

2006 Chevrolet Equinox LT

2006 STEERING Steering Wheel and Column - Equinox & Torrent

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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

SCHEMATIC AND ROUTING DIAGRAMS

STEERING WHEEL AND COLUMN SCHEMATIC ICONS

Steering Wheel and Column Schematic Icons

Icon	Icon Definition
	CAUTION: When performing service on or near the SIR components or the SIR wiring, the SIR system must be disabled. Refer to SIR Disabling and Enabling Zones. Failure to observe the correct procedure could cause deployment of the SIR components, personal injury, or unnecessary SIR system repairs.

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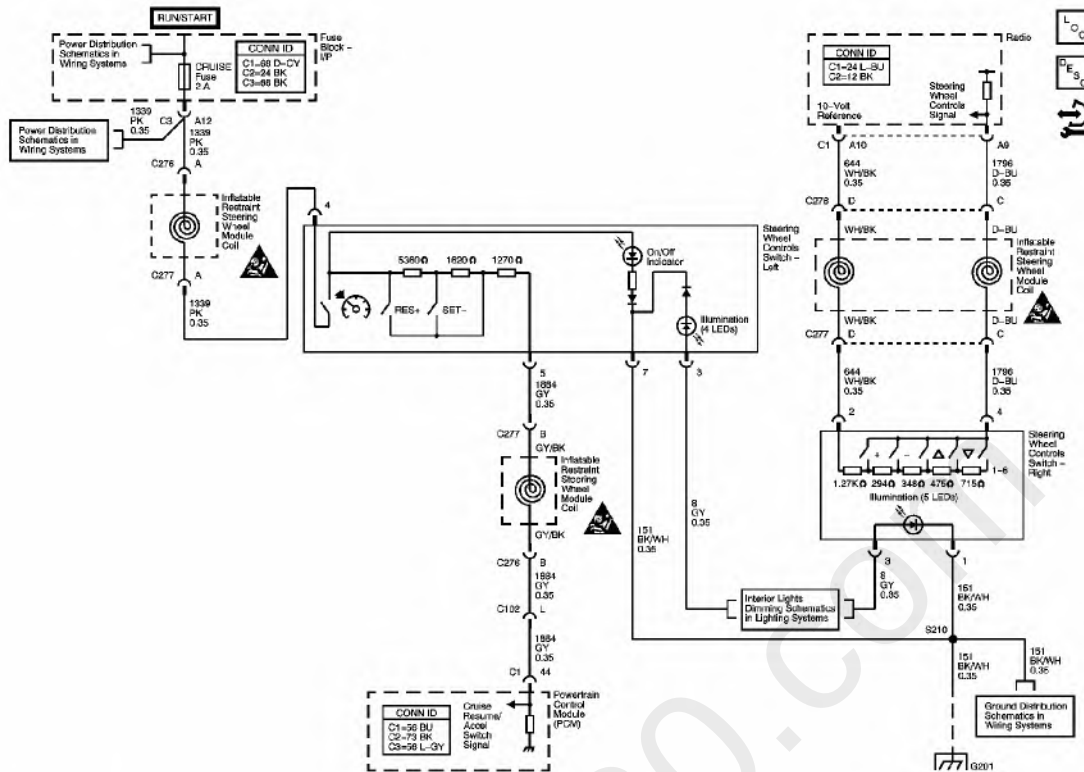


Fig. 2: Steering Wheel Schematics (Pontiac)
Courtesy of GENERAL MOTORS CORP.

COMPONENT LOCATOR

STEERING COLUMN DISASSEMBLED VIEW

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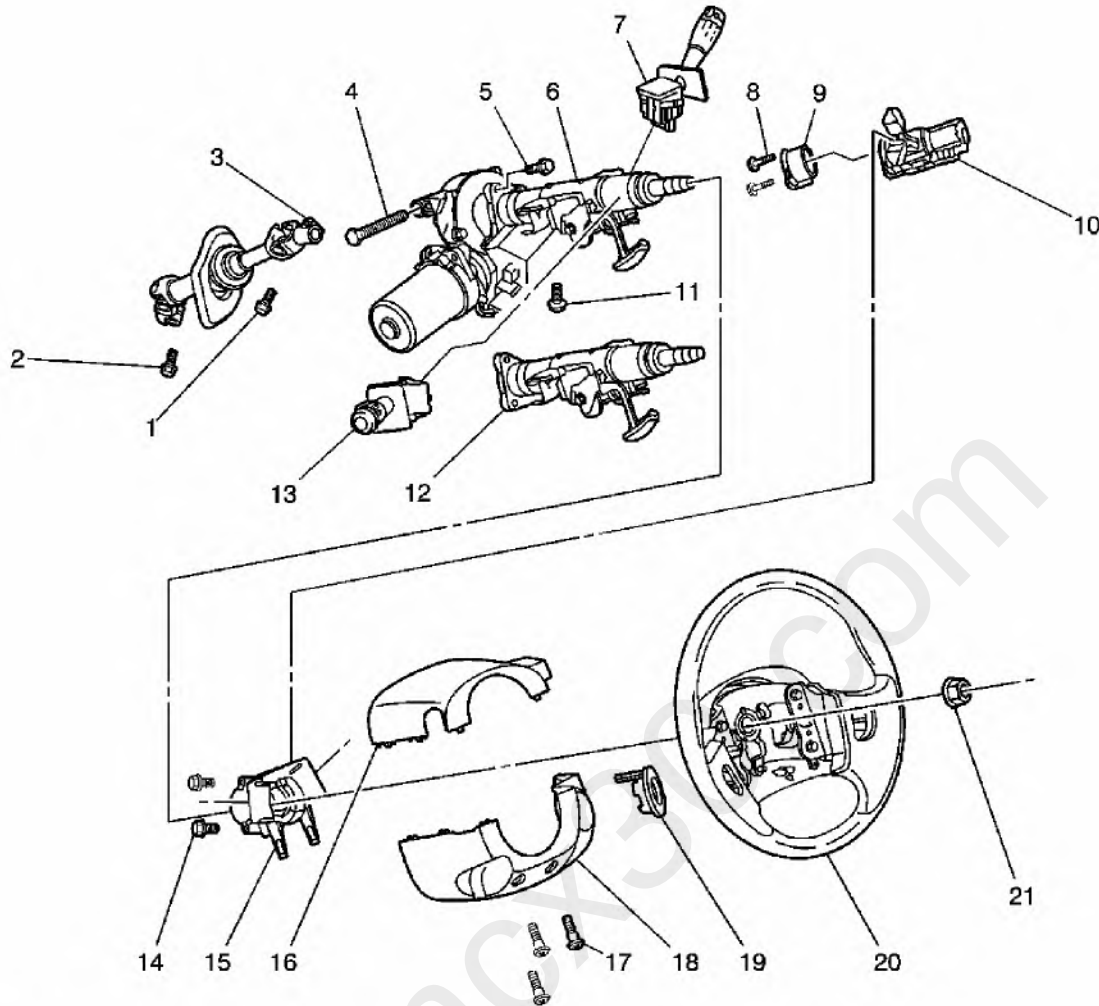


Fig. 3: Steering Column Disassembled View
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 3

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

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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

STEERING WHEEL AND COLUMN COMPONENT VIEWS

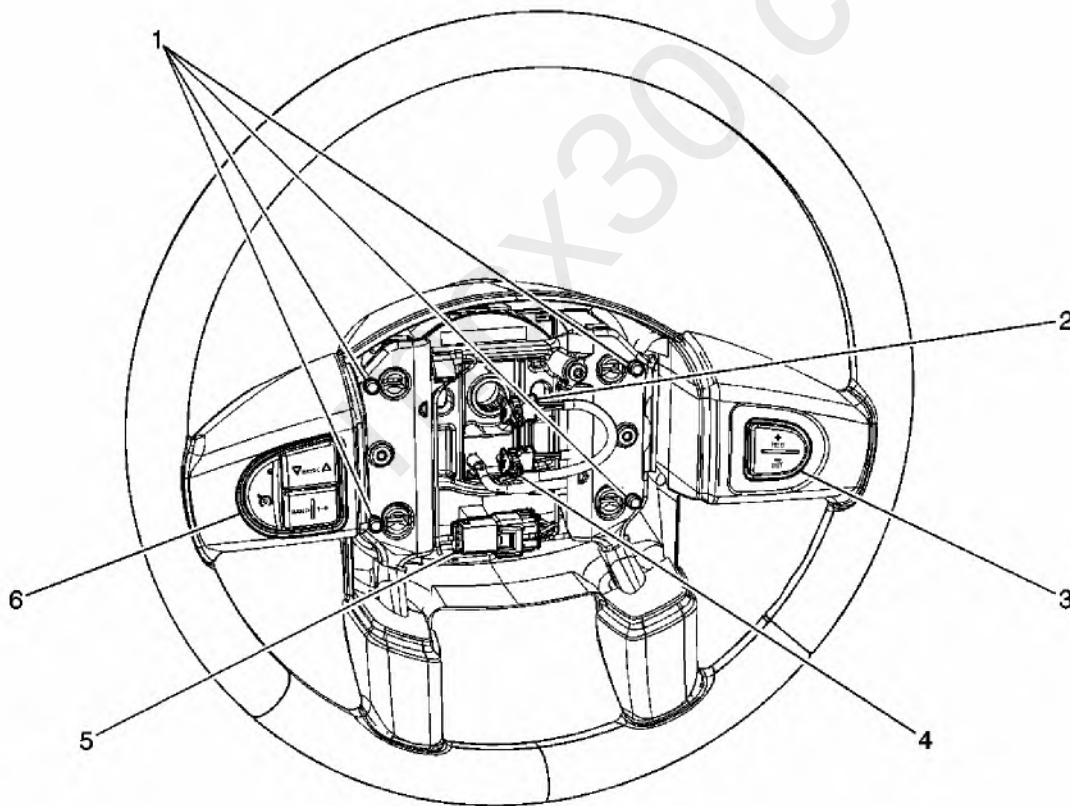


Fig. 4: Steering Wheel Components View
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 4

Callout	Component Name
1	Horn Switch Contacts

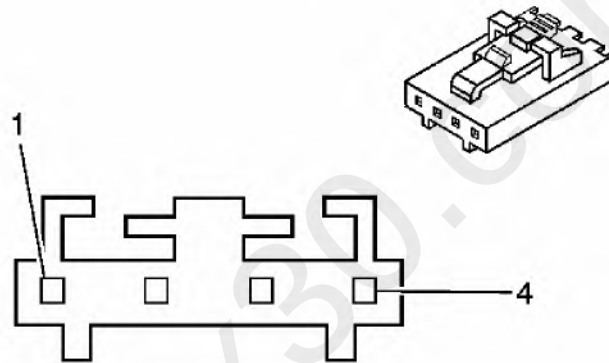
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2	Inflatable Restraint Steering Wheel Module C1
3	Steering Wheel Control Switch - Right (Chevrolet w/ UK3/K34 shown, Pontiac Similar)
4	Inflatable Restraint Steering Wheel Module C2
5	C277
6	Steering Wheel Control Switch - Left (Chevrolet w/ UK3/K34 shown, Pontiac Similar)

STEERING WHEEL AND COLUMN CONNECTOR END VIEWS

Steering Wheel Control Switch - Left (Chevrolet w/ K34 w/o UK3)



Connector Part Information

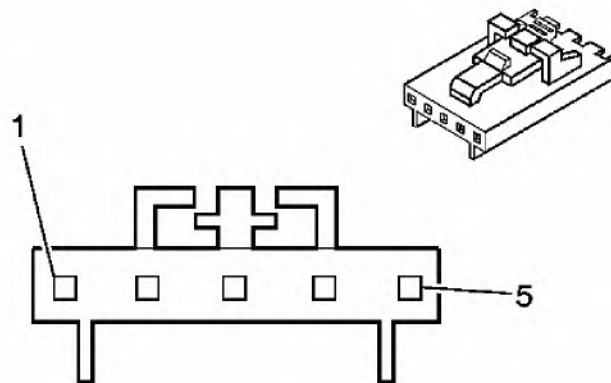
- OEM: 50-57-9404
- Service: 12103499
- 4-Way F (BK)

Pin	Wire Color	Circuit No.	Function
1	BK/WH	151	Ground
2	GY	8	Instrument Panel Lamp Supply Voltage
3	PK	1339	Ignition 1 Voltage
4	GY	397	Cruise Control On Switch Signal

Steering Wheel Control Switch - Right (Chevrolet w/ K34 w/o UK3)

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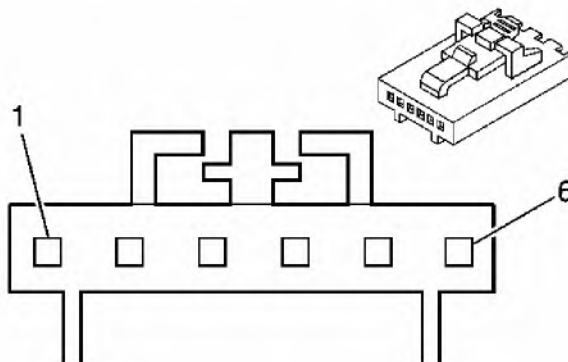


Connector Part Information

- OEM: 50-57-9405
- Service: 12103020
- 5-Way F (BK)

Pin	Wire Color	Circuit No.	Function
1	BK/WH	151	Ground
2	GY	8	Instrument Panel Lamp Supply Voltage
3	GY	397	Cruise Control On Switch Signal
4	GY	1884	Cruise Control Set/Coast/Resume/Accelerate Switch Signal
5	-	-	Not Used

Steering Wheel Control Switch - Left (Chevrolet w/ K34 and UK3)



Connector Part Information

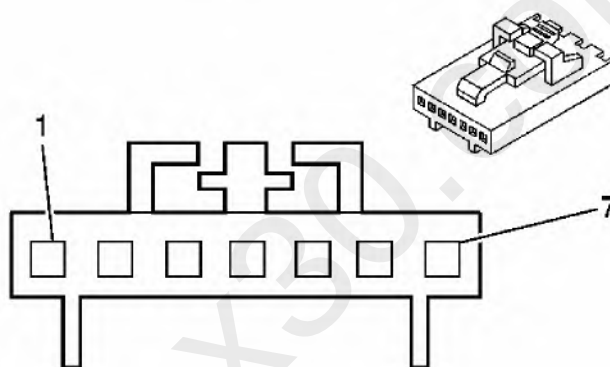
- OEM: 50-57-9406
- Service: 12103087

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• 6-Way F (BK)			
Pin	Wire Color	Circuit No.	Function
1	L-GN	1011	Remote Radio Control Signal
2	GY	8	Instrument Panel Lamp Supply Voltage
3	BK/WH	151	Ground
4	D-BU	1796	Steering Wheel Controls Signal
5	PK	1339	Ignition 1 Voltage
6	GY	397	Cruise Control On Switch Signal

Steering Wheel Control Switch - Right (Chevrolet w/ K34 and UK3)



Connector Part Information

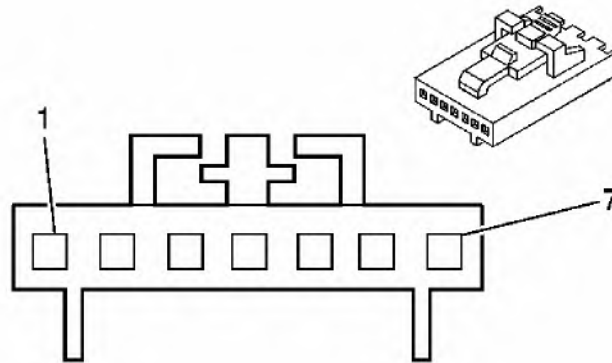
- OEM: 50-57-9407
- Service: 15383018
- 7-Way F (BK)

Pin	Wire Color	Circuit No.	Function
1	WH/BK	644	10-Volt Reference
2	GY	8	Instrument Panel Lamp Supply Voltage
3	BK/WH	151	Ground
4	D-BU	1796	Steering Wheel Controls Signal
5	L-GN	1011	Remote Radio Control Signal
6	GY	397	Cruise Control On Switch Signal
7	GY	1884	Cruise Control Set/Coast/Resume/Accelerate Switch Signal

Steering Wheel Control Switch - Left (Pontiac w/ K34/UK3)

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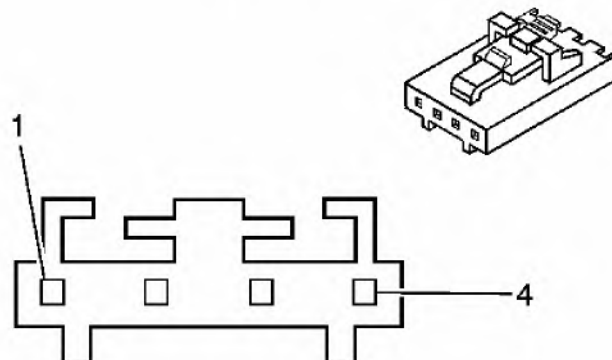


Connector Part Information

- OEM: 50-57-9407
- Service: 15383018
- 7-Way F (BK)

Pin	Wire Color	Circuit No.	Function
1-2	-	-	Not Used
3	GY	8	Instrument Panel Lamp Supply Voltage
4	PK	1339	Ignition 1 Voltage
5	GY	1884	Cruise Control Set/Coast/Resume/Accelerate Switch Signal
6	-	-	Not Used
7	BK/WH	151	Ground

Steering Wheel Control Switch - Right (Pontiac w/ K34/UK3)



Connector Part Information

- OEM: 50-57-9404
- Service: 12103499

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		• 4-Way F (BK)	
Pin	Wire Color	Circuit No.	Function
1	BK/WH	151	Ground
2	WH/BK	644	10-Volt Reference
3	GY	8	Instrument Panel Lamp Supply Voltage
4	D-BU	1796	Steering Wheel Controls Signal

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - STEERING WHEEL CONTROLS

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

- The identification of the control modules which command the system
- The ability of the control modules to communicate through the serial data circuit
- The identification of any stored diagnostic trouble codes (DTCs) and their status

The use of the Diagnostic System Check - Vehicle will identify the correct procedure for diagnosing the system and where the procedure is located.

STEERING WHEEL CONTROLS INOPERATIVE

Diagnostic Fault Information

IMPORTANT: Always perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

Circuit/System Description

The radio supplies 10 volts to the audio steering wheel control momentary contact switches, and monitors the return signal. Each switch is associated to a set resistance value, when pressed a specific voltage drop occurs through a series of resistors unique to that switch. The radio then identifies the selection to activate the feature, otherwise sends a serial data message that is received by the controlled component activating the feature.

Diagnostic Aids

- This diagnostic is for the audio steering wheel controls.
- Before diagnosis of the steering wheel controls, ensure the primary controls of the associated component are functioning properly.
- Review with the schematic when testing switch resistance values.

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- If a single switch function is inoperative, test the suspect switch. Refer to component testing.
- A poor connection at the right switch could cause all the switches to be inoperative or malfunction.

Reference Information

Schematic Reference

Steering Wheel Schematics (Chevrolet) or Steering Wheel Schematics (Pontiac)

Connector End View Reference

- Entertainment Connector End Views
- Steering Wheel and Column Connector End Views

Electrical Information Reference

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

Circuit/System Testing

Note: It is Recommend that Component Testing be performed before Circuit Testing when diagnosing steering wheel controls.

CAUTION: Refer to SIR Caution .

Chevrolet

1. Ignition OFF, disconnect the harness connector at the left and right steering wheel control switches.
2. Ignition ON, Radio ON, test for 8.5-10.5 volts between the 10-volt reference circuit and ground at the right switch harness connector.
 - If less than 8.5 volts, test 10-volt reference circuit for short to ground or open/high resistance. If circuit test normal, replace radio.
 - If greater than 10.5 volts, test the 10-volt reference circuit for short to voltage. If circuit test normal, replace radio.
3. Test for 8.5-10.5 volts from the 10-volt reference circuit and toggle to the signal circuits at the left and right switch harness connectors.
 - If less than 8.5 volts, test the signal circuit for an open/ high resistance. If the

circuit test normal, replace the radio.

- If greater than 10.5 volts, test the signal circuit for short to voltage. If the circuit test normal, replace the radio.
- 4. Ignition OFF, reconnect the right switch.
- 5. Ignition ON, Radio ON, test for 8.5-10.5 volts between the supply voltage circuit to the left switch and ground at the left switch harness connector.
 - If less than 8.5 volts, test the voltage circuit to the left switch for a short to ground or open/ high resistance. If the circuit test normal, test or replace right switch.
 - If greater than 10.5 volts, repair the voltage supply circuit for a short to B+.
- 6. Test for 1-5 volts between the signal circuit and ground at the left switch harness connector when pressing the right switch.
 - If less than 1 volt, test the signal circuit for a short to ground. If the circuit test is normal, replace the radio.
- 7. If all circuits test normal, refer to component testing.

Pontiac

- 1. Ignition OFF, disconnect the harness connector at the audio steering wheel control switch.
- 2. Ignition ON, Radio ON, test for 8.5-12 volts between the 10-volt reference circuit and ground at the harness connector.
 - If less than 8.5 volts, test 10-volt reference circuit for short to ground or open/high resistance. If the circuit test is normal, replace the radio.
- 3. Test for 0-0.5 volts between the signal circuit and ground at the harness connector.
 - If greater than 0.5-volt, test the signal circuit for a short to voltage. If the circuit test is normal, replace the radio.
- 4. Test for 8.5-12 volts between the supply voltage circuit and the signal circuit at the harness connector.
 - If less than 8.5 volts, test the signal circuit for an open/high resistance. If the circuit test is normal, replace the radio.
- 5. Ignition OFF, disconnect the harness connector at the radio.
- 6. Test for infinite resistance between the signal circuit and ground, at the radio harness connector.
 - If less than infinite ohms of resistance, test the signal circuit for a short to ground. If the circuit test is normal, replace the radio.
- 7. If all circuits test normal, refer to component testing.

Component Testing

CAUTION: Refer to SIR Caution .

1. Ignition OFF, disconnect the harness connector at the suspect audio steering wheel control switch.
2. Pontiac Only - Test the right switch for 2360-2400 ohms of resistance between the 10-volt reference terminal and the remote radio control signal.
 - ? If the resistance is not between 2360-2400 ohms, replace the faulty switch.
3. Test for infinite resistance between the supply voltage terminal and the signal terminal with the switch in the open position.
 - If less than infinite resistance, replace the switch.
4. Test resistance values between the supply voltage terminal and the signal terminal with the switch closed in each position and verify readings are approximate to what the schematic reads.
 - If values do not, replace the switch.

Repair Instructions

IMPORTANT: Always perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- **Steering Wheel Control Switch Assembly Replacement**
- **Control Module References** for Radio replacement, setup, and programming.

SYMPTOMS - STEERING WHEEL AND COLUMN

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

Visual/Physical Inspection

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

Symptoms List

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

- **Ignition Key Cannot Be Removed from the Ignition Lock Cylinder**
- **Ignition Key Cannot Turn or Sticks in Any Position**
- **Noise in Steering Column**

- **Looseness in Steering Column**

SYMPTOMS - STEERING WHEEL CONTROLS

- IMPORTANT:**
1. Perform the Diagnostic System Check - Vehicle , before using the Symptom Tables in order to verify that all of the following conditions are true:
 - There are no DTCs set.
 - The control modules can communicate via the serial data link.
 2. Review the system operation in order to familiarize yourself with the system functions. Refer to Steering Wheel Controls Description and Operation.

Visual/Physical Inspection

- Inspect for aftermarket devices which may affect the operation of the Steering Wheel Controls System. Refer to Checking Aftermarket Accessories .
- Inspect for easily accessible or visible system components for obvious damage or conditions which may cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to Testing for Intermittent Conditions and Poor Connections .

Symptom List

Refer to Steering Wheel Controls Inoperative in order to diagnose the symptom.

