

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

General Description	3F-2	Wiring Repairs	Refer to Sections 8A-5 and 9J-B
Steering Column Assembly	3F-2	Park Lock System	Refer to Section 7A
Ignition Lock Systems	3F-2	Brake Transmission Shift Interlock	
Brake Transmission Shift Interlock (BTSI)	3F-2	Solenoid Assembly	Refer to Section 7A
Supplemental Inflatable Restraint (SIR)	3F-2	Ignition Switch and Dimmer	
Lubrication	3F-2	Switch Assembly	3F-5
Steering Wheel Assembly Controls	3F-2	Turn Signal Lever Assembly	3F-6
Diagnosis	Refer to Section 3	Hazard Warning Switch	3F-6
Repairs and Inspections Required		Hazard Warning Switch Knob	3F-6
after an Accident	Refer to Section 9J	Steering Column Tilt Wheel Release	
Ignition Lock Systems	Refer to Section 3	Lever Assembly	3F-7
Brake Transmission Shift		Inflatable Restraint Steering Wheel	
Interlock (BTSI)	Refer to Section 3F5B	Module Assembly	3F-8
Supplemental Inflatable		Steering Wheel Horn Switch Assembly	3F-9
Restraint (SIR)	Refer to Section 9J-A	Steering Wheel Horn Switch	
Steering Wheel Assembly		Contact Plate Assembly	3F-10
Controls	Refer to Section 8A-150	Steering Wheel Assembly	3F-10
On-Vehicle Service	3F-2	Centering the SIR Coil	
Service Precautions	3F-2	Assembly	Refer to Section 3F5B
Disabling the SIR System	3F-4	PASS Key Lock Cylinder ...	Refer to Section 3F5B
Enabling the SIR System	3F-4	Radio Control Switch	
Live (Undeployed) Inflatable Restraint		Assembly	3F-11
Steering Wheel Module Assembly	3F-4	Steering Gear Coupling Shaft Assembly	3F-12
Deployed Inflatable Restraint Steering		Steering Column Assembly Removal	3F-14
Wheel Module Assembly	3F-4	Checking Steering Column Assembly	
Inflatable Restraint Steering Wheel Module		for Accident Damage	Refer to Section 3F5B
Assembly Shipping Procedures	3F-5	Specifications	3F-15
Inflatable Restraint Steering Wheel Module		Fastener Tightening Specifications	3F-15
Assembly Scrapping Procedures	3F-5	Special Tools	3F-16

GENERAL DESCRIPTION

STEERING COLUMN ASSEMBLY

Figure 1

The locking, energy-absorbing column assembly (15) includes three important features in addition to the steering function.

1. In a front-end collision, the energy-absorbing column assembly (15) 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 (15).
3. When locked, the column-mounted lock acts as a theft deterrent by preventing the operation of both ignition and steering.

The turn signal lever assembly (5 or 31) (multifunction turn signal lever) controls the turn signals, headlamp high beam, windshield washer and wipers, and, if equipped, 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 (15) 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 gear coupling shaft assembly (9) sharply, leaning on the column assembly (15) or dropping the column assembly (15) could shear or loosen the plastic fasteners that keep the column assembly (15) rigid.

IGNITION LOCK SYSTEMS

The automatic transmission assembly uses a park lock system. This system uses a flexible automatic transmission park lock cable assembly which is attached at one end to the automatic transmission control lever assembly and at the other end to the ignition switch mounted to the column assembly where it actuates a locking pin. This locking pin engages an ignition switch sliding contact when the lever assembly is in "REVERSE" and does not allow the ignition switch to move to the "LOCK" position. With the lever assembly in "PARK" and the ignition switch slider in "LOCK," the locking pin engages a cam on the cable assembly and prevents the lever assembly from being moved into another position.

A steering column key release lever assembly is used on vehicles with a manual transmission assembly. A manual transmission clutch start switch assembly is used so the manual transmission clutch pedal assembly must be depressed before the engine assembly will crank.

BRAKE TRANSMISSION SHIFT INTERLOCK (BTSI)

The brake transmission shift interlock (BTSI) system prevents the driver from shifting out of "PARK" without simultaneously pressing the brake pedal assembly. When energized, the BTSI solenoid assembly locks the automatic transmission control lever assembly.

When pressure is applied to the brake pedal assembly, the BTSI solenoid assembly is de-energized and releases the automatic transmission control lever assembly.

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.

STEERING WHEEL ASSEMBLY CONTROLS

Pontiac

Figure 2

Steering wheel assembly controls enable remote control of the following sound system functions, if equipped:

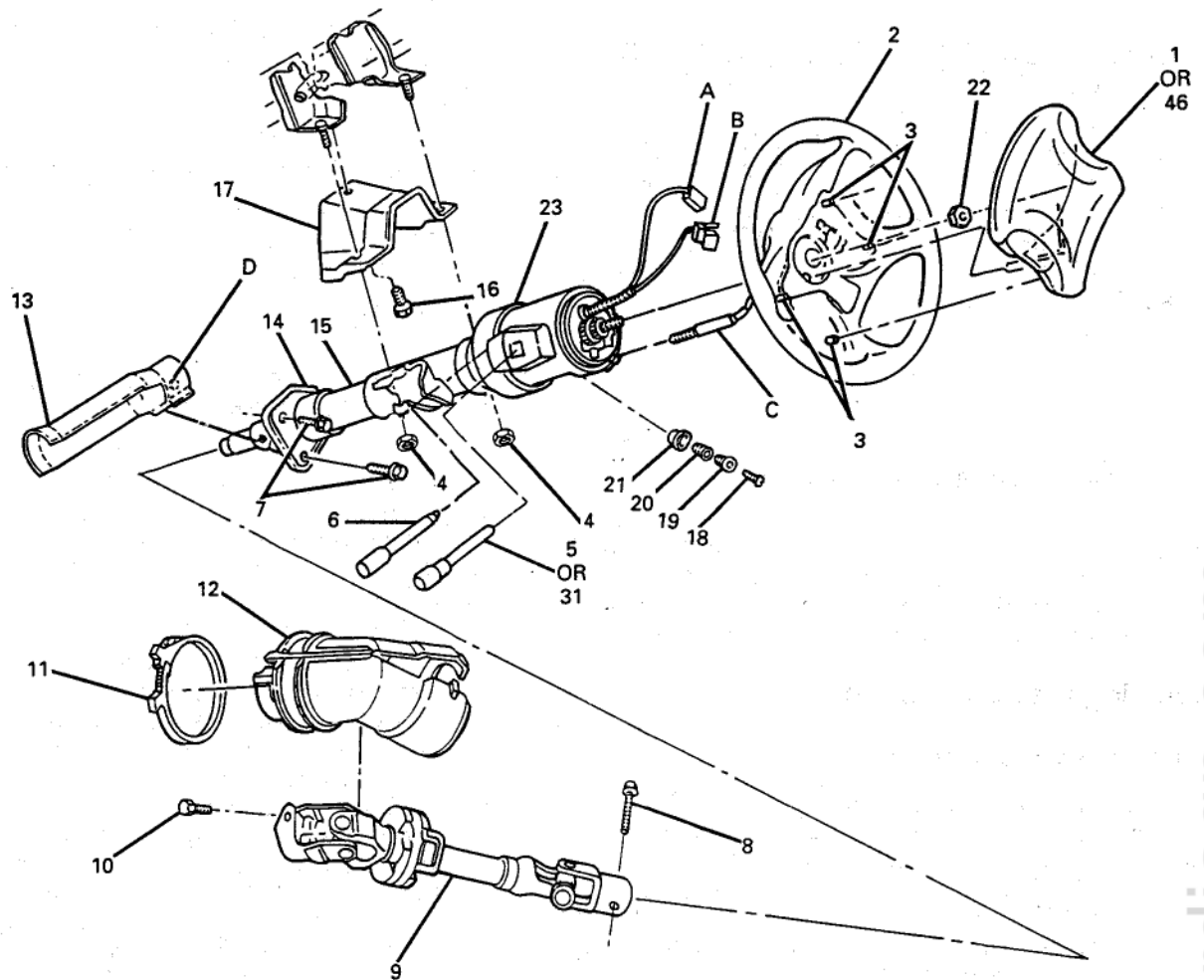
- **PWR (Power)** – Turns radio assembly on or off.
- **VOL (Volume)** – Adjusts volume of AM/FM stereo, cassette tape player or compact disc player.
- **PRESET** – Selects preset stations.
- **AM/FM** – Switches between AM and FM bands.
- **SEEK** – Seeks the next station, either up or down.
- **RCL (Recall)** – Toggles the display between frequency and time.

