

LIGHTING SYSTEMS 3R

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EXTERIOR LIGHTING SYSTEMS

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GENERAL

The wiring of the lighting systems is shown in the wiring diagrams which indicate the various units in relation to their positions in the vehicle. The wires in the various circuits are different colors or are marked by tracers.

All models have a 24-amp circuit breaker built into the switch for light system protection.

The upper and lower headlamp beams are controlled by a foot switch located on the toeboard.

HEADLAMPS

All models are equipped with a single headlamp system.

The round headlamp used with the CJ and Scrambler system is identified by the number 2D1 embossed on the sealed beam face. The large rectangular headlamp system is used on all Cherokee, Wagoneer and Truck models. All lamps contain two elements: one low beam and one high beam.

Replacement

Each sealed beam headlamp can be replaced only as a complete unit.

CJ and Scrambler Models

NOTE: *CJ and Scrambler headlamps have a number 2D1 molded into the glass at the top of the lens.*

- (1) Remove attaching screw and pull door out slightly at bottom and push up to disengage upper retaining tab.
- (2) Loosen screws in retaining ring, rotate ring to disengage from screws.
- (3) Pull headlamp out and disconnect wire harness.
- (4) Install replacement headlamp with number 2D1 at TOP of lamp.
- (5) Install retaining ring and tighten screws.
- (6) Install headlamp door and attaching screw.
- (7) Check headlamp aim following procedure outlined below.

Cherokee-Wagoneer-Truck Models

- (1) Remove headlamp door, if equipped.
- (2) Remove screws attaching retaining ring and remove ring.
- (3) Pull headlamp out and disconnect wire harness.
- (4) Install replacement headlamp and connect to wire harness.
- (5) Install retaining ring and attaching screws.

(5) Check headlamp aim following procedure outlined below.

(6) Install headlamp door and attaching screw, if equipped.

Headlamp Aiming Procedure

Lamps must be aimed on the **low beam**. They may be aimed either with mechanical aimers or by using a screen. Use HeadLight Aimer J-25300-10 which has the proper adapters for use with the large rectangular headlamps used on the Cherokee, Wagoneer and Truck models, follow instructions supplied with the equipment for proper headlamp aiming. If a screen is to be used, preparation for aiming is as follows:

(1) Locate vehicle in darkened area with level floor and with screen (wall) having nonreflecting white surface.

(2) Mark reference line on floor 25 feet away from and parallel to screen (fig. 3R-1).

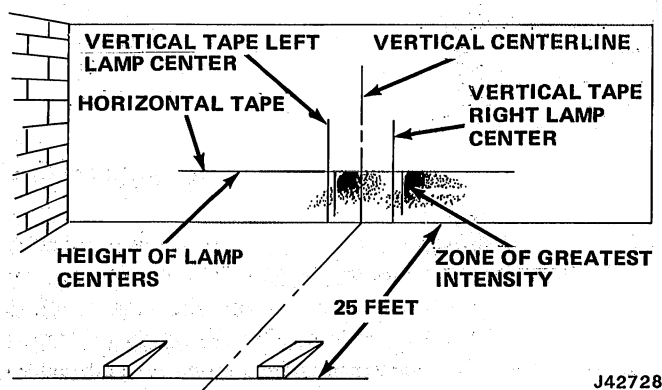


Fig. 3R-1 Headlamp Aiming

(3) Position vehicle perpendicular to screen and with headlamps directly over reference line.

(4) Locate middle tape on screen so it is aligned with centerline of vehicle.

(5) Equalize all tire pressures.

(6) Rock vehicle from side to side to equalize springs and shock absorbers.

(7) Measure distance between vehicle headlamp centers.

(8) Position marker tapes vertically on screen to right and left of middle tape at half this distance.

(9) Measure distance from center of each lamp to surface on which vehicle rests.

(10) Position marker tape horizontally on screen to cross vertical tapes at measured height of each lamp center respectively.

(11) Remove headlamp doors, if equipped.

(12) Clean headlamps.

(13) Turn headlamps on LOW beam.

NOTE: Cover the lamp not being aimed.

(14) Turn vertical aiming screw counterclockwise until lamp beam is considerably lower than horizontal reference line on screen (fig. 3R-2).

VERTICAL ADJUSTMENT HORIZONTAL ADJUSTMENT

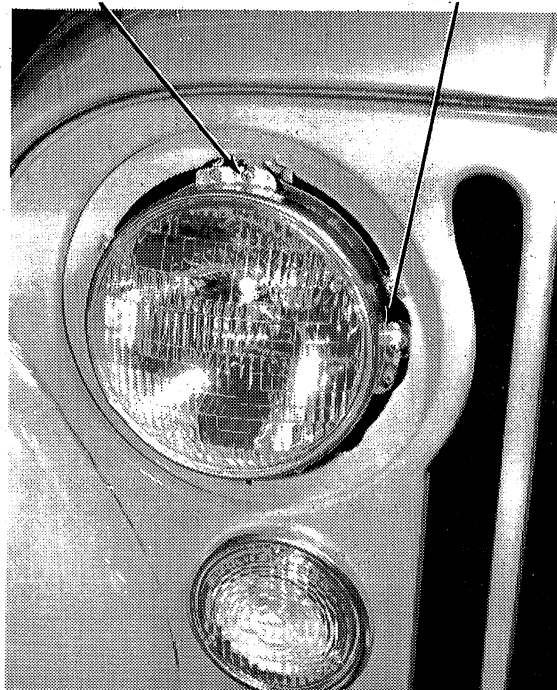


Fig. 3R-2 Headlamp Adjustment—Typical

(15) Turn screw clockwise until top edge of high intensity area is even with horizontal line.

(16) Turn horizontal aiming screw counterclockwise until beam is off centering tape.

(17) Turn same screw clockwise until left edge of high intensity area is 2 inches to right of lamp centerline (fig. 3R-1).

(18) Cover lamp that has been aimed and aim other lamp using same procedure.

Headlamp Switch

The switch is a two-position switch containing a rheostat for controlling instrument panel light brightness (fig. 3R-3). Rotating the knob clockwise dims the panel lights. Rotating the knob fully counterclockwise turns on the dome and courtesy lamps.

Headlamp Switch Replacement

(1) Disconnect harness connector plug from switch.

(2) Pull control knob out to second position.

(3) From behind instrument panel, depress knob release button (as shown in figure 3R-3, inset) and pull knob out of switch.

(4) Remove retaining nut and bezel.

(5) Remove switch through rear of instrument panel.

(6) When installing switch, make sure harness connector plug on switch is secure.

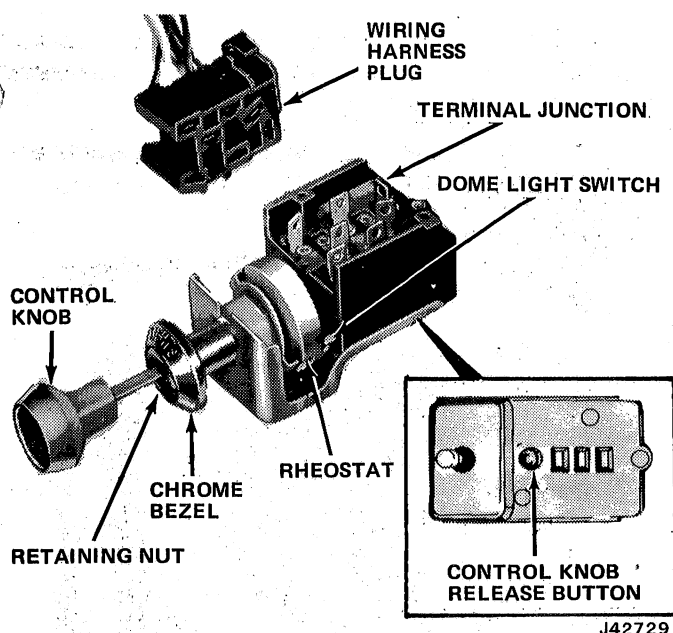


Fig. 3R-3 Headlamp Switch

Dimmer Switch Replacement

Refer to figure 3R-4.

- (1) Remove harness plug from switch.
- (2) Remove screws attaching dimmer switch to floorboard.
- (3) Remove switch.
- (4) Check operation of dimmer switch with Continuity Lamp J-21008. Connect one continuity lamp lead to switch input terminal (fig. 3R-4). Probe each output terminal with other continuity lamp lead. Current flow should alternate from one output terminal to the other as the switch is operated.

PARKING, SIDE MARKER AND DIRECTIONAL LAMPS

CJ and Scrambler Models

The parking lamps are mounted in the radiator guard panel just below the headlamps (fig. 3R-5). The lamps are on when headlamp switch knob is pulled out.

Parking and Directional Bulb

- (1) Remove lens attaching screws.
- (2) Remove lens.
- (3) Replace bulb.

Parking Lamp Assembly

- (1) Remove lens attaching screws.
- (2) Remove lens and gasket.
- (3) Remove housing from front panel.
- (4) Disconnect wire connector from harness.

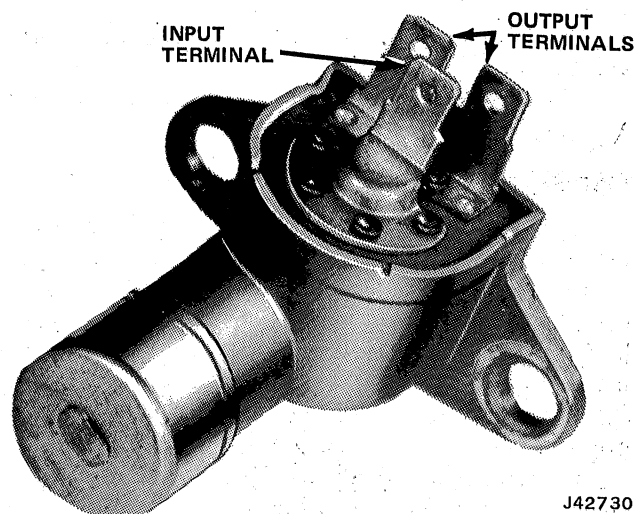


Fig. 3R-4 Headlamp Dimmer Switch

Side Marker Bulbs

- (1) Reach under fender and twist socket a quarter turn counterclockwise to remove from housing.
- (2) Replace bulb.

