LAMPS

CONTENTS

EXTERIOR LAMPS

INDEX

SERVICE INFORMATION

Exterior lamp circuits are comprised of the headlamp circuit, fog lamp circuit, and tail/side marker/park lamp circuit. Battery voltage is controlled by both the headlamp ON/OFF switch and headlamp dimmer switch.

The dimmer switch functions as a fog lamp switch. Voltage is applied to the fog lamp switch only when the dimmer switch is in the low beam position.

HEADLAMP TROUBLE DIAGNOSIS—XJ VEHICLES

LOW AND HIGH BEAM INOPERATIVE BOTH HEADLAMPS

(1) Place the headlamp switch in the ON position.

(2) Test the 40 amp fuse for continuity. If bad, replace fuse.

(3) Insert the test probe into terminal 5 of the front lamp wire harness connector. Measure the resistance from terminal 5 to body ground. The ohmmeter should indicate zero ohms. If not OK, repair the open circuit in the harness to body ground.

(4) Disconnect the front lamp wire connector. Measure resistance between connector terminals 5 and 2. Next measure between terminal 5 and 7. The ohmmeter should indicate zero ohms for both measurements. If not OK, replace the headlamp bulbs.

(5) Measure the voltage between the dimmer switch wire connector terminal 2 and body ground. The voltmeter should indicate battery voltage. If not OK, continue with the next step.

The dimmer switch is integral with the turn signal and is located on the steering column. The dimmer switch switches the headlamp beam when the turn signal lever is pulled rearward.

(6) Disconnect the dimmer switch wire connector and place the headlamp switch in the OFF position. Measure the resistance from terminal 2 to vehicle body ground. The ohmmeter should indicate infinite resistance. If OK, replace the headlamp switch and continue with the next step. If not OK, repair the short circuit in the wire harness that leads to terminal 2.

(7) Measure the resistance from the dimmer switch wire harness connector terminal 1 to vehicle body ground. The ohmmeter should indicate zero ohms. If OK, continue with the next step. If not OK, repair the short circuit in the wire harness that leads to terminal 1.

(8) Measure the resistance from the dimmer switch wire harness connector terminal 3 to vehicle body ground. The ohmmeter should indicate zero ohms. If OK, test the dimmer switch. Replace, if defective. Connect the wire harness connector to the dimmer switch. If not defective, repair the short circuit in the wire harness that leads to terminal 3.

LOW OR HIGH BEAM INOPERATIVE BOTH HEADLAMPS

(1) Place the headlamp switch in the OFF position. Disconnect the dimmer switch wire harness connector.

(2) Measure the resistance from the dimmer switch connector terminal 1 to body ground. The ohmmeter should indicate zero ohms. If not OK, repair the open circuit in the wire harness that leads to the headlamp bulbs.

(3) Measure the resistance from the dimmer switch connector terminal 3 to vehicle body ground. The ohmmeter should indicate zero ohms. If OK, replace the dimmer switch. If not OK, repair the open circuit in the wire harness that leads to headlamp bulbs.

HEADLAMP TROUBLE DIAGNOSIS—YJ VEHICLES

(1) Place the headlamp switch in the ON position.

(2) Place the headlamp dimmer switch in the HIGH or LOW position.

(3) Disconnect the wire harness connectors from the headlamp bulbs.

(4) If applicable, measure voltage between each headlamp bulb wire connector terminal B and vehicle body ground. The voltmeter should indicate battery voltage. If not OK, repair the open circuit in wire harness between connector and dimmer switch.

(5) If applicable, measure the voltage between each headlamp bulb connector terminal C and body ground. The voltmeter should indicate battery voltage. If not OK, repair the open circuit in the wire harness between the connector and the dimmer switch.

(6) Measure the resistance from each headlamp bulb connector terminal A to body ground. The ohmmeter should indicate zero ohms. If not OK, repair the open circuit in the wire harness between the connectors and vehicle body ground.

SWITCH TESTS

HEADLAMP—ALL VEHICLES

(1) Refer to the applicable wiring diagram for terminal reference.

(2) Place the headlamp switch in the ON position.

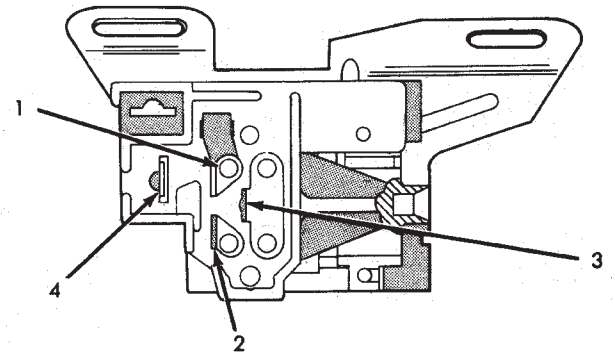
(3) Measure the voltage between the headlamp switch connector voltage supply terminal and vehicle body ground. The voltmeter should indicate battery voltage. If not OK, repair the open circuit in the wire harness between the fuse and the switch connector terminal.

(4) Measure the voltage between the headlamp switch connector battery voltage OUT terminal and vehicle body ground. The voltmeter should indicate battery voltage. If not OK, replace the headlamp switch.

DIMMER SWITCH—ALL VEHICLES

(1) Place the headlamp switch in the ON position. Place the dimmer switch in the HIGH or LOW beam position, as applicable.

(2) Measure the voltage between the dimmer switch connector voltage supply terminal and vehicle body ground. The voltmeter should indicate battery voltage. If not OK, repair the open circuit in the wire harness between the headlamp switch and the dimmer switch.



1. HIGH BEAM
2. LOW BEAM
3. HEAD LAMP FEED (FROM LAMP SWITCH)
4. FEED FROM HEADLAMP SWITCH FOR FLASH TO PASS

J898L-70

Fig. 1 Headlamp Dimmer Switch Terminals

(3) Place the dimmer switch in the LOW beam position. Measure the voltage between the dimmer switch connector low beam voltage OUT terminal and body ground. The voltmeter should indicate battery voltage. If not OK, replace the dimmer switch.

(4) Place the dimmer switch in the HIGH beam position. Measure the voltage between the dimmer switch connector high beam voltage OUT terminal and body ground. Voltmeter should indicate battery voltage. If not OK, replace dimmer switch.

HEADLAMP BULB REPLACEMENT

REMOVAL

(1) Remove the screws and the headlamp bezel (Figs. 2 and 3).

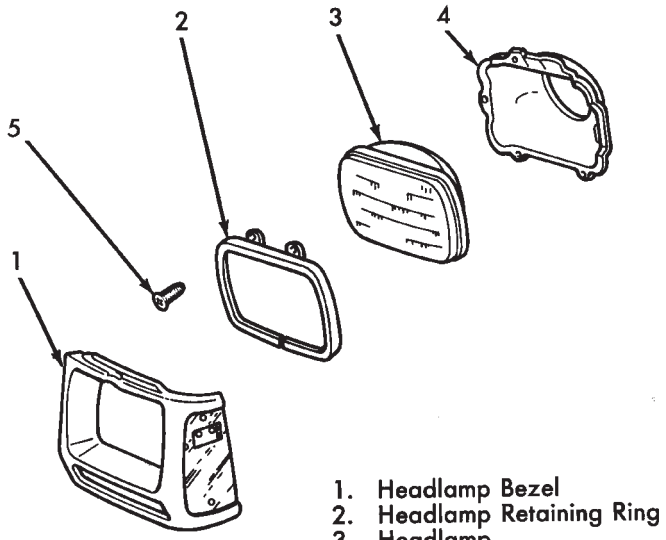


Fig. 2 Headlamp Components—XJ Vehicles

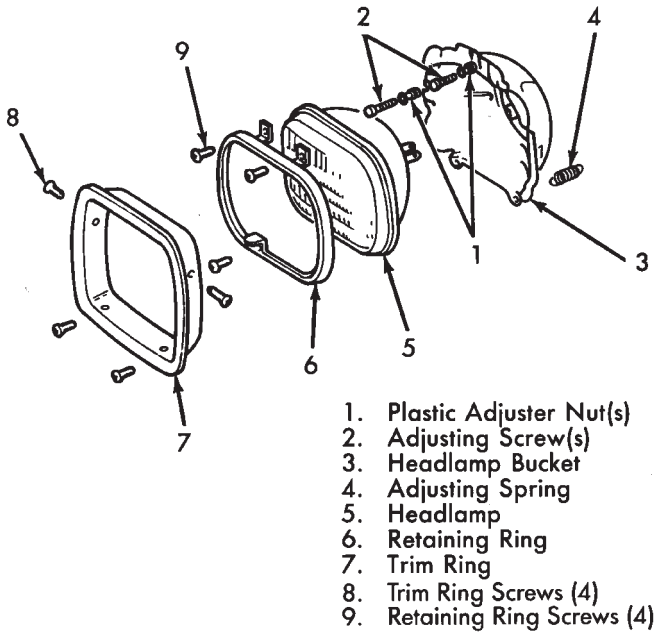


Fig. 3 Headlamp Components—YJ Vehicles

(2) Remove the screws and headlamp bulb retaining ring.

(3) Disconnect the headlamp bulb wire harness connector and remove the bulb from the bucket.

INSTALLATION

(1) Position the bulb in the bucket and connect the wire harness connector.

(2) Position retaining ring on the headlamp bulb and install screws.

(3) Install the headlamp bezel. Tighten the screws securely.

HEADLAMP BEAM ADJUSTMENT

SERVICE INFORMATION

The following headlamp beam adjustment procedures apply to all Jeep® vehicles. The headlamp beam must be adjusted with the headlamps on LOW beam. The headlamp beam can be adjusted either with the use of mechanical headlamp aimers or by the use of an aiming screen (Fig. 4).

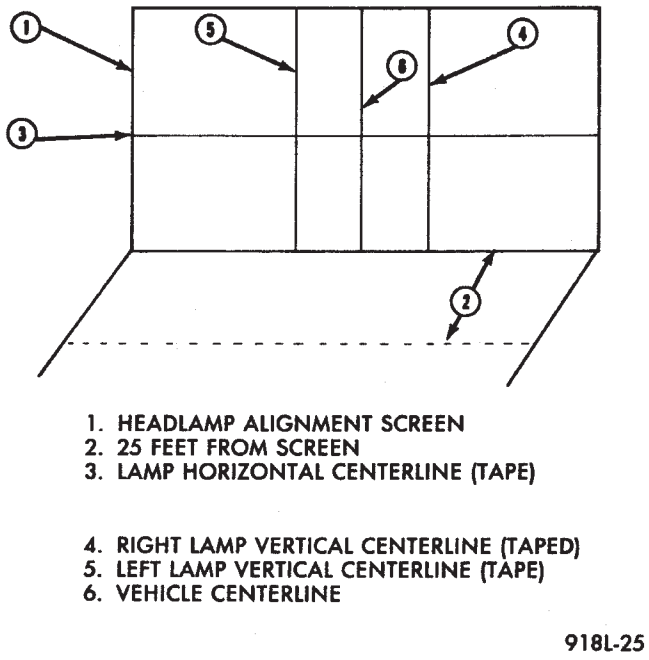


Fig. 4 Headlamp "Aiming" Screen

ADJUSTMENT WITH MECHANICAL AIMERS

Use Headlamp Aimer C-4466-A (J25300-A) and follow instructions supplied with equipment.

Adjust headlamps so that the beam horizontal position is at 0 and beam vertical position is 25 mm (1 in) downward.

ADJUSTMENT WITH AIMING SCREEN

PREPARATION

When an aiming screen is to be used for headlamp aim adjustment, use following procedure.

(1) Position the vehicle in dark area with a level floor and with a screen (wall) that has a white surface.

(2) Refer to Figure 4. Mark a reference line (2) on the floor 7.62 meters (25 feet) away from and parallel to the screen/wall (1).

(3) Move vehicle with the headlamps located directly above the 7.62-meters (25-feet) reference line.

(4) Equalize all the tire pressures.

(5) Rock vehicle from side to side to stabilize the springs and shock absorbers.

(6) Use tape to attach a vehicle centerline on the screen/wall (6). Ensure that it is aligned with and represents the centerline of the vehicle.

(7) Measure distance between the vehicle headlamp centers. Divide this distance by two. Measure the one/half distance outward from each side of the vehicle centerline (6). Use tape to attach the right and left lamp vertical centerline (4 and 5) on the screen/wall (6).

(8) Measure the distance from the center of each headlamp to the floor.

(9) Measure the lamp-to-floor distance upward from the floor at each lamp vertical centerline (4 and 5). Use tape to attach the lamp horizontal centerline (3) on the screen/wall.

ADJUSTMENT

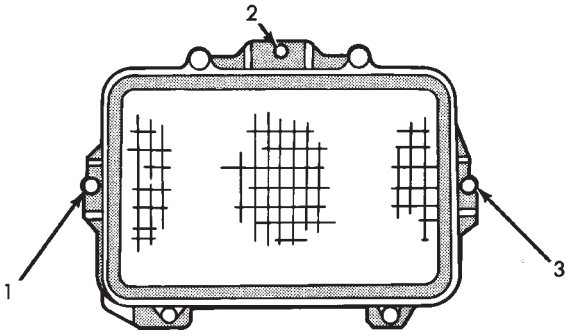
(1) Remove screws and both headlamp bezels.

(2) Clean front of the headlamps.

(3) Place headlamps on LOW beam.

(4) Cover front of the headlamp that is not being adjusted.

(5) Turn vertical adjustment screw until the headlamp beam pattern on screen/wall is similar to the pattern depicted in Figure 6.



1. HORIZONTAL ADJ. SCREW - RH
2. VERTICAL ADJ. SCREW
3. HORIZONTAL ADJ. SCREW - LH

J908L-24

Fig. 5 Headlamp Beam Adjustment Screws—XJ/YJ Vehicles

When using a headlamp aiming screen:

- adjust the headlamps so that the beam horizontal position is at 0; and
- adjust the beam vertical position is 25 mm (1 in) downward from the lamp horizontal centerline.