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



- | | |
|---|--|
| A CONNECTOR, RADIO ASSEMBLY ELECTRICAL (PONTIAC ONLY) | 11 CLAMP, STEERING GEAR COUPLING SHIELD |
| B CONNECTOR, SIR COIL ASSEMBLY ELECTRICAL | 12 BOOT, STEERING GEAR |
| C LEAD, HORN | 13 SHIELD, STEERING GEAR COUPLING HEAT |
| D BUTTON, STEERING GEAR COUPLING HEAT SHIELD | 14 COVER ASSEMBLY, STEERING COLUMN DASH PANEL |
| 1 MODULE ASSEMBLY, INFLATABLE RESTRAINT STEERING WHEEL | 15 COLUMN ASSEMBLY, STEERING |
| 2 WHEEL ASSEMBLY, STEERING | 16 BOLT/SCREW, STEERING COLUMN GUIDE, 25 N•m (18 LB. FT.) |
| 3 BOLT/SCREW, STEERING WHEEL, 2.8 N•m (25 LB. IN.) | 17 GUIDE, STEERING COLUMN |
| 4 NUT, STEERING COLUMN UPPER SUPPORT, 25 N•m (18 LB. FT.) | 18 BOLT/SCREW, HAZARD WARNING SWITCH KNOB 0.7 N•m (6 LB. IN.) |
| 5 LEVER ASSEMBLY, TURN SIGNAL AND HEADLAMP DIMMER SWITCH AND CRUISE CONTROL ACTUATOR AND WINDSHIELD WIPER AND WINDSHIELD WASHER | 19 BUTTON, HAZARD WARNING SWITCH |
| 6 LEVER ASSEMBLY, STEERING COLUMN TILT WHEEL RELEASE | 20 SPRING, HAZARD WARNING SWITCH KNOB |
| 7 BOLT/SCREW, STEERING COLUMN, 10 N•m (89 LB. IN.) | 21 KNOB, HAZARD WARNING SWITCH |
| 8 BOLT/SCREW, INTERMEDIATE STEERING SHAFT, 47 N•m (35 LB. FT.) | 22 NUT, STEERING WHEEL, 43 N•m (32 LB. FT.) |
| 9 SHAFT ASSEMBLY, STEERING GEAR COUPLING | 23 SEALER, STEERING COLUMN |
| 10 BOLT/SCREW, INTERMEDIATE STEERING SHAFT, 47 N•m (35 LB. FT.) | 31 LEVER ASSEMBLY, TURN SIGNAL AND HEADLAMP DIMMER SWITCH AND WINDSHIELD WIPER AND WINDSHIELD WASHER |
| | 46 MODULE ASSEMBLY, INFLATABLE RETRAINT STEERING WHEEL |

Figure 1 – Steering Column Assembly with SIR

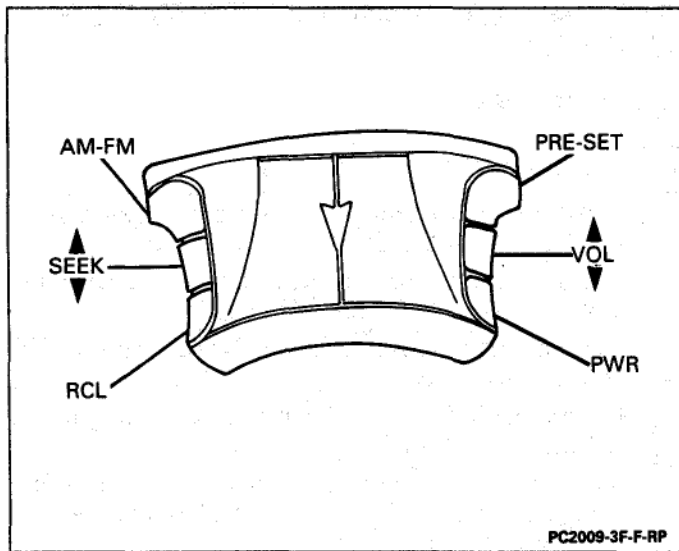


Figure 2 – Steering Wheel Assembly Controls – (Pontiac)

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 tire and wheel assemblies are pointing straight ahead.
2. Turn ignition switch to “LOCK.”
3. “AIR BAG” fuse from instrument panel fuse block.
4. Left-hand instrument panel sound insulator assembly. Refer to SECTION 8C.
5. Connector position assurance (CPA) and yellow two-way SIR connector at base of steering column assembly.
6. Instrument panel compartment door assembly. Refer to SECTION 8C.
7. Connector position assurance (CPA) and yellow two-way SIR connector located near yellow 24-way DERM connector on instrument panel wiring harness assembly.

! Important

- With “AIR BAG” fuse removed and ignition switch in “RUN,” “AIR BAG” warning/indicator lamp on instrument panel cluster assembly will light. This is normal operation and does not indicate SIR system fault.

Enabling the SIR System

→→ Install or Connect

1. Turn ignition switch to “LOCK.”
2. Yellow two-way SIR connector and connector position assurance (CPA) located near yellow 24-way DERM connector on instrument panel wiring harness assembly.

3. Instrument panel compartment door assembly, refer to SECTION 8C.
4. Yellow two-way SIR connector and connector position assurance (CPA) at base of steering column assembly.
5. Left-hand instrument panel sound insulator assembly, refer to SECTION 8C.
6. “AIR BAG” fuse to instrument panel fuse block.
7. Turn ignition switch to “RUN” and verify “AIR BAG” warning/indicator lamp flashes seven times and then turns off. If “AIR BAG” warning/indicator lamp does not respond as described, 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. Refer to SECTION 9J.

IGNITION SWITCH AND DIMMER SWITCH ASSEMBLY

Figures 3 and 4

Remove or Disconnect

1. Left-hand instrument panel sound insulator assembly. Refer to SECTION 8C.
2. Instrument panel driver knee bolster assembly and deflector. Refer to SECTION 8C.
3. Disable SIR system. Refer to "Disabling the SIR System" in this section.
4. Ensure steering column lock and ignition cylinder assembly is in "LOCK" position.
5. Steering column upper support nuts from steering column support. Refer to "Steering Column Assembly Removal" in this section.
6. Lower column assembly (15).
7. Electrical connectors from dimmer switch assembly (25) and ignition switch (24).
8. Dimmer switch actuator rod (27).
9. Bolts/screws (28).
10. Dimmer switch assembly (25).
11. Bolt/screw (26).
12. Ignition switch actuator rod (29).
13. Ignition switch (24).
14. Automatic transmission park lock cable assembly, if equipped. Refer to SECTION 7A.

