SERVICE MANUAL SECTION

3300 HOOD, GRILLE, FENDERS AND BUMPER

Truck Model: 3300

S09010

03/10/2004

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1. DESCRIPTION

The 3300 series chassis is a conventional type chassis with front engine, front hood, fenders and bumper. The 3300 chassis is manufactured for the conventional bus application by International Truck and Engine Corporation.

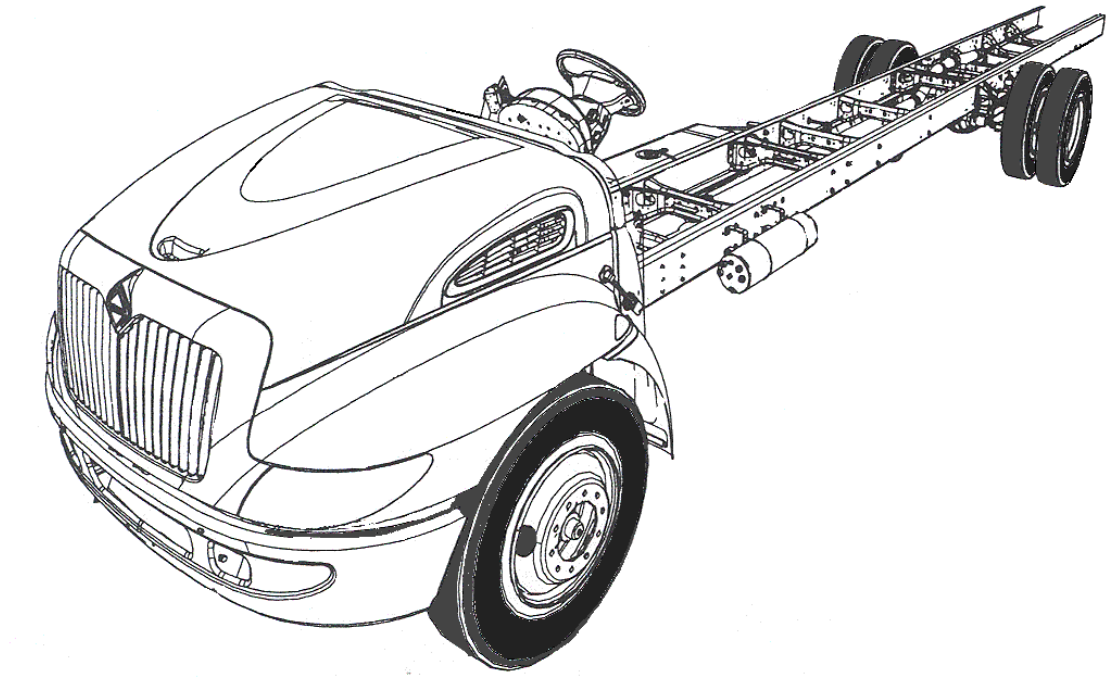

Figure 1 3300 Chassis

1.1. BUMPER

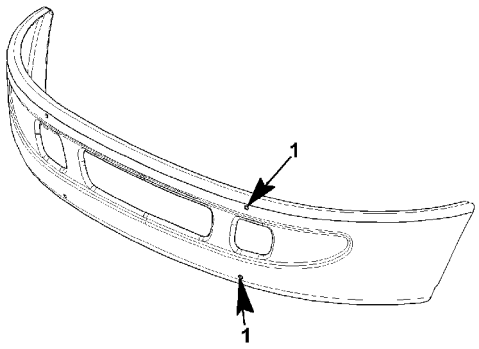

Figure 2 Front Bumper

1. MOUNTING HOLES

The 3300 front bumper is a stylized wraparound steel bumper assembly. The wraparound design allows access for the tow hooks, and enhances the air flow to the radiator for better engine cooling.

1.2. HOOD

The fiberglass hood is a sculptured, three-piece hood with bonded fenders, and removable valance sections. The hood is a tilting type. The narrowed, streamlined, tilting, fiberglass hoods provide aerodynamics (Figure 3) and functional design styling, while still enclosing the air cleaner.

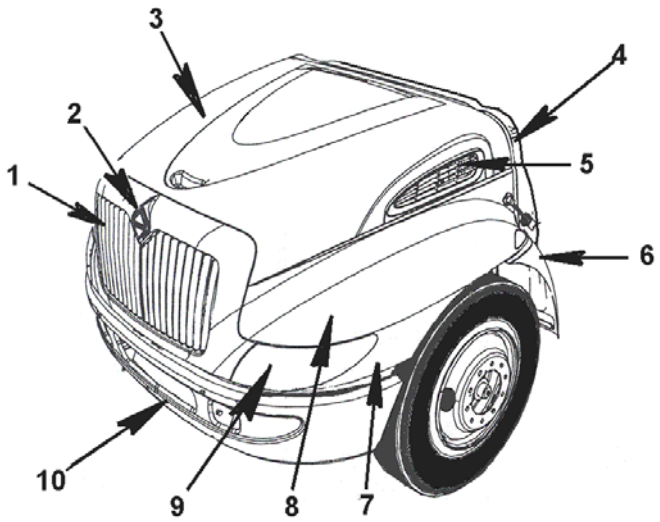

Figure 3 3300 Hood Assembly

1. GRILLE / SHROUD ASSEMBLY
2. INTERNATIONAL TRUCK AND ENGINE LOGO PLATE
3. 3300 SERIES HOOD
4. COWL ASSEMBLY
5. ENGINE AIR INTAKE OPENING
6. FENDER EXTENSION
7. FENDER VALANCE (BOLTED TO FENDER)
8. UPPER FENDER ASSEMBLY (BONDED TO HOOD)
9. HEADLIGHT ASSEMBLY
10. BUMPER ASSEMBLY

1.3. GRILLE

The grille and shroud (Figure 4) assembly on the 3300 model is a removable component. The grille / shroud assembly is attached to the hood by mounting tabs and mounting screws.

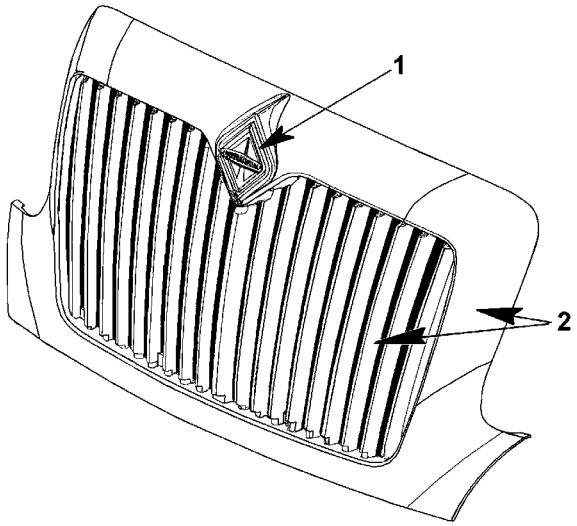

Figure 4 3300 Grille Assembly

1. LOGO BADGE
2. GRILLE AND SHROUD ASSEMBLY

1.4. SPLASH PANELS

The splash panels (Figure 5, Figure 6) on the 3300 model minimize splash and mud, protecting vital engine systems from corrosion and malfunction.

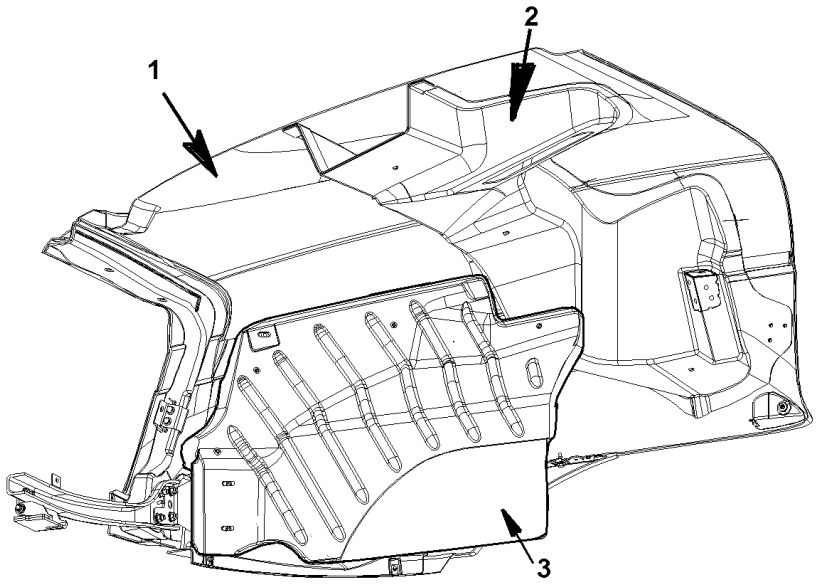

Figure 5 3300 Series Hood Splash Panel (Passenger Side Shown)

1. HOOD
2. MOLDED AIR INTAKE ASSEMBLY
3. SPLASH PANEL

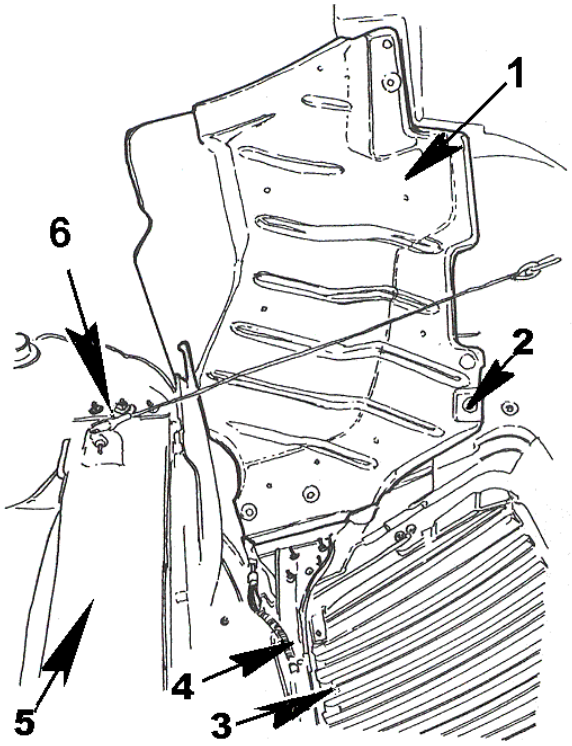

Figure 6 3300 Splash Panel (Driver Side Shown)

1. SPLASH PANEL (DRIVER SIDE)
2. SPLASH PANEL MOUNTING SCREWS
3. GRILLE ASSEMBLY
4. HINGE CROSSBAR
5. RADIATOR TOP FRAME
6. HOOD STOP CABLE BRACKET

1.5. FENDERS

The fenders on the 3300 series are a part of the three-piece bonded tilt type fiberglass hood assembly with bolt-on, removable valance sections that surround the headlight housings (Figure 7). All fender assemblies have fender extensions which are mounted to the lower forward cowl structure.

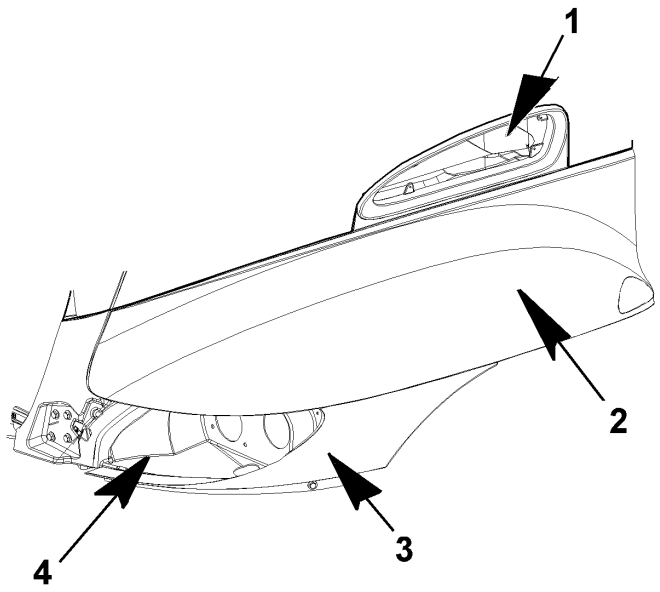

Figure 7 3300 Fender Assembly

1. HOOD AIR INLET FRAME
2. FENDER SECTION
3. VALANCE PANELS
4. HEADLIGHT HOUSING

1.6. AIR INTAKE

On the 3300 series, air is taken in at the vent located on the driver side section of the hood assembly, forward of the chassis cowl assembly. The intake air is routed through molded duct work bonded to the underside of the hood assembly and routed to the air cleaner (Figure 8).

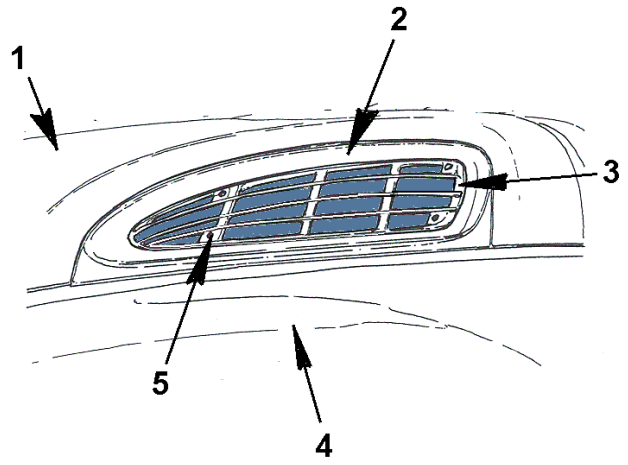

Figure 8 3300 Series Air Intake

1. HOOD ASSEMBLY
2. INTAKE HOOD FRAME
3. INTAKE GRILLE ASSEMBLY
4. FENDER
5. GRILLE MOUNTING TABS

1.7. FENDER EXTENSIONS

Fender extensions (Figure 9) are an integral part of the fender system on the 3300 series bus chassis. The fender extensions have been designed to provide splash and spray protection. This protects the lower front of the cowl from splash and road debris kicked up by the front tires.

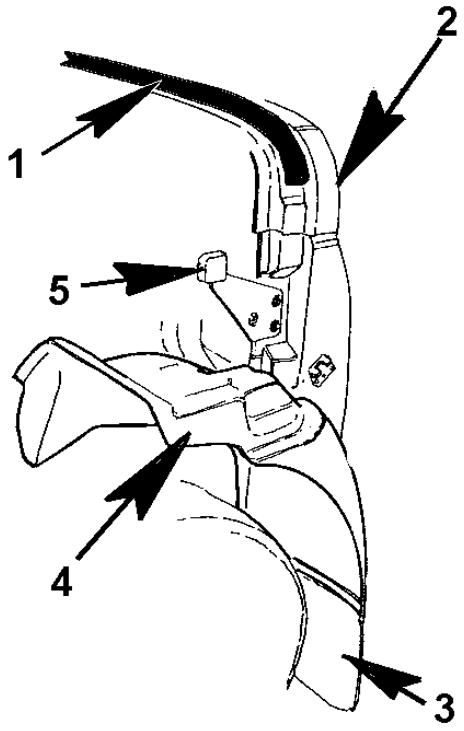

Figure 9 3300 Series Fender Extension (Driver Side Shown)

1. HOOD SEAL
2. COWL ASSEMBLY
3. MUD GUARD
4. FENDER EXTENSION
5. HOOD STOP

1.8. FENDER VALANCE PANELS

The fender valance panel (Figure 10) is a fiberglass bolt-on assembly which attaches to the fender assembly and encapsulates the headlight housing and assembly. The valance panels are removable panels.

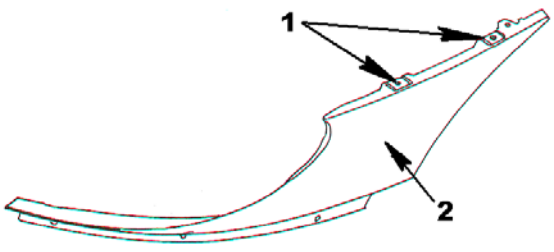

Figure 10 Valance Panels

1. VALANCE MOUNTING HOLES
2. VALANCE PANEL (DRIVER SIDE SHOWN)

1.9. MUD GUARDS

The mud guards (Figure 11, Item 1) on the 3300 Series bus chassis are located at the bottom of the fender extension assembly on each side of the chassis. The mud guards help minimize the damage to the lower edge of the cowl and body components.

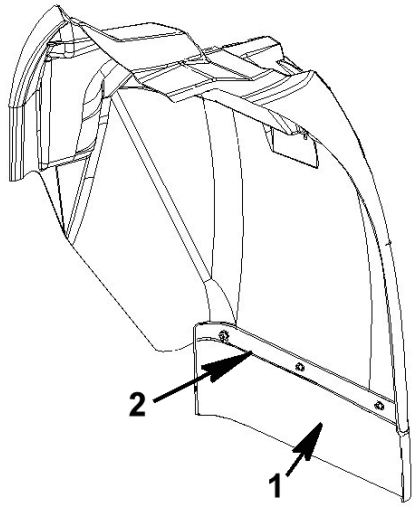

Figure 11 Mud Guards

1. MUD GUARD
2. MUD GUARD REINFORCING BAR

1.10. HEADLIGHT ASSEMBLIES

The headlight assemblies (Figure 12, Item 4) are mounted in the forward fender section within a molded housing unit, and are part of the fender assembly. The valance panels encapsulate the headlight assembly. The headlight assembly combines the required reflector and direction light as well as the halogen headlight bulb.

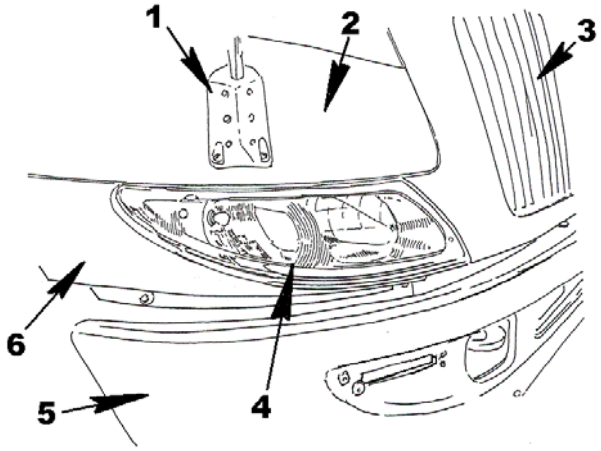

Figure 12 Headlight Assembly

1. CROSS-VIEW MIRROR MOUNTING BASE
2. HOOD ASSEMBLY
3. GRILLE ASSEMBLY
4. HEADLIGHT AND DIRECTIONAL ASSEMBLY
5. BUMPER ASSEMBLY
6. VALANCE PANEL

1.11. HOOD SEAL

The hood seal (Figure 13) is located on the leading edge of the hood support assembly. The hood support assembly is located on the upper cowl assembly, below the body windshield. The cowl/hood seal on the 3300 model series is a one piece seal.