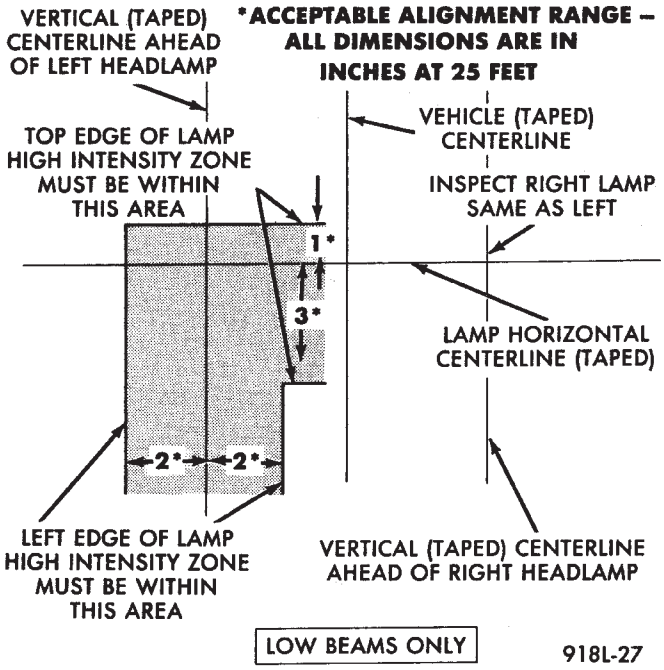


Fig. 6 Headlamp Beam Pattern—Typical

(6) Rotate the horizontal adjustment screw until the headlamp beam pattern on the aiming screen/wall similar to the pattern in Figure 6.

(7) Cover front of the headlamp that has been adjusted and adjust the other headlamp beam as instructed above.

(8) Install headlamp bezels. Tighten the screws securely.

HEADLAMP SWITCH REPLACEMENT

REMOVAL—XJ VEHICLES

(1) Disconnect battery negative cable.

(2) Place headlamp switch control knob in the headlamp ON position.

(3) Depress the switch shaft release/retainer button via the underside of the instrument panel. Pull the switch control shaft knob outward.

(4) Remove the headlamp switch spanner nut from the front of the instrument panel (Fig. 8).

(5) Disconnect the wire harness connector from the switch.

(6) Remove the headlamp switch from the instrument panel.

INSTALLATION—XJ VEHICLES

(1) Install the headlamp switch in the instrument panel and connect the wire harness connector.

(2) Install the headlamp switch spanner nut.

(3) Insert the headlamp switch control shaft in the spanner nut and force it into the switch.

(4) Connect the battery negative cable.

REMOVAL—YJ VEHICLES

(1) Disconnect the battery negative cable.

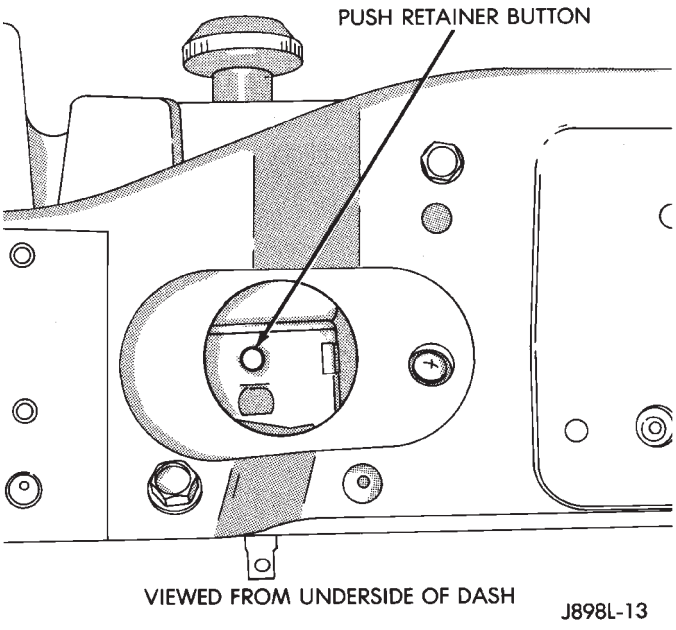


Fig. 7 Headlamp Switch Shaft Removal—XJ Vehicles

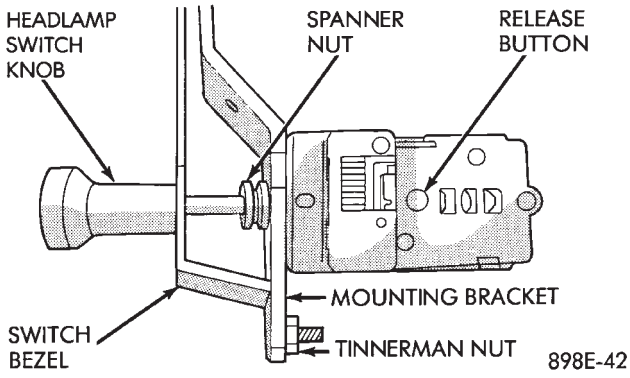


Fig. 8 Headlamp Switch—Typical

(2) Remove the I/P shroud retaining screws (Fig. 9).

(3) Move the I/P shroud toward the steering wheel.

(4) Apply upward force to the I/P shroud and downward force to the indicator panel. This will release the indicator panel holding tabs (Fig. 10).

(5) Remove the shroud from the instrument panel.

(6) Remove the headlamp switch retaining screws (Fig. 11).

(7) Disconnect the headlamp switch wire harness connector.

(8) Remove the headlamp switch from the instrument panel cavity.

INSTALLATION—YJ VEHICLES

(1) Position headlamp switch in the instrument panel and connect the wire harness connector to the switch.

(2) Install the headlamp switch screws. Tighten the screws.

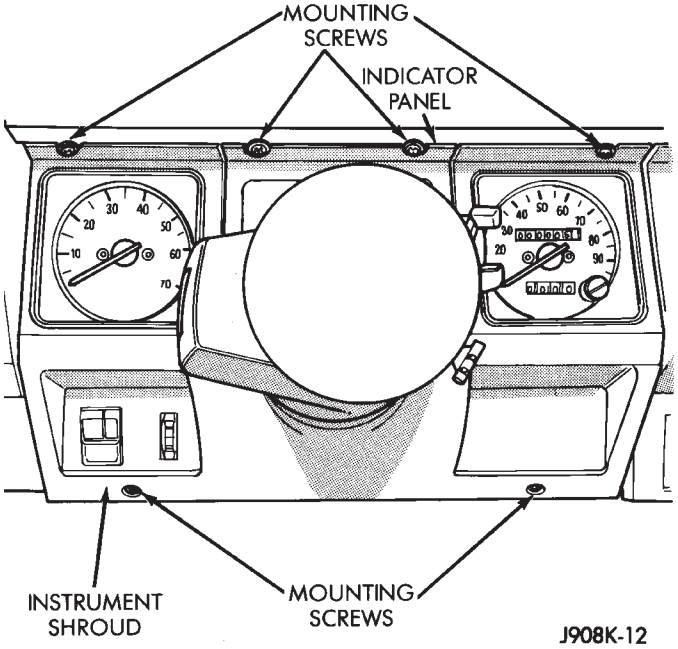


Fig. 9 Instrument Panel Shroud—YJ Vehicles

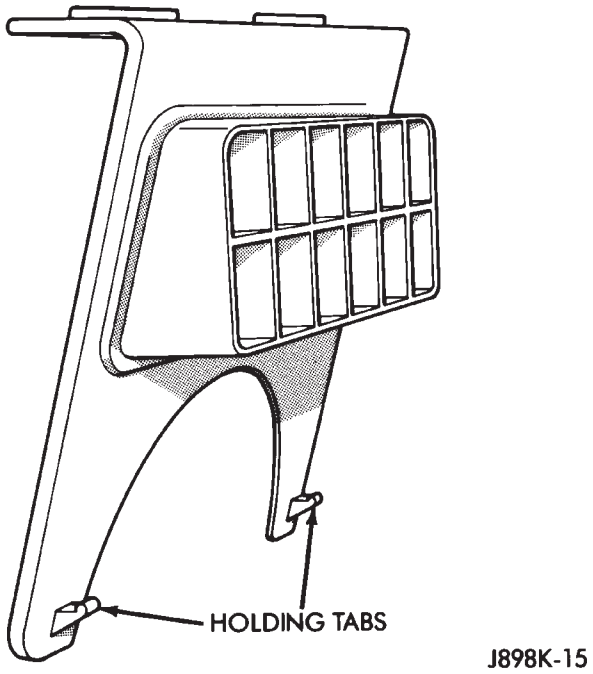


Fig. 10 Indicator Panel Holding Tabs—YJ Vehicles

(3) Position the I/P shroud under the steering column.

(4) Slide the indicator panel holding tabs into the shroud notches.

(5) Place the assembled I/P shroud over the indicator lamp gasket.

(6) Install and tighten the indicator panel screws.

(7) Install the remaining shroud screws. Tighten the screws.

(8) Connect the battery negative cable.

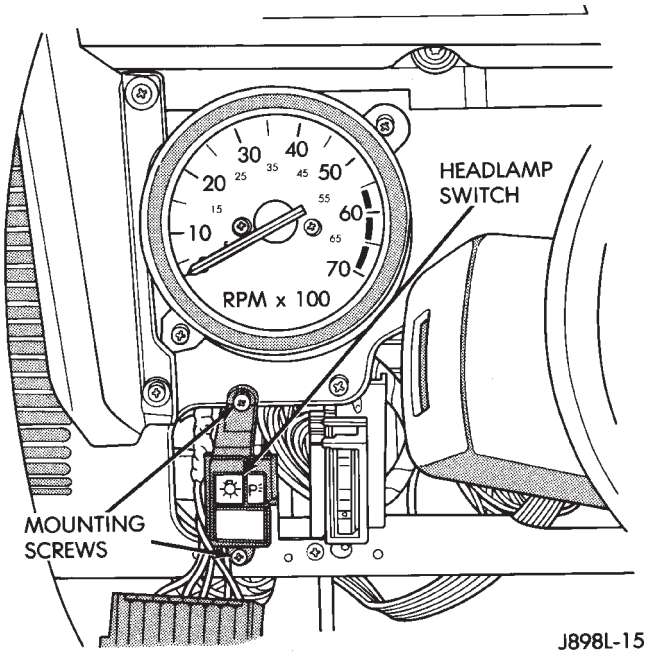


Fig. 11 Headlamp Switch—YJ Vehicles

HEADLAMP DIMMER SWITCH REPLACEMENT

REMOVAL

(1) Disconnect battery negative cable.

(2) Remove the lower instrument panel (Fig. 12) and continue with step 4.

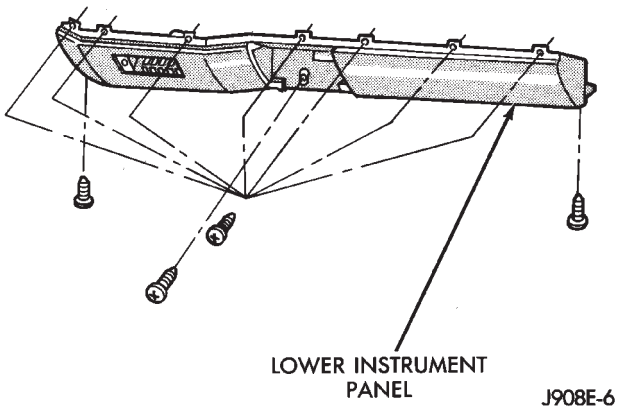


Fig. 12 Lower Instrument Panel—XJ Vehicles

(3) **YJ vehicles:**

- remove the I/P shroud retaining screws (Fig. 13).
- move the I/P shroud toward the steering wheel;
- apply upward force to the I/P shroud and downward force to the indicator panel — this will release the indicator panel holding tabs (Fig. 14);
- remove the shroud from the instrument panel;
- support the A/C evaporator housing;
- remove the A/C evaporator housing-to-instrument panel screws (Fig. 15);

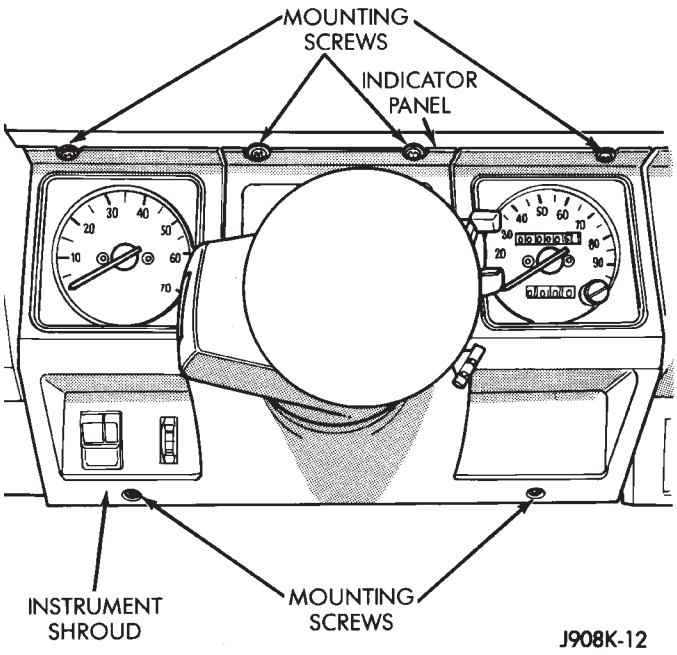


Fig. 13 Instrument Panel Shroud—YJ Vehicles

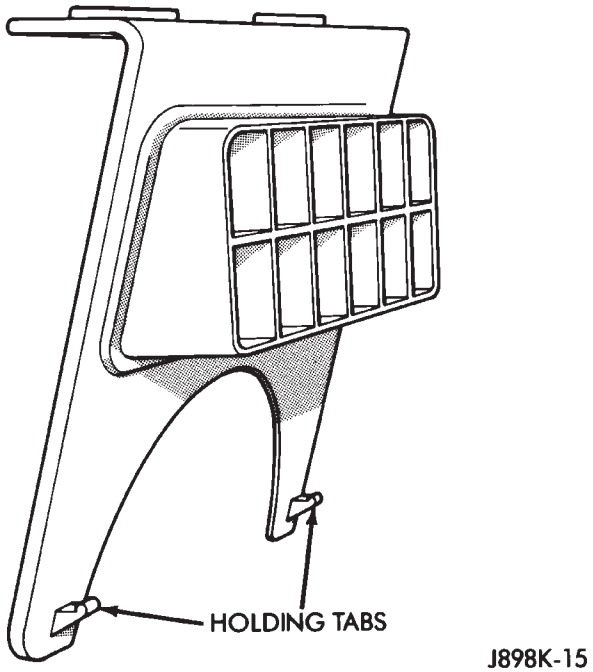


Fig. 14 Indicator Panel Holding Tabs—YJ Vehicles

- remove the A/C evaporator housing support bracket screw;
- remove the support and lower the A/C evaporator housing; and
- continue with step 4.

