

Headlamp Assembly

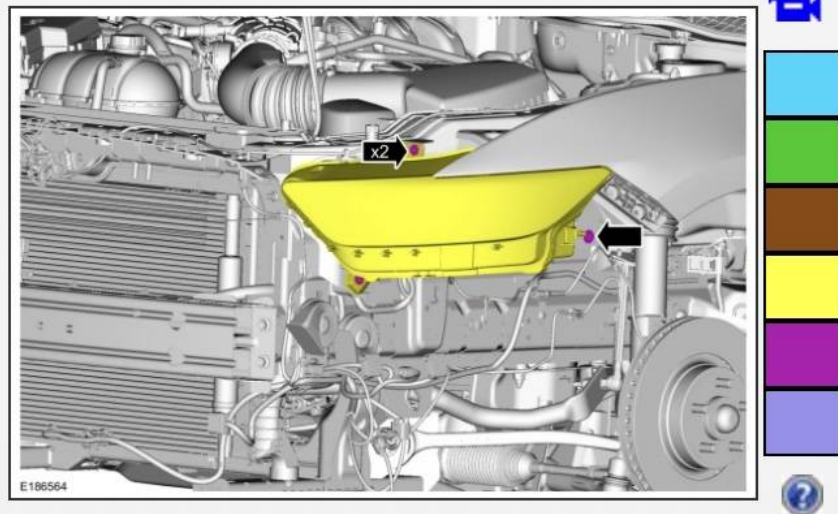
Removal

1. Remove the front bumper cover.
Refer to: [Front Bumper Cover](#) (501-19 Bumpers, Removal and Installation).
2. Remove the screws and position the headlamp assembly forward.

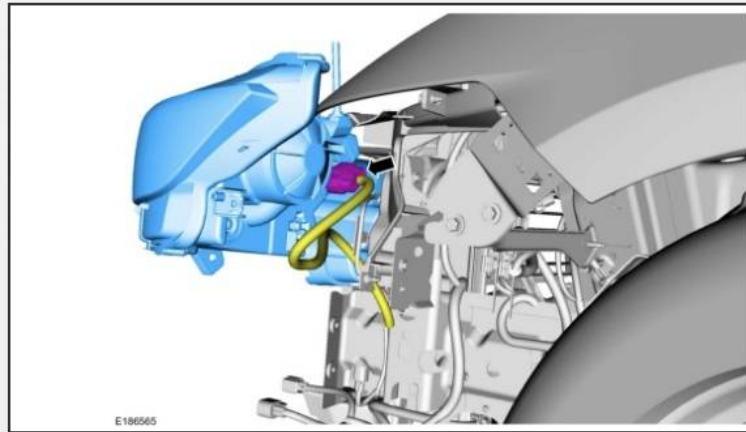
Torque:

Front mounting bolts: 74 lb.in (8.4 Nm)

Side mounting bolt: 28 lb.in (3.2 Nm)



3. Disconnect the electrical connector and remove the headlamp assembly.



Installation

1. To install, reverse the removal procedure.
2. Adjust the headlamps.
Refer to: [Headlamp Adjustment](#) (417-01 Exterior Lighting, General Procedures).

All headlamp types

NOTE: Refer to the Owner's Literature for the headlamp adjustment screw location.

NOTE: Consult your state vehicle inspection manual for recommended tolerance ranges for visual aiming.

NOTE: Horizontal aim is not adjustable.

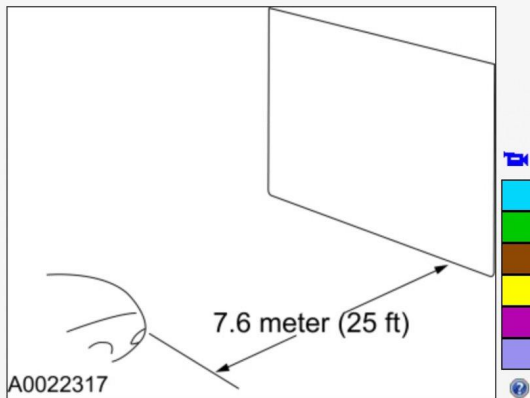
2. Identify the headlamp type. Vehicles are equipped with Visually Optically Aligned Left (VOL) or Visually Optically Aligned Right (VOR) headlamps. Molded in small letters on the headlamp lens is one of the following: VOL and SAE or VOR and SAE.

