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 down on either switch. To unlock doors from inside the vehicle push upward on either switch.

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.

DESCRIPTION

The door locks are operated by reversible motors that receive voltage from fuse #13 in the fuse panel. Voltage is applied to the driver's side door lock switch and the passenger's side door lock switch through the #9 fuse. With the driver's side 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 circuit breaker to the lock motor. The motor is grounded by the unlock relay.

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

NO DOOR LOCKS OPERATE USING DOOR LOCK SWITCHES

(1) Inspect fuse #13. Replace if necessary. If OK, measure voltage at battery side of fuse. There should be 12 volts. If not, repair open from Power Distribution Center.

(2) Remove door switch and measure voltage at terminal 1. Meter should read battery voltage. If not, repair open to #9 fuse.

(3) The power window relays are in the relay center. The relay center is located on the lower instrument panel trim cover just right of the steering column (Fig. 1). Remove both relays.

(4) Measure resistance between lock and unlock relay terminal 4 (87A) and ground. Meter should read zero ohms. If not, repair open to ground.

(5) Measure voltage at terminal 5 (87) of both the lock and unlock relays. Meter should read battery voltage. If OK, next step. If not, repair open to circuit breaker.

(6) Measure resistance at terminal 2 (85) of both the lock and unlock relays. Meter should read zero ohms. If not, repair open to ground.

(7) Hold driver's side switch in LOCK position. Measure voltage at lock relay terminal 1 (86). Meter should read battery voltage. If OK, next step. If not, repair open to driver's side switch.

(8) Hold driver's side switch in UNLOCK position. Measure voltage at unlock relay terminal 1 (86). Meter should read battery voltage. If OK, next step. If not, repair open to driver's side switch.

(9) Hold driver's side switch in LOCK position. Measure voltage at lock relay terminal 3 (30). Meter should read battery voltage. If OK, next step. If not, replace lock relay.

(10) Hold driver's side switch in UNLOCK position. Measure voltage at unlock relay terminal 3 (30). Meter should read battery voltage. If OK, check connections and door motor. If not, replace unlock relay.

(11) Repeat procedures for passenger's side switch.

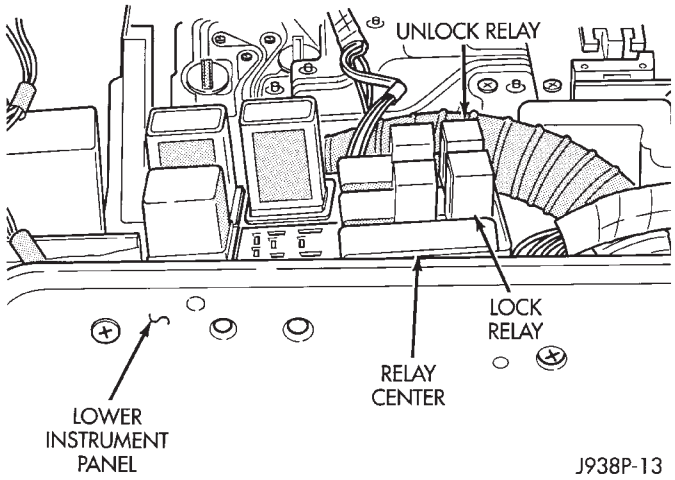
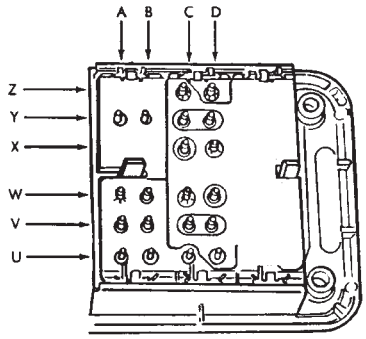
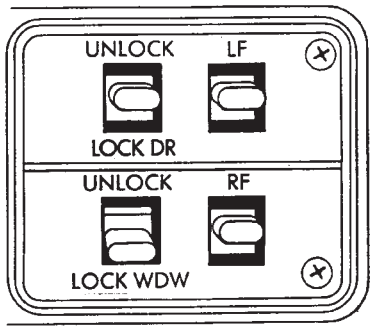


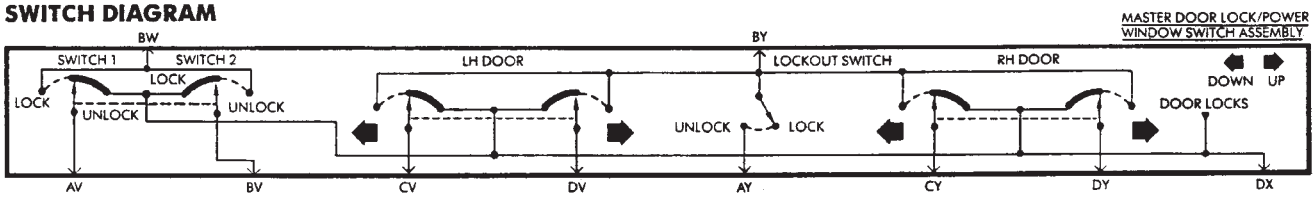
Fig. 1 Door Lock/Unlock Relays

DRIVERS DOOR POWER LOCK SWITCH—2-DOOR LEFT HAND DRIVE





SWITCH DIAGRAM



SWITCH TEST
Switch Grounds

SWITCH POSITION	TERMINALS	ZERO OHMS
Off (Normal)	DX and: AV, BV, CV DV, CY, DY	Yes
	BW and DX	No
	BY and DX	No

