SERVICE MANUAL SECTION

HOOD, GRILLE, FENDERS, AND BUMPER - WorkStar™ Series Starting March 2007

Model: 7300
Start Date: 03/01/2007

Model: 7400
Start Date: 03/01/2007

Model: 7500
Start Date: 03/01/2007

Model: 7600
Start Date: 03/01/2007

Model: 7700
Start Date: 03/01/2007

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1. DESCRIPTION

The 7000 series chassis is the severe service application vehicle in the International Truck equipment vehicle line up. The chassis is designed with a higher unit profile to ensure component and ground clearance. The 7300, 7400 and 7500 series all incorporate the International Engine configurations.

The 7600 and 7700 series chassis are designed primarily to handle the severe service large bore engine application. This requirement increases cab/engine height clearance for cab, hood, fenders and grille. This application also changes the front axle location to accommodate the various non International engines. The axle location is set forward which changes the design and size of the various front end components.

The entire line of Severe Service application vehicles is available in both single axle drive and all axle drives.

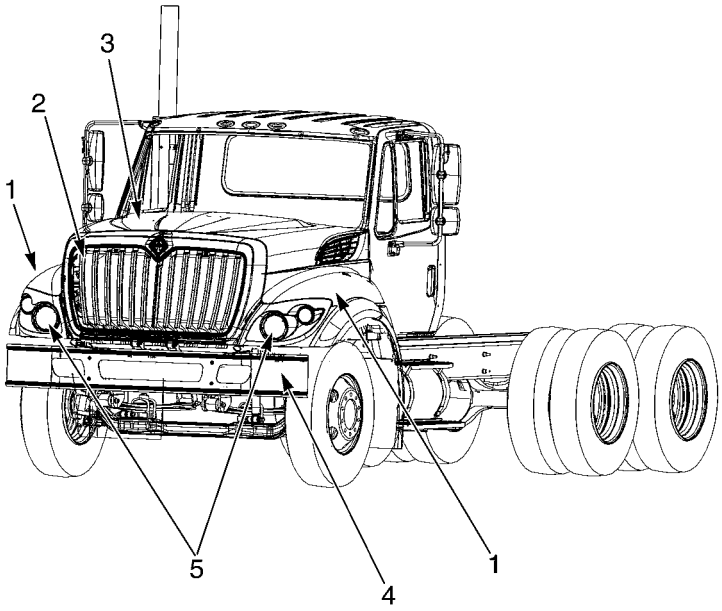

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Figure 1 Component Locations

1. FRONT FENDERS
2. GRILLE AND BUG SCREEN
3. HOOD ASSEMBLY
4. BUMPER
5. HEADLIGHT ASSEMBLY

1.1. BUMPER

The 7000 series front bumpers are a stylized one piece steel bumper assembly. The bumper is furnished in two styles: the swept back style and the aerodynamic style. The swept back bumper and the aerodynamic style bumper both mount on the vehicle in the same manner.

1.2. GRILLE AND BUG SCREEN

The grille is a one-piece, chrome, injection-molded assembly that is secured to the front of the radiator. A front end bug screen helps protect the radiator from damage or blockage caused by insects and other small pieces of road debris. The bug screen is fitted to the back side of the grille and is removed with the grille. The grille shroud is a separate component attached to the hood which tilts with the hood.

1.3. HOOD ASSEMBLY

The front end consists of the front fenders, made of high impact fiber-reinforced plastic, and the hood, made of high-strength composite. The hood is designed with three exterior panels to aid in the ease of repair, if needed, a panel can be replaced instead of the entire hood. The hood is mounted with a three-point design to minimize stress on the hood. The hood is equipped with a torsion bar system to aid in the opening the hood.

An optional driver's side hood hatch assembly is available on 7000 series models. This option provides access to various maintenance checks without opening the hood.

1.4. HOOD SEAL

The hood seal is located on the leading edge of the cowl tray. The cowl tray is mounted to the upper engine wall, below the windshield. The hood seal forms a seal between the hood section and the cowl tray.

1.5. SPLASH PANELS

The splash panels on all models minimize splash and mud, protecting vital engine systems from corrosion and malfunction. The splash panels supplied with the 7600 and 7700 series are longer to protect the engine and accessories due to the increased height of the cab.

1.6. AIR INTAKE GRILLES

On the 7000 series, air is taken in at the air intake vents located above the fenders on both sides of the hood. The intake air is routed through molded duct work attached to the underside of the hood assembly and routed to the air cleaner.

1.7. FENDER

Fenders are part of the three-piece bonded tilt type hood assembly on the 7000 series vehicles. If damaged, the fenders can be individually replaced. The front of the fenders are molded to house the headlight assemblies.

To provide increased splash protection, optional fenderettes are also available for 7000 series trucks and are mounted at the outer edge of the front wheels openings on the fender and fender extension.

1.8. FENDER EXTENSIONS

The fender extensions are part of the body splash protection system. The wheel well openings in the fender extensions have been designed to provide splash and spray protection. The fender extensions protect the lower front of the cab from splash and road debris kicked up by the front tires.

1.9. HEADLIGHT ASSEMBLY

The headlight assemblies are a one-piece wrap-around design that also houses the turn signals. Both the headlight bulb and turn signal bulb can easily be accessed for replacement.

2. REMOVE AND INSTALL PROCEDURES

WARNING – To prevent vehicle damage, personal injury, or possible death, park the vehicle on a flat, level surface. Make sure the engine ignition is in the off position and the transmission is in neutral or in the park position if the vehicle is equipped with an automatic transmission. Set the parking brake, chock the wheels, and disconnect the batteries at the negative terminal before doing any service procedures on the engine or vehicle.

IMPORTANT – Before performing any work on the hood or bumper components, be sure to perform these basic procedures:

1. Park the chassis on a flat, level surface.
2. Place transmission in neutral (or park, if automatic transmission).
3. Set the parking brake.
4. Turn off ignition.
5. Install wheel chocks.
6. Disconnect the battery.

2.1. BUMPER

Bumper – Removal

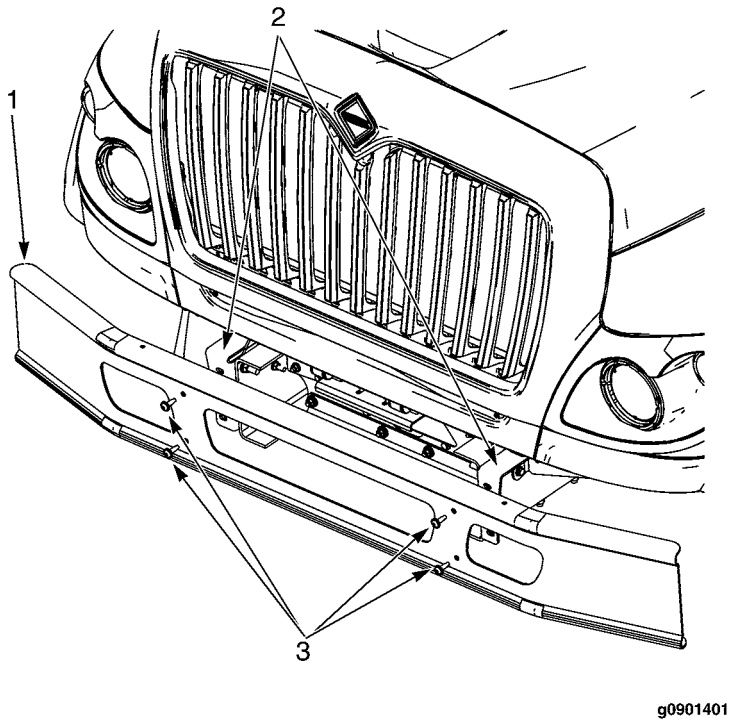

Figure 2 Bumper

1. BUMPER
2. MOUNT BRACKETS
3. BOLT AND WASHER

1. Loosen, but do not remove, the two upper bumper bolts and washers from the bumper and mount brackets.
2. Remove two lower bolts and washers from the bumper.
3. With the aid of an assistant, support the bumper and remove the two upper bolts and washers from the bumper and mount brackets.
4. Remove the bumper.

Bumper – Installation

1. Align the bumper on the mount brackets.
2. Install four bolts and washers on the bumper and mount brackets (Figure 2). Torque bolts to 50 to 55 lbf-ft (68 to 75 N•m).

2.2. GRILLE AND BUG SCREEN

Grille and Bug Screen – Removal

1. Unlatch and open the hood.

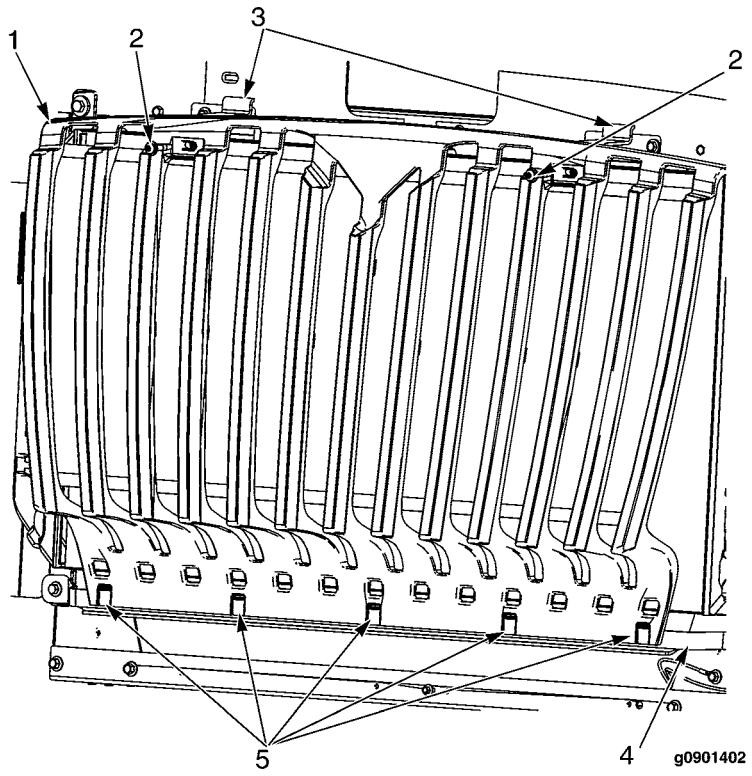

Figure 3 Grille

1. GRILLE
2. SCREW
3. MOUNT BRACKET
4. LOWER MOUNT BRACKET
5. MOUNT TAB

2. Remove two screws attaching the grille to the mount brackets on the radiator frame.

3. Lift grille upward to release the mount tabs from the lower mount bracket and remove the grille.

4. Place the grille upside down on a padded surface to protect the finished surface of the grille.

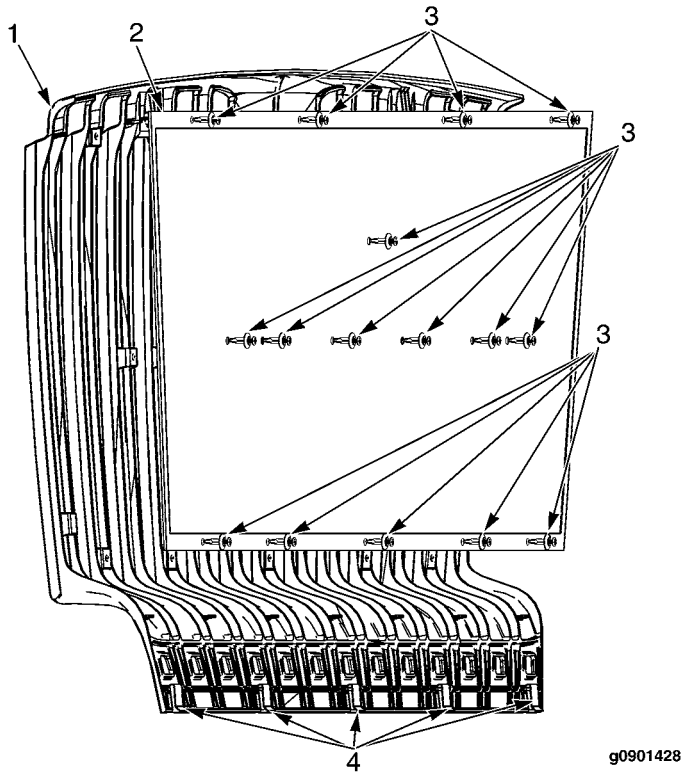

Figure 4 Bug Screen

1. GRILLE
2. BUG SCREEN
3. RETAINER
4. MOUNT TAB

5. Remove 16 retainers attaching the bug screen to the grille.
6. Lift the bug screen off the grille.
7. If replacing grille, remove the mount tabs from the old grille and install them on the new grille.

Grille and Bug Screen – Installation

1. Position the bug screen on the grille and install the 16 retainers (Figure 4, Items 1, 2, and 3).
2. Align the mount tabs with the lower mount bracket and lower the grille into place (Figure 3, Items 4 and 5).
3. Align the holes and install two screws into the grille and mount brackets (Figure 3, Items 1, 2 and 3). Torque screws to 6 to 7 lbf-ft (8 to 10 N•m).

Grille Shroud – Removal

NOTE – The grille shroud should be removed with the hood in the closed position.

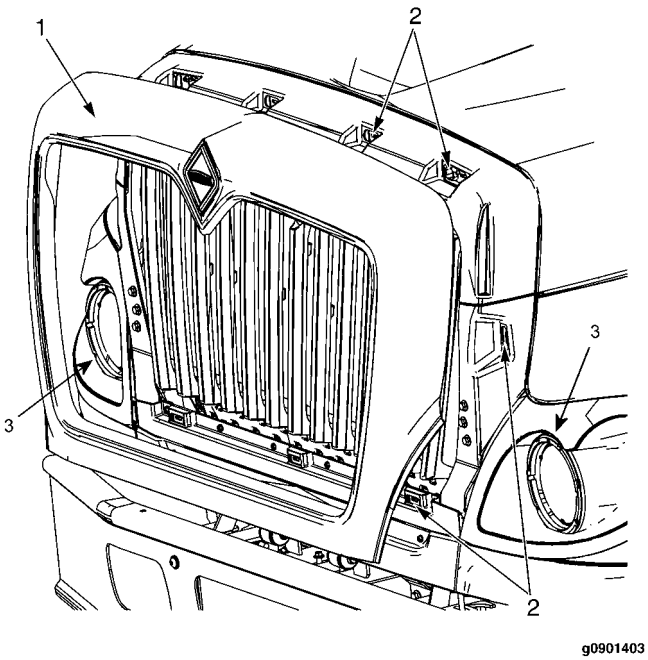

Figure 5 Grille Shroud

1. GRILLE SHROUD
2. TAB INSERTS
3. HEADLIGHT ASSEMBLY

1. Remove left side upper splash shield from hood.
2. Remove left and right side headlight assembly fasteners (4 nuts and 1 bolt per side) and reposition headlight assemblies (see Figure 38 in Section 2.14 Headlight Assemblies).
3. Remove the grille shroud by pulling the grille shroud out to release the tabs from the tab inserts.
4. Place the grille shroud upside down on a padded surface to protect the finished surface of the grille shroud.