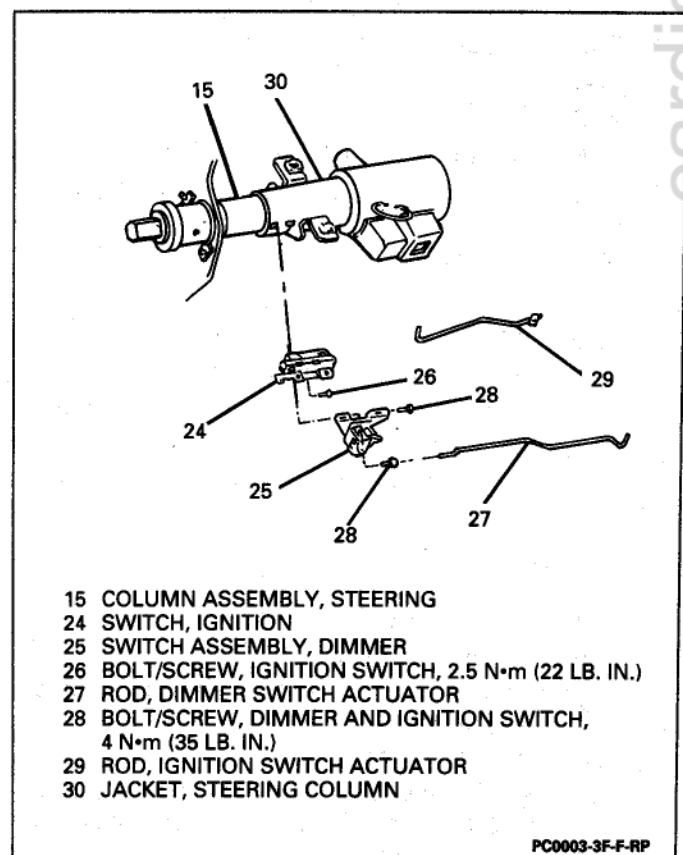


Figure 3 – Ignition Switch and Dimmer Switch Assembly

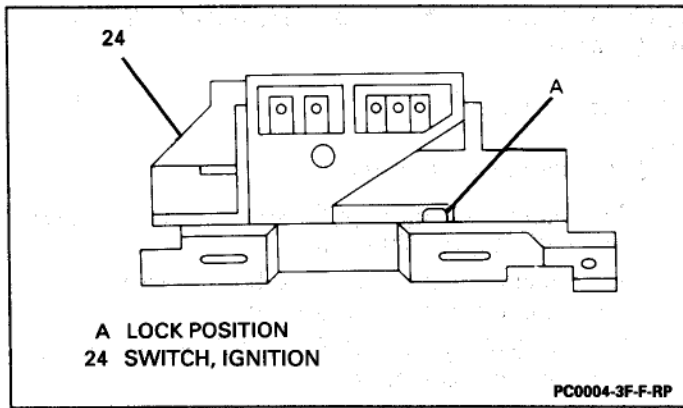


Figure 4 – Ignition Switch Adjustment

Install or Connect

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

1. Automatic transmission park lock cable assembly, if equipped. Refer to SECTION 7A.
2. Ensure ignition switch (24) is in “LOCK” position.
 - Move switch slider to extreme right position and then move slider one detent left.
3. Ensure steering column lock and ignition cylinder assembly is in “LOCK” position.
4. Ignition switch (24) to jacket (30).
5. Ignition switch actuator rod (29) to ignition switch (24).
6. Bolt/screw (26).

Tighten

- Bolt/screw (26) to 2.5 N•m (22 lb. in.).
7. Position dimmer switch assembly (25) to ignition switch (24).
 8. Bolts/screws (28).

Adjust

- Dimmer switch assembly (25).
 - Press switch mechanism slightly to insert 3/32-inch drill bit.
 - Move dimmer switch assembly (25) to remove lash.

Tighten

- Bolts/screws (28) to 4 N•m (35 lb. in.).
9. Dimmer switch actuator rod (27).
 10. Electrical connectors to dimmer switch assembly (25) and ignition switch (24).
 11. Raise column assembly (15).
 12. Steering column upper support nuts to steering column support. Refer to “Steering Column Assembly Removal” in this section.
 13. Enable SIR system. Refer to “Enabling the SIR System” in this section.

14. Instrument panel driver knee bolster assembly and deflector. Refer to SECTION 8C.
15. Left-hand instrument panel sound insulator assembly. Refer to SECTION 8C.

TURN SIGNAL LEVER ASSEMBLY

Figure 5

Remove or Disconnect

1. Steering column tilt wheel release lever assembly, if equipped with cruise control. Refer to “Steering Column Tilt Wheel Release Lever Assembly” in this section.
2. Access cover, if equipped with cruise control.
3. Electrical connectors, if equipped with cruise control.
4. Turn signal lever assembly (5 or 31) by grasping firmly and pulling straight out.

Install or Connect

1. Position tang on turn signal lever assembly (5 or 31) to notch in column assembly (15).

Important

- Be sure the wiper switch is in the “OFF” position before installing turn signal lever assembly (5 or 31).
2. Turn signal lever assembly (5 or 31) to column assembly (15).

Important

- Be sure the turn signal lever assembly (5 or 31) is fully seated.
3. Electrical connectors, if equipped with cruise control.
 4. Access cover, if equipped with cruise control.
 5. Steering column tilt wheel release lever assembly, if equipped with cruise control. Refer to “Steering Column Tilt Wheel Release Lever Assembly” in this section.

HAZARD WARNING SWITCH

The hazard warning switch does not require removal of the steering column assembly for replacement. For service information, refer to SECTION 3F5B.

