

# LAMPS

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## LAMP DIAGNOSIS

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### GENERAL INFORMATION

#### HEADLAMP LEVELING MOTOR

This vehicle is equipped with a remote headlamp leveling system. This system allows the driver to adjust the vertical headlamp aim from the interior of the vehicle to compensate for passenger or cargo load. A headlamp leveling switch is located in the instrument panel and controls the headlamp leveling motor found mounted to the headlamp module.

### DIAGNOSIS AND TESTING

#### DIAGNOSTIC PROCEDURES

When a vehicle experiences problems with the headlamp system, verify the condition of the battery connections, fuses, charging system, headlamp bulbs, wire connectors, relay, high beam switch, dimmer switch, and headlamp switch. Refer to Group 8W, Wiring Diagrams for component locations and circuit information.

### DIAGNOSIS AND TESTING

#### HEADLAMP LEVELING MOTOR DIAGNOSIS

CONDITION	POSSIBLE CAUSES	CORRECTION
ONE MOTOR DOES NOT OPERATE	<ol style="list-style-type: none"> <li>Poor connection at motor.</li> <li>No voltage at motor.</li> <li>Defective motor.</li> </ol>	<ol style="list-style-type: none"> <li>Secure connector on motor.</li> <li>Repair circuit. Refer to Group 8W, Wiring.</li> <li>Replace motor.</li> </ol>
BOTH MOTORS DO NOT OPERATE	<ol style="list-style-type: none"> <li>No voltage at headlamp leveling switch.</li> <li>No voltage at both motors.</li> <li>Poor connection at motors.</li> <li>Both motors defective.</li> </ol>	<ol style="list-style-type: none"> <li>Repair circuit or replace fuse. Refer to Group 8W, Wiring.</li> <li>Repair circuit or replace fuse. Refer to Group 8W, Wiring.</li> <li>Secure connectors on motors.</li> <li>Replace motors.</li> </ol>

# HEADLAMP AND FOG LAMP ALIGNMENT

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## GENERAL INFORMATION

### HEADLAMP ALIGNMENT PREPARATION

- (1) Verify headlamp are on low beam setting.
- (2) Verify that the headlamp leveling switch is in the "0" position.
- (3) Inspect and correct damaged or defective components that could interfere with proper headlamp alignment.
- (4) Verify proper tire inflation.
- (5) Clean headlamp lenses.
- (6) Verify that luggage area is loaded as the vehicle is routinely used.
- (7) Fuel tank should be FULL. Add 2.94 kg (6.5 lbs.) of weight over the fuel tank for each estimated gallon of missing fuel.

## ADJUSTMENTS

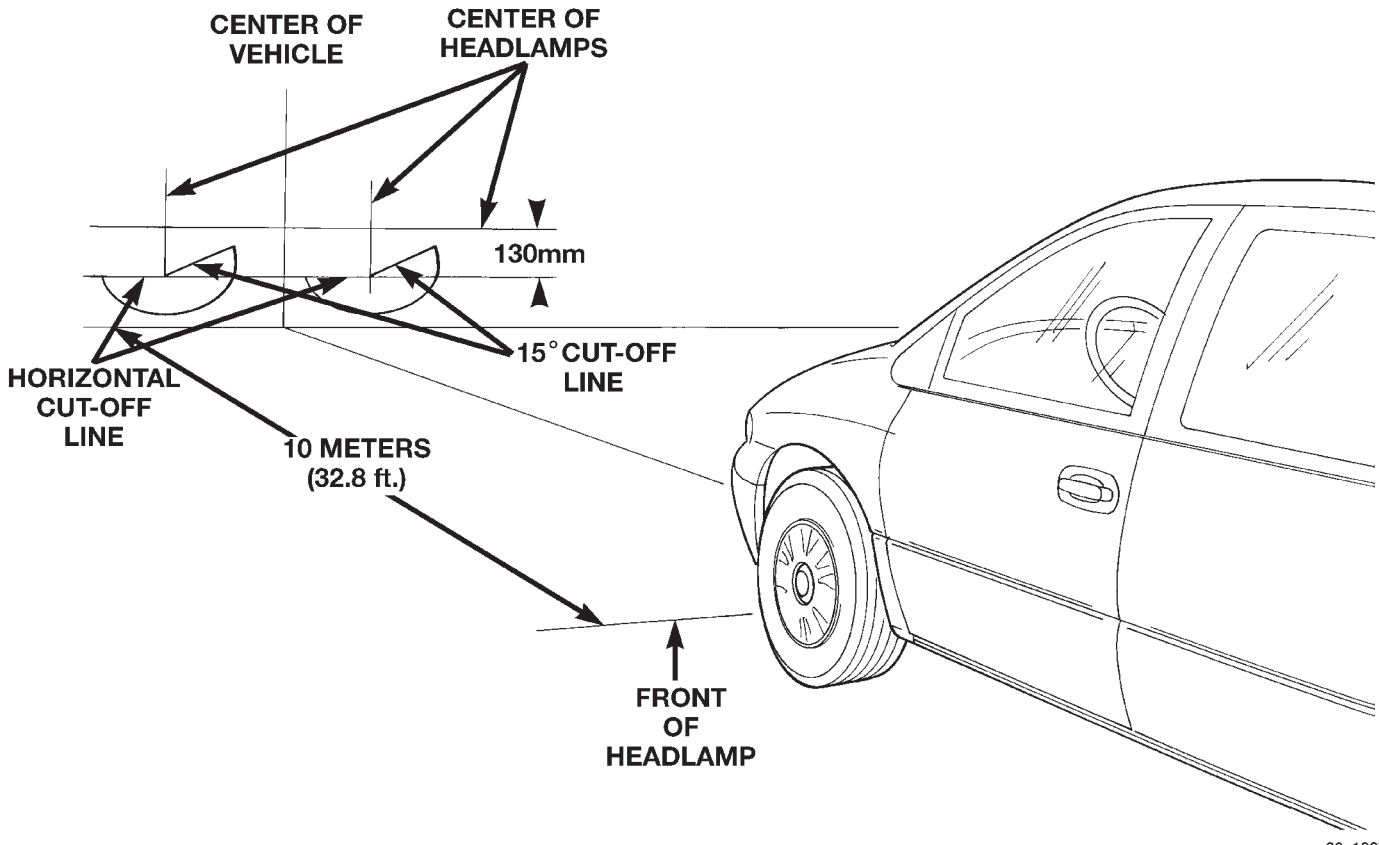
### HEADLAMP/FOG LAMP ADJUSTMENT USING ALIGNMENT SCREEN