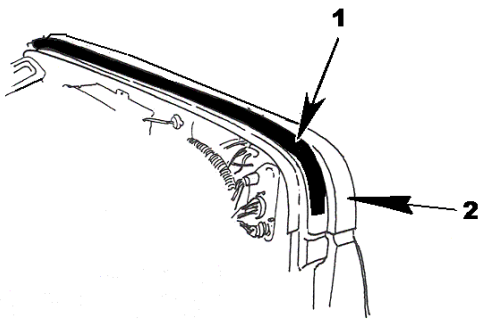

Figure 13 Cowl/Hood Seal 3300 Series

1. HOOD / COWL SEAL
2. UPPER COWL SECTION

1.12. ENGINE COWL

The engine cowl assembly (Figure 14, Item 1) is located forward of the bus body module. The cowl assembly supports the hood assembly, electrical harness connections, brake, accelerator and steering column and body connection points. The engine cowl supports the hood latch mechanism, the hood stop and adjustment bracket and fender extension mounting points.

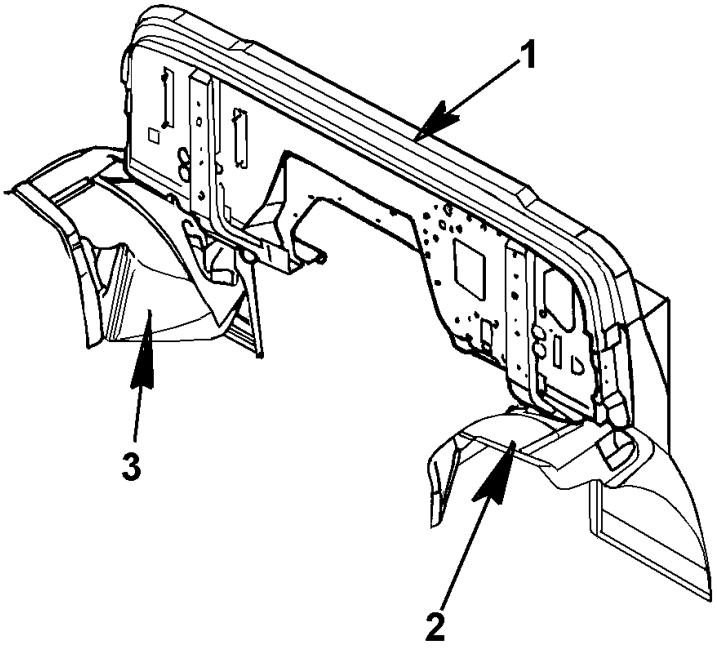

Figure 14 Engine Cowl Assembly

1. COWL ASSEMBLY
2. DRIVER SIDE FENDER EXTENSION
3. PASSENGER SIDE FENDER EXTENSION

1.13. HOOD LATCH

The hood latch assemblies (Figure 15) are located at each side of the cowl. The latching assembly secures the hood in its properly closed position. The locking portion or clip section is located on the cowl. The locking arm and latch are located on the side section of the hood assembly.

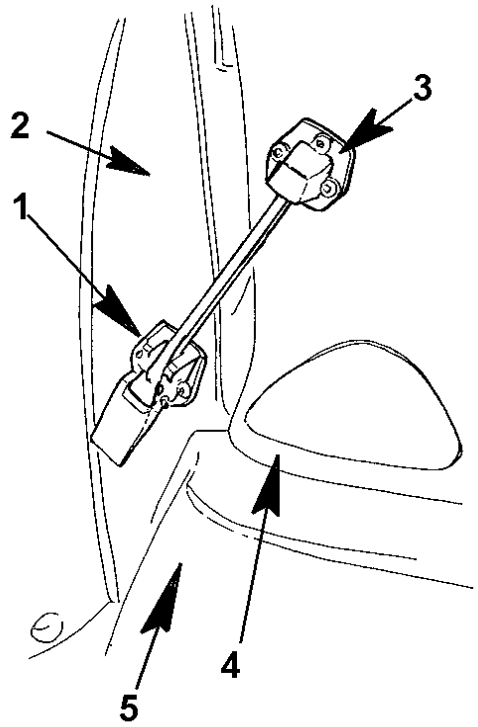

Figure 15 Hood Latch Assembly (Passenger Side Shown)

1. HOOD LATCHING CLIP
2. COWL
3. LATCHING ARM BASE
4. HOOD ASSEMBLY
5. FENDER EXTENSION

1.14. STEERING COLUMN

The steering column assembly (Figure 16) is bracket-mounted to the cowl assembly and connected to the steering gear as part of the cowl mounting assembly.

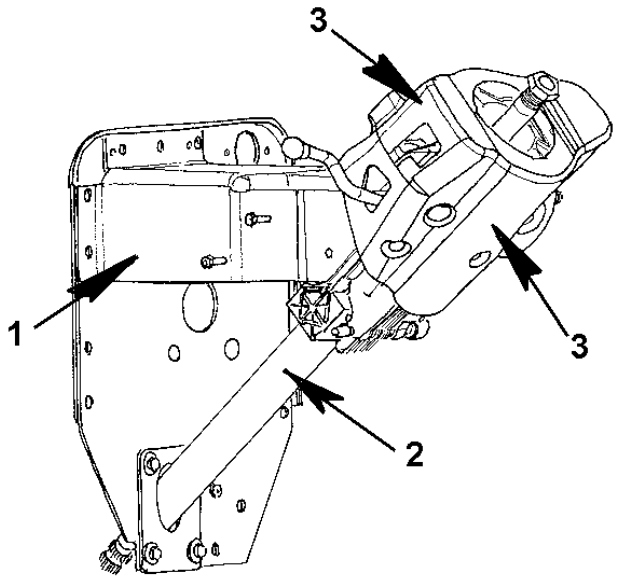

Figure 16 Steering Column Assembly

1. STEERING COLUMN MOUNTING BRACKET
2. STEERING COLUMN
3. STEERING SIDE COVERS

1.15. ACCELERATOR PEDAL ASSEMBLY

The accelerator assembly (Figure 17) is mounted to the cowl assembly during the chassis manufacturing, and is completely functional prior to body placement.

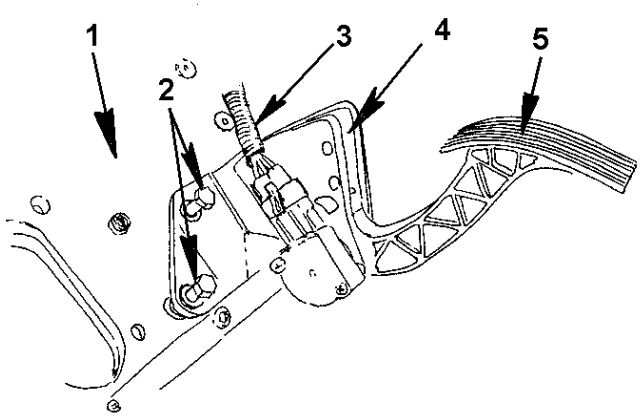

Figure 17 Accelerator Pedal Assembly

1. STEERING COLUMN / ACCELERATOR PEDAL MOUNTING PLATE
2. ACCELERATOR MOUNTING BOLTS
3. ACCELERATOR HARNESS CONNECTION
4. ACCELERATOR PEDAL MOUNTING ASSEMBLY
5. ACCELERATOR PEDAL

1.16. CROSS-VIEW FRONT FENDER-MOUNTED MIRRORS

The cross-view fender-mounted mirrors (Figure 18, Item 1) are a convex styled mirror located on the front fender section of the front end. These mirrors allow a cross-view field of vision for the bus operator during pick up and discharge of passengers.

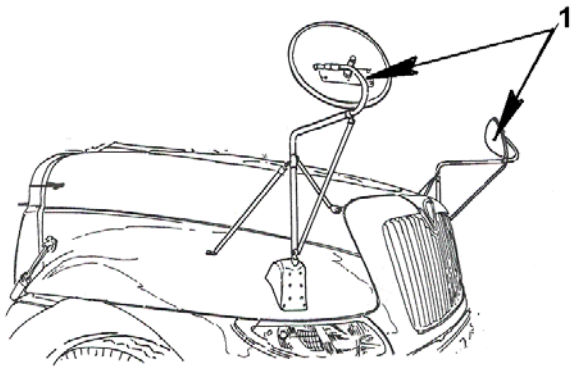

Figure 18 Cross-View Mirrors

1. CROSS-VIEW MIRROR ASSEMBLIES

1.17. HOOD STOP ASSEMBLY

The hood stop assembly (Figure 19, Items 1 and 3) is mounted each side of the cowl. The hood stop allows the hood to rest at a certain designed height to allow clearance for the components under the hood. The hood stop bushing is also designed to aid in the ease of operation in tilting the hood.

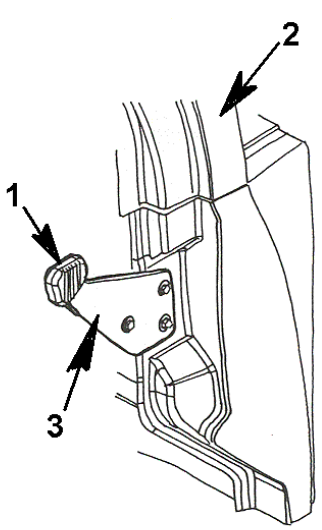

Figure 19 Hood Stop

1. HOOD STOP NYLON BUSHING
2. COWL ASSEMBLY
3. HOOD STOP MOUNTING BRACKET

2. REMOVE

2.1. BUMPER

The 3300 Series aerodynamic bumper (Figure 2) is attached to the chassis bumper mounting brackets utilizing (4) four mounting bolts (Figure 2, Item 1).

1. Prior to removing the front bumper assembly, park bus on smooth flat surface, put transmission in park position, set parking brake and place wheel chocks at wheels.

2. Unlatch the hood latches each side, tilt the hood forward. Locate the hood harness and chassis harness connection located on the driver side along side of the power steering gear (Figure 22, Item 3). Disconnect the chassis harness from the hood harness.

3. If the chassis is equipped with an external power connection plug for the engine heater, locate the plug assembly at the lower bumper opening at the center of the bumper. Unplug the connection at the rear of the plug assembly.

4. Tilt the hood to the closed position to access the bumper mounting bolts.

5. Locate the bumper mounting bolts. Beginning at the upper two bolts (Figure 20, Item 1), loosen bolts.

6. Loosen both lower bumper bolts (Figure 20, Item 3).

7. With an assistant supporting the bumper, remove the two remaining lower bolts. Remove bumper.

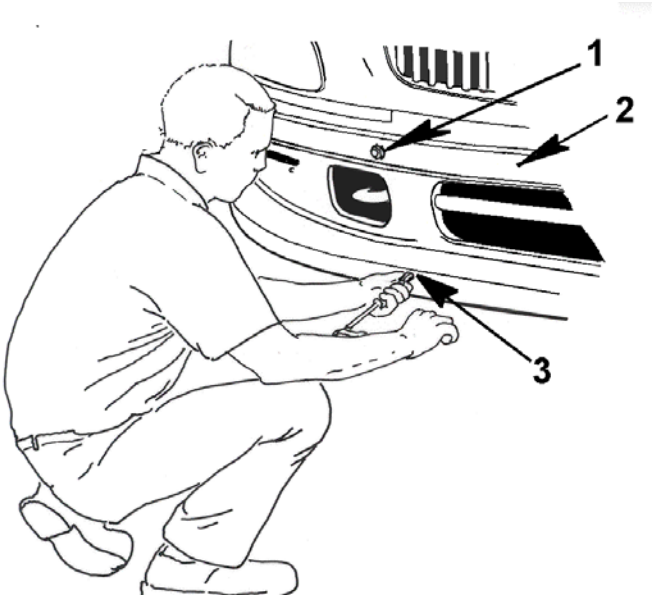

Figure 20 Bumper Removal

1. UPPER BUMPER MOUNTING BOLT
2. BUMPER ASSEMBLY
3. LOWER BOLT LOCATION (PASSENGER SIDE SHOWN)

2.2. HOOD

1. Prior to removing the hood and related components, the bumper and grille / shroud assembly (Figure 31) should be removed.

2. Hood latches, each side of the hood, should have been previously released. Tilt the hood assembly to a 45 degree angle. Support the tilted hood with a floor stand to relieve tension on the hood cable stop assemblies.

3. Prior to hood removal, the bumper should have already been removed with all pertinent harness connections disconnected.

4. If the chassis is equipped with heated cross-view mirrors, the mirror heater (Figure 21, Item 4) connection harness must be disconnected each side. Recheck all harness connections. The hood harness stays with the hood assembly when hood is removed.

5. Beginning on the driver side of the hood assembly, locate and disconnect the chassis harness from the hood harness (Figure 22, Item 3). The hood harness stays with the hood.

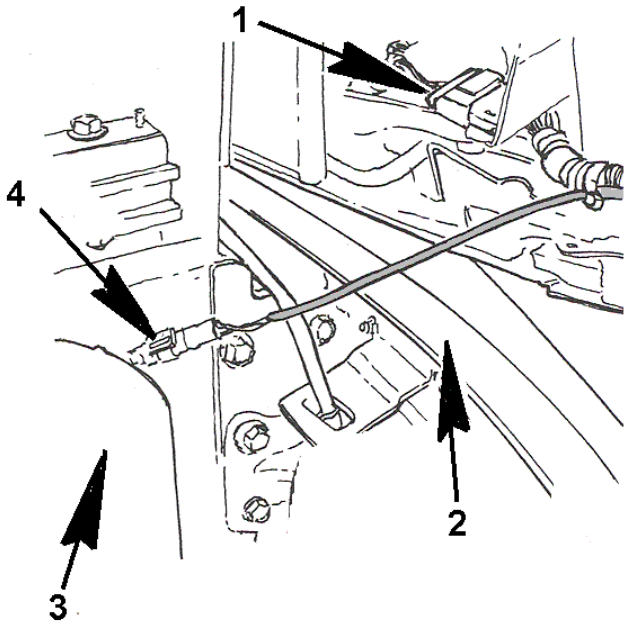

Figure 21 Harness Connections (Passenger Side Shown)

1. HEADLIGHT HARNESS CONNECTION
2. BUMPER ASSEMBLY
3. WINDSHIELD WASHER FLUID RESERVOIR
4. FENDER MOUNTED MIRROR HEATER CONNECTION

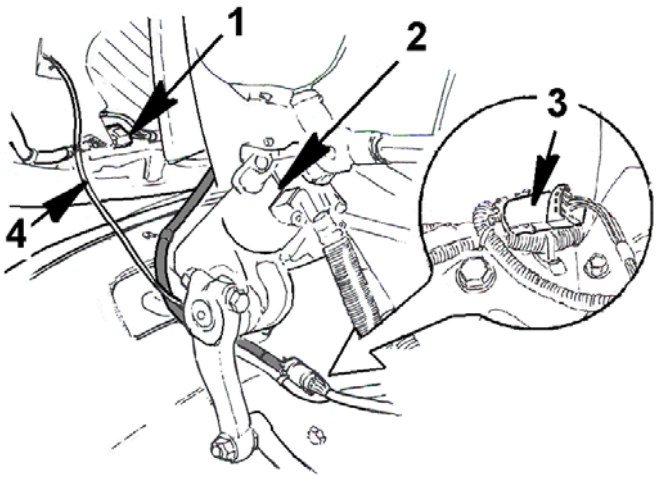

Figure 22 Harness Connection (Driver Side Shown)

1. DRIVER SIDE HEADLIGHT HARNESS CONNECTION
2. STEERING GEAR
3. FRONT END / CHASSIS HARNESS CONNECTION
4. FENDER-MOUNTED MIRROR HEATER HARNESS CONNECTION

With the grille / shroud assembly removed and the hood tilted, locate the hood cable stops and attachment brackets on each side of the radiator top frame (Figure 23, Item 2) .

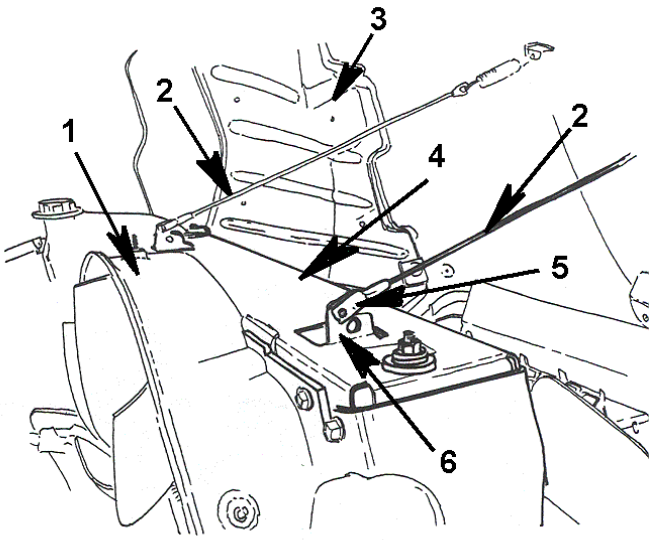

Figure 23 Radiator Top Frame And Cable Stop Assemblies

1. ENGINE SHROUD
2. HOOD STOP CABLE
3. DRIVER SIDE SPLASH PANEL
4. RADIATOR TOP FRAME
5. HOOD STOP CABLE CLEVIS
6. RADIATOR / HOOD STOP CABLE BRACKET

6. Locate the retaining pin (Figure 24, Item 4) and the clevis (Figure 23, Item 5) on the radiator top frame brackets (Figure 24, Item 5).

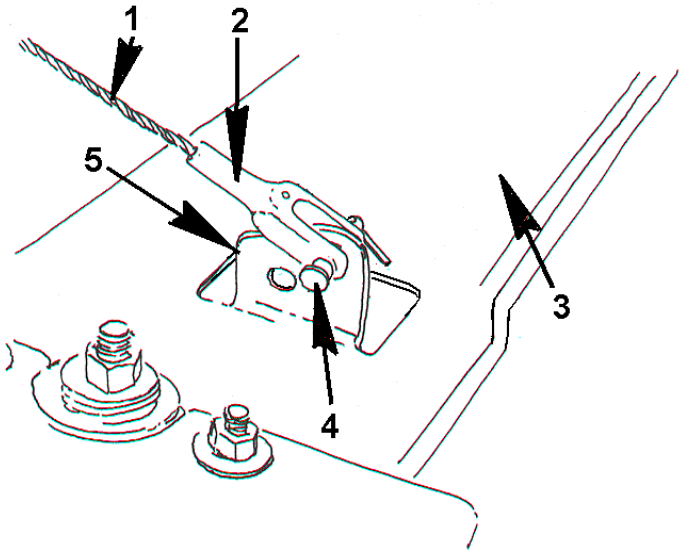

Figure 24 Retaining Clip Removal

1. HOOD STOP CABLE
2. HOOD STOP CLEVIS
3. RADIATOR TOP FRAME
4. RETAINER PIN
5. RADIATOR HOOD STOP CABLE BRACKET

7. Remove the retaining pin (Figure 25, Item 3) from the clevis (Figure 25, Item 2) and radiator top (Figure 25, Item 4) frame clevis bracket.

