SECTION 3F

STEERING WHEEL AND COLUMN ON-VEHICLE SERVICE

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 trouble codes from setting. Failure to follow procedures could result in possible air bag deployment, personal injury, or otherwise 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

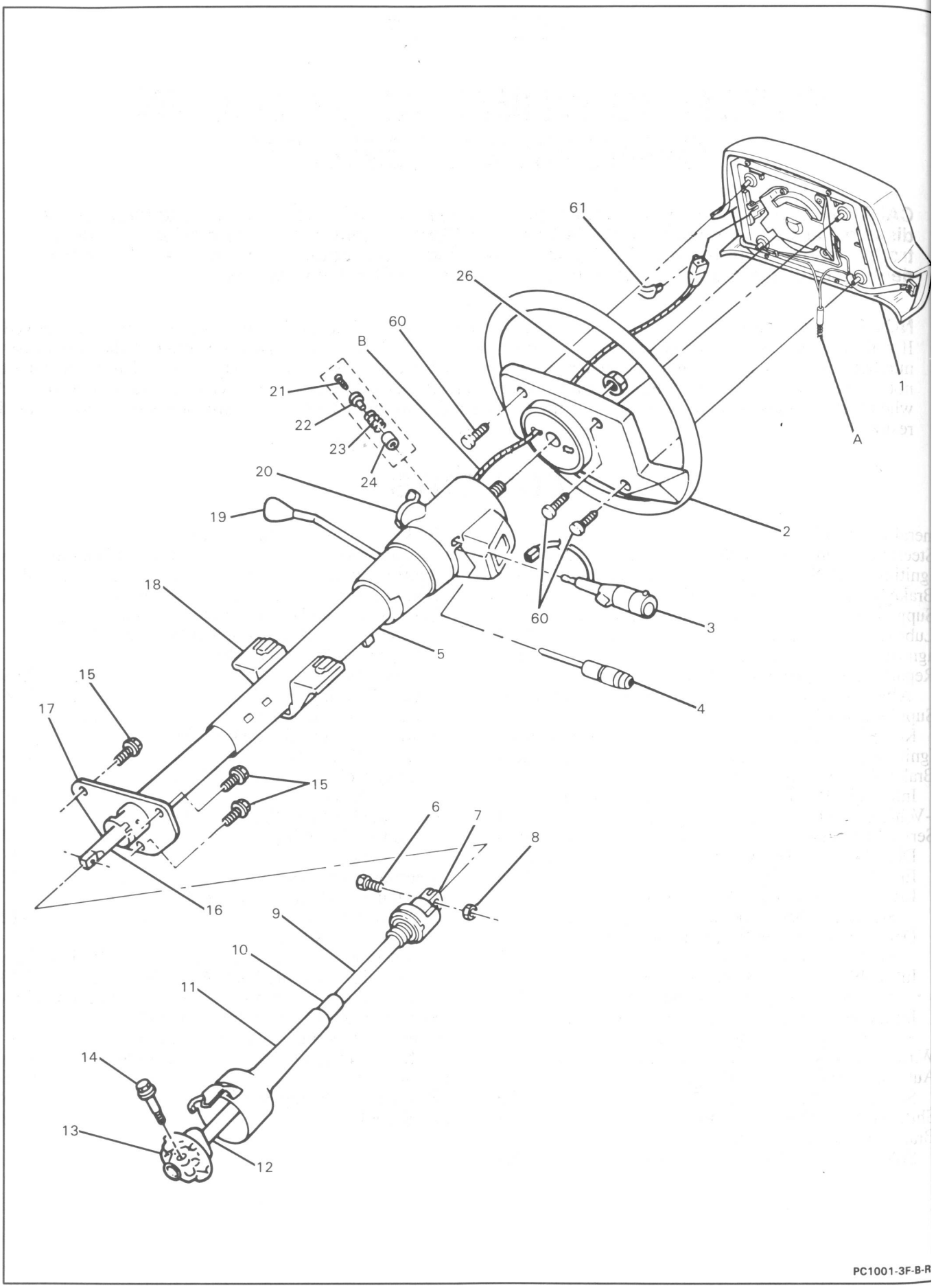

Figure 1 – Steering Column Assembly with SIR

A LEAD, HORN
B HARNESS ASSEMBLY, COIL WIRING
1 MODULE ASSEMBLY, INFLATABLE RESTRAINT STEERING WHEEL
2 WHEEL ASSEMBLY, STEERING
3 LEVER ASSEMBLY, TURN SIGNAL AND HEADLAMP DIMMER SWITCH AND CRUISE CONTROL ACTUATOR AND WINDSHIELD WIPER AND WINDSHIELD WASHER
4 LEVER ASSEMBLY, STEERING COLUMN TILT WHEEL RELEASE
5 COLUMN ASSEMBLY, STEERING
6 BOLT/SCREW, UPPER INTERMEDIATE STEERING SHAFT
7 COUPLING, POT JOINT
8 NUT, INTERMEDIATE STEERING SHAFT, 54 N•m (40 LB. FT.)
9 SHAFT ASSEMBLY, UPPER INTERMEDIATE STEERING
10 SEAL, UPPER INTERMEDIATE STEERING SHAFT
11 SHIELD, STEERING GEAR
12 SHAFT ASSEMBLY, LOWER INTERMEDIATE STEERING
13 COUPLING, STEERING GEAR
14 BOLT/SCREW, STEERING GEAR COUPLING, 31 N•m (23 LB. FT.)
15 BOLT/SCREW, STEERING COLUMN LOWER SUPPORT, 6.5 N•m (58 LB. IN.)
16 SHAFT ASSEMBLY, LOWER STEERING
17 JACKET, STEERING COLUMN
18 BRACKET, STEERING COLUMN
19 LEVER ASSEMBLY, AUTOMATIC TRANSMISSION CONTROL
20 CYLINDER ASSEMBLY, STEERING COLUMN LOCK AND IGNITION
21 BOLT/SCREW, HAZARD WARNING SWITCH KNOB, 0.7 N•m (6 LB. IN.)
22 BUTTON, HAZARD WARNING SWITCH
23 SPRING, HAZARD WARNING SWITCH KNOB
24 KNOB, HAZARD WARNING SWITCH
26 NUT, STEERING COLUMN ASSEMBLY, 41 N•m (30 LB. FT.)
60 BOLT/SCREW, STEERING WHEEL ASSEMBLY, 6 N•m (53 LB. IN.)
61 RETAINER, INFLATABLE RESTRAINT STEERING WHEEL MODULE WIRING HARNESS CONNECTOR

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Figure 2 – Steering Column Assembly with SIR – Legend

GENERAL DESCRIPTION

STEERING COLUMN ASSEMBLY

Figures 1 and 2

The locking energy-absorbing column assembly (5) includes three important features in addition to the steering function.

1. In a front-end collision, the energy-absorbing column assembly (5) is designed to collapse, minimizing the possibility of driver injury.
2. The steering column lock and ignition cylinder assembly are conveniently mounted on the column assembly.
3. When locked, the column-mounted lock acts as a theft deterrent by preventing the operation of both ignition and steering.

The turn signal and headlamp dimmer switch and cruise control actuator and windshield wiper and windshield washer lever assembly (3) (multifunction turn signal lever) controls the turn signals, headlamp high beam, windshield washer and wipers, and cruise control.

To ensure the energy-absorbing action, use only the specified bolts/screws and nuts and tighten them to their specified torques. Apply a thin coat of lithium grease to all friction points during reassembly.

When the column assembly (5) is removed from the vehicle, handle it with special care. Using a steering wheel puller other than the one recommended in this manual, hitting the end of the steering shaft or automatic transmission control lever sharply, leaning on the column assembly, or dropping the column assembly could shear or loosen the plastic fasteners that keep the column assembly rigid.

IGNITION LOCK SYSTEM

Figure 3

All column-shift automatic transmission vehicles contain a mechanical neutral start system. This system relies on a mechanical block to prevent starting the engine with the automatic transmission control lever in other than "P" or "N."

The mechanical block is a wedge shape finger (28) added to the ignition switch actuator rod (29).

