Steering

Section07

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Steering Wheel and Column Description and Operation

In addition to the steering function, the steering column provides safety and security. The energy-absorbing column is designed to compress in a front-end collision to lessen the chance of driver injury. The ignition switch and the lock are mounted on the column, allowing the ignition and steering operations to be locked to inhibit theft of the car. The column levers trigger the turn signals, the headlight beams, and the windshield washer and wipers. A tilt steering column uses a spherical joint to allow the steering wheel to tilt up and down. This enables the driver to adjust the steering wheel to a comfortable position.

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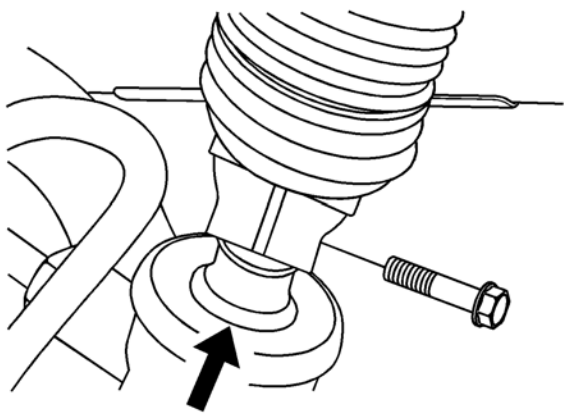
Intermediate Steering Shaft Replacement

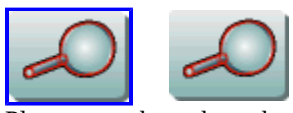
Removal Procedure

Notice: Refer to Steering Column in Lock Position Notice in Cautions and Notices.

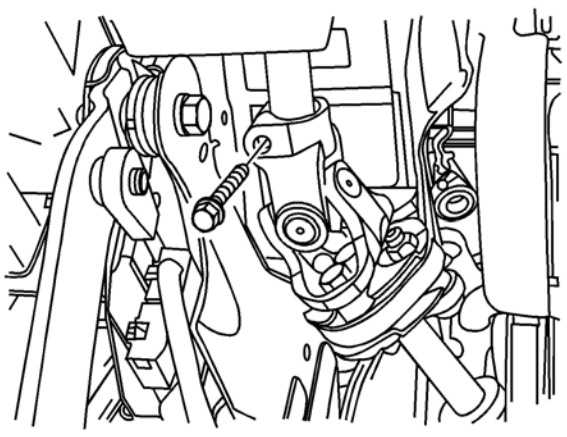
Important: The left-hand drive model is shown. The right-hand drive model is similar.

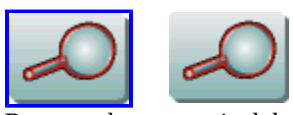
1. Turn the steering wheel to the straight-ahead position and LOCK the steering column.
2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .
3. Remove the left front tire and wheel assembly. Refer to Tire and Wheel Removal and Installation .





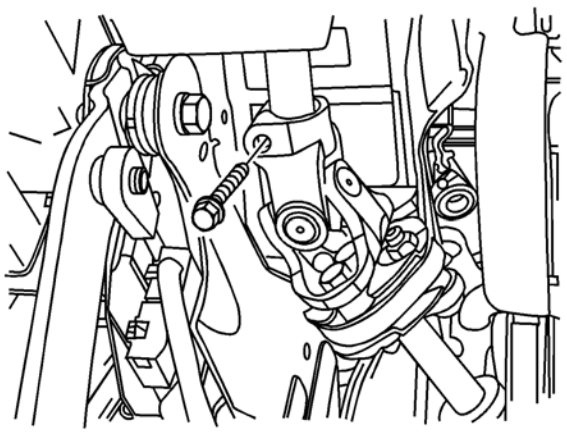
4. Place a match mark on the stub shaft housing that lines up with the groove of the intermediate shaft. This mark is for proper alignment during installation.
5. Remove the lower pinch bolt from the universal joint on the steering gear.





6. Remove the upper pinch bolt from the universal joint on the intermediate shaft.
7. Remove the intermediate shaft and dash seal.

Installation Procedure



Important: Ensure the steering wheel is in the straight-ahead position.

1. Install the intermediate shaft and dash seal into the vehicle.
2. Attach the universal joint of the intermediate shaft onto the steering column.

   Notice: Refer to Fastener Notice in Cautions and Notices.
3. Install the pinch bolt into the universal joint on the intermediate shaft.

   Tighten
   Tighten the intermediate shaft pinch bolt to 34 N·m (25 lb ft).