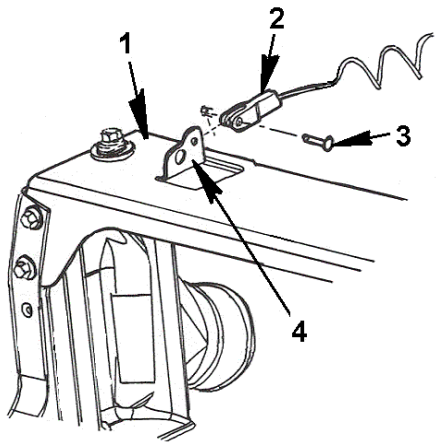

Figure 25 Retaining Pin and Clevis Removal

1. RADIATOR TOP FRAME
2. HOOD STOP CABLE CLEVIS
3. CLEVIS RETAINER PIN
4. RADIATOR BRACKET

8. Follow the same procedure for the opposite side cable stop assembly.

Removal of the torsion bars is easily accessible through the grille area which should have been previously removed.

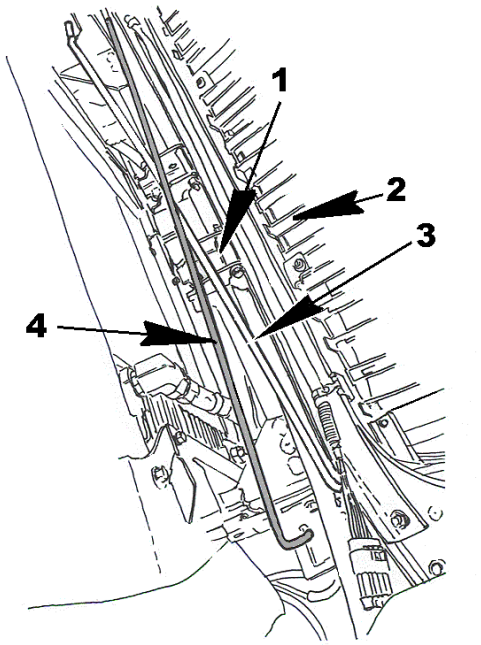

Figure 26 Torsion Bar Assembly

1. HOOD HINGE ASSEMBLY
2. GRILLE ASSEMBLY
3. GREY, 12.5 MM TORSION BAR (PASSENGER SIDE)
4. DRIVER SIDE TORSION BAR

9. The torsion bar assemblies assist in the amount of pull required to open the hood assembly. Torsion bars are attached at each side of the hood, and to the opposite side at the frame. The driver side or (street side) torsion bar is mounted in the passenger side hood bracket and held in place by a retainer clip. This torsion bar drops down and crosses the front of the chassis above the hood hinge assembly. The torsion bar is then inserted into the frame rail retainer bracket and is locked in place with a retainer clip. The passenger side torsion bar is a larger diameter (12.5 mm diameter) and is generally the first to be removed and the last to be replaced. This torsion bar is mounted in the hood bracket on the driver side of the hood assembly (Figure 27, Item 3. This bar drops down and crosses the front of the chassis over the hinge assembly and over the opposite torsion bar (Figure 26, Item 3) to the passenger side (curb side) of the chassis. This torsion bar then ends in the passenger side frame mounted torsion bar retention bracket (Figure 28, Item 5). It is locked in place with a retainer clip (Figure 28, Item 6).

10. Locate the 12.5mm torsion bar hood mounting bracket (Figure 27, Item 3) on the driver side of the hood assembly. Remove the retainer clip (Figure 27, Item 2).

11. With an assistant, partially close hood to relieve tension on the torsion bar. Remove the torsion bar end from the hood mounting bracket.

12. Remove the retainer clip from the 12.5mm torsion bar (Figure 75, Item 4) on the passenger side of the frame rail mounting bracket (Figure 75, Item 5).

13. Lift the torsion bar out of the frame rail mounting bracket and alignment guide.

14. Place torsion bar in an out of the way location.

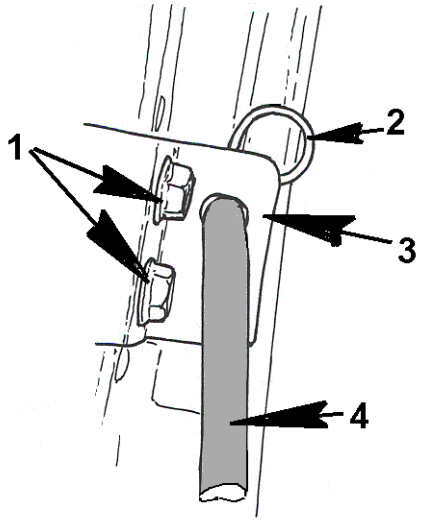

Figure 27 Upper Hood Torsion Bar Retaining Clip and Bracket

1. UPPER DRIVER SIDE TORSION BAR MOUNTING BRACKET BOLTS
2. TORSION BAR RETAINER CLIP
3. UPPER TORSION BAR MOUNTING BRACKET
4. GREY 12.5 mm TORSION BAR (UPPER END)

15. Locate the remaining torsion bar (passenger side) upper hood mounting bracket (Figure 75, Item 2). Remove the retainer clip (Figure 75, Item 1) securing the torsion bar in the hood mounting bracket.

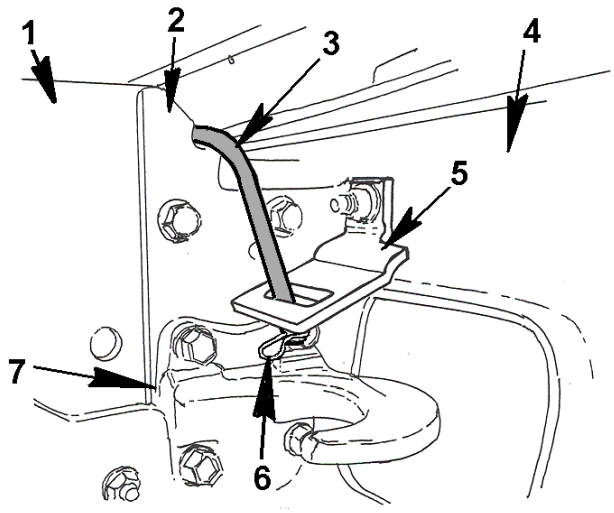

Figure 28 Torsion Bar Lower Bracket and Retaining Clip (Passenger Side Shown)

1. PASSENGER SIDE FRAME RAIL
2. TORSION BAR GUIDE BRACKET
3. 12.5 mm DIAMETER TORSION BAR
4. BUMPER ASSEMBLY
5. LOWER TORSION BAR MOUNTING BRACKET
6. TORSION BAR RETAINER CLIP
7. PASSENGER SIDE TOW HOOK

16. With an assistant, partially close hood to relieve tension on the torsion bar. Remove the torsion bar end from the hood mounting bracket.

17. Remove the retainer clip (Figure 75, Item 8) on the driver side frame rail retention bracket (Figure 75, Item 7).

18. Lift and remove torsion bar from bracket and guide and place with the other torsion bar bracket.

19. Check the torsion bar, if the passenger side torsion bar is first to be removed, note that the diameter of the torsion bar is larger than the opposite side torsion bar. This bar must be placed back on the same side as it was removed from.

20. With the hood still in the open position, locate the hinge plate hex head mounting bolts (Figure 29, Item 5),

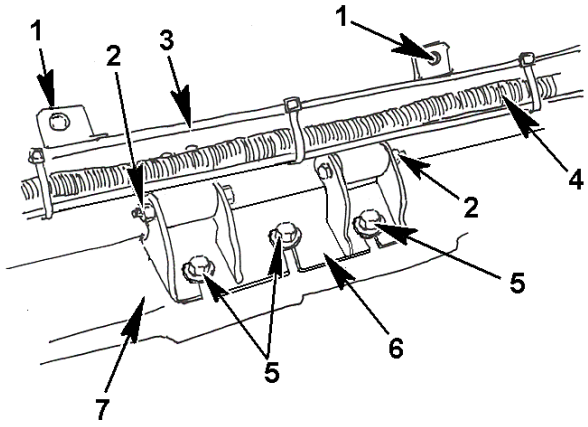

Figure 29 Hood Hinge Mounting Bolts

1. GRILLE SCREW MOUNTING TABS
2. HOOD HINGE PINS / BOLTS
3. LOWER GRILLE SHROUD CROSS BAR
4. HEADLIGHT AND DIRECTIONAL HOOD HARNESS
5. HINGE PLATE MOUNTING BOLTS
6. HINGE PLATE
7. FRONT FRAME CROSS BAR

21. Mark or scribe the position of the hood hinge on the hood hinge mounting plate before closing hood.

22. Loosen and but do not remove the hood hinge plate mounting bolts (Figure 29, Item 5).

23. With an assistant close the hood assembly.

24. With the same assistant, lift and remove hood assembly (Figure 30).

25. Place the hood assembly on a flat, secure, padded area to protect from scratching or damaging the paint on the hood assembly.

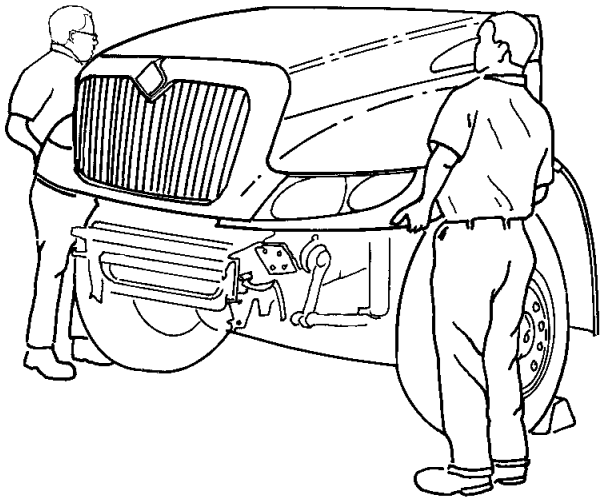

Figure 30 Hood Removal

2.3. GRILLE

The grille and grille shroud assembly are a one-piece, painted, injection-molded assembly (Figure 31, Item 4), designed with an aerodynamic styling to enhance the overall appearance of the 3300 PT series bus chassis.

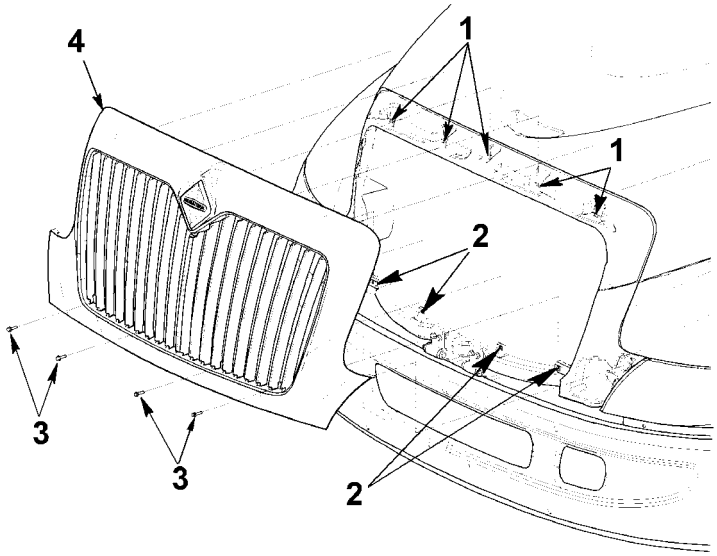

Figure 31 Grille And Shroud Removal

1. UPPER SHROUD MOUNTING TAB INSERT HOLES
2. GRILLE / SHROUD SCREW MOUNTING TABS
3. GRILLE / SHROUD MOUNTING SCREWS
4. GRILLE / SHROUD

1. Locate the four lower grille and shroud mounting screws on the grille assembly (Figure 31, Item 3).

2. Loosen and remove the screws.

3. To remove the grille assembly, lift the grille and shroud assembly out. Check the grille / shroud mounting tabs for damage after removal.

2.4. SPLASH PANELS

The splash panels (Figure 5 and Figure 6) on the 3300 series minimize splash and mud, protecting vital engine systems from corrosion and malfunction.

1. Tilt the hood assembly forward and locate the splash panel mounting bolts (Figure 32, Item 2) at the lower section of the splash panel. Loosen and remove the splash panel mounting bolts.

2. Locate the upper splash panel mounting bolts (also Item 2). Loosen and remove the mounting bolts attaching the splash panel to the upper section of the hood assembly.

3. Remove the splash panel.

4. Follow the same procedure for the opposite side splash panel assembly.

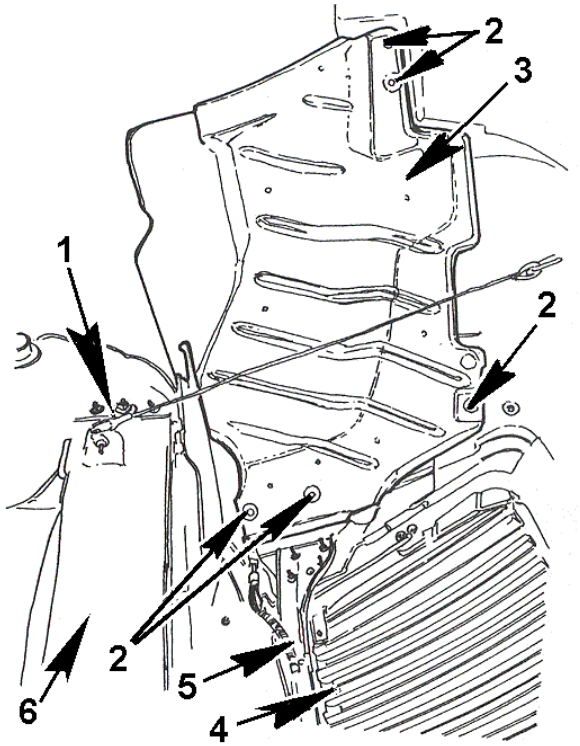

Figure 32 Splash Panel Removal (Passenger Side Shown)

1. HOOD STOP CABLE ATTACHMENT BRACKET
2. SPLASH PANEL MOUNTING BOLTS
3. SPLASH PANEL
4. GRILLE INSERT
5. HINGE CROSS BAR
6. RADIATOR TOP FRAME ASSEMBLY

2.5. AIR INTAKE

The air intake assembly is located at the driver side (Figure 3, Item 5) of the upper hood assembly. The opening allows the air flow through the sculptured under-hood duct work. There is a removable access grille.

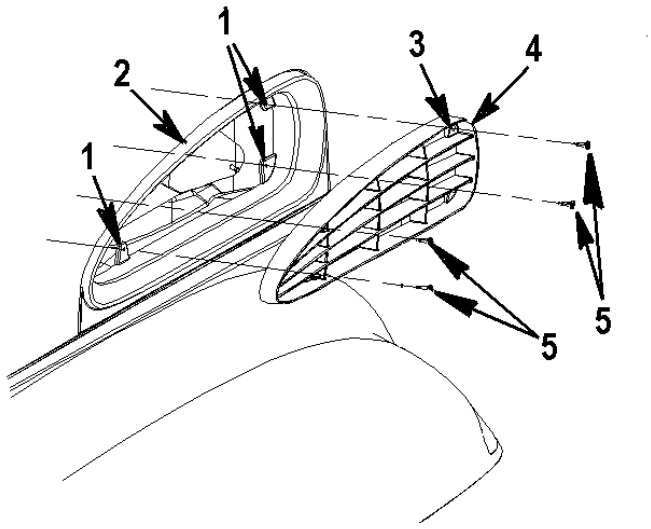

Figure 33 Air Intake Openings

1. AIR INTAKE FRAME TABS
2. AIR INTAKE FRAME ASSEMBLY
3. AIR INTAKE GRILLE SCREW MOUNTING TABS
4. AIR INTAKE GRILLE ASSEMBLY
5. AIR INTAKE GRILLE MOUNTING SCREWS

1. Locate and remove the four grille assembly mounting screws (Figure 33, Item 5) from the grille assembly mounting tabs (Figure 33, Item 3).

2. Remove the grille assembly.

3. Prior to reinstalling the grille assembly, check the mounting tabs for any possible damage.

2.6. FENDERS

The 3300 Series fender assemblies (Figure 34) are a bonded component of the hood section. The wheel well opening ” valance,” headlight housing, grille, and grille shroud assemblies are the removable components of the front hood assembly. The fender sections are bonded with the hood assembly, and are not readily removable unless structural damage has been incurred. Replacement of the entire hood assembly is recommended if such damage is present.

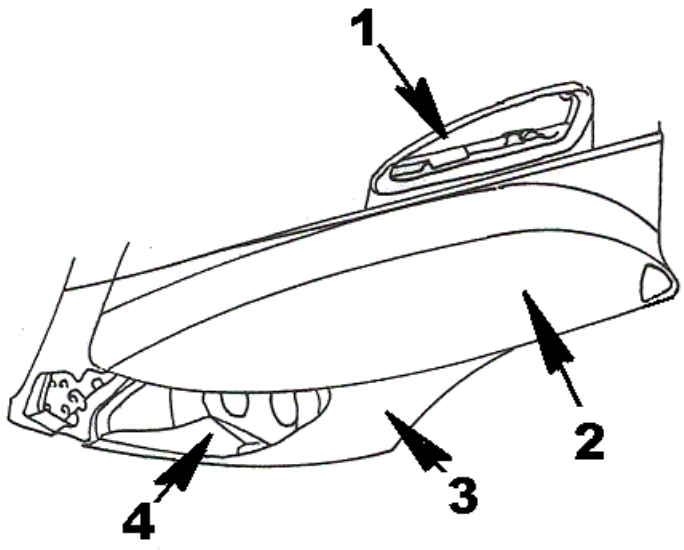

Figure 34 Fender Assembly

1. AIR INTAKE
2. FENDER SECTION
3. LOWER FENDER VALANCE
4. HEADLIGHT HOUSING

2.7. 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. These protect the lower front of the bus and cowl from splash and road debris kicked up by the front tires, and it also keeps the entry door step cleaner (Figure 9).

