# SERVICE MANUAL SECTION

# CE 200, CE 300 — HOOD, GRILLE, FENDERS AND BUMPER

## Model: CE BUS

## S09009

## 03/09/2004

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# 1. DESCRIPTION

The CE Model Series Bus chassis is a conventional type chassis, with front engine, front hood, fenders and bumper. The CE model chassis is manufactured for the complete conventional bus application by the IC Corporation, a wholly owned subsidiary of International Truck and Engine Corporation.

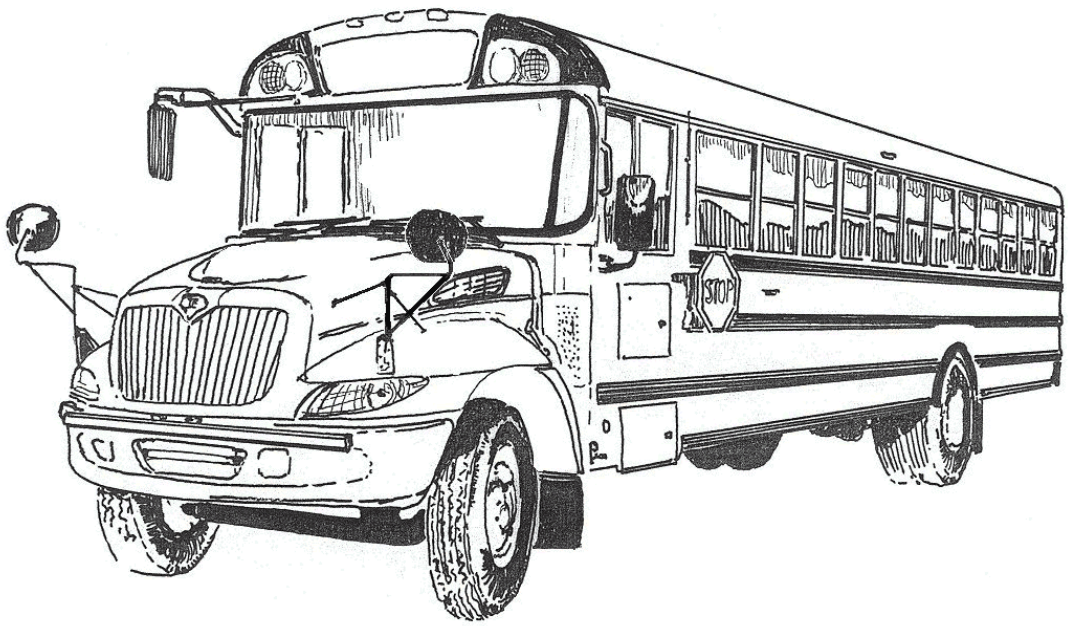


**Figure 1 CE 200 / CE 300 Model Bus Chassis**

## 1.1. BUMPER

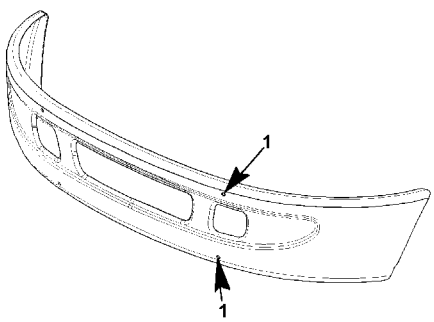


**Figure 2 Front Bumper**

1. MOUNTING HOLES

The CE Series 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.

The front bumper is a one piece aerodynamically styled steel bumper. The bumper incorporates a swing out safety gate for passenger protection when entering or leaving the passenger compartment.

## 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.

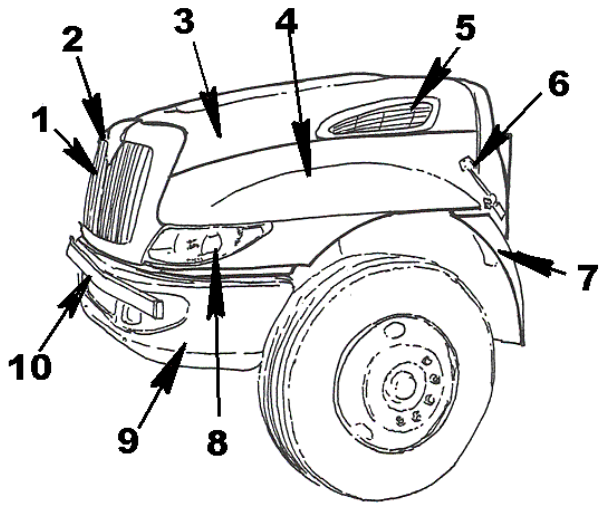


**Figure 3 CE Series Hood Assembly**

1. GRILLE ASSEMBLY
2. LOGO MOUNTING HOUSING
3. CE BUS SERIES HOOD
4. UPPER FENDER ASSEMBLY (BONDED TO HOOD)
5. ENGINE AIR INTAKE OPENING
6. HOOD LATCH ASSEMBLY
7. FENDER EXTENSION
8. HEADLIGHT ASSEMBLY
9. FENDER VALANCE (BOLTED TO FENDER)
10. CROSSING GATE ASSEMBLY

## 1.3. GRILLE

The grille and grille shroud assembly on the CE Series model is a single removable component. The assembly is attached to the hood assembly with mounting screws and insert mounting tabs. The CE Series bus chassis has an additional composite application which encapsulates the IC Corporation identification badge.

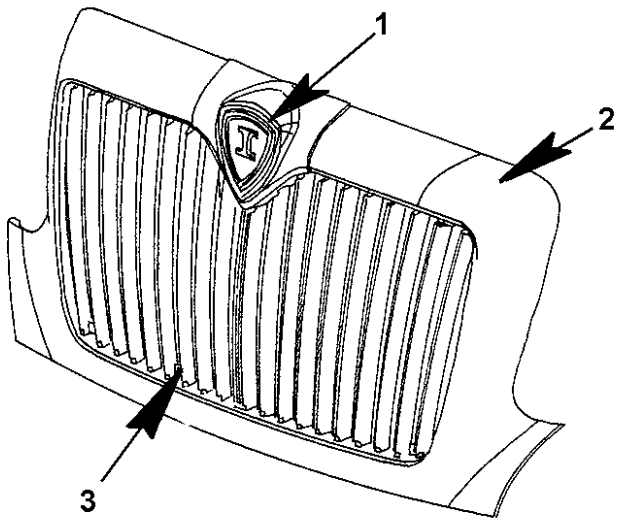


**Figure 4 CE Series Grille Assembly**

1. IC CORPORATION LOGO BADGE
2. SHROUD ASSEMBLY
3. GRILLE

## 1.4. SPLASH PANELS

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

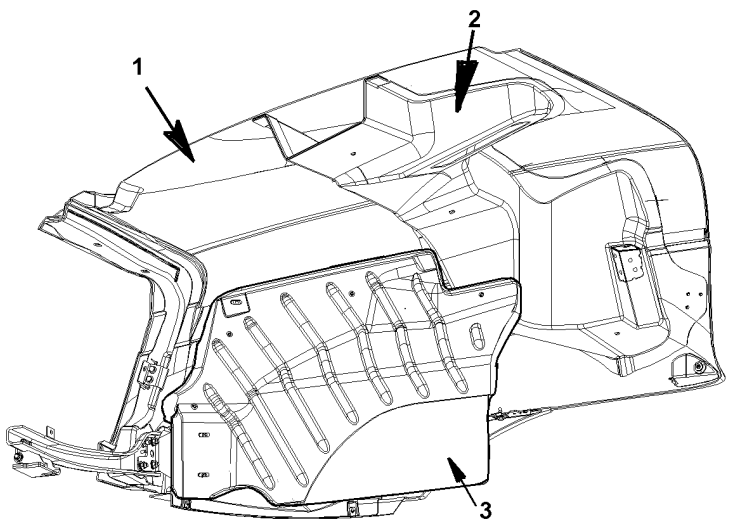


**Figure 5 CE Series Hood Splash Panel (Passenger Side Shown)**

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

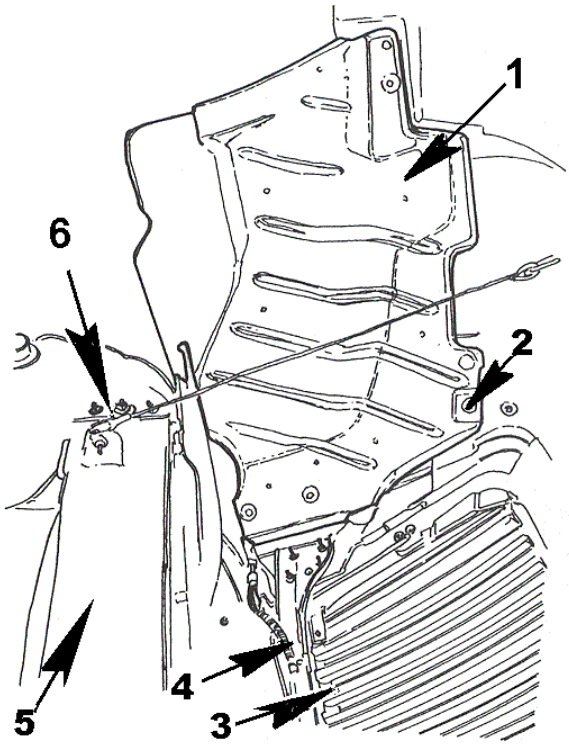


**Figure 6 CE Series Splash Panel (Driver Side Shown)**

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 CE Series are 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.

