

POWER DOOR LOCKS

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POWER LOCKS

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GENERAL

The door lock actuators, including liftgate, are controlled by two-way switches. To lock the doors, push either switch to the right. To unlock doors from inside the vehicle push either switch to the left.

The power door locks do not lock or unlock the doors from outside the vehicle. Insert the key into the lock cylinder to lock or unlock each individual door or use the keyless entry transmitter.

DESCRIPTION

The door locks are operated by reversible motors. The voltage supply comes from the 20 amp mini fuse F1 in the Power Distribution Center (PDC) to the 15 amp #8 fuse located in the fuse panel. Power then goes to the left hand door lock switch. With the left hand door lock switch in LOCK, voltage is applied through the switch to the door Lock Relay coil. The relay coil is energized which closes the circuit from the F14 20 amp fuse to the lock motor. Fuse 14 is supplied by a 40 amp maxi fuse in the PDC labeled Fuse Block Feed. The motor is grounded by the unlock relay.

The LOCK function will not operate if:

- The chime module is not plugged in.
- The key is in the ignition, or the lights are ON, while the driver’s door is open.
- The door lock inhibit feature of the chime module is inoperable due to defective electronics in the chime. In this case the operation is unpredictable.

The RH door lock window switch operates the same as the driver’s door switch. The voltage and ground paths are reversed to unlock the doors.

The power door lock operates with battery power and, therefore, is independent of the ignition switch.

DIAGNOSING POWER DOOR LOCKS

If the vehicle has Keyless Entry and the door locks operate properly using the door switches but do not work with the transmitter, refer to Keyless Entry in this group.

DOOR LOCKS DO NOT OPERATE USING DOOR LOCK SWITCHES

**For complete circuit diagrams refer to Group 8W - Wiring Diagrams.**

**Check fuses #8 and #14 in the fuse panel. Replace as required.**

- (1) Measure voltage at output side of fuses. Meter should read battery voltage. If not, repair open in circuit to fuse.
- (2) Remove door switch and measure voltage at terminal 4. Meter should read battery voltage. If not, repair open circuit between fuse #8 and switch.
- (3) Remove glove box bottom to access the relay center.
- (4) Measure resistance between Lock and Unlock relay terminal 4 and ground. Meter should read zero ohms. If not, repair open to ground.
- (5) Measure voltage at terminal 2 of both the Lock and Unlock relays. Meter should read battery voltage. If OK, next step. If not, repair open to fuse #14.
- (6) Measure resistance at terminal 5 of both the Lock and Unlock relays. Meter should read zero ohms. If not, repair open to ground.

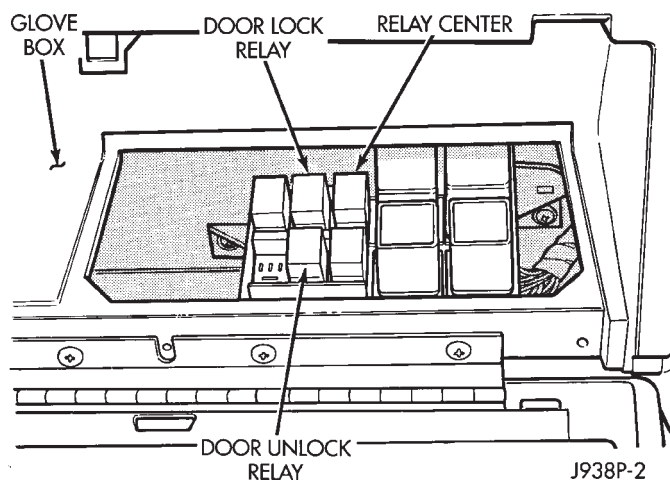
(7) Hold left hand switch in LOCK position. Measure voltage at lock relay terminal 1. Meter should read battery voltage. If OK, next step. If not, repair open to left hand switch.

(8) Hold left hand switch in UNLOCK position. Measure voltage at Unlock relay terminal 1. Meter should read battery voltage. If OK, next step. If not, repair open to left hand switch.

(9) Hold left hand switch in LOCK position. Measure voltage at Lock relay terminal 4. Meter should read battery voltage. If OK, next step. If not, replace Lock relay.

(10) Hold left hand switch in UNLOCK position. Measure voltage at Unlock relay terminal 4. Meter should read battery voltage. If OK, check connections and door motor. If not, replace Unlock relay.

(11) Repeat procedures for RH switch.



**Fig. 1 Door Lock/Unlock Relays**

### ACTUATOR MOTOR STALL TEST

To test the actuator motor, attach an ammeter in series with the motor and operate the door switch. Replace the actuator motor if current draw exceeds 8 amps at room temperature or if the actuator does not complete its travel in less than one second. Refer to Removal procedures.

### SWITCH REPLACEMENT—FRONT DOOR

(1) Remove screw at top of trim panel near mirror (Fig. 2).

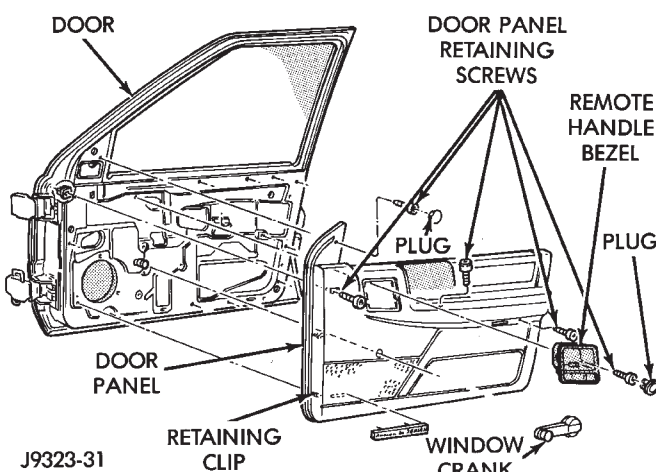
(2) Remove screw from demister opening at front of door.