(4) Disconnect the dimmer switch wire harness connector.

(5) Tape the dimmer switch actuator rod to the steering column.

(6) Remove the dimmer switch screws and detach the switch from the rod.

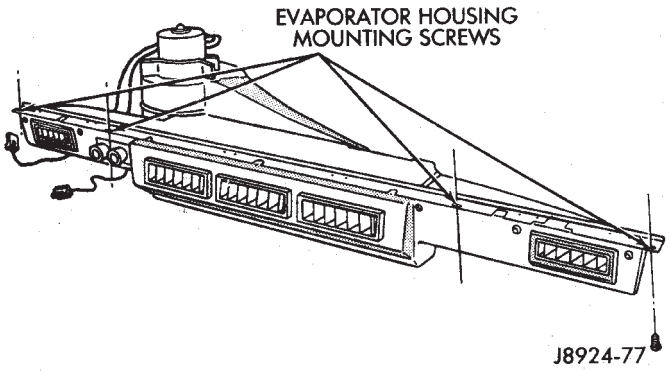


Fig. 15 A/C Evaporator Housing—YJ Vehicles

INSTALLATION

(1) Force the dimmer switch onto the actuator rod and install screws. **DO NOT tighten the retaining screws at this time.**

(2) Remove the tape attaching the actuator rod to the steering column.

(3) Adjust the dimmer switch as follows:

- compress the switch and insert a 3/32-inch diameter drill bit into the adjustment hole (Fig. 16);
- the drill bit will prevent any horizontal movement of the switch;

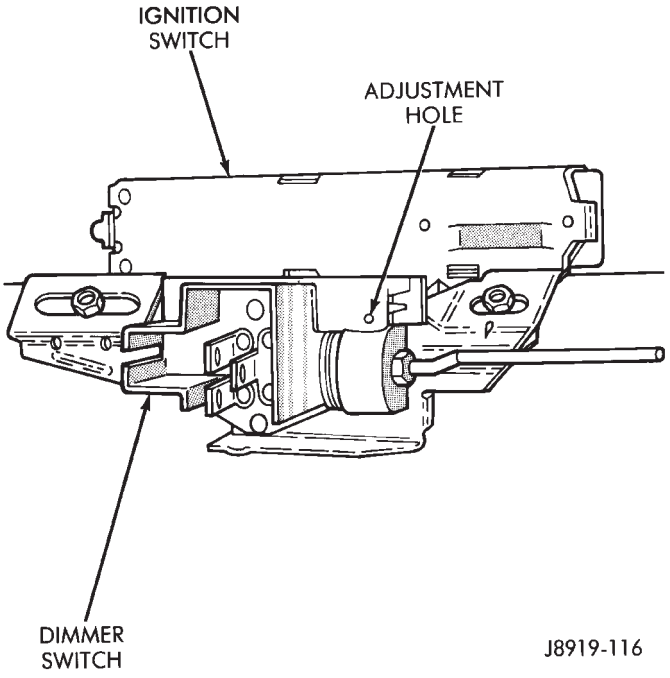


Fig. 16 Headlamp Dimmer Switch Adjustment

- move the switch toward the steering wheel to remove any existing actuator rod lash;
- tighten screws with 4 N·m (35 in. lbs.) torque.
- connect battery negative cable;
- remove drill bit and test the switch operation; and
- re-adjust the switch, if necessary.

(4) **XJ vehicles** — install the lower instrument panel (Fig. 12)

(5) **YJ vehicles:**

- position the I/P shroud under the steering column;
- slide the indicator panel holding tabs (Fig. 14) into the shroud notches;
- place the assembled I/P shroud over the indicator lamp gasket;
- install and tighten screws;
- install and tighten remaining shroud screws;
- raise and support the A/C evaporator housing (Fig. 15); and
- install the evaporator housing-to-instrument panel screws and evaporator support bracket screw.

SIDE MARKER LAMP BULB REPLACEMENT

REMOVAL—XJ VEHICLES

(1) Remove the screws from the side marker lamp lens and housing. Separate lens and housing from the headlamp bezel (Fig. 17).

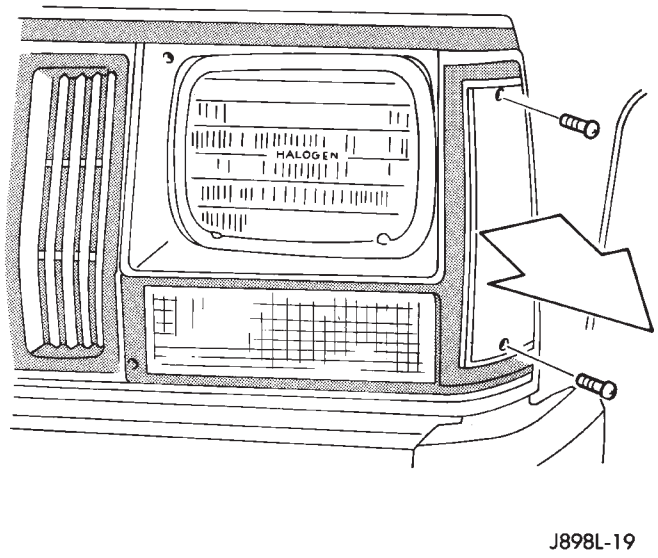


Fig. 17 Side Marker Lamp—XJ Vehicles

(2) Remove the bulb and socket from the back side of the lamp housing.

(3) Remove bulb from socket.

INSTALLATION—XJ VEHICLES

(1) Install a replacement bulb in the socket.

(2) Install bulb and socket in the back of side marker lamp housing.

(3) Position the side marker lens and housing on the headlamp bezel (Fig. 17).

(4) Install the side marker lamp screws. Tighten the screws.

REMOVAL—YJ VEHICLES

(1) Remove side marker bulb socket via the underside of the fender. Rotate it one-third turn and separate it from the side marker lamp housing (Fig. 18).

(2) Remove the bulb from the socket by pulling it straight outward.

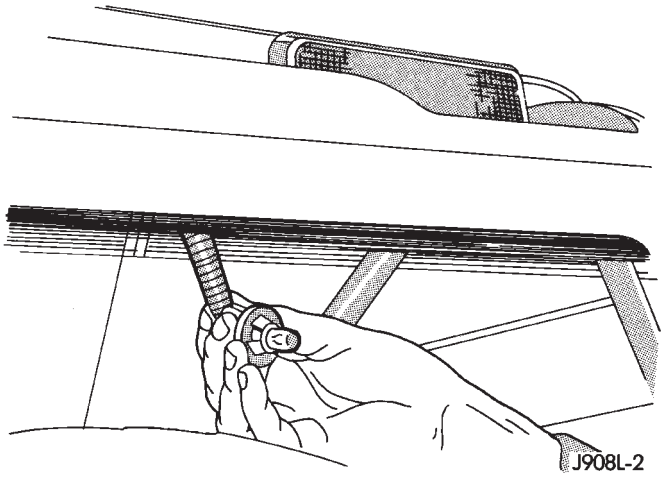


Fig. 18 Side Marker Lamp Bulb—YJ Vehicles

INSTALLATION—YJ VEHICLES

(1) Install a replacement bulb in the socket.

(2) Install the bulb and socket in the side marker lamp housing (Fig. 18).

FRONT PARK/TURN SIGNAL LAMP BULB REPLACEMENT

REMOVAL—XJ VEHICLES

(1) Remove the headlamp bezel screw and the side marker lamp lens/housing screw (Fig. 19).

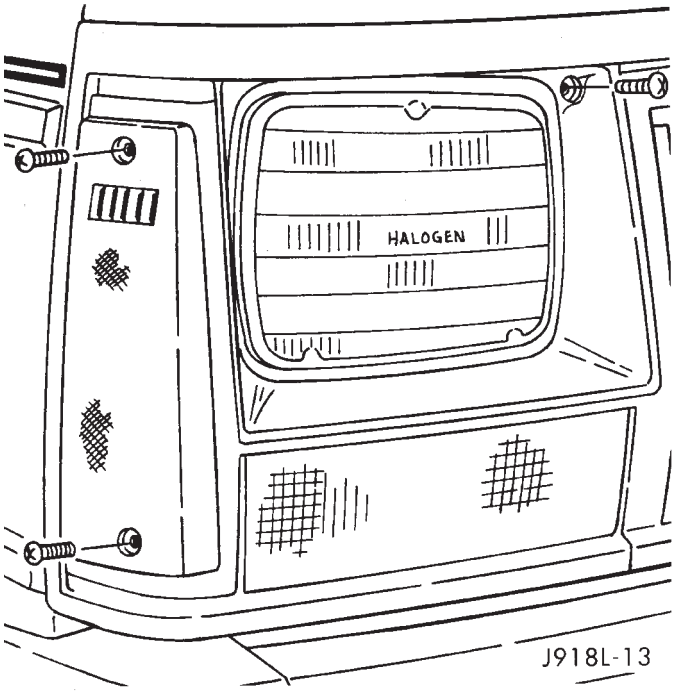


Fig. 19 Headlamp Bezel & Side Marker Lamp—XJ Vehicles

(2) Separate the side marker lamp from the headlamp bezel and remove the screws from the headlamp bezel (Fig. 20).

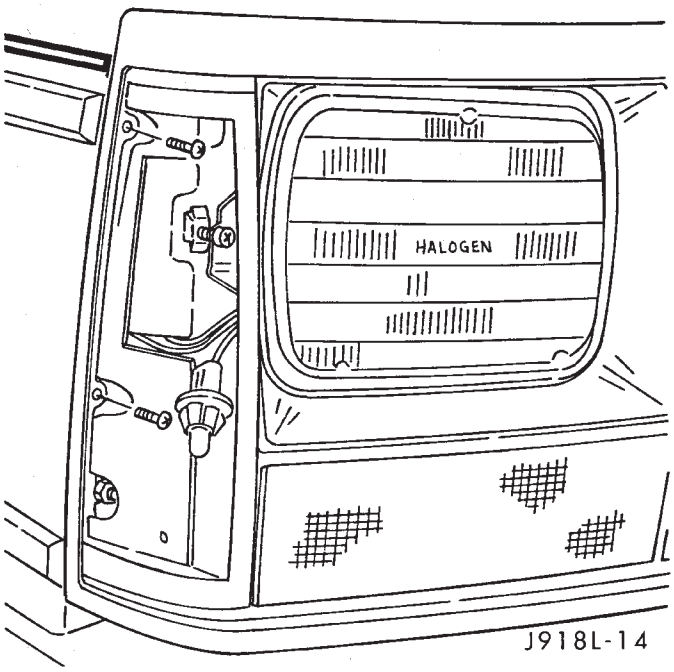


Fig. 20 Headlamp Bezel Removal/Installation

(3) Remove screws from the park/turn signal lamp housing (Fig. 21).

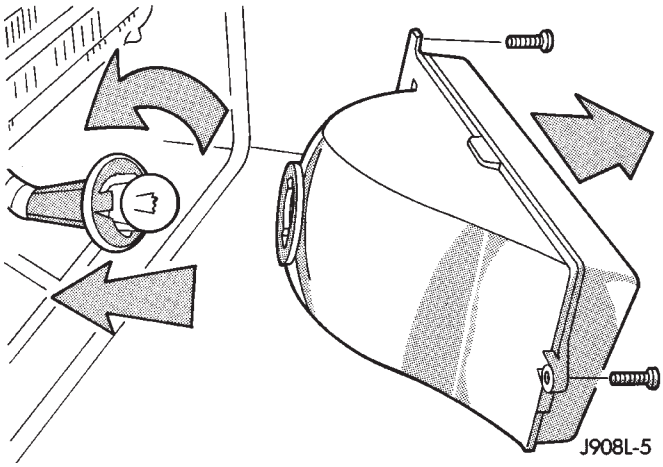


Fig. 21 Park/Turn Signal Lamp Housing Removal

(4) Separate the lamp housing from the headlamp bezel.

(5) Rotate the bulb socket one-third turn and remove it from the lamp housing.

(6) Remove bulb from socket.

INSTALLATION—XJ VEHICLES

(1) Install a replacement bulb in the socket.

(2) Install bulb and socket in the lamp housing.

(3) Position the park/turn signal lamp housing on the headlamp bezel.

(4) Install lamp housing screws. Tighten the screws.

(5) Install the outer screws in the headlamp bezel. Tighten the screws.

(6) Position the side marker lamp lens/housing on the headlamp bezel.

(7) Install side marker lamp lens/housing screws and headlamp bezel (Fig. 19). Tighten the screws.

REMOVAL—YJ VEHICLES

(1) Remove the park/turn signal lamp housing screws (Fig. 22).

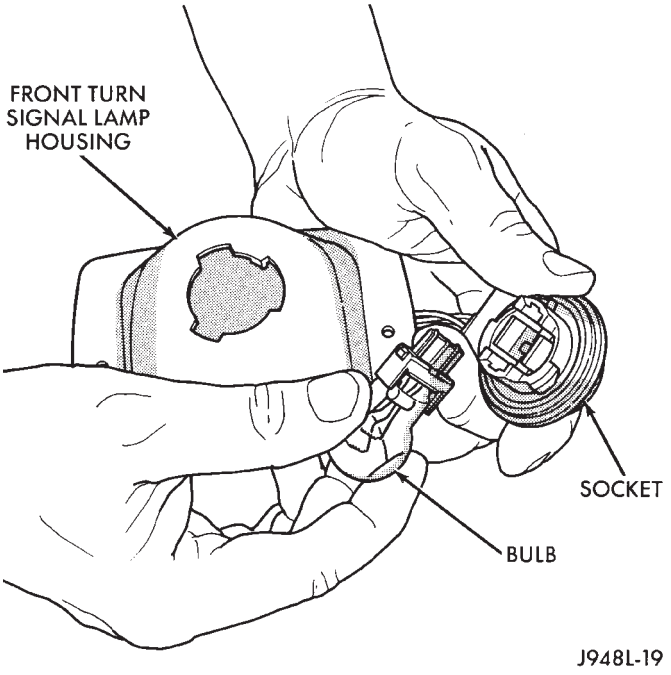


Fig. 22 Park/Turn Signal Lamp Bulb Replacement—YJ Vehicles

(2) Separate the park/turn signal lamp housing from the grille panel.

