

2004 STEERING

Steering Wheel And Column - Vue

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Ignition Lock Cylinder Case Shear Bolt	20 N.m	15 lb ft
Ignition Lock Cylinder Solenoid Screw	2 N.m	17 lb in
Ignition Switch Screws	2 N.m	17 lb in
Intermediate Shaft Pinch Bolt	34 N.m	25 lb ft
Multi-Function Turn Signal/Headlamp Switch Screw	2 N.m	17 lb in
Steering Column Mid Pivot Bolt	25 N.m	18 lb ft
Steering Column Mounting Bolt	25 N.m	18 lb ft
Steering Column Trim Cover Screws	2 N.m	17 lb in
Steering Column Upper Jacket Bolt	11 N.m	97 lb in
Steering Wheel Nut	41 N.m	31 lb ft

COMPONENT LOCATOR

STEERING COLUMN DISASSEMBLED VIEW

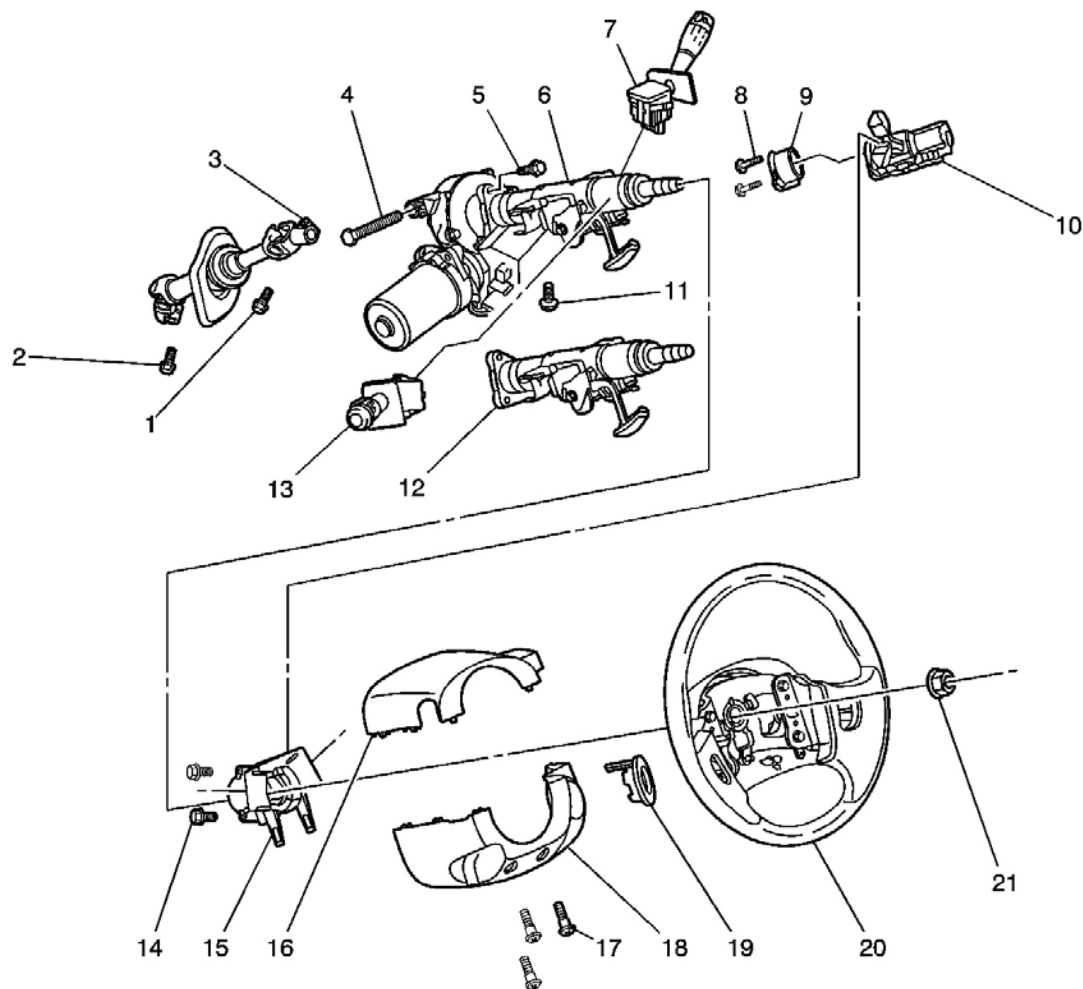


Fig. 1: Steering Column Disassembled View
 Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 1

Callout	Component Name
1	Upper Intermediate Shaft Bolt
2	Lower Intermediate Shaft Bolt
3	Intermediate Shaft Assembly
4	Lower Steering Column Support Bracket Bolt
5	Lower Steering Column Jacket Bolt
6	Steering Column Assembly
7	Wiper/Washer Switch Assembly
8	Ignition Start Switch Screw
9	Ignition Start Switch Assembly

10	Ignition Start Switch Housing Assembly
11	Upper Steering Column Support Bracket Bolt
12	Steering Column Jacket Assembly
13	Headlamp/Dimmer/Park/Turn Signal Switch Assembly
14	Ignition Start Switch Bracket Bolt
15	Wiper/Washer Switch and Headlamp/Dimmer/Park/Turn Signal Switch Bracket
16	Steering Column Shroud Assembly
17	Lower Steering Column Shroud Screw
18	Steering Column Shroud
19	Ignition Start Switch Bezel
20	Steering Wheel Assembly
21	Steering Wheel Nut

DIAGNOSTIC INFORMATION AND PROCEDURES

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:

- Lock System Does Not Unlock
- Lock System Does Not Lock
- Lock System Sticks in Start
- Key Cannot Be Removed in the Off Lock Position
- High Lock Effort
- Noise in Steering Column
- Looseness in Steering Column

LOCK SYSTEM DOES NOT UNLOCK

Lock System Does Not Unlock

Step	Action	Yes	No

DEFINITION: The lock system does not allow the key to rotate out of the OFF position.

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 lock system does not unlock. Does the lock system operate normally?	System OK	Go to Step 3
3	Inspect for an incorrect, worn, or damaged key. Is the key incorrect, worn, or damaged?	Go to Step 7	Go to Step 4
4	Inspect for a faulty lock cylinder. Is the lock cylinder damaged?	Go to Step 8	Go to Step 5
5	Inspect the ignition switch assembly for damage. Is the ignition switch assembly damaged?	Go to Step 10	Go to Step 6
6	Inspect the lock module assembly for looseness or binding. Is the lock module assembly loose or binding?	Go to Step 9	Go to Step 11
7	Replace the key. Refer to <u>Key and Lock Cylinder Coding</u> in General Information. Did you complete the repair?	Go to Step 11	-
8	Replace the lock cylinder. Refer to <u>Ignition Lock Cylinder Replacement</u> . Did you complete the repair?	Go to Step 11	-
9	Tighten or replace the lock module assembly mounting bolts. Refer to <u>Fastener Tightening Specifications</u> . Did you complete the repair?	Go to Step 11	-
10	Replace the ignition switch. Refer to <u>Ignition Switch Replacement</u> . Did you complete the repair?	Go to Step 11	-
11	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

LOCK SYSTEM DOES NOT LOCK

Lock System Does Not Lock

Step	Action	Yes	No
DEFINITION: The lock system will not allow the key to be turned to the OFF lock position.			
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 lock system does not lock. Does the ignition lock cylinder solenoid operate normally?	System OK	Go to Step 3
3	Verify the operation of the ignition lock cylinder solenoid.		

	Is the ignition lock cylinder solenoid and linkage operation smooth when manually operated?	Go to Step 4	Go to Step 11
4	Verify the electrical operation of the ignition lock cylinder solenoid. Does the ignition lock cylinder solenoid operate normally?	Go to Step 7	Go to Step 5
5	Inspect the lock cylinder solenoid plunger. Does the plunger exhibit scratches or signs of wear?	Go to Step 11	Go to Step 6
6	Inspect the ignition lock cylinder solenoid spring. Is the solenoid spring assembled and operating normally?	Go to Step 7	Go to Step 9
7	Inspect for a faulty lock cylinder or release button. Is the lock cylinder or release button damaged?	Go to Step 10	Go to Step 8
8	Inspect the ignition lock cylinder case. Is the case worn or damaged?	Go to Step 11	Go to Step 12
9	Replace the Ignition Lock Cylinder Solenoid and spring. Refer to <u>Ignition Lock Cylinder Replacement</u> . Did you complete the repair?	Go to Step 12	-
10	Replace the ignition lock cylinder. Refer to <u>Ignition Lock Cylinder Replacement</u> . Did you complete the repair?	Go to Step 12	-
11	Replace the ignition lock cylinder case housing. Refer to <u>Ignition Lock Cylinder Case Replacement</u> . Did you complete the repair?	Go to Step 12	-
12	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

LOCK SYSTEM STICKS IN START

Lock System Sticks in Start

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 lock system sticks in the START position. Does the lock system operate normally?	System OK	Go to Step 3
3	Inspect the lock module assembly for looseness. Is the lock module assembly loose?	Go to Step 6	Go to Step 4
4	Inspect the lock cylinder for damage. Is the lock cylinder damaged?	Go to Step 7	Go to Step 5
5	Inspect the ignition switch for damage. Is the ignition switch damaged?	Go to Step 8	Go to Step 3

6	Replace the lock module assembly mounting bolts. Refer to Fastener Tightening Specifications . Did you complete the repair?	Go to Step 9	-
7	Replace the lock cylinder. Refer to Ignition Lock Cylinder Replacement . Did you complete the repair?	Go to Step 9	-
8	Replace the ignition switch. Refer to Ignition Switch Replacement . Did you complete the repair?	Go to Step 9	-
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

KEY CANNOT BE REMOVED IN THE OFF LOCK POSITION

Key Cannot Be Removed in the Off Lock Position

Step	Action	Yes	No
1	Did you review the Ignition Lock System Description and perform the necessary inspections?	Go to Step 2	Go to Symptoms - Steering Wheel and Column
2	Verify that the key cannot be removed from the lock cylinder in the OFF position. Does the lock system operate normally?	System OK	Go to Step 3
3	Inspect for a faulty lock cylinder or release button. Is the lock cylinder or release button damaged?	Go to Step 4	Go to Step 4
4	Replace the lock cylinder. Refer to Ignition Lock Cylinder Replacement . Did you complete the repair?	Go to Step 5	-
5	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

HIGH LOCK EFFORT

High Lock Effort

Step	Action	Yes	No
1	Did you review the Steering Wheel and Column System Description and perform the necessary inspections?	Go to Step 2	Go to Steering Wheel and Column Description and Operation
2	Verify that the lock system has a high lock effort. Does the lock system operate normally?	System OK	Go to Step 3
3	Inspect for an incorrect, worn, or damaged key. Is the key incorrect, worn, or damaged?	Go to Step 7	Go to Step 4
4	Inspect for a faulty lock cylinder. Is the lock cylinder damaged?	Go to Step 8	Go to Step 5
5	Inspect the lock module assembly for damage. Is the lock module assembly damaged?	Go to Step 9	Go to Step 6

6	Inspect the ignition switch assembly for damage. Is the ignition switch assembly damaged?	Go to Step 10	Go to Step 7
7	Replace the key. Refer to Key and Lock Cylinder Coding in General Information. Did you complete the repair?	Go to Step 11	-
8	Replace the lock cylinder. Refer to Ignition Lock Cylinder Replacement . Did you complete the repair?	Go to Step 11	-
9	Tighten or replace the lock module assembly mounting bolts. Refer to Fastener Tightening Specifications . Did you complete the repair?	Go to Step 11	-
10	Replace the ignition switch. Refer to Ignition Switch Replacement . Did you complete the repair?	Go to Step 11	-
11	Operate the system in order to verify the repair. 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. Is noise present in the steering column during operation?	Go to Step 3	System OK
3	Inspect the steering column components for looseness. Are the steering column components loose?	Go to Step 6	Go to Step 4
4	Inspect the SIR coil for noise. Is the SIR coil noisy?	Go to Step 7	Go to Step 5
5	Inspect the upper steering column shaft bearing for the following conditions: <ul style="list-style-type: none"> • Damage • Lubrication • Wear • Proper seating Are the bearings in need of repair or replacement?	Go to Step 8	Go to Step 9

6	Tighten the steering column components to specifications. Refer to <u>Fastener Tightening Specifications</u> . Did you complete the repair?	Go to Step 9	-
7	Replace the SIR coil. Refer to <u>Inflatable Restraint Steering Wheel Module Coil Replacement</u> in SIR. Did you complete the repair?	Go to Step 9	-
8	Replace the upper jacket assembly. Refer to <u>Steering Column Jacket Replacement</u> . Did you complete the repair?	Go to Step 9	-
9	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 brackets for looseness. Are the steering column mounting brackets loose?	Go to Step 6	Go to Step 4
4	Verify that the steering column bracket capsule is not sheared. Is the steering column bracket capsule sheared?	Go to Step 7	Go to Step 5
5	Inspect the intermediate shaft for worn joints or looseness. Is the intermediate joint worn or loose?	Go to Step 8	Go to Step 9
6	NOTE: Refer to Fastener Notice in Cautions and Notices. Tighten the mounting bolts to specifications. Refer to <u>Fastener Tightening Specifications</u> .Did you complete the repair?	Go to Step 9	-
7	Replace the upper jacket assembly. Refer to <u>Steering Column Jacket Replacement</u> . Did you complete the replacement?	Go to Step 9	-
8	Tighten or replace the intermediate shaft as needed. Refer to <u>Intermediate Steering Shaft Replacement</u> . Did you complete the repair?	Go to Step 9	-
9	Operate the system in order to verify the repair.	System	

Did you correct the condition?

OK

Go to **Step 3**

REPAIR INSTRUCTIONS

INTERMEDIATE STEERING SHAFT REPLACEMENT

Removal Procedure

IMPORTANT: Locking of the steering column will prevent damage and a possible malfunction of the SIR system.

1. With the steering wheel in the straight forward position, remove the ignition key

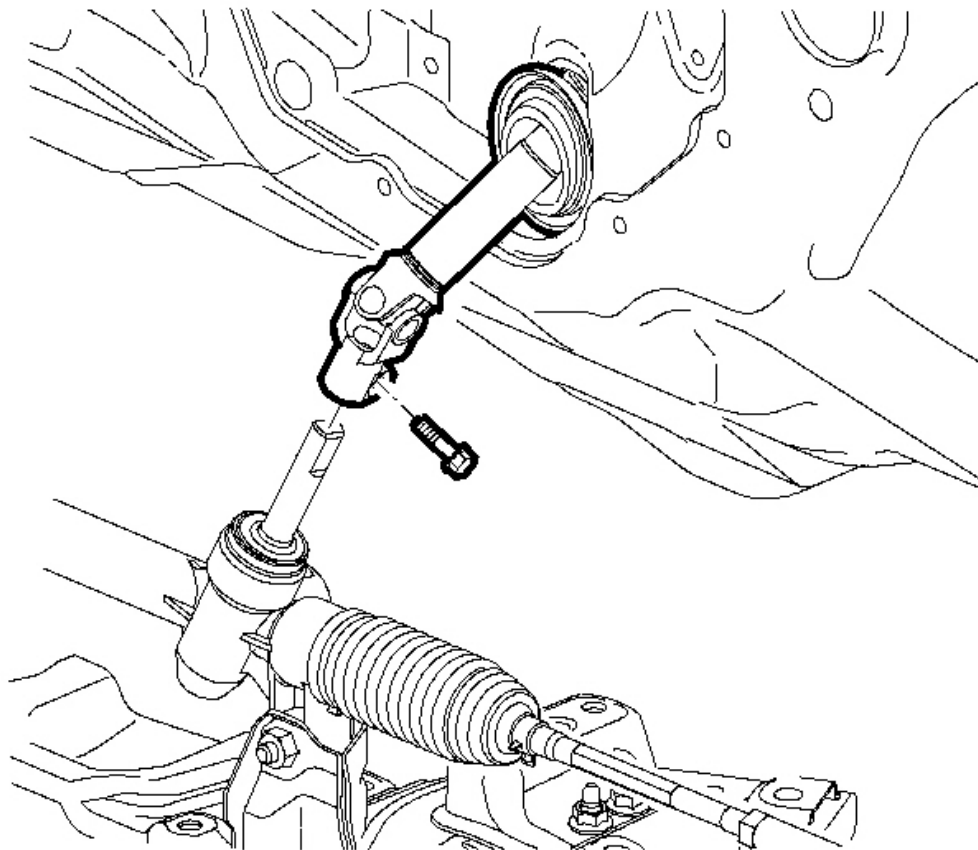


Fig. 2: Intermediate Steering Shaft & Steering Gear Pinch Bolt
Courtesy of GENERAL MOTORS CORP.

2. Remove the intermediate steering shaft to steering gear pinch bolt. Discard the bolt.
3. Disengage the intermediate shaft seal from the body panel.
4. Collapse the intermediate steering shaft, while disconnecting the intermediate steering shaft from the steering gear.
5. Place scribe marks on the intermediate shaft to the steering column connection prior to removal.

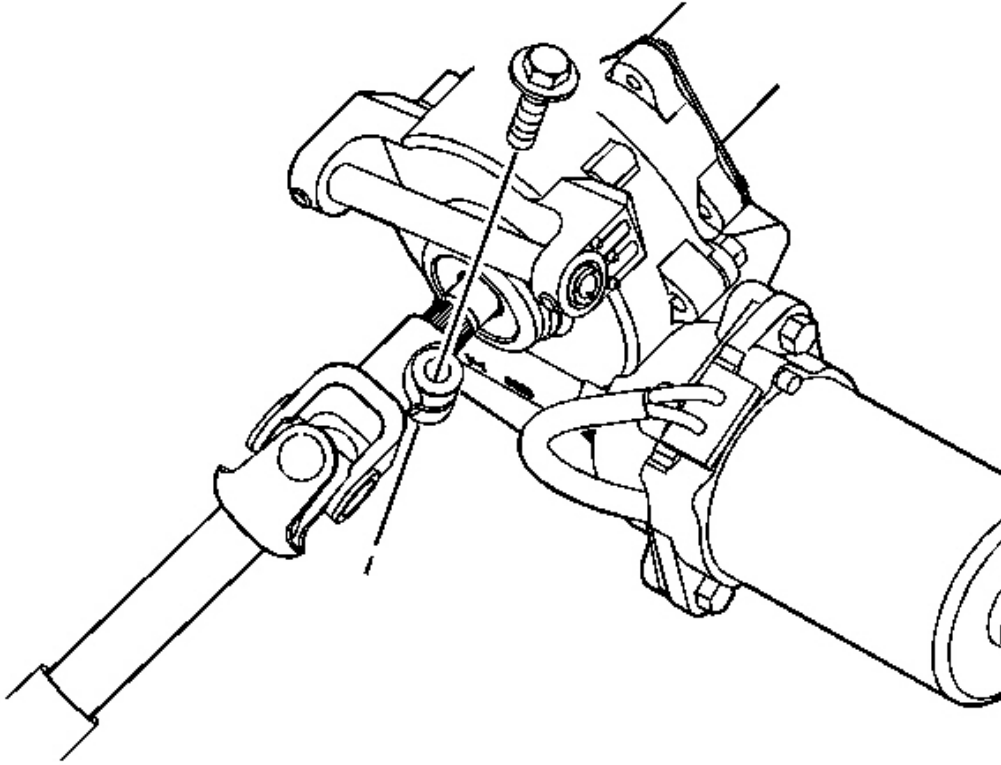


Fig. 3: Intermediate Shaft Pinch Bolt & Steering Column
Courtesy of GENERAL MOTORS CORP.

6. Remove the intermediate shaft pinch bolt at the steering column. Discard the pinch bolt.
7. Disconnect the intermediate steering shaft from the steering column.

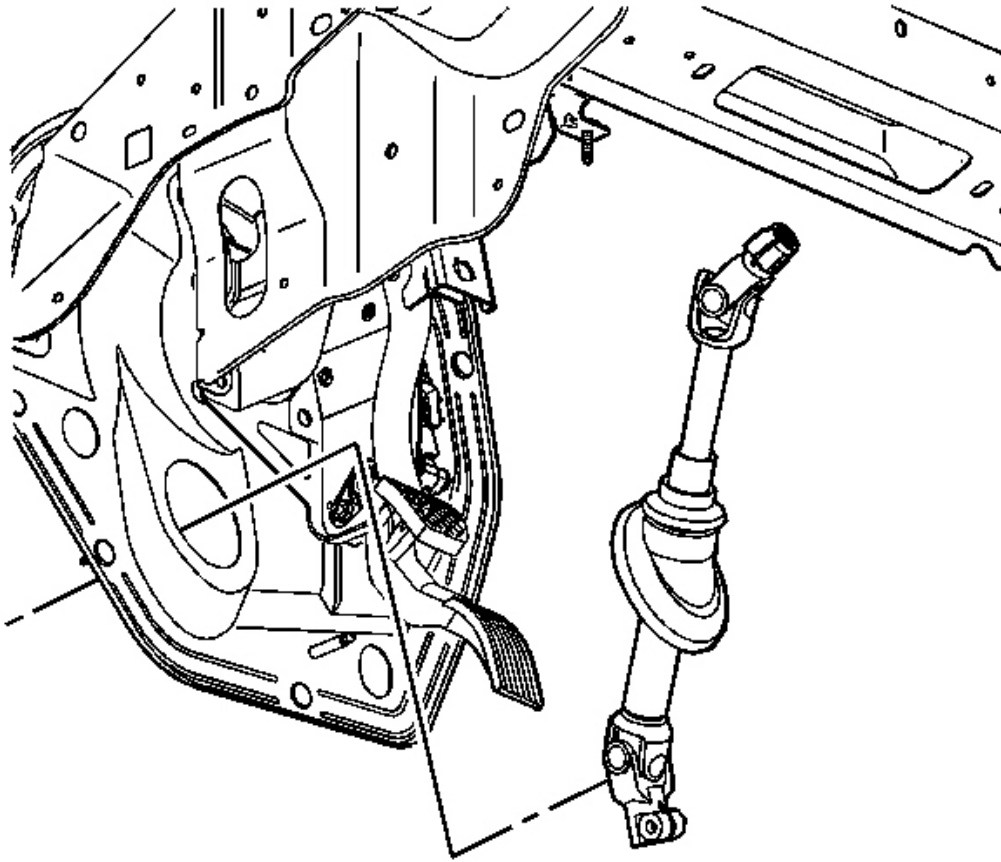


Fig. 4: Inside Intermediate Steering Shaft Assembly
Courtesy of GENERAL MOTORS CORP.

8. Remove the intermediate steering shaft assembly from inside the vehicle.

Installation Procedure

IMPORTANT: Failure to transfer the pre-scribed marks may result in an off-center steering wheel.

1. If installing a new intermediate shaft, transfer the pre-scribed alignment marks on to the new part.

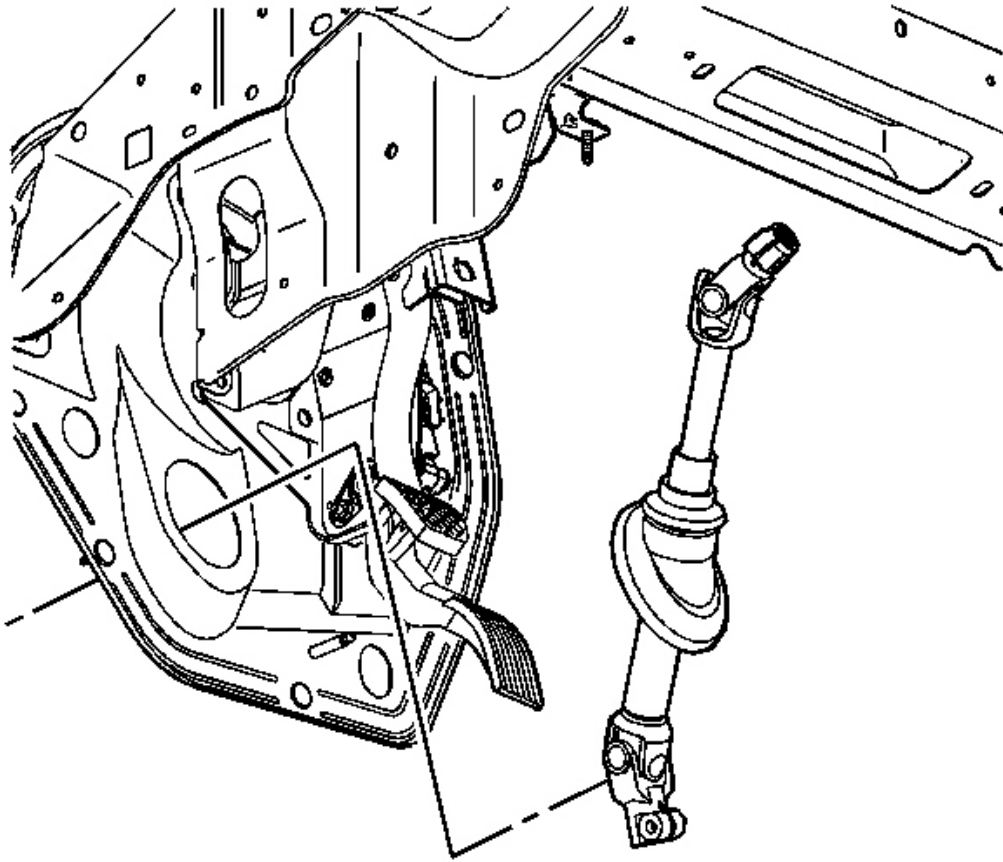


Fig. 5: Inside Intermediate Steering Shaft Assembly
Courtesy of GENERAL MOTORS CORP.

2. Install the intermediate steering shaft assembly from inside the vehicle.

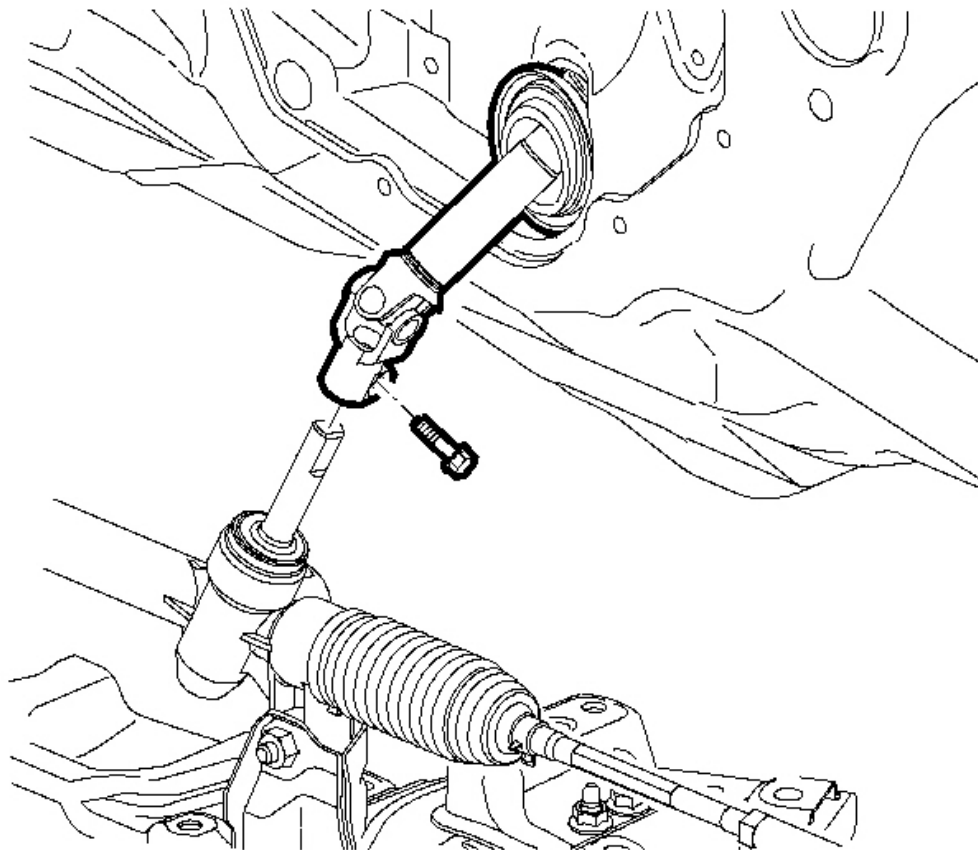


Fig. 6: Intermediate Steering Shaft & Steering Gear Pinch Bolt
Courtesy of GENERAL MOTORS CORP.

3. Align and connect the intermediate steering shaft to the steering gear

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

4. Install a new lower intermediate shaft pinch bolt.

Tighten: Tighten the bolt to 34 N.m (25 lb ft).

5. Align the pre-scribed mark on the intermediate steering shaft to the pre-scribed mark on the steering column.

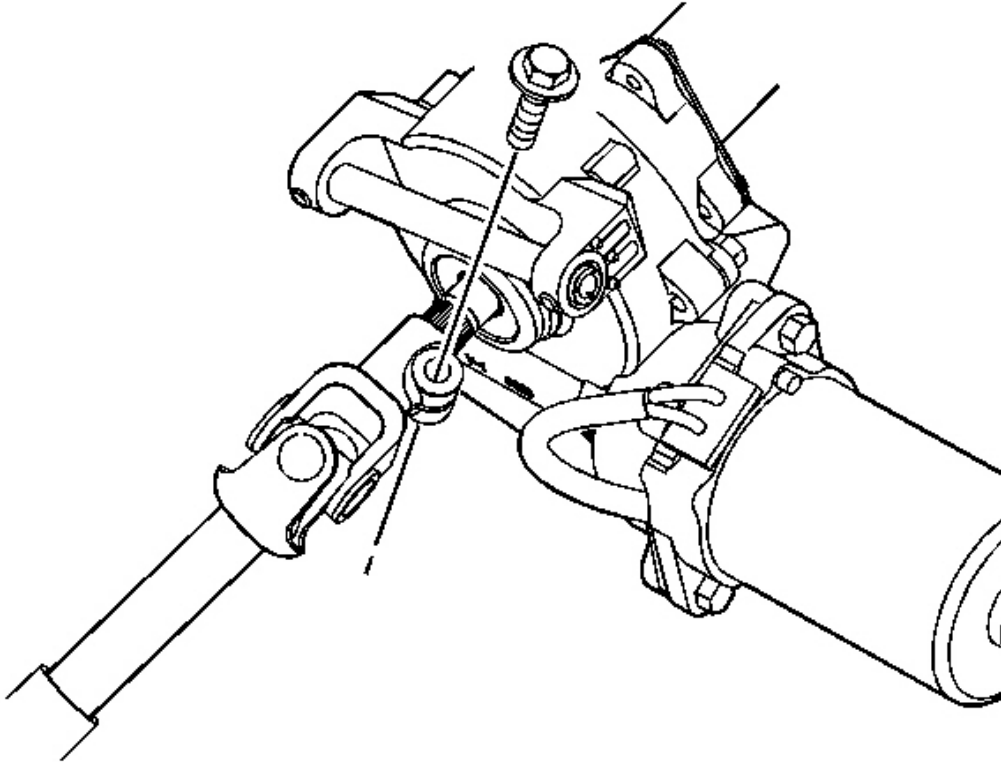


Fig. 7: Intermediate Shaft Pinch Bolt & Steering Column
Courtesy of GENERAL MOTORS CORP.

6. Connect the intermediate steering shaft to the steering column.
7. If the intermediate shaft was removed without the use of scribed marks, perform the following:
 1. Place the road wheels in the straight ahead position.
 2. Align the steering column shaft notch in the 12 o'clock position and connect the intermediate shaft to the steering column.
 3. Install a new Upper intermediate shaft pinch bolt.

Tighten: Tighten the bolt to 34 N.m (25 lb ft).

8. Seat the intermediate shaft seal into the body panel.

STEERING COLUMN ACCIDENT DAMAGE INSPECTION

Inspection

This vehicle is equipped with electric power steering (EPS), with the electric motor and torque sensor mounted on the steering column. When involved in an accident resulting in sheet metal damage or driver-side air bag deployment, the steering column must be inspected for both electrical system integrity and steering column collapse. Refer to **Diagnostic System Check - Power Steering System** in Power Steering System.

- If the steering column electrical system integrity is not within specifications, the complete steering column must be replaced. Refer to **Steering Column Replacement**
- If the steering column collapse mechanism is not within specifications, but the electrical system integrity is within specifications, then the steering column upper jacket must be replaced. Refer to **Steering Column Jacket Replacement** .

Road test the vehicle when ever any steering system repairs or diagnostics have been performed.