SWITCH TEST

SWITCH POSITION	TERMINALS	ZERO OHMS
Unlock	BW and BV	Yes
Lock	BW and AV	Yes

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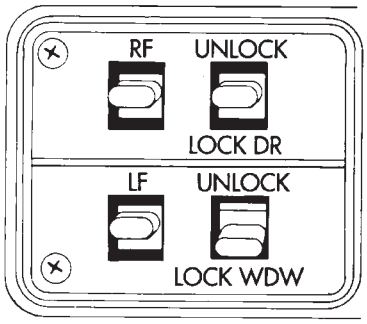
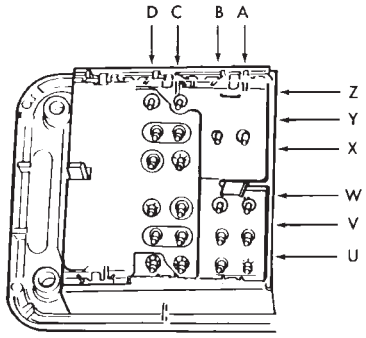
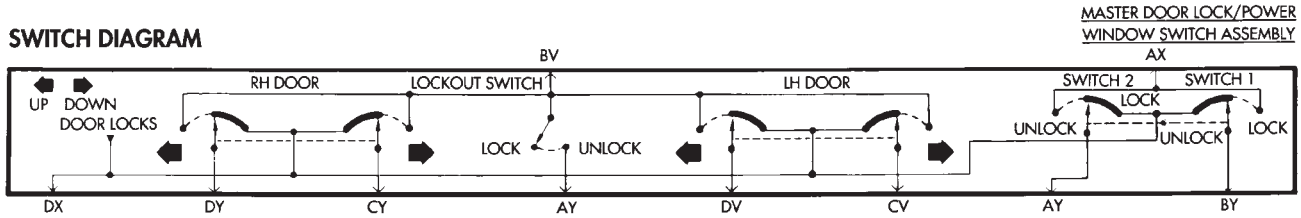
DRIVERS DOOR POWER LOCK SWITCH—2-DOOR RIGHT HAND DRIVE





SWITCH DIAGRAM



SWITCH TEST
Switch Grounds

SWITCH POSITION	TERMINALS	ZERO OHMS
Off (Normal)	DX and: AV, BV, CV DV, CY, DY	Yes
	BW and DX	No
	BY and DX	No

SWITCH TEST

SWITCH POSITION	TERMINALS	ZERO OHMS
Unlock	AX and AY	Yes
Lock	AX and BY	Yes

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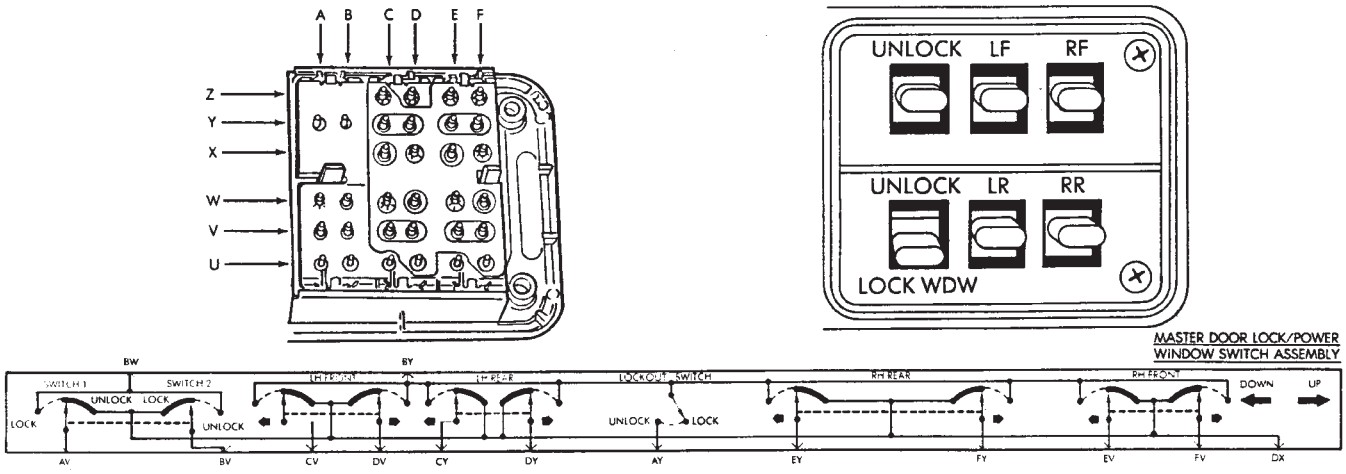
DRIVERS DOOR POWER LOCK SWITCH—4-DOOR



SWITCH TEST
Switch Grounds

SWITCH POSITION	TERMINALS	ZERO OHMS
Off (Normal)	DX and: AV, BV, CV, DV, CY, DY, EY, FY, EV, FV	Yes
	BW and DX	No
	BY and DX	No

