SECTION 3F

STEERING WHEEL AND COLUMN ON-VEHICLE SERVICE

CAUTION: This vehicle is equipped with Supplemental Inflatable Restraint (SIR). Refer to CAUTIONS in Section 9J under "ON-VEHICLE SERVICE" before performing service on or around SIR components or wiring. Failure to follow CAUTIONS could result in possible air bag deployment, personal injury, or unneeded SIR system repairs.

NOTICE: When fasteners are removed, always reinstall them at the same location from which they were removed. If a fastener needs to be replaced, use the correct part number fastener for that application. If the correct part number fastener is not available, a fastener of equal size and strength (or stronger) may be used. Fasteners that are not reused, and those requiring thread locking compound will be called out. The correct torque value must be used when installing fasteners that require it. If the above conditions are not followed, parts or system damage could result.

CONTENTS

GENERAL DESCRIPTION

In this section, removal and installation of the SIR column as an assembly are covered. SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) STEERING COLUMN UNIT REPAIR (SECTION 3F5) covers steering column component service.

The steering column includes important features in addition to the steering function.

1. In a front-end collision, the energy absorbing column is designed to collapse to minimize the possibility of injury to the driver.
2. The ignition switch and lock are mounted on the column. When locked, the column mounted lock acts as a theft deterrent by preventing the operation of both ignition and steering.
3. The multi-function turn signal lever also controls the headlight dimmer, cruise control, windshield wiper/washer and cruise control.

To ensure the energy-absorbing action of the column assembly, it is important to use only the specified screws, bolts and nuts and to tighten them to the specified torque. Apply a thin coat of lithium grease to all friction points when reassembling.

When the column assembly is removed from the vehicle, special care must be taken in handling it. Use of a steering wheel puller other than the one recommended in this manual, a sharp blow on the end of the steering shaft, leaning on the assembly, or dropping the assembly could shear or loosen the plastic fasteners which maintain column rigidity.

IGNITION LOCK SYSTEMS

The steering column contains the ignition lock cylinder, ignition switch actuator rod, and ignition switch. Refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) TILT STEERING COLUMN UNIT REPAIR (SECTION 3F5).

The ignition lock cylinder on manual transmission vehicles contains a pushbutton which must be depressed to turn the lock cylinder from "RUN" to "OFF."

Automatic transmission vehicles require the shift selector lever to be in the "PARK" position before the ignition cylinder can be turned from "RUN" to "OFF."

SUPPLEMENTAL INFLATABLE RESTRAINT

The steering wheel and column contain the Inflator Module and SIR Coil Assembly, both components of the Supplemental Inflatable Restraint (SIR) System. Refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM INTRODUCTION (SECTION 9J).

DIAGNOSIS

INSPECTIONS AFTER AN ACCIDENT

Important

- Certain SIR system components must be replaced after an accident involving bag deployment. These components include the Arming Sensor, both Forward Discriminating Sensors, and the Inflator Module. Also, inspect the SIR Coil Assembly wiring for any signs of scorching, melting, or damage due to excessive heat. If the Coil Assembly wire is damaged, replace the SIR Coil Assembly. The Steering Wheel must be dimensionally checked to determine if it is damaged. Refer to "Steering Wheel Dimensional Check" in this section. If an accident which does not involve deployment occurs, dimensionally inspect the Steering Wheel, and inspect all SIR components and mounting points for damage. If any components are damaged, they must be replaced. Never use SIR parts from another vehicle. If mounting points are damaged they must be repaired or replaced. In either type of accident, inspect the steering column, knee bolster, bolster mounting points and brackets, I/P steering column reinforcement plate and I/P braces for damage.
- Do not attempt to service the Forward Discriminating Sensors, the DERM, the SIR Coil Assembly, the Inflator Module, the Steering Wheel, or the Arming Sensor. Service of these items is replacement only.

CAUTION: Proper operation of the sensors and Supplemental Inflatable Restraint (SIR) System requires that any repairs to the vehicle structure return it to its original production configuration. Deployment (current Code 51) requires, at a minimum, replacement of the Arming Sensor, both Forward Discriminating Sensors, and the Inflator Module, as well as dimensional inspection of the Steering Wheel. Any visible damage to the sensors or the DERM mounting brackets requires replacement, and the Steering Wheel must be dimensionally inspected, whether a deployment occurred or not.

IGNITION LOCK SYSTEMS

Refer to STEERING, SUSPENSION, TIRES AND WHEELS DIAGNOSIS (SECTION 3).

SUPPLEMENTAL INFLATABLE RESTRAINT

Refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SECTION 9J-A).

ON-VEHICLE SERVICE

GENERAL SERVICE PRECAUTIONS

CAUTION: When performing service on or around SIR components or SIR wiring, follow the procedures listed below to temporarily disable the SIR system. Failure to follow procedures could result in possible air bag deployment, personal injury or unneeded SIR system repairs.

The DERM can maintain sufficient voltage to cause a deployment for up to 10 minutes after the Ignition Switch is turned "OFF" and the battery is disconnected. Many of the service procedures require disconnection of the AIR BAG Fuse and Inflator Module from the deployment loop to avoid an accidental deployment.

Disabling The SIR System

Remove or Disconnect

- Turn ignition switch "OFF."

1. AIR BAG Fuse.
2. Lower trim panel -- LH. Refer to INSTRUMENT PANEL, GAGES AND CONSOLE (SECTION 8C).
3. Connector Position Assurance (CPA) and yellow two-way SIR connector at the base of the steering column.

NOTE: With the AIR BAG Fuse removed and ignition "ON" the "INFL REST" warning lamp will be "ON." This is normal operation and does not indicate an SIR fault.

Enabling The SIR System

Install or Connect

- Turn ignition switch "OFF."

1. Yellow two-way SIR connector and Connector Position Assurance (CPA) at the base of the steering column.
2. AIR BAG Fuse.
3. Lower trim panel -- LH. Refer to INSTRUMENT PANEL, GAGES AND CONSOLE (SECTION 8C).
   - Turn ignition switch to "RUN" and make sure the "INFL REST" warning lamp flashes 7 to 9 times and then remains "OFF." If it does not operate as described, perform the "SIR Diagnostic System Check" in SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SECTION 9J-A).

Live (Undeployed) Inflator Module

Special care is necessary when handling and storing a live (undeployed) Inflator Module because the rapid deployment of the bag could cause the Inflator Module or an object placed in front of the module to be thrown through the air in the unlikely event of an accidental deployment.

CAUTION: When carrying a live Inflator Module, make sure the bag and trim cover are pointed away from you. Never carry the Inflator Module by the wires or connector on the underside of the module. In case of an accidental deployment, the bag will then deploy with minimal chance of injury. When placing a live Inflator Module on a bench or other surface, always face the bag and trim cover up, away from the surface. Never rest a steering column assembly on the Steering Wheel with the Inflator Module face down and column vertical. This is necessary so that a free space is provided to allow the air bag to expand in the unlikely event of accidental deployment. Otherwise personal injury may result.

Deployed Inflator Module

After the Inflator Module has been deployed, the surface of the air bag may contain a powdery residue. This powder consists primary of corn starch (used to lubricate the bag as it inflates) and by-products of the chemical reaction. Sodium hydroxide dust (similar to lye soap) is produced as a by-product of the deployment reaction. The sodium hydroxide then quickly reacts with atmospheric moisture and is converted to sodium carbonate and sodium bicarbonate (baking soda). Therefore, it is unlikely that sodium hydroxide will be present after deployment. As a precaution, however, gloves and safety glasses are recommended to prevent any possible irritation of the skin or eyes.

CAUTION: Safety precautions must be observed when handling a deployed Inflator Module. After deployment, the air bag surface may contain a small amount of sodium hydroxide dust, a by-product of the deployment reaction that is irritating to the skin and eyes. As a precaution, wear gloves and safety glasses when handling a deployed Inflator Module, and wash your hands with a mild soap and water afterwards.

Inflator Module Shipping Procedure

Refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM INTRODUCTION (SECTION 9J).

Inflator Module Scrapping Procedure

CAUTION: Failure to follow proper SIR Inflator Module disposal procedures can result in air bag deployment which may cause personal injury. Undeployed Inflator Modules must not be disposed of through normal refuse channels. The undeployed Inflator Module contains substances that can cause severe illness or personal injury if the sealed container is damaged during disposal. Disposal in any manner inconsistent with proper procedures may be a violation of federal, state and /or local laws.

Refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM INTRODUCTION (SECTION 9J).

WIRING REPAIRS

Special wiring repair procedures have been developed for use on the Supplemental Inflatable Restraint (SIR) system due to the sensitive nature of the circuitry. These specific procedures and instructions must be followed when working with SIR system wiring and wiring components (such as connectors and terminals).

Refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM INTRODUCTION (SECTION 9J) for SIR wiring repair procedures.

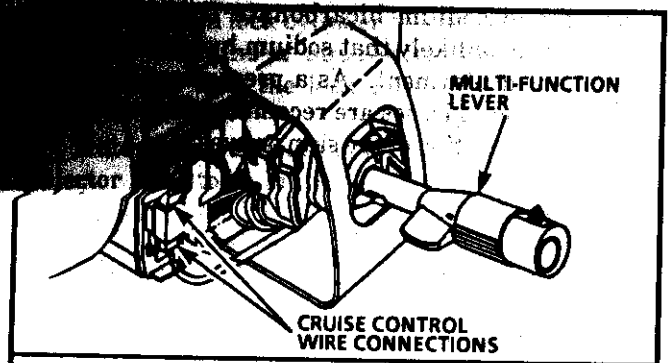


Figure 1 - Multi-Function Lever

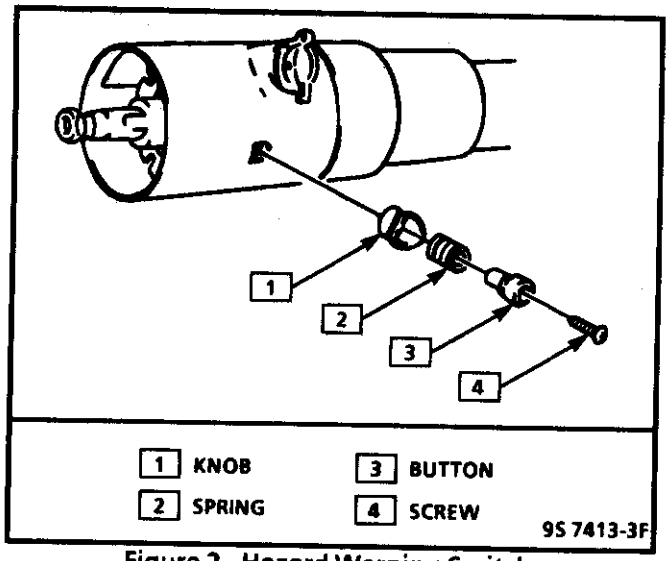


Figure 2 - Hazard Warning Switch

PARK LOCK SYSTEM

Refer to AUTOMATIC TRANSMISSION ON-VEHICLE SERVICE (SECTION 7A).

MULTI-FUNCTION TURN SIGNAL LEVER
Figure 1

Remove or Disconnect

1. Column housing cover end cap by pulling toward front of vehicle.
2. Electrical harness connector and grommet.
3. Pull toward driver door to release detent/multi-function turn signal lever.

Install or Connect

1. Multi-function turn signal lever.

Adjust

- Align lever tab into slot, with lever in "OFF" position.

2. Electrical harness connector and grommet.
3. Column housing cover end cap.

HAZARD WARNING SWITCH

Refer to Figure 2 for removal/installation details.

TILT WHEEL LEVER

The tilt wheel lever is removed and installed by simply threading it into or out of the column assembly.

INFLATOR MODULE - SIR
Figure 3

Important

- In the event deployment has occurred, inspect the SIR Coil Assembly wire for any signs of scorching, melting or damage due to excessive heat. If the Coil Assembly wire is damaged, replace the Coil Assembly. Refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) TILT STEERING COLUMN UNIT REPAIR (SECTION 3F5).

Remove or Disconnect

- Disable SIR System; refer to "Disabling the SIR System" in this section.

1. Screws from back of steering wheel retaining Inflator Module to wheel.
2. Inflator Module from steering wheel.
3. CPA and SIR coil electrical connector at Inflator Module.

CAUTION: When carrying a live Inflator Module, make sure the bag and trim cover are pointed away from you. Never carry the Inflator Module by the wires or connector on the underside of the module. In case of an accidental deployment, the bag will then deploy with minimal chance of injury. When placing a live Inflator Module on a bench or other surface, always face the bag and trim cover up, away from the surface. Never rest a steering column assembly on the Steering Wheel with the Inflator Module face down and column vertical. This is necessary so that a free space is provided to allow the air bag to expand in the unlikely event of accidental deployment. Otherwise, personal injury may result.

Install or Connect

- Turn ignition switch "OFF."