Cherokee-Wagoneer-Truck Models

The parking lamps are mounted in the panel just above the bumper (fig. 3R-6).

The front side marker lamps flash in unison with the front directional indicator bulb when the headlamps are not on. When the headlamps are on, the side markers flash alternately with the front directional signal lamps. Side markers and parking lamps come on when the headlamp switch is pulled out to any position.

To replace parking lamp bulbs on Cherokee, Wagoneer and Truck models, remove the lens and gasket to gain access to the bulb.

To replace side marker lamps, remove the lamp assembly. Twist the socket 1/4-turn counterclockwise to remove. Remove the bulb by pulling it straight out from the socket.

REAR DIRECTIONAL, SIDE MARKER, STOP AND TAILLAMPS

CJ-Scrambler and Sport Truck Models

Refer to figure 3R-7 for parts identification.

Taillamp Bulb Replacement

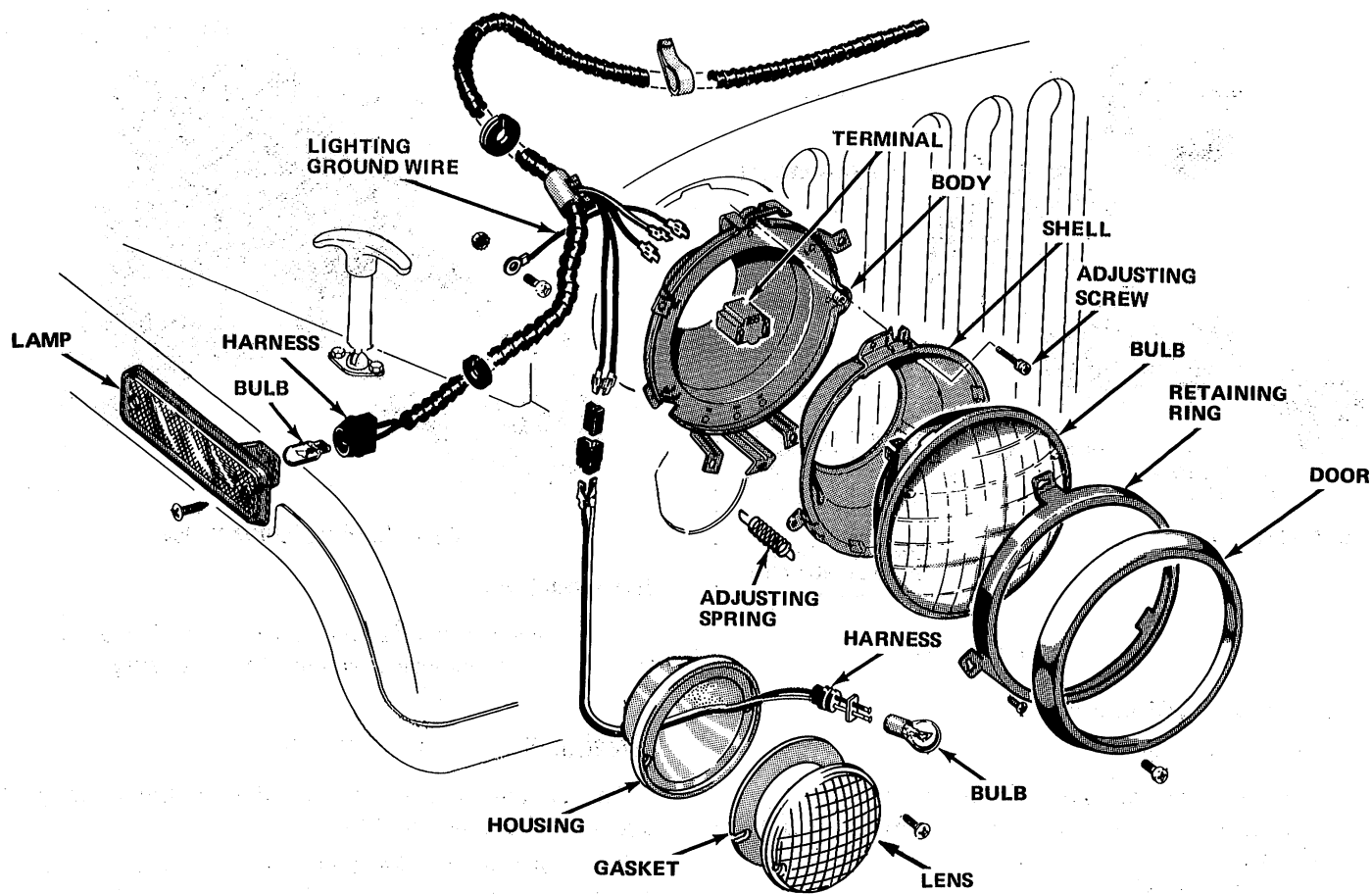
Remove lens attaching screws, lens and gasket. Clean lens and reflector before installing.

Taillamp Housing Replacement

Disconnect wiring, remove taillamp lens, and remove screws attaching taillamp assembly body and remove.

Side Marker Bulb Replacement

- (1) Remove lens attaching screws, lens and gasket. Clean lens and reflector before installing.



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Fig. 3R-5. Headlamp, Parking, Directional and Side Marker Lamps—CJ and Scrambler Models

- (2) Pull side marker bulb straight out of socket.
- (3) To install new bulb, push straight into socket.
- (4) Position lens gasket and lens and install screws.

Cherokee

Refer to figure 3R-8 for parts identification.

NOTE: On Cherokee models which have the trailer towing package, there are four relays located in the wiring harness. There is one relay each for the directional lamp, stoplamp, taillamp and backup lamp.

Taillamp Bulb Replacement

Remove taillamp lens and remove bulb. Clean lens and housing before installing.

Taillamp Housing Replacement

(1) Remove interior rear quarter trim panel. On right side, pull panel out at top to remove. On left side, trim panel is attached with expandable clips. Use care in prying these clips out of their recesses so panel is not bent or damaged.

(2) Disconnect taillamp harness.

(3) Remove two attaching nuts and push housing out from corner posts.

Wagoneer

Refer to figure 3R-9 for parts identification.

Taillamp Bulb Replacement

Remove four lens attaching screws and lens. Replace bulb. Clean lens and reflector before installing.

Taillamp Housing Replacement

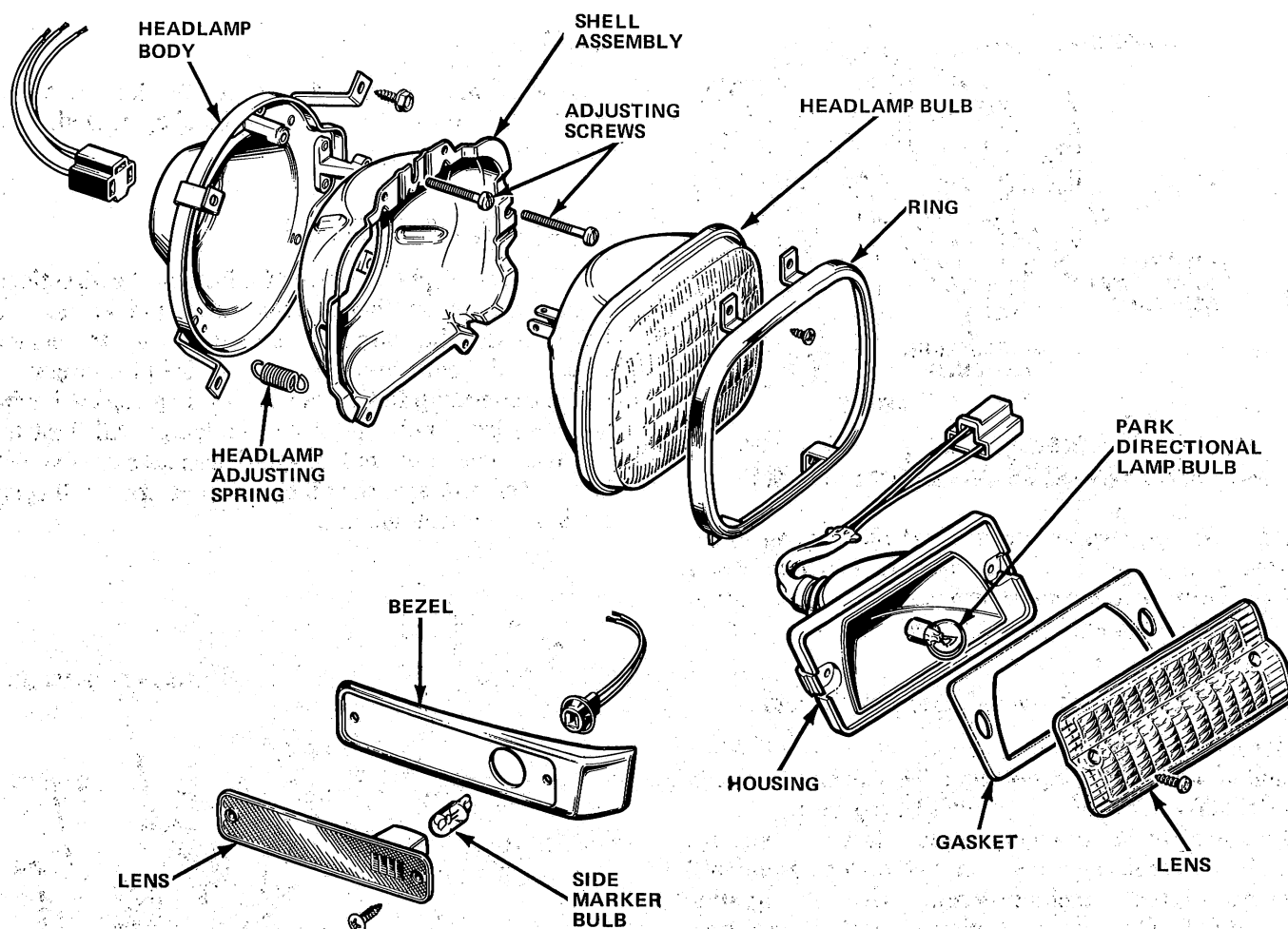
Refer to figure 3R-9 and follow housing replacement procedure as outlined for Cherokee models.