Hazard Warning Switch Knob

Figure 6

Remove or Disconnect

1. Bolt/screw (18).
2. Button (19), spring (20) and knob (21).

Install or Connect

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

1. Knob (21), spring (20) and button (19).

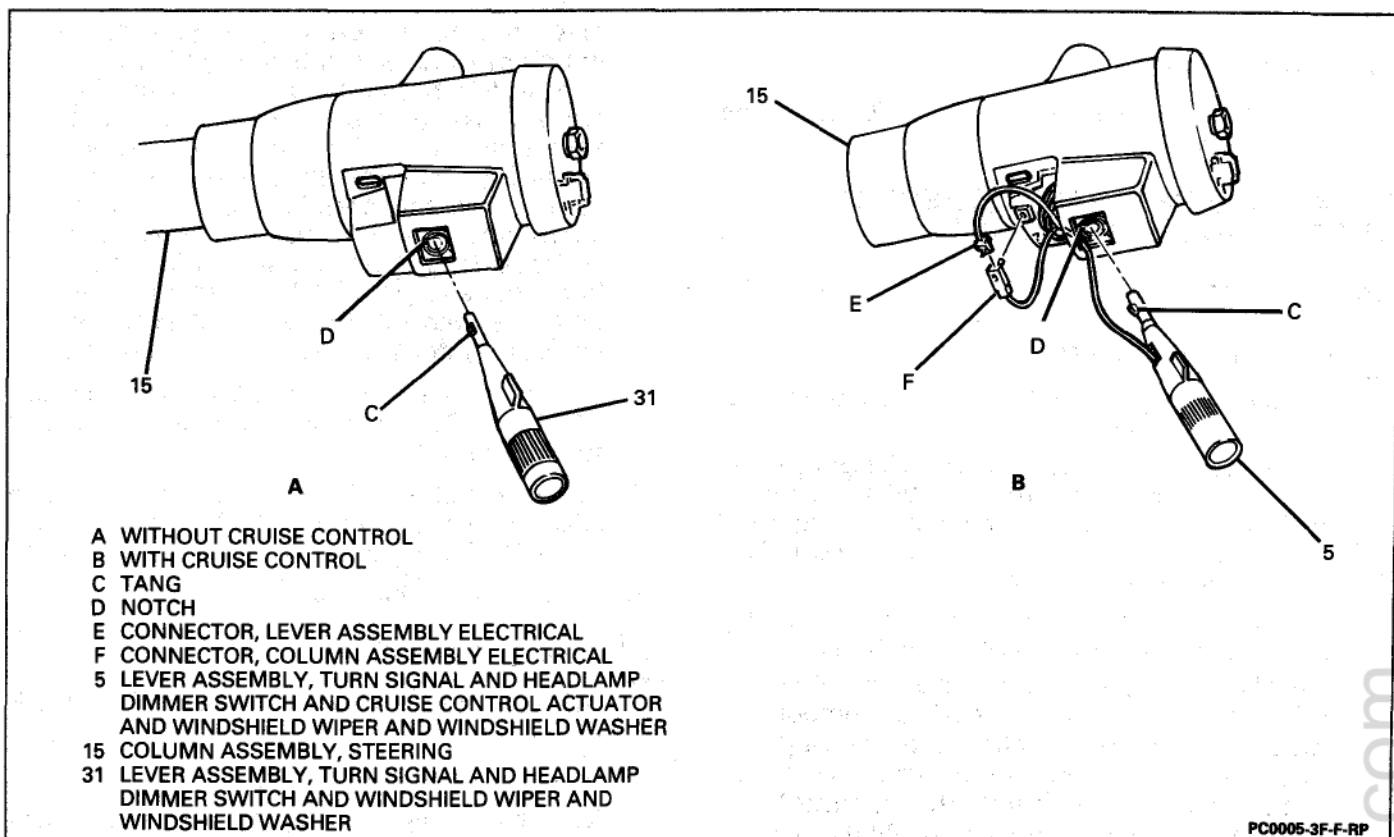


Figure 5 – Turn Signal Lever Assembly

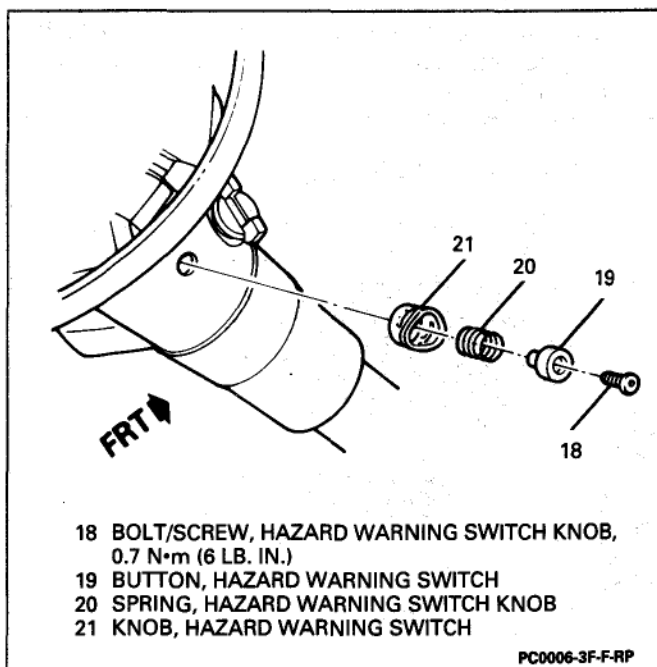


Figure 6 – Removing Hazard Warning Switch Knob

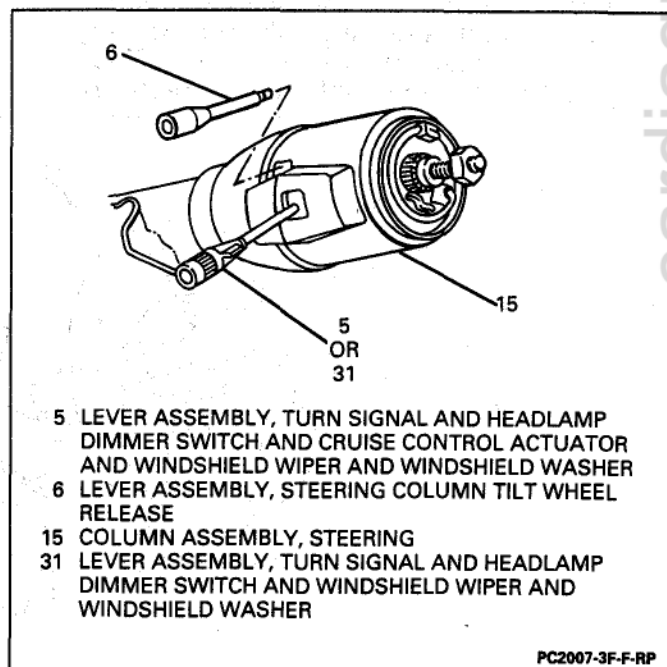


Figure 7 – Steering Column Tilt Wheel Release Lever Assembly (Typical)

STEERING COLUMN TILT WHEEL RELEASE LEVER ASSEMBLY

Figure 7

2. Bolt/screw (18).



Tighten

- Bolt/screw (18) to 0.7 N•m (6 lb. in.).



Remove or Disconnect

- Grip tilt wheel release lever assembly (6) firmly and twist counterclockwise.

Install or Connect

- Grip tilt wheel release lever assembly (6) firmly, and twist clockwise.

INFLATABLE RESTRAINT STEERING WHEEL MODULE ASSEMBLY

Figures 8 and 9

Remove or Disconnect

1. Disable SIR system. Refer to "Disabling the SIR System" in this section.
2. Loosen bolts/screws (3) from back of steering wheel assembly (2) using number 30 TORX® driver (or equivalent) until inflatable restraint steering wheel module assembly (1 or 46) can be released from steering wheel assembly (2).
3. Inflatable restraint steering wheel module assembly (1 or 46) 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

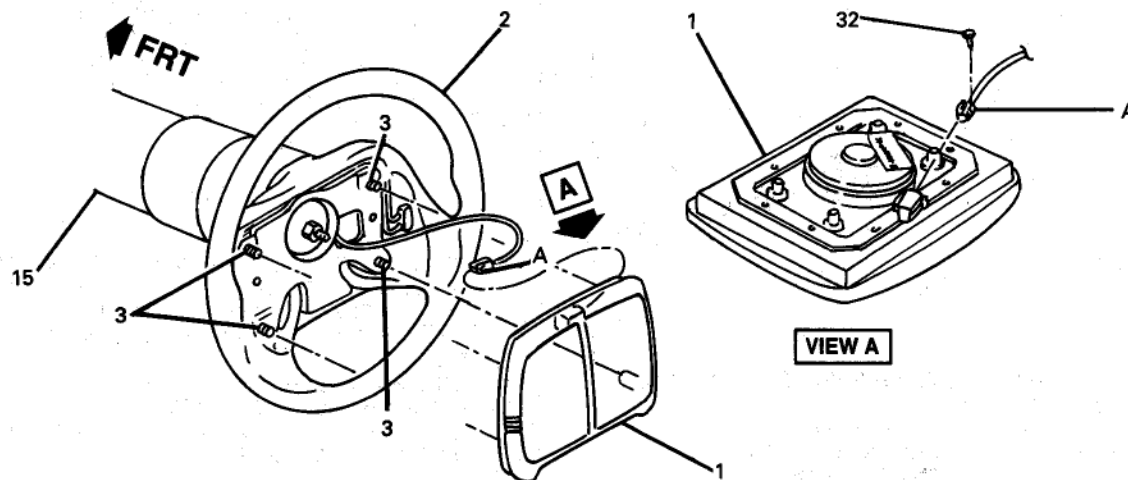
steering wheel module assembly on a bench or other surface, always face the bag and trim cover up, away from the surface. Never rest a steering column assembly on the steering wheel assembly with the inflatable restraint steering wheel module assembly face down and steering column assembly vertical. 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 electrical connector and retainer (32) from inflatable restraint steering wheel module assembly (1 or 46).
5. Radio control switch electrical connector from inflatable restraint steering wheel module assembly (1 or 46), if equipped.
6. Horn lead from column assembly (15).