IGNITION KEY CANNOT BE REMOVED FROM THE IGNITION LOCK CYLINDER

Ignition Key Cannot Be Removed from the Ignition Lock Cylinder

Step	Action	Yes	No
1	Did you review the Steering Wheel and Column Description and Operation and perform the necessary inspections?	Go to Step 2	Go to Steering Wheel and Column Description and Operation
2	Verify the key cannot be removed from the ignition lock cylinder. Is the key stuck in the lock cylinder?	Go to Step 3	System OK
3	Is the vehicle equipped with a manual		

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	transmission?	Go to Step 6	Go to Step 4
4	Turn the ignition key to the OFF position. Can the key be turned to the OFF position and be removed?	Go to Step 6	Go to Step 5
5	Verify the adjustment of the automatic transmission shift cable. Refer to Shift Control Cable Adjustment . Can the key be turned to the OFF position?	System OK	Go to Step 6
6	Inspect for a faulty lock cylinder. Is the lock cylinder damaged?	Go to Step 8	-
7	Inspect the ignition lock cylinder case. Is the case worn, damaged or loose?	Go to Step 9	-
8	Replace the ignition lock cylinder. Refer to Ignition Lock Cylinder Replacement . Did you complete the repair?	Go to Step 10	-
9	Replace the ignition lock cylinder case housing. Refer to Ignition Lock Cylinder Case Replacement . Did you complete the repair?	Go to Step 10	-
10	Operate the system to verify the repair. Did you correct the condition?	System OK	Go to Step 2

IGNITION KEY CANNOT TURN OR STICKS IN ANY POSITION

Ignition Key Cannot Turn or Sticks in Any Position

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 cylinder case assembly for damage. Is the lock cylinder case assembly		

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	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 . 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 cylinder case assembly mounting bolts. Refer to Ignition Lock Cylinder Case Replacement . 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
	Inspect the upper steering column shaft bearing for the following conditions:		

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5	• 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 Fastener Tightening Specifications. Did you complete the repair?	Go to Step 9	-
7	Replace the SIR coil. Refer to Inflatable Restraint Steering Wheel Module Coil Replacement in SIR. Did you complete the repair?	Go to Step 9	-
8	Replace the upper jacket assembly. Refer to Steering Column Jacket 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

LOOSENESS IN STEERING COLUMN

Looseness in Steering Column

Step	Action	Yes	No
1	Did you review the Steering Wheel and Column Description and Operation and perform the necessary inspections?	Go to Step 2	Go to Steering Wheel and Column Description and Operation
2	Verify that the steering column is loose. Is the steering column loose?	Go to Step 3	System OK
3	Inspect the steering column mounting 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

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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 Fastener Tightening Specifications . Did you complete the repair?	Go to Step 9	-
7	Replace the upper jacket assembly. Refer to Steering Column Jacket Replacement . Did you complete the replacement?	Go to Step 9	-
8	Tighten or replace the intermediate shaft as needed. Refer to Intermediate Steering Shaft 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

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

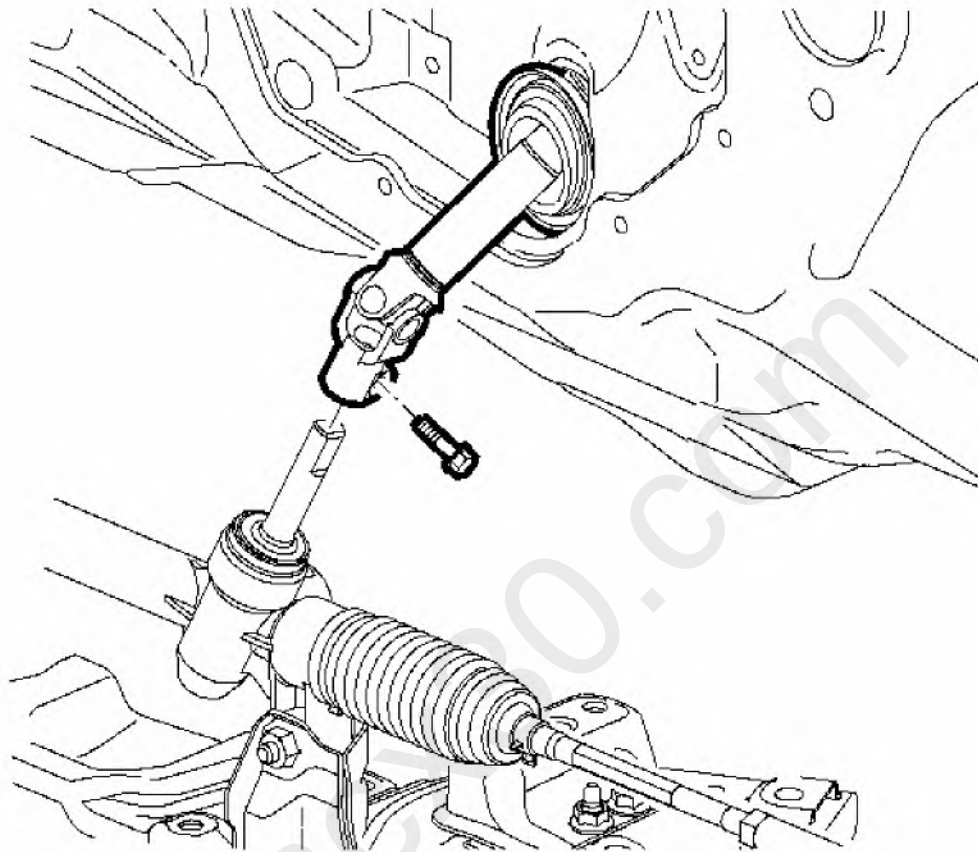


Fig. 5: Intermediate Steering Shaft & Steering Gear Pinch Bolt
Courtesy of GENERAL MOTORS CORP.

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.

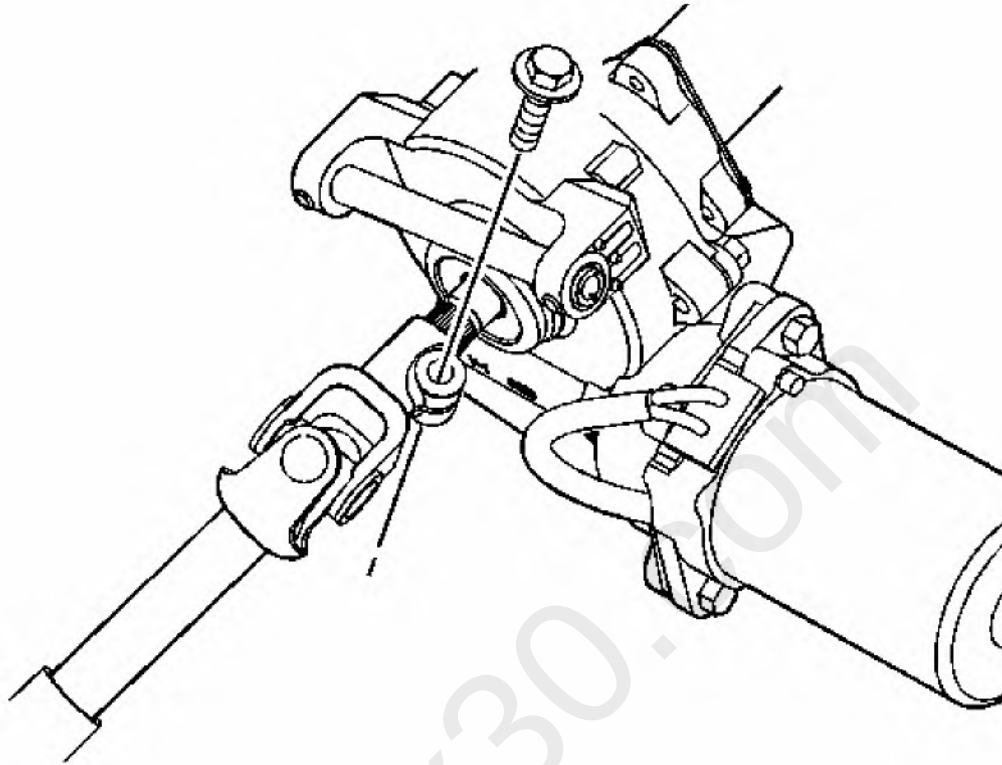


Fig. 6: View Of Upper Intermediate Shaft Pinch Bolt And Column
Courtesy of GENERAL MOTORS CORP.

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.

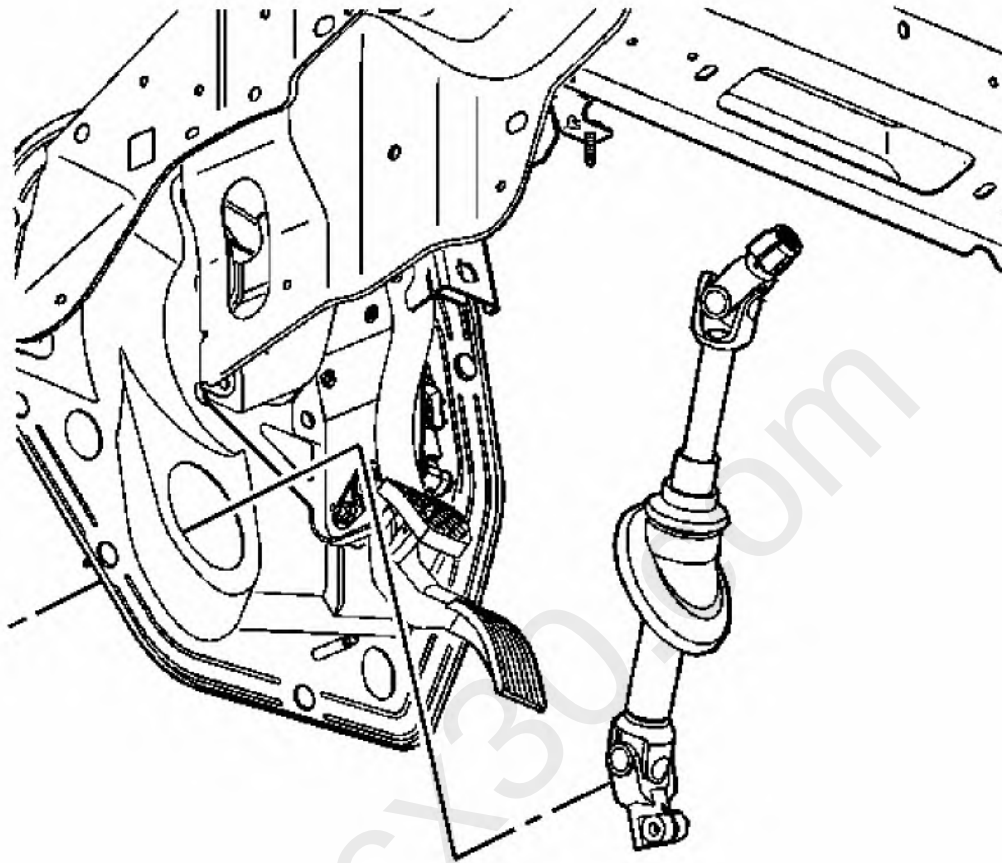


Fig. 7: View Of Intermediate Steering Shaft Assembly
Courtesy of GENERAL MOTORS CORP.

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.

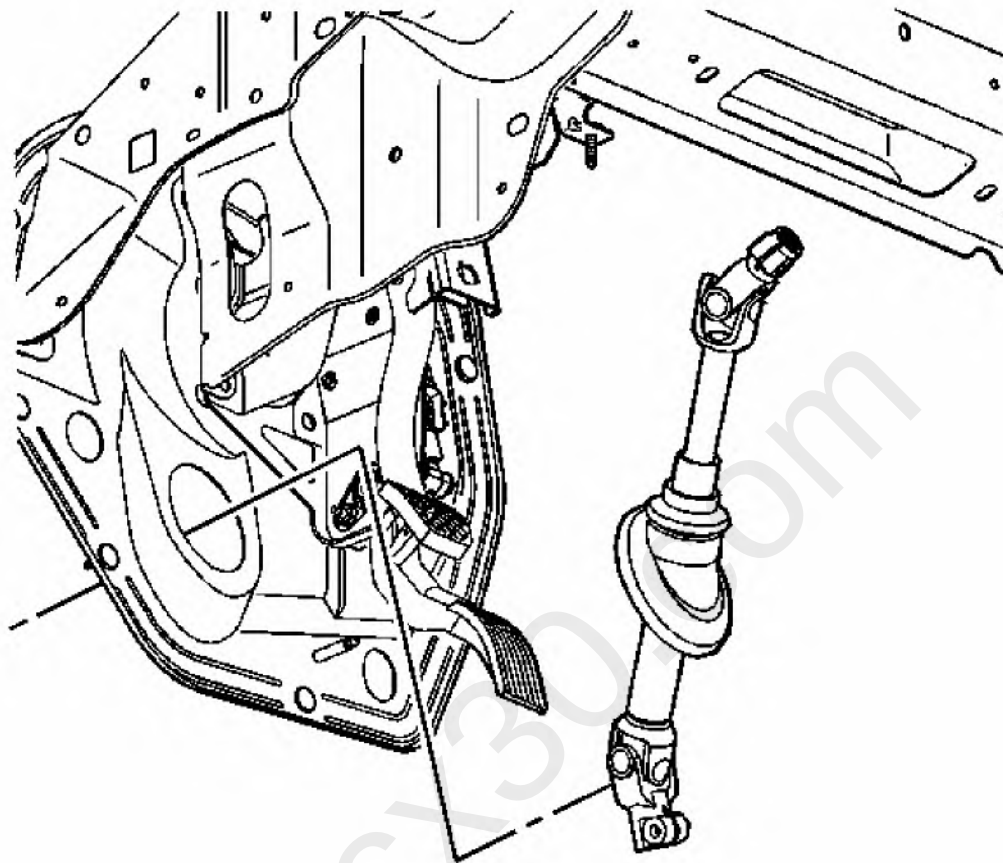


Fig. 8: View Of Intermediate Steering Shaft Assembly
Courtesy of GENERAL MOTORS CORP.

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

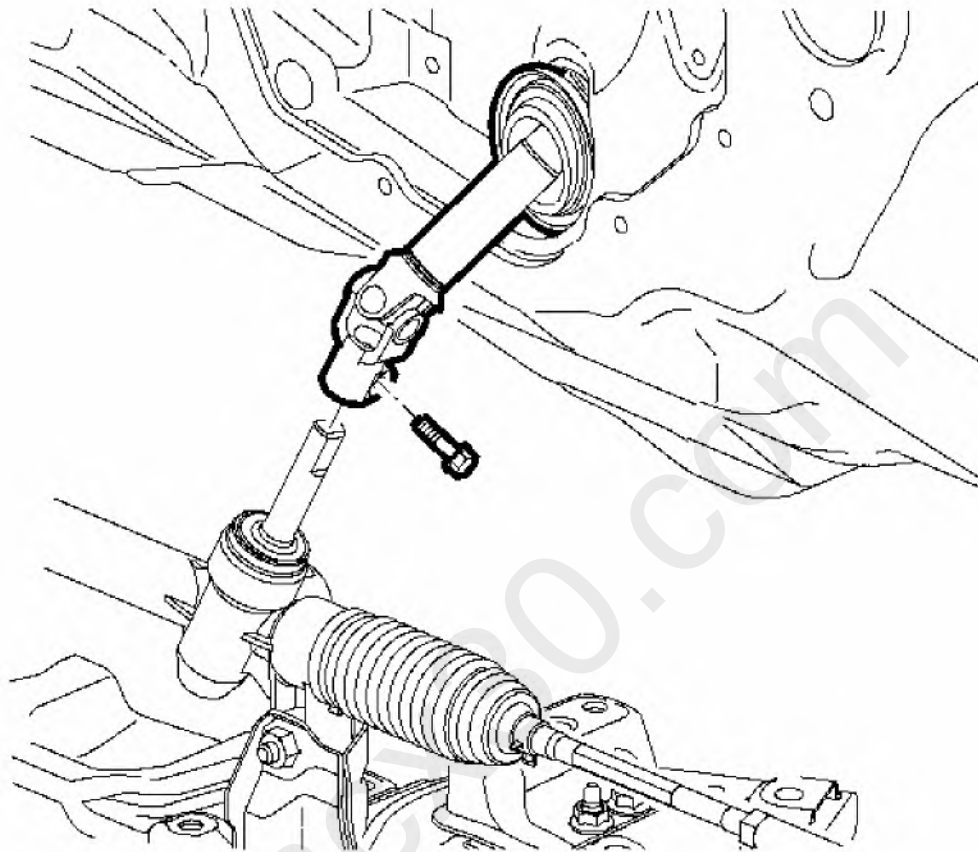


Fig. 9: Intermediate Steering Shaft & Steering Gear Pinch Bolt
Courtesy of GENERAL MOTORS CORP.

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.

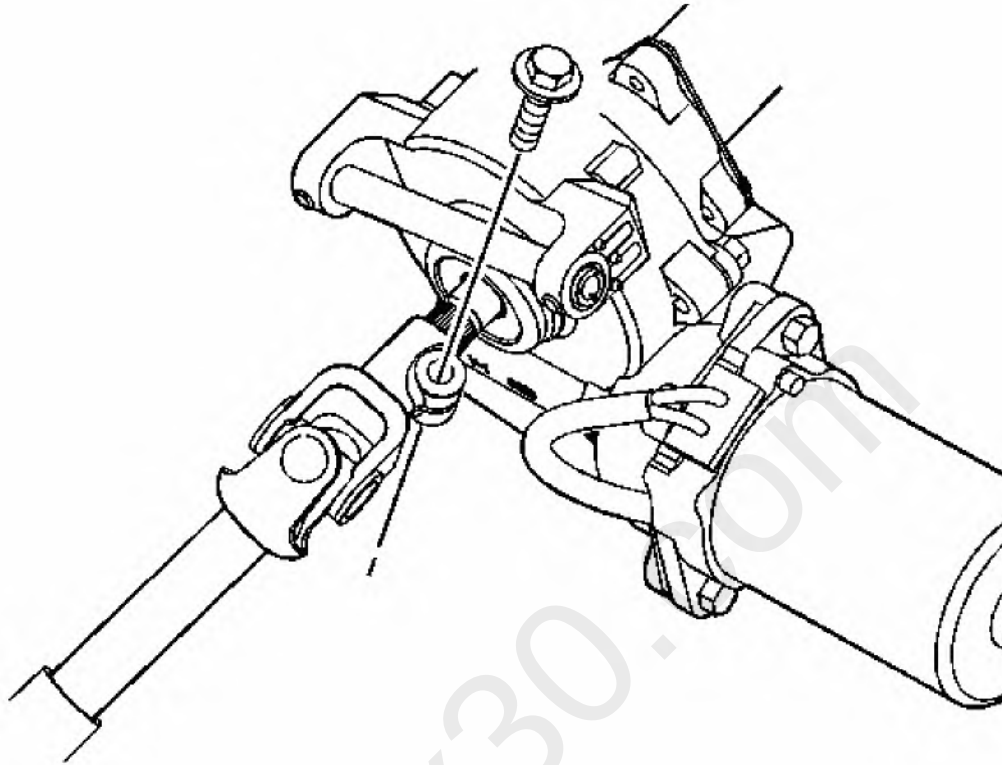


Fig. 10: View Of Upper Intermediate Shaft Pinch Bolt And Column
Courtesy of GENERAL MOTORS CORP.

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 - Vehicle** in Vehicle DTC Information.

- 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.

Electric Power Steering (EPS) Inspection

1. Install a scan tool.
2. Start the engine.

IMPORTANT: After centering the steering wheel, remove hands and other objects from the steering wheel. Ensure the suspension is relaxed and that no bias, or uneven force is being applied to the steering system.

3. Turn the steering wheel 90 degrees to the left, then 90 degrees to the right, then return the steering wheel to center.
4. Using the scan tool, observe the Torque Sensor Main data parameter in the EPS data list. Correct parameter range for the torque sensor is $<+ \text{ or } - 1 \text{ N.m (0.7 lb ft)}$.
5. If the value is greater than the specified range then replace the steering column assembly. Refer to **Steering Column Replacement**.

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**.

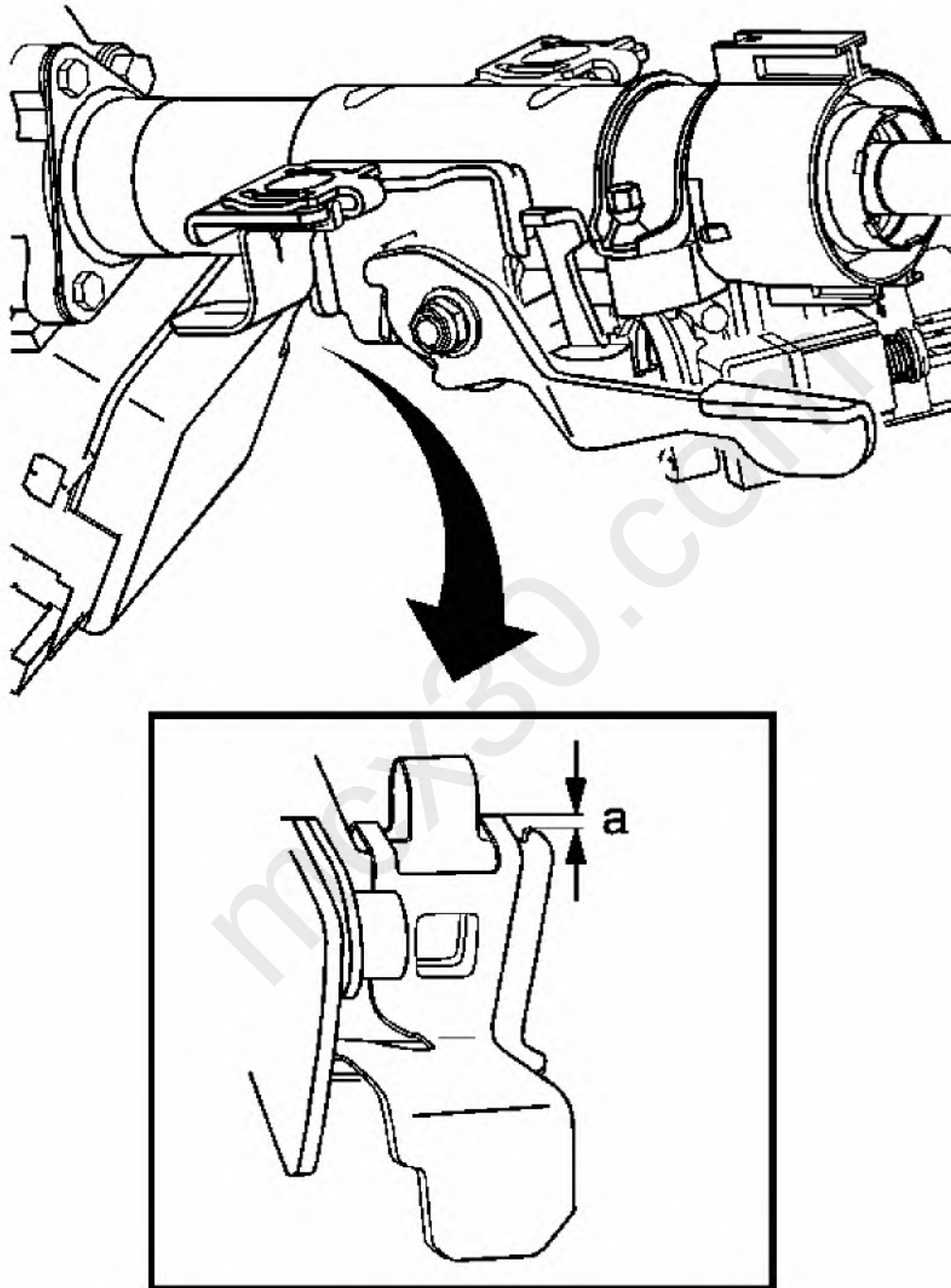


Fig. 11: Inspecting Steering Column Mounting Capsule Nuts For Movement
Courtesy of GENERAL MOTORS CORP.

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.

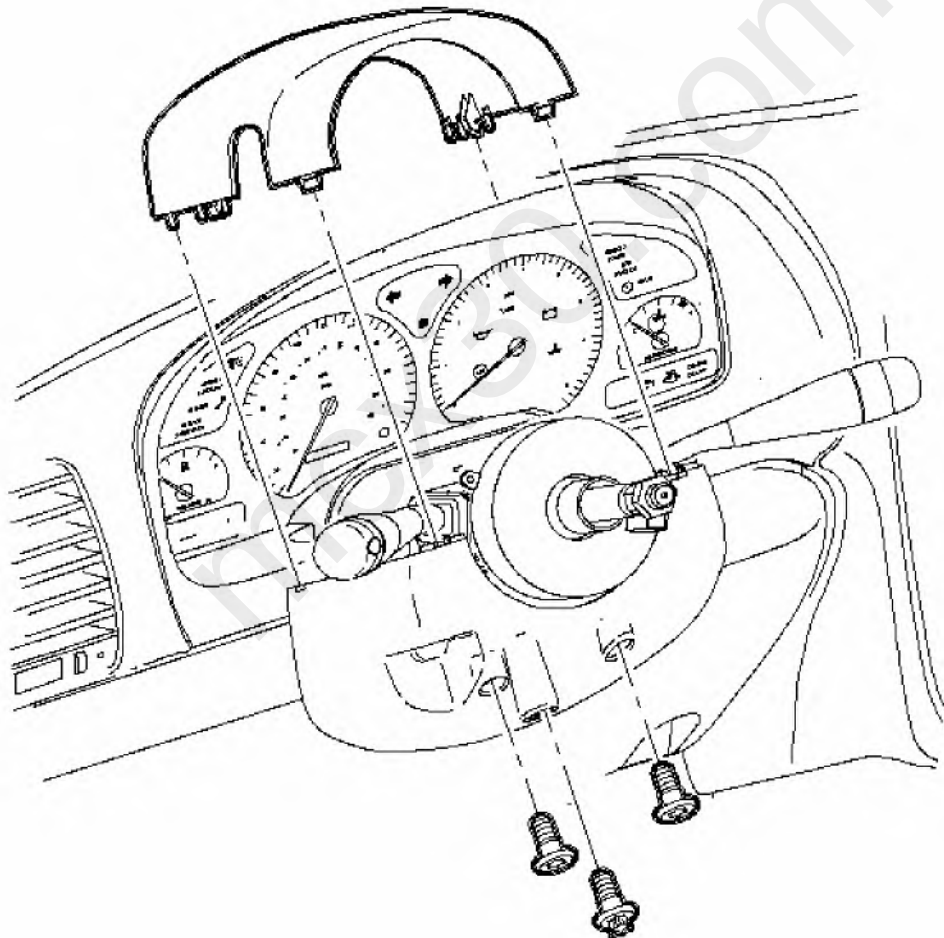


Fig. 12: Removing & Installing Steering Column Trim Covers
Courtesy of GENERAL MOTORS CORP.