1. SIR coil electrical connector to Inflator Module; install CPA.
2. Inflator Module to steering wheel.

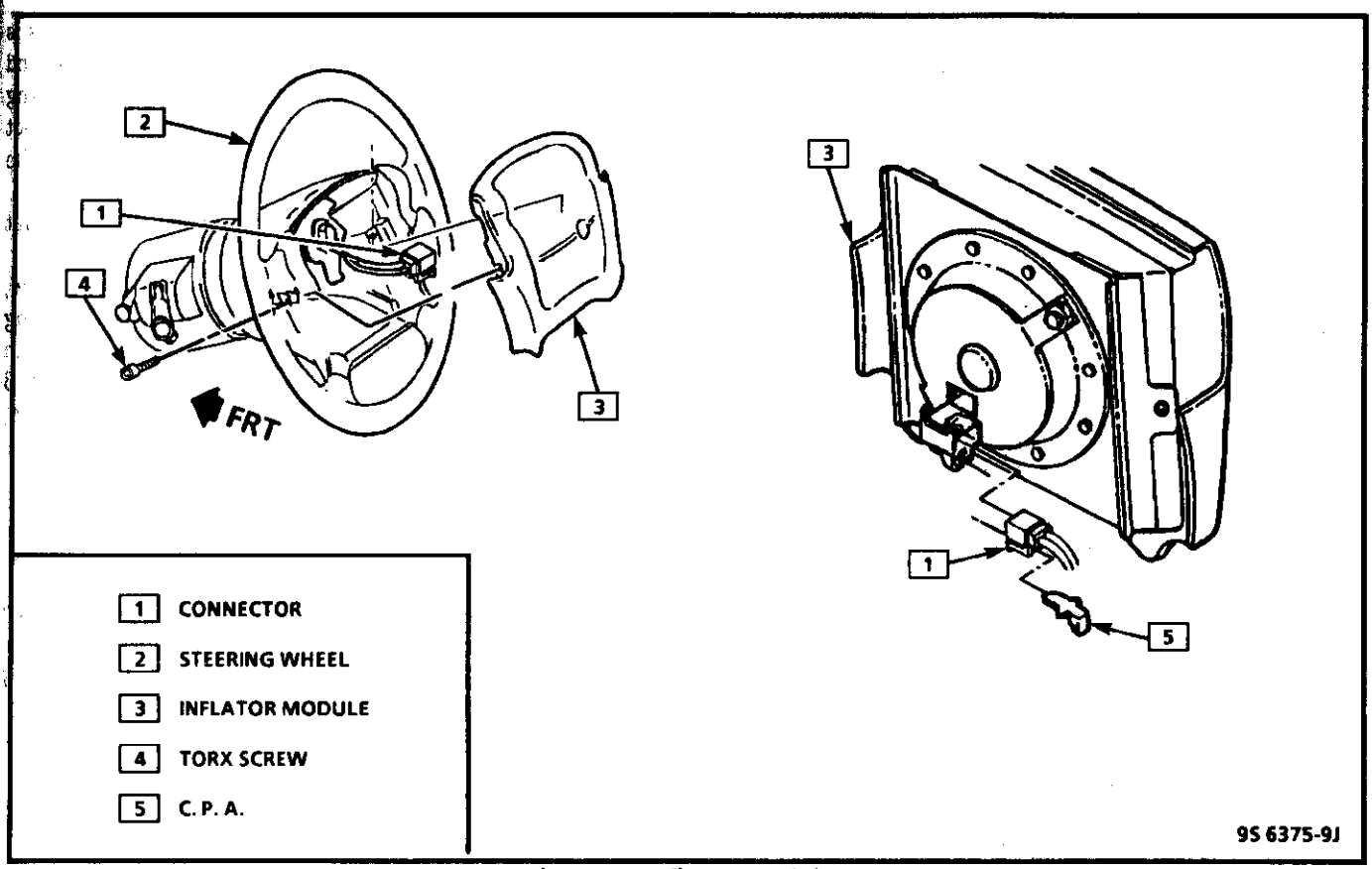


Figure 3 - Inflator Module

3. NEW module retaining screws through back of steering wheel to Inflator Module.

Tighten

- Inflator Module retaining screws to 9.7 N·m (87 lb. in.).

- Enable SIR System; refer to "Enabling the SIR System" in this section.

HORN SWITCH

Remove or Disconnect

1. Inflator Module, as outlined in "Inflator Module" in this section.
2. Push in two lock tabs on edge of horn button and lift up inside edge.
3. Pull horn button inside and up to unhook two hidden lock tabs on outside edge of horn button.
4. Three phillips screws retaining switch plate to steering wheel.
5. Switch from steering wheel.

Install or Connect

1. Switch into steering wheel.
2. Three phillips screws retaining switch plate to steering wheel.
3. Horn button into steering wheel; engage outer lock tabs first, then press down to engage inner lock tabs.
4. Inflator Module, as outlined in "Inflator Module" in this section.

- Perform "SIR Diagnostic System Check" outlined in SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SECTION 9J-A), if not performed in Step 4.

STEERING WHEEL

Figure 4

Tools Required:
J 1859-03 Steering Wheel Puller
J 38720 Puller Side Screws

NOTICE: Do not use any steering wheel puller or side screws other than those recommended, as the SIR Coil Assembly is easily damaged if the correct tools are not used.

Remove or Disconnect

1. Inflator Module, as outlined in "Inflator Module" in this section.
2. Steering wheel retaining nut.
3. Horn connector.
4. Steering wheel, using J 1859-03 Puller and J 38720 Puller Screws.

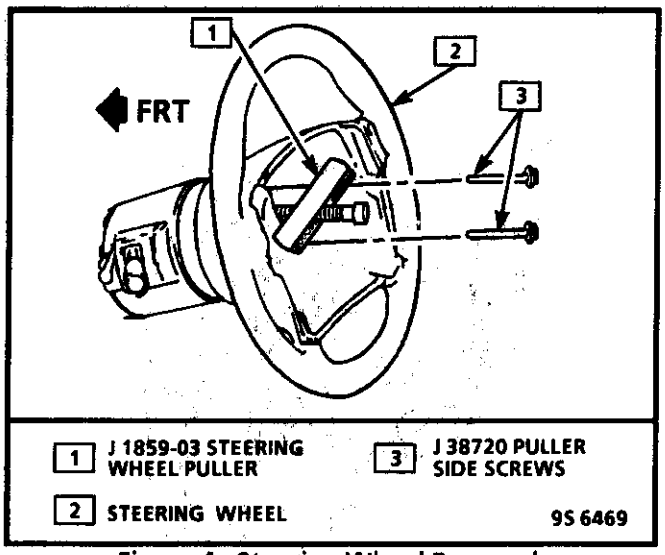


Figure 4 - Steering Wheel Removal

Install or Connect

1. Horn connector.
2. Steering wheel to column, observing alignment marks (splines).
3. NEW steering wheel retaining nut.

Tighten

- NEW retaining nut to 41 N·m (30 lb. ft.).

4. Inflator Module, as outlined in "Inflator Module" in this section.
- Perform "SIR Diagnostic System Check" outlined in SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SECTION 9J-A), if not performed in Step 4.

STEERING WHEEL DIMENSIONAL CHECK
Figure 5

Tools Required:
Drum to Brake Shoe Clearance Gauge
(J 21177-A or J 22364-01 are available)
Steel Measuring Rule

Remove or Disconnect

1. Inflator Module, as outlined in "Inflator Module" in this section.
2. Steering wheel, as outlined in "Steering Wheel" in this section.

Measure

1. Place steering wheel face down on a flat, level surface as shown in Figure 5.
2. Place steel measuring rule through steering wheel-to-upper steering shaft mounting hole, and onto the flat surface.
3. Measure dimension "A" shown in Figure 5; this is the distance between the steering wheel rim and the top of the steering wheel-to-upper steering shaft mounting flange. If the measurement is not 152 mm ± 2 mm (5.98 in. ± 0.08 in.), replace the steering wheel.
4. Turn wheel over, such that it is resting on the flat surface with the rim up.
5. Using a Drum-to-Brake Shoe Clearance Gauge, carefully measure the diameter of the steering wheel in three places B, C and D, as indicated in Figure 5. If the measurement is not 380 mm ± 3 mm (14.96 in. ± 0.12 in.) in all three places, replace the steering wheel.

Install or Connect

1. Steering Wheel, as outlined in "Steering Wheel" in this section.
2. Inflator Module, as outlined in "Inflator Module" in this section.
- Perform "SIR Diagnostic System Check" outlined in SIR SYSTEM DIAGNOSIS (SECTION 9J-A), if not performed in Step 2.

INTERMEDIATE SHAFT
Figures 6 through 8

NOTICE: The front wheels of the vehicle must be maintained in the straight ahead position and the steering column must be in the "LOCK" position before disconnecting the steering column or intermediate shaft. Failure to follow these procedures will cause improper alignment of some components during installation and result in damage to the SIR Coil Assembly.

Remove or Disconnect

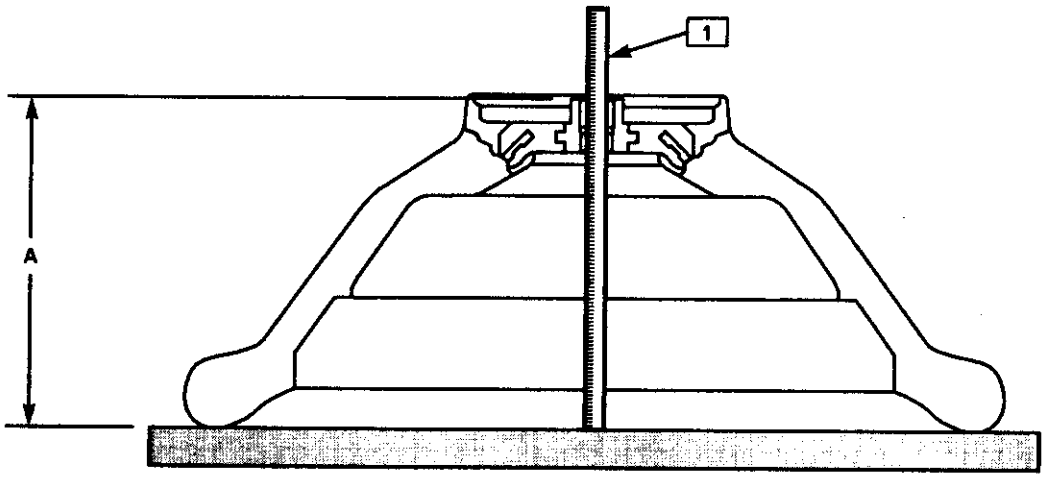
1. Steering gear coupling shield clamp and release clip on bottom of shield.
2. Intermediate shaft bolt at pinion assembly valve.
3. AIR hose at exhaust manifold.
4. Intermediate shaft bolt at lower steering shaft assembly.
5. Intermediate shaft from vehicle.
6. Steering gear coupling shield from vehicle.

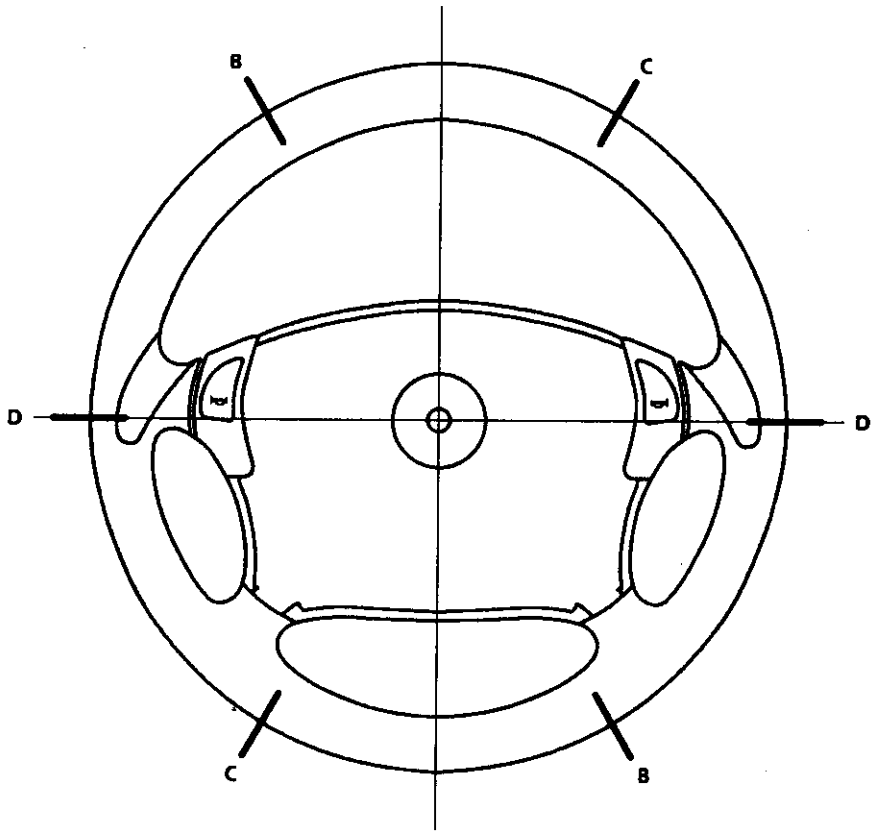
Install or Connect

1. Position steering gear coupling shield near pinion assembly valve.
2. Intermediate shaft to pinion assembly valve on steering gear assembly and to lower steering shaft assembly.
3. Intermediate shaft bolts.

Tighten

- Intermediate shaft bolt at pinion assembly valve to 47 N·m (35 lb. ft.).





1 STEEL MEASURING RULE

A: 152 ± 2 mm (5.98 ± 0.08 in.)

B-B:
C-C:
D-D: } 380 ± 3 mm (14.96 ± 0.12 in.)

LS 8789

Figure 5 - Steering Wheel Dimensional Check

- Intermediate shaft bolt at lower steering shaft assembly to 34 N·m (26 lb. ft.).

4. Steering gear coupling shield and connect clip at bottom of shield.
5. Steering gear coupling shield clamp.

Tighten

- Steering gear coupling shield clamp screw to 3.4 N·m (30 lb. in.).

6. AIR hose to exhaust manifold.

STEERING COLUMN ASSEMBLY
Figures 1, 3, 4, and 6 through 9

NOTICE:

- The front wheels of the vehicle must be maintained in a straight ahead position and the steering column must be in the "LOCK" position before disconnecting the steering column or intermediate shaft. Failure to follow these procedures will cause improper alignment of some components during installation and result in damage to the SIR Coil Assembly.
- Once the steering column is removed from the vehicle, the column is extremely susceptible to damage. Dropping the column assembly on its 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. If it is necessary to remove the steering wheel, refer to "Steering Wheel" in this section. Under no condition should the end of the shaft be hammered on, as hammering could loosen the plastic injections which maintain column rigidity.

Remove or Disconnect

1. Negative battery cable.
2. Inflator Module. Refer to "Inflator Module" in this section.
3. Steering wheel. Refer to "Steering Wheel" in this section.
4. Intermediate shaft upper bolt.
5. Driver's side knee bolster. Refer to INSTRUMENT PANEL, GAGES AND CONSOLE (SECTION 8C).
6. Tilt lever.
7. Nuts from lower support plate.
8. Capsule bolts from reinforcement assembly. (Includes upper support plate and cable backdrive on automatic transmission vehicles).
9. Electrical connectors from column.
10. Sound insulator to steering column lower support bracket.
11. Accelerator pedal bracket nuts.
12. Steering column from vehicle.