SWITCH TEST

SWITCH POSITION	TERMINALS	ZERO OHMS
Unlock	BW and BV	Yes
Lock	BW and AV	Yes

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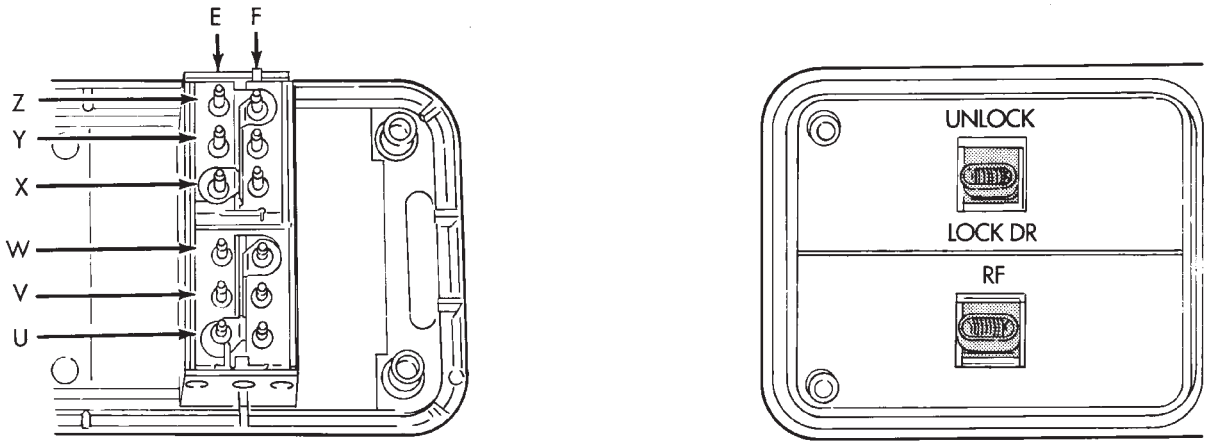
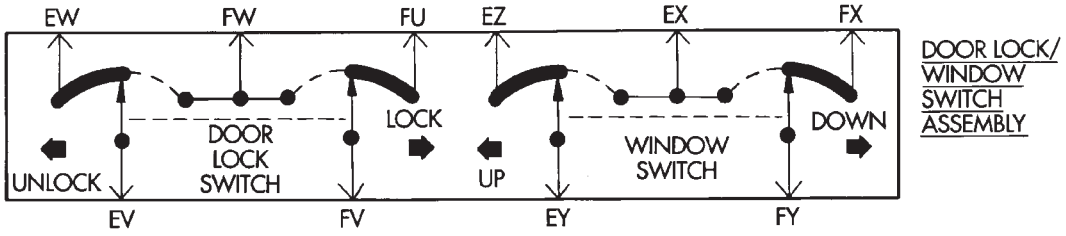
PASSENGER DOOR LOCK SWITCH



SWITCH DIAGRAM



SWITCH TEST
Lock Switch

SWITCH POSITION	TERMINALS	ZERO OHMS
Off (Normal)	EW and EV	Yes
	FU and FV	Yes
	All Others	No
Unlock	EW and EV	Yes
	FW and FV	Yes
	All Others	No
Lock	FU and FV	Yes
	FW and EV	Yes
	All Others	No

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ACTUATOR MOTOR STALL TEST

To test the actuator motor, connect 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 Solenoid and Latch Assembly Replacement procedures.

SWITCH REPLACEMENT

(1) Remove the interior door latch release assembly and control panel retaining screws (Fig. 2).

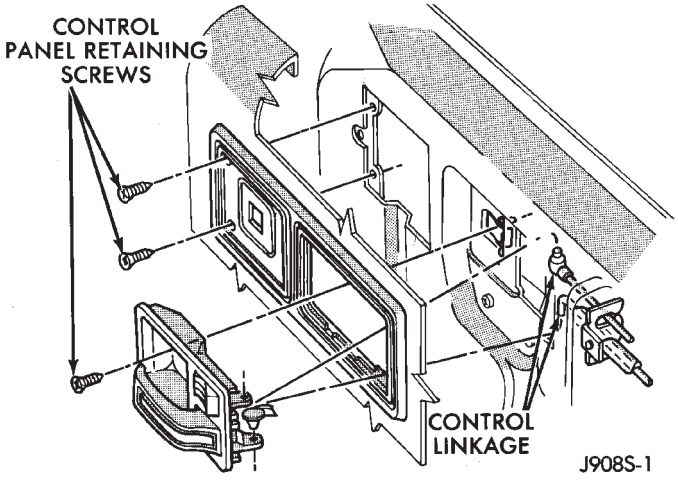

Fig. 2 Power Window/Lock Control Panel Removal/ Installation

(2) Disconnect the control linkage and the wire harness connector.

(3) Remove the latch release and control panel assembly.

(4) The switch is retained to the panel with clips (Fig. 3). Push in on the retainer part of the clip and pry the clips.

(5) To install switch, position switch and press in retainer clips until they snap into position.

SOLENOID AND LATCH ASSEMBLY REPLACEMENT

(1) Remove interior door latch release assembly and control panel retaining screws (Fig. 2).

(2) Disconnect control linkage and wire harness connector.

(3) Remove latch release and control panel assembly.

(4) Remove armrest lower retaining screws.

(5) Swing armrest downward to a vertical position. This is necessary to disconnect armrest from upper retainer clip (Fig. 4).

(6) Pull armrest straight out from trim panel.

(7) Remove trim panel with a wide flat blade tool (Fig. 5).

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

(8) Remove plastic water dam sheet.

(9) Remove latch retaining screws (Fig. 6).