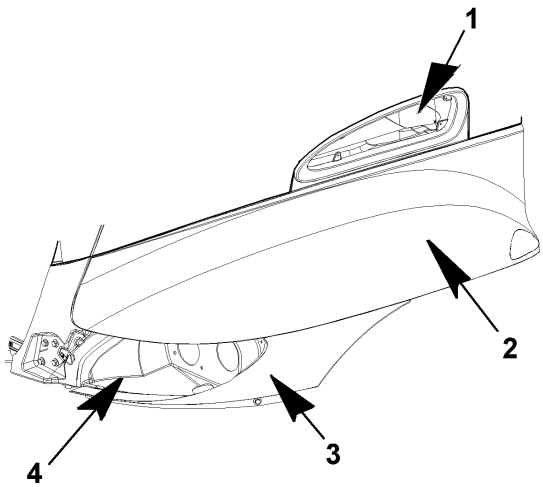


**Figure 7 CE Series Fender Assembly**

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

## 1.6. AIR INTAKE

On the CE 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.

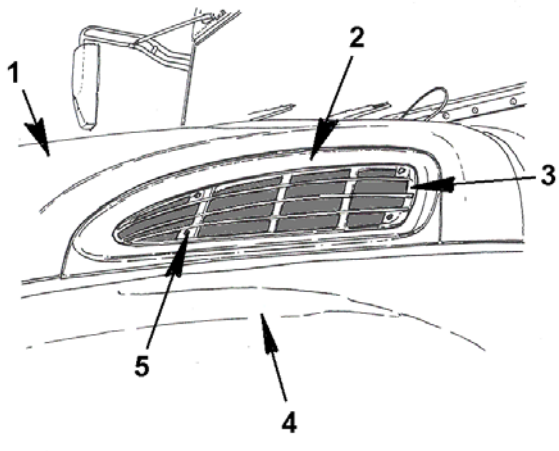


**Figure 8 CE Series Air Intake**

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

## 1.7. FENDER EXTENSIONS

Fender extensions are an integral part of the fender system on the CE 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, and it also keeps the entry door and step cleaner (Figure 9).

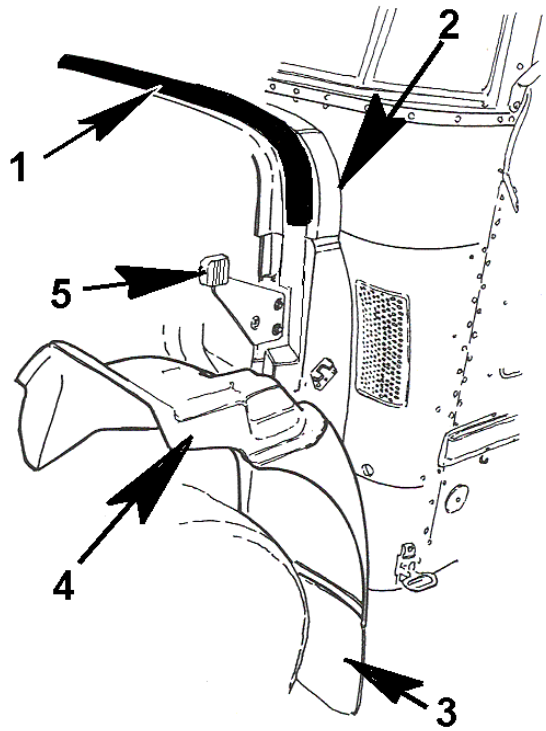


**Figure 9 CE Series Fender Extension (Driver Side Shown)**

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.

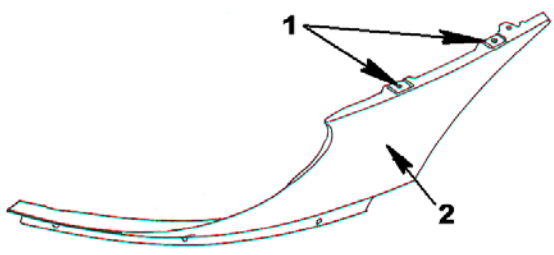


**Figure 10 Valance Panels**

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

## 1.9. MUD GUARDS

The mud guards (Figure 11, Item 1) on the CE Series 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, including the passenger entry door and step.

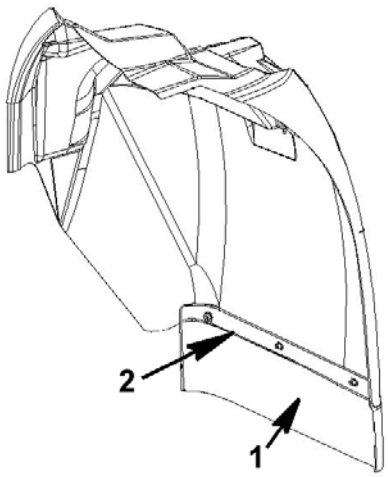


**Figure 11 Mud Guards**

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.

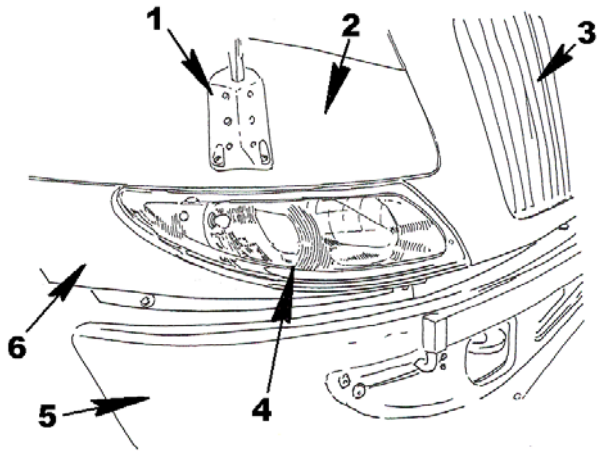


**Figure 12 Headlight Assembly**

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, Item 1) 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 CE series model is a one piece seal.

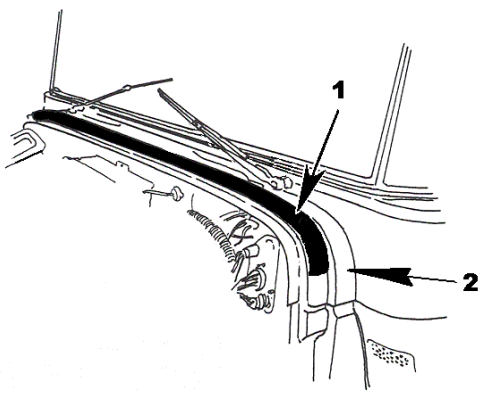


**Figure 13 Cowl/Hood Seal**

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 mounting points. The engine cowl supports the hood latch mechanism, the hood stop and adjustment bracket and fender extension mounting points.

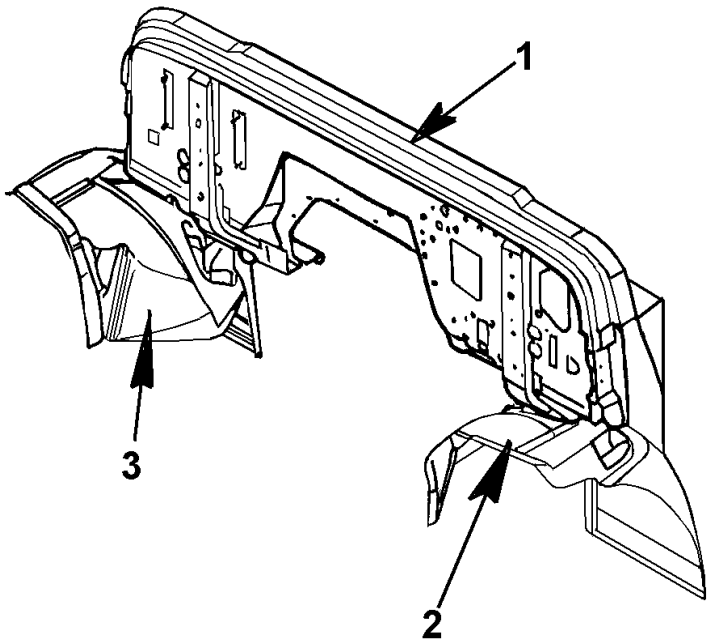


**Figure 14 Engine Cowl Assembly**

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 connecting point are located on the side section of the hood assembly.