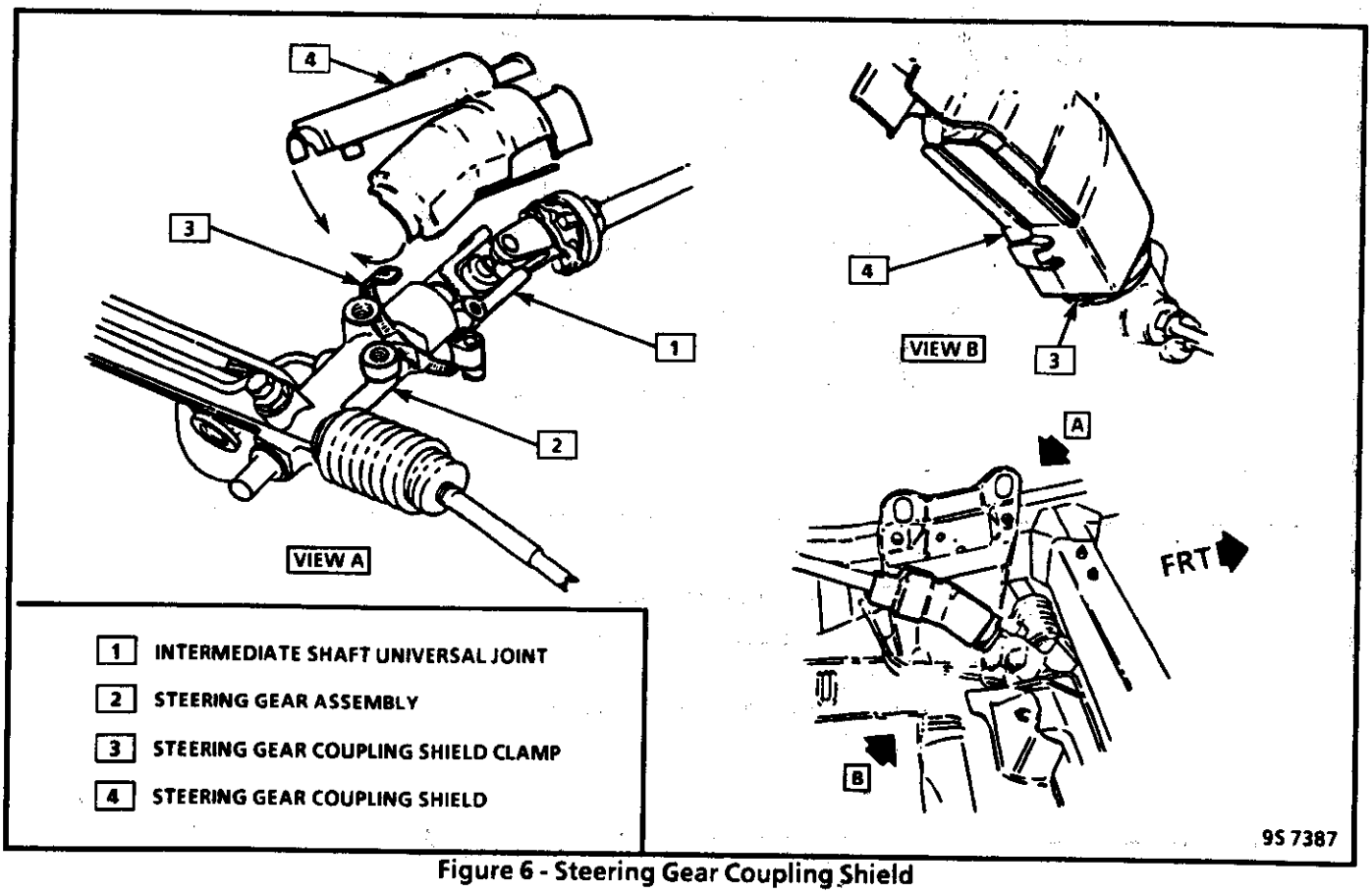
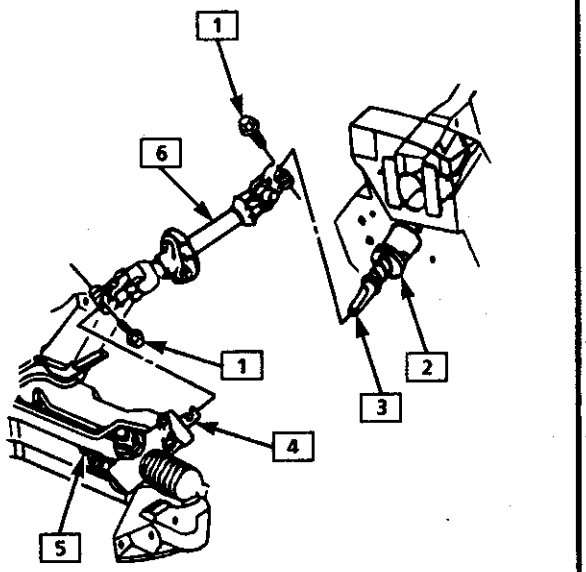


Figure 6 - Steering Gear Coupling Shield



1 INTERMEDIATE SHAFT BOLT
2 ADAPTER AND BEARING ASSEMBLY
3 LOWER STEERING SHAFT ASSEMBLY
4 PINION ASSEMBLY/VALVE
5 STEERING GEAR ASSEMBLY
6 STEERING GEAR INTERMEDIATE SHAFT

9S 7044

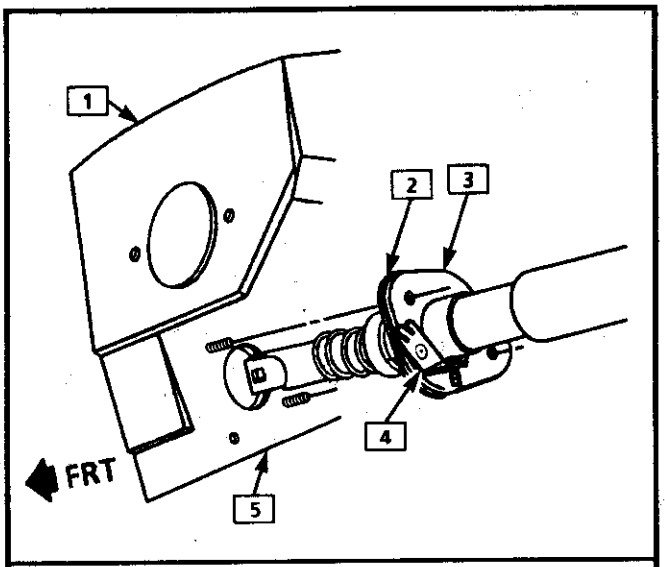
Figure 7 - Installing Intermediate Shaft

13. Column housing cover end cap by pulling toward front of vehicle.
14. Electrical harness connector and grommet (to multi-function lever).
15. Place multi-function turn signal lever in wiper "OFF" position; remove lever by pulling straight out.

Install or Connect

CAUTION: If steering column to cowl panel gasket is torn or otherwise damaged, it must be replaced. Failure to do so may allow carbon monoxide into the vehicle, which may result in serious personal injury or death.

NOTICE: The front wheels of the vehicle must be maintained in a straight ahead position and the steering column must be in the "LOCK" position before disconnecting the steering column or intermediate shaft. Failure to follow these procedures will cause improper alignment of some components during installation and result in damage to the SIR Coil Assembly.



1 DASH PANEL
2 STEERING COLUMN GASKET
3 STEERING COLUMN PLATE
4 TRIM PAD BRACKET
5 INSTRUMENT PANEL SOUND INSULATOR

9S 7398

Figure 8 - Steering Column Lower Attachment

1. Multi-function turn signal lever, harness and grommet.

Adjust

- Align lever tab into slot, with lever in "OFF" position.

2. Column housing cover end cap.
3. Tilt lever.
4. Position steering column assembly into vehicle and insert lower steering shaft assembly into U-joint of intermediate shaft.
5. Intermediate shaft upper bolt.
6. Loosely attach steering column and upper support plate to instrument panel reinforcement assembly with capsule bolts and cable backdrive on automatic transmission vehicles (Figure 9).
7. Loosely attach steering column nuts to support plate studs (Figure 9).

Important

- Tighten lower support plate nuts before capsule bolts to prevent damage to the column assembly.

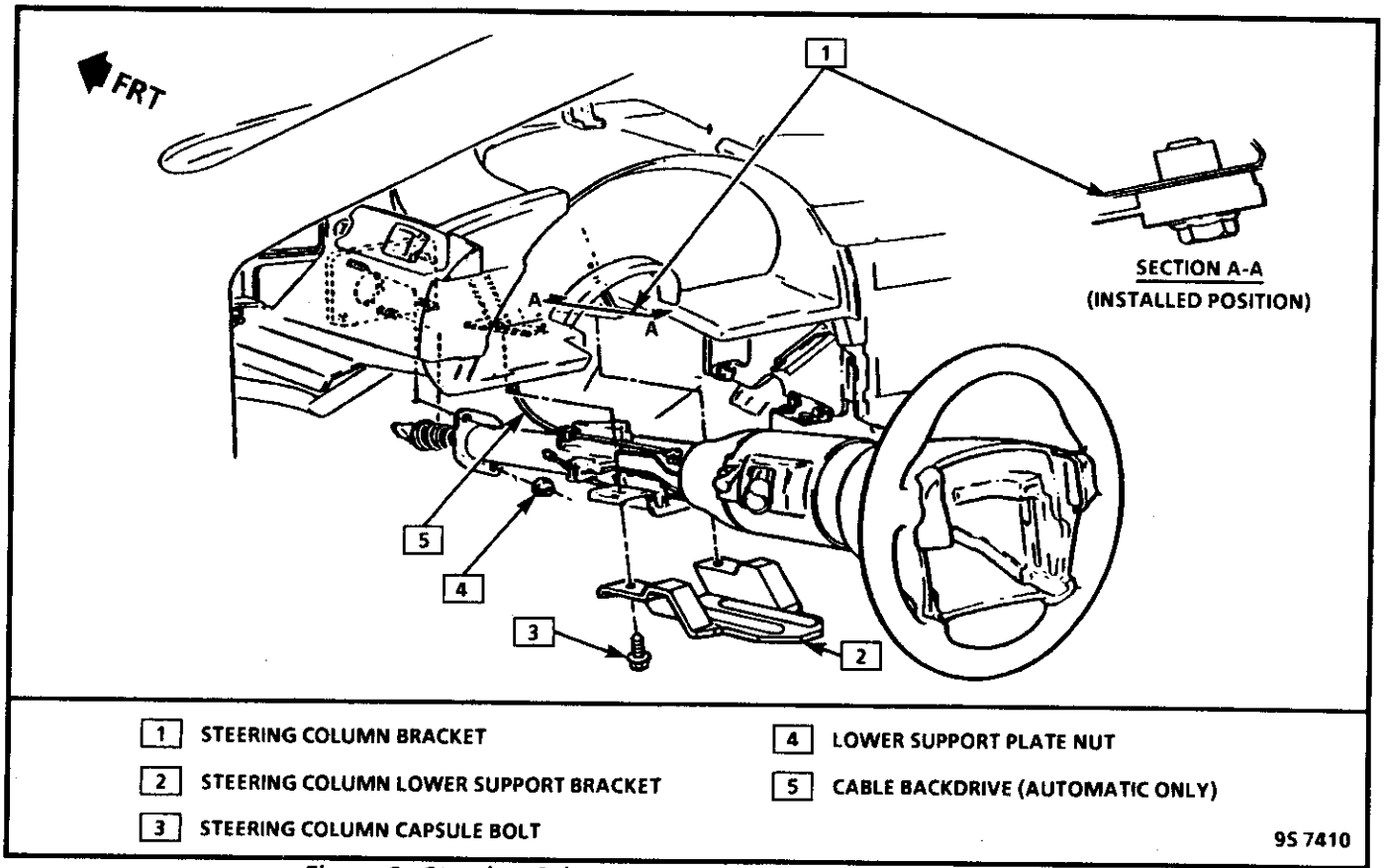


Figure 9 - Steering Column to Instrument Panel Reinforcement

Tighten

- Intermediate shaft bolt to 34 N·m (26 lb. ft.).
- Lower support plate nuts to 14 N·m (10 lb. ft.).
- Capsule bolts to I/P reinforcement 27 N·m (20 lb. ft.).

8. All (except SIR) electrical connectors to column.
9. Driver's side knee bolster. Refer to INSTRUMENT PANEL, GAGES AND CONSOLE (SECTION 8C).
10. Sound insulator bracket to column lower support.
11. Accelerator pedal bracket nuts.

Tighten

- Accelerator bracket nuts to 8 N·m (71 lb. in.).

12. Steering wheel. Refer to "Steering Wheel" in this section.
13. Negative battery cable.
14. Inflator Module. Refer to "Inflator Module" in this section.

- Perform "SIR Diagnostic System Check" outlined in SIR SYSTEM DIAGNOSIS (SECTION 9J-A) to ensure proper SIR system operation, if not performed in Step 14.

STEERING COLUMN SERVICE ON BENCH

Tool Required:
J 23074 Steering Column Holding Fixture or equivalent.

Remove or Disconnect

1. Steering column from vehicle. Refer to "Steering Column Assembly" in this section.
2. Column support bracket.
3. Wiring protector.

Install or Connect

1. Column into Steering Column Holding Fixture J 23074 or soft jaw vise.
2. Continue column service as necessary. Refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) TILT STEERING COLUMN UNIT REPAIR (SECTION 3F5).

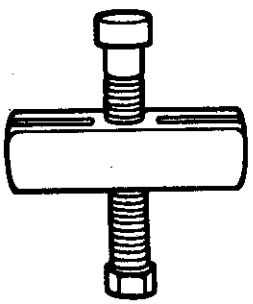
ACCIDENT DAMAGE

To inspect steering column for accident damage, refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) TILT STEERING COLUMN UNIT REPAIR (SECTION 3F5).

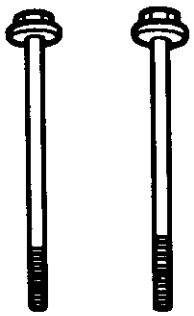
TORQUE SPECIFICATIONS

Steering Wheel to Shaft Jam Nut (NEW Nut Must Be Used)	41 N·m (30 lb. ft.)
Column to Instrument Panel Reinforcement Assembly Capsule Bolts	27 N·m (20 lb. ft.)
Steering Column to Intermediate Shaft Bolt	34 N·m (26 lb. ft.)
Steering Column to Lower Support Plate Nuts	14 N·m (10 lb. ft.)
Steering Gear Coupling Shield Clamp Screw	3.4 N·m (30 lb. in.)
Intermediate Shaft Bolt to Pinion	47 N·m (35 lb. ft.)
Inflator Module Retaining Screws (NEW Screws Must Be Used)	9.7 N·m (87 lb. in.)

SPECIAL TOOLS



1 J 1859-03



2 J 38720

3 J 21177-A/J 22364-01 OR EQUIVALENT

1 STEERING WHEEL PULLER

2 STEERING WHEEL PULLER SIDE SCREWS

3 DRUM TO BRAKE SHOE CLEARANCE GAUGE

9S 7385-3F

SECTION 3F5

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) TILT STEERING COLUMN UNIT REPAIR

CAUTION: The procedures in this section must be followed in the order listed to temporarily disable the Supplemental Inflatable Restraint (SIR) System and prevent false diagnostic codes from setting. Failure to follow procedures could result in possible air bag deployment, personal injury or otherwise unneeded SIR system repairs.

CAUTION: Before removing any electrical units, disconnect the negative battery cable to help prevent personal injuries and/or damage to vehicle components.