(4) Turn the bulb socket and remove it from the lamp housing.

(3) Pull the bulb straight out of the socket.

INSTALLATION—YJ VEHICLES

(1) Install a replacement bulb in the socket.

(2) Install the bulb and socket in the lamp housing.

(3) Position the park/turn signal lamp housing at the opening in the grille panel.

(4) Install the lamp housing retaining screws. Tighten the screws securely.

BACK-UP/REAR TURN SIGNAL/TAIL LAMP BULB REPLACEMENT

REMOVAL—XJ VEHICLES

(1) Remove the tail lamp housing upper retaining screws. Slide the lamp housing upward off the lower screw and separate it from the rear of the vehicle.

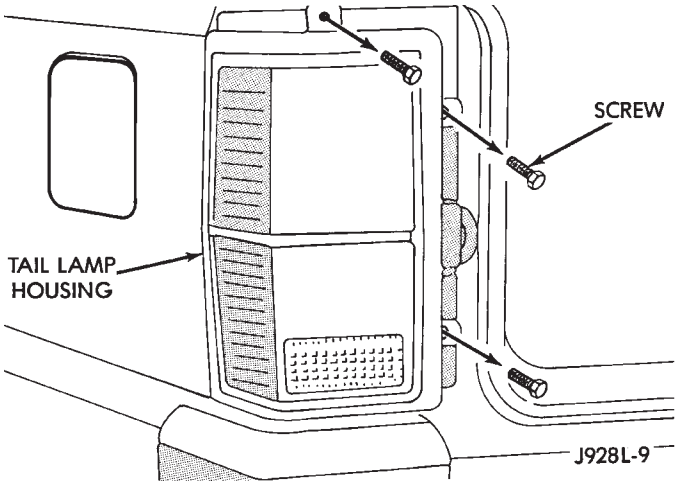


Fig. 23 Tail Lamp Housing—XJ Vehicles

(2) Rotate the bulb socket one-third turn and remove the bulb socket from the lamp housing.

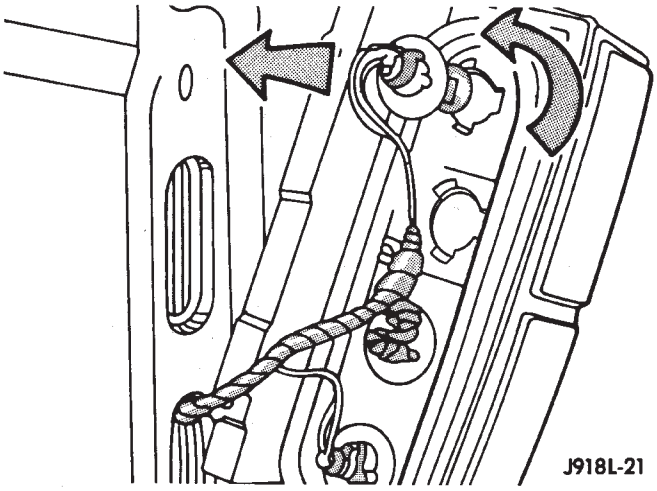


Fig. 24 Bulb Socket Removal—XJ Vehicles

(3) Remove the bulb from the socket.

INSTALLATION—XJ VEHICLES

(1) Install a replacement bulb in the socket.

(2) Install the bulb and socket in the lamp housing.

(3) Position the lamp housing in the opening at the rear of the vehicle.

(4) Install the lamp housing screws. Tighten the screws securely.

REMOVAL—YJ VEHICLES

(1) Remove the lens retaining screws from the tail lamp housing (Fig. 25).

(2) Separate the lens from the tail lamp housing.

(3) Remove the bulb from the lamp socket.

INSTALLATION—YJ VEHICLES

(1) Install a replacement bulb in the lamp socket.

(2) Position the lens on the lamp housing.

(3) Install the lens retaining screws. Tighten the screws securely.

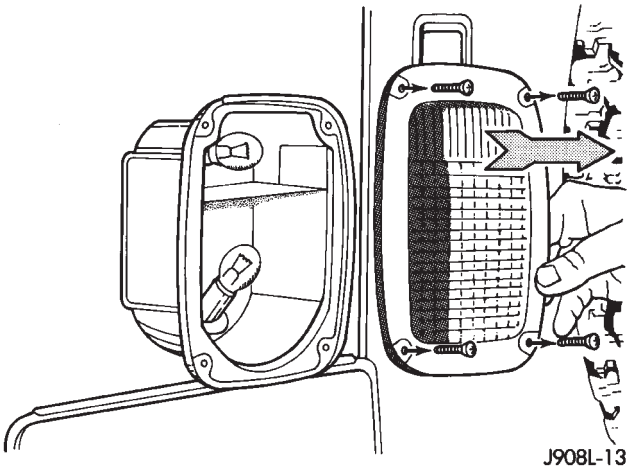


Fig. 25 Back-up/Rear Turn Signal/Tail Lamp Bulb Replacement—YJ Vehicles

LICENSE PLATE LAMP

REMOVAL—XJ VEHICLES

(1) Remove screws and the license plate lamp visor from the liftgate (Fig. 26).

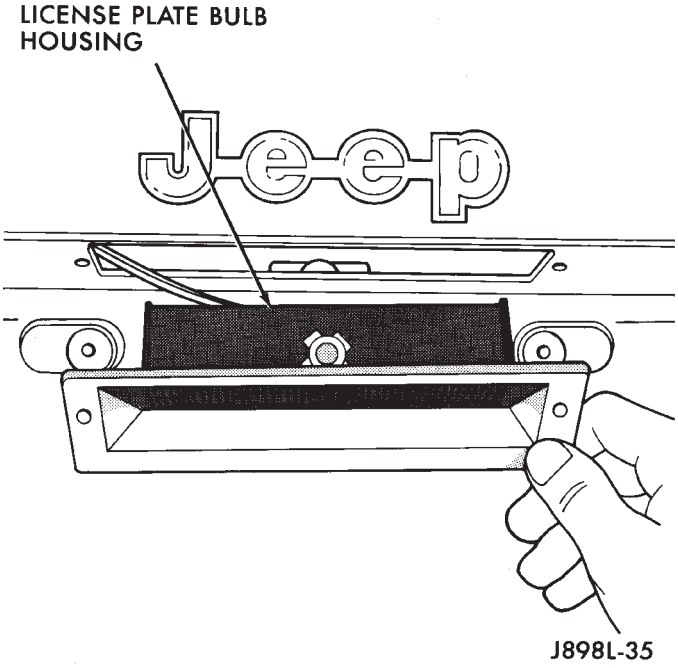


Fig. 26 License Plate Lamp Visor

(2) Remove the bulb from the lamp socket.

INSTALLATION—XJ VEHICLES

(1) Install a replacement bulb in the lamp socket.

(2) Position the license plate lamp visor on the liftgate and install screws. Tighten the screws securely.

CENTER HIGH MOUNTED STOP LAMP (CHMSL)—XJ

The CHMSL is mounted at the top of the rear window and has two bulbs (Fig. 27).

(1) Raise liftgate.
(2) Remove CHMSL access door (Fig. 28)
(3) Remove CHMSL lamp mounting screws.
(4) Remove CHMSL lamp assembly.
(5) Replace bulbs if necessary (Fig. 29).

To install, reverse removal procedure.

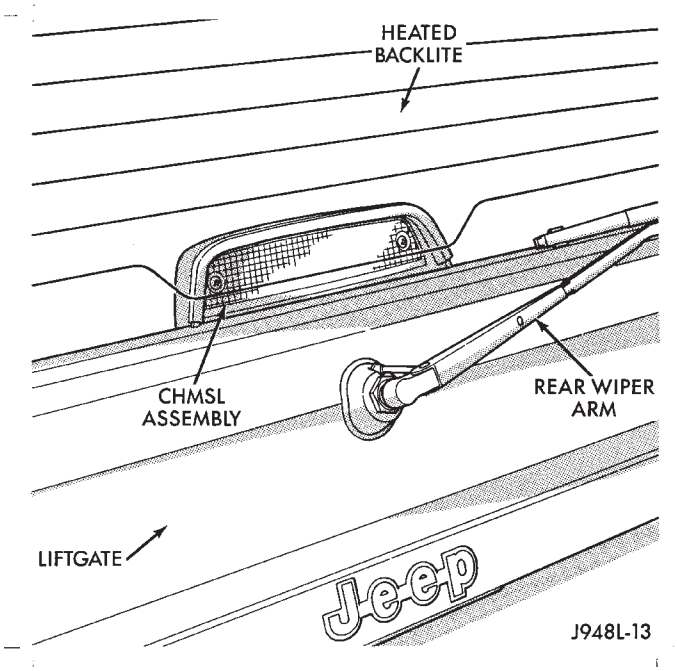


Fig. 27 Center High Mounted Stop Lamp (CHMSL) Assembly

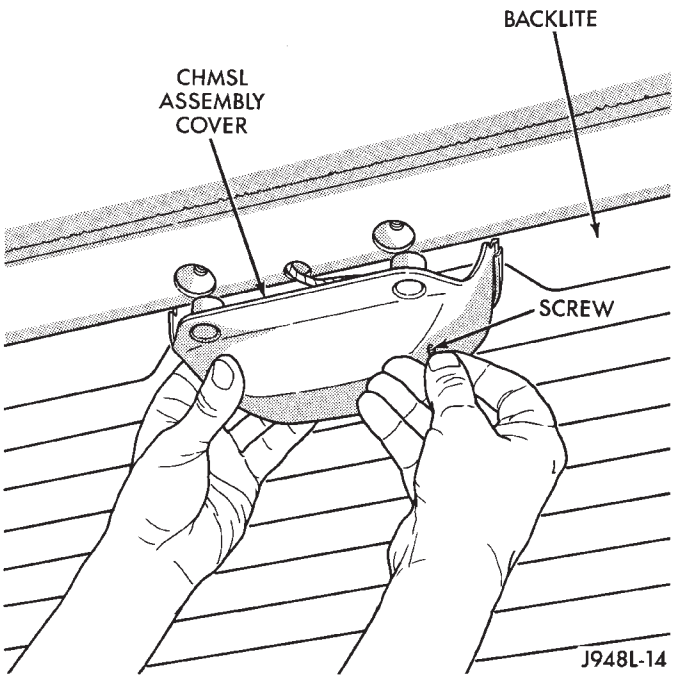


Fig. 28 Removing CHMSL Access Door

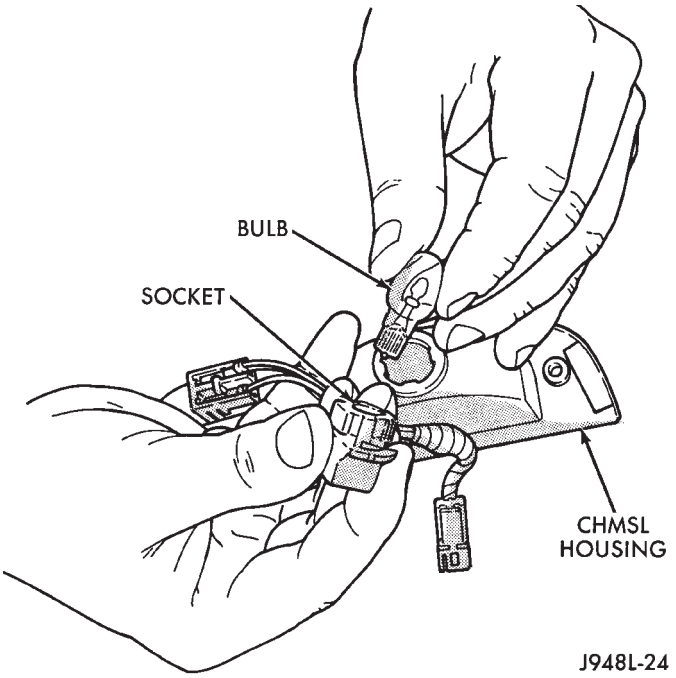


Fig. 29 Replacing CHMSL Bulb

CENTER HIGH MOUNTED STOP LAMP (CHMSL)—YJ

The CHMSL is mounted on top of a bracket that attaches to the spare tire carrier (Fig. 30).

(1) Remove the CHMSL lens (Fig. 31).

(2) Remove CHMSL lamp housing (Fig. 32)

(5) Replace bulbs if necessary.

To install, reverse removal procedure.