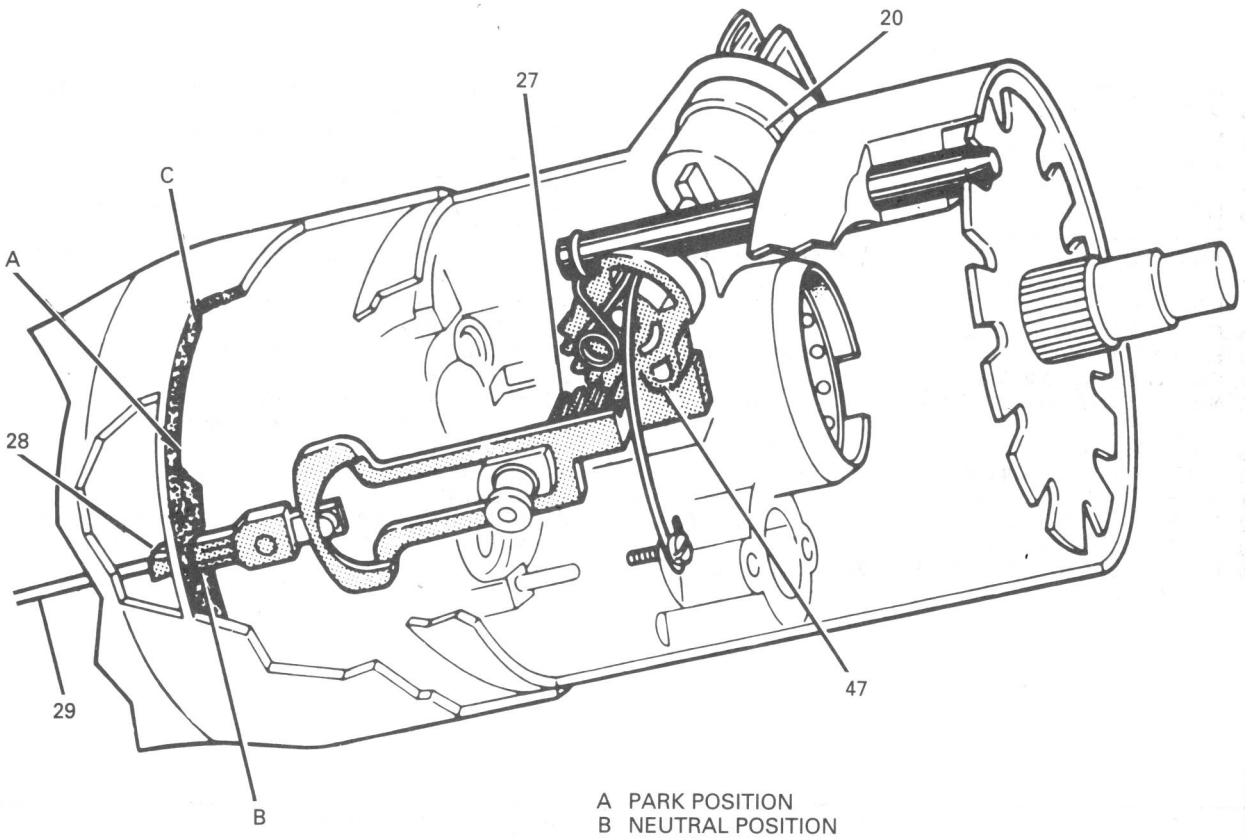
In either "P" or "N," the wedge shape finger (28) passes through the bowl plate slots, allowing the lock cylinder assembly (20) to turn to start the engine.

If the control lever is in any position other than "P" or "N," the wedge shape finger (28) will not pass through the bowl plate, and the engine will not start.

BRAKE TRANSMISSION SHIFT INTERLOCK (BTSI)

The brake transmission shift interlock system prevents the driver from shifting out of "PARK" without simultaneously pressing the brake pedal assembly. When energized, the brake transmission shift interlock solenoid assembly locks the gearshift lever bowl assembly.

When pressure is applied to the brake pedal assembly, the brake transmission shift interlock solenoid assembly is de-energized and releases the gearshift lever bowl assembly.



A PARK POSITION
B NEUTRAL POSITION
C PLATE, BOWL
20 CYLINDER ASSEMBLY, STEERING COLUMN LOCK AND IGNITION
27 RACK, SWITCH ACTUATOR
28 FINGER, WEDGE SHAPE
29 ROD, SWITCH ACTUATOR
47 SECTOR, SWITCH ACTUATOR

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Figure 3 – Mechanical Neutral Start System

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR)

The supplemental inflatable restraint (SIR) helps supplement the protection offered by the driver's seat belt assembly by deploying an air bag from the center of the steering wheel assembly during certain frontal crashes. The air bag deploys when the vehicle is involved in a frontal crash of sufficient force up to 30 degrees off the centerline of the vehicle. The steering column assembly is collapsible and should be inspected after an accident whether or not a deployment has occurred.

The SIR system components in the steering wheel and steering column assemblies are the inflatable restraint steering wheel module assembly and the SIR coil assembly. To obtain a detailed description of these components, refer to SECTION 9J.

LUBRICATION

Apply a thin coat of lithium grease to all friction points when reassembling components.

DIAGNOSIS

REPAIRS AND INSPECTIONS REQUIRED AFTER AN ACCIDENT

To obtain a detailed description of the repairs inspections which must be performed after an accide SIR-equipped vehicles, whether or not a deploymen occurred, refer to SECTION 9J.

SUPPLEMENTAL INFLATABLE RESTRAIN (SIR)

To diagnose faults within the SIR system, ref SECTION 9J-A.

ON-VEHICLE SERVICE

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 otherwise unneeded SIR system repairs.

The diagnostic energy reserve module (DERM) can maintain sufficient voltage to cause a deployment for up to ten minutes after the ignition switch is turned "OFF" or the storage battery assembly is disconnected. Many of the service procedures require disconnection of the "AIR BAG" fuse and the inflator module circuits from the deployment loops to avoid an accidental deployment.

Disabling the SIR System

Remove or Disconnect

1. Turn steering wheel assembly so vehicle's tire and wheel assemblies are pointing straight ahead.
2. Turn ignition switch to "LOCK."
3. "AIR BAG" fuse from fuse block.
4. Connector position assurance (CPA) and yellow two-way SIR harness connector at base of steering column assembly.

Important

- With "AIR BAG" fuse removed and ignition switch in "RUN," air bag indicator lamp on instrument panel cluster assembly will light. This is normal operation and does not indicate an SIR fault.

Enabling the SIR System

Install or Connect

1. Turn ignition switch to "LOCK."
2. Yellow two-way SIR harness connector at base of steering column assembly and connector position assurance (CPA).
3. "AIR BAG" fuse to fuse block.
4. Turn ignition switch to "RUN" and verify air bag indicator flashes 7 to 9 times and then turns off. If indicator does not respond as stated, refer to SECTION 9J-A.

Live (Undeployed) Inflatable Restraint Steering Wheel Module Assembly

Special care is necessary when handling and storing a live (undeployed) inflatable restraint steering wheel module assembly. The rapid gas generation produced during deployment of the air bag could cause the inflatable restraint steering wheel module assembly, or another object placed in front of it, to be thrown through the air in the unlikely event of an accidental deployment.

CAUTION: When carrying a live inflatable restraint steering wheel module assembly, make sure the bag opening is pointed away from you. Never carry the inflatable restraint steering wheel module assembly by the wires or electrical connector on the underside of it. In case of an accidental deployment, the bag will then deploy with minimal chance of injury. When placing a live inflatable restraint steering wheel module assembly 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 assembly with the inflatable restraint steering wheel module assembly face down and steering column assembly 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.

Deployed Inflatable Restraint Steering Wheel Module Assembly

After the inflatable restraint steering wheel module assembly has been deployed, the surface of the air bag may contain a powdery residue. This powder consists primarily 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 with many service procedures, you should wear gloves and safety glasses.

Inflatable Restraint Steering Wheel Module Assembly Shipping Procedures

Service personnel should refer to the latest service bulletins for proper SIR inflatable restraint steering wheel module assembly shipping procedures.

Inflatable Restraint Steering Wheel Module Assembly Scrapping Procedures

During the course of a vehicle's useful life, certain situations may arise which will necessitate the disposal of a live (undeployed) inflatable restraint steering wheel module assembly. This information covers proper procedures for disposing of a live inflatable restraint steering wheel module assembly.

Before a live inflatable restraint steering wheel module assembly can be disposed of, it must be deployed. Live inflatable restraint steering wheel module assemblies must not be disposed of through normal refuse channels.

CAUTION: Failure to follow proper supplemental inflatable restraint (SIR) inflatable restraint steering wheel module assembly disposal procedures can result in air bag deployment which may cause personal injury. Undeployed inflatable restraint steering wheel module assemblies must not be disposed of through normal refuse channels. The undeployed inflatable restraint steering wheel module assembly 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.

If a vehicle is the subject of a Product Liability Report related to the SIR system and is subject to a Preliminary Investigation (GM-1241), DO NOT DEPLOY the inflatable restraint steering wheel module assembly and DO NOT ALTER the SIR system in any manner. Refer to the applicable service bulletin on SIR shipping procedures for details on handling SIR systems involved with GM-1241. If a vehicle is the subject of a campaign affecting inflatable restraint steering wheel module assemblies, DO NOT DEPLOY the inflatable restraint steering wheel module assembly. Follow instructions in the campaign service bulletin for proper disposition of the inflatable restraint steering wheel module assembly.

If an inflatable restraint steering wheel module assembly is replaced under warranty, DO NOT DEPLOY the air bag. The inflatable restraint steering wheel module assembly may need to be returned, undeployed, to Inland Fisher Guide. Refer to procedures shown in the appropriate service bulletin regarding SIR shipping procedures.

In situations which require deployment of a live (undeployed) inflatable restraint steering wheel module assembly, deployment may be accomplished inside or outside the vehicle. The method employed depends upon the final disposition of the particular vehicle, as noted in "Deployment Outside Vehicle" and "Deployment Inside Vehicle" in SECTION 9J.

WIRING REPAIRS

If the wiring pigtail (wires attached directly to the component, not by a connector) on either the inflatable restraint steering wheel module assembly or the SIR coil assembly is damaged, the entire component must be replaced. Absolutely no wire, connector, or terminal repairs are to be attempted on either the inflatable restraint steering wheel module assembly or the SIR coil assembly.