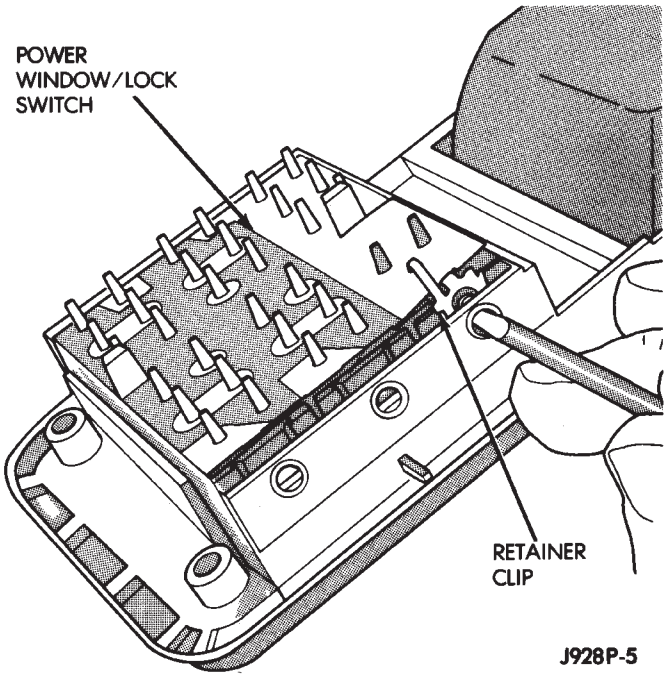

Fig. 3 Power Lock Switch Removal

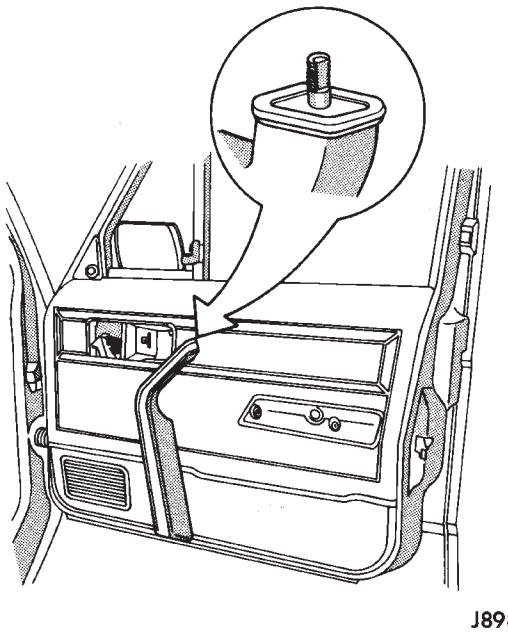

Fig. 4 Armrest Retainer Clip

(10) Grind out or drill out the lock solenoid rivets and remove solenoid with latch assembly and remote control rods (Fig. 7).

(11) Place lock solenoid, latch and remote control rods in door.

(12) Attach lock solenoid to door panel with pop rivets or nuts and screws.

(13) Attach latch. Tighten screws to 9 N·m (7 ft. lbs.) torque.

(14) Install door trim panel and plastic water dam sheet.

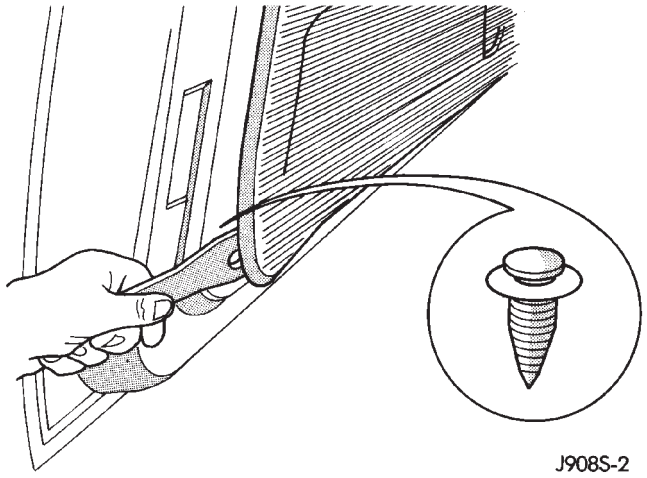

Fig. 5 Trim Panel Removal

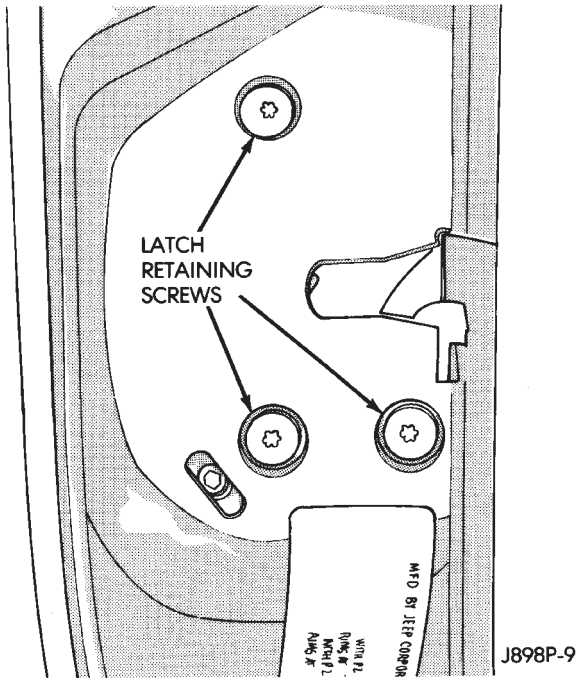

Fig. 6 Latch Removal/Installation

(15) Using an adhesive/sealant, install plastic water dam sheet.

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

(17) Install armrest.

(18) Install latch release assembly and control panel.

LIFTGATE LOCK CYLINDER REPLACEMENT

(1) Remove 2 screws at the top outside edges of the liftgate trim panel.

(2) Remove trim panel with a wide flat blade tool (Fig. 8).

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

(3) Disconnect lock actuator linkage clip (Fig. 9).

(4) Remove 3 latch retaining screws (Fig. 10).