#### ALIGNMENT SCREEN PREPARATION

- (1) Position vehicle on a level surface perpendicular to a flat wall 10 meters (32.8 ft.) away from front of headlamp lens (Fig. 1).

- (2) Place 75 kg in the driver's seat to simulate the ride height of the vehicle when driven.
- (3) If necessary, tape a line on the floor 10 meters (32.8 ft) away from and parallel to the wall.
- (4) From the floor up 1.27 meters (5 ft), tape a line on the wall at the centerline of the vehicle. Sight along the centerline of the vehicle (from rear of vehicle forward) to verify accuracy of the line placement.
- (5) Rock vehicle side-to-side three times and allow suspension to stabilize.
- (6) Jounce front suspension three times by pushing downward on front bumper and releasing.
- (7) Measure the distance from the center of headlamp lens to the floor. Transfer measurement to the alignment screen (with tape). Use this line for up/down adjustment reference.
- (8) Place a tape line 130 mm below and parallel to the center of headlamp line.
- (9) Measure distance from the centerline of the vehicle to the center of each headlamp being aligned. Transfer measurements to screen (with tape) to each side of vehicle centerline. Use these lines for left/right adjustment reference.

ADJUSTMENTS (Continued)



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**Fig. 1 Headlamp Alignment Screen—Typical**

