RESTRAINT SYSTEMS

CONTENTS

AIR BAG SYSTEM

WARNING: THIS SYSTEM IS A SENSITIVE, COMPLEX ELECTRO-MECHANICAL UNIT. BEFORE ATTEMPTING TO DIAGNOSE, REMOVE OR INSTALL THE AIR BAG SYSTEM COMPONENTS YOU MUST FIRST DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE. FAILURE TO DO SO COULD RESULT IN ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WHEN AN UNDEPLOYED AIR BAG ASSEMBLY IS TO BE REMOVED FROM THE STEERING WHEEL, DISCONNECT BATTERY NEGATIVE CABLE AND ISOLATE. ALLOW SYSTEM CAPACITOR TO DISCHARGE FOR 2 MINUTES THEN BEGIN AIR BAG REMOVAL.

To inspect system use Passive Restraint System Diagnostic Procedures Manual.

If the Air Bag Module Assembly is defective and non-deployed, refer to Chrysler Motors current return list for proper handling procedures.

WARNING: REPLACE AIR BAG SYSTEM COMPONENTS WITH CHRYSLER MOPAR® SPECIFIED REPLACEMENT PARTS ONLY. SUBSTITUTE PARTS MAY APPEAR INTERCHANGEABLE, BUT INTERNAL DIFFERENCES MAY RESULT IN INFERIOR OCCUPANT PROTECTION.

THE FASTENERS, SCREWS, AND BOLTS, ORIGINALLY USED FOR THE AIR BAG COMPONENTS, HAVE SPECIAL COATINGS AND ARE SPECIFICALLY DESIGNED FOR THE AIR BAG SYSTEM. THEY MUST NEVER BE REPLACED WITH ANY SUBSTITUTES. ANYTIME A NEW FASTENER IS NEEDED, REPLACE WITH THE CORRECT FASTENERS PROVIDED IN THE SERVICE PACKAGE OR FASTENERS LISTED IN THE PARTS BOOK.

AIR BAG SYSTEM GENERAL INFORMATION

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AIR BAG MODULE The air bag module is the most visible part of the system. It contains the air bag cushion and its supporting components. The air bag module contains a housing to which the cushion and inflator are attached and sealed.

The inflator assembly is mounted to the back of the module. It seals the hole so it can discharge the gas it produces directly into the cushion when supplied with the proper electrical signal. A protective cover is fitted to the front of the air bag module and forms a decorative cover in the center of the steering wheel. The air bag module is mounted directly to the steering wheel.

FRONT IMPACT SENSORS

The passive restraint air bag system is a safety device designed to protect the driver from serious injury, caused by a frontal impact of the vehicle.

The impact sensors provide verification of the direction and severity of the impact. Three impact sensors are used. One is called a safeing sensor. It is

located inside the diagnostic module which is under the center console or park brake cover. The other two sensors are mounted on the radiator closure panel on the left and right side of the vehicle.

The impact sensors are threshold sensitive switches that complete an electrical circuit when an impact provides a sufficient G force to close the switch. The sensors are calibrated for the specific vehicle and react to the severity and direction of the impact.

CLOCKSPRING

The clockspring is mounted on the steering column behind the steering wheel. It is used to maintain a continuous electrical circuit between the wiring harness and the driver's air bag module. This assembly consists of a flat, ribbon-like electrically conductive tape which winds and unwinds with the steering wheel rotation.

DIAGNOSTIC MODULE

The Air Bag System Diagnostic Module (ASDM), contains the safeing sensor, and monitors the system to determine the readiness of the system. The ASDM contains on-board diagnostics, and will illuminate the Air bag warning light in the cluster when a fault occurs.

STORAGE

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

HANDLING UNDEPLOYED MODULE

At no time should any source of electricity be permitted near the inflator on the back of the module. When carrying an undeployed module, the trim cover should be pointed away from the body to minimize injury in the event of accidental deployment. In addition, if the module is placed on a bench or other surface, the plastic trim cover should be face up to minimize movement in case of accidental deployment.

WARNING: WHEN A STEERING COLUMN HAS AN AIR BAG MODULE ATTACHED, NEVER PLACE THE COLUMN ON THE FLOOR OR OTHER SURFACE WITH THE STEERING WHEEL OR MODULE FACE DOWN.

DEPLOYED MODULE

The vehicle interior will contain sodium hydroxide power, a byproduct of air bag deployment. Since this powder can irritate the skin, eyes, nose or throat, be sure to wear safety glasses, rubber gloves and long sleeve shirt during clean up (Fig. 1).

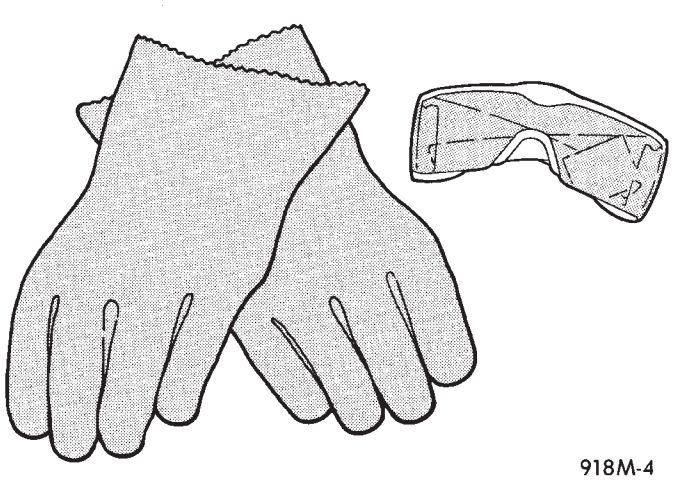


Fig. 1 Wear Safety Glasses and Rubber Gloves

If you find that the clean up is irritating your skin, run cool water over the affected area. Also, if you experience nasal or throat irritation, exit the vehicle for fresh air until the irritation ceases. If irritation continues, see a physician.