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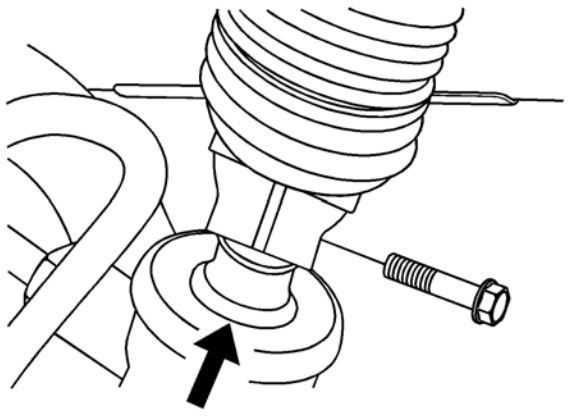

Important: Align the marks on the intermediate shaft and on the stub shaft.

4. Attach the intermediate shaft onto the steering gear stub shaft.

   Important: When installing the lower intermediate shaft pinch bolt, ensure the bolt goes through the universal joint on the side of the stub shaft with the notch. If you have trouble seating the universal joint completely down onto the stub shaft, have an assistant unlock the steering column and rotate the steering wheel slightly while you push down on the universal joint.

5. Install the bolt into the lower universal joint on the intermediate shaft.

   Tighten
   Tighten the intermediate shaft pinch bolt to 34 N·m (25 lb ft).

6. Install the left front tire and wheel assembly. Refer to Tire and Wheel Removal and Installation .
7. Lower the vehicle.

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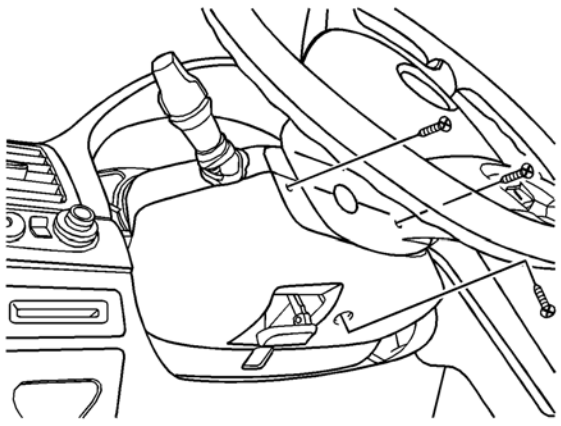
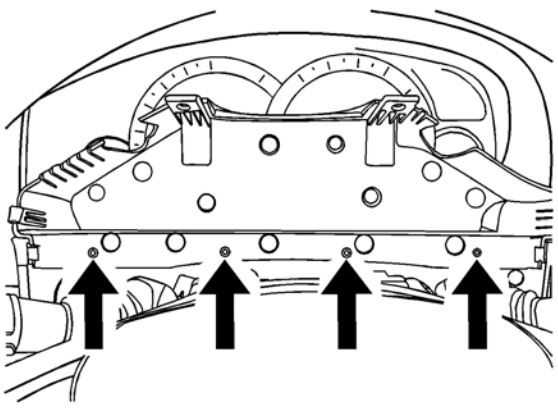
Steering Column Trim Covers Replacement (C100/Long Body)

Removal Procedure

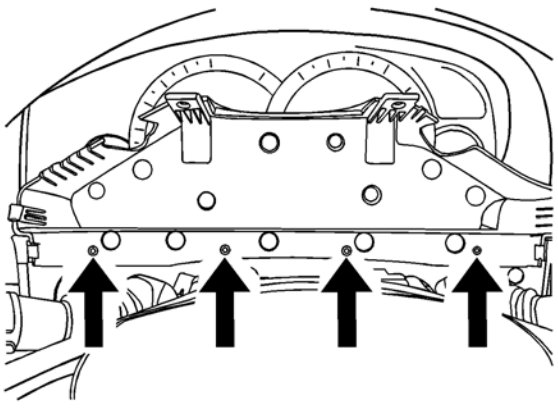


1. Remove the lower steering column cover screw.
2. Turn the steering wheel in order to expose the upper steering column cover screws. Remove the upper steering column cover screws and remove the upper steering column cover.



3. Remove the lower steering column cover from the cluster bezel.

Installation Procedure



1. Install the lower steering column cover to the cluster bezel.
2. Install the upper steering column cover.

Notice: Refer to Fastener Notice in Cautions and Notices.