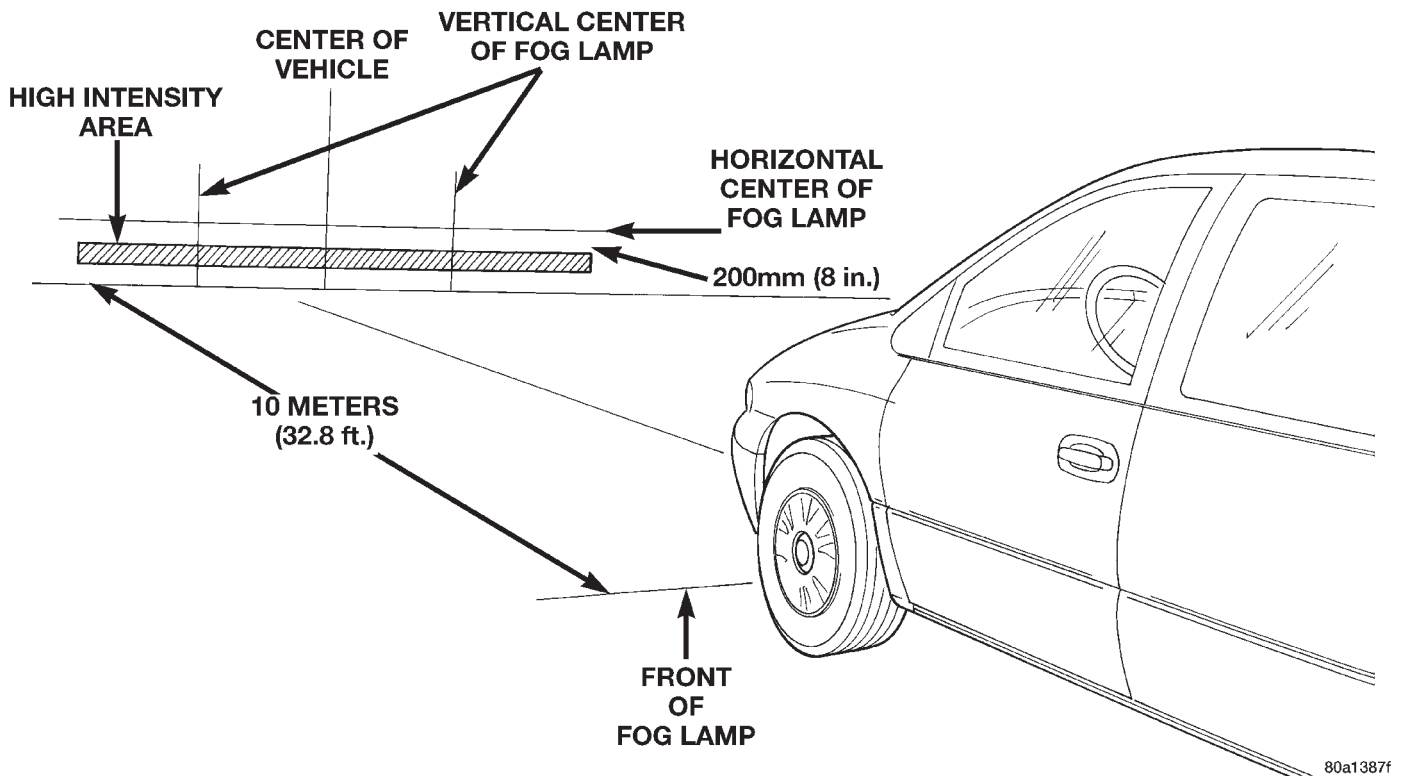
**HEADLAMP ADJUSTMENT**

A properly aimed low beam headlamp will project a high intensity light pattern on the screen with the horizontal cut-off line aligned with the tape line 130 mm (5.12 in.) below the headlamp centerline (Fig. 1). The intersection of the horizontal and 15 degree cut-off lines in the projected pattern should align to the intersection of the headlamp centerline vertical tape line and the tape line 130 mm (5.12 in.) below the

headlamp horizontal centerline. The high beams on a vehicle with aero headlamps cannot be aligned. The high beam pattern should be correct when the low beams are aligned properly.

To adjust headlamp alignment, rotate alignment screws to achieve the specified low beam hot spot pattern.

## ADJUSTMENTS (Continued)



*Fig. 2 Fog Lamp Alignment-Typical*

### FOG LAMP ALIGNMENT

Prepare an alignment screen. Refer to the Alignment Screen Preparation paragraph in this section. A properly aligned fog lamp will project a pattern on the alignment screen 200 mm (8 in.) below the fog lamp

centerline and straight ahead (Fig. 2). To improve visual interpretation of the fog lamp pattern on the alignment screen, disable the headlamps by disengaging the wire connectors from the headlamp bulbs.

# LAMP BULB SERVICE

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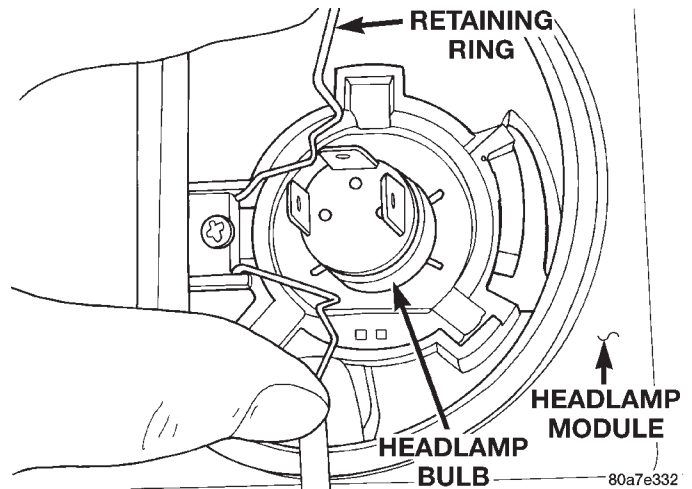
## REMOVAL AND INSTALLATION

### HEADLAMP BULB

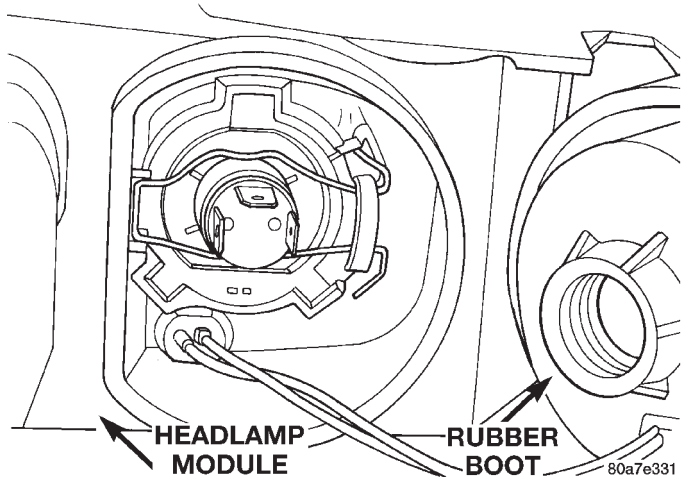
#### REMOVAL

**CAUTION:** Do not touch the glass of halogen bulbs with fingers or other possibly oily surface, reduced bulb life will result.

