

PASSIVE RESTRAINT SYSTEMS

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DESCRIPTION AND OPERATION

AIRBAG SYSTEM

DESCRIPTION

A dual front airbag system is standard factory-installed safety equipment on this model. The primary passenger restraints in this vehicle are the standard equipment factory-installed seat belts, which require active use by the vehicle occupants. The airbag system is a supplemental passive restraint that was designed and is intended to enhance the protection for the front seat occupants of the vehicle **only** when used in conjunction with the seat belts. See the owner's manual in the vehicle glove box for more information on the features, use and operation of all of the factory-installed passenger restraints, including the airbag system.

The dual front airbag system consists of the following components:

- Airbag Control Module (ACM)
- Airbag indicator lamp
- Clockspring
- Driver and passenger side airbag modules (including the airbag inflators)
- Driver and passenger side knee blockers
- Wire harness and connections.

This group provides complete service information for the ACM, both airbag modules, and the clockspring. Complete service information for the other airbag system components can be located as follows:

- Refer to **Instrument Cluster** in the proper section of Group 8E - Instrument Panel Systems for

complete service information for the airbag indicator lamp.

- Refer to **Steering Column Opening Cover** in the Removal and Installation section of Group 8E - Instrument Panel Systems for complete service information on the driver side knee blocker.

- Refer to **Glove Box** in the Removal and Installation section of Group 8E - Instrument Panel Systems for complete service information on the passenger side knee blocker.

- Refer to **Airbag System** in the Contents of Group 8W - Wiring Diagrams for complete service information and circuit diagrams for the airbag system wiring components.

See the proper Diagnostic Procedures manual to test or diagnose a problem with any component of the airbag system.

OPERATION

The airbag system electrical circuits are continuously monitored and controlled by a microprocessor and software contained within the Airbag Control Module (ACM). The ACM also contains an impact sensor and a safing sensor, which are monitored by the ACM to determine when an impact occurs that is severe enough to require airbag system protection. When a frontal impact is severe enough, the ACM signals the inflator units of both airbag modules to deploy the airbags.

An airbag indicator lamp in the instrument cluster lights for about seven seconds as a bulb test, each time the ignition switch is turned to the On or Start positions. Following the bulb test, the airbag indicator lamp is turned on or off by the ACM to indicate

DESCRIPTION AND OPERATION (Continued)

the status of the airbag system. If the airbag indicator lamp comes on at any time other than during the bulb test, it indicates that there is a problem in the airbag system circuits. Such a problem may cause the airbags not to deploy when required, or to deploy when not required.

The driver side airbag module includes an inflatable airbag and an inflator unit behind a trim cover in the hub area of the steering wheel. The passenger side airbag module includes a second inflatable airbag and an inflator unit behind an airbag door in the instrument panel above the glove box.

During a frontal vehicle impact, the knee blockers work in concert with properly adjusted seat belts to restrain the driver and front seat passenger in the proper position for an airbag deployment. The knee blockers also work to absorb and distribute the crash energy from the driver and front seat passenger to the structure of the instrument panel. The driver side knee blocker is integral to the instrument panel steering column opening cover. The passenger side knee blocker is integral to the glove box door.

Following are general descriptions of the major components in the airbag system.

WARNING:

- **THE AIRBAG SYSTEM IS A SENSITIVE, COMPLEX ELECTROMECHANICAL UNIT. BEFORE ATTEMPTING TO DIAGNOSE OR SERVICE ANY AIRBAG SYSTEM OR RELATED STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENTS YOU MUST FIRST DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE. THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE FURTHER SYSTEM SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO DO THIS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.**

- **THE DRIVER SIDE AIRBAG MODULE INFLATOR ASSEMBLY CONTAINS SODIUM AZIDE AND POTASSIUM NITRATE. THESE MATERIALS ARE POISONOUS AND EXTREMELY FLAMMABLE. CONTACT WITH ACID, WATER, OR HEAVY METALS MAY PRODUCE HARMFUL AND IRRITATING GASES (SODIUM HYDROXIDE IS FORMED IN THE PRESENCE OF MOISTURE) OR COMBUSTIBLE COMPOUNDS. THE PASSENGER AIRBAG MODULE CONTAINS ARGON GAS PRESSURIZED TO OVER 2500 PSI. DO NOT ATTEMPT TO DISMANTLE AN AIRBAG MODULE OR TAMPER WITH ITS INFLATOR. DO NOT PUNCTURE, INCINERATE, OR BRING INTO CONTACT WITH ELECTRICITY. DO NOT STORE AT TEMPERATURES EXCEEDING 93° C (200° F).**

- **REPLACE AIRBAG SYSTEM COMPONENTS ONLY WITH PARTS SPECIFIED IN THE CHRYSLER**

MOPAR PARTS CATALOG. SUBSTITUTE PARTS MAY APPEAR INTERCHANGEABLE, BUT INTERNAL DIFFERENCES MAY RESULT IN INFERIOR OCCUPANT PROTECTION.

- **THE FASTENERS, SCREWS, AND BOLTS ORIGINALLY USED FOR THE AIRBAG SYSTEM COMPONENTS HAVE SPECIAL COATINGS AND ARE SPECIFICALLY DESIGNED FOR THE AIRBAG SYSTEM. THEY MUST NEVER BE REPLACED WITH ANY SUBSTITUTES. ANY TIME A NEW FASTENER IS NEEDED, REPLACE IT WITH THE CORRECT FASTENERS PROVIDED IN THE SERVICE PACKAGE OR SPECIFIED IN THE CHRYSLER MOPAR PARTS CATALOG.**

- **WHEN A STEERING COLUMN HAS AN AIRBAG MODULE ATTACHED, NEVER PLACE THE COLUMN ON THE FLOOR OR ANY OTHER SURFACE WITH THE STEERING WHEEL OR AIRBAG MODULE FACE DOWN.**

DRIVER SIDE AIRBAG MODULE**DESCRIPTION**

The driver side airbag module protective trim cover is the most visible part of the driver side airbag system. The driver side airbag module is mounted directly to the steering wheel. Located under the airbag module trim cover are the horn switch, the folded airbag cushion, and the airbag cushion supporting components. The resistive membrane-type horn switch is secured with heat stakes to the inside surface of the airbag module trim cover, between the trim cover and the folded airbag cushion.

The driver side airbag module cannot be repaired, and must be replaced if deployed or in any way damaged. The driver side airbag module trim cover and the horn switch are available as a unit for service replacement.

OPERATION

The driver side airbag module includes a stamped metal housing to which the cushion and an inflator unit are attached and sealed. The conventional pyrotechnic-type inflator assembly is mounted to studs on the back of the airbag module housing. The inflator seals the hole in the airbag cushion so it can discharge the gas it produces directly into the cushion when supplied with the proper electrical signal. Following an airbag deployment, the airbag cushion quickly deflates by venting this gas towards the instrument panel through the porous fabric material used on the steering wheel side of the airbag cushion.

The protective trim cover is fitted to the front of the airbag module and forms a decorative cover in the center of the steering wheel. The inside of the

DESCRIPTION AND OPERATION (Continued)

trim cover has locking blocks molded into it that engage a lip on the airbag module metal housing. Two stamped metal retainers then fit over the inflator mounting studs on the back of the airbag module housing and are engaged in slots on the inside of the cover, securely locking the trim cover into place. The trim cover will split at predetermined breakout lines, then fold back out of the way along with the horn switch upon airbag deployment.

PASSENGER SIDE AIRBAG MODULE

DESCRIPTION

The passenger side airbag door on the instrument panel above the glove box is the most visible part of the passenger side airbag system. Located under the airbag door are the passenger side airbag cushion and the airbag cushion supporting components.