(3) Remove screw and door handle cover.

(4) Remove screw from under armrest.

(5) Remove screw from bottom of hand hold in armrest.

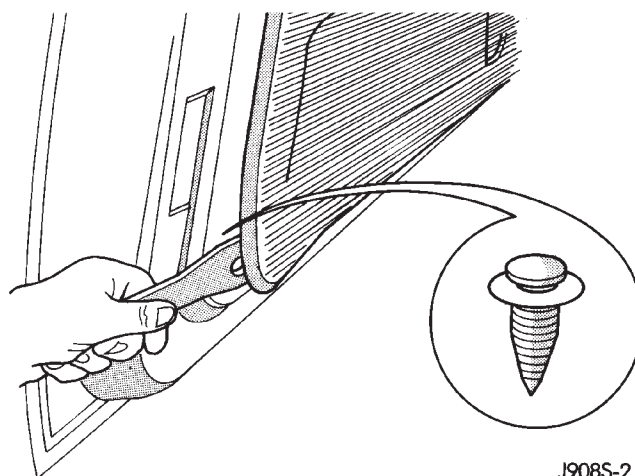
**CAUTION:** The wiring harness to the door switches is just long enough to allow installation. If trim panel is pulled off by hand the switch may be pulled apart. Use a door clip tool to prevent damaging the switches.



**Fig. 2 Door Panel Removal**

(6) Remove the trim panel with a wide flat blade tool (Fig. 3).

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



**Fig. 3 Trim Panel Removal**

(7) Unplug electrical connector from switch.

(8) Remove switch from door panel.

(9) Install a new switch.

(10) Install door trim panel by reversing the removal procedures.

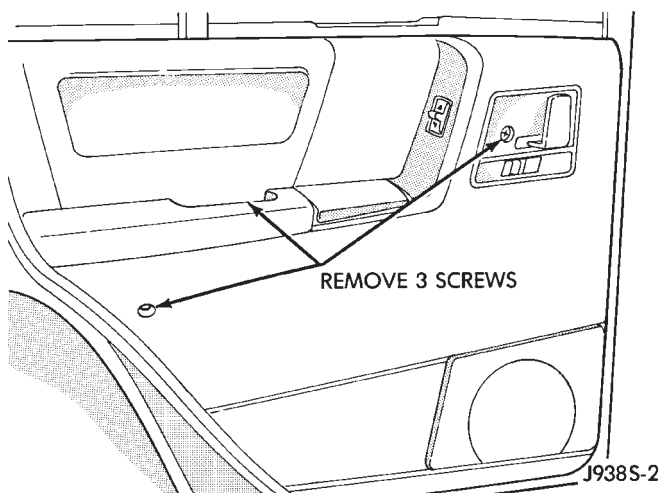
### SWITCH REPLACEMENT—REAR DOOR

(1) Remove screw and door handle cover (Fig. 4).

(2) Remove screw from under armrest.

(3) Remove screw from bottom of hand hold in armrest.

**CAUTION:** The wiring harness to the door switches is just long enough to allow installation. If trim panel is pulled off by hand the switch may be pulled apart. Use a door clip tool to prevent damaging the switches.



**Fig. 4 Trim Panel Attachment**

(4) Remove the trim panel with a wide flat blade tool (Fig. 3).

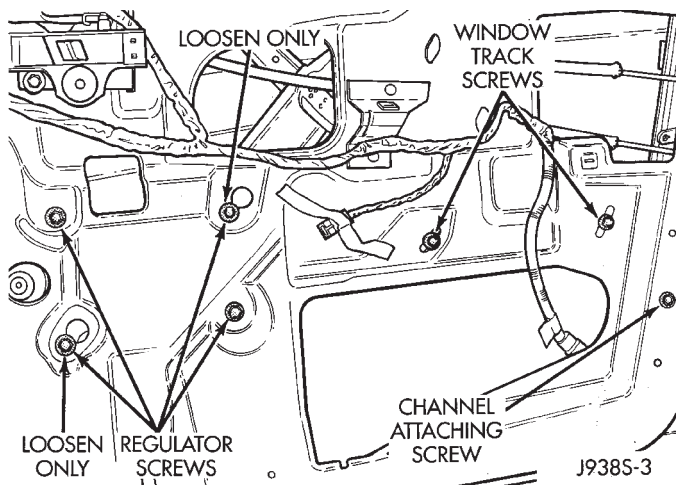
**To aid in removal of the trim panel, start at the bottom of the panel.**

- (5) Remove switch from door panel.
- (6) Install a new switch.
- (7) Install door trim panel by reversing the removal procedures.

#### SOLENOID AND LATCH ASSEMBLY REPLACEMENT

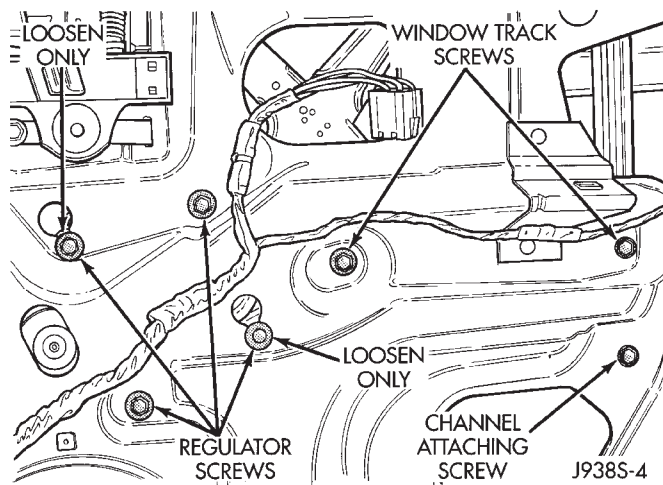
(1) Remove door panel as described in Switch Replacement.