Install or Connect

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

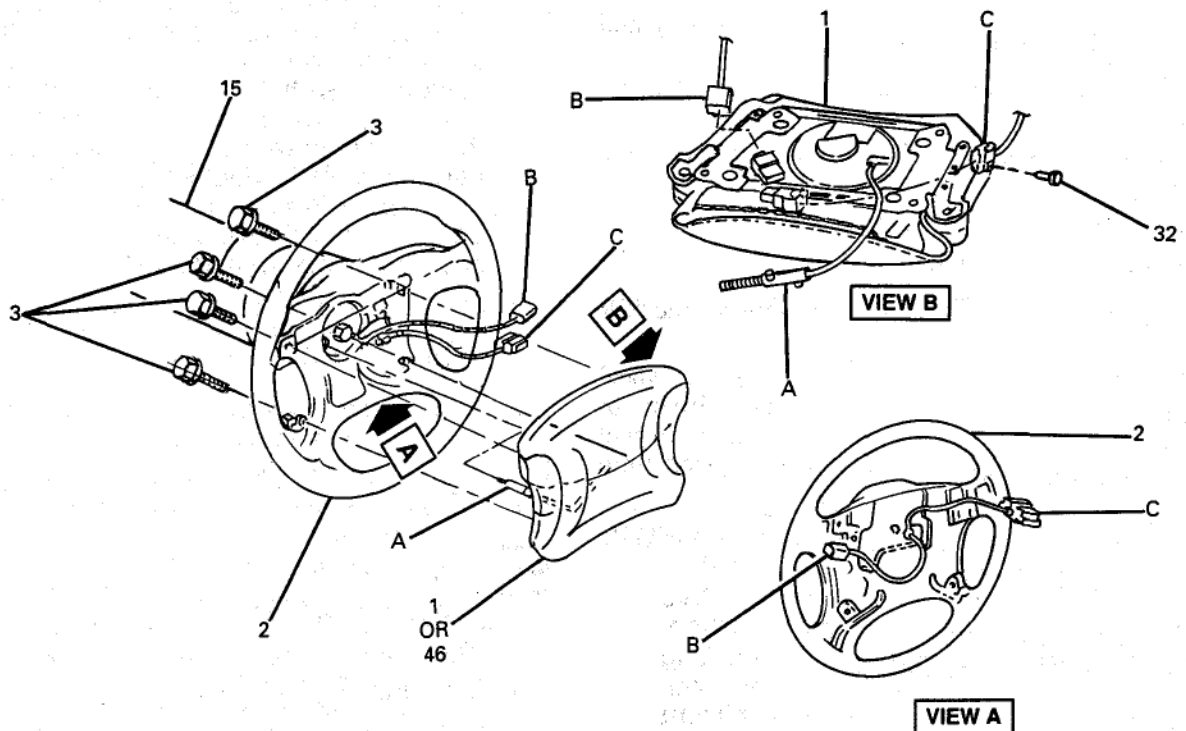
1. Horn lead to column assembly (15).
2. Radio control switch electrical connector to inflatable restraint steering wheel module assembly (1 or 46), if equipped.
3. SIR coil assembly electrical connector and retainer (32) to inflatable restraint steering wheel module assembly (1 or 46).



- A CONNECTOR, SIR COIL ASSEMBLY ELECTRICAL
 1 MODULE ASSEMBLY, INFLATABLE RESTRAINT STEERING WHEEL
 2 WHEEL ASSEMBLY, STEERING
 3 BOLT/SCREW, STEERING WHEEL, 2.8 N·m (25 LB. IN.)
 15 COLUMN ASSEMBLY, STEERING
 32 RETAINER, INFLATABLE RESTRAINT STEERING WHEEL MODULE WIRING HARNESS ELECTRICAL CONNECTOR

PC1008-3F-F-RP

Figure 8 – Removing Inflatable Restraint Steering Wheel Module Assembly – (Chevrolet)



- A LEAD, HORN
 B CONNECTOR, RADIO ASSEMBLY ELECTRICAL
 C CONNECTOR, SIR COIL ASSEMBLY ELECTRICAL
 1 MODULE ASSEMBLY, INFLATABLE RESTRAINT STEERING WHEEL
 2 WHEEL ASSEMBLY, STEERING
 3 BOLT/SCREW, STEERING WHEEL, 2.8 N•m (25 LB. IN.)
 15 COLUMN ASSEMBLY, STEERING
 32 RETAINER, INFLATABLE RESTRAINT STEERING WHEEL MODULE WIRING HARNESS ELECTRICAL CONNECTOR
 46 MODULE ASSEMBLY, INFLATABLE RESTRAINT STEERING WHEEL

PC2008-3F-F-RP

Figure 9 – Removing Inflatable Restraint Steering Wheel Module Assembly – (Pontiac)

4. Secure SIR coil assembly electrical connector to steering wheel assembly (2) by inserting thick section of wire into existing retainers.
5. Position inflatable restraint steering wheel module assembly (1 or 46) to steering wheel assembly (2).

Important

- Ensure wiring is not exposed or trapped between inflatable restraint steering wheel module assembly (1 or 46) and steering wheel assembly (2).

6. Bolts/screws (3).

Tighten

- Bolts/screws (3) to 2.8 N•m (25 lb. in.).

7. Enable SIR system. Refer to “Enabling the SIR System” in this section.

STEERING WHEEL HORN SWITCH ASSEMBLY

Chevrolet

Figure 10

Remove or Disconnect

1. Inflatable restraint steering wheel module assembly. Refer to “Inflatable Restraint Steering Wheel Module Assembly” in this section.
2. Bolt/screw (50).
3. Horn switch assembly (52) from inflatable restraint steering wheel module assembly (1).
 - A. Lift up on edge of module cover at horn button to access horn switches.
 - B. Press lock tang.
 - C. Remove horn switch.

- D. Repeat for remaining horn switch and remove horn switch assembly (52).

Install or Connect

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

1. Horn switch assembly (52) to inflatable restraint steering wheel module assembly (1).
 - A. Lift up on edge of module cover at horn button.
 - B. Install horn switch assembly (52).
 - C. Repeat for remaining horn switch assembly (52).
2. Bolt/screw (50).

Tighten

- Bolt/screw (50) to 1.9 N•m (17 lb. in.).
3. Inflatable restraint steering wheel module assembly. Refer to "Inflatable Restraint Steering Wheel Module Assembly" in this section.

STEERING WHEEL HORN SWITCH CONTACT PLATE ASSEMBLY

Pontiac

Figure 11

Remove or Disconnect

1. Inflatable restraint steering wheel module assembly. Refer to "Inflatable Restraint Steering Wheel Module Assembly" in this section.
2. Bolts/screws (37 and 38 or 45).
3. Horn switch contact plate assembly (40 or 44) from inflatable restraint steering wheel module assembly (1 or 46).

Install or Connect

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

1. Position horn switch plate assembly (40 or 44) to inflatable restraint steering wheel module assembly (1 or 46).
2. Bolts/screws (37 and 38 or 45).

Tighten

- Bolts/screws (37) to 2.8 N•m (25 lb. in.).
 - Bolts/screws (38) to 1.9 N•m (17 lb. in.).
 - Bolts/screws (45) to 2.8 N•m (25 lb. in.).
3. Inflatable restraint steering wheel module assembly. Refer to "Inflatable Restraint Steering Wheel Module Assembly" in this section.

STEERING WHEEL ASSEMBLY

Figure 12

Tools Required:

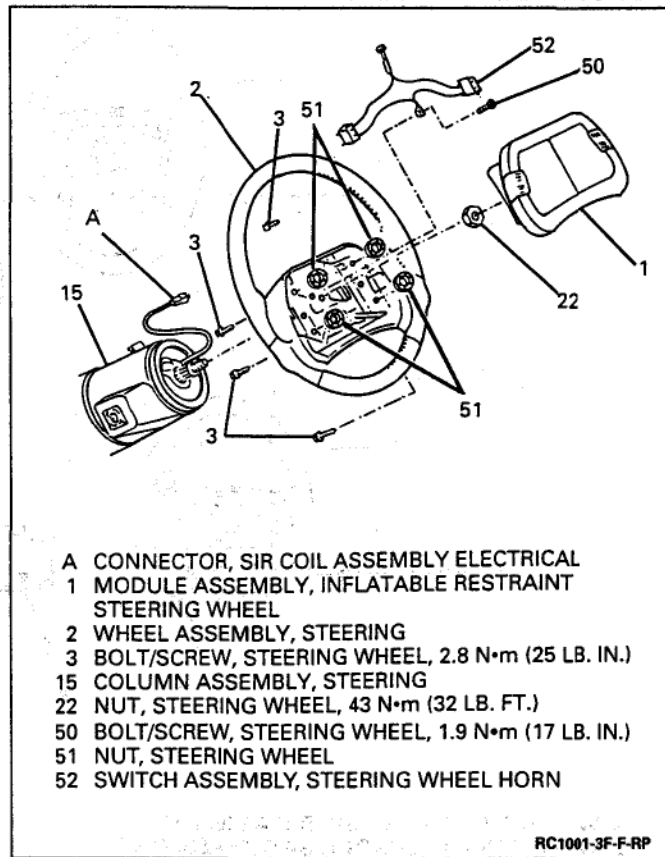


Figure 10 - Steering Wheel Horn Switch Assembly - (Chevrolet)

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 (22).