The passenger side airbag module includes an extruded aluminum housing within which the cushion and inflator are mounted and sealed. The airbag housing extrusion also includes two flanges. The flanges, one at the top and one at the bottom, serve as the mounting brackets for the module. Two stamped metal brackets, one on each end of the housing, enclose the cushion and inflator. The passenger side airbag module upper bracket is secured beneath the instrument panel top pad with rivets to a flange and bracket on the passenger side airbag door. The lower bracket is secured with screws to the instrument panel structural duct.

Following a passenger side airbag deployment, the passenger side airbag module and the instrument panel assembly must be replaced. The passenger side airbag module cannot be repaired, and must be replaced if deployed or in any way damaged.

OPERATION

The hybrid-type inflator assembly includes a small canister of highly compressed argon gas. The inflator seals the hole in the airbag cushion so it can discharge the gas it produces directly into the cushion when supplied with the proper electrical signal. Following an airbag deployment, the airbag cushion quickly deflates by venting this gas through the porous fabric material used on each end panel of the airbag cushion.

The molded plastic passenger side airbag door is secured to the instrument panel top cover with rivets. The airbag door has predetermined breakout lines concealed beneath its decorative cover. Upon airbag deployment, the airbag door will split at the breakout lines and the door will pivot out of the way. The passenger side airbag door is serviced only as a unit with the instrument panel top cover.

AIRBAG CONTROL MODULE

DESCRIPTION

The Airbag Control Module (ACM) is secured with screws to a mount welded onto the floor panel transmission tunnel behind the instrument panel center support bracket in the passenger compartment of the vehicle. The ACM contains an electronic microprocessor, an electronic impact sensor, an electromechanical safing sensor, and an energy storage capacitor.

The ACM cannot be repaired or adjusted and, if damaged or faulty, it must be replaced.

OPERATION

The microprocessor in the ACM contains the airbag system logic. The airbag system logic includes On-Board Diagnostics (OBD), and the ability to communicate with the instrument cluster circuitry over the Chrysler Collision Detection (CCD) data bus to control the airbag indicator lamp. The microprocessor continuously monitors all of the airbag system electrical circuits to determine the system readiness. If the ACM detects a monitored system fault, it sends messages to the instrument cluster over the CCD data bus to turn on the airbag indicator lamp. Refer to **Instrument Cluster** in the proper section of Group 8E - Instrument Panel Systems for more information on the airbag indicator lamp.

One electronic impact sensor is used in this airbag system. The impact sensor is an accelerometer that senses the rate of vehicle deceleration, which provides verification of the direction and severity of an impact. The impact sensor is calibrated for the specific vehicle, and is only serviced as a unit with the ACM. A pre-programmed decision algorithm in the ACM microprocessor determines when the deceleration rate as signaled by the impact sensor indicates an impact that is severe enough to require airbag system protection. When the programmed conditions are met, the ACM sends an electrical signal to deploy the airbags.

In addition to the electronic impact sensor, there is an electromechanical sensor within the ACM called a safing sensor. The safing sensor is a normally open series switch located in the airbag deployment circuit of the ACM. This sensor detects impact energy of a lesser magnitude than the electronic impact sensor, and must be closed in order for the airbags to deploy.

The ACM also contains an energy-storage capacitor. This capacitor stores enough electrical energy to deploy the airbags for up to one second following a battery disconnect or failure during an impact. The purpose of the capacitor is to provide airbag system protection in a severe secondary impact, if the initial impact has damaged or disconnected the battery, but was not severe enough to deploy the airbags.

DESCRIPTION AND OPERATION (Continued)

CLOCKSPRING

DESCRIPTION

The clockspring assembly is secured with two integral plastic latches onto the steering column lock housing near the top of the steering column behind the steering wheel. The clockspring is used to maintain a continuous electrical circuit between the fixed clockspring wire harness on the steering column and several electrical components that rotate with the steering wheel. The rotating components include the driver side airbag module, the horn switch and, if the vehicle is so equipped, the vehicle speed control switches and/or the remote radio switches.

The clockspring cannot be repaired. If the clockspring is faulty, damaged, or if the driver side airbag has been deployed, the clockspring must be replaced.

OPERATION

The clockspring assembly consists of a plastic case which contains a flat, ribbon-like, electrically conductive tape that winds and unwinds like a clockspring with the steering wheel rotation. The electrically conductive tape consists of several fine gauge copper wire leads sandwiched between two narrow strips of plastic film.

Like the clockspring in a timepiece, the clockspring tape has travel limits and can be damaged by being wound too tightly. To prevent this from occurring, the clockspring is centered when it is installed on the steering column. Centering the clockspring indexes the clockspring tape to other steering components so that it can operate within its designed travel limits. However, if the clockspring is removed for service or if the steering column is disconnected from the steering gear allowing the clockspring tape to change position relative to the other steering components, it must be re-centered following completion of the service or it may be damaged. Refer to **Clockspring Centering** in the Adjustments section of this group for the proper centering procedures.

Service replacement clocksprings are shipped pre-centered and with a piece of tape covering the depressed clockspring auto-locking tabs. This tape should not be removed until the clockspring has been installed on the steering column. If the tape is removed before the clockspring is installed on a steering column, the clockspring centering procedure must be performed.

DIAGNOSIS AND TESTING

AIRBAG SYSTEM

A DRB scan tool is required for diagnosis of the airbag system. See the proper Diagnostic Procedures manual for more information.

(1) Connect the DRB scan tool to the 16-way data link wire harness connector. The connector is located on the driver side lower edge of the instrument panel, below the steering column (Fig. 1).

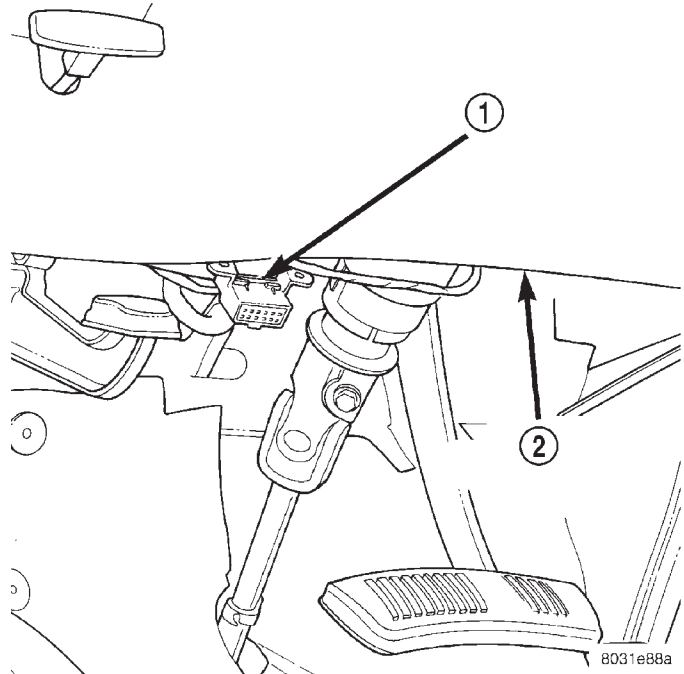


Fig. 1 16-Way Data Link Connector - Typical

- 1 - 16-WAY DATA LINK CONNECTOR
- 2 - BOTTOM OF INSTRUMENT PANEL

(2) Turn the ignition switch to the On position. Exit the vehicle with the DRB. Be certain that the DRB contains the latest version of the proper DRB software.

(3) Using the DRB, read and record the active Diagnostic Trouble Code (DTC) data.

(4) Read and record any stored DTC data.

(5) See the proper Diagnostic Procedures manual if any DTC is found in Step 3 or Step 4.

(6) After completing the necessary repairs, try to erase the stored DTC data. If any problems remain, the stored DTC data will not erase. See the proper Diagnostic Procedures manual for the procedures to diagnose any stored DTC that will not erase.

(7) With the ignition switch still in the On position, check to be certain that nobody is in the vehicle.