(2) Remove 1 bolt holding bottom of window track to door (Figs. 5 and 6).

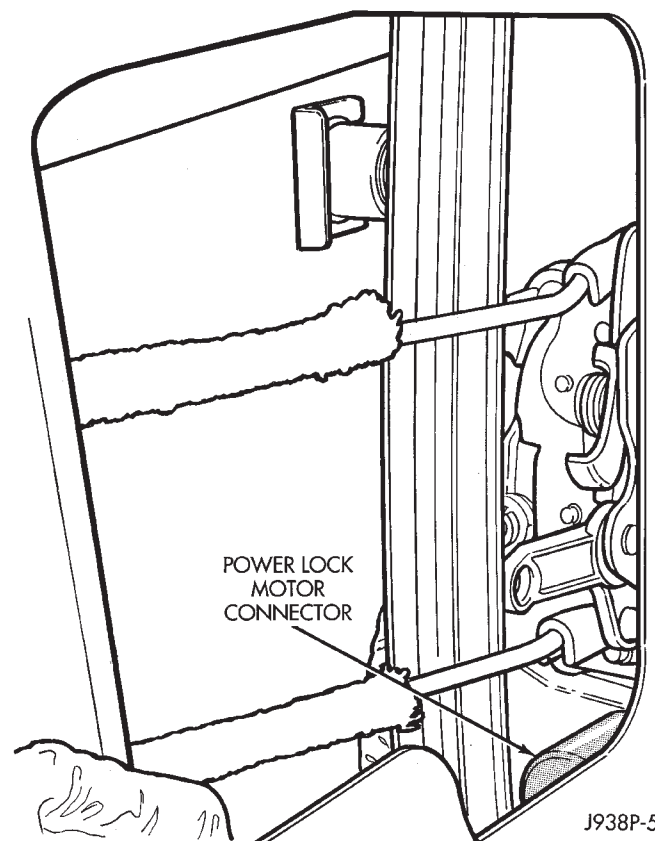


**Fig. 5 Window Track Attaching Bolts—Front Door**

- (3) Disconnect 4 linkage rods from their clips (Figs. 7 and 8).
- (4) Unplug wire harness connector from lock motor.
- (5) Remove 3 torx head screws retaining the latch (Figs. 9 and 10).
- (6) Place the lock solenoid, latch and remote control rods in the door.



**Fig. 6 Window Track Attaching Bolts—Rear Door**



**Fig. 7 Power Lock Motor—Front Door**

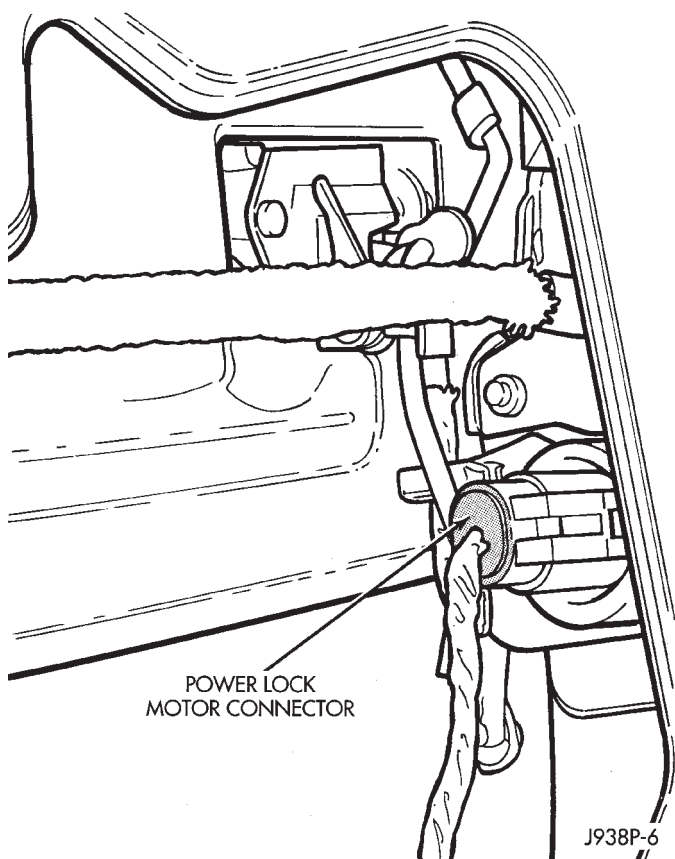
(7) Attach the lock solenoid to the door panel with 3 torx head screws. Tighten screws to 11 N•m (95 in. lbs.).

(8) Install 4 linkage rods.

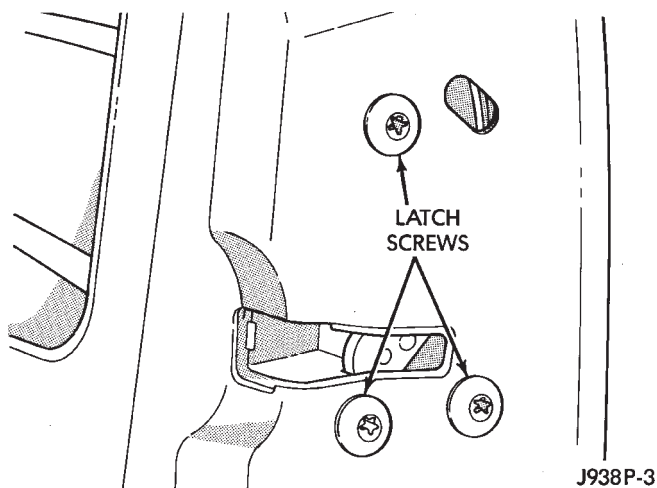
(9) Using 3M 08044 or 3M 08041 adhesive/sealant, install the plastic water dam sheet.