Truck with Townside Pickup Box

The lamp assemblies are mounted in the pickup box end caps (fig. 3R-10).

Taillamp Bulb Replacement

Remove lens attaching screws, lens and bulb. Clean lens and reflector before installing.



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Fig. 3R-6 Headlamp, Parking, Directional and Side Marker Lamps—Cherokee-Wagoneer-Truck Models

Taillamp Housing

- (1) Remove lens attaching screws and lens.
- (2) Remove housing attaching screws.
- (3) Remove housing and disconnect lamp harness.

LICENSE PLATE LAMP

CJ and Scrambler Models

The left taillamp illuminates the license plate. Refer to figure 3R-7.

Truck with Sport Truck Pickup Box

The lamp assemblies are the same as those used on CJ and Scrambler models. Refer to figure 3R-7 for parts identification and to procedural steps for CJ and Scrambler models for service procedures.

Cherokee and Wagoneer

The license plate lamp is attached to the tailgate and is a sealed unit. The lamp is removed by removing the lamp attaching screws and disconnecting the wire harness.

Truck with Townside Pickup Box

The license plate lamp is attached to the rear frame crossmember. Bulb replacement is accomplished by removing the bulb lens. The ground circuit for the license plate bulb is completed through metal-to-metal contact between the bulb bracket, license plate bracket, and the frame (fig. 3R-10).

When equipped with step bumper, the lamp wiring must be disconnected from the original lamp and connected to the step bumper license lamp extension wire.

BACKUP LAMPS AND SWITCHES

To replace a bulb, remove the backup lamp or tail-lamps lens, as required.

Switch Adjustment and Replacement—Manual Transmission

The backup lamp switch is threaded into the right rear corner of the transmission cover housing. The backup lamp switch is actuated by the reverse shift rail.

The backup lamp switch is not serviceable or adjustable and must be replaced as a unit.

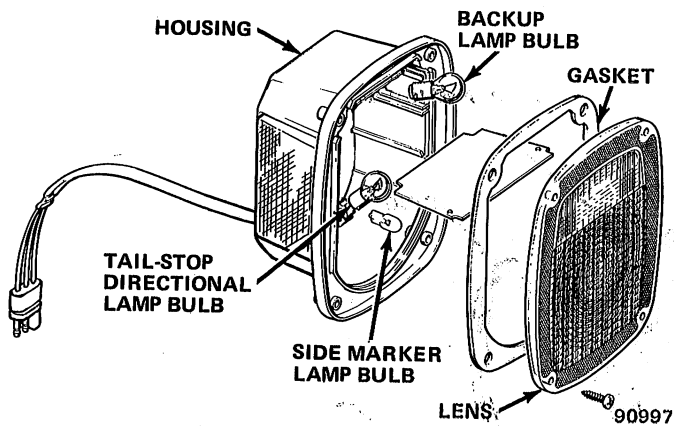


Fig. 3R-7 Rear Directional, Stop, Backup, Taillamps and Side Marker Lamps—CJ-Scrambler and Sport Truck Models

NOTE: Jumper wires are used at the neutral safety switch connector and the automatic transmission backup lamp switch connector to complete the circuit on vehicles equipped with manual transmission.

Switch Adjustment and Replacement—Automatic Transmission

A combination backup and neutral safety switch is mounted on the steering column. This switch is adjustable. If defective, the switch must be replaced.

To adjust the backup lamp switch, place the transmission shift lever in the R position. Loosen (do not remove) the two switch attaching screws. Turn the ignition switch to the On position. Rotate the switch one direction or the other until the backup lamps operate. Tighten the attaching screws. Check the switch for an engine start in the N and P positions. The engine must not start in R, D, 2 or 1 position.

As an aid to adjusting the backup lamp switch, install a test lamp to the lamp side of the switch and ground one side of a test lamp. When the test lamp lights, the backup lamps are operating.

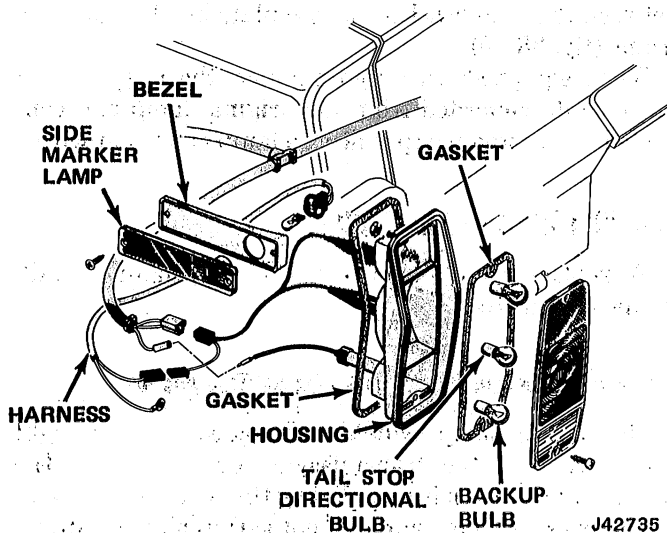


Fig. 3R-8 Rear Directional, Stop, Backup and Taillamps—Cherokee

CARGO LAMP

A cargo lamp is offered on some Truck models (fig. 3R-11). The cargo lamp bulb is replaced by removing the outer lens.

DIRECTIONAL SIGNAL SWITCH

The most frequent causes of failure in the directional signal system are loose connections and burned out bulbs. A flashing rate approximately twice the normal rate usually indicates a shorted bulb is in the circuit.

If a three-lamp flasher is installed in a vehicle having only two lamp bulbs per side, the lamps will light but will not flash. If a two-lamp flasher is used on a vehicle having three lamps, the higher current draw will cause the lamps to flash too fast.

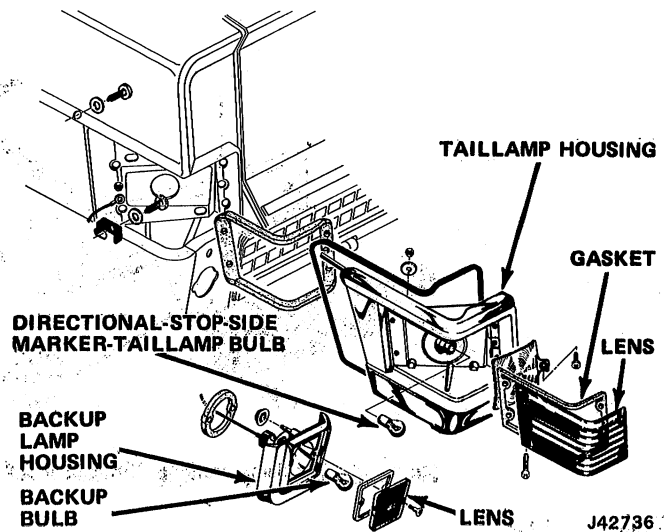


Fig. 3R-9 Rear Directional, Stop, Backup and Taillamps—Wagoneer

If there is no signal at any front, rear or indicator lamp, check the fuse.

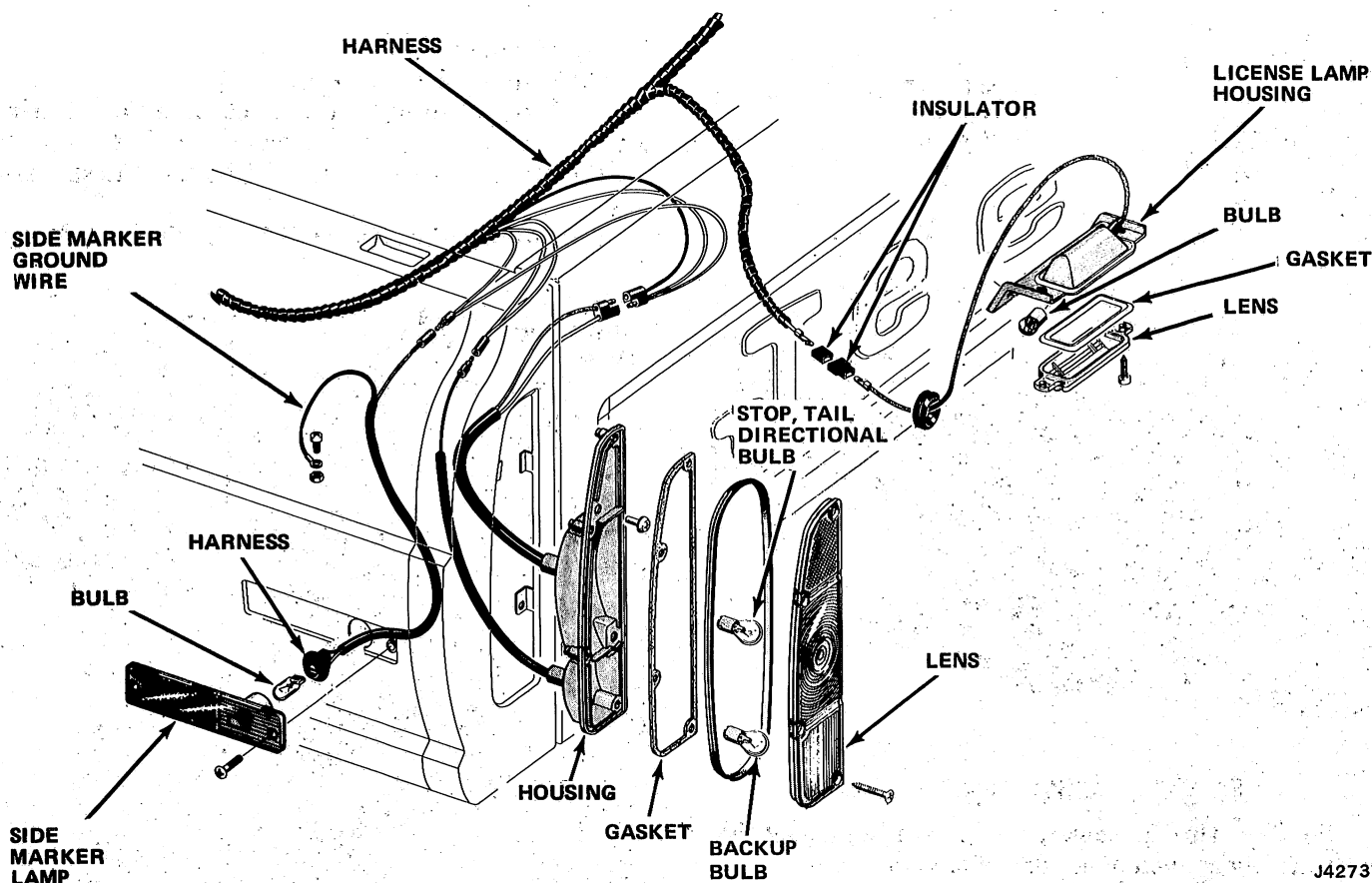
If fuse checks okay, substitute a known good flasher. If a new flasher does not cure the problem, check the signal system wiring connections at the fuse and at the steering column connector.

