

POWER LOCK SYSTEMS

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GENERAL INFORMATION

INTRODUCTION

Power lock and remote keyless entry systems are standard factory-installed equipment on this model. Following are general descriptions of the major components in the power lock, remote keyless entry, and liftglass latch systems. Refer to 8W-61 - Power Door Locks in Group 8W - Wiring Diagrams for complete circuit descriptions and diagrams. Refer to the owner's manual for more information on the features and use of these systems.

POWER LOCK SYSTEM

The power lock system allows all doors and the liftgate to be locked or unlocked by operating the switch on either front door panel. This system operates with battery power supplied through a circuit breaker in the junction block, independent of the ignition switch.

The power lock system includes the front door switches, door modules mounted in each front door, and power lock motors mounted in each door and the liftgate.

POWER LIFTGLASS RELEASE SYSTEM

Models equipped with the optional liftgate liftglass feature also have a power operated liftglass release system. This system operates with battery power

supplied through a fuse in the junction block, independent of the ignition switch. The power liftglass release system allows the liftglass to be opened by depressing a switch mounted in the top of the liftgate license plate tub.

The liftglass release system includes the liftgate mounted switch, a mechanical latch equipped with an electric release solenoid, and a limit switch integral to the liftgate latch mechanism. The limit switch automatically disables the liftglass release circuit whenever the liftgate latch is locked with either the key, the power lock system, or the remote keyless entry transmitter.

Refer to 8W-61 - Power Door Locks in Group 8W - Wiring Diagrams for circuit descriptions and diagrams. Refer to Group 23 - Body Components for the procedures to service the power liftglass release components.

REMOTE KEYLESS ENTRY SYSTEM

The Remote Keyless Entry (RKE) system is a radio frequency system that allows the use of a remote transmitter to control the power lock and illuminated entry systems. If the vehicle is so equipped, the remote keyless entry transmitter will also control the memory seat/mirror/radio, and the vehicle theft alarm systems.

The RKE system consists of the remote key fob transmitter and a receiver with program logic, which

GENERAL INFORMATION (Continued)

is integral to the passenger door module. The remote keyless entry system can retain the vehicle access codes of two transmitters. The transmitter codes are retained in memory, even if the battery is disconnected. If a transmitter is faulty or lost, new transmitter vehicle access codes can be programmed into the system using a DRB scan tool.

In addition, a function of the RKE system made possible by the connection of the passenger door module to the Chrysler Collision Detection (CCD) data bus network is a panic mode. If the Panic button on the transmitter is depressed, the vehicle's horn will sound and lights will flash for about three minutes, or until any of the three transmitter buttons is depressed. A vehicle speed of about 15 miles-per-hour will also cancel the panic mode.

MEMORY SYSTEM

An electronic memory system is an available option on this model. The memory system is able to store and recall the driver's power seat positions (including power lumbar and recliner positions), both outside power mirror positions, and ten radio station presets (including last station tuned) for two drivers. The memory system will automatically return to all of these settings when the corresponding button (Driver 1 or 2) of the memory switch on the driver's front door trim panel is depressed, or when the doors are unlocked using the corresponding (Driver 1 or 2) Remote Keyless Entry (RKE) transmitter.

The Driver Door Module (DDM) receives hard-wired input from the memory set/select switch on the driver's front door trim panel. The DDM also receives messages on the Chrysler Collision Detection (CCD) data bus network from the Remote Keyless Entry (RKE) receiver in the Passenger Door Module (PDM) for the memory select function. The DDM processes these inputs and sends messages to the radio, the PDM, and the Memory Seat Module (MSM) on the CCD data bus for memory recall.

The CCD data bus network allows the sharing of sensor information. This helps to reduce wiring harness complexity, reduce internal controller hardware, and reduce component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities.

This group covers only the diagnostic procedures for the conventional power lock and RKE system components. For additional information on the features and functions of the memory system, refer to the vehicle owner's manual. For diagnosis of the memory system, use of a DRB scan tool and the proper Body Diagnostic Procedures Manual are recommended.