1. Release hood latches on each side of the hood and tilt the hood assembly forward.

2. Locate the fender extension mounting bolts and nuts on the fender extension assembly (Figure 35, Item 3).

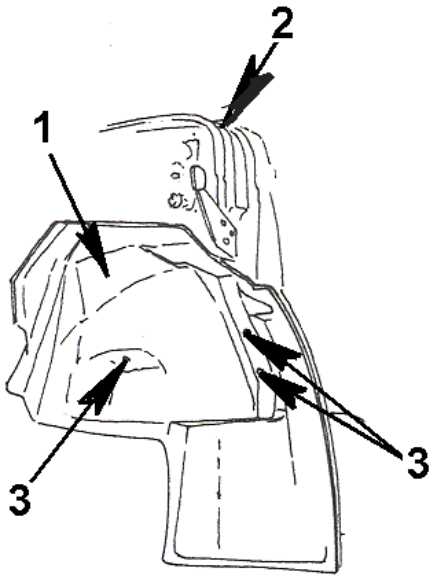

Figure 35 Fender Extension Assembly

1. FENDER EXTENSION
2. COWL
3. FENDER EXTENSION MOUNTING HOLES AND BOLTS

3. Loosen and remove the three mounting bolts (Figure 35, Item 3) on the rear surface of the fender extension.

4. Remove the fender extension (Figure 36, Item 1).

5. Follow same procedure to remove opposite side fender extension.

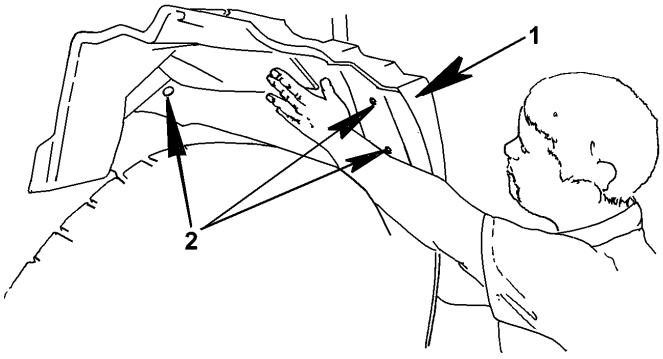

Figure 36 Fender Extension Removal

1. FENDER EXTENSION
2. MOUNTING BOLT HOLES

2.8. VALANCE PANELS

The valance panels are separate bolt-on panels that complete the wheel well opening and surround the headlight assemblies. The panels are fiberglass composite, removable parts that are bolted to the underside of the fender assembly flange and headlight housing lower flange.

1. Locate the two lower mounting bolts under the headlight housing flange (Figure 38, Item 6)
2. Loosen and remove the screws securing the valance panel to the headlight housing flange.
3. Locate the two mounting screws on the underside of the fender panel (Figure 40, Item 1).
4. Loosen and remove the mounting screws and remove the valance panel.
5. Follow the same procedure for the opposite side valance panel.

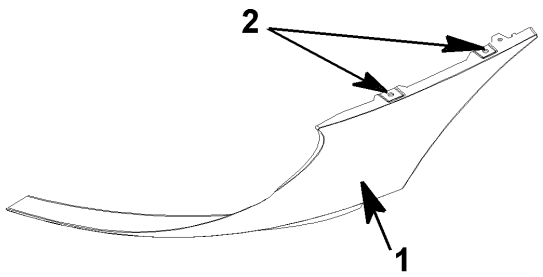

Figure 37 Valance Panel

1. VALANCE PANEL ASSEMBLY
2. VALANCE PANEL MOUNTING SCREW HOLES

2.9. HEADLIGHT ASSEMBLIES

1. To remove the headlight assembly (Figure 39, Item 7) refer to the procedure for removing the grille and shroud. The grille and shroud must be removed prior to removing the headlight assembly.

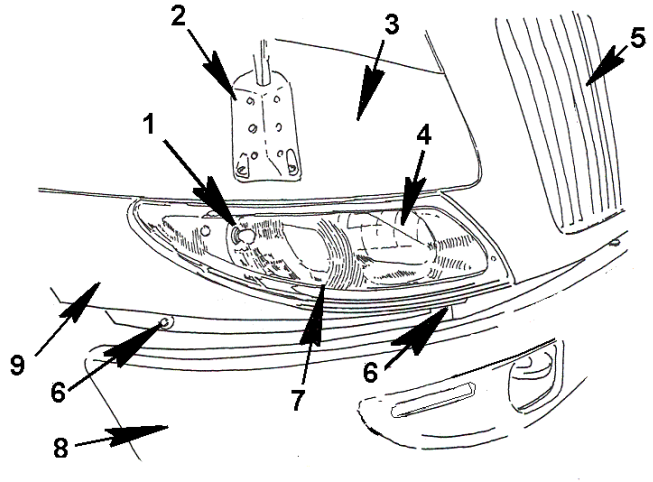

Figure 38 Headlight Assembly

1. DIRECTIONAL BULB
2. CROSS-VIEW MIRROR BASE
3. FENDER / HOOD
4. HEADLIGHT
5. GRILLE
6. VALANCE ATTACHMENT BOLTS
7. HEADLIGHT ASSEMBLY
8. BUMPER
9. VALANCE PANEL

2. Tilt the hood assembly forward and disconnect the headlight harness (Figure 22, Item 1).

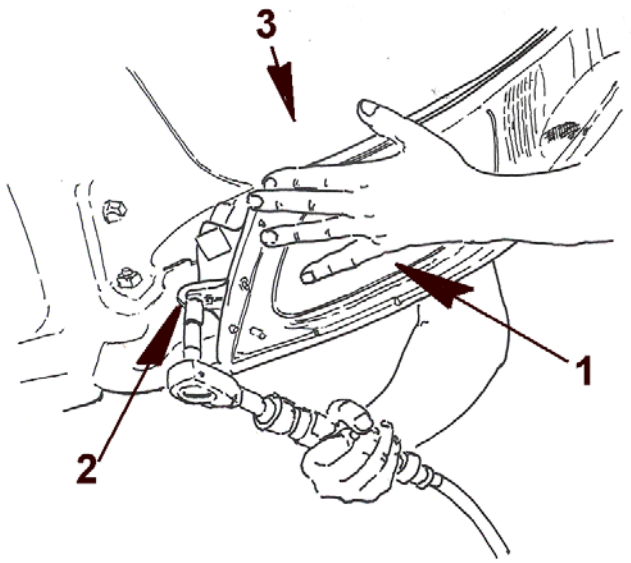

Figure 39 Headlight Assembly Removal

1. HEADLIGHT AND DIRECTIONAL ASSEMBLY
2. HEADLIGHT MOUNTING BOLT
3. FENDER ASSEMBLY

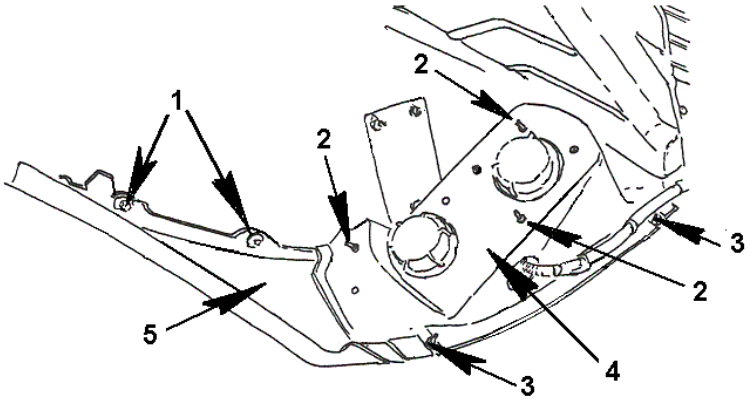

Figure 40 Headlight Assembly Remove

1. VALANCE MOUNTING SCREWS
2. HEADLIGHT ASSEMBLY MOUNTING SCREW AND NUT
3. LOWER VALANCE / HEADLIGHT HOUSING ATTACHMENT BOLTS AND SLIPS
4. HEADLIGHT HOUSING
5. LOWER FENDER/VALANCE ASSEMBLY

3. Loosen and remove the three (3) headlight assembly mounting nuts from the headlight assembly mounting studs (Figure 40, Item 2) on the rear of the headlight housing.

4. With hood tilted, loosen and remove the headlight assembly mounting bolt (Figure 39, Item 2) from the fender assembly mounting hole.

5. Remove headlight assembly.

6. To remove the opposite side headlight assembly follow the procedures as listed above.

Headlight adjustment is addressed in **ADJUSTMENTS** section.

2.10. HEAD LAMP REPLACEMENT

To replace head lamp and directional bulbs, unlatch hood on both sides and tilt hood forward.

1. Locate the rear side of the headlight housing.

2. Turn the socket cover and remove (Figure 41, Item 1).

3. Remove light socket pigtail plug (Figure 42, Item 2).

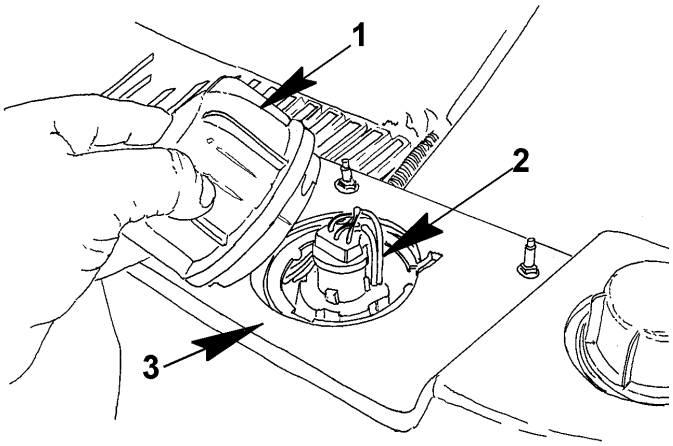

Figure 41 Head Lamp Replacement

1. SOCKET COVER
2. SOCKET
3. HEADLIGHT HOUSING

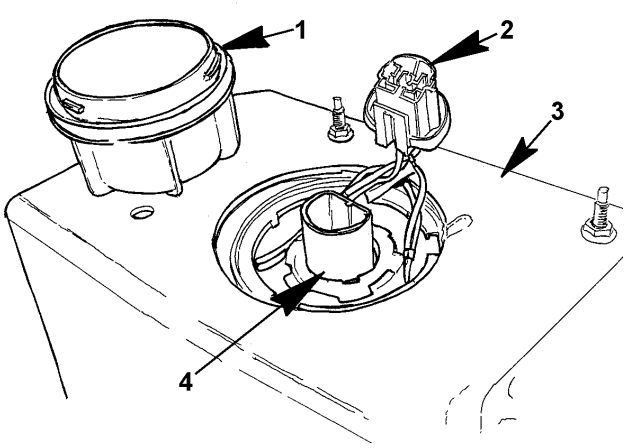

Figure 42 Socket Removal

1. SOCKET COVER
2. HEAD LAMP PLUG
3. HEADLIGHT HOUSING
4. PLUG HOUSING

4. Twist bulb retainer and lift up.

5. Remove seal (Figure 43, Item 4).

6. Remove halogen bulb (Figure 44, Item 1).

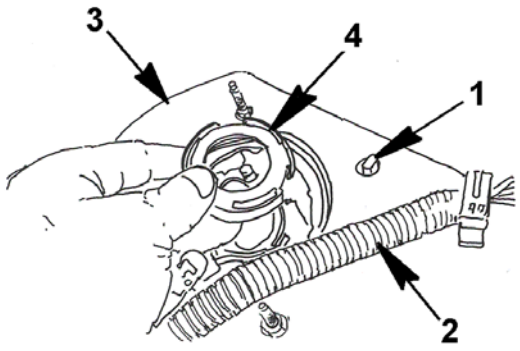

Figure 43 Seal Removal

1. HEADLIGHT LOCATOR TAB
2. HEADLIGHT HARNESS
3. HEADLIGHT HOUSING
4. SOCKET SEAL

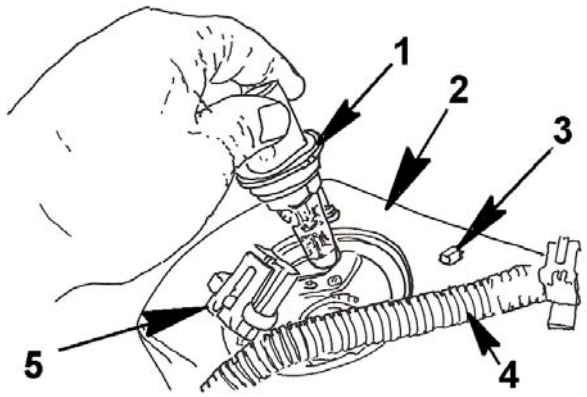

Figure 44 Bulb Removal

1. HEADLIGHT HALOGEN BULB
2. HEADLIGHT HOUSING
3. HEADLIGHT ASSEMBLY LOCATOR TAB
4. HEADLIGHT HARNESS
5. HEAD LIGHT PLUG

2.11. DIRECTIONAL BULB REMOVE AND REPLACE

The directional bulbs are located within the headlight module on the underside of the fender assembly (Figure 45, Item 1. To replace the headlight halogen bulb or the amber directional bulb, the hood must be tilted.

1. Unlatch the hood assembly and tilt the hood to the open position.

2. Locate the outboard socket cover (Figure 46, Item 1). This will be the directional socket on each side of the chassis.

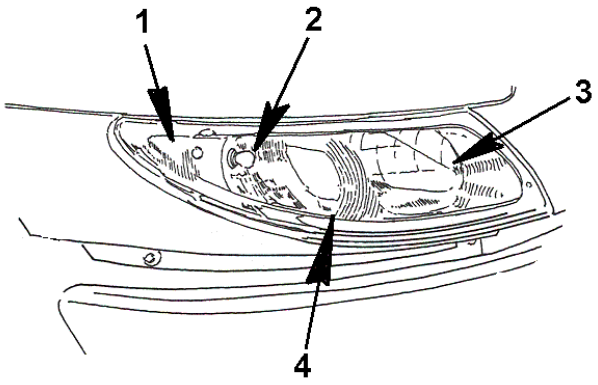

Figure 45 Directional Light Assembly

1. REFLECTOR
2. DIRECTIONAL BULB
3. HEADLIGHT BULB
4. HEADLIGHT — DIRECTIONAL ASSEMBLY

3. Twist the socket cover to (Figure 45, Item 1) remove.

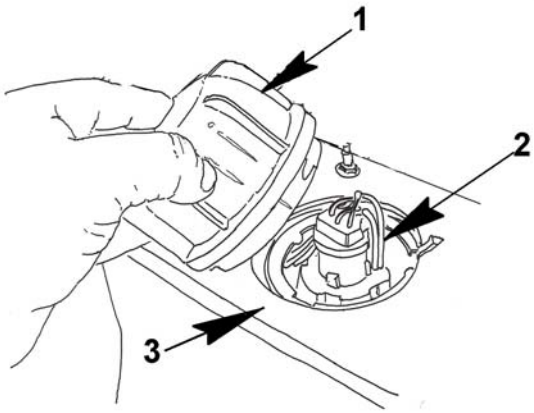

Figure 46 Directional Bulb Access

1. SOCKET COVER
2. BULB AND SOCKET ASSEMBLY
3. HEADLIGHT HOUSING

4. Locate the socket and bulb assembly (Figure 47, Item 2). Twist and pull up to remove.

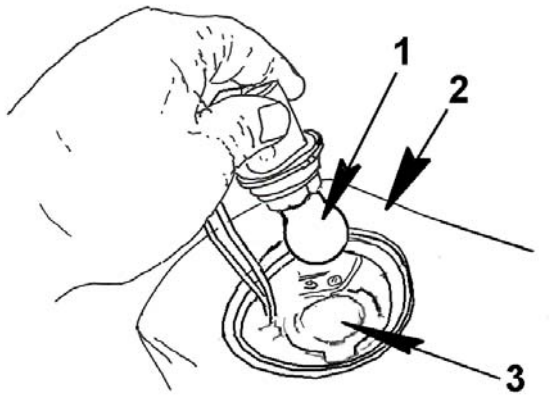

Figure 47 Directional Bulb Remove / Install

1. AMBER DIRECTIONAL BULB
2. HEADLIGHT HOUSING
3. BULB SOCKET

5. To remove (Figure 47, Item 1) or install directional bulb, push downward on bulb, twist and lift out (Figure 48, Item 2).

6. Installation of directional bulb: insert bulb in socket, push down and twist to lock.

7. Insert bulb and socket assembly in light housing and twist to lock bulb in socket seat.

8. Replace socket cover and twist to lock.

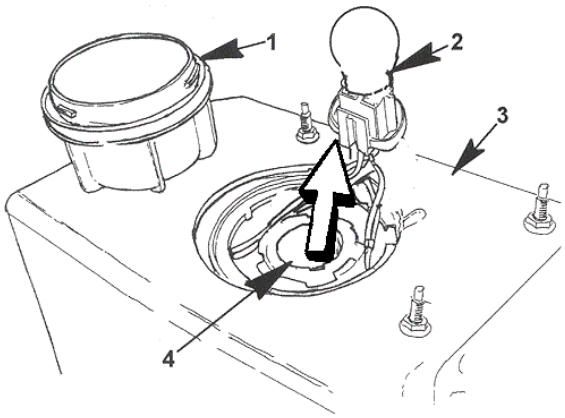

Figure 48 Directional Bulb Removal

1. SOCKET COVER
2. DIRECTIONAL AMBER BULB
3. HEADLIGHT HOUSING
4. DIRECTION BULB SOCKET AND SEAT

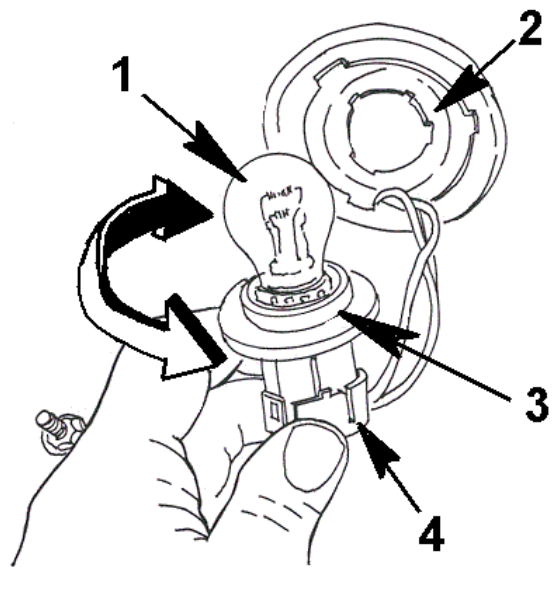

Figure 49 Directional Bulb Replacement

1. AMBER BULB
2. SEAL
3. BULB SOCKET
4. HOUSING BASE AND WIRE CONNECTION

2.12. HOOD LATCHES

The hood latching mechanism consists of two assemblies: the upper hood / fender assembly latch base (Figure 50, Item 1), and the lower cowl latch bracket (Figure 50, Item 4).