Collapse Measurement

A vehicle involved in an accident resulting in sheet metal damage or drivers-side air bag deployment will require an inspection for steering column collapse. If the steering column collapse measurement is greater than 3 mm than the steering column upper jacket must be replaced.

For steering column collapse measurement, use the following procedure:

1. Remove the steering column trim covers. Refer to **Steering Column Trim Covers Replacement** .

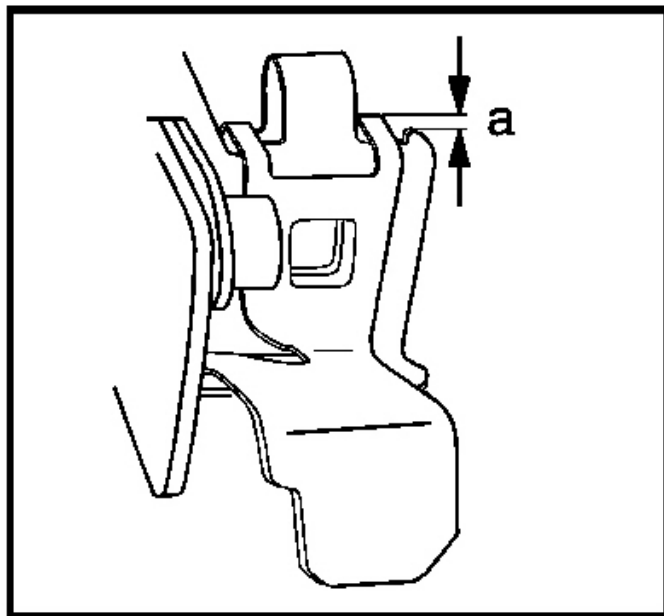
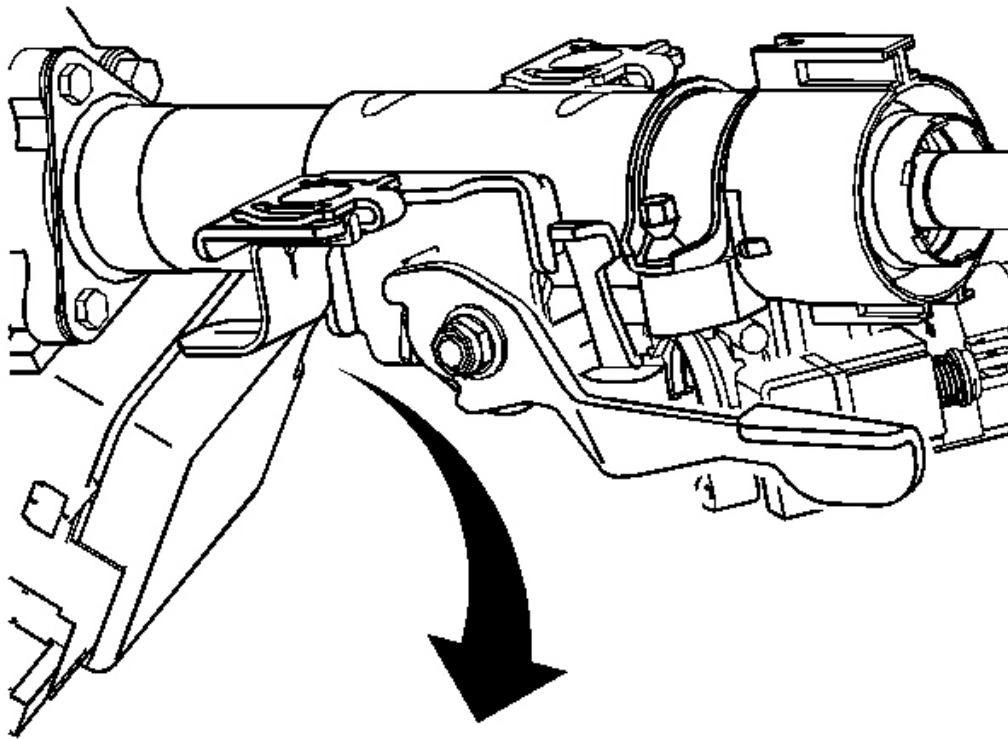


Fig. 8: Inspecting The Upper Steering Column Mounting Capsule Nuts For Movement
Courtesy of GENERAL MOTORS CORP.

2. Inspect the upper steering column mounting capsule nuts for movement (a). If the steering column collapse measurement is greater than 3 mm than the steering column upper jacket must be replaced. Refer to **Steering Column Jacket Replacement** .
3. Install the steering column trim covers. Refer to **Steering Column Trim Covers Replacement** .

STEERING COLUMN TRIM COVERS REPLACEMENT

Removal Procedure

1. Disable the SIR system. Refer to **SIR Disabling and Enabling Zone 3** in SIR.

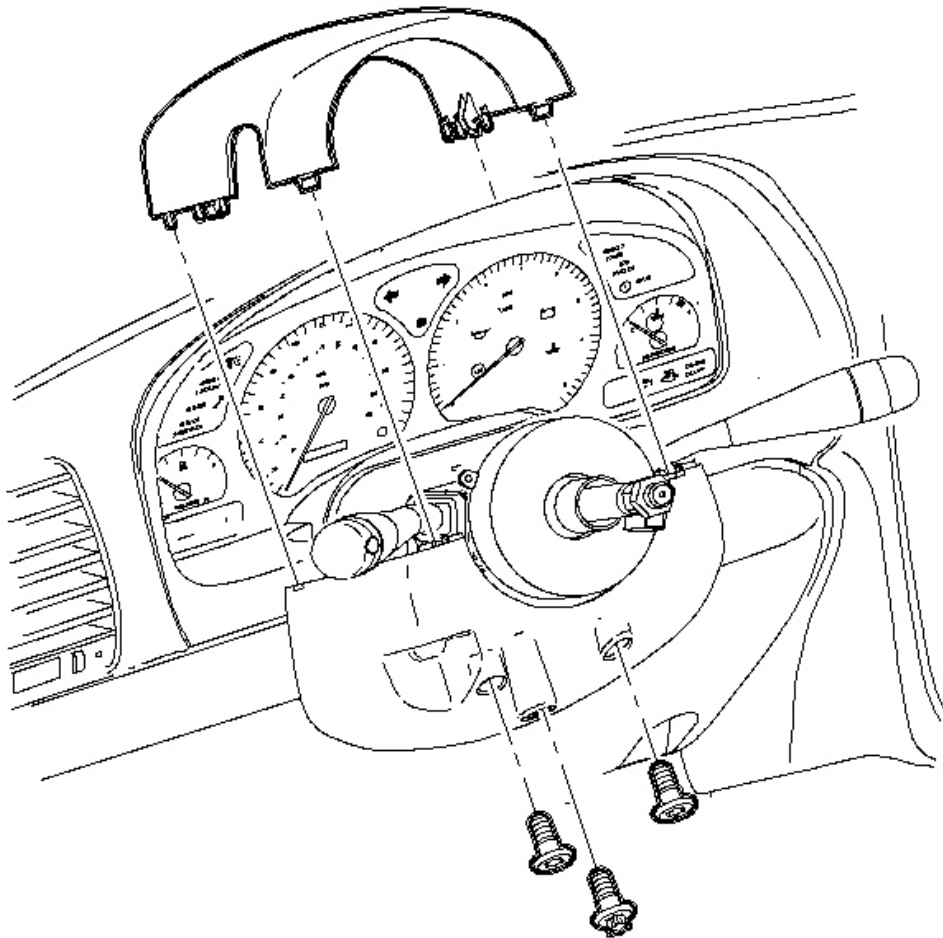


Fig. 9: Lower Steering Column Cover & Screws
Courtesy of GENERAL MOTORS CORP.

2. Unsnap and remove the upper steering column cover.
3. Remove the lower steering column cover screws.

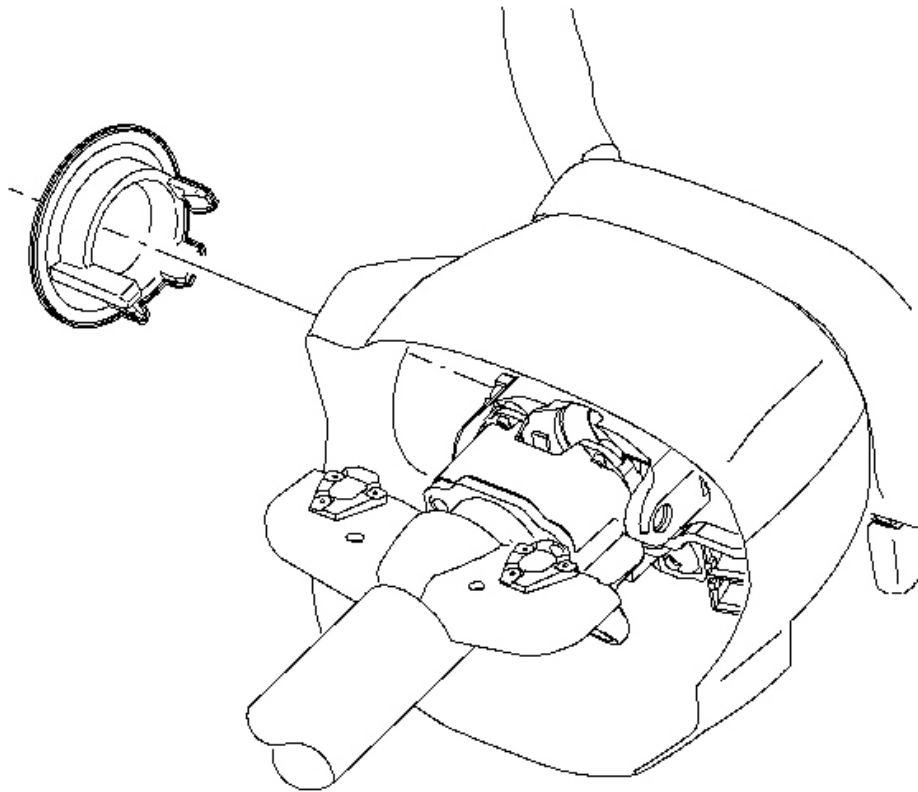


Fig. 10: Ignition Switch Bezel
Courtesy of GENERAL MOTORS CORP.

4. Unsnap and remove the ignition switch bezel.
5. Remove the lower trim cover.

Installation Procedure

1. Position the upper and lower shrouds.

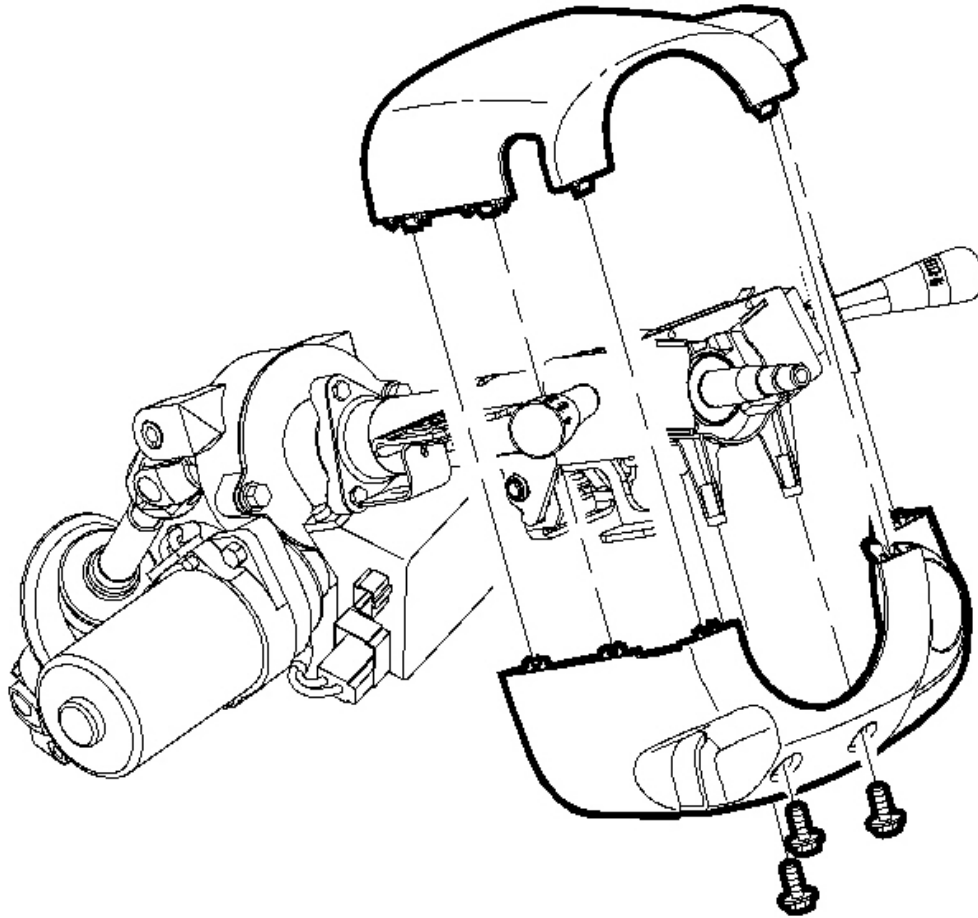


Fig. 11: Upper & Lower Shrouds
Courtesy of GENERAL MOTORS CORP.

2. Apply light pressure until they snap in place.

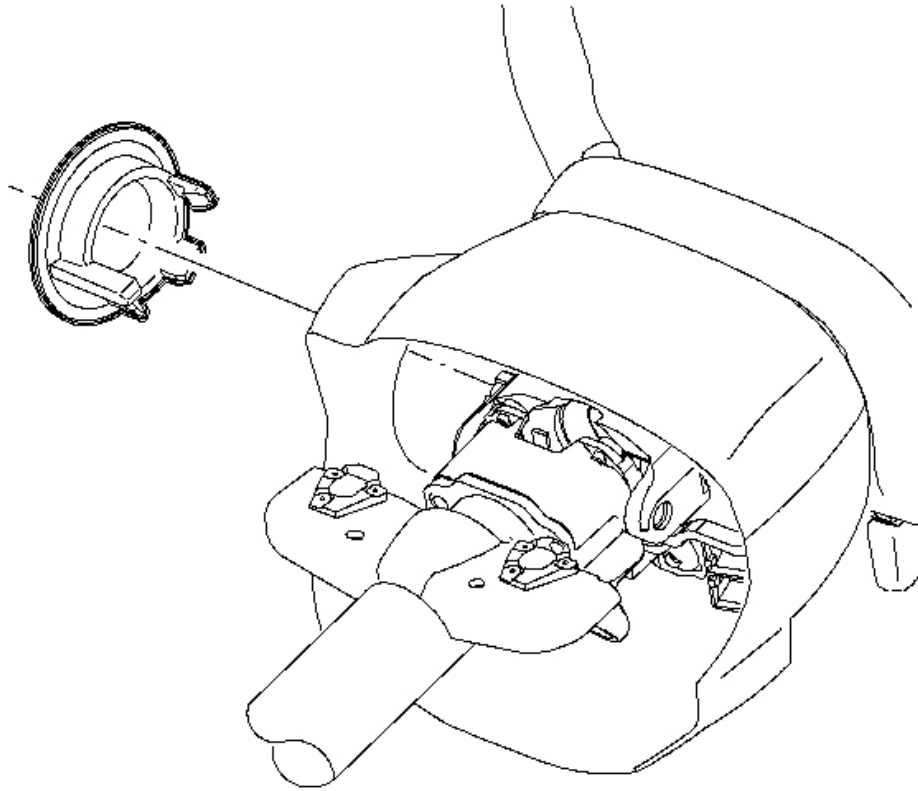


Fig. 12: Ignition Switch Bezel
Courtesy of GENERAL MOTORS CORP.

3. Install the ignition switch bezel.

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Install the shroud fasteners.

Tighten: Tighten the lower steering column cover screws to 1.5 N.m (13 lb in).

5. Enable the SIR system. Refer to SIR Disabling and Enabling Zone 3 in SIR.

IGNITION SWITCH REPLACEMENT

Removal Procedure

1. Remove the SIR module. Refer to **Inflatable Restraint Steering Wheel Module Replacement** in SIR.
2. Remove the steering wheel. Refer to **Steering Wheel Replacement** .
3. Remove the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement** in SIR.
4. Using a thin-bladed screwdriver, remove the lock cylinder bezel.

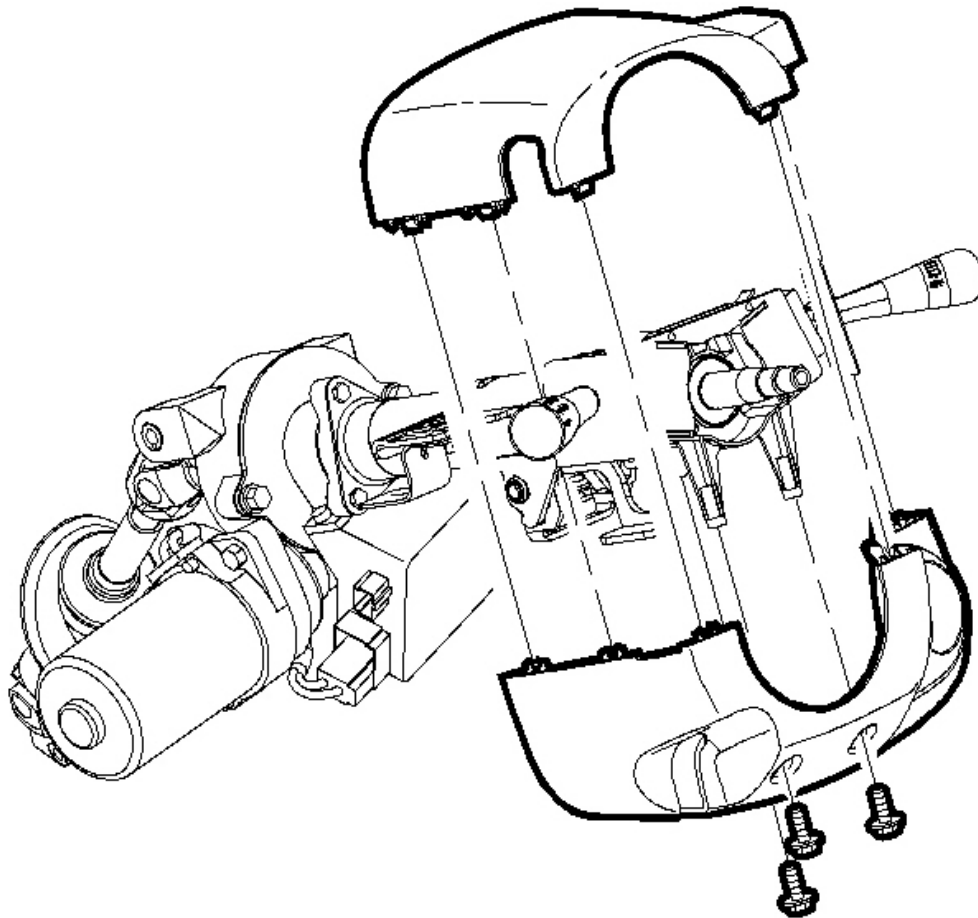


Fig. 13: Upper & Lower Shrouds
Courtesy of GENERAL MOTORS CORP.

5. Remove the shroud fasteners.
6. Remove the upper and lower shrouds.

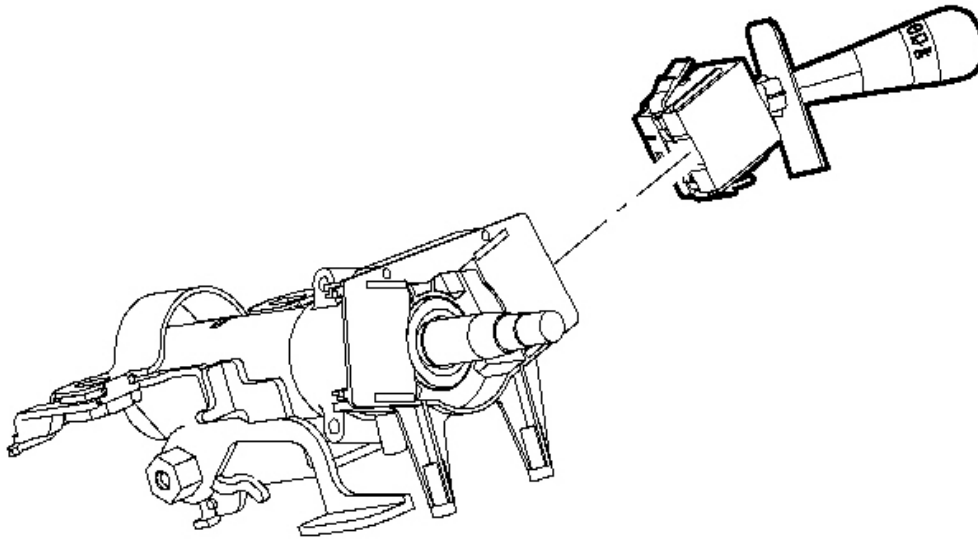


Fig. 14: Multi-Function Levers
Courtesy of GENERAL MOTORS CORP.

7. Depress the lock tabs on the left and right multi-function levers. Remove the multi-function levers.

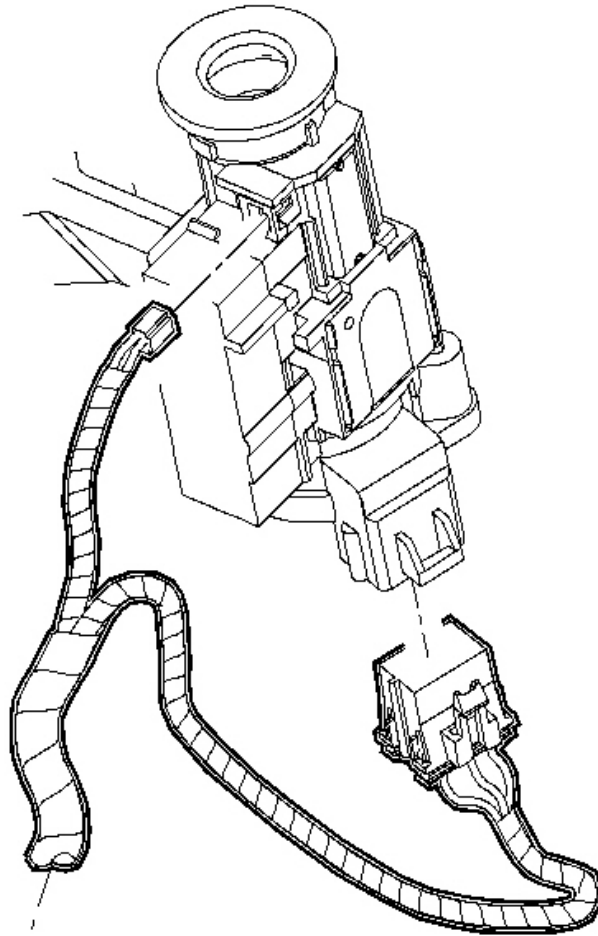


Fig. 15: Electrical Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

8. Disconnect the electrical housing electrical connectors.

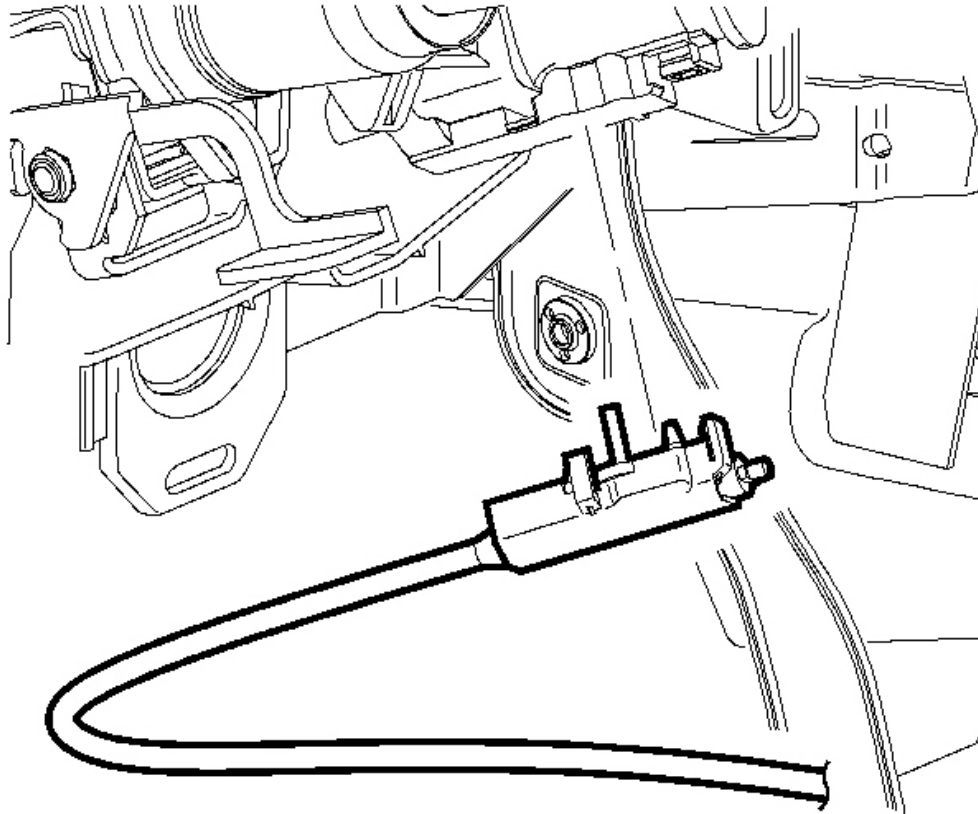


Fig. 16: Park Lock Cable Assembly & Ignition Module
Courtesy of GENERAL MOTORS CORP.

9. Disengage the retaining tabs on the park lock cable assembly. Remove the assembly from the ignition module.

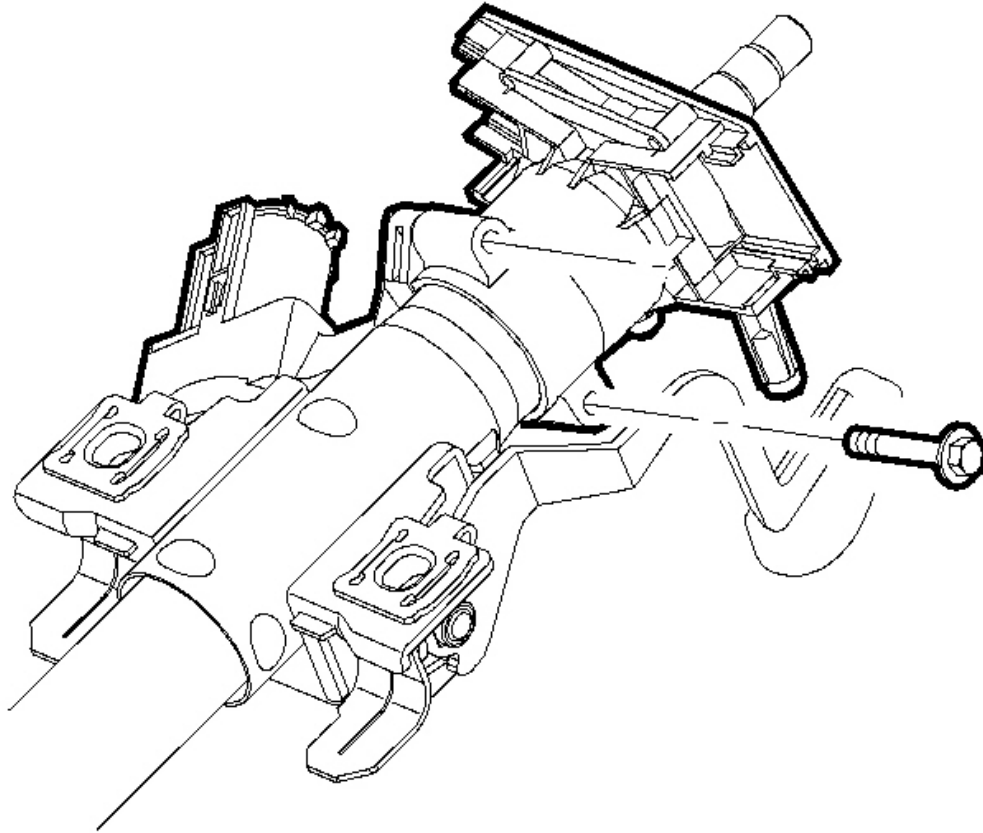


Fig. 17: Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

10. Remove the lock housing bolts.
11. Turn the ignition key to the ACC position

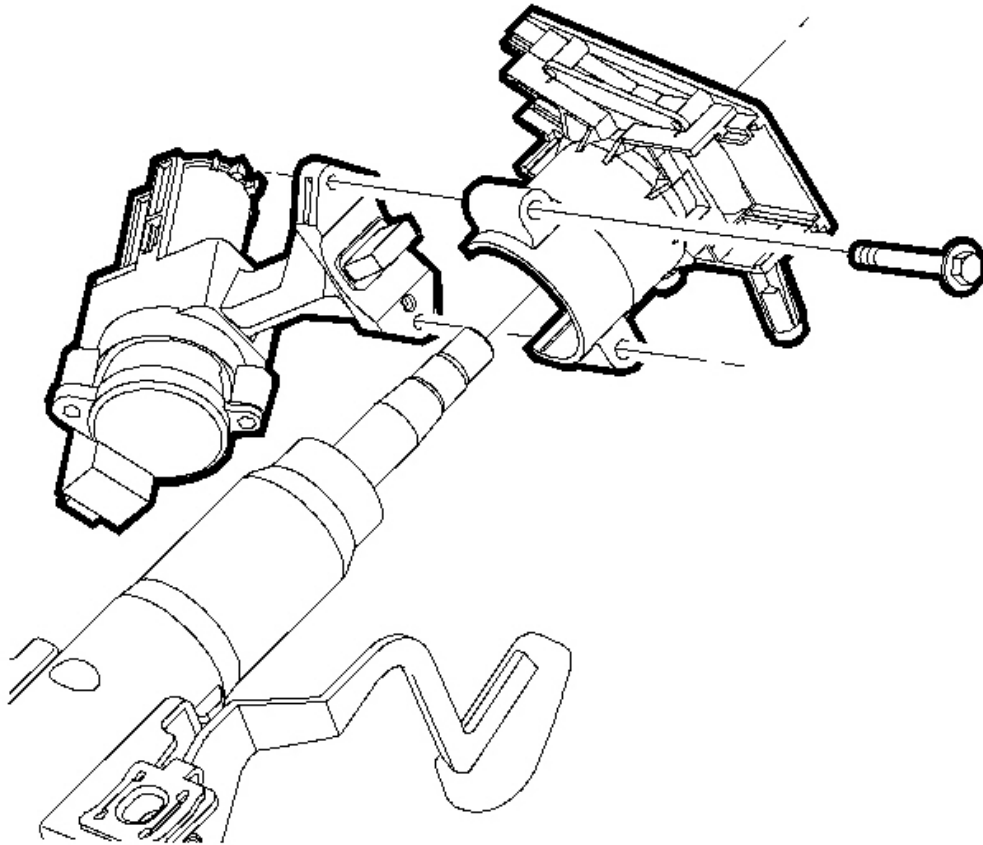


Fig. 18: Ignition Housing & Multi-Function Bracket
Courtesy of GENERAL MOTORS CORP.

12. Separate the ignition housing from the multi-function bracket.
13. Remove the ignition switch screws
14. Remove the ignition switch.