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 assembly 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. Horn lead.
4. Steering wheel assembly (2), using J 1859-A and J 38720.
5. Steering wheel horn switch contact plate assembly (Pontiac only). See "Steering Wheel Horn Switch Contact Plate Assembly" in this section.

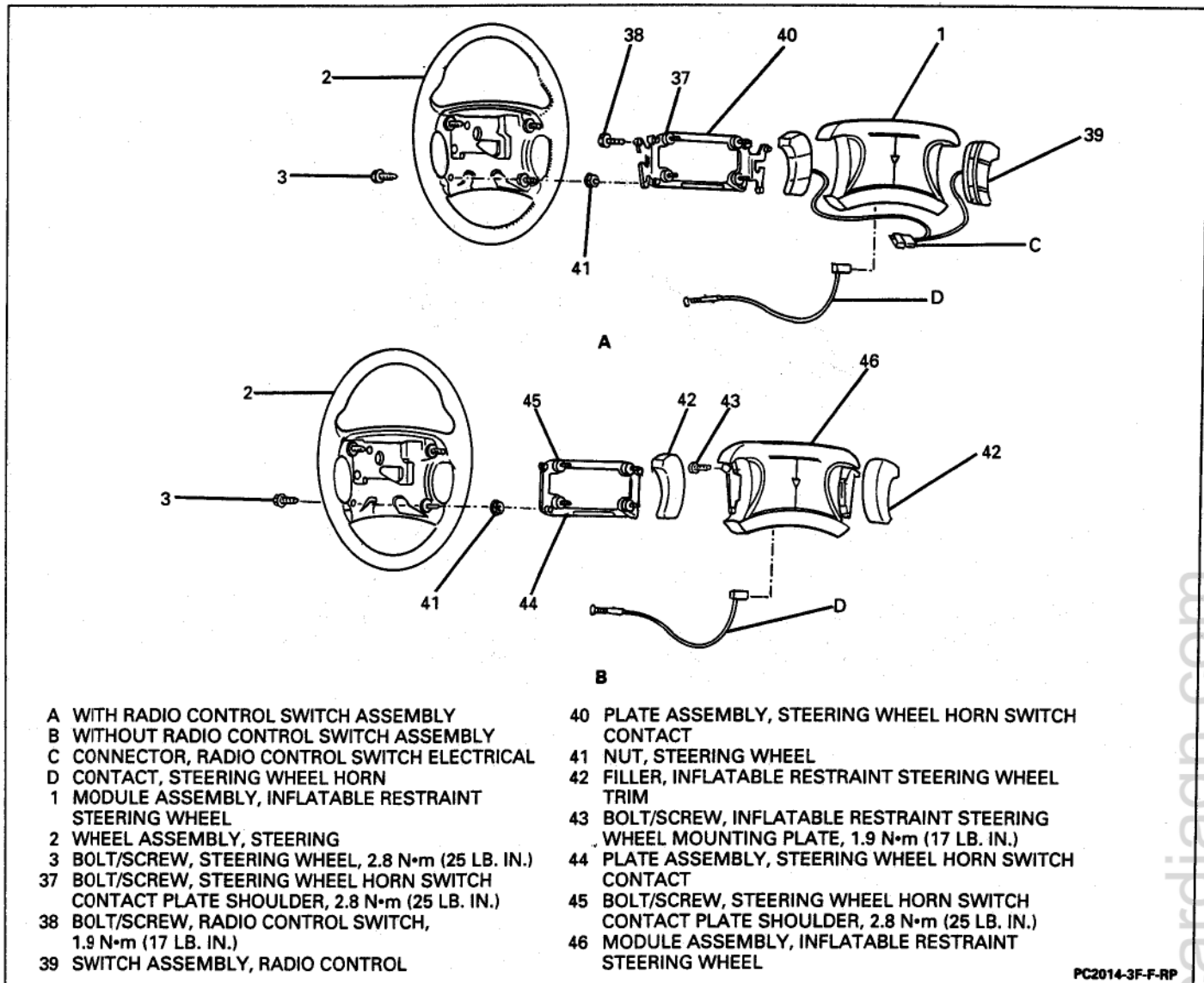


Figure 11 – Steering Wheel Horn Switch Contact Plate Assembly and Radio Control Switch Assembly – (Pontiac)

Install or Connect

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

1. Route SIR coil assembly electrical connector to steering wheel assembly (2).
2. Steering wheel horn switch contact plate assembly (Pontiac only). See “Steering Wheel Horn Switch Contact Plate Assembly” in this section.
3. Steering wheel assembly (2).

Important

- Align block tooth on steering wheel assembly (2) with block tooth on steering column shaft within one female serration.
4. Horn lead.
 5. Nut (22).

Tighten

- Nut (22) to 43 N•m (32 lb. ft.).
6. Inflatable restraint steering wheel module assembly. Refer to “Inflatable Restraint Steering Wheel Module Assembly” in this section.

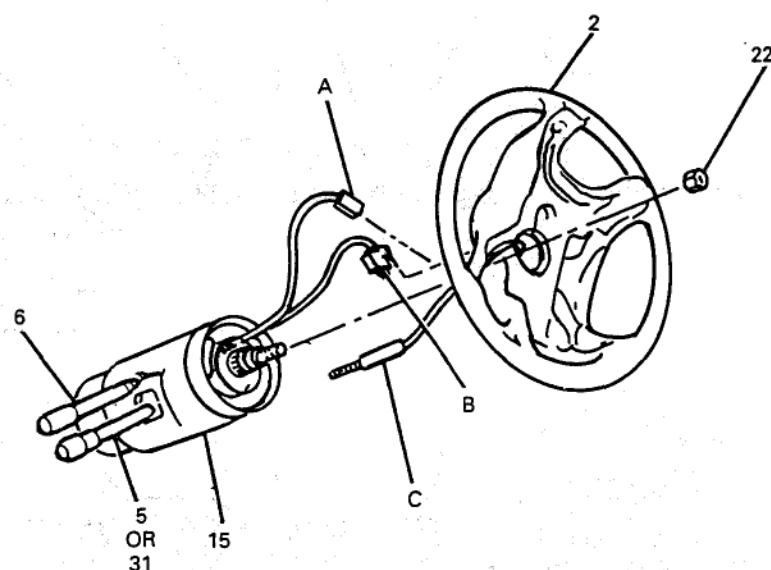
RADIO CONTROL SWITCH ASSEMBLY

Pontiac

Figure 11

Remove or Disconnect

1. Inflatable restraint steering wheel module assembly. Refer to “Inflatable Restraint Steering Wheel Module Assembly” in this section.
2. Steering wheel horn switch contact plate assembly from inflatable restraint steering wheel module



- A CONNECTOR, RADIO ASSEMBLY ELECTRICAL (PONTIAC ONLY)
 B CONNECTOR, SIR COIL ASSEMBLY, ELECTRICAL
 C LEAD, HORN
 2 WHEEL ASSEMBLY, STEERING
 5 LEVER ASSEMBLY, TURN SIGNAL AND HEADLAMP DIMMER SWITCH AND CRUISE CONTROL ACTUATOR AND WINDSHIELD WIPER AND WINDSHIELD WASHER

- 6 LEVER ASSEMBLY, STEERING COLUMN TILT WHEEL RELEASE
 15 COLUMN ASSEMBLY, STEERING
 22 NUT, STEERING WHEEL, 43 N•m (32 LB. FT.)
 31 LEVER ASSEMBLY, TURN SIGNAL AND HEADLAMP DIMMER SWITCH AND WINDSHIELD WIPER AND WINDSHIELD WASHER

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Figure 12 – Steering Wheel Assembly

assembly. See “Steering Wheel Horn Switch Contact Plate Assembly” in this section.