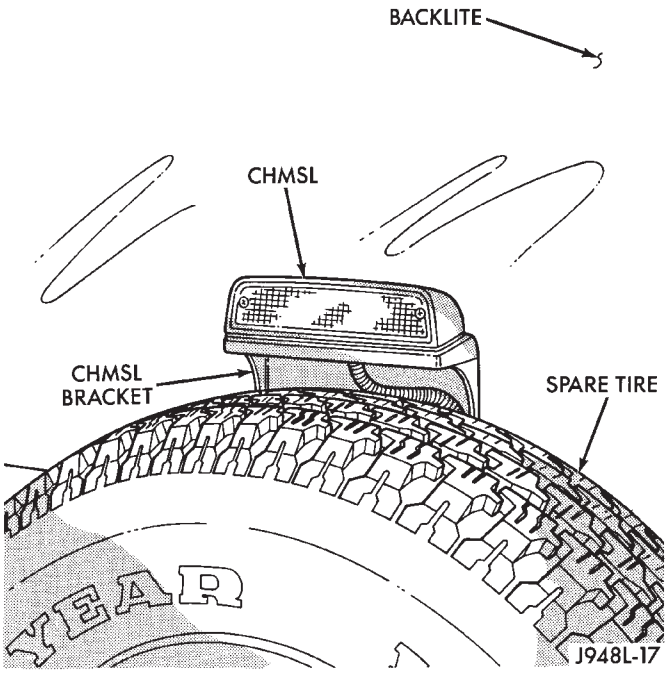


Fig. 31 Removing CHMSL Access Door

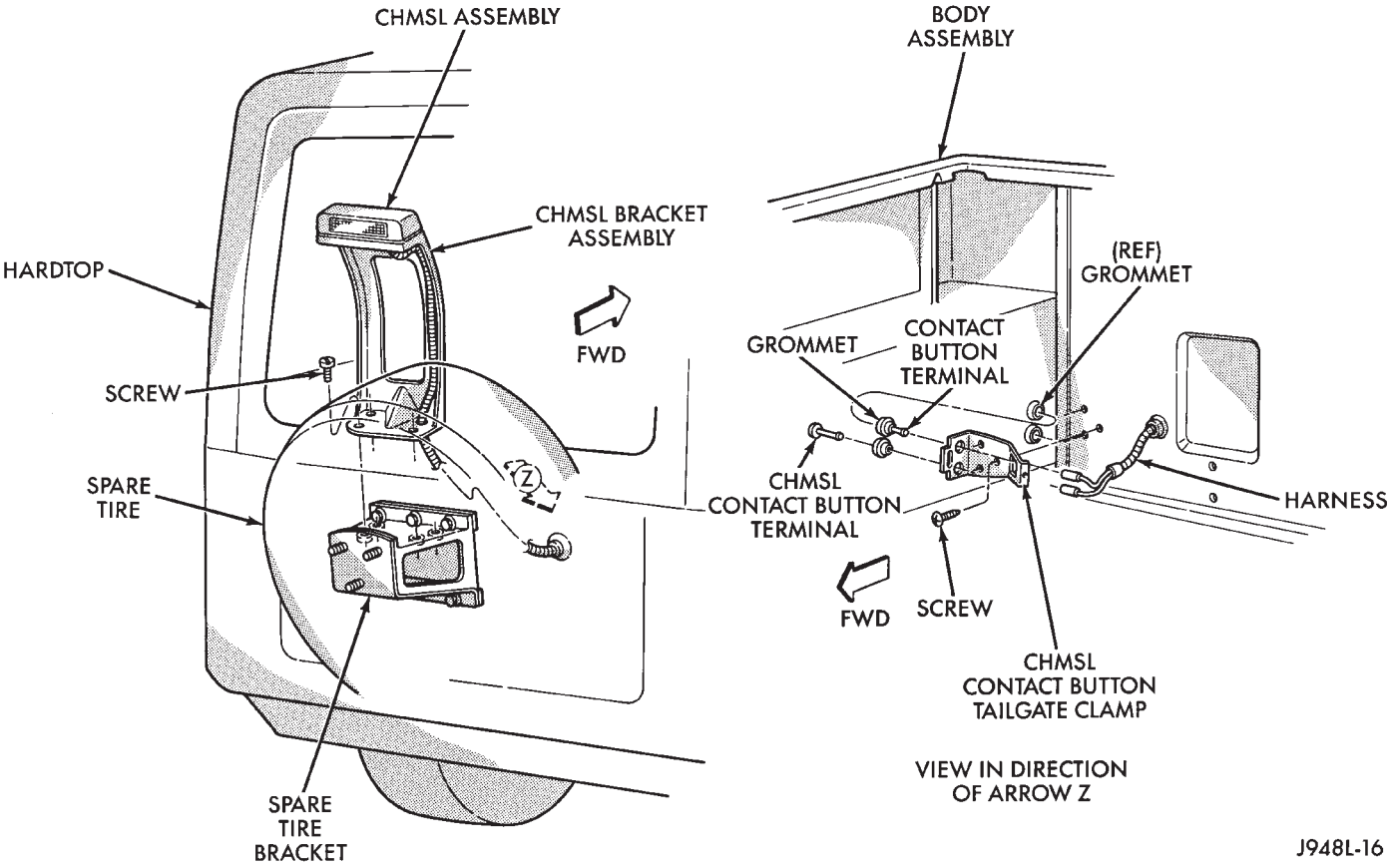


Fig. 30 Center High Mounted Stop Lamp (CHMSL) Bracket Assembly

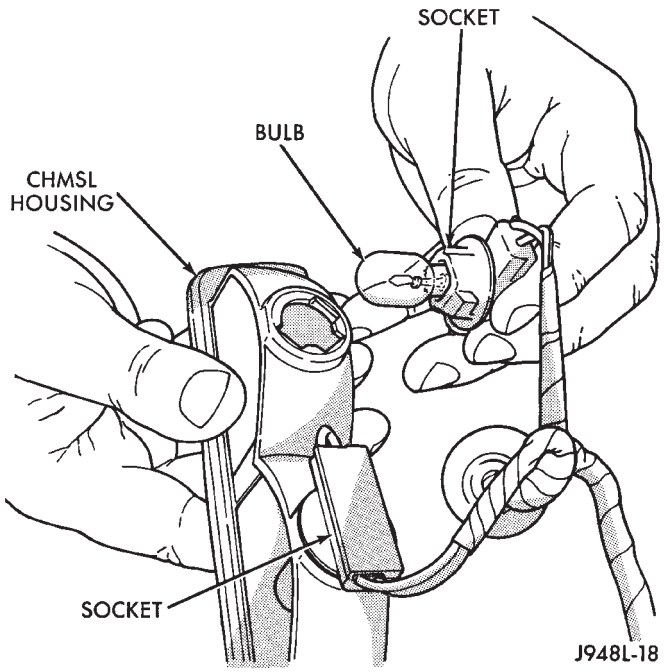


Fig. 32 Replacing CHMSL Bulb

FOG LAMP SERVICE INFORMATION

Fog lamps can be operated **ONLY** when the headlamps are on LOW beam. If the headlamps are switched to HIGH beam, the fog lamps will not operate.

Also, the fog lamps ON display on the switch will:
- be illuminated when the headlamps are switched to LOW beam; and
- be extinguished when the headlamps are switched to HIGH beam.

FOG LAMP TROUBLE DIAGNOSIS

ONE FOG LAMP INOPERATIVE

(1) Place the headlamp switch in the full ON position, the dimmer switch in the LOW beam position and the fog lamp switch in the ON position.

(2) Disconnect the applicable fog lamp wire harness connector (Fig. 33).

(3) Measure the resistance between the lamp connector terminals. The ohmmeter should indicate zero ohms. If not OK, replace the bulb.

(4) Measure the resistance between the wire harness connector ground terminal and vehicle body ground. The ohmmeter should indicate zero ohms. If not OK, repair the open circuit in the wire harness to vehicle body ground.

(5) Measure the voltage between the wire harness connector voltage supply terminal and body ground. The voltmeter should indicate battery voltage. If not OK, repair the open circuit in the wire harness that leads to the source of battery voltage.

BOTH FOG LAMPS INOPERATIVE

(1) Place headlamp switch in the full ON position.

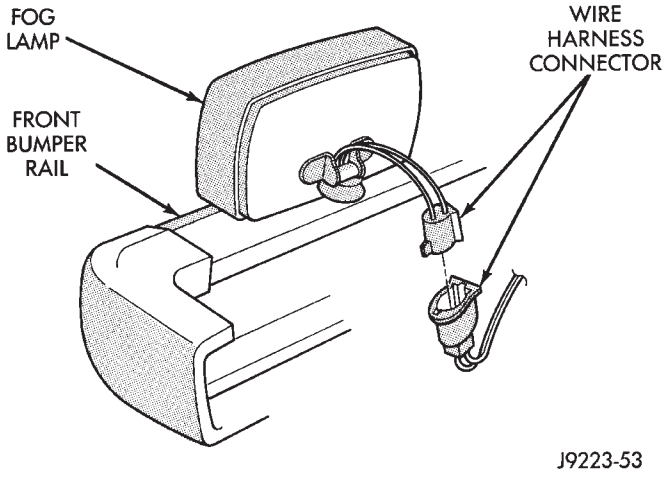


Fig. 33 Fog Lamp & Wire Harness Connector—XJ Vehicles

The dimmer switch in the LOW beam position. The fog lamp switch in the ON position.

(2) Measure the voltage between the fog lamp switch wire harness connector terminal B and vehicle body ground. The voltmeter should indicate battery voltage. If not OK, repair the open circuit in the wire harness that leads to the headlamp dimmer switch circuit.

(3) Measure the voltage between the fog lamp switch connector terminal C and vehicle body ground. The voltmeter should indicate battery voltage. If not OK, replace the fog lamp switch.

(4) Measure the voltage between the fog lamp relay connector terminal 1 and vehicle body ground. The voltmeter should indicate battery voltage. If not OK, repair the open circuit in the wire harness that leads to the power distribution center/PDC.

(5) Measure the voltage between the fog lamp relay connector terminal 5 and vehicle body ground. The voltmeter should indicate battery voltage. If not OK, repair the open circuit in the wire harness that leads to the fog lamp switch.

(6) Measure the voltage between the fog lamp relay connector terminal 2 and vehicle body ground. The voltmeter should indicate battery voltage. If not OK, repair the open circuit in the wire harness that leads to vehicle body ground.

(7) Measure the voltage between the fog lamp relay connector terminal 4 and vehicle body ground. The voltmeter should indicate battery voltage. If not OK, replace the relay.

FOG LAMP BEAM ADJUSTMENT

Use an "aiming" screen for fog lamp beam aim adjustment.

PREPARATION

Prior to adjustment, the following preparation is required.

(1) Position the vehicle in dark area with a level floor and with a screen (wall) that has a white surface.

(2) Mark a reference line on the floor 7.62 meters (25 feet) away from and parallel to the "aiming" screen/wall.

(3) Position vehicle with the fog lamps located directly above the 7.62-meters (25-feet) reference line.

(4) Equalize all the tire pressures.

(5) Rock the vehicle from side to side to stabilize the springs and shock absorbers.

(6) Refer to Figure 34. Use tape to attach a vehicle centerline on the screen/wall. Ensure that it is aligned with and represents the centerline of the vehicle.

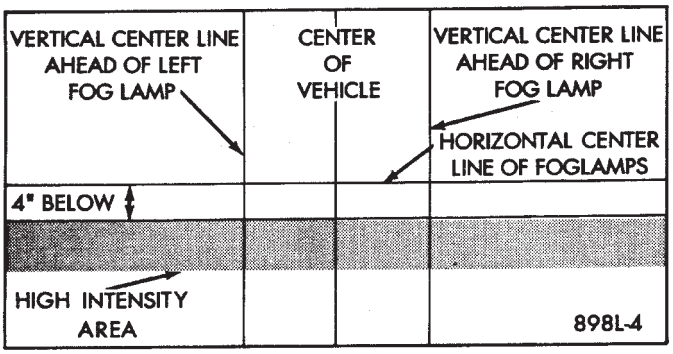


Fig. 34 Fog Lamp Beam Pattern

(7) Measure the distance between the vehicle fog lamp centers. Divide this distance by two. Measure the one/half distance outward from each side of the vehicle centerline. Use tape to attach the right and left fog lamp vertical centerline on the screen/wall.

(8) Measure the distance from the center of each fog lamp to the floor.

(9) Measure the lamp-to-floor distance upward from the floor at each lamp vertical centerline. Use tape to attach the lamp horizontal centerline on the screen/wall.

BEAM ADJUSTMENT

(1) Loosen the fog lamp attaching hardware at the support bracket.

(2) Place the headlamp and fog lamp switches in the ON position.

(3) Ensure that the headlamp dimmer switch is in the LOW beam position.

(4) Adjust the fog lamp beams according to the following guidelines:

- a properly adjusted fog lamp (up/down adjustment) will project a beam pattern on the screen similar to the pattern depicted in Figure 28; and
- each fog lamp should be centered (left/right adjustment) on the screen left/right vertical center line.

(5) Tighten the fog lamp support bracket hardware.

FOG LAMP BULB/ELEMENT REPLACEMENT

REMOVAL

(1) For YJ vehicles, remove the screws that attach the stone shield and the reflector to the lamp housing. Remove the stone shield and reflector from the lamp housing (Fig. 35).

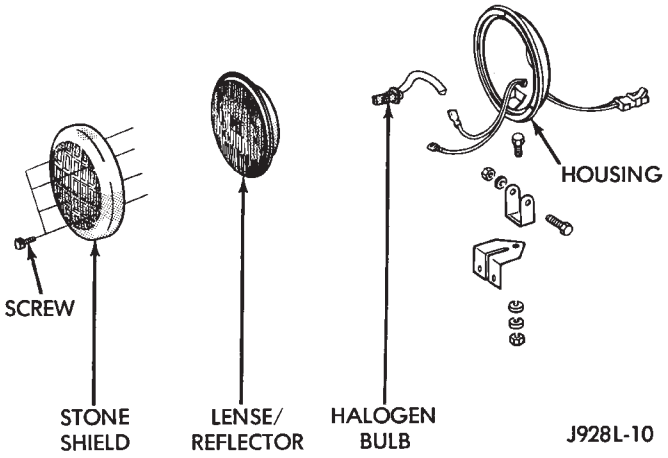


Fig. 35 Fog Lamp—YJ Vehicles

(2) For XJ vehicles, remove the screws that attach the bezel and lens to the lamp housing. Remove the bezel and the lens from the lamp housing (Fig. 36).

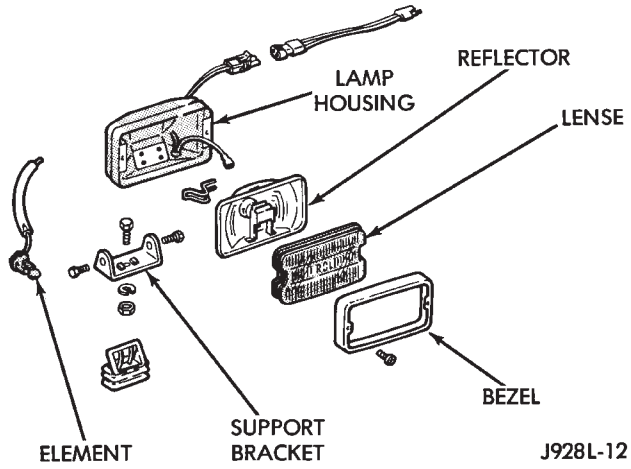


Fig. 36 Fog Lamp—XJ Vehicles

(3) Remove the bulb/element holder from the lens/reflector.

(4) Remove the bulb/element from the holder.

REMOVAL

CAUTION: Always handle replacement quartz bulbs/elements with a clean cloth. DO NOT handle quartz bulbs/elements with bare hands.

(1) Use a clean cloth to install a replacement bulb holder.

(2) Install the bulb holder in the lens/reflector.