(8) From outside of the vehicle (away from the airbags in case of an accidental deployment) turn the ignition switch to the Off position for about ten sec-

DIAGNOSIS AND TESTING (Continued)

onds, and then back to the On position. Observe the airbag indicator lamp in the instrument cluster. It should light for six to eight seconds, and then go out. This indicates that the airbag system is functioning normally.

NOTE: If the airbag indicator lamp fails to light, or lights and stays on, there is an airbag system malfunction. See the proper Diagnostic Procedures manual to diagnose the problem.

SERVICE PROCEDURES

AIRBAG SYSTEM

NON-DEPLOYED

At no time should any source of electricity be permitted near the inflator on the back of an airbag module. When carrying a non-deployed airbag module, the trim cover or airbag side of the module should be pointed away from the body to minimize injury in the event of an accidental deployment. If the module is placed on a bench or any other surface, the trim cover or airbag side of the module should be face up to minimize movement in the event of an accidental deployment.

In addition, the airbag system should be disarmed whenever any steering wheel, steering column, or instrument panel components require diagnosis or service. Failure to observe this warning could result in accidental airbag deployment and possible personal injury. Refer to **Group 8E - Instrument Panel Systems** for additional service procedures on the instrument panel components. Refer to **Group 19 - Steering** for additional service procedures on the steering wheel and steering column components.

DISPOSAL OF NON-DEPLOYED AIRBAG MODULES

All damaged or faulty and non-deployed driver side or passenger side airbag modules which are replaced on vehicles are to be returned. If an airbag module assembly is faulty or damaged and non-deployed, refer to the parts return list in the current Chrysler Corporation Warranty Policies and Procedures manual for the proper handling and disposal procedures.

DEPLOYED

Any vehicle which is to be returned to use after an airbag deployment, must have both airbag modules, the instrument panel assembly, the steering column assembly and the clockspring replaced. These components will be damaged or weakened as a result of an airbag deployment, which may or may not be obvious during a visual inspection, and are not intended for reuse.

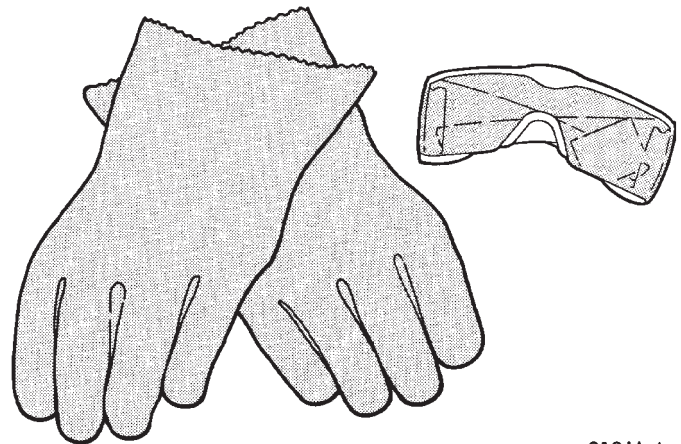
Other vehicle components should be closely inspected, but are to be replaced only as required by the extent of the visible damage incurred.

STORAGE

An airbag module must be stored in its original, special container until used for service. Also, it must be stored in a clean, dry environment; away from sources of extreme heat, sparks, and high electrical energy. Always place or store an airbag module on a surface with its trim cover or airbag side facing up, to minimize movement in case of an accidental deployment.

CLEANUP PROCEDURE

Following an airbag system deployment, the vehicle interior will contain a powdery residue. This residue consists primarily of harmless particulate by-products of the small pyrotechnic charge used to initiate the airbag deployment propellant. However, this residue will also contain traces of sodium hydroxide powder, a chemical by-product of the propellant material that is used to generate the nitrogen gas that inflates the airbag. Since sodium hydroxide powder can irritate the skin, eyes, nose, or throat, be sure to wear safety glasses, rubber gloves, and a long-sleeved shirt during cleanup (Fig. 2).



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Fig. 2 Wear Safety Glasses and Rubber Gloves - Typical

WARNING: IF YOU EXPERIENCE SKIN IRRITATION DURING CLEANUP, RUN COOL WATER OVER THE AFFECTED AREA. ALSO, IF YOU EXPERIENCE IRRITATION OF THE NOSE OR THROAT, EXIT THE VEHICLE FOR FRESH AIR UNTIL THE IRRITATION CEASES. IF IRRITATION CONTINUES, SEE A PHYSICIAN.

Begin the cleanup by removing the airbag modules from the vehicle. Refer to **Driver Side Airbag Module** and **Passenger Side Airbag Module** in the

SERVICE PROCEDURES (Continued)

Removal and Installation section of this group for the procedures.

Use a vacuum cleaner to remove any residual powder from the vehicle interior. Clean from outside the vehicle and work your way inside, so that you avoid kneeling or sitting on a non-cleaned area.

Be sure to vacuum the heater and air conditioning outlets as well (Fig. 3). Run the heater and air conditioner blower on the lowest speed setting and vacuum any powder expelled from the outlets. You may need to vacuum the interior of the vehicle a second time to recover all of the powder.

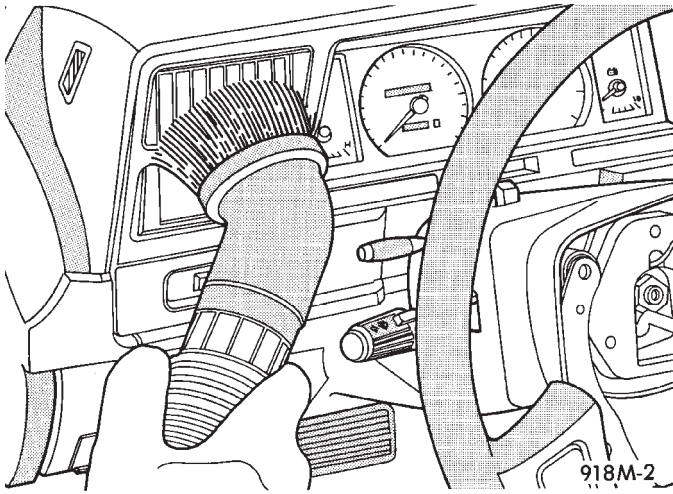


Fig. 3 Vacuum Heater and A/C Outlets - Typical

Place the deployed airbag modules in your vehicular scrap pile.

REMOVAL AND INSTALLATION

DRIVER SIDE AIRBAG MODULE

The following procedure is for replacement of a faulty or damaged driver side airbag module. If the driver side airbag has been deployed, the clockspring and the steering column assembly must also be replaced. Refer to **Clockspring** in the Removal and Installation section of this group for the additional service procedures for the clockspring. Refer to **Steering Column** in the Removal and Installation section of Group 19 - Steering for the additional service procedures for the steering column.

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TEM CAPACITOR TO DISCHARGE BEFORE FURTHER SYSTEM SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO DO THIS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

- **WHEN REMOVING A DEPLOYED AIRBAG MODULE, RUBBER GLOVES, EYE PROTECTION, AND A LONG-SLEEVED SHIRT SHOULD BE WORN. THERE MAY BE DEPOSITS ON THE AIRBAG MODULE AND OTHER INTERIOR SURFACES. IN LARGE DOSES, THESE DEPOSITS MAY CAUSE IRRITATION TO THE SKIN AND EYES.**

REMOVAL

(1) Disconnect and isolate the battery negative cable. If either of the airbags has not been deployed, wait two minutes for the system capacitor to discharge before further service.

(2) From the underside of the steering wheel, remove the two screws that secure the driver side airbag module to the steering wheel (Fig. 4).

(3) Pull the airbag module away from the steering wheel far enough to access the two wire harness connectors on the back of the airbag module.

