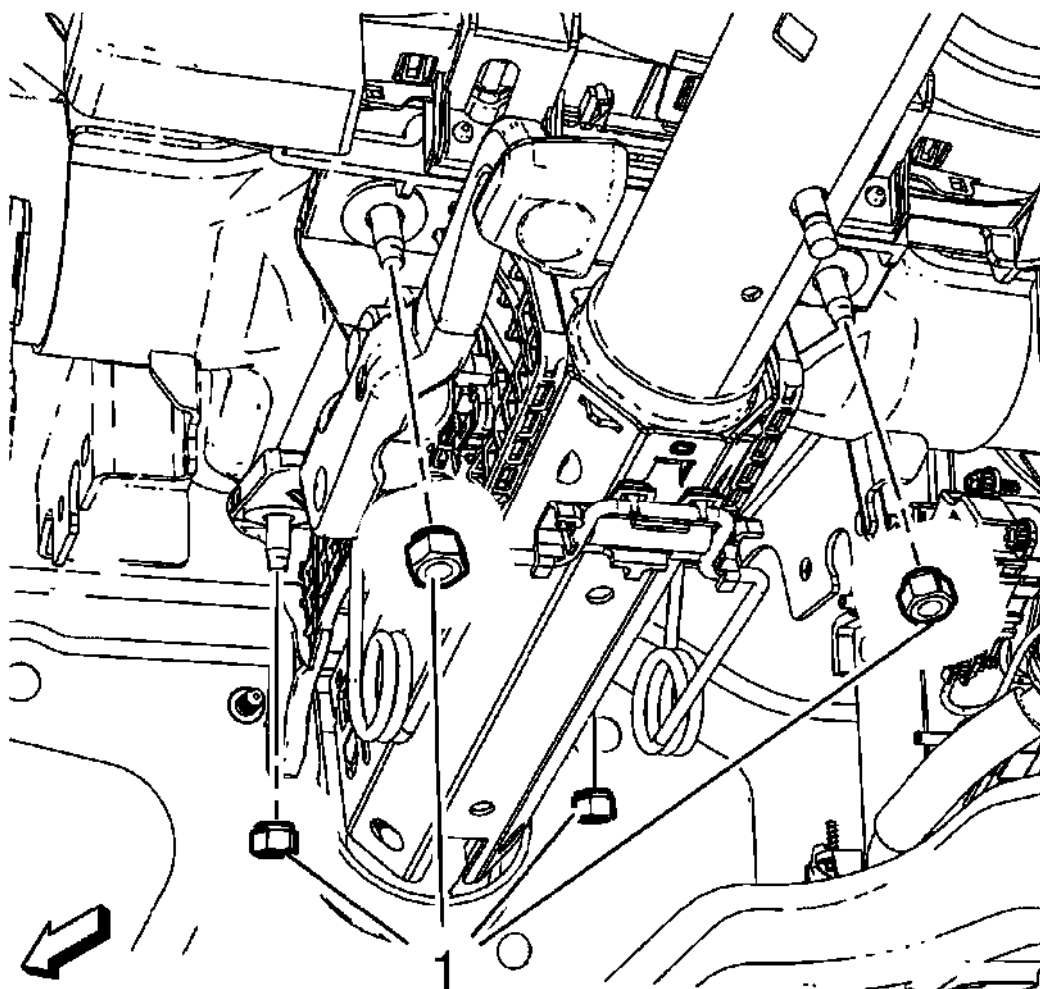


Fig. 19: Steering Column Nuts

Courtesy of GENERAL MOTORS COMPANY

WARNING: Refer to Torque-to-Yield Fastener Warning .

CAUTION: Refer to Fastener Caution .

3. Install the 4 NEW steering column nuts (1) and tighten a first pass to 22 N.m (16 lb ft).
4. Tighten the 4 NEW steering column nuts a final pass to an additional 45 degrees, using the EN-45059 meter.

WARNING: In order to ensure the intended function of the steering column in a vehicle during a crash and in order to avoid personal injury to the

driver, perform the following:

- Tighten the steering column lower fasteners before you tighten the steering column upper fasteners. Failure to do this can damage the steering column.
 - Tighten the steering column fasteners to the specified torque. Overtightening the upper steering column fasteners could affect the steering column collapse.
5. Remove the tie straps.
 6. Connect any electrical connectors as needed.
 7. If equipped, install the ignition and start switch housing. Refer to **Ignition and Start Switch Housing Replacement**
 8. Install the turn signal switch bracket. Refer to **Turn Signal Switch Bracket Replacement**
 9. Install the intermediate steering shaft. Refer to **Intermediate Steering Shaft Replacement**.
 10. If equipped, install the inflatable restraint instrument panel lower module. Refer to **Instrument Panel Lower Airbag Replacement - Driver Side**.
 11. Calibrate the steering angle sensor. Refer to **Power Steering Control Module Calibration**.