AUTOMATIC TRANSMISSION RANGE SELECTOR ROD

Figure 4

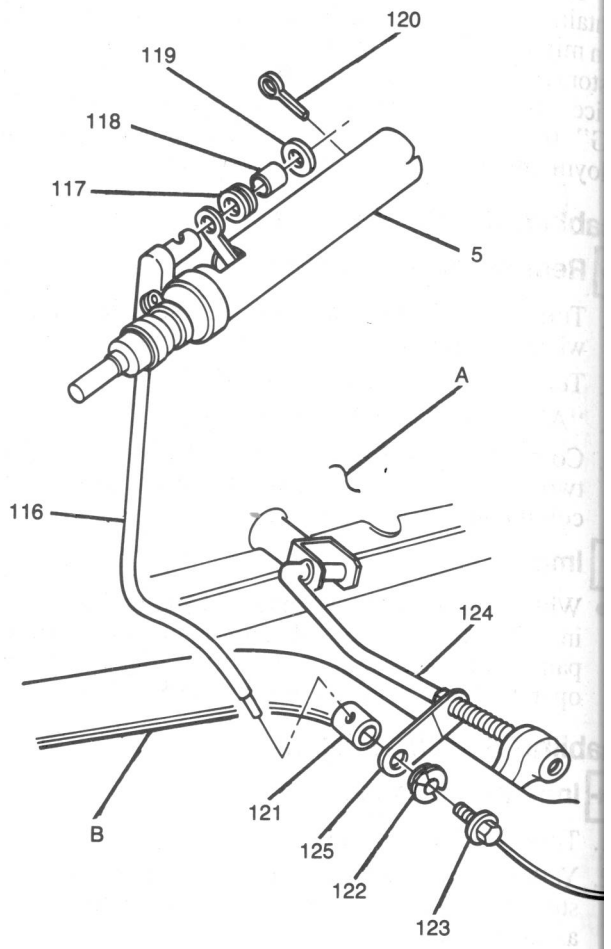
Remove or Disconnect

1. Put automatic transmission control lever in "N" (Neutral).
2. Retainer (120).
3. Washer (119), bearing (118) and insulator (117).
4. Selector rod (116) from column assembly (5).
5. Raise and suitably support vehicle. Refer to SECTION 0A.
6. Bolt/screw (123), washer (122) and swivel (121) from equalizer lever (125) and selector rod (116).
7. Selector rod (116) from vehicle.

Install or Connect

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

1. Swivel (121), washer (122) and bolt/screw (123) to equalizer lever (125) and selector rod (116).



A CASE, AUTOMATIC TRANSMISSION
B FRAME ASSEMBLY
5 COLUMN ASSEMBLY, STEERING
116 ROD, AUTOMATIC TRANSMISSION RANGE SELECTO
117 INSULATOR, AUTOMATIC TRANSMISSION RANGE SELECTOR ROD
118 BEARING, AUTOMATIC TRANSMISSION RANGE SELECTOR ROD
119 WASHER, AUTOMATIC TRANSMISSION RANGE SELECTOR ROD
120 RETAINER, AUTOMATIC TRANSMISSION RANGE SELECTOR ROD
121 SWIVEL, AUTOMATIC TRANSMISSION RANGE SELECTOR ROD
122 WASHER, AUTOMATIC TRANSMISSION RANGE SELECTOR ROD
123 BOLT/SCREW, AUTOMATIC TRANSMISSION RANGE SELECTOR ROD SWIVEL, 28 N•m (21 LB. FT.)
124 LEVER ASSEMBLY, AUTOMATIC TRANSMISSION RANGE SELECTOR LEVER EQUALIZER
125 LEVER, AUTOMATIC TRANSMISSION RANGE SELECTOR LEVER EQUALIZER

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Figure 4 – Automatic Transmission Range Selector Rod

- Hold swivel (121) flush against equalizer lever (125) and finger tighten bolt/screw (123) against selector rod (116).

Important

- No force should be exerted in either direction on selector rod (116) or equalizer lever (125) while tightening bolt/screw (123).

Tighten

- Bolt/screw (123) to 28 N•m (21 lb. ft.).

2. Lower vehicle.
3. Bearing (118), washer (119) and insulator (117) to column assembly (5) and selector rod (116).
4. Retainer (120).
5. Ensure correct adjustment of steering column shift control linkage.
   - When moving automatic transmission control lever from "P" (Park) to "1" (First Gear), all transmission detent positions should be attainable.
   - Key can be removed only with control lever in "P" (Park) and steering column lock and ignition cylinder assembly in "LOCK."
   - Engine will start only in "P" (Park) or "N" (Neutral).

   If these conditions are not met, adjust the steering column shift control linkage. Refer to SECTION 7A.

SHIFT INDICATOR CABLE ADJUSTMENT

Figure 5

Remove or Disconnect

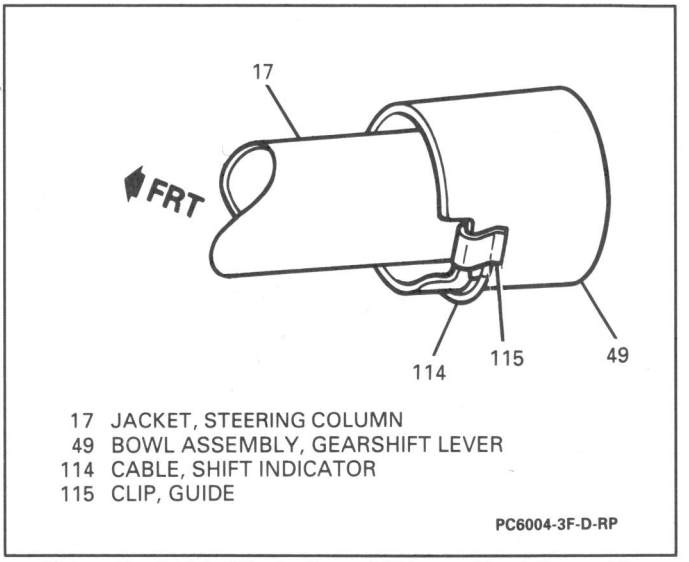
- Instrument panel steering column opening filler assembly. Refer to SECTION 8C.

Adjust

- Shift indicator.
  - A. Steering column attachment should be complete before adjusting shift indicator.
  - B. Shift lever should be in "N" gate notch.
  - C. Position clip (115) on edge of bowl assembly (49) to centrally position pointer between alignment dots below "N."
  - D. Push clip (115) onto bowl assembly (49).
  - E. Make sure indicator cable (114) rests on bowl (49), not on jacket (17).

Install or Connect

- Instrument panel steering column opening filler assembly. Refer to SECTION 8C.



17 JACKET, STEERING COLUMN
49 BOWL ASSEMBLY, GEARSHIFT LEVER
114 CABLE, SHIFT INDICATOR
115 CLIP, GUIDE

PC6004-3F-D-RP

Figure 5 – Guide Clip to Gearshift Lever Bowl Assembly

IGNITION SWITCH

Figures 5, 6 and 7

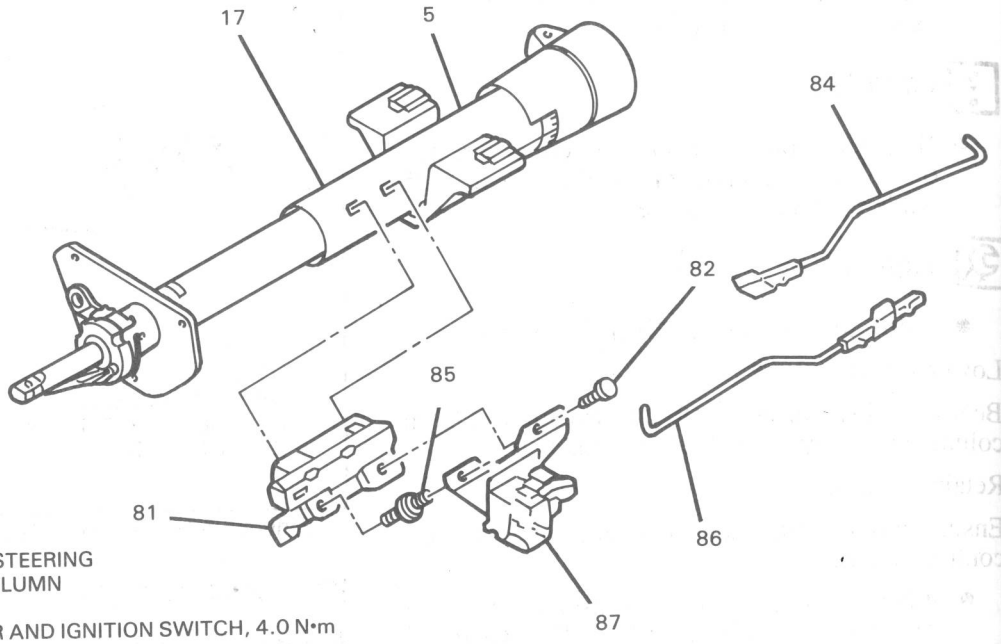
Remove or Disconnect

1. Disable SIR system. Refer to "Disabling the SIR System" in this section.
2. Instrument panel driver knee bolster assembly and deflector. Refer to SECTION 8C.
3. Ensure steering column lock and ignition cylinder assembly is in "LOCK" position.
4. Indicator cable (114).
5. Steering column bracket nuts from steering column bracket.
6. Lower column assembly (5).
7. Electrical connectors from dimmer switch assembly (87) and ignition switch (81).
8. Brake transmission shift interlock solenoid assembly. Refer to SECTION 3F5A.
9. Brake transmission shift interlock solenoid bracket. Refer to SECTION 3F5A.
10. Bolt/screw (82) from dimmer switch assembly (87).
11. Dimmer switch actuator rod (84).
12. Dimmer switch assembly (87).
13. Stud (85) from ignition switch (81).
14. Ignition switch actuator rod (86)
15. Ignition switch (81).

Install or Connect

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

1. Ensure ignition switch (81) is in "LOCK" position.
   - Move switch slider to extreme right position and then move slider one detent left.
2. Ensure steering column lock and ignition cylinder assembly is in "LOCK" position.
3. Ignition switch (81) to jacket (17).
4. Ignition switch actuator rod (86) to ignition switch (81).