NOTICE: When fasteners are removed, always reinstall them at the same location from which they were removed. If a fastener needs to be replaced, use the correct part number fastener for that application. If the correct part number fastener is not available, a fastener of equal size and strength (or stronger) may be used. Fasteners that are not reused, and those requiring thread locking compound will be called out. The correct torque value must be used when installing fasteners that require it. If the above conditions are not followed, parts or system damage could result.

CONTENTS

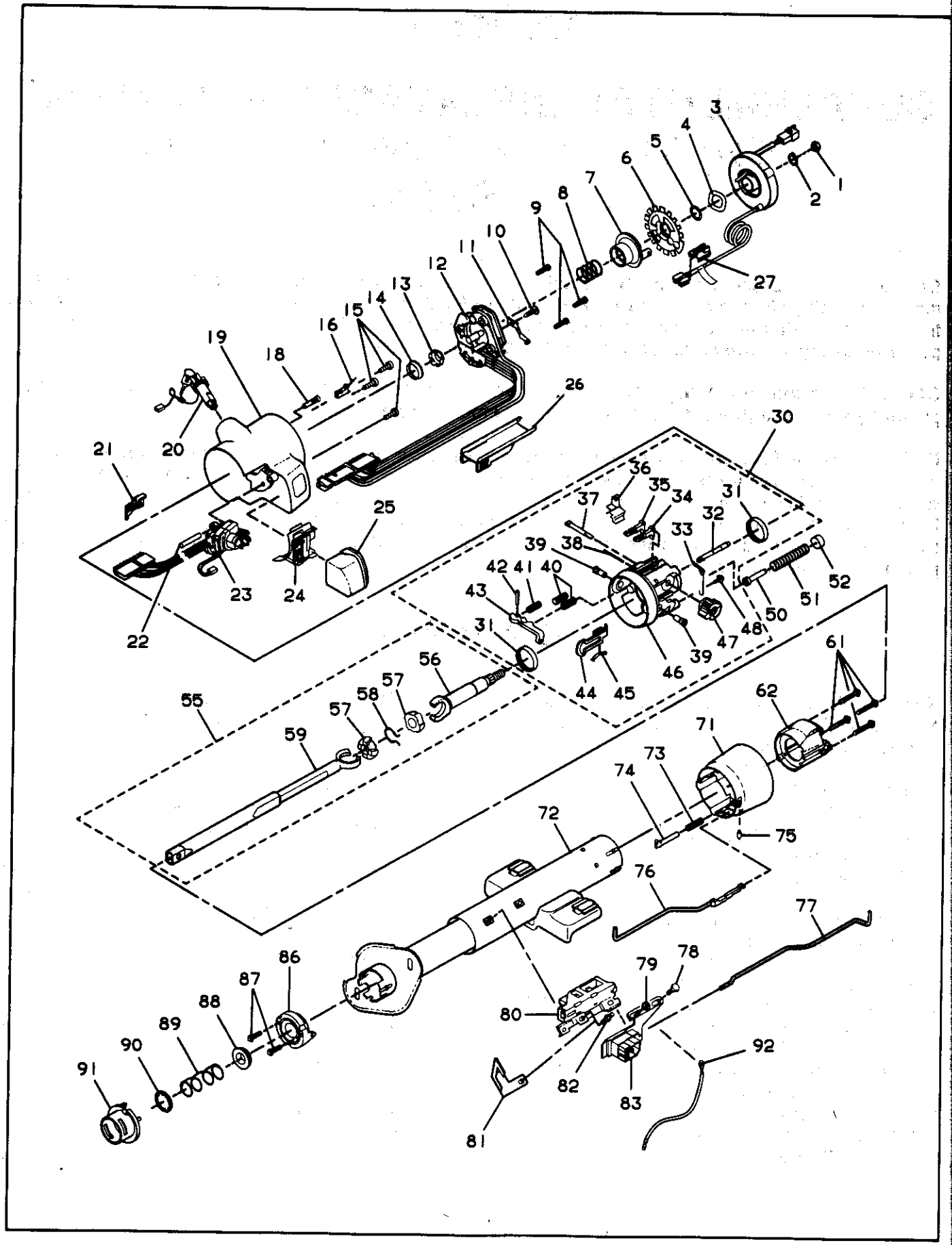


Figure 1 - TILT STEERING COLUMN

1-NUT, HEXAGON LOCKING (M14x1.5)
2-RING, RETAINING
3-COIL ASM, INFL RESTRAINT
4-WASHER, WAVE
5-RING, RETAINING
6-LOCK, SHAFT
7-CAM ASM, TURN SIG CANCELLING
8-SPRING, UPPER BEARING
9-SCREW, BNDNG HD CR RECESS
10-SCREW, RD WASH HD (M4.2x1.41)
11-ARM, SIGNAL SWITCH
12-SWITCH ASM, TURN SIGNAL
13-SEAT, UPPER BRG INNER RACE
14-RACE, INNER
15-SCREW, PAN HD SOC TAP
16-SWITCH ASM, BUZZER
18-SCREW, LOCK RETAINING
19-COVER ASM, LOCK HOUSING
20-LOCK CYLINDER SET, PASS KEY
21-ACTUATOR, DIMMER SWITCH ROD
22-PIN, SWITCH ACTUATOR PIVOT
23-SWITCH ASM, PIVOT & (PULSE)
24-BASE PLATE, COL HSG CVR END
25-CAP, COL HSG COVER END
26-PROTECTOR, WIRING
27-SHROUD, CONNECTOR
30-HOUSING ASM, STRG COLUMN
31-BEARING ASM
32-BOLT, LOCK
33-SPRING, LOCK BOLT
34-SHOE, STEERING WHEEL LOCK
35-SHOE, STEERING WHEEL LOCK
36-SHIELD, WIRE ABRASION
37-SHAFT, DRIVE
38-PIN, DOWEL
39-PIN, PIVOT
40-SPRING, SHOE
41-SPRING, RELEASE LEVER
42-PIN, RELEASE LEVER
43-LEVER, SHOE RELEASE
44-RACK, SWITCH ACTUATOR
45-SPRING, RACK PRELOAD
46-HOUSING, STRG COLUMN
47-SECTOR, SWITCH ACTUATOR
48-SCREW, HEX WASHER HD
50-GUIDE, SPRING
51-SPRING, WHEEL TILT
52-RETAINER, SPRING
53-SHAFT ASM, STEERING COLUMN
56-SHAFT ASM, RACE & UPPER
57-SPHERE, CENTERING
58-SPRING, JOINT PRELOAD
59-SHAFT ASM, LOWER STEERING
61-SCREW, HEX WASHER HD TAP
62-SUPPORT ASM, STRG COL HSG
71-SHROUD, STRG COL HOUSING
72-JACKET ASM, STRG COL
73-SPRING, CABLE BACKDRIVE PIN
74-PIN, CABLE BACKDRIVE
75-PIN, INHIBITOR CROSS
76-ACTUATOR ASM, IGNITION SWITCH
77-ROD, DIMMER SWITCH
78-SCREW, WASH HD (#10-24 x .25)
79-NUT, HEXAGON (#10-24)
80-SWITCH ASM, IGNITION
81-BRACKET, CABLE
82-STUD, DIMR & IGN SW MOUNTING
83-SWITCH ASM, DIMMER
86-BEARING ASM, ADAPTER &
87-SCREW, HEX WASHER HD TAP
88-SEAT, LOWER BEARING
89-SPRING, LOWER BEARING
90-RETAINER, LOWER SPRING
91-RETAINER (NON-SERVICEABLE)
92-WIRING ASM, HORN PAD GROUND

Service Kits

201-RACK SERV KIT, COL SECTOR &
-INCLUDES: 14,31,33,44,47,48
202-SPRING SERV KIT, TILT COLUMN
-INCLUDES: 13,14,39,50,51,52
203-COIL SERV KIT, INFL RESTRAINT
-INCLUDES: 3,4,27
204-SPHERE SERV KIT, TILT COLUMN
-INCLUDES: 57,58
205-GREASE SERV KIT, (SYNTHETIC)

Figure 2 - TILT STEERING COLUMN - Legend

SUB SECTION A - UPPER COLUMN

INCLUDES:
- DISABLING SIR SYSTEM
- ENABLING SIR SYSTEM
- INFL RESTRAINT COIL ASM
- SHAFT LOCK
- TURN SIGNAL CANCELLING CAM
- UPPER BEARING SPRING
- UPPER BEARING INNER RACE SEAT
- INNER RACE
- TURN SIGNAL SWITCH ASSEMBLY
- BUZZER SWITCH ASSEMBLY
- STRG COL PASS KEY LOCK CYL SET

Tools Required:
J 23653-C Lock Plate Compressor

Disabling SIR System

Remove or Disconnect

- Turn ignition switch "OFF".

1. AIRBAG Fuse.
2. Lower trim panel - LH. Refer to INSTRUMENT PANEL, GAGES AND CONSOLE (SECTION 8C).
3. Connector Position Assurance (CPA) and yellow two-way SIR connector at the base of steering column.

Enabling SIR System

Install or Connect

- Turn ignition switch "OFF".

1. Yellow two-way SIR connector and Connector Position Assurance (CPA) at the base of steering column.
2. AIRBAG Fuse.
3. Lower trim panel - LH. Refer to INSTRUMENT PANEL, GAGES AND CONSOLE (SECTION 8C).
   - Turn ignition switch to "RUN" and make sure "INFL REST" warning lamp flashes 7 to 9 times and then remains "OFF". If it does not operate as described, perform "SIR Diagnostic System Check" in SIR SYSTEM DIAGNOSIS (SECTION 9J-A).

Important

- Before doing any service procedures in this section, removal of Inflator Module and Steering Wheel is needed. Refer to service procedures in Section 3F.

Remove or Disconnect
(Figures 1 thru 8, 12)

- Disable SIR System; refer to "Disabling SIR System" in this section.

NOTICE: Place ignition to "LOCK" position to prevent uncentering coil assembly.

1. Negative (-) battery cable.

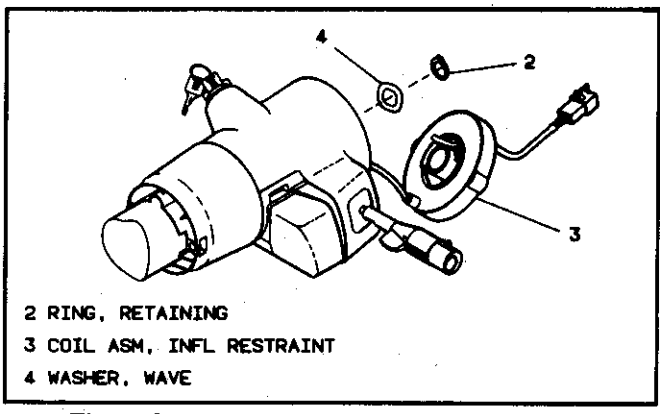


Figure 3 - Removing Coil Assembly Off Shaft

2. Coil assembly retaining ring (2).
3. Coil assembly (3) off shaft end
   - Let coil hang freely.

NOTICE: Coil assembly (3) will become uncentered if:
1) Steering column is separated from steering gear and is allowed to rotate, or
2) centering spring is pushed down, letting hub rotate while coil is removed from steering column. (In the event this occurs, see figure 12.)