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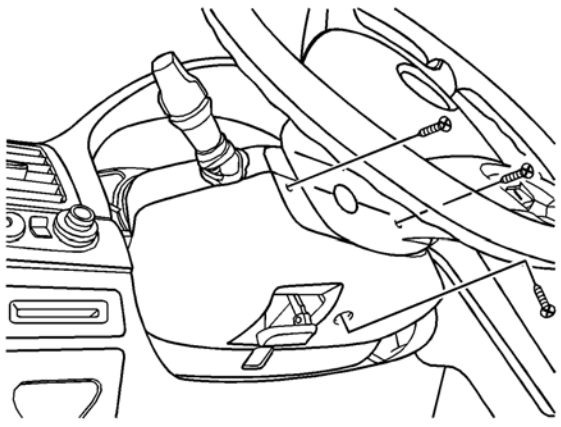

3. Install the upper and lower steering column cover screws.

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

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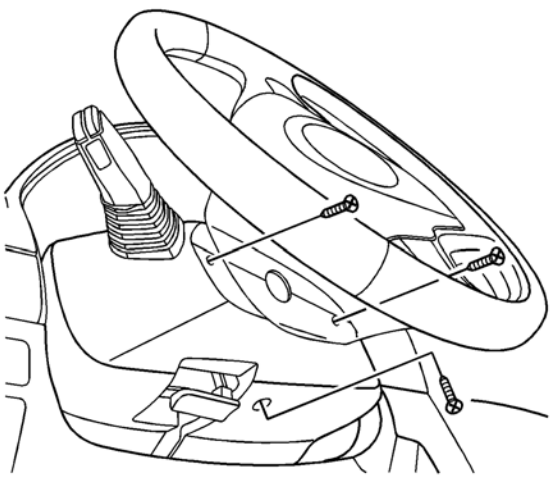
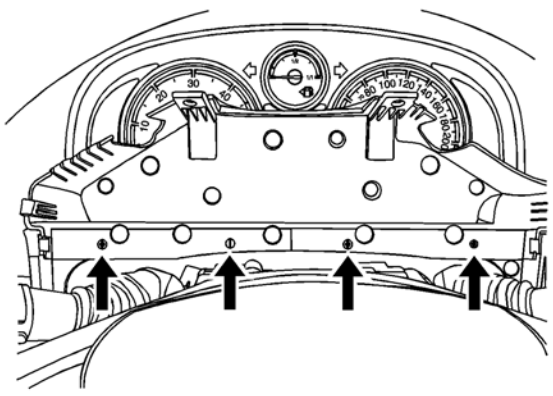
Steering Column Trim Covers Replacement (C105/Short Body)

Removal Procedure

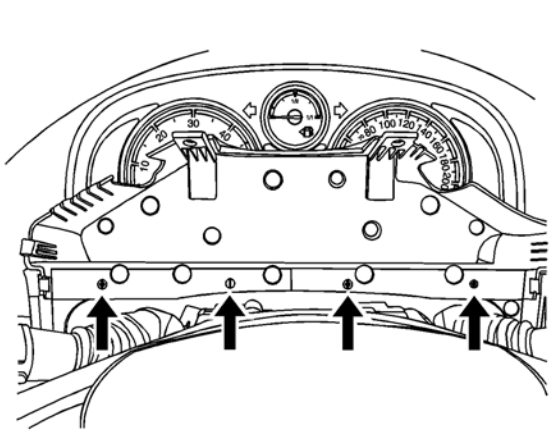


1. Remove the lower steering column cover panel screw.
2. Turn the steering wheel in order to expose the upper steering column cover panel screws.
3. Remove the upper steering column cover panel screws.
4. Remove the upper steering column cover panel.



5. Remove the lower steering column cover panel from the cluster bezel.

Installation Procedure



1. Install the lower steering column cover panel to the cluster bezel.
2. Install the upper steering column cover panel.

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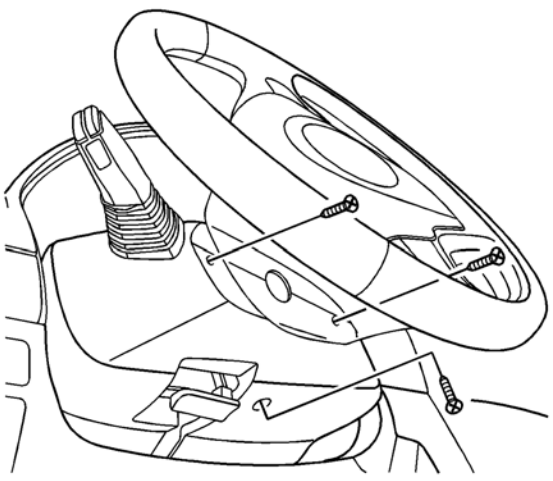

3. Turn the steering wheel in order to expose the upper steering column cover panel screw holes.

   Notice: Refer to Fastener Notice in Cautions and Notices.