DESCRIPTION AND OPERATION

POWER LOCK SWITCH

The power locks are controlled by a two-way switch mounted in the trim panel of each front door. Each switch is illuminated by a light-emitting diode when the ignition switch is turned to the On position.

The power lock switches are integral to the Driver Door Module (DDM) or Passenger Door Module (PDM), respectively. The power lock switch provides a lock or unlock signal to the door module circuitry.

The DDM circuitry controls the output to the left front door power lock motor. The PDM circuitry controls the output to the power lock motors for the remaining doors and the liftgate. When a door lock switch is actuated, the door module circuitry for that switch sends a message to the other door module on the Chrysler Collision Detection (CCD) data bus to activate the output to the remaining power lock motor(s).

The power lock switches and their lamps cannot be repaired. If faulty, the entire door module must be replaced.

DOOR MODULE

A Driver Door Module (DDM) and a Passenger Door Module (PDM) are used on this model to control and integrate many of the vehicle's electrical features and functions. The DDM and PDM communicate with each other, and with other vehicle modules on the Chrysler Collision Detection (CCD) data bus network.

The CCD data bus network allows the sharing of sensor information. This helps to reduce wiring harness complexity, internal controller hardware, and component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities.

Some of the features and functions of the power lock and Remote Keyless Entry (RKE) systems made possible because of the communication of the door modules on the Chrysler Collision Detection (CCD) data bus network include:

- A door-lock inhibit feature which prevents the power lock system from being energized with a door switch if the key is in the ignition and/or the headlamps are on with the driver's door open. However, the locks can still be operated manually with a key or energized with the RKE transmitter.

- A rolling door locks feature will automatically lock all of the doors and the liftgate, after the vehicle reaches a speed of about 15 miles-per-hour or greater. This feature will also re-lock the doors if a door is opened and reclosed at any speed above 15 miles-per-hour. Rolling door locks is a programmable

DESCRIPTION AND OPERATION (Continued)

feature of the power lock system. This feature can be enabled or disabled using the DRB scan tool.

- An RKE system panic mode. If the Panic button on the RKE transmitter is depressed, the vehicle's horn will sound and lights will flash for about three minutes, or until any of the three transmitter buttons is depressed. A vehicle speed of about 15 miles-per-hour will also cancel the panic mode.

- A programmable feature of the RKE system is the enabling or disabling of the horn chirp following the remote keyless entry Lock function. This feature can be enabled or disabled using the DRB scan tool.

- Another programmable feature of the RKE system is the enabling or disabling of each RKE transmitter so that the driver's door only, or all doors unlock upon one depression of the transmitter Unlock button. This feature can be enabled or disabled for both RKE transmitters, or only one transmitter using the DRB scan tool.

For diagnosis of the DDM, PDM, or the CCD data bus network, refer to the proper Body Diagnostic Procedures Manual.

BODY CONTROL MODULE

A Body Control Module (BCM) is used on this model to control and integrate many of the vehicle's electrical functions and features. The BCM contains a central processing unit and interfaces with other modules in the vehicle on the Chrysler Collision Detection (CCD) data bus network.

The CCD data bus network allows the sharing of sensor information. This helps to reduce wiring harness complexity, reduce internal controller hardware, and reduce component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities.

One of the functions and features that the BCM supports and controls, is the Remote Keyless Entry (RKE) Panic Mode. The BCM receives input from the RKE receiver in the Passenger Door Module (PDM) on the CCD data bus. The programming in the BCM allows it to process the information from this input and send control outputs to the headlamp relay, horn relay, and park lamp relay to accomplish the panic mode functions.

The BCM is mounted under the left end of the instrument panel, behind the instrument panel support armature and below the left switch pod. Refer to Group 8E - Instrument Panel Systems for removal and installation procedures. For diagnosis of the BCM or the CCD data bus, refer to the proper Body Diagnostic Procedures Manual. The BCM can only be serviced by an authorized repair station. Refer to the Warranty Policies and Procedures Manual for a listing of authorized repair stations.