5 COLUMN ASSEMBLY, STEERING
17 JACKET, STEERING COLUMN
81 SWITCH, IGNITION
82 BOLT/SCREW, DIMMER AND IGNITION SWITCH, 4.0 N•m (35 LB. IN.)
84 ROD, DIMMER SWITCH ACTUATOR
85 STUD, DIMMER AND IGNITION SWITCH MOUNTING, 4.0 N•m (35 LB. IN.)
86 ROD, IGNITION SWITCH ACTUATOR
87 SWITCH ASSEMBLY, DIMMER

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Figure 6 – Removing Ignition and Dimmer Switches

5. Stud (85) to ignition switch (81) until snug.

Tighten

- Stud (85) to 4 N•m (35 lb. in.).

6. Dimmer switch assembly (87) to ignition switch (81).
7. Bolt/screw (82) to dimmer switch assembly (87).

Tighten

- Bolt/screw (82) to 4 N•m (35 lb. in.).

8. Cycle steering column lock and ignition cylinder assembly through all switch positions to ensure correct ignition switch adjustment.

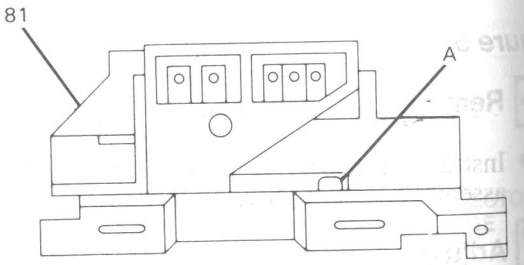
Adjust

- Ignition switch (81), if necessary. Loosen bolt/screw (82) and slide ignition switch (81) up or down until steering column lock and ignition cylinder assembly functions properly in all switch positions.

Tighten

A. Bolt/screw (82) to 4 N•m (35 lb. in.).
B. Stud (85) to 4 N•m (35 lb. in.).

9. Depress ignition switch mechanism slightly to insert 3/32-inch drill bit into ignition switch (81).
10. Dimmer switch actuator rod (84) to dimmer switch assembly (87).



A LOCK POSITION
81 SWITCH, IGNITION

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Figure 7 – Ignition Switch Adjustment

Adjust

- Dimmer switch assembly (87), if necessar Slide dimmer switch assembly (87) up or dow until click is heard when multifunction lev assembly is pulled to activate high and lo beams.

Tighten

- Bolt/screw (82) to 4 N•m (35 lb. in.).

11. Brake transmission shift interlock solenoid bracket. Refer to SECTION 3F5A.
12. Brake transmission shift interlock solenoid assembly. Refer to SECTION 3F5A.
13. Electrical connectors to dimmer switch assembly (87) and ignition switch (81).
14. Raise column assembly.
15. Steering column bracket nuts to steering column bracket.

Tighten

- Nuts to 27 N•m (20 lb. ft.).

16. Indicator cable (114).

Adjust

- Shift indicator cable, if necessary. Refer to "Shift Indicator Cable Adjustment," in this section.

16. Instrument panel driver knee bolster assembly and deflector. Refer to SECTION 8C.
17. Enable SIR system. Refer to "Enabling the SIR System" in this section.

TURN SIGNAL AND HEADLAMP DIMMER SWITCH AND CRUISE CONTROL ACTUATOR AND WINDSHIELD WIPER AND WINDSHIELD WASHER LEVER ASSEMBLY

Figure 8

Remove or Disconnect

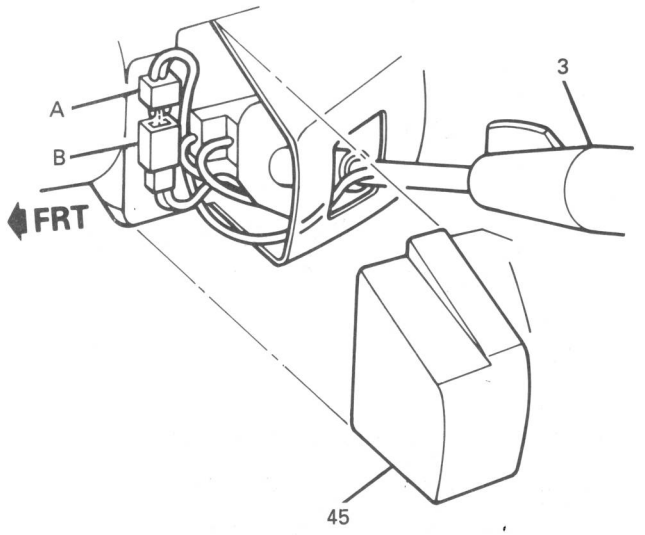
- Lever assembly (3).
  - A. Steering column tilt wheel release lever assembly, if equipped with cruise control, by grasping firmly and turning counterclockwise.
  - B. Make sure lever assembly (3) is in center or "OFF" position.
  - C. Cap (45), if equipped with cruise control.
  - D. Cruise control connector, if equipped with cruise control.
  - E. Lever assembly (3) by pulling straight out of turn signal switch.

Install or Connect

- Lever assembly (3).
  - A. Lever assembly (3) into turn signal switch.
  - B. Cruise control connector, if equipped, to wiring harness connector.
  - C. Cap (45), if equipped with cruise control.
  - D. Steering column tilt wheel release lever assembly, if removed, by grasping firmly and turning clockwise.

HAZARD WARNING SWITCH

The hazard warning switch does not require removal of the steering column assembly for replacement. For service information, refer to SECTION 3F5A.



A TERMINAL FROM LEVER ASSEMBLY
B TERMINAL FROM COLUMN ASSEMBLY
3 LEVER ASSEMBLY, TURN SIGNAL AND HEADLAMP DIMMER SWITCH AND CRUISE CONTROL ACTUATOR AND WINDSHIELD WIPER AND WINDSHIELD WASHER
45 CAP, HOUSING COVER END

PC6007-3F-D-RP

Figure 8 – Turn Signal and Headlamp Dimmer Switch and Cruise Control Actuator and Windshield Wiper and Windshield Washer Lever Assembly Wiring Connections

Hazard Warning Switch Knob

Figure 9

Remove or Disconnect

1. Bolt/screw (21).
2. Button (22), spring (23) and knob (24).

Install or Connect

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

1. Knob (24), spring (23) and button (22).
2. Bolt/screw (21).

Tighten

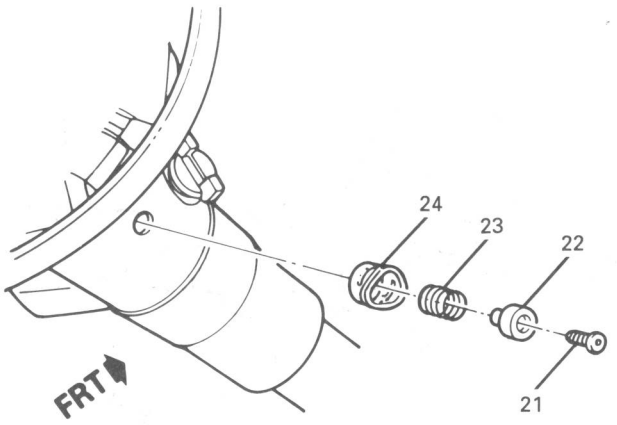
- Bolt/screw (21) to 0.7 N•m (6 lb. in.).

AUTOMATIC TRANSMISSION CONTROL LEVER ASSEMBLY

Figure 10

Remove or Disconnect

1. Pin (202) from housing assembly (200).
2. Control lever assembly (19) and spring (203) out of housing assembly (200), being careful not to lose spring (203).



21 BOLT/SCREW, HAZARD WARNING SWITCH KNOB, 0.7 N•m (6 LB. IN.)
22 BUTTON, HAZARD WARNING SWITCH
23 SPRING, HAZARD WARNING SWITCH KNOB
24 KNOB, HAZARD WARNING SWITCH

PC6008-3F-D-RP

Figure 9 – Removing Hazard Warning Switch Knob

Install or Connect

1. If it is difficult to install control lever assembly (19) over spring (203), a shim may be used to aid in installation.
2. Spring (203).
3. Shim over top of spring (203), if required.
4. Control lever assembly (19) to housing assembly (200).
5. Pin (202) to housing assembly (200).
6. Remove shim, if used.

STEERING COLUMN TILT WHEEL RELEASE LEVER ASSEMBLY

Figures 1 and 2

Remove or Disconnect

- Grip lever assembly (4) firmly and twist counterclockwise.

Install or Connect

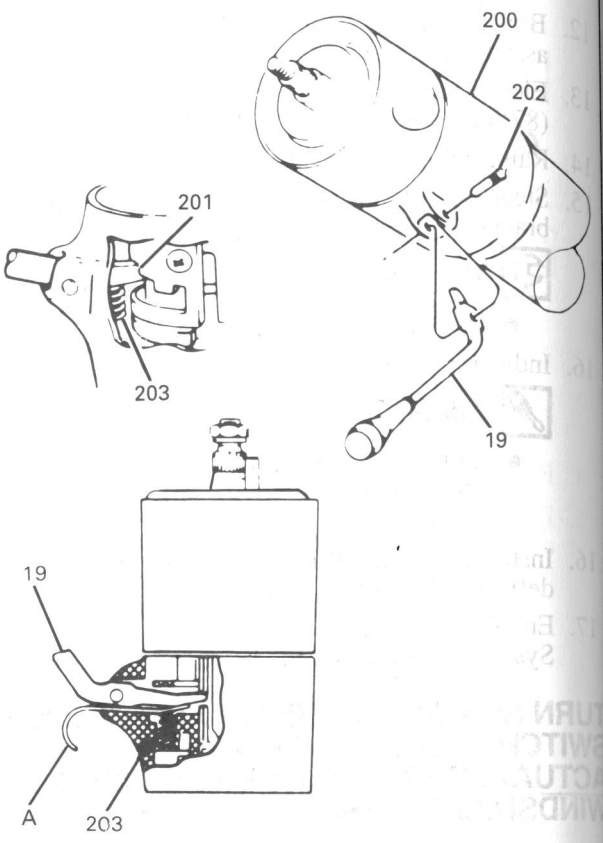
- Grip lever assembly (4) firmly and twist clockwise.