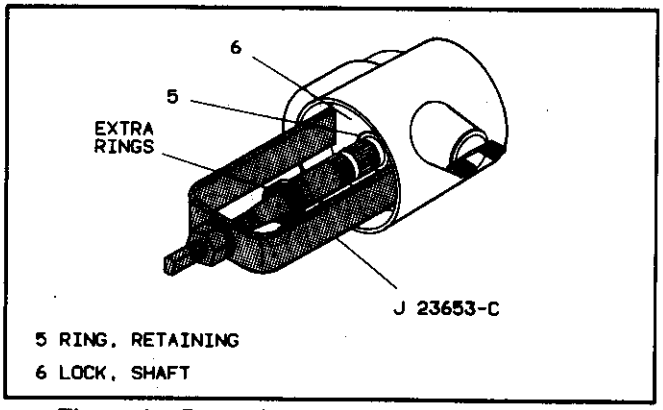


Figure 4 - Removing Shaft Lock Retaining Ring

4. Wave washer (4).
5. Shaft lock retaining ring (5) using J 23653-C to push down shaft lock (6).
6. Shaft lock (6).

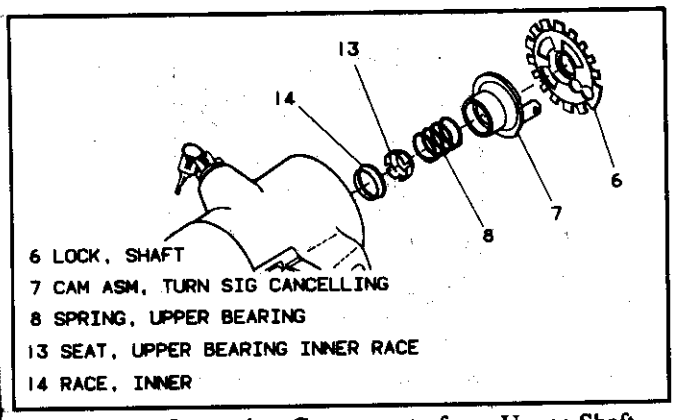


Figure 5 - Removing Components from Upper Shaft

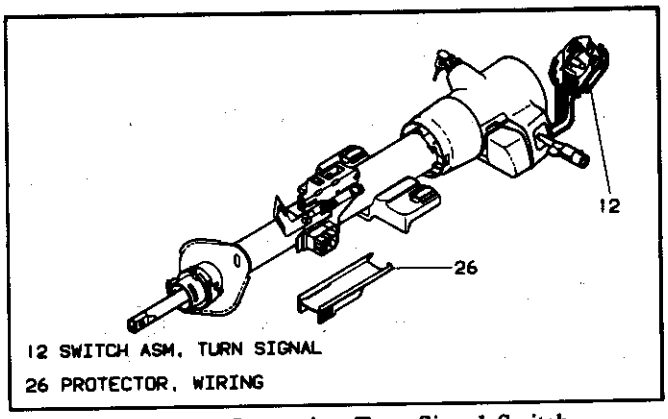


Figure 7 - Removing Turn Signal Switch

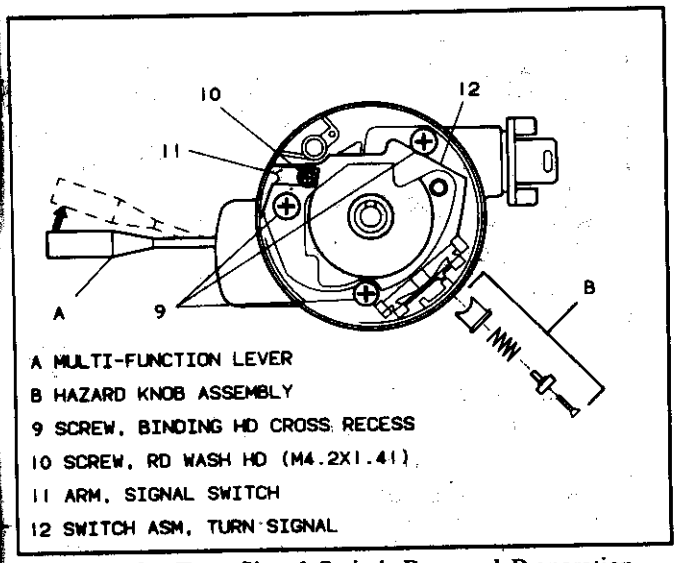


Figure 6 - Turn Signal Switch Removal Preparation

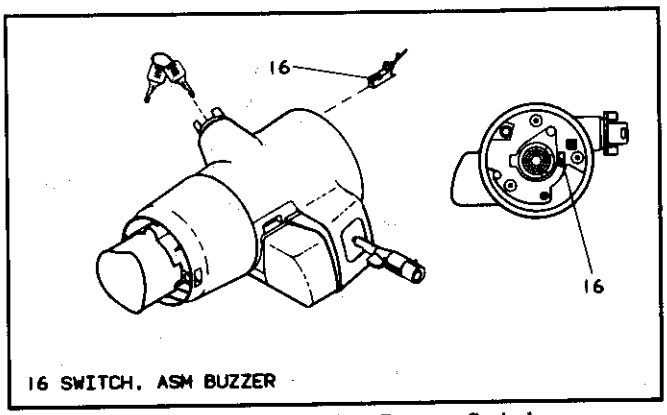


Figure 8 - Removing Buzzer Switch

7. Turn signal cancelling cam assembly (7).
8. Upper bearing spring (8).
9. Upper bearing inner race seat (13).
10. Inner race (14).
11. Turn signal to "Right Turn" position (up).
12. Multi-function lever and hazard knob assembly. (See Section 3F.)
13. Screw (10) and signal switch arm (11).
14. Turn signal switch screws (9).
15. Turn signal switch assembly (12).
    - Let switch hang freely if removal is not necessary.
    - To remove switch (12):
      a) Turn signal switch connection at lower column.
      b) Wiring protector (26).
      c) Gently pull wire harness through housing shroud (71), steering column housing (46), and lock housing cover assembly (19).

NOTICE: Shroud (27) must be removed from connector before pulling connector through steering column.

16. Coil assembly (3), if necessary.
    - To remove:
      a) Yellow connector shroud (27) from black terminal connector.
      b) Wiring protector (26).
      c) Attach a length of mechanics wire to black terminal connector to aid in reassembly.
      d) Gently pull wire through housing shroud (71), steering column housing (46), and lock housing cover assembly (19).
17. Key from pass key lock cylinder set (20).
18. Buzzer switch assembly (16).
19. Reinsert key in pass key lock cylinder (20).
    - Key in "LOCK" position.
20. Lock retaining screw (18).
21. Pass key lock cylinder (20) and harness.
    - To remove lock cylinder (20):
      a) Terminal connector at bulkhead connection to provide slack in harness.
      b) Wiring protector (26).
      c) Attach a length of mechanics wire to terminal connector to aid in reassembly.
      d) Retaining clip and gently pull wire through housing shroud (71), steering column housing (46), and lock housing cover assembly (19).

Install or Connect
(Figures 1, 9 thru 13)

NOTICE: See "Notice" on page 3F5-1 of this section.

NOTICE: Ensure all fasteners are securely seated before applying needed torque. Failure to do may result in component damage or malfunctioning of steering column.

NOTICE: Route wire from lock cylinder as shown and snap retaining clip into hole in housing (figure 10). Failure to do so may result in component damage of malfunction of pass key lock cylinder.

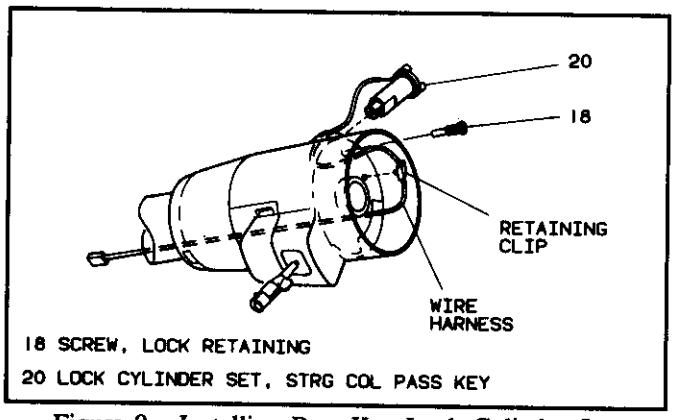


Figure 9 - Installing Pass Key Lock Cylinder Set

1. Pass key lock cylinder (20).

NOTICE: Gently pull lower lock cylinder wire to remove any wire kinks that may be inside steering column assembly.

2. Lock retaining screw (18).

Tighten

- Tighten screw (18) to 2.5 N·m (22 lb.in.).

3. Key in "RUN" position.
4. Buzzer switch assembly (16).
5. Turn signal switch assembly (12) wire harness through lock housing cover assembly (19), steering column housing (46), and housing shroud (71).
6. Coil assembly (3) wire through lock housing cover assembly (19), steering column housing (46), and housing shroud (71).
   - Let coil hang freely.
7. Yellow connector shroud (27) to black terminal connector.
8. Turn signal switch assembly (12) and screws (9).

Tighten

- Tighten screws (9) to 3.4 N·m (30 lb.in.).

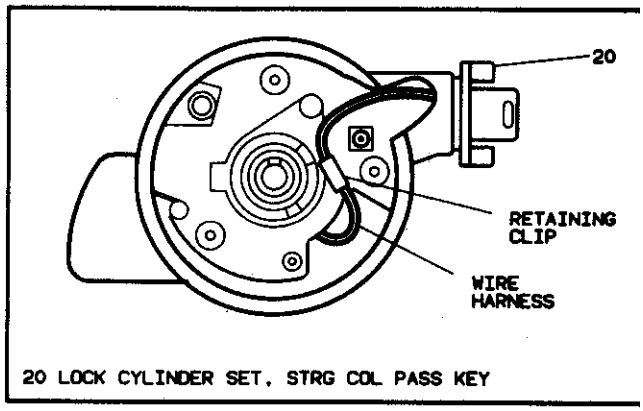


Figure 10 - Routing Pass Key Wire Harness

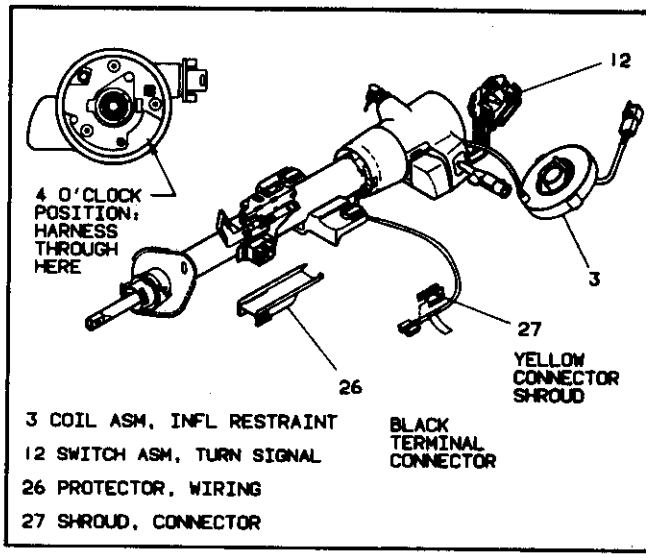


Figure 11 - Wire Harnesses through Column

9. Turn signal switch wire connection at lower column.
10. Wiring protector (26).
11. Signal switch arm (11) and screw (10).

Tighten

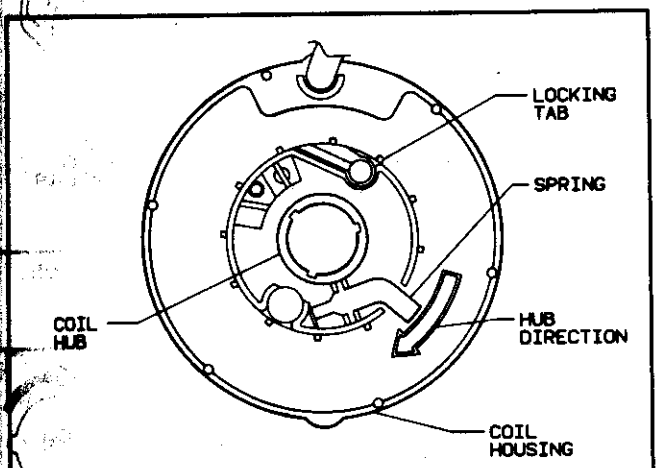
- Tighten screws (10) to 2.3 N·m (20 lb.in.).

12. Hazard knob assembly and multi-function lever. See Section 3F.
13. Inner race (14).
14. Upper bearing inner race seat (13).
15. Upper bearing spring (8).
16. Turn signal cancelling cam assembly (7).
    - Lubricate with grease, synthetic (service kit).
17. Shaft lock (6).

Inspect

- Shaft lock retaining ring (5) for damage or deformation. If damaged or deformed, replace with new retaining ring (5).

18. Shaft lock retaining ring (5). Aline to block tooth on shaft using J 23653-C to push down shaft lock (6).
    - Ring (5) must be firmly seated in groove on shaft.



Perform the following steps to center coil assembly:

A. Remove coil assembly.
B. Hold coil assembly with clear bottom up to see coil ribbon.
C. While holding coil assembly, push down spring lock to rotate hub in direction of arrow until it stops.
D. The coil ribbon should be wound up snug against center hub.
E. Rotate coil hub in opposite direction approximately three (3) turns. Release spring lock between locking tabs in front of arrow.

Figure 12 - Centering Coil Assembly

NOTICE: Set steering shaft so that block teeth on upper steering shaft (56) are at 12 o'clock and 6 o'clock positions, wheels on vehicle should be straight ahead, then set ignition switch to "LOCK" position, to ensure no damage to coil assembly (3).

19. Ensure coil assembly (3) hub is centered.

NOTICE: Coil assembly (3) will become uncentered if:
1) steering column is separated from steering gear and is allowed to rotate, or
2) centering spring is pushed down, letting hub rotate while coil is removed from column. (In the event this occurs, see figure 12.)

NOTICE: If a new coil assembly (3) is being installed, assemble pre-centered coil assembly (3) to steering column. Remove centering tab and dispose. (See figure 12.)

20. Wave washer (4).
21. Coil assembly (3) using horn tower on cancelling cam assembly (7) inner ring and projections on outer ring for alignment.
22. Coil assembly retaining ring (2).

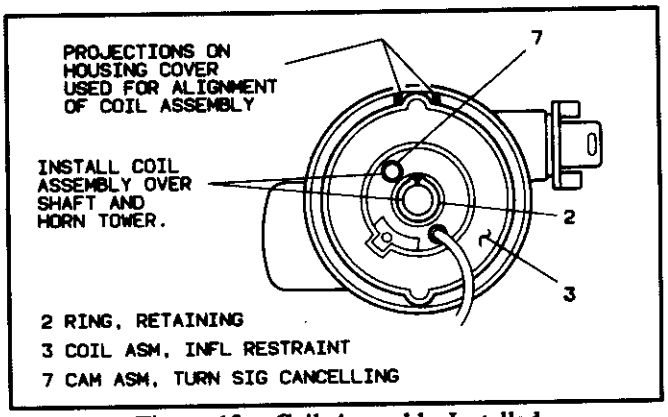


Figure 13 - Coil Assembly Installed

NOTICE: Gently pull lower coil assembly, turn signal, and pass key wires to remove any wire kinks that may be inside steering column assembly. Failure to do so may cause damage to wire harnesses.

23. Negative (-) battery cable.
24. Refer to Section 3F to complete remaining steering column assembly.
    - Enable SIR System; refer to "Enabling SIR System" in this section.

SUB SECTION B - HOUSING COVER *(Figures 1, 14 thru 18)*

INCLUDES:
LOCK HOUSING COVER ASSEMBLY
STRG COL HSG COVER END CAP
PIVOT & (PULSE) SWITCH ASM
DIMMER SWITCH ROD ACTUATOR
TILT SPRING ASSEMBLY

Tools Required:
J 23653-C Lock Plate Compressor

Important

- Before doing any service procedures in this section, removal of Inflator Module and Steering Wheel is needed. Refer to service procedures in Section 3F.

Remove or Disconnect

1. Do all steps, "Remove or Disconnect", Sub Section A.

Important

- Cruise control equipped columns: Remove housing cover end cap (25). Remove cruise control and multi-function lever connection from base plate (24). Disconnect and remove multi-function lever.