4. Install the upper and the lower steering column cover panel screws.

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

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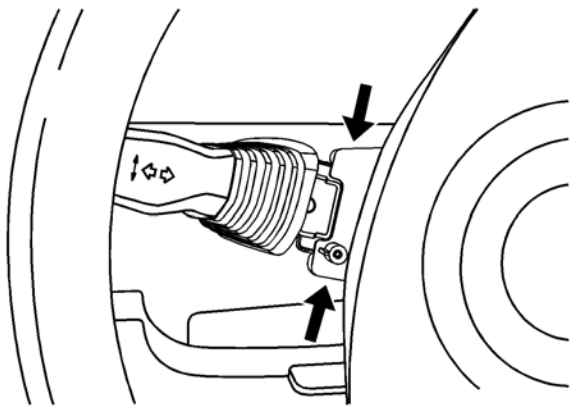
Turn Signal Multifunction Switch Replacement (C105/Short Body)

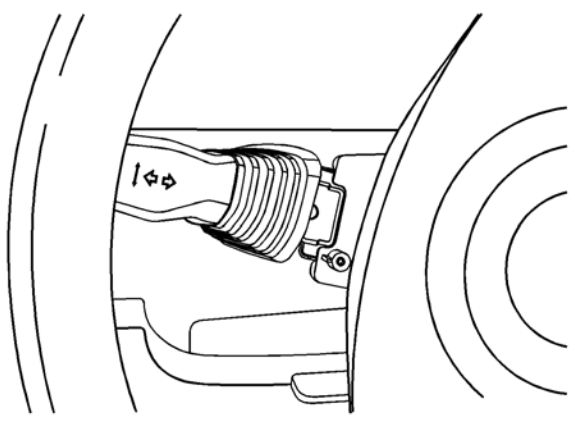
Removal Procedure

1. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection .
2. Remove the steering column covers. Refer to Steering Column Trim Covers Replacement .



3. Remove the turn signal switch by pushing in on the tabs on the top and the bottom of the switch housing.
4. Disconnect the electrical connectors from the turn signal switch.

Installation Procedure



1. Connect the electrical connectors to the turn signal switch.
2. Install the turn signal switch by snapping the switch into the housing.
3. Install the steering column covers. Refer to Steering Column Trim Covers Replacement .
4. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection .

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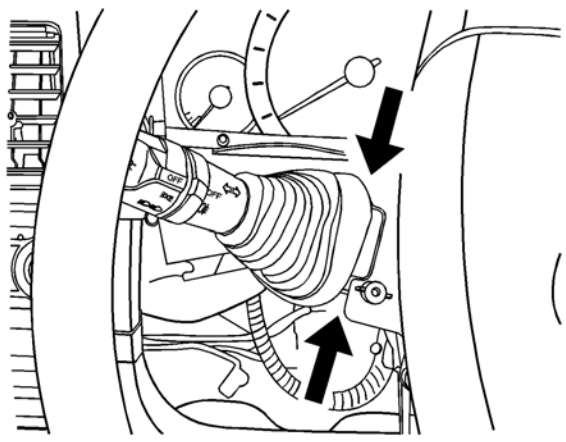
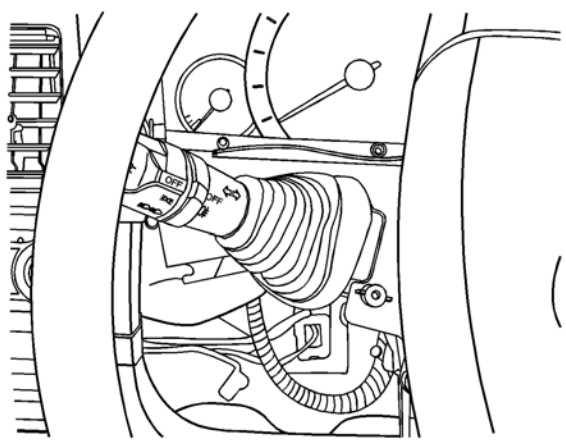
Turn Signal Multifunction Switch Replacement (C100/Long Body)

Removal Procedure



1. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection .
2. Remove the steering column covers. Refer to Steering Column Trim Covers Replacement .
3. Remove the turn signal switch by pushing in on the tabs on the top and the bottom of the switch housing.
4. Disconnect the electrical connections from the turn signal switch.

Installation Procedure



1. Connect the electrical connections to the turn signal switch.
2. Install the turn signal switch by snapping the switch into the switch housing.
3. Install the steering column cover. Refer to Steering Column Trim Covers Replacement .
4. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection .