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

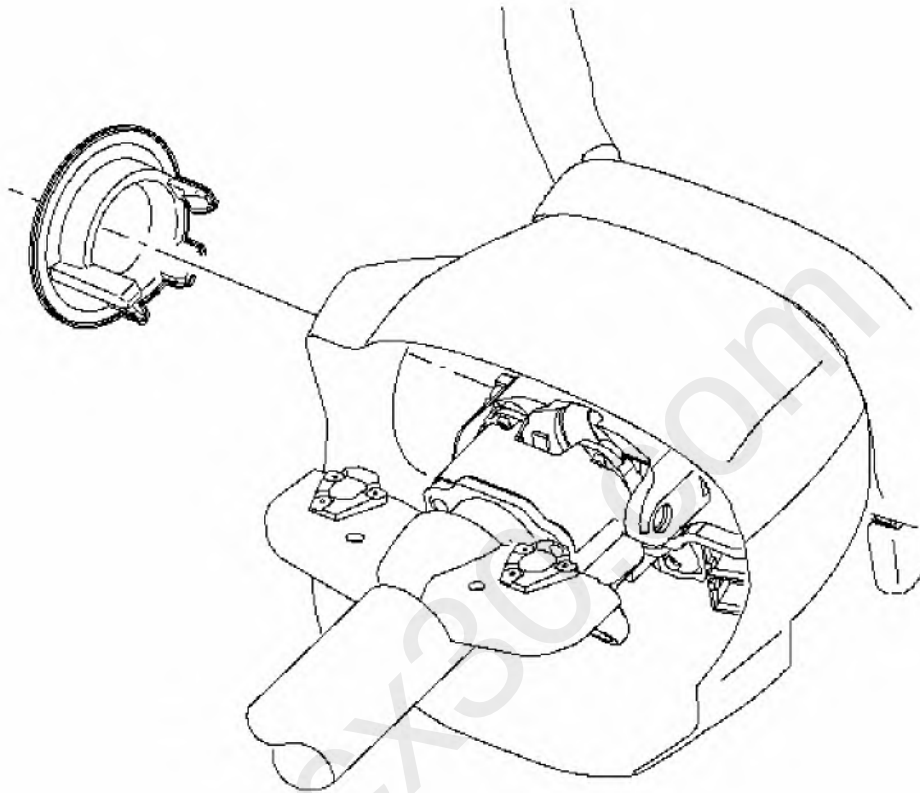


Fig. 13: Removing & Installing Ignition Lock Cylinder Bezel
Courtesy of GENERAL MOTORS CORP.

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

Installation Procedure

1. Position the upper and lower shrouds.

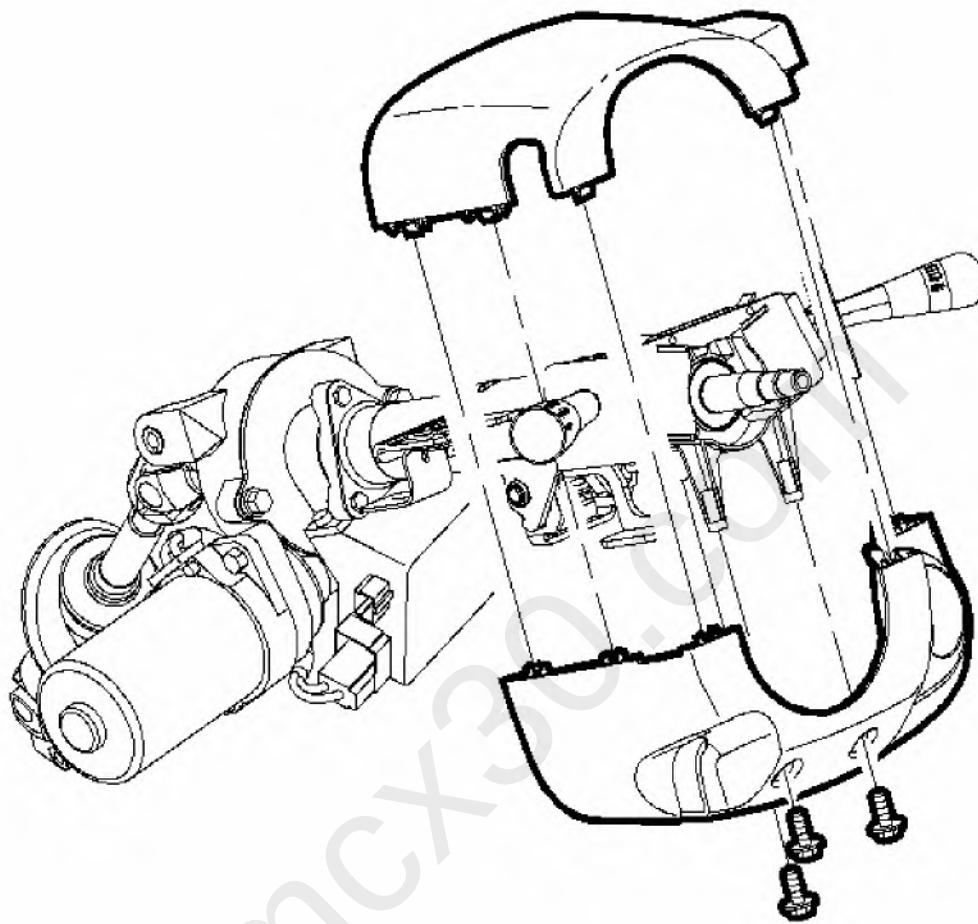


Fig. 14: View Of Steering Column Upper & Lower Shrouds Panels
Courtesy of GENERAL MOTORS CORP.

2. Apply light pressure until they snap in place.

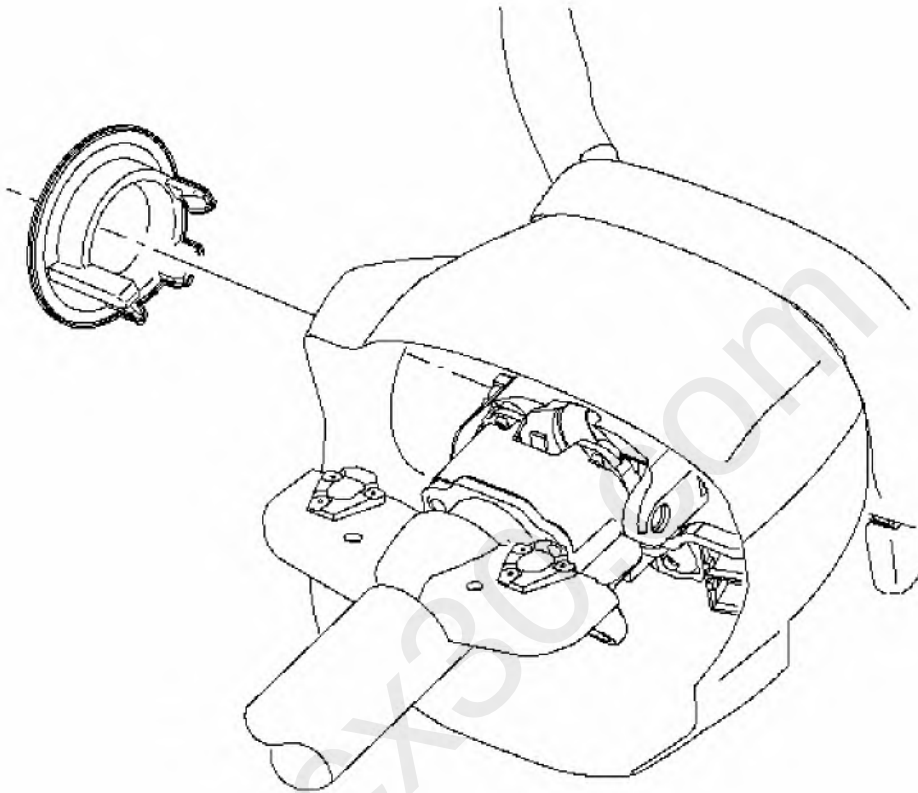


Fig. 15: Removing & Installing Ignition Lock Cylinder Bezel
Courtesy of GENERAL MOTORS CORP.

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 steering column trim covers. Refer to **Steering Column Trim Covers Replacement**.
4. Remove the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement**.
5. Remove the multifunction levers. Refer to **Multifunction, Turn Signal Switch Replacement**.

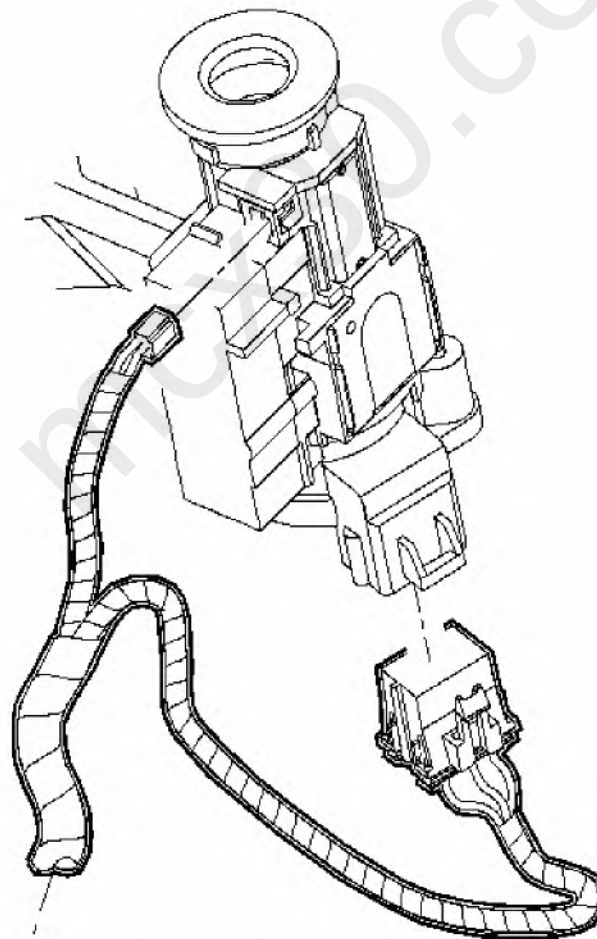


Fig. 16: View Of Ignition Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

6. Disconnect the electrical housing electrical connectors.

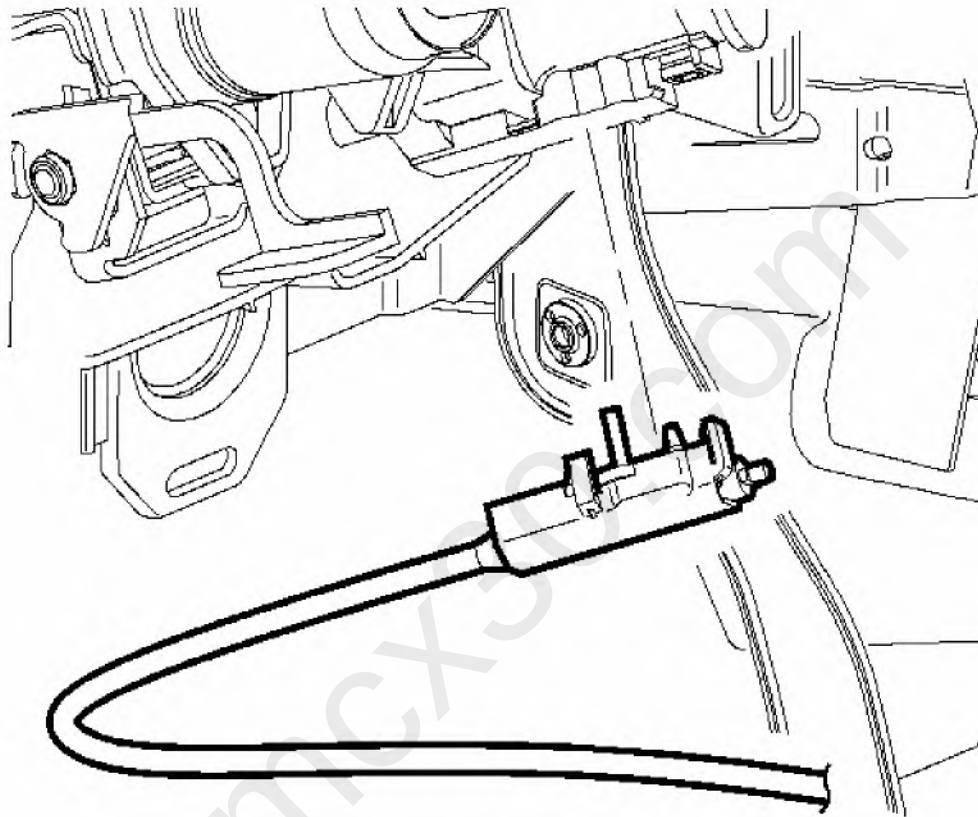


Fig. 17: View Of Park Lock Cable Assembly & Ignition Module
Courtesy of GENERAL MOTORS CORP.

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

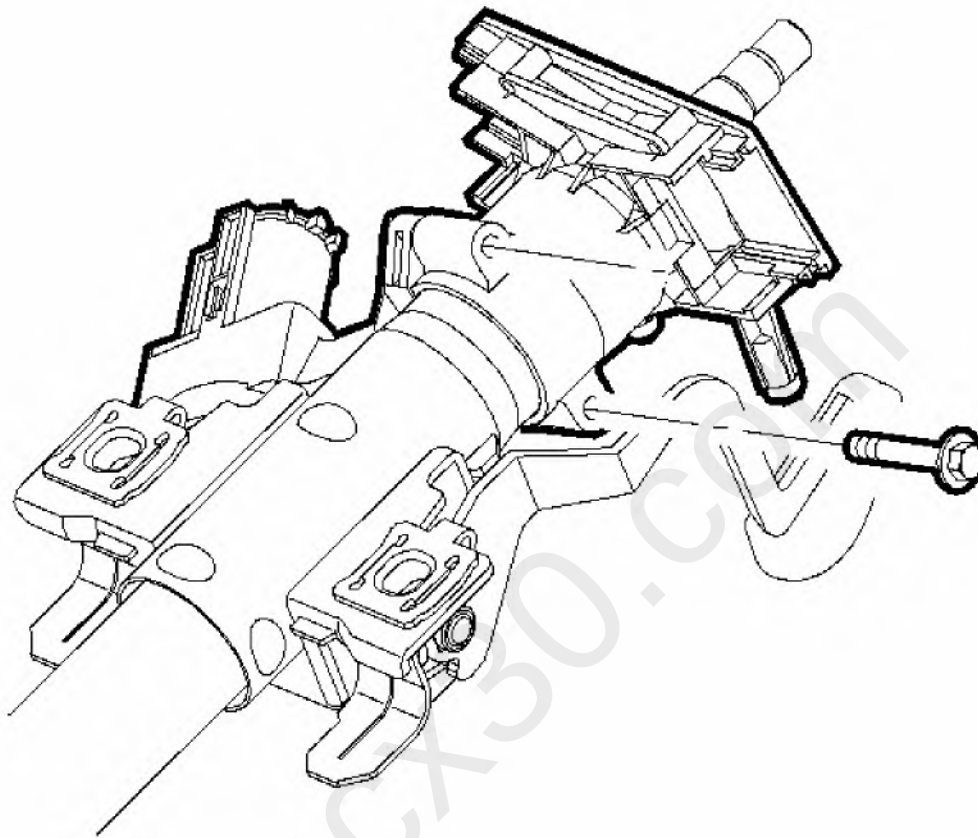


Fig. 18: View Of Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

8. Remove the lock housing bolts.
9. Turn the ignition key to the ACC position

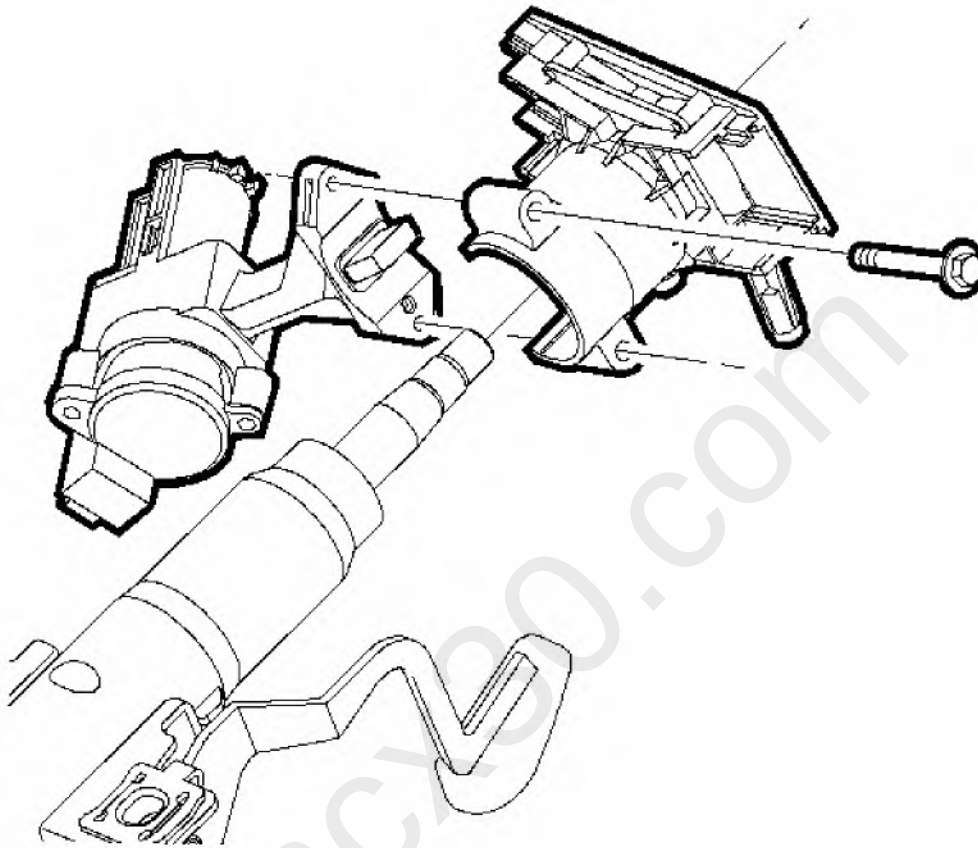


Fig. 19: View Of Ignition Housing & Multi-Function Bracket
Courtesy of GENERAL MOTORS CORP.

10. Separate the ignition housing from the multi-function bracket.
11. Remove the ignition switch screws
12. Remove the ignition switch.

Installation Procedure

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).

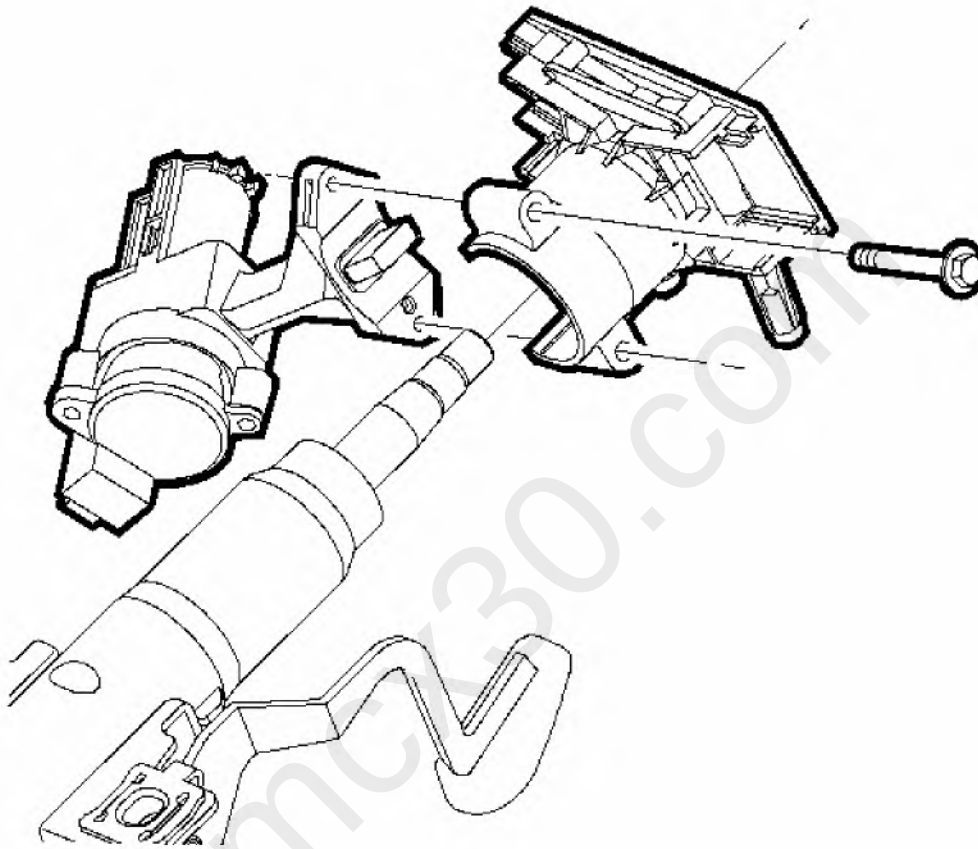


Fig. 20: View Of Ignition Housing & Multi-Function Bracket
Courtesy of GENERAL MOTORS CORP.

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

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.
4. Slide the bracket onto the column.

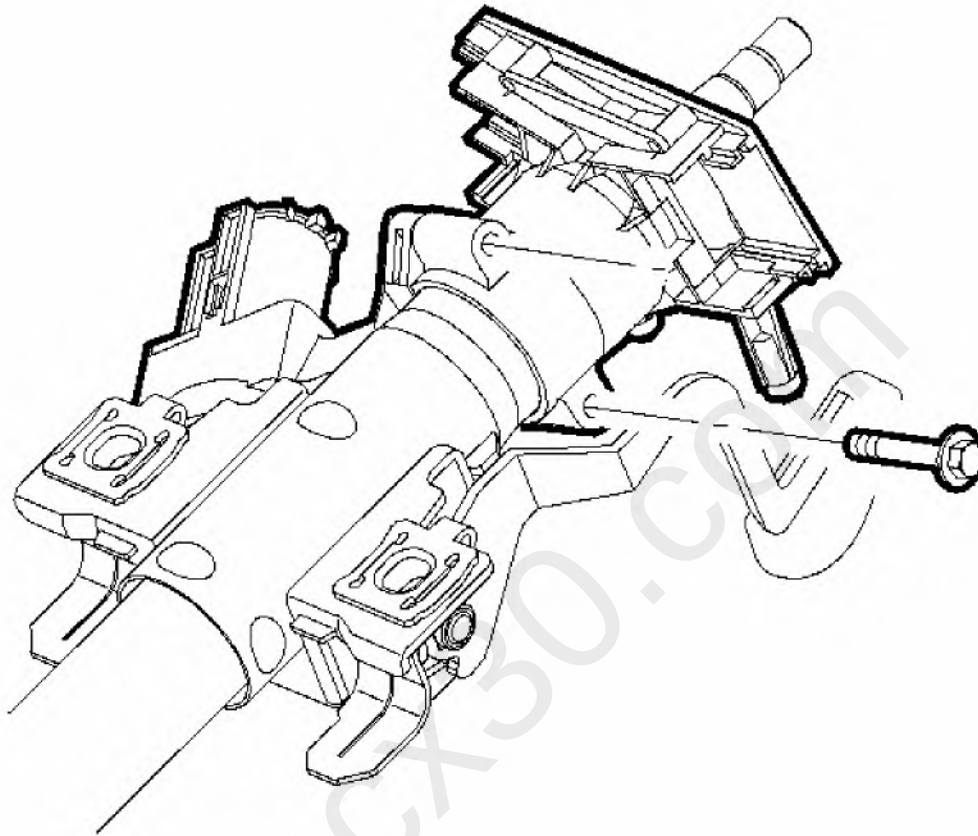


Fig. 21: View Of Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

5. Hand tighten the lower bolt until snug.
6. Hand tighten the upper bolt until snug.
7. 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)

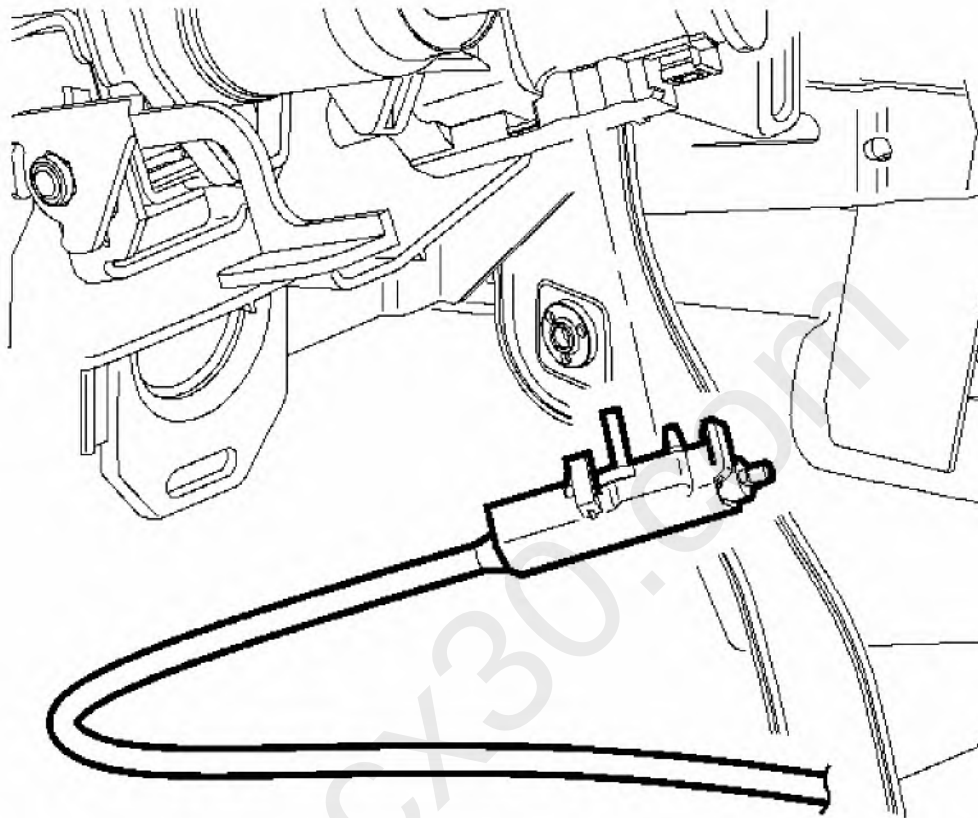


Fig. 22: View Of Park Lock Cable Assembly & Ignition Module
Courtesy of GENERAL MOTORS CORP.