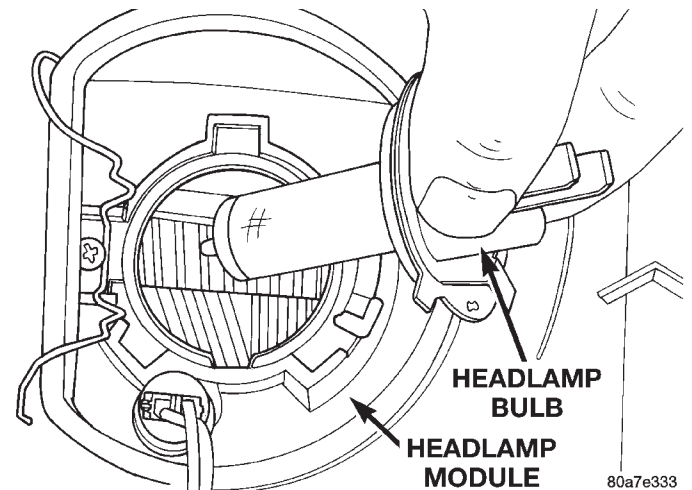
- (1) Release hood latch and open hood.
- (2) Remove screws holding headlamp module to radiator closure panel.
- (3) Separate headlamp module from radiator closure panel.
- (4) Disengage wire connector from back of headlamp bulb.
- (5) Remove rubber boot seal (Fig. 1).
- (6) Disengage retaining ring from headlamp module (Fig. 2).
- (7) Pull bulb from headlamp module (Fig. 3).



**Fig. 2 Headlamp Bulb Retaining Ring**



**Fig. 1 Rubber Boot Seal**



**Fig. 3 Headlamp Bulb**

#### INSTALLATION

Reverse the preceding operation.

## REMOVAL AND INSTALLATION (Continued)

## TURN SIGNAL LAMP BULB

## REMOVAL

- (1) Release hood latch and open hood.
- (2) Remove screws holding headlamp module to radiator closure panel.
- (3) Separate headlamp module from radiator closure panel.
- (4) Rotate socket counterclockwise one quarter turn.
- (5) Pull socket from back of lamp (Fig. 4).
- (6) Twist and pull bulb from socket.

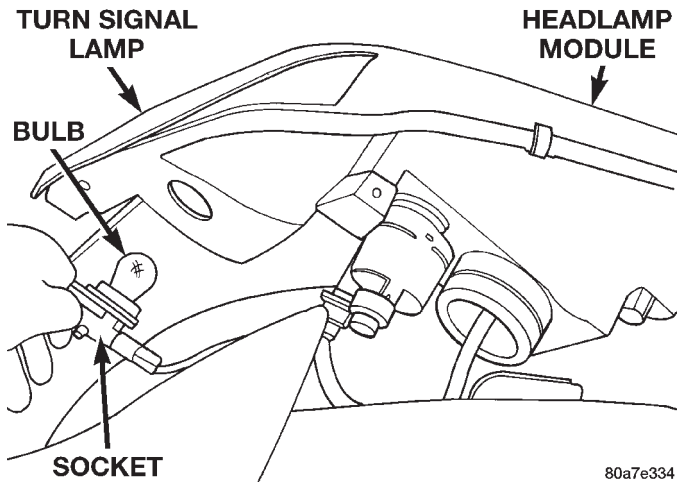


Fig. 4 Turn Signal Lamp Bulb

## INSTALLATION

Reverse the preceding operation.

## PARK LAMP BULB

## REMOVAL

- (1) Release hood latch and open hood.
- (2) Remove screws holding headlamp module to radiator closure panel.
- (3) Separate headlamp module from radiator closure panel.
- (4) Disengage wire connector from back of headlamp bulb.
- (5) Remove rubber seal boot (Fig. 5).
- (6) Pull park lamp bulb socket from headlamp module (Fig. 6).
- (7) Pull bulb from socket.

## INSTALLATION

(1) Reverse the preceding operation.

## SIDE REPEATER LAMP BULB

## REMOVAL

- (1) Open door to gain access to side repeater lamp socket.
- (2) Rotate side repeater lamp socket counter clockwise one quarter turn.