(3) For XJ vehicles, position the bezel and the lens on the lamp housing. Install the screws that attach the bezel and lens to the lamp housing. Tighten the screws securely.

(4) For YJ vehicles, position the stone shield and reflector on the lamp housing. Install the screws that attach the stone shield and the reflector to the lamp housing. Tighten the screws securely.

FOG LAMP SWITCH REPLACEMENT

REMOVAL—XJ VEHICLES

The fog lamp switch is located on the instrument panel at the left of the steering column.

(1) Remove instrument panel bezel attaching screws and remove the bezel (Fig. 37).

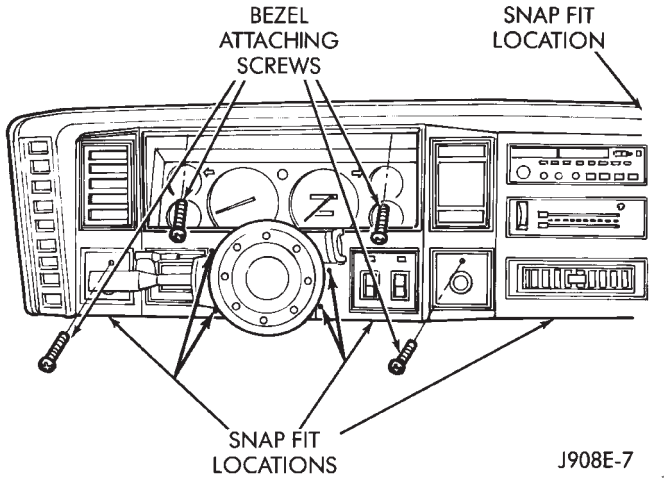


Fig. 37 Instrument Panel Bezel—XJ Vehicles

(2) Remove the fog lamp switch cover.

(3) Disconnect the wire harness connector from the switch.

(4) Squeeze the tabs on the side of the switch and remove the switch from the instrument panel cavity.

INSTALLATION—XJ VEHICLES

(1) Squeeze the tabs on the side of the fog lamp switch and insert the switch in the instrument panel cavity.

(2) Connect the wire harness connector to the switch.

(3) Install the fog lamp switch cover.

(4) Position the bezel on the instrument panel and install the attaching screws. Tighten the screws securely.

REMOVAL—YJ VEHICLES

The fog lamp switch is located on the instrument panel at the right of the steering column. The fog lamp circuit relay is located below the left headlamp.

(1) Disconnect the battery negative cable.

(2) Remove the I/P shroud retaining screws (Fig. 36).

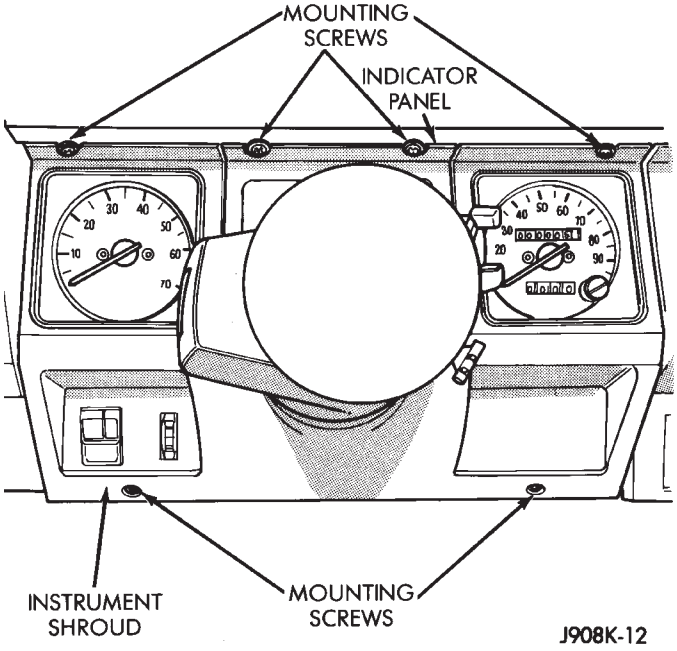


Fig. 38 Instrument Panel Shroud—YJ Vehicles

(3) Move the I/P shroud toward the steering wheel.

(4) Apply upward force to the I/P shroud and downward force to the indicator panel. This will release the indicator panel holding tabs (Fig. 39).

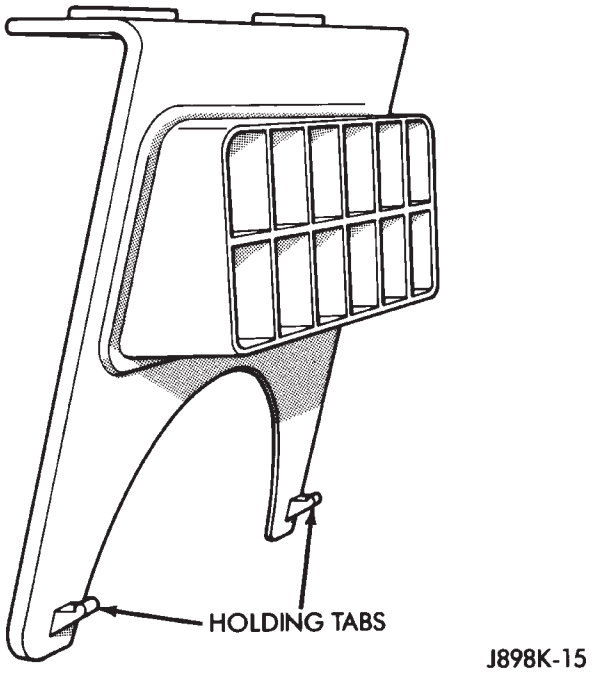


Fig. 39 Indicator Panel Holding Tabs—YJ Vehicles

(5) Remove the shroud from the instrument panel.

(6) Remove the fog lamp switch retaining screws.

(7) Disconnect the wire harness connector from the fog lamp switch.

(8) Remove the fog lamp switch from the instrument panel cavity.

INSTALLATION—YJ VEHICLES

(1) Position the fog lamp switch in the instrument panel cavity and connect the wire harness connector to the switch.

(2) Install the fog lamp switch retaining screws. Tighten the screws securely.

(3) Position the I/P shroud under the steering column.

(4) Slide the indicator panel holding tabs into the shroud notches.

(5) Place the assembled I/P shroud over the indicator lamp foam gasket.

The foam gasket located on the back side of the indicator panel overlay is fragile. If it is either torn or distorted, replace it.

(6) Install and tighten the indicator panel retaining screws.

(7) Install the remaining shroud screws. Tighten the screws securely.

(8) Connect the battery negative cable.

FOG LAMP REPLACEMENT

REMOVAL—XJ VEHICLES

(1) Disconnect the fog lamp wire harness connector (Fig. 40).

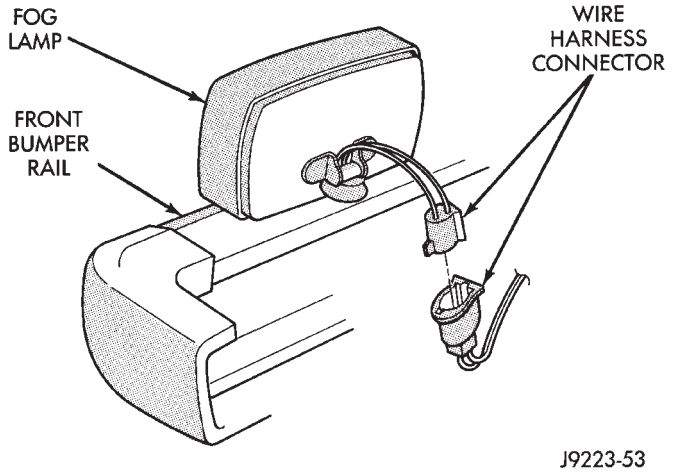


Fig. 40 Fog Lamp Wire Harness Connector—XJ Vehicles

(2) Remove the retaining nut and washer from each side of the support bracket and remove the fog lamp from the support bracket (Fig. 41).

INSTALLATION—XJ VEHICLES

(1) Position the fog lamp in the support bracket and install the washer and nut at each side of the bracket. Tighten the nuts securely.

(2) Connect the fog lamp wire harness connector.

REMOVAL—YJ VEHICLES

(1) Disconnect the fog lamp wire harness connector.

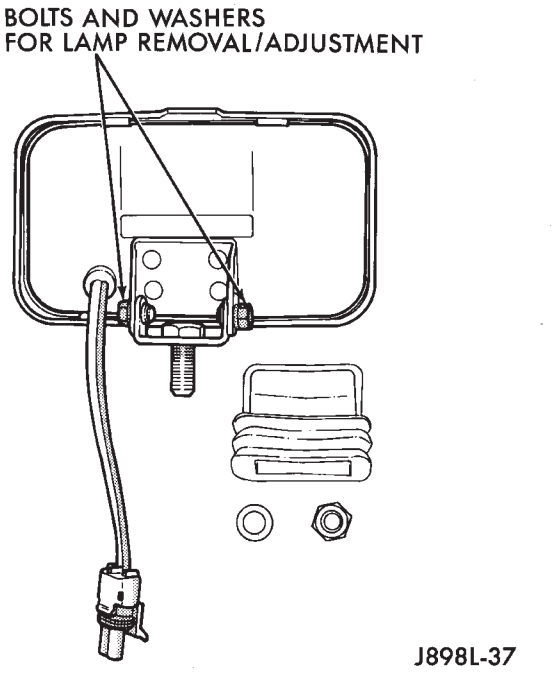


Fig. 41 Fog Lamp—XJ Vehicles

(2) Remove the fog lamp nut(s), washers(s) and bolt(s) from the support bracket.

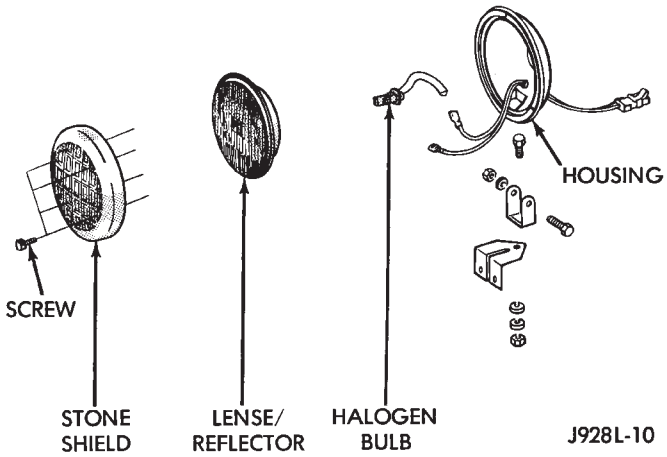


Fig. 42 Round-Shaped Fog Lamp

(3) Remove the fog lamp from the support bracket.

INSTALLATION—YJ VEHICLES

(1) Position the fog lamp on the support bracket.

(2) Install the fog lamp bolt(s), washer(s) and nut(s) in the support bracket.

(3) Connect the fog lamp wire harness connector.

SENTINEL HEADLAMP DELAY MODULE—XJ VEHICLES

SERVICE INFORMATION

The Headlamp Module delays the de-activation of the headlamps for 45 ±15 seconds after the ignition

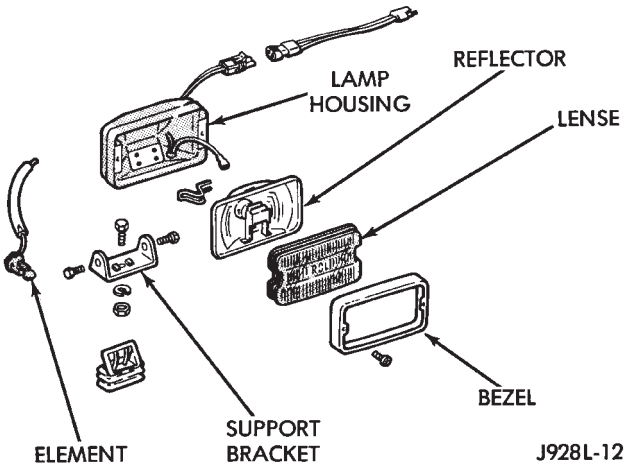


Fig. 43 Rectangular-Shaped Fog Lamp

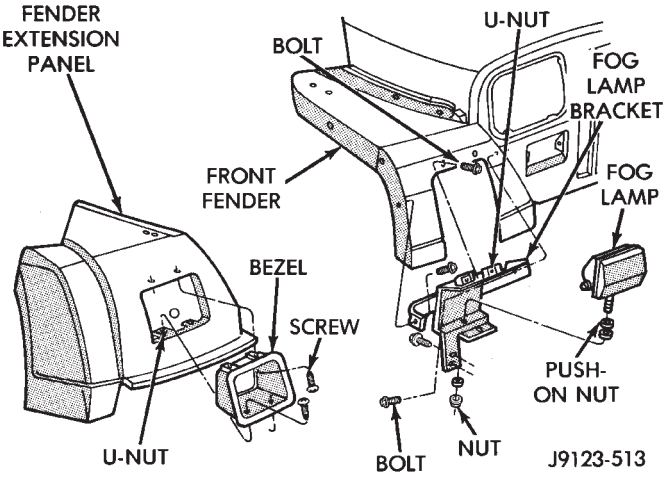


Fig. 44 Fog Lamp—YJ Renegade

switch is turned OFF. The driver engages the module by turning the ignition switch OFF, then turning the headlamps OFF.

The headlamp delay module is located behind the I/P next to the headlamp switch.

HEADLAMP DELAY MODULE REPLACEMENT—XJ VEHICLES

The headlamp delay module is attached to the inside of the instrument panel to the right of the headlamp switch.

REMOVAL

(1) Remove the lower instrument panel.

(2) Remove the screw that attaches the module to the inside of the instrument panel.

(3) Disconnect the wire harness connector and remove the module from the instrument panel.

INSTALLATION

(1) Position the module inside the I/P and connect the wire harness connector to the module.

(2) Install the screw that attaches the module to the inside of the instrument panel.

(3) Remove the lower instrument panel.

HEADLAMP DELAY FUNCTION TROUBLE DIAGNOSIS—XJ VEHICLES

DELAY FUNCTION INOPERATIVE

(1) Remove, inspect and test the HD LP DLY fuse. Replace if defective.