INFLATABLE RESTRAINT STEERING WHEEL MODULE ASSEMBLY

Figure 11

Remove or Disconnect

1. Disable SIR system. Refer to "Disabling the SIR System" in this section.



A SHIM
19 LEVER ASSEMBLY, AUTOMATIC TRANSMISSION CONTROL
200 HOUSING ASSEMBLY, STEERING COLUMN
201 GATE, SHIFT LEVER
202 PIN, AUTOMATIC TRANSMISSION CONTROL LEVER PIVOT
203 SPRING, UPPER CONTROL LEVER

PC6009-3F-D-RP

Figure 10 – Automatic Transmission Control Lever Assembly

2. Loosen bolts/screws (60) from back of steering wheel assembly (2) using number 30 TORX® driver (or equivalent) until inflatable restraint module assembly (1) can be released from steering wheel assembly (2).
3. Inflatable restraint module assembly (1) from steering wheel assembly (2).

CAUTION: When carrying a live inflatable restraint steering wheel module assembly, make sure the bag opening is pointed away from you. Never carry the inflatable restraint steering wheel module assembly by the wires or electrical connector on the underside of it. In case of an accidental deployment, the bag will then deploy with minimal chance of injury. When placing a live inflatable restraint steering wheel module assembly 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 assembly with the inflatable restraint steering wheel module assembly face down and steering column assembly vertical. This is necessary so to that a free space is provided to allow the air bag to expand in the unlikely event of accidental deployment.

4. SIR coil assembly connector and retainer (61) from inflatable restraint module assembly (1).
5. Horn lead from steering column assembly.

Install or Connect

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

1. Horn lead to steering column assembly.
2. SIR coil assembly connector and retainer (61) to inflatable restraint module assembly (1).
3. Route SIR coil assembly lead around mounting post and secure under clip.
4. Inflatable restraint module assembly (1) to steering wheel assembly (2).

Important

- Ensure wiring is not exposed or trapped between inflatable restraint module assembly (1) and steering wheel assembly (2).

Tighten

- Bolts/screws (60) to 6 N•m (53 lb. in.).

5. Enable SIR system. Refer to "Enabling the SIR System" in this section.

HORN SWITCH ASSEMBLY

Figure 12

Remove or Disconnect

1. Inflatable restraint steering wheel module assembly. Refer to "Inflatable Restraint Steering Wheel Module Assembly" in this section.
2. Horn switch assembly (88) from inflatable restraint module assembly (1).
   A. Lift up on edge of inflatable restraint module cover at horn button to access horn switch.
   B. Press lock tang.
   C. Remove horn switch.
   D. Repeat for remaining horn switch and remove horn switch assembly (88).

Install or Connect

1. Horn switch assembly (88) to inflatable restraint module assembly (1).
   A. Lift up on edge of inflatable restraint module cover at horn button, and install horn switch.
   B. Repeat for remaining horn switch.

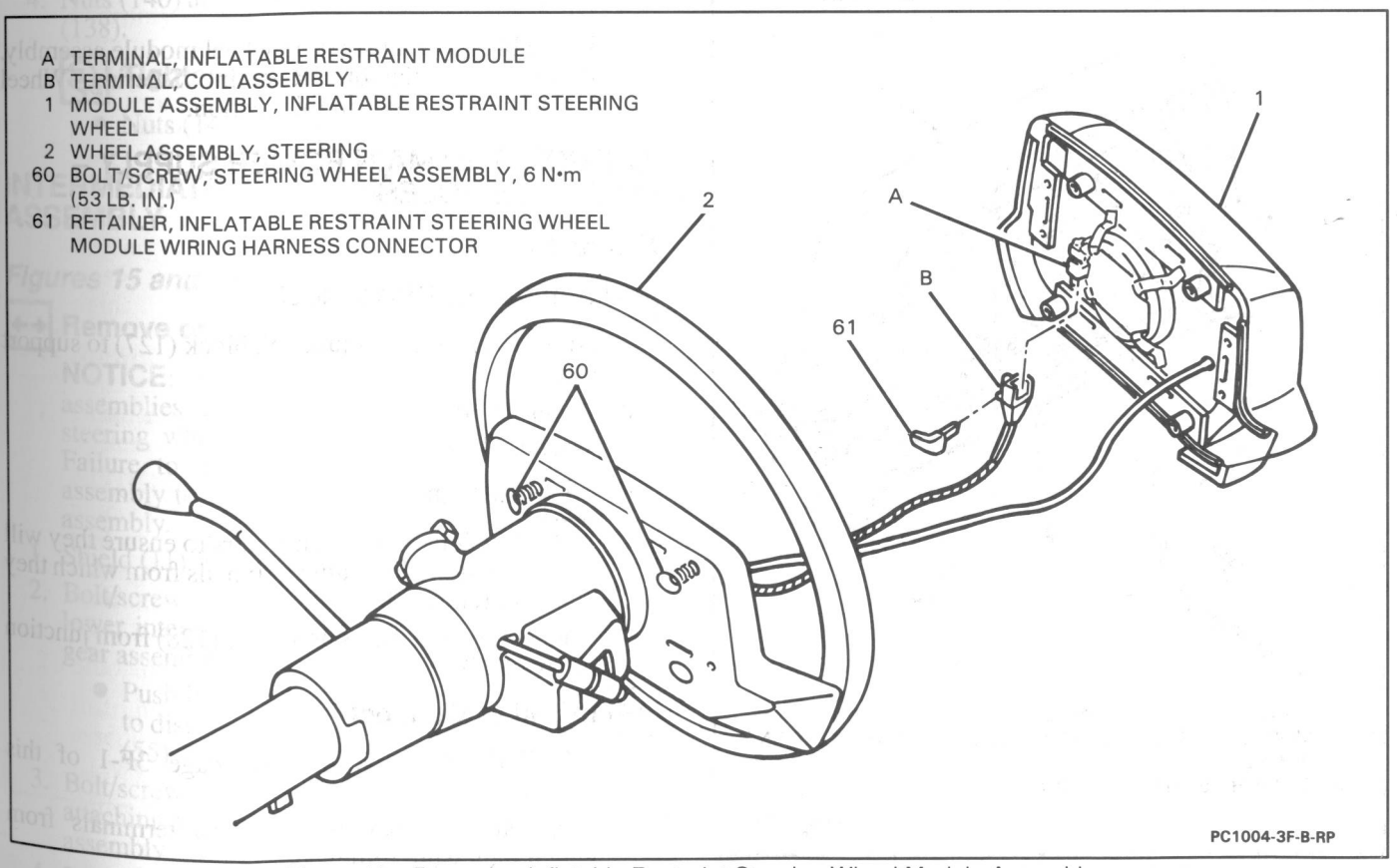


Figure 11 – Removing Inflatable Restraint Steering Wheel Module Assembly

2. Inflatable restraint module assembly. Refer to "Inflatable Restraint Steering Wheel Module Assembly" in this section.

STEERING WHEEL ASSEMBLY

Figure 13

Tools Required:

J 1859-A Steering Wheel Puller

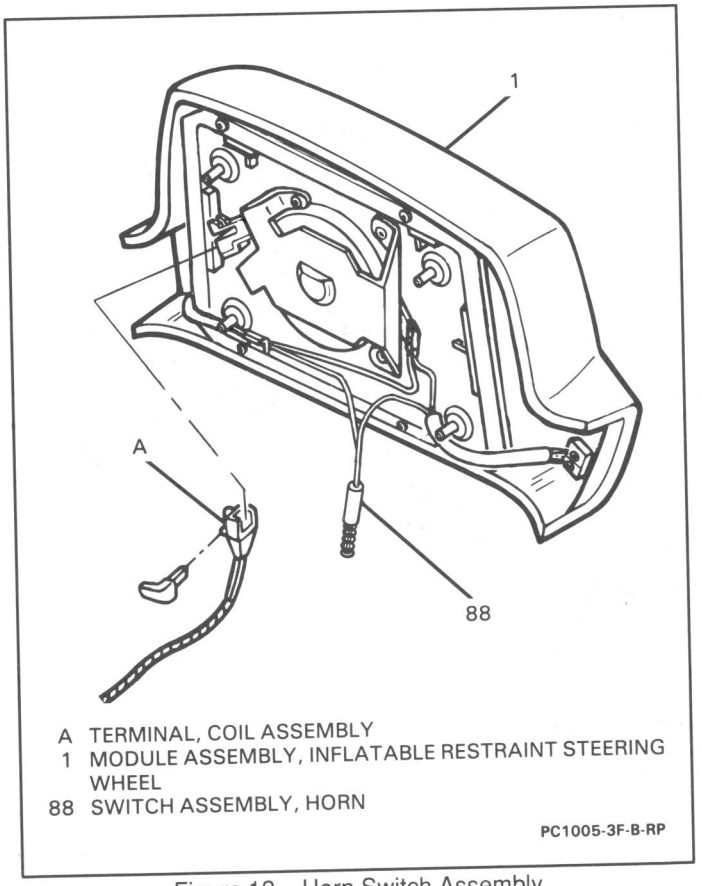
J 38720 Steering Wheel Puller Bolts (Part of J 1859-A)

Remove or Disconnect

1. Inflatable restraint steering wheel module assembly. Refer to "Inflatable Restraint Steering Wheel Module Assembly" in this section.
2. Nut (26).

   NOTICE: When removing the steering wheel assembly, 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.