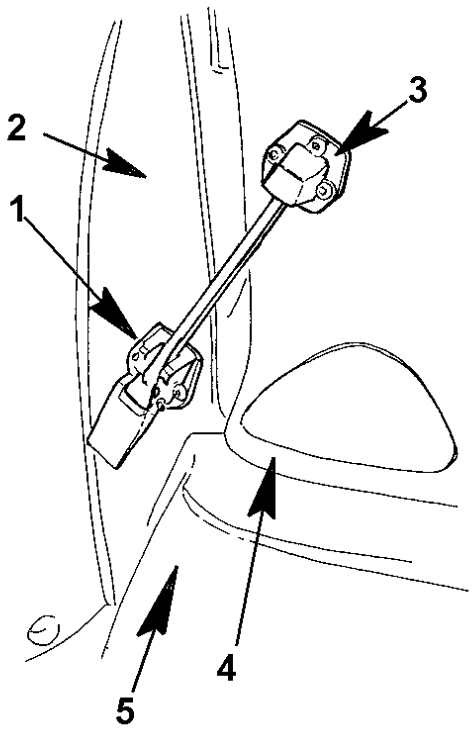


**Figure 15 Hood Latch Assembly (Passenger Side Shown)**

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

## 1.14. WINDSHIELD WASHER FLUID RESERVOIR

The windshield washer fluid reservoir (Figure 16, Item 2) on the CE chassis is located on the right frame rail, outboard of the radiator mounting bushing. The windshield fluid reservoir is mounted on a bracket attached to the frame rail. The reservoir pump and harness connection are part of the hood harness assembly.

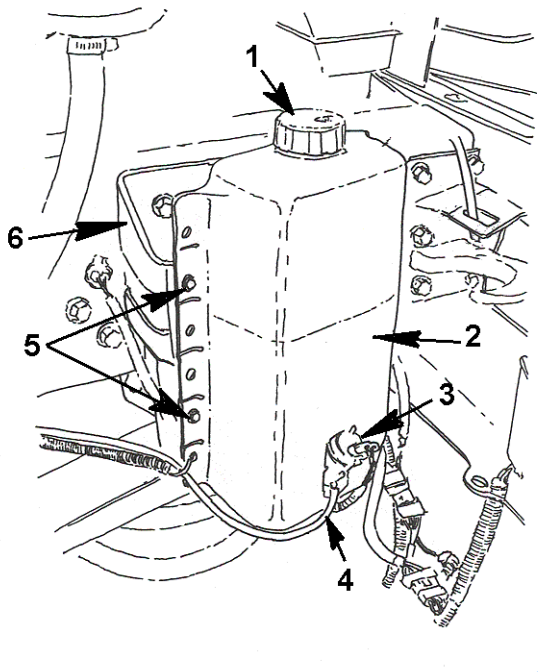


**Figure 16 Windshield Washer Fluid Reservoir**

1. RESERVOIR FILL CAP
2. WASHER FLUID RESERVOIR
3. WASHER FLUID PUMP
4. WINDSHIELD WASHER FLUID SUPPLY HOSE
5. RESERVOIR MOUNTING BOLTS
6. RESERVOIR MOUNTING BRACKET

## 1.15. SAFETY GATE

The Safety gate or arm (Figure 17, Item 2) is an integral part of the bumper assembly and designed to direct the flow of the students around the front of the bus in full view of the driver. The safety gate swings out in a perpendicular direction to the bumper assembly approximately 80 inches.

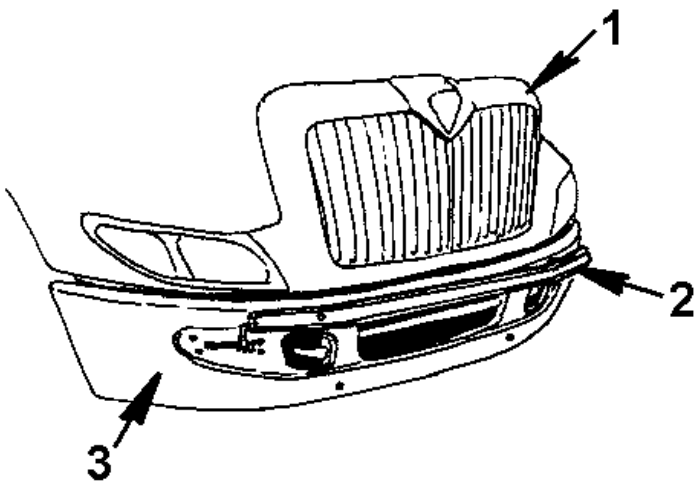


**Figure 17 Safety Gate / Arm**

1. GRILLE AND SHROUD ASSEMBLY
2. SAFETY GATE
3. BUMPER ASSEMBLY

## 1.16. STEERING COLUMN

The steering column assembly (Figure 18, Item 2) is bracket-mounted to the cowl assembly and to the steering gear as part of the chassis assembly process.

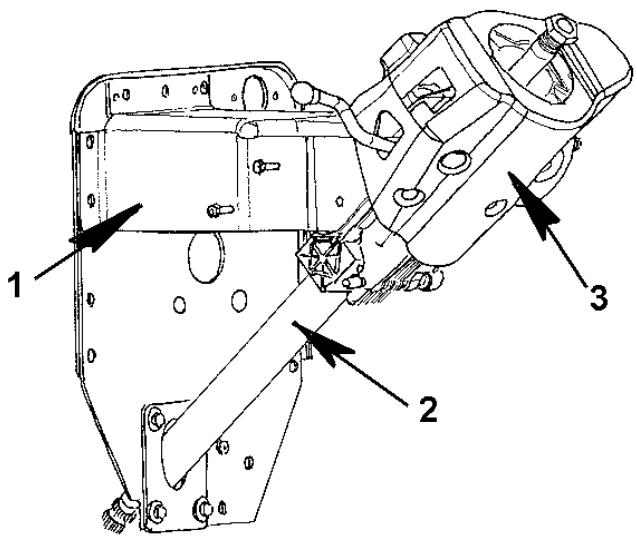


**Figure 18 Steering Column Assembly**

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

## 1.17. ACCELERATOR PEDAL ASSEMBLY

The accelerator assembly (Figure 19) is mounted to the cowl assembly during the chassis manufacturing, and is completely functional prior to body placement.

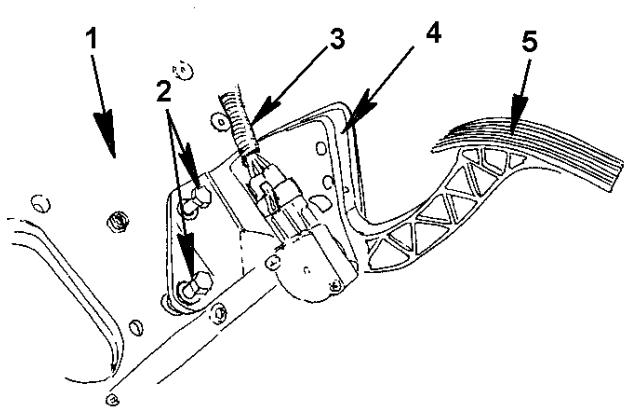


**Figure 19 Accelerator Pedal Assembly**

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

## 1.18. LOLLIPOP FENDER MOUNTED DIRECTIONAL LIGHTS

The Lollipop style, fender-mounted directional lights (Figure 20, Item 3) are an optional front directional assembly located on the top of the fender assembly.

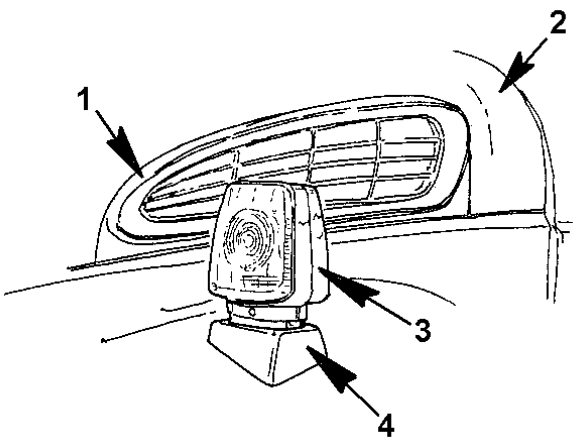


**Figure 20 Lollipop Directional Lights**

1. AIR INTAKE FRAME
2. HOOD
3. LOLLIPOP DIRECTIONAL LIGHT
4. DIRECTIONAL LIGHT FENDER MOUNTING BASE

## 1.19. CROSS-VIEW FRONT FENDER MOUNTED MIRRORS

The cross-view fender mounted mirrors (Figure 21) are convex-styled mirrors located on the forward front fender sections of the front end assembly. These mirrors allow a cross-view field of vision for the bus operator during pick up and discharge of passengers.