3. **NOTE:** Before starting headlamp adjustment, entry conditions must be met.

- Vehicle must be on level ground.
- Tires must be correctly inflated.
- Vehicle must be normally loaded.
- Headlamps must be clean.
- Headlamps must operate correctly.
- Air suspension switch must be on (if equipped).

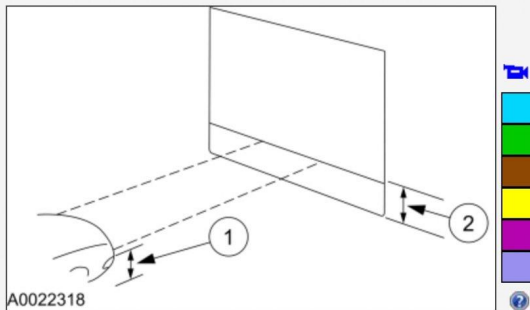
4. **NOTE:** The vertical wall or screen must be a minimum of 2.4 m (8ft) wide.

Park the vehicle on a level surface approximately 7.6 m (25 ft) from the vertical wall or screen directly in front of it.



5. **NOTE:** The bulb center of the low beam bulb is sometimes marked on the lens (circle, crosshair or other mark) or is the center of the low beam reflector, bulb shield or the low beam projector inner lens.

Measure the the center of the headlamp height to ground and record the measurement.



6. **NOTE:** Use a 2.4 m (8 ft) section of masking tape for the horizontal reference line.

- For vehicles with headlamp bulb center heights below 95 cm (37.5 inches), place the horizontal reference line equal to the headlamp bulb center height.
- For vehicles with headlamp bulb center heights between 95 cm - 105 cm (37.5 - 41.5 inches), place the horizontal reference line at the headlamp bulb center height minus 1.3 cm (0.5 inch).
- For vehicles with headlamp bulb center heights above 105 cm (41.5 inches), place the horizontal reference line at the headlamp bulb center height minus 2.5 cm (1.0 inch).

7. **NOTE:** Carry out this procedure in a dark environment to effectively see the headlamp beam pattern.

Turn the low beam headlamps on to illuminate the wall or screen and open the hood.

8. **NOTE:** The cut off of the beam pattern is the horizontal line of the beam pattern where there is MAXIMUM change between light and dark.

On the wall or screen, locate the cut off of the beam pattern.

VOR-type headlamps

NOTE: Procedure applies to both left and right headlamps with VOR molded on lens.

9. **NOTE:** The appearance of the VOR beam pattern may vary between vehicles.

There is a distinct cutoff in the right portion of the beam pattern.

10.
 - 1 - Horizontal reference line
 - 2 - Cut off
 - 3 - High intensity zone



11. **NOTE:** Align one headlamp while covering the other headlamp.

Align the headlamps to the horizontal reference line. Adjust the headlamp as necessary using the headlamp adjusting screw.

12. Repeat the previous step for the remaining headlamp.

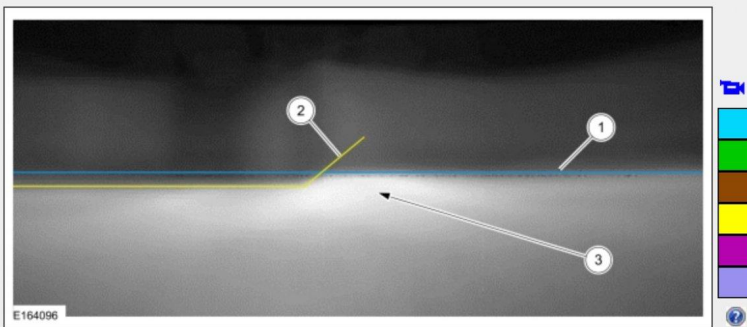
VOL-type headlamps

NOTE: Procedure applies to both left and right headlamps with VOL molded on lens.

13. **NOTE:** The appearance of the VOL beam pattern may vary between vehicles.

For VOL-type headlamps, there is a distinct cutoff in the left portion of the beam pattern. The edge of this cutoff should be positioned 5 CM (2 in) below the horizontal reference line.