(10) Place the trim panel in the installation position and press in the nylon retainers.

(11) Install the door panel attaching screws.



**Fig. 8 Power Lock Motor—Rear Door**



**Fig. 9 Latch Removal/Installation—Front Door**

#### LIFTGATE LOCK ACTUATOR REPLACEMENT

(1) Remove 5 screws holding liftgate interior trim panel.

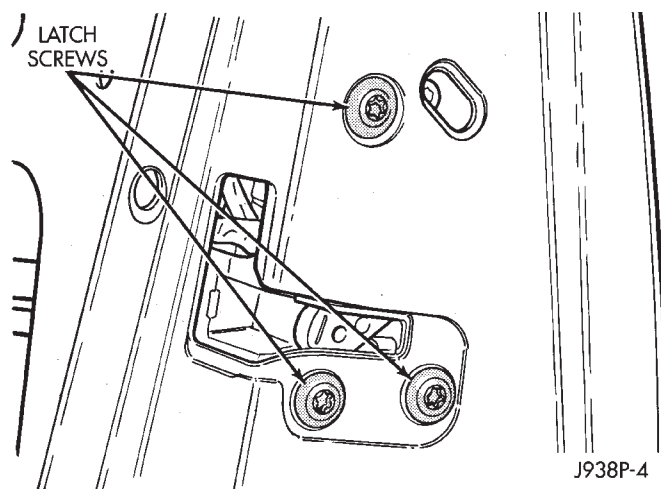
**To aid in removal of the trim panel, start at the bottom of the panel.**

(2) Remove the trim panel with a wide flat blade tool (Fig. 11).

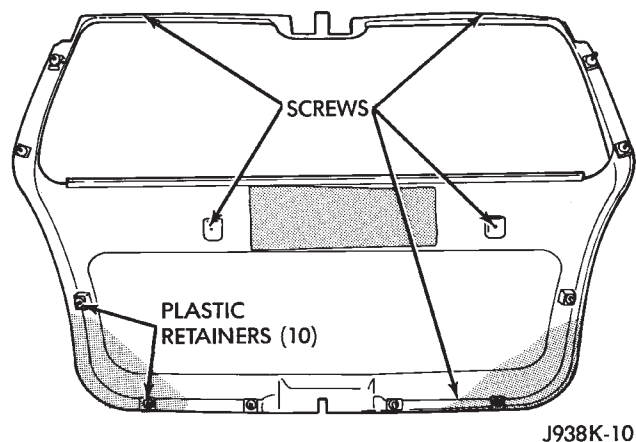
(3) Disconnect the lock actuator linkage clip at the handle (Fig. 12).

(4) Remove 2 actuator retaining screws (Fig. 13).

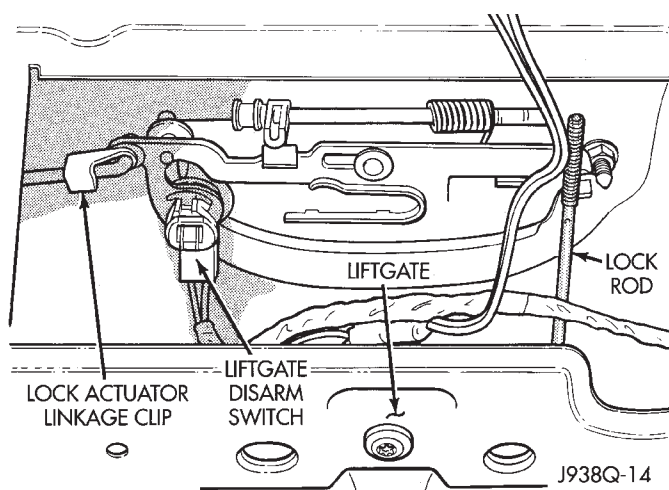
(5) Remove the actuator.



**Fig. 10 Latch Removal/Installation—Rear Door**

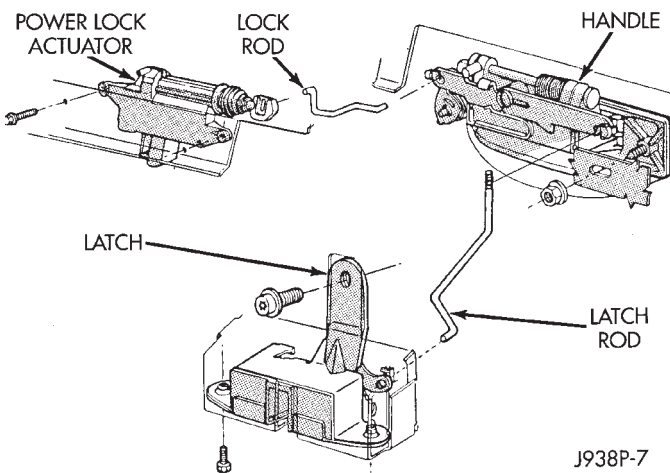


**Fig. 11 Liftgate Trim Panel Removal**



**Fig. 12 Lock Actuator Linkage Clip**





**Fig. 13 Power Lock Actuator Removal/Installation**

(6) To install the actuator, reverse the removal procedures.

(7) Tighten the actuator screws to 3 Nm (28 in. lbs.) torque.