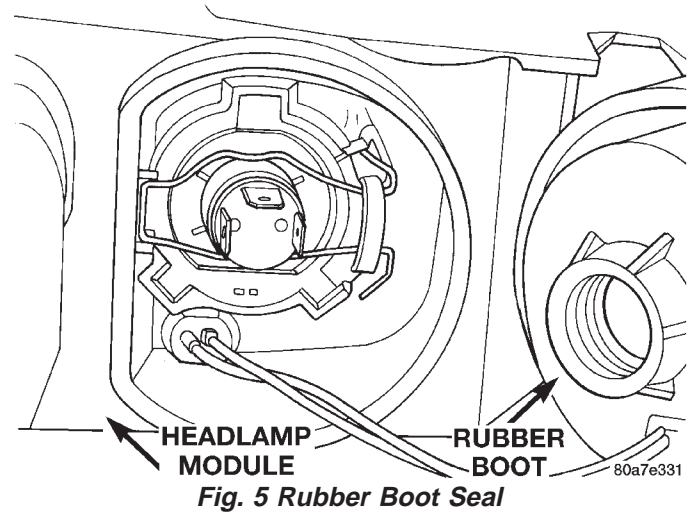


Fig. 5 Rubber Boot Seal

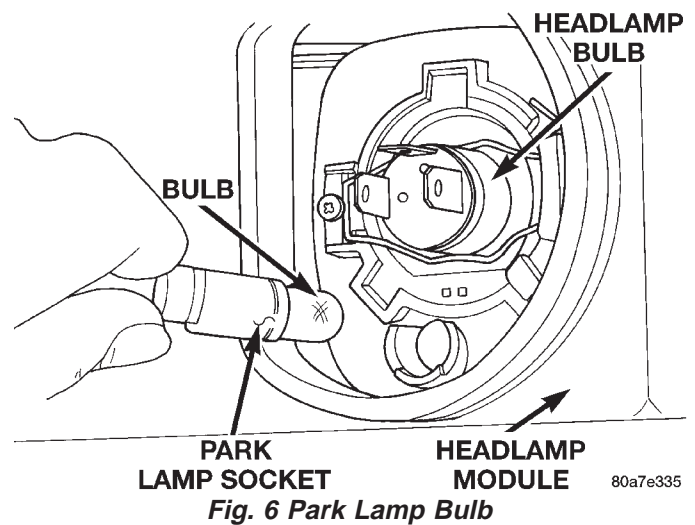


Fig. 6 Park Lamp Bulb

- (3) Separate side repeater lamp socket from side repeater lamp (Fig. 7).
- (4) Rotate and pull bulb from socket.

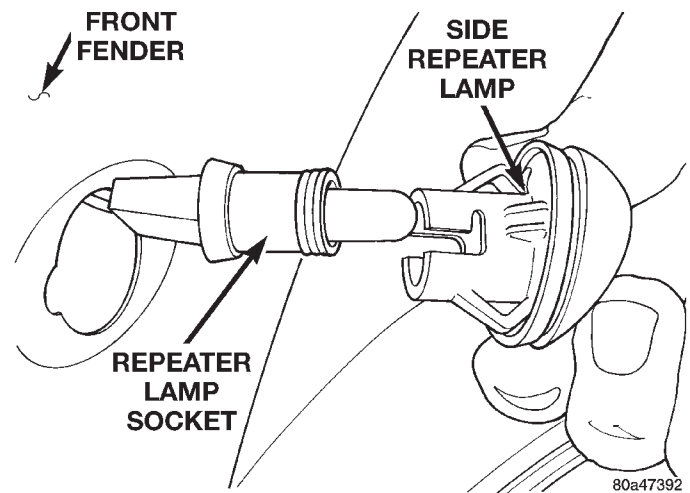


Fig. 7 Side Repeater Lamp Socket

## INSTALLATION

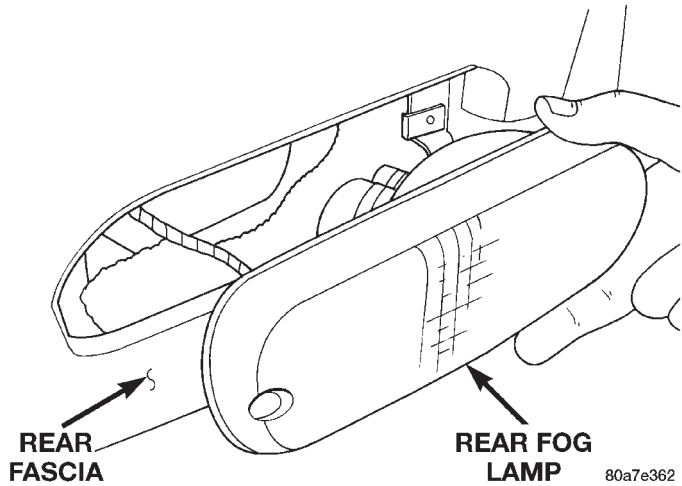
Reverse the preceding operation.

REMOVAL AND INSTALLATION (Continued)

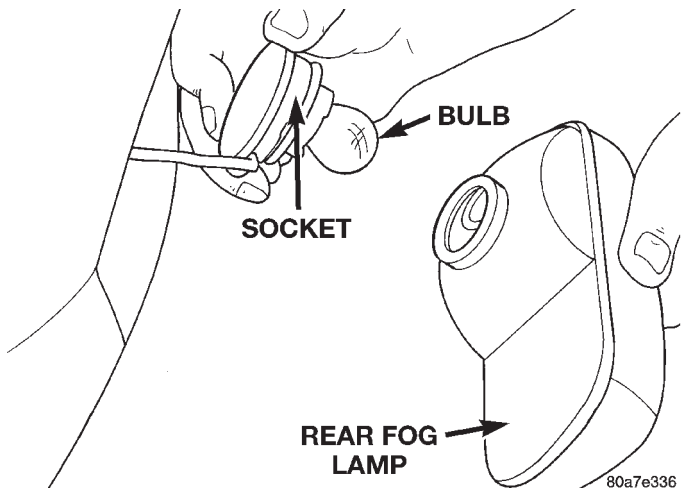
**REAR FOG LAMP BULB**

**Removal**

- (1) Remove screws holding rear fog lamp to rear bumper fascia.
- (2) Separate rear fog lamp from rear bumper fascia (Fig. 8).
- (3) Rotate rear fog lamp socket counterclockwise one quarter turn.
- (4) Pull socket from rear fog lamp (Fig. 9).
- (5) Twist and pull bulb from socket.