14.
 - 1 - Horizontal reference line
 - 2 - Cut off
 - 3 - High intensity zone



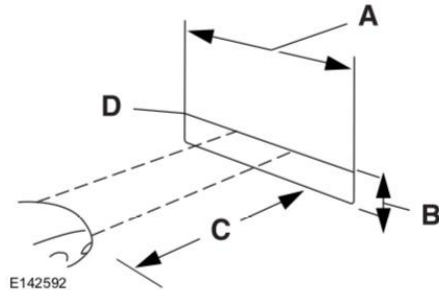
15. **NOTE:** Align one headlamp while covering the other headlamp.

Align the headlamps to the horizontal reference line. Adjust the headlamp as necessary using the headlamp adjusting screw.

16. Repeat the previous step for the remaining headlamp.

Maintenance

Headlamp Aiming Target



- A 8 feet (2.4 meters)
- B Center height of lamp to ground
- C 25 feet (7.6 meters)
- D Horizontal reference line

Vertical Aim Adjustment

1. Park the vehicle directly in front of a wall or screen on a level surface, approximately 25 feet (7.6 meters) away.
2. Measure the height from the center of your headlamp (indicated by a 3.0 millimeter circle on the lens) to the ground and mark an 8 foot (2.4 meter) horizontal reference line on the vertical wall or screen at this height (a piece of masking tape works well).

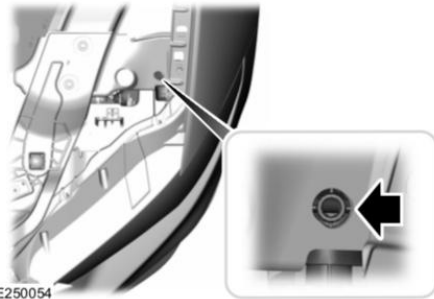
Note: To see a clearer light pattern for adjusting, you may want to block the light from one headlamp while adjusting the other.

3. Turn on the low beam headlamps to illuminate the wall or screen and open the hood. Cover one of the headlamps so no light hits the wall.



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4. On the wall or screen you will observe a flat zone of high intensity light located at the top of the right hand portion of the beam pattern. If the top edge of the high intensity light zone is not at the horizontal reference line, the headlamp will need to be adjusted.



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5. Locate the vertical adjuster on each headlamp. Use a Phillips #2 screwdriver to turn the adjuster either clockwise or counterclockwise to adjust the vertical aim of the headlamp.
6. Repeat Steps 3 through 7 to adjust the other headlamp.
7. Close the hood and turn off the lamps.

Maintenance

Horizontal Aim Adjustment

The horizontal aim does not require any adjustment for this vehicle. If a fault occurs, have the system checked by an authorized dealer.

CHANGING A BULB

Lamp Assembly Condensation

Exterior lamps have vents to accommodate normal changes in pressure. Condensation can be a natural occurrence of this design. When moist air enters the lamp assembly through the vents, there is a possibility that condensation can occur in cold temperatures. When normal condensation occurs, a thin film of mist can form on the interior of the lens. The mist eventually clears and exits through the vents during normal operation. Clearing time may take as long as 48 hours under dry weather conditions.

Examples of acceptable condensation are:

- Thin mist without streaks, drip marks or droplets.
- Fine mist that covers less than 50% of the lens.

Examples of unacceptable moisture are:

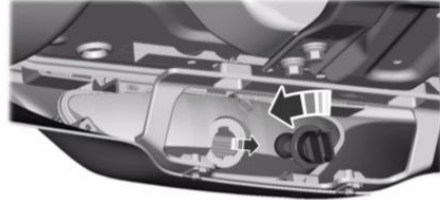
- Water puddle inside the lamp.
- Large water droplets, drip marks or streaks on the interior of the lens.

If any of the above conditions of unacceptable moisture are present, contact an authorized.

Replacing Reverse Lamp Bulbs

1. Make sure the lighting control is in the off position.
2. Locate the reverse lamp bulb under the rear bumper of your vehicle. To access the bulb, reach behind the bumper.

3. Disconnect the electrical sensor from the bulb by pulling it straight off.



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4. Rotate the bulb counterclockwise and remove it from the reverse lamp assembly.

LED Lamps

LED lamps are not serviceable items. Contact an authorized dealer if they fail.

The following are LED lamps:

- Headlamps.
- Rear lamp.
- Brake lamp.
- Front fog lamp.
- Front sidemarker
- Daytime running lamp.
- Central high mounted brake lamp.
- Front direction indicator.
- Rear direction indicator lamp.
- License plate lamp.