## KEYLESS ENTRY

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### SYSTEM DESCRIPTION

The keyless entry system consists of a portable remote control transmitter and a receiver mounted in the overhead console or in the dome-lamp housing. System operation is based on a coded infrared signal from the transmitter to the receiver. The transmitter is programmed into the receiver providing the correct programming sequence is met.

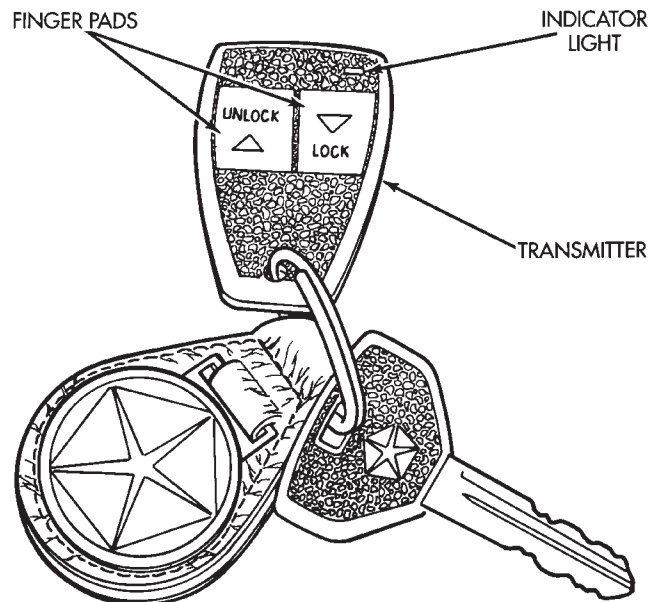
When the keyless entry system is activated, the corresponding relay operates to supply voltage to the motors. The use of either relay determines the polarity of the voltage that is supplied to the door lock motors.

When the keyless entry system is used, the transmitter sends a signal to the keyless entry module. If the doors are unlocked, the module activates a transistor switch to apply voltage to the lock relay coil. The coil is energized to close the normally open contacts of the lock relay. Battery voltage from the relay is applied to the door lock motors to lock the doors. Current flows in the same path to ground as it does when the master door lock switch is used.

When the doors are locked, the keyless entry module applies voltage to the unlock relay coil and a similar action takes place to unlock the doors.

### TRANSMITTER

The pocket size, solid state transmitter operates on 2, 3 volt lithium (CR1616) batteries (Fig. 1). The transmitter is activated by pressing either the lock



**Fig. 1 Keyless Entry Transmitter**

or unlock button. This closes the internal contacts that complete the battery circuit.

The battery voltage activates the transmitter diode which in turn generates a coded infrared signal. The signal is transmitted as pulses of infrared light.

If the red LED on the side of the transmitter case does not light when the transmitter is activated, the batteries are low.

## RECEIVER

The receiver is in circuit with the electric door lock system. The coded infrared signal is picked up by the receiver diode and is shaped, amplified and decoded by an integrated circuit within the receiver. If the signal code received matches the code in the receiver memory circuit, the receiver triggers the door lock/unlock relays. The relays complete the circuit to the electric door lock solenoid to either lock or unlock the doors.

## SYSTEM OPERATION

To activate the system, aim the transmitter diode toward the receiver and press the transmitter signal button to lock or unlock the doors as desired.

Effective transmitter range is 4.75 meters (15 ft.) with the transmitter positioned no more than 45 degrees from the receiver centerline.

**For complete circuit diagrams refer to Group 8W - Wiring Diagrams.**

## TRANSMITTER PROGRAMMING

Up to 4 Transmitter Identification Codes (TIC's) can be programmed into the receiver at any given time.

(1) Open the driver's door of the vehicle. Leave it open through the programming procedure.

(2) Move the mechanical door lock lever to the LOCK position.

(3) Insert the ignition key and turn it to the RUN position.

(4) Turn the ignition to the RUN position. Within 20 seconds, aim a transmitter at the receiver dome and press the lock button, for at least 5 seconds. Once the receiver accepts the programming code the driver's door will unlock.

(5) Once the first transmitter has been programmed, additional transmitters (up to 4) may be programmed into the receiver. Within 20 seconds of the previous transmitter programming, move the mechanical door lock lever to the Lock position. Aim another transmitter at the receiver dome and press the LOCK button for at least 5 seconds. The door lock will cycle again.

(6) To lock the programmed codes into the receiver, the ignition must be turned off and back on within 20 seconds after programming the last transmitter's code. At that time, all previous codes are erased from the module.