Grille Shroud – Installation

NOTE – Prior to installing the grille shroud, inspect the mounting tabs on the inner surface of the grille shroud. Insure that all tabs are functional and in place.

1. Align the grille shroud tabs with the tab inserts on the hood (Figure 5).
2. Install the grille shroud by carefully pushing the grille shroud tabs into the insert tabs on the hood (Figure 5).
3. Install left and right side headlight assembly fasteners (4 nuts and 1 bolt per side).
4. Install left side upper splash shield to hood.

2.3. SPLASH PANELS

Splash Panel – Removal

NOTE – Both splash panels are removed in the same manner. Left side splash panel shown.

1. Unlatch and open the hood.

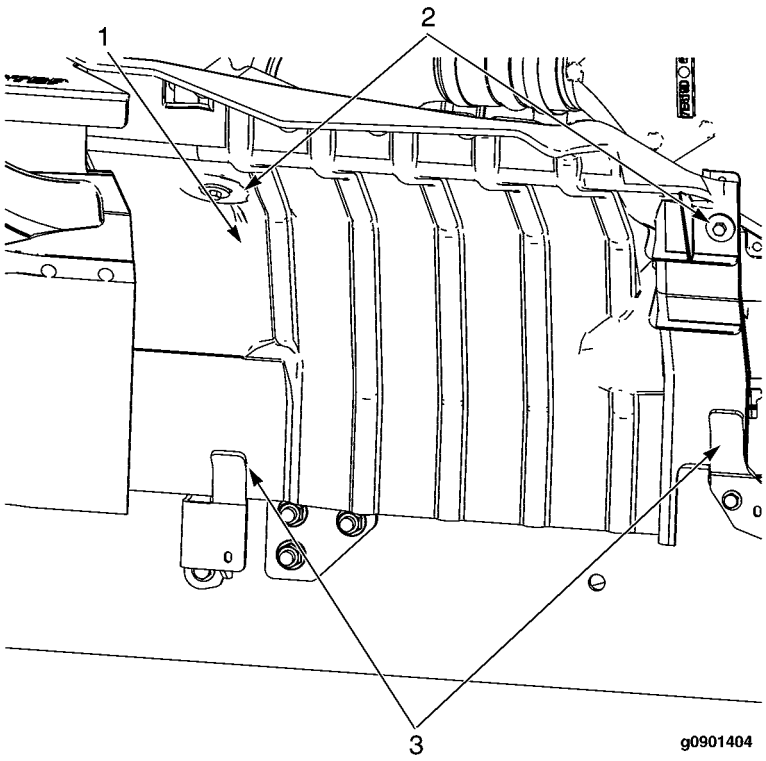

Figure 6 Splash Panel

1. SPLASH PANEL
2. BOLT AND WASHER
3. MOUNT BRACKET CLIP

2. Clean dirt and debris away from all splash panel mount hardware.

3. Remove two bolts and washers from the splash panel.

4. Lift the splash panel upward from the mount bracket clips.

5. Remove the splash panel.

Splash Panel – Installation

1. Install the splash panel, by inserting the bottom edge of the splash panel into the mount bracket clips (Figure 6, Items 1 and 3).

2. Secure the splash panel to the mount brackets with two bolts and washers (Figure 6). Torque bolts to 7 to 9 lbf-ft (9 to 12 N•m).

3. Close and latch the hood.

Upper Splash Panel – Removal

NOTE – One upper splash panel is used on the 7000 series vehicle. This splash panel is attached to the right underside of the hood.

1. Unlatch and open the hood.

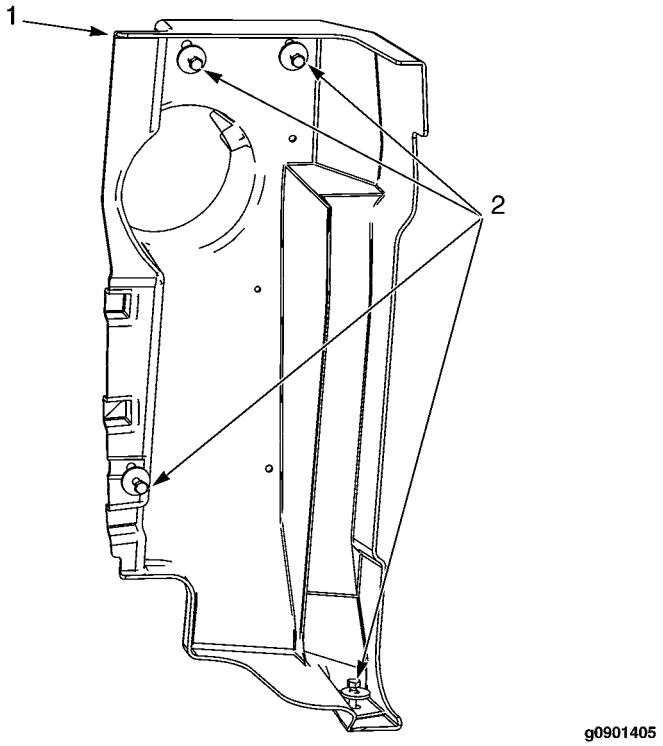

Figure 7 Upper Splash Panel

1. UPPER SPLASH PANEL
2. BOLT

2. Clean dirt and debris away from all splash panel mount hardware.

3. Remove four bolts attaching the upper splash panel to the underside of the left fender.

4. Remove the upper splash panel.

Upper Splash Panel – Installation

1. Align the holes of the upper splash panel with the underside of the left fender.

2. Secure the upper splash panel to the underside of the left fender with four bolts (Figure 7). Torque bolts to 7 to 9 lbf-ft (10 to 12 N•m).

3. Close and latch the hood.

2.4. HOOD

Hood – Removal

1. Loosen, but do not remove, the two upper bumper bolts and washers from the bumper and mount brackets (Figure 2).
2. Remove two lower bolts and washers from the bumper (Figure 2, Items 1 and 3).
3. With the aid of an assistant, support the bumper and remove the two upper bolts and washers from the bumper and mount brackets (Figure 2).
4. Remove the bumper (Figure 2, Item 1).
5. Unlatch and open the hood.

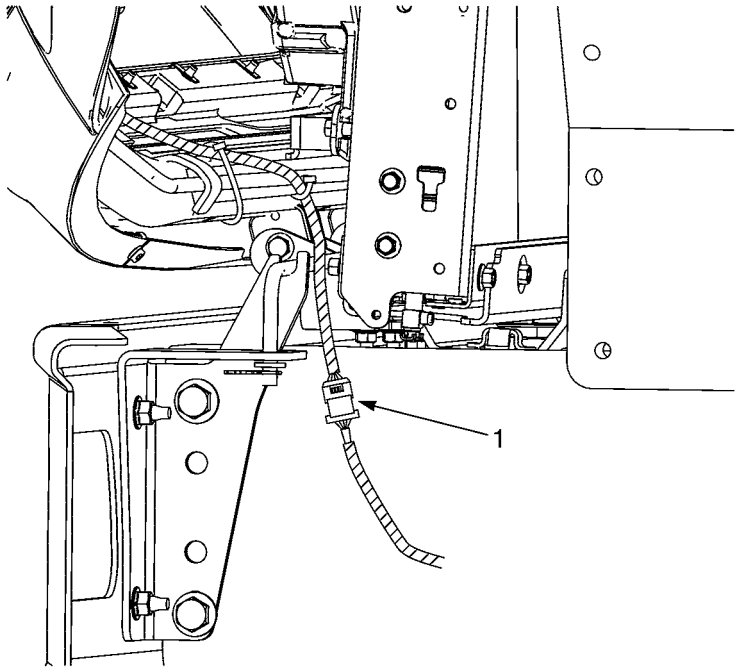

Figure 8 Headlight Harness Connector

1. HEADLIGHT HARNESS CONNECTOR

6. Disconnect the headlight harness connectors from both sides of the hood assembly.

WARNING – The hood torsion bars become spring loaded as the hood is closed and are unloaded when the hood is in the open position. Therefore, the hood must be in the open position to remove or install the torsion bars from the hood. Failure to comply may result in injury to personnel.

NOTE –

- **Prior to removal, mark each torsion bar to show which side the torsion bars mount on the hood.**
- **The hood wiring harness is secured to the hood hinge rod with wire ties. Remove wire ties as needed to remove the torsion bars.**

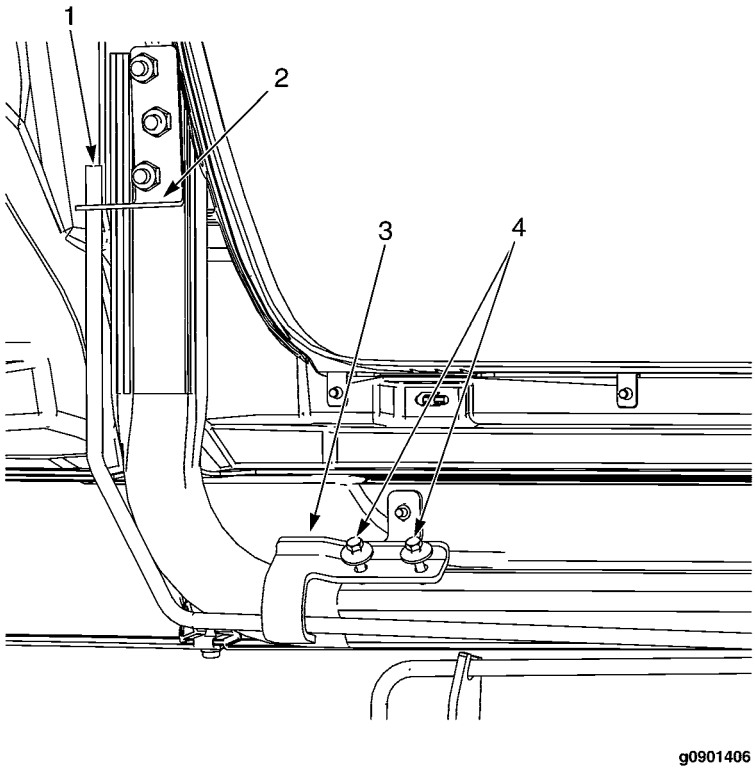

Figure 9 Torsion Bar

1. TORSION BAR
2. UPPER TORSION BAR RETAINER BRACKET
3. TORSION BAR MOUNT PLATE
4. BOLT

NOTE – Both torsion bars must be removed to remove the hood. Removal of the left torsion bar is shown in this procedure. The right torsion bar must be removed in the same manner.

7. Remove two bolts and the left torsion bar mount plate from the left torsion bar.

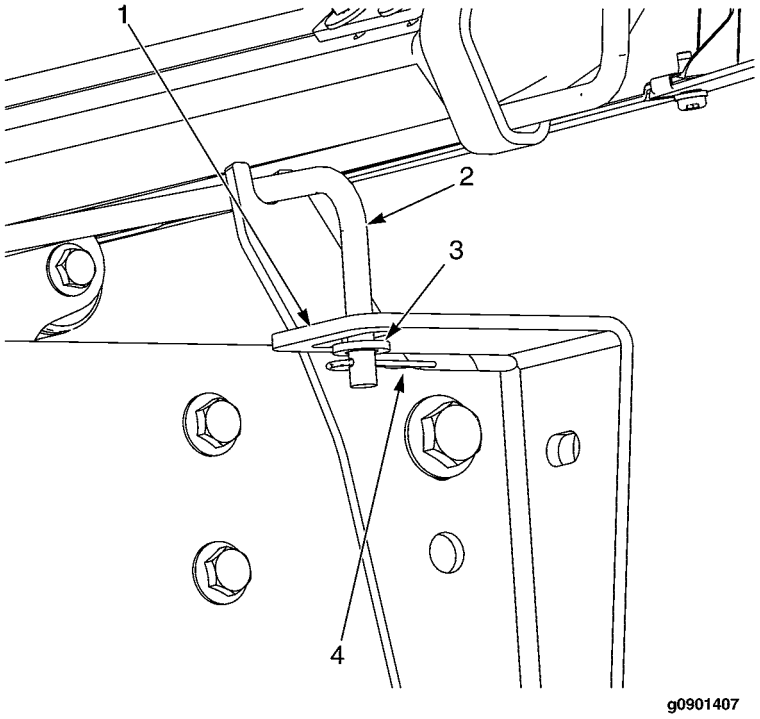

Figure 10 Lower Torsion Bar Retainer Bracket

1. LOWER TORSION BAR RETAINER BRACKET
2. TORSION BAR
3. WASHER
4. RETAINING PIN

8. Remove the retaining pin and washer from the left torsion bar located at the lower torsion bar retainer bracket.

9. Slide the left torsion bar out of the lower torsion bar retainer bracket and remove the left torsion bar.

10. Remove the right torsion bar by using the same steps that were used to remove the left torsion bar.

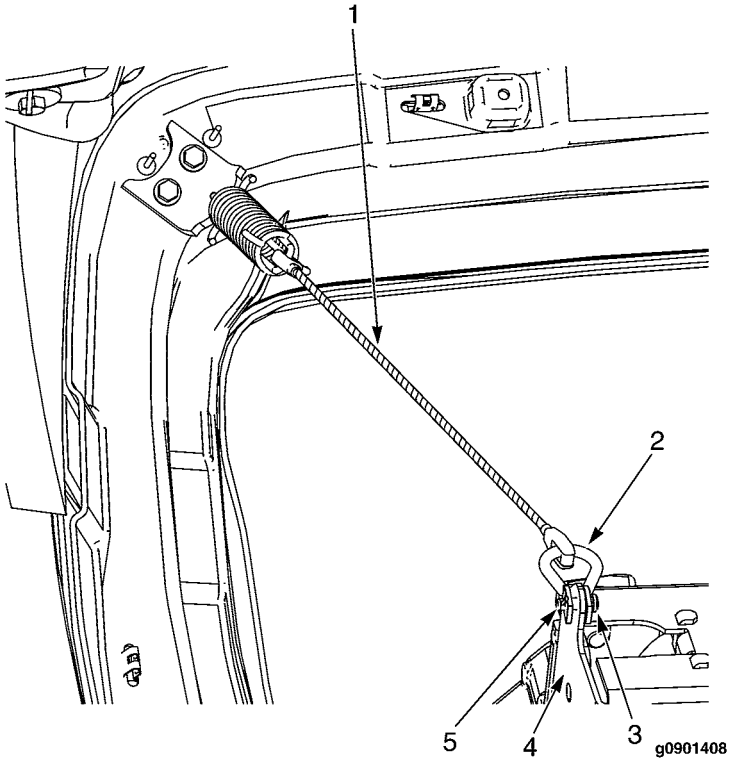

Figure 11 Cable Stop Clevis Attachment

1. HOOD STOP CABLE
2. CLEVIS
3. CLEVIS PIN
4. RADIATOR FRAME
5. COTTER PIN

11. Support the tilted hood with a floor stand to relieve tension from the hood stop cables.
12. Disconnect the hood stop cables by removing the cotter pin from the clevis pin.
13. Remove the clevis pin from the clevis.
14. Remove the clevis from the radiator frame and hood stop cable, left and right sides.
15. Close the hood, but do not fasten latches.