STEERING COLUMN DASH INNER SEAL REPLACEMENT

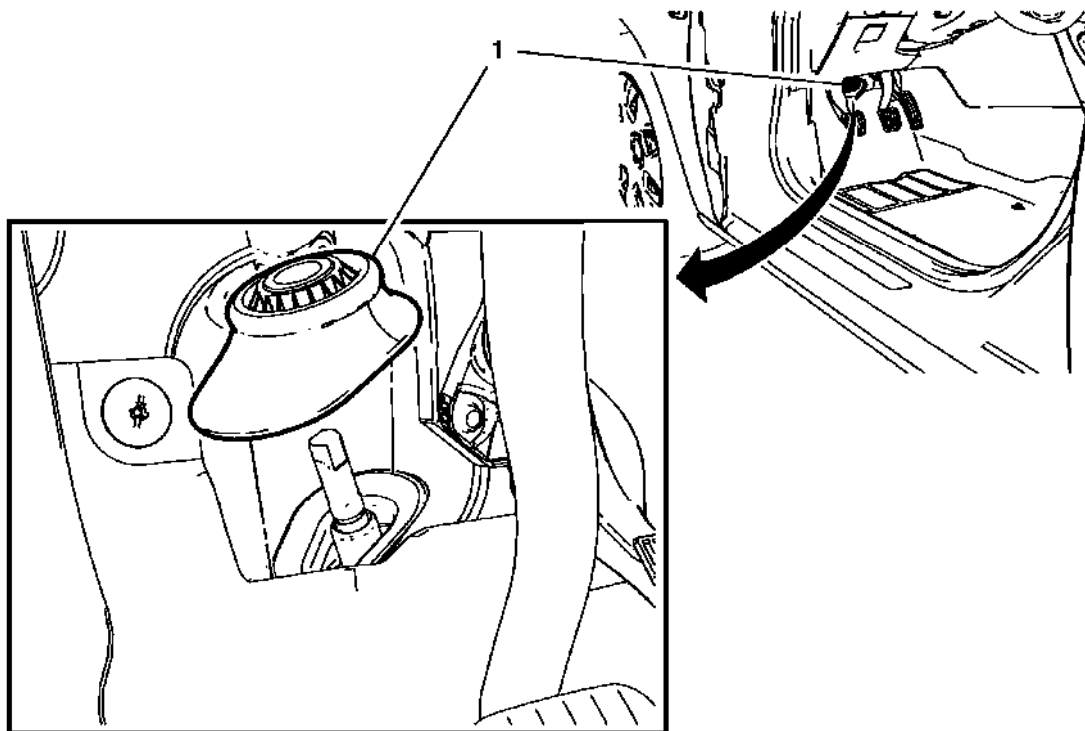


Fig. 20: Steering Column Dash Inner Seal
Courtesy of GENERAL MOTORS COMPANY

Steering Column Dash Inner Seal Replacement

Callout	Component Name
Preliminary Procedure Disconnect the intermediate steering shaft from the steering gear. Refer to <u>Intermediate Steering Shaft Replacement</u> .	
1	Steering Column Dash Inner Seal Procedure Position the steering column dash inner seal over the steering gear and on the dash panel. Check for proper installation.

