

Steering Wheel and Column - Tilt

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Dimmer and Ignition Switch Bolts/Screws	4 N·m	35 lb in
Hazard Warning Switch Knob Bolt/Screw	0.7 N·m	6 lb in
Hydraulic Pump Fitting	75 N·m	55 lb ft
Hydraulic Pump Hose Fitting	28 N·m	21 lb ft
Ignition Switch Bolt/Screw	2.5 N·m	22 lb in
Inflatable Restraint Steering Wheel Mounting Plate Bolt/Screw (Pontiac Only)	1.9 N·m	17 lb in
Intermediate Steering Shaft-to-Steering Column Bolt/Screw	47 N·m	35 lb ft
Intermediate Steering Shaft-to-Steering Gear Bolt/Screw	47 N·m	35 lb ft
Power Steering Gear Pipe Fitting Seat	28 N·m	21 lb ft
Radio Control Switch Bolt/Screw (Pontiac Only)	1.9 N·m	17 lb in
Steering Column Bolts/Screws	18 N·m	14 lb ft
Steering Column Guide Bolt/Screw	25 N·m	18 lb ft
Steering Column Upper Support Nuts	25 N·m	18 lb ft
Steering Wheel Bolt/Screw (Pontiac Only)	2.8 N·m	25 lb in
Steering Wheel Horn Switch Contact Plate Shoulder Bolt/Screw (Pontiac Only)	2.8 N·m	25 lb in
Steering Wheel Nut	43 N·m	32 lb ft
Steering Wheel-to-Inflatable Restraint Steering Wheel Module Bolts/Screw (Chevrolet Only)	2.8 N·m	25 lb in
Steering Wheel-to-Steering Wheel Horn Switch Bolts/Screws (Chevrolet Only)	1.9 N·m	17 lb in

GM SPO Group Numbers

Application	GM SPO Group Number
BTSI Shift Lock Actuator	4.000
Cable Shift Cam Assembly	4.000
Dimmer Switch	2.000
Hazard Warning Switch	2.000
Ignition Switch Assembly	2.000
Linear Shift Assembly	4.000
Lock Bolt Spring	6.000
Lock Module Assembly	2.000
Shift Lever	4.000
Shift Lever Seal	4.000
Steering Column Assembly	6.000
Steering Column Boot Seal	6.000
Steering Column Housing	6.000
Steering Column Housing Support	6.000
Steering Column Jacket Assembly	6.000
Steering Column Lower Shroud	6.000
Steering Column Shift Lever Actuator	4.000
Steering Column Spring Guide	6.000
Steering Column Tilt Lever	6.000

GM SPO Group Numbers (cont'd)

Application	GM SPO Group Number
Steering Column Tilt Spring	6.000
Steering Column Upper Shroud	6.000
Steering Gear Coupling Lower Shield	6.000
Steering Gear Coupling Shaft (Lower Intermediate Shaft)	6.000
Steering Shaft Lock Plate	6.000
Steering Shaft Lower Bearing	6.000
Steering Shaft Upper Bearing Race Seat	6.000
Steering Shaft Upper Bearing Spring	6.000
Steering Wheel	6.000
Steering Wheel Inflator Module	16.000
Steering Wheel Lock Pin	6.000
Turn Signal Canceling Cam	2.000
Turn Signal/Multifunction Switch Assembly	2.000
Upper Intermediate Shaft	6.000



- Legend
- 1) Steering Wheel Inflator Module

2) Steering Wheel Lock Pin

3) Steering Wheel

4) Steering Shaft Upper Bearing Spring

5) Steering Shaft Upper Bearing Race Seat

6) Steering Shaft Lower Bearing

7) Steering Shaft Lock Plate

8) Steering Gear Coupling Shaft (Lower Intermediate Shaft)

9) Steering Gear Coupling Lower Shield

10) Steering Column Upper Shroud

11) Steering Column Tilt Spring

12) Turn Signal/Multifunction Switch Assembly

13) Turn Signal Canceling Cam

14) Upper Intermediate Shaft

15) Steering Wheel Lock Pin

16) Steering Wheel Inflator Module

17) Steering Shaft Upper Bearing Spring

18) Steering Shaft Upper Bearing Race Seat

19) Steering Shaft Lower Bearing

20) Steering Shaft Lock Plate

21) Steering Gear Coupling Shaft (Lower Intermediate Shaft)

22) Steering Gear Coupling Lower Shield

23) Steering Column Upper Shroud

24) Steering Column Tilt Spring

1) Steering Wheel Inflator Module

2) Steering Wheel Lock Pin

3) Steering Wheel

4) Steering Shaft Upper Bearing Spring

5) Steering Shaft Upper Bearing Race Seat

6) Steering Shaft Lower Bearing

7) Steering Shaft Lock Plate

8) Steering Gear Coupling Shaft (Lower Intermediate Shaft)

9) Steering Gear Coupling Lower Shield

10) Steering Column Upper Shroud

11) Steering Column Tilt Spring

12) Turn Signal/Multifunction Switch Assembly

13) Turn Signal Canceling Cam

14) Upper Intermediate Shaft

15) Steering Wheel Lock Pin

16) Steering Wheel Inflator Module

17) Steering Shaft Upper Bearing Spring

18) Steering Shaft Upper Bearing Race Seat

19) Steering Shaft Lower Bearing

20) Steering Shaft Lock Plate

21) Steering Gear Coupling Shaft (Lower Intermediate Shaft)

22) Steering Gear Coupling Lower Shield

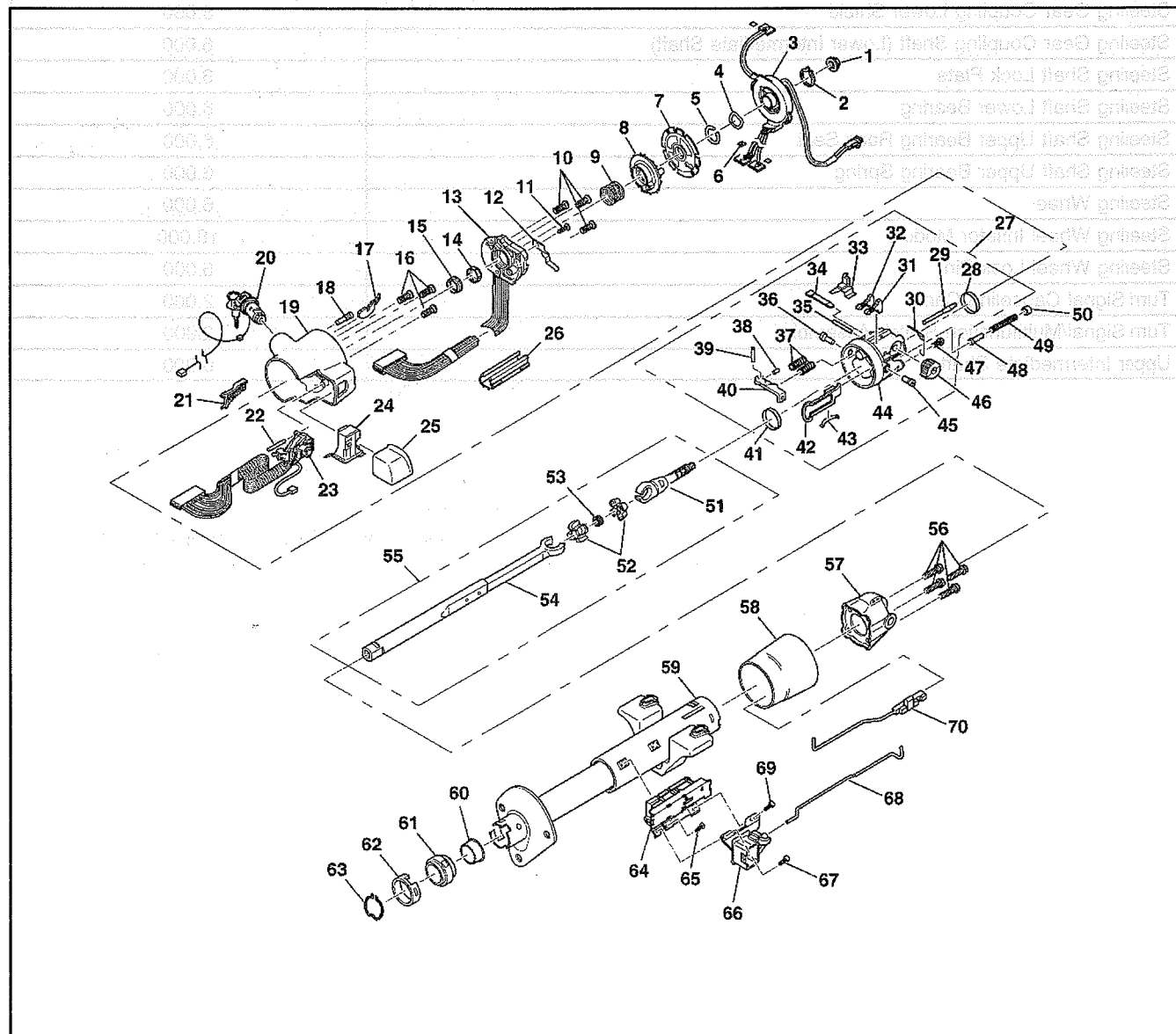
23) Steering Column Upper Shroud

24) Steering Column Tilt Spring

Visual Identification

Steering Column - Disassembled View

Tilt Steering Column



393980

Legend

- | | |
|-------------------------------------|---|
| (1) Flanged Prevailing Torque Nut | (13) Turn Signal Switch Assembly |
| (2) Retaining Ring | (14) Upper Bearing Inner Race Seat |
| (3) SIR Coil Assembly | (15) Inner Race |
| (4) Wave Washer | (16) Pan Head 6-Lobed Socket Screw |
| (5) Bearing Retainer | (17) Buzzer Switch Assembly |
| (6) Connector Shroud | (18) Lock Retaining Screw |
| (7) Shaft Lock Shield Assembly | (19) Lock Housing Cover and Sleeve Assembly |
| (8) Turn Signal Cancel Cam Assembly | (20) Steering Column Lock Cylinder Set |
| (9) Upper Bearing Spring | (21) Dimmer Switch Rod Actuator |
| (10) Pan Head 6-Lobed Socket Screw | (22) Switch Actuator Pivot Pin |
| (11) Round Washer Head Screw | (23) Pivot and Pulse Switch Assembly |
| (12) Signal Switch Arm Assembly | (24) Column Housing Cover End Base Plate |

(25) Column Housing Cover End Cap	(48) Spring Guide
(26) Wiring Protector	(49) Wheel Tilt Spring
(27) Steering Column Housing Assembly	(50) Spring Retainer
(28) Bearing Assembly	(51) Race and Upper Shaft Assembly
(29) Lock Bolt	(52) Centering Sphere
(30) Lock Bolt Spring	(53) Joint Preload Spring
(31) Steering Wheel Lock Shoe	(54) Lower Steering Shaft Assembly
(32) Steering Wheel Lock Shoe	(55) Steering Shaft Assembly
(33) Wire Protector Shield	(56) Hexagon Washer Head Tapping Screw
(34) Drive Shaft	(57) Steering Column Housing Support Assembly
(35) Dowel Pin	(58) Steering Column Housing Shroud
(36) Pivot Pin	(59) Steering Column Jacket Assembly
(37) Shoe Spring	(60) Lower Bearing Adapter
(38) Release Lever Spring	(61) Bearing Assembly
(39) Release Lever Pin	(62) Bearing Adapter Retainer
(40) Shoe Release Lever	(63) Lower Bearing Adapter Clip
(41) Bearing Assembly	(64) Ignition Switch Assembly
(42) Switch Actuator Rack	(65) Flat Head Screw
(43) Rack Preload Spring	(66) Dimmer Switch Assembly
(44) Steering Column Housing	(67) Hexagon Washer Head Tapping Screw
(45) Pivot Pin	(68) Dimmer Switch Rod
(46) Switch Actuator Sector	(69) Washer Head Screw
(47) Hexagon Washer Head Screw	(70) Ignition Switch Rod Actuator Assembly

	* A stuck ignition switch * A restricted actuator rod * An incorrectly installed sector
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Problem	Action
The key cannot be removed in the OFF-LOCK position.	Inspect the column for the following conditions: * An incorrectly set ignition * A damaged lock cylinder

Problem	Action
The lock cylinder can be removed without depressing the retainer.	Inspect the lock cylinder for a missing lock cylinder retaining screw.

Problem	Action
High effort is required in the lock cylinder between the OFF and OFF-LOCK positions.	Inspect the lock cylinder for a distorted rack.

Diagnostic Information and Procedures

Lock System Does Not Unlock

Problem	Action
The lock system will not unlock.	Inspect the lock system for the following conditions: • A collapsed shear flange on the sector shaft • A damaged lock bolt • A damaged lock cylinder • A damaged housing • A damaged sector • A damaged rack • A damaged or incorrectly cut key

Lock System Does Not Lock

Problem	Action
The lock system will not lock.	Inspect the lock system for the following conditions: • A broken or worn lock bolt spring • A damaged sector • A damaged lock cylinder • A burr on the lock bolt • A damaged housing • A damaged rack • Interference between the bowl and the rack coupling • A stuck ignition switch • A restricted actuator rod • An incorrectly installed sector

Key Cannot Be Removed in the Off Lock Position

Problem	Action
The key cannot be removed in the OFF-LOCK position.	Inspect the column for the following conditions: • An incorrectly set ignition • A damaged lock cylinder

Lock Cylinder Can Be Removed Without Depressing Retainer

Problem	Action
The lock cylinder can be removed without depressing the retainer.	Inspect the lock cylinder for a missing lock cylinder retaining screw.

High Lock Effort Between the Off Lock Positions

Problem	Action
High effort is required in the lock cylinder between the OFF and OFF-LOCK positions.	Inspect the lock cylinder for a distorted rack.

High Lock Effort

Problem	Action
High lock effort is required.	Inspect the system steering for the following conditions: • A damaged lock cylinder • A damaged ignition switch • A broken or deformed rack preload spring • Burrs on the following components: – The sector – The rack – The housing – The support – The actuator rod coupling • A bent sector shaft • A damaged rack • A damaged or misadjusted park lock cable • Misalignment of the housing to the cover • A distorted coupling slot in the rack • A bent actuator rod • A bent ignition switch mounting bracket • A restricted actuator rod • A worn or damaged key

Noise in Steering Column

Problem	Action
There is noise in the steering column.	Inspect the steering column for the following conditions: • Loose joints from the steering column to the steering gear • An incorrectly aligned steering column • An unlubricated horn contact ring • A lack of grease on the bearings • Loose sight shields • A worn or broken upper or lower steering shaft bearing • An unseated lock plate retainer ring • An unlubricated spherical joint

High Steering Shaft Effort

Problem	Action
High steering shaft effort is required.	Inspect the steering system for the following conditions: • A misaligned steering column • An improperly installed or deformed dust seal • A damaged upper or lower steering shaft bearing • A flash on the inside diameter of the shift tube • A tight universal joint

Looseness in Steering Column

Problem	Action
There is a lash in the steering column.	Inspect the steering column for the following conditions: • Loose bolts/screws on the upper and lower bracket mounting of the instrument panel (IP)-to-steering column • Broken weld nuts on the jacket • A sheared IP upper bracket capsule • Loose shoes in the housing • Loose pivot pins • A loose lock pin in the housing support • Loose housing support bolts/screws • Loose bolts/screws on the steering column upper and lower bracket-to-jacket • Loose bolts/screws on the lower bracket-to-adaptor and bearing mounting

Lower Housing Scraping Upper Housing

Problem	Action
The housing scrapes the bowl.	Inspect the steering column for the following conditions: • A bent bowl • A bowl that is not concentric to the hub • An improperly installed cover and housing end cap

Loose Steering Wheel

Problem	Action
The steering wheel is loose.	Inspect the steering column for the following conditions: • Excessive clearance between the holes in the housing or housing support and the pivot pin diameters • A damaged anti-lash spring in the spheres • A missing anti-lash spring in the spheres • The steering shaft upper bearing is not seated in the housing • A missing steering shaft upper bearing inner race • Loose housing support bolts/screws • A missing bearing preload spring • A broken bearing preload spring

Loose Steering Wheel (Every Other Tilt Position)

Problem	Action
The steering wheel is loose in every other tilt position.	Inspect the steering column for the following conditions: • A loose fit between the shoe and the pivot pins • The shoe is not free in the slot.

Steering Wheel Does Not Lock in Any Tilt Position

Problem	Action
The steering column does not lock in any tilt position.	Inspect the steering column for the following conditions: • A seized shoe on the pivot pin • Burrs or dirt on the shoe grooves • A weak shoe lock spring • A broken shoe lock spring

Steering Wheel Not Returning to Top Tilt Position

Problem	Action
The steering wheel fails to return to the top tilt position.	Inspect the steering column for the following conditions: • Bound up pivot pins • A broken wheel tilt spring • A weak wheel tilt spring • Tight turn signal switch wires

Noise When Tilting Steering Column

Problem	Action
There is noise when tilting the steering column.	Inspect the steering column for the following conditions: • Worn upper tilt bumpers • Rubbing of the shoe lock spring in the housing

Turn Signal Does Not Indicate Lane Change

Problem	Action
The turn signal does not indicate a lane change.	Inspect the steering column for the following conditions: • A broken lane change pressure pad • A broken lane change spring hanger • A broken lane change spring • A missing lane change spring • A misplaced lane change spring • A jammed base • Jammed wires

Turn Signal Switch Does Not Stay in Turn Position

Problem	Action
The turn signal does not stay in the turn position.	Inspect the steering column for the following conditions: • Foreign material impeding the movement of the yoke • Loose parts impeding the movement of the yoke • A broken detent • A broken canceling spring • A missing detent • A missing canceling spring Replace the switch if none of the above conditions are found.

Turn Signal Switch Does Not Cancel

Problem	Action
The turn signal does not cancel.	Inspect the steering column for the following conditions: • Loose switch mounting screws • A broken switch • Broken anchor bosses • A broken detent • A missing detent • An out-of-position detent • A broken return • A missing return • An out-of-position return • A broken canceling spring • A missing canceling spring • An out-of-position canceling spring • A worn canceling cam

Turn Signal Switch Difficult to Operate

Problem	Action
The turn signal is difficult to operate.	1. Inspect for the following conditions: • A loose turn signal switch arm • Loose springs • Misplaced springs • Foreign parts or material • Loose turn signal switch mounting screws 2. Replace the switch if the following conditions exist: • A broken yoke • A distorted yoke

Hazard Switch Cannot Be Turned Off

Problem	Action
The hazard switch cannot be turned off.	1. Inspect for foreign material between the hazard support canceling leg and the yoke. 2. Replace the turn signal switch if no foreign material is found.

Hazard Switch Does Not Stay On

Problem	Action
The hazard switch will not stay on or is difficult to turn off.	1. Inspect the steering column for the following conditions: • A loose turn signal switch • Interference with other components • Interference from foreign material 2. Replace the turn signal switch if none of the above conditions are found.

Ignition Switch Electrical System Does Not Operate

Problem	Action
The electrical system does not function properly.	Inspect the steering column for the following conditions: • A damaged ignition switch • An improperly adjusted ignition switch • A loose connector at the ignition switch

Ignition Switch Does Not Turn

Problem	Action
The ignition switch does not turn.	Inspect the steering column for the following conditions: • A damaged ignition switch • An improperly adjusted ignition switch • A loose connector at the ignition switch

Ignition Switch Cannot Be Set Correctly

Problem	Action
The ignition switch cannot be correctly set.	Inspect the steering column for the following conditions: • A deformed switch actuator rod • A sector to rack engaged in the wrong tooth

Repair Instructions

Ignition Switch Replacement - On Vehicle

Removal Procedure

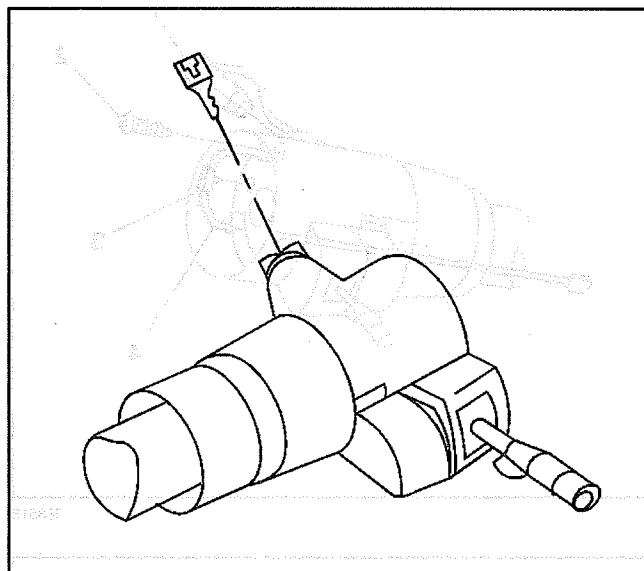
Caution: Refer to SIR Handling Caution in Cautions and Notices.

Caution: Refer to Battery Disconnect Caution in Cautions and Notices.

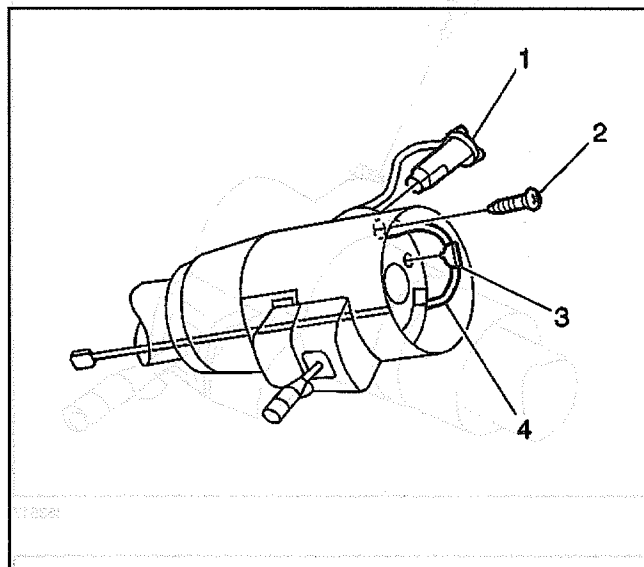
1. Disconnect the negative battery cable.
2. Remove the inflatable restraint coil.
3. Insert the ignition key into the lock cylinder.

Leave the key in the LOCK position.

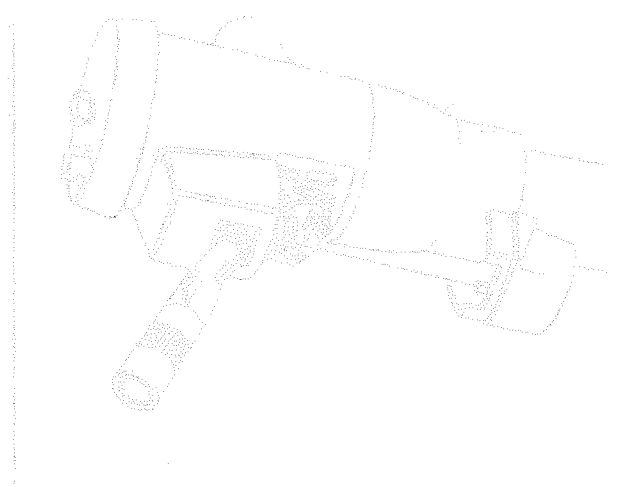
4. Remove the lock retaining screw (2).
5. Remove the lock cylinder (1) and harness (4), perform the following:
 - 5.1. Disconnect the terminal connector from the bulkhead connector.
 - 5.2. Remove the wiring protector.
 - 5.3. Disconnect the retaining clip (3) from the lock housing cover sleeve.
 - 5.4. Gently pull wire harness (4) through the column.
 - 5.5. Remove the lock cylinder (1) from the vehicle.