CLEAN UP PROCEDURE

Begin the clean up by putting tape over the air bag exhaust vent (Fig. 2) so that no additional powder will find its way into the vehicle interior. Then remove the air bag and air bag module from the vehicle.

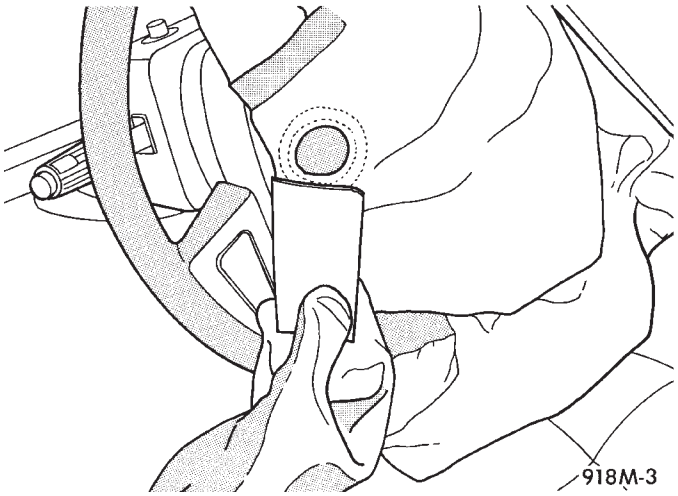


Fig. 2 Seal the Air Bag Exhaust Vents

Use a vacuum cleaner to remove any residual powder from the vehicle interior. Work from the outside in as you do, so that you avoid kneeling or sitting on uncleaned area.

Be sure to vacuum the heater and A/C outlets as well (Fig. 3). In fact it's a good idea to run the blower on low and to vacuum up any powder expelled from the plenum. You may need to vacuum the interior of the car a second time to recover all of the powder.

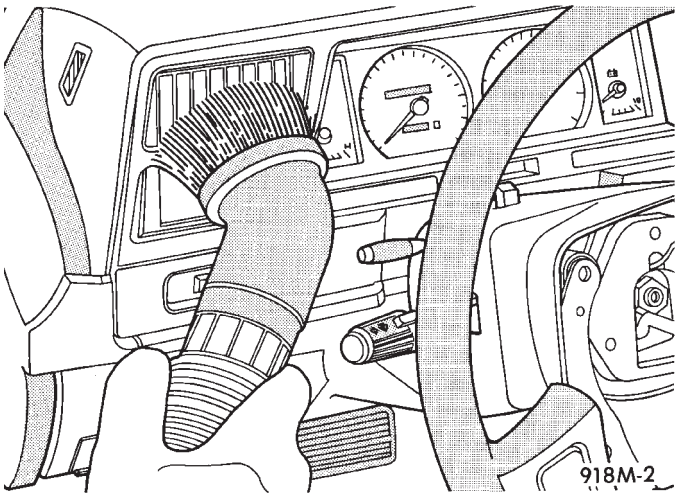


Fig. 3 Vacuum Heated and A/C Outlets

Place the deployed bag and module in your vehicular scrap pile.

SERVICE OF DEPLOYED AIR BAG

Any vehicle which is to be returned to use after an air bag deployment, must have the air bag module and clockspring replaced. These are one-time components and cannot be reused. Other air bag system components are replaced as required by extent of damage.

AIR BAG SYSTEM SCHEMATIC

AIR BAG SYSTEM CHECK

(1) Be sure battery negative cable is disconnected.

(2) Connect DRB II to ASDM diagnostic 6-way connector. Located under the right front seat at the forward left corner of the seat riser, under the carpet.

(3) From passenger side of vehicle, turn the ignition key to ON position. Exit vehicle with DRB II. Use the latest version of the proper cartridge.

(4) After checking that no one is inside the vehicle, reconnect the negative battery terminal.

(5) Using the DRB II, read and record active fault data.

(6) Read and record any stored faults.