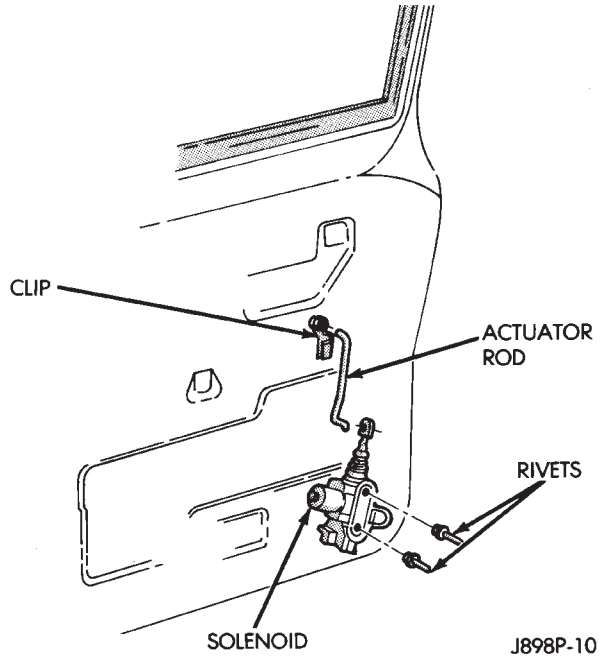

Fig. 7 Solenoid Removal/Installation

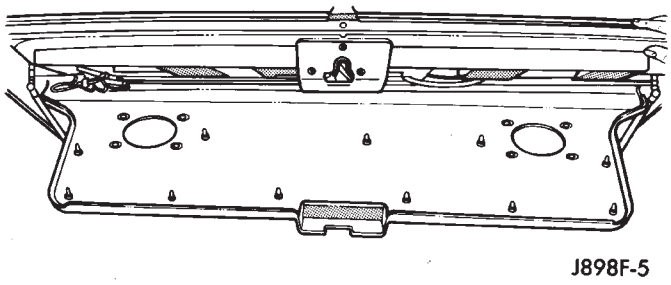

Fig. 8 Liftgate Trim Panel Removal

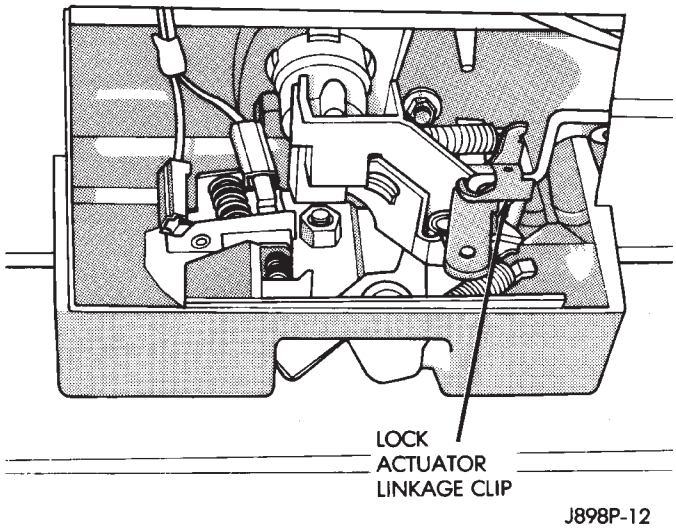

Fig. 9 Lock Actuator Linkage Clip

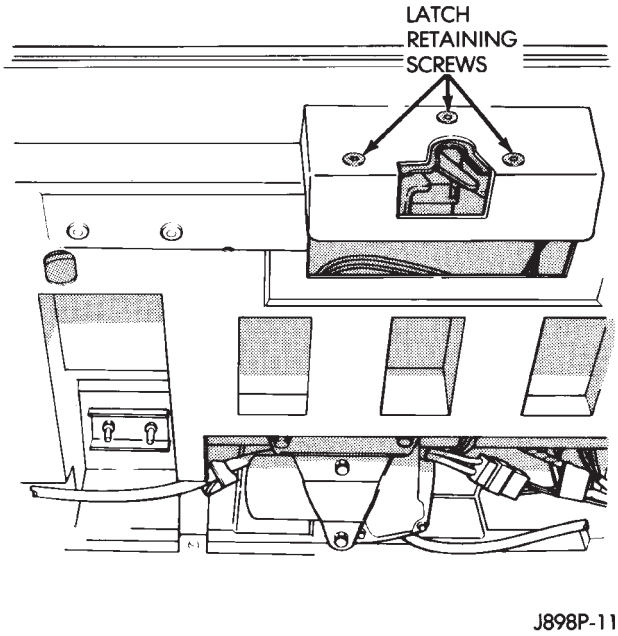

Fig. 10 Latch Assembly Removal/Installation

(5) Remove latch.
(6) Drill out 2 rivets and remove solenoid.
(7) To install solenoid, reverse the removal procedures.
(8) Tighten latch screws to 9 N·m (7 ft. 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 between the sun visors. 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 places 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 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 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

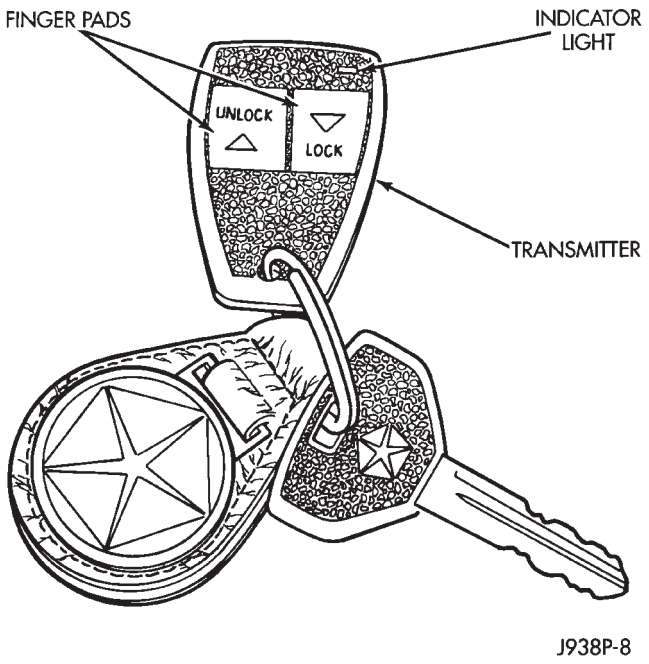


Fig. 1 Keyless Entry Transmitter

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 programed 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) Turn the ignition switch to the ON position.

(4) 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 switch 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 #9 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 1.