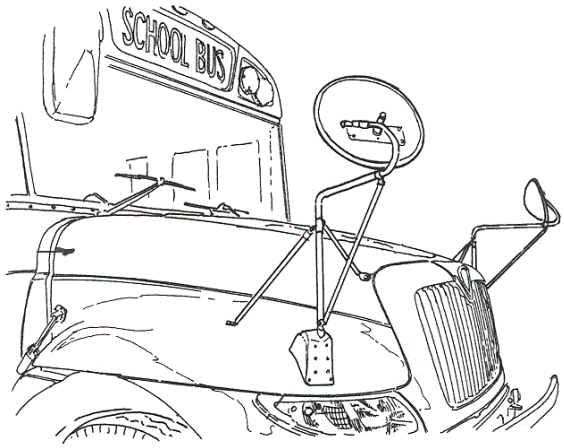


**Figure 21 Cross-View Mirrors**

## 1.20. HOOD STOP ASSEMBLY

The hood stop assembly (Figure 22) 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.

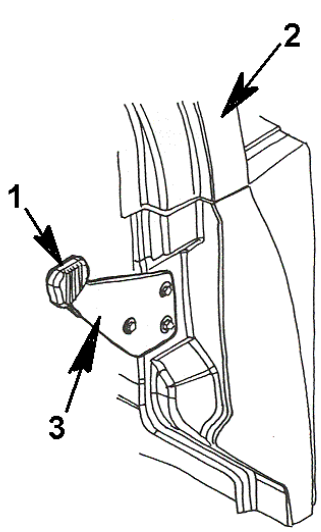


**Figure 22 Hood Stop**

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

# 2. REMOVE

## 2.1. BUMPER

The CE Series aerodynamic bumper is attached to the chassis bumper mounting brackets utilizing (4) four mounting bolts. The front bumper assembly also incorporates the child safety gate, which is attached to the bumper assembly. The safety gate and its related component parts can be removed with the bumper assembly. To service the safety gate and components, refer to the Safety Gate part of the ADJUSTMENTS section(See safety gate, page 64) in this service manual.

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 and disconnect the power unit harness plug to the gate motor assembly on the passenger side of the bumper assembly (Figure 85, Item 5). Locate the hood harness and chassis harness connection located on the driver side along side of the power steering gear (Figure 25, Item 1). 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 (Figure 89, Item 1).

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, loosen bolts (Figure 23, Item 3). Swing safety gate out if gate blocks access to upper bumper bolts.

6. Loosen both lower bumper bolts (Figure 23, Item 5).

7. With an assistant supporting the bumper, remove the two remaining lower bolts. Remove bumper. Place the bumper in a secure out of the way location.

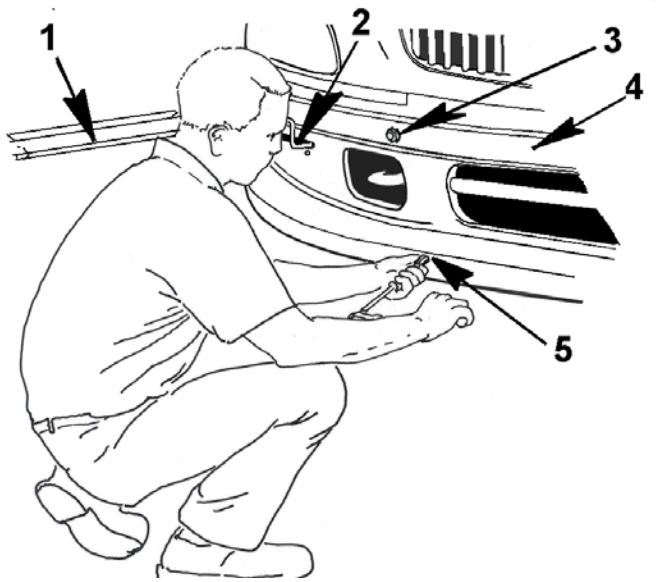


**Figure 23 Bumper Removal**

1. SAFETY GATE IN OPEN POSITION
2. SAFETY GATE DRIVE ARM
3. UPPER BUMPER MOUNTING BOLT
4. BUMPER ASSEMBLY
5. LOWER BOLT LOCATION (PASSENGER SIDE SHOWN)

## 2.2. HOOD

1. Prior to removing the hood and related components, the bumper and grille / shroud assembly 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 connection harness (Figure 25, Item 5) on the driver side, and (Figure 24, Item 4) on the passenger side must be disconnected each side .

5. Recheck all harness connections. The hood harness stays with the hood assembly when hood is removed. The safety gate power unit harness connection (Figure 25, Item 4) and the electro magnetic safety gate bumper stop harness remains with the bumper assembly.

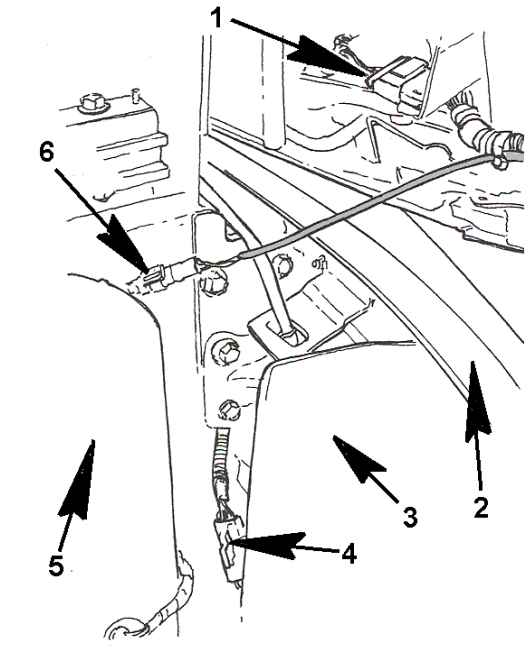


**Figure 24 Harness Connections (Passenger Side Shown)**

1. PASSENGER SIDE HEADLIGHT HARNESS CONNECTION
2. FRONT BUMPER
3. SAFETY GATE DRIVE MOTOR
4. SAFETY GATE HARNESS CONNECTION
5. WINDSHIELD WASHER FLUID RESERVOIR
6. CROSS-VIEW MIRROR HEATER HARNESS CONNECTION

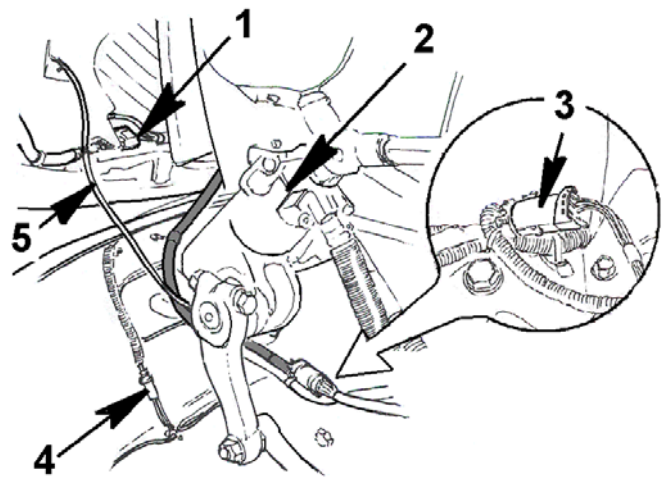


**Figure 25 Harness Connection (Driver Side Shown)**

1. HEADLIGHT HARNESS CONNECTION
2. STEERING GEAR
3. FRONT END / CHASSIS HARNESS CONNECTION
4. CROSSING GATE MAGNET HARNESS
5. CROSS-VIEW MIRROR HEATER HARNESS CONNECTION

6. 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 26, Item 2 and 6) .