**Fig. 8 Rear Fog Lamp**



**Fig. 9 Rear Fog Lamp Bulb**

**INSTALLATION**

Reverse the preceding operation.

**CENTER HIGH MOUNTED STOP LAMP (CHMSL) BULB**

**REMOVAL**

- (1) Open the trunklid to gain access to center high mounted stop lamp socket.
- (2) Rotate the CHMSL lamp socket counter clockwise until the socket can be removed from the CHMSL assembly.
- (3) Remove the bulb from the socket assembly.

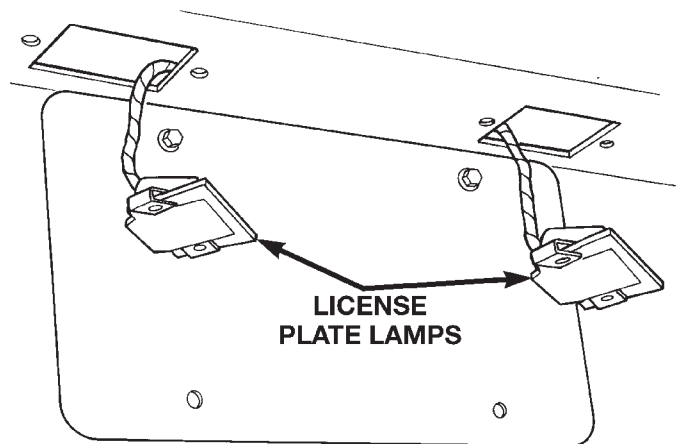
**INSTALLATION**

Reverse the preceding operation.

**LICENSE PLATE LAMP BULB**

**REMOVAL**

- (1) Remove screws holding license plate lamp to rear bumper fascia.
- (2) Separate license plate lamp from rear fascia (Fig. 10).
- (3) Rotate socket counterclockwise one quarter turn.
- (4) Pull socket from back of lamp.
- (5) Pull bulb from socket.



**Fig. 10 License Plate Lamps**

**INSTALLATION**

Reverse the preceding operation.

# LAMP SERVICE

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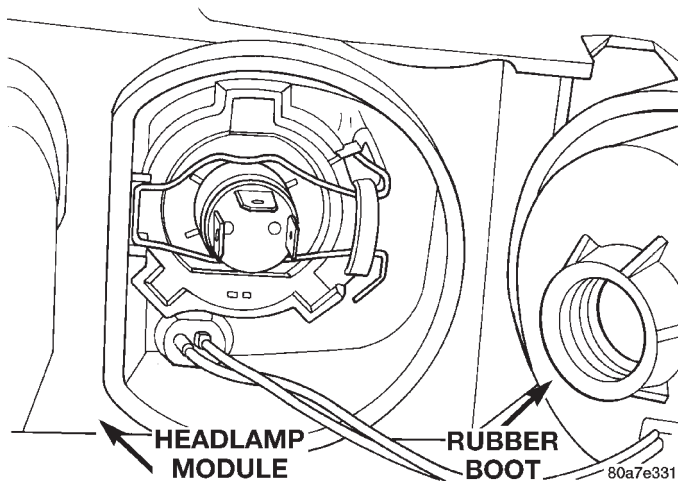
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## REMOVAL AND INSTALLATION

### HEADLAMP MODULE

#### REMOVAL

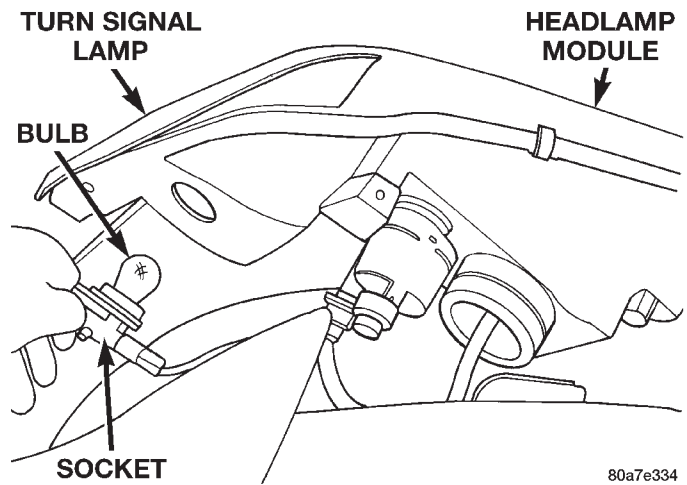
- (1) Release hood latch and open hood.
- (2) Remove screws holding headlamp module to radiator closure panel.
- (3) Separate headlamp module from radiator closure panel.
- (4) Disengage wire connector from back of headlamp bulb.
- (5) Remove rubber seal boot (Fig. 1).
- (6) Pull park lamp bulb socket from headlamp module.
- (7) Disengage retaining ring from headlamp leveling motor connector.
- (8) Pull connector from motor.
- (9) rotate turn signal socket counterclockwise one quarter turn.
- (10) Pull socket from headlamp module (Fig. 2).
- (11) Separate headlamp module from vehicle.