(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 1.

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 transmitter at middle seam (Fig. 2).

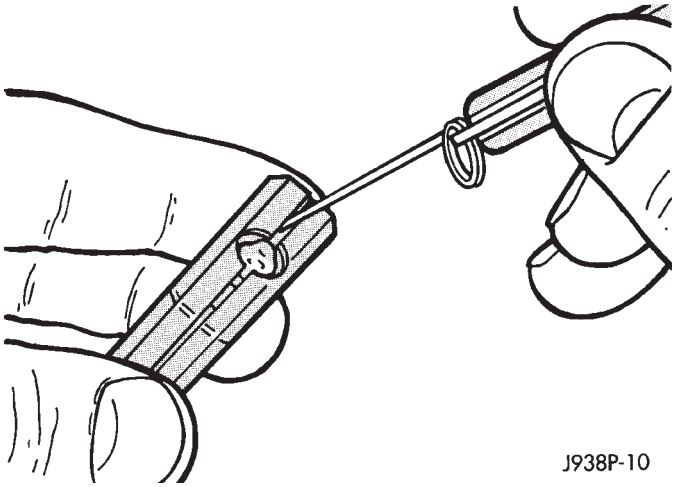
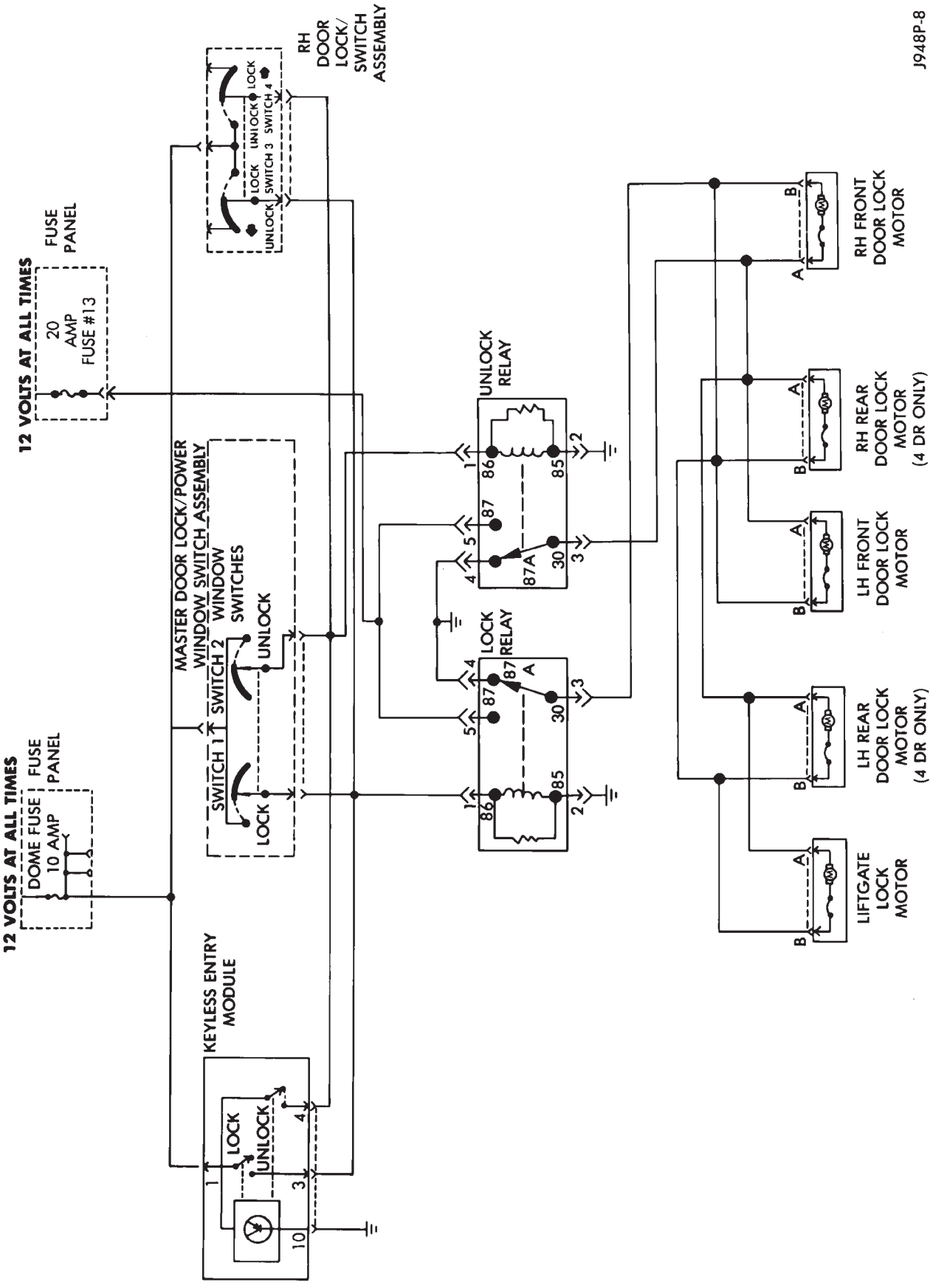