POWER LOCK MOTOR

In the power lock and remote keyless entry systems, the locks are actuated by a reversible motor mounted within each door and the liftgate. The left front door lock motor direction is controlled by the battery and ground feeds from the driver door module. The remaining door lock motors and the liftgate lock motor are controlled by the battery and ground feeds from the passenger door module.

The power lock motors cannot be repaired. If faulty, the entire motor must be replaced.

CIRCUIT BREAKER

An automatic resetting circuit breaker in the junction block is used to protect the power lock system circuit. The circuit breaker can protect the system from a short circuit, or from an overload condition caused by an obstructed or stuck lock motor, latch, or lock linkage. The circuit breaker cannot be repaired. If faulty, the circuit breaker must be replaced.

REMOTE KEYLESS ENTRY TRANSMITTER

The remote keyless entry system transmitter is equipped with three buttons, labeled Lock, Unlock, and Panic. It is also equipped with a key ring and is designed to serve as a key fob. The operating range of the radio frequency transmitter signal is up to 7 meters (23 feet) from the receiver.

Each transmitter has a different vehicle access code, which must be programmed into the memory of the receiver in the vehicle in order to operate the remote keyless entry system. In addition, vehicles with the memory seat/mirror/radio system must have their access codes programmed in the receiver so that the molded-in numbers "1" or "2" on the back of the transmitter case coincide with the memory "1" and "2" buttons of the memory set switch in the vehicle.

The transmitter operates on two Duracell DL2016 (or equivalent) batteries. Typical battery life is from one to two years.

REMOTE KEYLESS ENTRY RECEIVER

The Remote Keyless Entry (RKE) receiver is a radio frequency unit contained in the Passenger Door Module (PDM). The PDM also contains the program circuitry for the RKE system.

The RKE receiver is energized by one of three messages from the RKE transmitter; Unlock, Lock, or Panic. The PDM circuitry responds to these messages to lock or unlock the power lock motors that it controls. The PDM circuitry also puts Lock, Unlock, and Panic messages on the Chrysler Collision Detection (CCD) data bus.

These messages will result in the Driver Door Module (DDM) locking or unlocking the left front door, and/or the body control module initiating the

DESCRIPTION AND OPERATION (Continued)

proper Panic, Illuminated Entry, and Vehicle Theft Alarm functions. If the vehicle is equipped with the memory seat/mirror/radio systems, the proper CCD Unlock message will also result in the DDM initiating its memory recall functions.

For diagnosis of the RKE receiver, the PDM, the DDM, or the CCD data bus, refer to the proper Body Diagnostic Procedures Manual. The RKE receiver is only serviced as a unit with the PDM and, if faulty, the PDM unit must be replaced.

DIAGNOSIS AND TESTING

POWER LOCK/REMOTE KEYLESS ENTRY SYSTEM

As a preliminary power lock/remote keyless entry system diagnosis, note the system operation while you actuate both the Lock and Unlock functions with the power lock switches and the remote keyless entry transmitter. Then, proceed as follows:

- If the system fails to function with either the switches or the transmitter, see the Circuit Breaker diagnosis.
- If the system functions with both switches, but not with the transmitter, see the Remote Keyless Entry Transmitter diagnosis.
- If the system functions with the transmitter, but not with one or both switches, see the Door Module diagnosis.
- If one lock motor fails to operate with the switches or the transmitter, see the Power Lock Motor diagnosis.

CIRCUIT BREAKER

For circuit descriptions and diagrams, refer to 8W-61 - Power Door Locks in Group 8W - Wiring Diagrams.

(1) Locate the correct circuit breaker in the junction block. Pull out the circuit breaker slightly, but be sure that the terminals still contact the terminals in the junction block.

(2) Connect the negative lead of a 12-volt DC voltmeter to a good ground.

(3) With the voltmeter positive lead, check both terminals of the circuit breaker for battery voltage.

If only one terminal has battery voltage, the circuit breaker is faulty and must be replaced. If neither terminal has battery voltage, repair the open circuit from the power distribution center as required. If the circuit breaker checks OK, but no power locks operate, see the diagnosis for Door Modules.