Installation Procedure

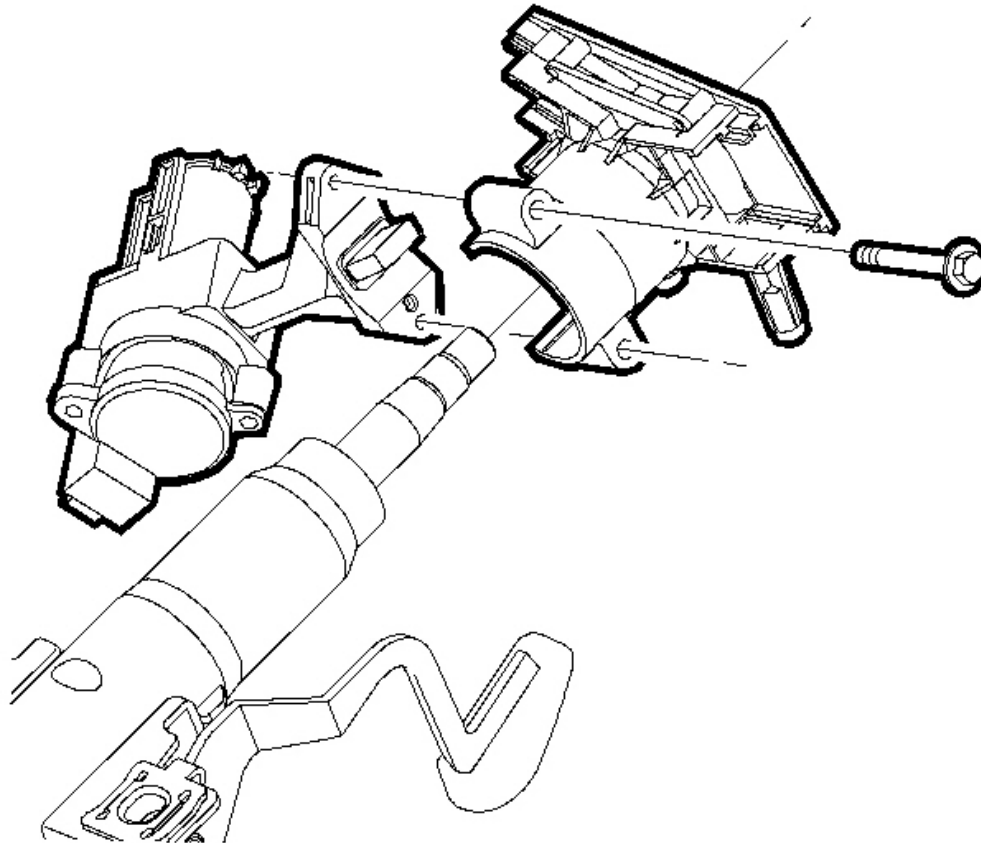


Fig. 19: Ignition Housing & Multi-Function Bracket
Courtesy of GENERAL MOTORS CORP.

1. Ensure that the ignition switch is in the ACC position.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Position the ignition switch to the housing. Tighten the screws until seated.

Tighten: Tighten the ignition screws to 2.5 N.m (22 lb in).

3. Pre-assemble the lock housing and multi-function lever bracket. Hand-tighten the bolts, leaving approximately 3.2 mm (0.125 in) gap at the bolt ends.

IMPORTANT: Ensure that the lock tab fully engages into the column slot.

- Slide the bracket onto the column.

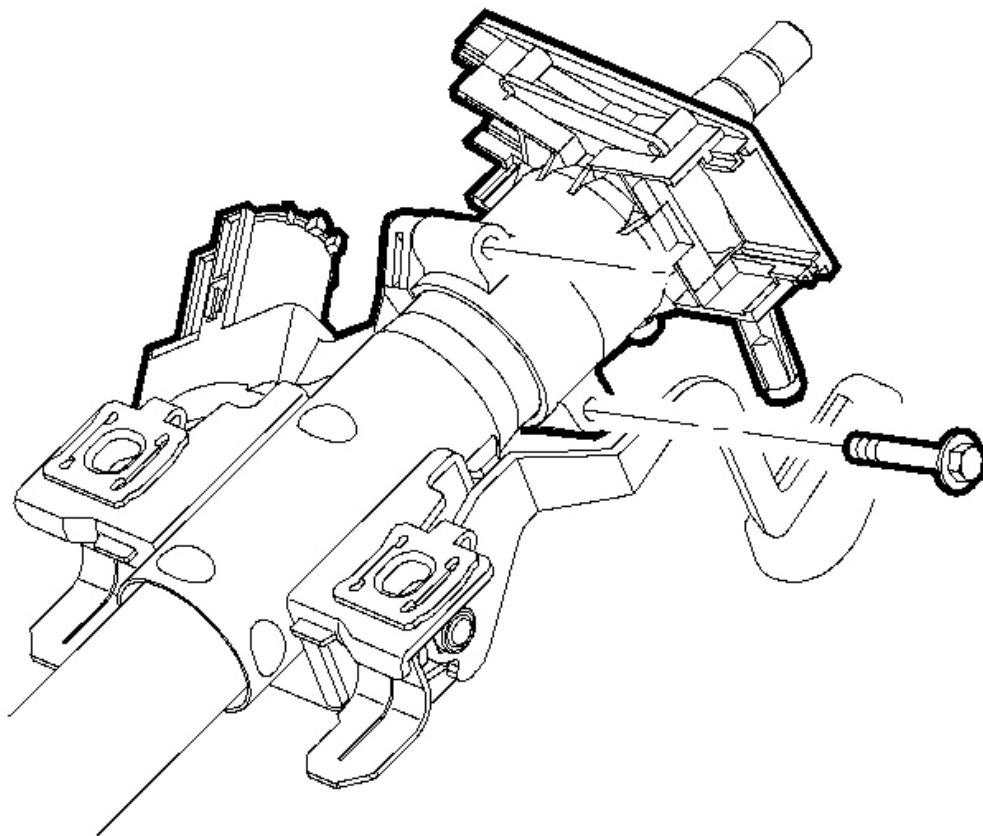


Fig. 20: Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

- Hand tighten the lower bolt until snug.
- Hand tighten the upper bolt until snug.
- Tighten the lower bolt.

Tighten: Tighten the bolt to 8 N.m (71 lb in)

8. Tighten the upper bolt.

Tighten: Tighten the bolt to 8 N.m (71 lb in)

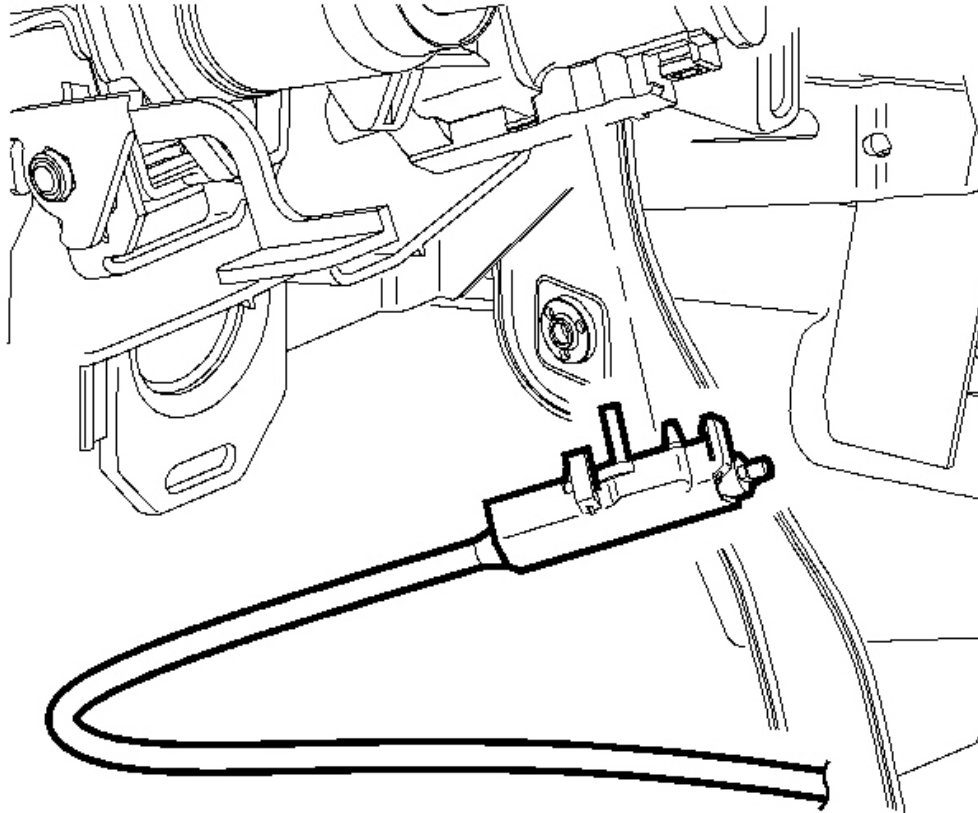


Fig. 21: Park Lock Cable Assembly & Ignition Module
Courtesy of GENERAL MOTORS CORP.

9. Snap the ignition lock cable onto the ignition module.
10. Connect the ignition switch electrical connector

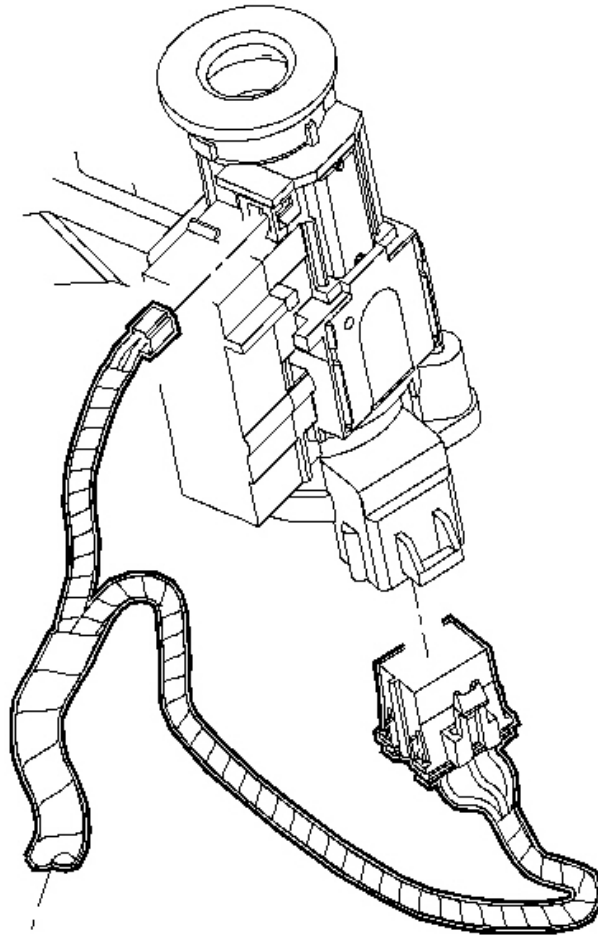


Fig. 22: Electrical Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

11. Connect the ignition housing electrical connectors.

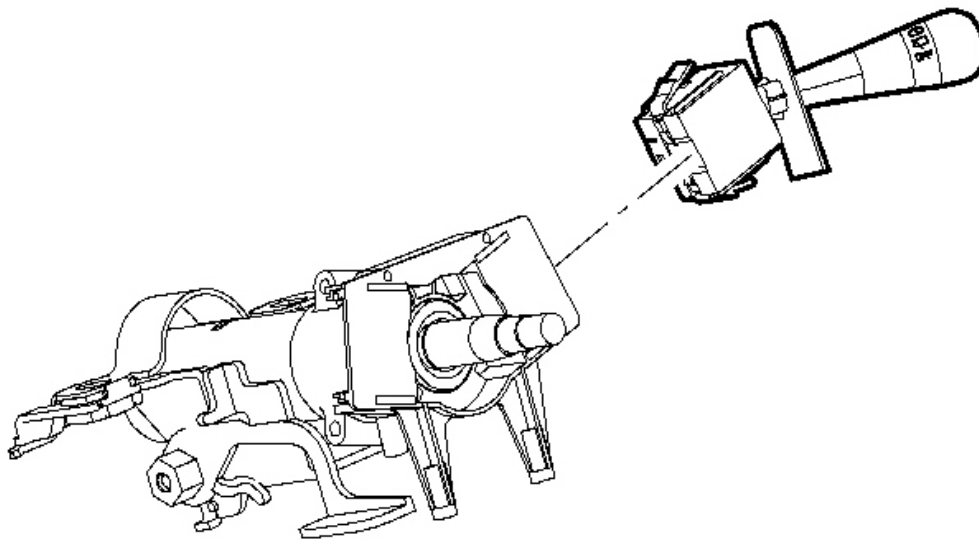


Fig. 23: Multi-Function Levers
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Ensure that both locking tabs are seated.

12. Install the multi-function levers.

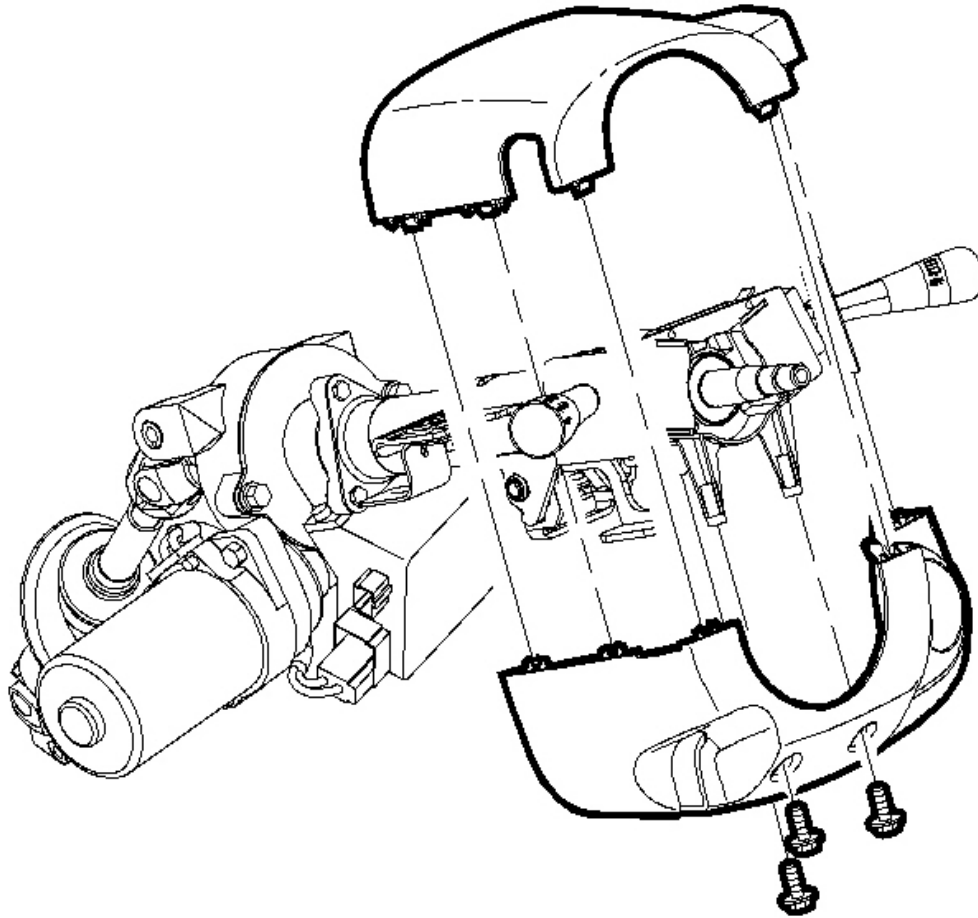


Fig. 24: Upper & Lower Shrouds
Courtesy of GENERAL MOTORS CORP.

13. Install the upper and lower shrouds.

Tighten: Tighten the shroud screws to 4 N.m (35 lb in)

14. Install the lock cylinder bezel.
15. Install the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement** in SIR.
16. Install the steering wheel. Refer to **Steering Wheel Replacement** .
17. Install the SIR module. Refer to **Inflatable Restraint Steering Wheel Module Replacement** in SIR.

IGNITION LOCK CYLINDER REPLACEMENT

Removal Procedure

IMPORTANT: Vehicle must be in PARK prior to ignition cylinder removal.

1. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnect/Connect Procedure in Engine Electrical.
2. Disable the SIR system. Refer to SIR Disabling and Enabling Zone 3 in SIR.
3. Remove the steering column trim covers. Refer to Steering Column Trim Covers Replacement .

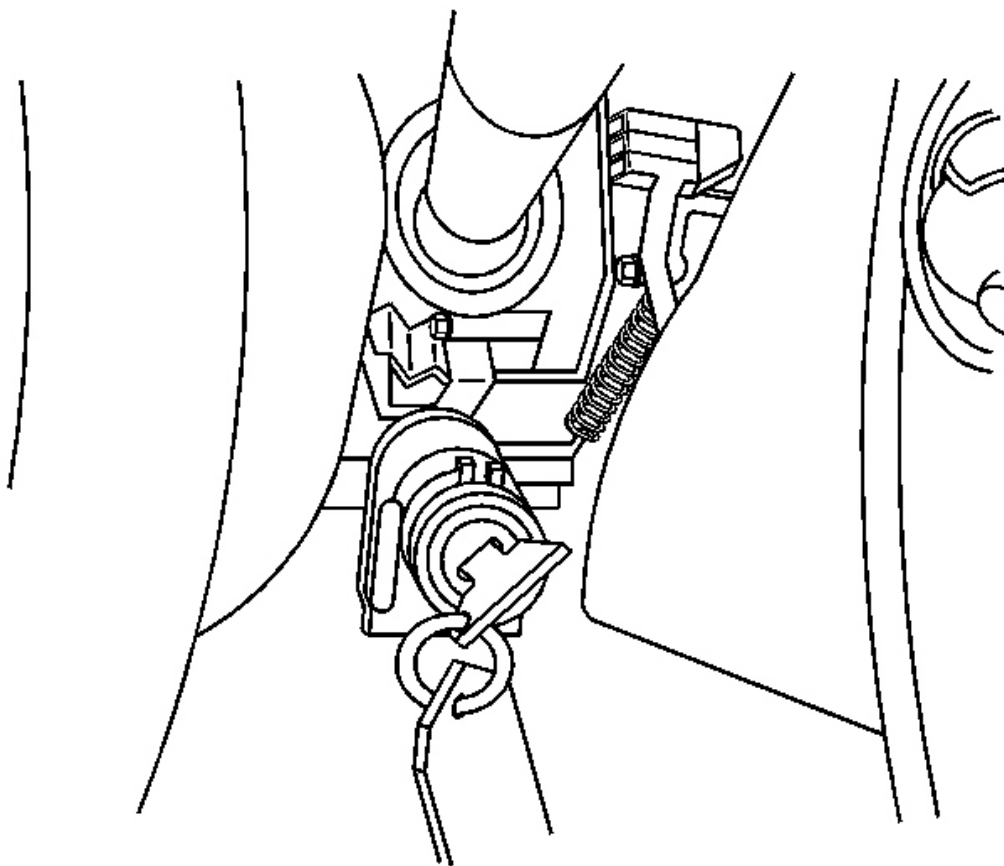


Fig. 25: Key & Ignition Lock Cylinder
Courtesy of GENERAL MOTORS CORP.

4. Insert key into the ignition and rotate to the RUN position. Then rotate ignition cylinder back to ACC

position.

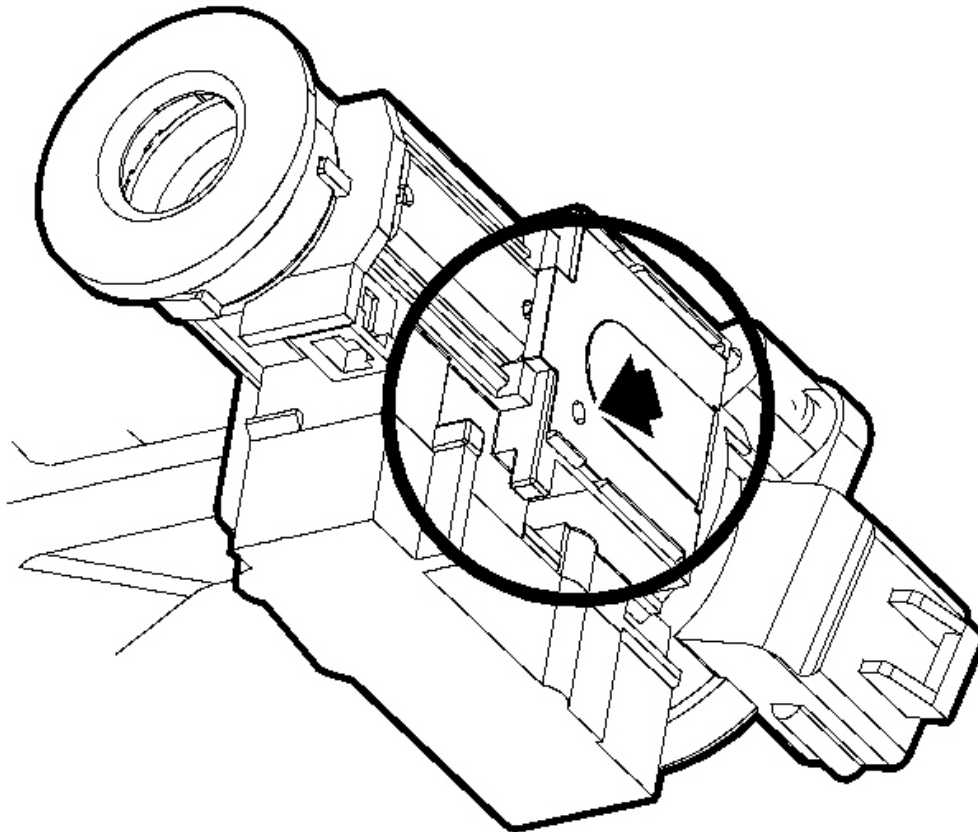


Fig. 26: Locking Button On Side Of Ignition Module Assembly
Courtesy of GENERAL MOTORS CORP.

5. Depress the locking button through hole on side of ignition module assembly with a thin pick-type tool. Slide the lock cylinder from the ignition housing.

Installation Procedure

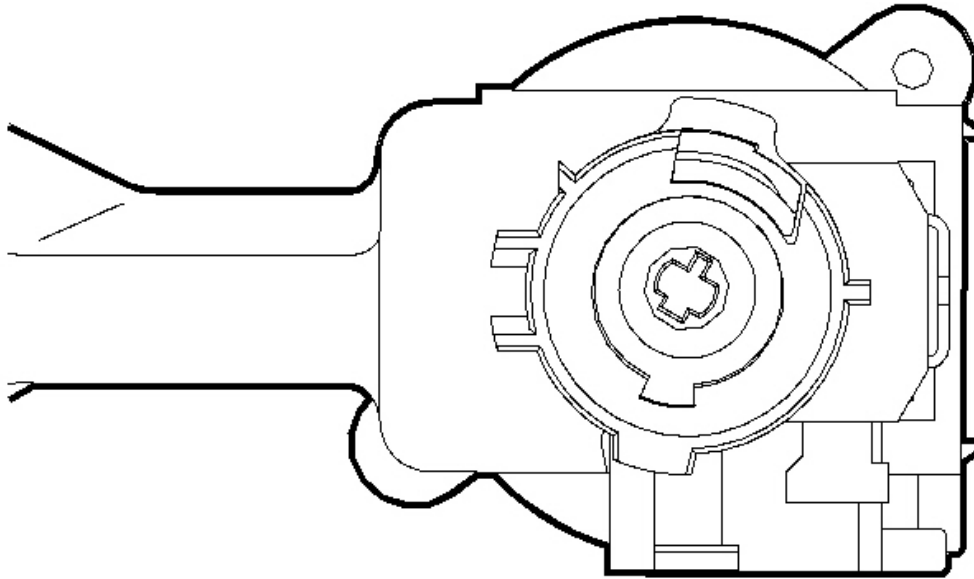


Fig. 27: Actuator Blade & Ignition Module
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Actuator blade within the ignition module must be in ACC position to install the lock cylinder assembly. If rotated, reposition the actuator blade to the ACC position using needle nose pliers.

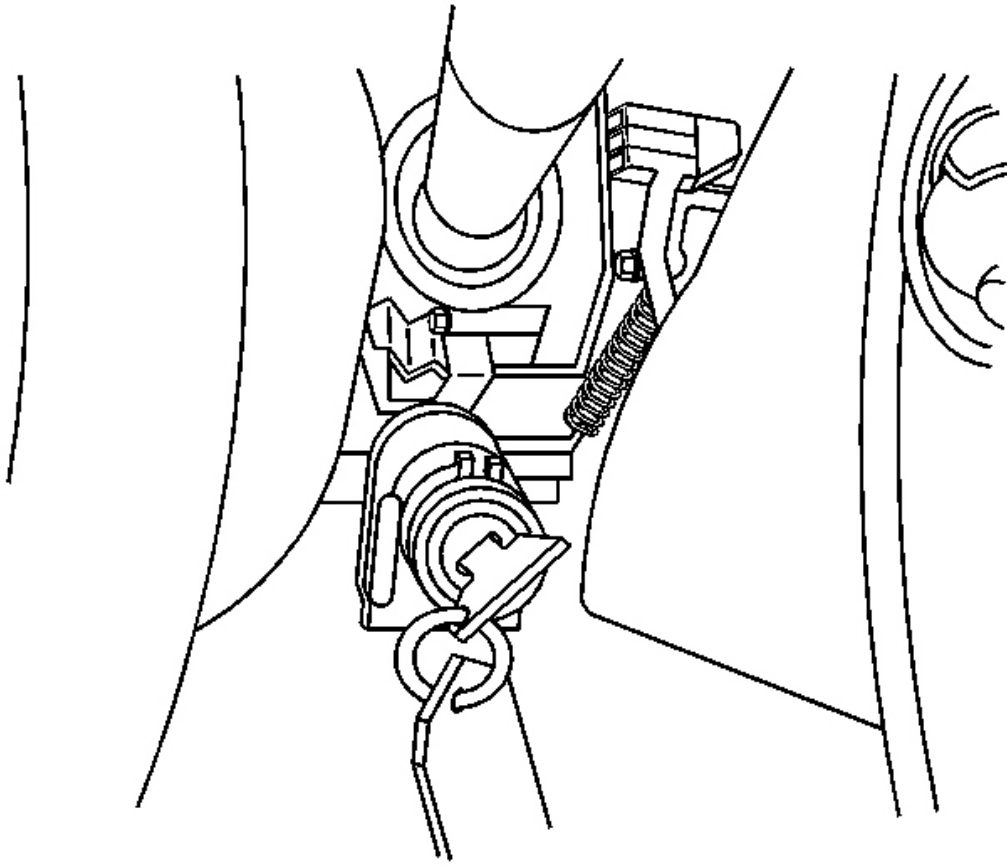


Fig. 28: Key & Ignition Lock Cylinder
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: If you are installing a new lock cylinder, refer to Key and Lock Cylinder Coding in General Information.

1. Insert key into ignition lock cylinder and install the cylinder into the lock housing.
2. Rotate the lock cylinder in the housing. Verify proper rotation.
3. Install the steering column trim covers. Refer to Steering Column Trim Covers Replacement.
4. Enable the SIR system. Refer to SIR Disabling and Enabling Zone 3 in SIR.
5. Connect the negative battery cable. Refer to Battery Negative Cable Disconnect/Connect Procedure in Engine Electrical.

IGNITION LOCK CYLINDER CASE REPLACEMENT

Removal Procedure

1. Disable the SIR system. Refer to **SIR Disabling and Enabling Zone 3** in SIR.
2. Remove the steering wheel. Refer to **Steering Wheel Replacement** .
3. Remove the steering column trim covers. Refer to **Steering Column Trim Covers Replacement** .
4. Remove the multifunction levers. Refer to **Multifunction, Turn Signal Switch Replacement** .

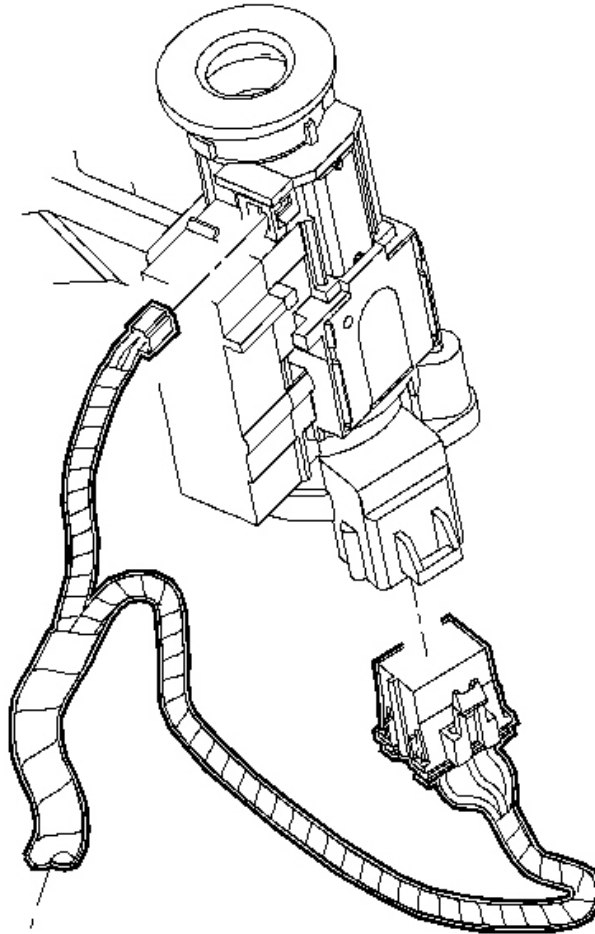


Fig. 29: Electrical Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

5. Disconnect the housing electrical connectors.

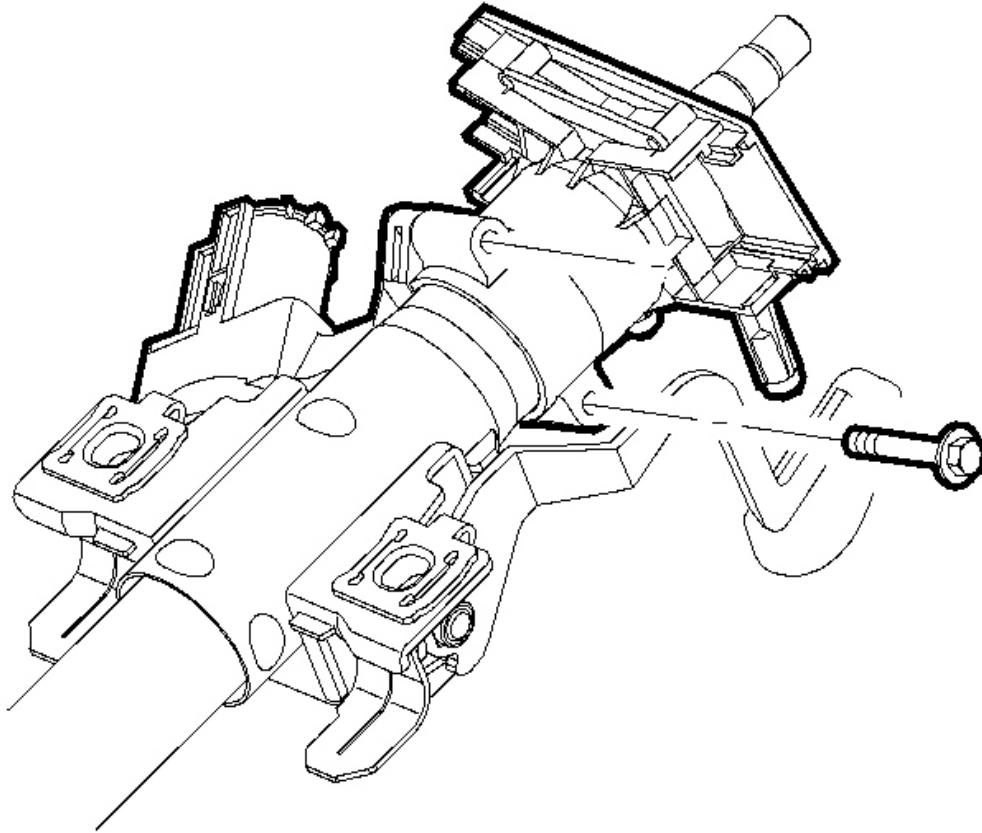


Fig. 30: Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

6. Disengage the retaining tabs and remove the park lock cable assembly from the housing.
7. Remove the lock housing bolts.
8. Turn the ignition key to the ACC position.