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

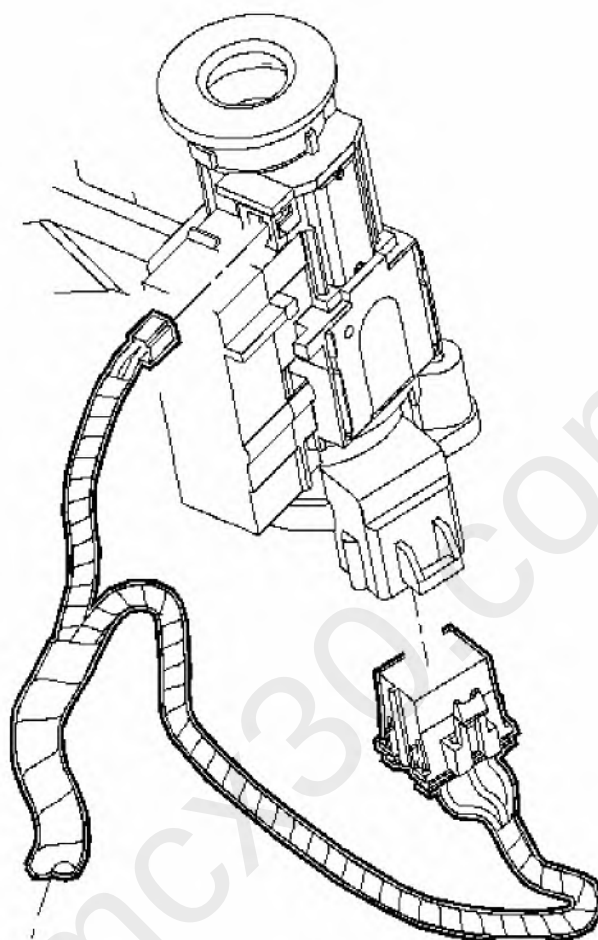


Fig. 23: View Of Ignition Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

10. Connect the ignition housing electrical connectors.
11. Install the multifunction levers. Refer to **Multifunction, Turn Signal Switch Replacement**.
12. Install the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement**.
13. Install the steering column trim covers. Refer to **Steering Column Trim Covers Replacement**.
14. Install the steering wheel. Refer to **Steering Wheel Replacement**.
15. 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**.

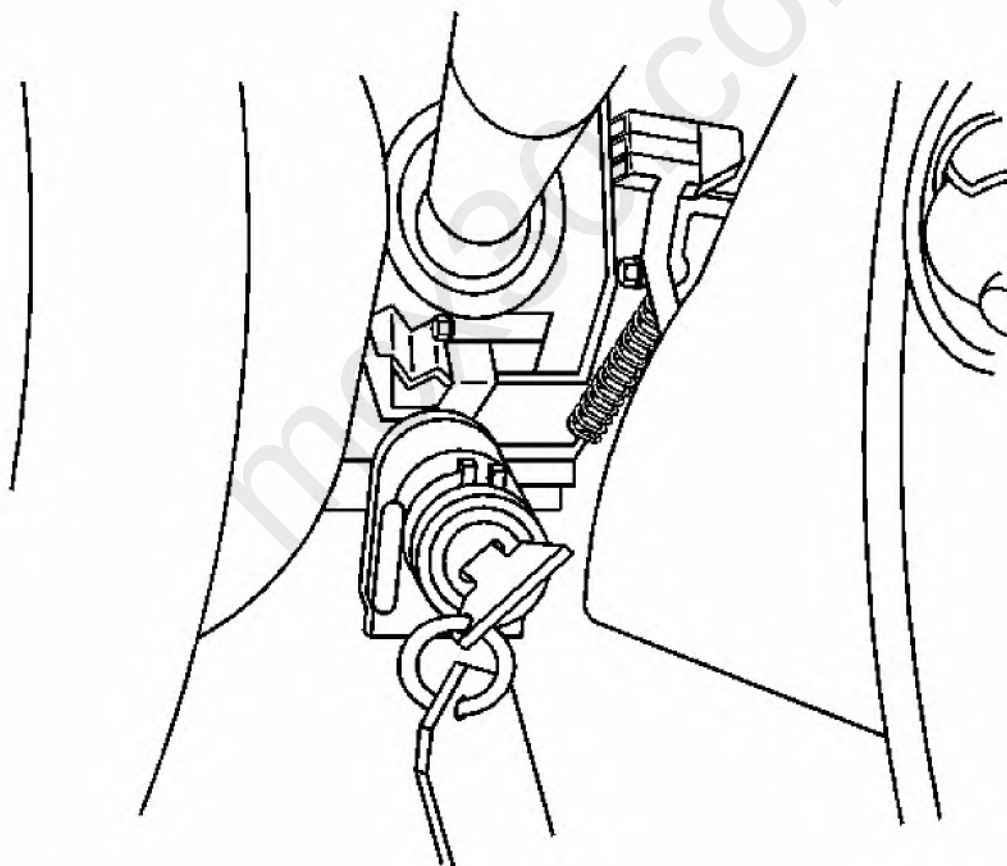


Fig. 24: Turning Ignition Lock Cylinder To RUN Position
Courtesy of GENERAL MOTORS CORP.

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

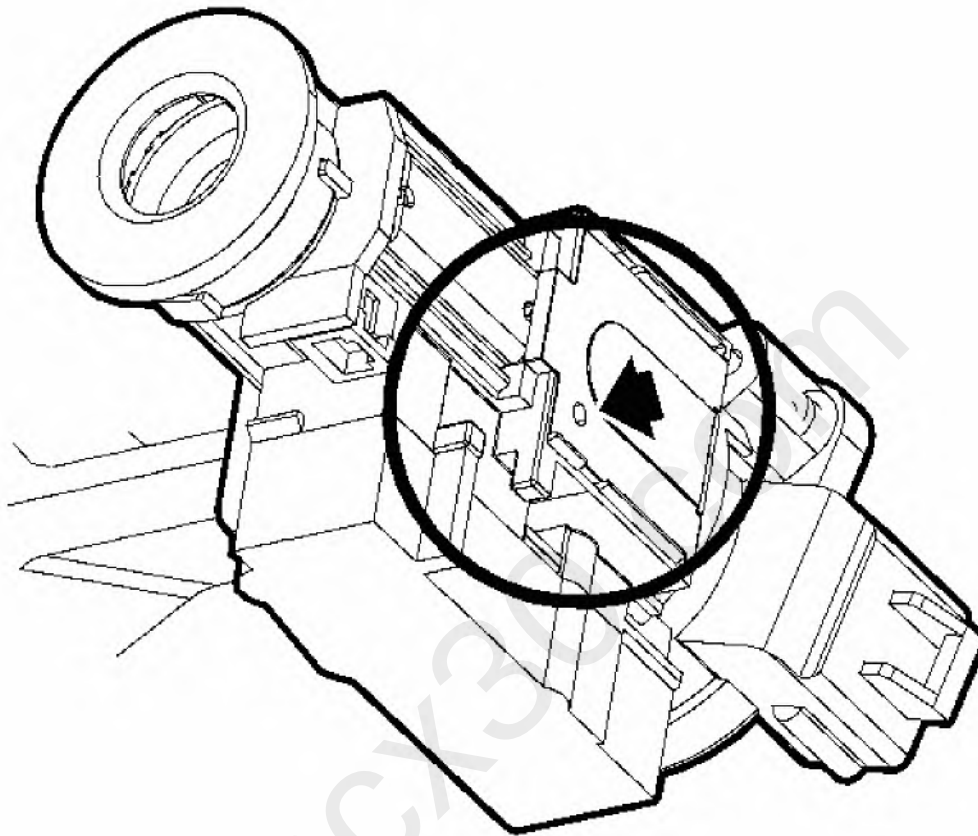


Fig. 25: Locking Button On Side Of Ignition Module Assembly
Courtesy of GENERAL MOTORS CORP.

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

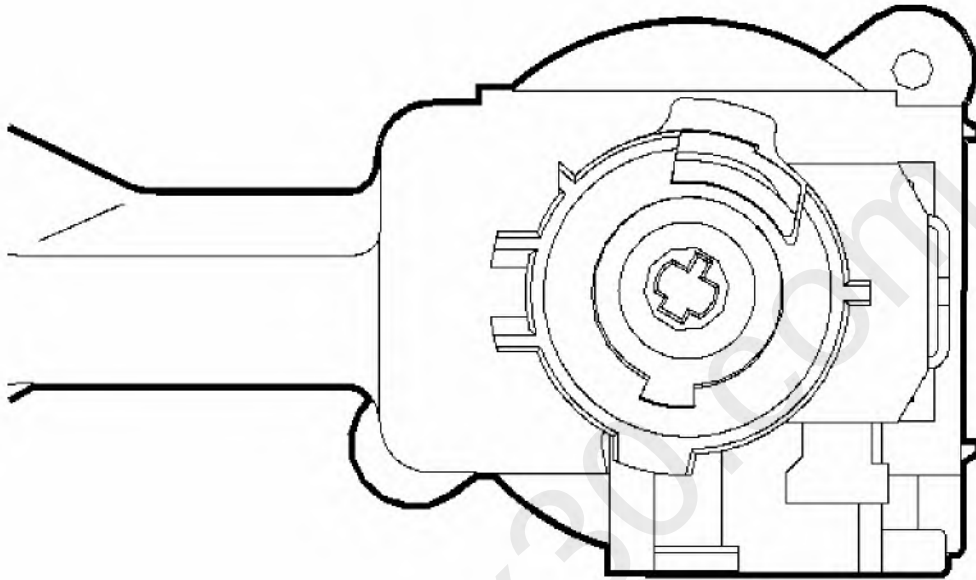


Fig. 26: Actuator Blade & Ignition Module
Courtesy of GENERAL MOTORS CORP.

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.

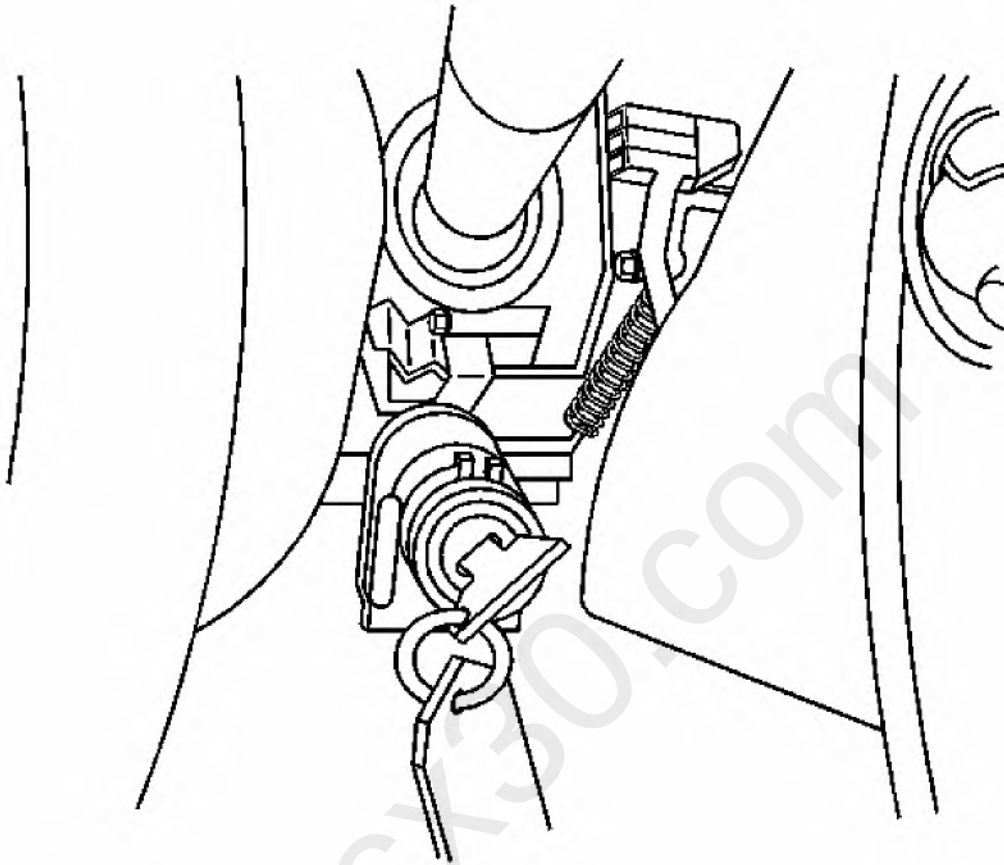


Fig. 27: Turning Ignition Lock Cylinder To RUN Position
Courtesy of GENERAL MOTORS CORP.

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**.

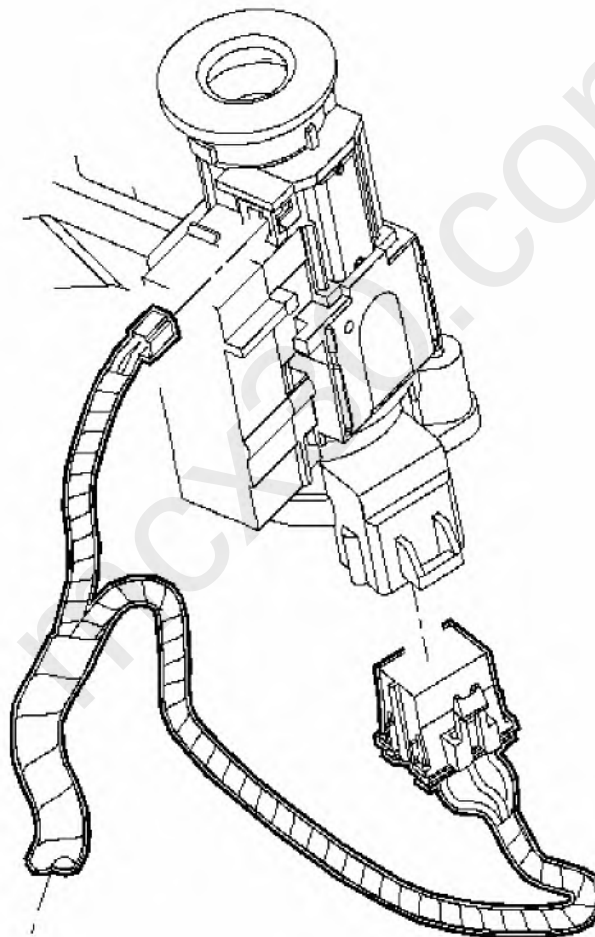


Fig. 28: View Of Ignition Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

5. Disconnect the housing electrical connectors.

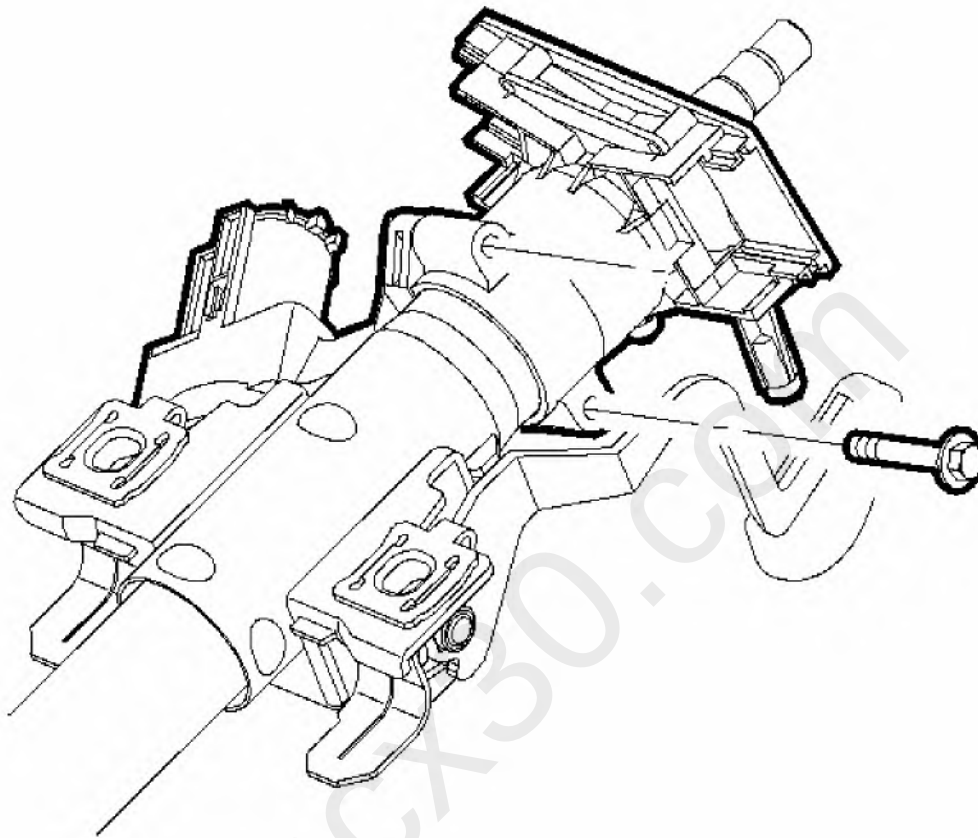


Fig. 29: View Of Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

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.

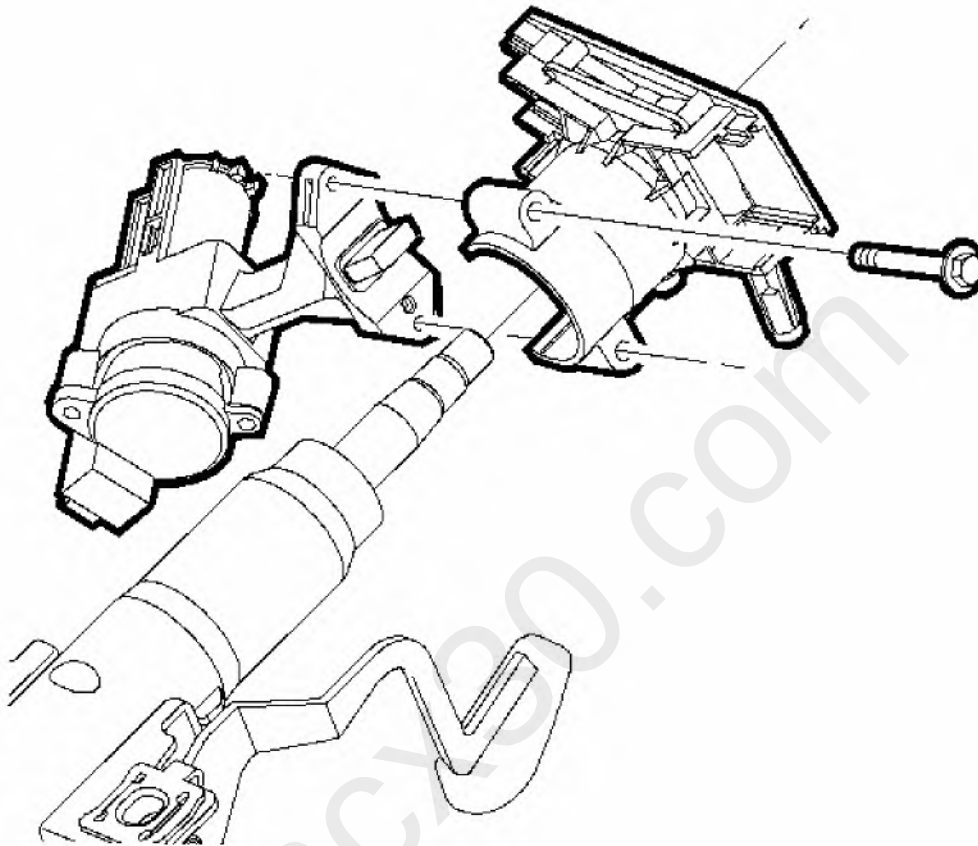


Fig. 30: View Of Ignition Housing & Multi-Function Bracket
Courtesy of GENERAL MOTORS CORP.

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).

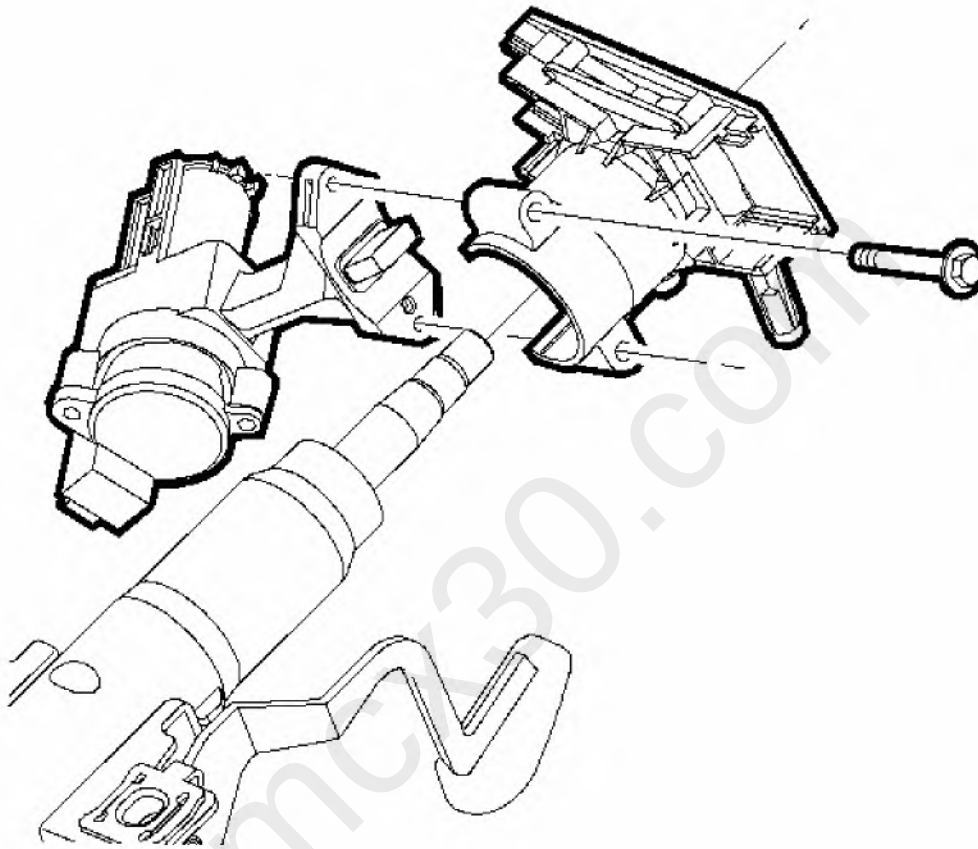


Fig. 31: View Of Ignition Housing & Multi-Function Bracket
Courtesy of GENERAL MOTORS CORP.

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).

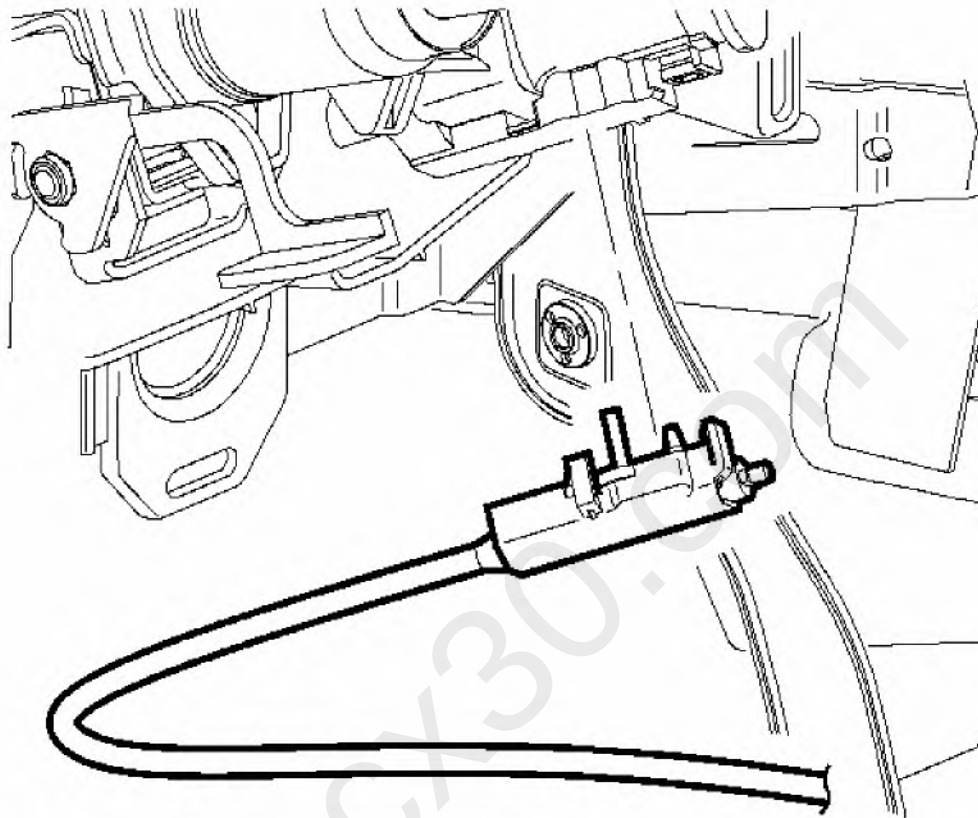


Fig. 32: View Of Park Lock Cable Assembly & Ignition Module
Courtesy of GENERAL MOTORS CORP.