DOOR MODULE

NOTE: The following tests may not prove conclusive in the diagnosis of this component. The most reliable, efficient, and accurate means to diagnose

this system involves the use of a DRB scan tool and the proper Body Diagnostic Procedures Manual.

For circuit descriptions and diagrams, refer to 8W-61 - Power Door Locks in Group 8W - Wiring Diagrams.

(1) Disconnect and isolate the battery negative cable. Remove the front door trim panel as described in this group. Go to Step 2.

(2) Check the 12-way door module wiring connector to see that it is fully seated in the door module receptacle. If OK, go to Step 3. If not OK, install the connector properly.

(3) Unplug the 12-way connector from the door module. Check for continuity between the ground circuit cavity of the door module connector and a good ground. There should be continuity. If OK, go to Step 4. If not OK, repair the open circuit as required.

(4) Connect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the connector. If OK, go to Step 5. If not OK, repair the open circuit as required.

(5) Disconnect and isolate the battery negative cable. Check for continuity between the door lock driver circuit cavity of the door module connector and a good ground. Repeat the check for the door unlock driver circuit. In each case there should be no continuity. If OK, go to Step 6. If not OK, repair the short circuit as required.

(6) Plug the 12-way connector back into the door module. Unplug the inoperative power lock motor connector. Connect the battery negative cable. Go to Step 7.

(7) Connect the probes of a reversible DC digital voltmeter to the door module side of the power lock motor connector. Observe the voltmeter while actuating the switch in the lock and unlock directions. There should be a short 12 volt voltage spike as the switch is moved to both the lock and unlock positions, and no voltage in the neutral position. If OK, see the diagnosis for Power Lock Motors. If not OK, replace the faulty door module.

POWER LOCK MOTOR

Remember, the DDM circuitry controls the output to the left front door power lock motor. The PDM circuitry controls the output to the power lock motors for the remaining doors and the liftgate. For circuit descriptions and diagrams, refer to 8W-61 - Power Door Locks in Group 8W - Wiring Diagrams.

(1) If only one lock motor is inoperative, go to Step 2. If all lock motors except the left front door are inoperative, the problem may be caused by one shorted motor. Disconnecting a shorted motor will allow the good motors to operate. Disconnect each PDM-controlled motor connector, one at a time, and

DIAGNOSIS AND TESTING (Continued)

re-check both the lock and unlock functions by operating the door lock switch. If disconnecting one motor causes the other motors to become functional, go to Step 2 to test the disconnected motor.

(2) Once it is determined which lock motor is inoperative, that motor can be tested as follows. Disconnect the wire connector at the inoperative motor. Apply 12 volts to the motor terminals to check its operation in one direction. Reverse the polarity to check the operation in the other direction. If OK, repair the circuits to the door module as required. If not OK, replace the faulty motor.

REMOTE KEYLESS ENTRY TRANSMITTER

(1) Replace the remote keyless entry transmitter batteries as described in this group. Test each of the transmitter functions. If OK, discard the faulty batteries. If not OK, go to Step 2.

(2) Perform the transmitter program procedure with the suspect transmitter and another known good transmitter using the DRB scan tool, as described in the proper Body Diagnostic Procedures Manual.

(3) Test the remote keyless entry system operation with both transmitters. If both transmitters fail to operate each of the system functions, see the proper Body Diagnostic Procedures Manual for diagnosis of the remote keyless entry system. If the known good transmitter operates each of the system functions and the suspect transmitter does not, replace the faulty transmitter.

NOTE: Be certain to perform the transmitter program procedure again when replacing a faulty transmitter. This procedure will erase the access code of the test transmitter from the remote keyless entry system.

POWER LIFTGLASS RELEASE SYSTEM

For circuit descriptions and diagrams, refer to 8W-61 - Power Door Locks in Group 8W - Wiring Diagrams.

(1) Check the fuse in the junction block. If OK, go to Step 2. If not OK, replace the faulty fuse.

(2) Check for battery voltage at the fuse in the junction block. If OK, go to Step 3. If not OK, repair the open circuit as required.