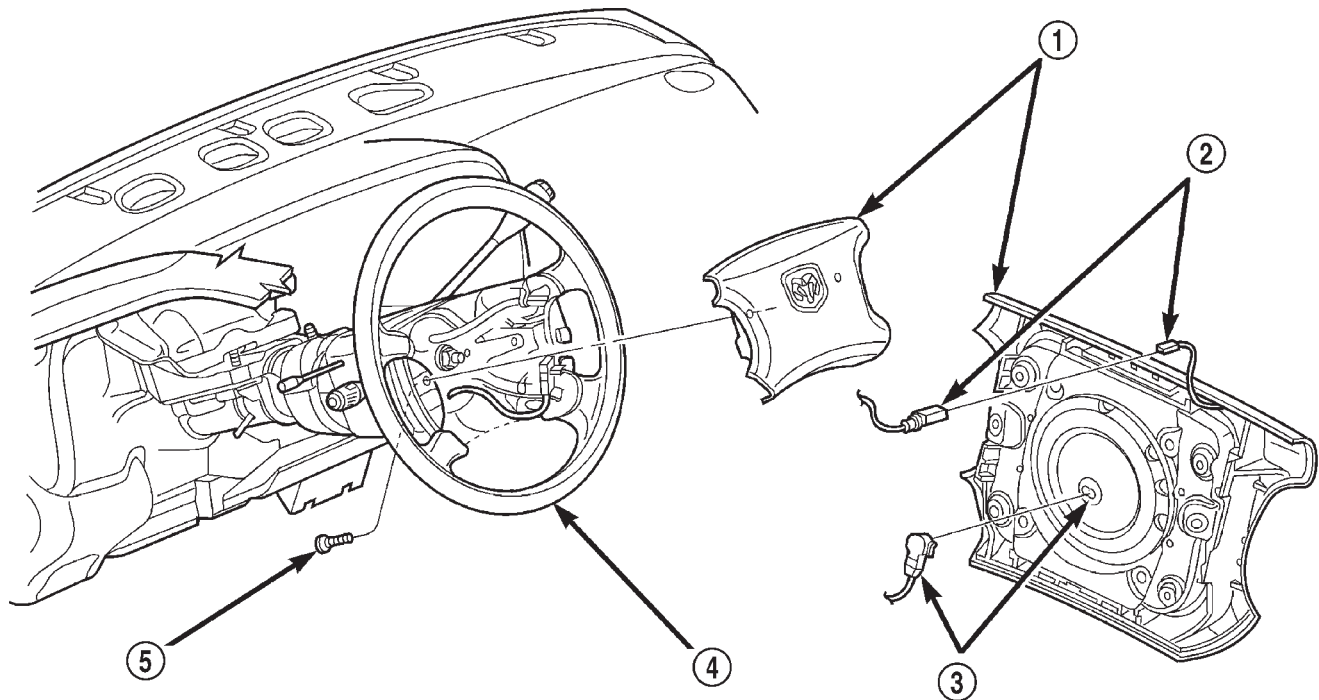
(4) Disconnect the clockspring horn switch wire harness connector from the horn switch feed wire connector, which is located on the back of the airbag module.

(5) The clockspring airbag wire harness connector is a tight snap-fit into the airbag module connector receptacle, which is located on the airbag inflator on the back of the airbag module. Firmly grasp and pull or gently pry on the clockspring airbag wire harness connector to disconnect it from the airbag module. **Do not pull on the clockspring wire harness to disengage the connector from the airbag module connector receptacle.**

(6) Remove the driver side airbag module from the steering wheel.

(7) If the driver side airbag has been deployed, the clockspring and the steering column must be replaced. Refer to **Clockspring** in the Removal and Installation section of this group for the clockspring service procedures. Refer to **Steering Column** in the Removal and Installation section of Group 19 - Steering for the additional service procedures for the steering column.

REMOVAL AND INSTALLATION (Continued)



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Fig. 4 Driver Side Airbag Module Remove/Install

- 1 - AIRBAG MODULE
 2 - HORN SWITCH CONNECTOR
 3 - AIRBAG CONNECTOR

- 4 - STEERING WHEEL
 5 - SCREW

INSTALLATION**WARNING:**

- **USE EXTREME CARE TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE DRIVER SIDE AIRBAG MODULE, OR BECOMING ENTRAPPED BETWEEN THE AIRBAG CUSHION AND THE DRIVER SIDE AIRBAG TRIM COVER. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.**

- **THE DRIVER SIDE AIRBAG MODULE TRIM COVER MUST NEVER BE PAINTED. REPLACEMENT TRIM COVERS ARE SERVICED IN THE ORIGINAL COLORS. PAINT MAY CHANGE THE WAY IN WHICH THE MATERIAL OF THE TRIM COVER RESPONDS TO AN AIRBAG DEPLOYMENT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.**

(1) When installing the driver side airbag module, reconnect the clockspring airbag wire harness connector to the airbag module connector receptacle by pressing straight in on the connector. You can be certain that the connector is fully engaged by listening

carefully for a distinct audible click as the connector snaps into place.

(2) Reconnect the clockspring horn switch wire harness connector to the horn switch feed wire connector, which is located on the back of the airbag module.

(3) Carefully position the driver side airbag module in the steering wheel. Be certain that the clockspring wire harnesses in the steering wheel hub area are not pinched between the airbag module and the steering wheel.

(4) From the underside of the steering wheel, install and tighten the two driver side airbag module mounting screws. Tighten the screws to 10.2 N·m (90 in. lbs.).

(5) Do not reconnect the battery negative cable at this time. Refer to **Airbag System** in the Diagnosis and Testing section of this group for the proper procedures.

DRIVER SIDE AIRBAG MODULE TRIM COVER

The horn switch is integral to the driver side airbag module trim cover. If either component is faulty or damaged, the entire driver side airbag module trim cover and horn switch unit must be replaced.

REMOVAL AND INSTALLATION (Continued)

WARNING:

• THE AIRBAG SYSTEM IS A SENSITIVE, COMPLEX ELECTROMECHANICAL UNIT. BEFORE ATTEMPTING TO DIAGNOSE OR SERVICE ANY AIRBAG SYSTEM OR RELATED STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENTS YOU MUST FIRST DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE. THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE FURTHER SYSTEM SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO DO THIS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

• THE HORN SWITCH IS INTEGRAL TO THE AIRBAG MODULE TRIM COVER. SERVICE OF THIS COMPONENT SHOULD BE PERFORMED ONLY BY CHRYSLER-TRAINED AND AUTHORIZED DEALER SERVICE TECHNICIANS. FAILURE TO TAKE THE PROPER PRECAUTIONS OR TO FOLLOW THE PROPER PROCEDURES COULD RESULT IN ACCIDENTAL, INCOMPLETE, OR IMPROPER AIRBAG DEPLOYMENT AND POSSIBLE OCCUPANT INJURIES.

REMOVAL

(1) Disconnect and isolate the battery negative cable. If either of the airbags has not been deployed, wait two minutes for the system capacitor to discharge before further service.

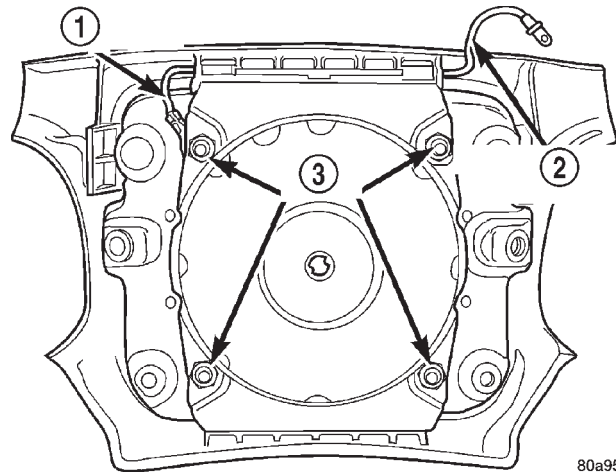
(2) Remove the driver side airbag module from the steering wheel. Refer to **Driver Side Airbag Module** in the Removal and Installation section of this group for the procedures.