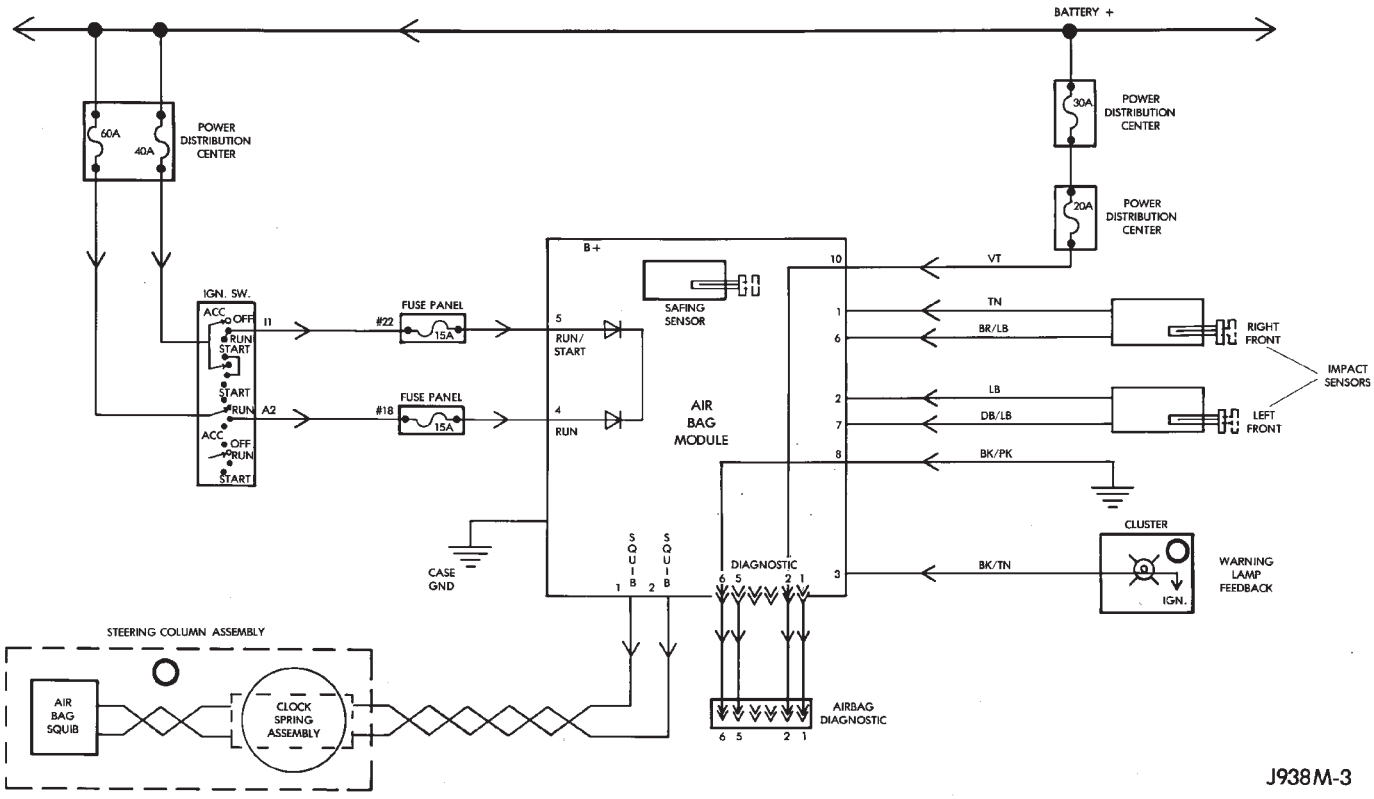
(7) Refer to the Diagnostic Test Manual if any faults are found in steps 5 or 6.

(8) Erase stored faults if there are no active fault codes. If problems remain, fault codes will not erase.

(9) With the ignition key in the ON position, make sure no one is in the vehicle.

(10) From the passenger side of vehicle, turn the ignition key to OFF then ON and observe the instrument cluster air bag light. It should go on for 6 to 8 seconds, then go out; indicating system is functioning normal.

If air bag warning light either fails to light, or goes on and stays on, there is a system malfunction. Refer to the Passive Restraint Diagnostic Test Manual to diagnose the problem.



AIR BAG SYSTEM SERVICE PROCEDURES

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AIR BAG MODULE

WARNING: BEFORE BEGINNING ANY AIR BAG SYSTEM REMOVAL OR INSTALLATION PROCEDURES, REMOVE AND ISOLATE THE BATTERY NEGATIVE (-) CABLE FROM THE VEHICLE BATTERY. THIS IS THE ONLY SURE WAY TO DISABLE THE AIR BAG SYSTEM. FAILURE TO DO THIS COULD RESULT IN ACCIDENTAL AIR BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

REMOVAL

When removing a deployed module, rubber gloves, eye protection and long sleeve shirt should be worn. There may be deposits on the surface which could irritate the skin and eyes in large doses.

(1) Disconnect battery negative cable and isolate.

(2) Remove 4 nuts attaching air bag module from the back side of steering wheel (Fig. 1).

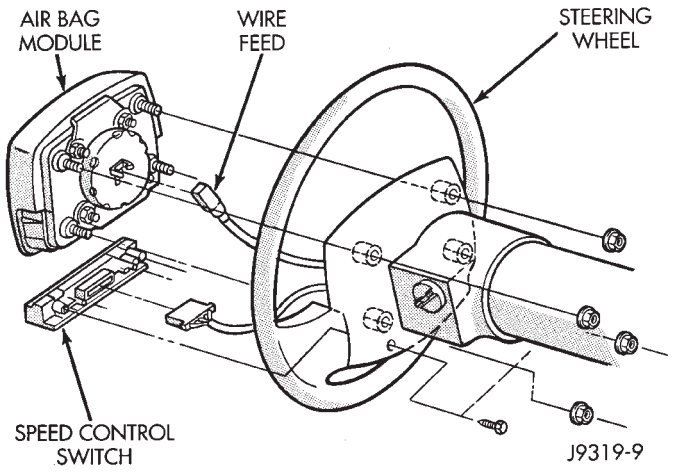

Fig. 1 Air Bag Module

(3) Lift module, and disconnect electrical connector by spreading apart the external latching arms and prying upward on the connector.