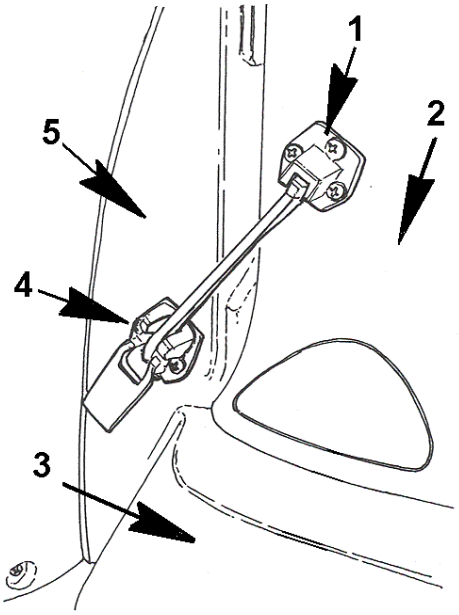

Figure 50 Hood Latch Assembly (Passenger Side Shown)

1. HOOD / FENDER LATCH MOUNTING BRACKET
2. PASSENGER SIDE FENDER SECTION
3. FENDER EXTENSION
4. LOWER FENDER EXTENSION LATCH LOCK DOWN ASSEMBLY
5. COWL

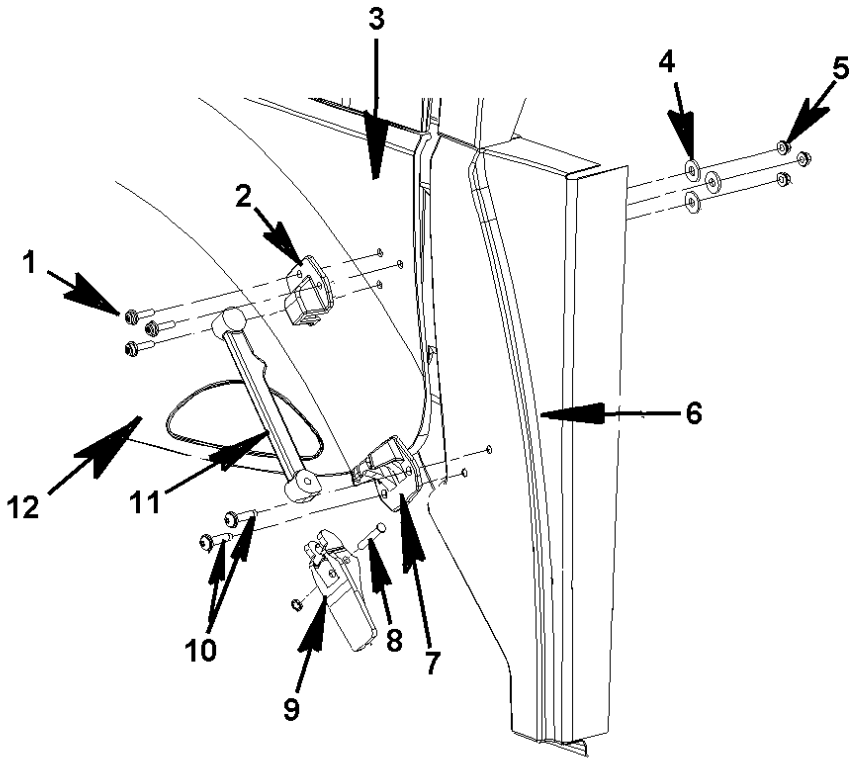

Figure 51 Upper Hood / Fender Latch Attachment — Driver Side Shown

1. UPPER LATCHING MECHANISM MOUNTING BOLTS
2. LATCHING ARM MOUNTING BRACKET
3. REAR SIDE HOOD SECTION
4. UPPER MOUNTING BRACKET LOCK WASHERS
5. UPPER MOUNTING BRACKET LOCK NUTS
6. COWL ASSEMBLY
7. LOWER LATCH MECHANISM MOUNTING BRACKET
8. LATCHING CLIP RETAINER PIN
9. LATCHING CLIP
10. LOWER LATCHING BRACKET MOUNTING BOLTS
11. LATCHING ARM ATTACHMENT
12. FENDER SECTION

The upper hood latch attachment assembly (Figure 51, Item 2) is located at the rear side section of the hood assembly. The latching arm assembly (Figure 51, Item 11) is attached to the side hood mounting bracket. This part swings down and latches on the lower catch cowl bracket assembly (Figure 51, Item 7) and secures the hood in position. To remove the latch assembly:

1. Release the latching mechanism both sides of the hood and tilt hood forward.

2. Loosen and remove the hood latch bracket mounting bolts, washers and lock nuts (Figure 51, Items 1 and 5) and remove the bracket assembly (Figure 51, Item 2) from the hood assembly.

3. Locate, loosen and remove the mounting bolts, washers and lock nuts (Figure 51, Item 10) securing the cowl latch mechanism (Figure 51, Item 7).

4. Follow same procedure for removal of opposite side.

2.13. HOOD SEAL

Release the hood latches on each side and raise the hood to the full tilt position. Locate the hood seal on the forward edge of the cowl (Figure 52, Item 1).

1. Beginning on the driver side of the cowl, locate the christmas tree type mounting clip (Figure 83, Item 2) and pull the seal upward to release the clip.

2. Grip the hood seal and lift in upward direction away from the cowl surface.

3. Pull upward to remove the seal from the entire lip of the cowl.

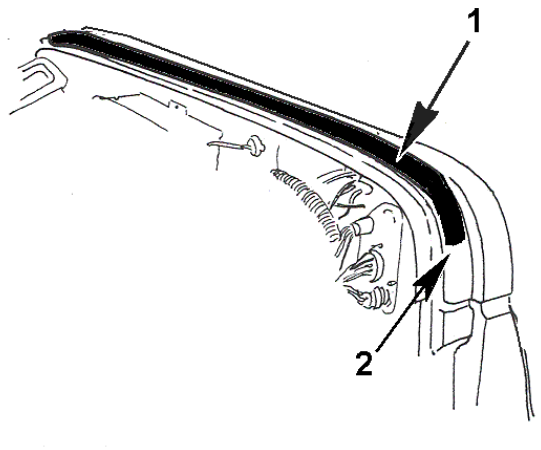

Figure 52 Hood Seal Removal — Driver Side Shown

1. HOOD SEAL
2. COWL ASSEMBLY

2.14. STEERING WHEEL / CLOCK SPRING

WARNING – Always disconnect power source before working on electrical equipment.

Front and Side Cover

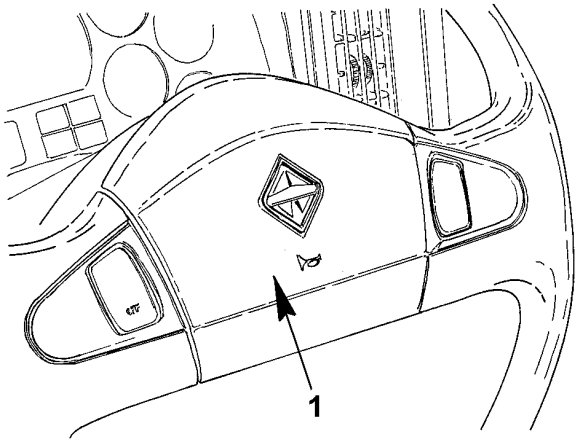

Figure 53 Steering Wheel Front Cover

1. FRONT COVER

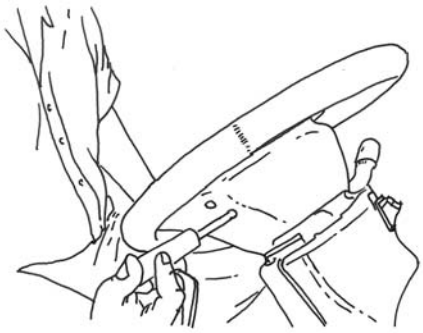

Figure 54 Releasing Front Cover With Tool

1. To release front cover (Figure 53, Item 1), insert removal tool into aperture (Figure 54). Phillips head screwdriver may be used.

2. Push tool in to release the locking clips (Figure 57, Item 1).

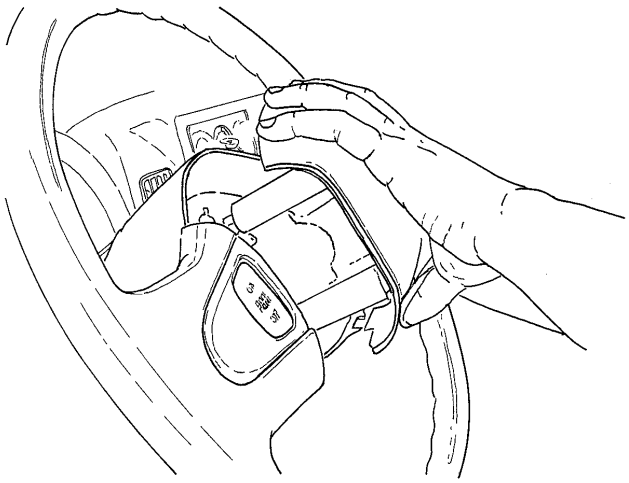

Figure 55 Removing Cover

3. Grasp cover as shown (Figure 55) and lift cover from steering wheel assembly.

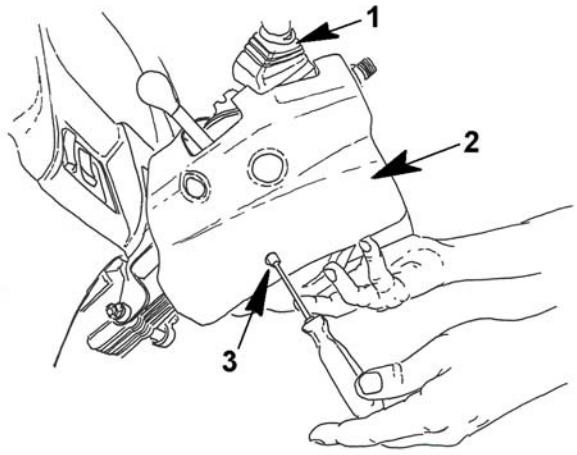

Figure 56 Side Cover Removal

1. TURN SIGNAL SWITCH
2. SIDE COVER
3. RETAINING SCREW

4. Locate the cover fastener (Figure 56, Item 3) openings on the steering wheel covers.

5. Insert phillips head screwdriver in cover opening, loosen and remove screws retaining covers.

6. Remove covers.

Locking Clip

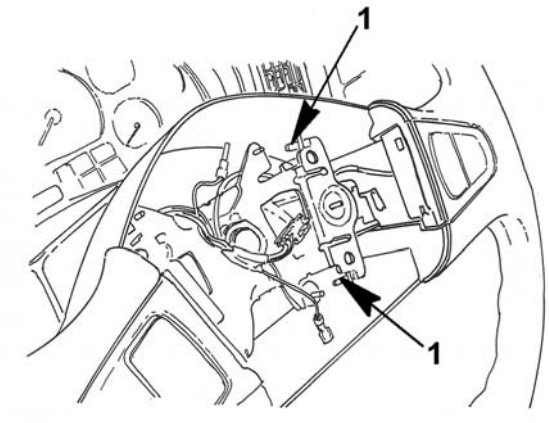

Figure 57 Locking Clip

1. LOCKING CLIPS

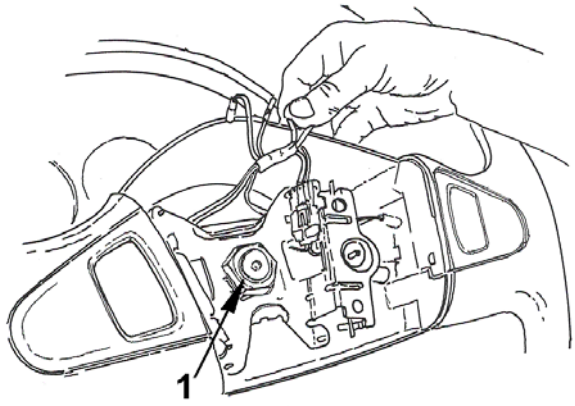

Figure 58 Steering Wheel Retaining Nut

1. STEERING WHEEL RETAINING NUT

1. Loosen and remove the retaining nut from the shaft spindle (Figure 58, Item 1).
2. Disconnect the harness section (Figure 59, Item 1).

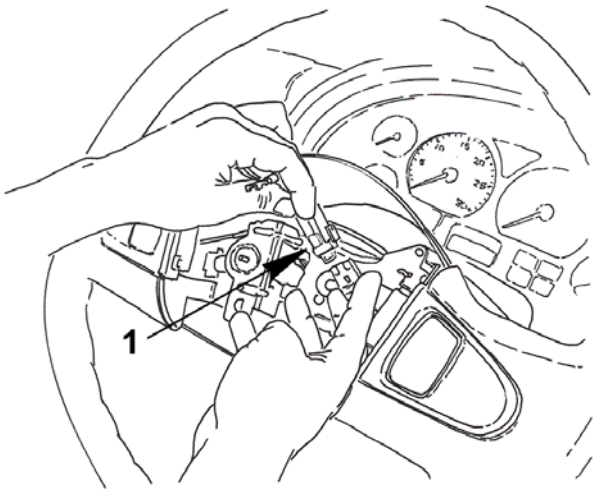

Figure 59 Steering Wheel Harness Disconnect

1. STEERING WHEEL HARNESS CONNECTION

Steering Wheel

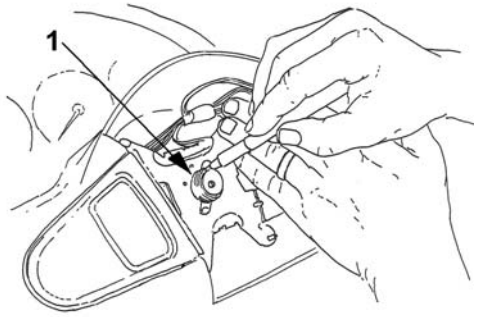

Figure 60 Mark Shaft and Spindle Alignment

1. MARK LOCATION FOR REALIGNMENT

1. Make a corresponding mark on the shaft spindle (Figure 60, Item 1) and plate to aid alignment in reassembly.

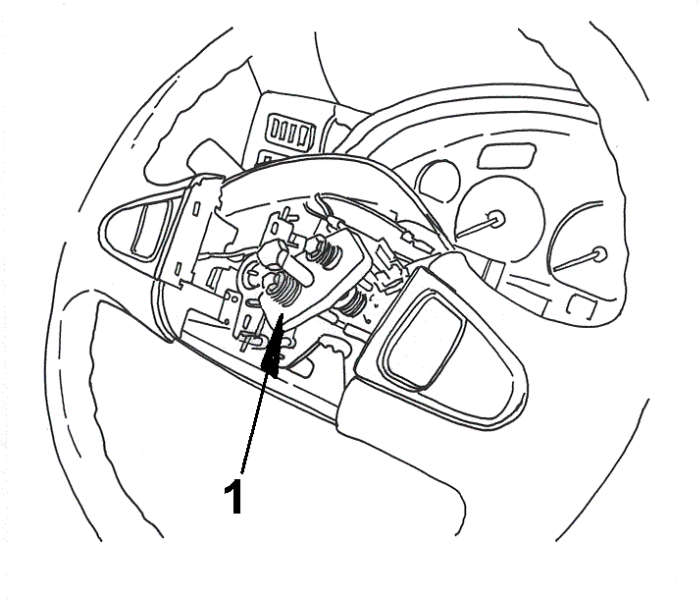

Figure 61 Utilizing Wheel Puller to Remove Steering Wheel

1. WHEEL PULLER MOUNTED ON STEERING WHEEL ASSEMBLY

2. Use a wheel puller (Figure 61, Item 1) to loosen steering wheel from shaft spindle.

3. Remove steering wheel from spindle.

Clock Spring

CAUTION – Follow the installation instructions printed on the clock spring to avoid damage.

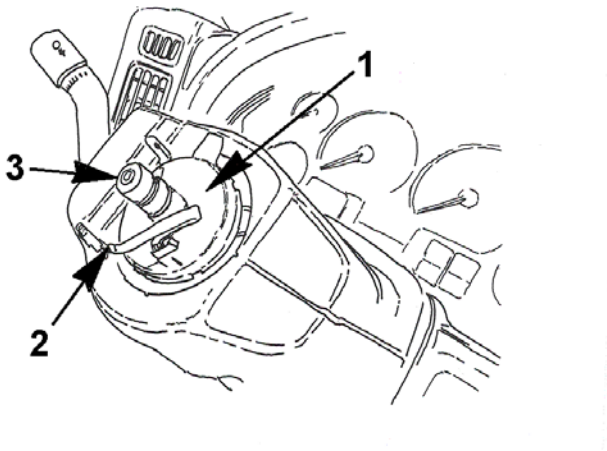

Figure 62 Clock Spring

1. CLOCK SPRING BODY
2. CLOCK SPRING HARNESS
3. SPINDLE

1. Locate the clock spring harness (Figure 63, Item 1).

2. Disconnect the clock spring harness from the dash harness (Figure 64, Item 3).

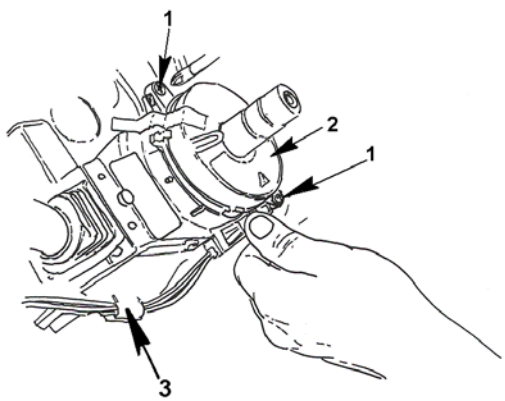

Figure 63 Clock Spring Harness and Attachment Tabs

1. CLOCK SPRING ATTACHMENT TABS
2. CLOCK SPRING ASSEMBLY
3. CLOCK SPRING HARNESS CONNECTION

3. Remove Phillips head screws from tabs (Figure 63, Item 1).

4. Lift clock spring out to remove.

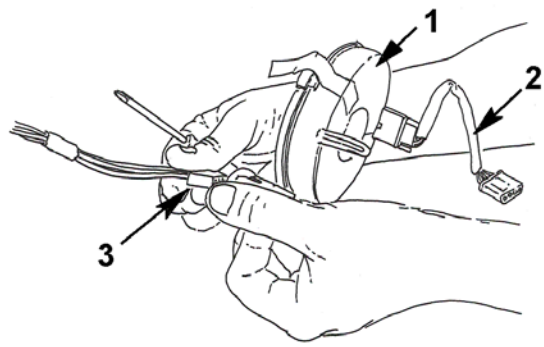

Figure 64 Clock Spring Assembly With Harness

1. CLOCK SPRING ASSEMBLY
2. CLOCK SPRING HARNESS PIGTAIL
3. DASH HARNESS CONNECTION

Door Switch and Flasher Light Modules

The switch modules in the steering wheel assembly are easily removed. The left hand switch module controls the opening and closing of the side passenger entry door. The right side switch module controls the amber flasher and red override switch.

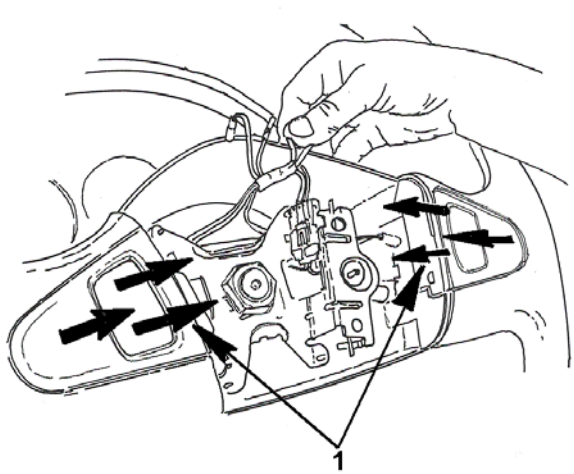

Figure 65 Steering Wheel Switch Module Removal

1. MODULE DIRECTION FOR REMOVAL

1. To remove the switch modules from the steering wheel, slide them toward the center of the steering wheel assembly.

2.15. STEERING COLUMN

1. Steering column removal entails disconnecting the universal joint connections in the engine compartment prior to removing the mounting bolts from the steering column bracket.