NOTE: If the brake stoplamps function properly, the rear signal lamp bulbs are okay.

The directional flasher is mounted directly to the fuse panel. Refer to the wiring diagram at the rear of the manual for circuitry.

Switch Removal

- (1) Disconnect battery negative cable.
- (2) Remove horn center button by pulling straight out.
- (3) Remove screws, bushing, receiver and spring.
- (4) Remove steering wheel nut. Note alignment of steering wheel to steering shaft index marks for later installation.



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Fig. 3R-10 Rear Directional, Stop, Backup, Tailamps and Side Marker—Townside Truck

(5) Remove steering wheel with Steering Wheel Puller J-21232-01.

(6) Lift lock plate cover.

(7) Use Lock Plate Compressor Tool J-23653 to depress lock plate (fig. 3R-12).

(8) Pry round wire snap ring from steering shaft groove.

(9) Remove Lock Plate Compressor Tool, snap ring, lock plate, directional signal canceling cam, upper bearing preload spring and thrust washer from steering shaft.

(10) Place directional signal actuating lever in right turn position and remove lever.

(11) Depress hazard warning light switch, located on right side of column adjacent to the key lock, and remove button by turning in a counterclockwise direction.

(12) Remove directional signal wire harness connector block from its mounting bracket on right side of lower column.

NOTE: On vehicles equipped with automatic transmission, use a stiff wire, such as a paper clip, to depress the lock tab which retains the shift quadrant lamp wire in the connector block.

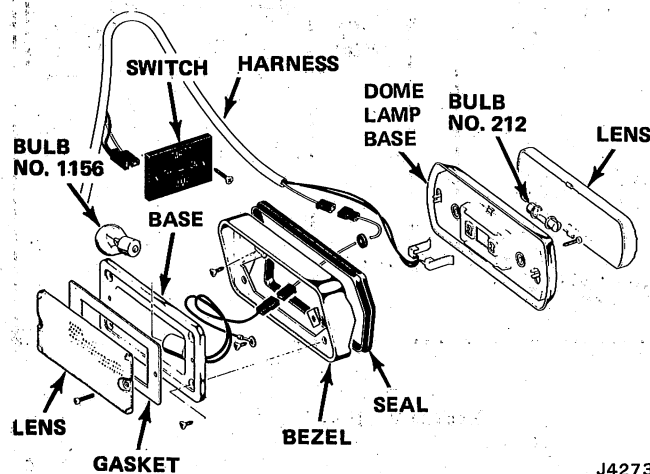
(13) Remove directional signal switch retaining screws and pull directional signal switch and wire harness from column (fig. 3R-13).

Switch Installation

(1) Guide wire harness into position and carefully align switch assembly.

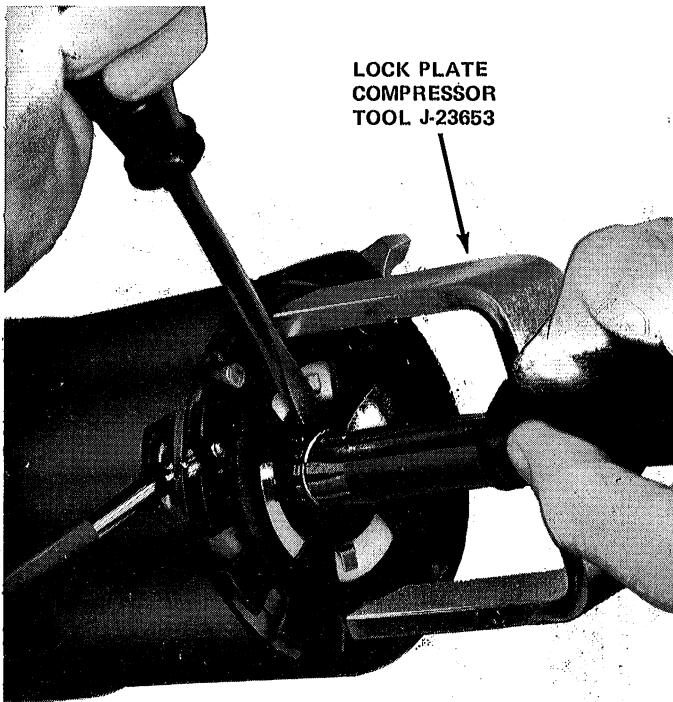
NOTE: Assure that actuating lever pivot is correctly aligned and seated in the upper housing pivot boss prior to installing the retaining screws.

(2) Install directional signal lever and actuate directional signal switch to assure correct operation.



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Fig. 3R-11 Cargo Lamp—Truck



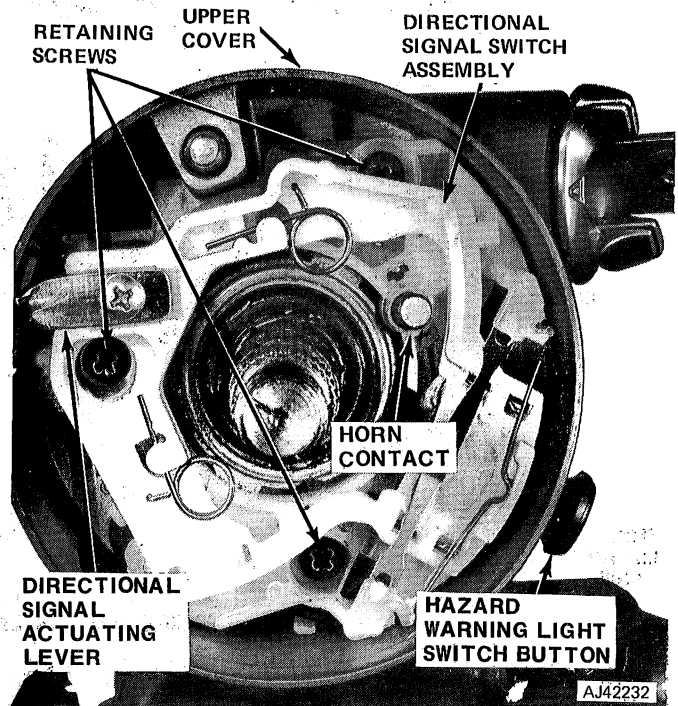
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Fig. 3R-12 Lock Plate Snap Ring Removal

(3) Place thrust washer, spring, and directional signal canceling cam on upper end of steering shaft.

(4) Align lock plate splines with steering shaft splines and place lock plate in position with directional signal canceling cam shaft protruding through dogleg opening in lock plate.

- (5) Install snap ring.
- (6) Install lock plate cover.
- (7) Install steering wheel. Align mark on steering wheel with previously noted mark on housing.
- (8) Install washer and nut. Tighten nut to specified torque.
- (9) Install spring. **Raised side of spring must be up.**



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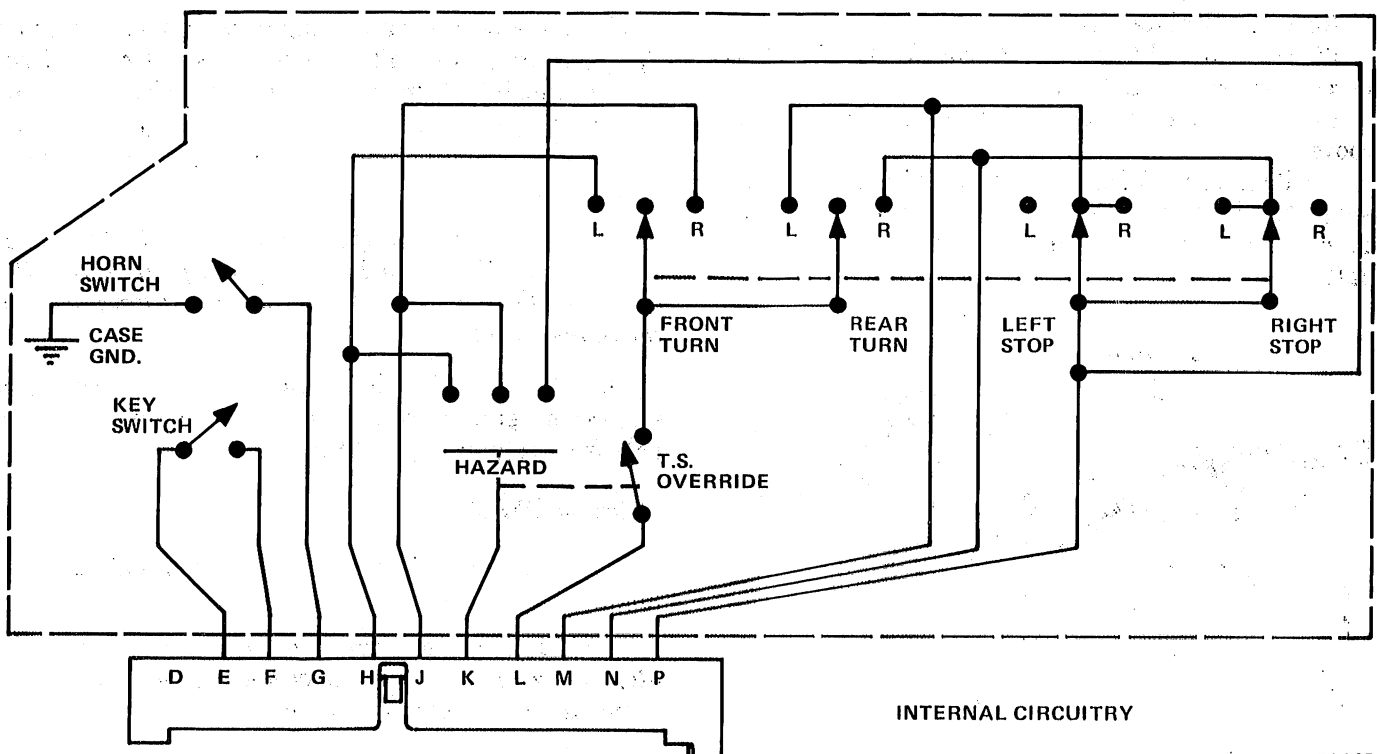


Fig. 3R-13 Directional Signal Switch

(10) Install receiver and bushing. Receiver must be free to move after bushing screws are tightened.