(4) Remove module.

(5) If replacing a deployed module, the clockspring must also be replaced. Refer to clockspring Removal and Installation for proper procedure.

INSTALLATION

(1) Connect clockspring wiring connector to the module, by pressing straight in on the connector. The connector should latch securely beneath module locking clip to assure positive connection.

(2) Install 4 nuts and torque to 9 to 11 N•m (80 to 100 in. lbs.).

(3) Do not connect negative battery cable. Refer to Air Bag System Check for proper procedure.

IMPACT SENSORS

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The impact sensors are located on the front wheelhouse extensions behind the grille opening reinforcement.

REMOVAL

(1) Disconnect battery negative cable and isolate.

(2) Remove the 3 screws and the grille (Fig. 2) from the grille opening reinforcement (GOR).

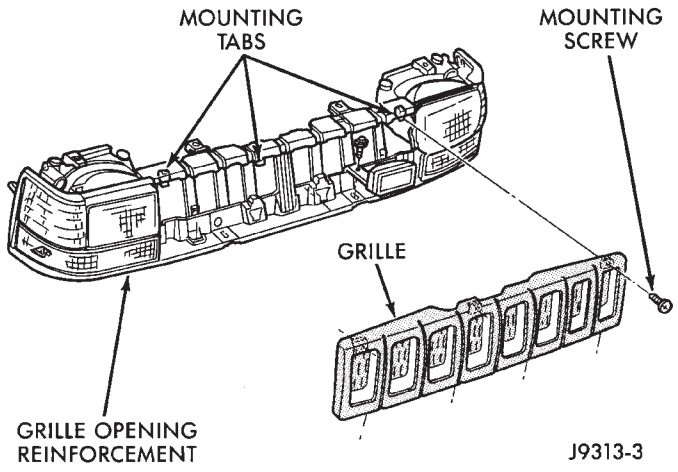

Fig. 2 Grille Removal

(3) Remove turn signals, side markers and headlamps. Refer to Group 8L - Lamps for procedures.

(4) Remove 6 retainers at front fascia (Fig. 3).

(5) Remove 3 push-in retainers at each front wheel well (Fig. 4).

(6) Slide fascia off retainer pegs at side of lower crossmember. Using a small screwdriver, pull up on locating tangs under turn signal mounting location.

(7) Remove fascia from lower crossmember (Fig. 3).

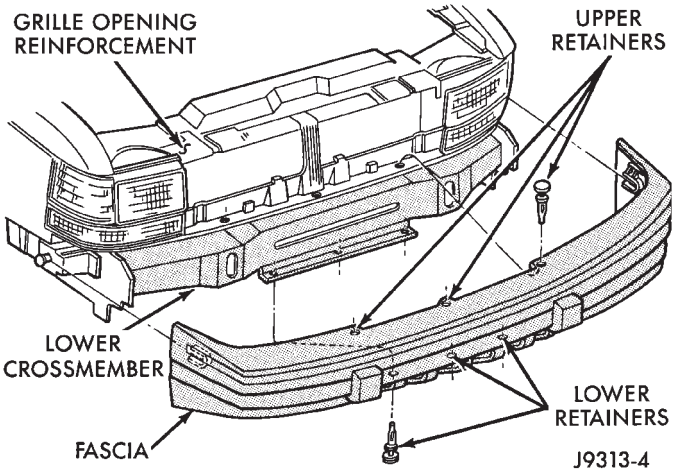

Fig. 3 Lower Fascia Removal

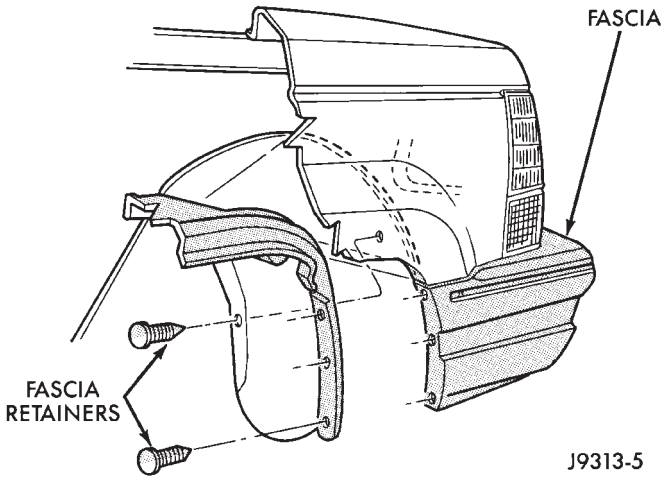

Fig. 4 Wheel Well Retainers

(8) Disconnect impact sensor electrical connector.

(9) Remove 3 screws holding sensor to front wheelhouse extension. Remove sensor (Fig. 5).

(10) Unplug connector from sensor and remove sensor (Fig. 6).

INSTALLATION

(1) Mount sensor (arrow pointed forward) using 3 screws provided with new sensor. Torque screws to 4 to 5 N●m (35 - 45 in. lbs.).

(2) Connect sensor wiring lead from harness to connector on body of sensor.