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

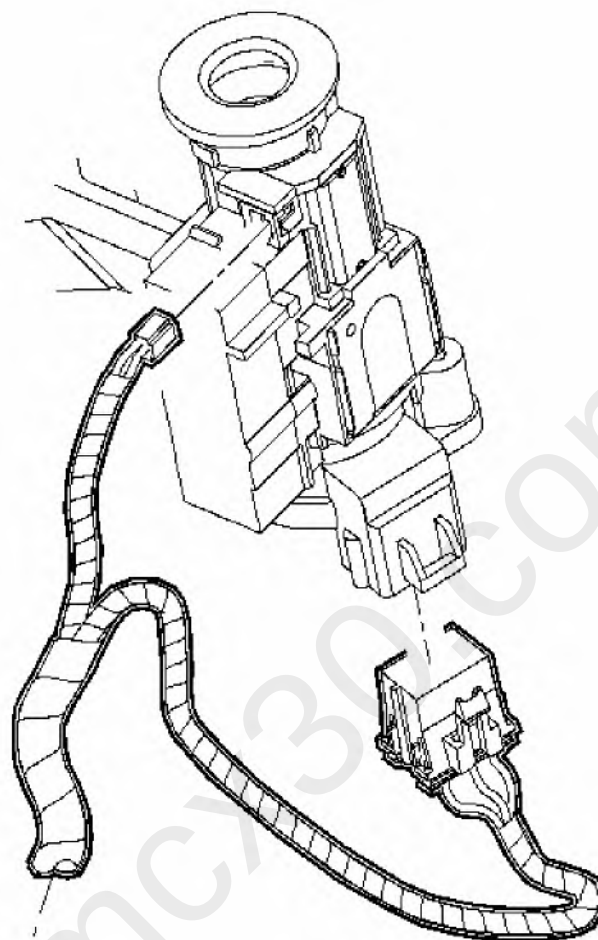


Fig. 33: View Of Ignition Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

9. Connect the ignition housing electrical connectors.

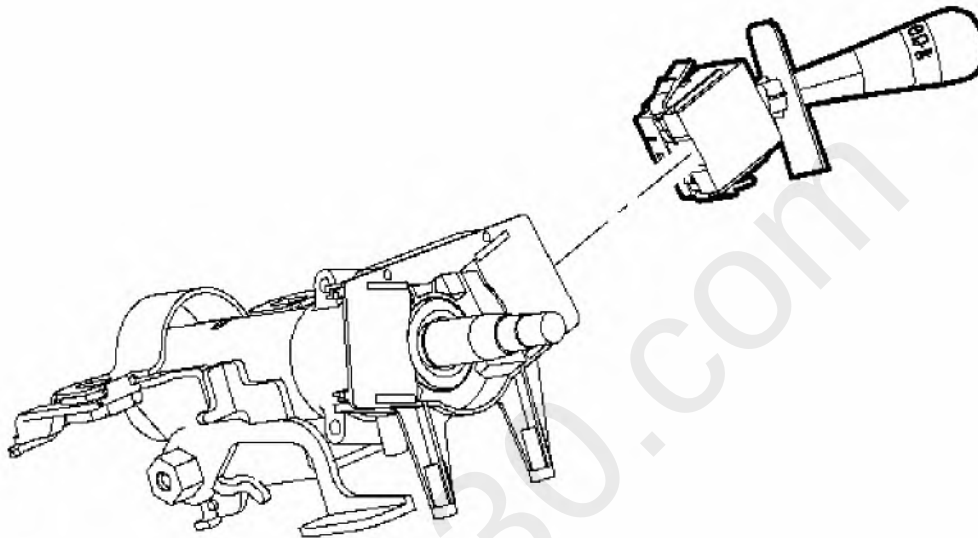


Fig. 34: View Of Multifunction Lever
Courtesy of GENERAL MOTORS CORP.

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.

Removal Procedure

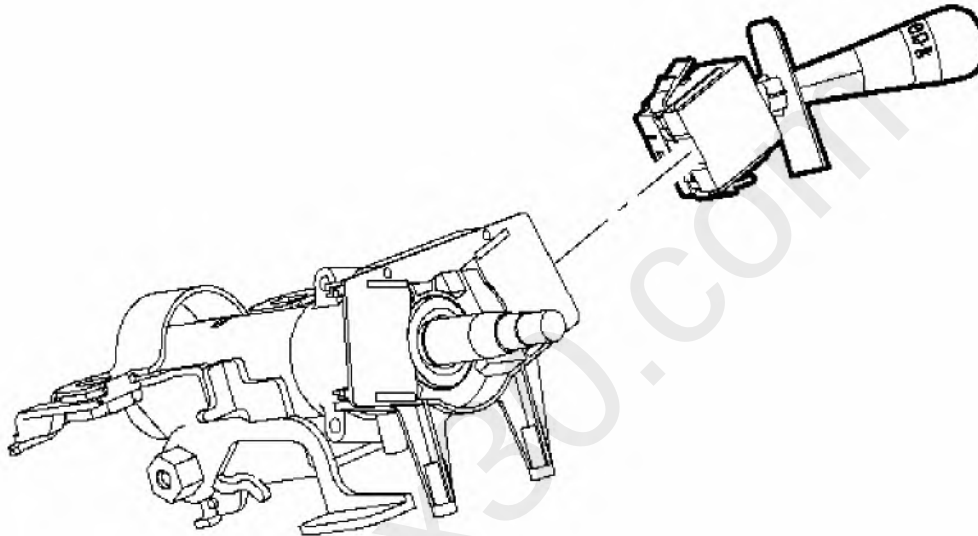


Fig. 35: View Of Multifunction Lever
Courtesy of GENERAL MOTORS CORP.

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.

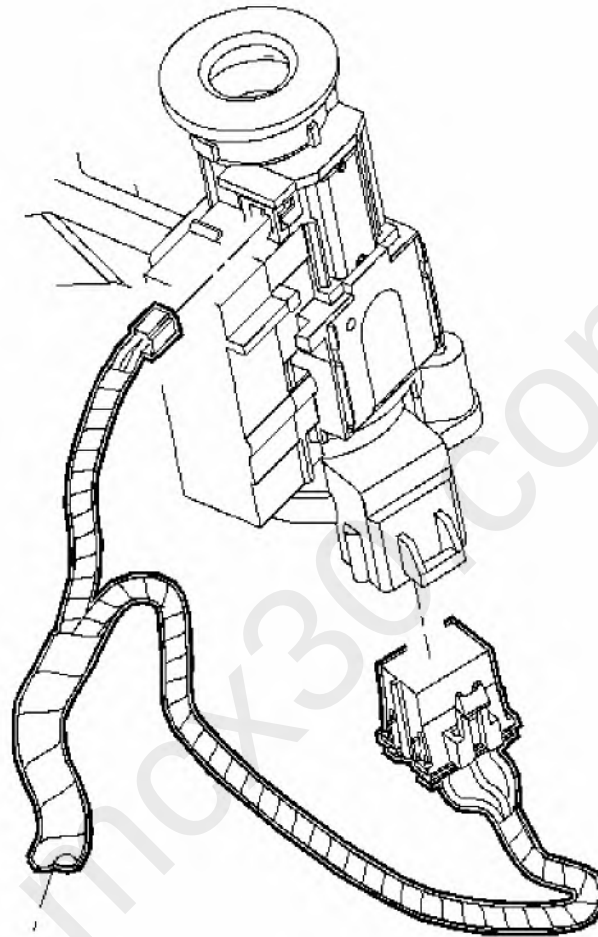


Fig. 36: View Of Ignition Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

7. Disconnect the housing electrical connectors.

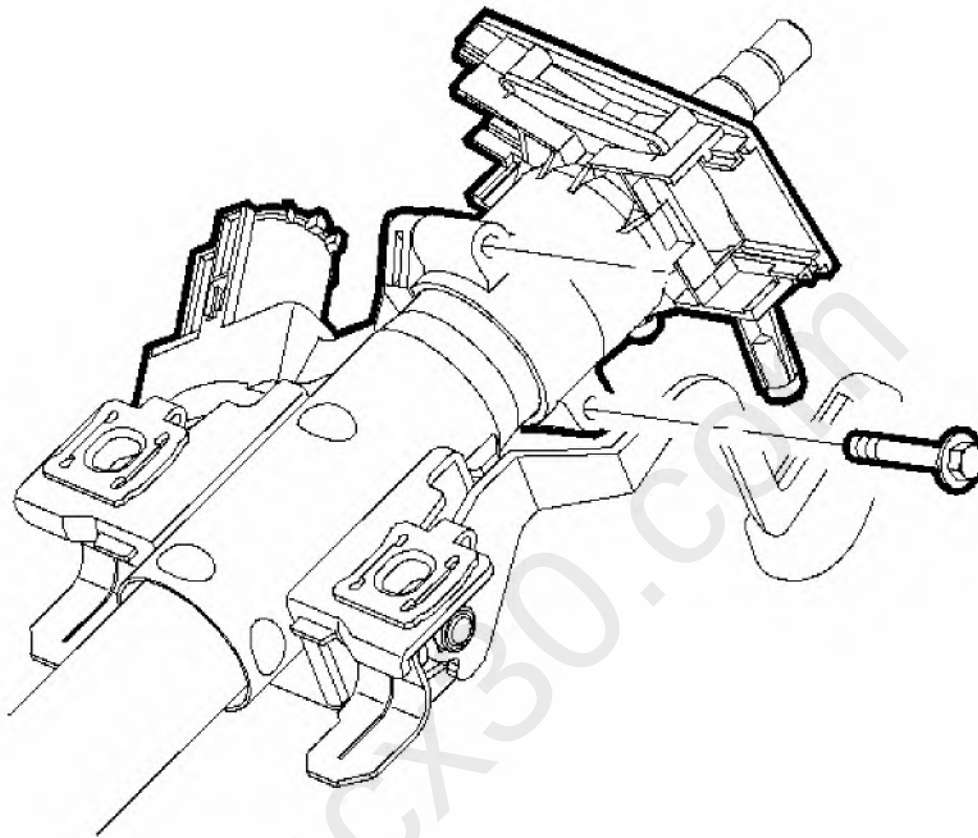


Fig. 37: View Of Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

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

Installation Procedure

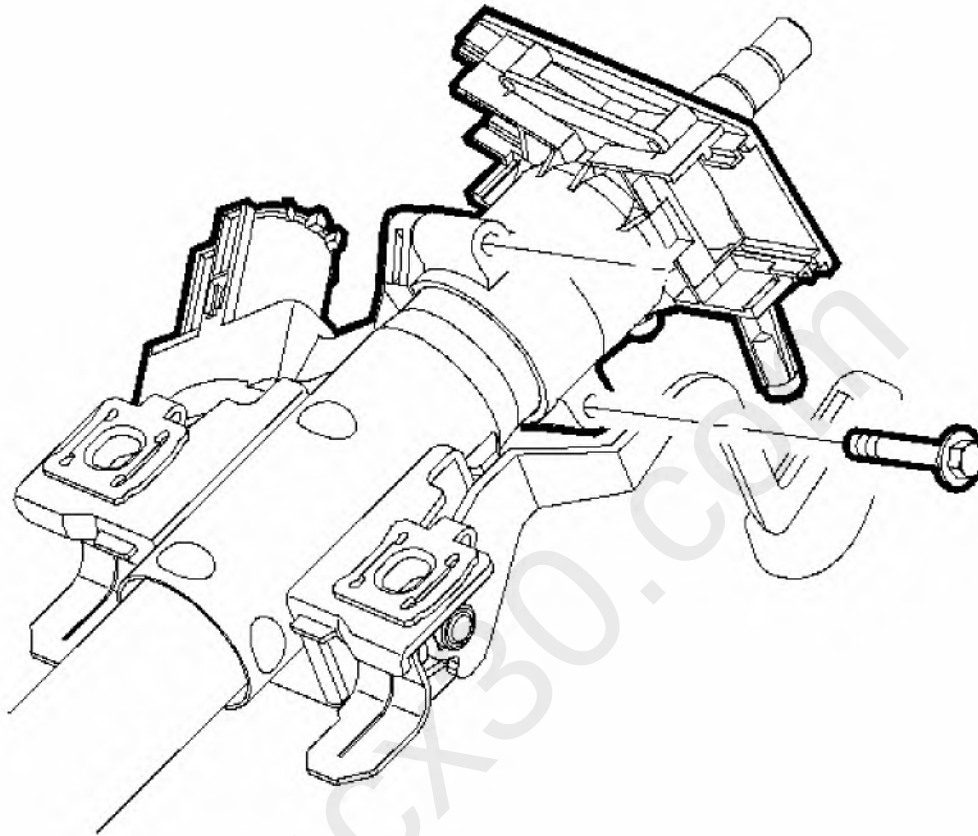


Fig. 38: View Of Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

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)

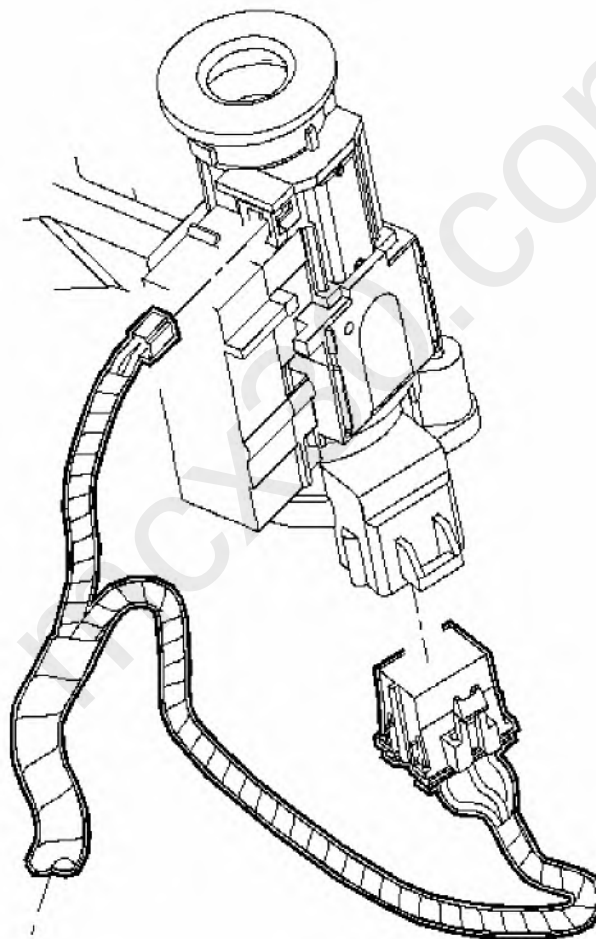


Fig. 39: View Of Ignition Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

7. Connect the ignition housing electrical connectors.

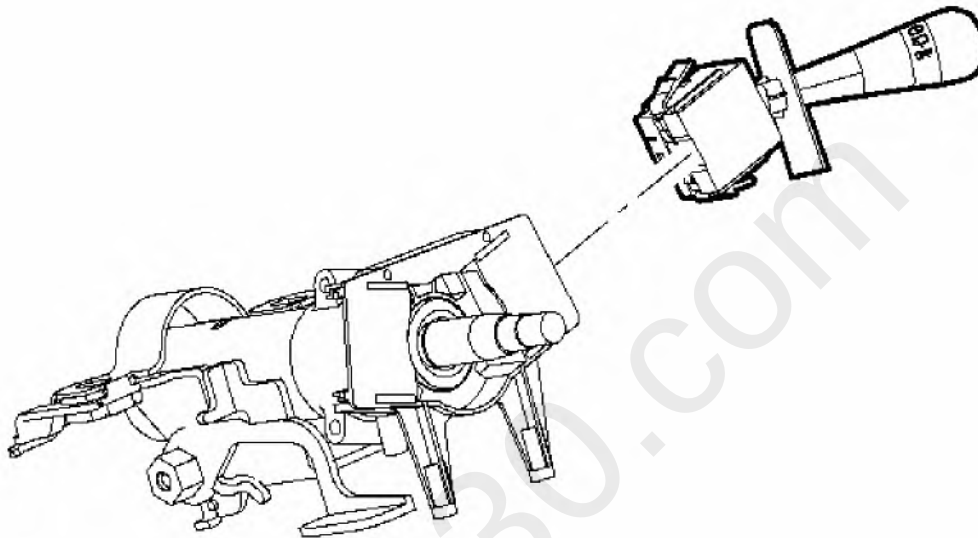


Fig. 40: View Of Multifunction Lever
Courtesy of GENERAL MOTORS CORP.

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.

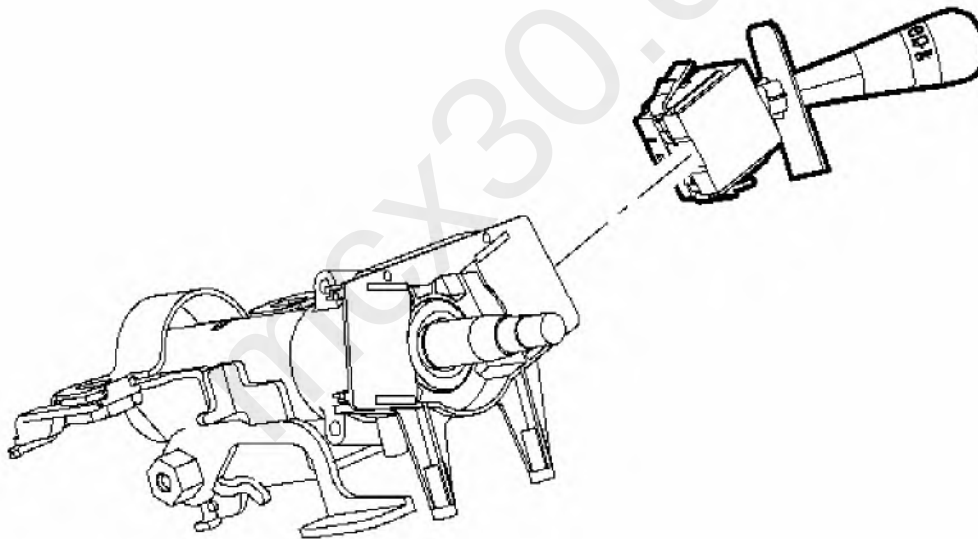


Fig. 41: View Of Multifunction Lever
Courtesy of GENERAL MOTORS CORP.

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

Installation Procedure

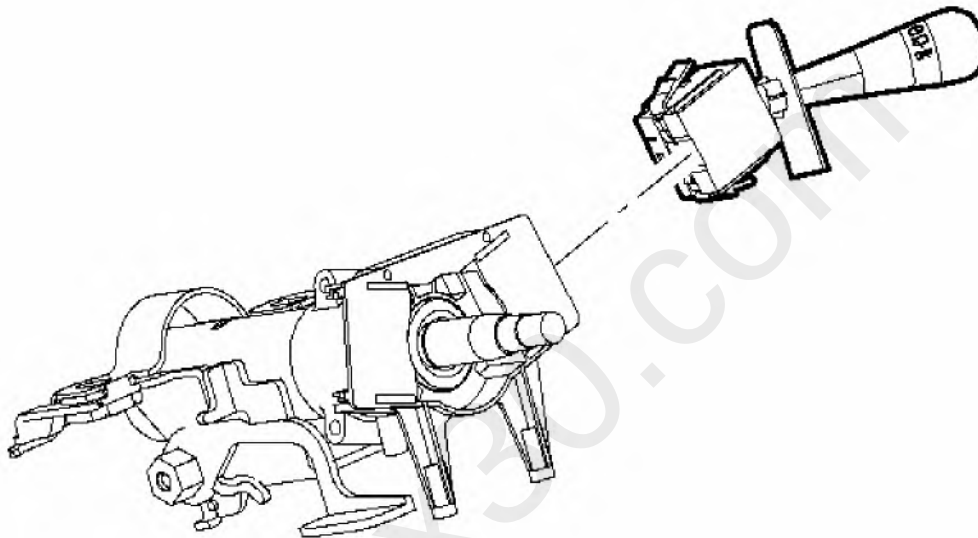


Fig. 42: View Of Multifunction Lever
Courtesy of GENERAL MOTORS CORP.

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

Torrent

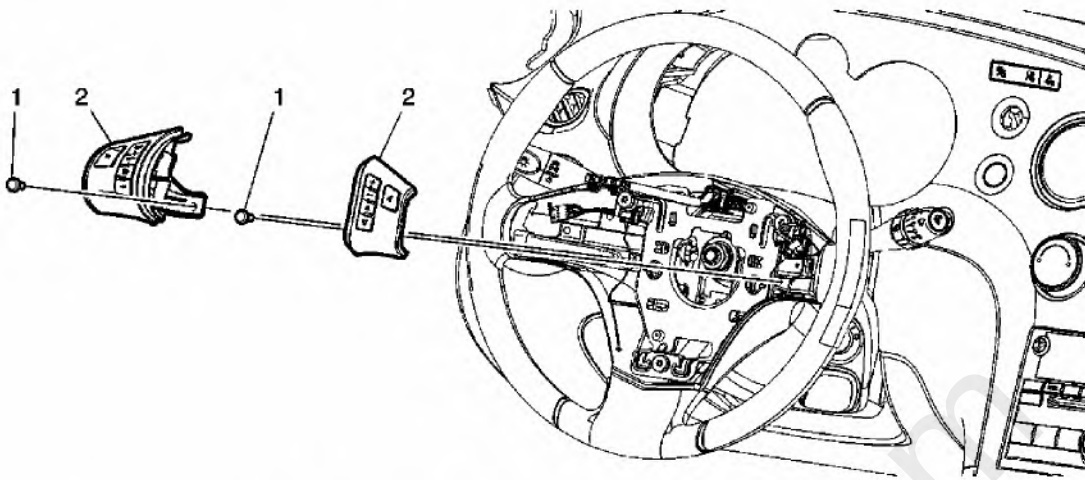


Fig. 43: Steering Wheel Control Switch Assembly
Courtesy of GENERAL MOTORS CORP.

1	Steering Wheel Control Assembly Screw Tighten 2 Nm (18 lb in)
2	Steering Wheel Control Assembly

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

Fastener Tightening Specifications: Refer to **Fastener Tightening Specifications**.

Preliminary Procedure Remove the inflatable restraint steering wheel module. Refer to Inflatable Restraint Steering Wheel Module Replacement.

Equinox

Removal Procedure

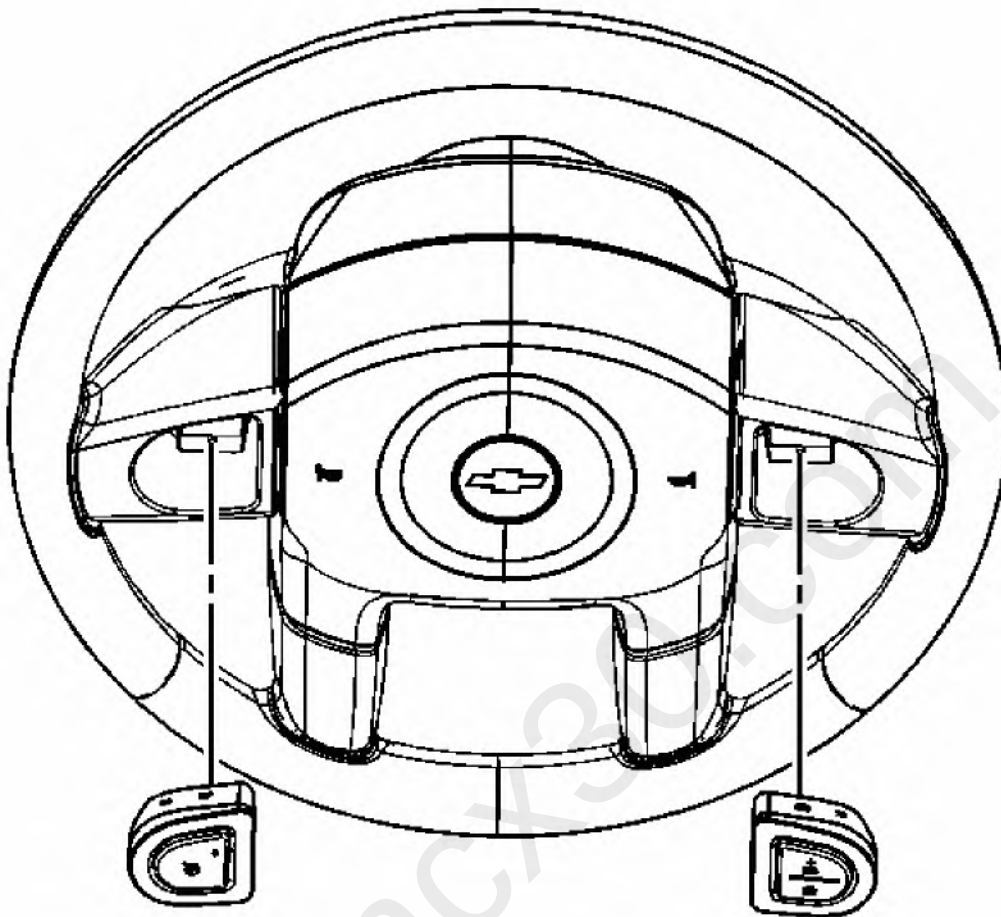


Fig. 44: View Of Cruise Control Switch Assembly
Courtesy of GENERAL MOTORS CORP.