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Steering Wheel Replacement (C100/Long Body)

Tools Required

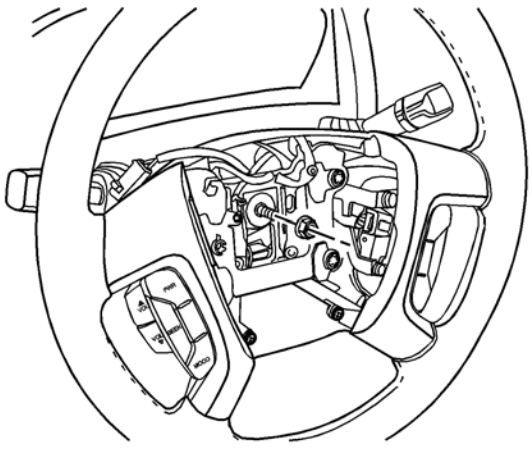
KM-210-A Steering Wheel Puller

Removal Procedure

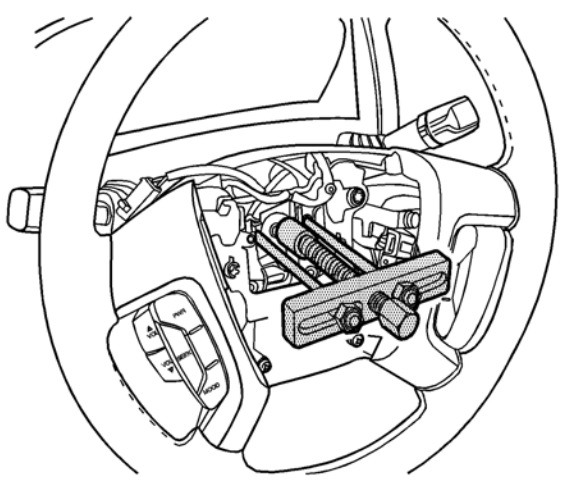
1. Turn the steering wheel to the straight-ahead position.

   Caution: The sensing and the diagnosis module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for up to 1 minute after the ignition has been turned OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has been passed after disconnecting power to the SDM. Failure to do so may cause personal injury.

2. Disconnect the negative battery cable and let the vehicle sit for 1 minute. Refer to Battery Negative Cable Disconnection and Connection .
3. Remove the supplemental inflatable restraints (SIR) module. Refer to Inflatable Restraint Steering Wheel Module Replacement .

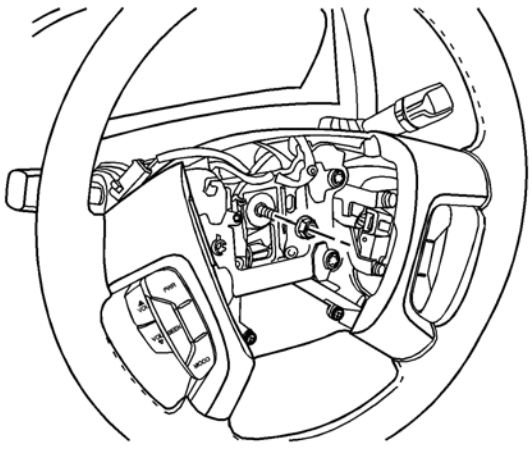


4. Remove the steering wheel nut.
5. Use paint in order to place match marks on the steering column shaft and on the steering wheel.



6. Remove the steering wheel using the KM-210-A .

Installation Procedure



1. Align the match marks on the steering wheel and the steering column shaft. Turn the signal canceling cam on the wheel to the left.
2. Install the steering wheel.

   Notice: Refer to Fastener Notice in Cautions and Notices.

3. Install the steering wheel nut.

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

4. Install the SIR module. Refer to Refer to Inflatable Restraint Steering Wheel Module Replacement .
5. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection .

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Steering Wheel Replacement (C105/Short Body)