## DIAGNOSING POWER DOOR LOCKS

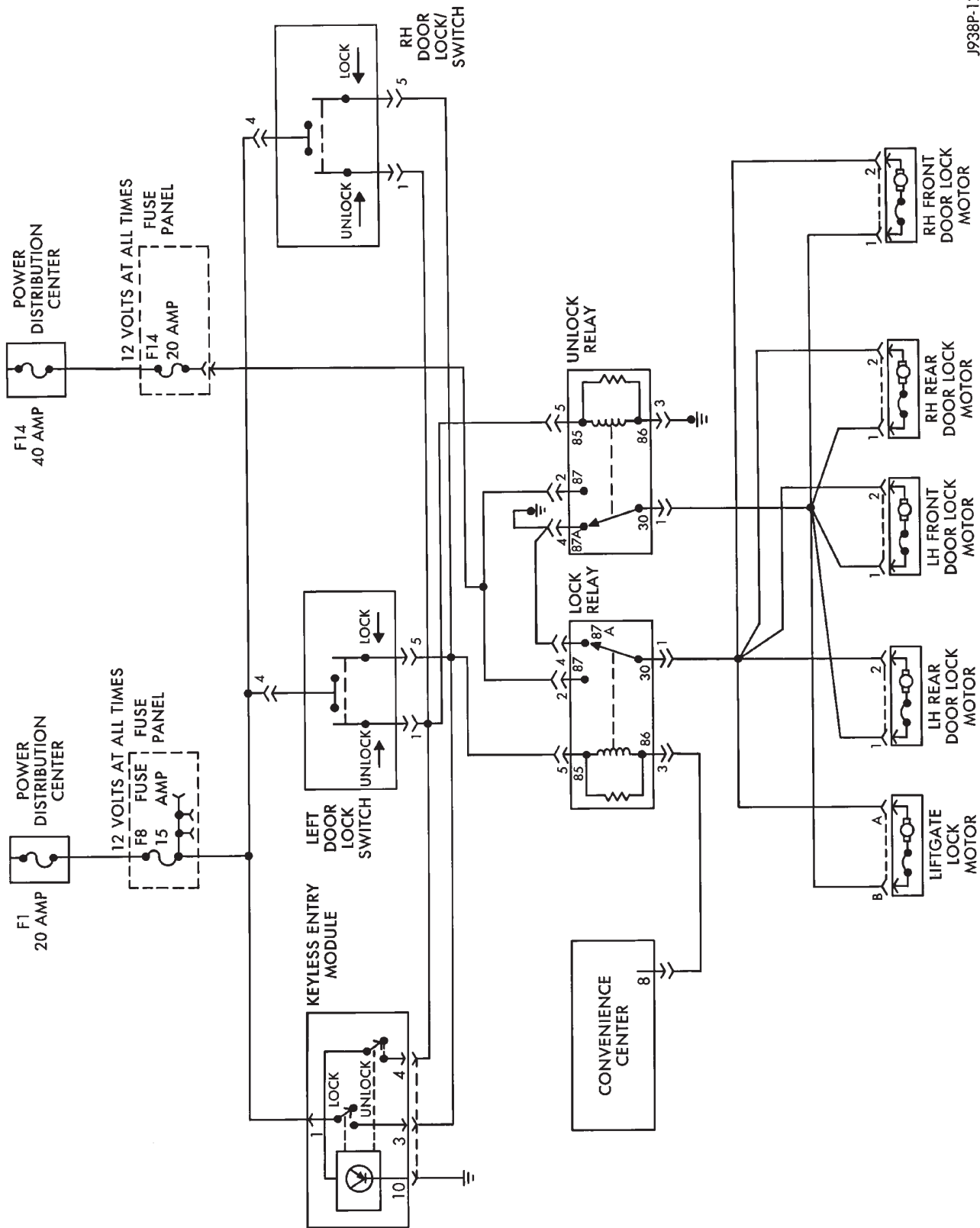
### *NO DOOR LOCKS OPERATE, USING TRANSMITTER*

(1) Measure resistance at Keyless entry module terminal 10. Meter should read zero ohms. If not, repair open to ground.

(2) Measure voltage at Keyless entry module terminal 1. Meter should read battery voltage. **Battery voltage must be at least 9 volts for this system to operate.** If not, repair open to Dome fuse.

(3) Jumper test leads Keyless entry module terminal 1 to terminal 3. Doors should lock. If OK, replace module. If not, repair open from terminal 3 to Lock relay terminal 5.

(4) Jumper test leads Keyless entry module terminal 1 to terminal 4. Door should unlock. If OK, replace module. If not, repair open from terminal 4 to Unlock relay terminal 5.



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POWER DOOR LOCKS

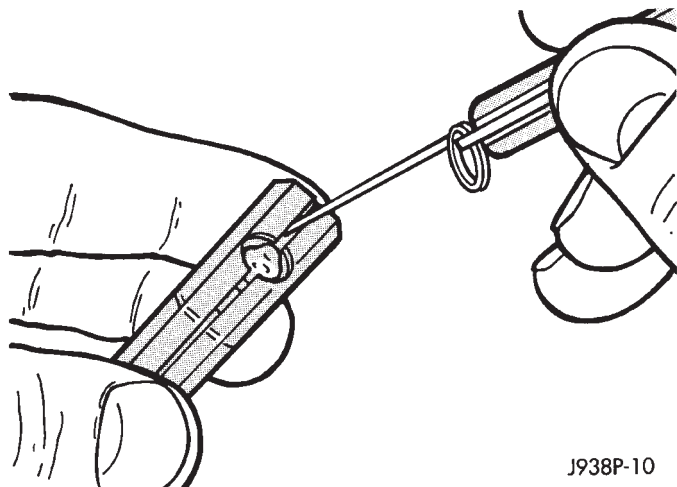
## TRANSMITTER SERVICE

If the receiver malfunctions, only the receiver will have to be replaced. The new receiver will have to be reprogrammed. If a transmitter is lost, replace the transmitter and reprogram the receiver.

**Batteries may not be supplied with some replacement transmitters. Be sure to check a replacement transmitter before attempting to activate the system.**

### TRANSMITTER BATTERY REPLACEMENT

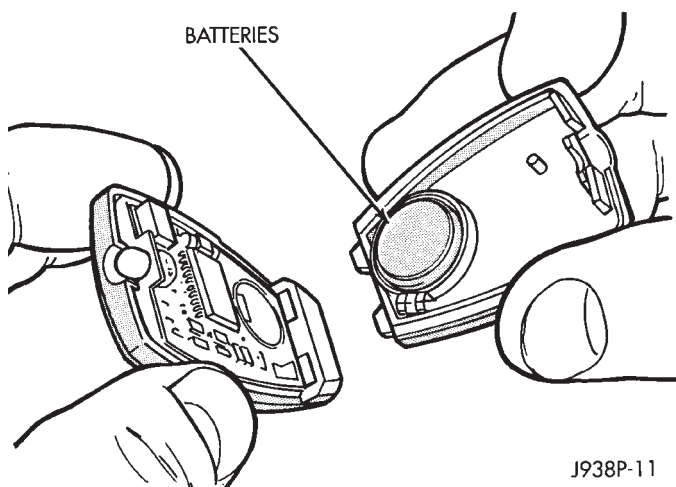
(1) Separate the transmitter at the middle seam (Fig. 2).