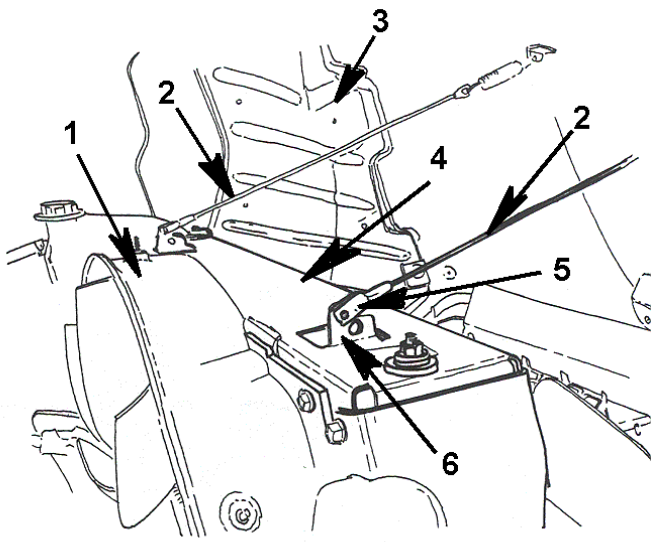


**Figure 26 Radiator Top Frame And Cable Stop Assemblies**

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

7. Locate the retaining pin (Figure 27, Item 4) and the clevis (Figure 27, Item 2) on the radiator top frame brackets.

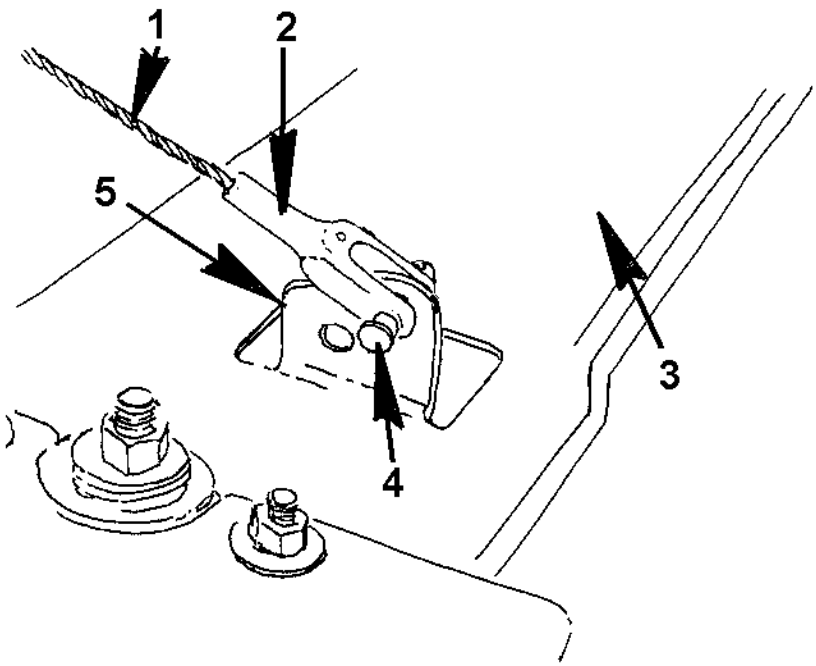


**Figure 27 Retaining Clip Removal**

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

8. Remove the retaining pin from the clevis and radiator top frame cable bracket (Figure 28, Item 4) and remove the clevis (Figure 28, Item 3) from the radiator top frame clevis bracket.

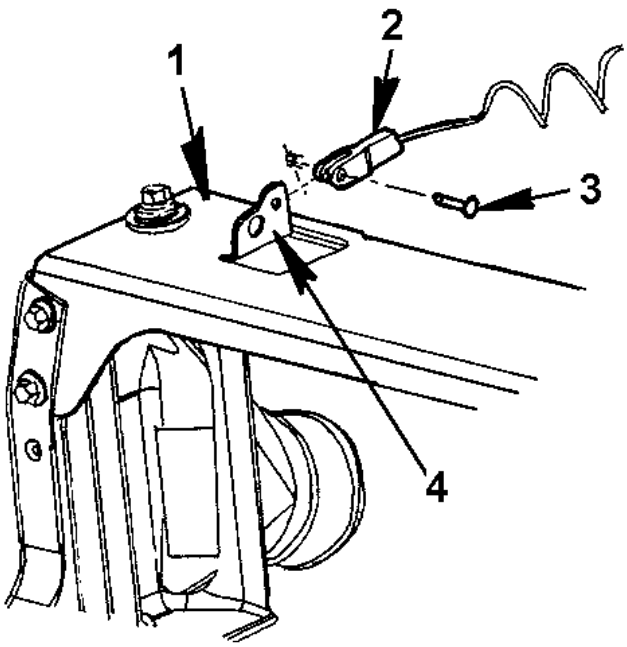


**Figure 28 Retaining Pin and Clevis Removal**

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

9. 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.**

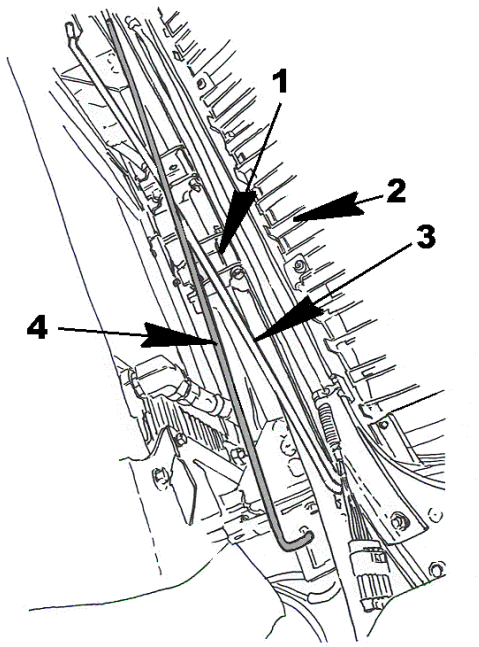


**Figure 29 Torsion Bar Assembly**

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

10. 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 30, Item 3. This bar drops down and crosses the front of the chassis over the hinge assembly and over the opposite torsion bar (Figure 29, Item 4) 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 29, Item 5). It is locked in place with a retainer clip (Figure 31, Item 6).

11. Locate the 12.5mm torsion bar hood mounting bracket (Figure 30, Item 3) on the driver side of the hood assembly. Remove the retainer clip (Figure 30, Item 2).

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

13. Remove the retainer clip from the 12.5mm torsion bar (Figure 31, Item 5) on the passenger side of the frame rail mounting bracket (Figure 31, Item 6).

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

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

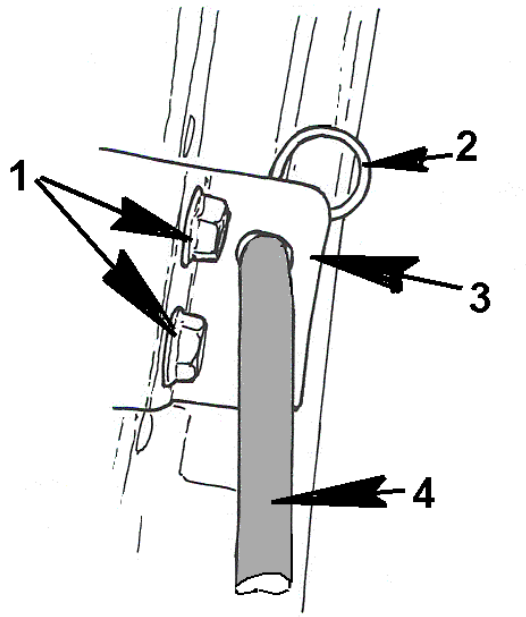


**Figure 30 Upper Hood Torsion Bar Retaining clip and Bracket (Driver Side Shown)**

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)

16. Locate the remaining torsion bar (passenger side) upper hood mounting bracket. Remove the retainer clip securing the torsion bar in the hood mounting bracket.

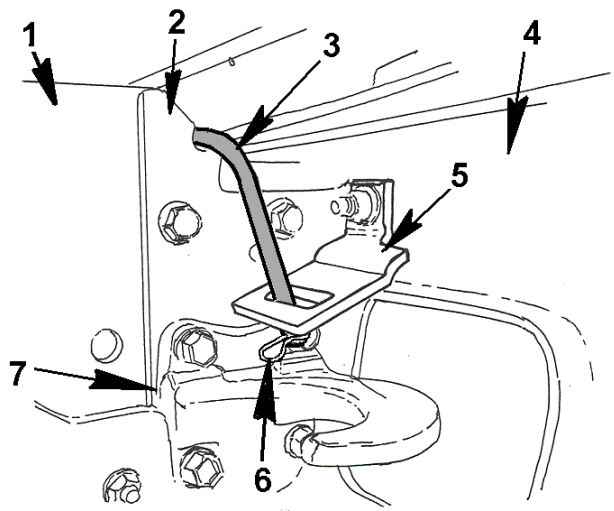


**Figure 31 Torsion Bar Lower Bracket and Retaining Clip (Passenger Side Shown)**

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

17. With an assistant, partially close hood to relieve tension on the torsion bar.

18. Remove the retainer clip on the driver side frame rail retention bracket.

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

20. 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.