Tools Required

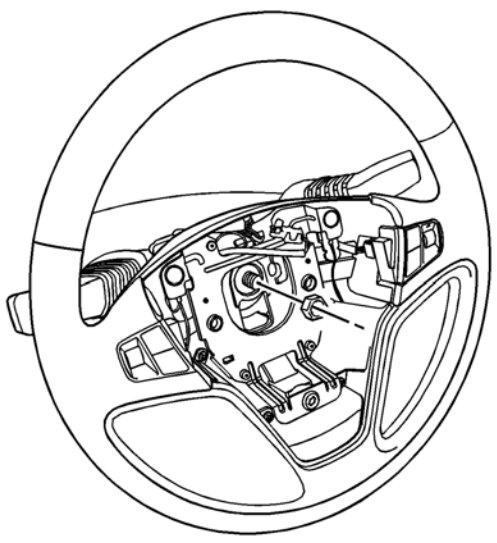
KM-210-A Steering Wheel Puller

Removal Procedure

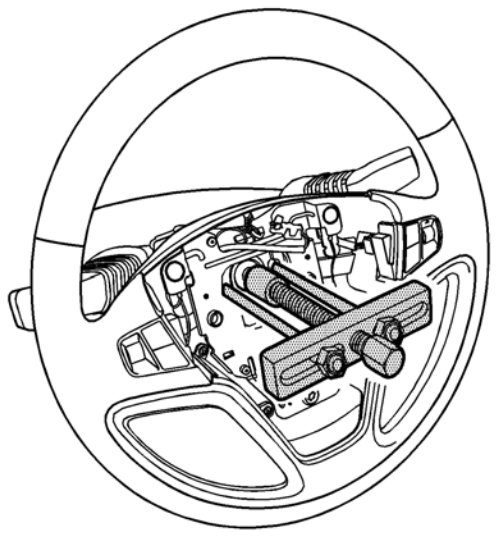
1. Turn the steering wheel to the straight-ahead position.

   Caution: The sensing and the diagnosis module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for up to 1 minute after the ignition has been turned OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has been passed after disconnecting power to the SDM. Failure to do so may cause personal injury.

2. Disconnect the negative battery cable and let the vehicle sit for 1 minute. Refer to Battery Negative Cable Disconnection and Connection .
3. Remove the SIR module. Refer to Inflatable Restraint Steering Wheel Module Replacement .

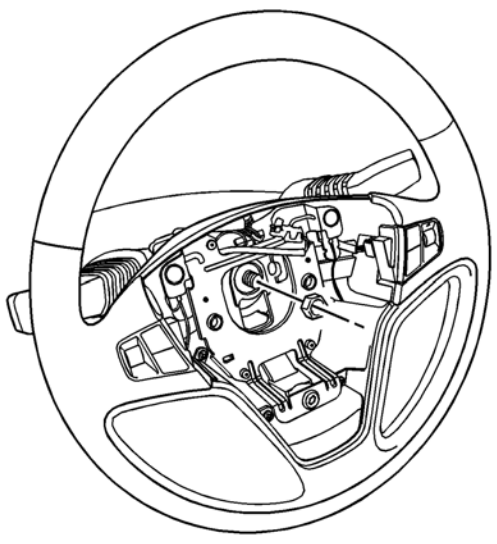


4. Remove the steering wheel nut.
5. Use paint in order to place match marks on the steering column shaft and on the steering wheel.



6. Remove the steering wheel using the KM-210-A .

Installation Procedure



1. Align the match marks on the steering wheel and the steering column shaft. Turn the signal canceling cam on the wheel to the left.
2. Install the steering wheel.

   Notice: Refer to Fastener Notice in Cautions and Notices.

3. Install the steering wheel nut.

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

4. Install the SIR module. Refer to Refer to Inflatable Restraint Steering Wheel Module Replacement .
5. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection .

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Steering Column Replacement

Important: Remove the steering column only if:

- The steering column requires replacement.
- The steering and the ignition lock housing require replacement.
- Another operation requires the removal of the steering column.

Removal Procedure

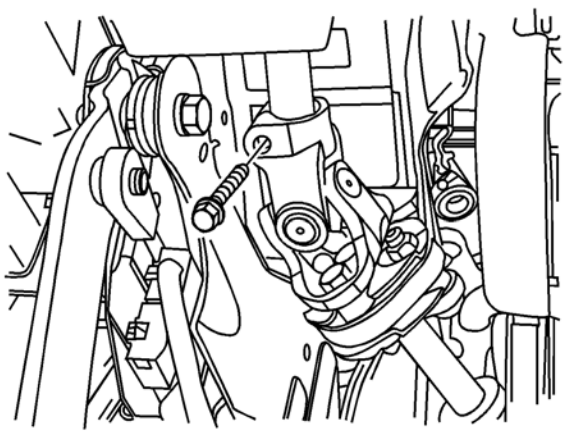
Notice: Refer to Steering Column in Lock Position Notice in the Preface section.

Important: Ensure the front wheels are in the straight-ahead position.