1. Use a small flat-bladed tool to release the switch assembly from the steering wheel.
2. Disconnect the cruise switch electrical harness connector from the switch.

Installation Procedure

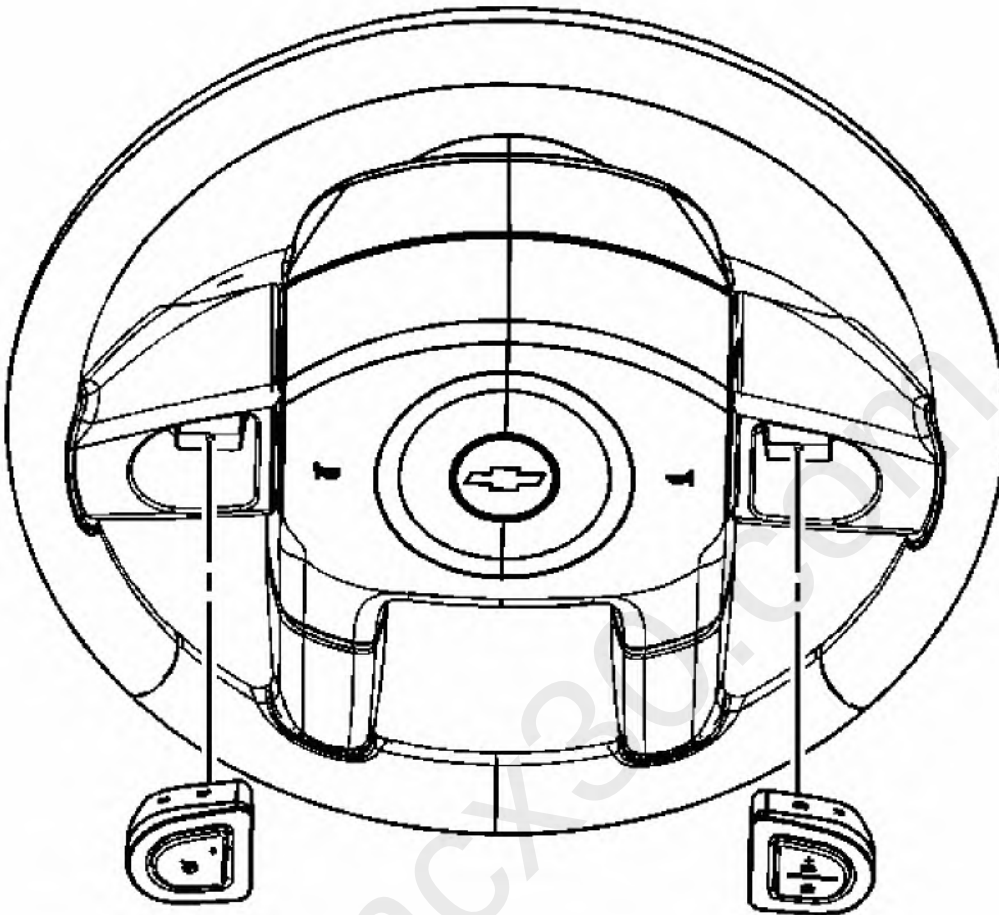


Fig. 45: View Of Cruise Control Switch Assembly
Courtesy of GENERAL MOTORS CORP.

1. Connect the switch electrical harness connector to the switch. Push in the connector until a click is heard and pull back to confirm a positive engagement.
2. Insert the cruise switch into the steering wheel and gently apply pressure to fasten the switch in the opening.

STEERING WHEEL REPLACEMENT

Tools Required

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

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.

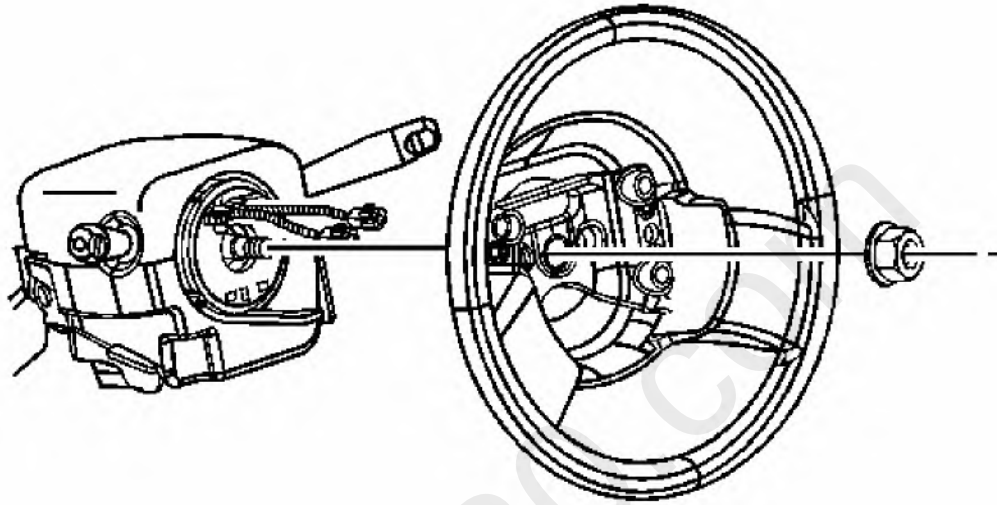


Fig. 46: View Of Steering Wheel
Courtesy of GENERAL MOTORS CORP.

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**.

Installation Procedure

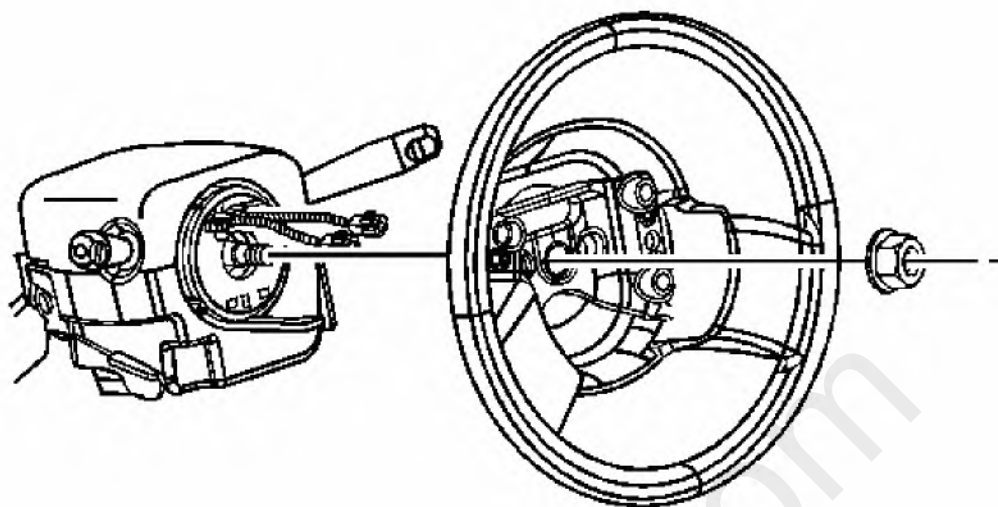


Fig. 47: View Of Steering Wheel
Courtesy of GENERAL MOTORS CORP.

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. Disconnect the negative battery cable. Refer to **Battery Negative Cable Disconnect/Connect Procedure** in Engine Electrical.
2. Set the tires in a straight-ahead position. Center the steering wheel.
3. Remove the steering wheel. Refer to **Steering Wheel Replacement**.
4. Remove the trim covers. Refer to **Steering Column Trim Covers Replacement**.

5. Remove the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement**.

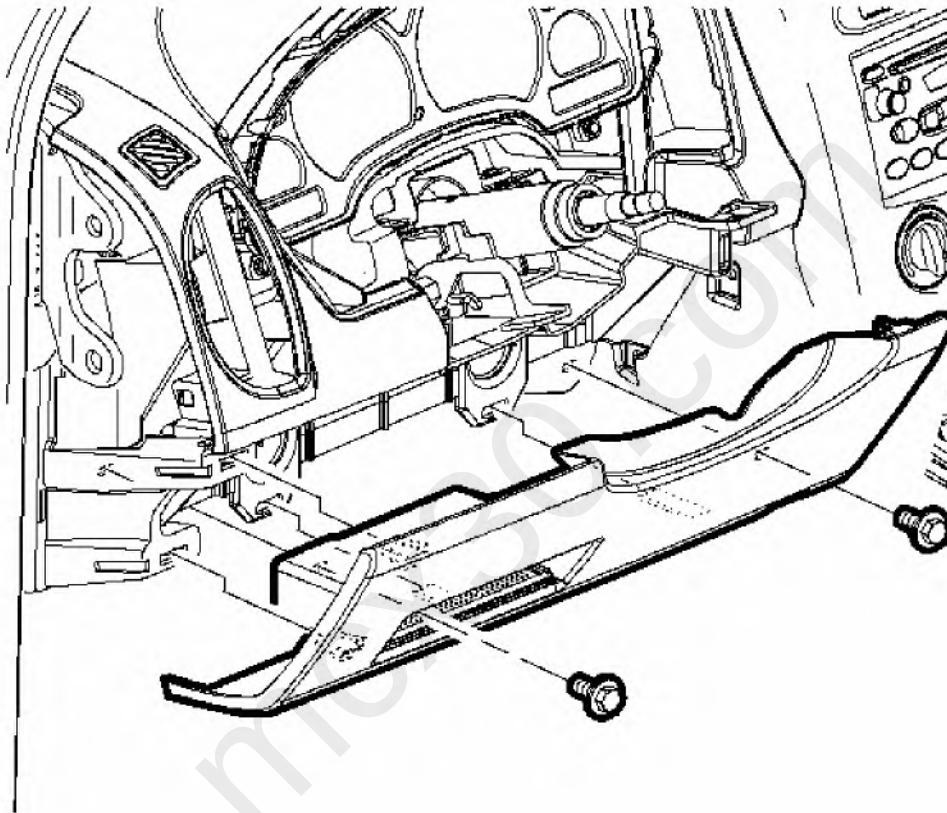


Fig. 48: View Of Knee Bolster (Filler Panel) & Screws
Courtesy of GENERAL MOTORS CORP.

6. Remove the knee bolster screws. Unsnap the knee bolster.
7. Remove the multifunction levers. Refer to **Multifunction, Turn Signal Switch Replacement**.

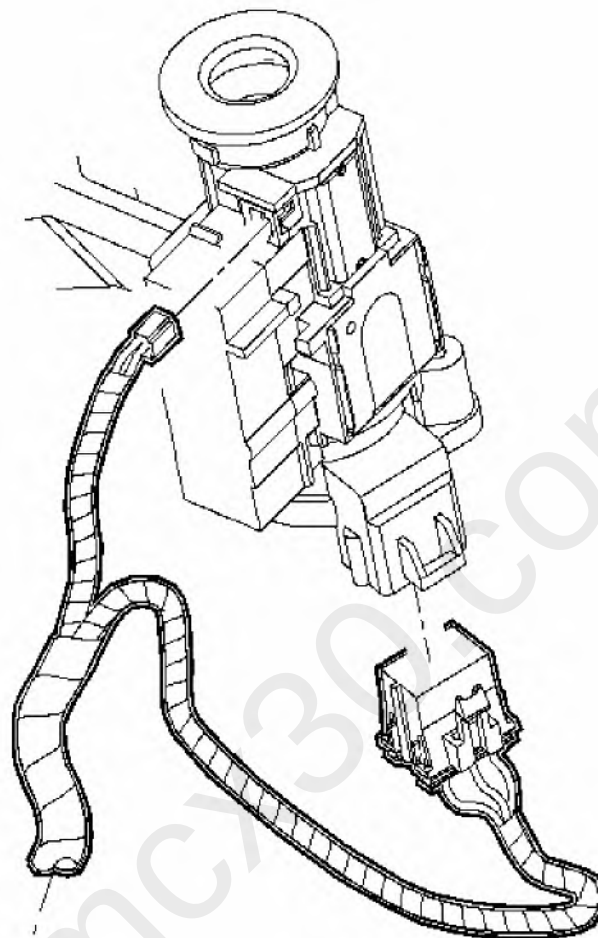


Fig. 49: View Of Ignition Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

8. Disconnect the ignition housing electrical connectors.

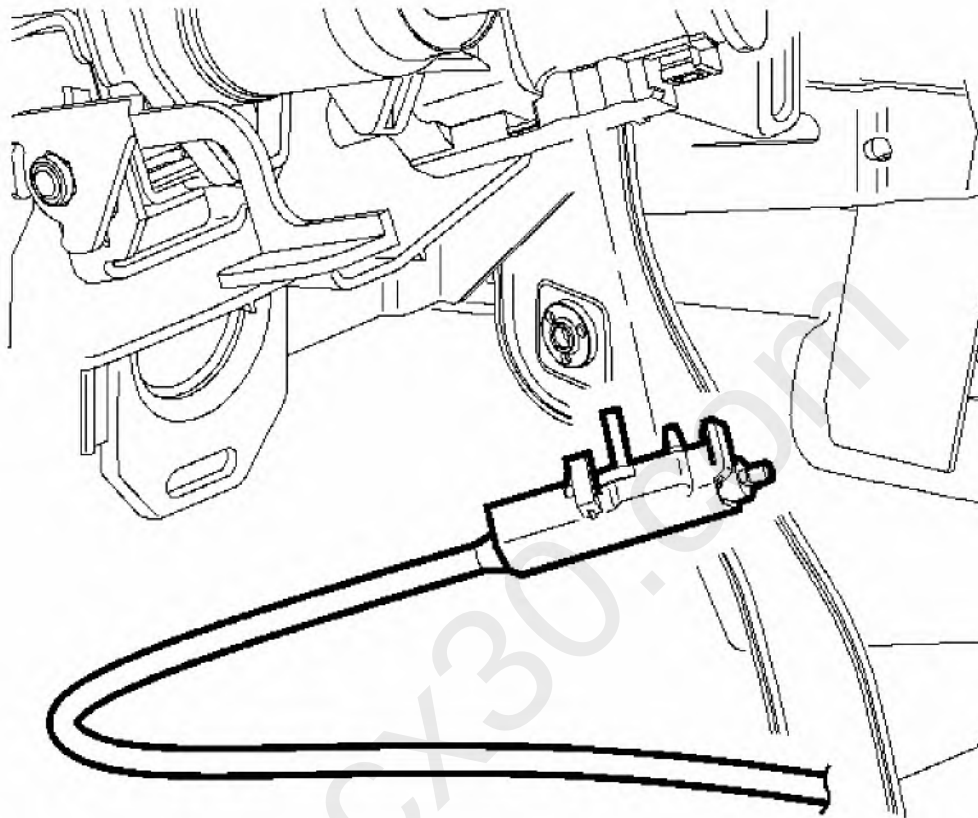


Fig. 50: View Of Park Lock Cable Assembly & Ignition Module
Courtesy of GENERAL MOTORS CORP.

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

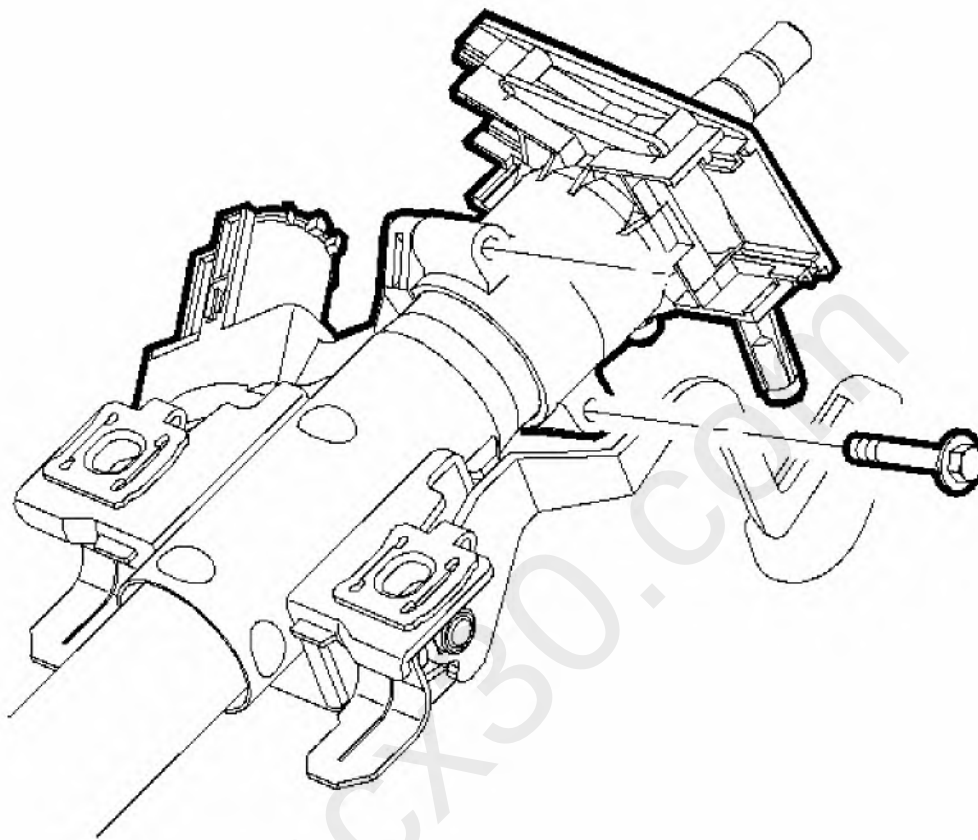


Fig. 51: View Of Lock Housing Bolts
Courtesy of GENERAL MOTORS CORP.

10. Remove the lock housing bolts.

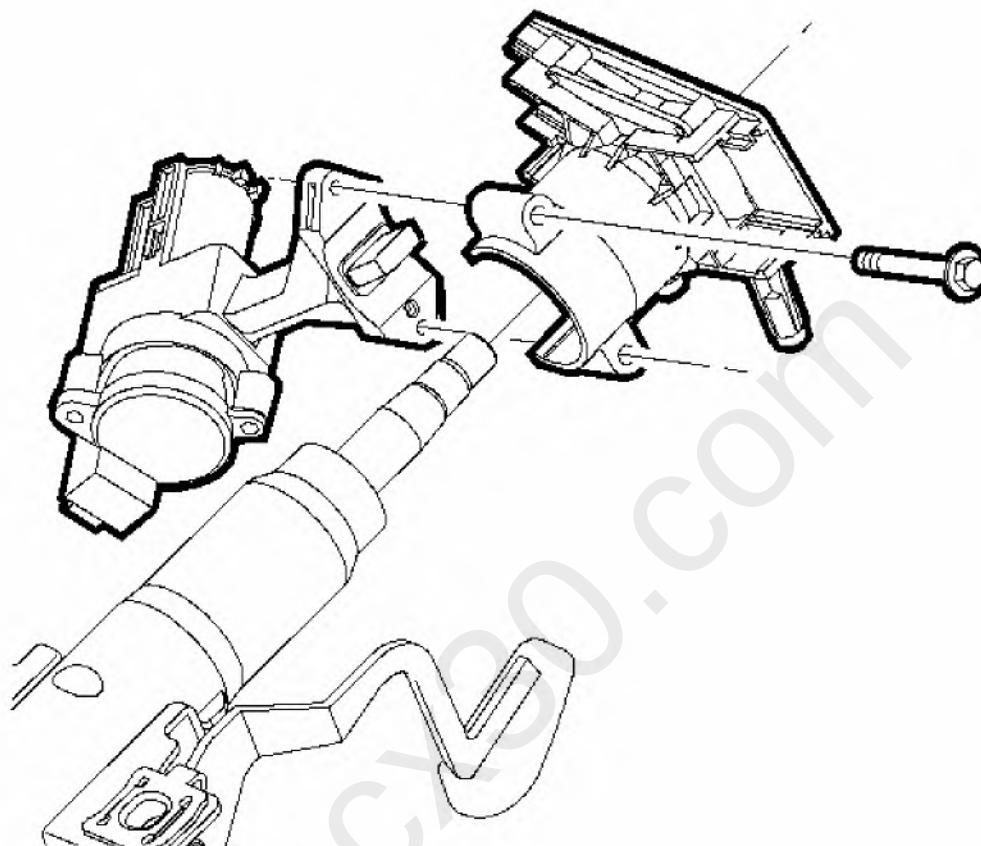


Fig. 52: View Of Ignition Housing & Multi-Function Bracket
Courtesy of GENERAL MOTORS CORP.

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

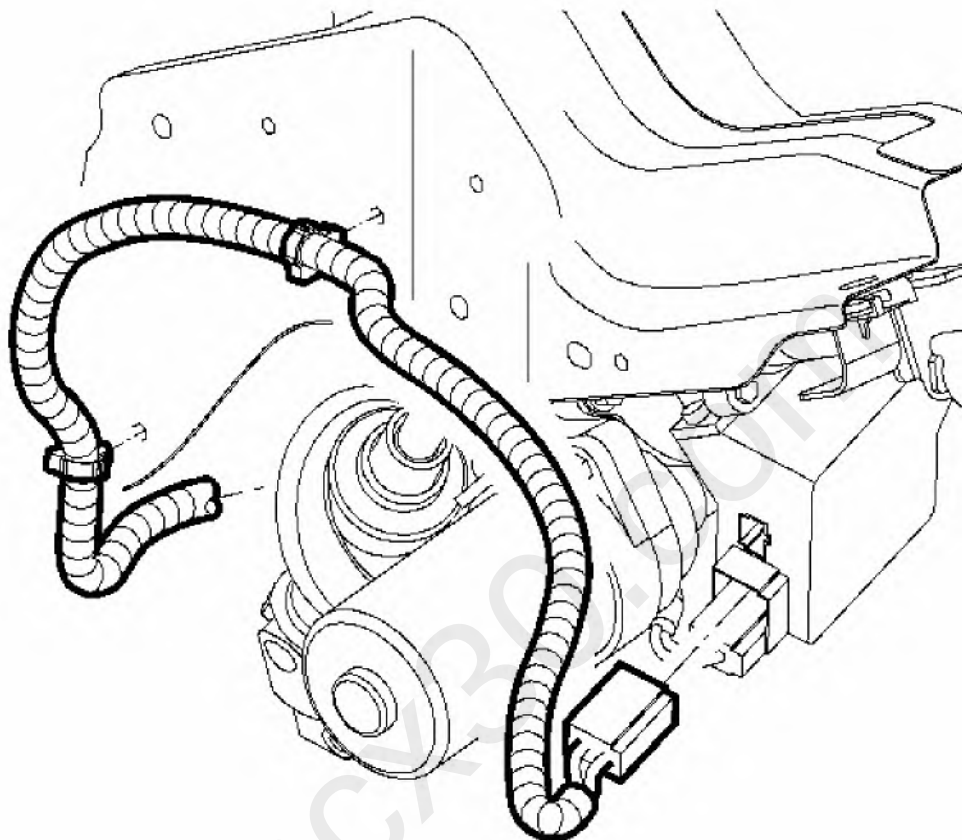


Fig. 53: EPS Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

12. Disconnect the EPS electrical connectors from the EPS controller.

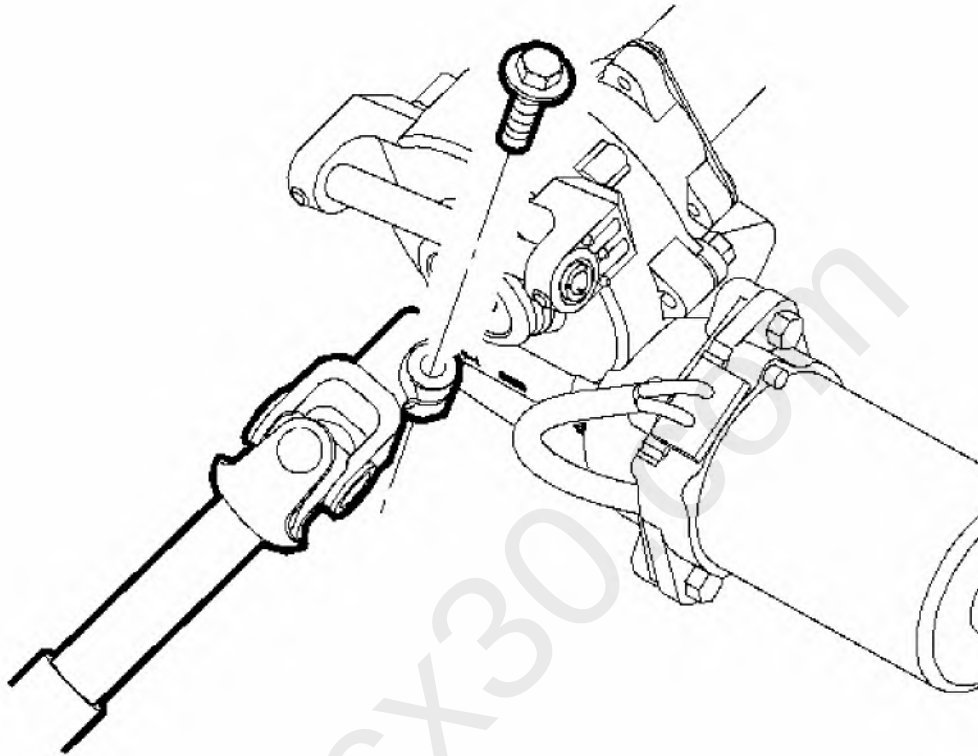


Fig. 54: Steering Wheel Column & I-Shaft Bolt
Courtesy of GENERAL MOTORS CORP.