(11) Line up notch on receiver with nib on horn button. Push button until it snaps into place.

4-WAY EMERGENCY FLASHER (HAZARD WARNING)

All models are equipped with a four-way emergency flasher system. With the switch activated, the two front and two rear directional signal lamps flash on and off simultaneously with both directional signal indicator lamps on the instrument clusters.

This system makes use of the conventional directional signal wiring and bulbs, but has a separate battery feed wire, flasher unit and switch. It is possible to leave a vehicle with the 4-way flasher operating, with the ignition switch and vehicle doors locked. When the 4-way flasher is turned on, the normal directional signal supply is disconnected at the directional signal switch and a separate battery feed circuit is connected into the switch from the fuse panel. The 4-way flasher circuit uses a special heavy-duty flasher. Since the 4-way warning flasher is of the heavy-duty type, it will flash from one to six bulbs at a constant rate. Flashing indicator lights do not necessarily mean that *all* signal bulbs are flashing.

The 4-way emergency flasher switch is a part of the directional signal switch.

To operate the system, push in on the switch button.

The 4-way flasher can only be canceled by pulling out on the flasher switch knob.

Refer to Directional Signal Switch for 4-way flasher switch removal or replacement procedure.

The battery feed for the 4-way flasher system is in the fuse panel.

STOPLAMP SWITCH

The stoplamp switch is self-adjusting and is the same for all models. The switch is retained in its mounting bracket by a spring clip which engages the threaded portion of the switch housing (fig. 3R-14). The switch may be removed by pulling straight out of the mounting bracket and retainer.

Adjustment

- (1) Depress brake pedal and hold in depressed position.
- (2) Push stoplamp switch completely into mounting bracket until switch bottoms.
- (3) Release brake pedal and allow it to return to undepressed position. Brake pedal will push switch to properly adjusted position.
- (4) Check switch operation. Stoplamps should operate after $\frac{3}{8}$ inch to $\frac{5}{8}$ inch of pedal travel.

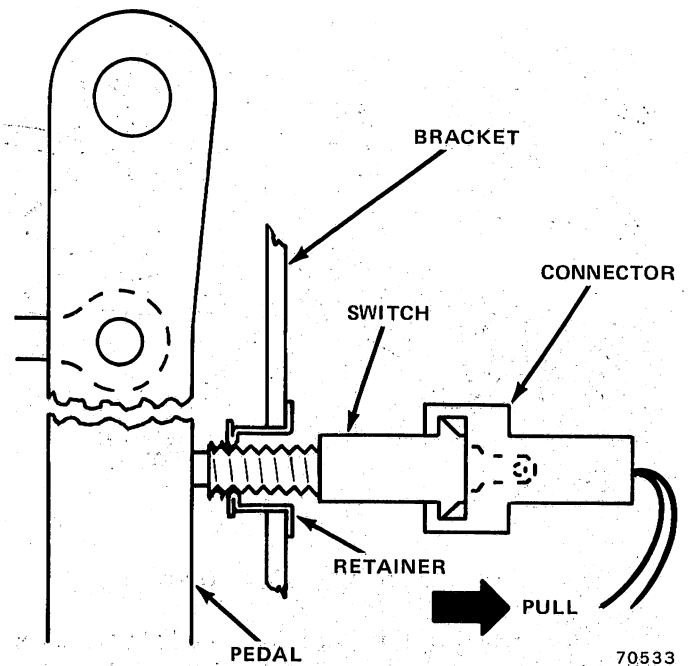


Fig. 3R-14 Stoplamp Switch

Stoplamp Switch Electrical Test

This test requires a voltmeter.

- (1) Ground one lead of voltmeter.
- (2) Probe each connection of stoplamp switch with other lead of voltmeter.
 - (a) With switch plunger depressed (brake not applied), one switch connector should indicate voltage and the other should not.
 - (b) With switch plunger released (brake applied), both switch leads should show voltage.

FOG LAMPS

The fog lamps are available on all models. Mounting locations vary depending on vehicle model and optional equipment. The switch is located on the far left side of the instrument panel (fig. 3R-15).

NOTE: Fog lamps are turned off by the circuit relay when the high beam driving lamps are turned on. The circuit relay is located on the right front wheelhouse panel near the blower motor. Refer to Wiring Diagrams at the end of this manual for details.

Aiming Fog Lamps

- (1) Position vehicle on a flat surface, facing and approximately 25 feet from wall.
- (2) Remove lamp stone shields (fig. 3R-16).
- (3) Loosen lamp attaching hardware. Turn headlamp and fog lamp switches ON (fig. 3R-15), adjust lamp beams as follows:

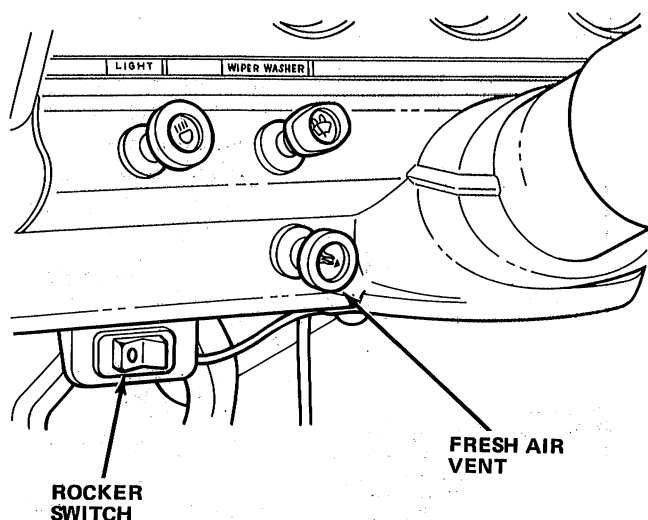


Fig. 3R-15 Switch Location—Typical

(a) Horizontal distance between light beams on wall should be same size as distance between lamps on front bumper.

(b) Vertical height of light beams on wall should be 4 inches less than height of lamps on front bumper.

- (4) Tighten lamp attaching hardware.
- (5) Turn off headlamp and fog lamp switches.
- (6) Install lamp stone shields.

Lamp Element Replacement

- (1) Remove lamp stone shields (fig. 3R-16).
- (2) Remove screws attaching bezel to lamp body. Remove bezel from lamp body.
- (3) Remove lens and reflector assembly from lamp body.
- (4) Remove bulb holder from lens and reflector assembly.
- (5) Remove lamp element from bulb holder and install replacement lamp element.
- (6) Install bulb holder in lens and reflector assembly.
- (7) Position lens and reflector assembly in lamp body with TOP of lens at top of lamp body.

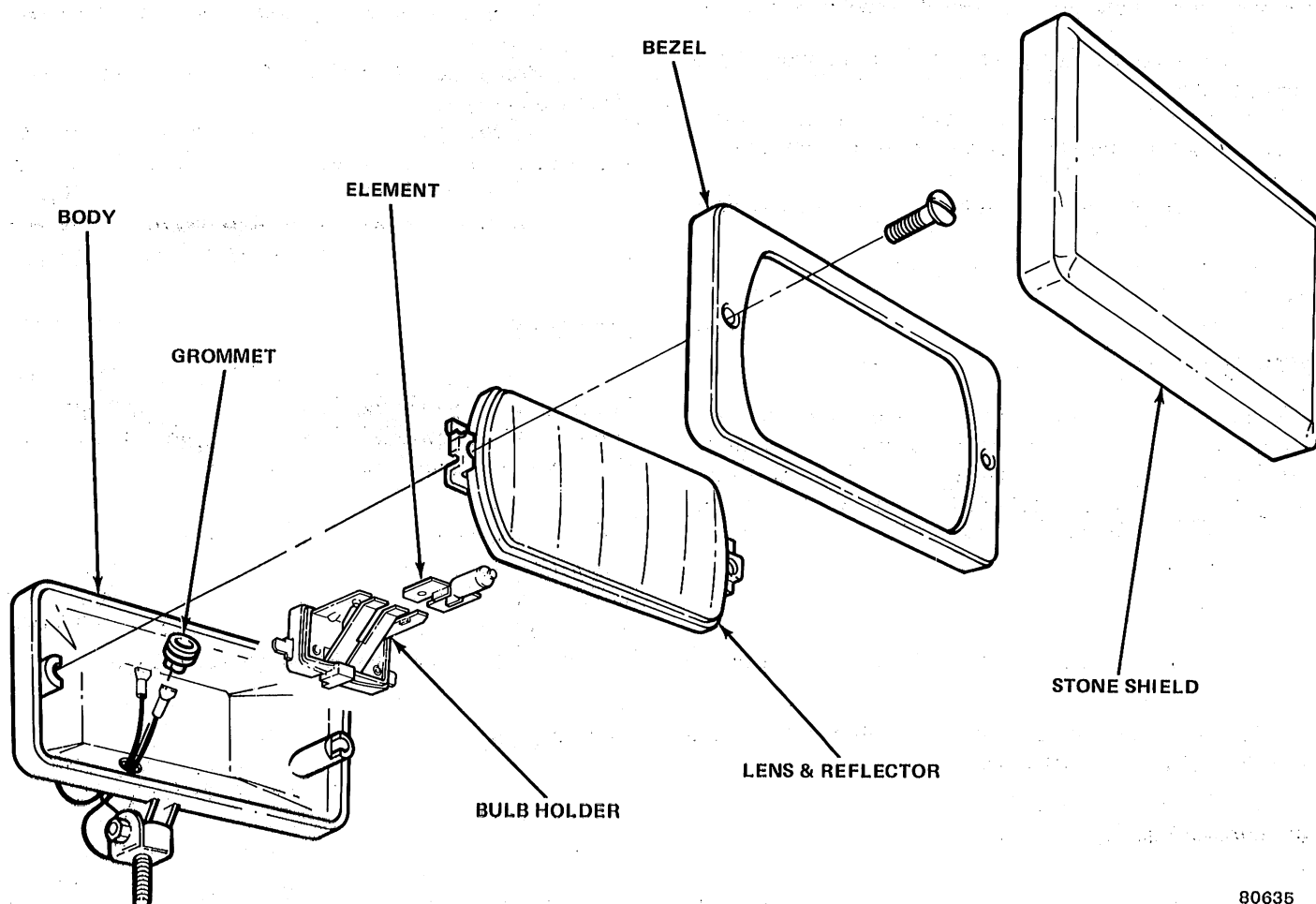


Fig. 3R-16 Fog Lamp Components

- (8) Position bezel on lamp body and install attaching screws.
- (9) Install stone shield on lamp.