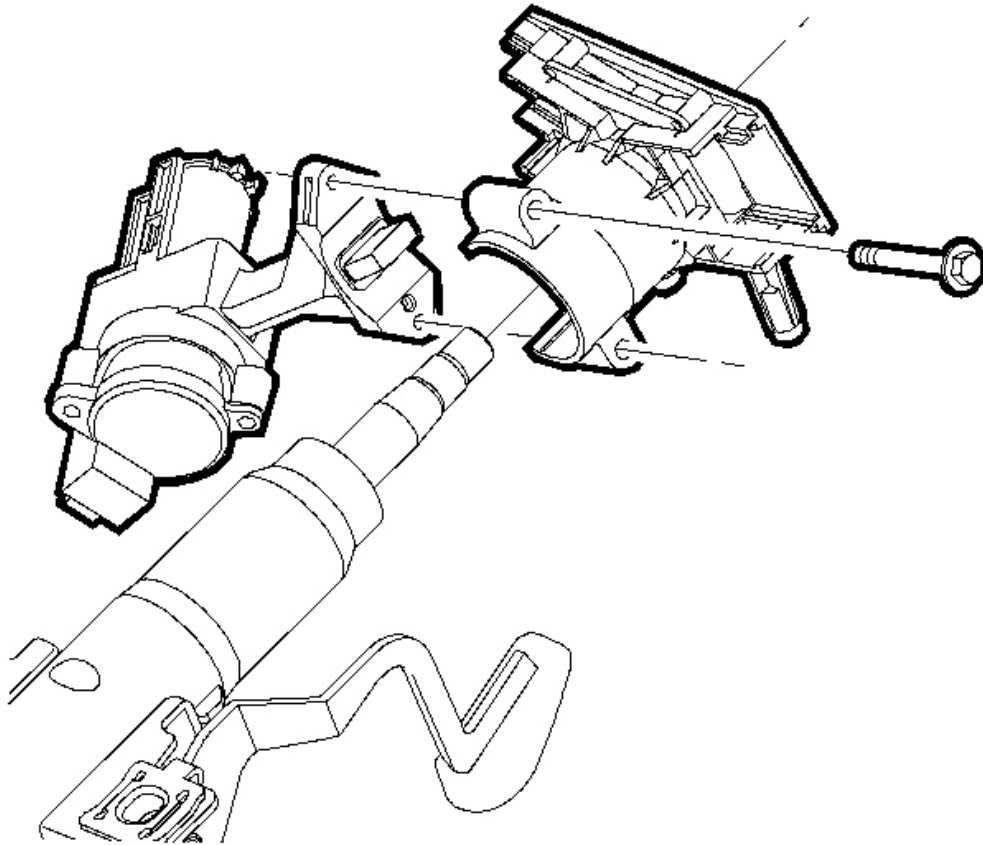


Fig. 31: Ignition Housing & Multi-Function Bracket
Courtesy of GENERAL MOTORS CORP.

9. Separate the lock housing (lock cylinder case) from the multifunction lever bracket. Slide the bracket from the column.
10. Remove the ignition switch screws.
11. Remove the ignition switch.

Installation Procedure

1. Ensure the ignition switch is in the ACC position.

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

2. Position the ignition switch to housing and install the screws and tighten.

Tighten: Tighten the screws to 2.5 N.m (22 lb in).

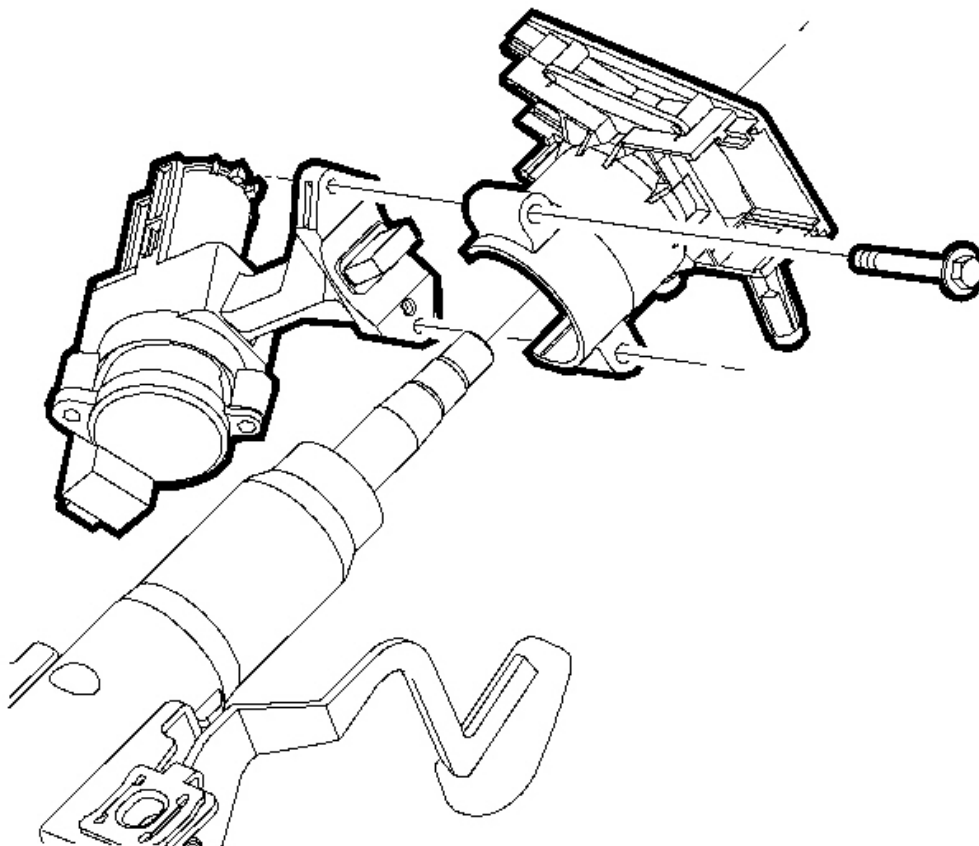


Fig. 32: Ignition Housing & Multi-Function Bracket
Courtesy of GENERAL MOTORS CORP.

3. Pre-assemble the lock housing and multifunction lever bracket. Hand tighten the bolts leaving approximately 3.2 mm (0.125 in) gap.
4. Slide the bracket onto the column. Ensure lock tab fully engages into the column slot.

5. Hand tighten the lower bolt until snug.
6. Hand tighten the upper bolt until snug.
7. Tighten the lower bolt, then the upper bolt.

Tighten: Tighten the bolts to 8 N.m (71 lb in).

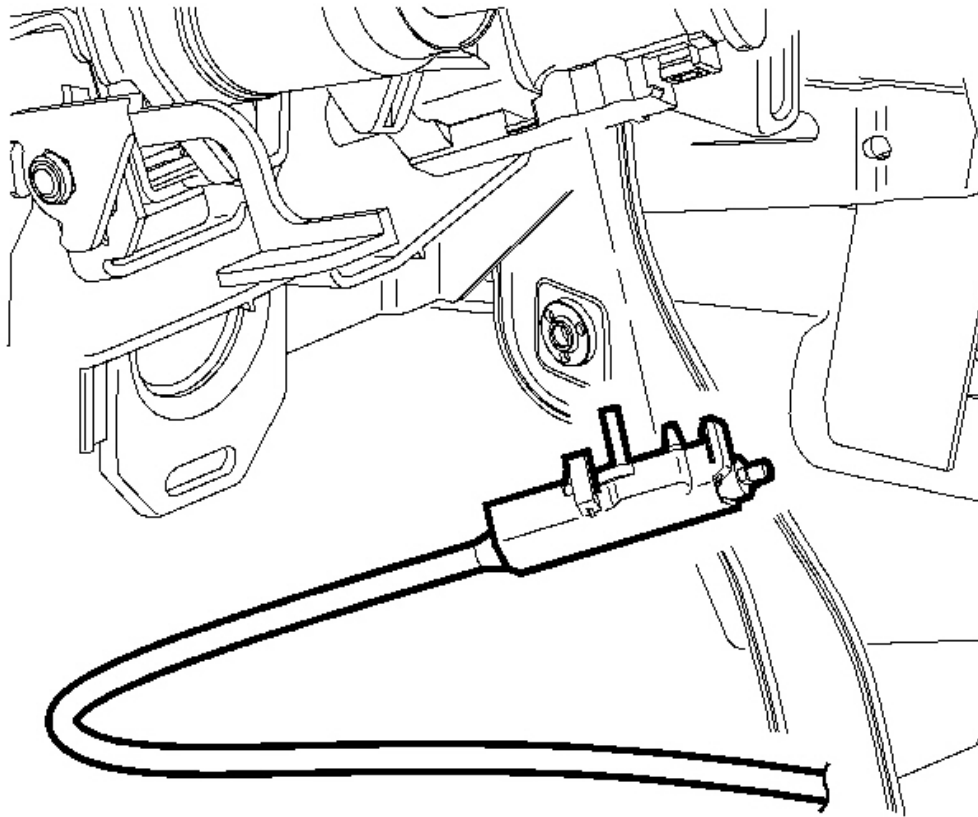


Fig. 33: Park Lock Cable Assembly & Ignition Module
Courtesy of GENERAL MOTORS CORP.

8. Snap the ignition lock cable onto the ignition module.

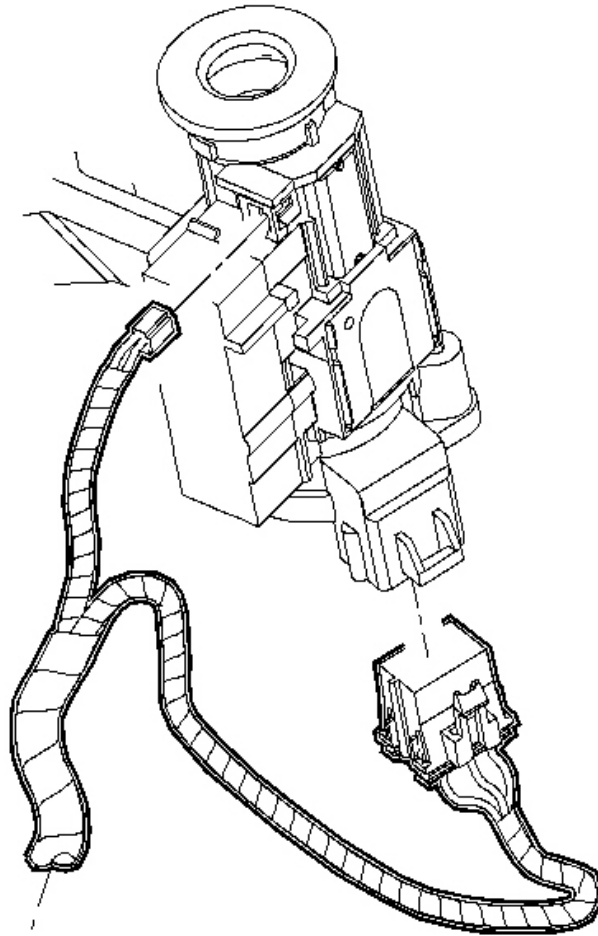


Fig. 34: Electrical Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

9. Connect the ignition housing electrical connectors.

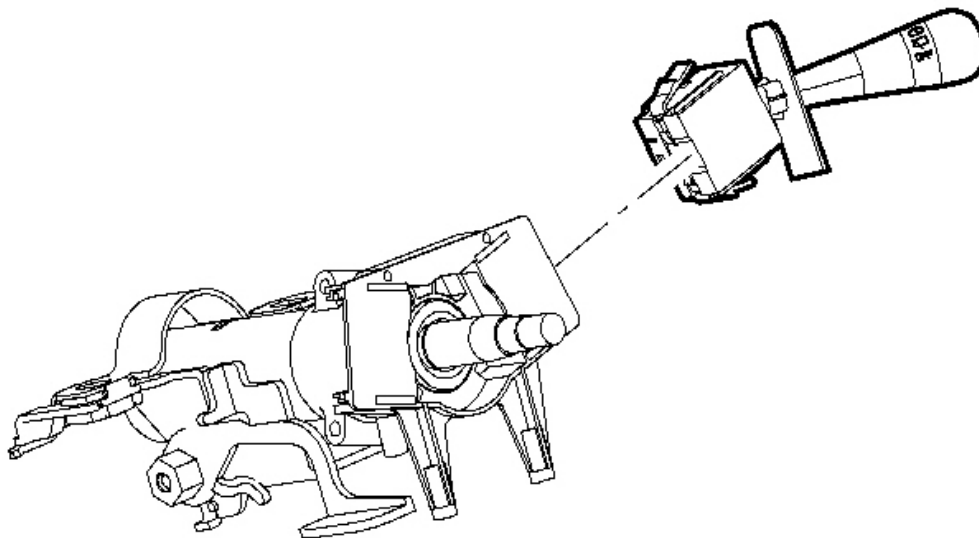


Fig. 35: Multi-Function Levers
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Ensure both locking tabs are seated.

10. Install the multifunction levers.
11. Install the steering column trim covers. Refer to **Steering Column Trim Covers Replacement** .
12. Install the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement** in SIR.
13. Install the steering wheel. Refer to **Steering Wheel Replacement** .
14. Enable the SIR system. Refer to **SIR Disabling and Enabling Zone 3** in SIR.

MULTIFUNCTION TURN SIGNAL SWITCH HOUSING REPLACEMENT

Removal Procedure

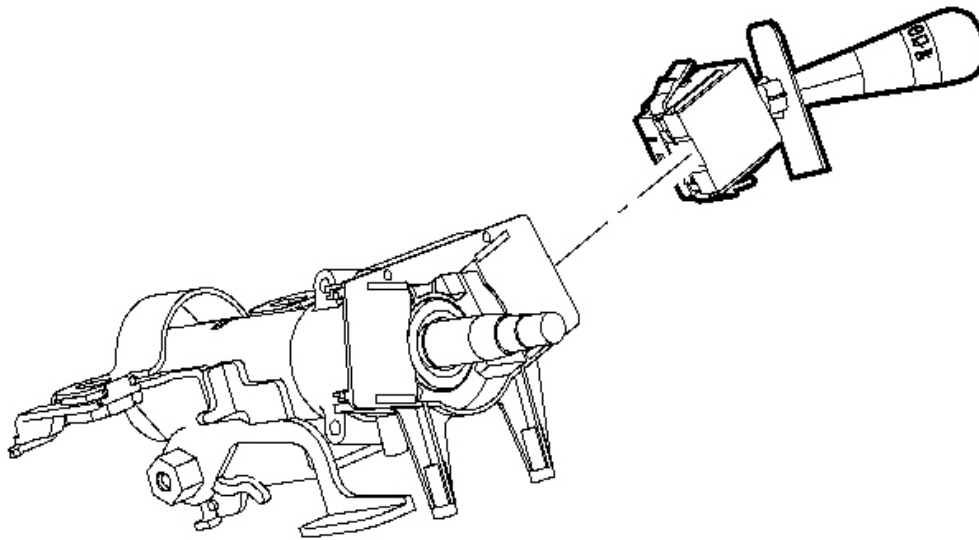


Fig. 36: Multi-Function Levers
Courtesy of GENERAL MOTORS CORP.

1. Disconnect the negative battery cable. Refer to **Battery Negative Cable Disconnect/Connect Procedure** in Engine Electrical.
2. Disable the SIR system. Refer to **SIR Disabling and Enabling Zone 3** in SIR.
3. Remove the steering wheel. Refer to **Steering Wheel Replacement** .
4. Remove the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement** in SIR.
5. Remove the steering column trim covers. Refer to **Steering Column Trim Covers Replacement** .
6. Depress the lock tabs on the left and right multifunction levers. Remove the multifunction levers.

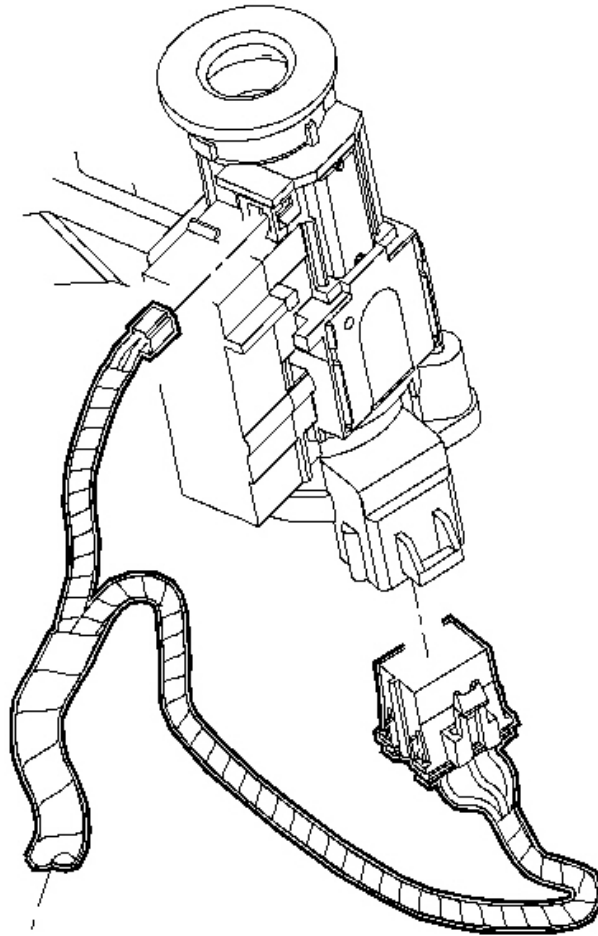


Fig. 37: Electrical Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

7. Disconnect the housing electrical connectors.

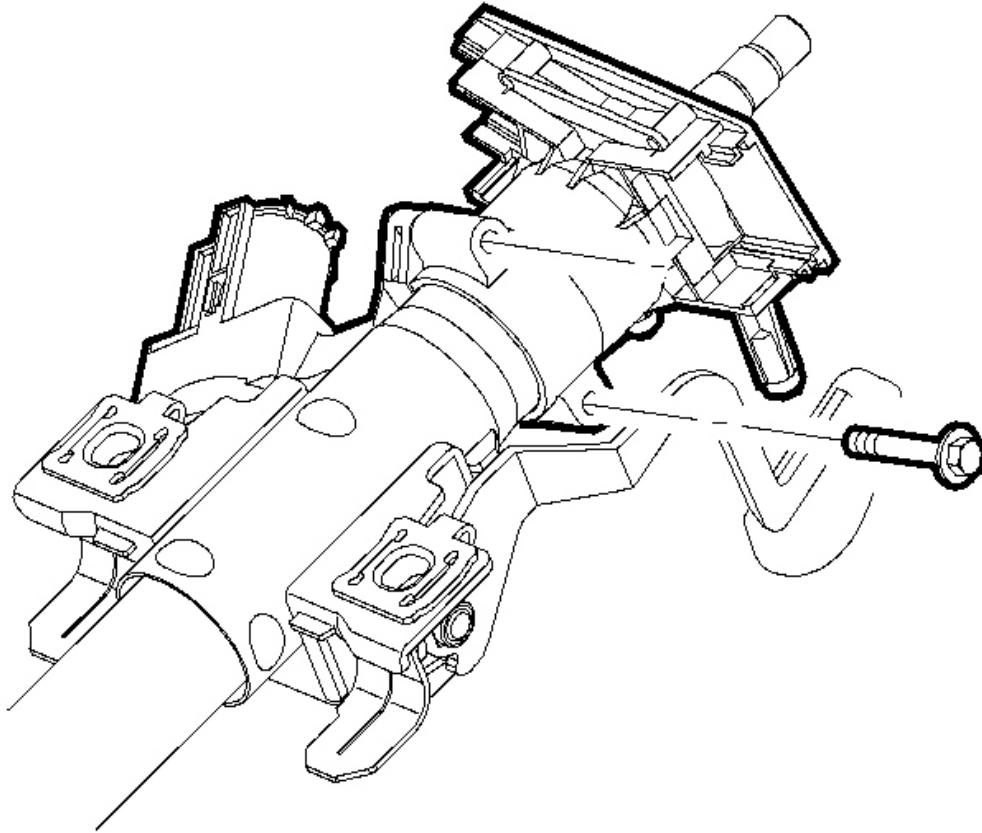


Fig. 38: Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

8. Remove the lock housing bolts.
9. Separate the ignition housing from the multifunction lever bracket. Slide the bracket from the column.

Installation Procedure

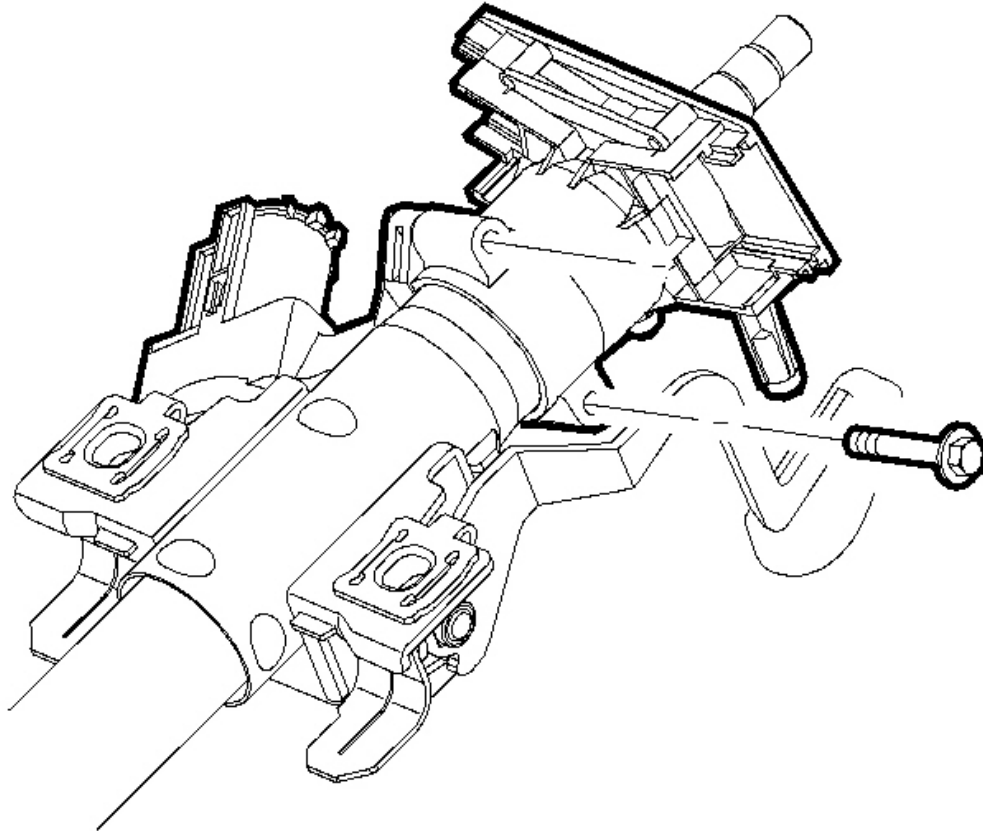


Fig. 39: Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

1. Pre-assemble the lock housing and multifunction lever bracket. Hand-tighten the bolts, leaving approximately 3.2 mm (0.125 in) gap at the bolt ends.

IMPORTANT: Ensure that the lock tab fully engages into the column slot.

2. Slide the bracket onto the column.
3. Hand-tighten the lower bolt until snug.
4. Hand-tighten the upper bolt until snug.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Tighten the lower bolt.

Tighten: Tighten the bolt to 8 N.m (71 lb in)

6. Tighten the upper bolt.

Tighten: Tighten the bolt to 8 N.m (71 lb in)

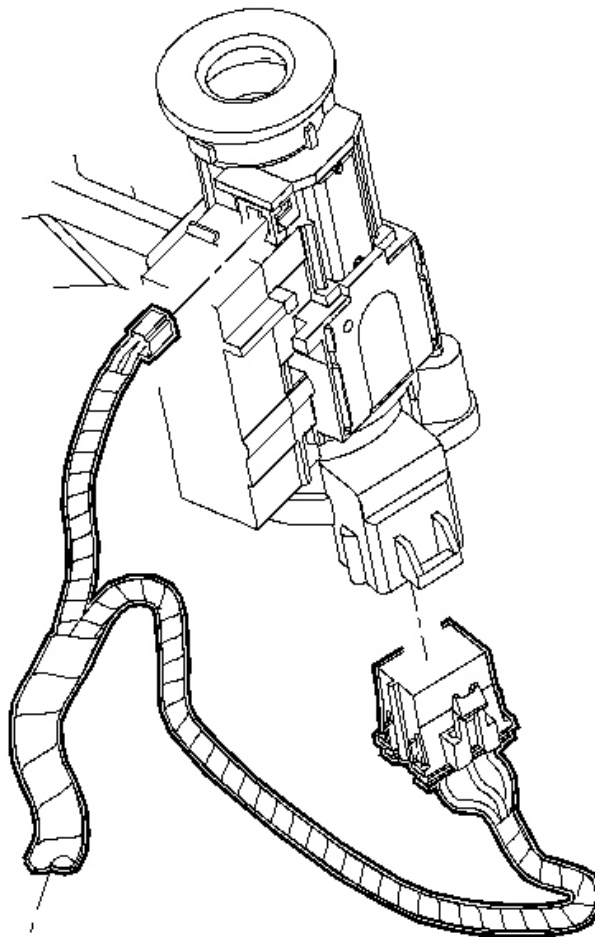


Fig. 40: Electrical Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

7. Connect the ignition housing electrical connectors.

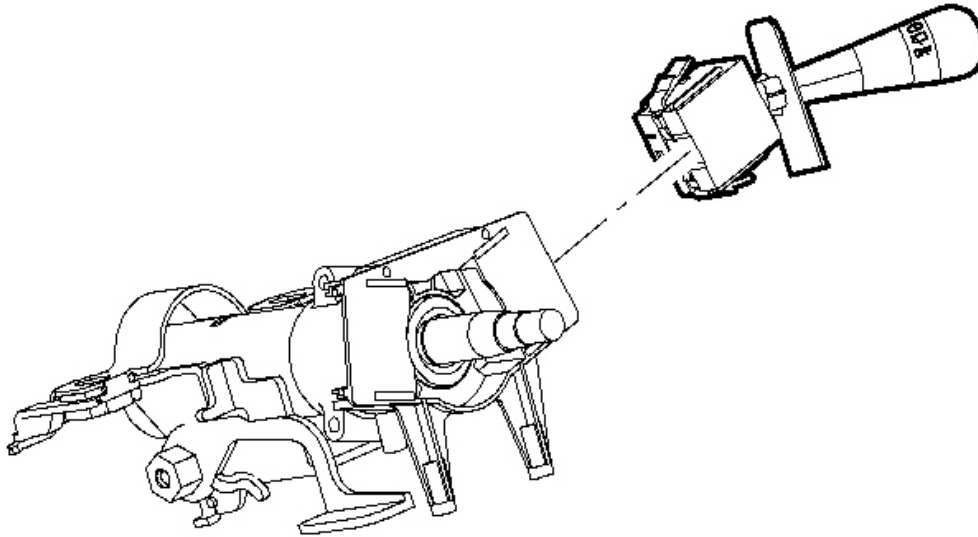


Fig. 41: Multi-Function Levers
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Ensure that both locking tabs are seated.

8. Install the multifunction levers.
9. Install the upper and lower shrouds. Refer to **Steering Column Trim Covers Replacement** .
10. Install the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement** in SIR.
11. Install the steering wheel. Refer to **Steering Wheel Replacement** .

12. Enable the SIR system. Refer to **SIR Disabling and Enabling Zone 3** in SIR.
13. Connect the negative battery cable. Refer to **Battery Negative Cable Disconnect/Connect Procedure** in Engine Electrical.

MULTIFUNCTION, TURN SIGNAL SWITCH REPLACEMENT

Removal Procedure

1. Remove the steering column trim covers. Refer to **Steering Column Trim Covers Replacement** .
2. Disconnect the multifunction turn signal switch harness connectors.

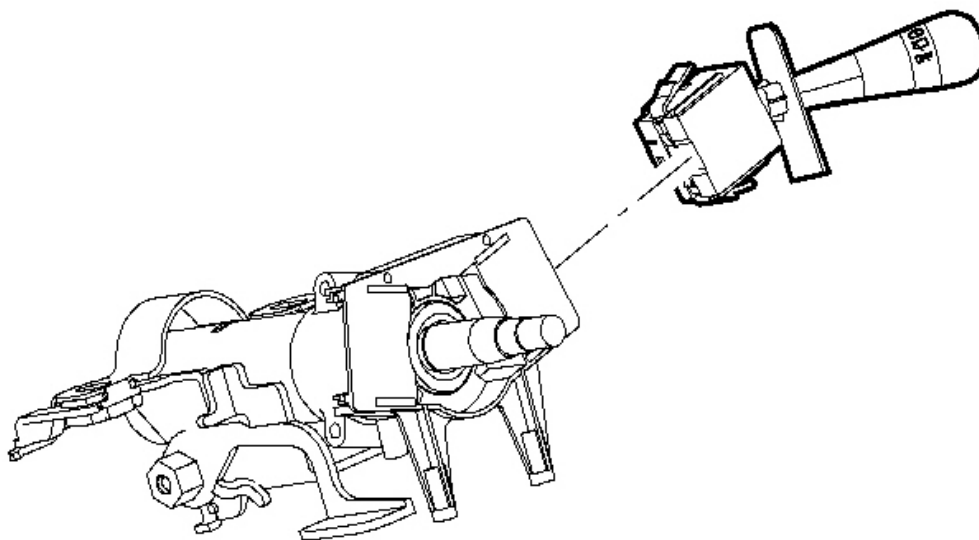


Fig. 42: Multi-Function Levers

Courtesy of GENERAL MOTORS CORP.

3. Depress the lock tabs on the left and right multifunction levers.
4. Remove the multifunction levers.

Installation Procedure

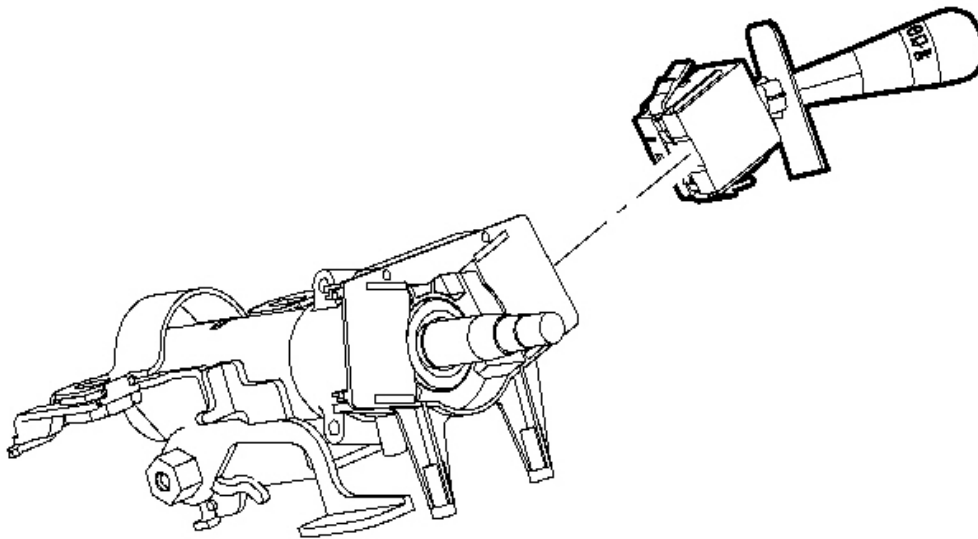


Fig. 43: Multi-Function Levers
Courtesy of GENERAL MOTORS CORP.

1. Install the multifunction turn signal switch to the steering column.

IMPORTANT: Ensure both locking tabs are seated.

2. Connect the multifunction turn signal switch harness connectors.
3. Install the steering column trim covers. Refer to **Steering Column Trim Covers Replacement** .

STEERING WHEEL CONTROL SWITCH ASSEMBLY REPLACEMENT

Disassembly Procedure

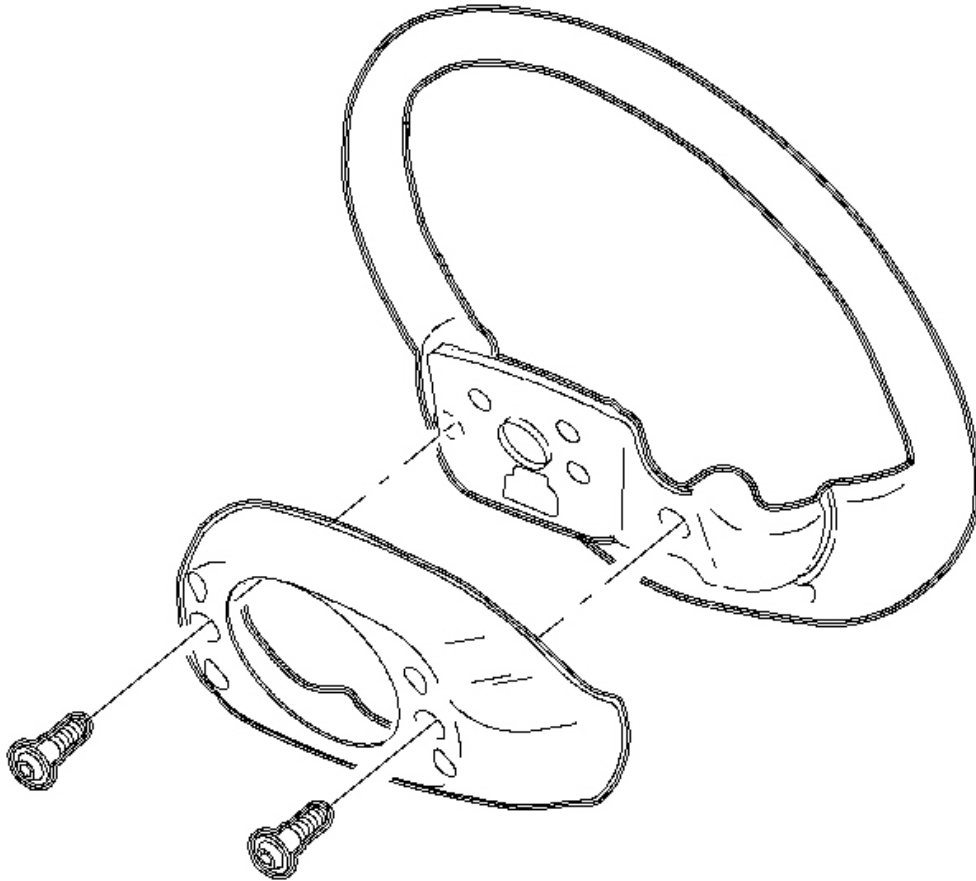


Fig. 44: Installing Steering Wheel Shroud & Screws
Courtesy of GENERAL MOTORS CORP.