2. Check for any harness connections that need to be disconnected prior to steering column removal, and disconnect as may be required.

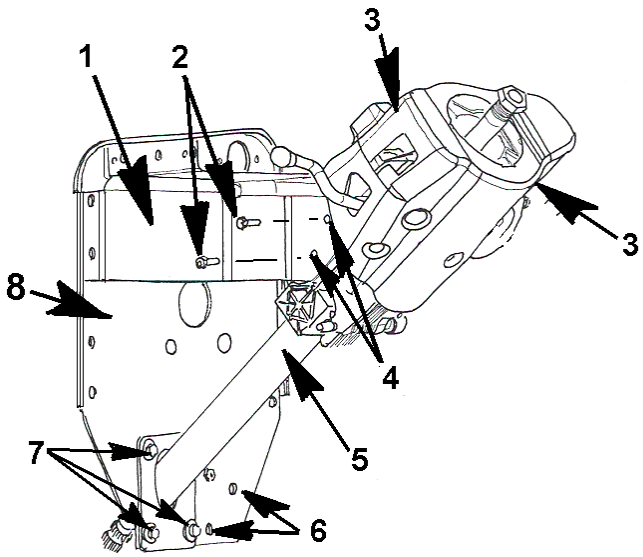

Figure 66 Steering Column Removal

1. STEERING COLUMN MOUNTING BRACKET
2. STEERING COLUMN MOUNTING BOLTS
3. STEERING COLUMN SIDE COVERS
4. STEERING COLUMN BRACKET UPPER MOUNTING HOLES
5. STEERING COLUMN SHAFT
6. ACCELERATOR PEDAL ASSEMBLY MOUNTING HOLES
7. LOWER STEERING COLUMN MOUNTING BRACKET
8. COWL WALL STEERING ASSEMBLY MOUNTING PLATE

3. After disconnecting steering column yokes, locate four steering column mounting bolts (Figure 66, Item 2) on steering column mounting bracket.

4. Locate steering column cover mounting screws (Figure 56, Item 3) and remove. Remove the steering column covers (Figure 86, Item 1).

5. Loosen and remove lower mounting bracket plate bolts (Figure 66, Item 7) located on cowl front wall plate.

6. Loosen and remove steering column mounting bolts (Figure 66, Items 1 and 2) from mounting bracket. An assistant may be required to steady the steering column prior to removal.

7. Carefully lift steering column out of bracket and check clearance when pulling lower section of column through floor plate.

2.16. ACCELERATOR PEDAL

The accelerator pedal assembly is a self contained assembly attached to the cowl wall reinforcing mounting plate. The accelerator assembly is connected by two mounting bolts to the cowl inside plate assembly. Prior to removing the mounting bolts the accelerator harness connection must be unplugged.

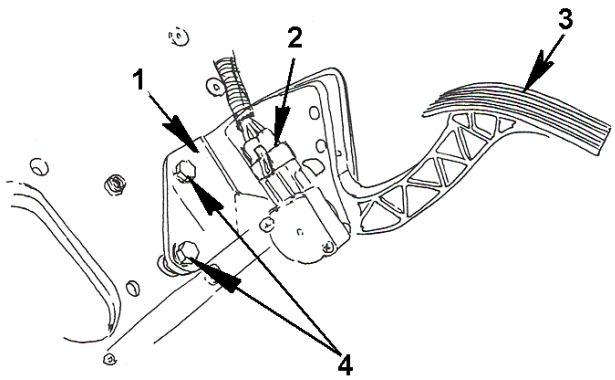

Figure 67 Accelerator Pedal Assembly

1. ACCELERATOR PEDAL ASSEMBLY BRACKET
2. ACCELERATOR PEDAL HARNESS CONNECTION
3. ACCELERATOR PEDAL
4. ACCELERATOR PEDAL ASSEMBLY MOUNTING BOLTS

1. Locate the accelerator harness connection and disconnect (Figure 67, Item 2).

2. Locate the two mounting bolts attaching the accelerator pedal assembly (Figure 67, Item 4) to the cowl reinforcing mounting plate.

3. Loosen and remove the accelerator mounting bolts.

4. Remove the accelerator pedal assembly.

2.17. BRAKE PEDAL

The brake pedal assembly is mounted to the steering column mounting bracket. The pivot bar assembly is mounted behind the steering column shaft and is easily removed.

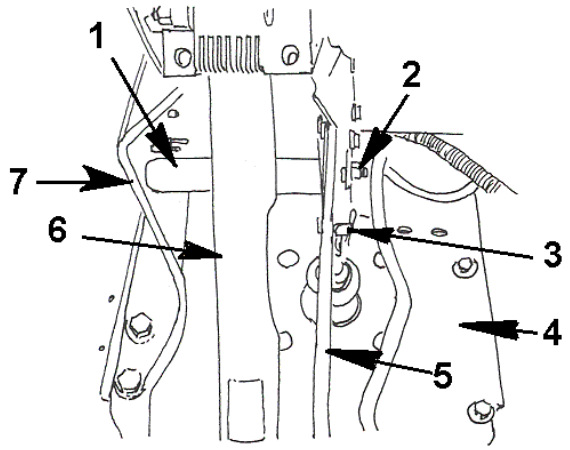

Figure 68 Brake Pedal Attachment Assembly

1. BRAKE PEDAL PIVOT BAR
2. PIVOT BAR MOUNTING NUT
3. BRAKE ROD RETAINER PIN AND CLIP
4. COWL REINFORCING MOUNTING PLATE
5. BRAKE PEDAL ARM
6. STEERING COLUMN SHAFT
7. STEERING COLUMN MOUNTING BRACKET

1. Locate the retainer pin and clip on the brake pedal arm (Figure 68, Item 3).

2. Remove the retainer clip (Figure 87, Item 4) and push out the retainer pin from brake pedal arm

3. Loosen and remove mounting nut (Figure 87, Item 3) securing the pivot bar on the steering column mounting bracket (Figure 68, Item 7).

4. With retainer pin and clip removed from brake rod, pull pedal assembly forward to clear brake rod clevis (Figure 87, Items 1 and 6).

5. Remove the bolt securing the brake pedal pivot bar.

6. Remove pivot bar and brake pedal assembly out of position.

7. Remove the nylon bushing on each side pivot bar assembly.

8. Check the nylon bushing for any damage or distortion, replace if necessary.

2.18. FENDER-MOUNTED CROSS-VIEW MIRRORS

Fender mounted mirror assemblies are mounted on the forward section of the fender assembly (Figure 69, Item 2) with a lateral mounting brace attached to the side of the hood section. The mirror assemblies are bolted to the hood and fender assemblies.

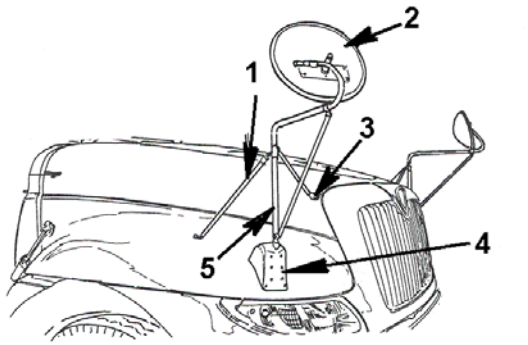

Figure 69 Fender-Mounted Mirror (Passenger Side Shown)

1. MIRROR / FENDER MOUNTING BRACKET
2. MIRROR HEAD
3. MIRROR / HOOD SUPPORT BRACKET
4. MIRROR MOUNTING BASE ASSEMBLY
5. MIRROR MAIN SUPPORT BRACKET

1. Tilt the hood and fender assembly forward to access the mounting bolts for the nuts and flat washers.

CAUTION – An assistant should be available to steady mirror assembly during removal to prevent damage or breaking to the assembly.

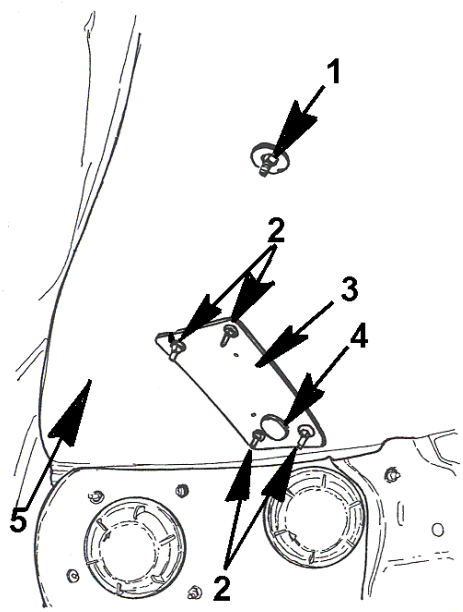

Figure 70 Fender Mounted Mirror Removal

1. MIRROR / FENDER BRACKET MOUNTING BOLT, WASHER AND NUT
2. MIRROR BASE MOUNTING BOLTS, NUTS AND WASHERS
3. MIRROR BASE FENDER REINFORCING PLATE
4. HEATED MIRROR HARNESS OPENING (IF EQUIPPED)
5. FENDER

2. Locate the lock nut and flat washer on the underside of the fender section. Secure the lock nut and flat washer and loosen (Figure 70, Item 2) the mounting bolts in the mounting bracket on the outside fender section.

3. Locate the lock nut and washer on the inside vertical section of the hood assembly. Loosen the mounting bolt in the lateral bracket base (Figure 70, Item 1). It would be advisable to have an assistant steady the mirror during the removal process and to prevent breakage if the mirror should fall.

4. Remove the mirror assembly and brackets.

5. With an assistant supporting the mirror base and mirror head, loosen and remove the attachment nuts and washers from the mirror mounting reinforcing plate on the underside of the fender assembly.

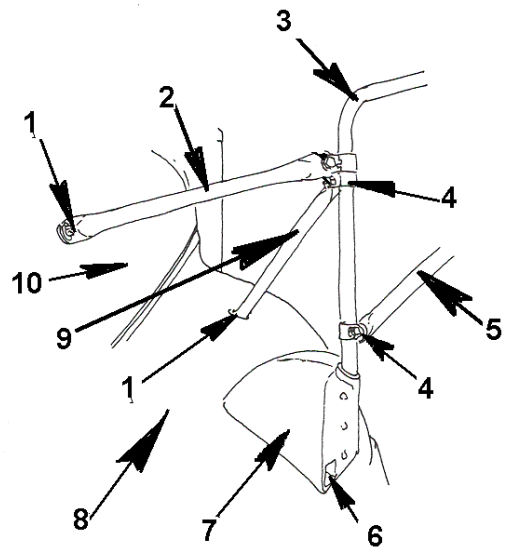

Figure 71 Cross-View Mirror Mounting Brackets

1. BRACKET MOUNTING BOLTS
2. MIRROR SUPPORT BRACKET
3. MIRROR MAIN SUPPORT BRACKET
4. MAIN SUPPORT ATTACHMENT CLAMPS
5. LATERAL MIRROR SUPPORT BRACKET
6. MIRROR BASE ASSEMBLY MOUNTING BOLT
7. MIRROR BASE MOUNTING ASSEMBLY
8. FENDER SECTION
9. MIRROR / FENDER MOUNTED BRACKET
10. HOOD ASSEMBLY

6. Follow the same procedure to remove the opposite side mirror assembly.

3. INSTALL

3.1. BUMPER

Locate the bumper assembly and carry the bumper to the bus chassis.

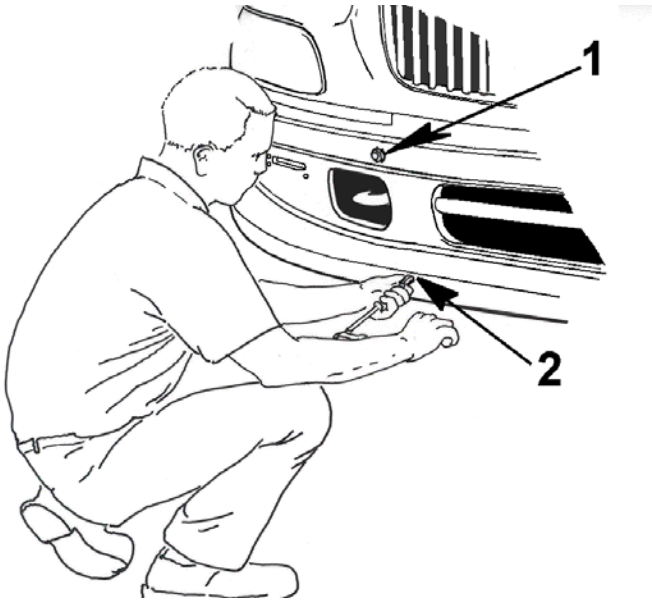

Figure 72 Front Bumper Install

1. BUMPER UPPER MOUNTING BOLTS
2. BUMPER LOWER MOUNTING BOLTS

1. With an assistant, place bumper at bumper mounting brackets and align bumper mounting holes with mounting holes in mounting bracket.

2. Insert bolts in the upper holes (Figure 72, Item 1): one driver side, one passenger side. Hand tighten.

3. Locate the lower bumper mounting holes and insert lower bolts (Figure 72, Item 2), and hand tighten.

4. Finish tightening the bumper bolts to the required torque values.

5. Torque bumper bolts to 50 to 55 LBF-FT (68 to 75 Nm).

6. Reconnect the appropriate harness connections as required.

3.2. HOOD

Hood has been previously removed

If required, assemble tilt assist support assemblies, splash panels and or insulator panels to the hood before installing hood.

1. With an assistant, rest the hood assembly on a padded work stand.

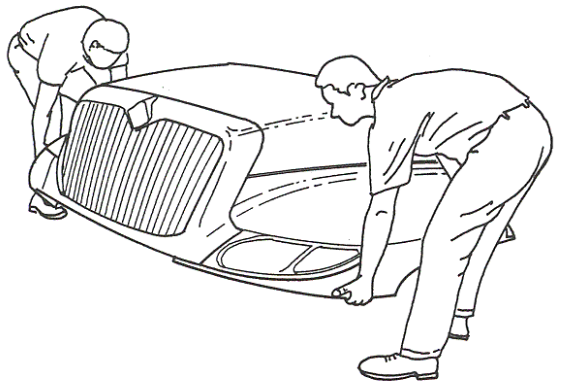

Figure 73 Hood Hinge Mounting Components

2. Check the chassis cross bar for the alignment scribe line to locate hood hinge plate in its proper location.

3. Ensure that the hinge plate mounting bolts are in place on the chassis cross bar and that sufficient clearance is available to slide hinge plate in place.

4. With an assistant place the hood assembly on the chassis cross bar and align with hinge plate mounting bolts. Check hinge plate location reference to scribed line.

5. With hinge plate in aligned position, tighten hinge plate mounting bolts (Figure 74, Item 2). Tighten the hinge plate mounting bolts to required torque value.

6. With hood secured to chassis, locate a padded stand and place in front of chassis to support tilted hood.

7. Tilt hood forward and rest on padded stand.

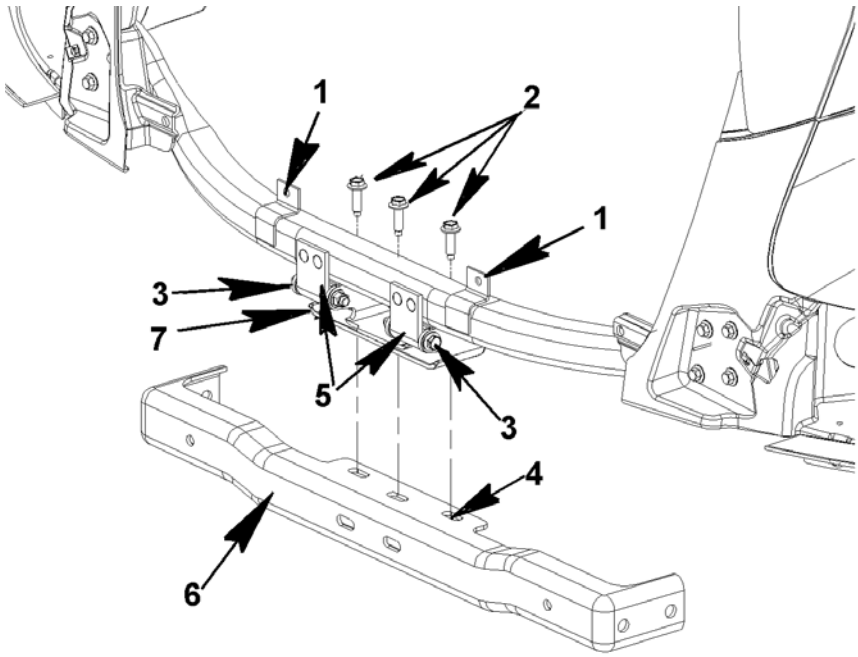

Figure 74 Hood Hinge Mounting Plate

1. GRILLE MOUNTING TABS
2. HINGE PLATE MOUNTING BOLTS
3. HINGE PIN SLEEVE BOLTS AND NUTS
4. HINGE CROSS BAR MOUNTING HOLES
5. HINGE ASSEMBLY
6. FRONT CROSS MEMBER TOP RAIL
7. HINGE ASSEMBLY MOUNTING PLATE

8. Locate torsion bars.
   a. Check torsion bars, smaller diameter torsion bar to be installed first.
9. With smaller (Figure 75, Item 9) diameter torsion bar shorter end, install in driver side torsion bar retainer bracket Figure 75, Item 7).
10. Install retainer clip on torsion bar end (Figure 75, Item 8).
11. Lay torsion bar in torsion bar guide bracket (Figure 28, Item 2) (**NOTE**: Figure 33 given for reference only, this view is passenger side, driver side is reversed) on driver side and place opposite end of torsion bar in hood torsion bar retainer bracket (Figure 75, Item 10). Hood may have to be slightly lifted to allow insertion of torsion bar in bracket.
12. Install retainer clip (Figure 75, Item 11).