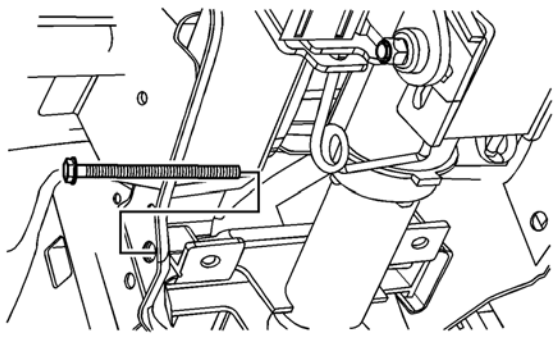
1. Adjust the steering wheel to the straight-ahead position.

Caution: The sensing and the diagnosis module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for up to 1 minute after the ignition has been turned OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has been passed after disconnecting power to the SDM. Failure to do so may cause personal injury.

2. Disconnect the negative battery cable and let the vehicle sit for 1 minute. Refer to Battery Negative Cable Disconnection and Connection .
3. Remove the inflatable restraint steering wheel module. Refer to Inflatable Restraint Steering Wheel Module Replacement .
4. Remove the steering wheel. Refer to Steering Wheel Replacement .
5. Remove the steering column trim covers. Refer to Steering Column Trim Covers Replacement .
6. Remove the turn signal and headlamp switch. Refer to Turn Signal Multifunction Switch Replacement .
7. Remove the windshield wiper and washer switch. Refer to Windshield Wiper and Washer Switch Replacement .
8. Remove the coil. Refer to Inflatable Restraint Steering Wheel Module Coil Replacement .
9. Remove the driver knee bolster. Refer to Knee Bolster Replacement .
10. Remove the ignition switch. Refer to Ignition and Start Switch Replacement .
11. Remove the key hole lamp. Refer to Ignition Lock Cylinder Bulb Replacement .
12. Remove the immobilizer module, if equipped. Refer to Theft Deterrent Module Replacement .
13. Remove the key cylinder. Refer to Ignition Switch Lock Cylinder Replacement .
14. Remove the SSPS control module, if equipped. Refer to Power Steering Control Module Replacement .



15. Use paint in order place match marks on the intermediate steering shaft and on the lower portion of the steering column shaft.
16. Remove the steering shaft universal joint pinch bolt.
17. Remove the intermediate shaft from the steering column shaft.
18. Remove the steering angle sensor, if equipped. Refer to Steering Wheel Position Sensor Replacement .



19. Remove the steering column assembly lower bracket bolt.

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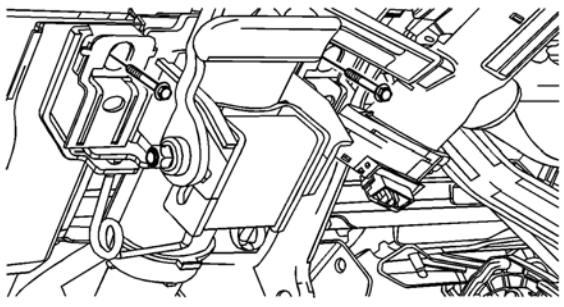


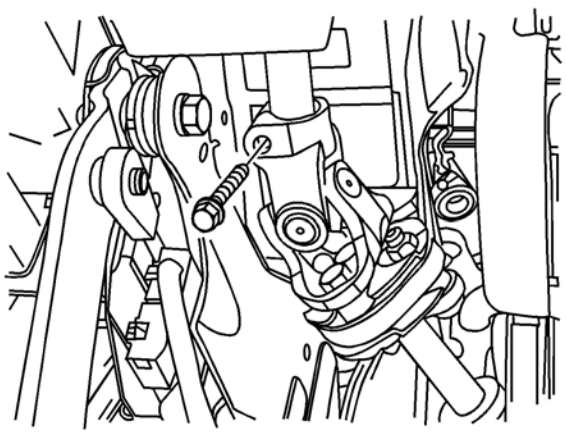
20. Remove the steering column assembly upper bracket bolts.

Notice: Once the steering column is removed from the vehicle, the column is extremely susceptible to damage. Dropping the column assembly on the end could collapse the steering shaft or loosen the plastic injections, which maintain column rigidity. Leaning on the column assembly could cause the jacket to bend or deform. Any of the above damage could impair the columns collapsible design. Do NOT hammer on the end of the shaft, because hammering could loosen the plastic injections, which maintain column rigidity. If you need to remove the steering wheel, refer to the Steering Wheel Replacement procedure in this section.

21. Remove the steering column assembly from the vehicle.

Installation Procedure

1. Verify the front tires are in the straight-ahead position.
2. If you are replacing the steering column, copy the match marks from the old column to the new column.
3. Position the steering column in the vehicle.
4. Install the steering angle sensor, if equipped. Refer to Steering Wheel Position Sensor Replacement .