21. With the hood still in the open position, locate the hinge plate hex head mounting bolts (Figure 32, Item 5),

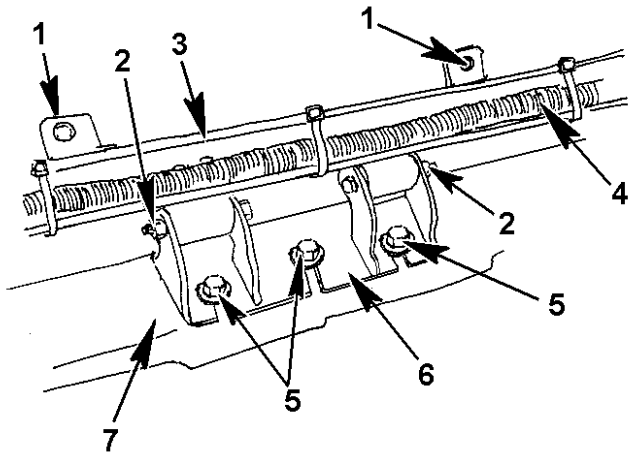


**Figure 32 Hood Hinge Mounting Bolts**

1. GRILLE SCREW MOUNTING TABS
2. HOOD HINGE 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

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

23. Loosen and but do not remove the hood hinge plate mounting bolts (Figure 32, Item 5).

24. With an assistant, close the hood assembly.

25. With the same assistant, lift and remove hood assembly (Figure 33) from the chassis.

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

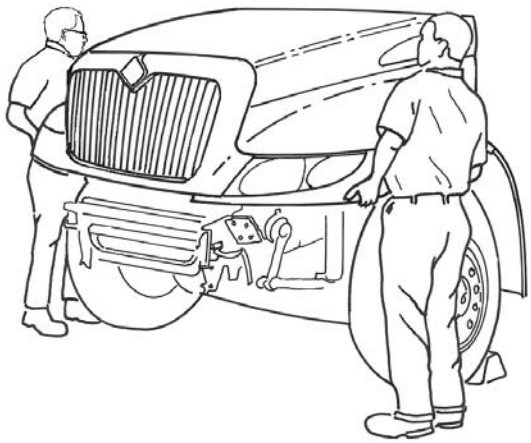

**Figure 33 Hood Removal**

## 2.3. GRILLE

The grille and grille shroud assembly is a one-piece, painted, injection-molded assembly (Figure 34, Items 1 and 2), designed with an aerodynamic styling to enhance the overall appearance of the CE series bus chassis.

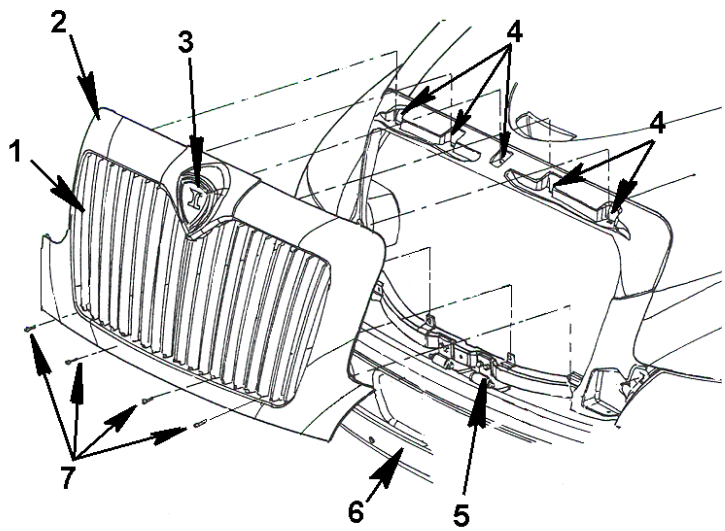


**Figure 34 Grille And Shroud Removal**

1. GRILLE
2. GRILLE / SHROUD ASSEMBLY
3. IC BUS CORP HOOD LOGO
4. UPPER SHROUD MOUNTING TAB INSERT HOLES
5. HOOD HINGE AND CROSS BAR ASSEMBLY
6. BUMPER ASSEMBLY
7. GRILLE / SHROUD MOUNTING SCREWS

1. Locate the four lower grille and shroud mounting screws on the grille assembly (Figure 34, Item 7).

2. Loosen and remove the screws.

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

## 2.4. SPLASH PANELS

The splash panels (Figure 4 and 5) on the CE Series bus chassis 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 35, 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.

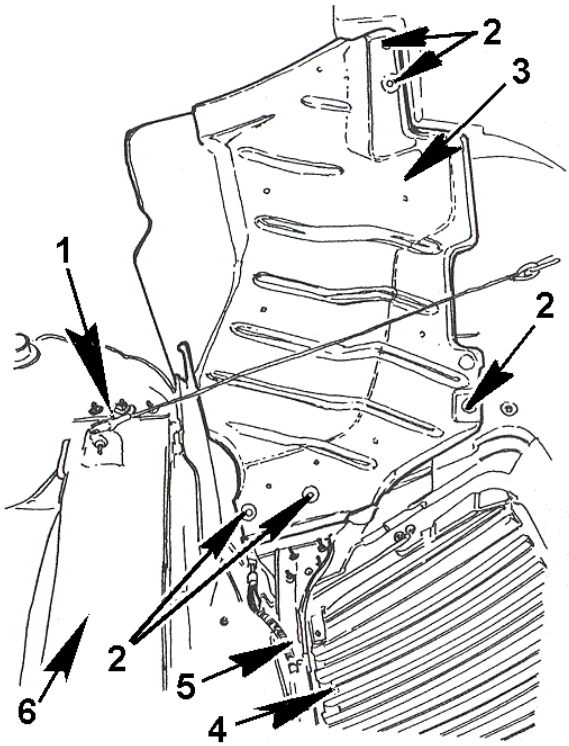


**Figure 35 Splash Panel Removal (Passenger Side Shown)**

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. FENDERS

The CE Series fender assemblies (Figure 36) are a bonded component of the hood section. The wheel well opening ” valance,” headlight assembly, and grille / shroud assemblies are 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.

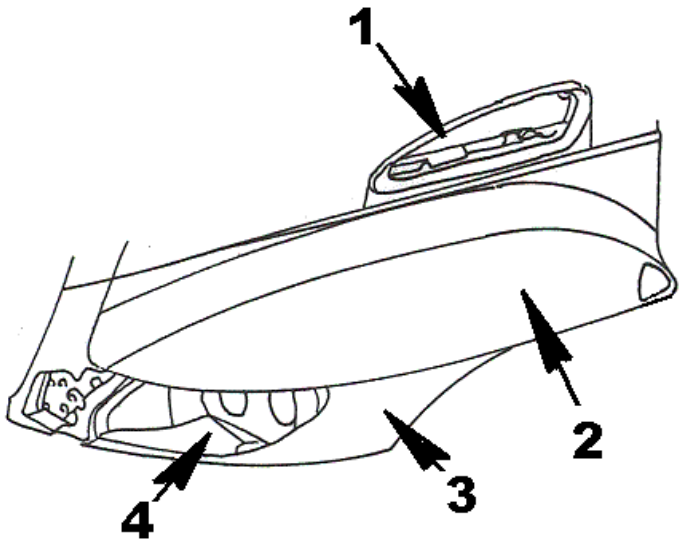


**Figure 36 Fender Assembly**

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

## 2.6. 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.

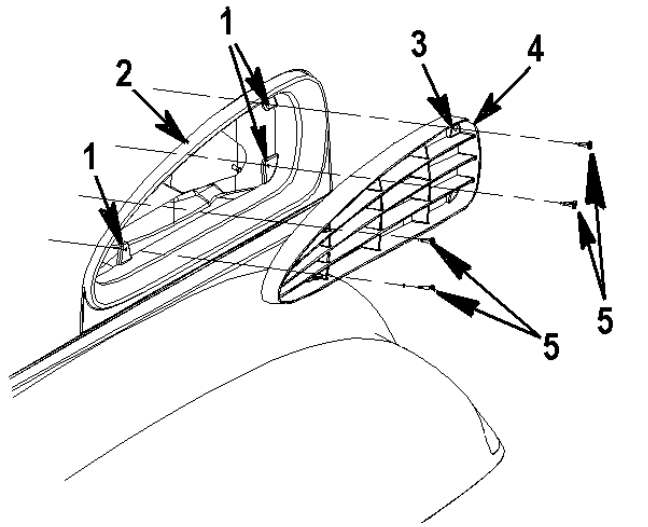


**Figure 37 Air Intake Openings**

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 37, Item 5) from the grille assembly mounting tabs (Figure 37, Item 3).