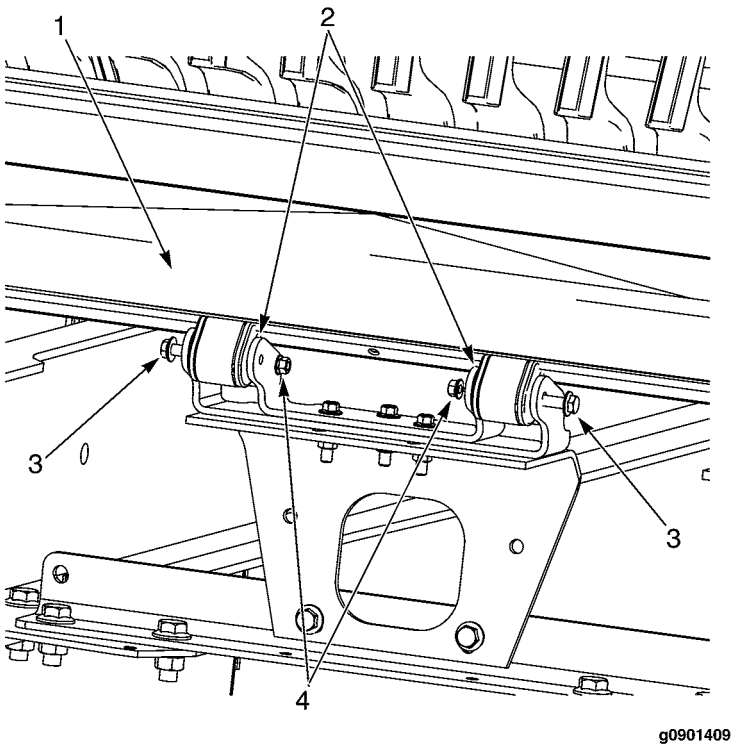

Figure 12 Hood Hinge

1. HOOD HINGE ROD
2. HOOD HINGE BRACKET
3. BOLT
4. NUT

16. Remove the two bolts and nuts from the hood hinge bracket and the hood hinge rod.

WARNING – The hood is extremely heavy and requires a lifting device with a strap or a minimum of four people to remove or install the hood assembly. Failure to comply may result in injury to personnel.

17. Remove the hood and carefully set it in a secure place to prevent damage to the hood.

18. To remove D-shaped hood insulators, use an adequate punch to tap insulators free from the hood hinge rod.

Hood – Installation

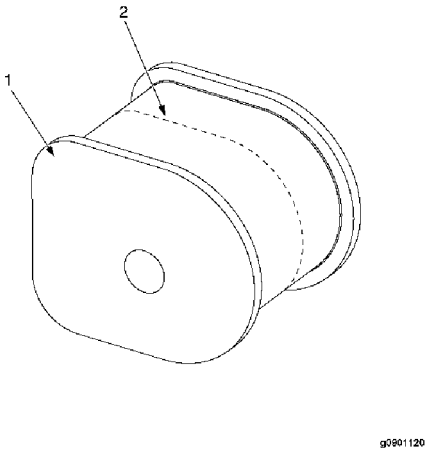

Figure 13 Hood Insulators

1. D-SHAPED HOOD INSULATOR
2. CENTER CUT LINE

1. To install D-shaped hood insulators, measure and mark the center point of each D-shaped hood insulator.
2. Using a sharp knife, cut the D-shaped hood insulators on the marked center line.
3. Insert the D-shaped hood insulators into the hood hinge rod.

WARNING – The hood is extremely heavy and requires a lifting device with a strap or a minimum of four people to remove or install the hood assembly. Failure to comply may result in injury to personnel.

4. Install the hood on the vehicle and align the hood hinge rod and hood hinge bracket holes (Figure 12, Items 1 and 2).
5. Install two bolts and nuts on the hood hinge bracket and the hood hinge rod (Figure 12). The bolts must be installed pointing toward the center of the vehicle. Torque bolts to 35 to 43 lbf-ft (47 to 58 N•m).
6. Raise the hood to approximately a 45-degree angle and support the hood.
7. Install the hood stop cables, left and right side, by attaching the clevis and clevis pin to the radiator frame (Figure 11).
8. Insert the cotter pin into the clevis pin (Figure 11, Items 3 and 5).

NOTE –

- **The right torsion bar must be installed before the left torsion bar.**
- **Installation procedures for the left and right torsion bars are the same. Figures references show the left torsion bar but the right torsion bar can be installed using the same figures.**

9. Install the right torsion bar through the upper torsion bar retainer bracket (Figure 9, Items 1 and 2).
10. Install the right torsion bar through the lower torsion bar retainer bracket (Figure 10, Items 1 and 2).
11. Position the right torsion bar mount plate on the right torsion bar (Figure 9, Items 1 and 3).
12. Secure the right torsion bar mount plate with two bolts (Figure 9, Items 3 and 4). Torque bolts 15 to 18 lbf-ft (20 to 24 N•m).
13. Secure the right torsion bar to the lower torsion bar retainer bracket with the washer and retaining pin (Figure 10).
14. Install the left torsion bar through the upper torsion bar retainer bracket (Figure 9, Items 1 and 2).
15. Install the left torsion bar through the lower torsion bar retainer bracket (Figure 10, Items 1 and 2).
16. Position the left torsion bar mount plate on the left torsion bar (Figure 9, Items 1 and 3).
17. Secure the left torsion bar mount plate with two bolts (Figure 9, Items 3 and 4). Torque bolts 15 to 18 lbf-ft (20 to 24 N•m).
18. Secure the left torsion bar to the torsion bar retainer bracket with the washer and retaining pin (Figure 10).
19. Connect the headlight harness connectors on both sides of the hood assembly (Figure 8).
20. Secure the hood wire harness with wire ties as needed.
21. Check hood adjustment and adjust as needed. Refer to **Hood – Adjustment** procedures in this manual.
22. Align the bumper on the mount brackets.
23. Install four bolts and washers on the bumper and mount brackets (Figure 2). Torque bolts to 50 to 55 lbf-ft (68 to 75 N•m).
24. Close and latch the hood.

Hood – Adjustment

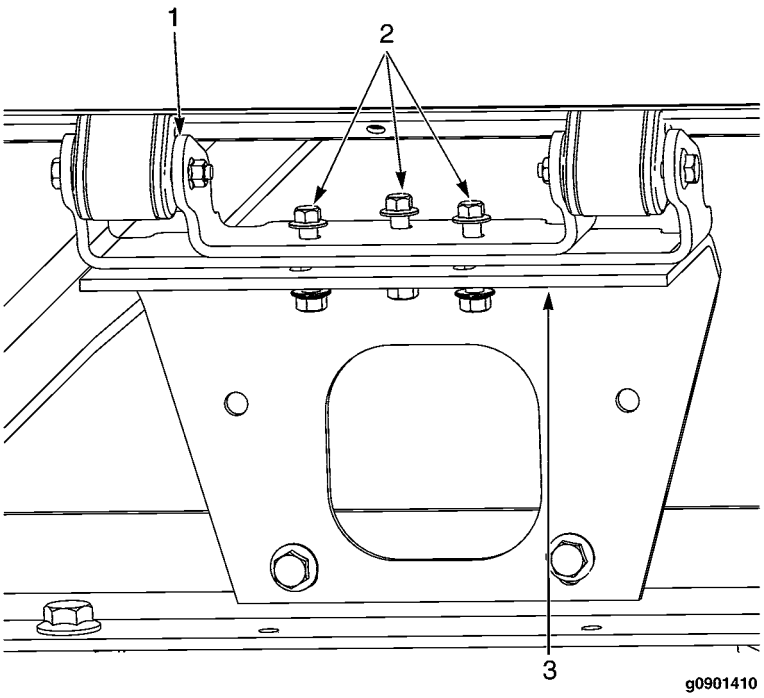

Figure 14 Hood Bracket Mount Assembly

1. HOOD HINGE BRACKET
2. HINGE MOUNT BOLT
3. HOOD HINGE VERTICAL SUPPORT BRACKET
4. NUT

The hood adjustment is made by moving the hood hinge bracket located on the hood hinge vertical support bracket.

1. To adjust the hood left to right:
   a. Unlatch the hood
   b. Loosen the hinge mount bolts and slide the hood hinge bracket left or right.
   c. Check the alignment with the hood contour lines. If the hood alignment is proper, tighten the hinge mount bolts. Torque bolts to 50 to 55 lbf-ft (68 to 75 N•m).
2. To adjust hood forward and back:
   a. Unlatch the hood
   b. Loosen the hinge mount bolts at the hood hinge bracket.
   c. Slide the hood forward or backward as required.
   d. Check for proper distance between the rear edge of hood and the windshield.
   e. Tighten the hinge mount bolts. Torque bolts to 50 to 55 lbf-ft (68 to 75 N•m).

Hood Stop – Adjustment

Adjusting the hood stops on each side of the vehicle allows for a cleaner fit and seal between the hood and cowl tray. Hood height adjustment at the cowl and rear edge of the hood is adjusted by moving the hood stop either up or down.

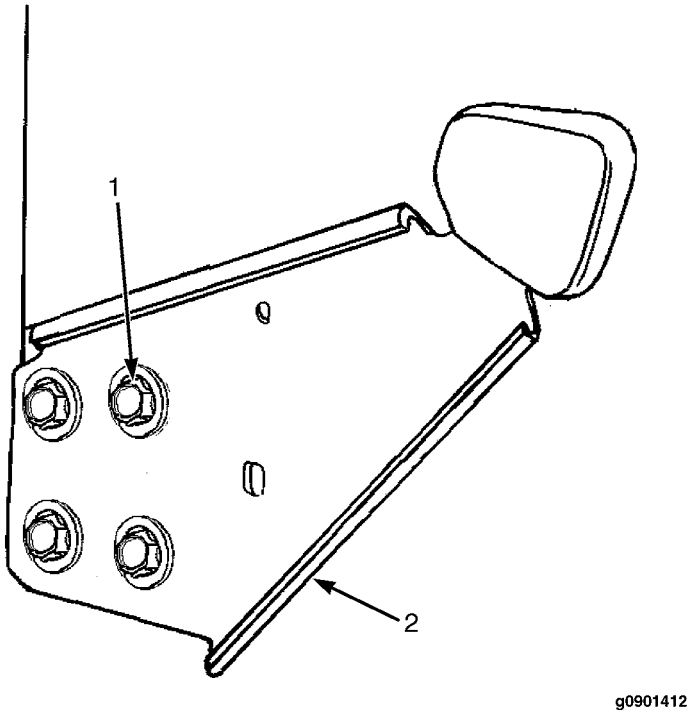

Figure 15 Hood Stop Mount

1. DOOR POST
2. HOOD STOP MOUNT BRACKET
3. BOLT

1. Unlatch and open the hood.
2. Loosen four bolts on the hood stop mount bracket.
3. Slide the hood stop mount bracket up or down to adjust the hood.
4. Tighten four bolts, close the hood and check the hood alignment.
5. If alignment is correct, torque the bolts to 28 to 35 lbf-ft (38 to 47 N•m).
6. Close and latch the hood.

Hood Hatch – Removal

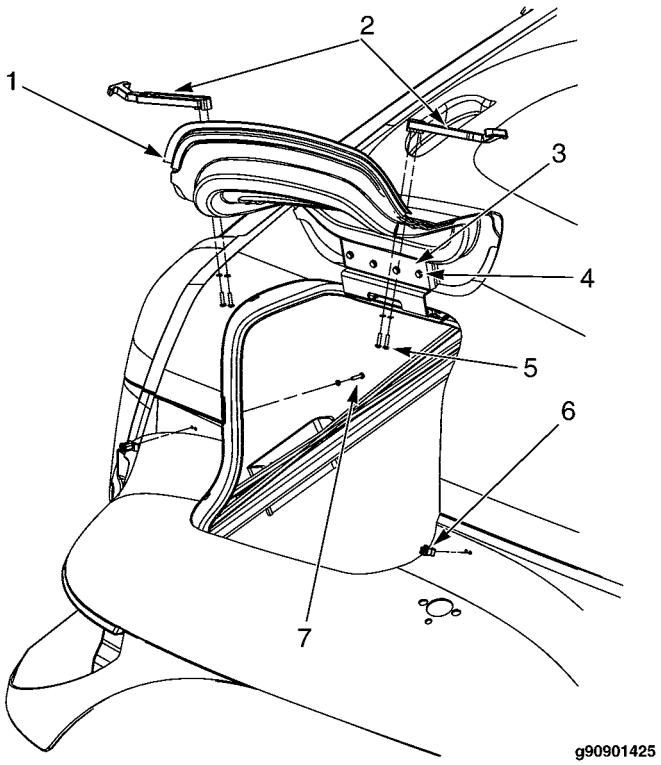

Figure 16 Hood Hatch

1. HOOD HATCH
2. HOOD HATCH LATCHES
3. HINGE BAR ASSEMBLY
4. HINGE BAR MOUNT SCREWS
5. LATCH MOUNT SCREWS
6. HATCH LATCHING STUD
7. HATCH LATCHING STUD MOUNT SCREW

1. Unlatch and open the hood.
2. Unlatch and open the hood hatch.
3. Remove four screws, washers, and two hood hatch latches from the hood hatch.
4. Remove two stud mount screws and washers from the underside of the fender assembly. Remove the hatch latching studs.
5. Remove four hinge bar mount screws from the hinge bar assembly and remove the hood hatch.