(3) Unplug the liftglass limit switch connector. Check for battery voltage at the fused B(+) circuit cavity of the limit switch connector. If OK, go to Step 4. If not OK, repair the open circuit as required.

(4) Check for continuity between the two terminals of the liftglass limit switch. There should be continuity with the liftgate latch unlocked, and no continuity with the latch locked. If OK, go to Step 5. If not OK, replace the faulty limit switch.

(5) Unplug the liftglass push button switch connector. With the liftgate latch unlocked, check for battery voltage at the liftglass limit switch output circuit cavity of the connector. If OK, go to Step 6. If not OK, repair the open circuit as required.

(6) Check for continuity between the two terminals of the liftglass push button switch. There should be no continuity. Depress the switch, there should now be continuity. If OK, go to Step 7. If not OK, replace the faulty push button switch.

(7) Unplug the liftglass release solenoid connector. Check for continuity between the ground circuit cavity of the connector and a good ground. There should be continuity. If OK, go to Step 8. If not OK, repair the open circuit as required.

(8) With the liftgate latch unlocked and the liftglass push button switch depressed, check for battery voltage at the liftglass push button output circuit cavity of the liftglass release solenoid connector. If OK, replace the faulty solenoid. If not OK, repair the open circuit as required.

SERVICE PROCEDURES

REMOTE KEYLESS ENTRY TRANSMITTER BATTERY REPLACEMENT

To replace the remote keyless entry transmitter batteries, separate the transmitter case halves by prying gently with a trim stick, or other suitable wide flat-bladed tool, at the center seam. The case snaps open and shut. Replace the batteries with new Duracell DL2016, or their equivalent.

REMOTE KEYLESS ENTRY TRANSMITTER PROGRAMMING

To program the Remote Keyless Entry (RKE) transmitter access codes into the RKE system requires the use of a DRB scan tool. Refer to the proper Body Diagnostic Procedures Manual for more information.

REMOVAL AND INSTALLATION

DOOR MODULE

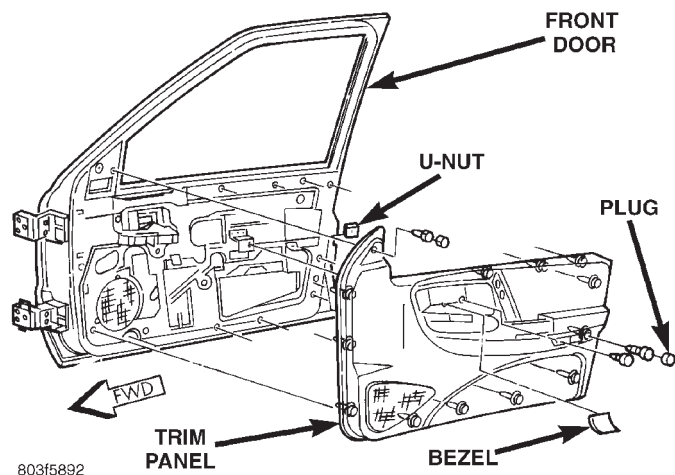
(1) Disconnect and isolate the battery negative cable.

(2) Remove the bezel near the inside door latch release handle by inserting a straight-bladed screwdriver in the notched end and prying gently upwards.

(3) Remove the door trim panel mounting screw located in the bezel opening near the inside door latch release handle (Fig. 1).

(4) Remove the trim cap and screw near the rear of the door armrest.

REMOVAL AND INSTALLATION (Continued)

**Fig. 1 Front Door Trim Panel Remove/Install**

(5) Remove the trim cap and screw at the upper front corner of the trim panel.