- Radio control switch assembly (39) from inflatable restraint steering wheel module assembly (1).

Install or Connect

- Radio control switch assembly (39) to inflatable restraint steering wheel module assembly (1).
- Steering wheel horn switch contact plate assembly to inflatable restraint steering wheel module assembly. See “Steering Wheel Horn Switch Contact Plate Assembly” in this section.
- Inflatable restraint steering wheel module assembly. Refer to “Inflatable Restraint Steering Wheel Module Assembly” in this section.

STEERING GEAR COUPLING SHAFT ASSEMBLY

Figure 13

Remove or Disconnect

NOTICE: Ensure the tire and wheel assemblies are pointing straight ahead and the steering wheel assembly is locked. Failure to do so may cause the steering wheel assembly to rotate, causing damage to the SIR coil assembly.

- Bolt/screw (10) from gear assembly (33).
- Clamp (11) from boot (12).
- Shaft assembly (9) from gear assembly (33).
- Boot (12) from shaft assembly (9).
- Shield (13) from shaft assembly (9) and column assembly (15) on 5.7L LT1 engine only.
- Bolt/screw (8) from column assembly (15).
- Shaft assembly (9) from column assembly (15).

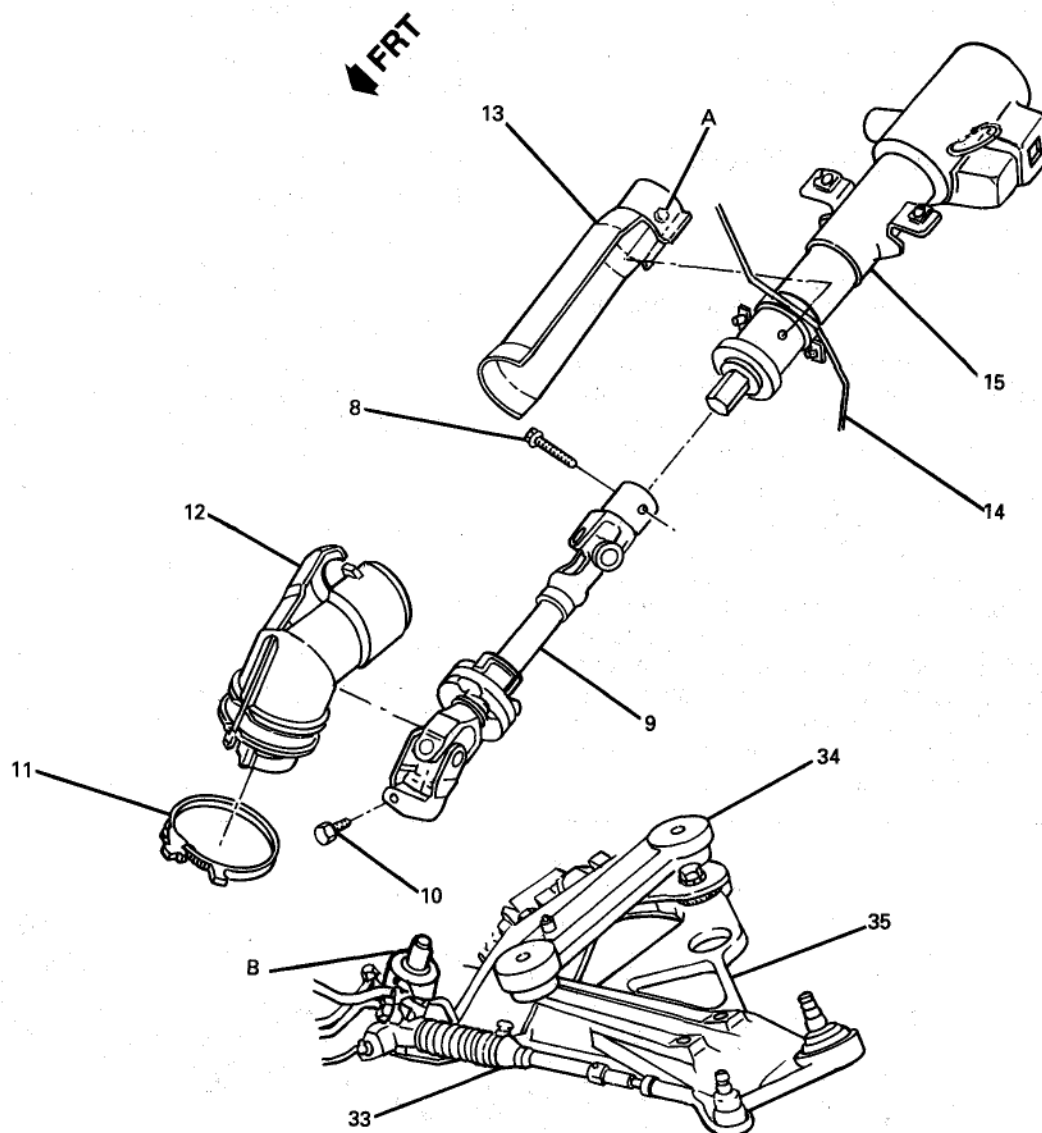
Install or Connect

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

- Position shaft assembly (9) to column assembly (15).
- Bolt/screw (8)

Tighten

- Bolt/screw (8) to 47 N•m (35 lb. ft.).
- Position boot (12) to shaft assembly (9) and secure with clamp (11). Do not close clamp (11).
 - Position shaft assembly (9) to body rail.
 - Remove clamp (11) from boot (12) and place over steering gear assembly casting.
 - Position shaft assembly (9) to gear assembly (33).
 - Bolt/screw (10).



- A BUTTON, STEERING GEAR COUPLING HEAT SHIELD
- B CASTING, STEERING GEAR ASSEMBLY
- 8 BOLT/SCREW, INTERMEDIATE STEERING SHAFT,
47 N•m (35 LB. FT.)
- 9 SHAFT ASSEMBLY, STEERING GEAR COUPLING
- 10 BOLT/SCREW, INTERMEDIATE STEERING SHAFT,
47 N•m (35 LB. FT.)
- 11 CLAMP, STEERING GEAR COUPLING SHIELD
- 12 BOOT, STEERING GEAR
- 13 SHIELD, STEERING GEAR COUPLING HEAT
- 14 COVER ASSEMBLY, STEERING COLUMN DASH PANEL
- 15 COLUMN ASSEMBLY, STEERING
- 33 GEAR ASSEMBLY, STEERING
- 34 CROSSMEMBER ASSEMBLY, FRONT
- 35 ARM ASSEMBLY, FRONT LOWER CONTROL

Figure 13 – Steering Gear Coupling Shaft Assembly

**Tighten**

- Bolt/screw (10) to 47 N•m (35 lb. ft.).
8. Position shield (13) to shaft assembly (9) and column assembly (15) on 5.7L LT1 engine only.
 9. Shield (13) by inserting button into hole in column assembly (15) on 5.7L LT1 engine only.