Switch Replacement

- (1) Remove switch from instrument panel and disconnect electrical harness (fig. 3R-17).

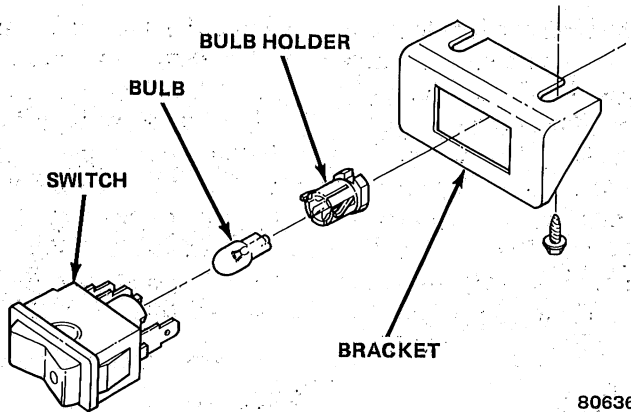


Fig. 3R-17 Fog Lamp Switch Components

- (2) Connect harness to replacement switch and install switch in instrument panel.

ENGINE COMPARTMENT LAMP

This optional lamp obtains current at the battery terminal of the starter solenoid. A single wire incorporating a fusible link for protection passes current to the lamp assembly. The lamp assembly has a mercury switch which completes the circuit through the hood assembly when the hood is open. When the hood is closed, the mercury within the lamp assembly opens the circuit and the lamp does not light (fig. 3R-18).

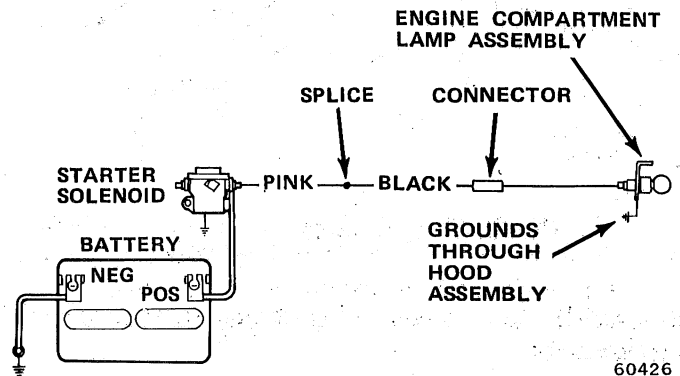


Fig. 3R-18 Engine Compartment Lamp Wiring

INTERIOR LIGHTING SYSTEM

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COURTESY LAMPS/DOME LAMPS

CJ and Scrambler Models

CJ and Scrambler models equipped with the hardtop have a dome lamp located above the liftgate. When removing the hardtop, disconnect the wire connector located on the left C-pillar. On the CJ-7 limited model, the dome lamp and courtesy lamps are operated by door pillar switches. On all other models, the lamp is operated by turning the headlamp switch knob counter-clockwise to the stop.

The dome lamp lens can be removed by squeezing the lens together to disengage the retaining tabs (fig. 3R-19). The dome lamp assembly can be removed after removing the attaching screws.

Cherokee-Wagoneer Models

The courtesy and dome lamps operate when the doors are opened. The door pillar switch provides a ground for the circuit.

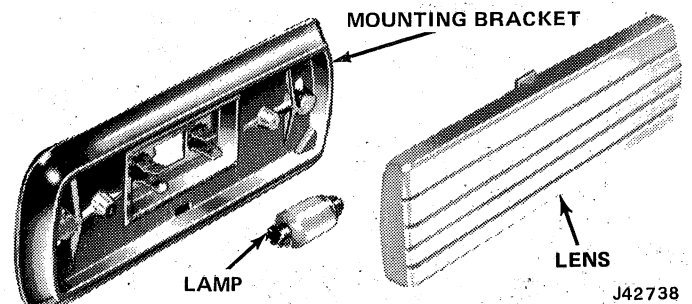
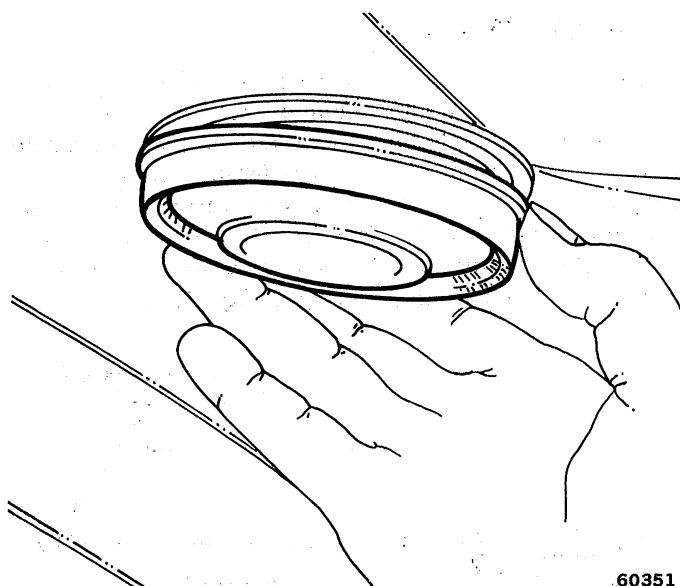


Fig. 3R-19 Dome Lamp—CJ and Scrambler Models

Battery feed is from the headlamp switch. When the doors are closed, the dome and courtesy lamps are operated by rotating the headlamp switch knob counter-clockwise to the stop. The ground for the lamps is then through the headlamp switch. The standard round dome lamp lens has three irregularly spaced barbed tabs that are inserted into slots in the dome lamp base to retain it. The lens is removed by pulling it downward or by prying it down with a small screwdriver (fig. 3R-20).



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Fig. 3R-20 Removing Dome Lamp Lens—Cherokee-Wagoneer Models

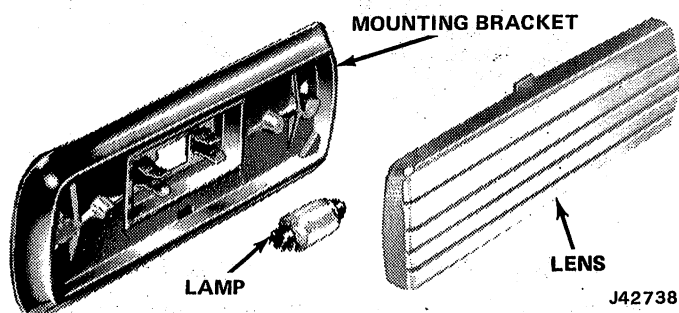
To install, align the lens tab with the proper slots and snap it into place.

Truck Models

The courtesy and dome lamps operate when the doors are opened. The door pillar switch provides a ground for the circuit.

Battery feed is from the headlamp switch. When the doors are closed, the dome and courtesy lamps are operated by rotating the headlamp switch knob counter-clockwise to the stop. The ground for the lamps then is made through the headlamp switch.

The dome lamp lens can be removed by squeezing the lens together to disengage the retaining tabs (fig. 3R-21). The dome lamp assembly can be removed after removing two attaching screws. The dome lamp bracket in the Truck cab is centrally located above the rear window.



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Fig. 3R-21 Dome Lamp—Truck Models

LIGHTED VANITY MIRROR

Cherokee-Wagoneer Models

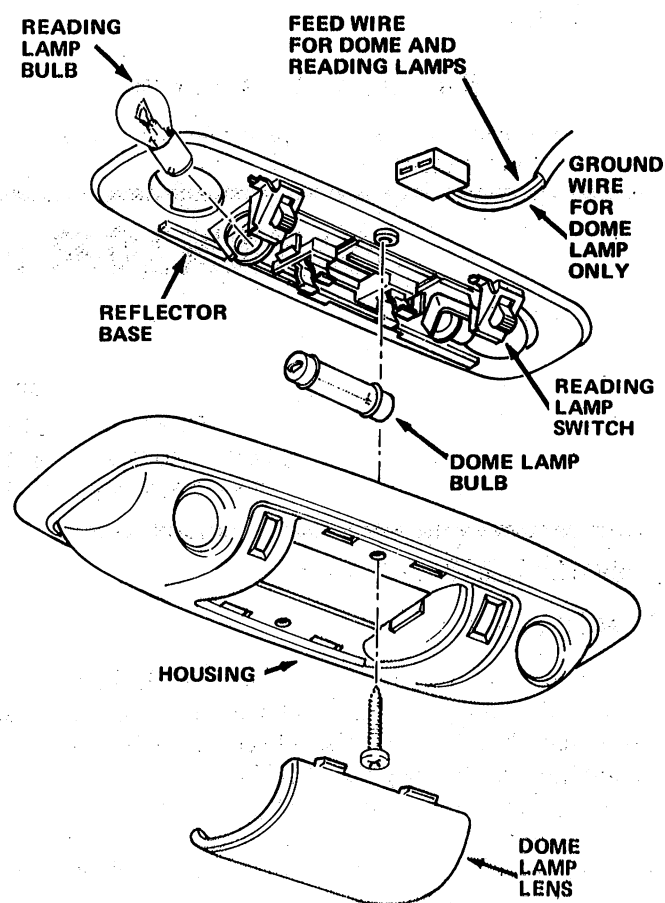
The lighted vanity mirror (fig. 3R-23) is attached to the passenger sun visor. It has one lamp assembly

mounted at each end of the vanity mirror. The lamp switch is located on the right side of the mirror assembly.