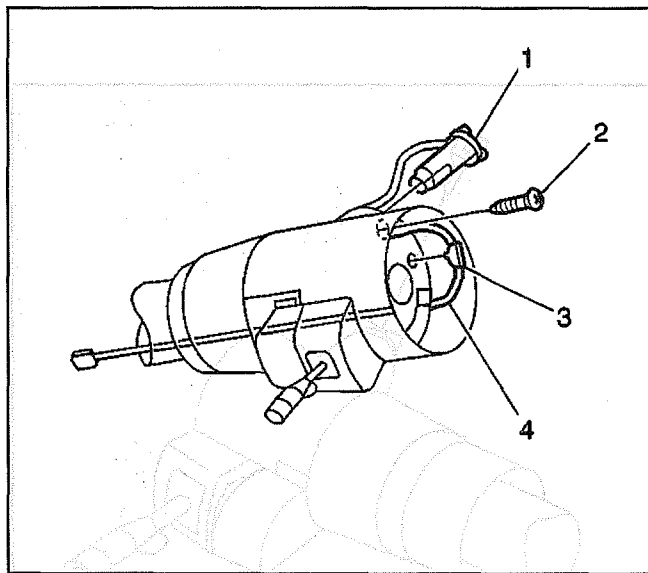
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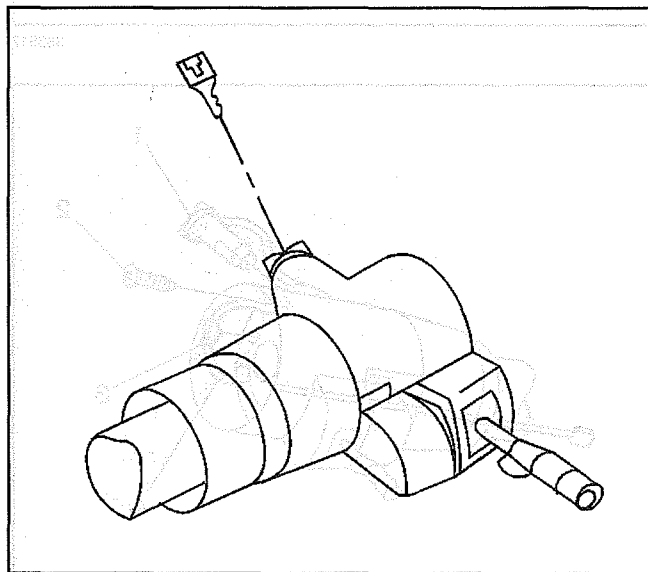
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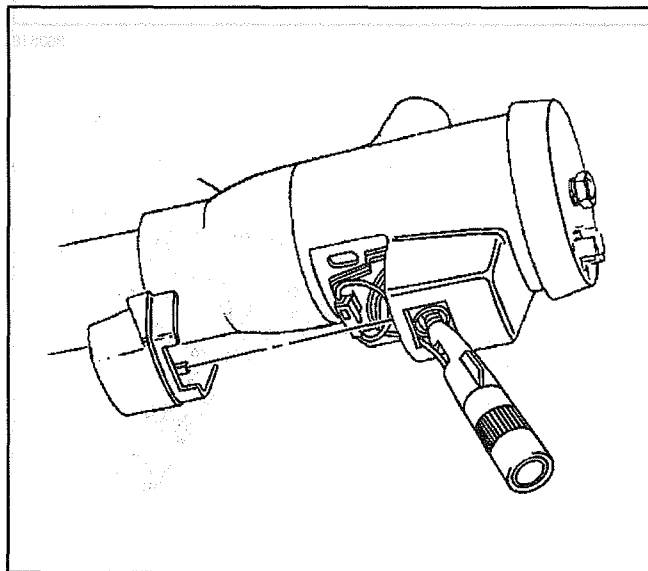
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Installation Procedure

1. Install the lock cylinder (1) and harness (4), perform the following:
 - 1.1. Install the lock cylinder (1) to the vehicle.
 - 1.2. Gently pull wire harness (4) through the column.
 - 1.3. Connect the retaining clip (3) to the lock housing cover sleeve.
 - 1.4. Install the wiring protector.
 - 1.5. Connect the terminal connector to the bulkhead connector.

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

2. Install the lock retaining screw (2).

Tighten

Tighten the lock retaining screw to 2.5 N·m (22 lb in).

3. Remove the ignition key from the lock cylinder.
4. Install the inflatable restraint coil.
5. Connect the negative battery cable.

Multifunction Turn Signal Lever Replacement - On Vehicle

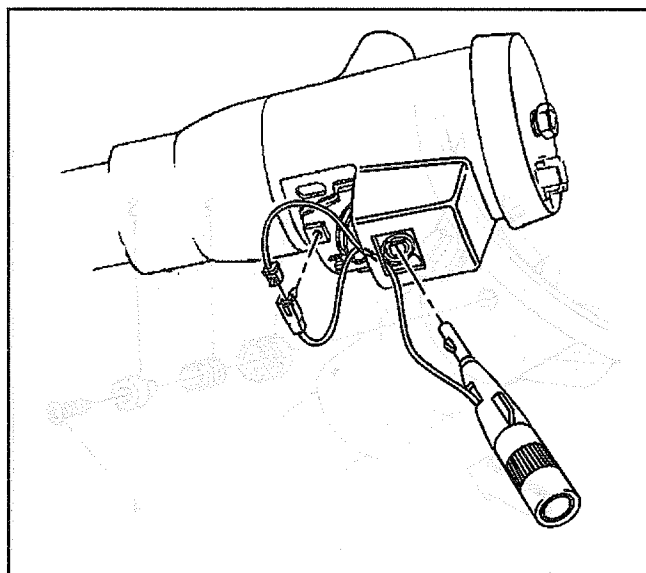
Removal Procedure

Caution: Refer to *Battery Disconnect Caution* in *Cautions and Notices*.

Important: Position the windshield wiper switch in the OFF position.

1. Disconnect the negative battery cable. Refer to *Battery Negative Cable Disconnect/Connect Procedure* in *Engine Electrical*.
2. Remove the steering column access cover.

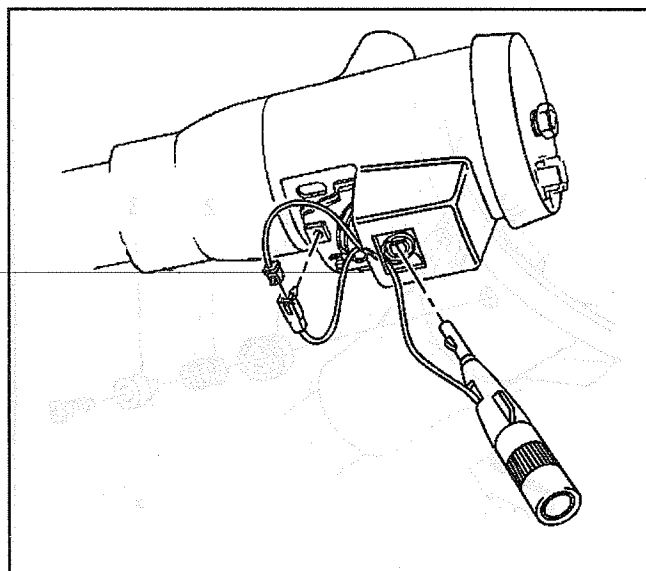
3. Disconnect the multifunction lever electrical connector.
4. Remove the multifunction lever.



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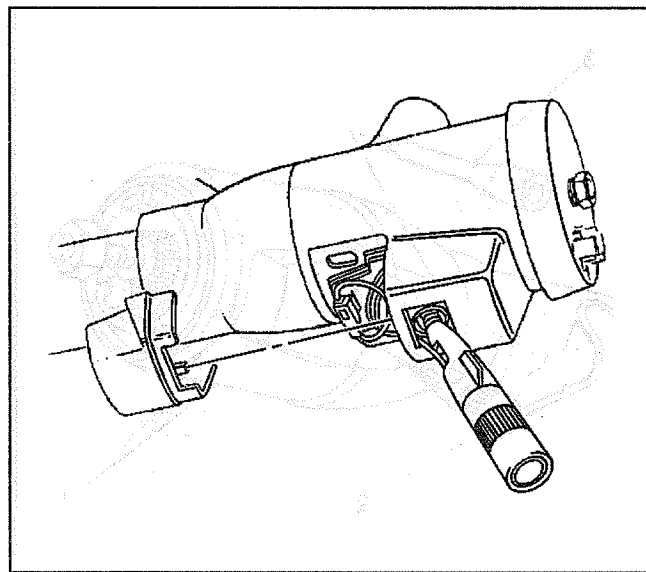
Installation Procedure

1. Install the multifunction lever.
2. Connect the multifunction lever electrical connector.

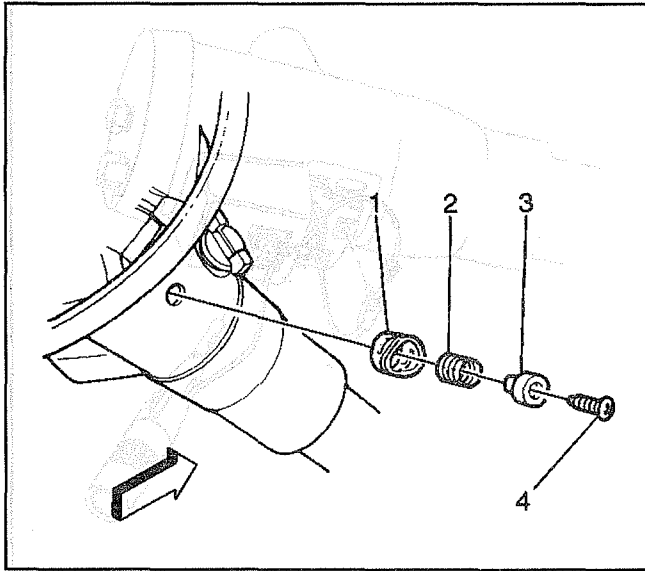


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3. Install the steering column access cover.
4. Connect the negative battery cable. Refer to *Battery Negative Cable Disconnect/Connect Procedure* in Engine Electrical.



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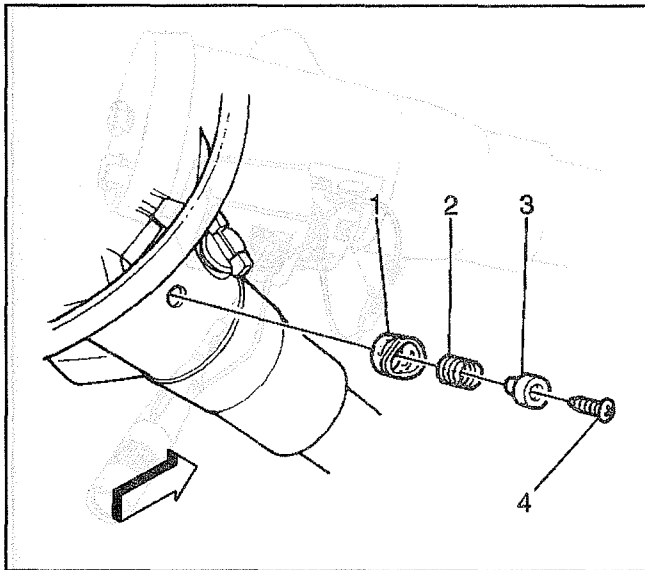
Hazard Warning Switch Replacement - On Vehicle

Removal Procedure

Caution: Refer to *SIR Handling Caution in Cautions and Notices*.

Important: Do not remove the steering column in order to replace the hazard warning switch. Refer to *Steering Column Replacement*.

1. Remove the bolt/screw (4).
2. Remove the button (3).
3. Remove the spring (2).
4. Remove the knob (1).



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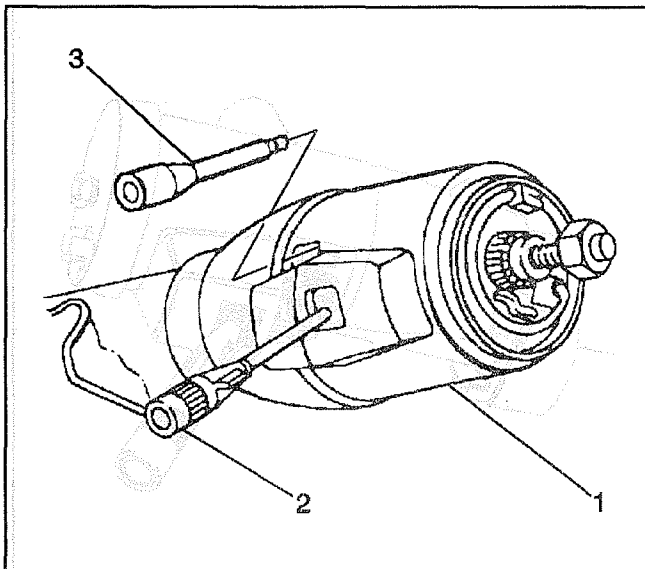
Installation Procedure

1. Install the knob (1).
2. Install the spring (2).
3. Install the button (3).
4. Install the bolt/screw (4).

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

Tighten

Tighten the bolt/screw to 0.7 N·m (6 lb in).



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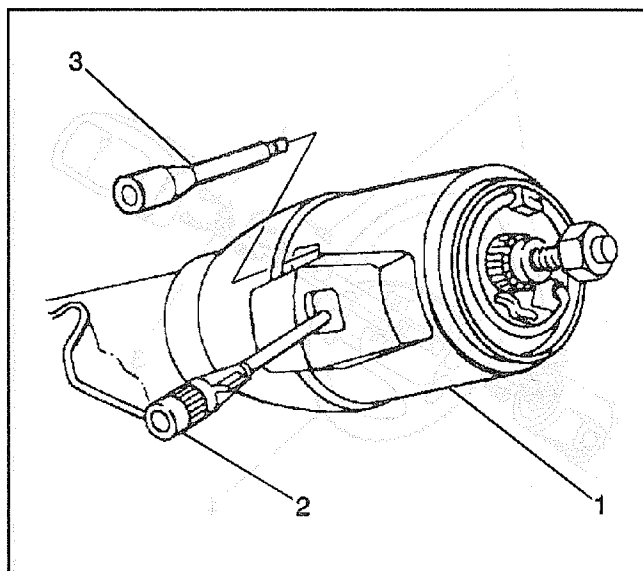
Tilt Lever Replacement - On Vehicle

Removal Procedure

1. Lower the steering wheel to access the tilt lever easier.
2. Firmly grip and twist the tilt wheel release lever (3) counterclockwise.

Installation Procedure

- Firmly grip and twist the tilt wheel release lever (3) clockwise.
- Raise the steering wheel.



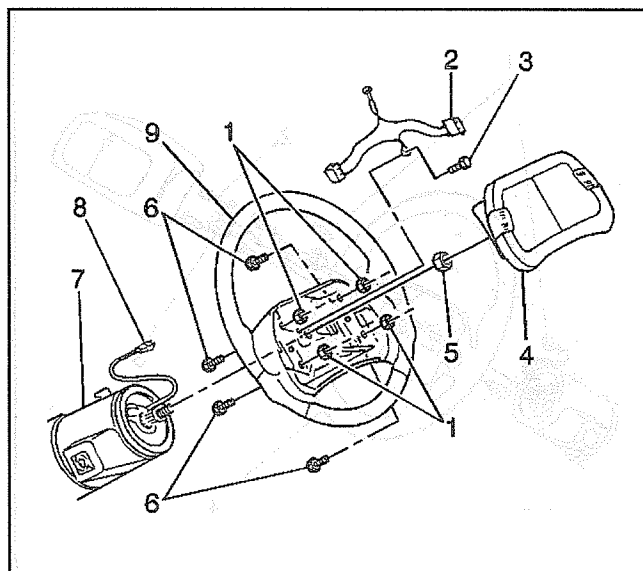
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Horn Switch Replacement - On Vehicle (Chevrolet)**Removal Procedure**

Caution: Refer to *SIR Handling Caution in Cautions and Notices*.

1. Remove the inflatable restraint steering wheel module (4).
2. Remove the screw (3) from the ground lead.
3. Disconnect the power lead (8) by pulling straight out.



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Installation Procedure

1. Install the horn switch (2) to the inflatable restraint steering wheel module (4).

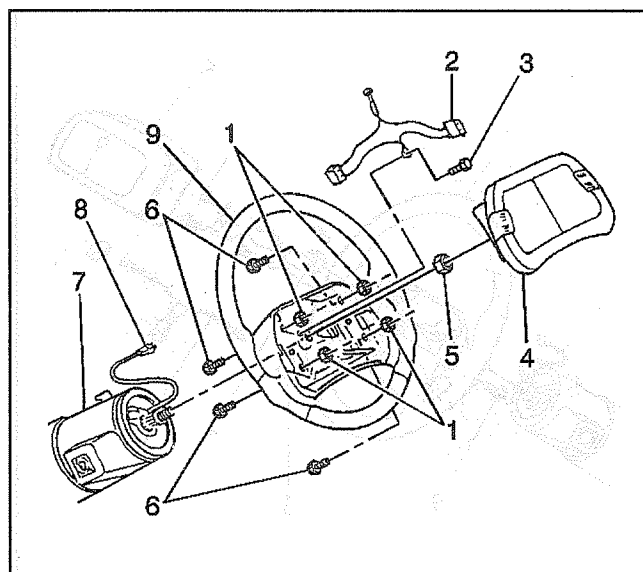
Notice: Refer to *Fastener Notice in Cautions and Notices*.

2. Install the screw (3) to the ground lead.

Tighten

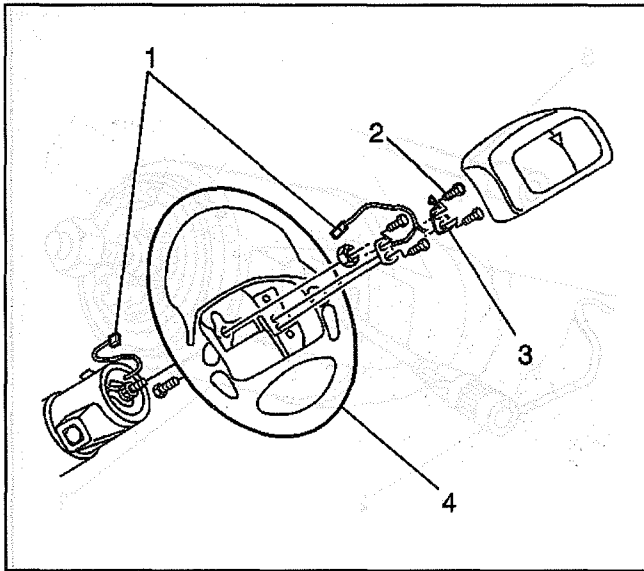
Tighten the bolt/screw (3) to 1.9 N·m (17 lb in).

3. Connect the power lead (8) by pushing straight into the outlet.



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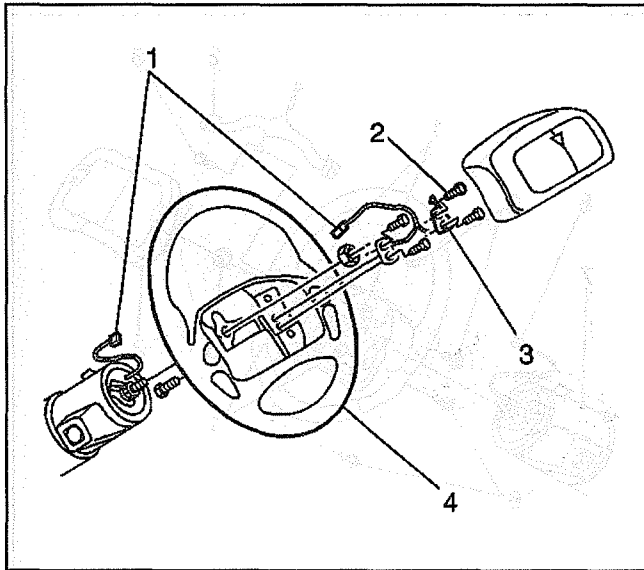
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Horn Switch Replacement - On Vehicle (Pontiac)

Removal Procedure

Caution: Refer to *SIR Handling Caution in Cautions and Notices*.

1. Disconnect the horn wiring connector (1) from the steering column.
2. Remove the horn wiring connector bolts (2).
3. Remove the horn switch (3) from the steering wheel (4).



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Installation Procedure

1. Position the horn switch (3) to the steering wheel (4).

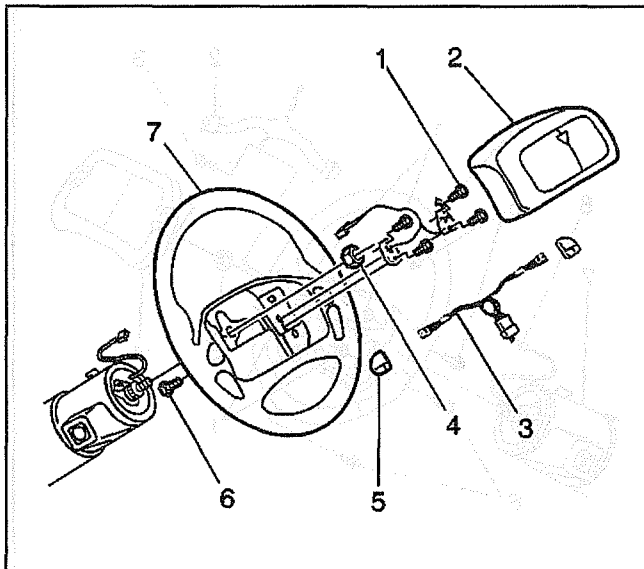
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the horn wiring connector bolts (2).

Tighten

Tighten the horn wiring connector bolts (2) to 1.9 N·m (17 lb in).

3. Connect the horn wiring connector (1) to the steering column.



290322

Steering Wheel Control Switch Assembly Replacement

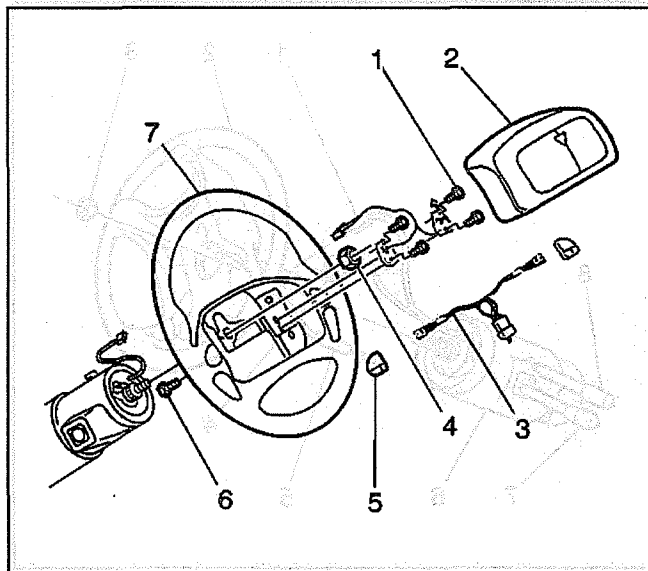
Removal Procedure

Caution: Refer to *SIR Handling Caution in Cautions and Notices*.

1. Remove the radio control wire harness retainer.
2. Pry out the radio control switch (5) at the lower edge.
3. Remove the radio control switch (5) from the steering wheel (7).
4. Disconnect the wire harness connector (3) from the control(s).

Installation Procedure

1. Connect the wire harness connector (3) to the control(s).
2. Install the radio control switch (5) to the steering wheel (7).
3. Install the radio control wire harness retainer.



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Steering Wheel Replacement**Removal Procedure**

Caution: Refer to *SIR Handling Caution in Cautions and Notices*.

Tools Required

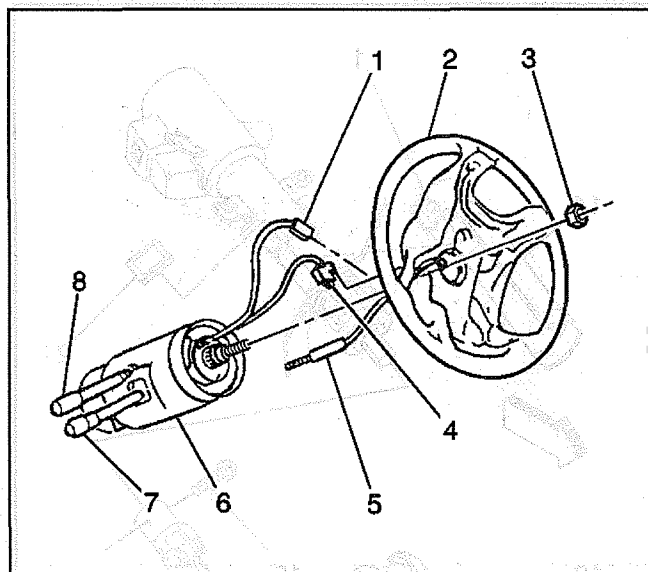
- J 1859-A Steering Wheel Puller
- J 38720 Steering Wheel Puller Bolts

1. Remove the nut (3).
2. Disconnect the horn ground lead (5).

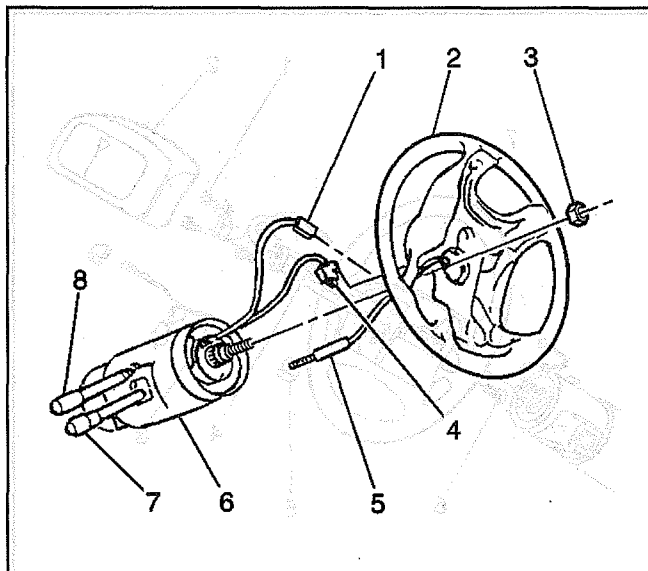
Notice: When removing the steering wheel, use only the specified steering wheel puller. Under no conditions should the end of the steering column shaft be hammered on, as hammering could loosen the plastic injections which maintain steering column rigidity.