(2) Remove the delay module from the I/P. Do not disconnect the wire harness connector. Turn the ignition switch to the RUN position. Place the headlamp switch in headlamps ON position. Turn the ignition to the OFF position for a resistance test.

(3) Measure the resistance from the delay module terminal 4 to vehicle body ground. The ohmmeter should indicate zero ohms. If not, repair the open circuit in the wire harness to vehicle body ground.

(4) Measure the voltage between the delay module terminal 8 and vehicle body ground. The voltmeter should indicate battery voltage. If not, repair the open circuit in the wire harness to the instrument cluster indicator connector terminal 14.

(5) Measure the voltage between the delay module terminal 6 and vehicle body ground. The voltmeter should indicate battery voltage. If not, repair the open circuit in the wire harness to the headlamp switch.

(6) Measure the voltage between the delay module terminal 2 and vehicle body ground. The voltmeter should indicate battery voltage. If not, repair the open circuit in the wire harness to the fuse.

DAYTIME RUNNING LIGHTS (CANADA ONLY)

SERVICE INFORMATION

The Daytime Running Lights (Headlamps) System is installed on vehicles manufactured for sale in Canada only. The headlamps are illuminated when the ignition switch is turned to the ON position. The DRL module receives a vehicle-moving signal from the vehicle speed sensor. This provides a constant **headlamps-on** condition as long as the vehicle is moving. The lamps are illuminated at less than 50 percent of normal intensity.

DRL MODULE REPLACEMENT

REMOVAL—XJ VEHICLES

The Daytime Running Lights (DRL) module is located on the right fender inner panel adjacent to the dash panel (Fig. 45).

(1) Disconnect the wire harness connector from the module.

(2) Remove the screws that attach the module to the fender inner panel.

(3) Remove the module from the fender inner panel.

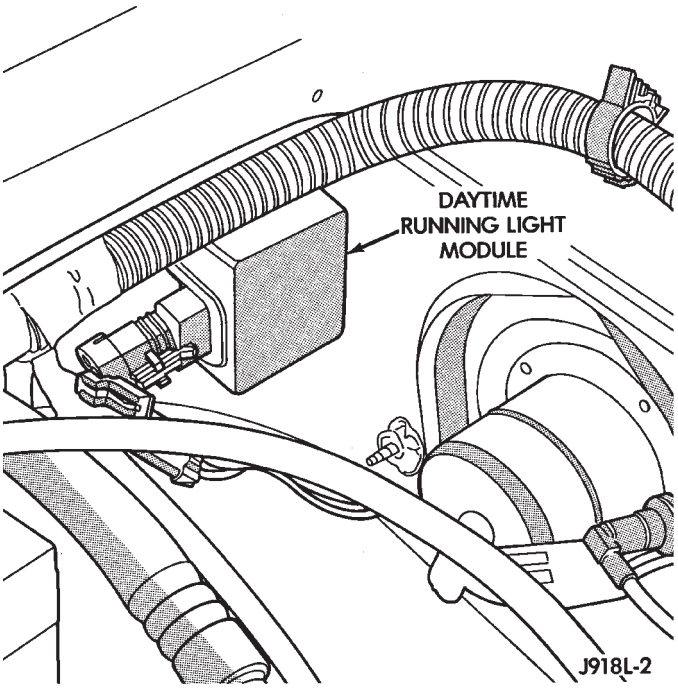


Fig. 45 Daytime Running Lights (DRL) Module—XJ Vehicles

INSTALLATION—XJ VEHICLES

(1) Position the module on the right fender inner panel.

(2) Install the attaching screws. Tighten the screws securely.

(3) Connect the wire harness connector to the module.

REMOVAL—YJ VEHICLES

The daytime running light module is located on the left fender inner panel below the engine air cleaner housing.

(1) Remove the engine air cleaner housing for access to the DRL module.

(2) Disconnect the wire harness connector from the module.

(3) Remove the screws that attach the module to the fender inner panel.

(4) Remove the module from the fender inner panel.

INSTALLATION—YJ VEHICLES

(1) Position the DRL module on the left, fender inner panel.

(2) Install the attaching screws. Tighten the screws securely.

(3) Connect the wire harness connector to the module.

(4) Install the air cleaner housing.

UNDERHOOD LAMP SERVICE INFORMATION

When equipped, the underhood lamp is installed on the hood right, rear inner panel for all Jeep® vehicles. The lamp is illuminated when the hood is opened. The switch provides automatic ON/OFF functions each time the hood is opened and closed.

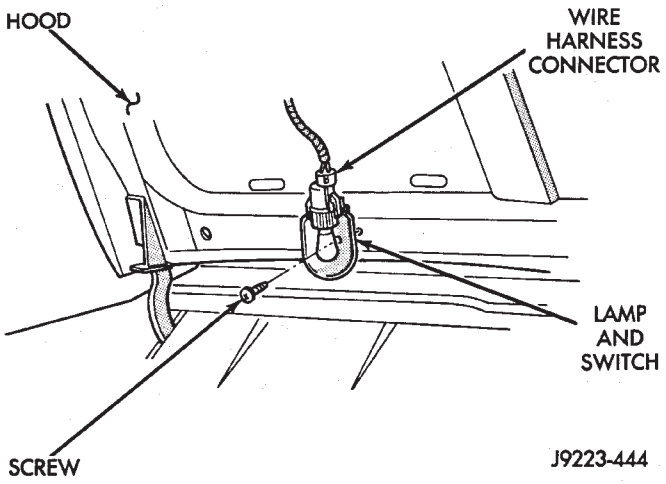


Fig. 46 Underhood Lamp—XJ Vehicles

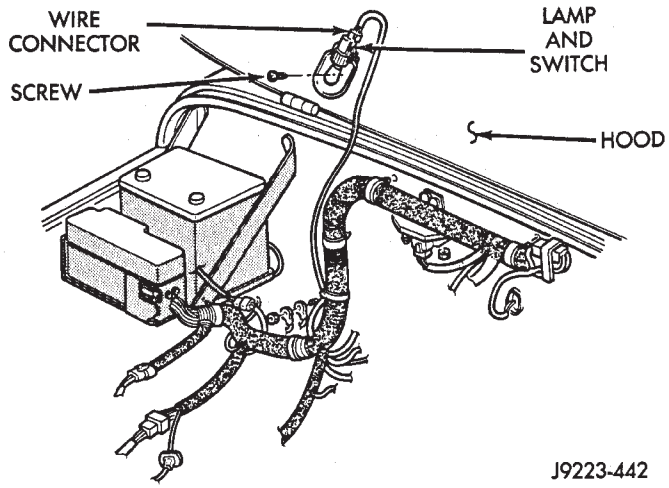


Fig. 47 Underhood Lamp—YJ Vehicles

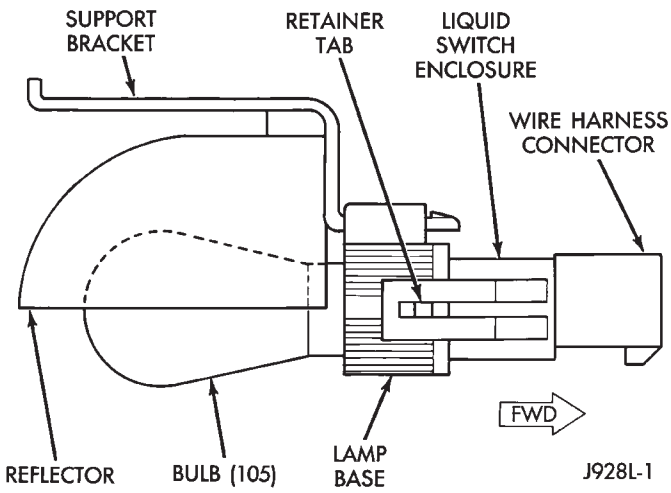


Fig. 48 Underhood Lamp Components

UNDERHOOD LAMP BULB REPLACEMENT

REMOVAL—ALL VEHICLES

(1) Disconnect the wire harness connector from the underhood lamp.

(2) Rotate the bulb counter-clockwise and remove it from the lamp base socket.

INSTALLATION—ALL VEHICLES

(1) Insert a replacement bulb in the lamp base socket and rotate it clockwise.

(2) Connect the wire harness connector to the lamp.

UNDERHOOD LAMP REPLACEMENT

REMOVAL—ALL VEHICLES

(1) Disconnect the wire harness connector from the lamp.

(2) Rotate the bulb counter-clockwise and remove it from the lamp base socket.

(3) Remove the screw that attaches the lamp reflector and support bracket to the hood inner panel.

(4) Remove the lamp from the hood inner panel.

INSTALLATION—ALL VEHICLES

(1) Position the underhood lamp on the hood inner panel.

(2) Install the attaching screw through the lamp and into the hood panel. Tighten the screw securely.

(3) Insert a replacement bulb in the lamp base socket and rotate it clockwise.

(4) Connect the wire harness connector to the lamp.

INTERIOR LAMPS

INDEX

DOME/COURTESY LAMP SERVICE INFORMATION

XJ VEHICLES

Voltage is applied at all times via the dome lamp fuse to each of the interior lamp bulbs. The interior lamp bulbs illuminate when they are connected to body ground via the switch:

- headlamp switch,
- glove box switch,
- door pillar switch, and
- liftgate switch (if the cargo lamp is ON.)

If equipped with Security Alarm Module, refer to Group 8Q—Vehicle Theft Security System.

YJ VEHICLES

The dome/cargo and courtesy lamps are controlled via ON/OFF switches. The ON/OFF switches are in the lamp ground circuits. Voltage via the dome/courtesy lamp fuse is applied directly to the lamp bulbs. When either door is opened, the door pillar switch contacts close and provide a direct path to vehicle body ground.

The cargo/cargo and courtesy lamps can also be turned on via the interior lamp illumination rheostat.

DOME/COURTESY LAMP TROUBLE DIAGNOSIS

ALL LAMPS INOPERATIVE

(1) Rotate the headlamp switch rheostat clockwise. The lamps should light. If not OK, remove, inspect and test the dome lamp fuse. Replace if bad.

(2) If the fuse is OK, repair the open circuit in the wire harness to vehicle body ground.

ONE LAMP INOPERATIVE

(1) Measure the resistance across the bulb holder terminals. The ohmmeter should indicate zero ohms. If not, replace the bulb.

(2) Measure the voltage between the voltage side of the bulb holder and vehicle body ground. The voltmeter should indicate battery voltage. If not, repair the open circuit in the wire harness to the splice.

LAMPS INOPERATIVE WITH ONE OR MORE DOORS OPENED

(1) Remove the inoperative switch from the door pillar and connect the switch wire directly to ground. The lamp should light.

(2) If not, check for an open circuit in black (ground) wire. Repair as necessary. If lamps still do not light, replace the switch.

LIGHTED VANITY MIRROR

SERVICE INFORMATION—XJ VEHICLES

Both the driver and the front passenger sunvisor can be equipped with a lighted vanity mirror. A lamp located at each side of the vanity mirror. The lamps are switched ON automatically when the mirror cover is lifted (Fig. 1).

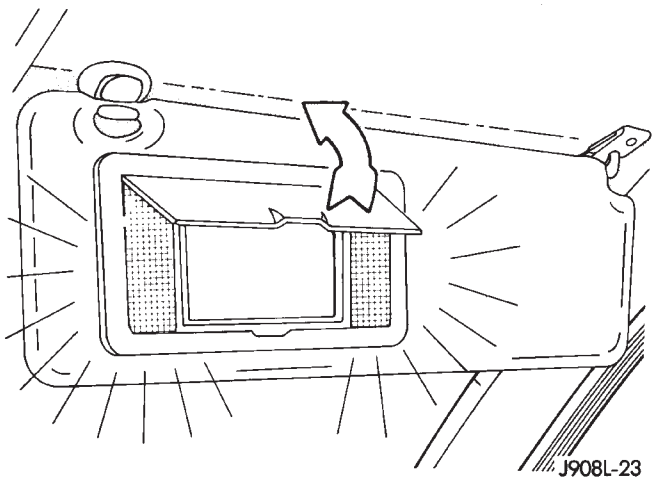


Fig. 1 Lighted Vanity Mirror

Voltage is applied directly to the vanity lamp bulbs via the dome lamp fuse.

LIGHTED VANITY MIRROR TROUBLE DIAGNOSIS

VANITY LAMPS INOPERATIVE

(1) Remove, inspect and test the dome lamp fuse. Replace if defective.

(2) Test the dome lamp operation. If OK, go to the next step. If not OK, repair the open circuit in the wire harness from the splice.

(3) Measure the voltage between the pink wire on the switch connector and vehicle body ground. The voltmeter should indicate battery voltage. If not OK, repair the open circuit in the wire harness from the splice.

(4) Connect a jumper wire from the ground side of the switch to a good vehicle body ground. Measure the resistance to vehicle body ground. The ohmmeter should indicate zero ohms. If not, repair the open circuit in the wire harness to vehicle body ground.

DOME LAMP REPLACEMENT

REMOVAL—XJ VEHICLES

(1) Remove the dome lamp lens by squeezing it at both sides. This will separate the lens retainer tabs from the lamp housing shoulders.

(2) Pull the lens downward to remove it from the lamp housing.

(3) Remove the lamp housing retainer clips (Fig. 2).

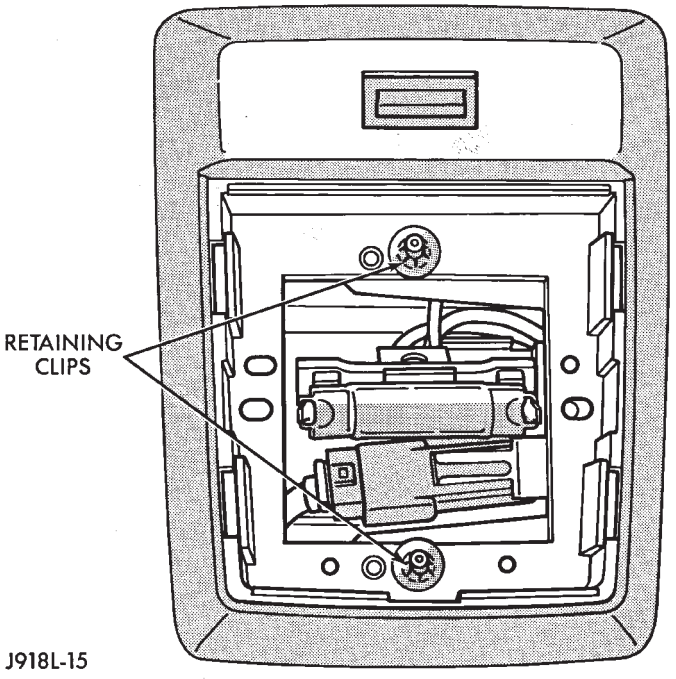


Fig. 2 Dome Lamp Removal/Installation—XJ Vehicles

(4) Disconnect the wire harness connector.