1. Remove the screws from the steering wheel shroud.

NOTE: Cruise control switches must be removed from the rear. Do not attempt to pry them out from front as damage to steering wheel may occur.

2. If the vehicle is equipped with cruise control, push the switches out from the rear of the steering wheel.

Assembly Procedure

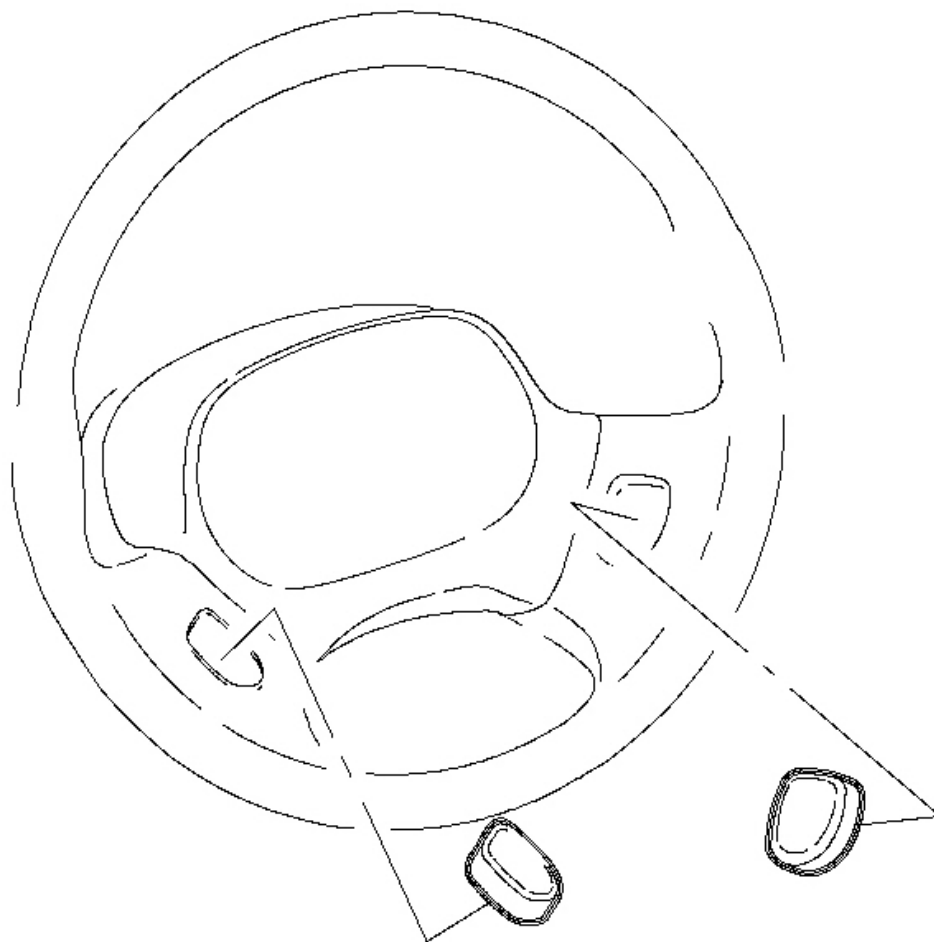


Fig. 45: Removing Steering Wheel Shroud & Screws
Courtesy of GENERAL MOTORS CORP.

1. If the vehicle is equipped with cruise control, install the switches by pushing them in place from the front of the wheel.
2. Install the screws in the steering wheel shroud.

STEERING WHEEL REPLACEMENT

Tools Required

- **J 42578** Steering Wheel Puller Legs. See Special Tools and Equipment .
- **J 1859-A** Steering Wheel Puller. See Special Tools and Equipment .

Removal Procedure

1. Disable the SIR system. Refer to **SIR Disabling and Enabling Zone 3** in SIR.
2. Remove the inflatable restraint steering wheel module. Refer to **Inflatable Restraint Steering Wheel Module Replacement** in SIR.

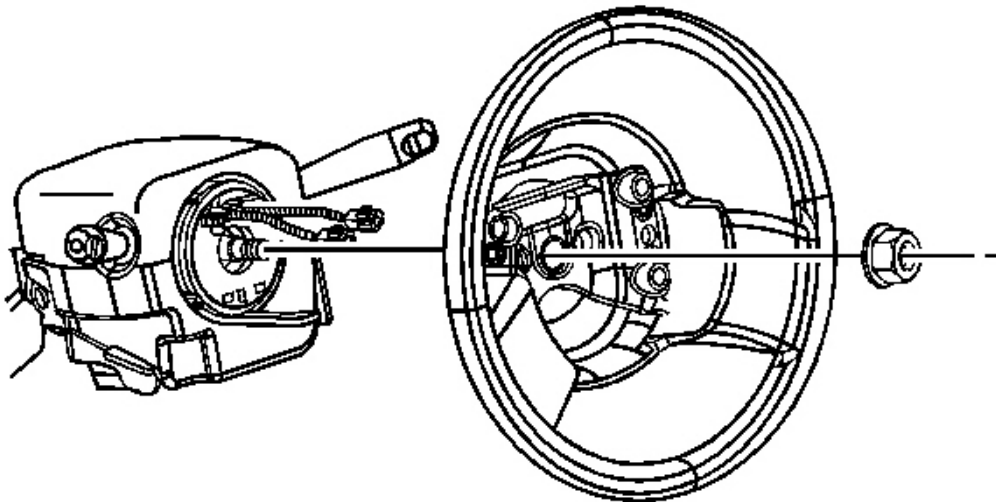


Fig. 46: Steering Wheel & Nut
Courtesy of GENERAL MOTORS CORP.

3. If equipped with cruise control, disconnect the cruise control switch connector from the steering column.
4. Remove the steering wheel nut.
5. Remove the steering wheel. It may be necessary to use the **J 42578** and **J 1859-A** or equivalent to remove the steering wheel. See Special Tools and Equipment .

Installation Procedure

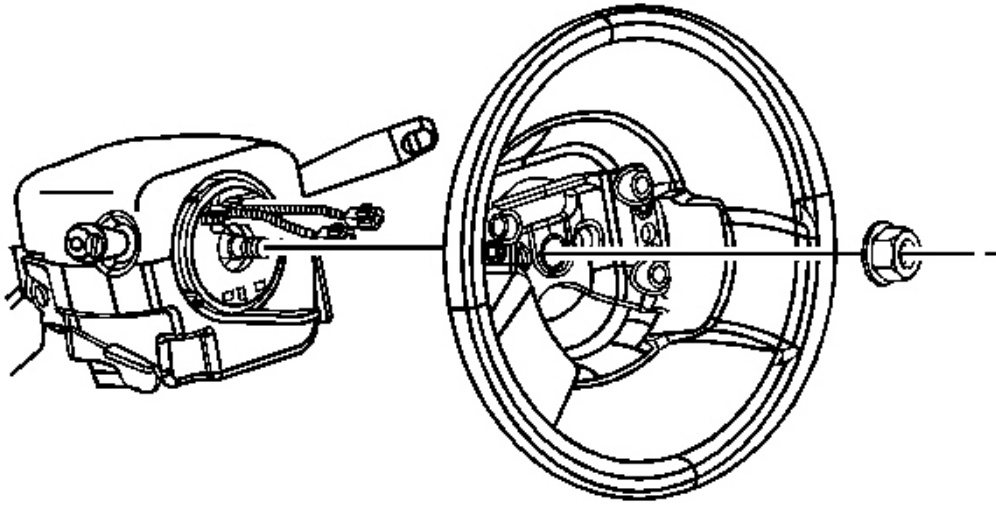


Fig. 47: Steering Wheel & Nut
Courtesy of GENERAL MOTORS CORP.

1. Align the steering wheel to the steering column and install the steering wheel.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the steering wheel nut.

Tighten: Tighten the steering wheel nut to 41 N.m (30 lb ft).

3. If equipped with cruise control, connect the cruise control switch connector.
4. Install the inflatable restraint steering wheel module. Refer to Inflatable Restraint Steering Wheel Module Replacement in SIR.
5. Enable the SIR system. Refer to SIR Disabling and Enabling Zone 3 in SIR.

STEERING COLUMN REPLACEMENT

Removal Procedure

1. Set the tires in a straight-ahead position. Center the steering wheel.
2. Remove the SIR module. Refer to Inflatable Restraint Steering Wheel Module Replacement in SIR.
3. Remove the steering wheel. Refer to Steering Wheel Replacement.
4. Remove the SIR coil. Refer to Inflatable Restraint Steering Wheel Module Coil Replacement in SIR.

5. Disconnect the negative battery cable. Refer to **Battery Negative Cable Disconnect/Connect Procedure** in Engine Electrical.
6. Using a thin-bladed screwdriver, remove the lock cylinder bezel.

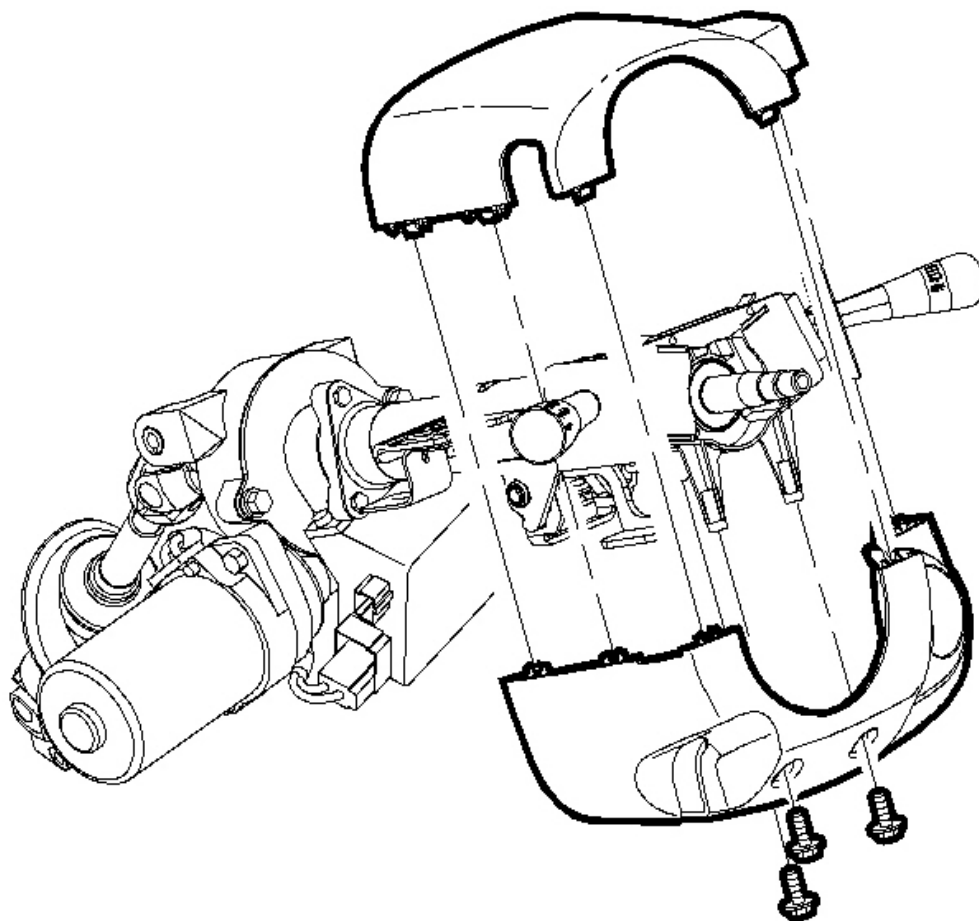


Fig. 48: Upper & Lower Shrouds
Courtesy of GENERAL MOTORS CORP.

7. Remove the shroud fasteners.
8. Remove the upper and lower shrouds.

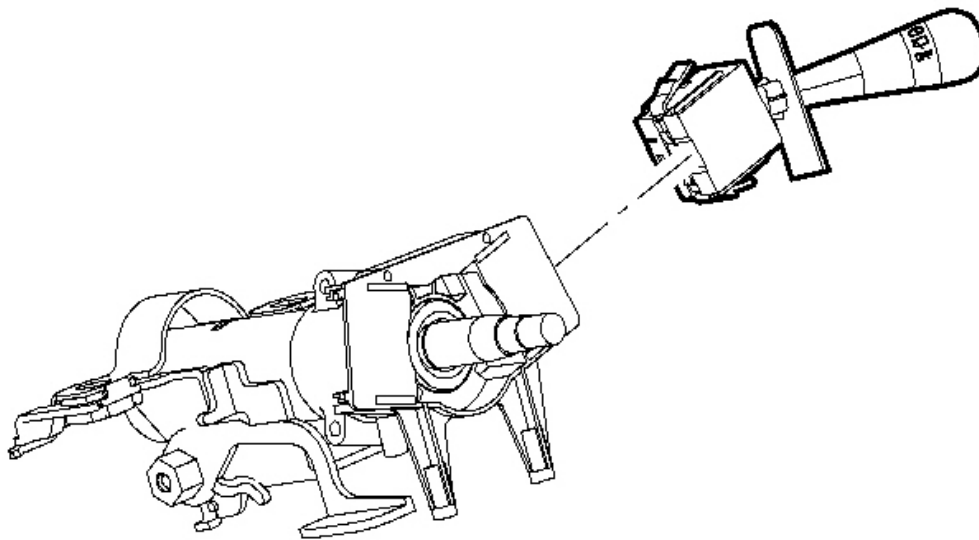


Fig. 49: Multi-Function Levers
Courtesy of GENERAL MOTORS CORP.

9. Depress the lock tabs on the left and right multi-function levers. Remove the multi-function levers.

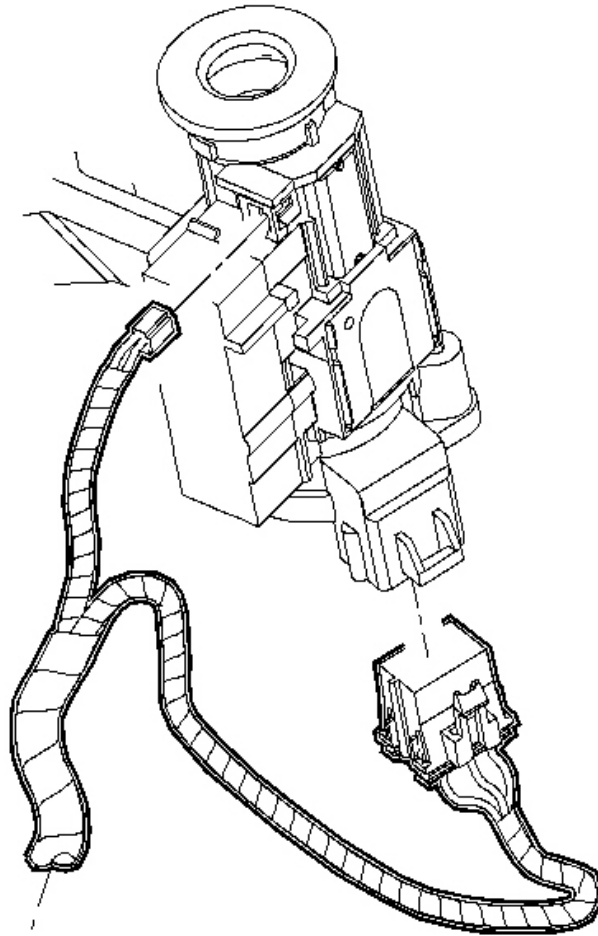


Fig. 50: Electrical Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

10. Disconnect the electrical housing electrical connectors.

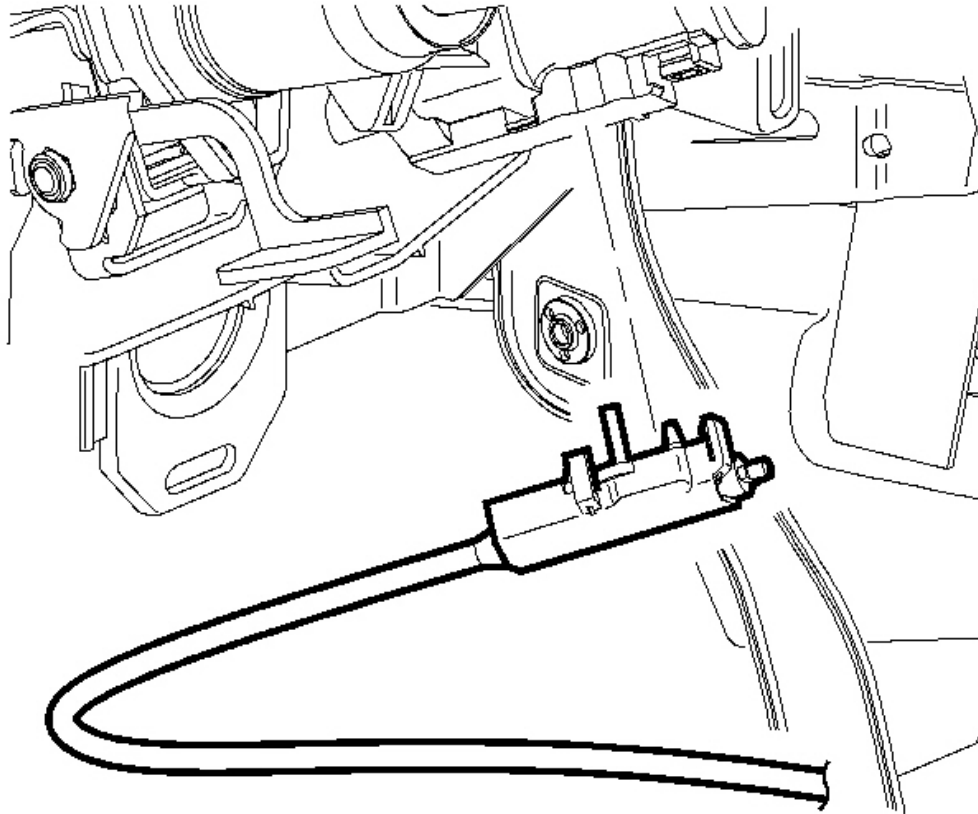


Fig. 51: Park Lock Cable Assembly & Ignition Module
Courtesy of GENERAL MOTORS CORP.

11. Disengage the retaining tabs on the park lock cable assembly. Remove the assembly from the ignition module.
12. Disconnect the ignition switch electrical connector.

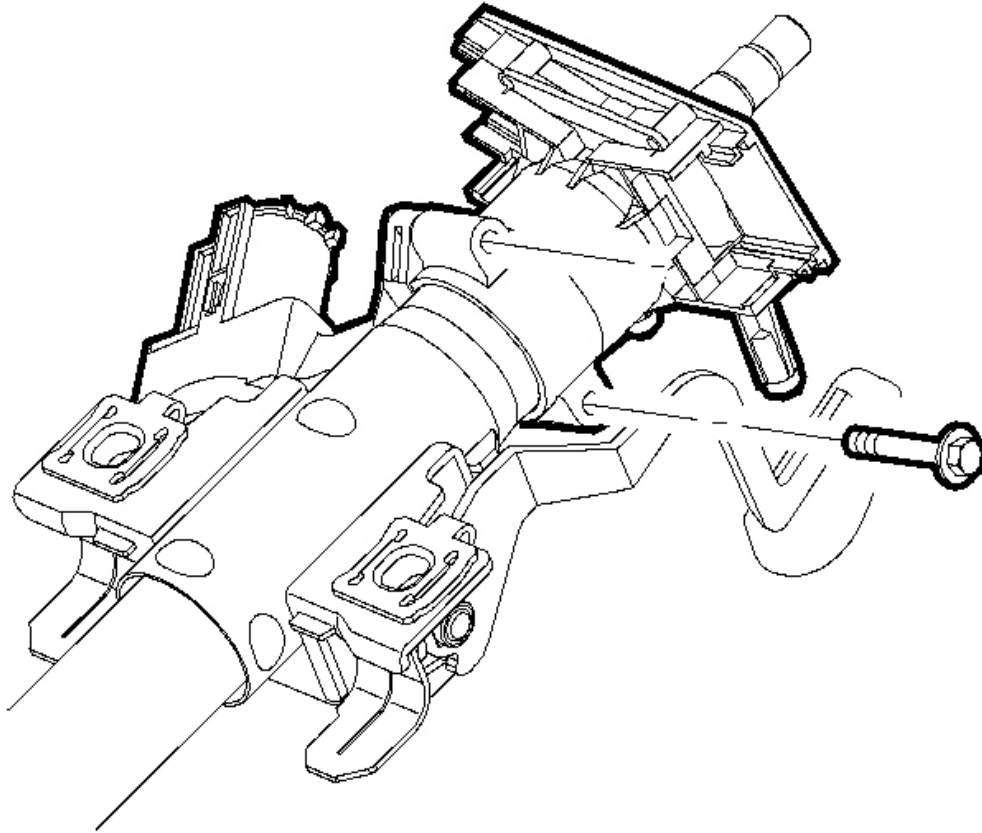


Fig. 52: Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

13. Remove the lock housing bolts.

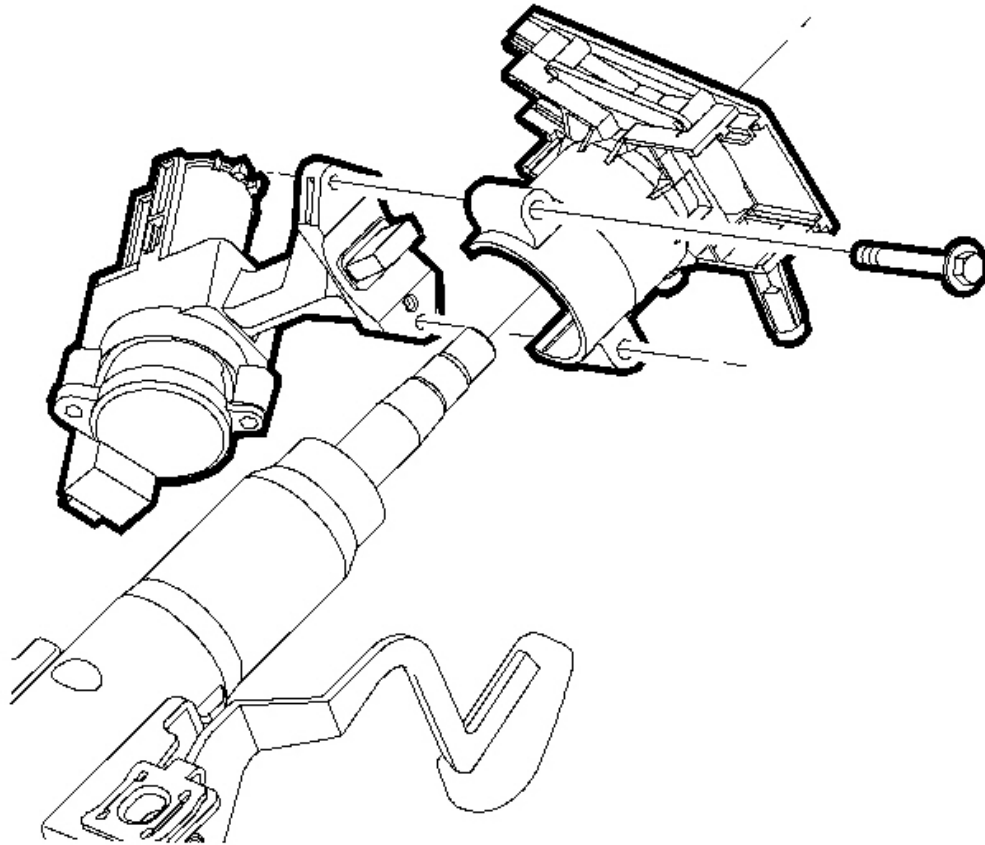


Fig. 53: Ignition Housing & Multi-Function Bracket
Courtesy of GENERAL MOTORS CORP.

14. Remove the lock housing. Slide the bracket from the column.

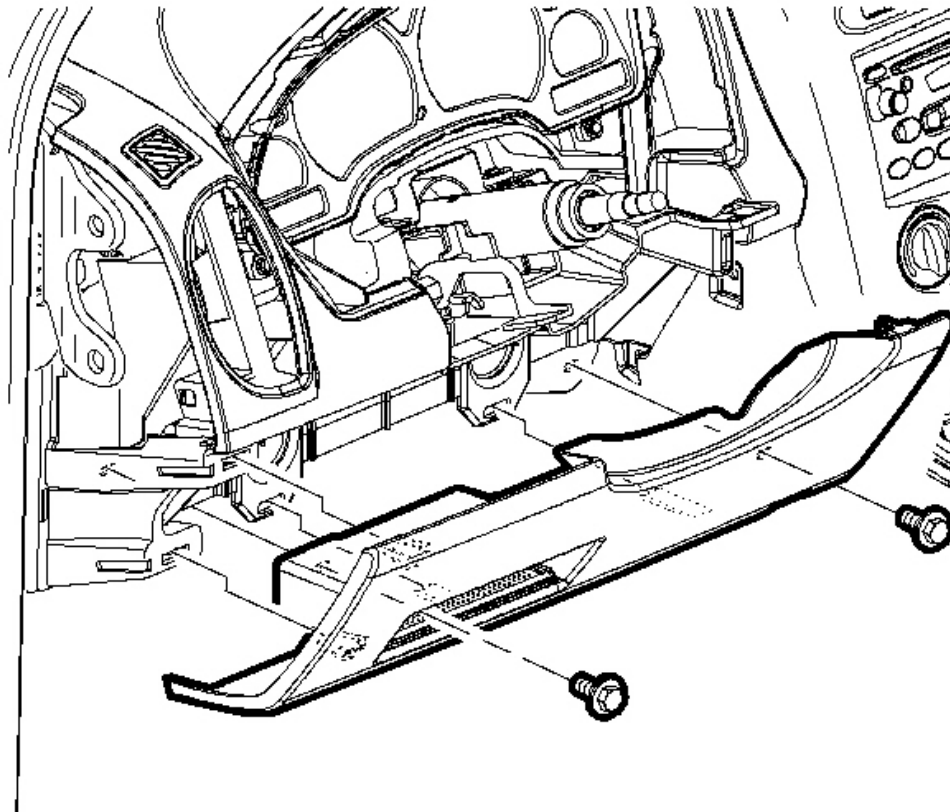


Fig. 54: Knee Bolster & Bolts
Courtesy of GENERAL MOTORS CORP.

15. Remove the knee bolster bolts. Unsnap the knee bolster.

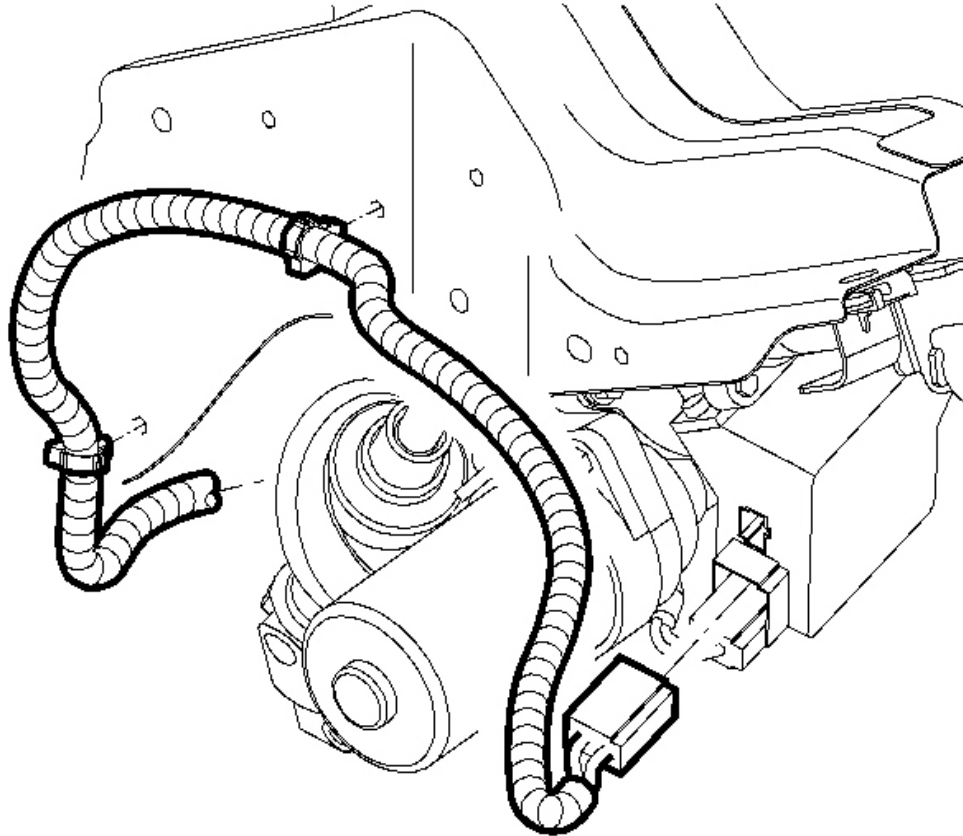


Fig. 55: EPS Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

16. Disconnect the electric power steering (EPS) electrical connectors from the EPS controller.

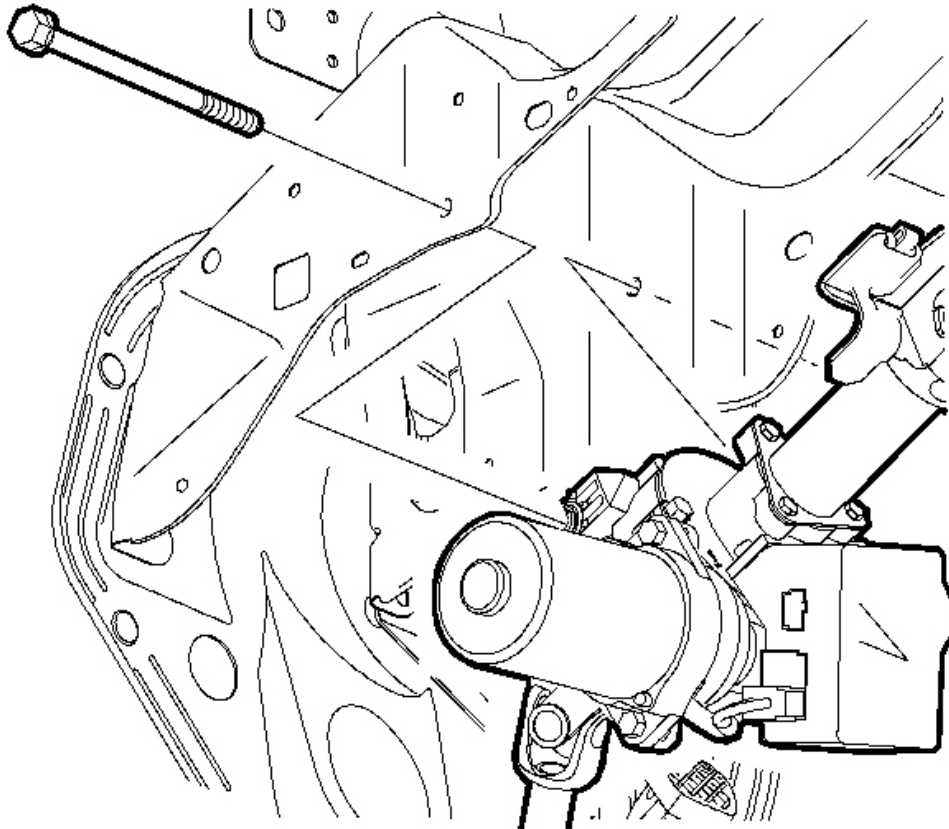


Fig. 56: Lower Column & Mounting Bolt
Courtesy of GENERAL MOTORS CORP.