Notice: When attaching J 1859-A and J 38720 to the steering wheel, use care to prevent threading J 39720 (bolts) all the way through the steering wheel hub into the SIR coil and damaging the SIR coil.

3. Use a J 1859-A and a J 38720 in order to remove the steering wheel (2).
4. Remove the steering wheel horn switch. Refer to *Horn Switch Replacement - On Vehicle (Chevrolet)* or *Horn Switch Replacement - On Vehicle (Pontiac)*.



290184



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Installation Procedure

1. Route the SIR coil electrical connector to the steering wheel (2).
2. Install the steering wheel horn switch.

Important: Align the tooth on the steering wheel with the block tooth on the steering column shaft within one female serration.

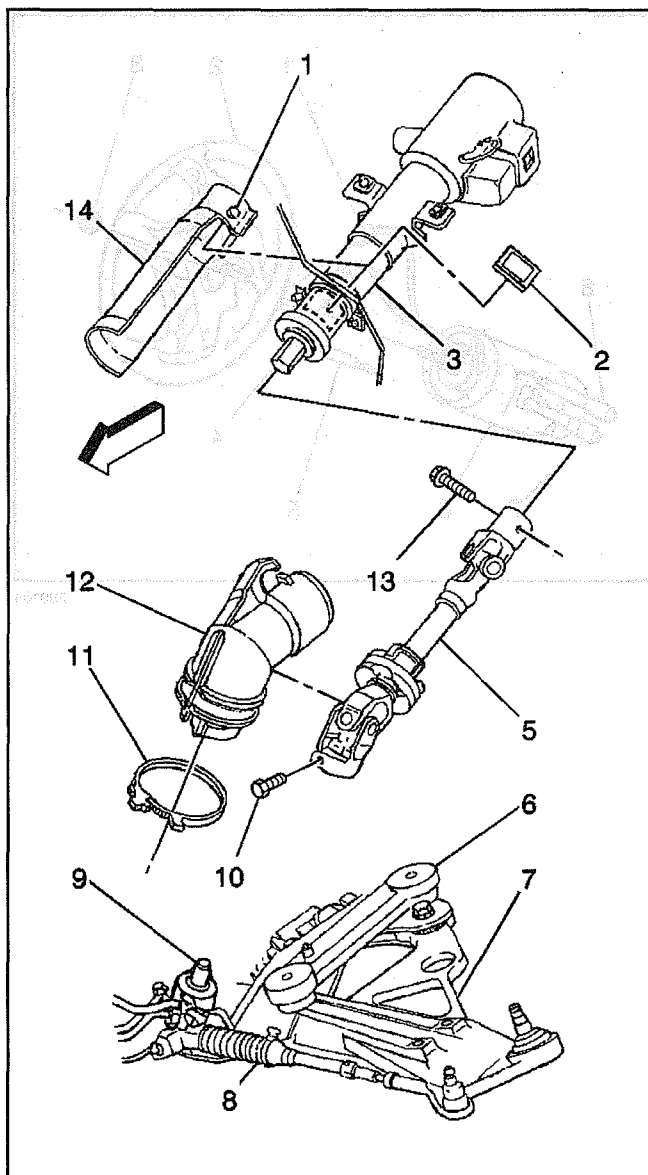
3. Install the steering wheel (2).
4. Connect the horn ground lead (5).

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

5. Install the nut (3).

Tighten

Tighten the nut to 43 N·m (32 lb ft).



581793

Intermediate Steering Shaft Replacement

Removal Procedure

Notice: The vehicle's wheels must be in a straight-ahead position and the key must be in a LOCK position when removing or installing the steering column. Failure to do so may cause the SIR coil assembly to become uncentered and may result in unneeded SIR system repairs.

1. Remove the clamp (11) from the boot (12).
2. Remove the boot (12) from the shaft (5).
3. Remove the steering gear bolt (10) from the gear (8).
4. Remove the shaft (5) from the steering gear (8).
5. Remove the shield (14) from the shaft (5) and column (3) on 5.7L VIN G only.
6. Remove the bolt (13) from the column (3).
7. Remove the shaft (5) from the column (3).

Installation Procedure

1. Position the shaft (5) to the column (3).

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

2. Install the column bolt (13).

Tighten

Tighten the column bolt (13) to 47 N·m (35 lb ft).

3. Position the shaft (5) to the gear (8).

4. Install the steering gear bolt (10).

Tighten

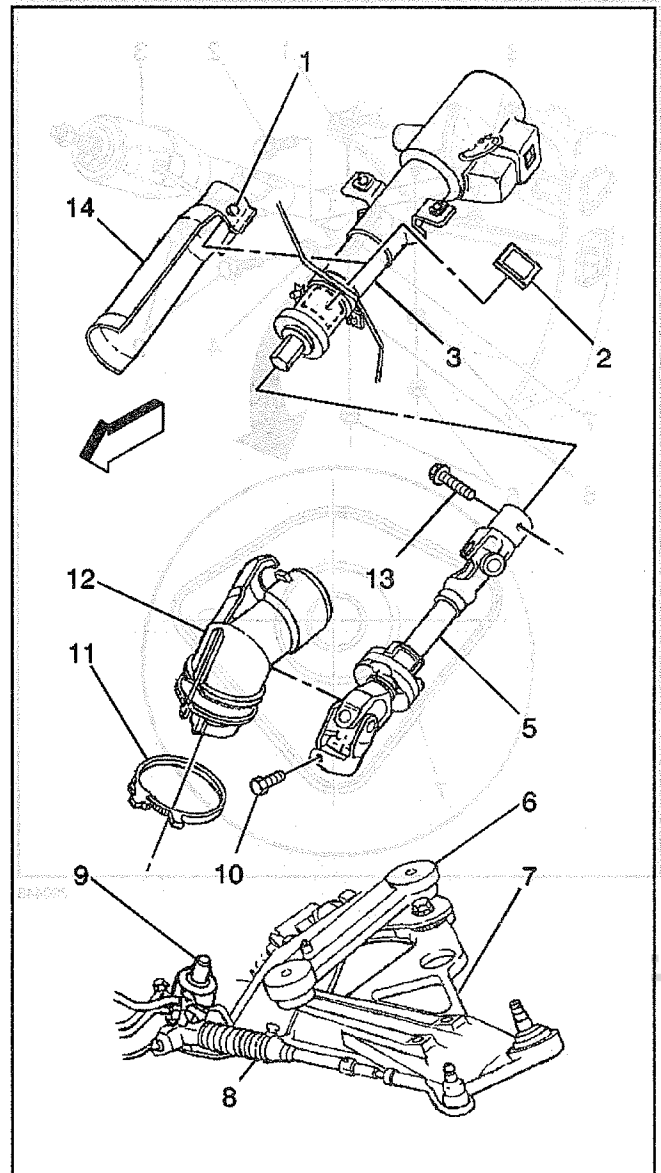
Tighten the steering gear bolt (10) to 47 N·m (35 lb ft).

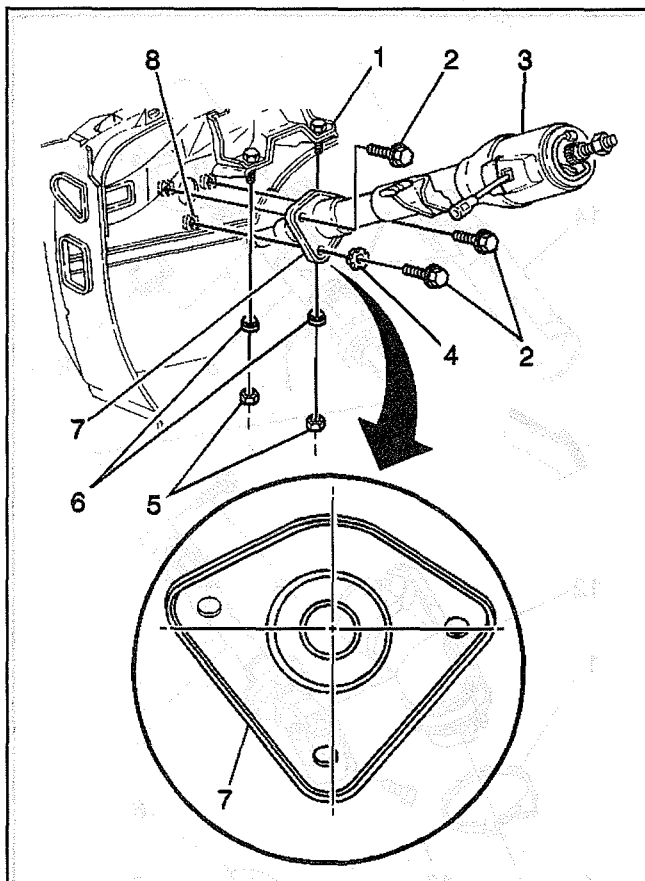
5. Install the boot (12) to the shaft (5).

6. Use a clamp (11) in order to secure the boot to the shaft.

7. Position the shield (14) to the shaft (5) and column (3) on 5.7L VIN G only.

8. On 5.7L VIN G only, insert the button into the hole in the column (3) in order to install the shield (14).





290448

Steering Column Replacement

Removal Procedure

Notice: The vehicle's wheels must be in a straight-ahead position and the key must be in a LOCK position when removing or installing the steering column. Failure to do so may cause the SIR coil assembly to become uncentered and may result in unneeded SIR system repairs.

Notice: When the steering column is removed from the vehicle, it is extremely susceptible to damage. Dropping the column on its end could collapse the steering shaft or loosen plastic injections that keep the column rigid. Leaning on the column could cause steering column jacket to bend or deform. Any of the above conditions could impair column assembly's collapsible design. If the steering wheel must be removed, use only the specified steering wheel puller and steering wheel puller bolts. Never hammer on the end of the steering shaft because hammering could loosen plastic injections that keep the column right.

1. Remove the left instrument panel insulator.
2. Remove the instrument panel driver knee bolster and deflector.
3. Disable the SIR system.
4. Remove the steering wheel, if the column is to be replaced. Refer to *Steering Wheel Replacement*.
5. Remove the intermediate steering shaft bolt from the steering gear coupling shaft and column.
6. Remove the bolts (2) that attach the cover (7) to the dash panel.
7. Remove the cover (7) from the dash panel.
8. Disconnect the electrical connectors.
9. Remove the nuts (5) and shims (6) from the steering column support.
10. Remove the automatic transmission park lock cable from the ignition switch, if equipped.
11. Remove the column (3) from the vehicle.

Installation Procedure

Notice: If a service replacement steering column is being installed, do not remove the antirotation pin until after the column has been connected to the steering gear. Removing the antirotation pin before the column is connected to the steering gear may damage the SIR coil.

1. Position the column (3) into the vehicle.
2. Install the automatic transmission park lock cable to the ignition switch, if equipped. Refer to Automatic Transmission, On-Vehicle Service.

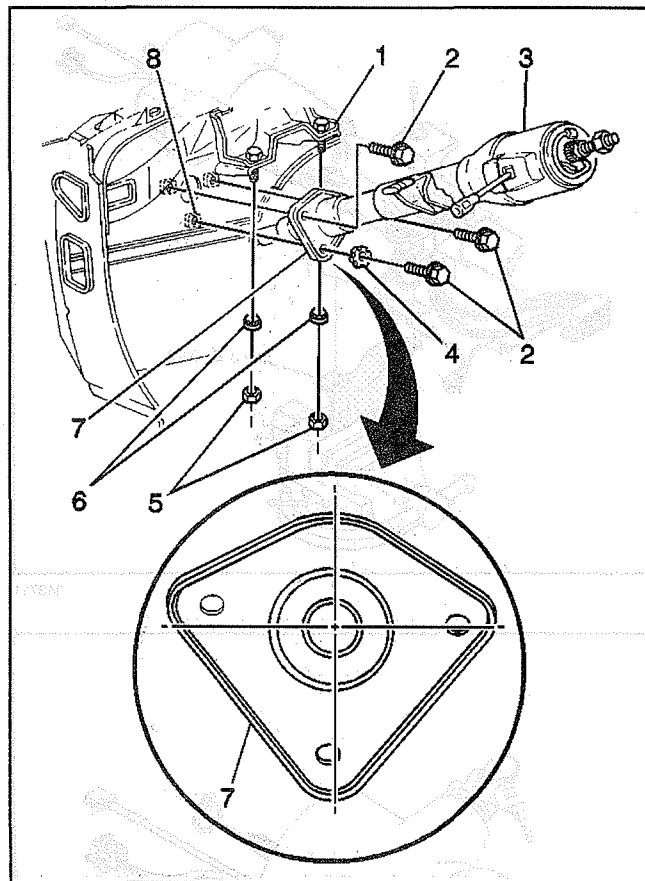
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the shims (6) and the nuts (5) to the steering column support.

Tighten

Tighten the steering column support nuts to 25 N·m (18 lb ft).

4. Install the intermediate steering shaft bolt to the steering gear coupling shaft. Refer to Steering Gear Coupling Shaft.



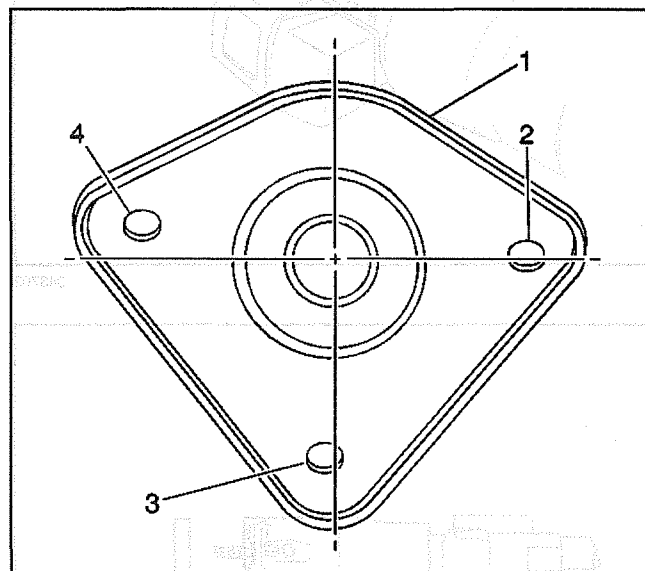
290448

5. Install the cover to the dash. Install the bolt in the following order:
 - 5.1. Install the lower (3) bolt.
 - 5.2. Install the outboard (4) bolt.
 - 5.3. Install the inboard (2) bolt.
6. Position the cover to the dash panel.
7. Connect the electrical connectors.
8. Install the dash panel bolts.

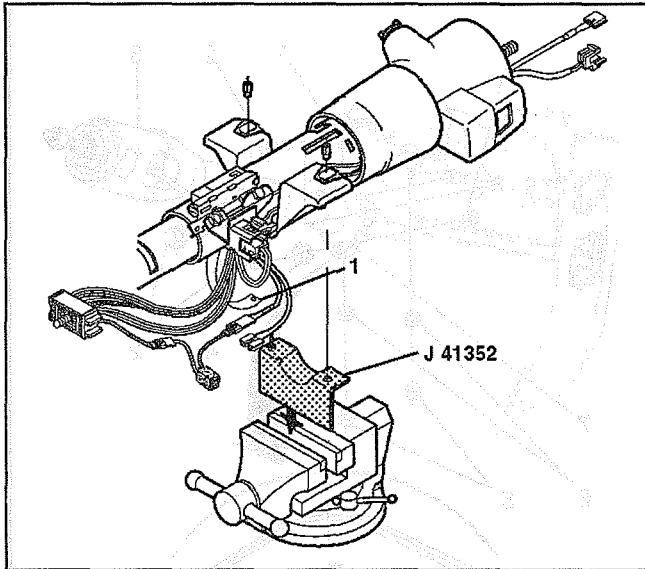
Tighten

Tighten the dash panel bolts to 18 N·m (14 lb ft).

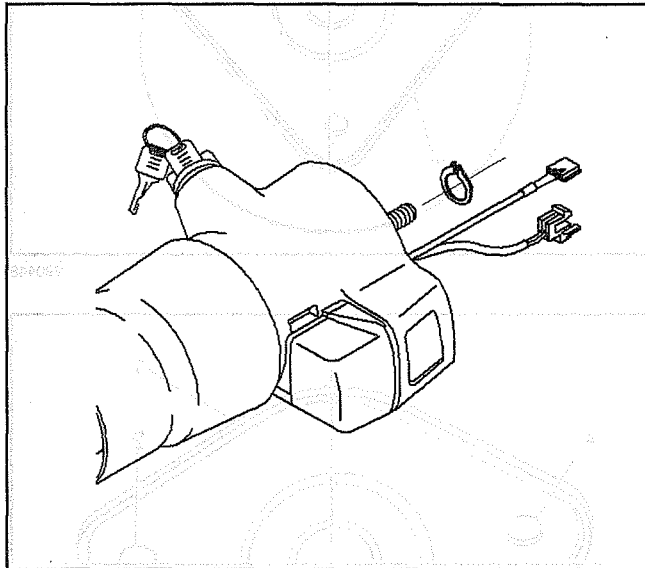
9. Install the steering wheel, if column is replaced. Refer to *Steering Wheel Replacement*.
10. Enable the SIR system.
11. Install the instrument panel driver knee bolster and deflector.
12. Install the left instrument panel insulator.



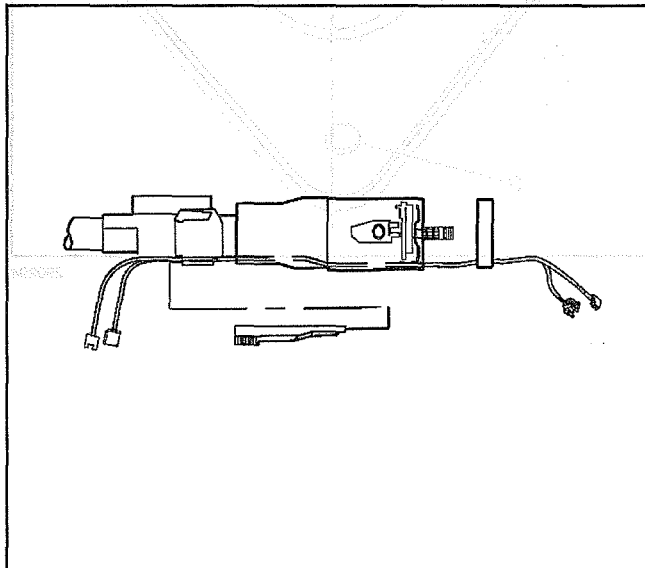
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Inflatable Restraint Steering Wheel Module Coil - Disassemble - Off Vehicle

Disassembly Procedure

Tools Required

J 41352 Modular Column Holding Fixture

1. Set the steering column and J 41352 into a vise.

Important: Align the block tooth on the race and upper shaft assembly to the 12 o'clock position.

Remove only those components necessary to do the repairs.

2. Check the steering column jacket assembly for any accident damage. Refer to *Steering Column Accident Damage Inspection - Off Vehicle*.
3. Place the ignition in the "LOCK" position to center the coil assembly.
4. Remove the wire harness assembly strap (1).
5. Remove the retaining ring from the steering shaft assembly.

6. Remove the wire harness straps and the wire protector from the steering column.
7. Disconnect the SIR coil assembly connector at the base of the steering column, if needed.
8. Remove the SIR coil assembly from the steering shaft assembly.
9. Attach mechanics wire to the SIR coil assembly connectors for reassembly.
10. Pull the SIR coil assembly connectors through the steering column, if needed.

Inflatable Restraint Steering Wheel Module Coil - Assemble - Off Vehicle

Assembly Procedure

Tools Required

J 41352 Modular Column Holding Fixture

Important: The SIR coil assembly must be centered before it is assembled on the steering shaft assembly.

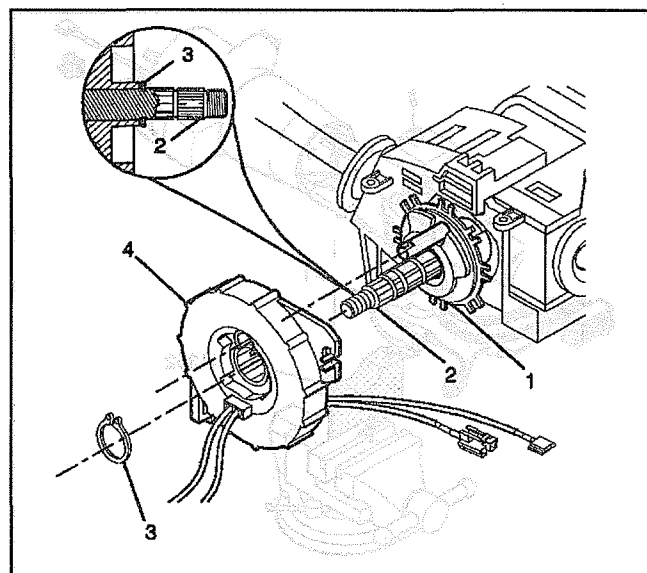
1. If reusing the original SIR coil assembly, Refer to *Inflatable Restraint Coil Centering - Off Vehicle (Column Shift And Floor Shift)*.
2. Feed the SIR coil assembly connectors through the steering column.

Important: A new SIR coil assembly will come precentered. Do not remove the orange tab until the SIR coil assembly is installed.

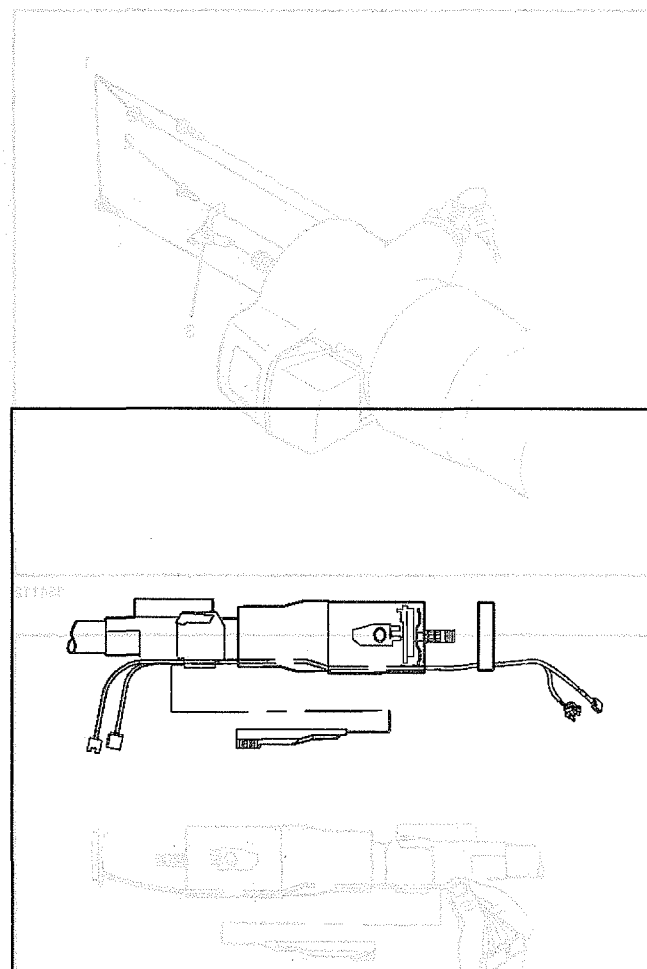
3. Install the SIR coil assembly (4) following these steps:
 - 3.1. Position the SIR coil assembly (4) to the steering shaft assembly (2).
 - 3.2. Align the opening in the SIR coil assembly (4) with the horn tower (1) and the "locating bump" between the 2 tabs on the lock housing cover and sleeve assembly.
 - 3.3. Seat the SIR coil assembly (4) onto the steering shaft assembly (2).
4. Remove and dispose of the orange tab if using a new SIR coil.
5. Install the retaining ring (3) to the steering shaft assembly (2).