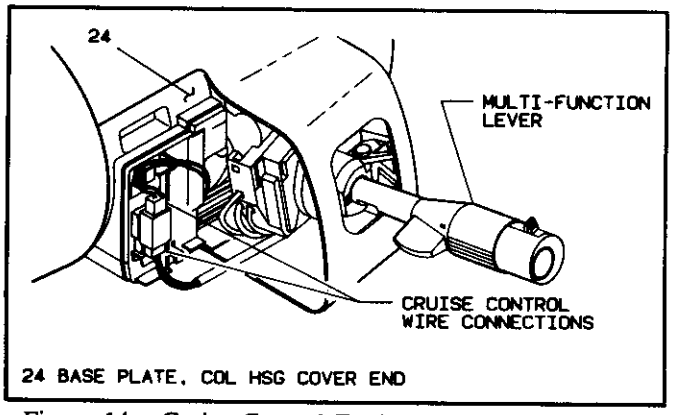


Figure 14 - Cruise Control Equipped Steering Columns

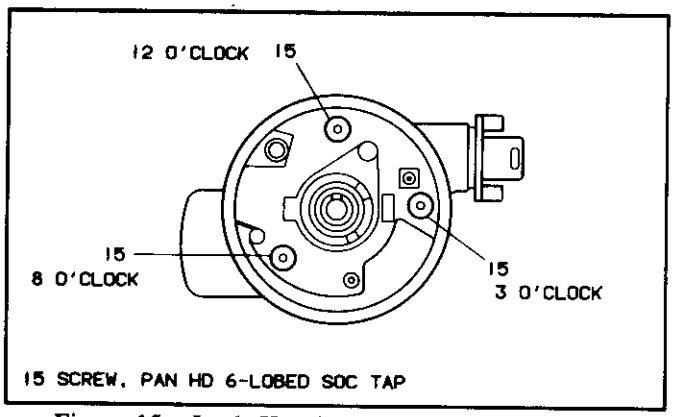


Figure 15 - Lock Housing Cover Screw Positions

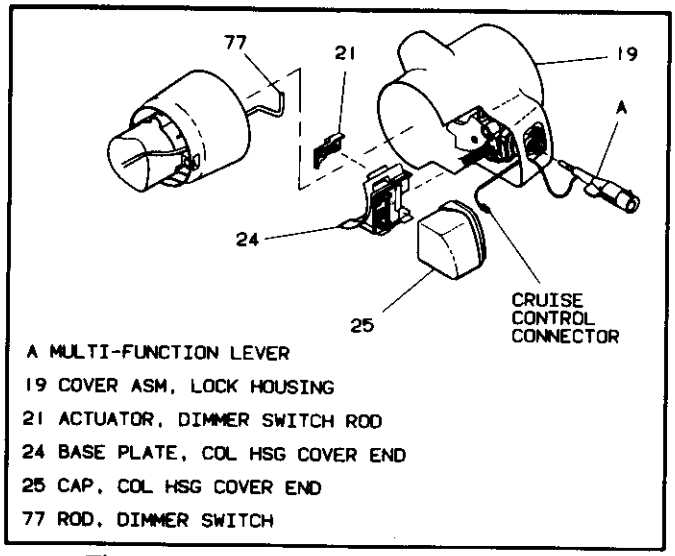


Figure 16 - Removing Lock Housing Cover

2. Cover screws (15).
3. Tilt lever. (See Section 3F.)
4. Lock housing cover assembly (19).

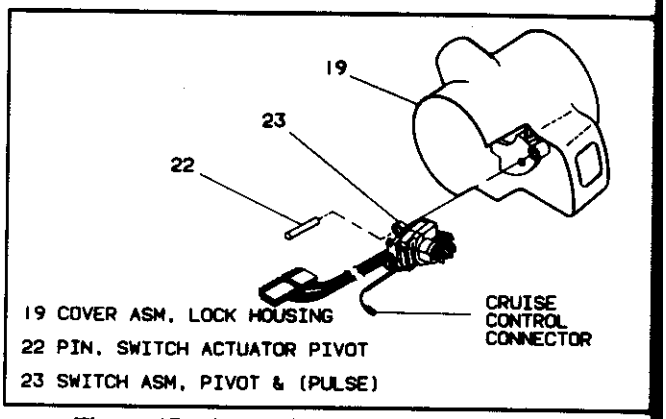


Figure 17 - Removing Pivot & (Pulse) Switch

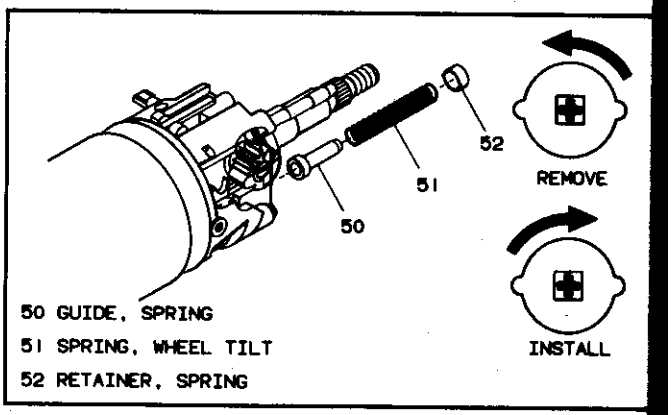


Figure 18 - Removing Tilt Spring Assembly

5. Base plate (24) and dimmer switch rod actuator (21).
6. Gently pull pivot & (pulse) switch wire harness through steering column mounting bracket, housing shroud (71), and steering column housing (46).
7. Switch actuator pivot pin (22).
8. Pivot & (pulse) switch assembly (23) from lock housing cover assembly (19).
9. Spring retainer (52).
   - Using a cross recess head screwdriver, push retainer down and turn counterclockwise to release.
10. Spring (51) and spring guide (50).

Install or Connect

NOTICE: See "Notice" on page 3F5-1 of this section.

NOTICE: Ensure all fasteners are securely seated before applying needed torque. Failure to do so may result in component damage or malfunctioning of steering column.

1. Spring guide (50) and spring (51).
   - Lubricate with lithium grease.
2. Spring retainer (52).
   - Using a cross recess screwdriver push retainer down and turn clockwise to lock in place.

3. Pivot & (pulse) switch assembly (23) to lock housing cover assembly (19).
4. Switch actuator pivot pin (22) to switch (23) and cover (19).
5. Pivot & (pulse) switch wire harness through steering column housing (46), housing shroud (71), and steering column mounting bracket.
6. Dimmer switch rod actuator (21) to base plate (24).
   - Lubricate with lithium grease.
7. Base plate (24) to lock housing cover assembly (19).
   - Bottom edge of dimmer switch rod actuator (21) should rest on bend in dimmer switch rod (77).
8. Lock housing cover assembly (19).

Important

- Cruise control equipped columns: Plug multi-function lever and cruise control connectors together and mount on base plate (24). Install multi-function lever.

9. Housing cover end cap (25).
10. Screws (15). Tighten screw in 12 o'clock position first, screw in 8 o'clock position second, and screw in 3 o'clock position third.

Tighten

- Tighten screws (15) in same order to 9.0 N·m (80 lb.in.).

11. Do all steps, "Install or Connect", Sub Section A.

SUB SECTION C - MID COLUMN

INCLUDES:

STEERING COLUMN HOUSING
STEERING WHEEL LOCK SHOE
SWITCH ACTUATOR SECTOR
SWITCH ACTUATOR RACK
BEARING ASSEMBLY
LOCK BOLT
STEERING COL HOUSING SUPPORT
STEERING COL SHAFT ASSEMBLY
IGNITION SWITCH ADJUSTMENT
DIMMER SWITCH ADJUSTMENT

Tools Required:
- J 23653-C Lock Plate Compressor
- J 21854-01 Pivot Pin Remover
- J 22635 Lock Shoe and Release Lever Pin Remover and Installer
- J 8092 Driver Handle
- J 38639 Housing Assembly Bearing Installer

Important

- Before doing any service procedures in this section, removal of Inflator Module and Steering Wheel is needed. Refer to service procedures in Section 3F.

Remove or Disconnect
(Figures 1, 19 thru 26, 33)

1. Steering column from vehicle. (See Section 3F.)

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

Inspect

- Steering column for accident damage (figure 33).

2. Do all steps, "Remove or Disconnect", Sub Section A.
3. Do steps 2 thru 6, and steps 9 and 10, "Remove or Disconnect", Sub Section B.

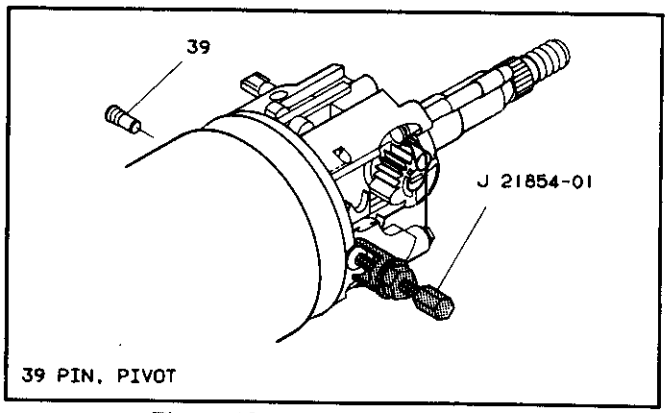


Figure 19 - Removing Pivot Pin

4. Pivot pins (39) using J 21854-01.
   - Reinstall tilt lever. (See Section 3F.)
5. Steering column housing assembly (30).
   - Pull back on tilt lever and pull steering column housing (30) down and away from column.

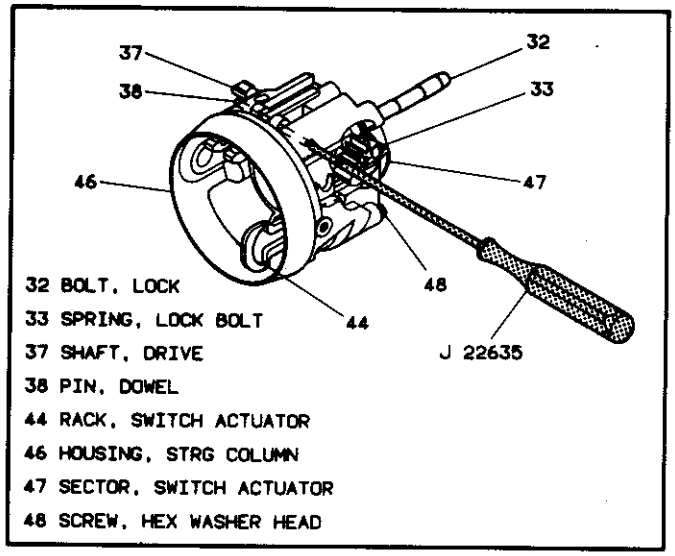


Figure 20 - Lock Housing Cover Components, Exterior

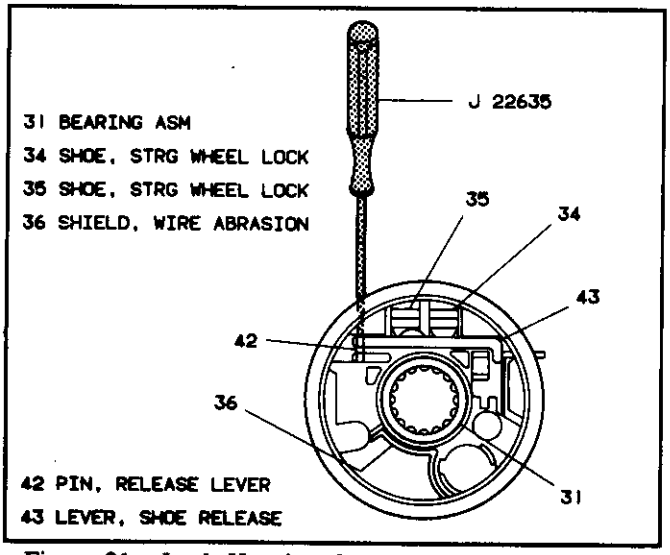


Figure 21 - Lock Housing Cover Components, Interior

NOTICE: Remove only those components necessary to do repairs.

Disassemble

Steering Column Housing Assembly

a) Bearing assembly (31).
b) Wire abrasion shield (36).
c) Hex head screw (48).
d) Lock bolt spring (33).
e) Lock bolt (32).
f) Switch actuator rack (44) and rack preload spring (45).
g) Drive shaft (37).
h) Switch actuator sector (47).
i) Release lever pin (42) using J 22635.
j) Shoe release lever (43).
k) Release lever spring (41).
l) Dowel pin (38) using J 22635.
m) Lock shoes (34,35).
n) Shoe springs (40).

Assemble

Steering Column Housing Assembly

a) Shoe springs (40).
b) Lock shoes (34,35).
c) Dowel pin (38) using J 22635.
d) Release lever spring (41).
e) Shoe release lever (43).
f) Release lever pin (42) using J 22635.
g) Switch actuator sector (47).
h) Drive shaft (37).
i) Rack preload spring (45).
j) Switch actuator rack (44) to actuator sector (47).
k) Wire abrasion shield (36).
l) Bearing assembly (31) lubricated with lithium grease to column housing (46) using J 38639 and J 8092.
m) Lock bolt (32).
n) Lock bolt spring (33).
o) Hex head screw (48).

Tighten

- Tighten screw (48) to 4.0 N·m (35 lb.in.).

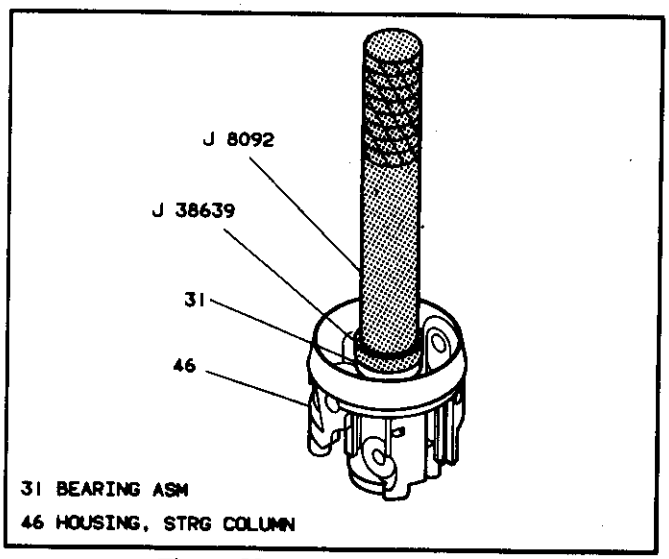


Figure 22 - Installing Bearings

6. Bearing and seal retainer (91).
7. Lower spring retainer (90).
8. Lower bearing spring (89).
9. Lower bearing seat (88).
10. Hex head screws (87).
11. Adapter & bearing assembly (86).
12. Steering column shaft assembly (55).

Inspect

- Steering column shaft assembly (55) for accident damage (figure 33).

Important

- Mark upper shaft assembly (56) and lower steering shaft assembly (59) to ensure proper assembly. Failure to assemble properly will cause steering wheel to be turned 180 degrees. (See figures 23 and 24.)

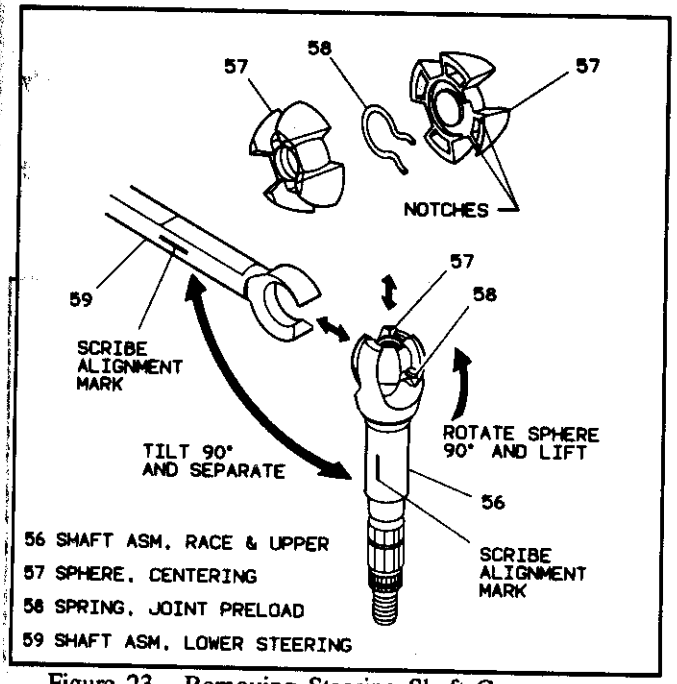


Figure 23 - Removing Steering Shaft Components

NOTICE: Remove only those components necessary to do repairs.