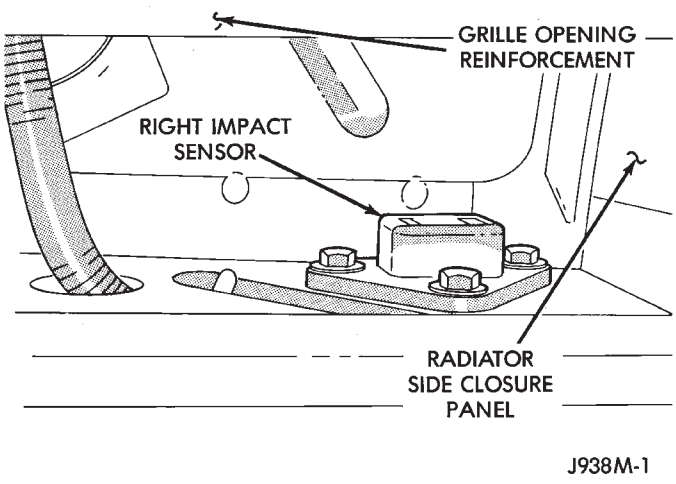

Fig. 5 Impact Sensor (Typical)

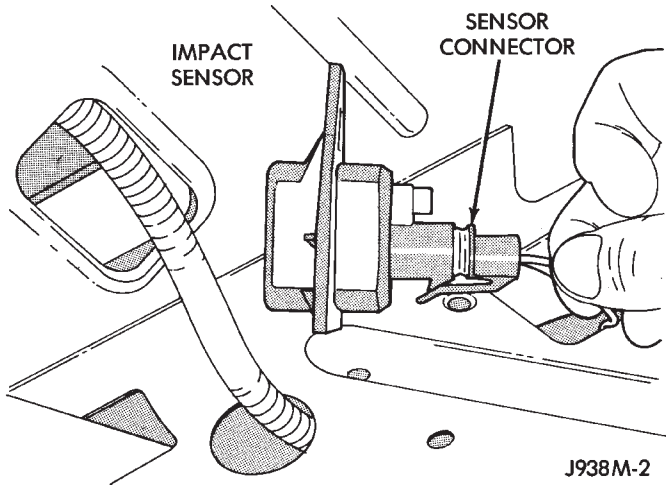

Fig. 6 Impact Sensor Connector

(3) Install fascia and grille by reversing the removal procedures.

(4) Do not connect negative battery cable. Refer to Air Bag Systems Check for proper procedure.

AIR BAG SYSTEM DIAGNOSTIC MODULE (ASDM)

WARNING: THE ASDM CONTAINS ONE OF THE IMPACT SENSORS WHICH ENABLE THE SYSTEM TO FIRE THE AIR BAG. TO AVOID ACCIDENTAL DEPLOYMENT, NEVER CONNECT ASDM ELECTRICALLY TO THE SYSTEM UNLESS IT IS BOLTED TO VEHICLE. BEFORE BEGINNING ANY AIR BAG SYSTEM REMOVAL OR INSTALLATION PROCEDURES, REMOVE AND ISOLATE THE BATTERY NEGATIVE (-) CABLE FROM THE VEHICLE BATTERY. THIS IS THE ONLY SURE WAY TO DISABLE THE AIR BAG SYSTEM. FAILURE TO DO THIS COULD RESULT IN ACCIDENTAL AIR BAG DEPLOYMENT, AND POSSIBLE PERSONAL INJURY.

REMOVAL

(1) Disconnect negative cable from battery.

(2) Remove 2 screws from bottom of center console storage bin (Figs. 7, 8 and 9).