*Fig. 1 Rubber Boot Seal*

#### INSTALLATION

Reverse the preceding operation.

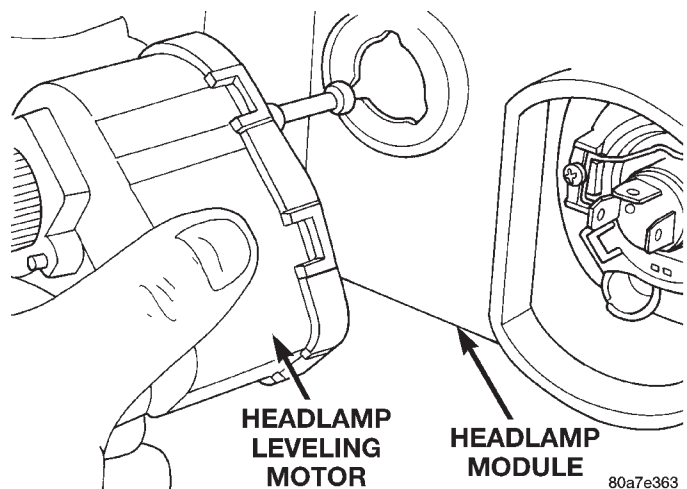


*Fig. 2 Headlamp Module*

### HEADLAMP LEVELING MOTOR

#### REMOVAL

- (1) Remove headlamp module from vehicle. Refer to Headlamp Module Removal.
- (2) Rotate headlamp leveling motor counterclockwise one quarter turn (Fig. 3).
- (3) Pry headlamp leveling motor from headlamp module.



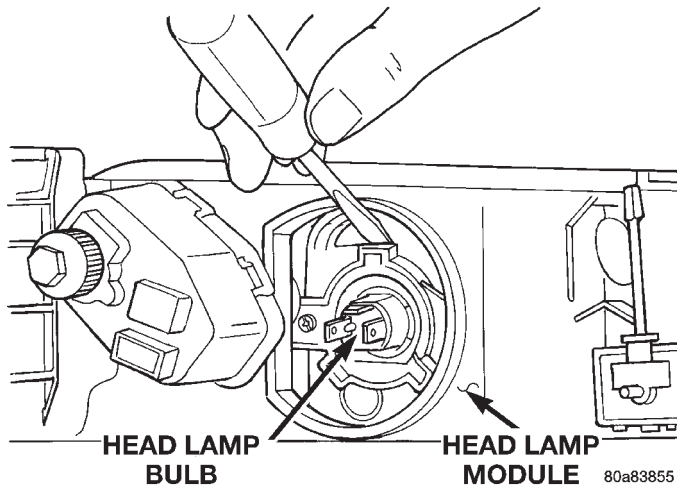
*Fig. 3 Headlamp Leveling Motor*

REMOVAL AND INSTALLATION (Continued)

**INSTALLATION**

**NOTE:** Make sure headlamp leveling motor ball stud lines up with socket in headlamp module.

- (1) Insert and rotate headlamp leveling motor into the headlamp module.
- (2) With a flat blade screwdriver gently pry on headlamp reflector mechanism and fully seat headlamp leveling motor ball stud into the socket (Fig. 4).