(3) Remove the four nuts that secure the upper and lower trim cover retainers to the studs on the back of the driver side airbag housing (Fig. 5).

(4) Remove the upper and lower trim cover retainers from the airbag housing studs (Fig. 6).

(5) Remove the horn switch ground wire eyelet from the upper airbag housing stud.

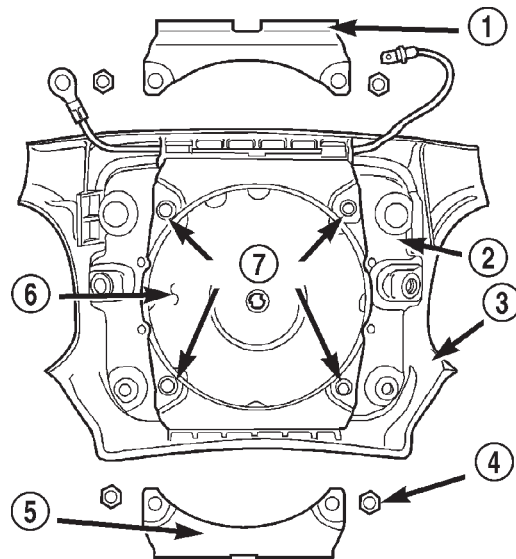
(6) Disengage the six trim cover locking blocks from the lip around the outside edge of the driver side airbag housing and remove the housing from the cover (Fig. 7).



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Fig. 5 Driver Side Airbag Trim Cover Retainer Nuts Remove/Install

- 1 - HORN SWITCH GROUND WIRE
- 2 - HORN SWITCH FEED WIRE
- 3 - NUTS

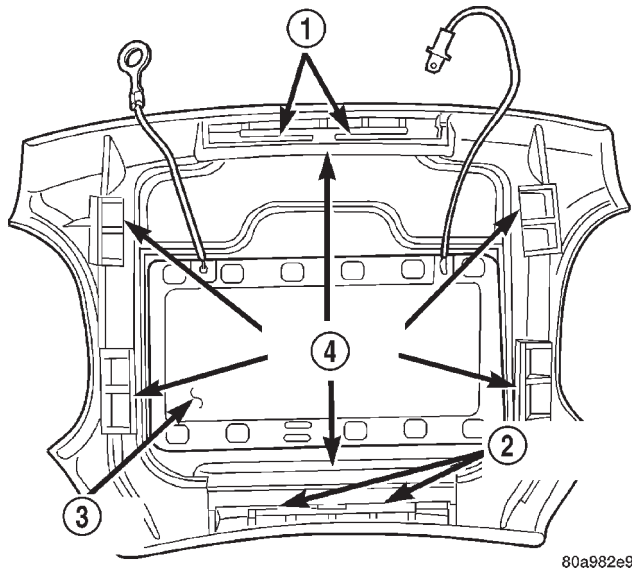


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Fig. 6 Driver Side Airbag Trim Cover Retainers Remove/Install

- 1 - UPPER RETAINER
- 2 - AIRBAG HOUSING
- 3 - TRIM COVER
- 4 - NUT (4)
- 5 - LOWER RETAINER
- 6 - INFLATOR
- 7 - STUDS

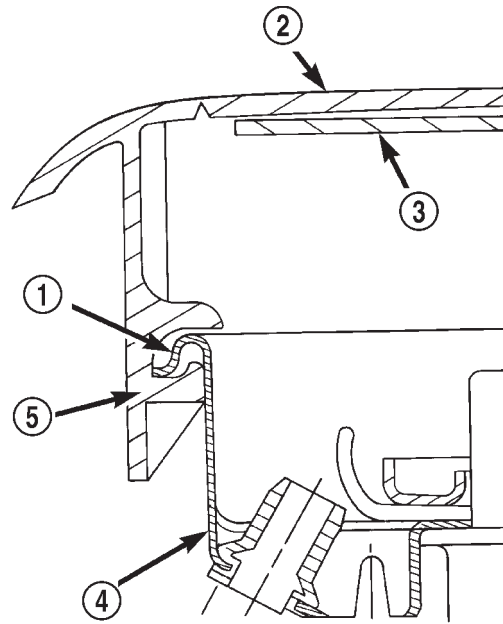
REMOVAL AND INSTALLATION (Continued)



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Fig. 7 Driver Side Airbag Trim Cover Remove/Install

- 1 - RETAINER SLOTS
- 2 - RETAINER SLOTS
- 3 - HORN SWITCH
- 4 - LOCKING BLOCKS



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Fig. 8 Driver Side Airbag Trim Cover Locking Blocks Engaged

- 1 - LIP
- 2 - TRIM COVER
- 3 - HORN SWITCH
- 4 - AIRBAG HOUSING
- 5 - LOCKING BLOCK

INSTALLATION

WARNING:

- USE EXTREME CARE TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE DRIVER SIDE AIRBAG MODULE, OR BECOMING ENTRAPPED BETWEEN THE AIRBAG CUSHION AND THE DRIVER SIDE AIRBAG TRIM COVER. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

- THE DRIVER SIDE AIRBAG MODULE TRIM COVER MUST NEVER BE PAINTED. REPLACEMENT TRIM COVERS ARE SERVICED IN THE ORIGINAL COLORS. PAINT MAY CHANGE THE WAY IN WHICH THE MATERIAL OF THE TRIM COVER RESPONDS TO AN AIRBAG DEPLOYMENT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

(1) Carefully position the driver side airbag module in the trim cover. Be certain that the horn switch feed and ground wires are not pinched between the airbag housing and the trim cover locking blocks.

(2) Engage the upper and lower trim cover locking blocks with the lip of the driver side airbag housing, then engage the locking blocks on each side of the trim cover with the lip of the housing. Be certain that each of the locking blocks is fully engaged on the lip of the airbag housing (Fig. 8).

(3) Install the horn switch ground wire eyelet over the upper airbag housing stud.

(4) Install the upper and lower airbag trim cover retainers over the airbag housing studs. Be certain that the tabs on each retainer are engaged in the retainer slots of the upper and lower trim cover locking blocks (Fig. 7).

(5) Install and tighten the trim cover retainer mounting nuts on the airbag housing studs. Tighten the nuts to 10 N·m (90 in. lbs.).

(6) Install the driver side airbag module onto the steering wheel. Refer to **Driver Side Airbag Module** in the Removal and Installation section of this group for the procedures.

PASSENGER SIDE AIRBAG MODULE

The following procedure is for replacement of a faulty or damaged passenger side airbag module. If the passenger side airbag module has been deployed, the instrument panel assembly must be replaced. The instrument panel assembly includes the passenger side airbag module and the passenger side airbag door. Refer to **Instrument Panel Assembly** in the Removal and Installation section of Group 8E - Instrument Panel Systems for the instrument panel assembly service procedures.

REMOVAL AND INSTALLATION (Continued)

WARNING:

• THE AIRBAG SYSTEM IS A SENSITIVE, COMPLEX ELECTROMECHANICAL UNIT. BEFORE ATTEMPTING TO DIAGNOSE OR SERVICE ANY AIRBAG SYSTEM OR RELATED STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENTS YOU MUST FIRST DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE. THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE FURTHER SYSTEM SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO DO THIS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

• WHEN REMOVING A DEPLOYED AIRBAG MODULE, RUBBER GLOVES, EYE PROTECTION, AND A LONG-SLEEVED SHIRT SHOULD BE WORN. THERE MAY BE DEPOSITS ON THE AIRBAG MODULE AND OTHER INTERIOR SURFACES. IN LARGE DOSES, THESE DEPOSITS MAY CAUSE IRRITATION TO THE SKIN AND EYES.

REMOVAL

(1) Disconnect and isolate the battery negative cable. If either of the airbags has not been deployed, wait two minutes for the system capacitor to discharge before further service.