(5) Remove the lamp housing from the headliner cavity.

INSTALLATION—XJ VEHICLES

(1) Position the dome lamp housing at the headliner cavity.

(2) Connect the wire harness connector.

(3) Install the lamp housing retainer clips (Fig. 2).

(4) Position the lens at the lamp housing and force it upward into the housing until the retainer tabs are seated on the lamp housing shoulders.

HARDTOP DOME/CARGO LAMP BULB REPLACEMENT—YJ VEHICLES

REMOVAL

(1) Remove the dome/cargo lamp lens by squeezing it at both sides. This will separate the lens retainer tabs from the lamp housing shoulders (Fig. 3).

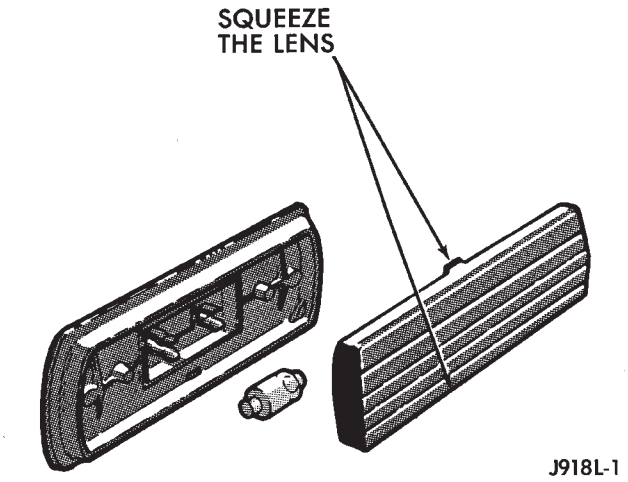


Fig. 3 Hardtop Dome/Cargo Lamp—YJ Vehicles

(2) Remove the lens from the lamp housing.

(3) Pull the bulb straight out to remove from the bulb holder.

INSTALLATION

(1) Insert the replacement bulb in the bulb holder.

(2) Position lens at the lamp housing and force it into the housing until the retainer tabs are seated.

OVERHEAD CONSOLE—XJ VEHICLES

MAP READING LAMP LENS REMOVAL

(1) Make a straight hook at the end of a large paper clip or wire (approximately 1.5-mm/0.06-in diameter).

(2) Insert the wire hook into the hole in the lamp lens and pull downward to detach the lens from the lamp housing (Fig. 4).

MAP READING LAMP LENS INSTALLATION

(1) Insert the tab at the front of the lamp lens into the slot in the lamp housing—shown by arrow 1 in Figure 5.

(2) Force the rear of the lens upward until it is seated in the lamp housing—shown by arrow 2 in Figure 5.

ILLUMINATED ENTRY SYSTEM SERVICE INFORMATION

The Illuminated Entry System that is activated by the system relay (TAN). The relay is located on a bracket (with 3 relays) behind the instrument panel. The relay receives input from the door pillar

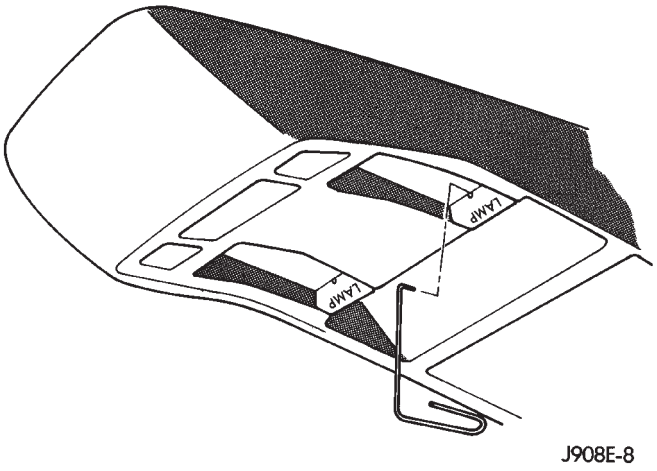


Fig. 4 Map Reading Lamp Lens Removal

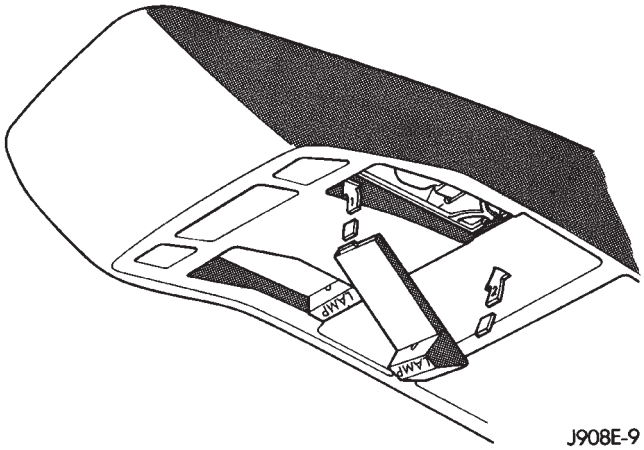


Fig. 5 Map Reading Lamp Lens Installation

switches, the keyless entry system, and the ignition switch (when in the RUN position). When correct input is received, the entry module timer immediately begins the timing-out process. The timing-out process requires approximately 30 ±6 seconds.

The illuminated entry system also operates when a door is opened to exit the vehicle. When the door is closed the interior illumination will continue for the remaining portion of the 30 seconds.

ILLUMINATED ENTRY SYSTEM TROUBLE DIAGNOSIS

The Illuminated Entry System relay is located on a bracket behind the instrument panel.

(1) Ensure that the ignition switch is in the Off position.

(2) Open and immediately close the driver-side door. The interior courtesy lamps should immediately illuminate.

(3) Open driver-side door, enter the vehicle, close the door and turn the ignition switch to the RUN position. The courtesy lamps should go out. Turn the ignition switch to the OFF position before exiting vehicle.

(4) When exiting the vehicle, the courtesy lamps should remain illuminated after the door is closed.

(5) From outside the vehicle, open and close the passenger-side door. The courtesy lamps should illuminate.

RELAY BENCH TEST

(1) Attach a "jumper" wire to pin 1. Momentarily connect pin 1 (battery negative terminal/ground) to pin 4. The test bulb should light for 30 ±6 seconds, then go out. If not, replace the relay.

(2) Momentarily connect pin 1 (battery negative terminal/ground) to pin 4. The test bulb should light. Attach a "jumper" wire to pin 5 and momentarily connect pin 5 to pin 2. The test bulb should go out. If not, replace the relay.

(3) Momentarily connect pin 1 (battery negative terminal/ground) to pin 3. The test bulb should light. Next, momentarily connect pin 5 to pin 2 (B+) and the test bulb should go out. If not, replace the relay.

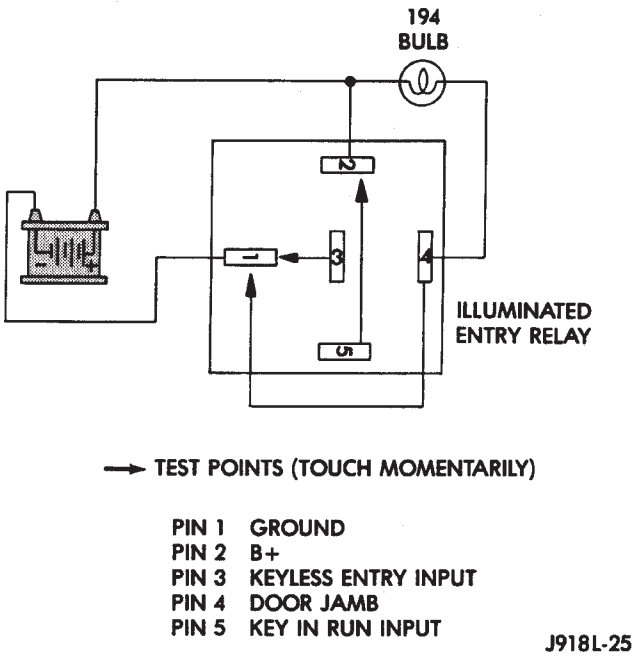
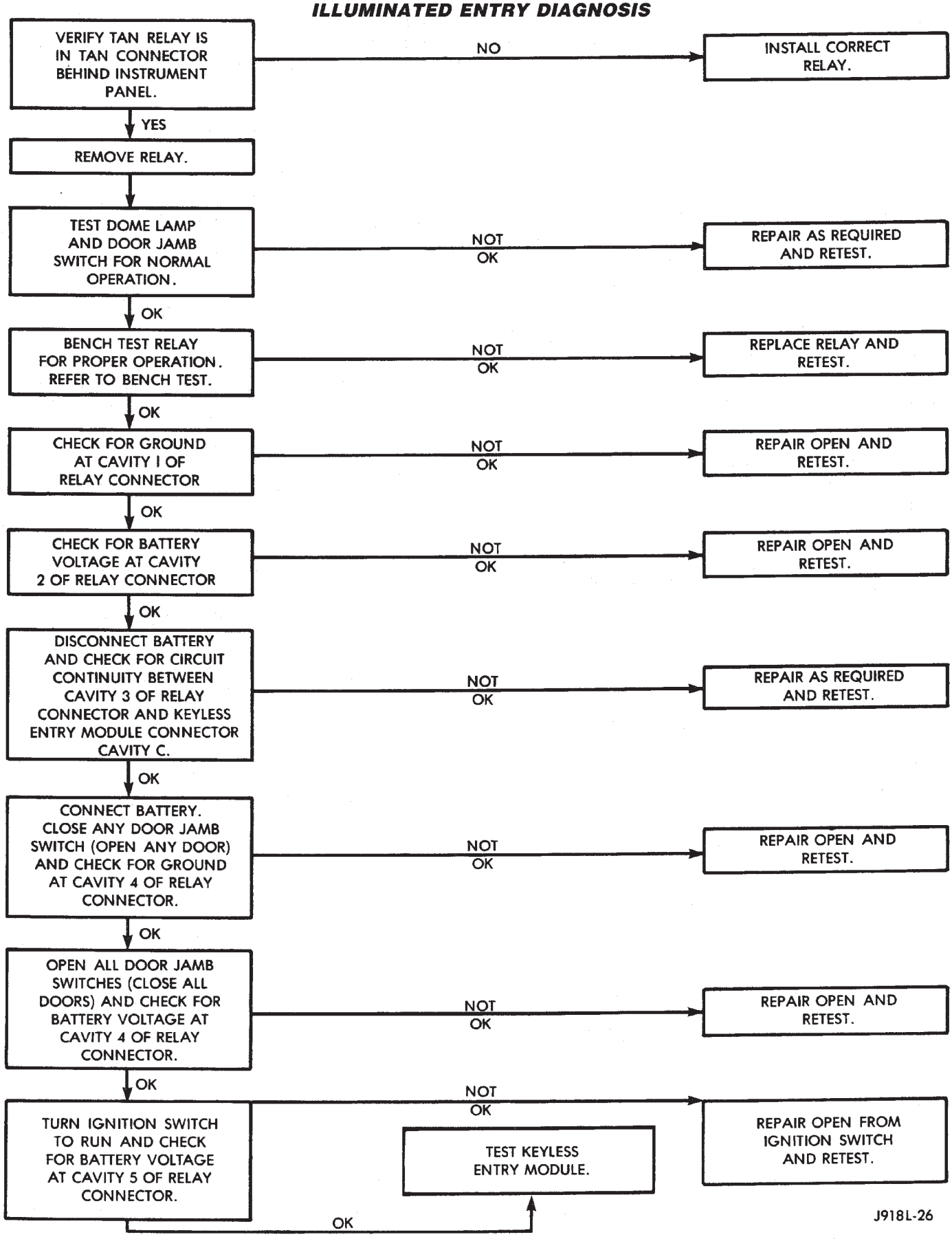


Fig. 6 Relay Bench Test

ILLUMINATED ENTRY SYSTEM TROUBLE DIAGNOSIS

ILLUMINATED ENTRY DIAGNOSIS



SPECIFICATIONS

XJ EXTERIOR LAMPS

EXTERIOR LAMPS	BULB TYPE
Backup Lamps (2)	1156
Front Park/Turn Lamps (2)	2057NA
Front Side Marker Lamps (2)	194
Cherokee Headlights (2)	H 6054
Rear License Plate Lamp (1)	168
Stop/Tail Lamps (2)	2057
Turn Signal Lamps (2)	1156
Underhood Lamp (1)	105

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XJ INTERIOR LAMPS

INTERIOR LAMPS	BULB TYPE
Under Panel Courtesy Lamp (2)	168
Dome Lamp (1)	561
Dome/Reading Lamp (2)	906
Dome/Reading Lamp (1)	561
Cargo Lamp (1)	561
Lighted Vanity Mirror (2)	74
Ashtray Lamp (1)	1891
Cigarette Lighter Lamp (1)	53
Climate Control Lamp (2)	74
Rocker Switch Lamp (1)	37 (As Required)
Transfer Case Lamp (1)	658
Automatic Transmission Floor Shift Lamp (1)	658
Glove Box Lamp (1)	194
Overhead Console (4)	912

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YJ EXTERIOR LAMPS

EXTERIOR LAMPS	BULB TYPE
Back-Up Lamps (2)	1156
Front Park/Turn Lamps (2)	2057
Front Side Marker Lamps (2)	194
Headlamps	H6054
Stop/Tail/Turn Lamps (2)	1157
Underhood Lamp (1)	105

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YJ INTERIOR LAMPS

INTERIOR LAMPS	BULB TYPE
Courtesy Lamps, Under Dash Panel (2)	89
Dome—Cargo (Hardtop Models Only)	212
Ash Tray Lamp	1891
Cigarette Lighter Lamp	53
Heater Control Lamp	194
Rocker Switch Indicator Lamp (Fog Lamps and Rear Window Defogger)	74
Automatic Transmission Indicator Lamp	1445
Glove Box Lamp	194

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