Fig. 2 Separate Transmitter Halves



POWER DOOR LOCKS

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

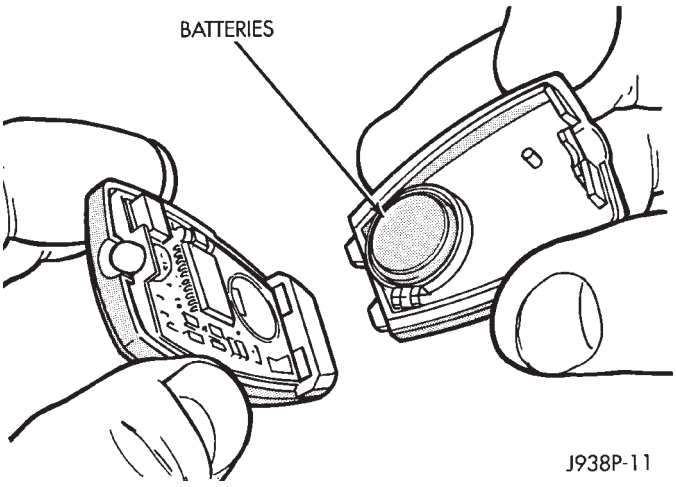


Fig. 3 Battery Removal

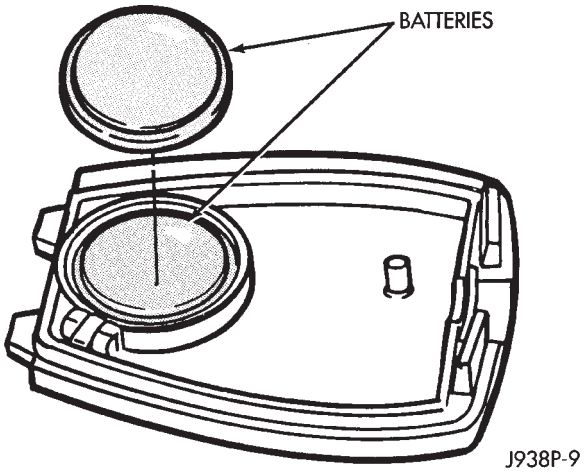


Fig. 4 Battery Installation

(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.

RECEIVER SERVICE

WITH OVERHEAD CONSOLE

(1) Remove screw forward of compass unit (Fig. 5).

(2) Flex housing outward while pressing upward to disengage housing from the rear bracket (arrow 1) (Fig. 5).

(3) Slide console rearward until the console detaches from the front mounting bracket (arrow 2) (Fig. 5).

(4) While pressing up on rear of console (arrow 1), slide console forward holding front away from headliner (arrow 2). Move console forward until the rear detaches from headliner and becomes free (Fig. 6).

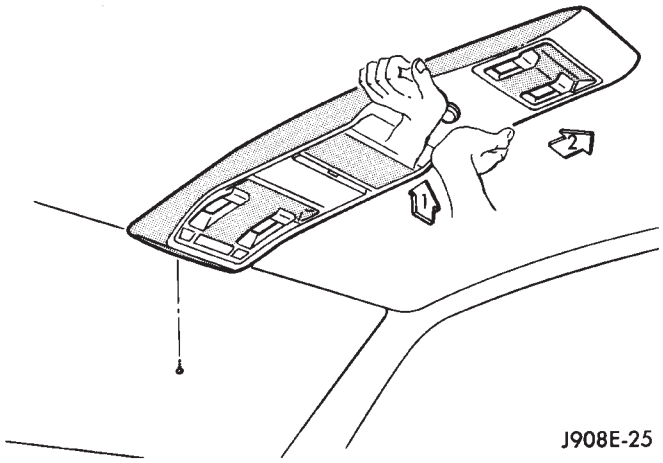


Fig. 5 Remove/Install Overhead Console

(5) Disconnect wire harnesses from keyless entry

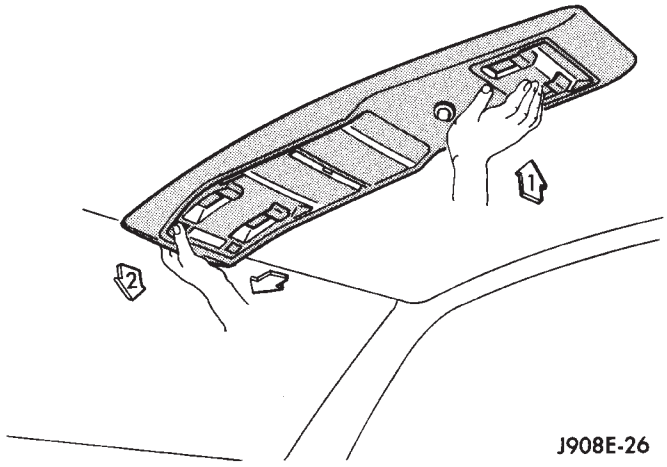


Fig. 6 Remove/Install Overhead Console

and compass (Figs. 7 and 8).

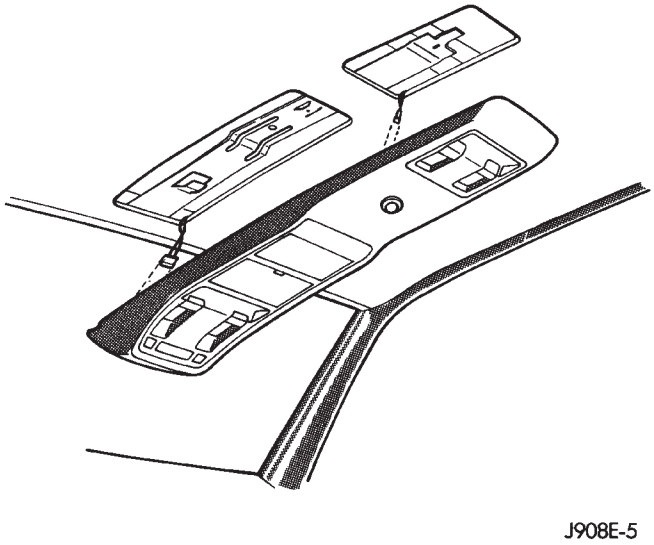


Fig. 7 Disconnect Wire Harnesses

(6) Pinch forward area of receiver cover and release clips. Slide cover out from under rib (Fig. 9).