DOME/READING LAMP

Cherokee-Wagoneer Models

The dome/reading lamp replaces the standard dome lamp as an optional accessory. The dome lamp is operated by the headlamp switch or door switches like the standard dome lamp. Two reading lamps are built into the lamp housing and illuminate the driver or passenger seat position. The reading lamps are operated individually by a sliding switch located next to each lamp (fig. 3R-22). The reading lamps are grounded through the lamp assembly attaching screws to the roof bow. Refer to Wiring Diagrams at the end of this manual for details.



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Fig. 3R-22 Dome/Reading Lamp—Cherokee-Wagoneer Models

The lighted vanity mirror assembly is equipped with a short harness and connector to allow removal without dropping the headliner. The short harness is connected to the dome/reading lamp harness. The circuit is grounded at the front roof rail and obtains current from the dome/reading lamp circuit. Refer to Wiring Diagrams at the end of this manual for details.

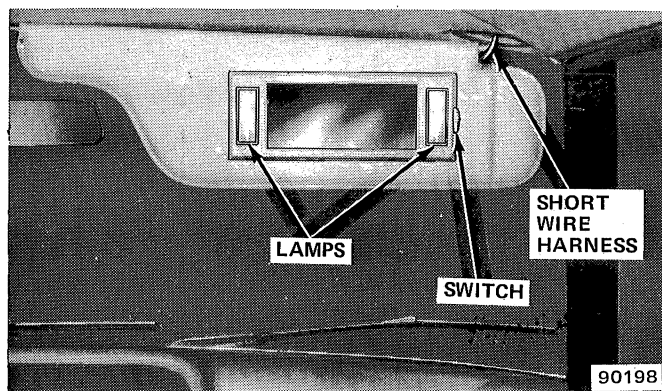


Fig. 3R-23 Lighted Vanity Mirror—Cherokee-Wagoneer Models

CARGO LAMP

Cherokee-Wagoneer Models

The cargo lamp is located in the rear headlining and controlled by the headlamp switch, door switches, and

cargo lamp switch. The cargo lamp switch may be operated from the rear of the vehicle after lowering the tailgate glass. The cargo lamp switch provides an additional ground switch for the cargo lamp.

NOTE: The cargo lamp on the Truck models is addressed in the exterior lighting system section of this chapter.

GLOVE BOX LAMP

Current passes from the stoplight switch feed to the glove box lamp socket. The glove box lamp switch is grounded to the instrument panel and thus has no ground wire. When the glove box is open, the switch completes the ground circuit through the instrument panel. Refer to Wiring Diagrams at the end of this manual for details.

INSTRUMENT CLUSTER LAMPS

The instrument cluster lamps are covered in detail in Chapter 3C.

CHASSIS WIRING HARNESS

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WIRING HARNESS COMPONENTS

Main Harness Connector

All models have a main wiring harness connector located at the left upper corner of the dash panel. This connector is made up of the engine and forward lamp harness at the engine compartment and the fuse and instrument panel harness at the passenger compartment side.

The connector can be removed from the dash panel by removing the center bolt from the engine compartment side and the two attaching screws from the driver's side. Be careful not to bend the male spade terminals when removing or installing the connector. The center of the connector is filled with a non-conductive grease to prevent corrosion of the terminals. If any wires are replaced on the engine compartment side, the terminal opening must be resealed with a durable waterproof sealer. **Do not use string-type body caulk as a sealer.**

Fusible Links

Fusible links are harness wires covered with a special non-flammable insulation. The links protect circuits

which are not normally fused due to carrying high amperage loads or because of their location in the chassis.

They are used to prevent major harness damage in the event a short circuit, short to ground or overload condition occurs.

All Jeep models are equipped with fusible links, located in the engine compartment, which protect the circuits shown in the Wiring Diagrams.

Each link is of a fixed value for the specific load. Replacement links are listed in the parts catalog.

NOTE: Failure of a fusible link is often caused by a grounded circuit; therefore, the cause of the failure must be determined prior to installing a new link.

Fusible Link Replacement

- (1) Disconnect battery negative cable.
- (2) Follow one end of the link to the terminal end. Follow the remaining end to wire harness.
- (3) Remove harness tape approximately 2 inches from where link enters harness; the soldered splice will be visible.
- (4) Following the wiring diagram, determine which circuit(s) may have caused the failure. Test the circuit(s)

using an ohmmeter or test light until ground condition is located and corrected.

(5) Unsolder link from harness, solder replacement link to harness wire(s).

NOTE: Solder joint *MUST* be made with rosin core solder only. *DO NOT* use acid or acid core solder. Protect harness wires from damage when soldering.

(6) Tape harness using plastic electrical tape.

(7) Route wire as originally installed and make connection.

(8) Connect battery negative cable and check operation of the circuit(s) involved.

IGNITION SWITCH

The ignition switch is mounted on the lower section of the steering column and is connected to the key lock assembly by a remote lock rod.

Removal

(1) Place key lock in Off—LOCK position and remove two switch attaching screws.

(2) Disconnect switch from remote rod.

(3) Disconnect harness connector and remove switch from steering column.

Testing

The ignition switch terminals are shown in figure 3R-24.

To test the ignition switch circuitry and continuity, place the slide bar in the position to be tested and use either an ohmmeter or Continuity Light J-21008.

Ignition switch slide bar positions can be easily identified by first locating the alignment hole located in the flat portion of the switch adjacent to the terminals. Starting from the alignment hole end of the switch, the switch positions are: Accessory, Off—LOCK, Off, On, and Start. Each position has a detent stop except START which is spring loaded to release when the key is released.

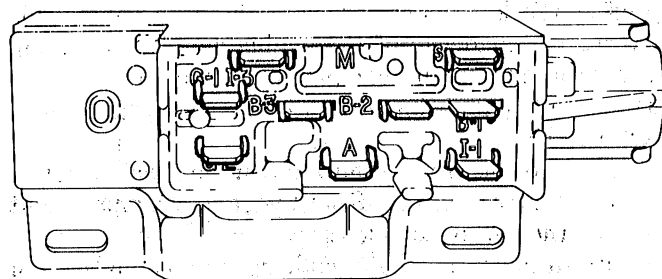
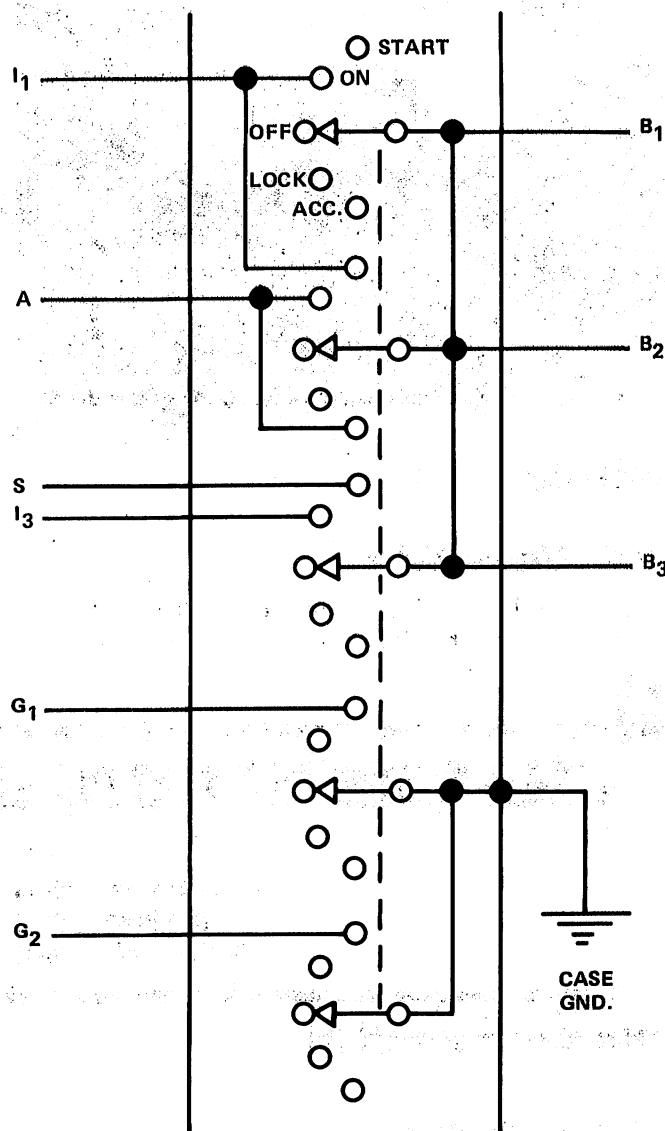
No electrical resistance should be indicated (test lamp on) between two connected terminals. The maximum voltage drop between any two connected terminals, as shown in the Ignition Switch Chart, should not exceed 12.5 millivolts per amp. For example: If a 10-amp load is drawn through the switch, maximum voltage drop should be 10×0.0125 or 0.125 volt.

Installation

Standard Column

(1) With actuator rod disconnected, position switch as shown in figure 3R-25.

(2) Move slider to extreme left (Accessory position).