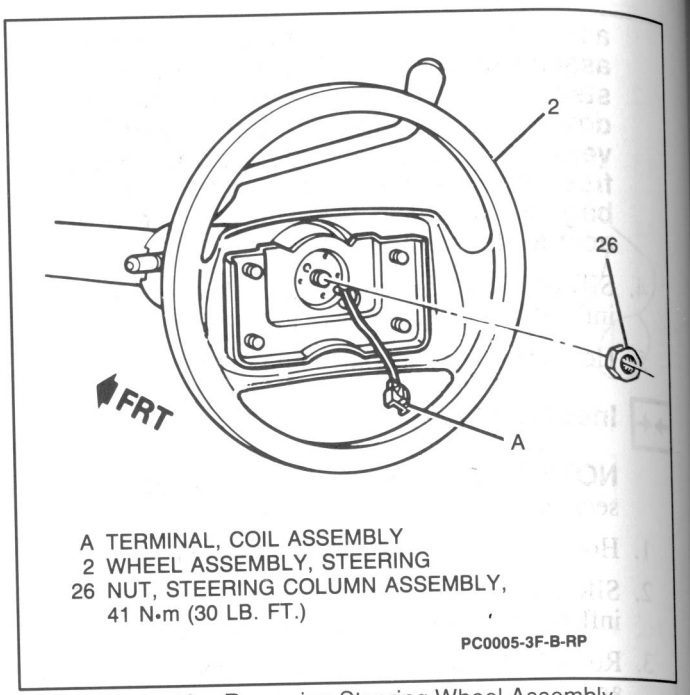
   NOTICE: When attaching J 1859-A and J 38720 to the steering wheel assembly, use care to prevent threading J 38720 (bolts) all the way through the steering wheel hub into the SIR coil assembly and damaging the SIR coil assembly.
3. Steering wheel assembly (2), using J 1859-A and J 38720 and horn contact.



A TERMINAL, COIL ASSEMBLY
1 MODULE ASSEMBLY, INFLATABLE RESTRAINT STEERING WHEEL
88 SWITCH ASSEMBLY, HORN

PC1005-3F-B-RP

Figure 12 – Horn Switch Assembly



A TERMINAL, COIL ASSEMBLY
2 WHEEL ASSEMBLY, STEERING
26 NUT, STEERING COLUMN ASSEMBLY, 41 N•m (30 LB. FT.)

PC0005-3F-B-RP

Figure 13 – Removing Steering Wheel Assembly

Install or Connect

1. Route SIR coil assembly connector to steering wheel assembly (2).
2. Steering wheel assembly (2).
   - Align block tooth on steering wheel assembly (2) with block tooth on steering shaft within one female serration.
3. Nut (26).
4. Inflatable restraint steering wheel module assembly. Refer to "Inflatable Restraint Steering Wheel Module Assembly" in this section.

IGNITION AND MAIN POWER SUPPLY – POLICE VEHICLES

Figure 14

Remove or Disconnect

1. Nuts (140) attaching junction block (127) to support (138).
2. Ground wire.
3. Washer (139).

   Important
   - Note location of connectors to ensure they will be installed on same terminals from which they are removed.
4. Connectors of harness assembly (128) from junction block (127).

Install or Connect

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

1. Connectors of harness (128) to terminals from which they were removed.
2. Washer (139).

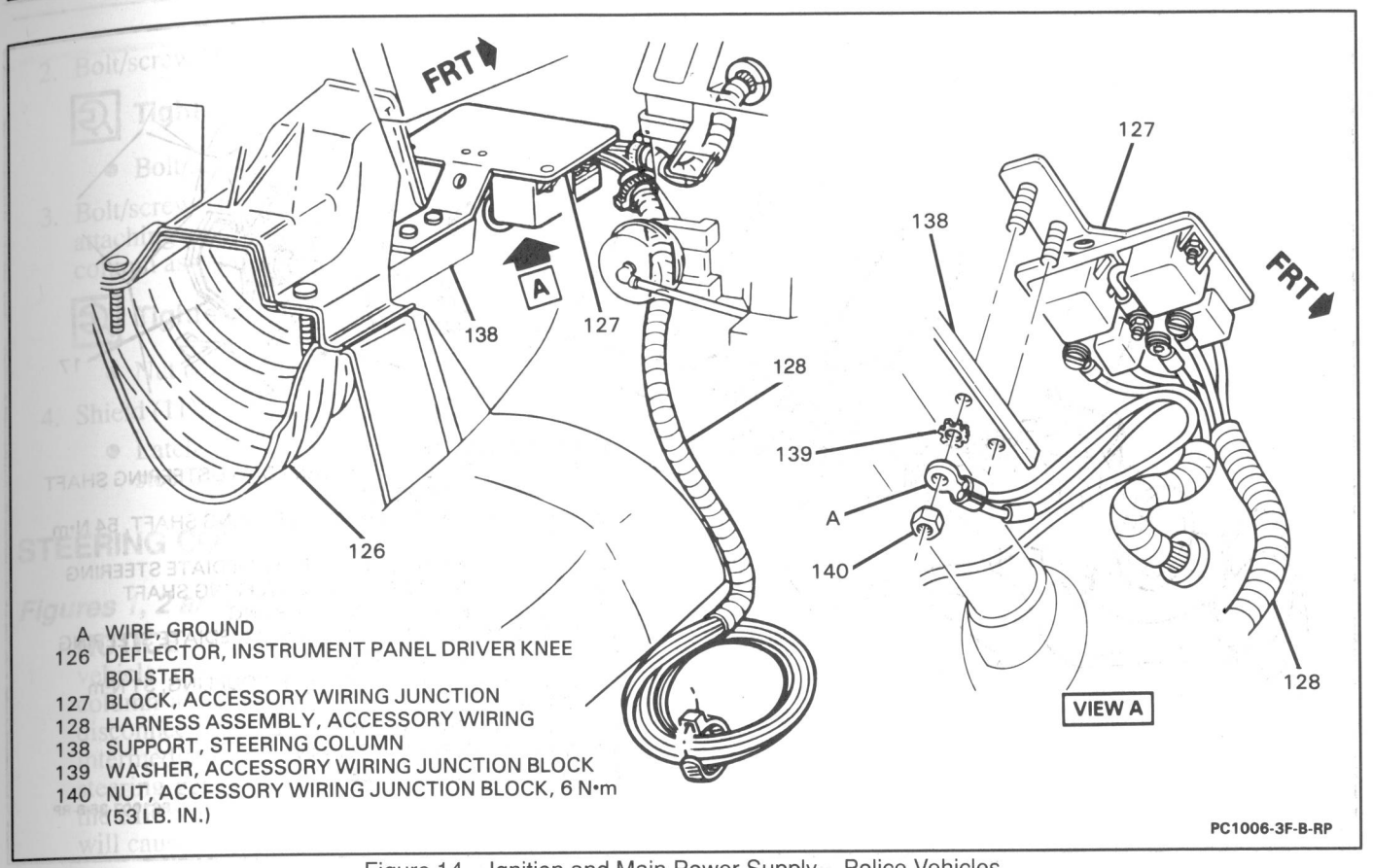


Figure 14 – Ignition and Main Power Supply – Police Vehicles

3. Ground wire.
4. Nuts (140) attaching junction block (127) to support (138).

Tighten

- Nuts (140) to 6 N•m (53 lb. in.).

INTERMEDIATE STEERING SHAFT ASSEMBLY

Figures 15 and 16

Remove or Disconnect

NOTICE: Ensure the vehicle's tire and wheel assemblies are pointing straight ahead and the steering wheel assembly is in "LOCK" position. Failure to do so may cause the steering wheel assembly to rotate, causing damage to the SIR coil assembly.

1. Shield (11) from steering gear return pipe nut.
2. Bolt/screw (14) from lower coupling (13) attaching lower intermediate shaft assembly (12) to steering gear assembly (55).
   - Push intermediate shaft assembly (9) rearward to disengage latch from steering gear assembly (55).
3. Bolt/screw (6) and nut (8) from upper coupling (7) attaching intermediate shaft (9) to steering column assembly.
4. Intermediate shaft assembly (9).

Disassemble

1. Intermediate shaft assembly (9) and lower intermediate shaft assembly (12) by pressing 3/8-inch diameter rod up through bottom of lower coupling (13).
2. Seal (10), spring (54) and shield (11).

Assemble

1. Before assembling lower intermediate shaft assembly (12) and intermediate shaft assembly (9), apply lithium grease to spring (54).
2. Spring (54), seal (10) and shield (11).
3. Intermediate shaft assembly (9) and lower intermediate shaft assembly (12).
   A. Align slot in lower coupling (13) in relation to upper coupling (7).
   B. Press together.