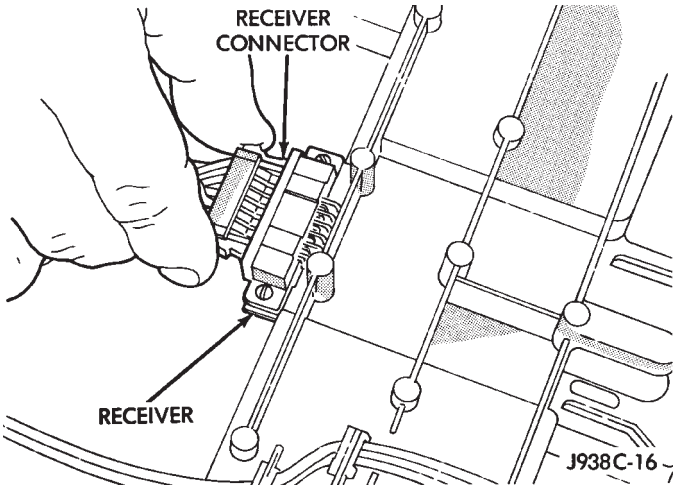


Fig. 8 Keyless Entry Harness Connector

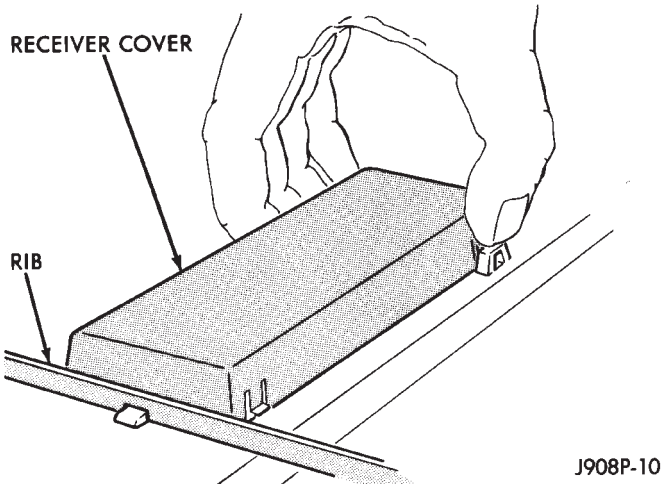


Fig. 9 Keyless Entry Receiver Cover Removal/ Installation

(7) Remove screw and printed circuit board.

(8) To install the overhead console, reverse the removal procedures. Be sure to flex housing outward near the keyless entry receiver until the console snaps onto the rear mounting bracket.

WITHOUT OVERHEAD CONSOLE

(1) Remove 2 screws attaching receiver housing to headlining (Fig. 10).

(2) Pull housing toward rear of vehicle to disengage clip.

(3) Disconnect receiver harness connector.

(4) Remove circuit board from housing.

(5) Reverse the removal procedures to install the receiver.

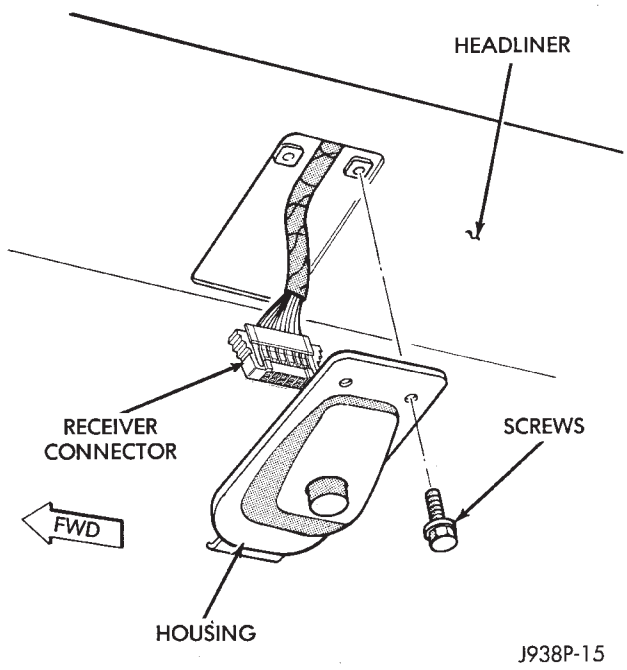


Fig. 10 Remove/Install Keyless Entry Housing

DOOR LOCK/UNLOCK RELAY REPLACEMENT

The power door lock/unlock relays are in the relay center. The relay center is located on the lower instrument panel trim cover just right of the steering column (Fig. 11). Remove both relays.

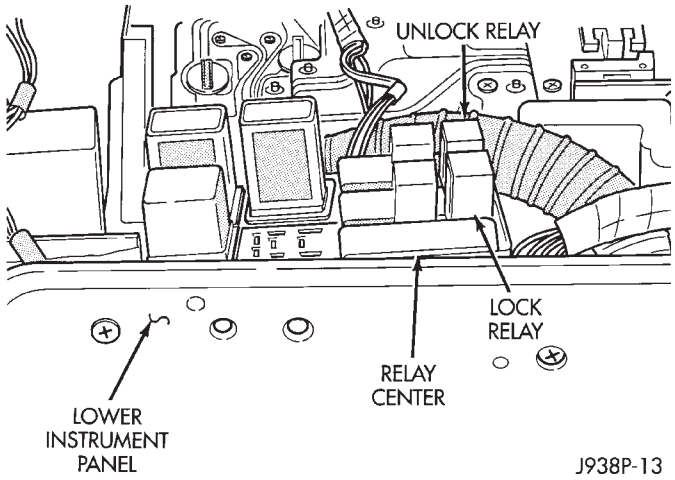


Fig. 11 Door Lock/Unlock Relays

(1) Remove the appropriate relay from the relay center.

(2) To install the new relay(s) reverse the removal procedure.