Disassemble

Steering Column Shaft Assembly

a) Upper shaft assembly (56), lower steering shaft assembly (59).
   - Tilt 90 degrees to each other and disengage.

b) Centering sphere (57) from upper shaft assembly (56).
   - Rotate sphere 90 degrees and slip out.

c) Joint preload spring (58) from centering sphere (57).

Assemble

Steering Column Shaft Assembly

a) Joint preload spring (58) to two centering sphere (57).

b) Centering sphere (57).
   - Lubricate with lithium grease, slip into upper shaft assembly (56), and rotate sphere 90 degrees.

Important

- Marks made on upper shaft assembly (56) and lower steering shaft assembly (59) must line up after assembled. Failure to assemble properly will cause steering wheel to be turned 180 degrees. (See figures 23 and 24.)

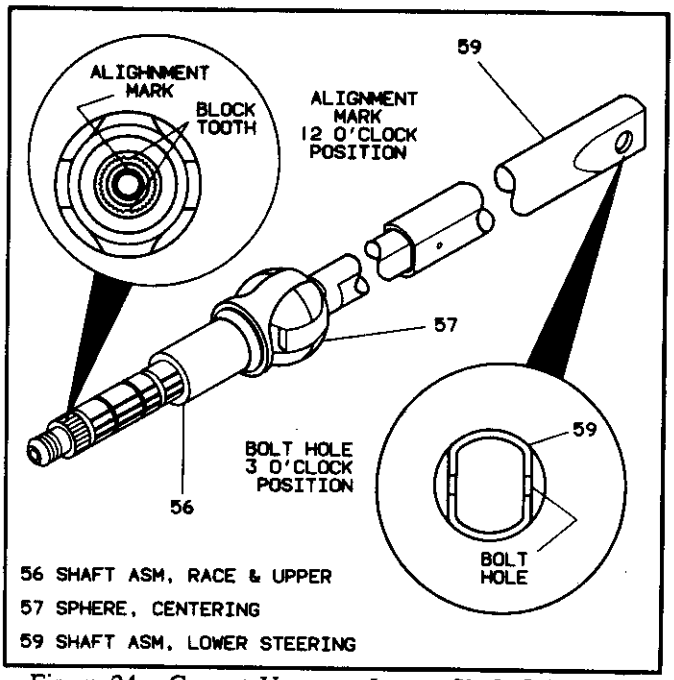


Figure 24 - Correct Upper to Lower Shaft Orientation

c) Upper shaft assembly (56) to lower steering shaft assembly (59).
   - Line up marks and tilt assemblies 90 degrees to each other.

13. Support screws (61).
14. Column housing support assembly (62), dimmer switch rod (77) from steering column jacket assembly (72).
    - Rod (77) from support (62).
15. Inhibitor cable connection from cable backdrive pin (74).
16. Steering column housing shroud (71) from jacket (72).
17. Inhibitor cross pin (75), cable backdrive pin (74), and cable backdrive pin spring (73) from shroud housing (71).
18. Hex nut (79) and screw (78).
19. Horn pad ground wire (92) and cable bracket (81).

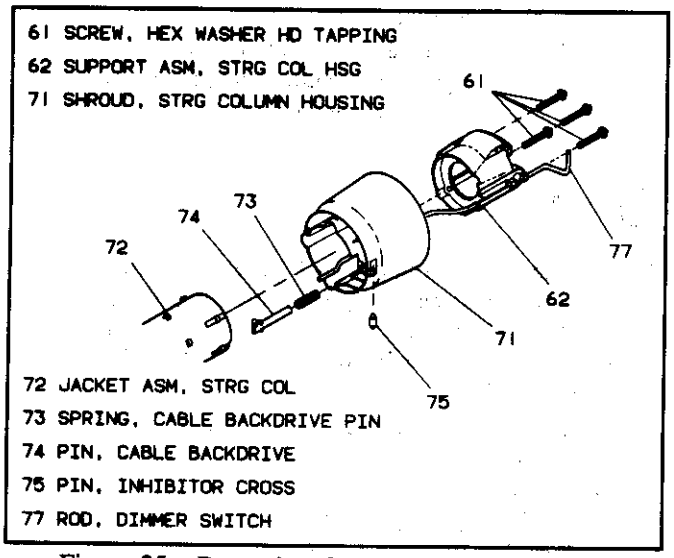


Figure 25 - Removing Column Housing Support

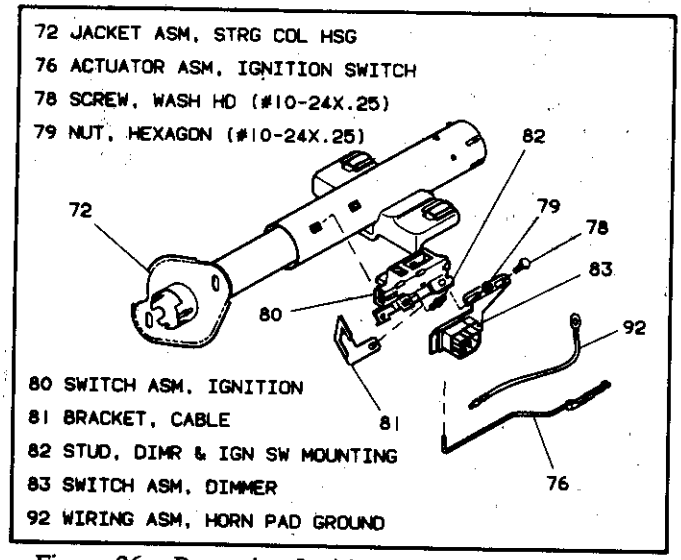


Figure 26 - Removing Ignition and Dimmer Switches

20. Dimmer switch assembly (83).
21. Mounting stud (82).
22. Ignition switch assembly (80) and switch actuator assembly (76).
    - Switch actuator assembly (76) from switch assembly (80).

Install or Connect
(Figures 1, 27 thru 31)

NOTICE: See "Notice" on page 3F5-1 of this section.

NOTICE: Ensure all fasteners are securely seated before applying needed torque. Failure to do so may result in component damage or malfunctioning of steering column.

1. Pin spring (73), backdrive pin (74), and cross pin (75) to shroud (71).
2. Shroud (71) to jacket (72).
3. Dimmer switch rod (77) to column housing support assembly (62).
4. Support assembly (62) and screws (61).

Tighten

- Tighten screws (61) to 5.3 N·m (47 lb.in.).

5. Actuator assembly (76) to housing support assembly (62).

NOTICE: Install ignition switch (80) to jacket (72) with switch in "OFF-LOCK" position. (See figure 27.)

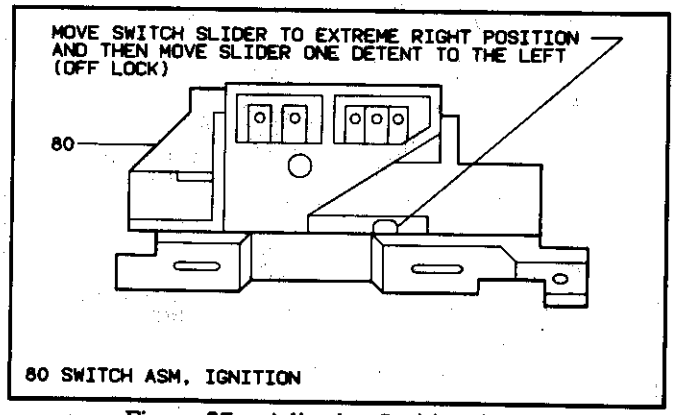


Figure 27 - Adjusting Ignition Switch

Adjust

- Ignition switch assembly (80). (See figure 27.)
  a) Move switch slider to extreme right position.
  b) Move switch slider one detent to left "OFF-LOCK" position.

6. Ignition switch assembly (80) and mounting stud (82).

Tighten

- Tighten stud (82) to 4.0 N·m (35 lb.in.).

7. Column shaft assembly (55) to jacket assembly (72).
   - Lubricate with lithium grease.
8. Adapter & bearing assembly (86).
   - Lubricate inner surface with lithium grease.
9. Hex head screws (87).

Tighten

- Tighten screws (87) to 3.4 N·m (30 lb.in.).

10. Lower bearing seat (88).
11. Lower bearing spring (89).
12. Lower spring retainer (90).
13. Bearing and seal retainer (91).
14. Dimmer switch assembly (83).
15. Cable bracket (81).
    - Inhibitor cable to cable bracket (81).
    - Inhibitor cable connection to cable backdrive pin (74).

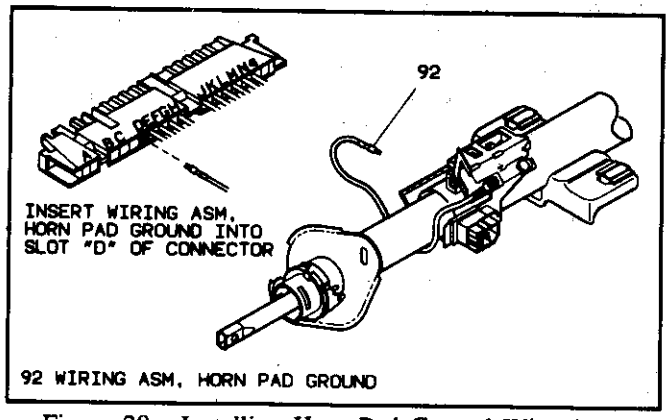


Figure 28 - Installing Horn Pad Ground Wire Asm

16. Horn pad ground wire (92). (See figure 28.)
    - Insert ground wire connector into slot "D" of turn signal switch connector body.
    - Install ground wire connector to mounting stud (82).
17. Screw (78) and nut (79).
    - Tighten hand tight.

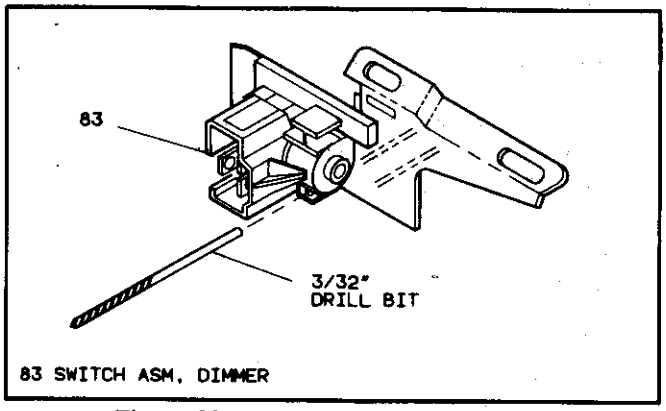


Figure 29 - Adjusting Dimmer Switch

Adjust

- Dimmer switch (83). (See figure 29.)
  a) Place a 3/32-inch drill bit in hole on switch to limit travel.
  b) Position switch on column and push against dimmer switch rod to remove all lash.
  c) Remove drill bit.

Tighten

- Tighten screw (78) and nut (79) to 4.0 N·m (35 lb.in.).

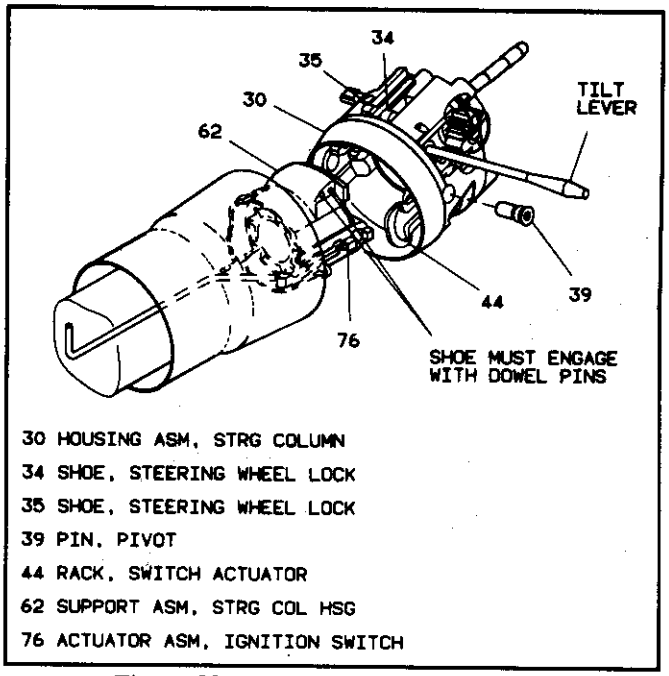


Figure 30 - Installing Column Housing to Housing Support

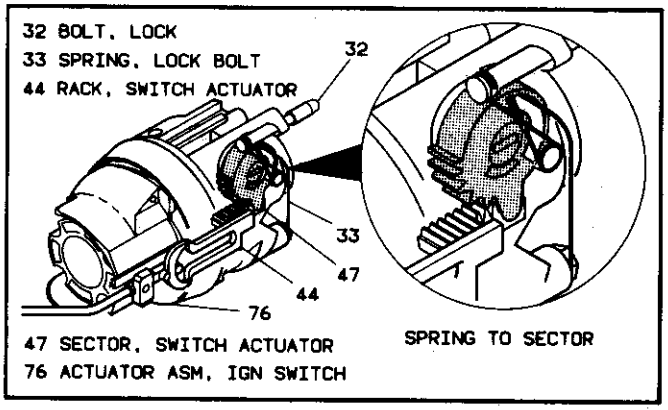


Figure 31 - Actuator Asm to Actuator Rack Installed

18. Column housing assembly (30) to column.
    - Position column housing (30) and align switch actuator rack (44) with pin on end of ignition switch actuator assembly (76).
    - Pull back on tilt lever, pushing column housing (30) onto column housing support assembly (62).
    - Release tilt lever to lock shoes (34,35) onto dowel pins.
    - Remove tilt lever. (See Section 3F.)
19. Pivot pins (39).
    - Lubricate with lithium grease.
    - Press pin until firmly seated, two places.

20. Do steps 1,2 and 5 thru 10, "Install or Connect", Sub Section B.
21. Do all steps, "Install or Connect", Sub Section A.
22. Column to vehicle. (See Section 3F.)

SUB SECTION D - LOWER COLUMN

INCLUDES:
- DISABLING SIR SYSTEM
- ENABLING SIR SYSTEM
- DIMMER SWITCH ASSEMBLY
- IGNITION SWITCH ASSEMBLY
- DIMMER SWITCH ADJUSTMENT
- IGNITION SWITCH ADJUSTMENT
- ADAPTER & BEARING ASSEMBLY

Disabling SIR System

Remove or Disconnect

- Turn ignition switch "OFF".