Important: Pull carefully on all the wires to remove any wire kinks that may be inside the steering column assembly. If this is not done it may cause damage to the wire harness.

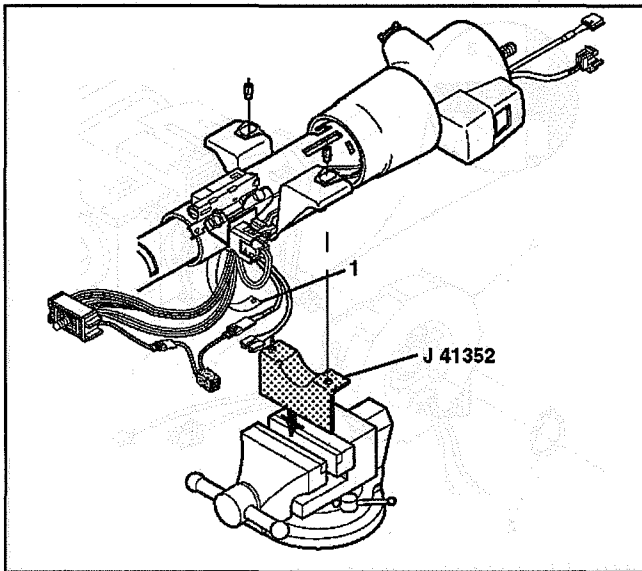
6. Install the wiring protector and the wire harness straps to the steering column.
7. Connect the SIR coil assembly connector at the base of the column.



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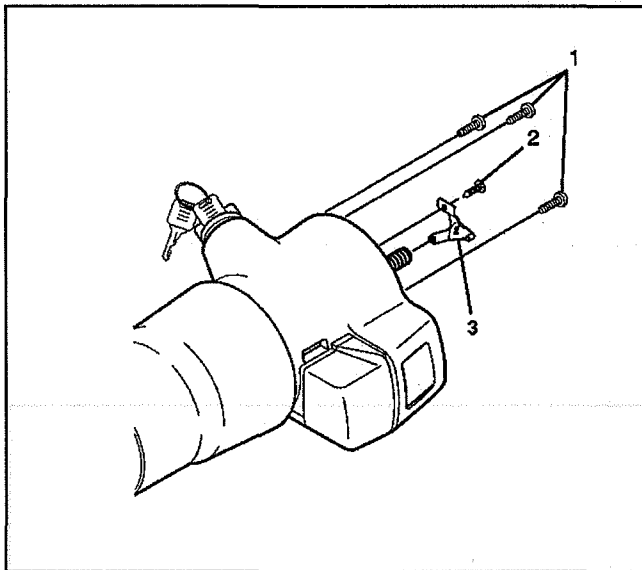


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8. Install the small wire harness straps.
9. Install the wire harness assembly strap (1).
10. Remove the steering column and J 41352 from the vise.

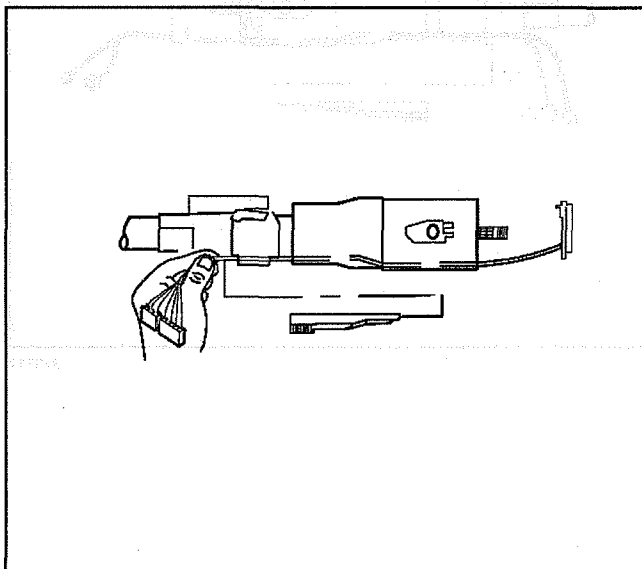


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Turn Signal and Multifunction Switch Assembly - Disassemble - Off Vehicle

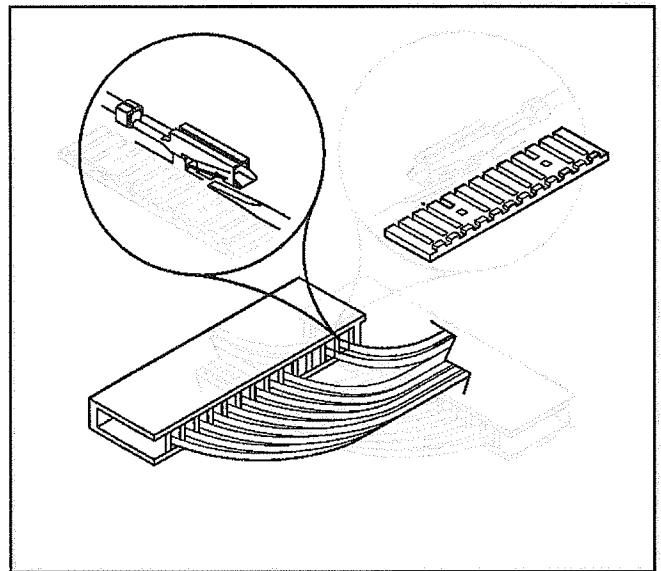
Disassembly Procedure

1. Remove the tilt lever.
2. Remove the multifunction lever.
3. Remove the hazard knob.
4. Remove the turn signal cancel cam assembly. Refer to *Turn Signal Cancel Cam and Upper Bearing Inner Race - Disassemble - Off Vehicle*.
5. Remove the round washer head screw (2) from the signal switch arm assembly (3).
6. Pry out the signal switch arm assembly (3) from the lock housing cover and sleeve assembly.
7. Remove the 3 pan head 6 lobed socket screws (1) from the turn signal switch assembly.
8. In order to remove the turn signal switch assembly, use the following steps:
 - 8.1. Remove the steering column wire harness strap.
 - 8.2. Remove the wiring protector.



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9. Disconnect the terminal connector from the turn signal switch assembly connector.
10. Pull the turn signal switch assembly connector through the steering column, if needed.

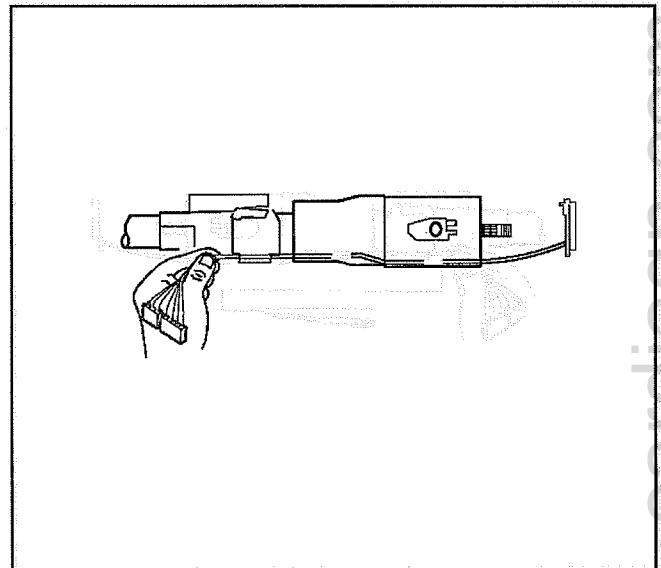


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Turn Signal and Multifunction Switch Assembly - Assemble - Off Vehicle

Assembly Procedure

1. Thread the turn signal switch assembly connector through the lock housing cover and sleeve assembly, if the switch is hanging.



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

2. Install the turn signal switch assembly and secure using 3 pan head 6 lobed socket screws (1).

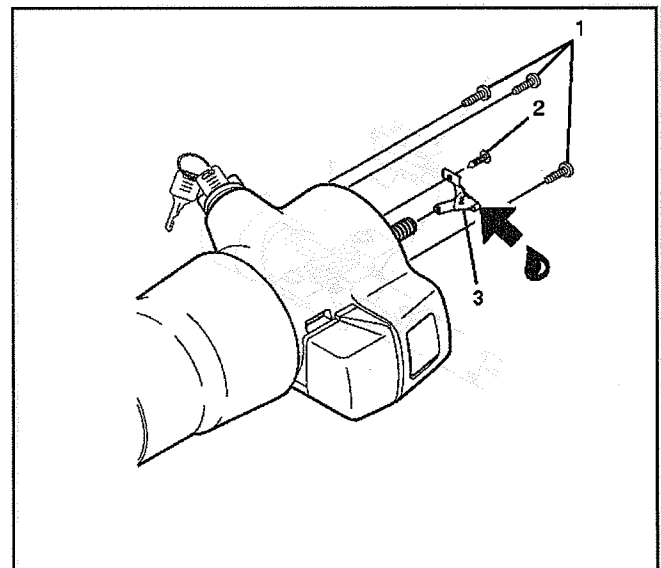
Tighten

Tighten the 3 pan head 6 lobed socket screws to 3.5 N·m (31 lb in).

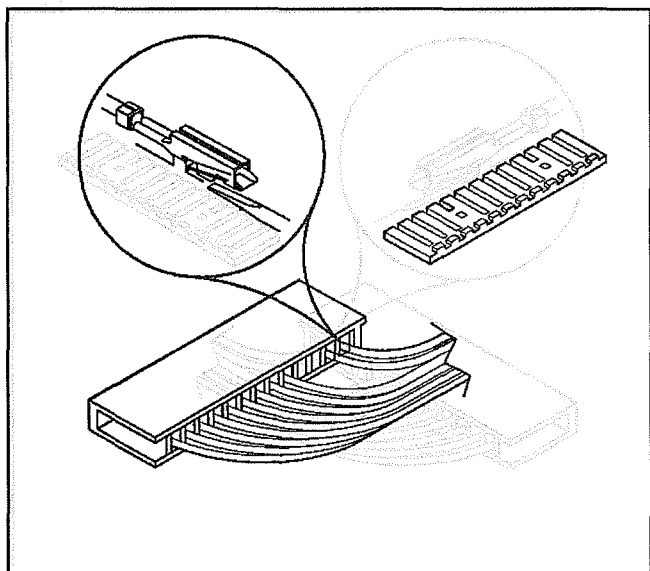
3. Lubricate the signal switch arm assembly (3) with lithium grease.
4. Install the signal switch arm assembly (3) onto the turn signal switch assembly.
5. Secure the signal switch arm assembly (3) using the round washer head screw (2).

Tighten

Tighten the screw to 2.5 N·m (22 lb in).

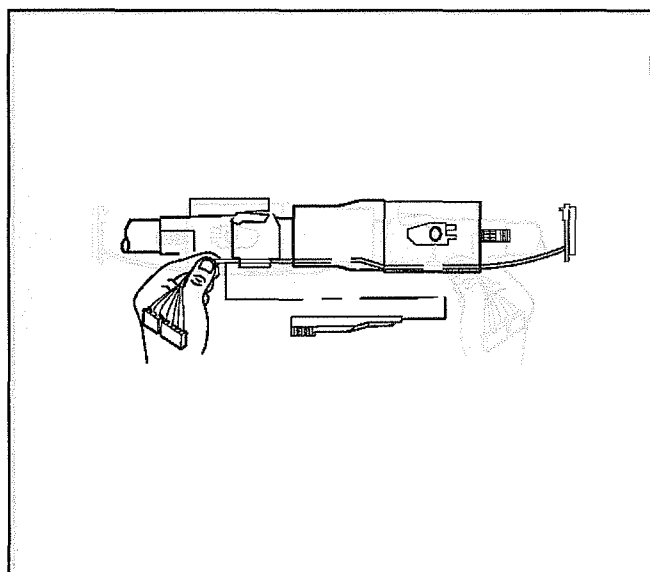


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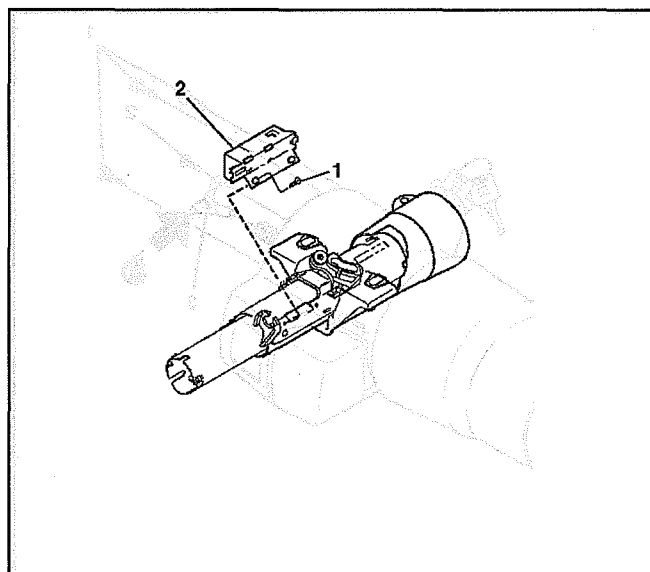
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6. Install the terminal connector to the turn signal switch assembly connector.

7. Pull the turn signal switch assembly connector towards the base of the column.
8. Insert the wiring protector into the steering column bracket.
9. Insert the steering column wire harness into the steering column wire harness strap.
10. Install the turn signal cancel cam assembly. Refer to *Turn Signal Cancel Cam and Upper Bearing Inner Race - Assemble - Off Vehicle*.
11. Install the tilt lever.
12. Install the multifunction lever.
13. Install the hazard knob.

Ignition Switch Assembly - Disassemble - Off Vehicle

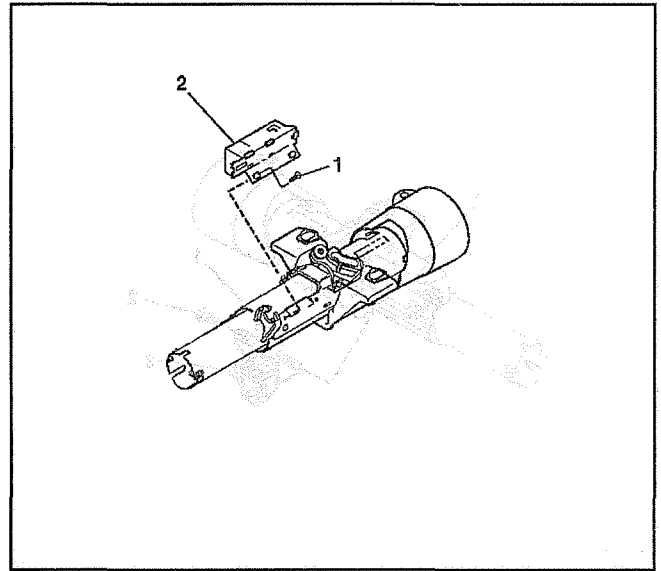
Disassembly Procedure

1. Remove the dimmer switch assembly. Refer to *Dimmer Switch Assembly - Disassemble - Off Vehicle*.
2. Slide the vehicle wire harness from the ignition switch assembly (2).
3. Remove the flat head screw (1) from the ignition switch assembly (2).
4. Remove the ignition switch assembly (2) from the ignition switch rod actuator assembly.

Ignition Switch Assembly - Assemble - Off Vehicle

Assembly Procedure

1. Install the vehicle wire harness into the ignition switch assembly (2).
2. Install the ignition switch assembly (2) to the ignition switch actuator assembly.
3. Install the flat head screw (1) to the ignition switch assembly (2).
4. Tighten the flat head screw (1) finger tight.



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5. Move the ignition switch assembly slider (2) to the far right position.
6. Move the ignition switch assembly slider (2) detent to the left. This is the OFF LOCK position.
7. Install a 3/32 inch drill bit into the hole on the ignition switch assembly (1) to limit travel.
8. Push against the ignition switch actuator assembly to limit all the lash.

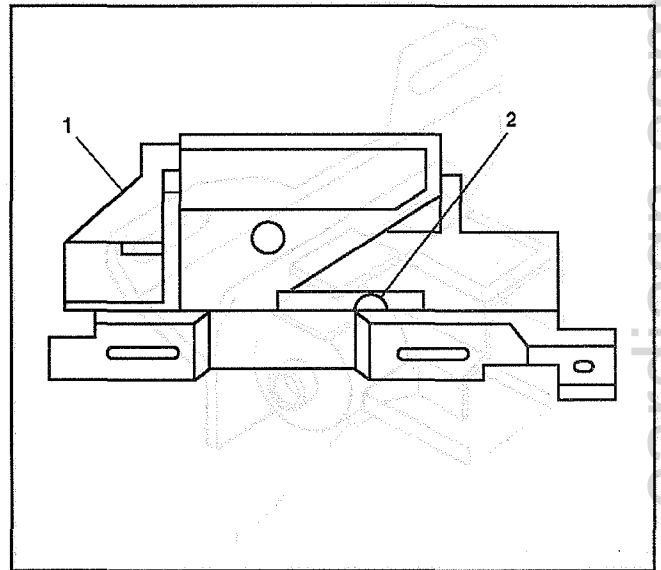
Notice: Refer to *Fastener Notice* in Cautions and Notices.

9. Install the flat head screw.

Tighten

Tighten the screw to 4 N·m (35 lb in).

10. Install the dimmer switch assembly. Refer to *Dimmer Switch Assembly - Assemble - Off Vehicle*.



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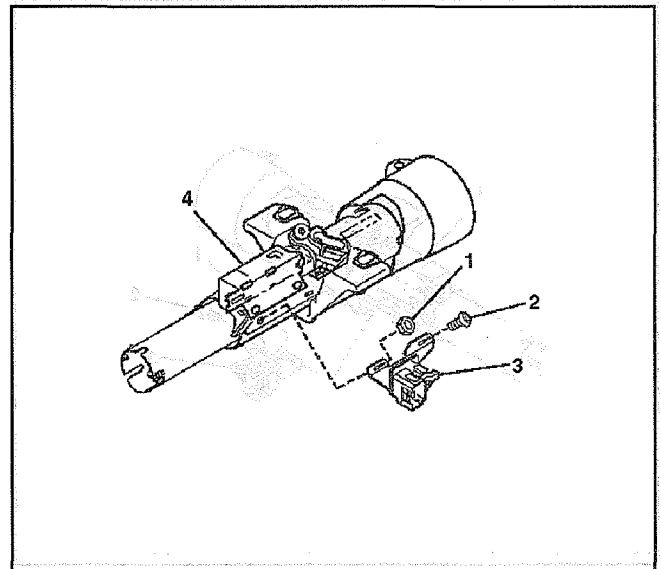
Dimmer Switch Assembly - Disassemble - Off Vehicle

Disassembly Procedure

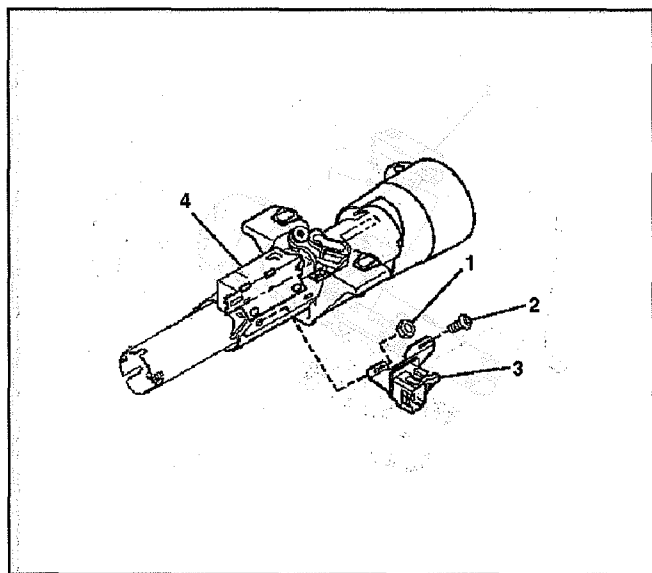
Tools Required

J 41352 Modular Column Holding Fixture

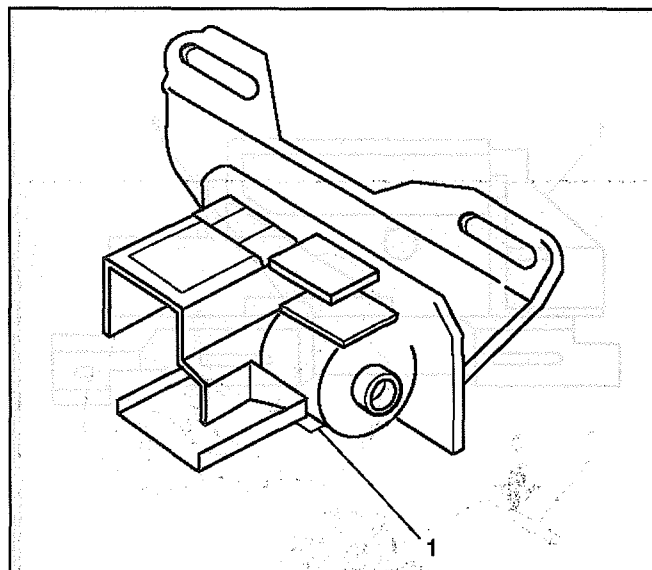
1. Insert the steering column and J 41352 into a vise.
2. Remove the hexagon washer head tapping screw (1) from the dimmer switch assembly (3).
3. Remove the washer head screw (2) from the dimmer switch assembly (3).
4. Remove the dimmer switch rod from the dimmer switch assembly (3).
5. Remove the dimmer switch assembly (3) from the ignition switch assembly (4).
6. Remove the dimmer switch assembly (3) from the vehicle wire harness.



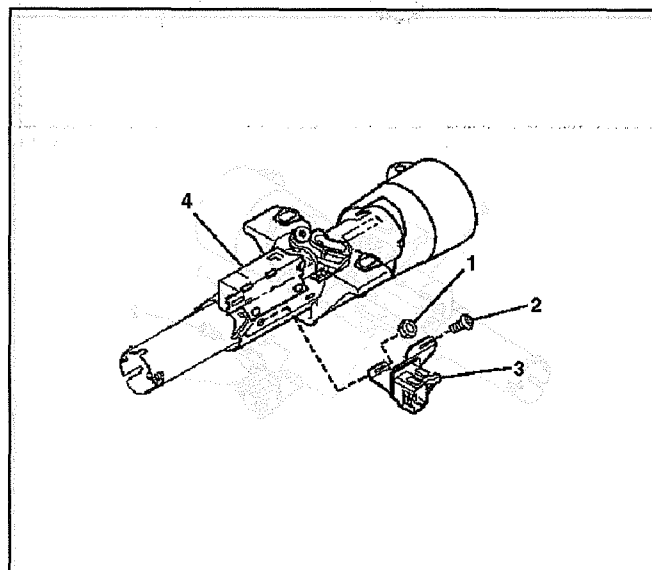
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Dimmer Switch Assembly - Assemble - Off Vehicle

Assembly Procedure

Tools Required

J 41352 Modular Column Holding Fixture

1. Install the dimmer switch assembly (3) to the ignition switch assembly (4).
2. Install the hexagon washer head tapping screw (1) to the dimmer switch assembly (3).
3. Tighten the hexagon washer head tapping screw (1) finger tight.
4. Install the washer head screw (2) to the dimmer switch assembly (3).
5. Tighten the washer head screw (2) finger tight.
6. Insert the dimmer switch rod into the slot on the dimmer switch assembly (3).

7. Adjust the dimmer switch assembly following these steps:
 - 7.1. Install a 3/32 inch drill bit into the hole (1) on the dimmer switch assembly to limit travel.
 - 7.2. Position the dimmer switch assembly onto the column and push it against the dimmer switch actuator rod to remove all the lash.
 - 7.3. Remove the drill bit.

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

8. Install the hexagon washer head screw (1).

Tighten

Tighten the hexagon washer head screw to 2.5 N·m (22 lb in).

9. Install the washer head screw (2).

Tighten

Tighten the washer head screw to 4 N·m (35 lb in).

10. Insert the vehicle wire harness into the dimmer switch assembly (3).
11. Remove the steering column and J 41352 from the vise.

Windshield Wiper and Washer Switch Assembly - Disassemble - Off Vehicle

Disassembly Procedure

1. Remove the lock housing cover and sleeve assembly. Refer to *Lock Housing Assembly - Disassemble - Off Vehicle*.
2. Remove the switch actuator pivot pin (2) from the pivot and pulse switch assembly (1).
3. If removal of the pivot and pulse switch assembly (1) is not needed let the pivot and pulse switch assembly (1) hang freely.
4. Remove the pivot and pulse switch assembly (1) from the lock housing cover and sleeve assembly following these steps:
 - 4.1. Remove the wire protector shield.
 - 4.2. Remove the pivot and pulse switch assembly connector from the bulk head connector.