(2) Remove the instrument panel top cover and the passenger side airbag module from the instrument panel as a unit. Refer to **Instrument Panel Top Cover** in the Removal and Installation section of Group 8E - Instrument Panel Systems for the procedures.

(3) Place the instrument panel top cover assembly on a suitable work surface. Be certain to take the proper precautions to protect the top cover from any possible cosmetic damage.

(4) Apply masking tape over the passenger side airbag module vents on each end of the module (Fig. 9). The tape will help to prevent foreign material from entering the airbag module through the vents during removal and installation of the module from the upper airbag door flange and bracket.

WARNING: USE EXTREME CARE TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE PASSENGER SIDE AIRBAG MODULE, OR BECOMING ENTRAPPED BETWEEN THE INSTRUMENT PANEL TOP COVER AND THE PASSENGER SIDE AIRBAG MODULE. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

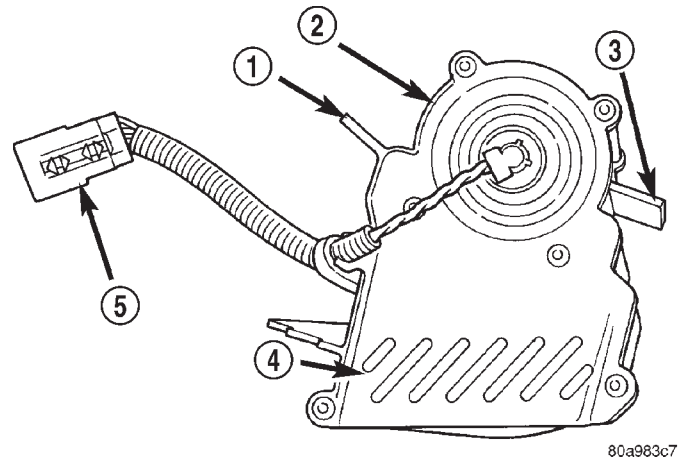


Fig. 9 Passenger Side Airbag Module Vents

- 1 - LOWER BRACKET
- 2 - PASSENGER SIDE AIRBAG MODULE
- 3 - UPPER BRACKET
- 4 - VENTS
- 5 - CONNECTOR

(5) Using a suitable center punch, carefully drive out the mandrels from the four rivets that secure the passenger side airbag module upper mounting bracket to the upper airbag door flange and bracket on the instrument panel top cover (Fig. 10).

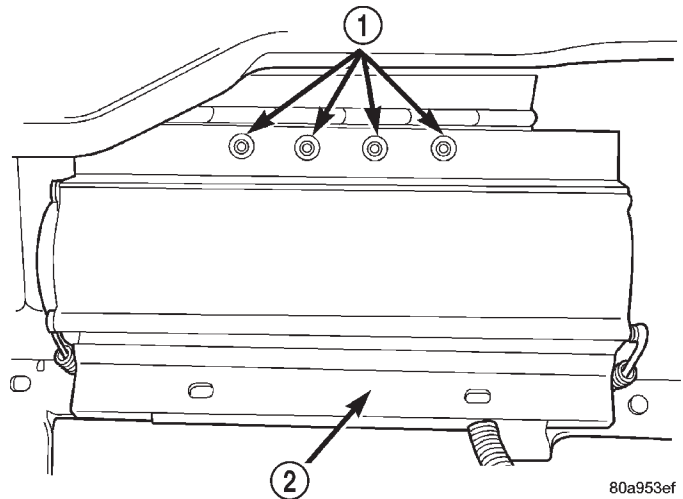


Fig. 10 Passenger Side Airbag Module Rivets

- 1 - RIVETS
- 2 - PASSENGER SIDE AIRBAG MODULE

(6) Use a suitable pair of rivet cutters or a large pair of side cutters to cut the rims or heads off of the four rivets that secure the passenger side airbag module upper mounting bracket to the upper airbag door flange and bracket on the underside of the instrument panel top cover.

REMOVAL AND INSTALLATION (Continued)

WARNING: DO NOT USE A DRILL TO REMOVE THE RIVETS. SPARKS CREATED WHEN DRILLING COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY. ALSO, METAL SHAVINGS CREATED WHEN DRILLING COULD ENTER THE PASSENGER SIDE AIRBAG MODULE AND RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

(7) Remove the passenger side airbag module from the upper airbag door flange and bracket on the underside of the instrument panel top cover (Fig. 11).

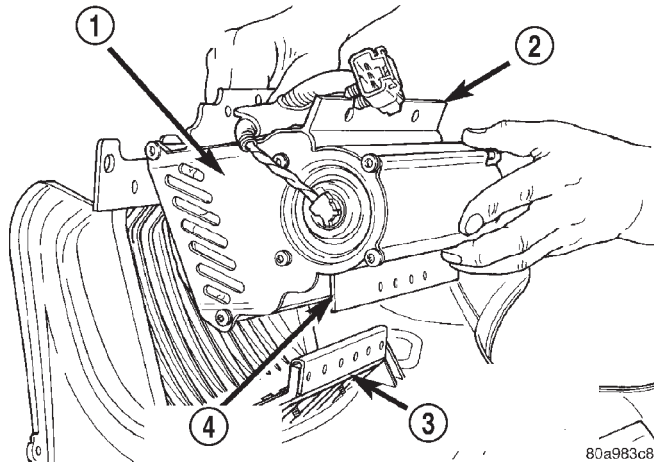


Fig. 11 Passenger Side Airbag Module Remove/Install

- 1 - PASSENGER SIDE AIRBAG MODULE
- 2 - LOWER BRACKET
- 3 - AIRBAG DOOR FLANGE AND BRACKET
- 4 - UPPER BRACKET

INSTALLATION

WARNING:

• **USE EXTREME CARE TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE PASSENGER SIDE AIRBAG MODULE, OR BECOMING ENTRAPPED BETWEEN THE AIRBAG CUSHION AND THE PASSENGER SIDE AIRBAG DOOR. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.**

• **THE PASSENGER SIDE AIRBAG DOOR MUST NEVER BE PAINTED. REPLACEMENT INSTRUMENT PANEL ASSEMBLIES AND TOP COVERS ARE SERVICED IN THE ORIGINAL COLORS. PAINT MAY CHANGE THE WAY IN WHICH THE MATERIAL OF THE PASSENGER SIDE AIRBAG DOOR RESPONDS TO AN AIRBAG DEPLOYMENT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.**

(1) Carefully position the passenger side airbag module upper mounting bracket to the upper airbag door flange and bracket on the underside of the instrument panel top cover.

NOTE: Use only the correct rivets that are specified in the Chrysler Mopar Parts Catalog, or that are supplied in the service package with the new airbag module and/or the new instrument panel top cover when installing the passenger side airbag module.

(2) Secure the passenger side airbag module upper mounting bracket to the upper airbag door flange and bracket with four rivets.

(3) Remove the masking tape applied to the passenger side airbag module vents during the removal procedures.

(4) Install the instrument panel top cover and the passenger side airbag module onto the instrument panel as a unit. Refer to **Instrument Panel Top Cover** in the Removal and Installation section of Group 8E - Instrument Panel Systems for the procedures.

(5) Be certain that the passenger side airbag module wire harness connector is fully engaged with and latched to the instrument panel wire harness connector.

(6) Do not reconnect the battery negative cable at this time. Refer to **Airbag System** in the Diagnosis and Testing section of this group for the proper procedures.