2. Remove the grille assembly.

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

## 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 38, Item 3).

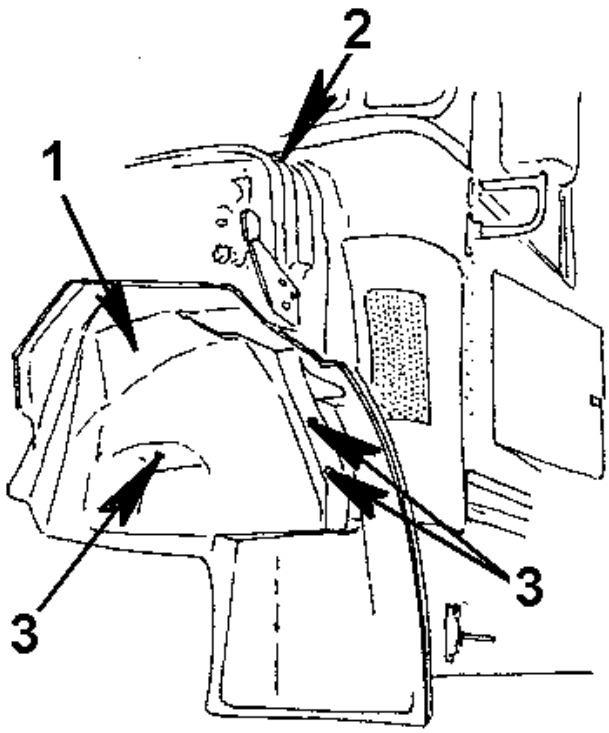


**Figure 38 Fender Extension Assembly**

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

3. Loosen and remove the three mounting bolts (Figure 38, Item 3) on the rear surface of the fender extension.

4. Remove the fender extension (Figure 39, Item 1).

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

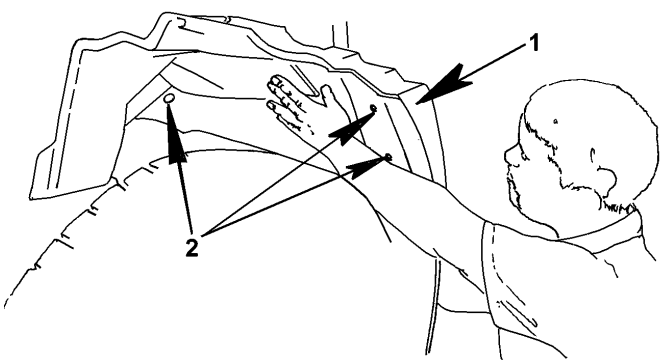


**Figure 39 Fender Extension Removal**

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 41, Item 8).
2. Loosen and remove the bolts securing the valance panel to the headlight housing flange.
3. Locate the two mounting bolts on the underside of the fender panel (Figure 40, Item 2).
4. Loosen and remove the mounting screws and remove the valance panel.
5. Follow the same procedure for the opposite side valance panel.

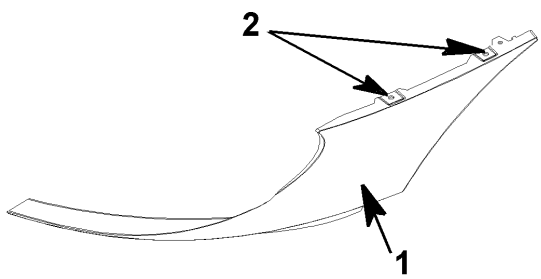


**Figure 40 Valance Panel**

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

## 2.9. HEADLIGHT ASSEMBLIES

1. To remove the headlight assembly (Figure 41) refer to the procedure for removing and installing the grille / shroud assembly. The grille and shroud must be removed prior to removing the headlight assembly.

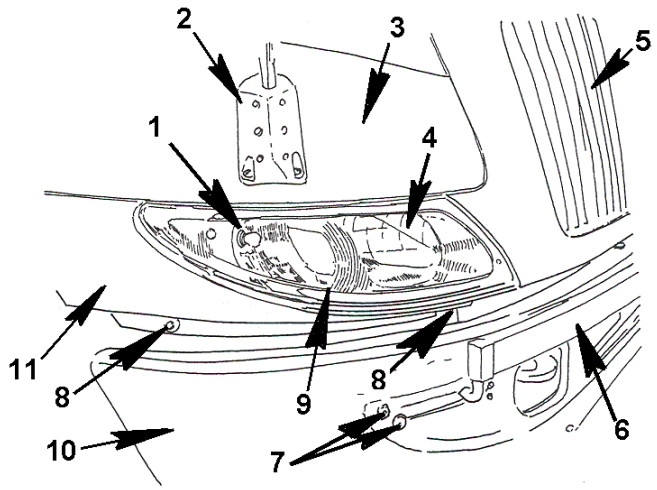


**Figure 41 Headlight and Directional Light Assembly**

1. AMBER DIRECTIONAL BULB
2. CROSS-VIEW MIRROR MOUNTING BASE
3. HOOD
4. HEADLIGHT
5. GRILLE ASSEMBLY
6. SAFETY GATE
7. SAFETY GATE DRIVE MOTOR MOUNTING BOLTS
8. VALANCE / HEADLIGHT MOUNTING BOLTS
9. HEADLIGHT / DIRECTIONAL LIGHT ASSEMBLY
10. BUMPER
11. VALANCE PANEL

2. Tilt the hood assembly forward and disconnect the headlight harness (Figure 43, Item 3).

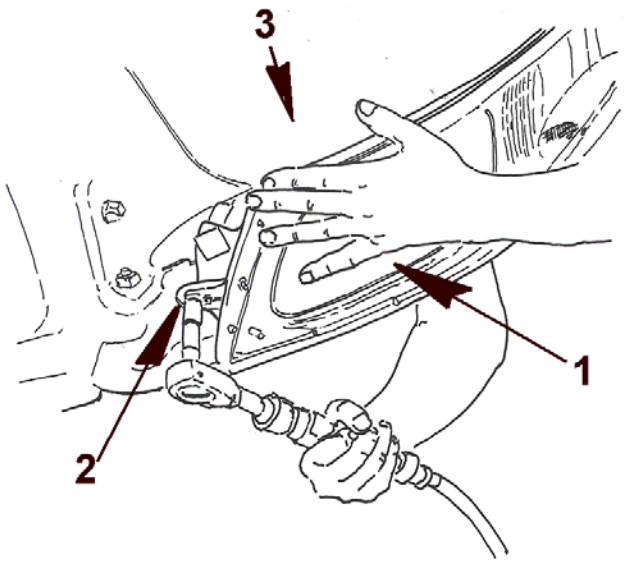


**Figure 42 Headlight Assembly Removal**

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

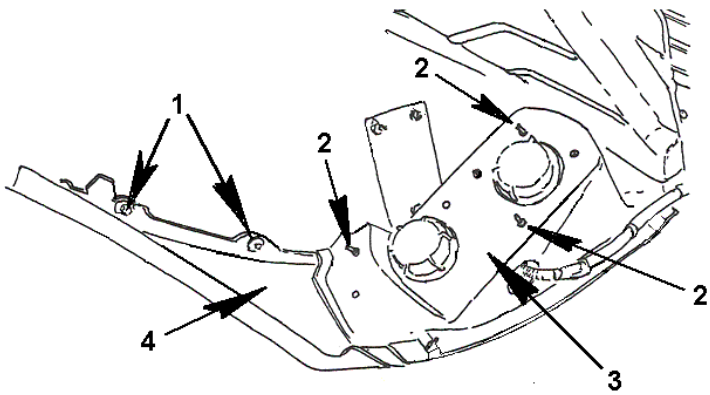


**Figure 43 Headlight Assembly Remove**

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

3. Loosen and remove the three (3) headlight assembly mounting nuts from the headlight assembly mounting studs (Figure 43, Item 2) on the rear of the headlight housing.

4. With hood tilted, loosen and remove the headlight assembly mounting bolt (Figure 42, 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 44, Item 1).