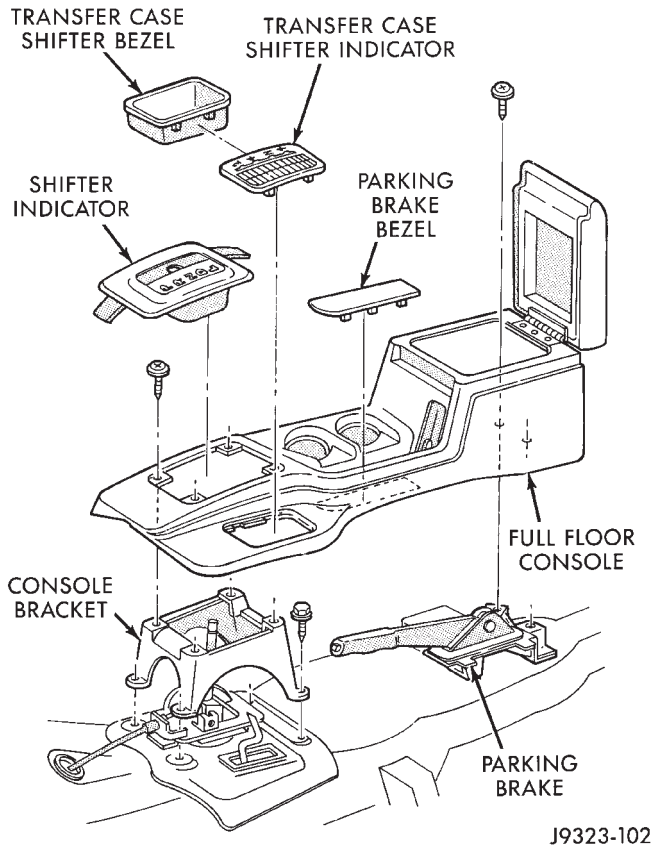

Fig. 7 Full Console Removal

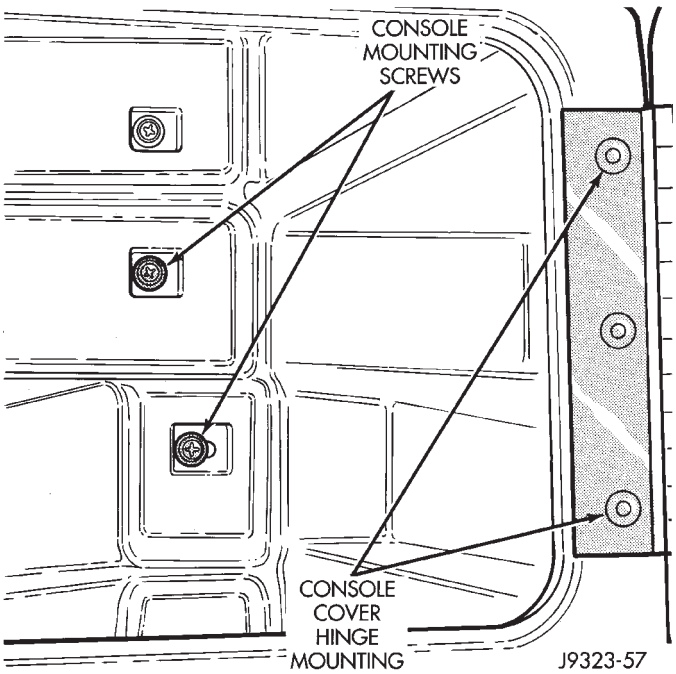

Fig. 8 Console Removal

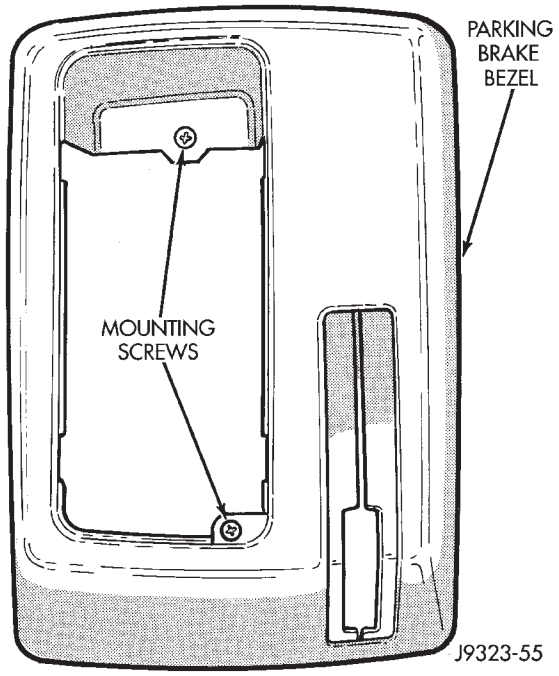

Fig. 9 Parking Brake Bezel

(3) Remove transmission shift handle by pulling it up sharply.

(4) Remove transmission shift bezel, there are 2 snap clips on each side.

(5) Remove bulb from bezel.

(6) Remove 4 screws under transmission shift bezel (Fig. 10).

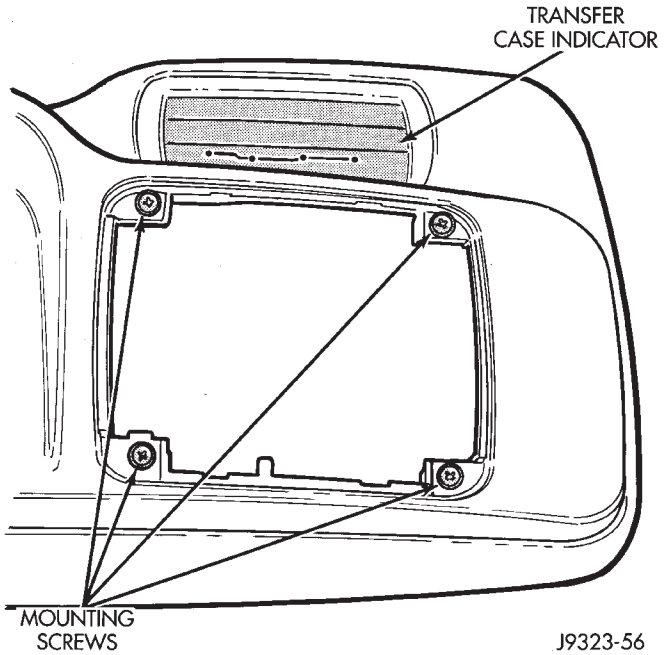

Fig. 10 Console Forward Mounting Screws

(7) Remove bezel under parking brake handle.

(8) Move transfer case and transmission shift levers rearward.

(9) Lift console up to remove it. There is a bulb at the rear end of the transfer case bezel.

(10) Disconnect wiring at ASDM (Fig. 11).