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

IMPORTANT: Place a scribe mark on the column to I-shaft connection for reassembly alignment.

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

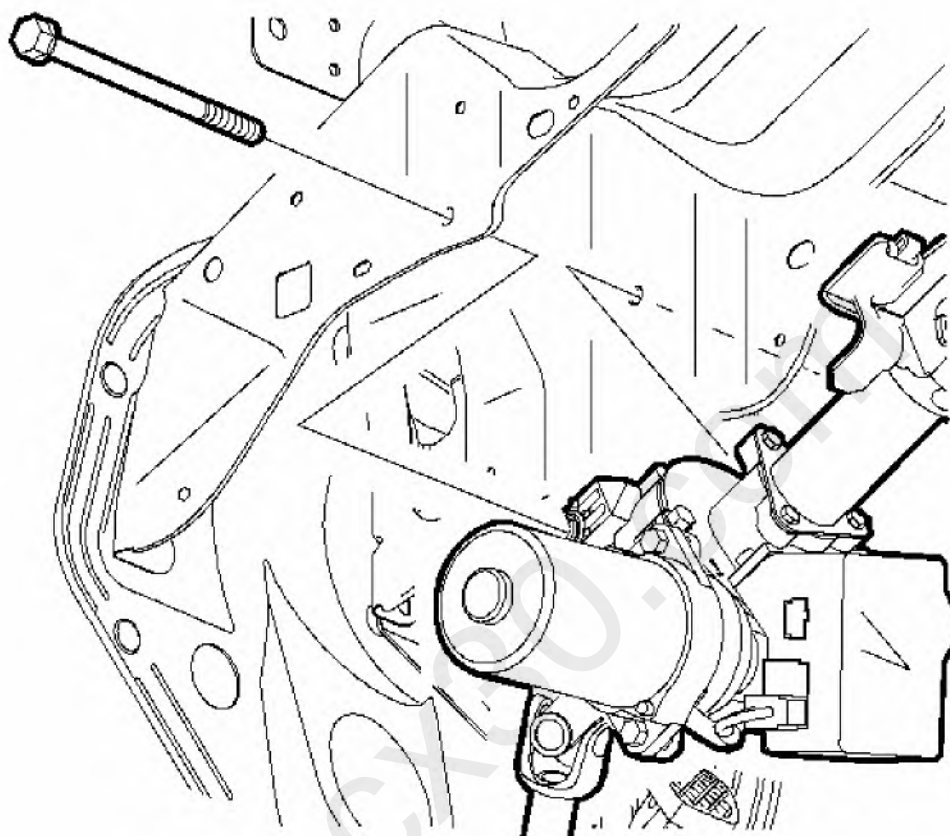


Fig. 55: Lower Column & Mounting Bolt
Courtesy of GENERAL MOTORS CORP.

14. Remove the lower column pivot bolt.

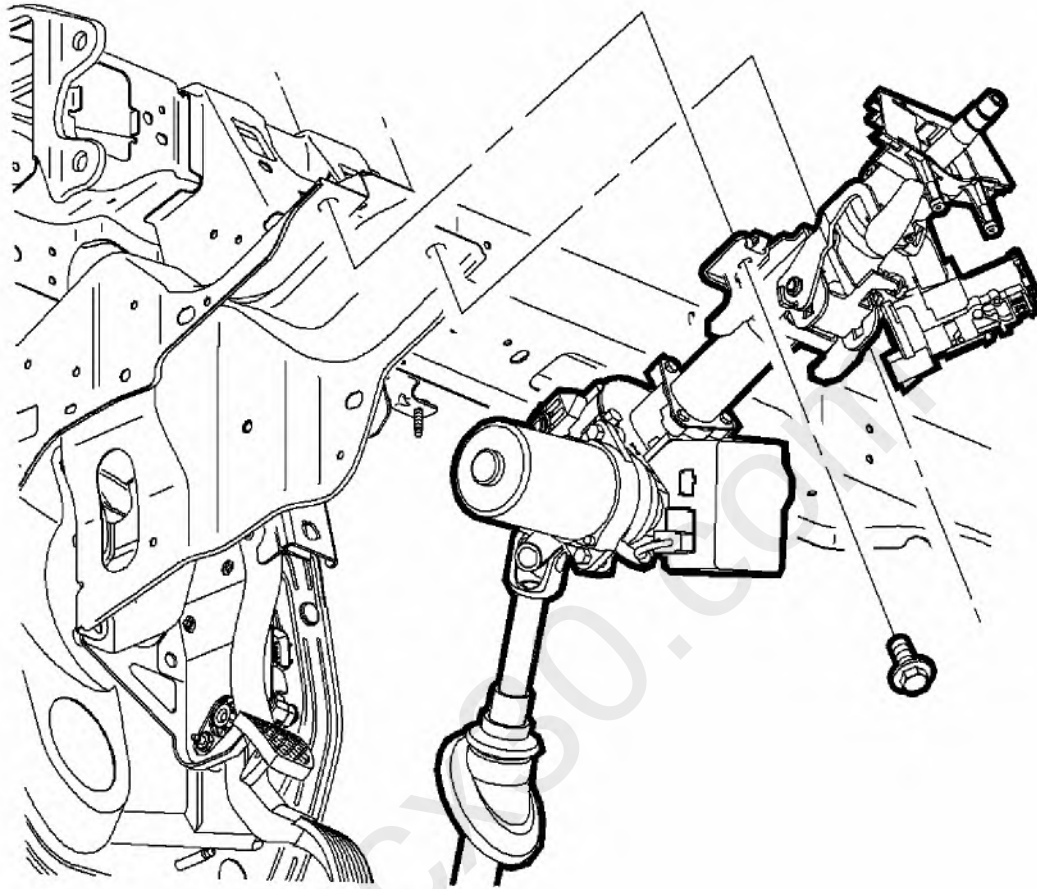


Fig. 56: Upper Column & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

15. Remove the upper column attachment bolts.
16. Remove the steering column.

Installation Procedure

1. If replacing the steering column, duplicate the scribed mark placed on the old column shaft.

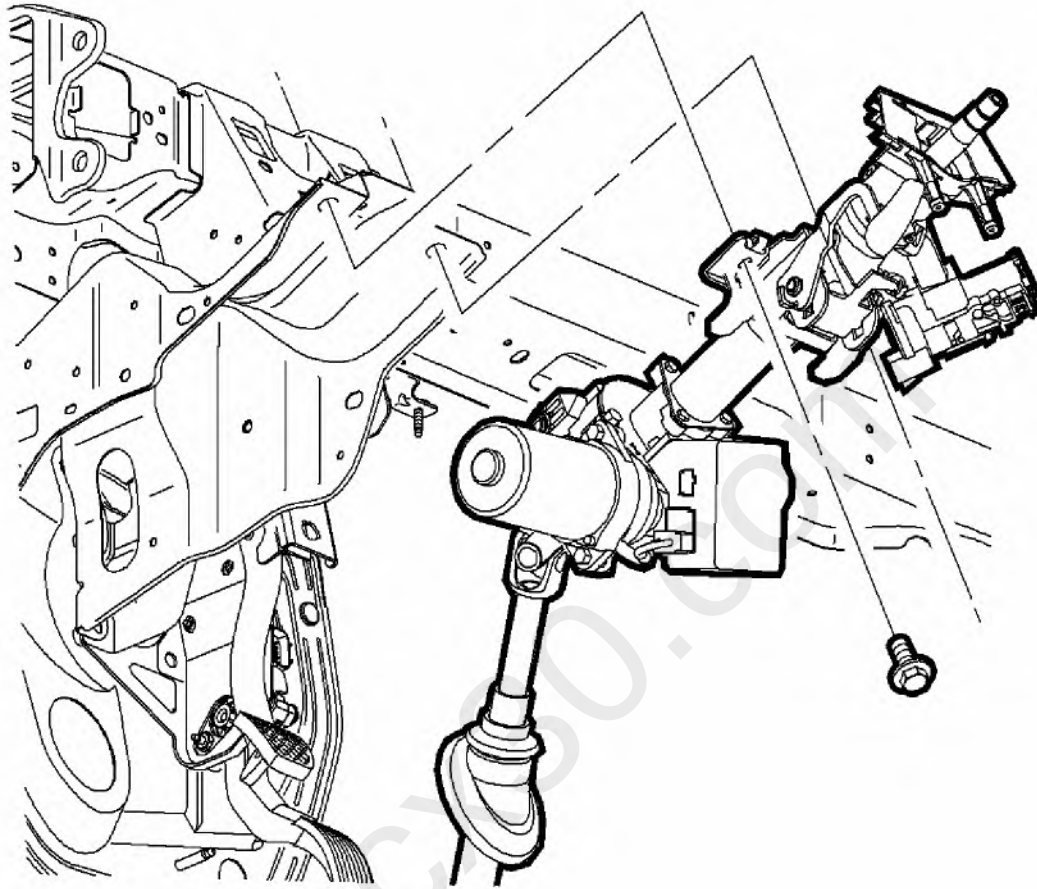


Fig. 57: Upper Column & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

2. Position the steering column into the vehicle.
3. Hand start the steering column pivot bolt.

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Hand start the steering column mounting bolts.

Tighten: Tighten the steering column pivot bolt and mounting bolts to 25 N.m (18 lb ft).

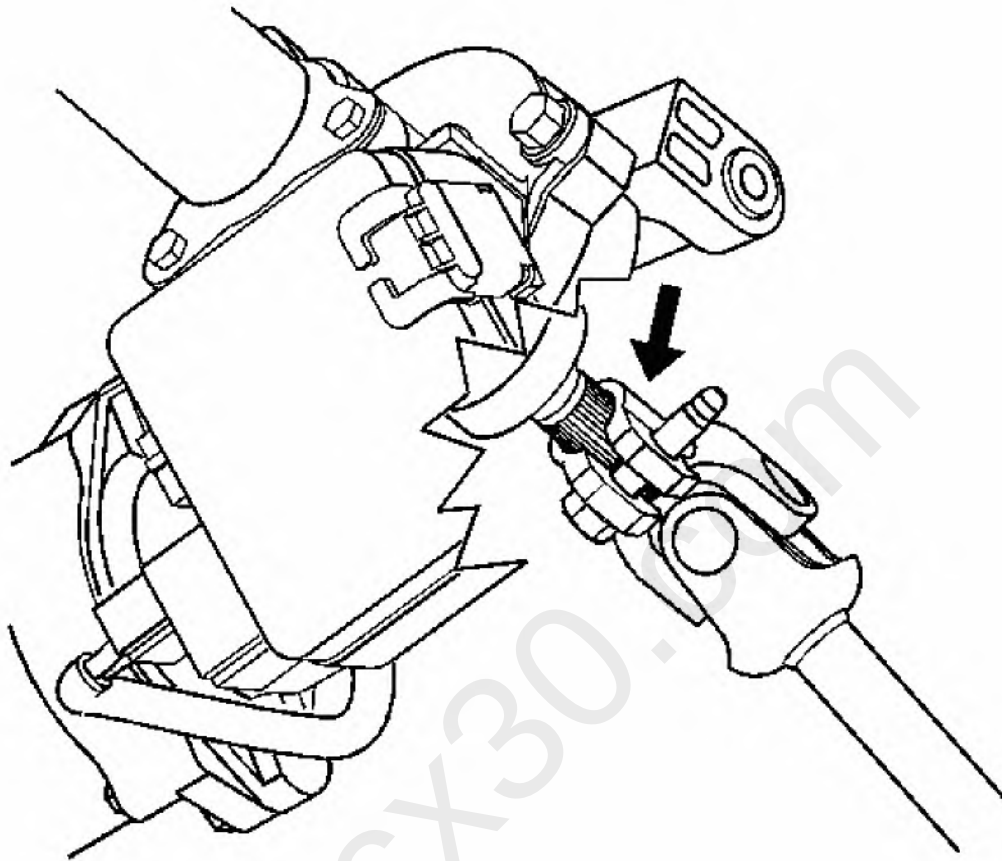


Fig. 58: Scribing Marks On Intermediate Shaft-To-Steering Column Connection
Courtesy of GENERAL MOTORS CORP.

5. Slide the intermediate shaft onto the steering column while aligning the previously scribed marks.
6. If the steering column to intermediate shaft was not previously scribed, refer to **Intermediate Steering Shaft Replacement**.

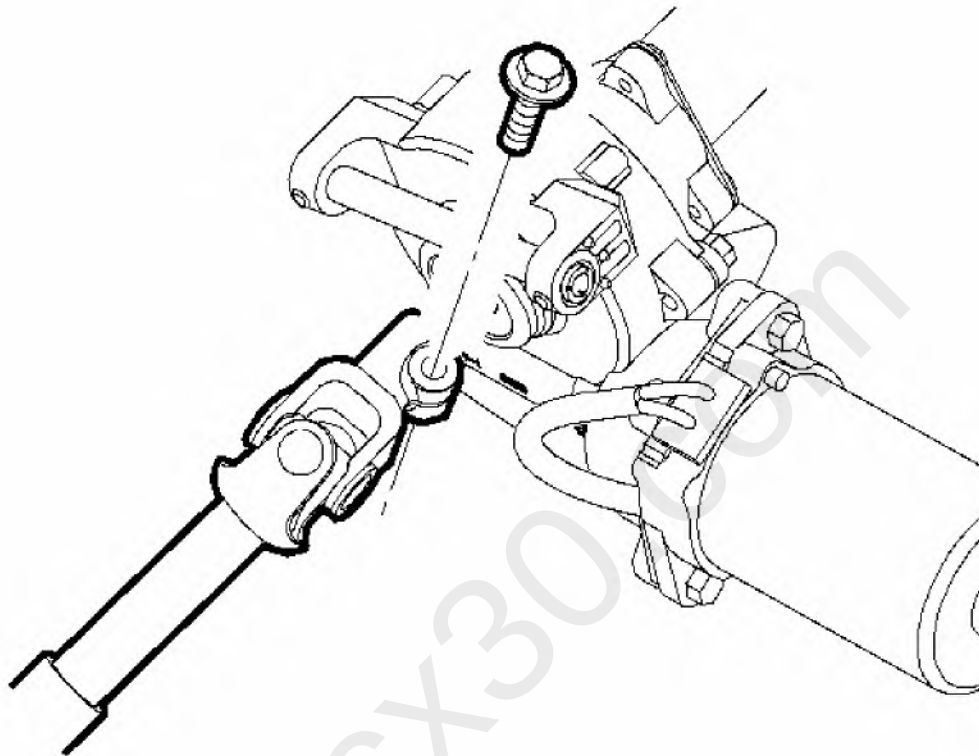


Fig. 59: Steering Wheel Column & I-Shaft Bolt
Courtesy of GENERAL MOTORS CORP.

7. Install a new intermediate shaft pinch bolt.

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

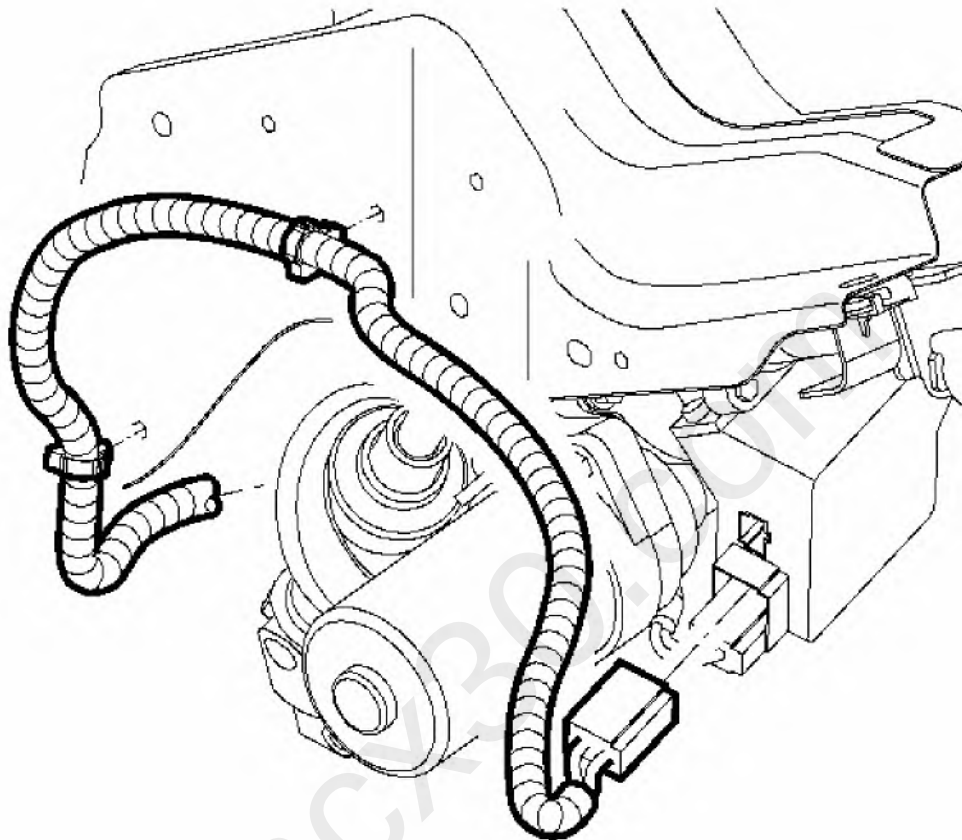


Fig. 60: EPS Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

8. Connect the EPS electrical connectors to the EPS controller.
9. Install the lock housing and multifunction lever bracket. Refer to **Multifunction Turn Signal Switch Housing Replacement**.

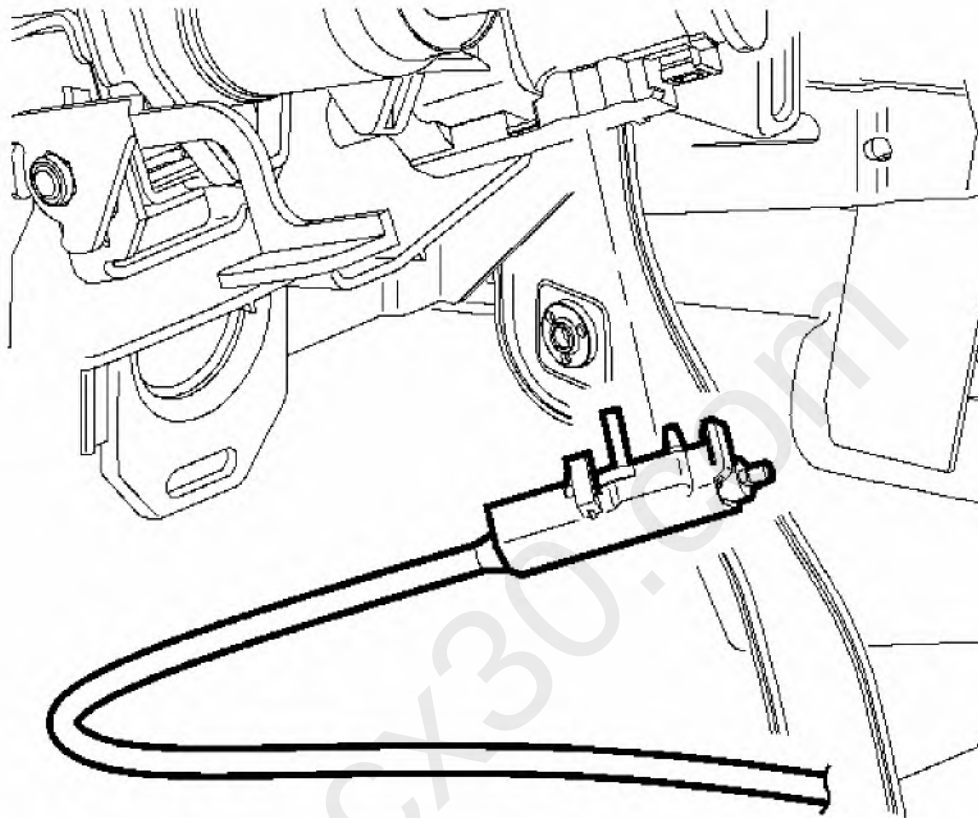


Fig. 61: View Of Park Lock Cable Assembly & Ignition Module
Courtesy of GENERAL MOTORS CORP.

10. Attach the park lock cable to the ignition module.

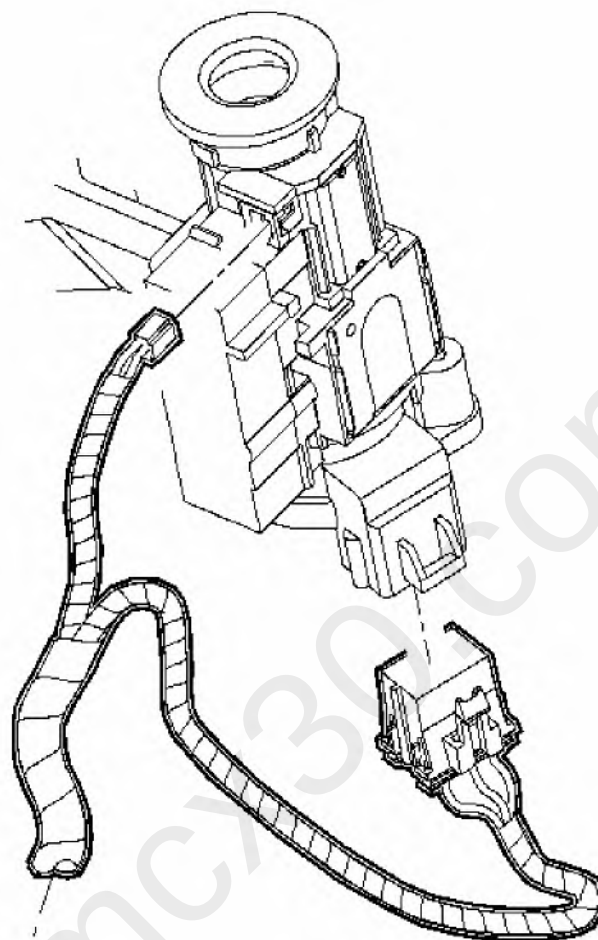


Fig. 62: View Of Ignition Housing Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

11. Connect the ignition housing electrical connectors.

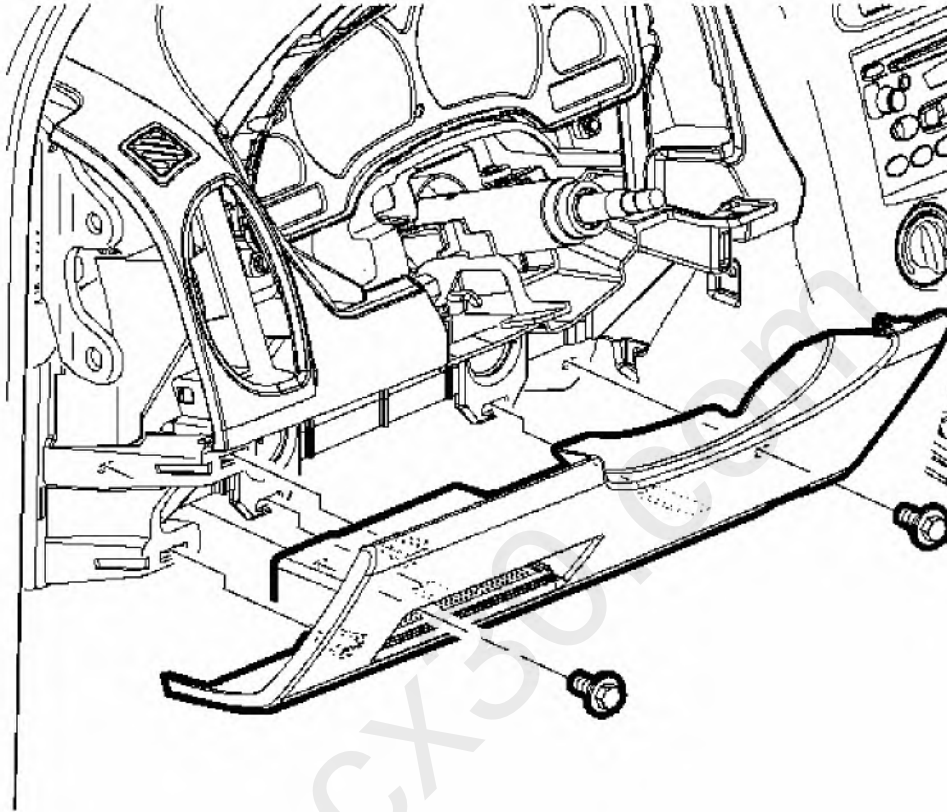


Fig. 63: View Of Knee Bolster (Filler Panel) & Screws
Courtesy of GENERAL MOTORS CORP.