REMOVAL AND INSTALLATION (Continued)

AIRBAG CONTROL MODULE

WARNING:

- THE AIRBAG CONTROL MODULE CONTAINS THE IMPACT SENSOR, WHICH ENABLES THE SYSTEM TO DEPLOY THE AIRBAG. BEFORE ATTEMPTING TO DIAGNOSE OR SERVICE ANY AIRBAG SYSTEM OR RELATED STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENTS YOU MUST FIRST DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE. THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE FURTHER SYSTEM SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO DO THIS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

- NEVER STRIKE OR KICK THE AIRBAG CONTROL MODULE, AS IT CAN DAMAGE THE IMPACT SENSOR OR AFFECT ITS CALIBRATION. IF AN AIRBAG CONTROL MODULE IS ACCIDENTALLY DROPPED DURING SERVICE, THE MODULE MUST BE SCRAPPED AND REPLACED WITH A NEW UNIT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN ACCIDENTAL, INCOMPLETE, OR IMPROPER AIRBAG DEPLOYMENT AND POSSIBLE OCCUPANT INJURIES.

REMOVAL

(1) Disconnect and isolate the battery negative cable. If either of the airbags has not been deployed, wait two minutes for the system capacitor to discharge before further service.

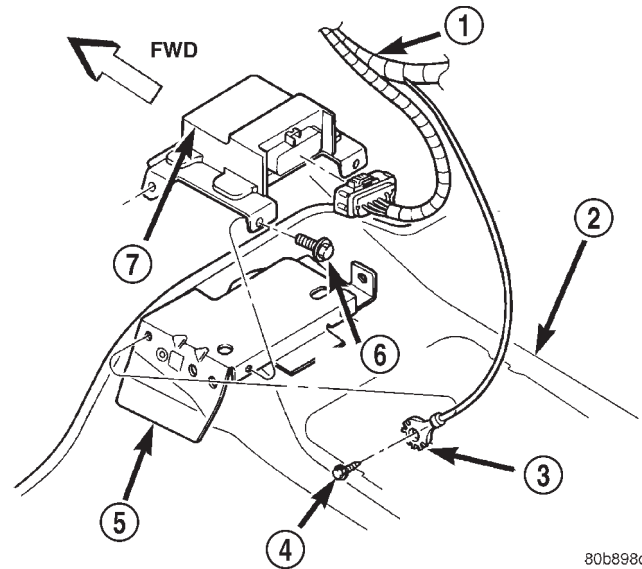
(2) Remove the center support bracket from the instrument panel. Refer to **Instrument Panel Center Support Bracket** in the Removal and Installation section of Group 8E - Instrument Panel Systems for the procedures.

(3) Remove the screw that secures the instrument panel wire harness ground eyelet to the left side of the mount that is welded onto the floor panel transmission tunnel (Fig. 12).

(4) Disconnect the instrument panel wire harness connector from the Airbag Control Module (ACM). To disconnect the instrument panel wire harness connector from the ACM:

(a) Slide the red Connector Position Assurance (CPA) lock on the top of the connector toward the side of the vehicle.

(b) Depress the connector latch tab and pull the connector straight away from the ACM connector receptacle.



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Fig. 12 Airbag Control Module Remove/Install

- 1 - INSTRUMENT PANEL WIRE HARNESS
- 2 - FLOOR PANEL TRANSMISSION TUNNEL
- 3 - GROUND EYELET
- 4 - SCREW
- 5 - MOUNT
- 6 - SCREW(3)
- 7 - AIRBAG CONTROL MODULE

(5) Remove the three screws that secure the ACM to the mount that is welded onto the floor panel transmission tunnel.

(6) Remove the ACM from the mount on the floor panel transmission tunnel.

INSTALLATION

(1) Carefully position the ACM to the mount that is welded onto the floor panel transmission tunnel. When the ACM is correctly positioned the arrow on the ACM label will be pointed forward in the vehicle.

(2) Install and tighten the three screws that secure the ACM to the mount that is welded onto the floor panel transmission tunnel. Tighten the screws to 11.8 N-m (105 in. lbs.).

(3) Install and tighten the screw that secures the instrument panel wire harness ground eyelet to the left side of the mount that is welded onto the floor panel transmission tunnel. Tighten the screw to 3.4 N-m (30 in. lbs.).

(4) Reconnect the instrument panel wire harness connector to the ACM connector receptacle. Be certain that the connector latch and the red CPA lock are fully engaged.

(5) Do not reconnect the battery negative cable at this time. Refer to **Airbag System** in the Diagnosis and Testing section of this group for the proper procedures.

REMOVAL AND INSTALLATION (Continued)

CLOCKSPRING

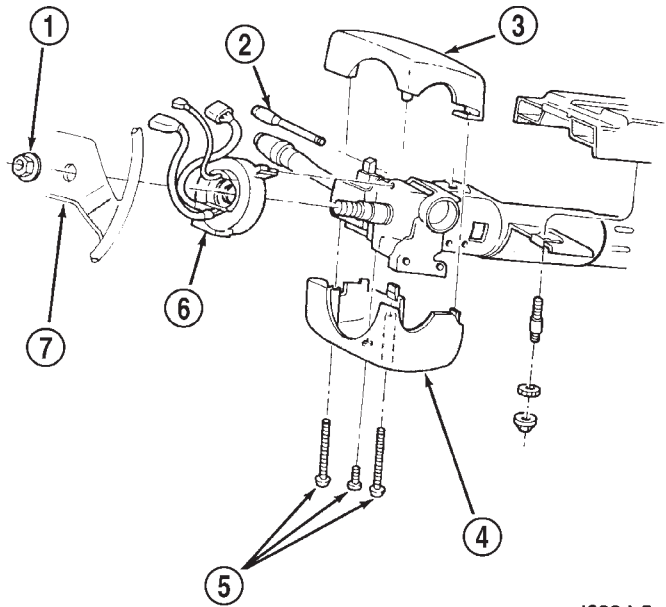
The clockspring cannot be repaired. It must be replaced if faulty or damaged, or if the driver side airbag has been deployed.

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REMOVAL

NOTE: Before starting this procedure, be certain to turn the steering wheel until the front wheels are in the straight-ahead position.

- (1) Place the front wheels in the straight-ahead position.
- (2) Remove the driver side airbag module from the steering wheel. Refer to **Driver Side Airbag Module** in the Removal and Installation section of this group for the procedures.
- (3) If the vehicle is so equipped, disconnect the upper clockspring wire harness connectors from the vehicle speed control switches and the remote radio switches located within the hub cavity of the steering wheel.
- (4) Remove the nut that secures the steering wheel armature to the steering column upper shaft, which is located within the hub cavity of the steering wheel.
- (5) Pull the steering wheel off of the steering column upper shaft spline using a steering wheel puller (Special Tool C-3428-B).
- (6) Remove the steering column opening cover from the instrument panel. Refer to **Steering Column Opening Cover** in the Removal and Installation section of Group 8E - Instrument Panel Systems for the procedures.
- (7) If the vehicle is so equipped, unscrew the lever from the tilt steering column adjuster mechanism located on the left side of the column just below the multi-function switch stalk. Turn the lever counter clockwise to unscrew it from the column.
- (8) Remove both the upper and lower shrouds from the steering column (Fig. 13).



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Fig. 13 Steering Column Shrouds Remove/Install - Typical

- 1 - NUT
- 2 - TILT LEVER
- 3 - UPPER SHROUD
- 4 - LOWER SHROUD
- 5 - SCREWS
- 6 - CLOCK SPRING
- 7 - STEERING WHEEL

- (9) Remove the lower fixed column shroud from the steering column.
- (10) Remove the two tamper proof mounting screws (a Snap On tamper proof Torx bit TTXR20B2 or equivalent is required) that secure the multi-function switch to the left side of the steering column lock housing.
- (11) Gently pull the multi-function switch away from the left side of the steering column lock housing far enough to access the side latch of the clockspring assembly (Fig. 14).
- (12) Disconnect the instrument panel wire harness connector from the lower clockspring connector receptacle.
- (13) Disconnect the lower clockspring wire harness connector from the instrument panel wire harness, located on the instrument panel lower reinforcement below the steering column.

CAUTION: Failure to disengage the plastic latches of the clockspring from the receptacles in the steering column lock housing prior to clockspring removal will result in damage to the clockspring latches.