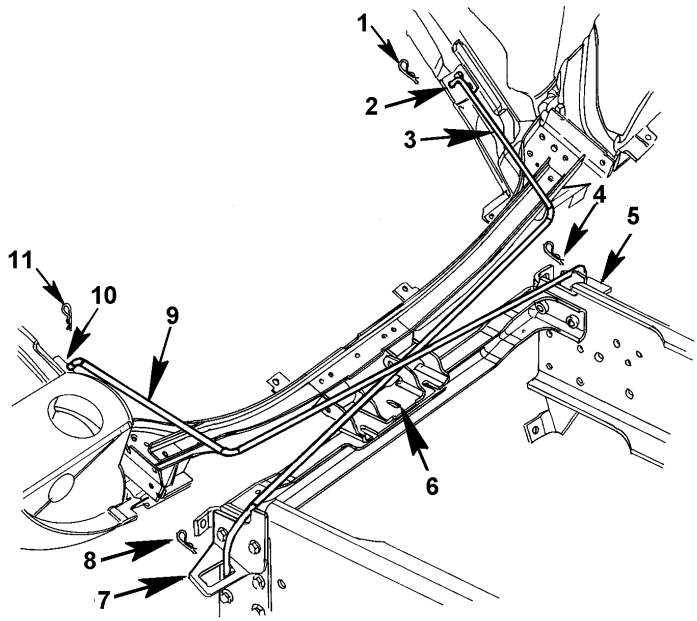

Figure 75 Front Hood - Install

1. TORSION BAR RETAINING CLIP
2. TORSION BAR UPPER MOUNTING BRACKET (PASSENGER SIDE)
3. TORSION BAR (SMALLER DIAMETER)
4. TORSION BAR RETAINING CLIP
5. FRAME RAIL TORSION BAR END BRACKET (PASSENGER SIDE)
6. HINGE PLATE
7. FRAME RAIL TORSION BAR END BRACKET (DRIVER SIDE)
8. TORSION BAR RETAINING CLIP
9. 12.5 MM TORSION BAR
10. TORSION BAR UPPER MOUNTING BRACKET (DRIVER SIDE)
11. TORSION BAR RETAINING CLIP

13. Locate remaining torsion rod (12.5mm diameter).

14. Insert torsion rod end in passenger side frame torsion bar bracket (Figure 28, Item 5).

15. Install retainer clip (Figure 75, Item 4).

16. Place torsion bar over torsion bar guide and over previously installed torsion bar (Figure 28, Item 2).

17. Insert torsion bar (Figure 75, Item 9) end in driver side hood torsion bar bracket (Figure 75, Item 10).

18. Install retainer clip (Figure 91, Item 11).

19. Raise the hood to approximately a 45 degree angle and support it, to allow for reconnecting of the hood stop cables.

20. Place clevis (Figure 24 , Item 2) of hood stop cable (Figure 25, Item 2) assembly over radiator top frame clevis mounting bracket (Figure 25, Item 4).

21. Insert clevis retainer pin (Figure 25, Item 3).

22. Follow same procedure for opposite side cable stop assembly.

23. With hood tilted, locate harness connections.

24. Reconnect front end wire harness connectors. Secure the wire harness with the clips and loop clamps provided, as necessary.

25. The front grille / shroud assembly may be reinstalled at this time.

26. Close the hood and latch the hood on both sides.

27. The front bumper assembly may be reinstalled at this time.

3.3. GRILLE / SHROUD

Prior to installing the grille and shroud assembly, inspect the mounting tabs on the inner upper surface of the shroud (Figure 76). Insure that all tabs are functional and in place.

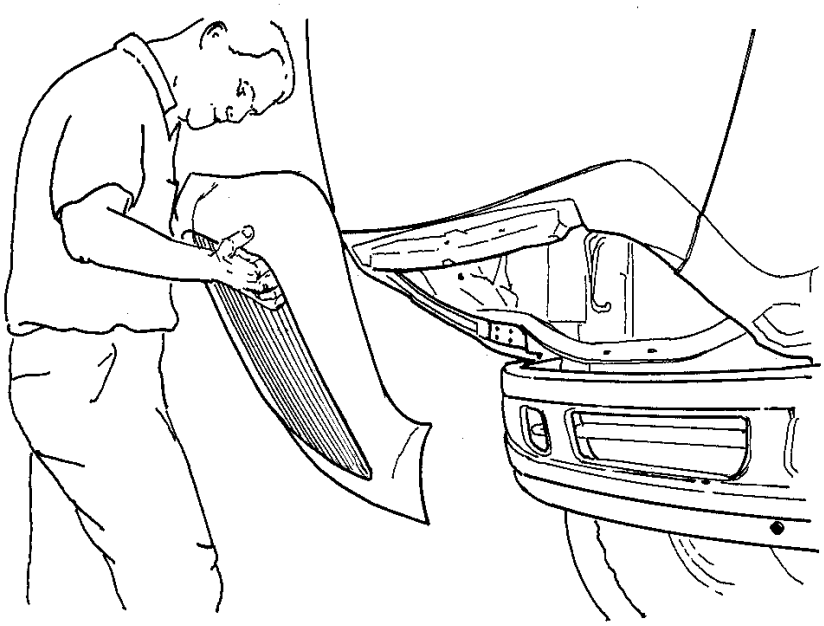

Figure 76 Grille / Shroud Tab and Mounting Hole Inspection

1. With the hood in the closed position, align the four (4) upper mounting holes and tabs.

2. Insert tabs on shroud assembly into mounting holes (Figure 31, Item 1) on hood assembly.

3. Align the lower grille/shroud mounting holes (Figure 31, Item 2) with tabs on cross bar.

4. Insert the four mounting bolts (Figure 31, Item 3) in the assembly and tighten.

5. Recheck for grille and shroud proper fit and alignment.

6. Tighten to 3 to 3.3 LBF-FT (4 to 4.5 Nm).

IMPORTANT – Do not overtighten the mounting screws.

3.4. SPLASH PANELS

Prior to splash panel installation check panels for any breaks or cracks. Replace if necessary.

Beginning on the passenger side, with the front hood opened:

1. Align the splash panel mounting holes with the hood mounting holes (Figure 77, Item 1), then insert the mounting bolts and lock washers.
2. Hand tighten only.
3. Align the lower mounting holes with the inner fender section.
4. Insert the mounting bolts (Figure 77, Item 1) and lock washers.
5. Tighten the splash panel mounting bolts.
6. Tighten to 125 to 140 LBF-IN (14 to 16 Nm).
7. The lower splash panel, passenger (Figure 77, Item 4) side, may be replaced if damage has occurred.
8. If the lower panel has been removed, locate the replacement panel and align with openings in the fender splash panel.
9. Insert the plastic insert fasteners through the lower splash panel (Figure 77, Item 3 and 4) into the fender splash panel (Figure 77, Item 2).

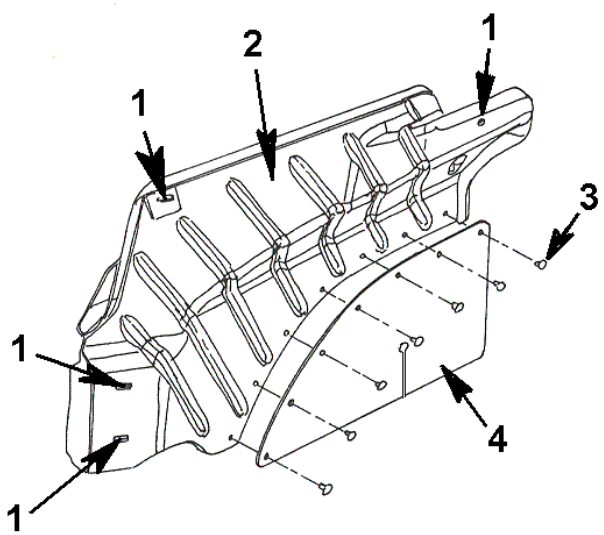

Figure 77 Splash Panel Remove/Install (Passenger Side Shown)

1. SPLASH PANEL MOUNTING BOLTS
2. SPLASH PANEL
3. LOWER SPLASH PANEL SECTION PLASTIC INSERT FASTENERS
4. LOWER SPLASH PANEL SECTION

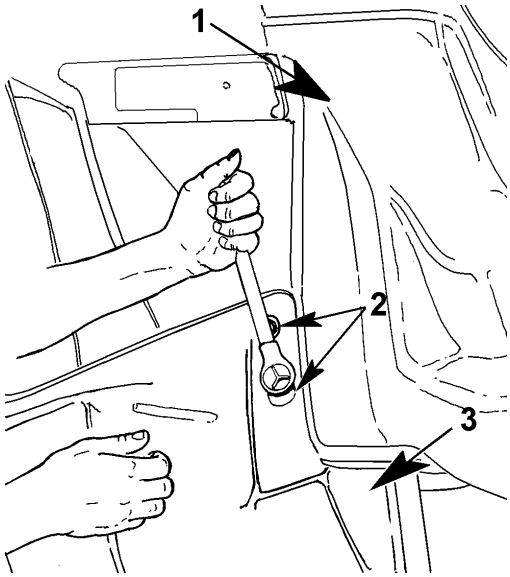

Figure 78 Splash Panel Install (Driver Side Shown)

1. FENDER SECTION
2. SPLASH SHIELD FORWARD MOUNTING BOLTS
3. SPLASH SHIELD

10. Follow same procedure for opposite side.

11. Close hood and secure the hood latches.

3.5. FENDER EXTENSIONS

1. With hood in the tilted position, locate the fender extension mounting holes on the cowl lower structure (Figure 79, Item 1).

2. Align the fender extension mounting holes on the cowl mounting holes (Figure 80, Item 3),

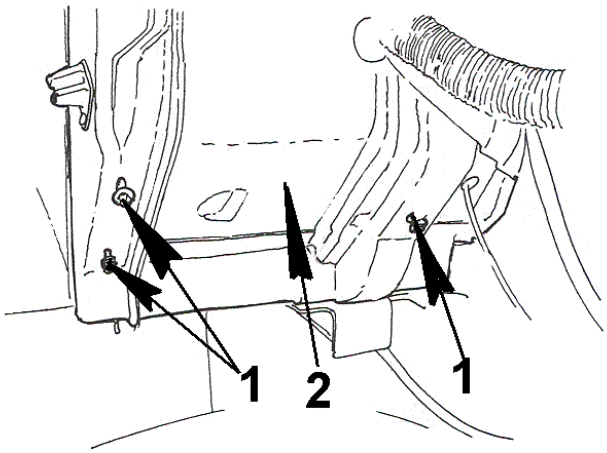

Figure 79 Fender Extension Alignment

1. FENDER EXTENSION MOUNTING BOLTS AND HOLES
2. COWL LOWER ASSEMBLY

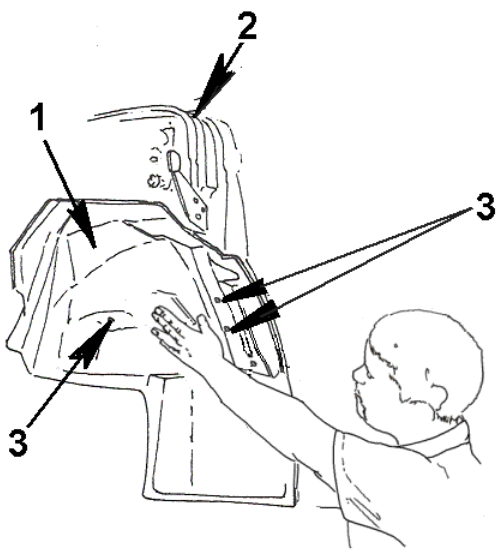

Figure 80 Fender Extension Install

1. FENDER EXTENSION MOUNTING HOLES ALIGNMENT
2. COWL
3. FENDER EXTENSION

3. Install mounting bolts and lock washers and tighten.

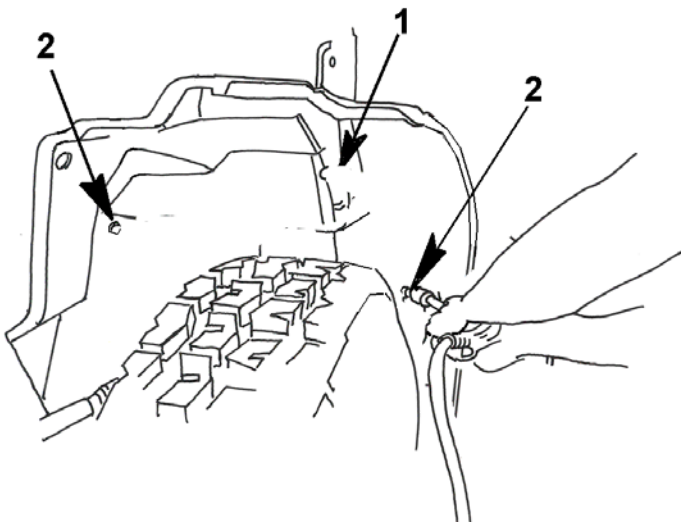

Figure 81 Fender Extension Installation

1. FENDER EXTENSION
2. FENDER EXTENSION BOLT MOUNTING HOLES

4. Torque the mounting bolts to 50 to 55 LBF-FT (68 to 75 Nm).

3.6. VALANCE PANELS

The valance panels are replaceable parts and are available if damaged. To install the valance panels:

1. Locate the screw clips on the upper flange of the valance panel. Check for damage and alignment.
2. Align mounting clips and holes with the bottom flange of the fender section.
3. Align the lower valance panel mounting holes with the mounting holes on the lower headlight housing flange.
4. Insert the mounting screws and tighten.

3.7. HEADLIGHT ASSEMBLIES

The grille and shroud assembly should have been previously removed.

1. Insert the headlight assembly (Figure 82, Item 4) into the headlight housing opening (Figure 82, Item 1), aligning the mounting studs (Figure 82, Item 7) with the mounting holes in the headlight housing.
2. Locate and mount the mounting nuts on headlight assembly mounting studs.
3. Tighten the housing stud nuts to 11 to 13 LBF-FT (14.8 to 18.1 Nm).
4. Reconnect the head light harness into the chassis harness.
5. Tilt hood to closed position.

6. Insert the headlight assembly mounting bolt (Figure 82, Item 5) into the headlight mounting tab (Item 6) and headlight assembly bolt hole (Item 8).

7. Tighten the headlight mounting assembly bolts to 34 to 38 LBF-FT (46 to 51 Nm).

8. Follow the same procedure for opposite side headlight assembly installation.

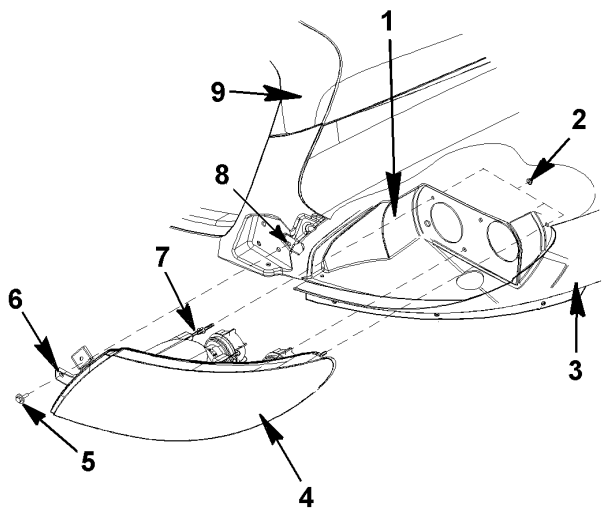

Figure 82 Headlight Assembly Remove and Install (Driver Side Shown)

1. HEADLIGHT HOUSING
2. HEADLIGHT ASSEMBLY MOUNTING NUT
3. VALANCE PANEL
4. HEADLIGHT ASSEMBLY
5. HEADLIGHT MOUNTING BOLT
6. HEADLIGHT MOUNTING TAB
7. HEADLIGHT ASSEMBLY MOUNTING SCREW
8. HEADLIGHT MOUNTING BOLT HOOD HOLE
9. HOOD SHROUD FRAME

9. Tilt the hood back and secure the hood latches.

10. Install shroud and grille assembly.

3.8. HEAD LAMP

When installing new halogen head lamp bulbs it is recommended to follow the bulb manufacturers instructions for proper handling of the halogen bulb.

1. Insert halogen bulb in socket assembly.

2. Install seal as needed.

3. Place bulb and connector in head light housing receptacle.

4. Twist retainer to lock in place.

5. Install socket cover.

6. If no other bulbs are to be replaced, close hood and secure hood latches.

3.9. HOOD LATCHES

With hood in the tilted position:

1. Align the mounting holes of the lower latch assembly with the mounting holes in the cowl assembly.

2. Insert the mounting bolts through the lower bracket assembly and cowl section. Install the flat washer and lock nut on the inside of the cowl section and tighten.

3. Tighten lower latch bracket mounting bolts to 34 to 38 LBF-FT (46 to 51 Nm).

4. Locate the latching arm and clip assembly and place in the upper bracket assembly.

5. Place the upper bracket latch mechanism (Figure 51, Item 2) on the hood section and align the mounting holes on the bracket with those located on the hood assembly.

6. Insert the mounting bolts through the latching assembly and hood.

7. Install the flat washer and lock nuts on the mounting bolts and tighten.

8. Tighten upper mounting bolts to 34 to 38 LBF-FT (46 to 51 Nm).

9. Follow same procedure for installation on opposite side.

10. Lower hood and latch both sides of the hood.

3.10. HOOD SEAL

To install the hood seal, release the hood latches both sides and tilt hood forward if not already tilted.

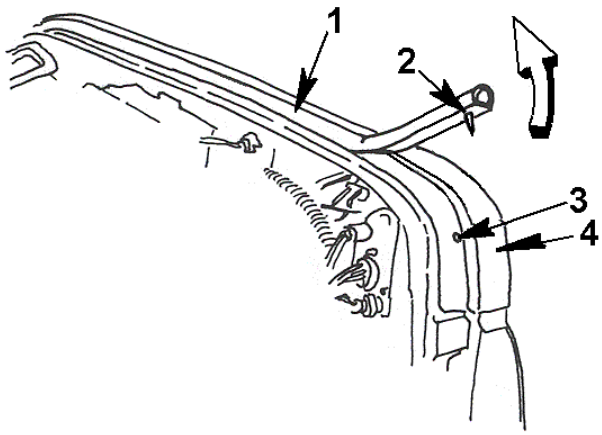

Figure 83 Hood Seal Remove and Install

1. HOOD SEAL
2. CHRISTMAS TREE CLIP
3. CHRISTMAS TREE INSERT HOLE
4. COWL ASSEMBLY

1. Align the hood seal across the entire top surface of the cowl lip.
2. Begin peeling back the adhesive protective strip.
3. Locate the christmas tree attachment hole (Figure 83, Items 2 and 3) and insert the tree through the hood seal and adhesive.
4. Insert the fastener in the cowl hole, apply pressure to the seal causing the adhesive to attach to the cowl lip.
5. Continue peeling the adhesive strip cover material and press hood / cowl seal in place on the forward edge of the cowl. Continue pressing down on seal causing the adhesive to attach to the portion on the cowl edge.
6. Insert the christmas tree fastener through the opposite side hood seal into the mounting hole in the cowl.
7. Check that seal is pushed down on edge as far as is allowable. Lower hood and latch hood release.

3.11. CLOCK SPRING/ STEERING WHEEL

Clock Spring

CAUTION – Read and follow the directions for the clock spring installation very carefully. This device will break if not properly installed. If the clock spring binds, it must be realigned or it will break in use.