Hood Hatch – Installation

1. Align the four holes in the hinge bar assembly and hood. Install the four hinge bar mount screws (Figure 16, Items 3 and 4). Torque to 35 to 44 lbf-in (4 to 5 N•m).

2. Install the hatch latching studs and secure with the stud mount screws and washers to the underside of the fender assembly (Figure 16, Items 6 and 7). Torque to 35 to 44 lbf-in (4 to 5 N•m).

3. Install the hood hatch latches on the hood hatch. Secure with four screws and washers (Figure 16, Items 1, 2 and 5). Torque to 35 to 44 lbf-in (4 to 5 N•m).

4. Close and latch the hood hatch.

5. Close and latch the hood.

2.5. TORSION BARS

Torsion Bar – Removal

WARNING – The hood torsion bars become spring loaded as the hood is closed and are unloaded when the hood is in the open position. Therefore, the hood must be in the open position to remove or install the torsion bars from the hood. Failure to comply may result in injury to personnel.

NOTE –

- **Prior to removal, mark each torsion bar to show which side the torsion bars mount on the hood.**
- **The hood wiring harness is secured to the hood hinge rod with wire ties. Remove wire ties as needed to remove the torsion bars.**

NOTE – Removal of the left torsion bar is shown in this procedure. The right torsion bar must be removed in the same manner.

1. Remove two bolts and the left torsion bar mount plate from the left torsion bar (Figure 9, Items 1, 3, and 4).

2. Remove the retaining pin and washer from the left torsion bar located at the lower torsion bar retainer bracket (Figure 10).

3. Slide the left torsion bar out of the upper torsion bar retainer bracket and remove the left torsion bar (Figure 9, Items 1 and 2).

4. Remove the right torsion bar by using the same steps that were used to remove the left torsion bar.

Torsion Bar – Installation

NOTE –

- **The right torsion bar must be installed before the left torsion bar.**
- **Installation procedures for the left and right torsion bars are the same. Figure references show the left torsion bar but the right torsion bar can be installed using the same figures.**

1. Install the right torsion bar through the upper torsion bar retainer bracket (Figure 9, Items 1 and 2).
2. Install the right torsion bar through the lower torsion bar retainer bracket (Figure 10, Items 1 and 2).
3. Position the right torsion bar mount plate on the right torsion bar (Figure 9, Items 1 and 3).
4. Secure the right torsion bar mount plate with two bolts (Figure 9, Items 3 and 4). Torque bolts 15 to 18 lbf-ft (20 to 24 N•m).
5. Secure the right torsion bar to the lower torsion bar retainer bracket with the washer and retaining pin (Figure 10).
6. Install the left torsion bar through the upper torsion bar retainer bracket (Figure 9, Items 1 and 2).
7. Install the left torsion bar through the lower torsion bar retainer bracket (Figure 10, Items 1 and 2).
8. Position the left torsion bar mount plate on the left torsion bar (Figure 9, Items 1 and 3).
9. Secure the left torsion bar mount plate with two bolts (Figure 9, Items 3 and 4). Torque bolts to 15 to 18 lbf-ft (20 to 24 N•m).
10. Secure the left torsion bar to the torsion bar retainer bracket with the washer and retaining pin (Figure 10).
11. Check hood operation and close and latch the hood.

2.6. HOOD LATCH

Hood Latch – Removal

There are two hood latches mounted on the sides of the hood assembly. The lock-down brackets are mounted on the fender extensions.

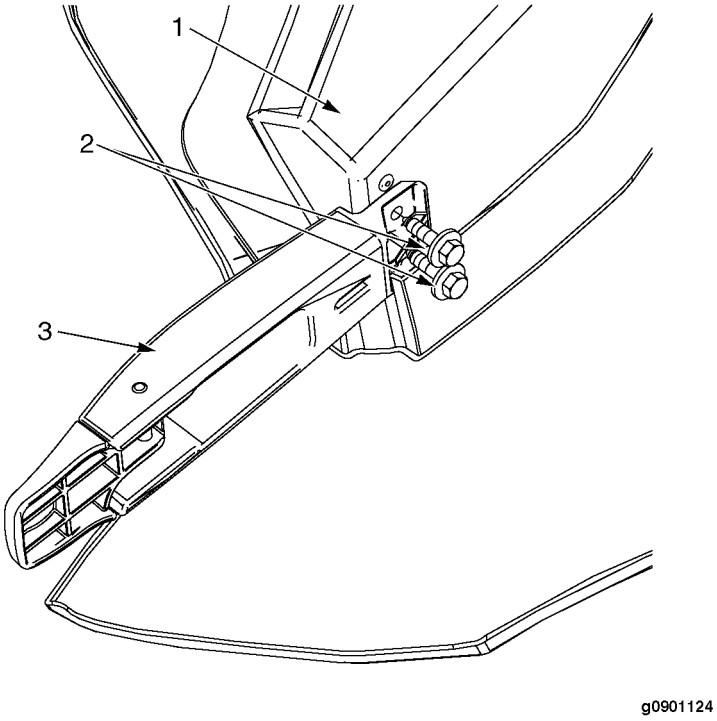

Figure 17 Hood Latch

1. HOOD
2. LATCH MOUNT BOLTS
3. HOOD LATCH

1. Remove two latch mount bolts and the hood latch from the hood.

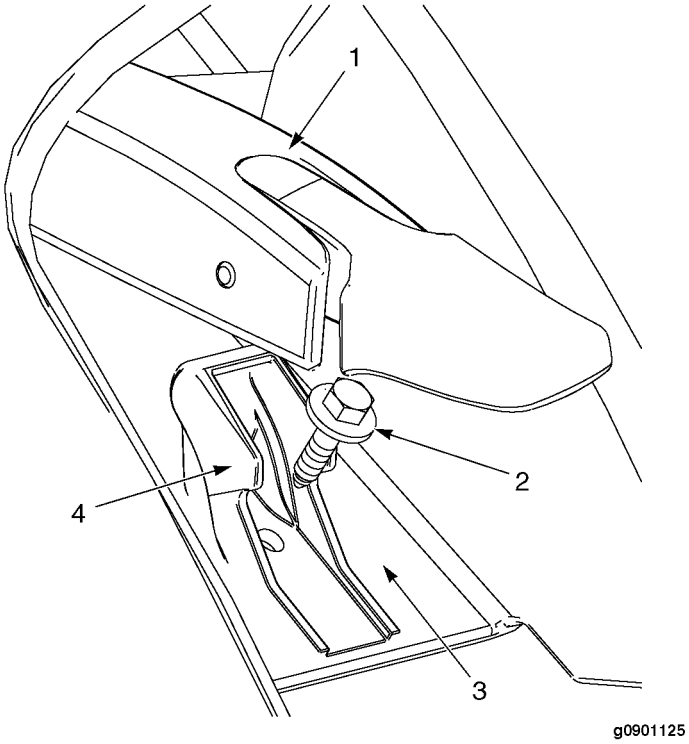

Figure 18 Latch Lock-Down Bracket

1. HOOD LATCH
2. BOLT
3. FENDER EXTENSION
4. LATCH LOCK-DOWN BRACKET

2. Remove one bolt and latch lock-down bracket from the fender extension.

Hood Latch – Installation

1. Install one bolt and latch lock-down bracket on the fender extension (Figure 18, Items 2, 3, and 4). Torque bolt to 15 to 19 lbf-ft (20 to 26 N•m).

2. Install two latch mount bolts and hood latch on hood (Figure 17). Torque bolts to 15 to 19 lbf-ft (20 to 26 N•m).

2.7. HOOD MIRROR

Hood Mirror – Removal

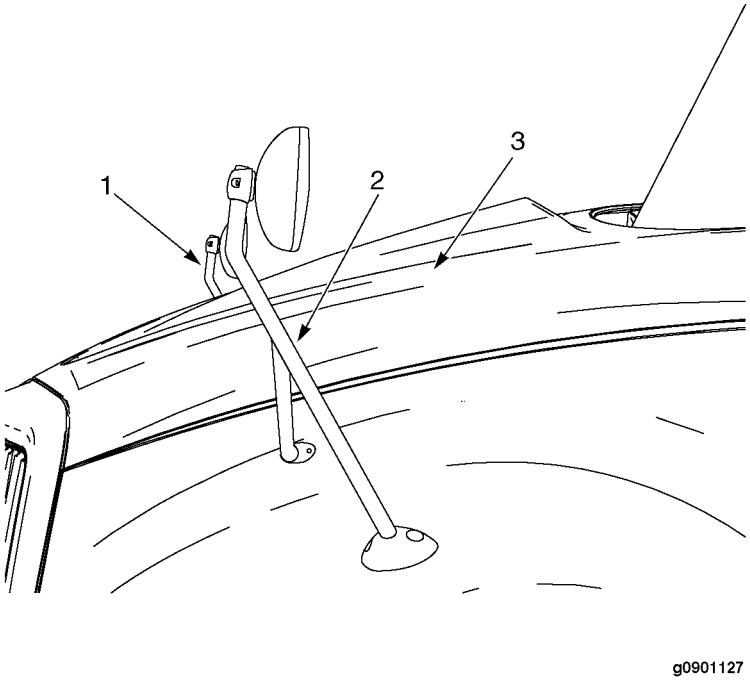

Figure 19 Hood Mirrors

1. RIGHT HOOD MIRROR
2. LEFT HOOD MIRROR
3. HOOD

1. Unlatch and open the hood.
2. If the hood is equipped with sound insulation, gently pry the sound insulation away from the hood mirror mounting hardware as needed.
3. Remove three nuts and washers from inside of the hood.
4. Remove the hood mirror from the hood.

Hood Mirror – Installation

1. Align the hood mirror on the hood.
2. Secure hood mirror to the hood with three washers and nuts. Torque bolts to 9 to 12 lbf-ft (12 to 16 N•m).
3. If sound insulation was removed from the hood mirror mounting area, glue the sound insulation back into position.
4. Close and latch the hood.

2.8. HOOD SEAL

Hood Seal – Removal

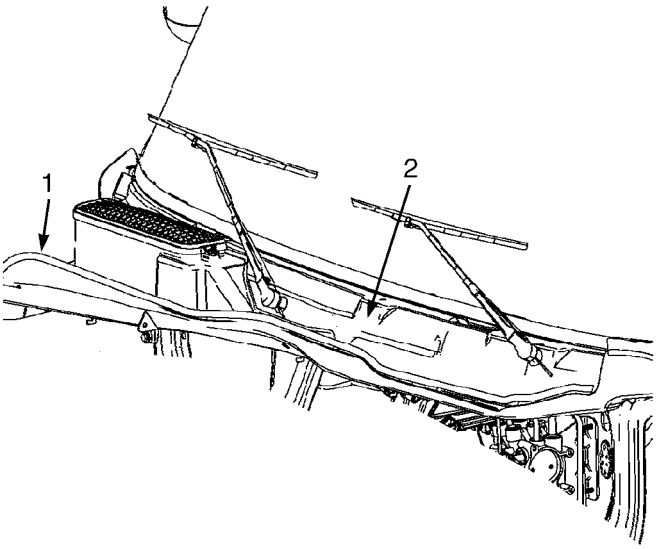

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Figure 20 Hood Seal

1. WINDSHIELD
2. HOOD SEAL
3. COWL TRAY
4. ANTENNA

1. Unlatch and open the hood.
2. Locate the hood seal on the forward edge of the cowl tray.
3. Beginning on the passenger side of the cowl tray, grip the hood seal and lift upward off the cowl tray.
4. Pull upward to remove the hood seal from the entire lip of the cowl tray, across the front of the cab.

Hood Seal – Installation

1. Place the hood seal on the forward edge of the cowl tray (Figure 20, Items 2 and 3). Start on the passenger side and press down on the hood seal causing the trim-lock portion to secure on the cowl tray edge.
2. Continue across the entire forward edge of the cowl tray with the hood seal.
3. Check that the hood seal is pushed down on the edge of the cowl tray as far as is allowable.
4. Close and latch the hood.

2.9. AIR INTAKE GRILLE

Air Intake Grille – Removal

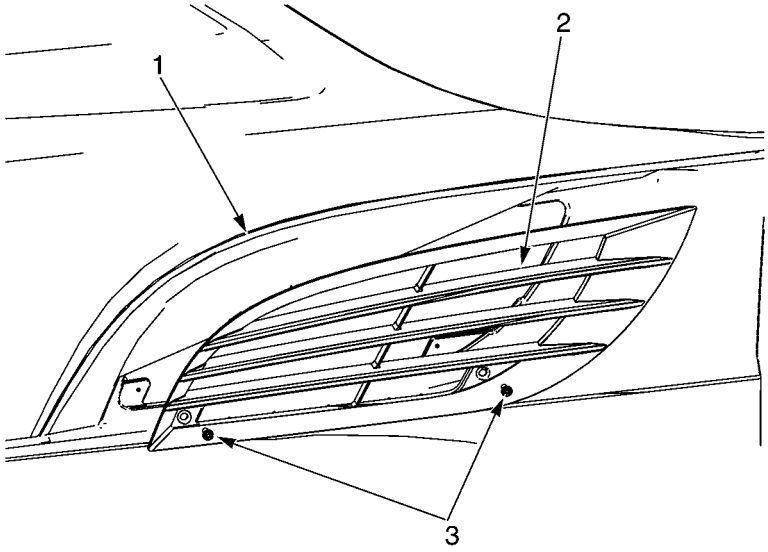

Figure 21 Air Inlet Grille Mounting

1. GRILLE MOUNTING FRAME
2. AIR INLET GRILLE
3. SCREWS

1. Remove two screws and the air intake grille from the grille mounting frame.

Air Intake Grille – Installation

1. Align the air intake grille on the grille mounting frame (Figure 21, Items 1 and 2).
2. Install two screws and tighten (Figure 21, Item 3).