17. Remove the lower column mounting bolt.

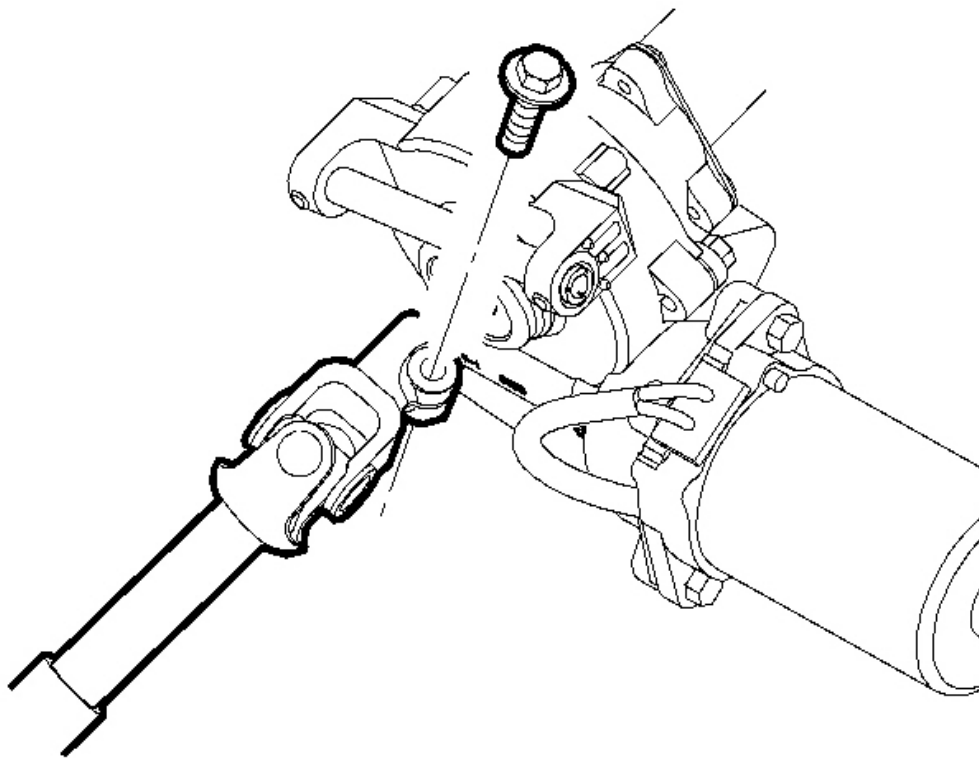


Fig. 57: Steering Wheel Column & I-Shaft Bolt
Courtesy of GENERAL MOTORS CORP.

NOTE: Rotating steering wheel while it is disconnected from the steering gear may cause damage to SIR coil.

IMPORTANT: If you are installing the removed column, index mark the column to the I-shaft connection for reassembly alignment.

18. Remove and discard the column to I-shaft bolt.

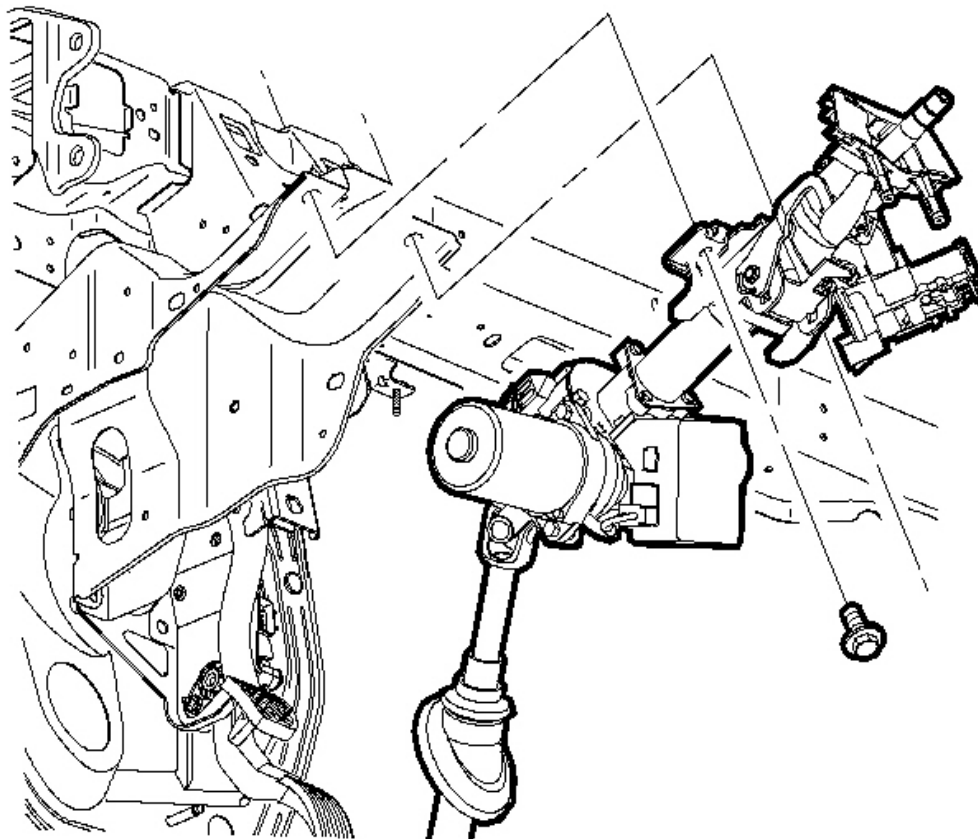


Fig. 58: Upper Column & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

19. Remove the upper column attachment bolts.
20. Remove the steering column.

Installation Procedure

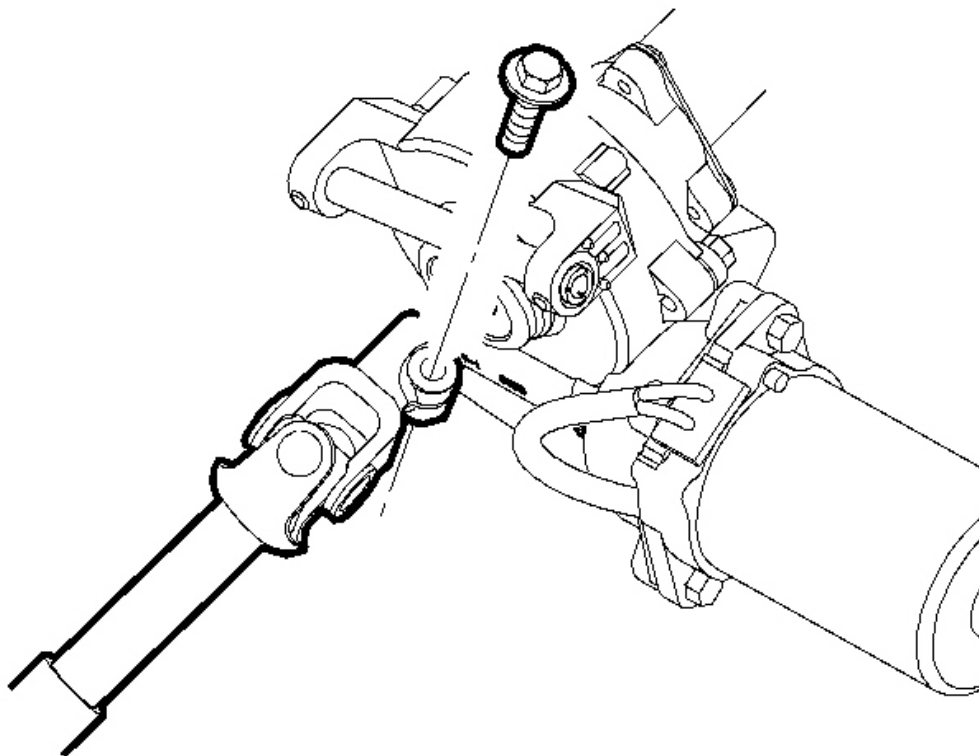


Fig. 59: Steering Wheel Column & I-Shaft Bolt
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

IMPORTANT: When installing a NEW service replacement EPS column, the Saturn Service Stall (SSS) must be utilized to properly program the EPS controller contained with the column.

IMPORTANT: Ensure the steering wheel alignment is in the 12 o'clock position.

1. Position the column into the vehicle and insert I-shaft onto the lower column. Install a new I-shaft bolt

and tighten. Align index marks as re-installing removed column.

Tighten: Tighten the I-shaft bolt to 34 N.m (25 lb ft).

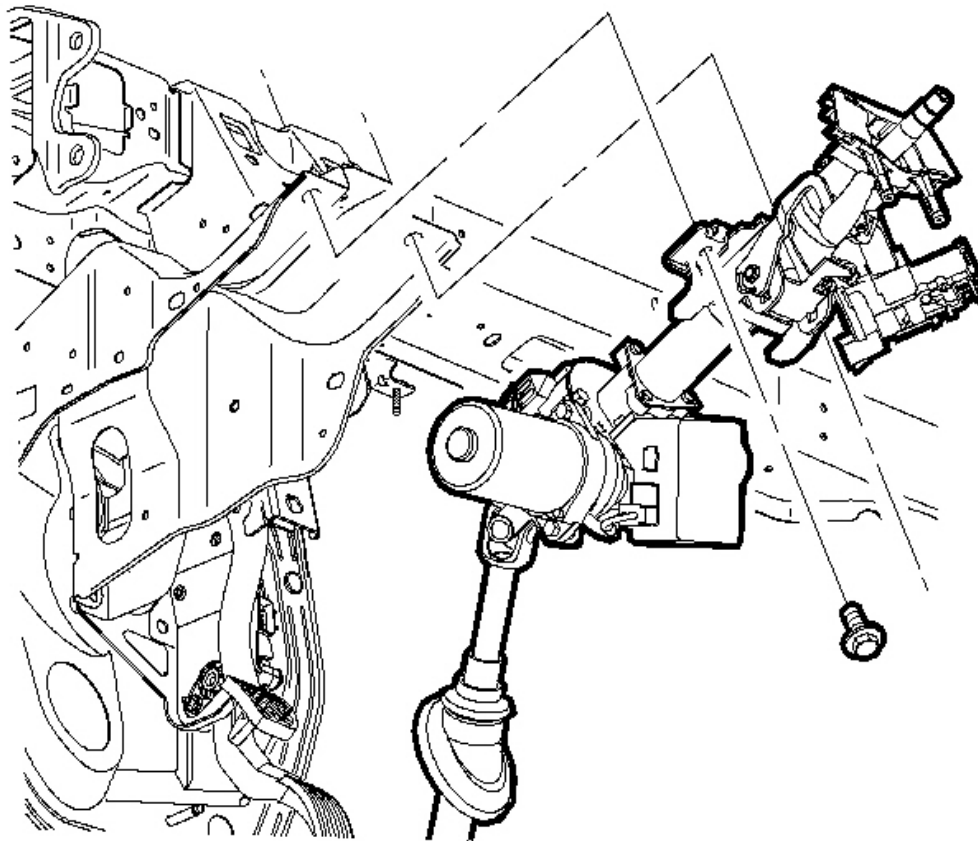


Fig. 60: Upper Column & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

2. Hand start the upper column mounting bolts.

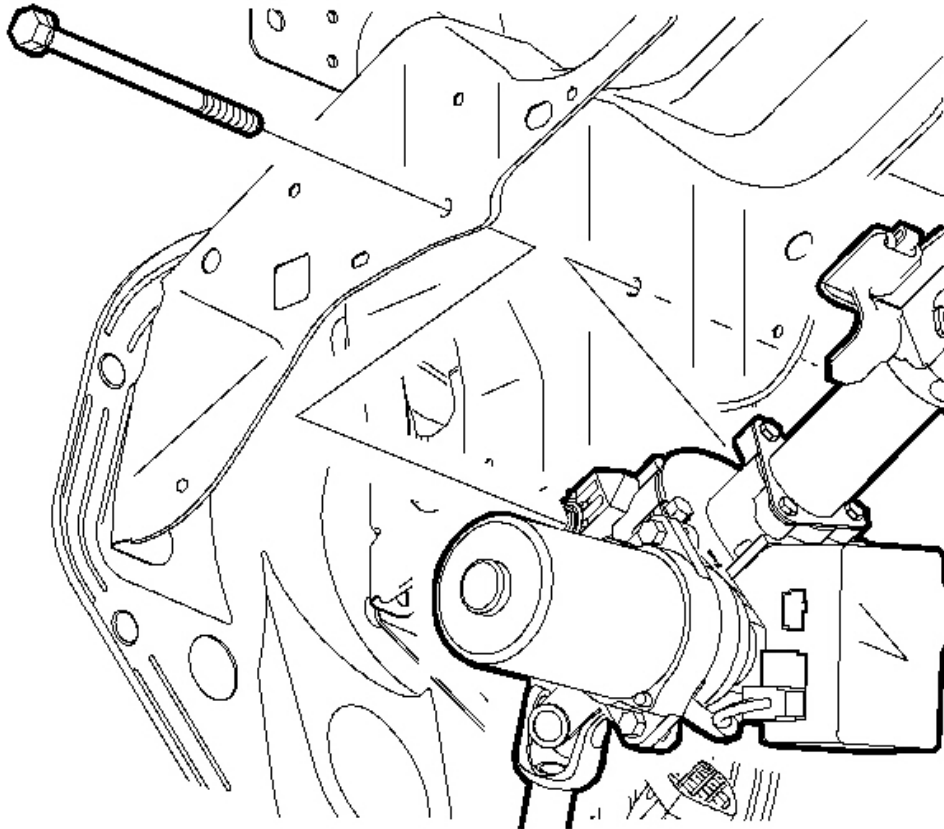


Fig. 61: Lower Column & Mounting Bolt
Courtesy of GENERAL MOTORS CORP.

3. Install the lower column through-bolt. Hand tighten until snug.
4. Pre-assemble the lock housing and multi-function lever bracket. Hand tighten the bolts leaving approximately 3.2 mm (1/8 in) gap at both bolts.

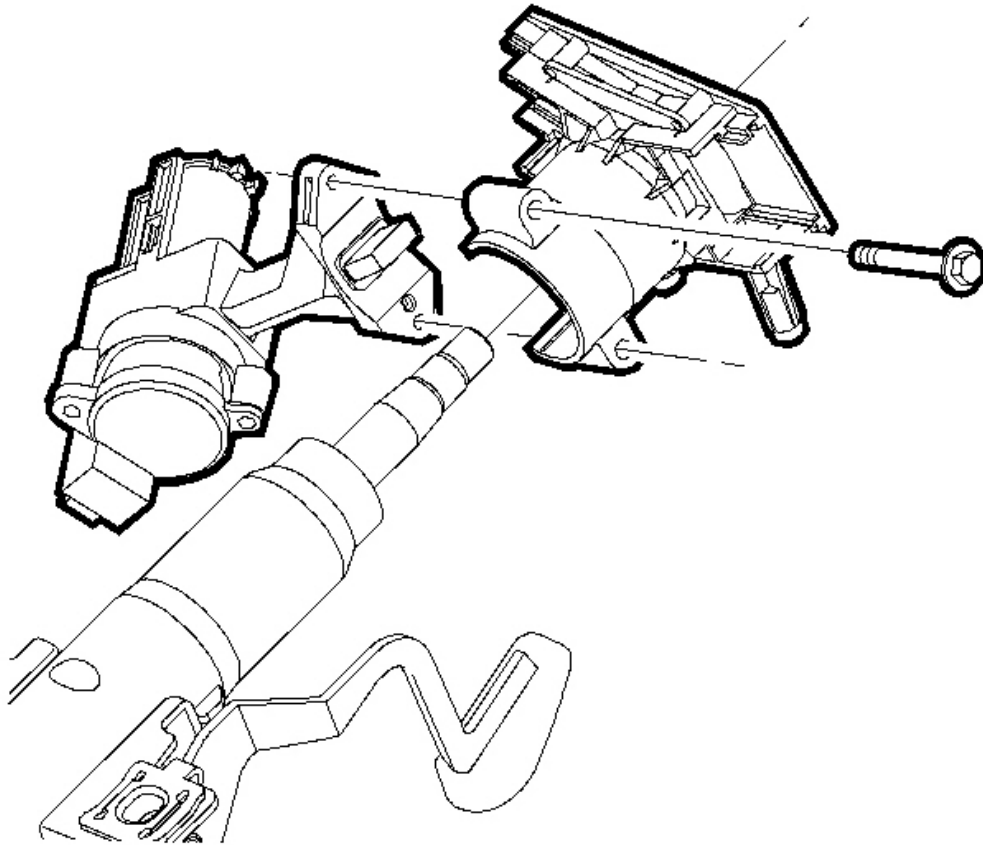


Fig. 62: Ignition Housing & Multi-Function Bracket
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Ensure the lock tab fully engages into slot in column.

5. Slide the bracket onto the column.
6. Hand tighten the lower lock housing bolt until snug.

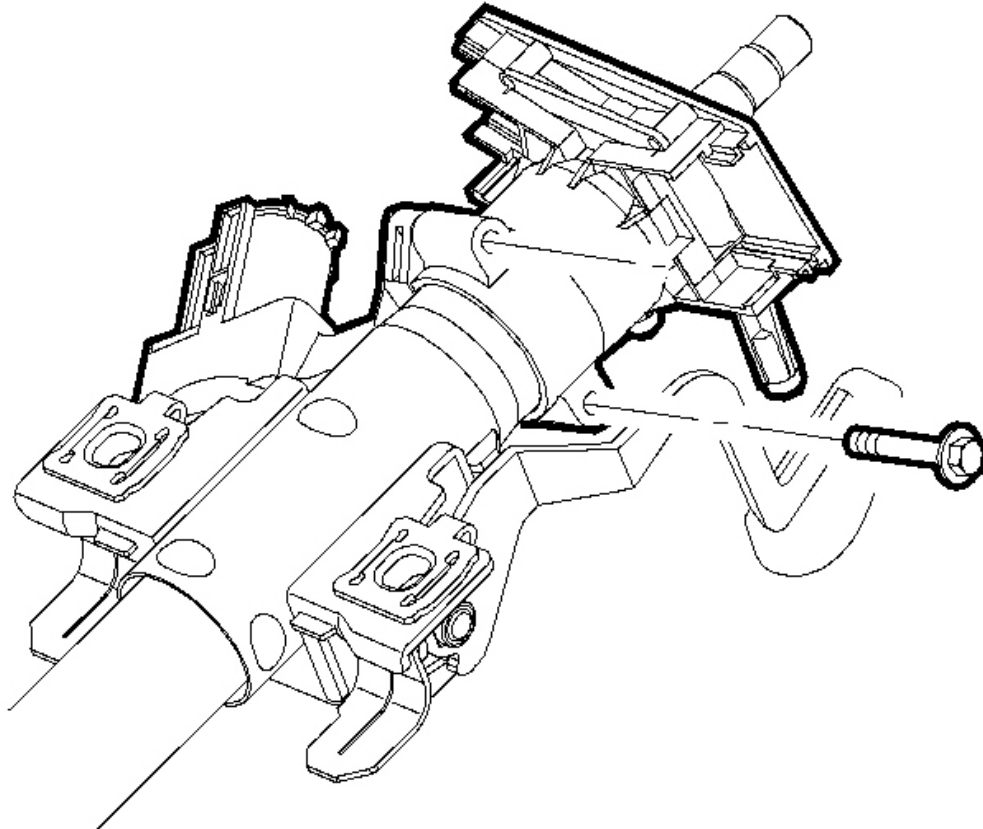


Fig. 63: Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

7. Hand tighten the upper lock housing bolt until snug.
8. Tighten the lower lock housing bolt.

Tighten: Tighten the lower bolt to 8 N.m (71 lb in).

9. Tighten the upper lock housing bolt.

Tighten: Tighten the upper bolt to 8 N.m (71 lb in).

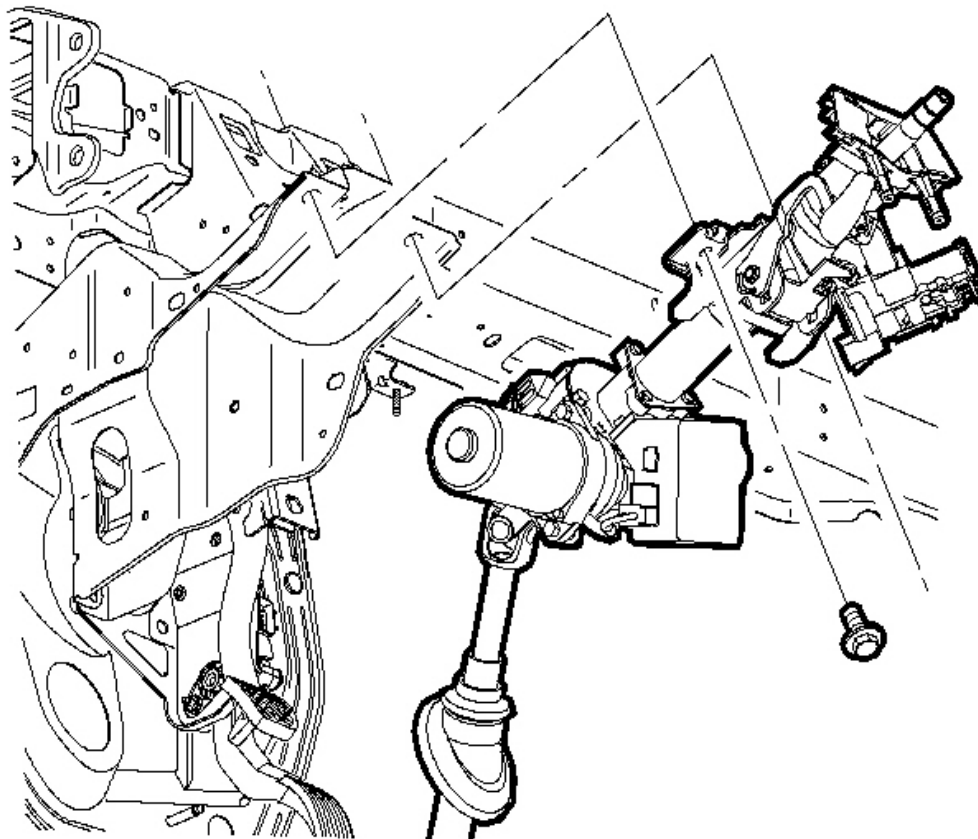


Fig. 64: Upper Column & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

10. Secure the left side upper column mounting bolt.

Tighten: Tighten the left side upper column mounting bolt to 25 N.m (18 lb ft).

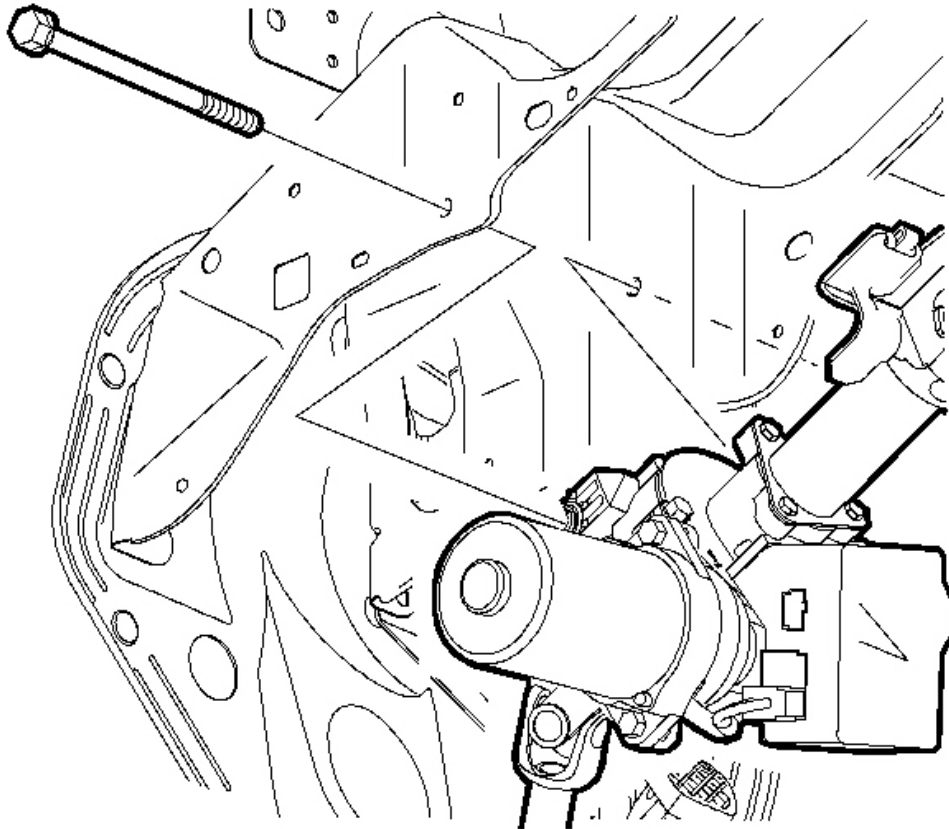


Fig. 65: Lower Column & Mounting Bolt
Courtesy of GENERAL MOTORS CORP.

11. Secure the lower column mounting bolt.

Tighten: Tighten the lower column mounting bolt to 25 N.m (18 lb ft).

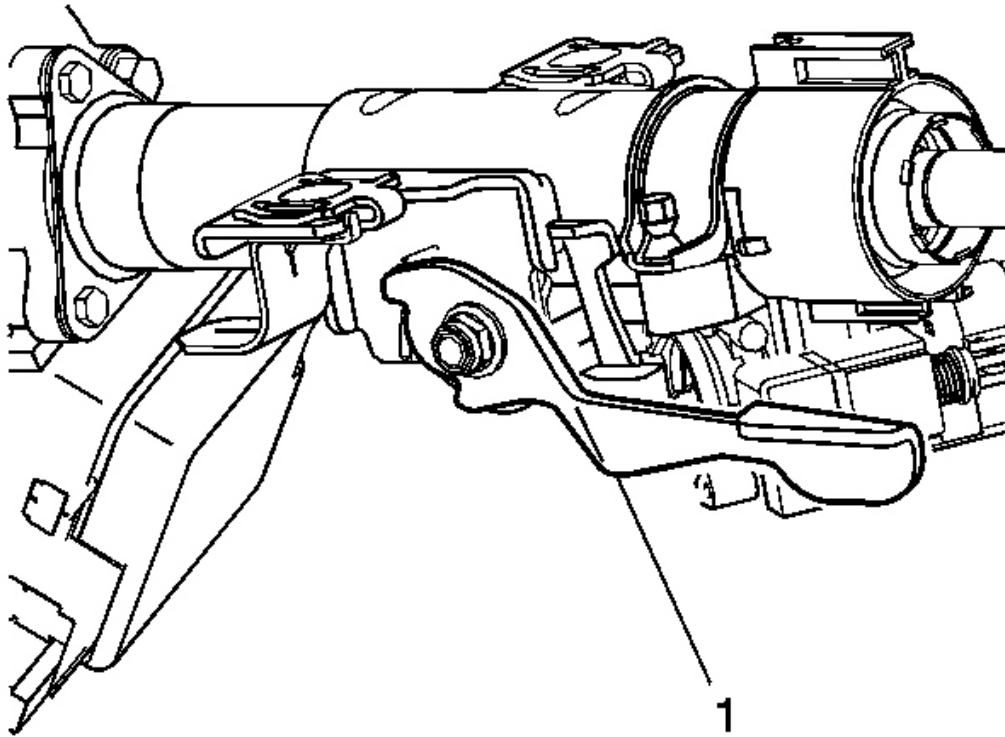


Fig. 66: Release & Secure Rake/Tilt Lever
Courtesy of GENERAL MOTORS CORP.

12. Operate column through range of motion before securing the final bolt.
 1. Release rake/tilt lever (1).
 2. Move column up and down 3 times.
 3. Set column in UP position.
 4. Secure rake/tilt lever (1).

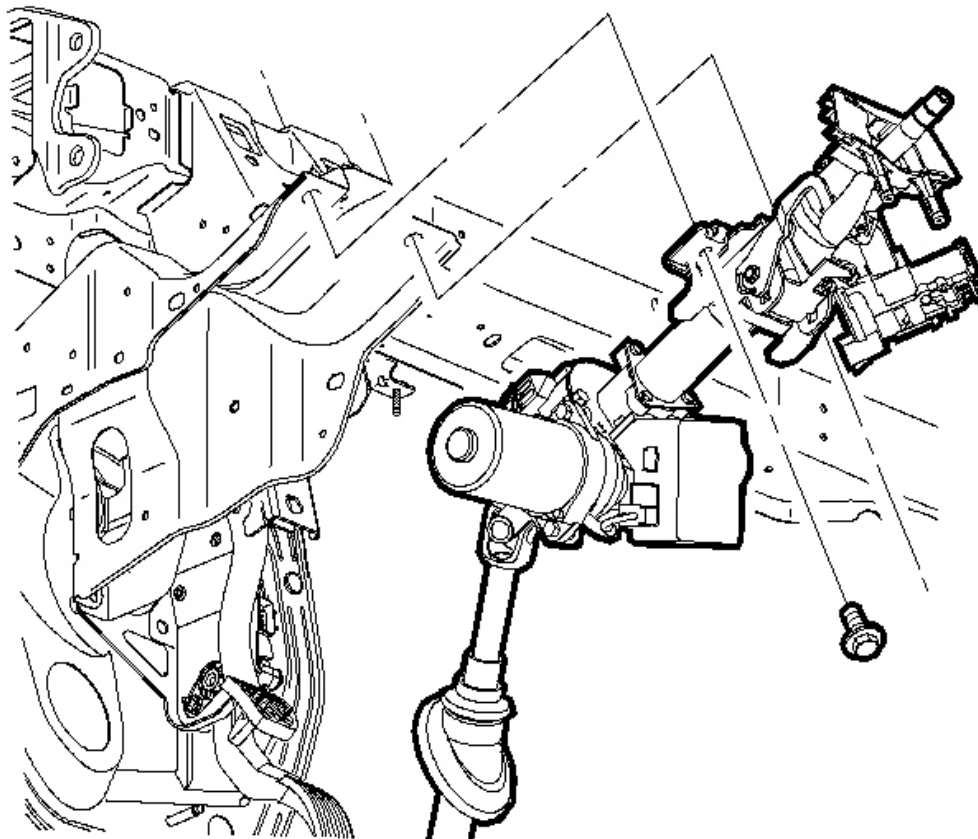


Fig. 67: Upper Column & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

13. Secure the right side upper column mounting bolt.

Tighten: Tighten the right side upper column mounting bolt to 25 N.m (18 lb ft).

14. Install the ignition housing electrical connectors.

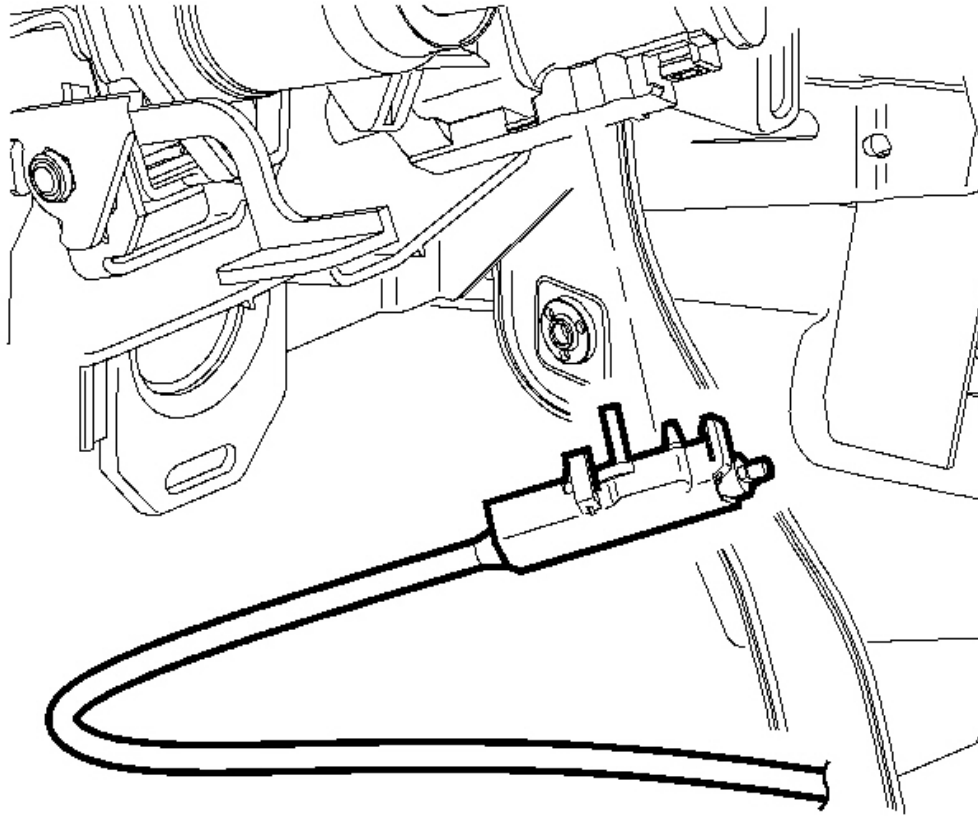


Fig. 68: Park Lock Cable Assembly & Ignition Module
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Ensure both locking tabs are properly seated.