STEERING COLUMN ASSEMBLY REMOVAL**Figures 14 and 15**

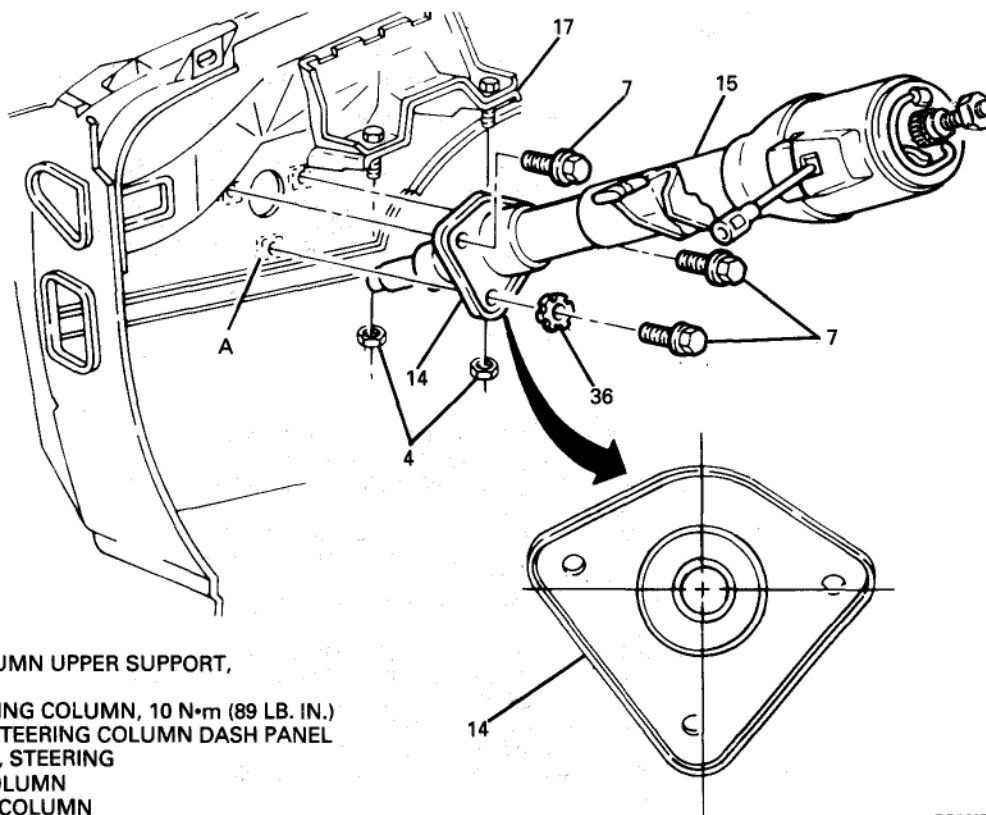
NOTICE: The tire and wheel assemblies must be straight ahead and the steering column assembly locked before disconnecting the steering column assembly or steering gear coupling shaft assembly from the steering gear assembly. Failure to do so will cause the SIR coil assembly to become uncentered, which 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. Left-hand instrument panel sound insulator assembly. Refer to SECTION 8C.
2. Instrument panel driver knee bolster assembly and deflector. Refer to SECTION 8C.
3. Disable SIR system. Refer to "Disabling the SIR System" in this section.
4. Steering wheel assembly, if column assembly is to be replaced. Refer to "Steering Wheel Assembly" in this section.
5. Intermediate steering shaft bolt/screw from steering gear coupling shaft assembly and column assembly. Refer to "Steering Gear Coupling Shaft Assembly" in this section.
6. Bolts/screws (7) attaching cover assembly (14) to dash panel assembly.
7. Cover assembly (14) from dash panel assembly.
8. Electrical connectors.
9. Nuts (4) from steering column support.
10. Automatic transmission park lock cable assembly from ignition switch, if equipped. Refer to SECTION 7A.
11. Column assembly (15) from vehicle.



- A NUT, WELD
 4 NUT, STEERING COLUMN UPPER SUPPORT,
 25 N•m (18 LB. FT.)
 7 BOLT/SCREW, STEERING COLUMN, 10 N•m (89 LB. IN.)
 14 COVER ASSEMBLY, STEERING COLUMN DASH PANEL
 15 COLUMN ASSEMBLY, STEERING
 17 GUIDE, STEERING COLUMN
 36 WASHER, STEERING COLUMN

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Figure 14 – Removing Steering Column Assembly

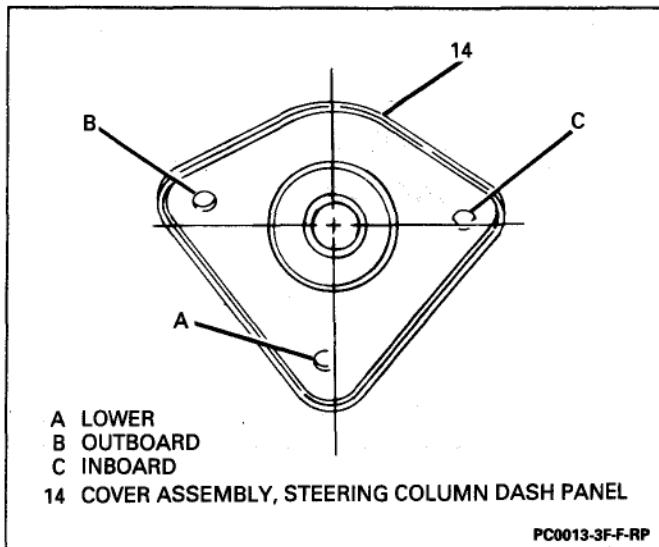


Figure 15 - Steering Column Bolt/Screw Installation Sequence

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. Position column assembly (15) into vehicle.
2. Automatic transmission park lock cable assembly to ignition switch, if equipped. Refer to SECTION 7A.

3. Nuts (4) to steering column support.

Tighten

- Nuts (4) to 25 N•m (18 lb. ft.).
4. Intermediate steering shaft bolt/screw to steering gear coupling shaft assembly. Refer to "Steering Gear Coupling Shaft Assembly" in this section.

Important

- When installing the cover assembly (14) to the dash panel assembly, the lower bolt/screw (7) must be installed first followed in order by the outboard bolt/screw (7) and inboard bolt/screw (7). Refer to Figure 15.
5. Position cover assembly (14) to dash panel assembly.
 6. Bolts/screws (7).

Tighten

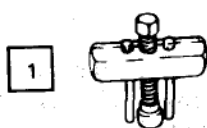
- Bolts/screws (7) to 10 N•m (89 lb. in.).
7. Electrical connectors.
 8. Steering wheel assembly, if column assembly is replaced. Refer to "Steering Wheel Assembly" in this section.
 9. Enable SIR system. Refer to "Enabling the SIR System" in this section.
 10. Instrument panel driver knee bolster assembly and deflector. Refer to SECTION 8C.
 11. Left-hand instrument panel sound insulator assembly. Refer to SECTION 8C.

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Dimmer and Ignition Switch Bolt/Screw	4 N•m (35 lb. in.)
Hazard Warning Switch Knob Bolt/Screw	0.7 N•m (6 lb. in.)
Ignition Switch Bolt/Screw	2.5 N•m (22 lb. in.)
Inflatable Restraint Steering Wheel Mounting Plate Bolt/Screw (Pontiac Only)	1.9 N•m (17 lb. in.)
Intermediate Steering Shaft-to-Steering Column Assembly Bolt/Screw	47 N•m (35 lb. ft.)
Intermediate Steering Shaft-to-Steering Gear Assembly Bolt/Screw	47 N•m (35 lb. ft.)
Radio Control Switch Bolt/Screw (Pontiac Only)	1.9 N•m (17 lb. in.)
Steering Column Bolt/Screw	10 N•m (89 lb. in.)
Steering Column Guide Bolt/Screw	25 N•m (18 lb. ft.)
Steering Column Upper Support Nut	25 N•m (18 lb. ft.)
Steering Wheel Bolt/Screw (Pontiac Only)	2.8 N•m (25 lb. in.)
Steering Wheel Horn Switch Contact Plate Shoulder Bolt/Screw (Pontiac Only)	2.8 N•m (25 lb. in.)
Steering Wheel Nut	43 N•m (32 lb. ft.)
Steering Wheel-to-Inflatable Restraint Steering Wheel Module Assembly Bolt/Screw (Chevrolet Only)	2.8 N•m (25 lb. in.)
Steering Wheel-to-Steering Wheel Horn Switch Assembly Bolt/Screw (Chevrolet Only)	1.9 N•m (17 lb. in.)

SPECIAL TOOLS



J 1859-A



J 38720

1

STEERING WHEEL PULLER

2

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

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