1. Connect the clock spring harness to the dash harness (Figure 63, Item 3).

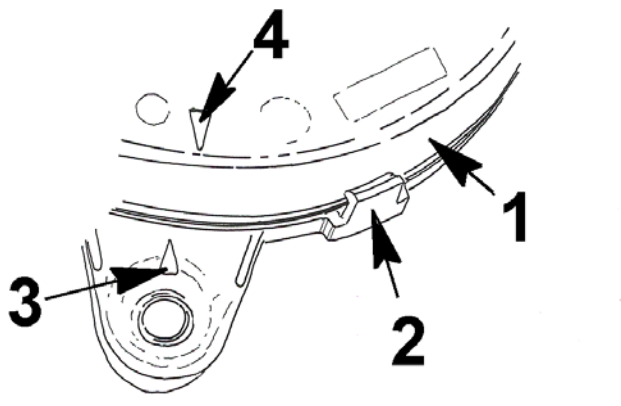

Figure 84 Clock Spring Installation Detail

1. CLOCK SPRING BODY
2. RETAINER CLIP
3. ALIGNMENT ARROW ON TAB
4. ALIGNMENT ARROW ON CLOCK SPRING BODY

2. Install the clock spring using the alignment arrows (Figure 84, Items 3 and 4) on the spring body and on the tab.

3. To assure the spring is centered, do the following:
   a. Turn the spring 3 1/2 turns counterclockwise.
   b. Return the spring clockwise 3 1/2 turns.
   c. Turn the spring 3 1/2 **more** turns clockwise.
   d. Return the spring 3 1/2 turns counterclockwise to the center.

4. If no binding has occurred, the spring is now centered. Insert clock spring mounting screws in mounting tabs to secure clock spring. If binding occurs, rotate the clock spring body appropriately and repeat steps a, b, c, and d until no binding occurs through 3 1/2 turns from center in each direction. (Seven turns lock-to-lock). **IF THE CLOCK SPRING BINDS, IT MUST BE REALIGNED OR IT WILL BREAK IN USE !**

Steering Wheel

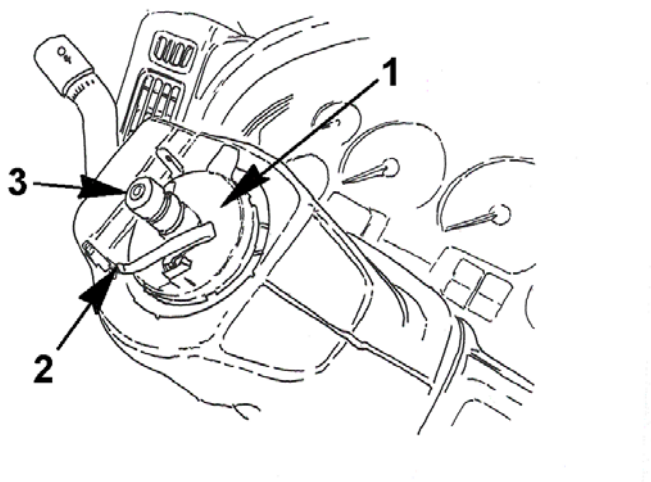

Figure 85 Clock Spring Installed

1. CLOCK SPRING BODY
2. CLOCK SPRING HARNESS
3. SPINDLE

1. Line up the marks made earlier to assure the wheel is centered on the spindle (Figure 60, Item 1).
2. Install retaining nut on spindle. Tighten the nut to 55 to 60 LBF-FT (75 to 81 Nm).
3. Assure that the locking clip is properly located to prevent it from working loose (Figure 57, Item 1).
4. Install steering column covers (Figure 56, Item 3) and fasten.
5. Install front cover (Figure 55, Item 1).

3.12. STEERING COLUMN

Prior to installing the steering column, check the assembly for any damage to the splines that connect with the steering column yokes.

1. With an assistant, insert the steering column through the opening at the base of the cowl plate panel, align the lower steering column mounting plate holes with the cowl wall holes. Check alignment of universal joints in lower steering shaft.
2. Align the upper mounting bolts with the steering column bracket and insert the mounting bolts (Figure 66, Items 2 and 4).

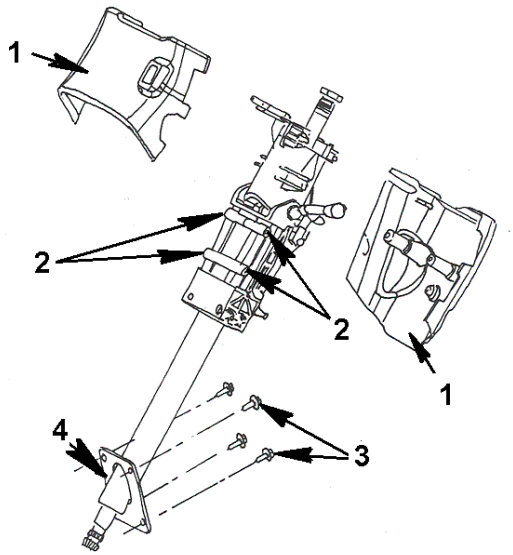

Figure 86 Steering Column Installation

1. STEERING COLUMN COVERS
2. UPPER STEERING COLUMN MOUNTING HOLES
3. LOWER STEERING COLUMN BRACKET MOUNTING BOLTS
4. LOWER STEERING COLUMN MOUNTING PLATE

3. With upper steering column mounting bolts securing steering column in the proper position, insert the lower mounting bracket bolts (Figure 86, Item 3) through the steering column mounting bracket (Figure 86, Item 4) into the cowl assembly.

4. Tighten the mounting bolts to the required torque value: 34 to 42 LBF-FT (46 to 56 Nm).

5. Tighten upper steering column mounting brackets to 17 to 23 LBF-FT (23 to 54 Nm).

6. Install steering column covers and fasteners.

3.13. ACCELERATOR PEDAL

1. Locate and align the accelerator pedal assembly mounting holes on the cowl reinforcing mounting plate and insert the mounting bolts.

2. Tighten the mounting bolts to the required torque value.

3. Plug the accelerator harness connection plug into the accelerator assembly plug receptacle.

3.14. BRAKE PEDAL

Prior to installing the brake pedal assembly, ensure that the brake pedal arm is seated and the dust cover is in place and not damaged.

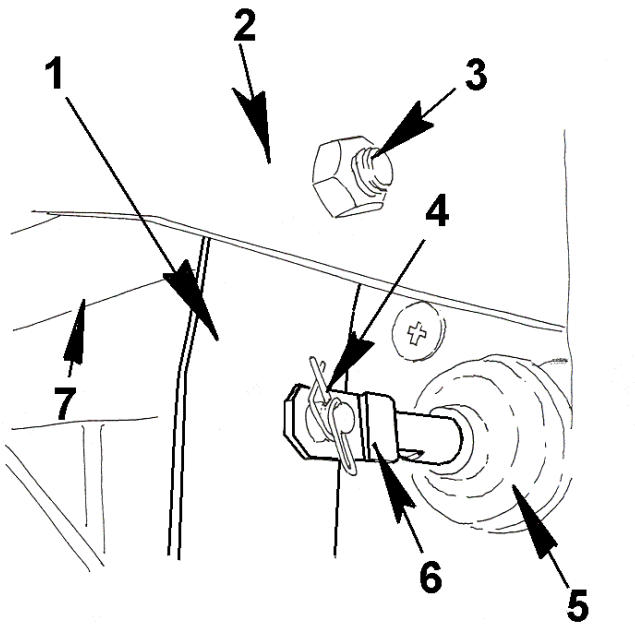

Figure 87 Break Pedal Assembly Install

1. BRAKE PEDAL ARM
2. STEERING COLUMN MOUNTING BRACKET
3. PIVOT BAR MOUNTING NUT AND LOCK WASHER
4. BRAKE ROD RETAINER PIN AND CLIP
5. BRAKE ROD DUST BOOT
6. BRAKE ROD ATTACHMENT CLEVIS
7. PIVOT BAR

1. Insert nylon bushings in ends of pivot bar.
2. Insert pivot bar and brake pedal assembly in position on steering column bracket.
3. Align the pivot bar mounting holes with mounting holes on steering column bracket.
4. Insert mounting bolt through bushings and pivot bar.
5. Install lock nut (Figure 87, Item 3), and hand tighten.
6. Locate align and install brake rod clevis to brake pedal arm (Figure 87, Item 6).
7. Install retainer pin and clip (Figure 87, Item 4).
8. Tighten lock nut to torque value.

3.15. FENDER-MOUNTED CROSS-VIEW MIRRORS

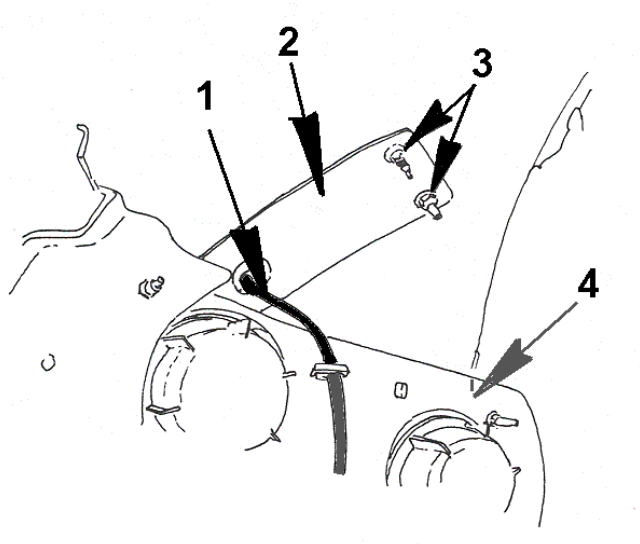

Figure 88 Mirror Base Reinforcing Bracket

1. HEATED MIRROR HARNESS
2. MIRROR BASE REINFORCING PLATE
3. MIRROR BASE MOUNTING BOLTS, NUTS AND LOCK WASHERS
4. HEADLIGHT HOUSING

1. With an assistant holding the mirror base assembly, locate and align the base mounting holes and the fender mounting holes. Insert the mounting bolts through the fender assembly, place the fender reinforcing plate over the bolts, install lock washers and nuts. Tighten until snug.

2. Install the mirror bracket attachment clamps to the mirror main support bracket.

3. Adjust clamp locations as necessary.

4. Locate the mirror / fender support bracket, and align with mounting hole in fender.

5. Insert the mounting bolts through the bracket end and fender section. Install the flat washer and lock nut on the underside of the fender section and hand tighten (Figure 70, Item 1).

6. Place the opposite end of support bracket in attachment clamp (Figure 71, Item 4) on mirror main support bracket.

7. Insert bolt, lock washer and nut and tighten

8. Locate and align the mirror support bracket end mounting hole with the mounting hole in the side surface of the hood Figure 71, Item 1) assembly.

9. Insert the mounting bolt through the bracket end and hood section. Install the flat washer and lock nut.

10. Place the opposite end of support bracket in attachment clamp on mirror main support bracket.

11. Tighten all nuts. (See Torque chart for values) (See TORQUE, page 73)

12. Follow the same procedure for the opposite side mirror assembly.

4. ADJUSTMENTS

4.1. HOOD ADJUSTMENT AND ALIGNMENT

The 3300 series front hood adjustment is done by moving the hinge plate attachment located at the front cross member.

1. To adjust the hood forward or aft.

2. To adjust hood forward and back (Figure 89), loosen the hinge plate mounting bolts at the mounting plate (Figure 29, Item 6) on the front cross member.

3. Slide the hood forward or aft as required.

4. Check the distance between the rear edge of hood and clearance to cowl.

5. Tighten the hinge plate mounting bolts and torque to 50 to 55 LFB-FT (68 to 75 Nm).

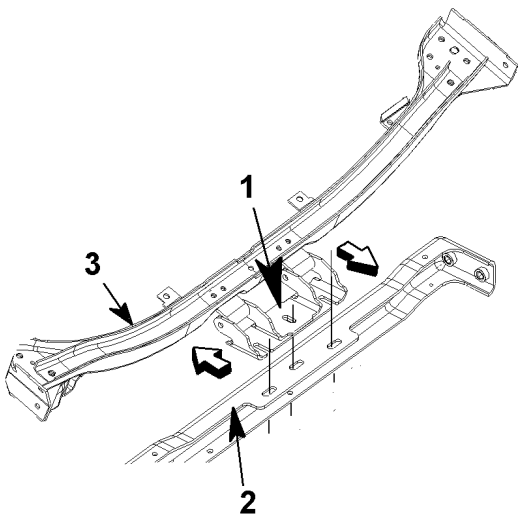

Figure 89 Hood Hinge Adjustment

1. HINGE MOUNTING PLATE
2. CROSS MEMBER HINGE MOUNTING POINT
3. HOOD CROSS BAR

4.2. HOOD STOP ADJUSTMENT

Hood height adjustment at the cowl and rear edge of hood is adjusted by moving the hood stop either up or down.

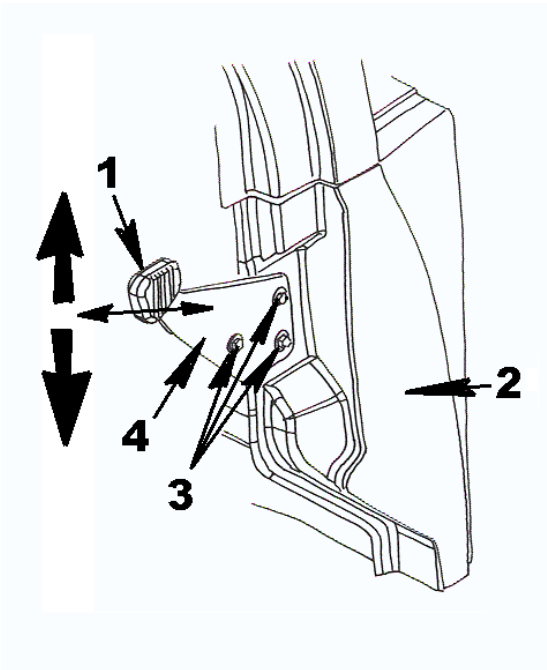

Figure 90 Hood Stop (Driver Side Shown)

1. HOOD STOP BUSHING
2. COWL ASSEMBLY
3. THREE MOUNTING BOLTS AND LOCK WASHERS
4. HOOD STOP BRACKET

1. Unlatch hood and tilt hood forward.
2. To adjust hood in either direction, loosen the three bolts (Figure 90, Item 3) located at the hood stop bracket.
3. Slide the bracket (Figure 90, Item 4) upward or down to set desired height.
4. Lower the hood and rest hood on hood stop bushings. Check rear edge alignment with cowl.
5. Raise the hood and retighten the bolts to secure the hood stop at the desired location.
6. The same procedure should be applied to adjust the opposite side of hood.
7. Tighten to 147 to 181 LBF-FT (200 to 245 Nm).

4.3. HEADLIGHT ADJUSTMENT

WARNING – Do not replace or handle halogen head light bulbs while hot. Property damage and or personal injury may occur. Allow bulb and or sockets to cool sufficiently before handling.

IMPORTANT – When changing halogen headlight bulbs, follow manufacturer's instructions for proper handling of subject bulbs. Not following manufacturer's instructions may cause premature failure of headlight bulb.

To adjust the headlight direction, release hood latch and tilt hood forward.

1. Locate adjustment control stem on rear of headlight housing (Figure 91, Item 2).

2. Rotate the adjustment screw clockwise or counter clockwise to adjust the height of the headlight beam.

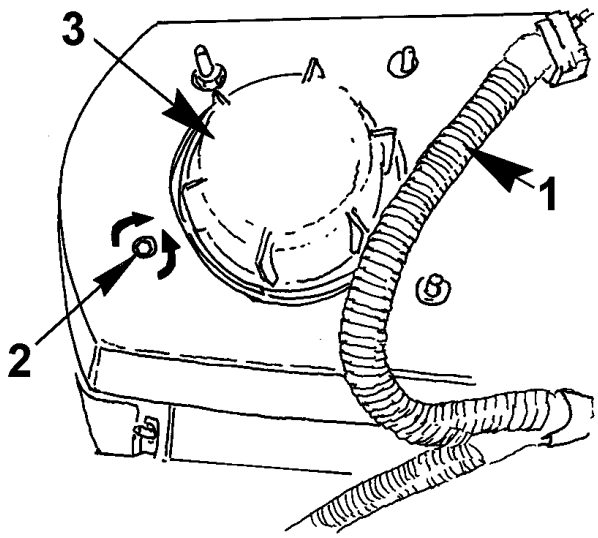

Figure 91 Headlight Adjustment

1. HEADLIGHT HARNESS
2. ADJUSTMENT SCREW
3. BULB / SOCKET COVER

TORQUE

Table 1 Torque Chart

Item No.*	Location (Figure No.)	LBF-FT / IN.	Nm
1, 2	Bumper Mounting Bolts (Fig. 20)	50 to 55	68 to 75
1	Torsion Bar Mounting Brackets (Figure 27)	34 to 38	46 to 51
5	Hinge Plate Mounting Bolts (Figure 29)	43 to 55	58 to 68
3	Grille Mounting Screws (Fig. 31)	3 to 3.3	4 to 4.5
2	Splash Panels (Fig. 32)	34 to 38	46 to 51
5	Air Intake Grille Screws (Fig. 33)	3 to 3.3	4 to 4.5
3	Fender Extension Mounting Bolts (Fig. 35)	43 to 50	58 to 68
2	Headlight Assembly Mounting Bolt (Fig. 39)	34 to 38	46 to 51
2	Headlight Assembly Mounting Hex Nuts (Fig. 40)	11 to 13	14.8 to 18.1
1, 5, 10	Latch Mounting Bolts and Nuts (Fig. 51)	34 to 38	46 to 51
3	Post Cover Screws (Fig. 56)	15 to 30 IN	1.7 to 3.39

Table 1 Torque Chart (cont.)

Item No.*	Location (Figure No.)	LBF-FT / IN.	Nm
1	Steering Wheel Retaining Nut (Fig. 58)	660 to 720 IN	74.5 to 81.3
1	Clock Spring Mounting Screws (Fig. 63)	15 to 35 IN	1.7 to 3.9
2	Upper Steering Wheel Mounting Bolts (Fig. 66)	34 to 42	46 to 57
4	Accelerator Pedal Mounting Bolts (Fig. 67)	28 to 35	38 to 47
2	Fender-Mounted Cross-View Mirror Mounting Nuts (Fig. 70)	34 to 48	46 to 51
1	Mirror Mounting Brackets (Fig. 71)	28 to 35	38 to 47
4	Upper Mirror Attachment Bolts (Fig. 71)	28 to 35	38 to 47
6	Mirror Base Mounting Bolts (Fig. 71)	34 to 38	46 to 51
1, 2	Front Bumper Mounting Bolts (Fig. 72)	50 to 75	68 to 75
2	Hood Hinge Mounting Bolts (Fig. 73)	50 to 55	68 to 75
1	Splash Panel Mounting Bolts (Fig. 77)	125 to 140 IN	14 to 16
1	Fender Extension Mounting Bolts (Fig. 79)	50 to 55	68 to 75
3	Fender Extension Mounting Bolts (Fig. 80)	50 to 55	68 to 75
5	Headlight Mounting Bolt (Fig. 82)	34 to 38	46 to 51
7	Lower Steering Column Mounting Bolts (Fig. 86)	17 to 23	23 to 31
3	Brake pedal Pivot bar Lock Nut (Fig. 87)	28 to 35	38 to 47
3	Hood Stop (Fig. 90)	34 to 38	46 to 51
*Refer to Figures specified in the location column.			