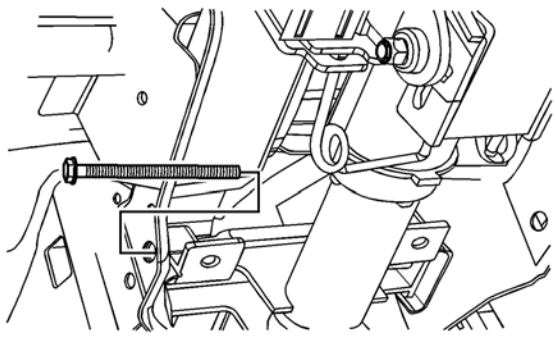
Important: Provide support for the steering column assembly until the mounting bolts are fastened. Do not let the steering column assembly hang unsupported.

5. Align the match marks and carefully guide the steering shaft into the universal joint of the intermediate shaft.

Notice: Refer to Fastener Notice in the Preface section.

6. Install the pinch bolt into the universal joint on the intermediate shaft.

Tighten
Tighten the intermediate shaft pinch bolt to 34 N·m (25 lb ft).



7. Install the steering column assembly lower bracket bolt.

Tighten
Tighten the steering column assembly lower bracket bolt to 25 N·m (18 lb ft).

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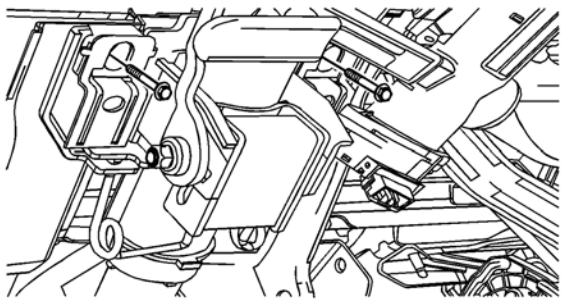

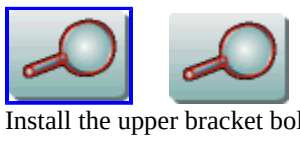

8. Install the upper bracket bolts.

Tighten
Tighten the steering column assembly upper bracket bolts to 22 N·m (16 lb ft).

9. Install the SSPS control module, if equipped. Refer to Power Steering Control Module Replacement .
10. Install the key cylinder. Refer to Ignition Switch Lock Cylinder Replacement .
11. Install the immobilizer module, if equipped. Refer to Theft Deterrent Module Replacement .
12. Install the key hole lamp. Refer to Ignition Lock Cylinder Bulb Replacement .
13. Install the ignition switch. Refer to Ignition and Start Switch Replacement .
14. Install the driver knee bolster. Refer to Knee Bolster Replacement .
15. Install the coil. Refer to Inflatable Restraint Steering Wheel Module Coil Replacement .
16. Install the windshield wiper and washer switch. Refer to Windshield Wiper and Washer Switch Replacement .
17. Install the turn signal and headlamp switch. Refer to Turn Signal Multifunction Switch Replacement .
18. Install the steering column trim covers. Refer to Steering Column Trim Covers Replacement .
19. Install the steering wheel. Refer to Steering Wheel Replacement .
20. Install the inflatable restraint steering wheel module. Refer to Inflatable Restraint Steering Wheel Module Replacement .
21. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection .

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Fastener Tightening Specifications

Application	Specification	
	Metric	English
Steering Column Assembly Lower Bracket Bolt	25 N·m	18 lb ft
Steering Column Assembly Upper Bracket Bolts	22 N·m	16 lb ft
Steering Shaft Universal Joint Pinch Bolt	34 N·m	25 lb ft
Steering Wheel Nut	41 N·m	30 lb ft
Upper and Lower Steering Column Cover Panel Screws	1.5 N·m	13 lb in

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Steering Wheel and Column Description and Operation

In addition to the steering function, the steering column provides safety and security. The energy-absorbing column is designed to compress in a front-end collision to lessen the chance of driver injury. The ignition switch and the lock are mounted on the column, allowing the ignition and steering operations to be locked to inhibit theft of the car. The column levers trigger the turn signals, the headlight beams, and the windshield washer and wipers. A tilt steering column uses a spherical joint to allow the steering wheel to tilt up and down. This enables the driver to adjust the steering wheel to a comfortable position.

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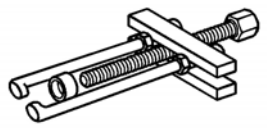
Special Tools

Illustration	Tool Number/ Description
	KM-210-A Steering Wheel Puller

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