2.10. HOOD AND FENDER PANELS

NOTE – These hood and fender panel procedures show the steps and illustrations for the hood and fender panel replacement on the ProStar™ vehicle. The hood and fender panels on the 7000 series vehicles are constructed of the same material and replacement is performed in the same manner.

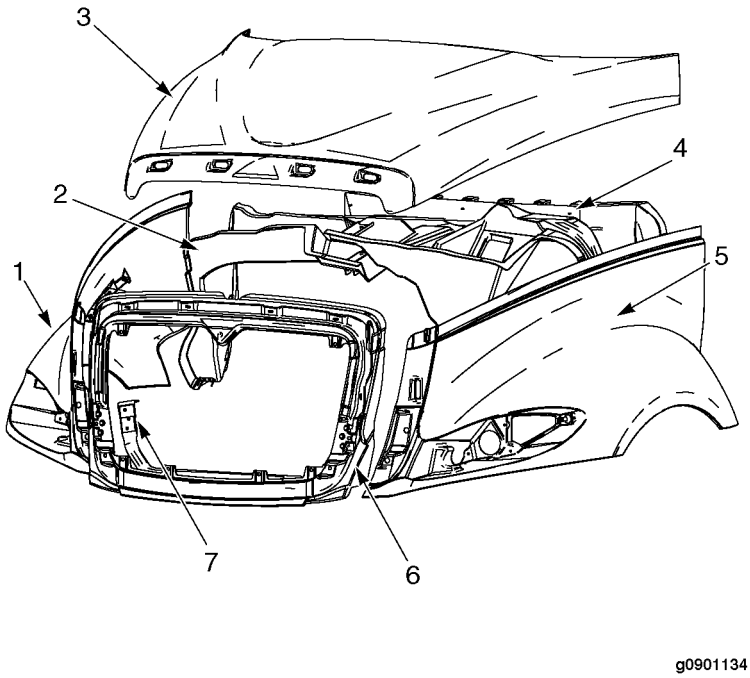

Figure 22 Hood/Fender Assembly

1. RIGHT FENDER SECTION
2. RIGHT HOOD REINFORCEMENT PANEL
3. HOOD TOP PANEL
4. LEFT HOOD REINFORCEMENT PANEL
5. LEFT FENDER SECTION
6. FRONT HOOD SUPPORT
7. HOOD HINGE ROD

WARNING – To avoid possible personal injury, wear protective clothing, use safety glasses, face mask, and rubber gloves during this procedure. Use a NIOSH or MSHA approved respirator to avoid breathing dust and fumes. Work in a separate area away from other operations.

NOTE – All panels of the hood replace in a similar manner. This procedure covers replacement of the left fender section. The same steps can be followed to replace the other hood panels.

MATERIALS AND EQUIPMENT REQUIRED

To complete the removal and replacement of the left fender section, the following materials and equipment will be necessary;

- Fusor repair adhesive
- adhesive application gun
- heat gun (250 degrees)
- putty knife and hammer
- C-clamps
- 180-grit sandpaper
- clean rags
- masking tape
- cutting disk and/or saw
- face mask
- rubber gloves.

Before performing this procedure, remove the hood and place in a secure place to prevent damage to the hood. Refer to **Hood – Removal** procedures in this manual.

Hood and Fender Panel – Removal

Before removing the left fender section, certain hood/fender components will have to be removed, such as the headlight assembly, splash shield, hood mirror, and sound insulation. Remove the necessary components at this time.

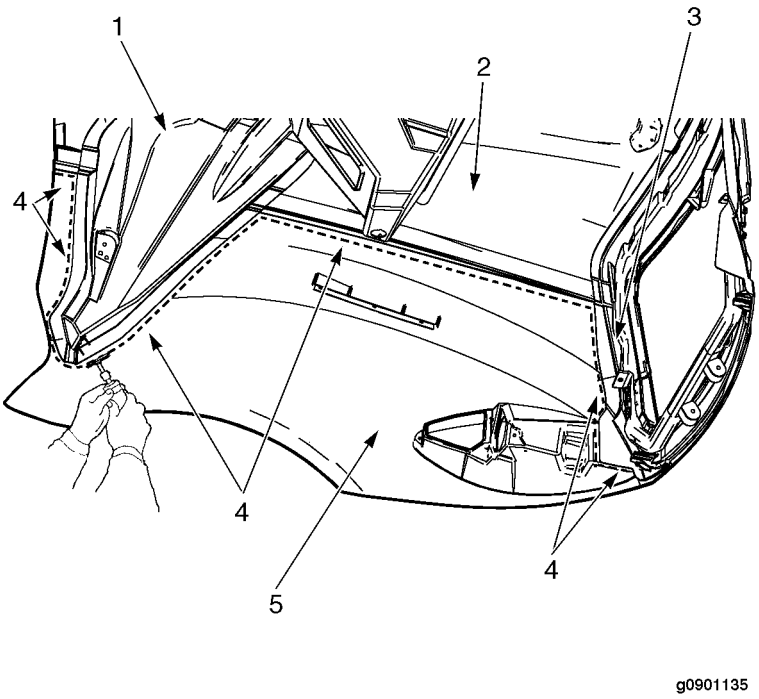

Figure 23 Cut Fender Section Away

1. LEFT HOOD REINFORCEMENT PANEL
2. HOOD TOP PANEL
3. FRONT HOOD SUPPORT
4. CUT LINE
5. LEFT FENDER SECTION

1. From inside the hood, mark a reference cut line along the left fender section as close as possible to the hood top panel, front hood support, and left hood reinforcement panel.

2. Use a saw and/or cutting disk to cut along the entire cut line and remove the left fender section from the hood top panel, front hood support, and left hood reinforcement panel.

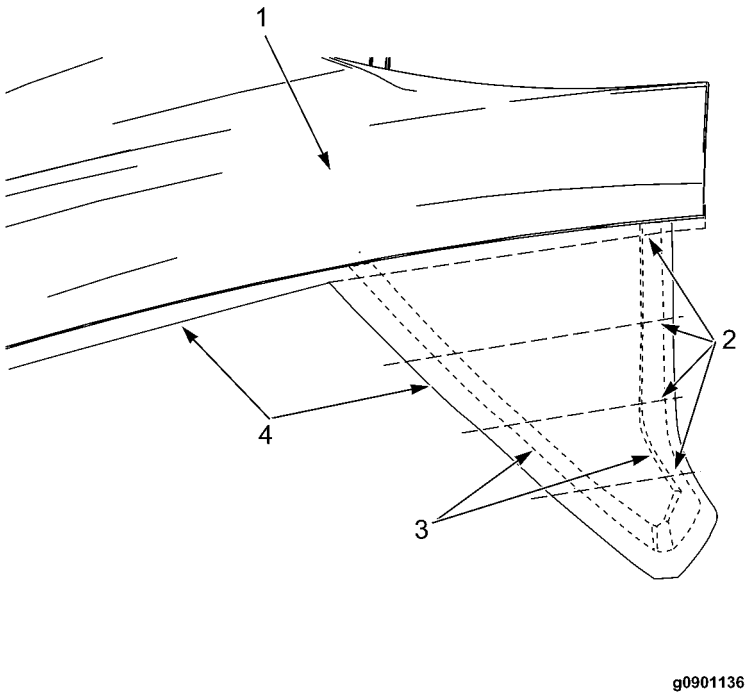

Figure 24 Fender Section Cut Out

1. HOOD TOP PANEL
2. CUT LINES
3. LEFT HOOD REINFORCEMENT PANEL
4. LEFT FENDER SECTION

3. Mark four cut lines along the remaining left fender section at the left hood reinforcement.

NOTE – Be careful not to cut into the left hood reinforcement panel.

4. Using a cutting disk, score through the left fender section remaining at the left hood reinforcement panel. This will make it easier to heat and remove the remaining left fender section pieces.

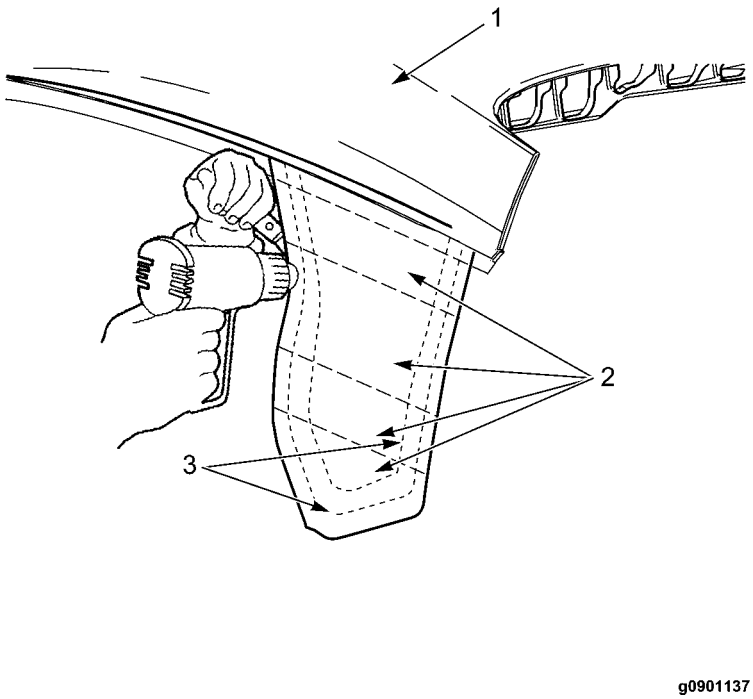

Figure 25 Fender Section Removal

1. HOOD TOP PANEL
2. LEFT FRONT FENDER SECTION
3. LEFT HOOD REINFORCEMENT PANEL

5. Using a heat gun, apply heat to the remaining left fender section pieces at the left hood reinforcement panel.

6. Use a hammer and putty knife and work the putty knife between the left fender section pieces and the left hood reinforcement panel to remove the remaining left fender section pieces.

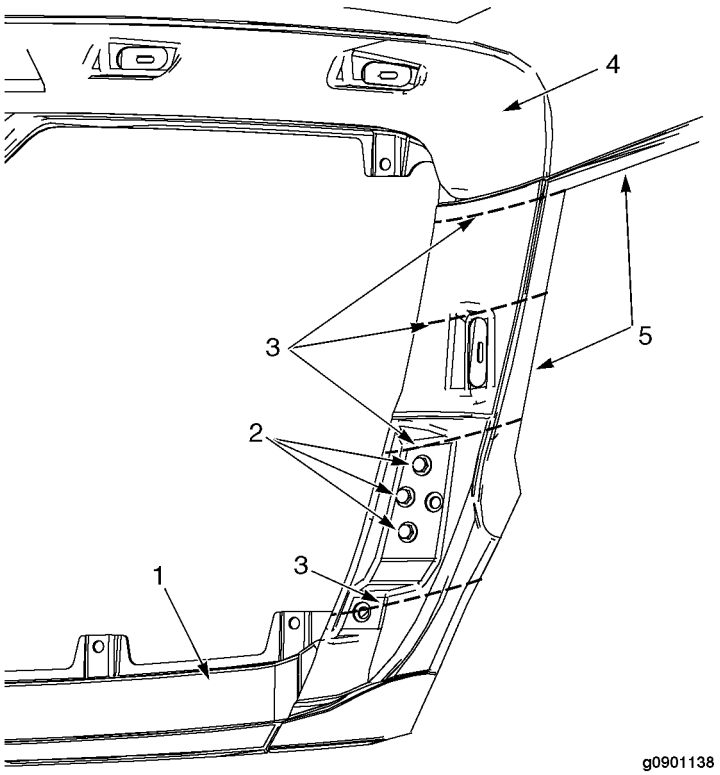

Figure 26 Cut Fender Section Pieces

1. FRONT HOOD SUPPORT
2. HOOD HINGE ROD MOUNT BOLTS
3. CUT LINES
4. HOOD TOP PANEL
5. LEFT FRONT FENDER SECTION

7. Remove three bolts from the left fender section and front hood support.

8. Mark four cut lines along the remaining left fender section at the front hood support.

NOTE – Be careful not to cut into the front hood support.

9. Using a cutting disk, cut out the fender section and score through the fender section remaining at the front hood support. This will make it easier to heat and remove the remaining left front fender section pieces.

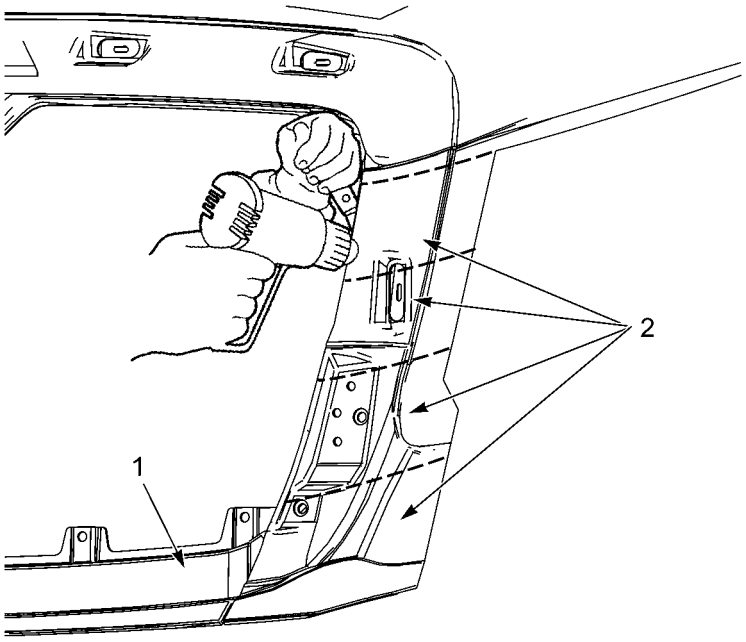

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Figure 27 Remaining Fender Section Pieces

1. FRONT HOOD SUPPORT
2. LEFT FRONT FENDER SECTION

10. Using a heat gun, apply heat to the remaining left fender section pieces at the front hood support.

NOTE – Be careful not to crack the front hood support while working the putty knife between the left fender section pieces and front hood support.

11. Use a hammer and putty knife and work the putty knife between the left fender section pieces and the front hood support to remove the remaining left front fender section pieces.