12. Snap the knee bolster into position and install fasteners.
13. Install the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement**.
14. Install the column trim covers. Refer to **Steering Column Trim Covers Replacement**.
15. Install the steering wheel. Refer to **Steering Wheel Replacement**.
16. Connect the negative battery cable. Refer to **Battery Negative Cable Disconnect/Connect Procedure** in Engine Electrical.
17. Perform the Power Steering Control Module (PSCM) setup procedure. Refer to **Power Steering Control Module Programming and Setup** in Programming and Setup.

Removal Procedure

1. Disconnect the negative battery cable. Refer to **Battery Negative Cable Disconnect/Connect Procedure** in Engine Electrical.
2. Set the tires in a straight-ahead position. Center the steering wheel.
3. Remove the steering wheel. Refer to **Steering Wheel Replacement**.
4. Remove the column trim covers. Refer to **Steering Column Trim Covers Replacement**.
5. Remove the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement**.

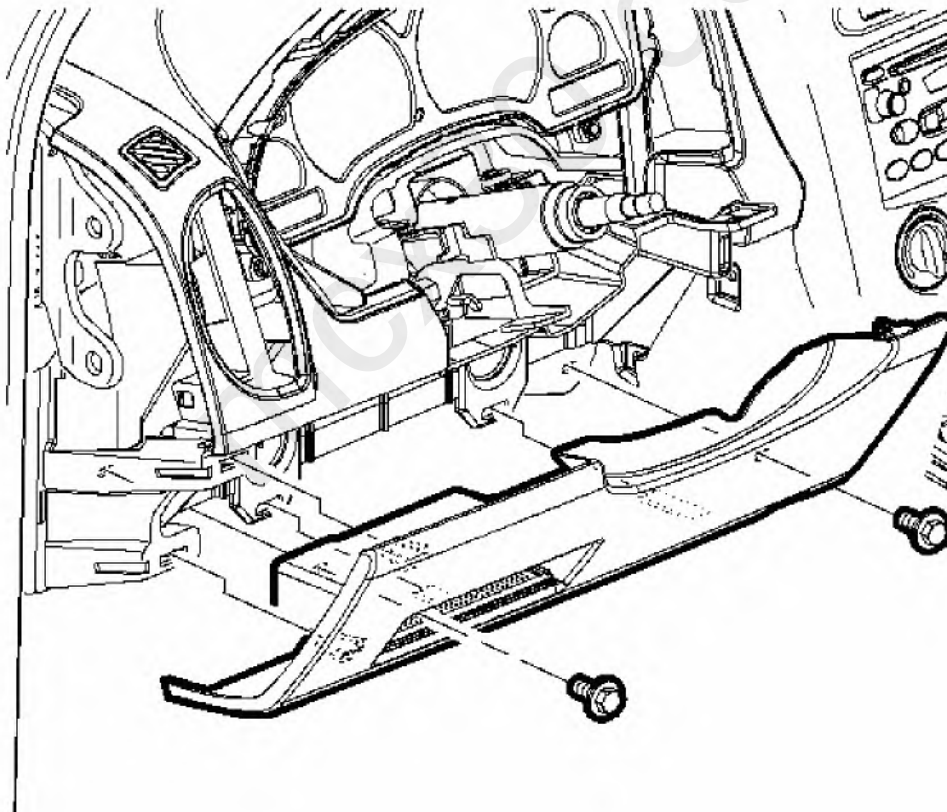


Fig. 64: View Of Knee Bolster (Filler Panel) & Screws
Courtesy of GENERAL MOTORS CORP.

6. Remove the knee bolster screws. Unsnap the knee bolster.
7. Remove the multifunction levers. Refer to **Multifunction, Turn Signal Switch Replacement**.
8. Remove the ignition lock cylinder case. Refer to **Ignition Lock Cylinder Case Replacement**.

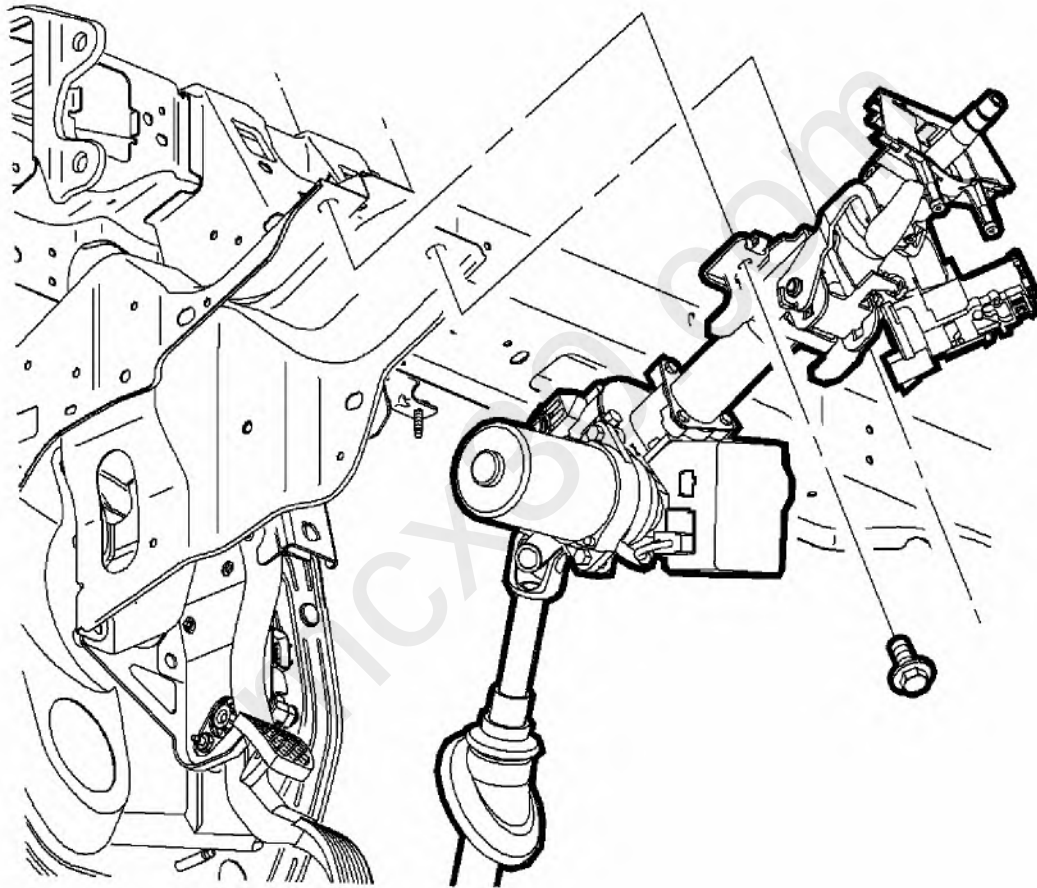


Fig. 65: Upper Column & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

9. Remove the upper column attachment bolts.

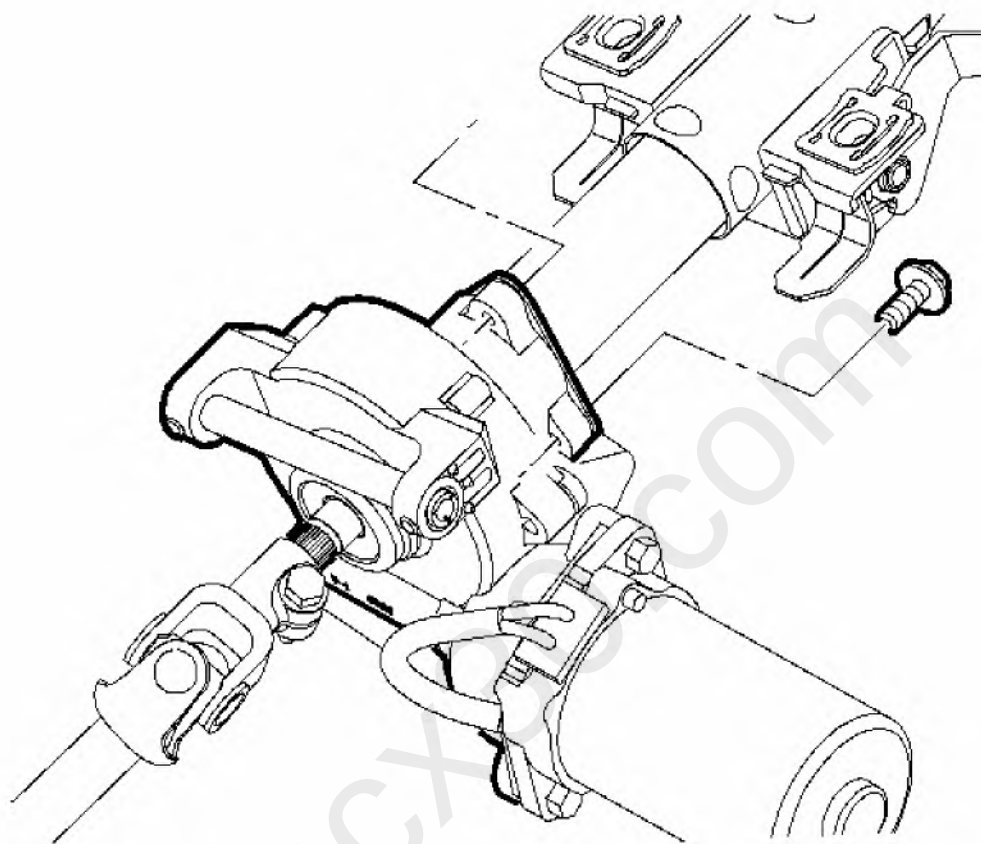


Fig. 66: Jacket & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

10. Remove the jacket attachment bolts.

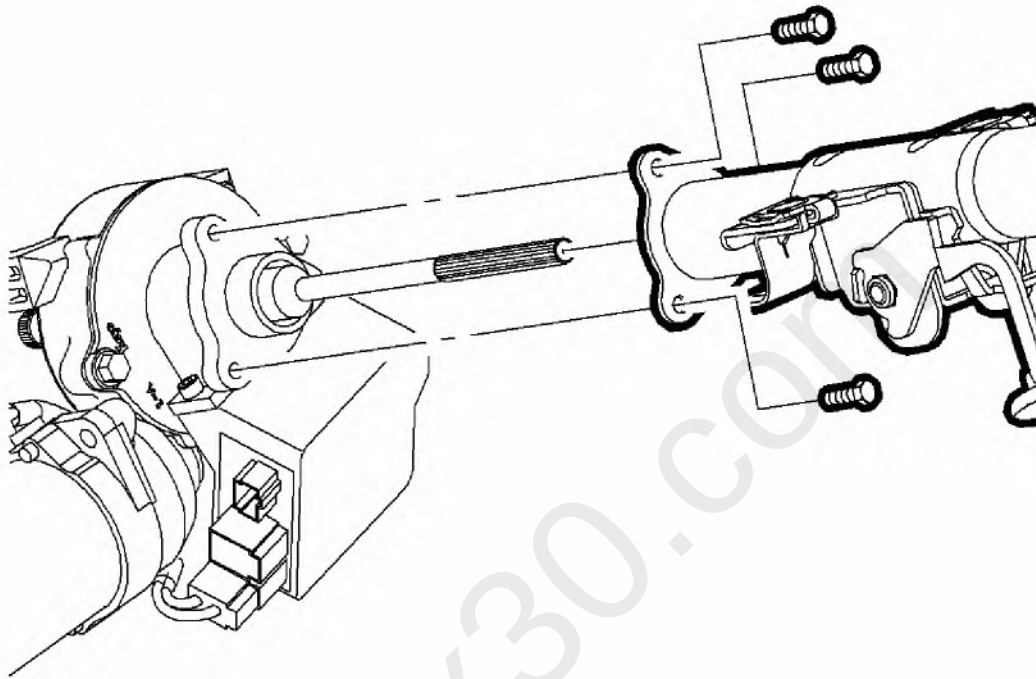


Fig. 67: Lower Column Shaft & Components
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Do not strike or bump the exposed shaft.

11. Remove the upper jacket.

Installation Procedure

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

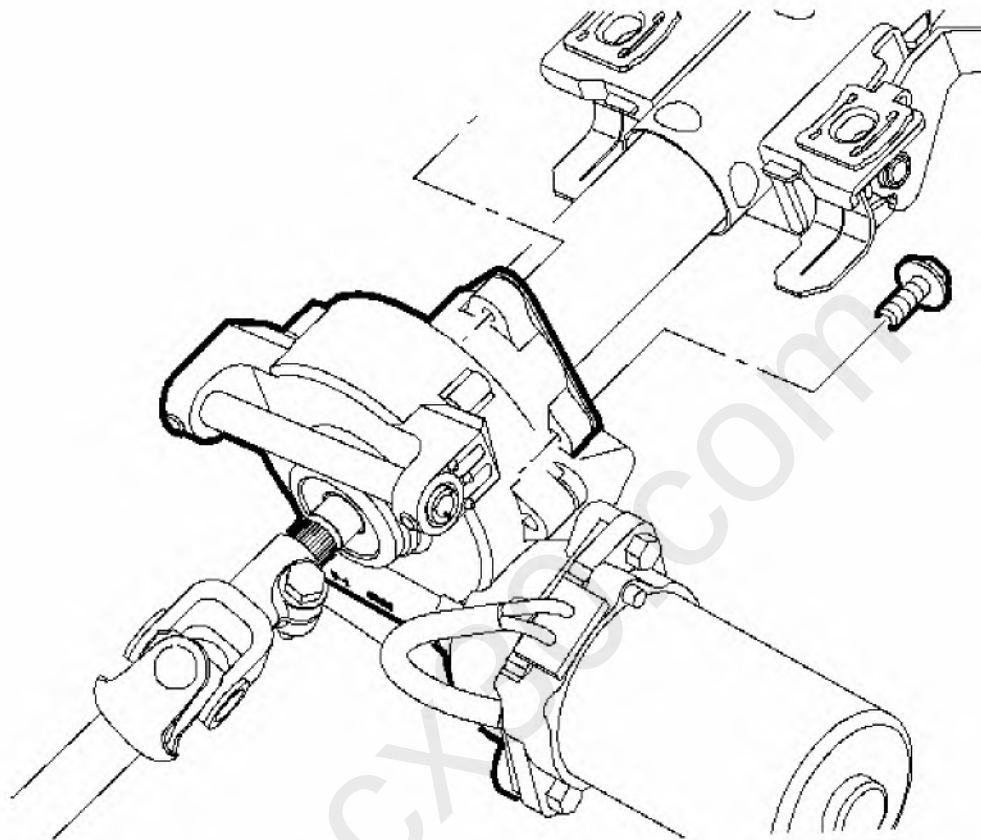


Fig. 68: Jacket & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

6. Hand start all jacket attachment bolts.

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

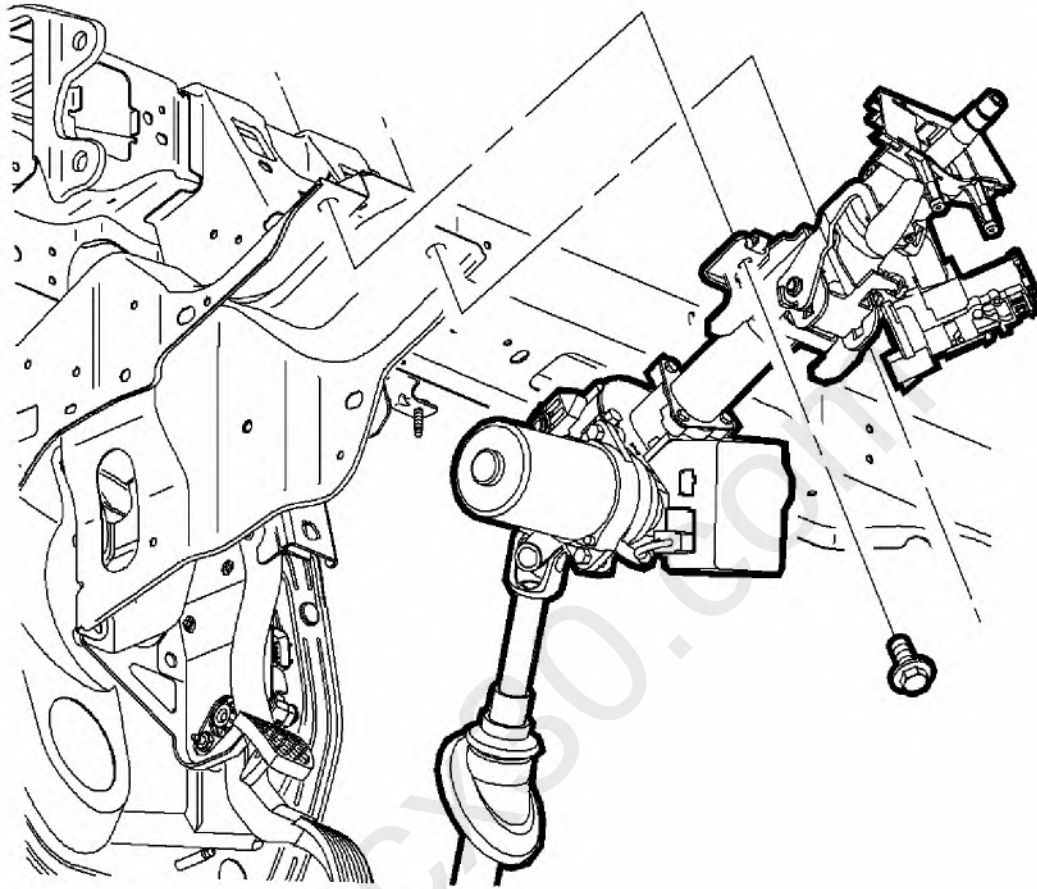


Fig. 69: Upper Column & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

7. Install the upper column attachment bolts.
8. Install the ignition lock cylinder case. Refer to **Ignition Lock Cylinder Case Replacement**.
9. Install the multifunction levers. Refer to **Multifunction, Turn Signal Switch Replacement**.

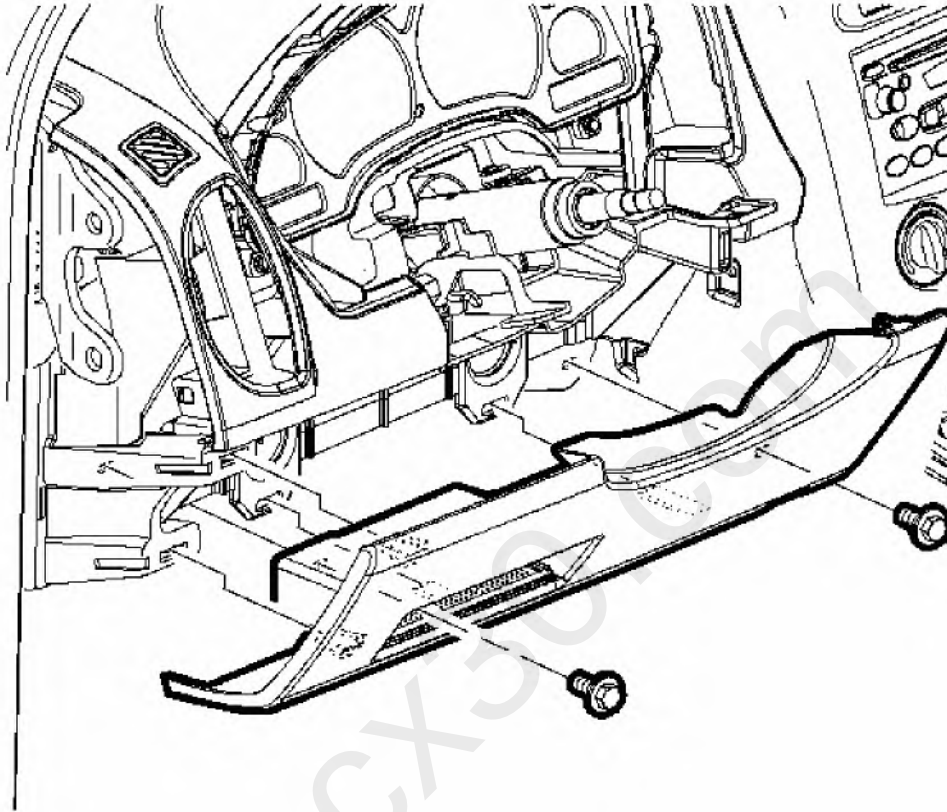


Fig. 70: View Of Knee Bolster (Filler Panel) & Screws
Courtesy of GENERAL MOTORS CORP.

10. Snap the knee bolster into position. Install the knee bolster screws.
11. Install the SIR coil. Refer to **Inflatable Restraint Steering Wheel Module Coil Replacement** .
12. Install the column trim covers. Refer to **Steering Column Trim Covers Replacement**.
13. Install the steering wheel. Refer to **Steering Wheel Replacement**.
14. Connect the negative battery cable. Refer to **Battery Negative Cable Disconnect/Connect Procedure** in Engine Electrical.

INFLATABLE RESTRAINT STEERING WHEEL MODULE COIL CENTERING

Alignment Procedure

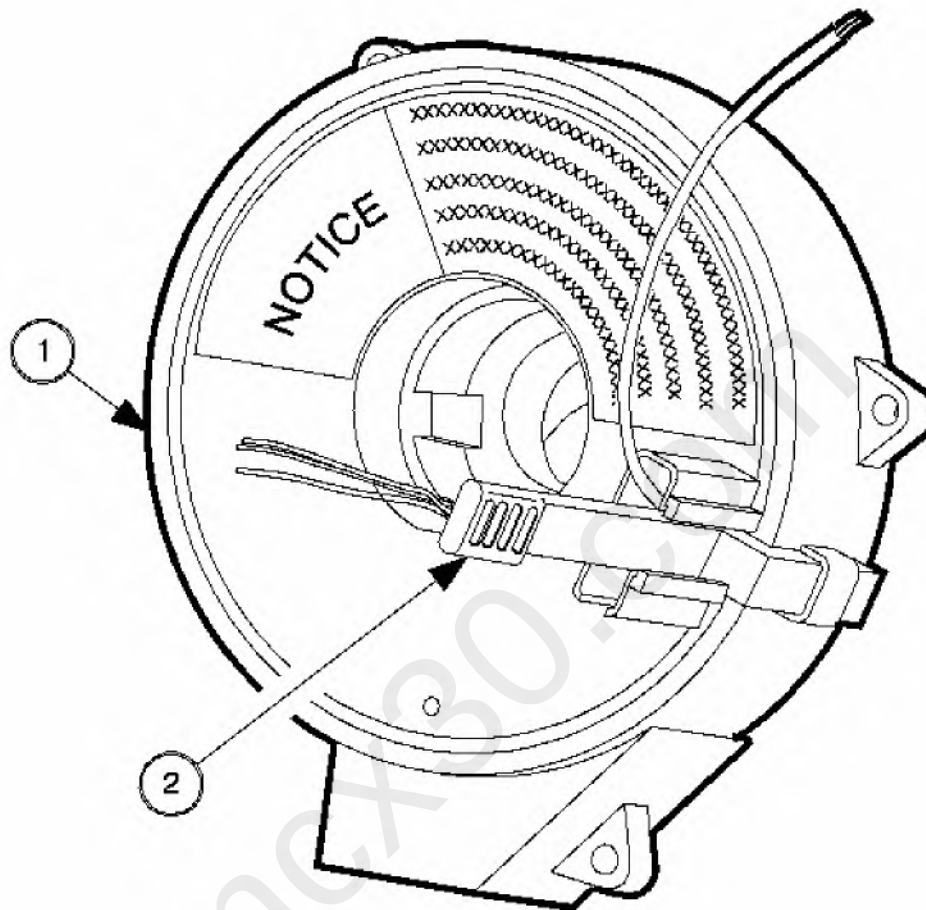


Fig. 71: Locating Coil Hub & Yellow Tab
Courtesy of GENERAL MOTORS CORP.

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 CONTROLS DESCRIPTION AND OPERATION

The audio steering wheel control switches duplicate the function of the primary controls of the associated component, through a network of multiple momentary contact switches and a series of resistors. The radio supplies voltage to the switches and monitors the return signal for a specific voltage drop to occur unique to the one pressed. The radio then identifies the switch selected to activate the feature, otherwise sends a serial data message that is received by the component controlled, activating the feature.

This section is intended to diagnosis the circuits between the radio and the audio steering wheel control switches. If the primary control for the device is inoperative, refer to the appropriate section for the component the steering wheel control switch is functioning.

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

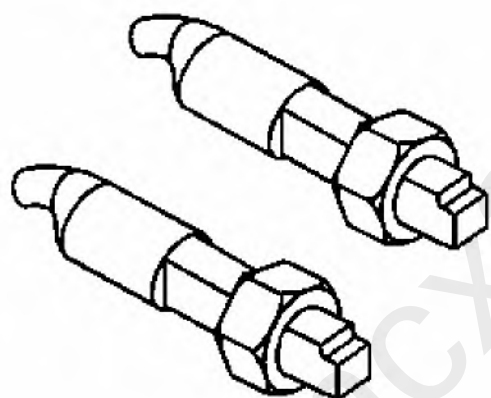
If the vehicle is equipped with a floor mounted console gear shifter, it has a ignition lock cylinder control actuator system in the steering column. The ignition lock cylinder control actuator's purpose is to prevent the ignition key from being turned to the OFF position when the transmission is in 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

2006 Chevrolet Equinox LT

2006 STEERING Steering Wheel and Column - Equinox & Torrent



J 42578
Steering Wheel Puller Legs