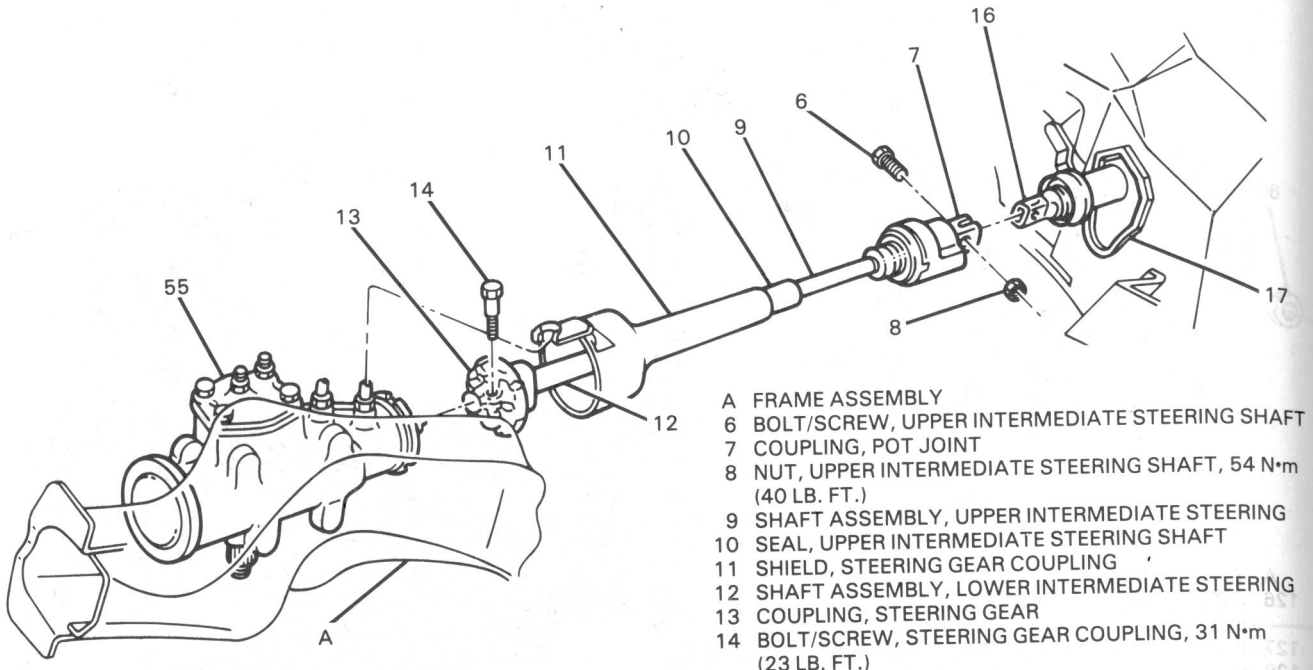
Install or Connect

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

1. Lower coupling (13) to steering gear wormshaft splined ends.
   - Align flat on lower coupling (13) with flat on wormshaft.

Important

- Ensure vehicle's tire and wheel assemblies are pointing straight ahead.



A FRAME ASSEMBLY
6 BOLT/SCREW, UPPER INTERMEDIATE STEERING SHAFT
7 COUPLING, POT JOINT
8 NUT, UPPER INTERMEDIATE STEERING SHAFT, 54 N•m (40 LB. FT.)
9 SHAFT ASSEMBLY, UPPER INTERMEDIATE STEERING
10 SEAL, UPPER INTERMEDIATE STEERING SHAFT
11 SHIELD, STEERING GEAR COUPLING
12 SHAFT ASSEMBLY, LOWER INTERMEDIATE STEERING
13 COUPLING, STEERING GEAR
14 BOLT/SCREW, STEERING GEAR COUPLING, 31 N•m (23 LB. FT.)
16 SHAFT ASSEMBLY, LOWER STEERING
17 JACKET, STEERING COLUMN
55 GEAR ASSEMBLY, STEERING

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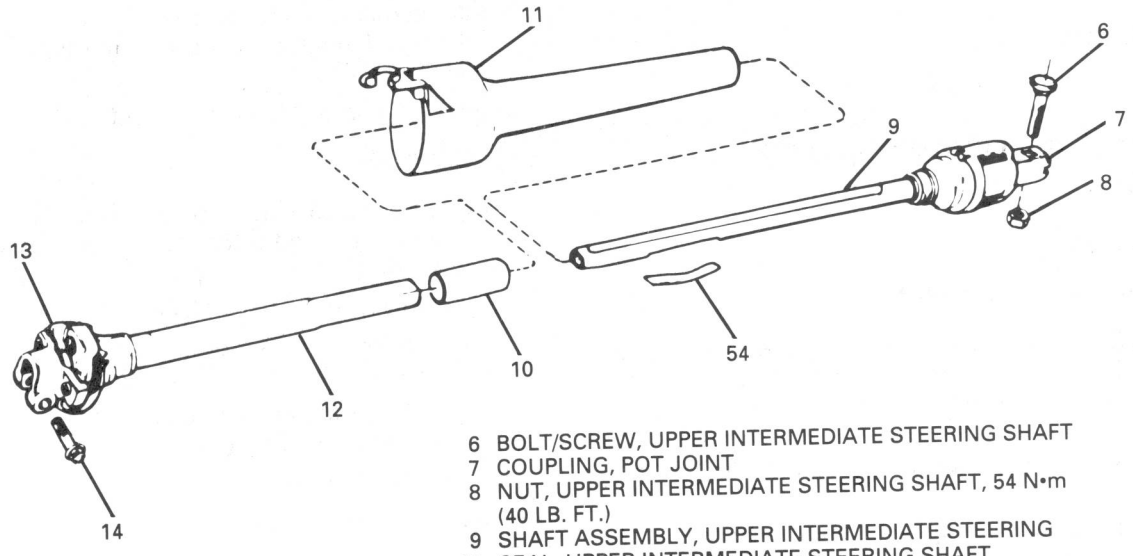
Figure 15 – Intermediate Steering Shaft Assembly Replacement



6 BOLT/SCREW, UPPER INTERMEDIATE STEERING SHAFT
7 COUPLING, POT JOINT
8 NUT, UPPER INTERMEDIATE STEERING SHAFT, 54 N•m (40 LB. FT.)
9 SHAFT ASSEMBLY, UPPER INTERMEDIATE STEERING
10 SEAL, UPPER INTERMEDIATE STEERING SHAFT
11 SHIELD, STEERING GEAR COUPLING
12 SHAFT ASSEMBLY, LOWER INTERMEDIATE STEERING
13 COUPLING, STEERING GEAR
14 BOLT/SCREW, STEERING GEAR COUPLING, 31 N•m (23 LB. FT.)
54 SPRING, INTERMEDIATE STEERING SHAFT

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Figure 16 – Disassembling Intermediate Steering Shaft Assembly

2. Bolt/screw (14).

Tighten

- Bolt/screw (14) to 31 N•m (23 lb. ft.).

3. Bolt/screw (6) and nut (8) to upper coupling (7) attaching upper intermediate shaft (9) to steering column assembly.

Tighten

- Nut (8) to 54 N•m (40 lb. ft.).

4. Shield (11).
   - Latch of shield (11) must be seated around steering gear return pipe nut.

STEERING COLUMN ASSEMBLY REMOVAL

Figures 1, 2 and 15 through 19

NOTICE: The tire and wheel assemblies of the vehicle must be straight ahead and the steering column assembly in the "LOCK" position before disconnecting the steering column assembly or intermediate steering shaft assembly from the steering gear assembly. Failure to do so will cause the SIR coil assembly to become uncentered, which will cause damage to the SIR coil assembly.

NOTICE: When the steering column assembly is removed from the vehicle, it is extremely susceptible to damage. Dropping the column assembly on its end could collapse the steering shaft assembly or loosen plastic injections that keep the column assembly rigid. Leaning on the column assembly 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 assembly 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 assembly rigid.

Remove or Disconnect

1. Disable SIR system. Refer to "Disabling the SIR System" in this section.

   NOTICE: Remove the stoplamp switch assembly before removing the steering column assembly. Failure to do so may cause the switch assembly to be damaged or thrown out of adjustment, resulting in a malfunctioning switch assembly or premature brake wear.

2. Stoplamp switch assembly. Refer to SECTION 5.
3. Instrument panel steering column opening filler assembly. Refer to SECTION 8C.
4. Instrument panel driver knee bolster assembly and deflector. Refer to SECTION 8C.
5. Bolt/screw (6) and nut (8) from coupling (7) attaching intermediate shaft assembly (9) to steering column assembly.
6. Steering column support bracket nuts attaching steering column bracket (18) to instrument panel carrier.
7. Lower column assembly (5).
8. Shift indicator cable from column assembly (5).
9. Electrical connectors.
10. Automatic transmission range selector rod from steering column assembly. Refer to "Automatic Transmission Range Selector Rod" in this section.
11. Bolts/screws (15) attaching jacket (17) to cowl.
12. Steering wheel assembly if steering column assembly is to be replaced or repaired on bench. Refer to "Steering Wheel Assembly" in this section.
13. Column assembly (5) from vehicle.

Install or Connect

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

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

1. Column assembly (5) into vehicle.
2. Bolts/screws (15) attaching jacket (17) to cowl.

Tighten

- Bolts/screws (15) to 6.5 N•m (58 lb. in.).

3. Electrical connectors.
4. Remove antirotation pin if service replacement column assembly is being installed.
5. Shift indicator cable to column assembly (5).
6. Steering column bracket nuts (56) attaching steering column bracket (18) to instrument panel carrier.

Tighten

- Nuts (56) to 27 N•m (20 lb. ft.).