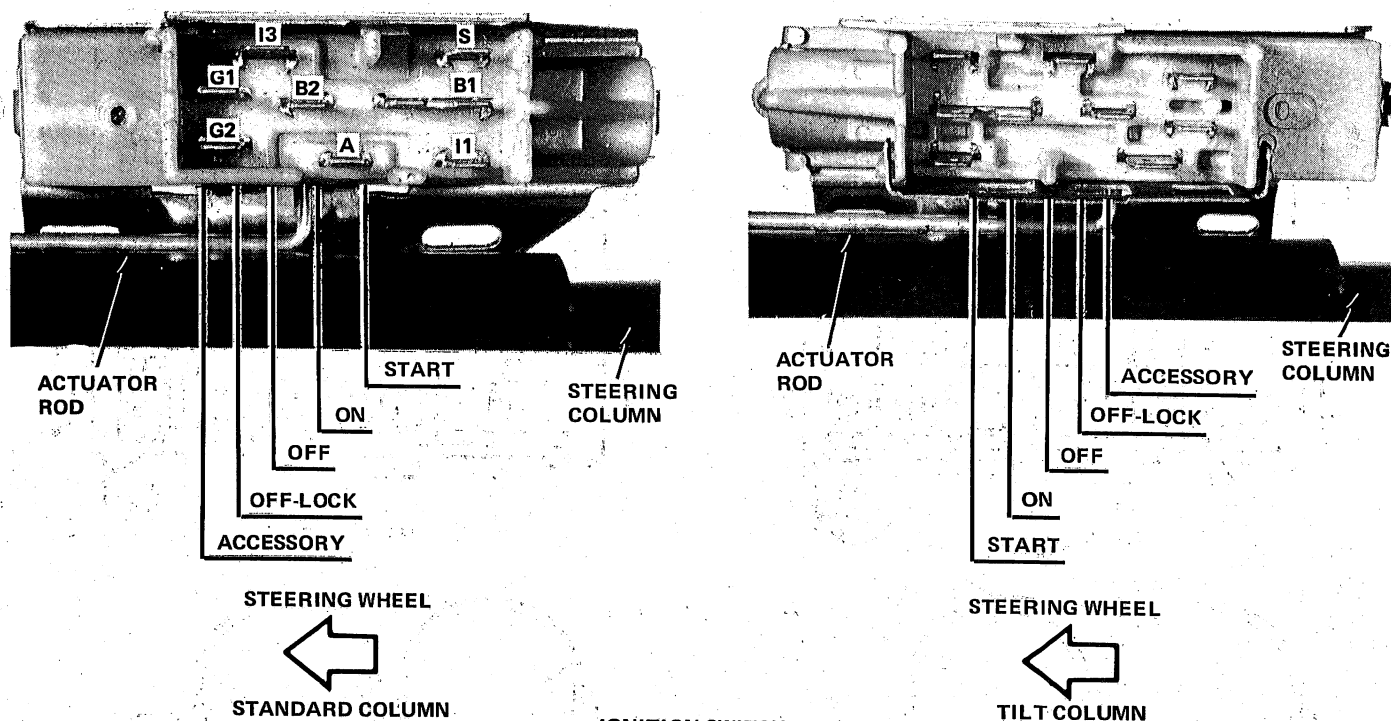


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Fig. 3R-24 Ignition Switch Terminals

NOTE: The left side of the ignition switch is toward the steering wheel.

(3) Position actuator rod in the slider hole and install switch to steering column being careful not to move the slider out of the detent.



POSITION	CIRCUIT	
START	I-1, B-1 & S G-1, G-2	CONNECTED GROUNDED
ON	I-1 & B-1 A & B-2 I-3 & B-3	CONNECTED CONNECTED CONNECTED
OFF	OPEN	
OFF-LOCK	OPEN	
ACCESSORY	A & B-2	CONNECTED

B-1, B-2 & B-3 (COMMON CONNECTION)

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Fig. 3R-25 Ignition Switch Positions

(4) Hold key in Accessory position and push switch down column slightly to remove slack in actuator rod.

(5) Tighten attaching screws securely.

(6) Connect white connector and then black connector to switch.

(7) Install steering tube cover.

Tilt Column

(1) With actuator rod disconnected, position switch as shown in figure 3R-25.

(2) Move slider to extreme right (Accessory position).

NOTE: The right side of the ignition switch is downward from the steering wheel.

(3) Position actuator rod in slider hole.

(4) Install switch to steering column but do not tighten attaching screws.

(5) Lightly push switch down column (away from steering wheel) to remove lash in actuator rod, while holding key in Accessory position. Be careful not to move slider out of detent.

(6) Tighten attaching screws securely.

(7) Connect white connector and then black connector to ignition switch.

(8) Install steering tube cover, if removed.

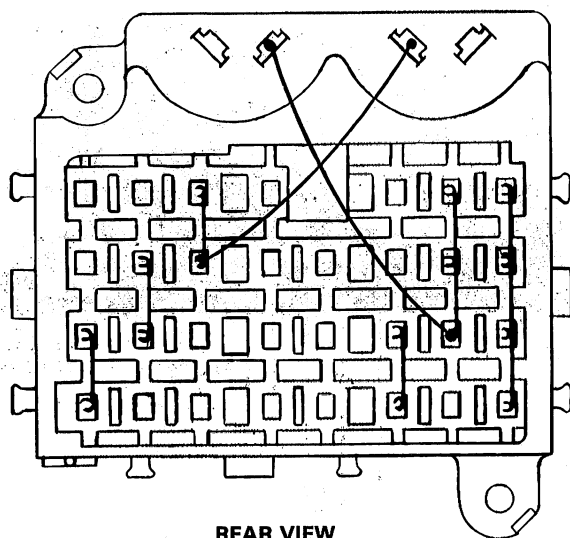
FUSE PANEL

The fuse panel is located on the passenger compartment side of the dash panel, attached to the main harness connector (figs. 3R-26 and 27).

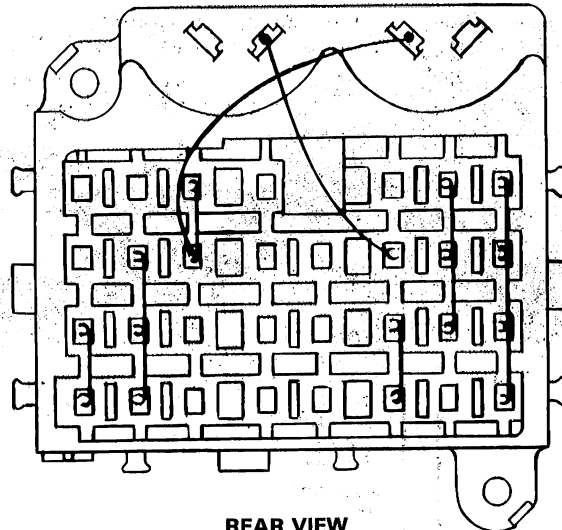
CIRCUIT BREAKERS

CJ and Scrambler Models

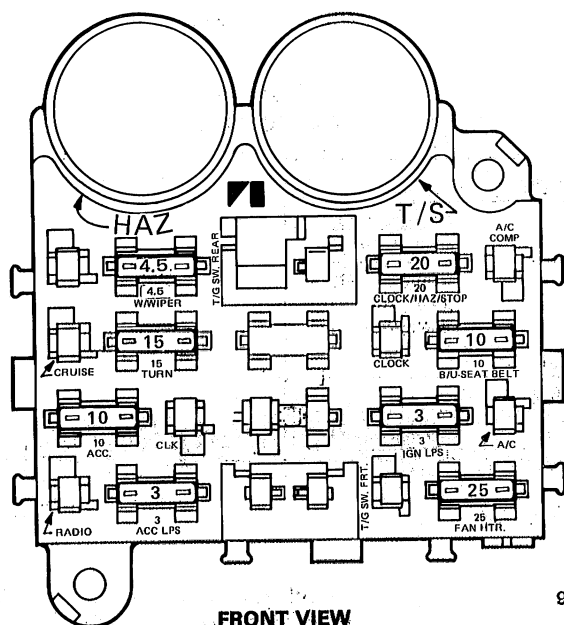
Headlamps are protected by a 24-amp circuit breaker located in the headlamp switch.



REAR VIEW



REAR VIEW



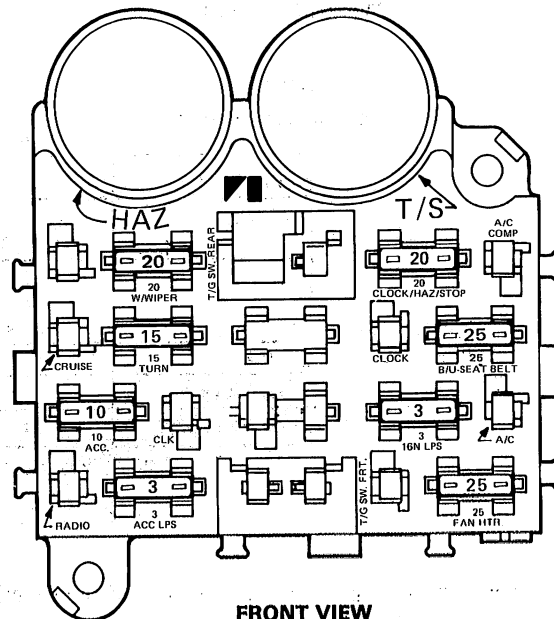
FRONT VIEW

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**Fig. 3R-26 Fuse Panel Circuitry and Fuse Application—
CJ and Scrambler Models**

Cherokee-Wagoneer-Truck Models

Headlamps are protected by a 24-amp circuit breaker located in the headlamp switch.



FRONT VIEW

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**Fig. 3R-27 Fuse Panel Circuitry and Fuse Application—
Cherokee-Wagoneer-Truck Models**

The tailgate window circuits are protected by two 30-ampere circuit breakers located in the fuse panel.

One circuit breaker is used in the instrument panel switch circuit and the other is used in the tailgate key operated switch circuit.

Torque Specifications

Service Set-To Torques should be used when assembling components.

Service In-Use Recheck Torques should be used for checking a pre-torqued item.

	Service Set-To Torque		Service In-Use Recheck Torque	
	USA (in-lbs)	Metric (N·m)	USA (in-lbs)	Metric (N·m)
Steering Wheel Nut	35 ft-lbs	48	30-40 ft-lbs	41-54
Directional Signal Switch Handle	25	3	15-30	2-3
Hazard Warning Knob Mounting Screws	5	0.5	2-5	0.2-0.5

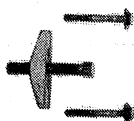
All Torque values given in inch-pounds and newton-meters with dry fits unless otherwise specified.

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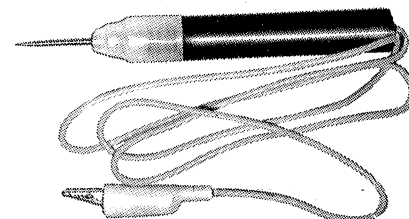
Tools



J-23653 LOCK
PLATE COMPRESSOR



J-21232-01 FRONT PUMP
OIL SEAL REMOVER
(STEERING WHEEL PULLER)



J-21008
CONTINUITY LAMP



J-25300-10
HEADLIGHT AIMER

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NOTES