Important: Use care not to damage the wires when pulling the pivot and pulse switch assembly wire harness through the steering column.

- 4.3. Pull the wire harness through the steering column.

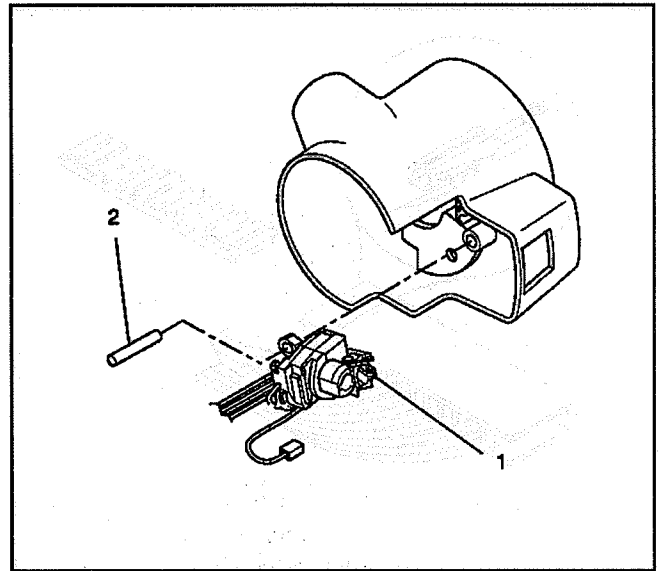
Windshield Wiper and Washer Switch Assembly - Assemble - Off Vehicle

Assembly Procedure

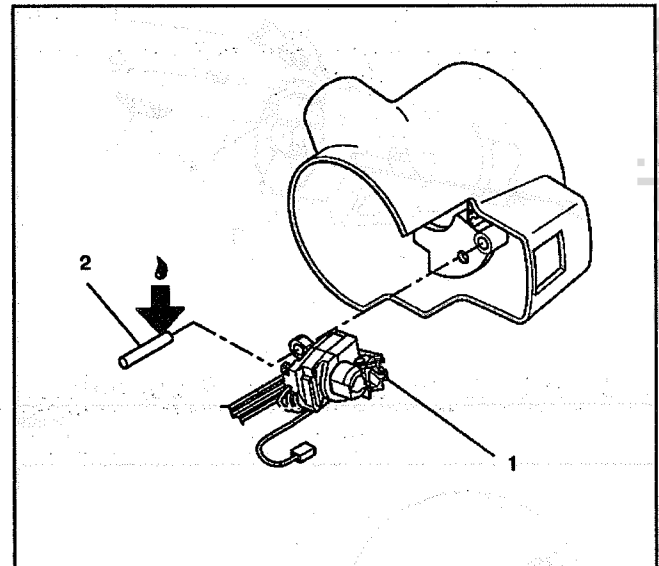
1. Install the pivot and pulse switch assembly to the lock housing cover and sleeve assembly.
2. Lubricate the switch actuator pivot pin (2) with lithium grease.
3. Install the switch actuator pivot pin (2) into the pivot and pulse switch assembly (1) and the lock housing cover and sleeve assembly.

Important: Use care not to damage the wires when pulling the pivot and pulse switch assembly wire harness through the steering column.

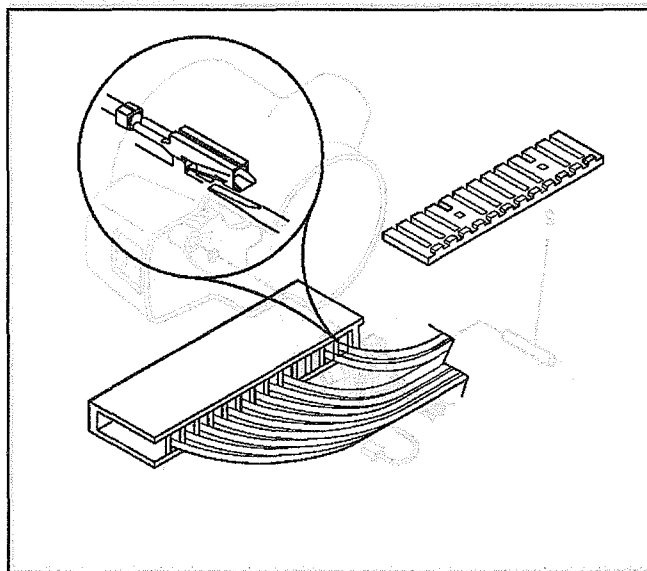
4. Pull the pivot and pulse switch assembly wire harness through the steering column.
5. Install the pivot and pulse switch assembly connector to the bulkhead connector.
6. Install the wire protector shield.
7. Install the lock housing cover and sleeve assembly. Refer to *Lock Housing Assembly - Assemble - Off Vehicle*.



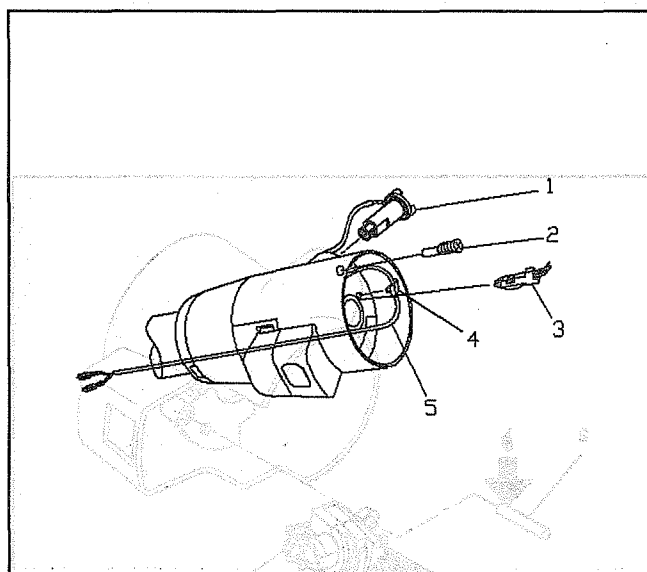
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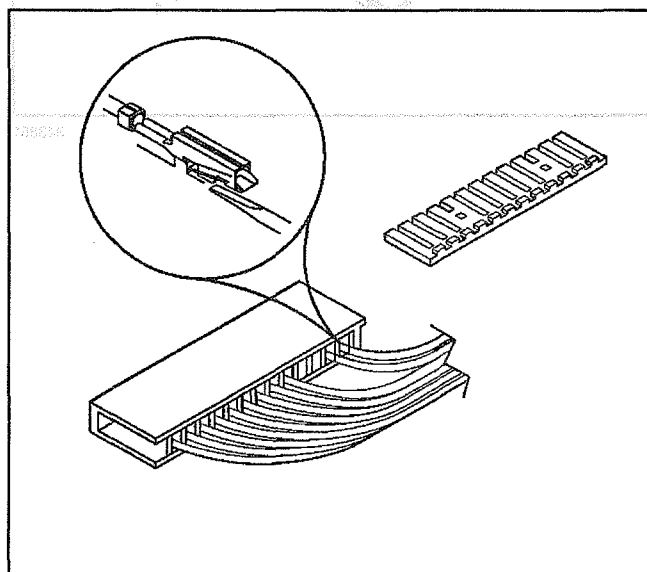
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Steering Column Lock Cylinder Set - Disassemble - Off Vehicle

Disassembly Procedure

Important: The turn signal switch assembly does not have to be pulled through the column when removing unless necessary. Let the turn signal switch assembly hang freely after removal of the screws.

1. Remove the turn signal switch assembly. Refer to *Turn Signal and Multifunction Switch Assembly - Disassemble - Off Vehicle*.
2. Put the key in the LOCK position.
3. Disconnect the steering column key lock cylinder set terminal connectors.
4. Attach a wire to the terminal connectors. This will make installation easier.

5. Remove the buzzer switch assembly (3).
6. Remove the lock retaining screw (2).
7. Remove the retaining clip (4) from the steering column lock cylinder set terminal connector (5).
8. Remove the steering column lock cylinder set (1).
9. Gently pull the terminal connectors (5) through the column.

Steering Column Lock Cylinder Set - Assemble - Off Vehicle

Assembly Procedure

1. Pull the steering column lock cylinder set terminal connectors through the column and reconnect.

- Put the steering column passkey lock cylinder set (1) into the lock housing cover assembly.

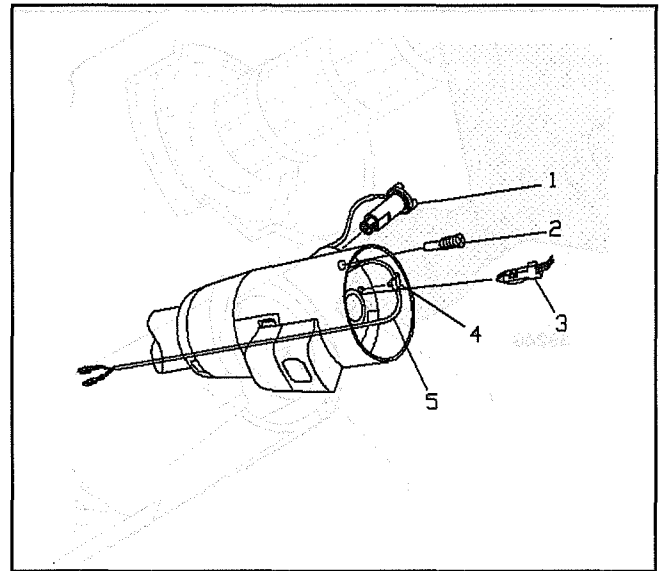
Notice: Refer to *Fastener Notice* in Cautions and Notices.

- Install the lock retaining screw (2).

Tighten

Tighten the screw to 2.5 N·m (22 lb in).

- Install the buzzer switch assembly (3).
- Install the retaining clip (4) onto the steering column passkey lock cylinder set terminal lead and the lock housing cover assembly.
- Install the turn signal switch assembly. Refer to *Turn Signal and Multifunction Switch Assembly - Assemble - Off Vehicle*.



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Tilt Spring - Disassemble - Off Vehicle

Disassembly Procedure

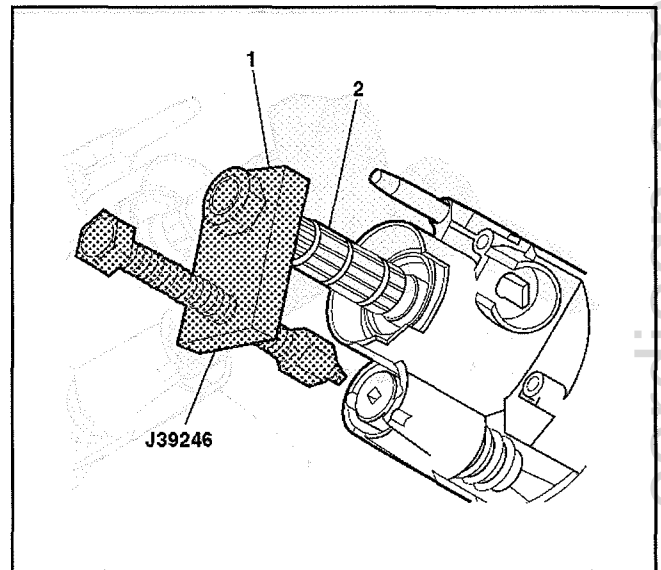
Tool Required

J 39246 Tilt Spring Compressor

- Remove the lock housing cover and sleeve assembly. Refer to *Lock Housing Assembly - Disassemble - Off Vehicle*.

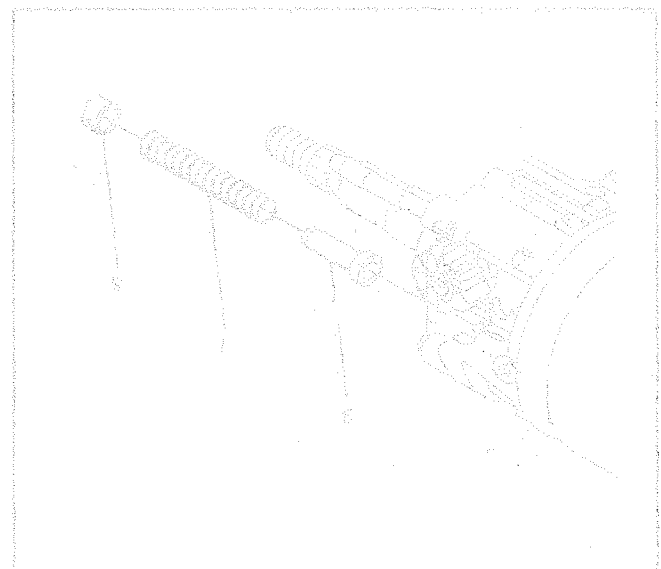
Caution: The tilt spring and the spring guide are under pressure. The tilt spring and the spring guide may become a projectile. Secure the spring with locking pliers during removal. Secure the spring with locking pliers during installation. Bodily injury may result during removal and installation of the tilt spring and the spring guide. Always use caution during removal and installation of the tilt spring and the spring guide.

- Seat the counterbore of J 39246 over the steering shaft assembly (1).
- Thread and seat the standard hexagon nut of the tool onto the steering shaft assembly (2).
- Thread the hexagon nut of the tool until it contacts the block of J 39246.

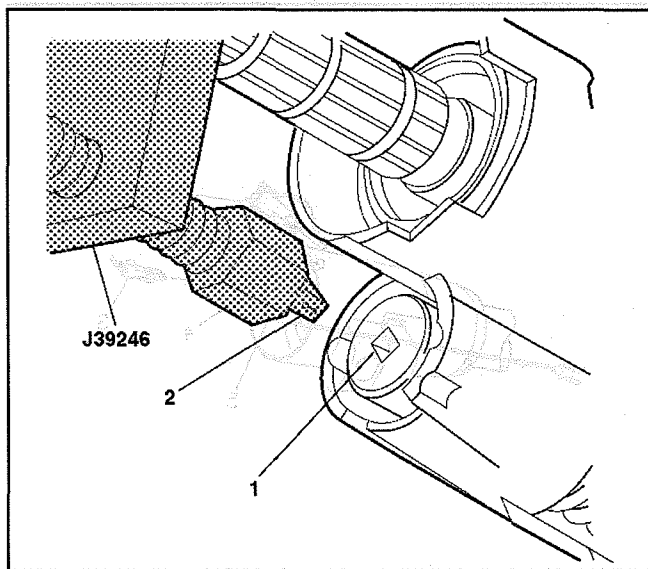


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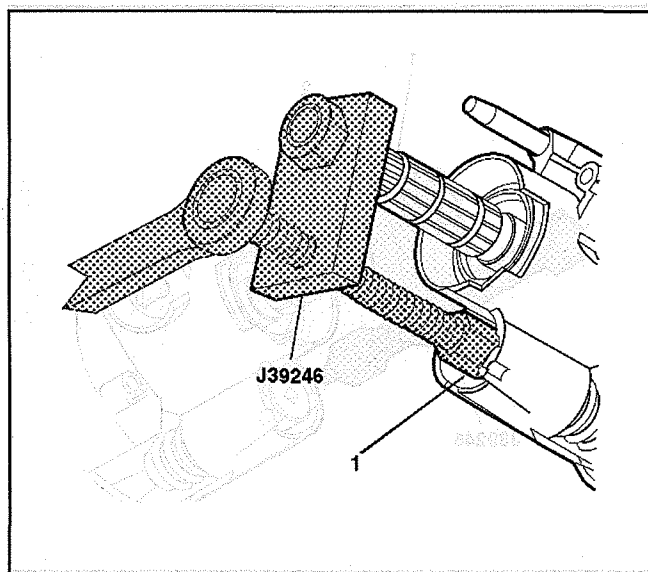
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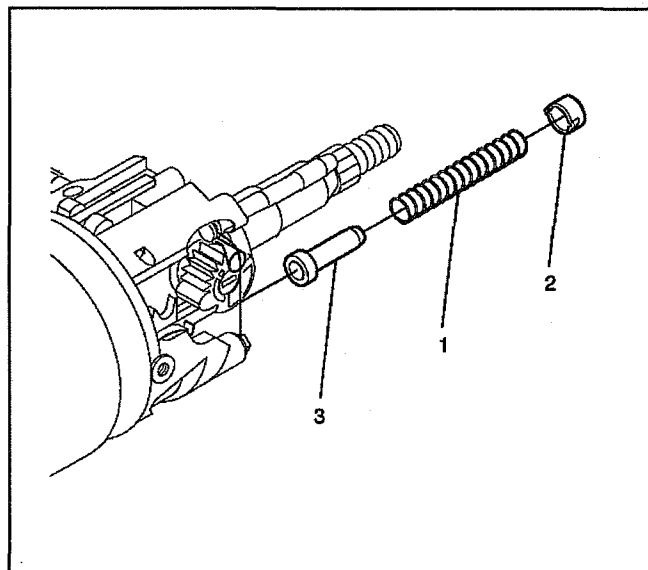
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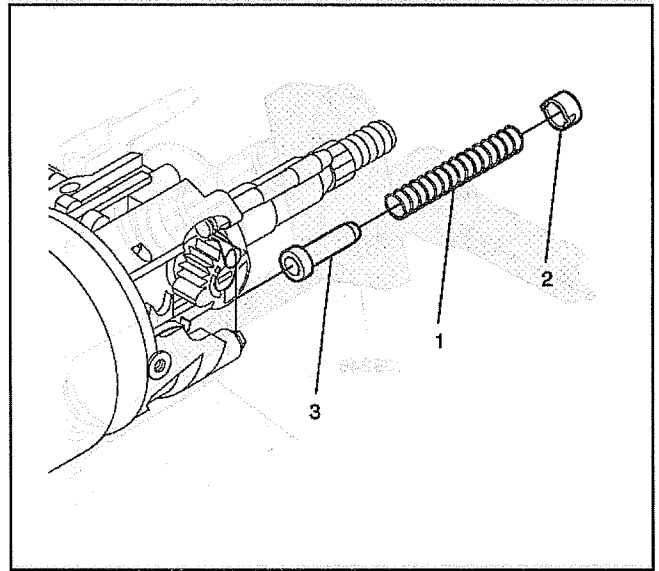
5. Insert the square end (2) of J 39246 into the spring retainer (1) and seat.

6. Rotate the tool bolt clockwise with the wrench until it contacts the surface of the tool block.
7. Make a one fourth turn counter clockwise to the hexagon section on the end of the tool bolt.
8. Unscrew the tool bolt until the wheel tilt spring and the spring retainer (1) are free.

9. Remove the spring retainer (2) from the steering column housing assembly.
10. Remove the wheel tilt spring (1) from the steering column housing assembly.
11. Remove the spring guide (3) from the steering column housing assembly.

Tilt Spring - Assemble - Off Vehicle**Assembly Procedure****Tools Required****J 39246 Tilt Spring Compressor**

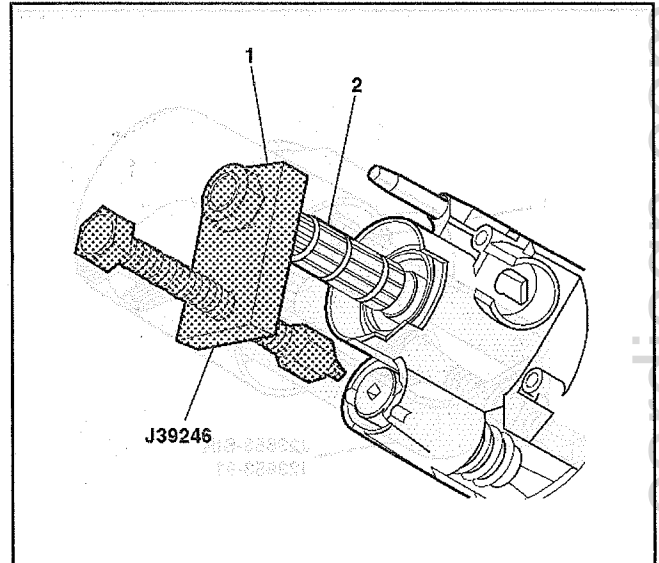
1. Install the spring guide (3) to the steering column housing assembly.
2. Lubricate the wheel tilt spring (1) with lithium grease.
3. Install the wheel tilt spring (1) to the steering column housing assembly.
4. Install the spring retainer (2) to the steering column housing assembly.



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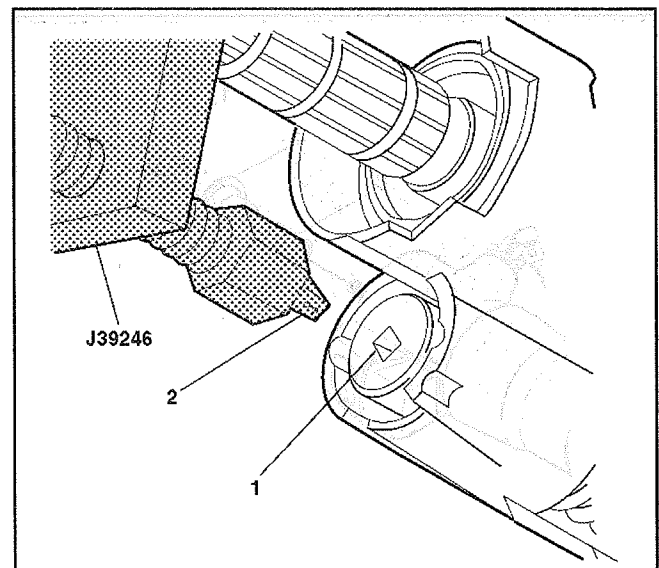
Caution: The tilt spring and the spring guide are under pressure. The tilt spring and the spring guide may become a projectile. Secure the spring with locking pliers during removal. Secure the spring with locking pliers during installation. Bodily injury may result during removal and installation of the tilt spring and the spring guide. Always use caution during removal and installation of the tilt spring and the spring guide.

5. Seat the counterbore of J 39246 over the steering shaft assembly (2).
6. Thread and seat the standard hexagon nut onto the steering shaft assembly (2).
7. Thread the hexagon nut until it contacts the block (1) of J 39246.

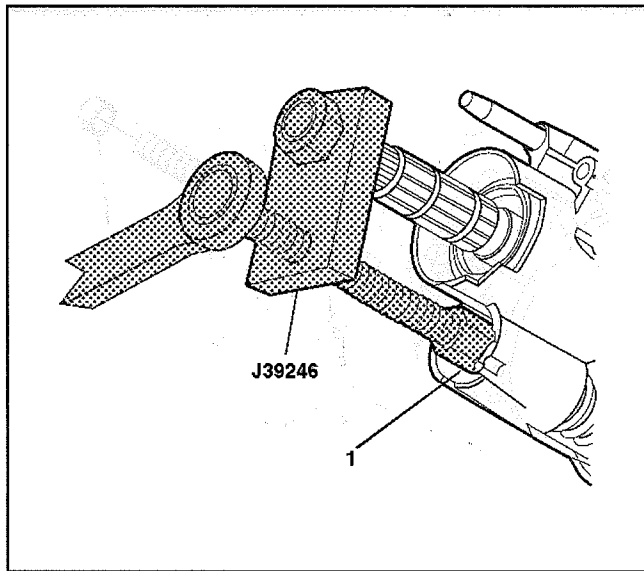


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8. Insert the square end (2) of J 39246 into the spring retainer (1) and seat.

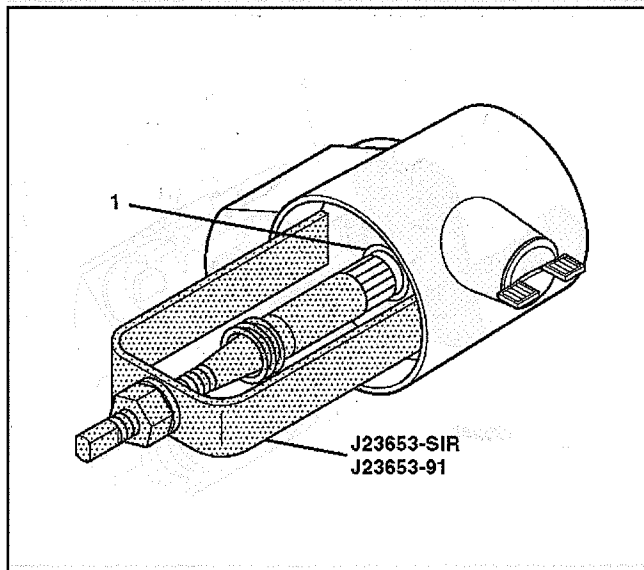


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569765

9. Rotate the tool bolt clockwise with a wrench until it contacts the surface of the tool block.
10. Make a one fourth turn counter clockwise to the hexagon section on the end of the tool bolt.
11. Unscrew the tool bolt until the wheel tilt spring and the spring retainer (1) are free.
12. Remove J 39246.
13. Install the lock housing cover and sleeve assembly. Refer to *Lock Housing Assembly - Assemble - Off Vehicle*.