15. Align and install the park lock cables onto ignition module by snapping into place.

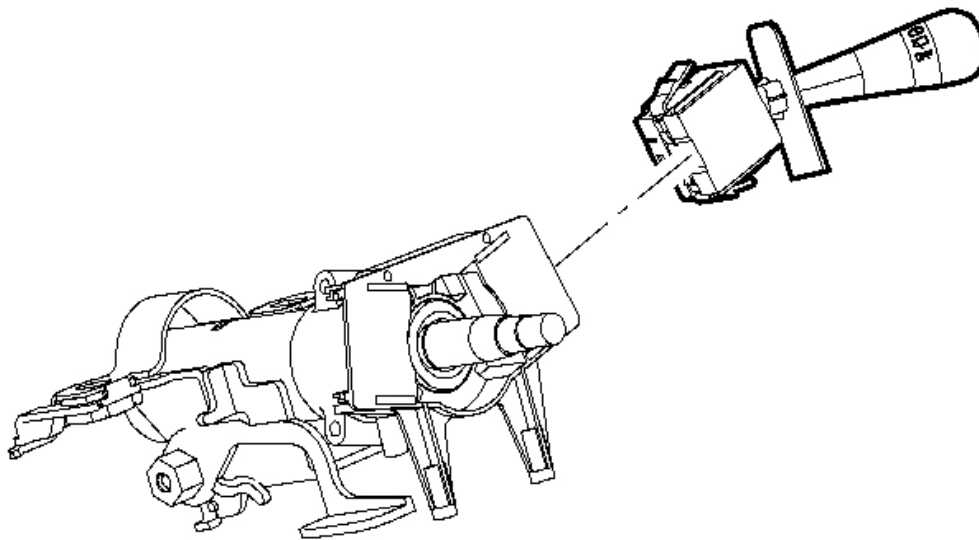


Fig. 69: Multi-Function Levers
Courtesy of GENERAL MOTORS CORP.

16. Install the multi-function levers.

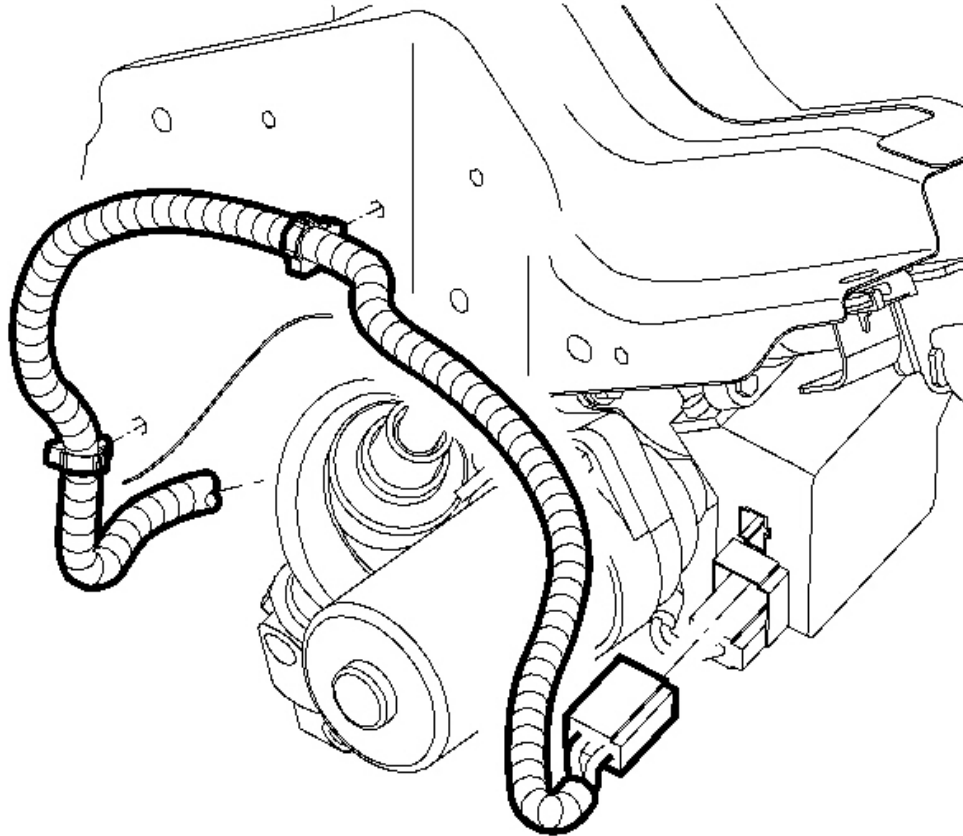


Fig. 70: EPS Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

17. Install EPS electrical connectors to EPS controller.

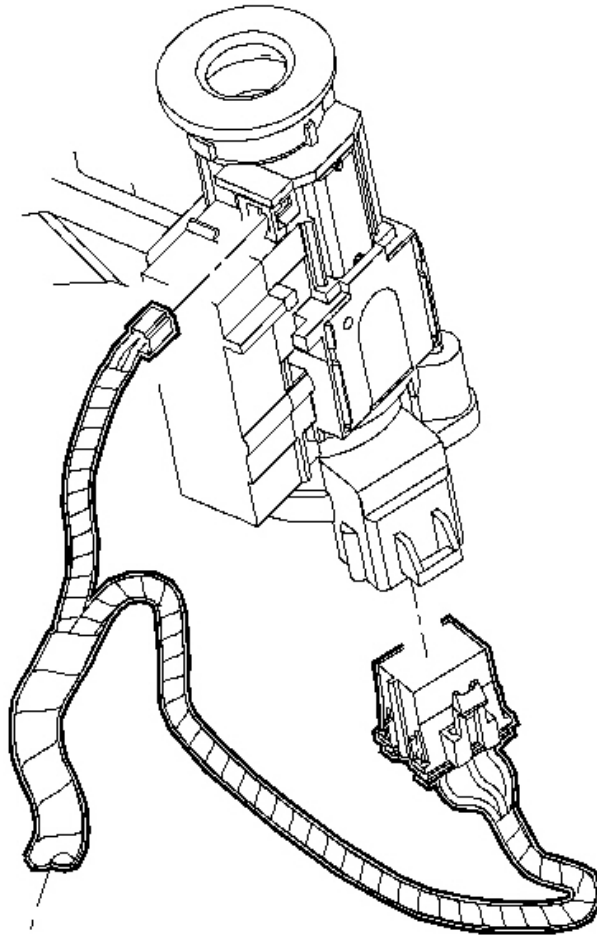


Fig. 71: Electrical Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

18. Install the electrical housing electrical connectors.

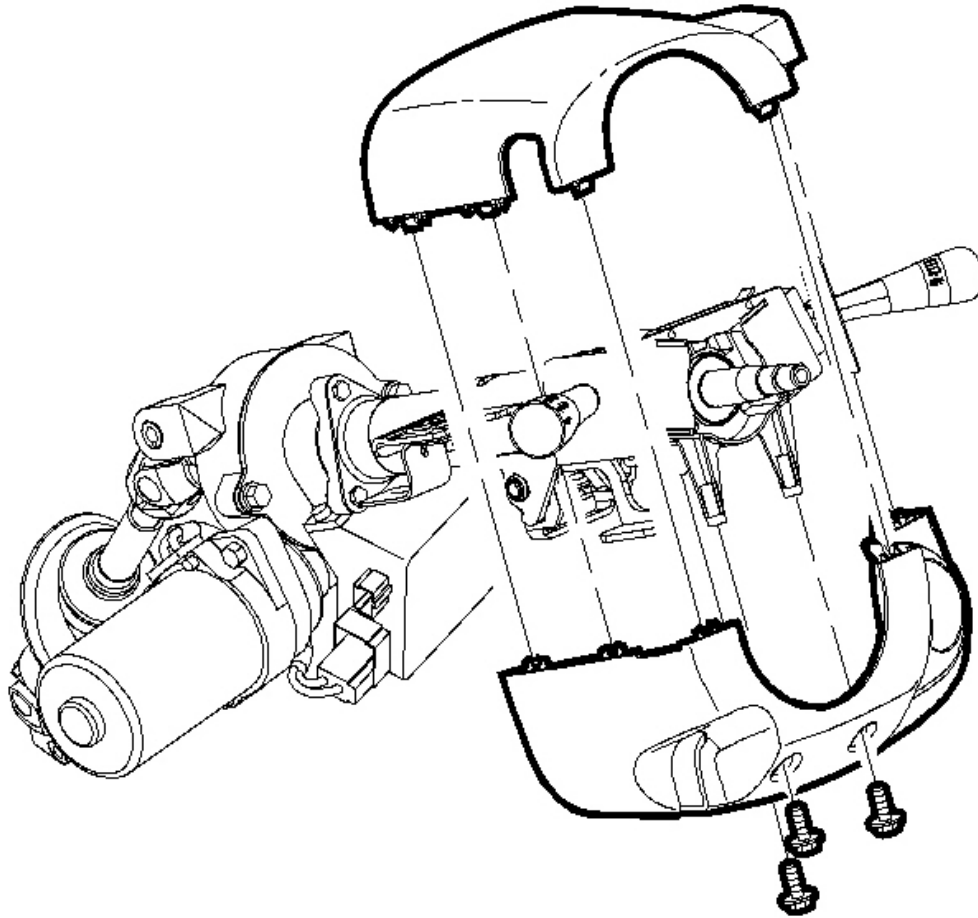


Fig. 72: Upper & Lower Shrouds
Courtesy of GENERAL MOTORS CORP.

19. Install the upper and lower shrouds, install screws, and tighten.

Tighten: Tighten the shroud screws to 4 N.m (35 lb in).

20. Install the lock cylinder bezel (snap fit).

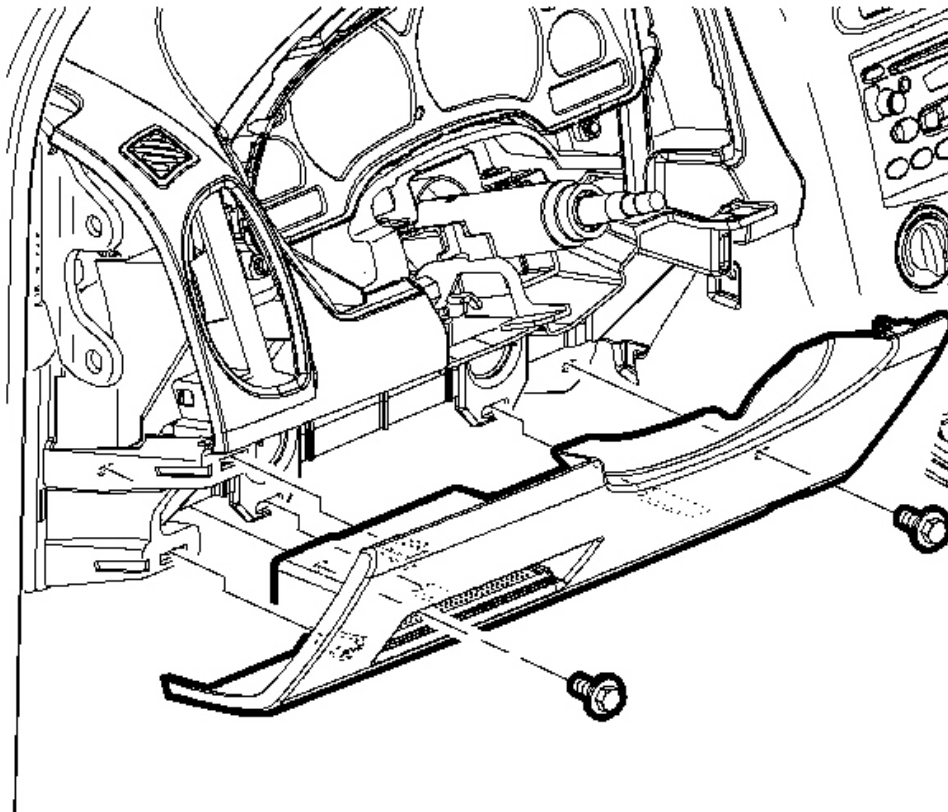


Fig. 73: Knee Bolster & Bolts
Courtesy of GENERAL MOTORS CORP.

21. Press in knee bolster and install the bolts.

Tighten: Tighten the knee bolster bolts to 4 N.m (35 lb in).

22. Install the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement** in SIR.
23. Install the steering wheel. Refer to **Steering Wheel Replacement** .
24. Install the SIR module. Refer to **Inflatable Restraint Steering Wheel Module Replacement** in SIR.
25. Test drive the vehicle. Inspect for proper steering operation.
26. Connect the negative battery cable. Refer to **Battery Negative Cable Disconnect/Connect Procedure** in

STEERING COLUMN JACKET REPLACEMENT

Removal Procedure

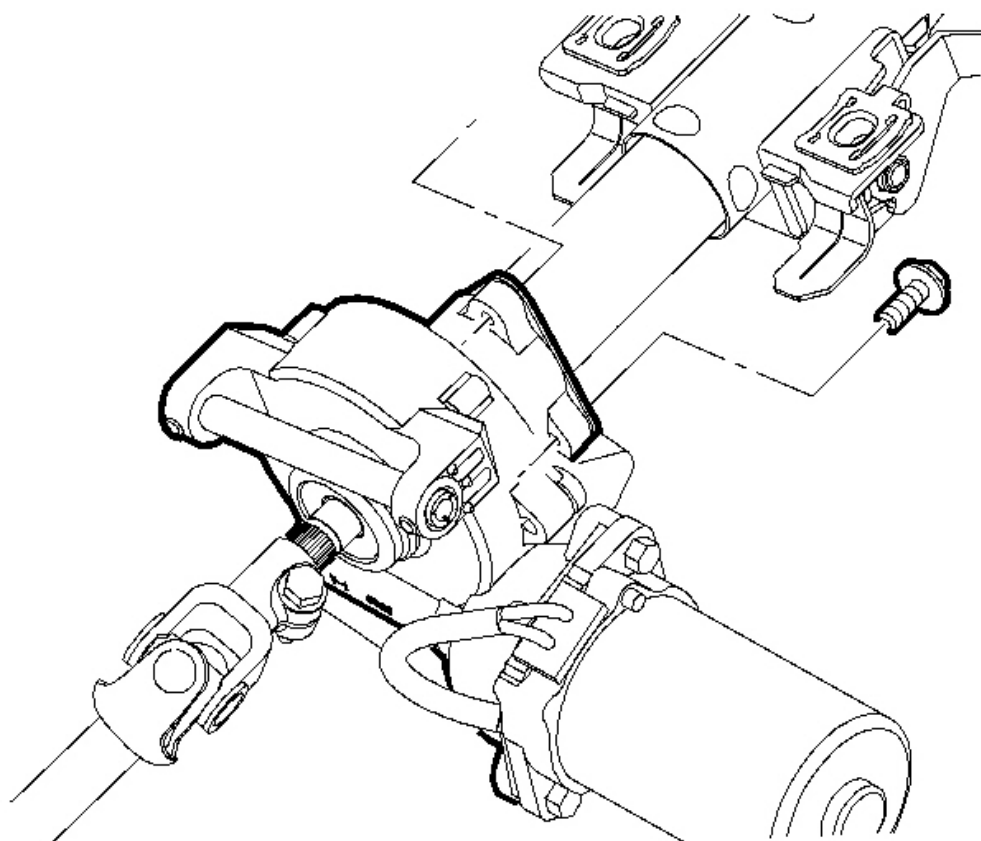


Fig. 74: Jacket & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

1. Remove the jacket attachment bolts.

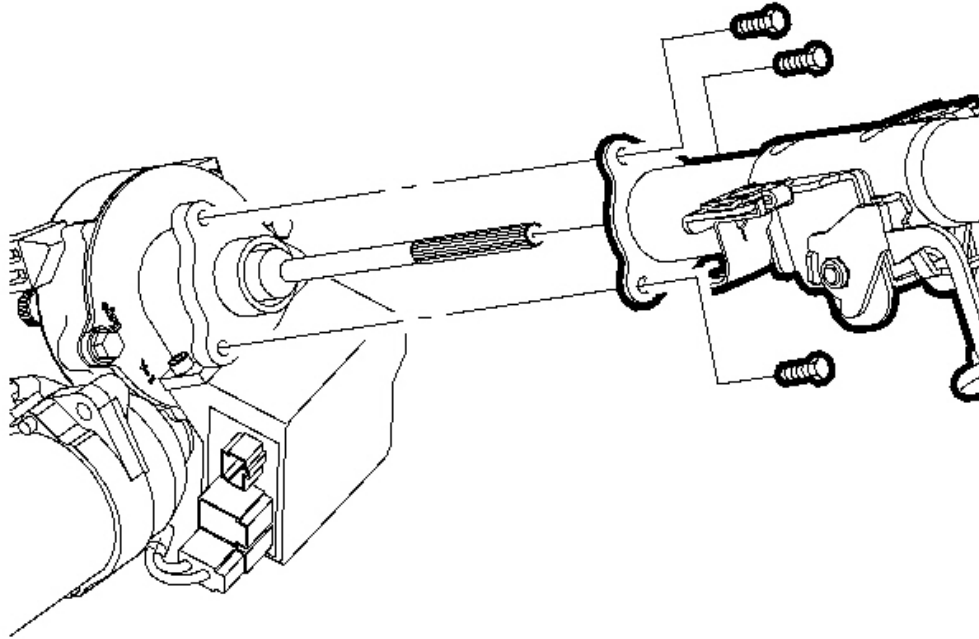


Fig. 75: Lower Column Shaft & Components
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Do not strike or bump the exposed shaft

2. Remove the upper jacket.
3. Clean the lower column shaft splines.
4. Ensure that the upper jacket shaft splines are clean and free of debris.
5. Use the supplied grease to apply 2 grams (0.07 oz) of grease to the column shaft splines.
6. Ensure that the steering wheel alignment notch is in the 12 o'clock position.
7. Carefully seat the jacket to the column housing.

8. Install the new upper jacket onto the lower column.

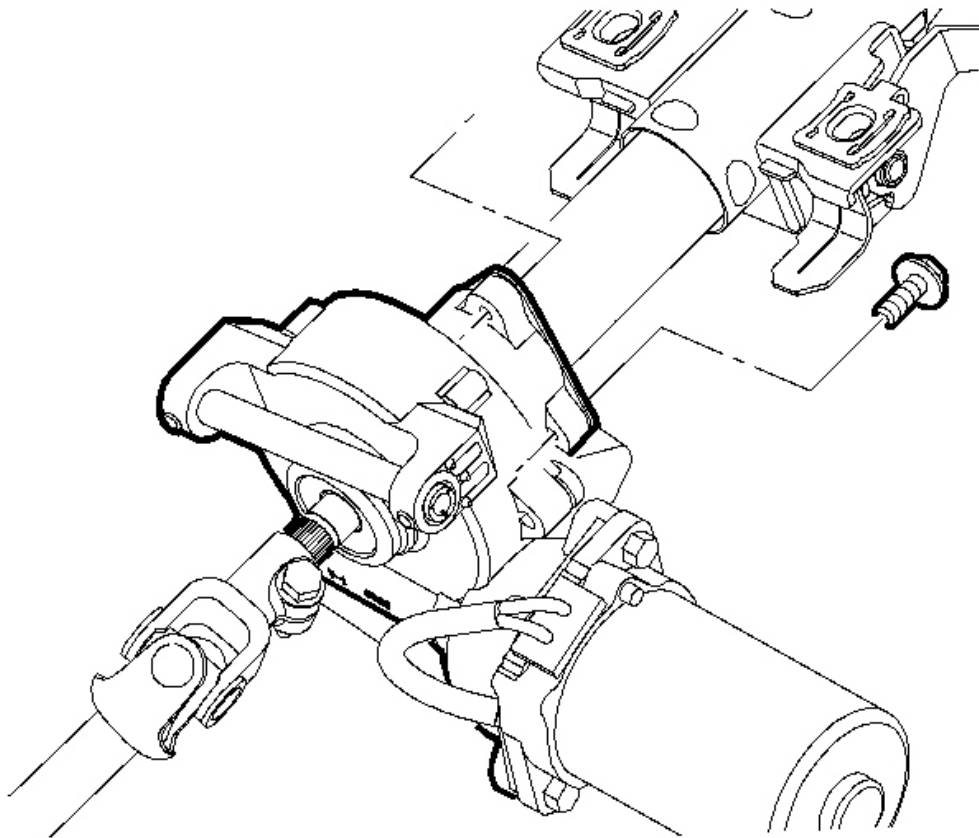


Fig. 76: Jacket & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

9. Hand start all jacket attachment bolts.

Tighten: Tighten the jacket attachment bolts to 11 N.m (8 lb ft).

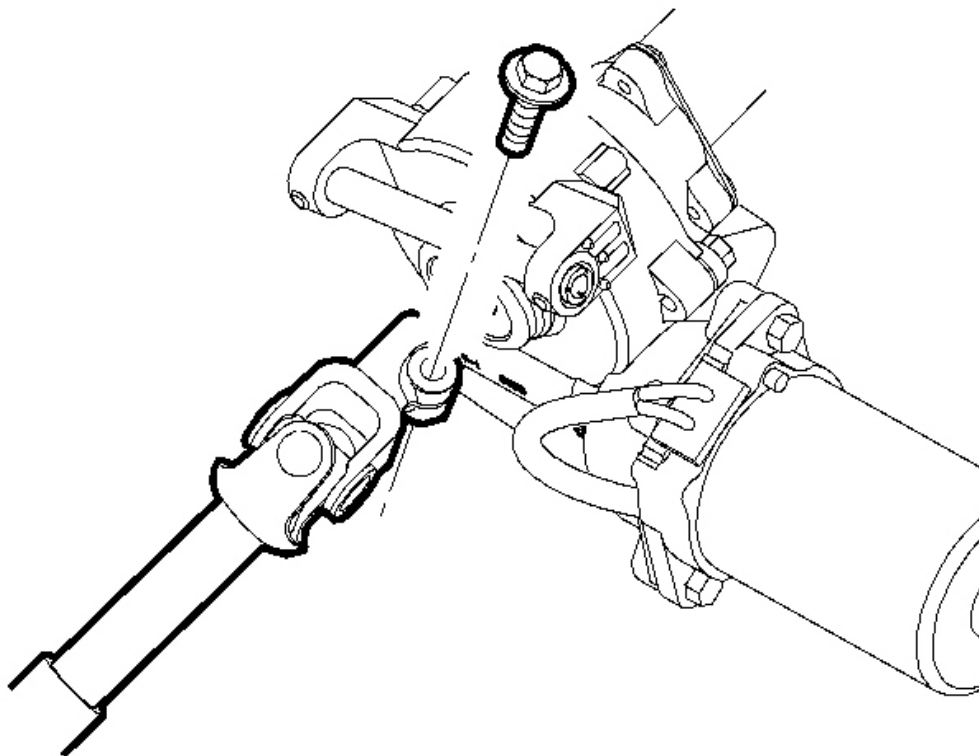


Fig. 77: Steering Wheel Column & I-Shaft Bolt
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: When installing a new service replacement UPS column, the Saturn Service Stall (SSE) must be utilized to properly program the UPS controller contained within the column.

1. Ensure that the steering wheel alignment notch is in the 12 o'clock position.
2. Position the column into the vehicle. Insert the I-shaft onto the lower column.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install a new I-shaft bolt.

Tighten: Tighten the bolt to 34 N.m (25 lb ft)

4. Hand tighten the upper column mounting bolts.

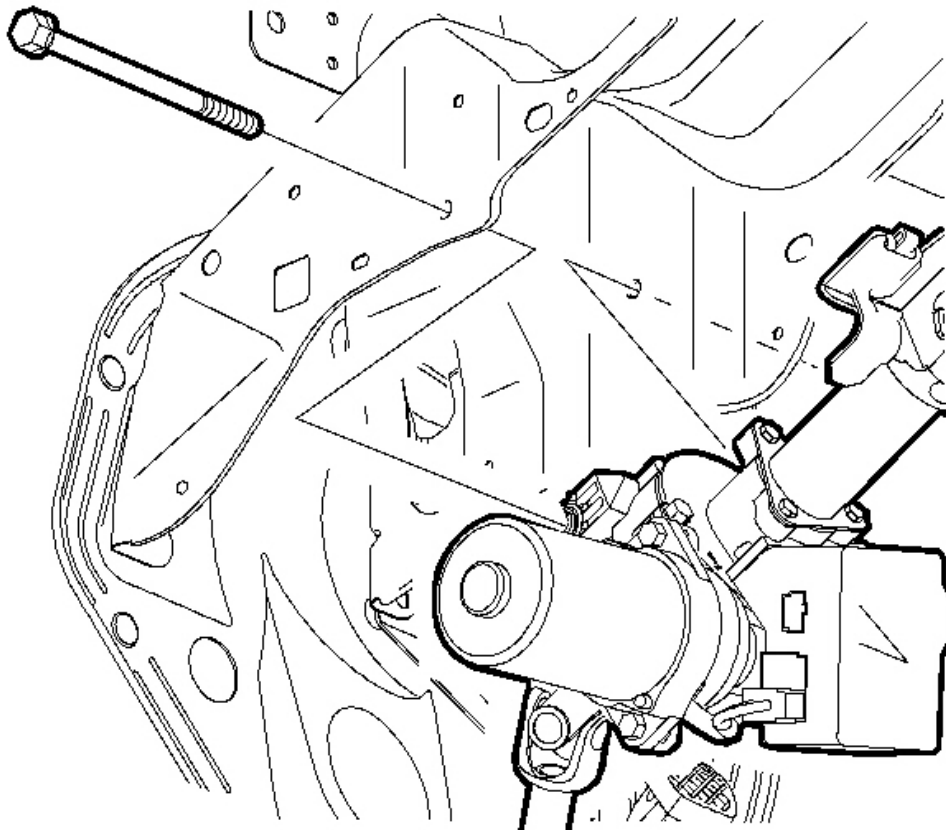


Fig. 78: Lower Column & Mounting Bolt
Courtesy of GENERAL MOTORS CORP.

5. Install the lower column-through bolt. Hand tighten the bolt until snug.

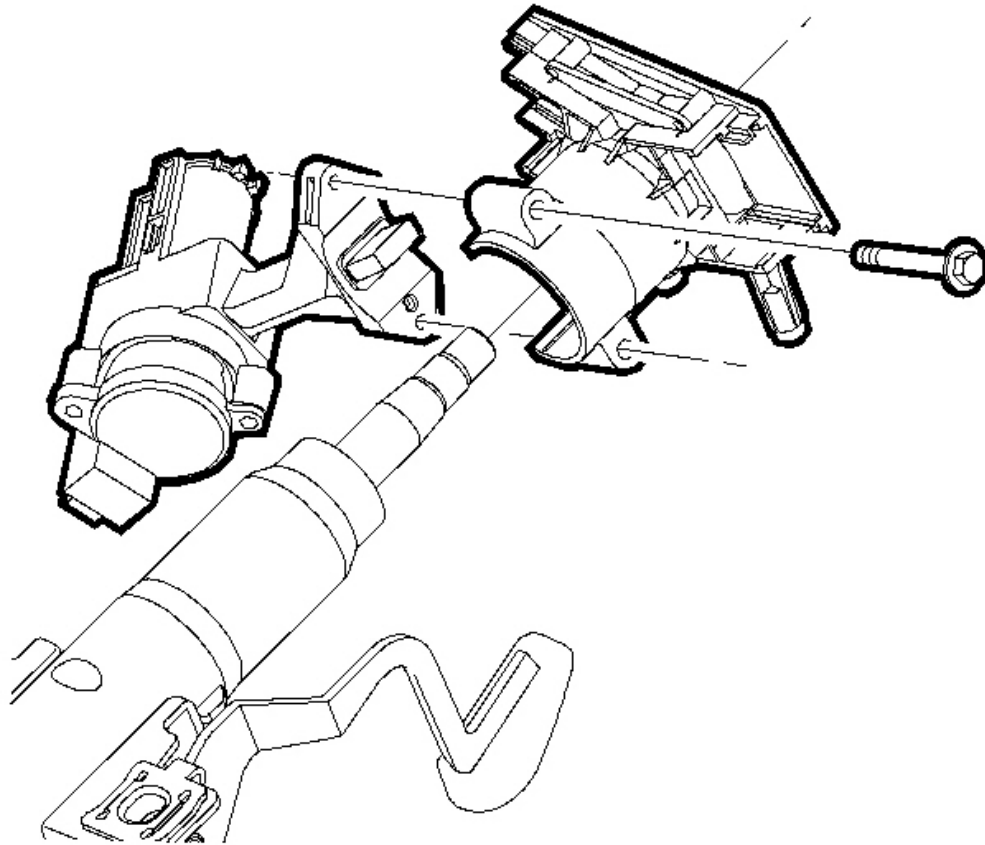


Fig. 79: Ignition Housing & Multi-Function Bracket
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Ensure that the lock tab fully engages into the column.

6. Pre-assemble the lock housing and multi-function lever bracket. Hand-tighten the bolts, leaving approximately 3.2 mm (0.125 in) gap at the bolt ends.
7. Slide the bracket onto the column.