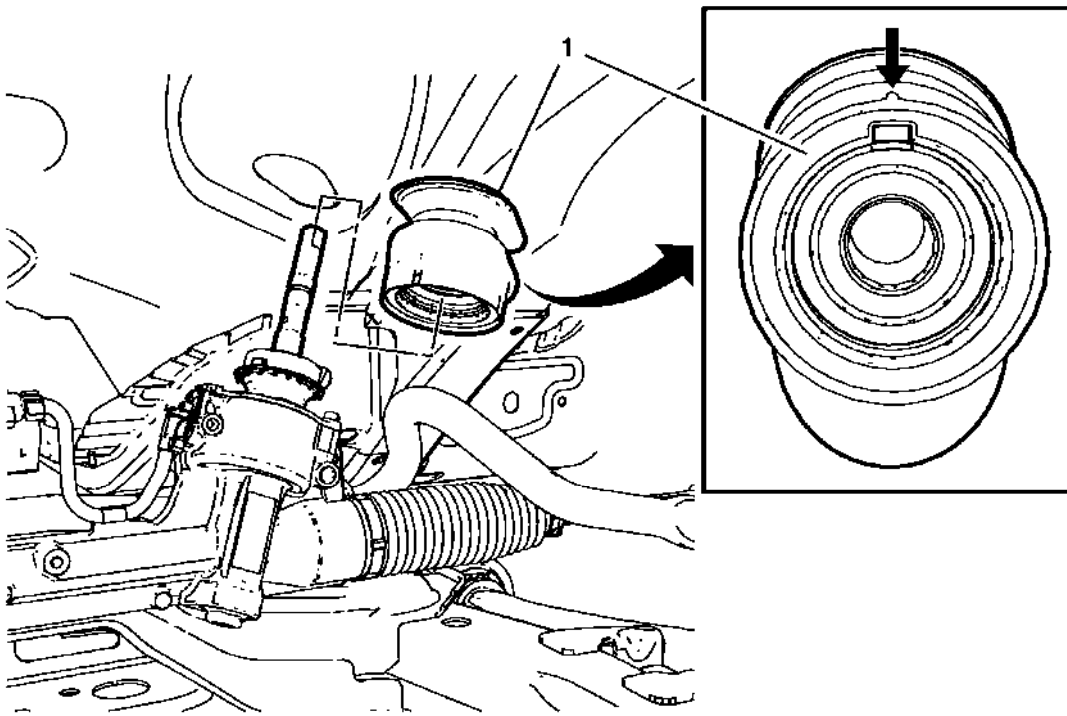
STEERING COLUMN DASH OUTER SEAL REPLACEMENT

Fig. 21: Steering Column Dash Outer Seal
Courtesy of GENERAL MOTORS COMPANY

Steering Column Dash Outer Seal Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the steering column dash inner seal. Refer to <u>Steering Column Dash Inner Seal Replacement</u> . 2. Lower the front suspension frame and steering gear as needed to provide the clearance necessary to remove the steering column dash outer seal. Refer to <u>Steering Gear Replacement</u> .	
	Steering Column Dash Outer Seal

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CAUTION:

Ensure that the steering column dash seal is installed properly onto steering gear rack pinion housing. The sealing lip **MUST** rest on lower steering column cover surface evenly. To ease installation of the seal, apply liquid soap to the sealing lip. After installation, verify that the seal lip does not protrude into the vehicle's interior. Improper installation could result in poor sealing performance and water intrusion into the vehicle.

Procedure

To ensure a proper re-installation, align the nose on steering column dash outer seal and the nose on the steering gear.

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-location varies
- The steering column lock-content varies
- The ignition cylinder-location varies
- The theft deterrent module-location varies

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 manual/power tilt or tilt/telescoping functions
- The power pedal adjustment control switch
- The navigation
- The HVAC controls

Driver Safety

The steering wheel and column has safety features to protect the driver. The following components may be mounted on or near the steering column:

Energy-Absorbing Steering Column

The energy-absorbing steering column compresses in the event of a front-end collision, which reduces the chance of injury to the driver. The energy-absorbing feature, collapsible steering shaft, and break away mounting features help reduce the injury in the event of an accident. In addition to these features, the following driver safety features may be on the steering column:

SIR Coil and Module

For additional information on the operation of the SIR coil and module, refer to **Supplemental Inflatable Restraint System Description and Operation** .

Steering Wheel Angle Sensor or Steering Wheel Position Sensor

The steering wheel position sensor is located somewhere along the steering shaft assembly. The sensor measures the position of the steering wheel and the speed at which it is rotated. A signal representing this measurement is provided to the vehicle stability enhancement system (VSES) module. The VSES module uses this signal, along with several others representing different vehicle conditions, to monitor the driving behavior of the vehicle and ensure that it stays in control. If the VSES module determines that the vehicle is out of control it provides signals to the powertrain control module (PCM) and the ABS module. These output signals are used to modulate the transmission torque and brake pressure of each of the vehicles wheels in order to regain control of the vehicle.

SPECIAL TOOLS AND EQUIPMENT

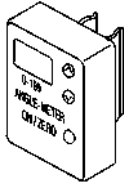
SPECIAL TOOLS

Illustration	Tool Number/Description

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2013 Chevrolet Cruze

2013 STEERING Steering Wheel and Column - Cruze



EN-45059
J 45059
KM-470-B
Angle Meter