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**Fig. 2 Separate Transmitter Halves**

(2) Remove and discard the old batteries (Figs. 3, 4).

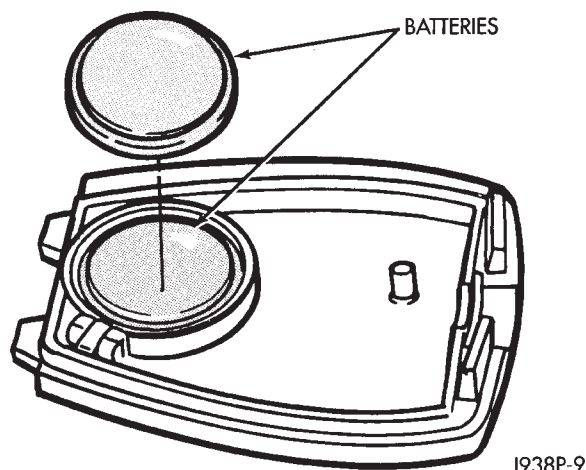


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**Fig. 3 Battery Removal**

(3) Install the new CR 1616 batteries. Be sure the batteries are installed according to polarity as shown on the transmitter battery receptacles.

(4) Assemble the transmitter and verify the correct battery installation. The voltage indicator light will glow when the batteries are properly installed.



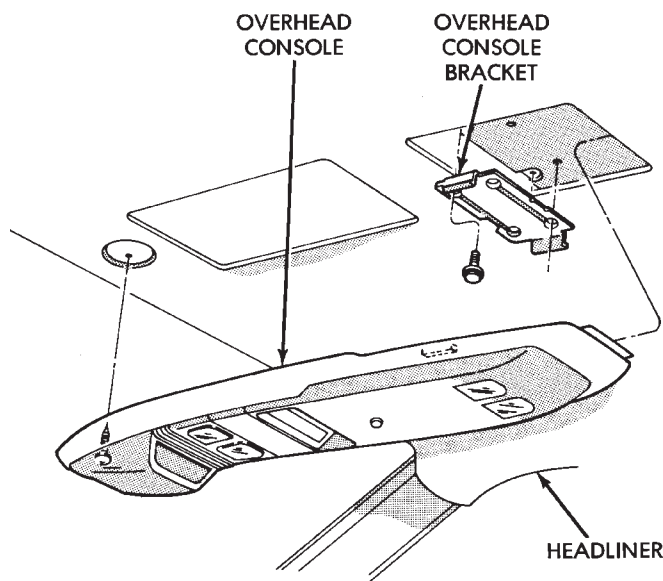
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**Fig. 4 Battery Installation**

## RECEIVER SERVICE

### WITH OVERHEAD CONSOLE

(1) Remove console forward mounting screw (Fig. 5).

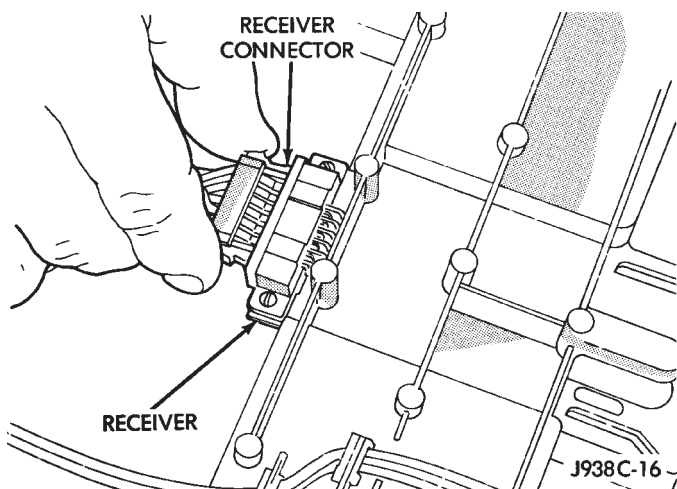


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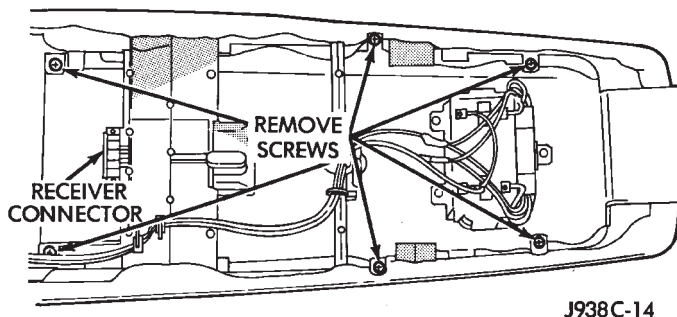
**Fig. 5 Remove/Install Overhead Console**

- (2) Unplug Trip Computer harness connector.
- (3) Slide console forward until the console detaches from the rear mounting bracket.
- (4) Unplug keyless entry harness connector (Fig. 6).
- (5) Remove 6 screws holding rear half of console (Fig. 7).
- (6) Release 4 clips, 2 front and 2 rear, and separate cover out from console.
- (7) Remove the screw and the printed circuit board can be removed (Fig. 8).