7. Bolt/screw (6) and nut (8) to coupling (7) attaching intermediate shaft assembly (9) to column assembly (5).

Tighten

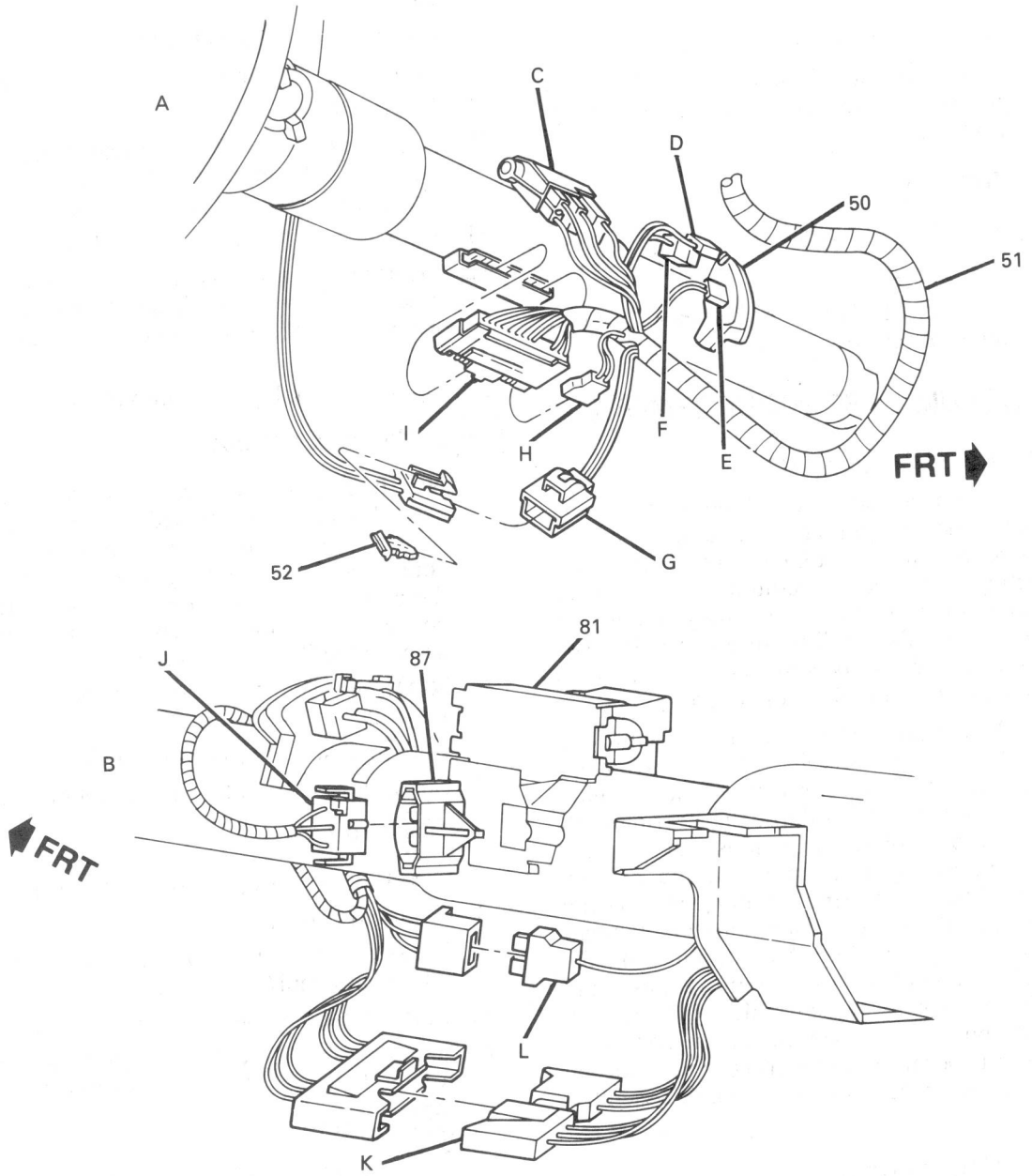
- Nut (8) to 54 N•m (40 lb. ft.).

8. Automatic transmission range selector rod to steering column assembly. Refer to "Automatic Transmission Range Selector Rod" in this section.

Adjust

- Steering column shift control linkage. Refer to SECTION 7A.

9. Stoplamp switch assembly and adjust stoplamp switch assembly. Refer to SECTION 5.
10. Instrument panel driver knee bolster assembly and deflector. Refer to SECTION 8C.



A CONNECTIONS, RIGHT-HAND
B CONNECTIONS, LEFT-HAND
C CONNECTOR, IGNITION SWITCH ELECTRICAL
D CONNECTOR, BACKUP LAMP ELECTRICAL
E CONNECTOR, KEYLESS ENTRY SWITCH ELECTRICAL
F CONNECTOR, PARK/NEUTRAL ELECTRICAL
G CONNECTOR, SIR ELECTRICAL (TO SIR COIL ASSEMBLY)
H CONNECTOR, CORNERING LAMP ELECTRICAL
I CONNECTOR, TURN SIGNAL ELECTRICAL
J CONNECTOR, DIMMER SWITCH ELECTRICAL
K CONNECTOR, WINDSHIELD WIPER SWITCH ELECTRICAL
L CONNECTOR, CRUISE CONTROL ELECTRICAL
50 SWITCH ASSEMBLY, PARK/NEUTRAL POSITION AND BACKUP LAMP
51 HARNESS ASSEMBLY, BODY WIRING
52 RETAINER, CONNECTOR POSITION ASSURANCE
81 SWITCH, IGNITION
87 SWITCH ASSEMBLY, DIMMER

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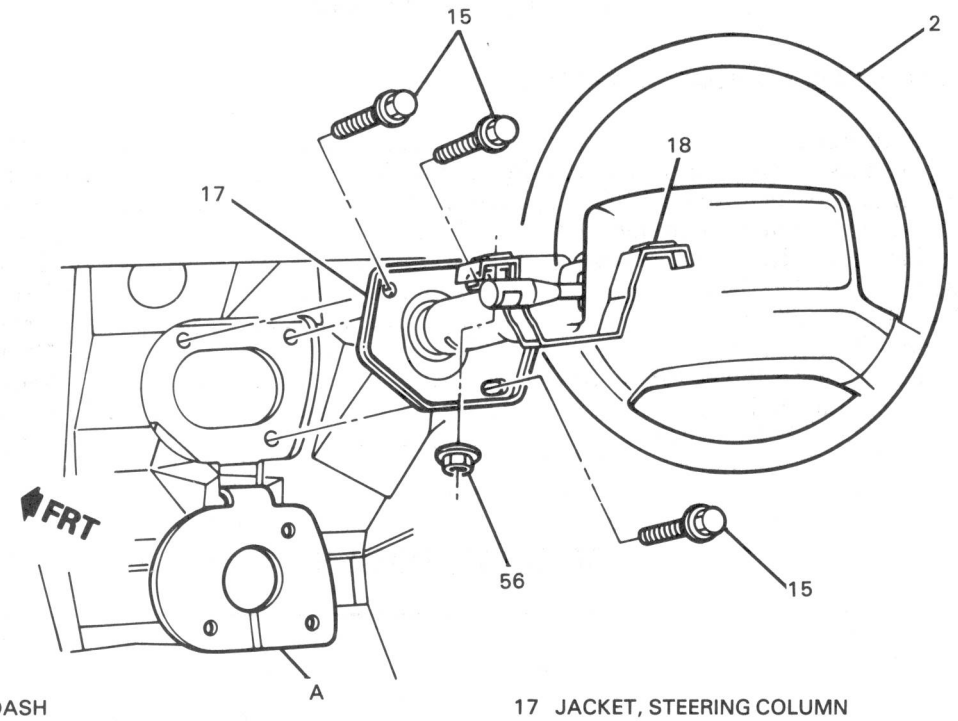
Figure 17 – Steering Column Assembly Wiring Connections



A DEADENER, DASH
2 WHEEL ASSEMBLY, STEERING
15 BOLT/SCREW, STEERING COLUMN LOWER SUPPORT, 6.5 N•m (58 LB. IN.)
17 JACKET, STEERING COLUMN
18 BRACKET, STEERING COLUMN
56 NUT, STEERING COLUMN BRACKET, 27 N•m (20 LB. FT.)

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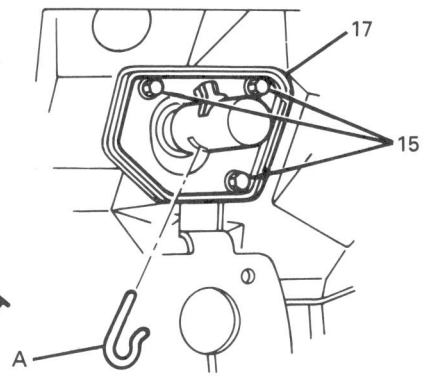
Figure 18 – Removing Steering Column Assembly



A PIN, ANTIROTATION
15 BOLT/SCREW, STEERING COLUMN LOWER SUPPORT, 6.5 N•m (58 LB. IN.)
17 JACKET, STEERING COLUMN

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Figure 19 – Antirotation Pin

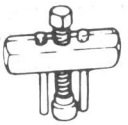
11. Instrument panel steering column opening filler assembly. Refer to SECTION 8C.
12. If a service replacement column assembly (5) is being installed:
    A. Remove hexagon locking nut.
    B. Remove SIR coil assembly shipping cover and disengage connector from cover.
13. Steering wheel assembly, if removed. Refer to "Steering Wheel Assembly" in this section.
14. Enable SIR system. Refer to "Enabling the SIR System" in this section.

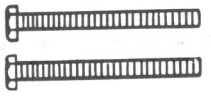
SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Accessory Wiring Junction Block Nut	6 N•m (53 lb. in.)
Automatic Transmission Range Selector Rod Swivel Bolt/Screw	28 N•m (21 lb. ft.)
Dimmer and Ignition Switch Bolt/Screw	4 N•m (35 lb. in.)
Dimmer and Ignition Switch Mounting Stud	4 N•m (35 lb. in.)
Hazard Warning Switch Knob Bolt/Screw	0.7 N•m (6 lb. in.)
Intermediate Steering Shaft Nut	54 N•m (40 lb. ft.)
Steering Column Assembly Nut	41 N•m (30 lb. ft.)
Steering Column Bracket Nut	27 N•m (20 lb. ft.)
Steering Column Lower Support Bolt/Screw	6.5 N•m (58 lb. in.)
Steering Gear Coupling Bolt/Screw	31 N•m (23 lb. ft.)
Steering Wheel Assembly Bolt/Screw	6 N•m (53 lb. in.)

SPECIAL TOOLS

1.  J 1859-A

2.  J 38720

1 STEERING WHEEL PULLER
2 STEERING WHEEL PULLER BOLTS (PART OF J 1859-A)

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