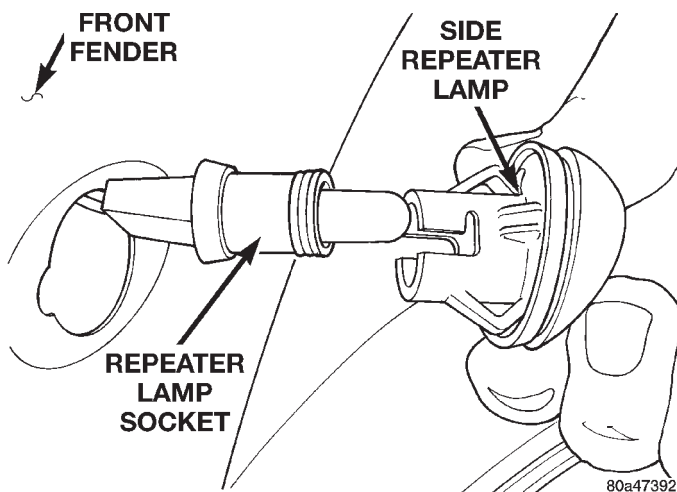


**Fig. 4 Seating Headlamp Leveling Motor**

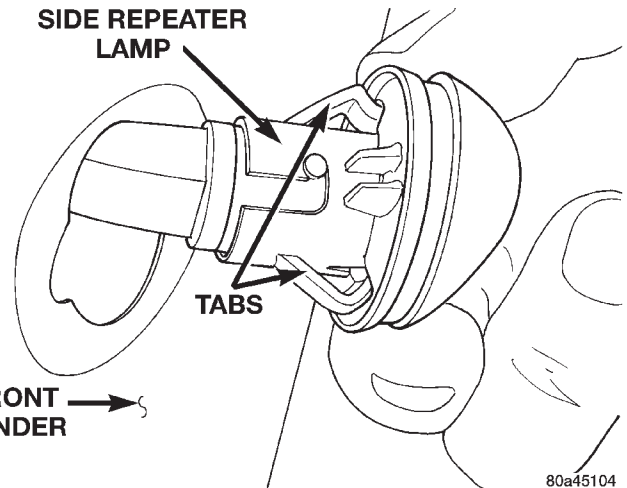
**SIDE REPEATER LAMP**

**REMOVAL**

- (1) Open door to gain access to side repeater lamp
- (2) Disengage side repeater lamp socket from side repeater lamp (Fig. 5).
- (3) Depress tabs holding side repeater lamp to fender (Fig. 6).
- (4) Separate side repeater lamp from vehicle.



**Fig. 5 Side Repeater Lamp Socket**



**Fig. 6 Side Repeater Lamp**

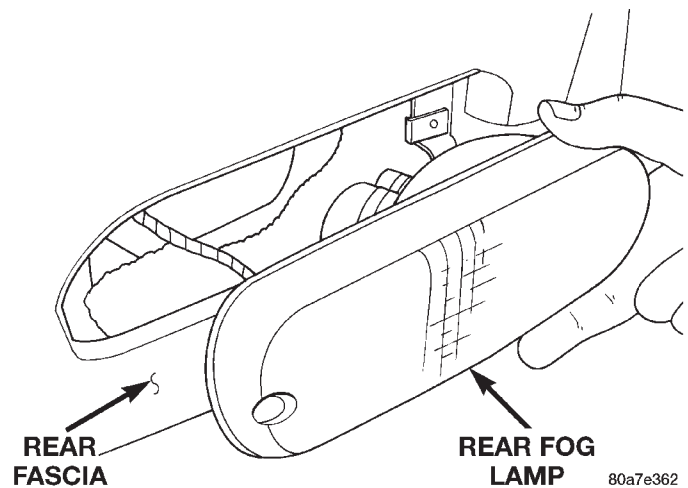
**INSTALLATION**

- (1) Position side repeater lamp to hole in fender.
- (2) Push side repeater lamp into fender until both tabs are engaged to backside of fender.
- (3) Engage repeater lamp socket to repeater lamp.

**REAR FOG LAMP**

**REMOVAL**

- (1) Remove screws holding rear fog lamp to rear bumper fascia.
- (2) Separate rear fog lamp from fascia (Fig. 7).
- (3) Rotate rear fog lamp socket counterclockwise one quarter turn.
- (4) Pull socket from back of lamp.
- (5) Separate rear fog lamp from vehicle.



**Fig. 7 Rear Fog Lamp**

**INSTALLATION**

Reverse the preceding operation.

## REMOVAL AND INSTALLATION (Continued)

**CENTER HIGH MOUNTED STOP LAMP  
(CHMSL)****REMOVAL**

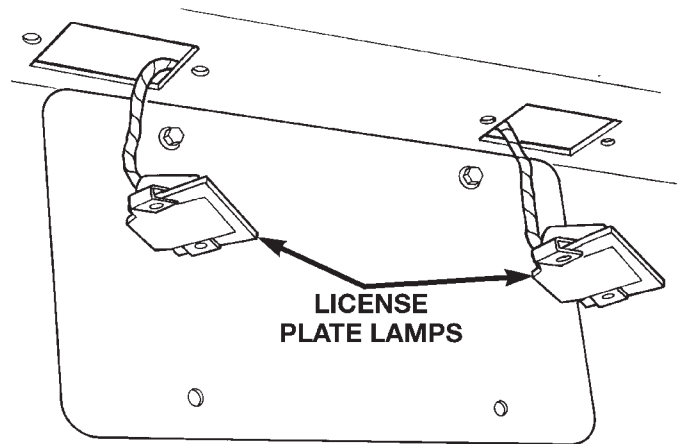
- (1) Release trunk latch and open trunk lid.
- (2) Disengage wire connector from CHMSL harness.
- (3) Remove nuts holding CHMSL to trunk lid.
- (4) Separate CHMSL from trunk lid.

**INSTALLATION**

Reverse the preceding operation.

**LICENSE PLATE LAMP****REMOVAL**

- (1) Remove screws holding license plate lamp to rear bumper fascia.
- (2) Separate license plate lamp from fascia (Fig. 8).
- (3) Remove socket from lamp.
- (4) Separate lamp from vehicle.



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**Fig. 8 License Plate Lamps**

**INSTALLATION**

Reverse the preceding operation.

# BULB APPLICATION

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### SPECIFICATIONS

#### EXTERIOR LAMPS

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Park Lamp .....	W5W
Side Repeater .....	TW4
License Plate .....	W5W
Front Turn Signal .....	PY21W
Tail/Stop .....	P21/5W
Turn Signal .....	P21W
CHMSL Lamp .....	921W/16/W