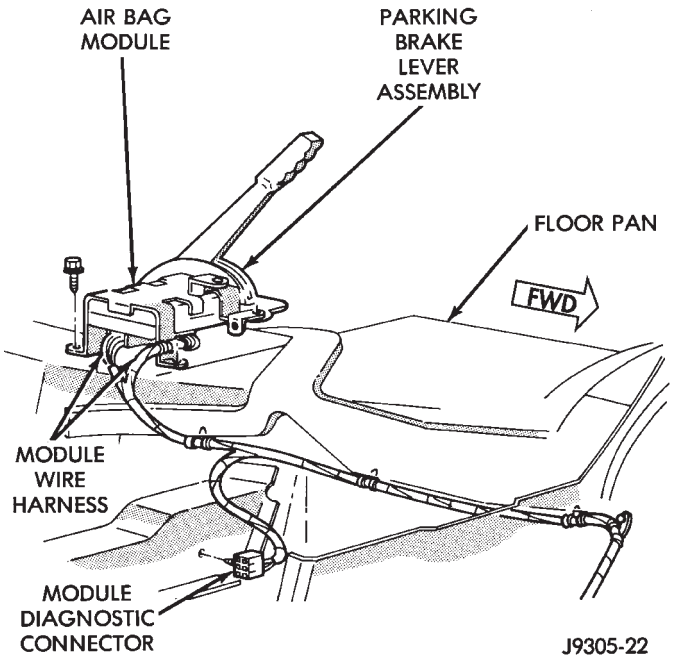

Fig. 11 Air Bag System Diagnostic Module

(11) Remove 4 screws holding the ASDM.

(12) Remove ASDM.

INSTALLATION

(1) Position the ASDM with the arrow pointing forward.

(2) Attach the ASDM to the Park Brake bracket and floor pan with the 4 screws supplied. Torque to 5.5 to 7 N●m (50-60 in. lbs.).

(3) Connect wiring at ASDM, making sure both connectors are seated and locking tabs engaged.

(4) Install center floor console.

(5) Do not connect negative battery cable. Refer to Air Bag System Check for proper procedure.

CLOCKSPRING

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REMOVAL

(1) Place the front wheels in the straight ahead position before starting the repair.

(2) Disconnect battery negative cable and isolate.

(3) Wait 2 minutes for the reserve capacitor to discharge before removing undeployed module.

(4) Remove the air bag module. Refer to Air Bag Module Removal.

(5) Remove Speed Control switch and connector if equipped.

(6) Remove the steering wheel and vibration dampener.

(7) Disconnect horn terminals.

(8) Remove upper and lower steering column shrouds to gain access to clockspring wiring (Fig. 12).

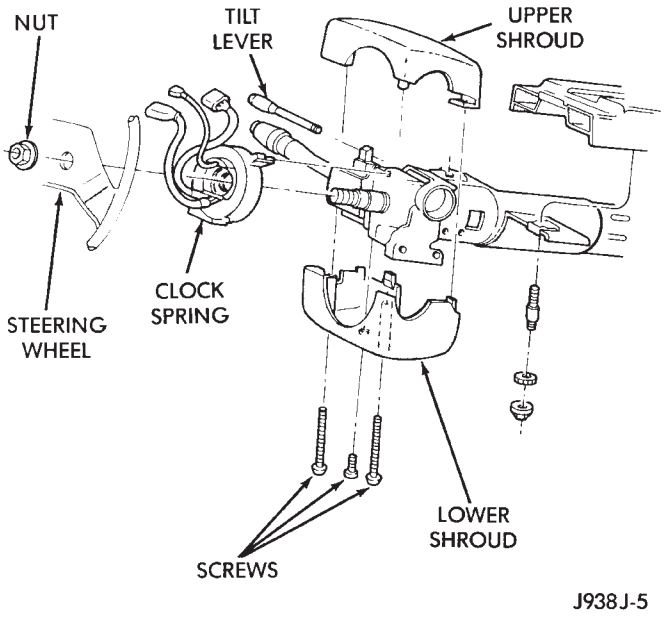

Fig. 12 Steering Column Shrouds

(9) Disconnect the 2-way connector between the clockspring and the instrument panel wiring harness at the base of the steering column.

(10) To remove, pull clockspring assembly from steering column by lifting locating fingers as necessary. The clockspring cannot be repaired, and must be replaced if faulty.

INSTALLATION

(1) Snap clockspring onto the steering column. If the clockspring is not properly positioned, follow the clockspring centering procedure before installing steering wheel.

(2) Connect the clockspring assembly to the instrument panel wiring harness. Make sure wiring locator clips are properly seated on the outside of the wiring trough and locking tabs are engaged.

(3) Reinstall steering column shrouds. Be sure air bag wire is inside of shrouds.

(4) Road wheels should still be in the straight-ahead position. Install steering wheel making sure to fit the flats on the hub of the steering wheel with the formations on the inside of clockspring. Pull the horn lead through the upper smaller hole. The air bag and

speed control leads through the bottom larger hole in the steering wheel. Making sure not to pinch them between the steering wheel and nut.

(5) Connect the horn lead wire, then the air bag lead wire to the air bag module. To assure complete connection, latching arms must be visibly on top of connector housing.

(6) Install the air bag module, and torque nuts to 9 to 11 N•m (80 to 100 in. lb.).

(7) Do not connect negative battery cable. Refer to Air Bag System Check for proper procedure.