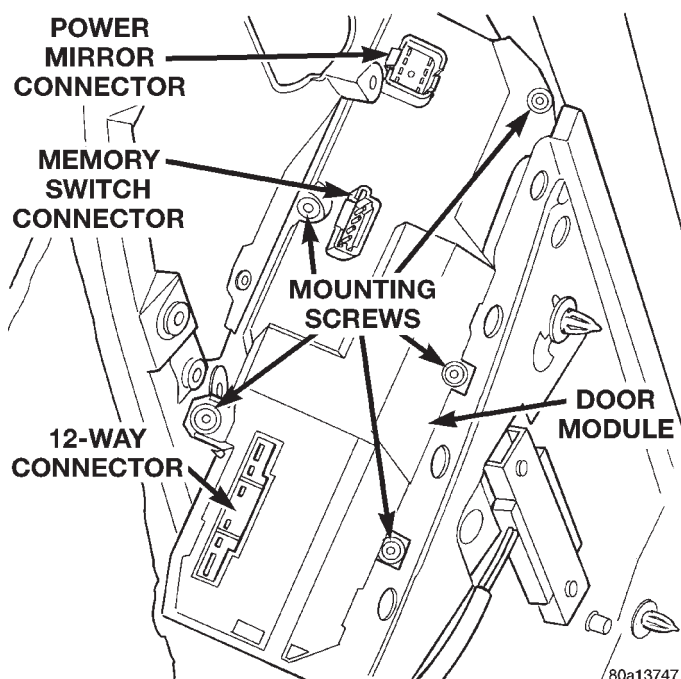
(6) Remove the screw located above the front door speaker grille.

(7) Using a wide flat-bladed tool such as a trim stick, pry the trim panel away from the door around the perimeter and remove the trim panel.

NOTE: To aid in the removal of the trim panel, start at the bottom of the panel.

(8) Unplug the wiring connectors from the door module and the door courtesy lamp, if equipped.

(9) Remove the five screws securing the door module to the door trim panel (Fig. 2).

**Fig. 2 Door Module Remove/Install**

(10) Remove the door module from the trim panel.

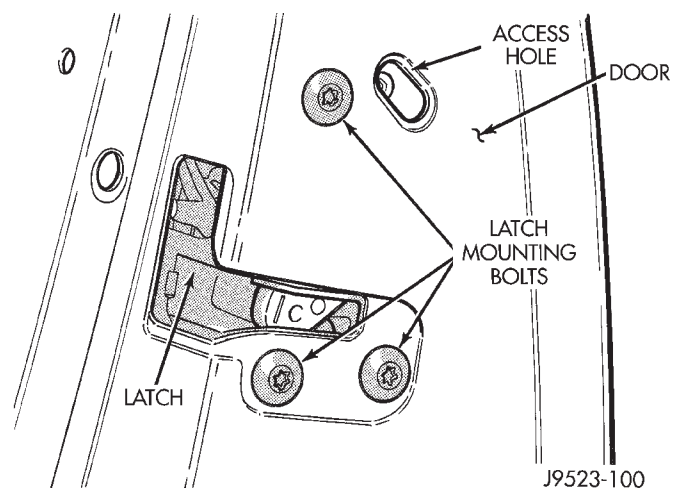
(11) Reverse the removal procedures to install.

POWER LOCK MOTOR**FRONT DOOR**

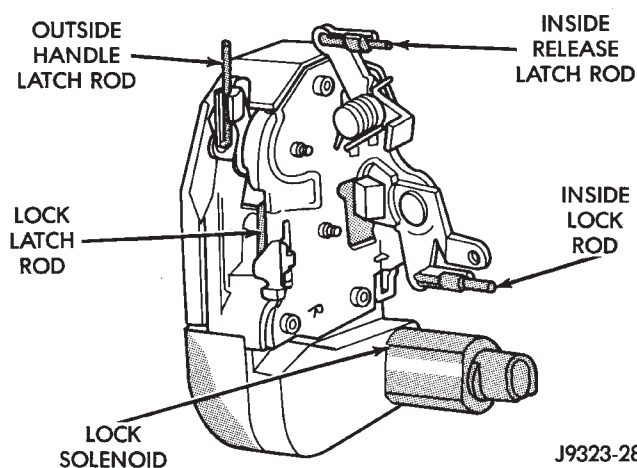
(1) Remove the front door trim panel as described under Door Module in this group.

(2) Pull back the watershield from the rear access holes of the inner door panel.

(3) Remove the door latch retaining screws (Fig. 3).