REMOVAL AND INSTALLATION (Continued)

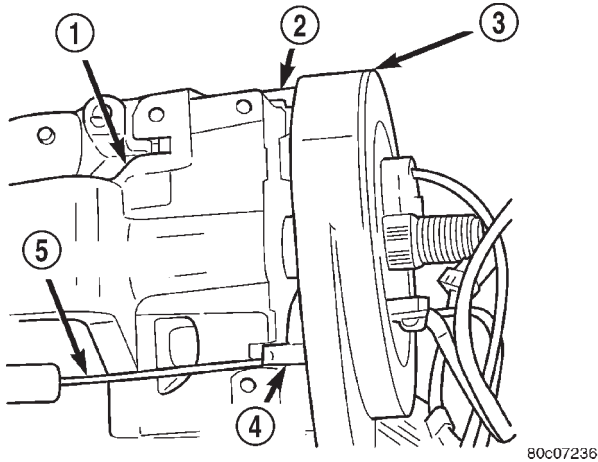


Fig. 14 Clockspring Latches

- 1 - STEERING COLUMN LOCK HOUSING
- 2 - TOP LATCH
- 3 - CLOCKSPRING
- 4 - SIDE LATCH
- 5 - SCREWDRIVER

(14) Using a small screwdriver, gently pry under the plastic latches at the side and the top of the clockspring assembly to disengage them from the receptacles in the steering column lock housing and remove the clockspring from the column. The clockspring cannot be repaired. It must be replaced if faulty or damaged, or if the driver side airbag has been deployed.

INSTALLATION

If the clockspring is not properly centered in relation to the steering wheel, steering shaft and steering gear, it may be damaged. Refer to **Clockspring Centering** in the Adjustments section of this group before installing or reinstalling a clockspring.

Service replacement clocksprings are shipped pre-centered and with a piece of tape covering the depressed clockspring auto-locking tabs. This tape should not be removed until the clockspring has been installed on the steering column. If the tape is removed before the clockspring is installed on a steering column, the clockspring centering procedure must be performed.

NOTE: Before starting this procedure, be certain that the front wheels are still in the straight-ahead position.

(1) Carefully slide the centered clockspring down over the steering column upper shaft until the plastic latches at the side and the top of the clockspring assembly latch engage the receptacles in the steering column lock housing.

(2) Reconnect the lower clockspring wire harness connector to the instrument panel wire harness. Be certain that the wire harness locator clips are properly seated on the outside of the wiring trough and that the connector latches are fully engaged.

(3) Reconnect the instrument panel wire harness connector to the lower clockspring connector receptacle.

(4) Position the multi-function switch onto the left side of the steering column lock housing.

(5) Install and tighten the two screws that secure the multi-function switch to the left side of the steering column lock housing. Tighten the screws to 2 N·m (17 in. lbs.).

(6) Install the steering column shrouds. Be certain that the lower clockspring wire harness is routed inside the shrouds.

(7) Install the steering column opening cover onto the instrument panel. Refer to **Steering Column Opening Cover** in the Removal and Installation section of Group 8E - Instrument Panel Systems for the procedures.

(8) Install the steering wheel onto the steering column upper shaft. Be certain to index the flats on the hub of the steering wheel with the formations on the inside of the clockspring hub. Pull the upper clockspring wire harnesses through the upper and lower holes between the steering wheel back trim cover and the steering wheel armature.

(9) Install and tighten the steering wheel mounting nut. Tighten the nut to 61 N·m (45 ft. lbs.). Be certain not to pinch the wire harnesses between the steering wheel and the nut.

(10) If the vehicle is so equipped, reconnect the upper clockspring wire harness connectors to the vehicle speed control switches and/or the remote radio switches. Be certain that the upper clockspring wire harnesses are routed between the steering wheel back trim cover and the steering wheel armature.

(11) If the vehicle is so equipped, install the tilt steering column lever onto the left side of the steering column by screwing it into place.

(12) Install the driver side airbag module onto the steering wheel. Refer to **Driver Side Airbag Module** in the Removal and Installation section of this group for the procedures.

ADJUSTMENTS

CLOCKSPRING CENTERING

The clockspring is designed to wind and unwind when the steering wheel is rotated, but is only designed to rotate the same number of turns (about five complete rotations) as the steering wheel can be turned from stop to stop. Centering the clockspring

ADJUSTMENTS (Continued)

indexes the clockspring tape to other steering components so that it can operate within its designed travel limits. The rotor of a centered clockspring can be rotated two and one-half turns in either direction from the centered position, without damaging the clockspring tape.

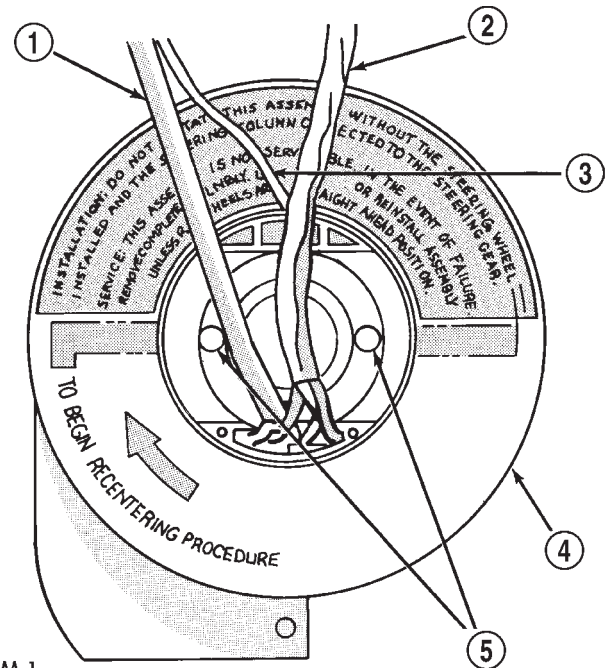
However, if the clockspring is removed for service or if the steering column is disconnected from the steering gear, the clockspring tape can change position relative to the other steering components. The clockspring must then be re-centered following completion of the service or the clockspring tape may be damaged.

Service replacement clocksprings are shipped pre-centered and with a piece of tape covering the depressed auto-locking tabs. This tape should not be removed until the clockspring has been installed on the steering column. If the tape is removed before the clockspring is installed on a steering column, the clockspring centering procedure must be performed.

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NOTE: Before starting this procedure, be certain to turn the steering wheel until the front wheels are in the straight-ahead position.

- (1) Place the front wheels in the straight-ahead position.
- (2) Remove the clockspring from the steering column. Refer to **Clockspring** in the Removal and Installation section of this group for the procedures.
- (3) Depress the two plastic clockspring auto-locking tabs (Fig. 15).
- (4) Keeping the auto-locking tabs depressed, rotate the clockspring hub clockwise to the end of its travel. **Do not apply excessive torque.**
- (5) From the end of the clockwise travel, rotate the hub about two and one-half turns counterclockwise, then release the auto-locking tabs. The clockspring



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Fig. 15 Clockspring Auto-Locking Tabs

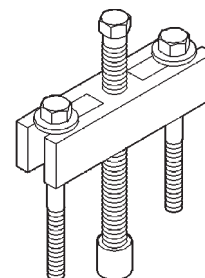
- 1 - AIRBAG MODULE WIRE
- 2 - SPEED CONTROL WIRING
- 3 - HORN WIRE
- 4 - CLOCKSPRING ASSEMBLY
- 5 - AUTO-LOCKING TABS

horn wire harness should end up at the top, and the airbag, optional speed control and optional remote radio wire harnesses at the bottom.

(6) The front wheels should still be in the straight-ahead position. Install the clockspring onto the steering column. Refer to **Clockspring** in the Removal and Installation section of this group for the procedures.

SPECIAL TOOLS

PASSIVE RESTRAINT SYSTEMS



Puller C-3428-B