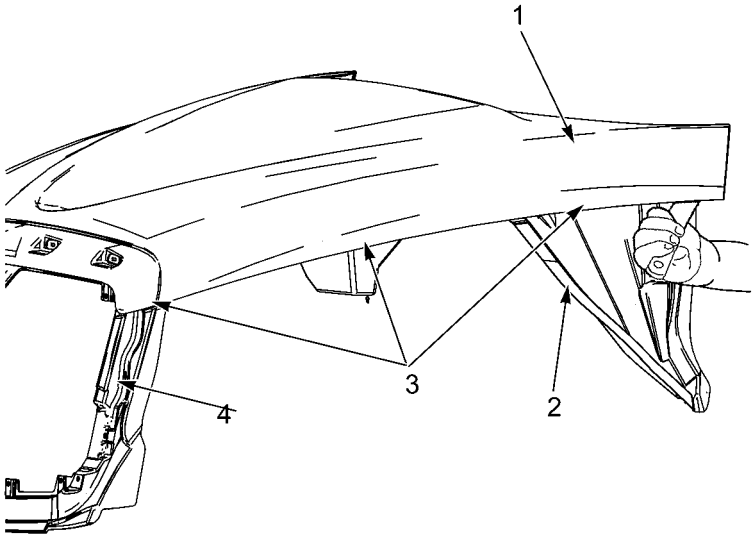

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Figure 28 Fender Section at Hood Top and Side Hood Support

1. HOOD TOP PANEL
2. LEFT HOOD REINFORCEMENT PANEL
3. LEFT FENDER SECTION PIECE
4. FRONT HOOD SUPPORT

NOTE – Be careful not to crack the hood top panel.

12. Starting at the rear edge of the hood/fender assembly, use a heat gun to heat the left fender section piece from inside the hood top panel. Push a putty knife between the hood top panel and the left fender section piece to separate them. Work toward the front hood support at the front of the hood.

NOTE – Be careful not to crack the hood top panel while working the putty knife between the hood top panel and the left fender section piece.

13. Where the left fender section piece is bonded to both the left hood reinforcement panel and top hood panel, heat will also need to be applied to the hood top panel. Be careful not to apply to much heat to the hood top panel.

14. Continue to apply heat to both the left fender section piece and front hood support. Use the putty knife and pliers to work the left fender section piece out from between the front hood support and hood top panel.

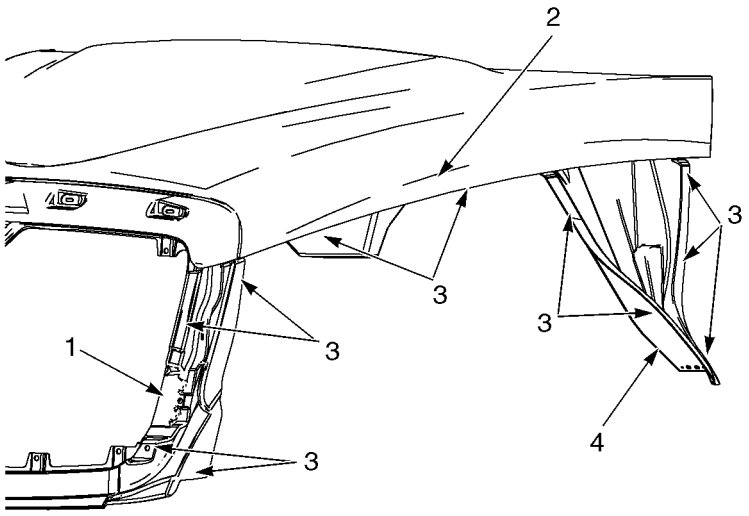

Figure 29 Clean Surfaces

1. FRONT HOOD SUPPORT
2. HOOD TOP PANEL
3. ADHESIVE SURFACE
4. LEFT HOOD REINFORCEMENT PANEL

15. Once the damaged fender section is completely removed, use a sanding disk and clean the remaining adhesive. Remove all adhesive from the front hood support, left hood reinforcement panel, and inside surface of hood top panel where the new fender section will be secured with adhesive. Then, with a lint-free cloth and alcohol, clean these surfaces and scuff with 180-grit sandpaper.

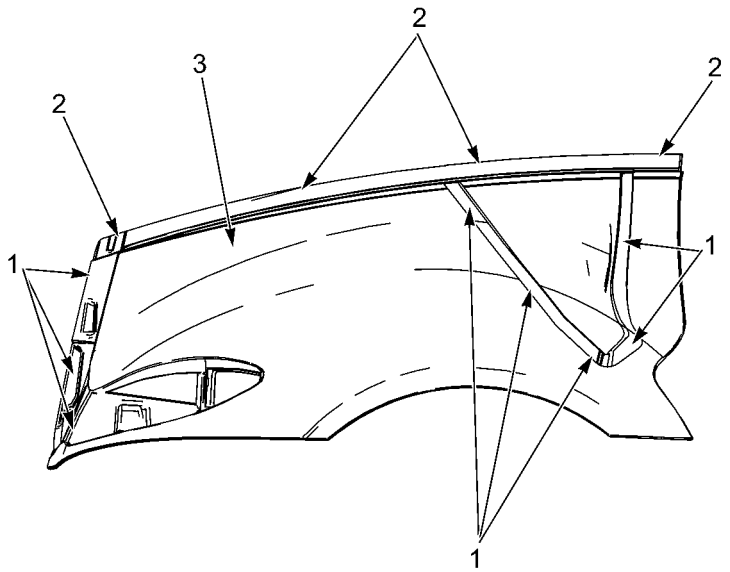

Figure 30 Scuff These Surfaces

1. INSIDE MATING SURFACES
2. OUTSIDE MATING SURFACES
3. NEW FENDER SECTION

16. Use a clean, lint-free cloth and alcohol to clean the surfaces on both the inside and outside of the new left fender section where it will be secured with adhesive to the front hood support, hood top panel, and left hood reinforcement panel. Scuff these surfaces with 180-grit sandpaper.

17. Use a clean, dry, lint-free cloth to wipe any loose fiberglass and dust from the front hood support, hood top panel, left hood reinforcement panel and the new left fender section before applying the adhesive.

Hood and Fender Panel – Installation

WARNING – Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Do not breathe dust. Use with adequate ventilation and appropriate breathing apparatus. Refer to Fusor Corporate Material Safety Data Sheet before using this material. Fusor may be contacted by calling 1-800-234-Fusor. More information can be found on the ISIS ® Web site (Supplier→ Fusor).

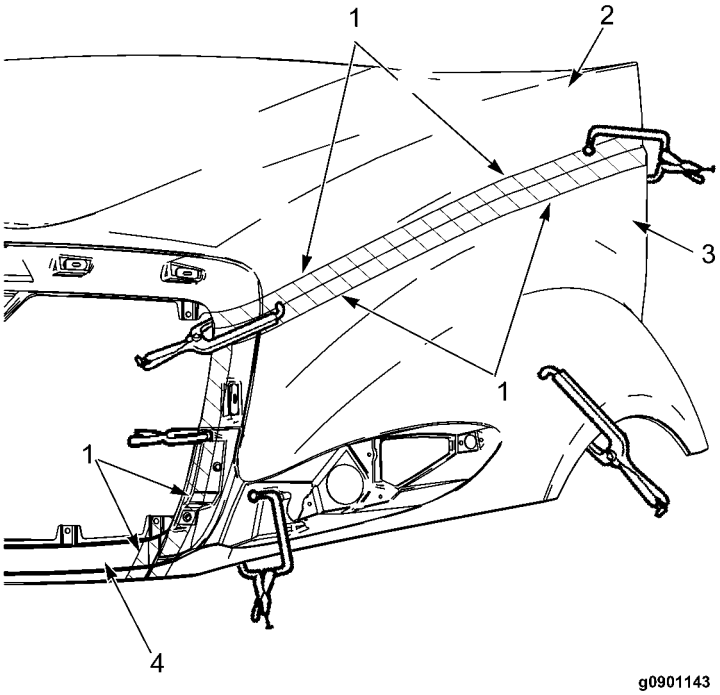

Figure 31 Fit New Fender

1. MASKING TAPE
2. HOOD TOP PANEL
3. LEFT FENDER SECTION
4. FRONT HOOD SUPPORT

1. Before applying adhesive to any components, slide the new left fender section into position on the hood and check the fit. Use clamps to hold the new left fender section in place.

2. Apply masking tape vertically on the front hood support and along the front of the left fender section to aid in the cleanup of excessive adhesive.

3. Apply masking tape horizontally on the left fender section and the hood top panel, starting at the front edge of the fender section and hood top panel to the rear edge of each panel.

4. Remove the left fender section from the hood.

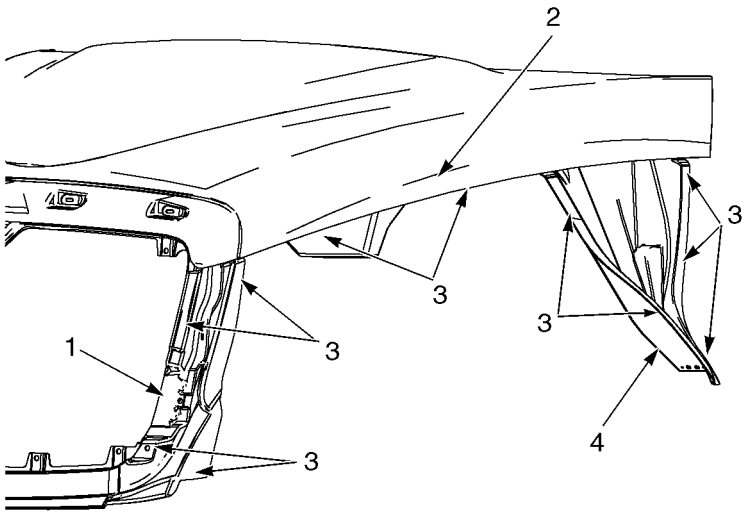

Figure 32 Apply Adhesive

1. FRONT HOOD SUPPORT
2. HOOD TOP PANEL
3. ADHESIVE POINTS
4. LEFT HOOD REINFORCEMENT PANEL

5. Apply Fusor adhesive to all mating surfaces with the left fender section on the front hood support, left hood reinforcement panel, and hood top panel.

6. Once the adhesive has been applied, with assistance from a coworker, position the front of the new fender section between the front hood support and the top hood panel. Position the offset of the left fender section behind the hood top panel.

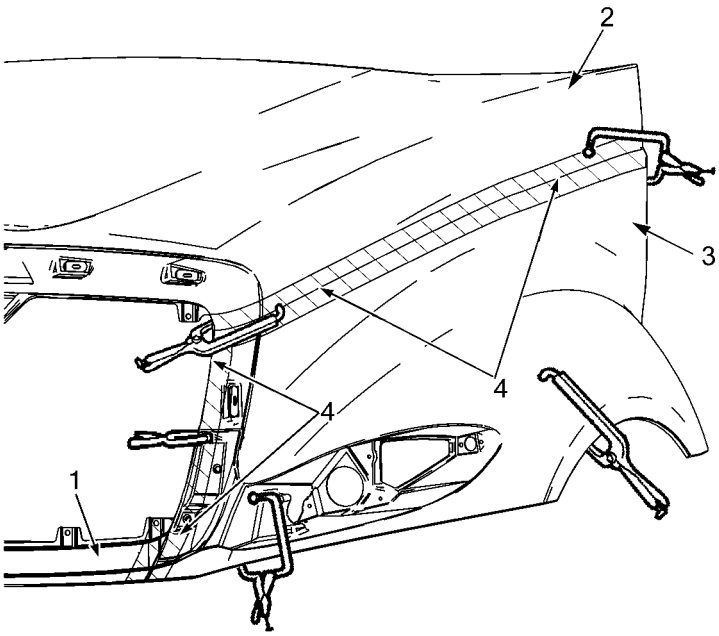

Figure 33 Adhesive Clean Up

1. FRONT HOOD SUPPORT
2. HOOD TOP PANEL
3. LEFT FENDER SECTION
4. ADHESIVE SEAMS

7. Clamp the left fender section in place along the front hood support, at the rear of the top hood panel, and bottom of the left hood reinforcement panel.

8. Use a piece of plastic or wood to remove the excess adhesive from the seam between the top of the hood and the new fender section. Also, remove excess adhesive from the front hood support and the front of the left fender section before it starts to cure.

9. Remove the masking tape from the left fender section, front hood support, and top hood panel.

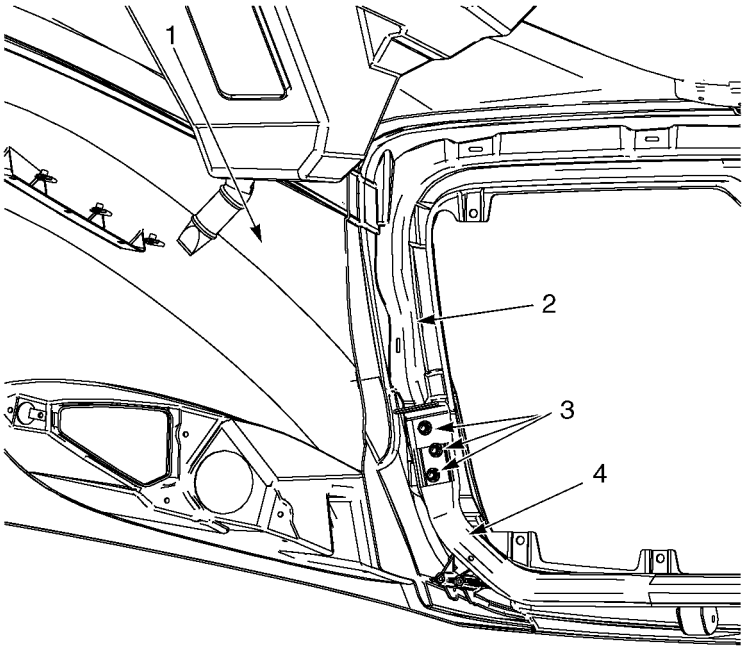

Figure 34 Fender\Hood Hinge Mount Holes

1. LEFT FENDER SECTION
2. FRONT HOOD SUPPORT
3. MOUNT HOLES
4. HOOD HINGE ROD

10. Use the hood hinge rod as a template and, from inside the hood assembly, drill three holes through the left fender section for mounting the hood hinge rod to the left fender section.

11. Secure the left fender section to the front hood support and hood hinge rod with three bolts and nuts (Figure 34). Torque bolts to 21 to 27 lbf-ft (28 to 37 N•m).