**Fig. 3 Door Latch Remove/Install**

(4) Disconnect all of the actuating rods from the door latch (Fig. 4).

**Fig. 4 Door Latch**

(5) Unplug the power lock motor/solenoid wire connector.

(6) Remove the door latch/power lock motor from the door.

(7) Reverse the removal procedures to install. Tighten the latch mounting screws to 10 N·m (95 in. lbs.).

REMOVAL AND INSTALLATION (Continued)

REAR DOOR

(1) Disconnect and isolate the battery negative cable.

(2) Remove the bezel near the inside door latch release handle by inserting a straight-bladed screwdriver in the notched end and prying gently upwards.

(3) Remove the door trim panel mounting screw located in the bezel opening near the inside door latch release handle (Fig. 5).

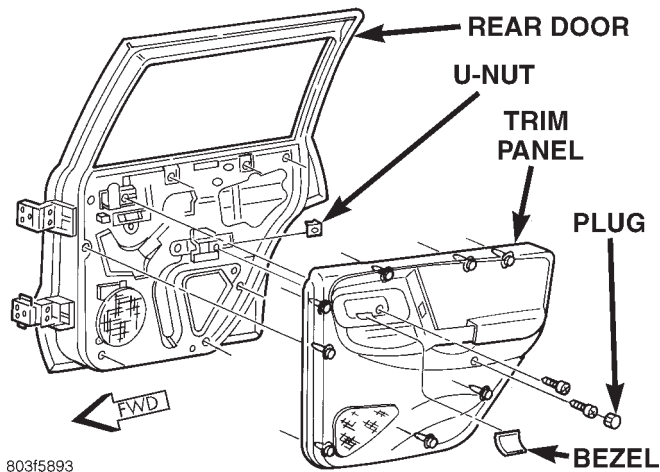


Fig. 5 Rear Door Trim Panel Remove/Install

(4) Remove the trim cap and screw near the rear of the door armrest.

(5) Using a wide flat-bladed tool such as a trim stick, pry the trim panel away from the door around the perimeter and remove the trim panel.

NOTE: To aid in the removal of the trim panel, start at the bottom of the panel.

(6) Unplug the wiring connector from the door power window switch.

(7) Pull back the watershield from the rear access holes of the inner door panel.

(8) Remove the door latch retaining screws (Fig. 6).

(9) Disconnect all of the actuating rods from the door latch.

(10) Unplug the power lock motor/solenoid wire connector.

(11) Remove the door latch/power lock motor from the door.

(12) Reverse the removal procedures to install. Tighten the latch mounting screws to 10 N·m (95 in. lbs.).

LIFTGATE

(1) Disconnect and isolate the battery negative cable.

(2) Remove the screws securing the liftgate lower trim panel to the liftgate (Fig. 7).