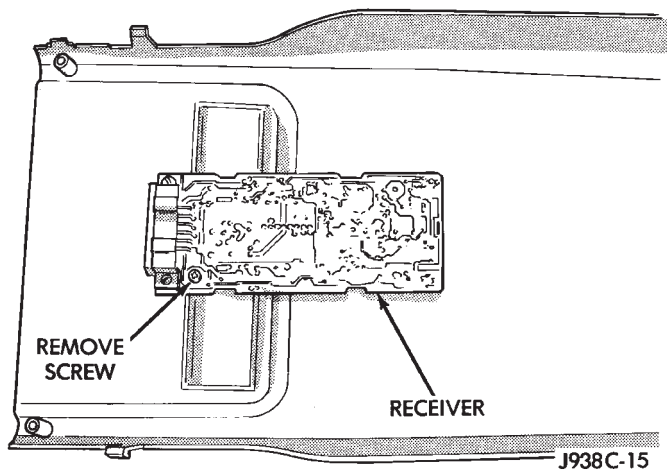




**Fig. 6 Keyless Entry Harness Connector**



**Fig. 7 Rear Overhead Console Panel Removal**

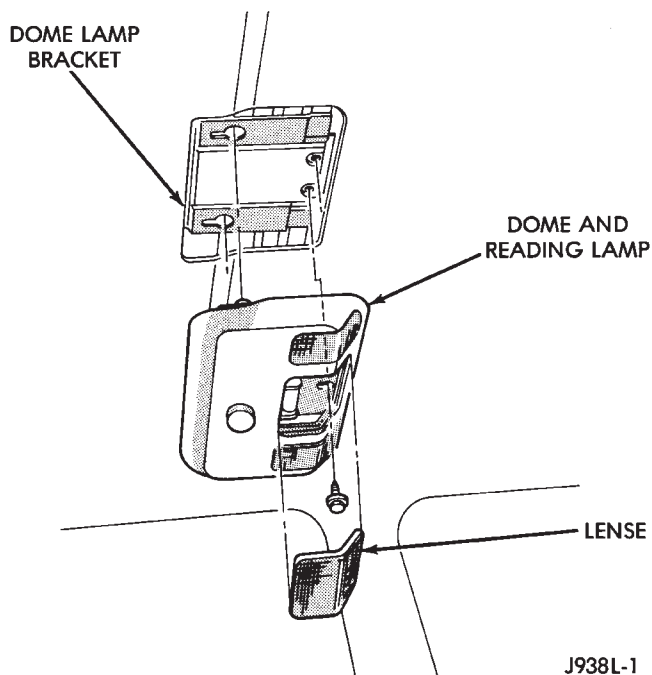


**Fig. 8 Receiver Removal/Installation**

(8) To install the overhead console, reverse the removal procedures.

#### WITHOUT OVERHEAD CONSOLE

- (1) Remove 1 screw attaching the dome lamp housing to the roof (Fig. 9).
- (2) Push the housing toward the front of the vehicle to disengage retainers.
- (3) Unplug the harness connectors.

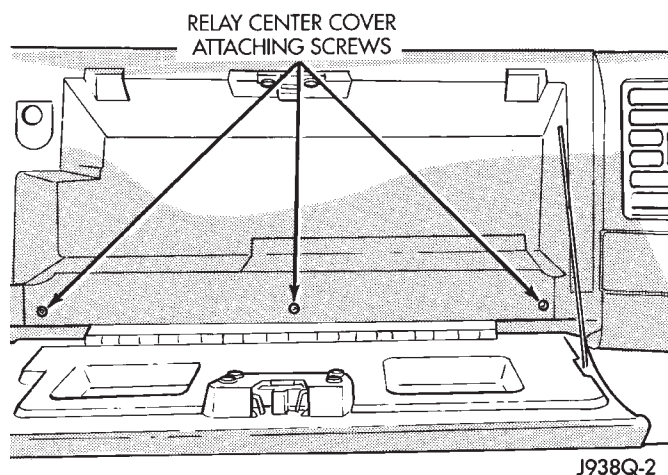


**Fig. 9 Remove/Install Dome Lamp Housing**

- (4) Release the circuit board connector from its mounting location.
- (5) Remove circuit board from housing.
- (6) Reverse the removal procedures to install the receiver.

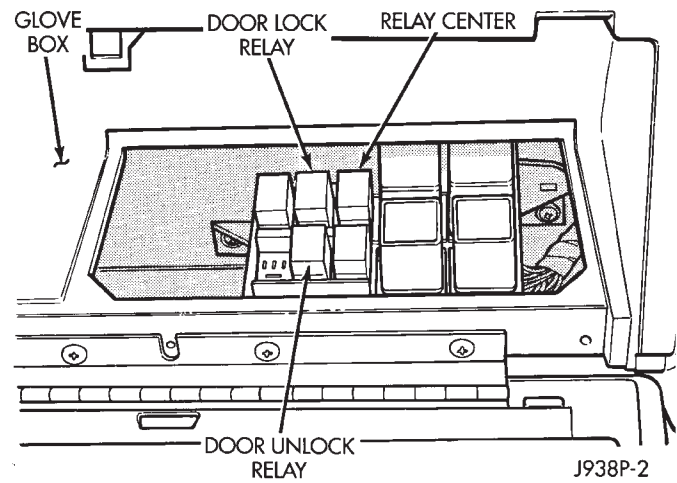
#### DOOR LOCK/UNLOCK RELAY REPLACEMENT

- (1) Open glove box and remove 3 screws holding relay center cover (Fig. 10).



**Fig. 10 Relay Center Cover**

(2) Remove lock or unlock relay as required (Fig. 11).



**Fig. 11 Door Lock/Unlock Relays**