12. Allow the adhesive to cure for at least four hours before removing the clamps.

NOTE – At 70°F/21°C, the adhesive will fully cure in 24 to 48 hours (or 1 hour at 140°F/60°C).

13. Once the adhesive has cured properly, install the headlight assembly, splash shield, hood mirror, and sound insulation as needed.

14. Install the hood on the vehicle. Refer to **Hood – Installation** procedures in this manual.

2.11. FENDER EXTENSIONS

Fender Extensions – Removal

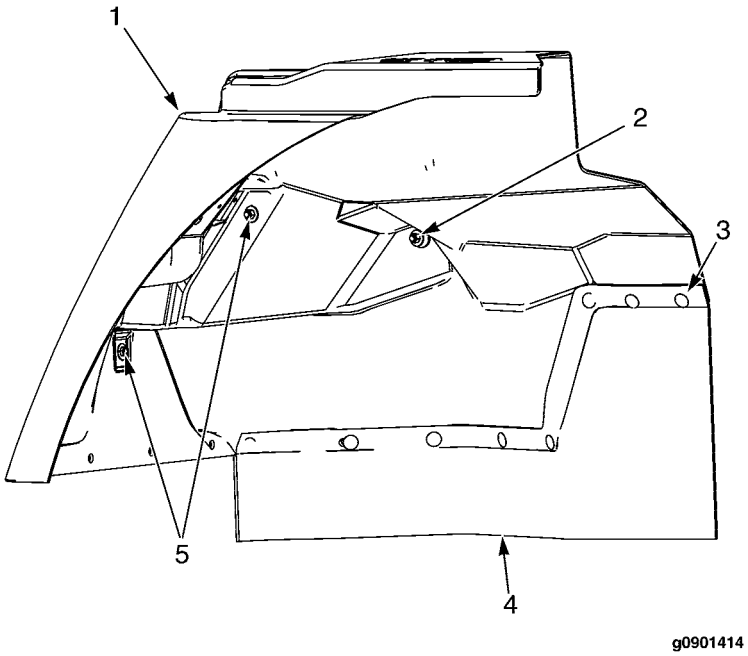

Figure 35 Right Fender Extension

1. BOLT
2. FENDER EXTENSION
3. NUT
4. PUSH PINS
5. EXTENSION GUARD

1. Unlatch and open the hood.
2. Clean dirt and debris away from all mount hardware.
3. Remove two bolts and one nut from the fender extension.
4. Remove the fender extension from the chassis.
5. To disassemble the extension guard, remove the push pins and extension guard from the fender extension.

Fender Extensions – Installation

1. Align the holes of the extension guard with the fender extension and secure with the push pins (Figure 35, Items 2, 4, and 5).
2. Install fender extension on chassis and align mounting holes.
3. Align the mounting holes of the fender extension and the chassis.
4. Secure the fender extension with two bolts and one nut (Figure 35, Items 1, 2 and 3). Torque bolts and nut to 15 to 18 lbf-ft (20 to 24 N•m).
5. Close hood and ensure the fender extension is aligned properly.
6. If the fender extension is not aligned properly, loosen the two bolts and nut, align the fender extension, and torque the two bolts and nut.

2.12. MUD GUARDS

Mud Guard – Removal

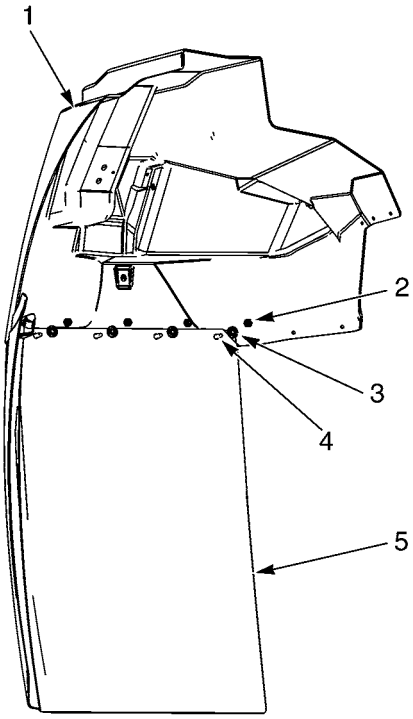

Figure 36 Mud Guard

1. FENDER EXTENSION
2. NUTS
3. WASHERS
4. BOLTS
5. MUD GUARD

1. Unlatch and open the hood.
2. Clean dirt and debris away from all mud guard mount hardware.
3. Remove four bolts, nuts and washers from the mud guard and the fender extension.
4. Remove the mud guard from the fender extension.

Mud Guard – Installation

1. Align the mud guard holes with the fender extension holes (Figure 36, Items 1 and 5).
2. Install the four bolts, nuts, and washers (Figure 36, Items 2, 3 and 4). Torque bolts and nuts to 15 to 18 lbf-ft (20 to 24 N•m).

2.13. FENDERETTES

Fenderette – Removal

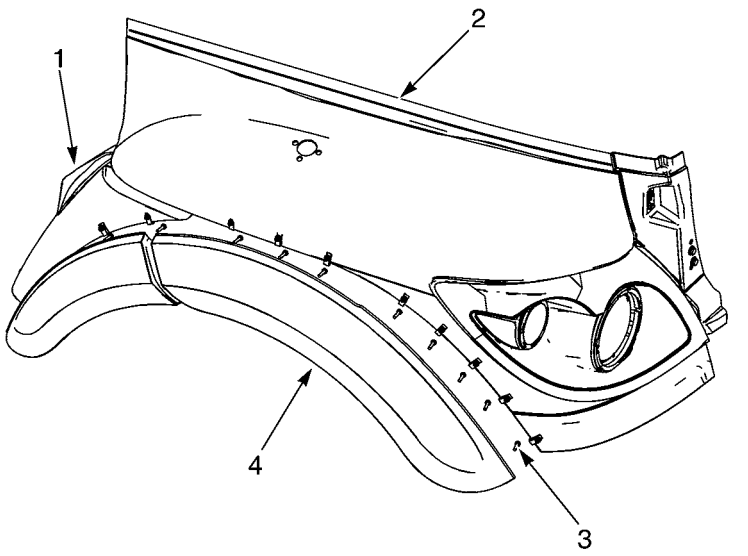

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Figure 37

1. FENDER EXTENSION
2. FENDER
3. SCREW AND WASHER
4. REAR FENDERETTE
5. FRONT FENDERETTE

1. Unlatch and open the hood.
2. Clean dirt and debris away from all fenderette mount hardware.
3. Remove eight screws and washers from front fenderette and fender.
4. Remove the front fenderette.
5. Remove four screws and washers from rear fenderette and fender extension.
6. Remove the rear fenderette.

Fenderette – Installation

1. Align the rear fenderette on the fender extension and install four screws and washers hand tight.
2. Align the front fenderette on the fender and install eight screws and washers hand tight.

3. Ensure that both fenderettes are properly aligned and torque 11 screws (Figure 37, Items 3, 4, and 5). Torque bolts to 8 to 10 lbf-ft (11 to 13.6 N•m).

2.14. HEADLIGHT ASSEMBLY

Headlight Assembly – Removal

NOTE – Removal of the right side headlight assembly is shown in this procedure. The left side headlight assembly must be removed in the same manner after first removing the upper splash panel.

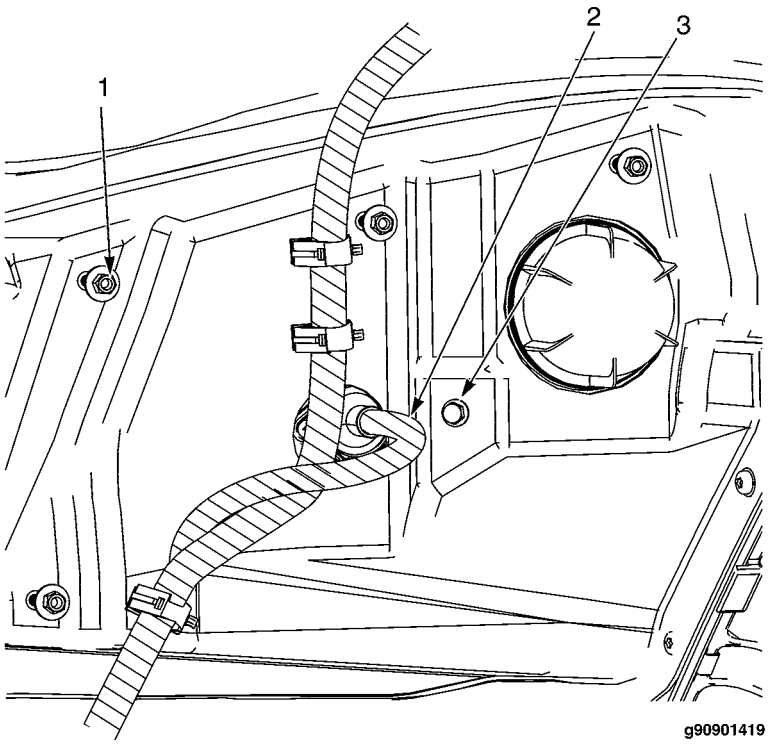

Figure 38 Headlight Assembly Attaching Hardware

1. NUT
2. HEADLIGHT HARNESS CONNECTOR
3. BOLT

1. Unlatch and open the hood.

2. Disconnect the headlight harness connector.

CAUTION – Do not allow the headlight assembly to fall out of the hood while removing the mounting hardware.

3. Remove four nuts and one bolt from the headlight assembly.

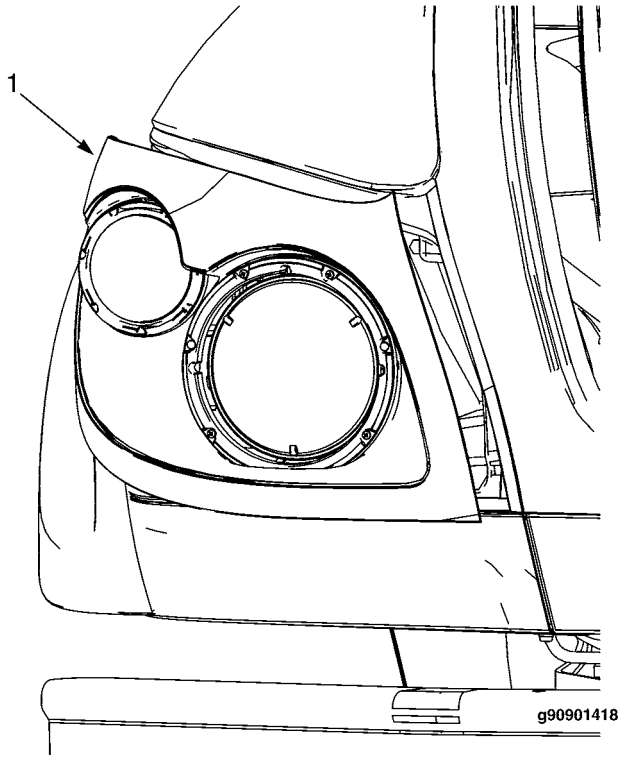

Figure 39 Headlight Assembly

1. HEADLIGHT ASSEMBLY
2. HOOD

4. Remove the headlight assembly from the hood.

Headlight Assembly – Installation

NOTE – Installation of the right side headlight assembly is shown in this procedure. The left side headlight assembly must be installed in the same manner. The upper splash panel may then be installed.

1. Install the headlight assembly in the hood opening (Figure 39, Items 1 and 2).
2. Secure with four nuts and one bolt (Figure 38, Items 1 and 3). Torque nuts to 11 to 13 lbf-ft. (15 to 18 N•m).
3. Connect the headlight harness connector (Figure 38, Item 2).
4. Close and latch the hood.

Headlight Bulb – Removal

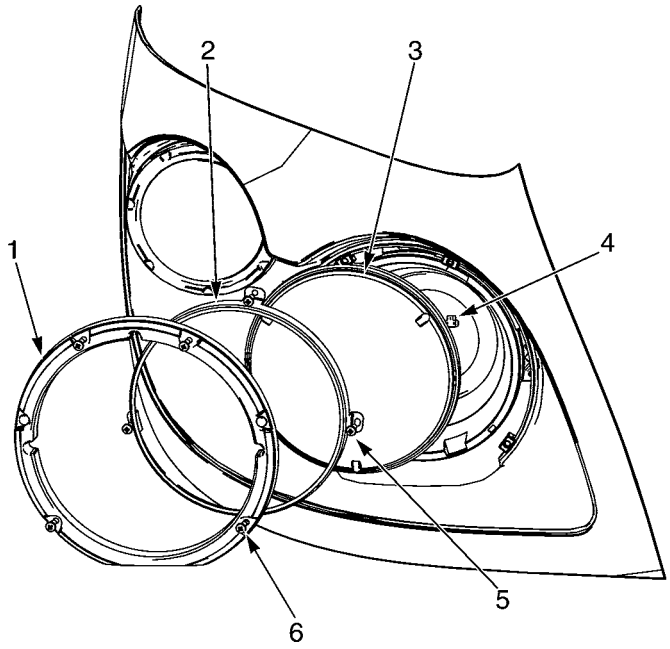

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Figure 40 Headlight Bulb Assembly

1. HEADLIGHT BEZEL
2. RETAINER RING
3. HEADLIGHT BULB
4. HEADLIGHT BULB SOCKET
5. HEADLIGHT HOUSING
6. RETAINER RING SCREWS
7. BEZEL SCREW

1. Remove four bezel screws from the headlight bezel and remove the headlight bezel.
2. Remove three retainer ring screws from the retainer ring and remove the retainer ring.
3. Unplug the headlight bulb from the headlight bulb socket and remove the headlight bulb from the headlight housing.

Headlight Bulb – Installation

1. Install the headlight bulb in the headlight housing, plug the headlight bulb into the headlight bulb socket (Figure 40, Items 3, 4, and 5).
2. Align the retainer ring holes with the headlight housing holes and install the three retainer ring screws (Figure 40, Items 2, 5, and 6).
3. Align the headlight bezel holes with the headlight housing holes and install the four bezel screws (Figure 40, Items 1, 5, and 7).

Headlight Adjustment

NOTE – The headlight adjustment is made with the vehicle level and the headlights on.