343728

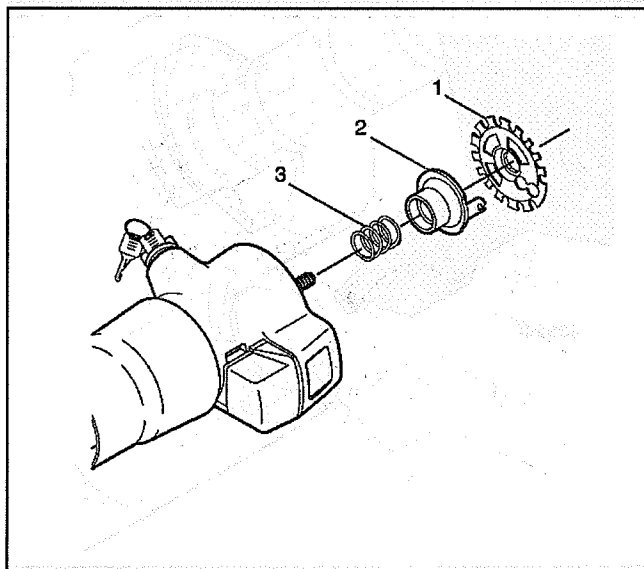
Turn Signal Cancel Cam and Upper Bearing Inner Race - Disassemble - Off Vehicle

Disassembly Procedure

Tools Required

J 23653-SIR Lock Plate Compressor

1. Remove the SIR coil assembly. Refer to *Inflatable Restraint Steering Wheel Module Coil - Disassemble - Off Vehicle*.
2. Remove the wave washer.
3. Compress the shaft lock using J 23653-SIR.
4. Remove the bearing retainer (1) from the steering shaft assembly and dispose of it.
5. Remove J 23653-SIR.

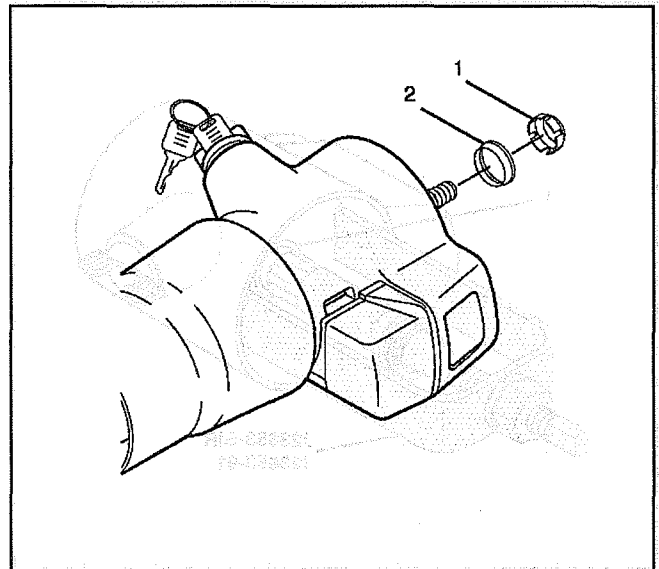


344003

6. Remove the following 3 parts from the steering shaft assembly:
 - 6.1. Remove the shaft lock shield assembly (1).
 - 6.2. Remove the turn signal cancel cam assembly (2).
 - 6.3. Remove the upper bearing spring (3).

7. Remove the following 2 parts from the steering shaft assembly:

- 7.1. Remove the upper bearing inner race seat (1).
- 7.2. Remove the inner race (2).



344004

Turn Signal Cancel Cam and Upper Bearing Inner Race - Assemble - Off Vehicle

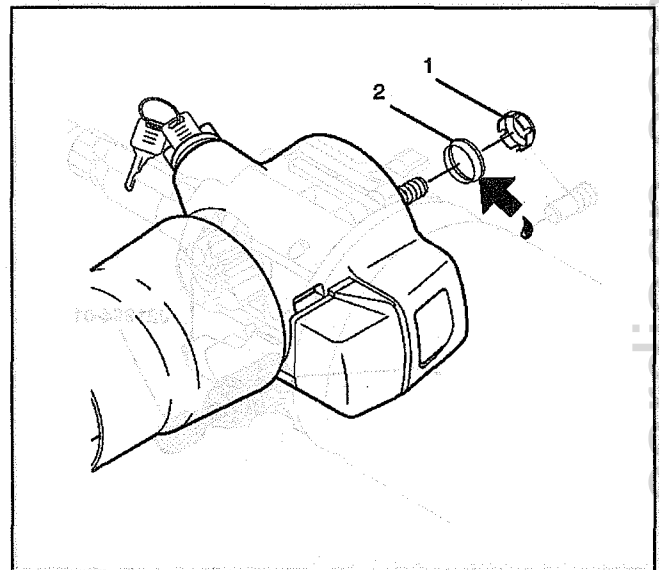
Assembly Procedure

Tools Required

J 23653-SIR Lock Plate Compressor

1. Install the following 2 parts onto the steering shaft assembly:

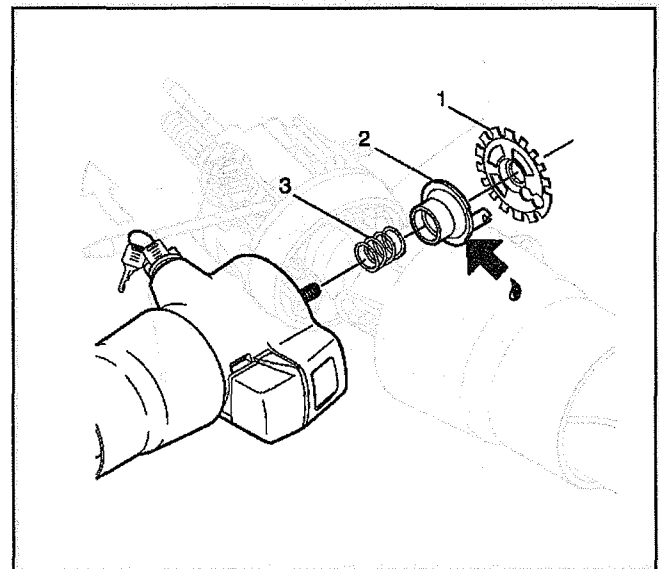
- 1.1. Lubricate the inner race (2) with lithium grease.
- 1.2. Install the inner race (2).
- 1.3. Install the upper bearing inner race seat (1).



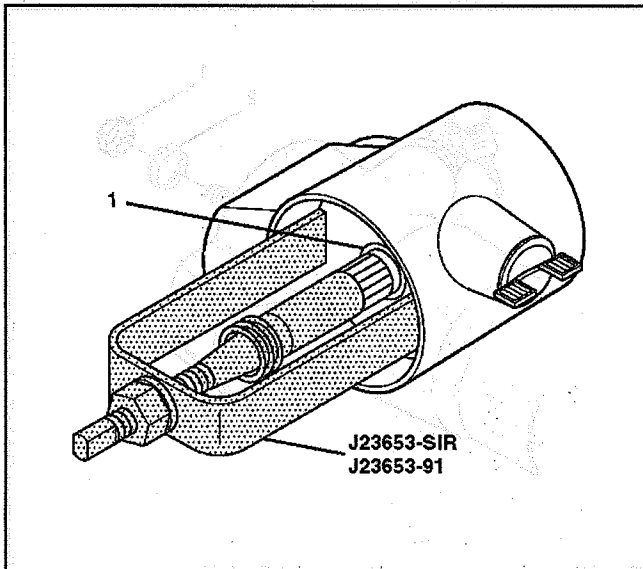
343818

2. Install the following 3 parts onto the steering shaft assembly:

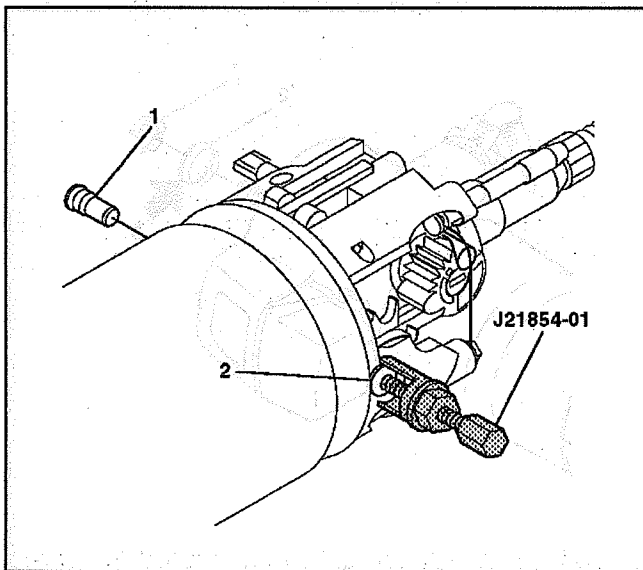
- 2.1. Install the upper bearing spring (3).
- 2.2. Lubricate the turn signal cancel cam assembly (2) with grease kit 26001884.
- 2.3. Install the turn signal cancel cam assembly (2).
- 2.4. Install the shaft lock (1).



343821



3. Install the new bearing retainer (1) using *J 23653-SIR*.
4. Seat the bearing retainer (1) in the groove on the steering shaft assembly.
5. Remove *J 23653-SIR*.
6. Install the wave washer.
7. Install the SIR coil assembly. Refer to *Inflatable Restraint Steering Wheel Module Coil - Assemble - Off Vehicle*.

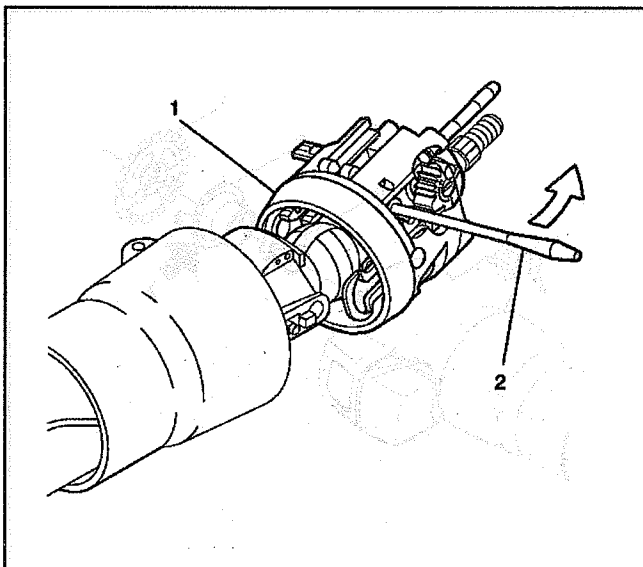


Steering Column Jacket - Disassemble - Off Vehicle

Disassembly Procedure

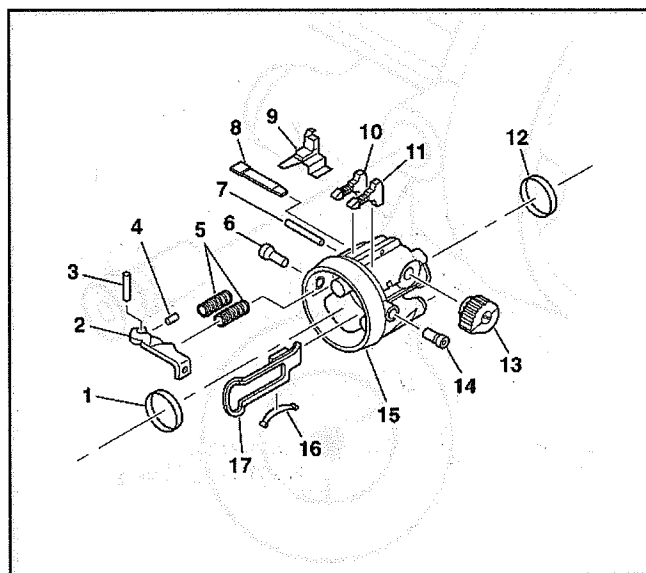
Tools Required

- *J 38639* Steering Column Housing Bearing Installer
 - *J 8092* Driver Handle
 - *J 22635* Lock Shoe and Release Lever Pin Remover and Installer
 - *J 21854-01* Pivot Pin Remover
1. Remove the tilt spring assembly. Refer to *Tilt Spring - Disassemble - Off Vehicle*.
 2. Remove 2 pivot pins (1) and (2) using *J 21854-01*.



3. Use the tilt lever (2) to pull back on the steering column housing assembly (1) to release.
4. Remove the tilt lever (2).

5. Disassemble the steering column housing assembly, if needed:
 - 5.1. Remove the bearing assembly (12).
 - 5.2. Remove the wire protector shield (9).
 - 5.3. Remove the switch actuator rack (17) and the rack preload spring (16).
 - 5.4. Remove the drive shaft (8).
 - 5.5. Remove the switch actuator sector (13).
 - 5.6. Release the release lever pin (3) using *J 22635*.
 - 5.7. Remove the shoe release lever (2).
 - 5.8. Remove the release lever spring (4).
 - 5.9. Remove the dowel pin (7).
 - 5.10. Remove the steering wheel lock shoes (10) and (11) using *J 22635* and the shoe springs (5).
 - 5.11. Remove the bearing assembly (1).



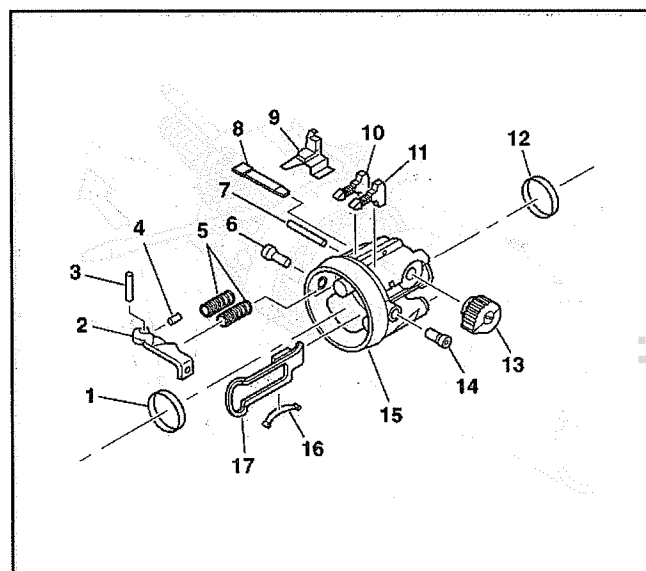
354085

Steering Column Jacket - Assemble - Off Vehicle

Assembly Procedure

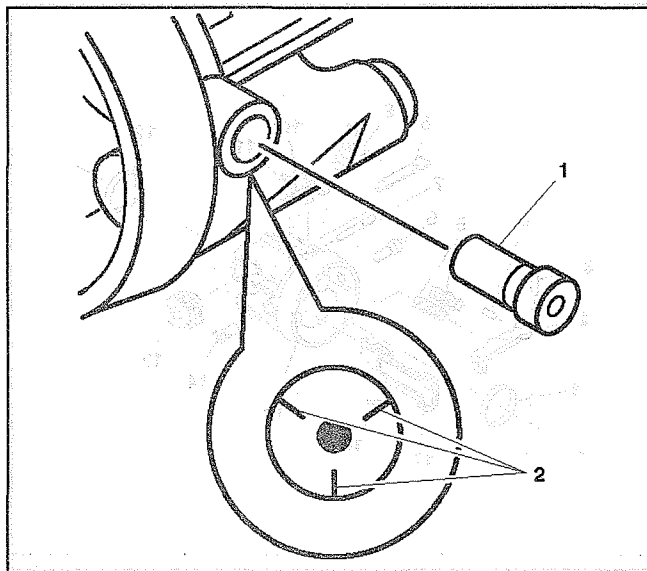
Tools Required

- *J 38639* Steering Column Housing Bearing Installer
 - *J 8092* Driver Handle
 - *J 22635* Lock Shoe and Release Lever Pin Remover and Installer
1. To assemble the steering column housing assembly if needed:
 2. Install the bearing assembly (1).
 3. Install the shoe springs (5).
 4. Install the steering wheel lock shoes (10) and (11).
 5. Install the dowel pin (7).
 6. Install the release lever spring (4).
 7. Install the shoe release lever (2).
 8. Install the release lever pin (3) using *J 22635*.
 9. Install the drive shaft (8).
 10. Install the switch actuator sector (13).
 11. Install the rack preload spring (16).
 12. Install the switch actuator rack (17) to the switch actuator sector (13).
 13. Install the bearing assembly (12) using *J 8092* and *J 38639*.
 14. Install the wire protector shield (9).

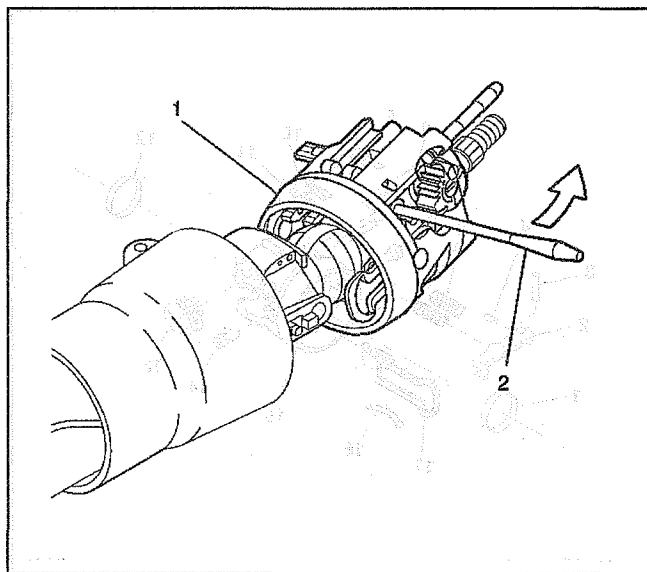


354085

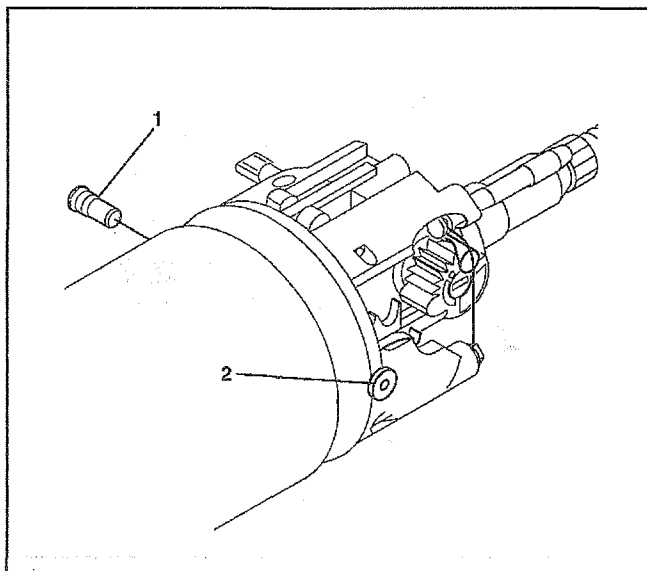




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Important: If the steering column housing assembly and the pivot pins (1) have been staked (2) 3 times it must be replaced.

15. Install the steering column housing assembly.

16. Install the steering column housing assembly following these steps:

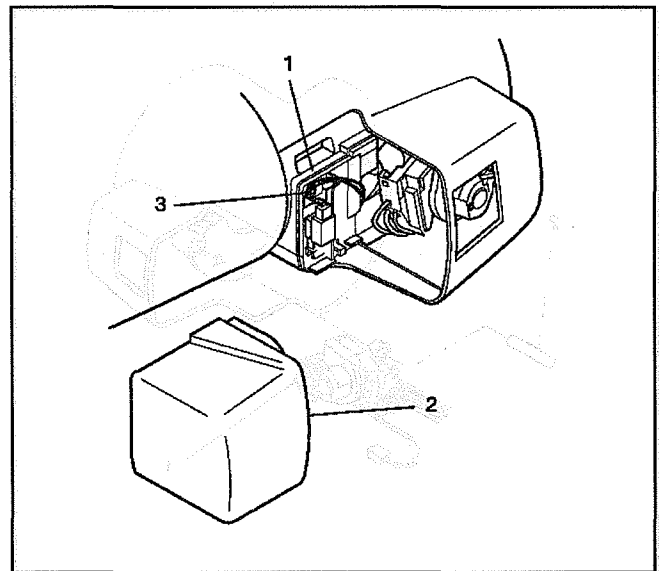
- 16.1. Install the tilt lever (2) and use it to pull back on the steering column housing assembly (1) to mount on the steering column housing support assembly.
- 16.2. Position the steering column housing assembly (1) onto the steering column housing support assembly.
- 16.3. Align the switch actuator rack with the pin on the end of the ignition switch actuator assembly.
- 16.4. Pull back on the tilt lever (2) to position the steering column housing assembly (1).
- 16.5. Push the steering column housing assembly (1) into the steering column housing support assembly.
- 16.6. Release the tilt lever (2) to lock the steering wheel lock shoes and the dowel pin.
- 16.7. Remove the tilt lever (2).

17. Install 2 pivot pins (1) and (2).
18. Press the 2 pivot pins (1) and (2) until they are firmly seated.
19. Stake the pivot pins in 3 places.
20. Install the tilt spring assembly. Refer to *Tilt Spring - Assemble - Off Vehicle*.

Lock Housing Assembly - Disassemble - Off Vehicle

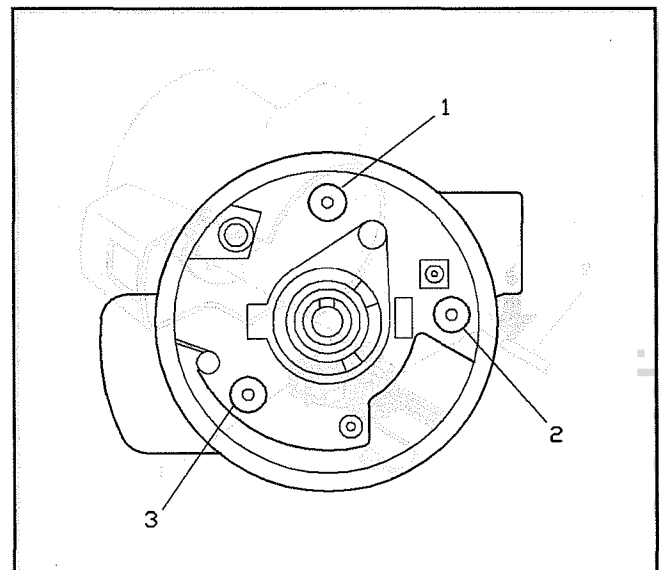
Disassembly Procedure

1. Remove the steering column lock cylinder set. Refer to *Steering Column Lock Cylinder Set - Disassemble - Off Vehicle*.
2. Remove the column housing cover end cap (2). Remove the cruise control connector (3) from the base plate (1) and disconnect.



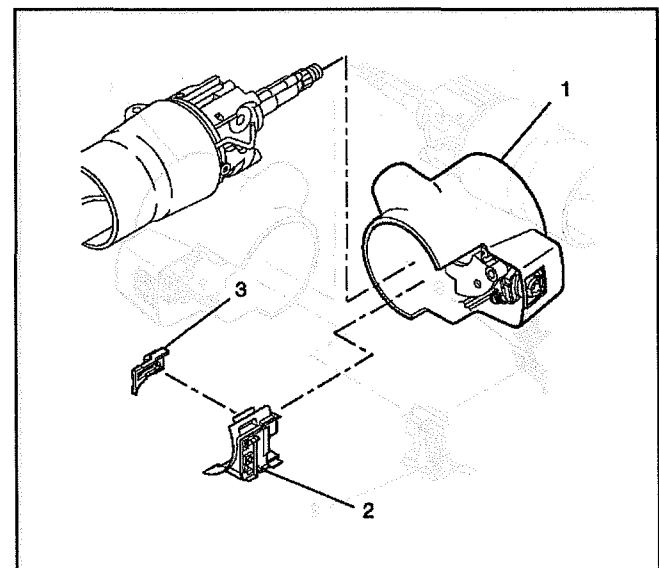
343830

3. Remove the 3 pan head 6-lobed socket tapping screws: (1) at 12 o'clock, (2) at 3 o'clock and (3) at 8 o'clock.

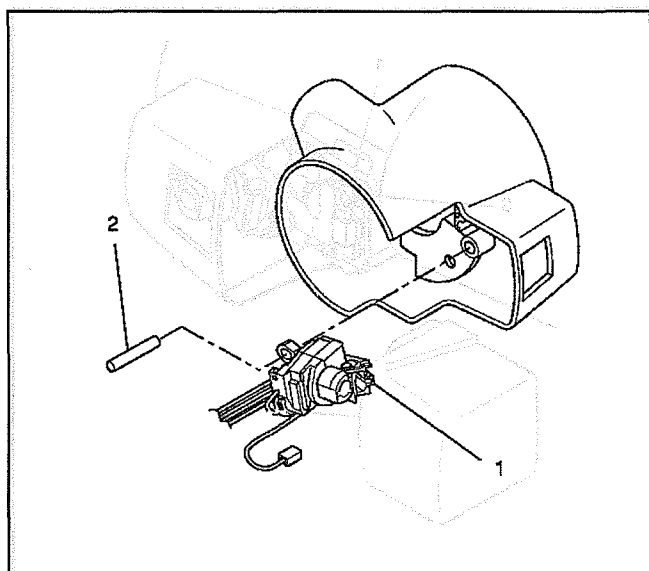


343832

4. Remove the lock housing cover and sleeve assembly (1). Remove the column housing cover end base plate (2) and the dimmer switch rod actuator (3).