1. AIRBAG Fuse.
2. Lower trim panel - LH. Refer to INSTRUMENT PANEL, GAGES AND CONSOLE (SECTION 8C).
3. Connector Position Assurance (CPA) and yellow two-way SIR connector at the base of steering column.

Enabling SIR System

Install or Connect

- Turn ignition switch "OFF".

1. Yellow two-way SIR connector and Connector Position Assurance (CPA) at the base of steering column.
2. AIRBAG Fuse.
3. Lower trim panel - LH. Refer to INSTRUMENT PANEL, GAGES AND CONSOLE (SECTION 8C).
   - Turn ignition switch to "RUN" and make sure "INFL REST" warning lamp flashes 7 to 9 times and then remains "OFF". If it does not operate as described, perform "SIR Diagnostic System Check" in SIR SYSTEM DIAGNOSIS (SECTION 9J-A).

Dimmer Switch Assembly

Remove or Disconnect
(Figures 1,26 and 28)

- Disable SIR System; refer to "Disabling SIR System" in this section.

1. Negative (-) battery cable.
2. Washer head screw (78).
3. Hexagon nut (79).
4. Horn pad ground wiring assembly (92) from dimmer and ignition switch mounting stud (82).
   - Wiring assembly (92) from slot "D" of turn signal switch connector body, if necessary (figure 28).
5. Cable bracket (81).
6. Dimmer switch assembly (83).
   - Bulkhead wire harness connector from dimmer switch assembly (83).

Install or Connect
(Figures 1,26,28 and 29)

NOTICE: See "Notice" on page 3F5-1 of this section.

NOTICE: Ensure all fasteners are securely seated before applying needed torque. Failure to do so may result in component damage or malfunctioning of steering column.

1. Horn pad ground wiring assembly (92) to slot "D" of turn signal switch connector body if removal was necessary (figure 28).
   - Bulkhead wire harness connector to dimmer switch assembly (83).
2. Dimmer switch assembly (83).
3. Cable bracket (81).
4. Horn pad ground wiring assembly (92).
5. Hex nut (79) and washer head screw (78).
   - Tighten finger tight.

Adjust

- Dimmer switch assembly (83). (See figure 29.)
  a) Place a 3/32-inch drill bit in hole on switch to limit travel.
  b) Push against dimmer switch rod to remove all lash.
  c) Remove drill bit.

Tighten

- Tighten hex nut (79) and washer head screw (78) to 4.0 N·m (35 lb.in.).

- Enable SIR System; refer to "Enabling SIR System" in this section.

6. Negative (-) battery cable.

Ignition Switch Assembly

Remove or Disconnect
(Figures 1,26 and 28)

- Disable SIR System; refer to "Disabling SIR System" in this section.

1. Negative (-) battery cable.
2. Washer head screw (78).
3. Hexagon nut (79).
4. Horn pad ground wiring assembly (92) from dimmer and ignition switch mounting stud.
   - Wiring assembly (92) from slot "D" of turn signal switch connector body, if necessary (figure 28).
5. Cable bracket (81).
6. Dimmer switch assembly (83).
7. Dimmer and ignition switch mounting stud (82).
8. Ignition switch assembly (80) from jacket assembly (72).
   - Bulkhead wire harness connector from ignition switch assembly (80).

Install or Connect
(Figures 1 and 26 thru 29)

NOTICE: See "Notice" on page 3F5-1 of this section.

NOTICE: Ensure all fasteners are securely seated before applying needed torque. Failure to do so may result in component damage or malfunctioning of steering column.

NOTICE: Install ignition switch assembly (80) to jacket (72) with switch in "OFF-LOCK" position. (See figure 27.)

Adjust

- Ignition switch assembly (80).
  a) Move switch slider to extreme right position.
  b) Move switch slider one detent to left "OFF-LOCK" position.

1. Ignition switch assembly (80) and dimmer and ignition switch mounting stud (82).
   - Bulkhead wire harness connector to ignition switch assembly (80).

Tighten

- Tighten stud (82) to 4.0 N·m (35 lb.in.).

2. Horn pad ground wiring assembly (92) to slot "D" of turn signal switch connector body if removal was necessary (figure 28).
3. Dimmer switch assembly (83).
4. Cable bracket (81) to stud (82).
5. Horn pad ground wiring assembly (92) to stud (82).
6. Hex nut (79) and washer head screw (78).
   - Tighten finger tight.

Adjust

- Dimmer switch assembly (83). (See figure 29.)
  a) Place a 3/32-inch drill bit in hole on switch to limit travel.
  b) Push against dimmer switch rod to remove all lash.
  c) Remove drill bit.

Tighten

- Tighten hex nut (79) and washer head screw (78) to 4.0 N·m (35 lb.in.).

- Enable SIR System; refer to "Enabling SIR System" in this section.

7. Negative (-) battery cable.

Adapter & Bearing Assembly

Remove or Disconnect
(Figures 1,32 and 33)

- Disable SIR System; refer to "Disabling SIR System" in this section.

1. Negative (-) battery cable.
2. Steering column from vehicle. (See Section 3F.)

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

Inspect

- Steering column for accident damage (figure 33).

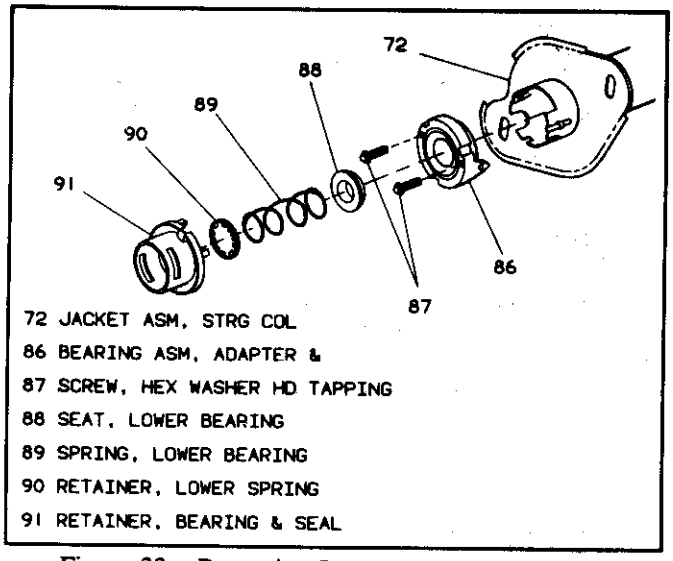


Figure 32 - Removing Lower Bearing Assembly

3. Bearing and seal retainer (91).
4. Lower spring retainer (90).
5. Lower bearing spring (89).
6. Lower bearing seat (88).
7. Hex head screws (87).
8. Adapter and bearing assembly (86).

Install or Connect
(Figures 1 and 32)

NOTICE: See "Notice" on page 3F5-1 of this section.

NOTICE: Ensure all fasteners are securely seated before applying needed torque. Failure to do so may result in component damage or malfunctioning of steering column.

1. Adapter & bearing assembly (86).
   - Lubricate inner surface with lithium grease.
2. Hex head screws (87).

Tighten

- Tighten hex head screws (87) to 3.4 N·m (30 lb.in.).

3. Lower bearing seat (88).
4. Lower bearing spring (89).
5. New lower spring retainer (90).
6. Bearing and seal retainer (91).
7. Steering column to vehicle. (See Section 3F.)
- Enable SIR System; refer to "Enabling SIR System" in this section.
8. Negative (-) battery cable.

CHECKING STEERING COLUMN FOR ACCIDENT DAMAGE

NOTICE: Vehicles involved in accidents resulting in frame damage, major body or sheet metal damage, or where the steering column has been impacted may also have a damaged or misaligned steering column.

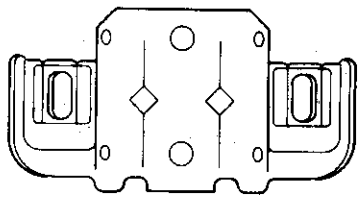
CHECKING PROCEDURE

JACKET ASM, STEERING COLUMN

- Check capsules on steering column bracket assembly; all should be within 1.59mm from the bottom of the slots (View A). If not, bracket should be replaced if bracket is bolted to the jacket asm or the jacket asm should be replaced if bracket is welded to jacket asm.
- Check contact surface "A" on capsules (View B). The bolt head must not contact surface "A" or shear load would be increased. If contact is made, replace bracket asm or jacket asm.
- Check for jacket asm collapse by measuring the distance from the lower edge of upper jacket to a defined point on the lower jacket (View D). If measured dimensions are not within specifications, a new jacket must be installed.

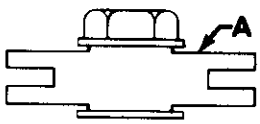
STEERING SHAFT ASM

- Visually inspect steering shaft for sheared injected plastic (View C). If steering shaft shows sheared plastic, a new steering shaft must be installed.
- Any frame damage that could cause a bent steering shaft must have steering shaft runout checked in the following manner: Using a dial indicator at lower end of steering shaft, have steering wheel rotated. Runout must not exceed 1.59mm.



Capsules must be within 1.5mm from bottom of slots; if not, replace bracket assembly

VIEW A



The bolt head must not contact surface "A". If contact is made, the capsule shear load will be increased - Replace bracket.

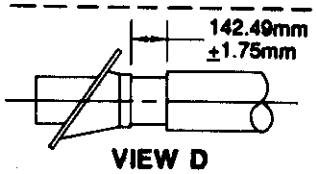
VIEW B

Check for sheared injected plastic at these locations.

VIEW C

Method to Determine Column Collapse

Measure distance between arrows.



VIEW D

Figure 33 - Checking Column for Accident Damage

SPECIFICATIONS

FASTENER TORQUES

1	Steering Wheel-to-Shaft Nut	41.0 N·m (30 lb.ft.)
9	Turn Signal Switch to Housing Screws	3.4 N·m (30 lb.in.)
10	Signal Switch Arm to Turn Signal Switch Screw	2.3 N·m (20 lb.in.)
15	Lock Housing Cover to Housing Assembly Screws	9.0 N·m (80 lb.in.)
18	Lock Cylinder Assembly to Lock Housing Cover Screw	2.5 N·m (22 lb.in.)
48	Lock Bolt Spring to Housing Screw	4.0 N·m (35 lb.in.)
61	Support-to-Upper Jacket Screws	5.3 N·m (47 lb.in.)
78	Ignition Switch to Upper Jacket Screw	4.0 N·m (35 lb.in.)
79	Dimmer Switch to Upper Jacket Nut	4.0 N·m (35 lb.in.)
82	Ignition Switch to Upper Jacket Stud	4.0 N·m (35 lb.in.)
87	Adapter & Bearing Assembly to Jacket Screws	3.4 N·m (30 lb.in.)

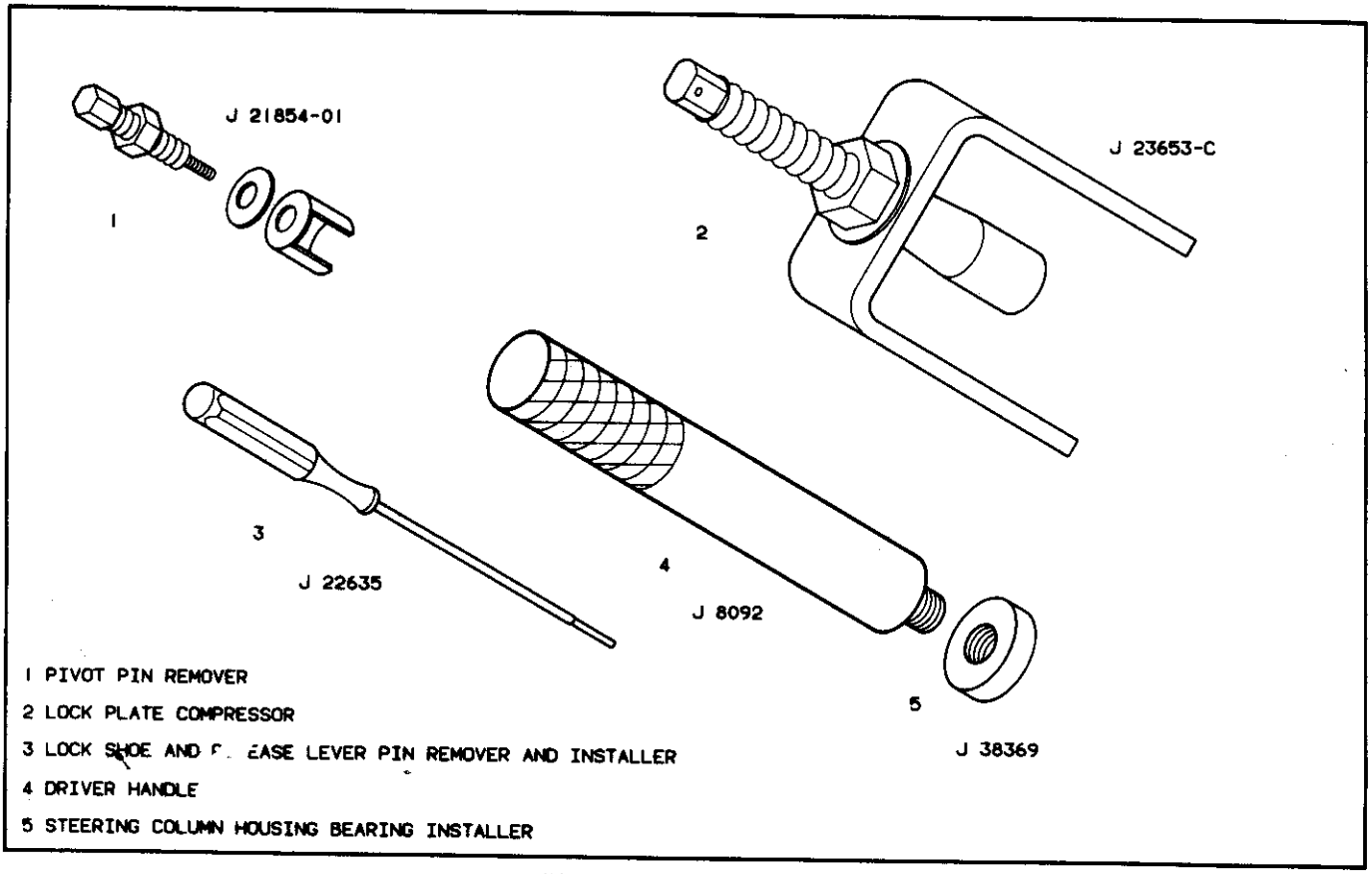


Figure 34 - Special Tools