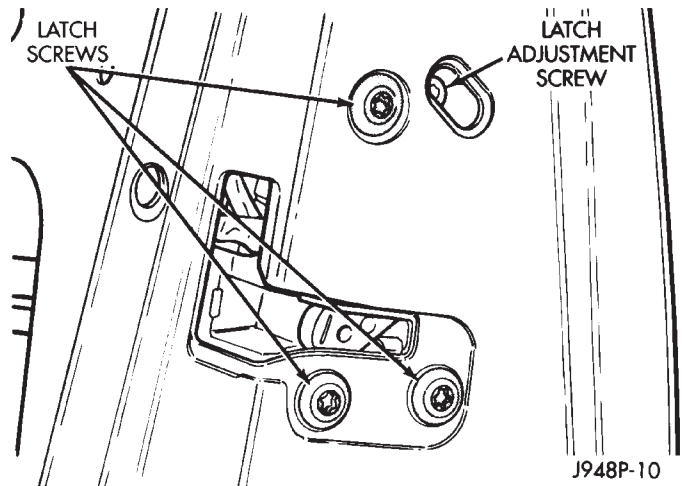


Fig. 6 Door Latch Remove/Install - Typical

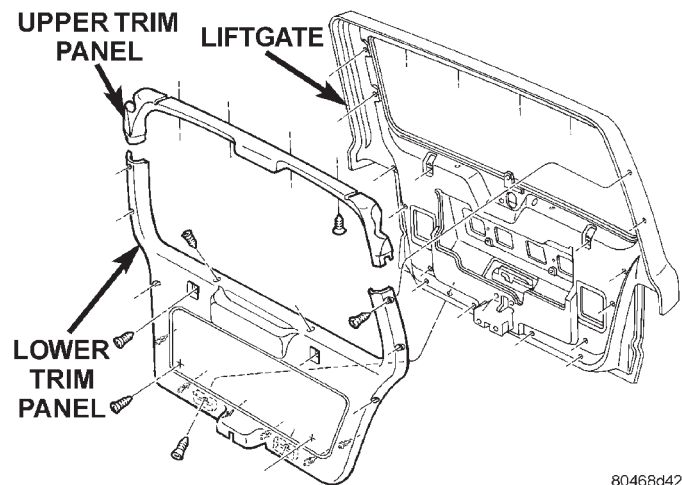


Fig. 7 Liftgate Trim Panel Remove/Install

(3) Using a wide flat-bladed tool such as a trim stick, pry the trim panel away from the liftgate around the perimeter and remove the trim panel.

NOTE: To aid in the removal of the trim panel, start at the bottom of the panel.

REMOVAL AND INSTALLATION (Continued)

(4) Disconnect the lock actuator motor linkage clip at the liftgate latch handle (Fig. 8).

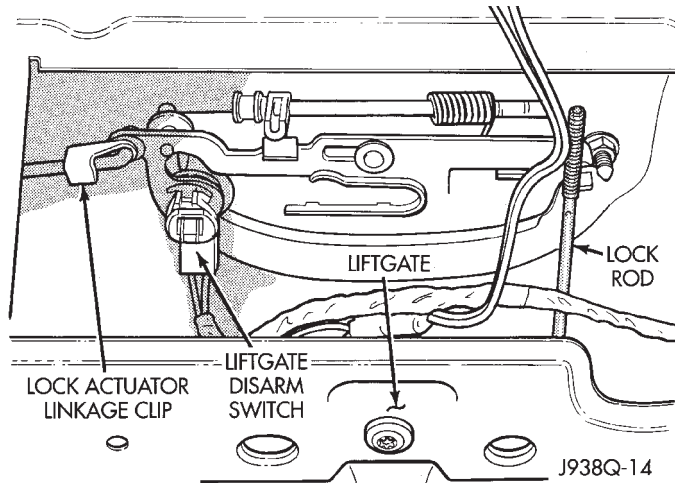


Fig. 8 Lock Actuator Motor Linkage Remove/Install

(5) Remove the two screws securing the lock actuator motor to the liftgate (Fig. 9).

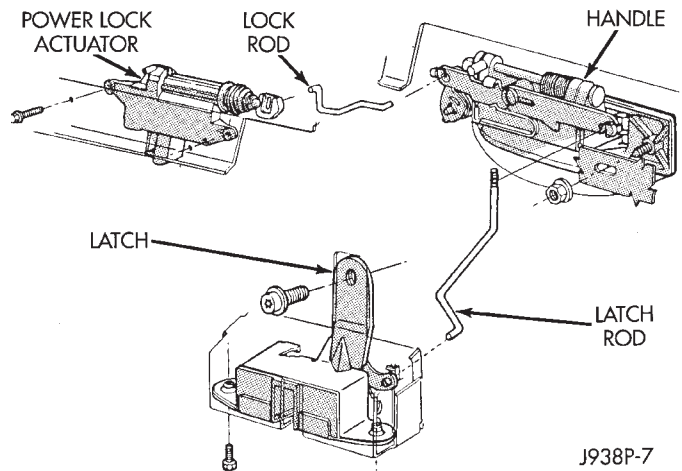


Fig. 9 Liftgate Lock Motor Remove/Install

(6) Unplug the wire connector from the actuator motor.

(7) Remove the motor from the liftgate.

(8) Reverse the removal procedures to install. Tighten the actuator motor mounting screws to 3 N·m (28 in. lbs.).