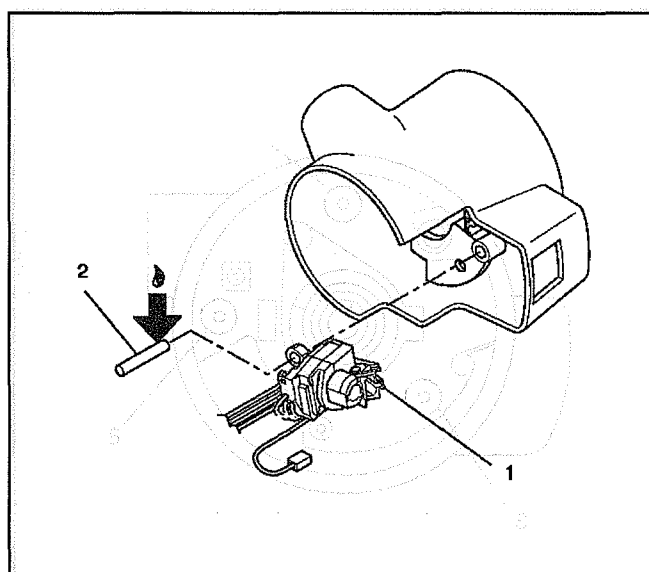


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343835

5. Remove the switch actuator pivot pin (2).
6. Remove the pivot and pulse switch assembly (1) from the lock housing cover assembly.

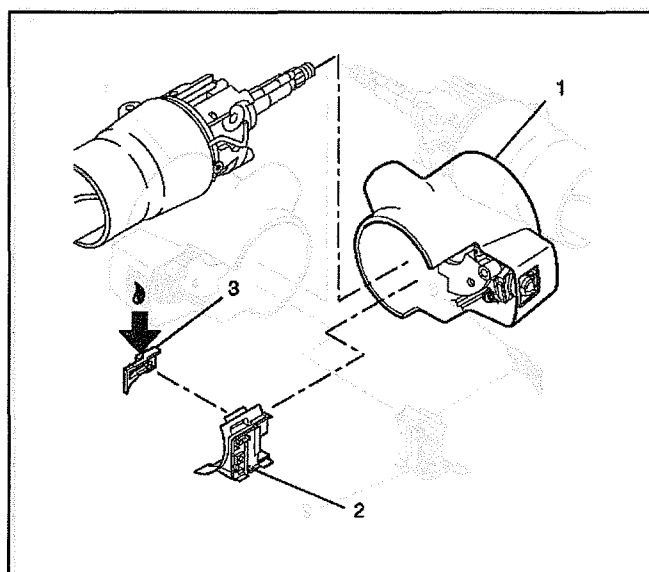


343861

Lock Housing Assembly - Assemble - Off Vehicle

Assembly Procedure

1. Lubricate the switch actuator pivot pin (2) with synthetic grease.
2. Install the switch actuator pivot pin (2) to the pivot and pulse dimmer switch assembly (1).
3. Install the pivot and pulse assembly (1) into the lock housing cover assembly.



343866

4. Lubricate the dimmer switch rod actuator (3) with lithium grease.
5. Install the dimmer switch rod actuator (3) to the column housing cover end base plate (2).
6. Install the column housing cover end base plate (2) to the lock housing cover and sleeve assembly (1).

Important: The bottom edge of the dimmer switch rod actuator must rest on the bend of the dimmer switch rod.

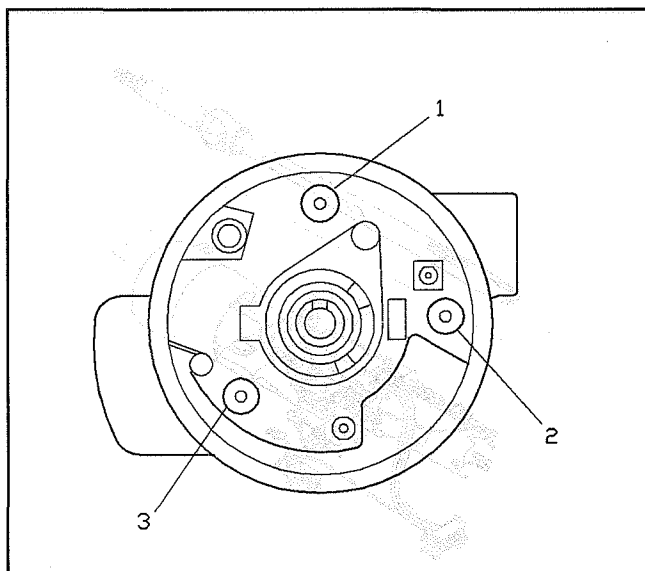
7. Align the lock housing cover and sleeve assembly (1) onto the steering column.

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

8. Install 3 pan head 6-lobe socket tapping screws: (1) at 12 o' clock position first, (3) at 8 o' clock position second, and (2) at 3 o' clock position third.

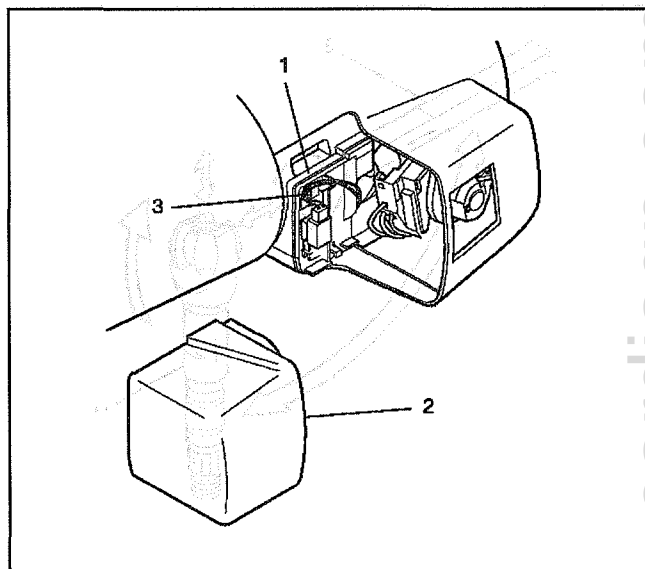
Tighten

Tighten the 3 pan head 6-lobed socket screws to 9 N·m (80 lb in).



343832

9. Mount the cruise control connector (3) on the base plate (1).
10. Install the column housing cover end cap (2).
11. Install the steering column lock cylinder set. Refer to *Steering Column Lock Cylinder Set - Assemble - Off Vehicle*.

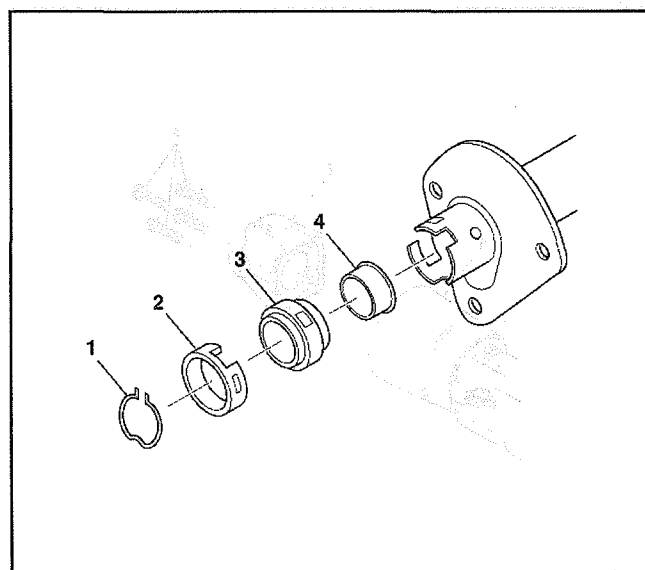


343830

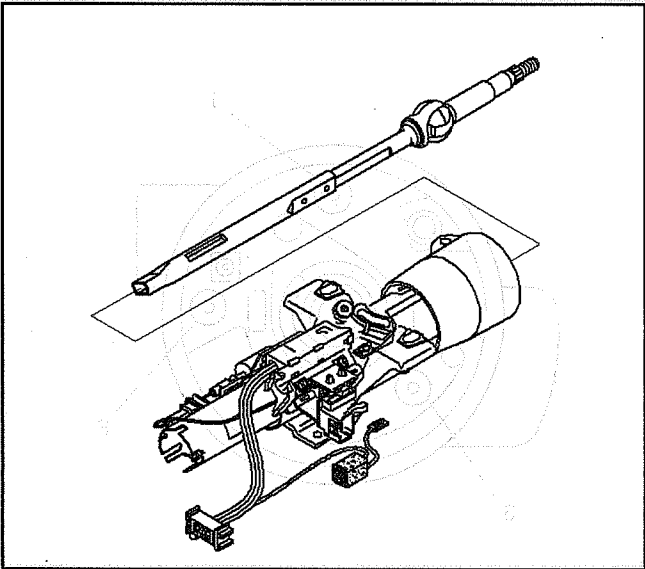
Steering Shaft, Lower Bearing, and Jacket - Disassemble - Off Vehicle

Disassembly Procedure

1. Remove the steering column housing assembly. Refer to *Steering Column Jacket - Disassemble - Off Vehicle*.
2. Remove the pivot and pulse switch assembly. Refer to *Windshield Wiper and Washer Switch Assembly - Disassemble - Off Vehicle*.
3. Remove the following 4 items from the steering column jacket assembly:
 - 3.1. Remove the lower bearing adapter clip (1).
 - 3.2. Remove the bearing adapter (2).
 - 3.3. Remove the bearing assembly (3).
 - 3.4. Remove the lower bearing adapter (4).



569761

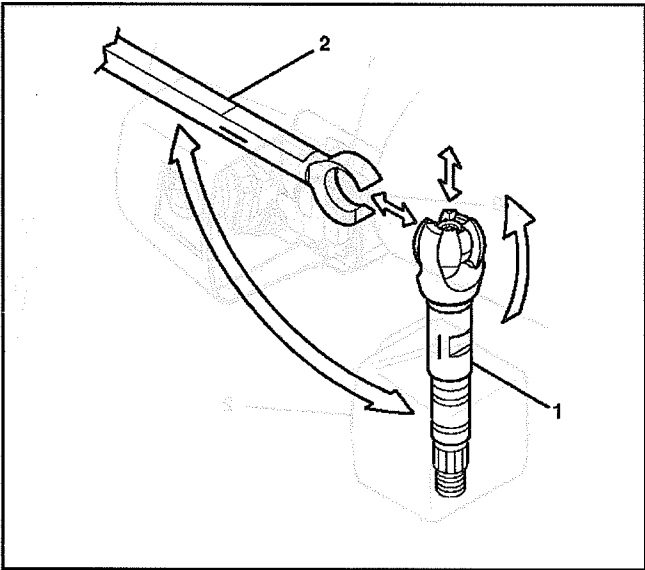


343889

4. Remove the steering shaft assembly from the steering column.

8. Install 3 pin head 8-lobe socket tapping screw (1) at 12 o'clock position first, (3) at 8 o'clock position second, and (2) at 3 o'clock position third.

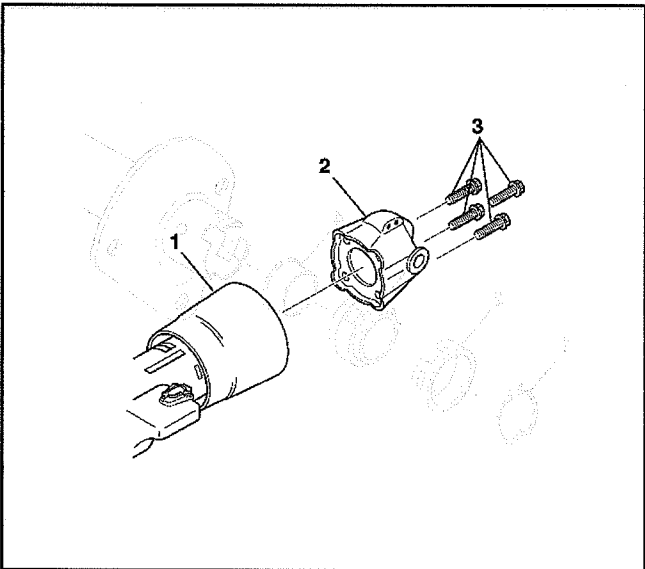
Tighten the 3 pin head 8-lobe socket screws to 9 N·m (66 lb in).



306318

Important: Mark the race and upper shaft assembly and the lower shaft assembly before disassembly. Failure to assemble the race and upper shaft assembly and the lower shaft assembly correctly will cause the steering wheel to be turned 180 degrees.

- 5. Tilt the race and upper shaft assembly (1) 90 degrees from the lower steering shaft assembly (2) to disengage.
- 6. Separate the race and upper shaft assembly (1) from the lower steering shaft assembly (2).
- 7. Remove the ignition switch assembly. Refer to *Ignition Switch Assembly - Disassemble - Off Vehicle*



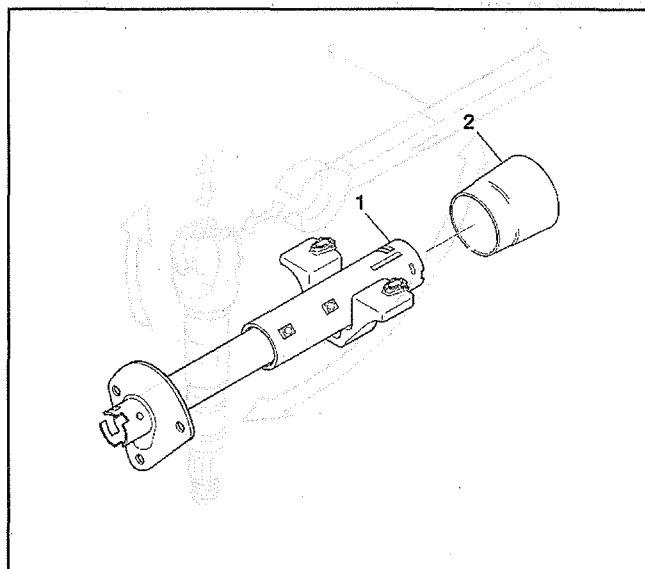
569763

8. Remove the 4 hexagon washer head tapping screws (3).

9. Remove the steering column housing support assembly (2) from the steering column housing shroud (1).

- 1. Remove the steering column housing support assembly. Refer to *Steering Column Jacket - Disassemble - Off Vehicle*
- 2. Remove the pivot and pulse switch assembly. Refer to *Windshield Wiper and Washer Switch Assembly - Disassemble - Off Vehicle*
- 3. Remove the following 4 items from the steering column jacket assembly:
 - 3.1. Remove the lower bearing adapter (4).
 - 3.2. Remove the bearing adapter (5).
 - 3.3. Remove the bearing assembly (6).
 - 3.4. Remove the lower bearing adapter (7).

10. Remove the steering column shroud (2) from the steering column jacket assembly (1).

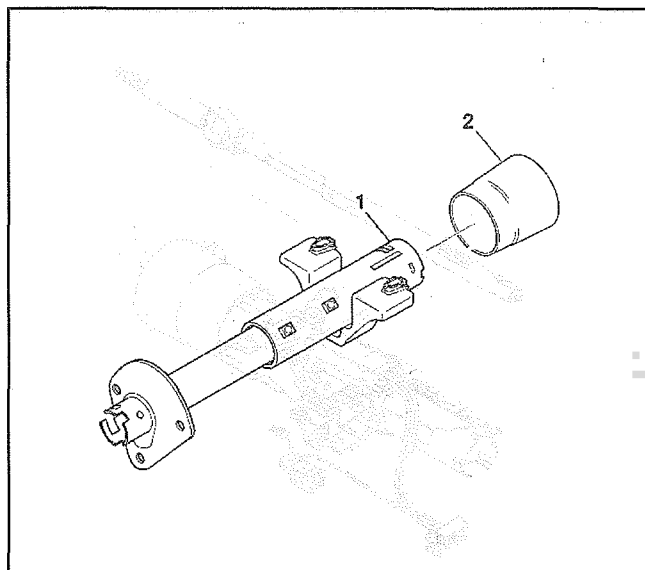


569762

Steering Shaft, Lower Bearing, and Jacket - Assemble - Off Vehicle

Assembly Procedure

1. Install the steering column shroud (2) to the steering column jacket assembly (1).



569762

2. Install the steering column housing support assembly (2).

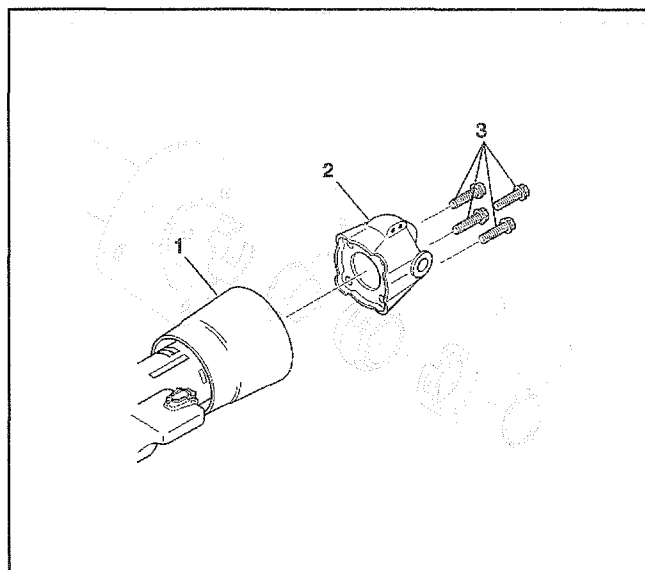
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the 4 hexagon washer head tapping screws (3) to the steering column housing assembly (2).

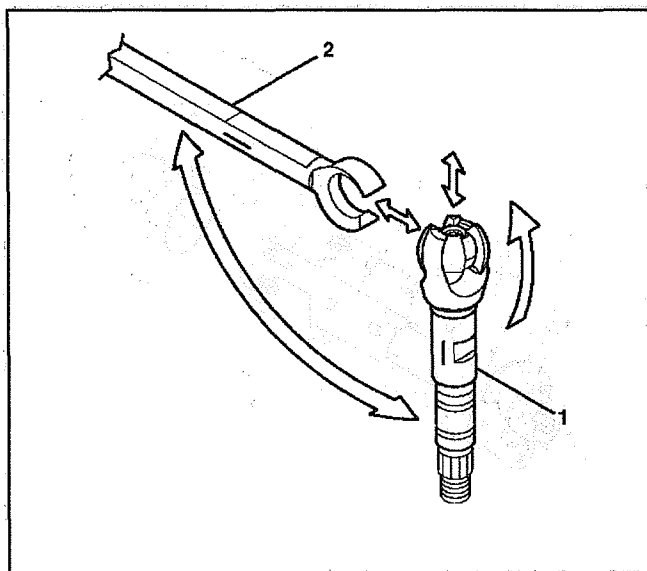
Tighten

Tighten the 4 hexagon washer head tapping screws to 9 N·m (80 lb in).

4. Install the ignition switch assembly. Refer to *Ignition Switch Assembly - Assemble - Off Vehicle*.



569763

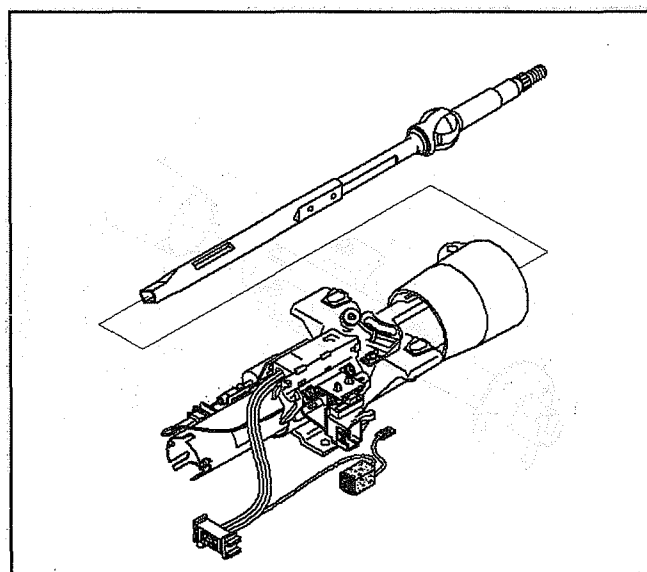


306318

5. Lubricate the exposed area of the race and upper shaft assembly (1).

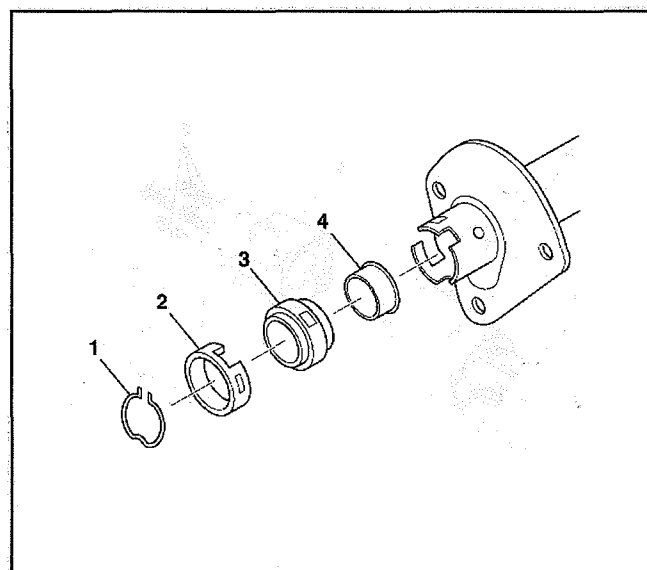
Important: Use the marks on the race and upper shaft assembly and the lower shaft assembly from the disassembly procedure. Failure to assemble the race and upper shaft assembly and the lower shaft assembly correctly will cause the steering wheel to be turned 180 degrees.

6. Align the mark on the race and upper shaft assembly (1) to the mark on the lower steering shaft assembly (2).
7. Tilt the race and upper shaft assembly (1) 90 degrees to the lower steering shaft assembly (2) to engage.



343889

8. Install the steering shaft assembly to the steering column.



569761

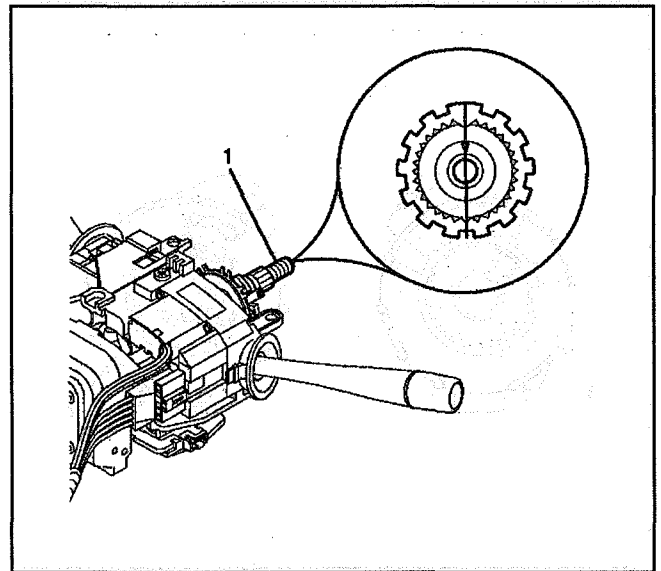
9. Install the following 4 items to the steering column jacket assembly:
 - 9.1. Install the lower bearing adapter (4).
 - 9.2. Install the bearing assembly (3).
 - 9.3. Install the bearing adapter retainer (2).
 - 9.4. Install the lower bearing adapter clip (1).
10. Install the pivot and pulse switch assembly only. Refer to *Windshield Wiper and Washer Switch Assembly - Assemble - Off Vehicle*.
11. Install the steering column housing assembly. Refer to *Steering Column Jacket - Assemble - Off Vehicle*.