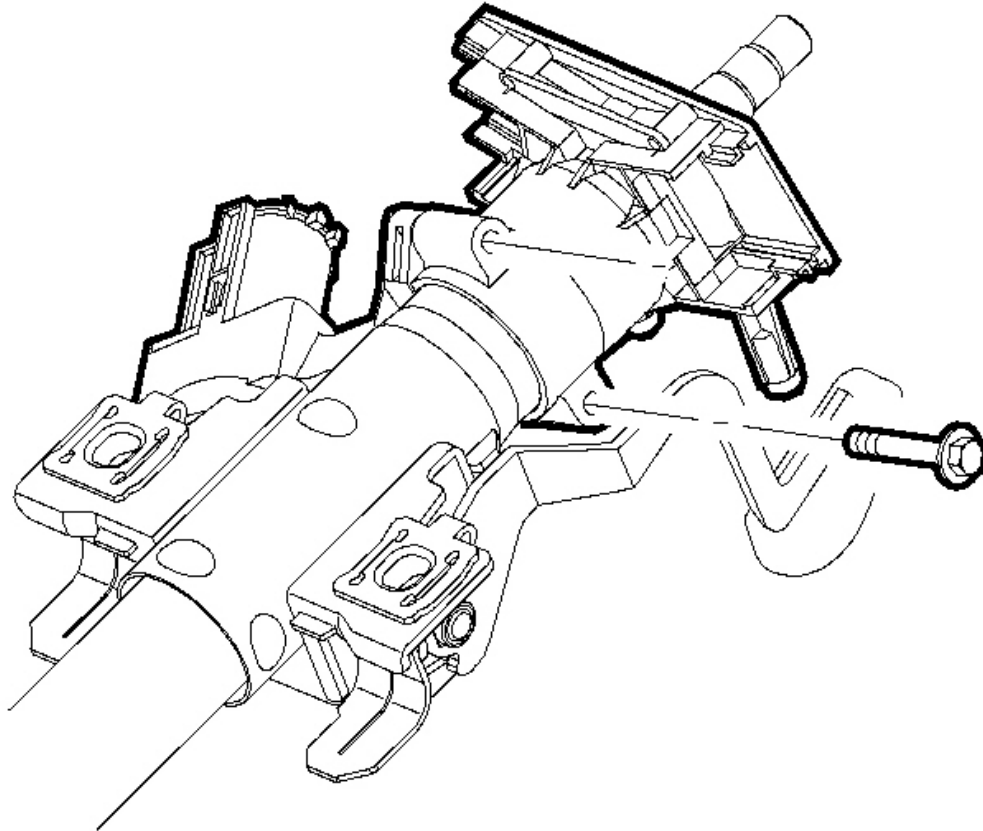


Fig. 80: Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

8. Hand tighten the lower bolt until snug.
9. Hand tighten the upper bolt until snug.
10. Tighten the lower bolt.

Tighten: Tighten the bolt to 8 N.m (71 lb in)

11. Tighten the upper bolt.

Tighten: Tighten the bolt to 8 N.m (71 lb in)

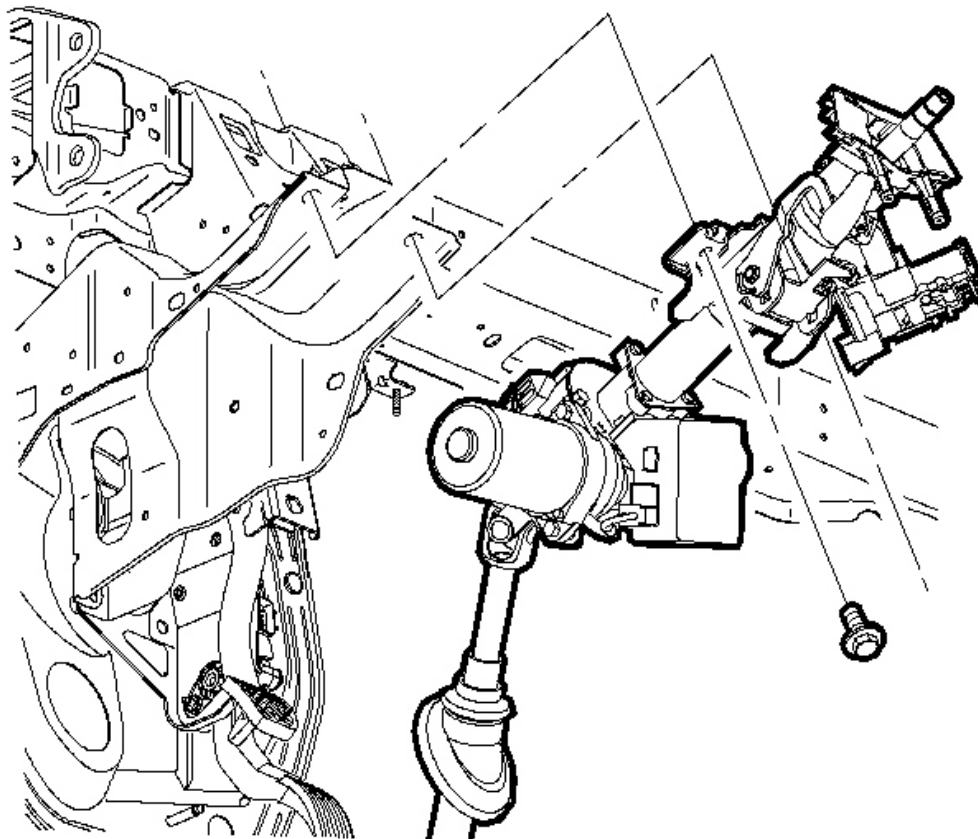


Fig. 81: Upper Column & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

12. Secure the left side upper column mounting bolt.

Tighten: Tighten the bolt to 25 N.m (18 lb ft)

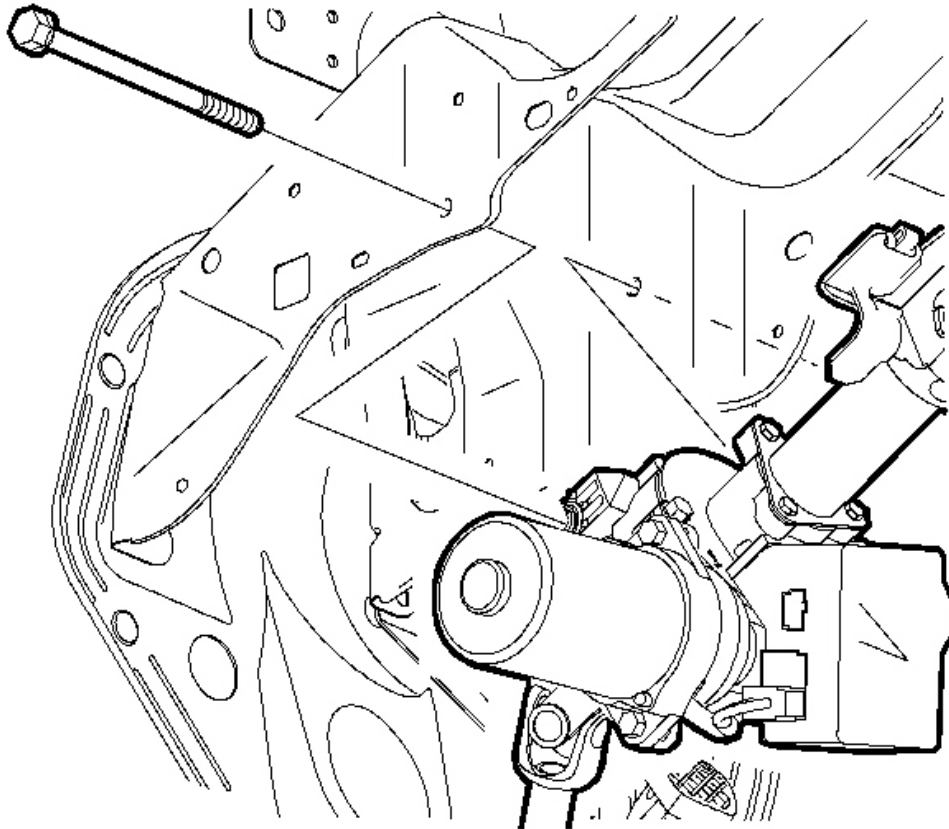


Fig. 82: Lower Column & Mounting Bolt
Courtesy of GENERAL MOTORS CORP.

13. Secure the lower column mounting bolt.

Tighten: Tighten the bolt to 25 N.m (18 lb ft)

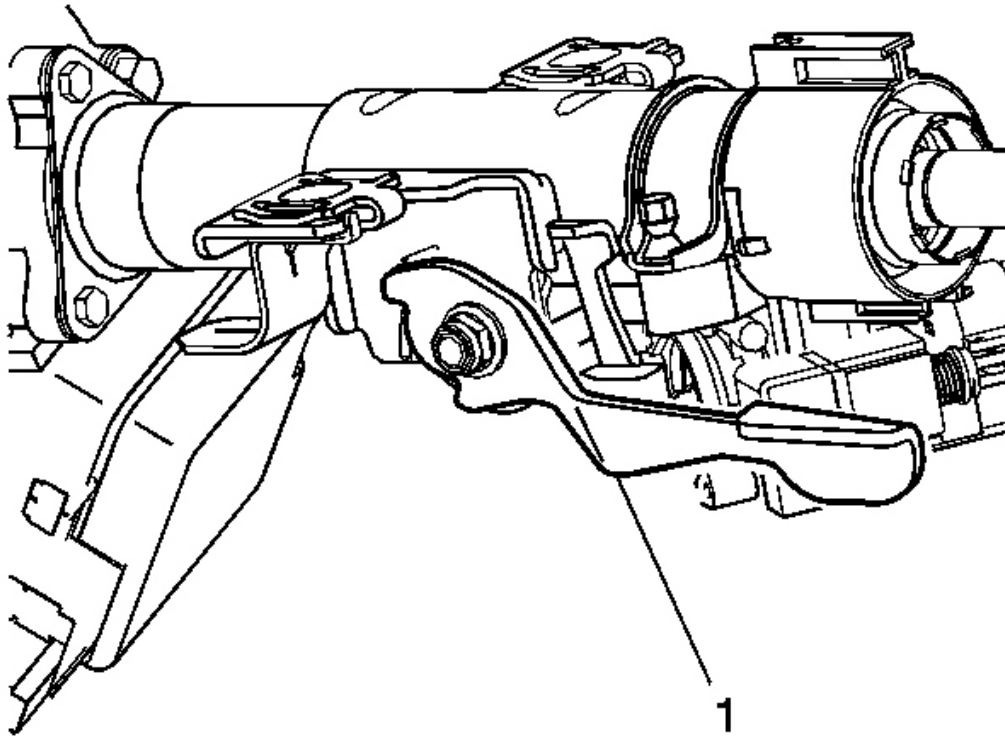


Fig. 83: Release & Secure Rake/Tilt Lever
Courtesy of GENERAL MOTORS CORP.

14. Operate column through range of motion before securing final bolt.
 1. Release rake/tilt lever (1).
 2. Move column up and down 3 times.
 3. Set column in UP position.
 4. Secure rake/tilt lever (1).

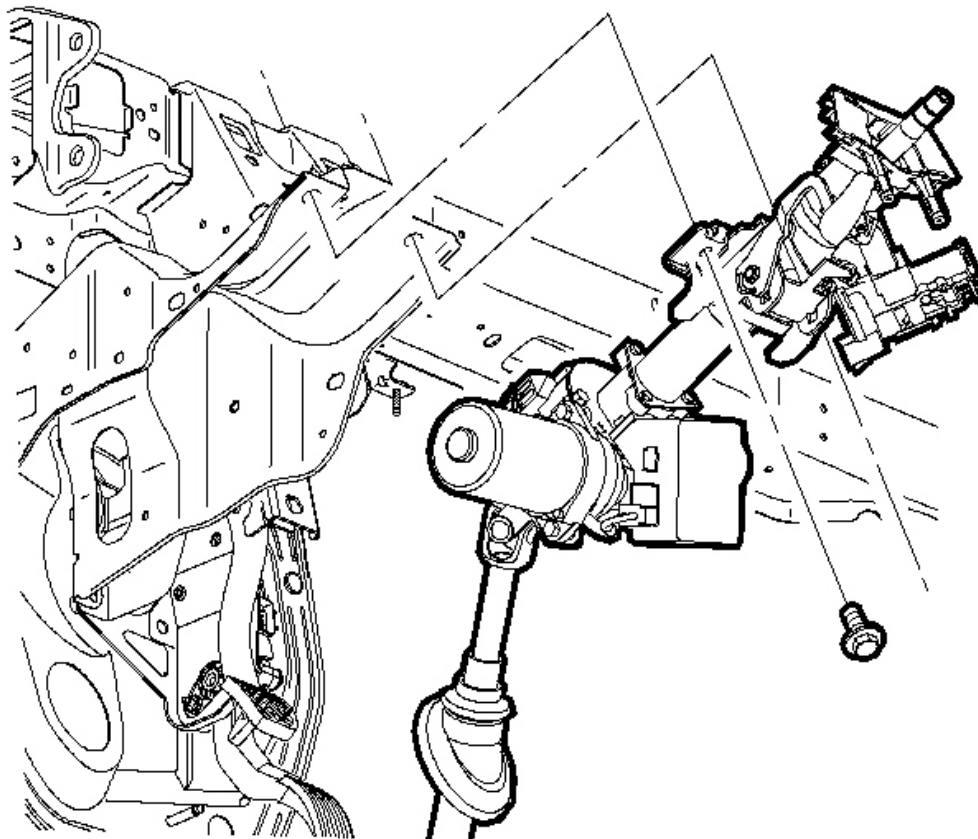


Fig. 84: Upper Column & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

15. Secure the right side upper column mounting bolt.

Tighten: Tighten the bolt to 25 N.m (18 lb ft)

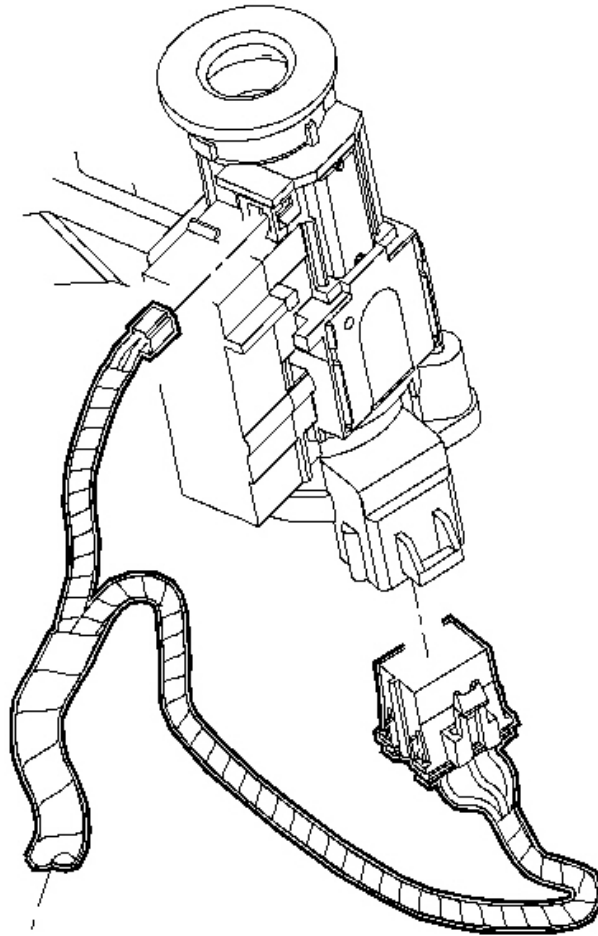


Fig. 85: Electrical Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

16. Connect the ignition housing electrical connectors.

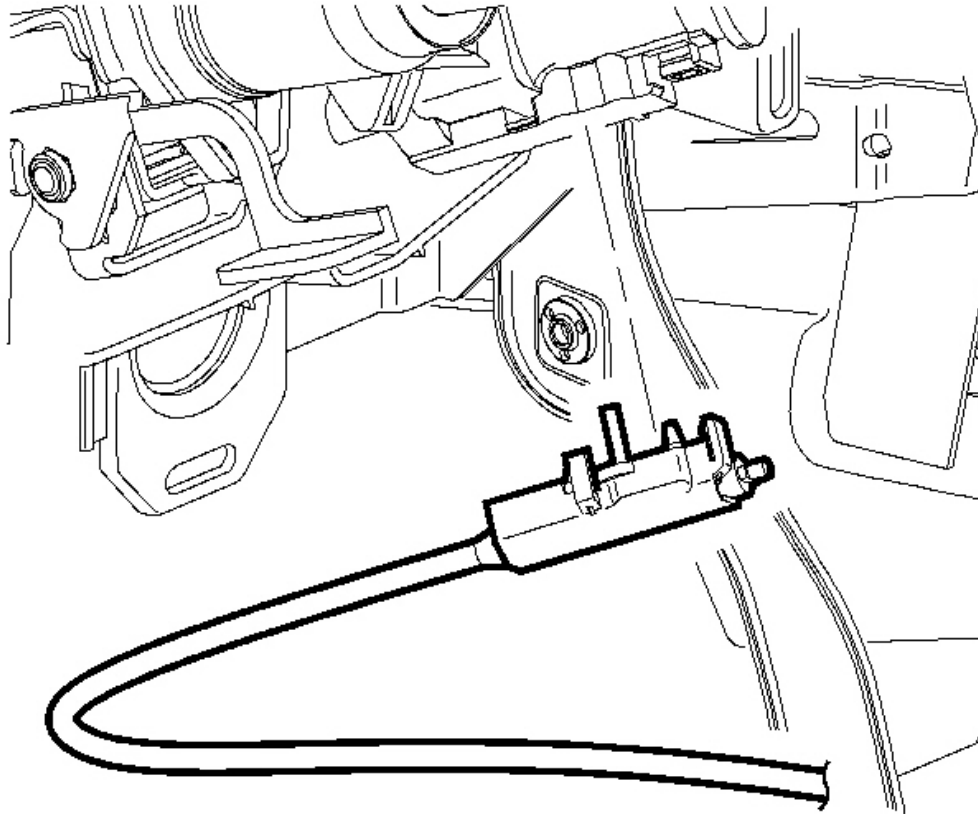


Fig. 86: Park Lock Cable Assembly & Ignition Module
Courtesy of GENERAL MOTORS CORP.

17. Align and install the park lock cables onto the ignition module. Snap the cables into place.

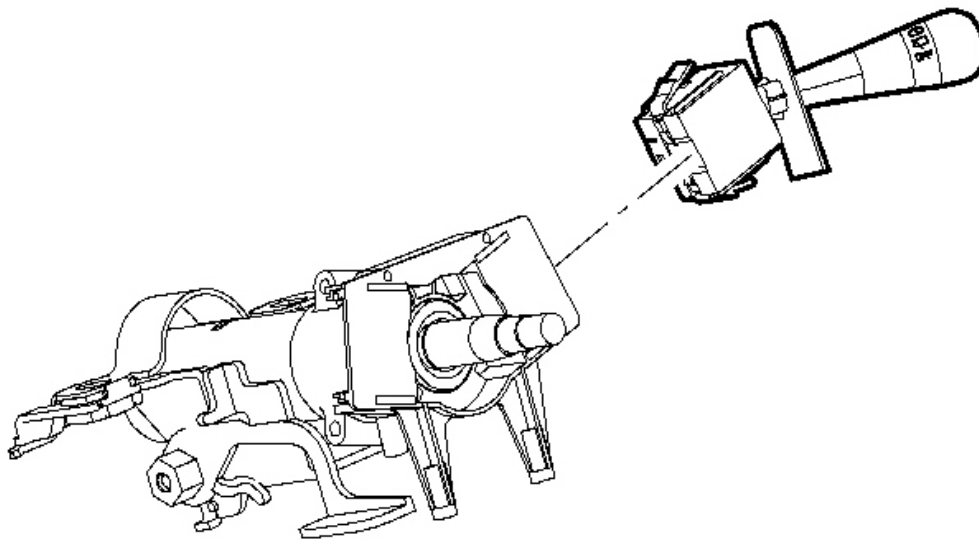


Fig. 87: Multi-Function Levers
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Ensure that both locking tabs are properly seated.

18. Install the multi-function levers.

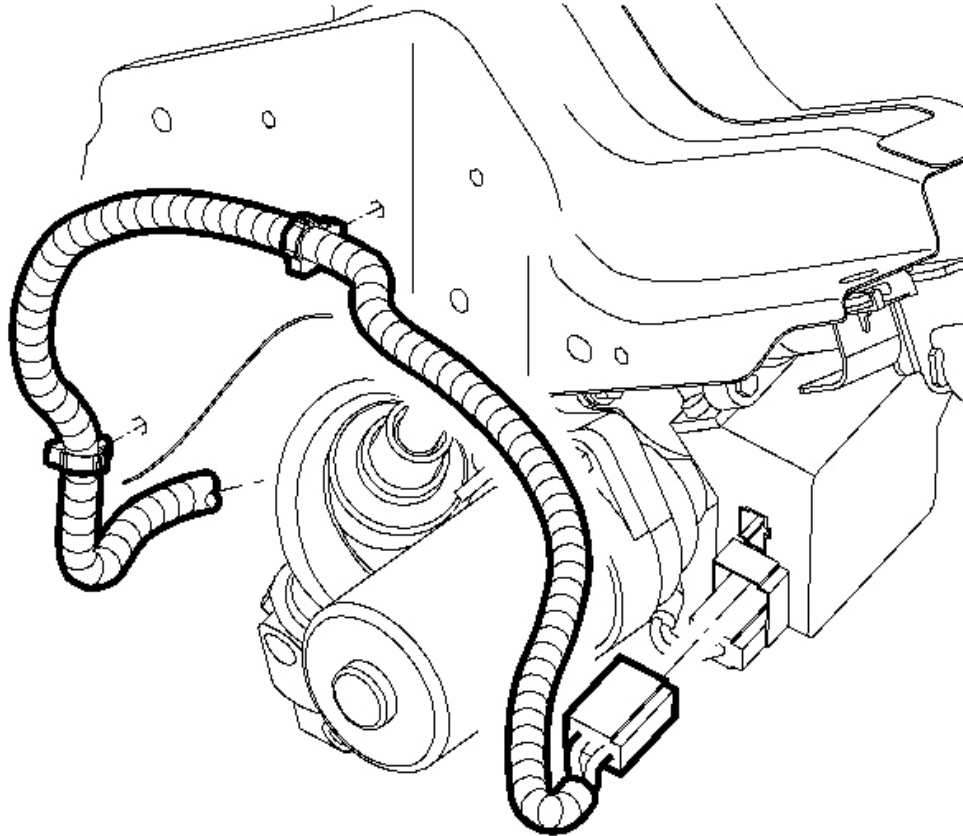


Fig. 88: EPS Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

19. Connect the EPS electrical connectors to the EPS controller.

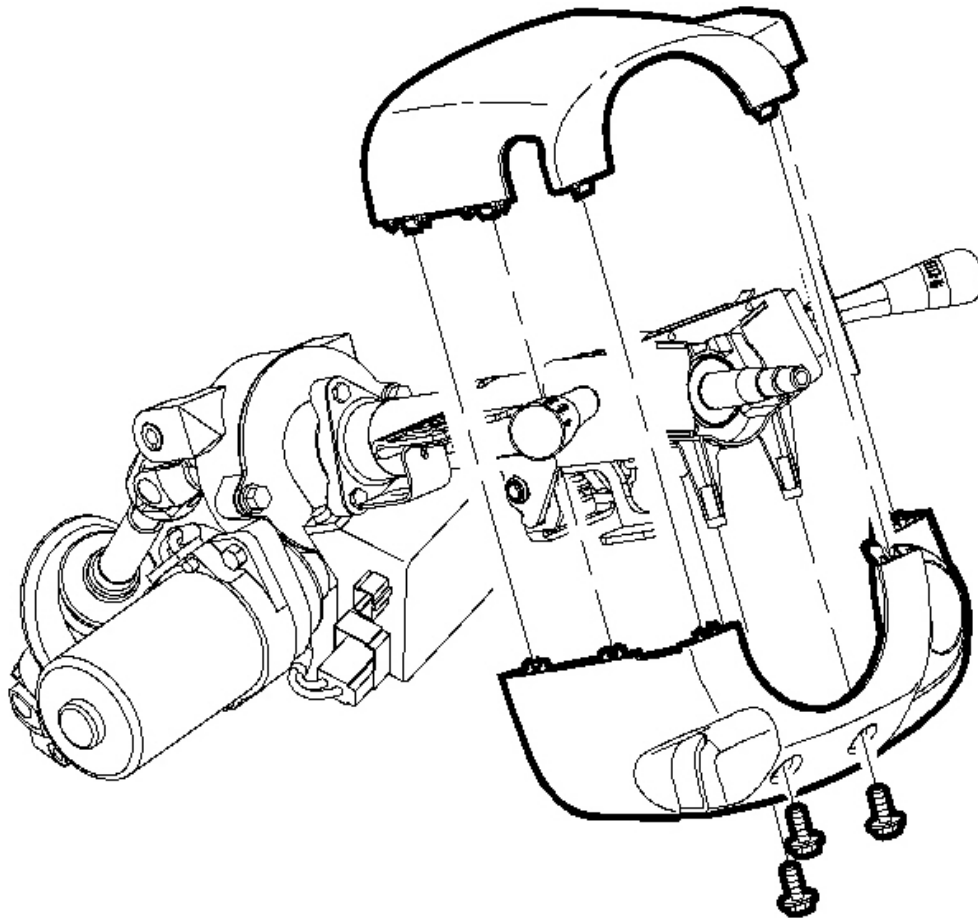


Fig. 89: Upper & Lower Shrouds
Courtesy of GENERAL MOTORS CORP.

20. Install the upper and lower shrouds.

Tighten: Tighten the screws to 4 N.m (35 lb in)

21. Install the lock cylinder bezel.

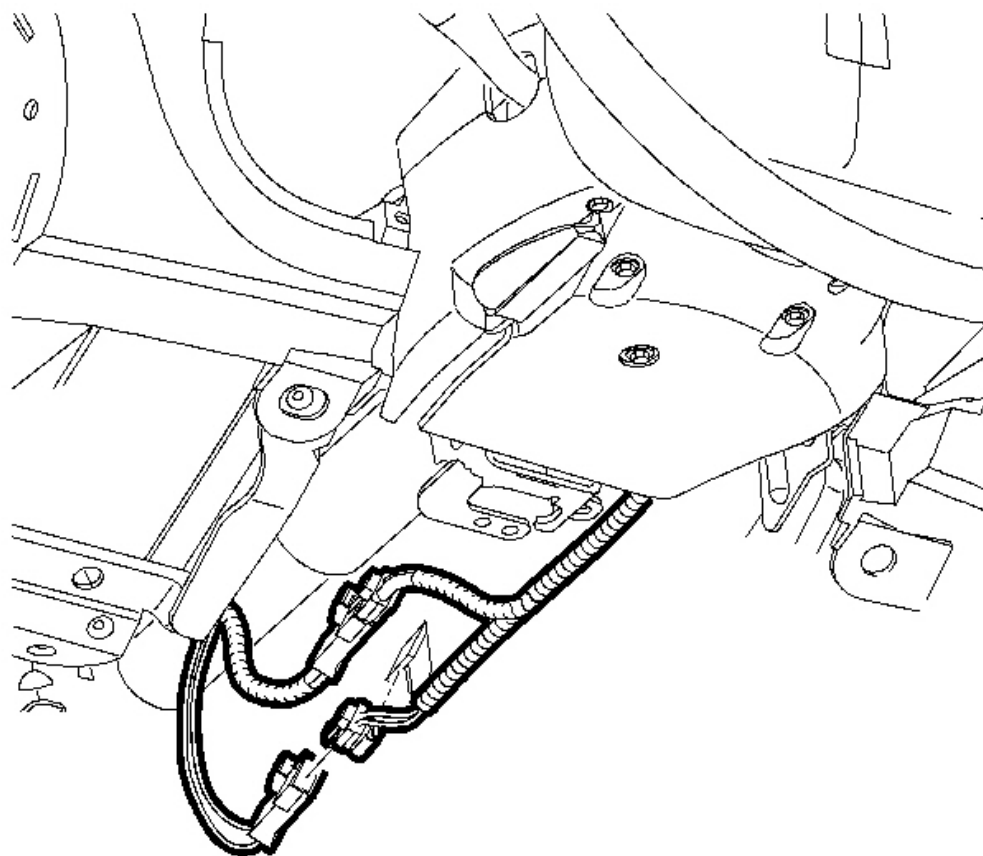


Fig. 90: Column Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

22. Connect the column electrical connectors.

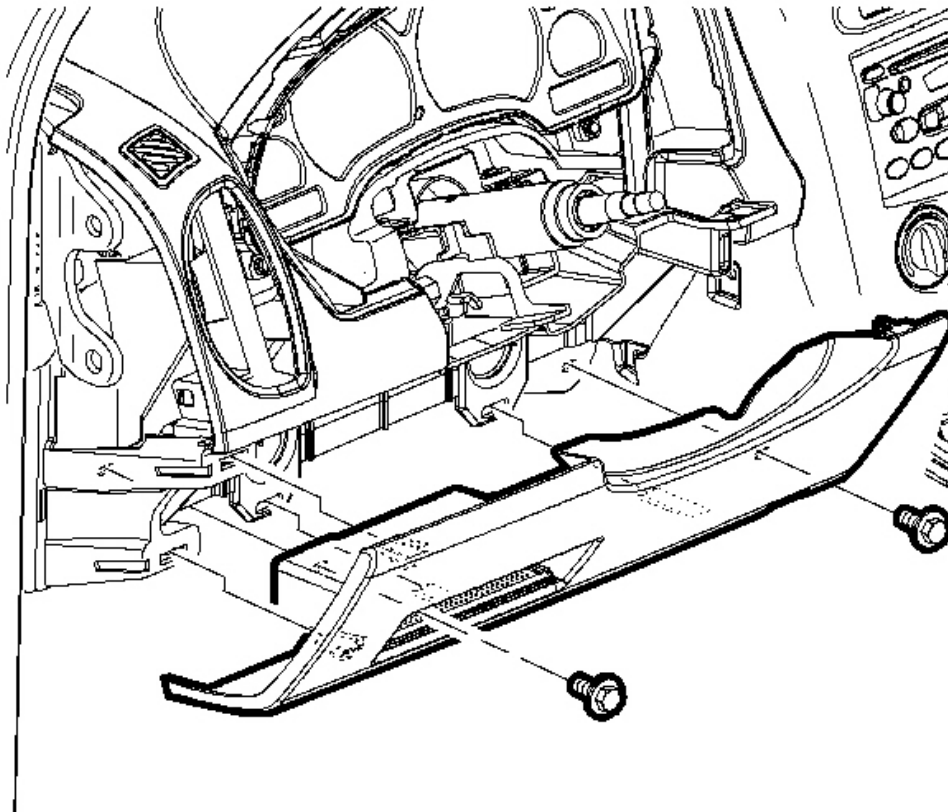


Fig. 91: Knee Bolster & Bolts
Courtesy of GENERAL MOTORS CORP.

23. Press the knee bolster into place and install the bolts.

Tighten: Tighten the bolts to 4 N.m (35 lb in)

24. Install the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement** .
25. Install the steering wheel. Refer to **Steering Wheel Replacement** .
26. Install the SIR module. Refer to **Inflatable Restraint Steering Wheel Module Replacement** in SIR.
27. Connect the negative battery cable.
28. Test drive the vehicle. Verify proper steering operation.

INFLATABLE RESTRAINT STEERING WHEEL MODULE COIL CENTERING

Alignment Procedure

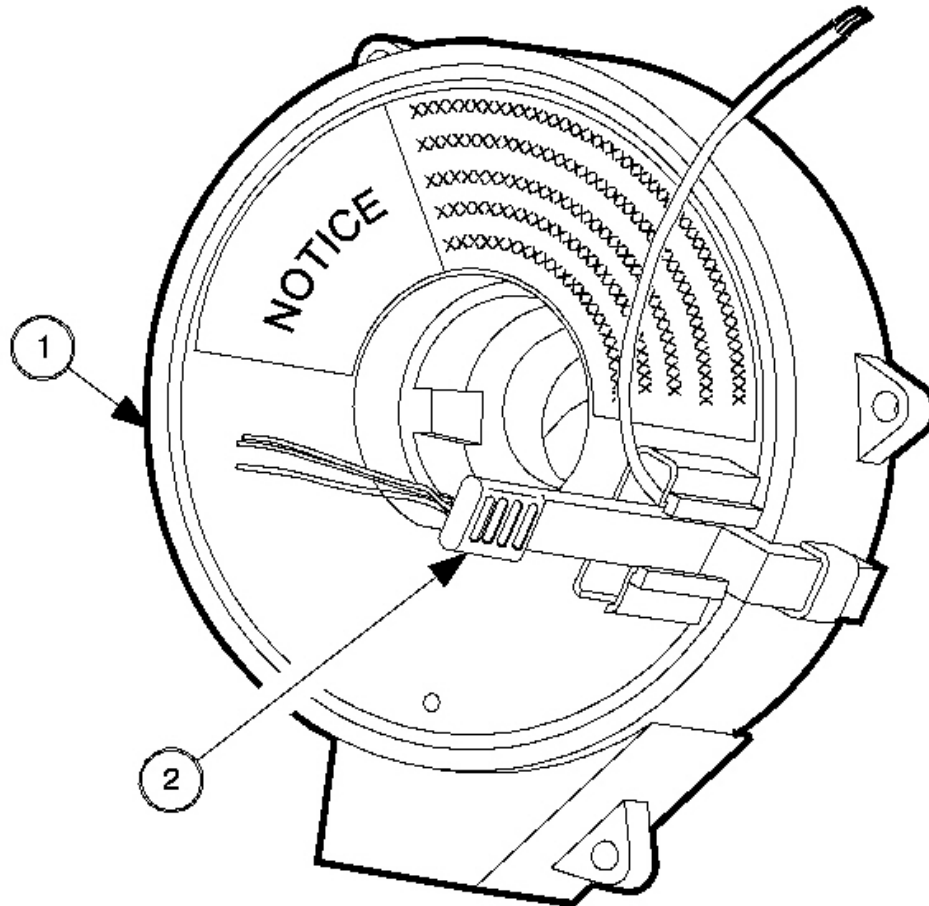


Fig. 92: Coil Hub & Yellow Tab
Courtesy of GENERAL MOTORS CORP.

NOTE: The new SIR coil assembly will be centered. Improper alignment of the SIR coil assembly may damage the unit, causing an inflatable restraint malfunction.

1. If available remove the yellow tab (2) and save for reassembly.
2. Gently rotate the coil hub (1) clockwise until a slight tension is present.

3. Count the number of revolutions, while gently rotating the coil hub (1) counter clockwise until a slight tension is present.
4. Gently rotate the coil hub (1) clockwise one half of the previously counted revolutions.
5. Rotate the coil hub as required to align the yellow tab (2).
6. Install the yellow tab (2) into the coil hub. Use tape if the tab is unavailable.

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-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 tilt or tilt/telescoping functions

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.


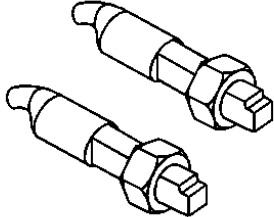
Ignition Lock Cylinder Control Actuator

If the vehicle is equipped with a floor mounted console gear shifter, 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 automatic transmission (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 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 1859A Steering Wheel Puller
	J 42578 Steering Wheel Puller Legs