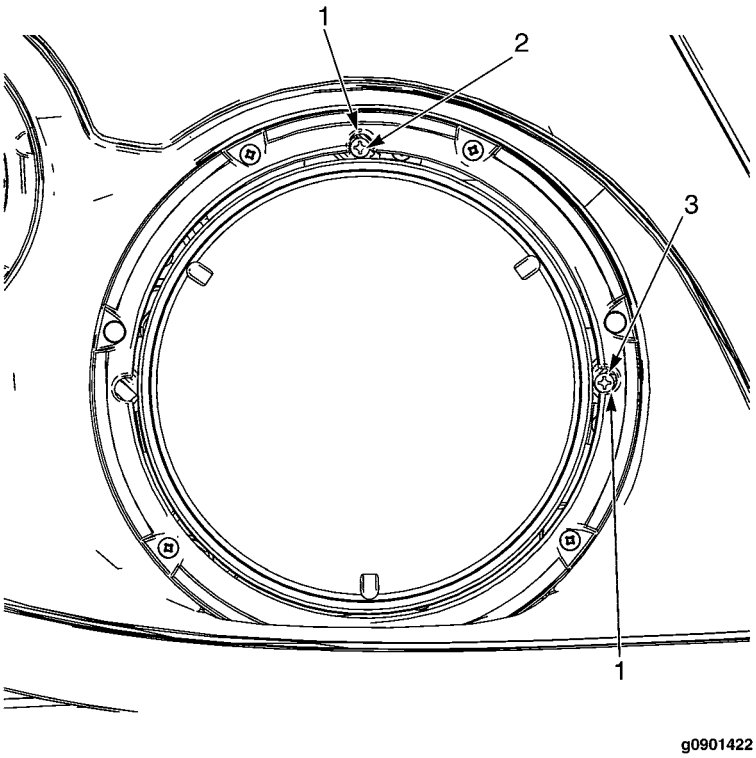

Figure 41 Headlight Adjustment

1. HEADLIGHT BEZEL ACCESS HOLES
2. VERTICAL ADJUSTMENT SCREW
3. HORIZONTAL ADJUSTMENT SCREW

1. Locate the vertical and horizontal adjustment screws just inside the headlight bezel access holes.

2. With the use of a Phillips head screwdriver, adjust the headlight beam vertically or horizontally by turning the vertical or horizontal adjusting screws clockwise or counterclockwise as needed.

Turn Signal Bulb – Removal

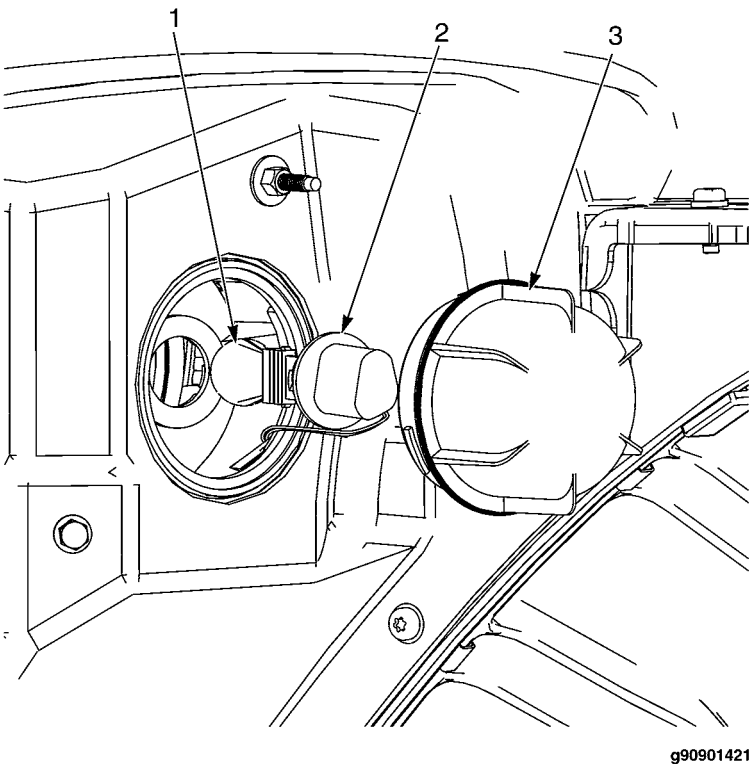

Figure 42 Turn Signal Bulb

1. TURN SIGNAL BULB
2. TURN SIGNAL BULB SOCKET
3. SOCKET COVER

1. Unlatch and open the hood.
2. Rotate the socket cover counterclockwise and remove.
3. Rotate the turn signal bulb socket counterclockwise and remove.
4. Remove the turn signal bulb from the turn signal bulb socket.

Turn Signal Bulb – Installation

1. Install the turn signal bulb in the turn signal bulb socket (Figure 42, Items 1 and 2).
2. Install the turn signal bulb in the proper position in the headlight assembly and turn clockwise to lock it in position.
3. Install the socket cover (Figure 42, Item 3).
4. Close and latch the hood.

2.15. FENDER MOUNTED LIGHTS

Clearance Light – Removal

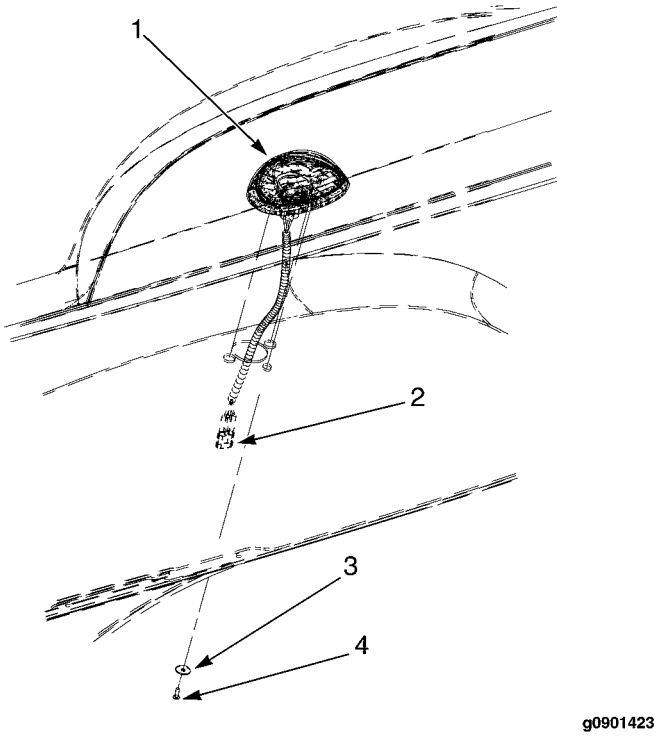

Figure 43 Clearance Light

1. CLEARANCE LIGHT ASSEMBLY
2. WIRE HARNESS CONNECTOR
3. WASHER
4. MOUNT SCREW

NOTE – The left side clearance light is shown in this procedure. Follow the same steps to remove the right side clearance light.

1. Unlatch and open the hood.
2. Disconnect the wire harness connector from the clearance light assembly.
3. Remove the mount screw and washer.
4. While holding the clearance light assembly, depress and push the two mount retainer clips (not shown in figure) through the mounting holes.
5. Remove clearance light assembly.
6. To remove the bulb:
   - Twist the socket counterclockwise on the back of the clearance light assembly and disconnect.

- Remove bulb from socket.

Clearance Light – Installation

1. To install the bulb:
   - Insert bulb into socket.
   - Connect socket to the back of the clearance light assembly and turn clockwise to lock.
2. Align and insert the clearance light assembly in the mounting hole (Figure 43, Item 1).
3. Install and tighten the washer and mount screw (Figure 43, Items 3 and 4).
4. Connect the wire harness connector (Figure 43, Item 2).
5. Close and latch the hood.

Turn Signal – Removal

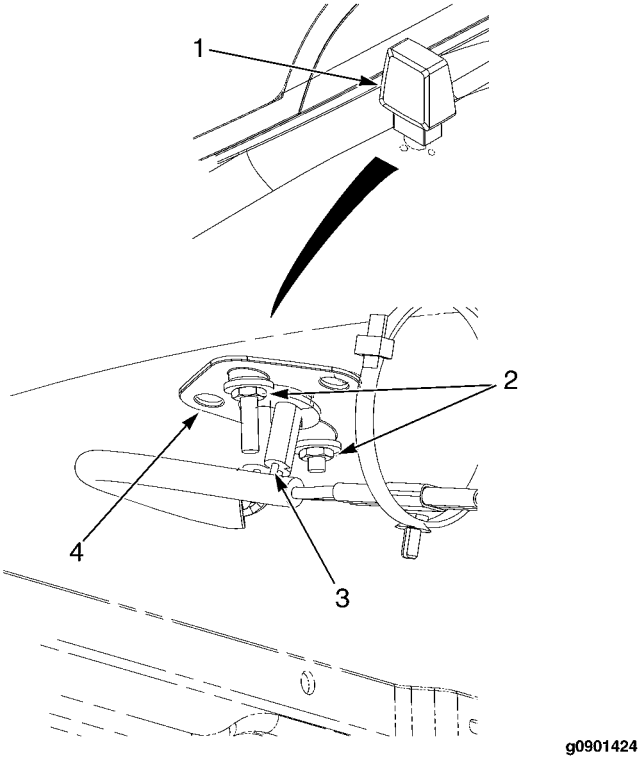

Figure 44 Fender Mounted Turn Signal

1. TURN SIGNAL ASSEMBLY
2. NUT AND WASHER
3. WIRE HARNESS SOCKET
4. MOUNT PLATE

NOTE – The fender mounted turn signals install in place of the standard clearance lights and are optional on all 7000 series trucks.

1. Unlatch and open the hood.
2. Twist the wire harness socket counterclockwise and remove the wire harness socket from the turn signal assembly. The bulb can be removed from the wire harness socket for replacement.
3. Remove two nuts, washers and the mount plate from the turn signal assembly.
4. Remove the turn signal assembly.

Turn Signal – Installation

1. Align and install the turn signal assembly on the fender, amber side forward.
2. Install the mounting plate on the turn signal assembly and secure with two washers and nuts (Figure 44).
3. Ensure the bulb is properly installed into the wire harness socket.

4. Connect the wire harness socket to the turn signal assembly and twist clockwise to lock (Figure 44, Items 1 and 3).

5. Close and latch the hood.

2.16. FOG LIGHTS

Fog Light – Removal

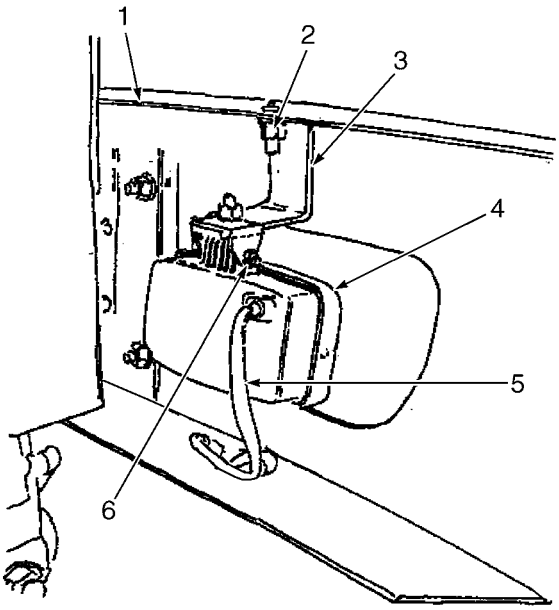

Figure 45 Fog Light Assembly

1. BUMPER FLANGE
2. BOLT AND NUT
3. FOG LIGHT BRACKET
4. FOG LIGHT ASSEMBLY
5. WIRE HARNESS
6. SWIVEL ADJUSTMENT BOLT AND NUT

1. Disconnect the fog light wire harness.

2. Remove the bolt and nut securing the fog light bracket to the bumper flange.

3. Remove the fog light assembly.

4. Transfer fog light bracket to the new fog light (if applicable).

Fog Light – Installation

1. Install the fog light assembly by aligning the holes of the fog light bracket with the bumper flange and install the nut and bolt (Figure 45). Torque nut and bolt to 32 to 40 lbf-ft (43 to 54 N•m).

2. Connect the fog light wire harness (Figure 45, Item 5).

Fog Light – Adjustment

1. Loosen the fog light swivel adjustment bolt and nut (Figure 45, Item 6).
2. Adjust the fog light as needed.
3. Tighten the fog light swivel adjustment nut and bolt (Figure 45, Item 6).

TORQUE

Table 1 Torque Chart

Figure No. (Item No.)	Location	Lbf-ft/in	N•m
Figure 2 (Item 3)	Bumper Mount Bolts	50 to 55	68 to 75
Figure 3 (Item 6)	Grille Mount Screws	6/72 to 7/84	8 to 9
Figure 5 (Item 2)	Splash Panel Mount Bolts	7/84 to 9/108	9 to 12
Figure 6 (Item 2)	Upper Splash Panel Mount Bolts	7/84 to 9/108	9 to 12
Figure 8 (Item 4)	Torsion Bar Mount Plate Bolts	15 to 18	20 to 24
Figure 11 (Item 3)	Hood Mount Bolts	35 to 43	47 to 58
Figure 13 (Item 2)	Hood Hinge Mount Bolts	50 to 55	68 to 75
Figure 14 (Item 3)	Hood Stop Mount Bolt	28 to 35	38 to 47
Figure 15 (Item 4)	Hood Hinge Bar Mount Screws	3/35 to 4/44	4 to 5
Figure 15 (Item 5)	Latch Mount Screws	3/35 to 4/44	4 to 5
Figure 15 (Item 7)	Latch Stud Mount Screws	3/35 to 4/44	4 to 5
Figure 16 (Item 2)	Hood Latch Mount Bolts	15 to 19	20 to 26
Figure 17 (Item 2)	Hood Latch Lock-Down Bracket Mount Bolt	15 to 19	20 to 26
Figure 18	Hood Mirror Mount Nuts	9 to 12	12 to 16
Figure 34 (Items 1 and 3)	Fender Extension Mount Bolts and Nuts	15 to 18	20 to 24
Figure 35 (Item 4)	Mud Guard Mount Bolts	15 to 18	20 to 24
Figure 36 (Item 3)	Fenderette Mount Screws	8 to 10	11 to 14
Figure 37 (Items 1 and 3)	Headlight Assembly Mount Bolt and Nuts	11 to 13	15 to 18
Figure 44 (Item 2)	Fog Light Mount Bolt	32 to 40	43 to 54