Inflatable Restraint Coil Centering - Off Vehicle (Column Shift And Floor Shift)

Centering Procedure

Notice: Refer to *New SIR Coil Is Centered* in Cautions and Notices.

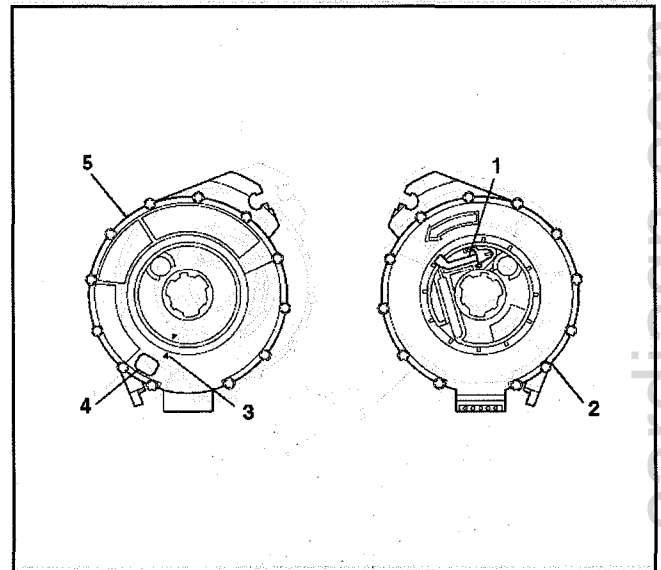
1. Verify the following before centering the SIR coil assembly:
 - The wheels on the vehicle are straight ahead.
 - The block tooth (1) of the steering shaft assembly is in the 12 o' clock position.
 - The ignition switch is in the "LOCK" position or J 42640 is installed in the upper tilt head assembly.



293254

2. If the front (5) of the SIR coil assembly has a centering window (4), and on the back side (2) a spring service lock (1), perform the following steps:

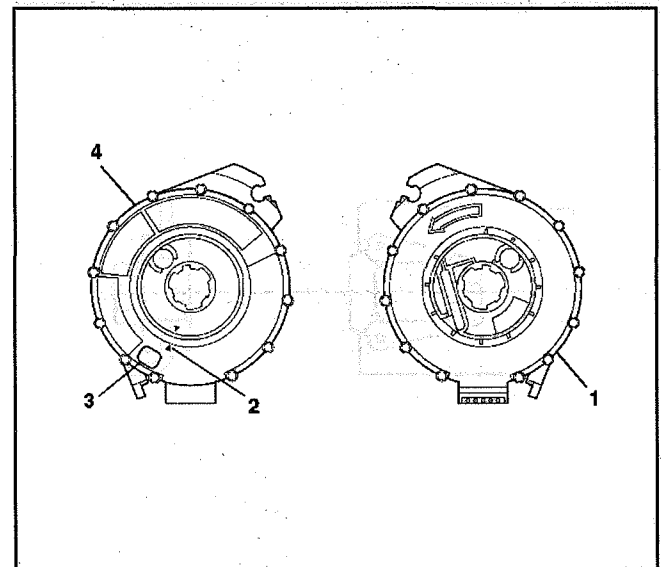
- 2.1. Hold the coil assembly with the face up.
- 2.2. While depressing the spring service lock, rotate the coil hub clockwise until the coil ribbon stops.
- 2.3. Rotate the coil hub slowly, counter clockwise, until the centering window appears yellow and both arrows (3) line up.
- 2.4. Release spring service lock between the locking tab. The SIR coil is now centered.
- 2.5. Align the centered SIR coil assembly with the horn tower and slide onto the steering shaft assembly.



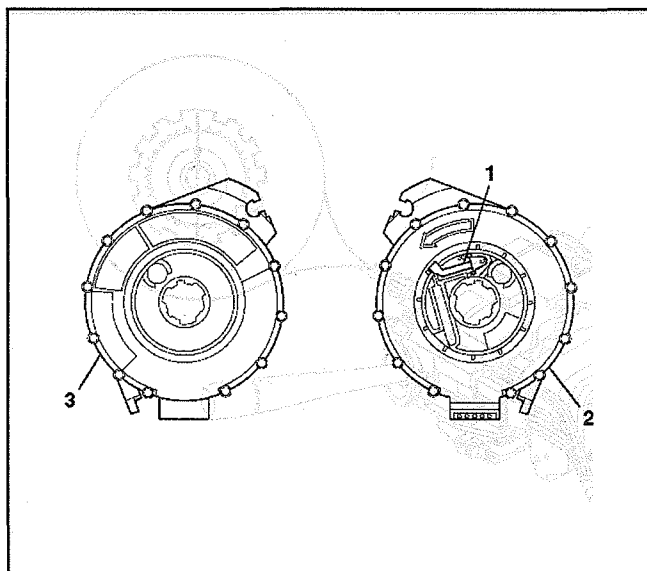
603737

3. If the front (4) of the SIR coil has a centering window (3) and no spring service lock on the back side (1), perform the following steps:

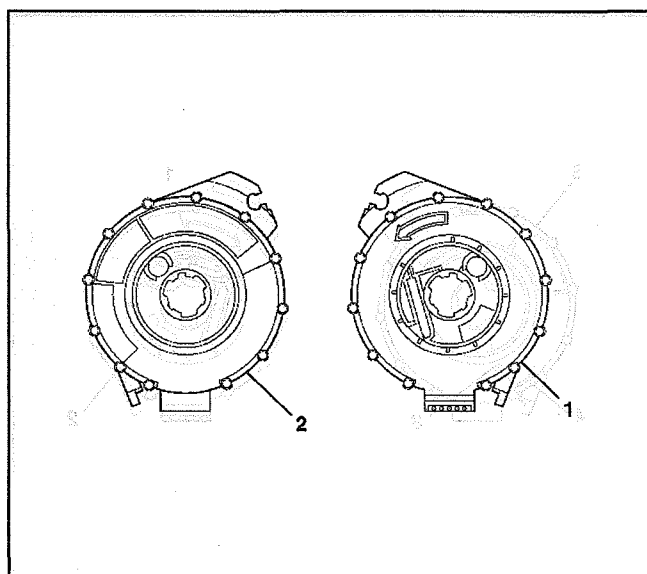
- 3.1. Hold the coil assembly with the face up.
- 3.2. Rotate the coil hub clockwise until the coil ribbon stops.
- 3.3. Rotate the coil hub slowly, counter clockwise until the centering window appears yellow and both arrows (2) line up. This is center position.
- 3.4. While holding the coil hub in center position, align the SIR coil assembly with the horn tower and slide onto the steering shaft assembly.



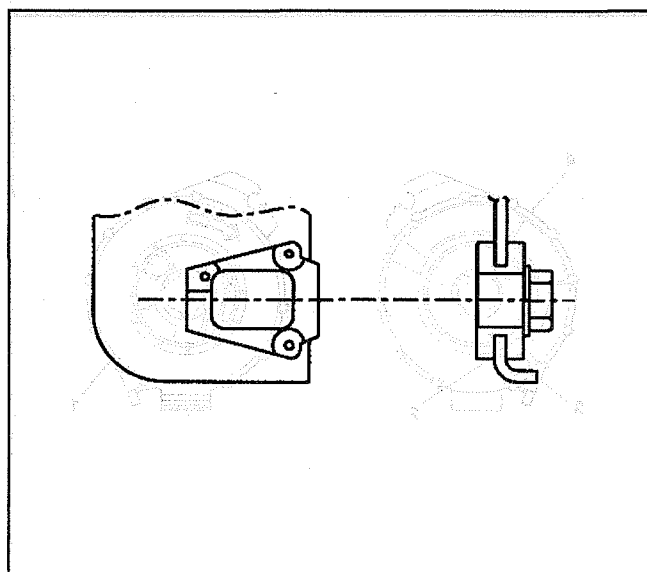
594558



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303713

4. If no centering window is present on the front side (3) of the SIR coil assembly, but a spring service lock (1) is on the back side (2), perform the following steps:

- 4.1. Hold the SIR coil assembly with the back side up.
- 4.2. While depressing the spring service lock, rotate the coil hub counter clockwise until the coil ribbon stops.
- 4.3. Still pressing the spring service lock, rotate the coil hub in the opposite direction 2 1/2 revolutions.
- 4.4. Release the spring service lock between locking tabs. The SIR coil is now centered.
- 4.5. Align the centered SIR coil assembly with the horn tower and slide onto the steering shaft assembly.

5. For no centering window on the front side (2) of the SIR coil assembly and no spring service lock on the back side (1), perform the following steps:

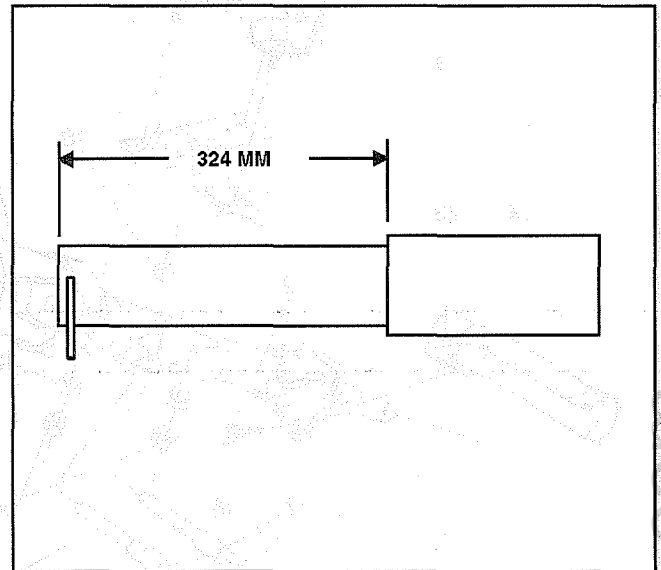
- 5.1. Hold the coil assembly with the face up.
- 5.2. Rotate the coil hub clockwise until the coil ribbon stops.
- 5.3. Rotate the coil hub, slowly, counter clockwise, for 2 1/2 revolutions. This is center position.
- 5.4. While maintaining the coil hub in center position, align the centered SIR coil assembly with the horn tower and slide onto the steering shaft assembly.

Steering Column Accident Damage Inspection - Off Vehicle

Inspection Procedure

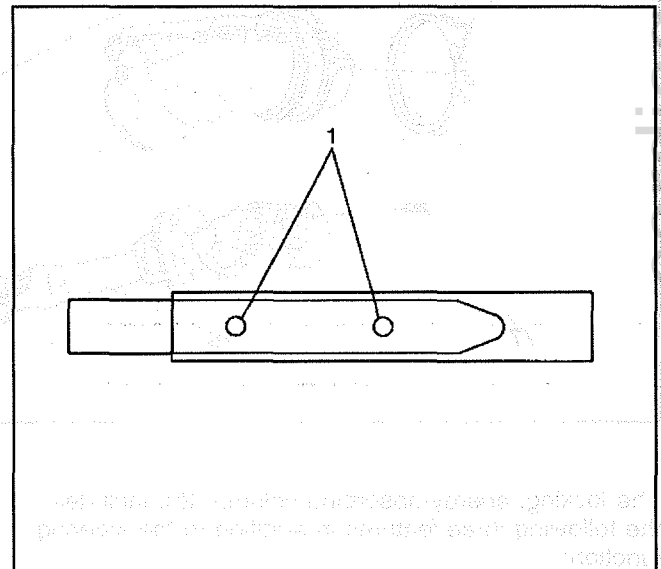
- Vehicles involved in accidents resulting in frame damage, major body or sheet metal damage, or where the steering column has been impacted, or where supplemental inflatable restraint systems deployed may also have a damaged or misaligned steering column.
- Check the capsules on the steering column bracket assembly. All capsules must be securely seated in the bracket slots and checked for any loose conditions when pushed or pulled by hand.

- Observe how the bracket is attached to the jacket assembly.
 - If the capsules are not securely seated and the bracket is bolted to the jacket assembly, replace only the bracket.
 - If the capsules are not securely seated and the bracket is welded to the jacket assembly, replace only the jacket assembly.
- Check for jacket assembly collapse by measuring the distance from the lower edge of the upper jacket to a defined point on the lower jacket. Replace the jacket assembly if the measured dimensions are not within specifications.



392279

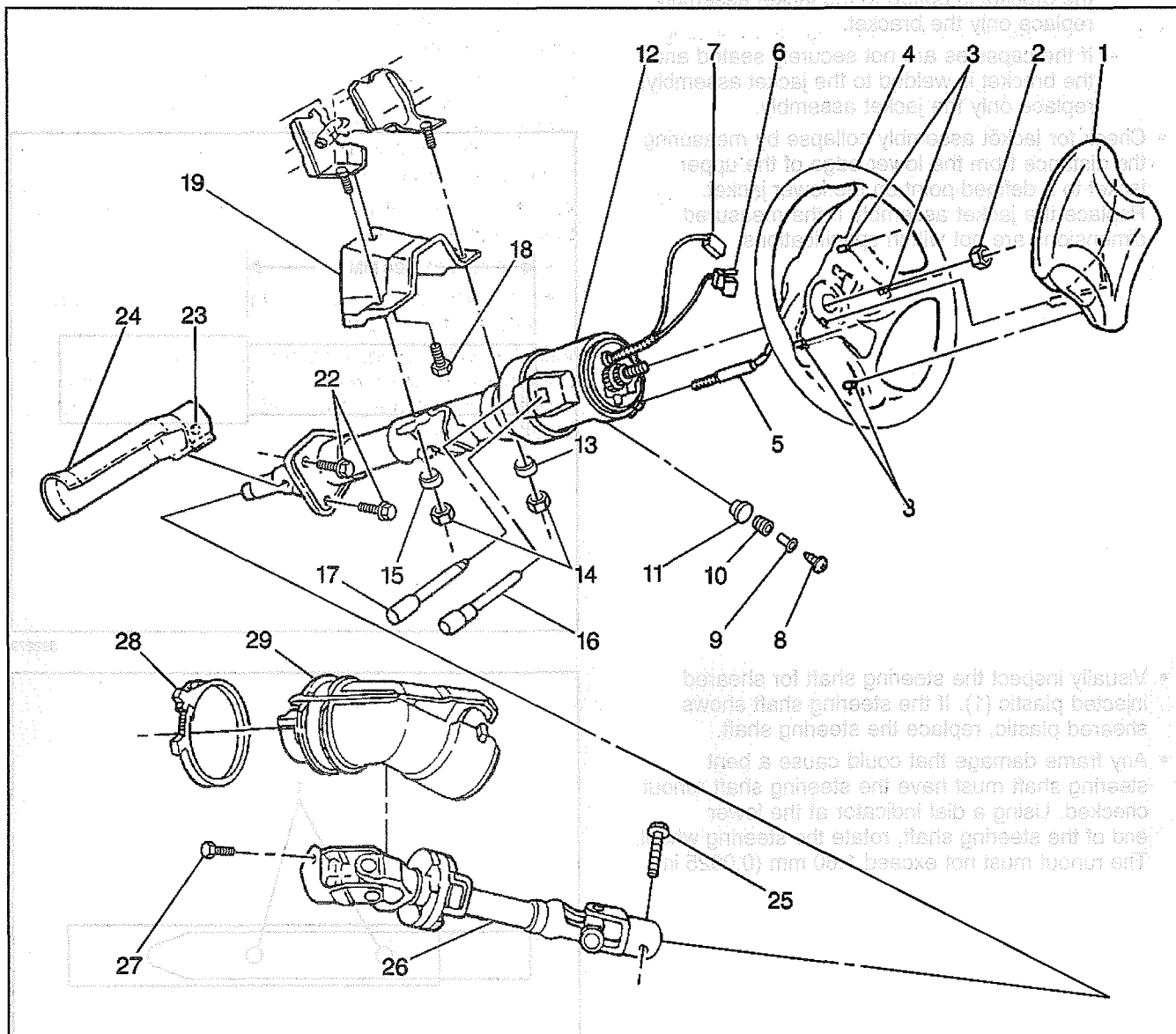
- Visually inspect the steering shaft for sheared injected plastic (1). If the steering shaft shows sheared plastic, replace the steering shaft.
- Any frame damage that could cause a bent steering shaft must have the steering shaft runout checked. Using a dial indicator at the lower end of the steering shaft, rotate the steering wheel. The runout must not exceed 1.60 mm (0.0625 in).



303724

Description and Operation

Steering Wheel and Column Description



290365

The locking, energy-absorbing column (20) includes the following three features in addition to the steering function:

- In a front-end collision, the energy-absorbing column is designed to collapse. This action minimizes the possibility of driver injury.
- The steering column lock and ignition cylinder are mounted on the column.
- When locked, the column-mounted lock prevents the operation of both the ignition and steering. This action acts as a theft deterrent.

The turn signal controls the turn signals.

The headlamp dimmer switch controls the headlamp high beam.

The windshield washer and wiper lever (16) controls the windshield washer and wipers.

The cruise control actuator controls the cruise control, if equipped.

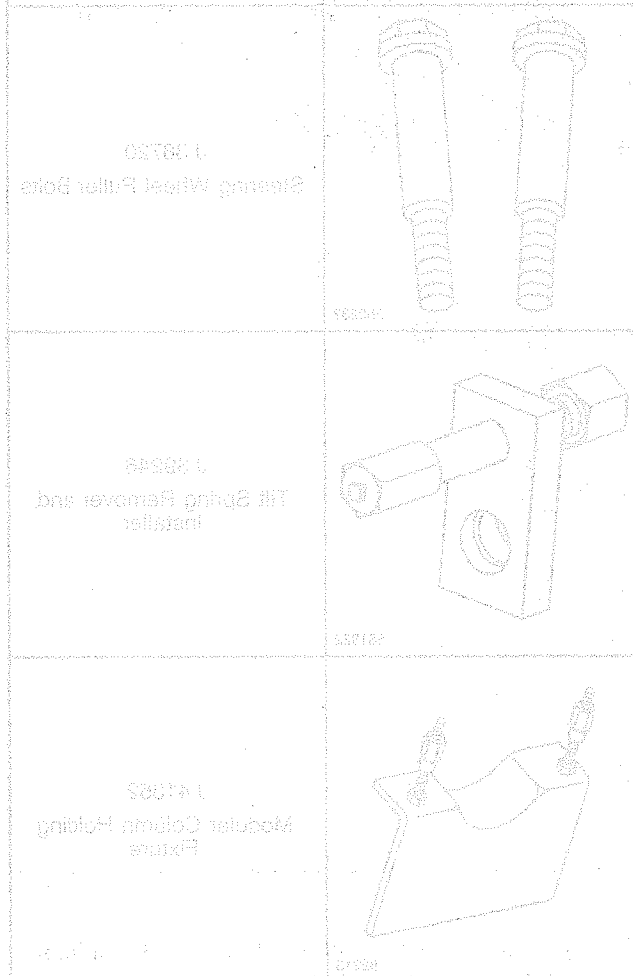
In order to ensure energy-absorbing action, complete the following steps:

- Use only specified bolts/screws and nuts.
- Tighten the bolts/screws and nuts to the specified torque.
- Apply a thin coat of lithium grease to all friction points during reassembly.

Handle the column with care when removing the column.

- Do not use a steering wheel puller other than the one recommended.
- Do not hit the end of the steering gear coupling shaft (26) sharply.
- Do not lean on the column.
- Do not drop the column.

Disregarding the above suggestions could shear or loosen the plastic fasteners that keep the column rigid.



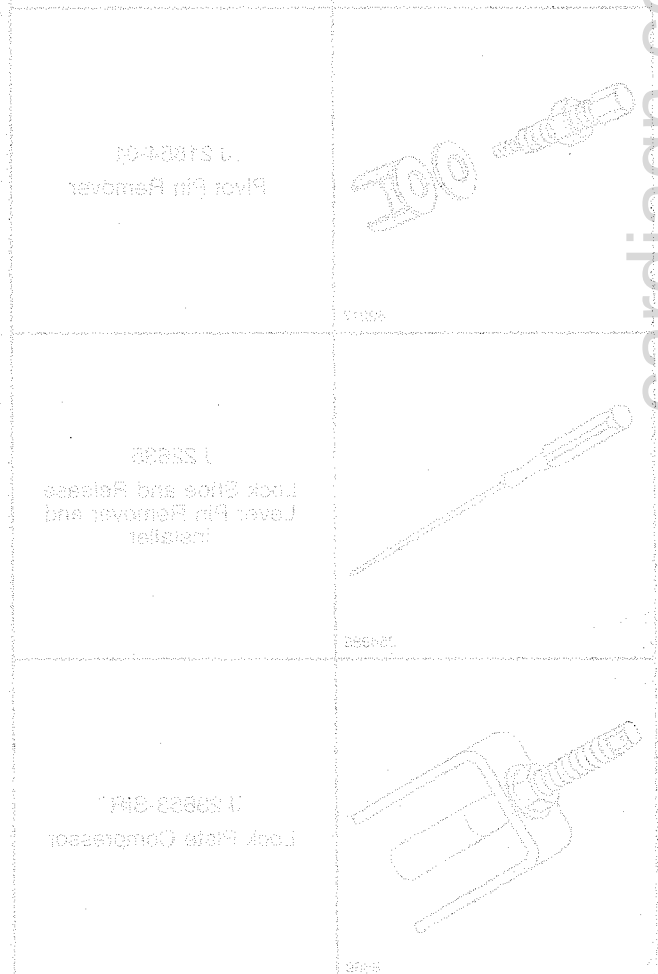
Ignition Lock System Description

The automatic transmission uses a park lock system. This system uses a flexible automatic transmission park lock cable. The cable is attached at one end to the automatic transmission control lever and at the other end to the ignition switch. The ignition switch is mounted to the column where it actuates a locking pin. The locking pin engages an ignition switch sliding contact when the lever is in the REVERSE position. This action does not allow the ignition switch to move to the LOCK position.

With the lever in PARK and the ignition switch slider in LOCK, the following actions occur:

- The locking pin engages a cam on the cable.
- The locking pin prevents the lever from moving into another position.

Vehicles with a manual transmission have a steering column key release lever. A manual transmission clutch start switch is also used. Depress the clutch in order to crank the engine.



Special Tools and Equipment

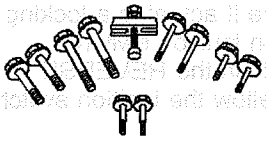
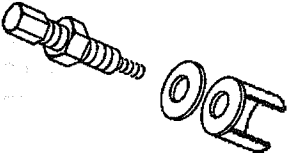
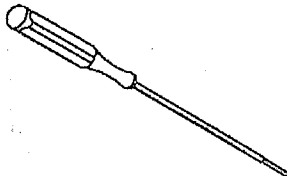
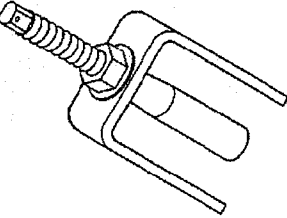
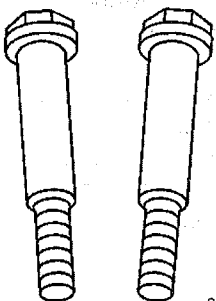
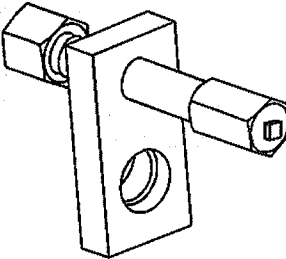
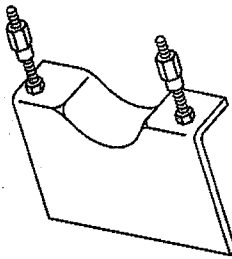
Illustration	Tool Number/ Description
 802	J 1859-A Steering Wheel Puller
 2015	J 8092 Universal Driver Handle
 82217	J 21854-01 Pivot Pin Remover
 354985	J 22635 Lock Shoe and Release Lever Pin Remover and Installer
 8669	J 23653-SIR Lock Plate Compressor

Illustration	Tool Number/ Description
 354982	J 38639 Steering Column Housing Bearing Installer
 280232	J 38720 Steering Wheel Puller Bolts
 581822	J 39246 Tilt Spring Remover and Installer
 82213	J 41352 Modular Column Holding Fixture