CLOCKSPRING CENTERING PROCEDURE

If the rotating tape within the clockspring is not positioned properly with the steering wheel and the front wheels, the clockspring may fail during use. The following procedure MUST BE USED to center the clockspring if it is not known to be properly positioned, or if the front wheels were moved from the straight ahead position.

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(1) Place front wheels in the straight ahead position.

(2) Remove air bag module, vibration damper (if equipped), and steering wheel.

(3) Depress the two plastic locking pins (Fig. 13).

(4) Keeping locking mechanism disengaged, rotate the clockspring rotor in the CLOCKWISE DIRECTION to the end of travel. Do not apply excessive torque.

(5) From the end of travel, rotate the rotor two full turns and a half in the counterclockwise direction. The horn wire should end up at the top and the squib wire at the bottom.

(6) Reinstall steering wheel.

(7) Reinstall vibration damper (if equipped).

(8) Install air bag module. Torque nuts to 9 to 11 N•m (80 to 100 in. lbs.).

(9) Do not connect battery negative cable. Refer to Air Bag System Check for proper procedure.

STEERING WHEEL

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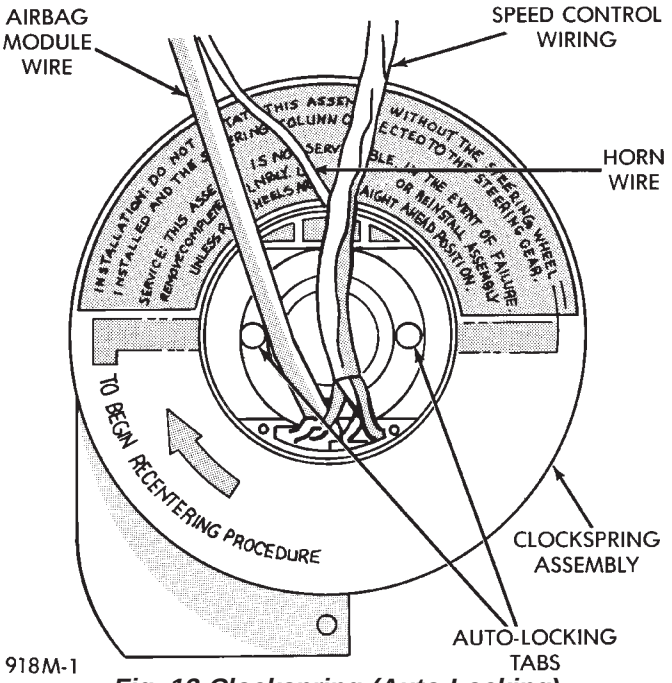

Fig. 13 Clockspring (Auto-Locking)

REMOVAL

(1) Make sure road wheels are straight, and steering column is locked in place.

(2) Disconnect battery negative cable and isolate.

(3) Wait 2 minutes for the reserve capacitor to discharge before removing undeployed module.

(4) Remove four nuts attaching air bag module from the back side of steering wheel.

(5) Lift module, and disconnect connector by spreading apart the external latching arms and prying upward on the connector.

(6) Remove speed control switch.

(7) Remove steering wheel retaining nut.

(8) On vehicles so equipped, remove damper assembly.

(9) Remove steering wheel with steering wheel puller Tool C-3428B.

INSTALLATION

(1) If the clockspring is not properly positioned or if road wheels were moved, follow the clockspring centering procedure before installing steering wheel. With the road wheels in the straight ahead position. Position the steering wheel on the steering column. Making sure to fit the flats on the hub of the steering wheel with the formations on the inside of the clockspring. Pull the air bag and speed control wires through the lower, larger hole in the steering wheel; and the horn wire through smaller hole at the top. Make sure not to pinch wires (Fig. 14).

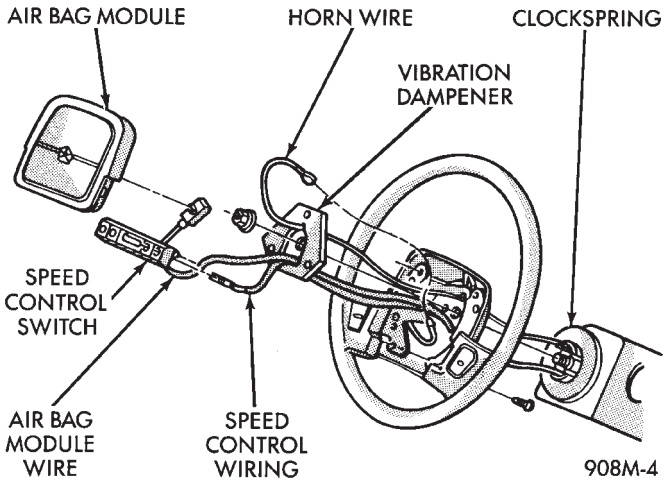

Fig. 14 Steering Wheel Wiring

(2) Install damper assembly on vehicles equipped with automatic transmissions.

(3) Install retaining nut, and torque it to 5 N●m (45 ft. lbs.).

(4) Connect horn wiring lead.

(5) Connect 4-way connector to speed control switch and attach switch to steering wheel.

(6) Connect air bag lead wire to air bag module, and secure module to steering wheel.

(7) Do not connect battery negative cable. Refer to Air Bag System Check for proper procedure.