3. Remove light socket pigtail plug (Figure 45, Item 2).

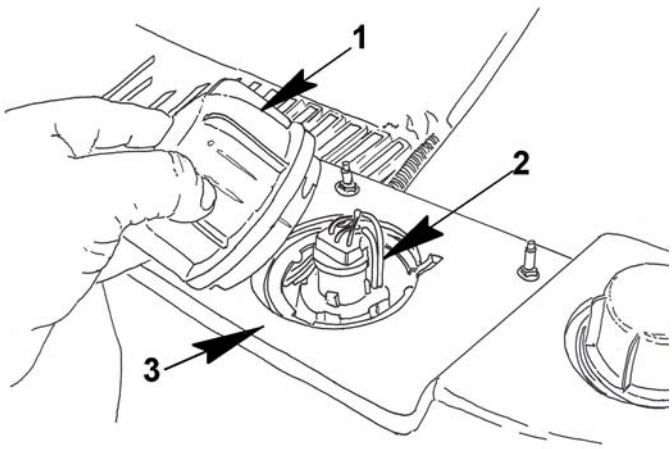


**Figure 44 Head Lamp Replacement**

1. SOCKET COVER
2. SOCKET
3. HEADLIGHT HOUSING

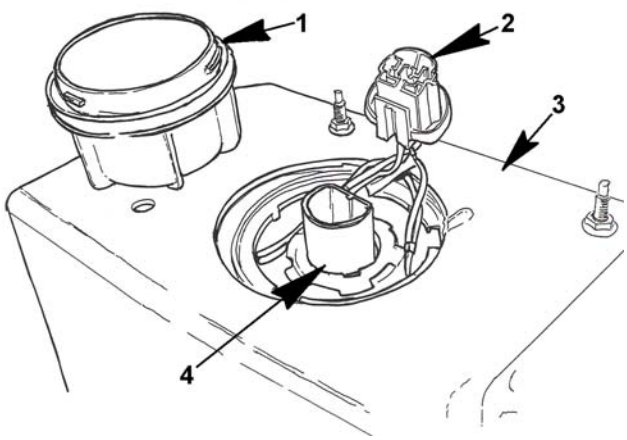


**Figure 45 Socket Removal**

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

4. Twist bulb retainer and lift up.

5. Remove seal (Figure 46, Item 4).

6. Remove halogen bulb (Figure 47, Item 1).

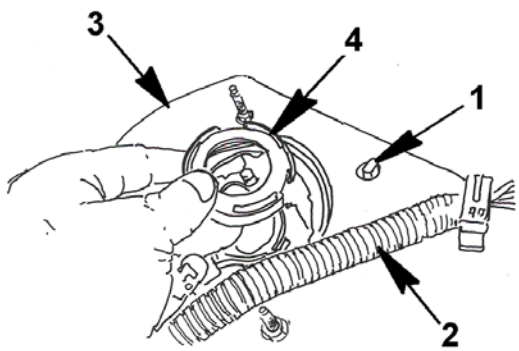


**Figure 46 Seal Removal**

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

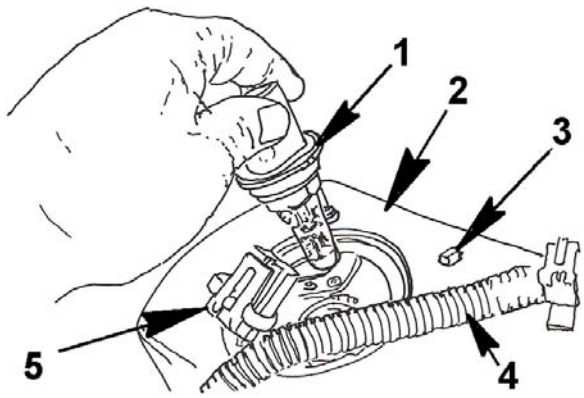


**Figure 47 Bulb Removal**

1. HEADLIGHT HALOGEN BULB
2. HEADLIGHT HOUSING
3. HEADLIGHT ASSEMBLY LOCATOR TAB
4. HEADLIGHT HARNESS
5. HEADLIGHT 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 48, 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 49, Item 1); this will be the directional socket on each side of the chassis.

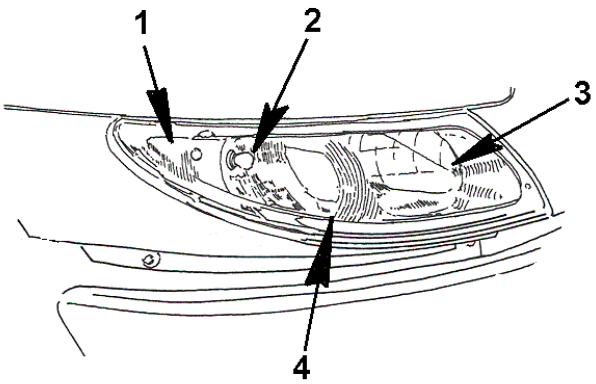


**Figure 48 Directional Light Assembly**

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

3. Twist the socket cover to (Figure 49, Item 1) remove.

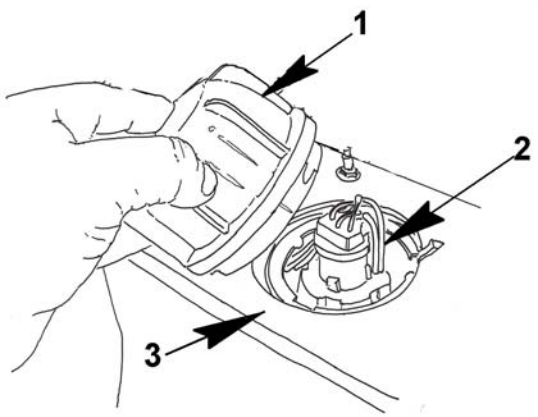


**Figure 49 Directional Bulb Access**

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

4. Locate the socket and bulb assembly (Figure 49, Item 2), twist and pull up to remove.

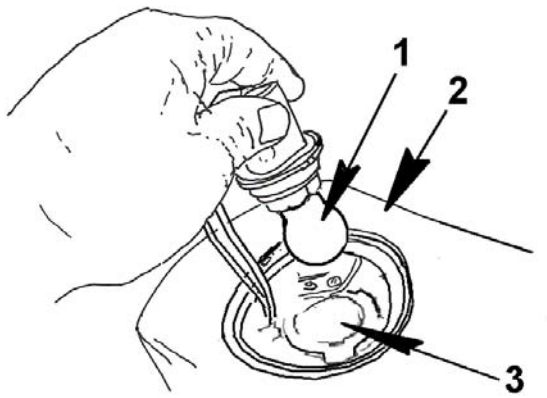


**Figure 50 Directional Bulb Remove / Install**

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

5. To remove (Figure 50, Item 1) or install directional bulb, push downward on bulb, twist and lift out (Figure 51, 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.

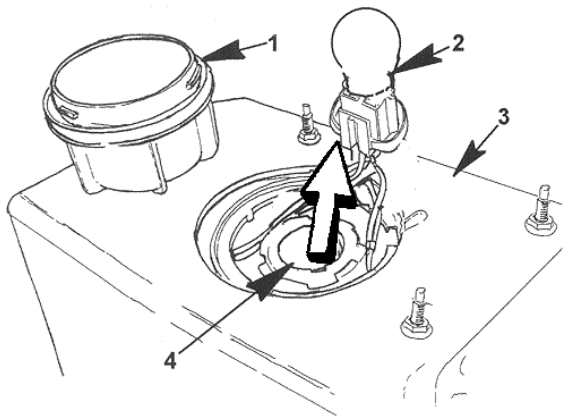


**Figure 51 Directional Bulb Removal**

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

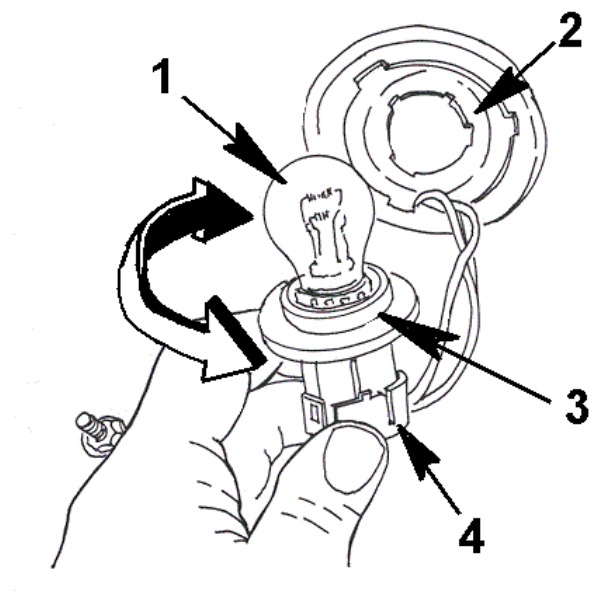


**Figure 52 Directional Bulb Replacement**

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

## 2.12. FOG LIGHTS

The fog lights are located at the center opening (Figure 53, Item 1) of the front bumper assembly.

1. Tilt the hood forward.

2. Locate the fog light assembly harness and connection.

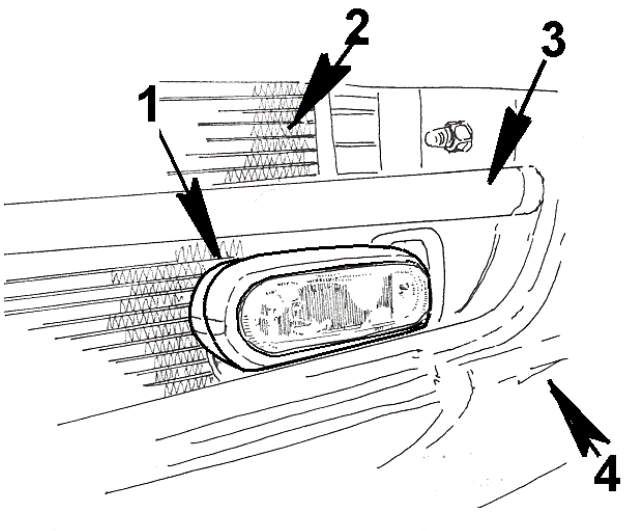


**Figure 53 Chassis Fog Lights**

1. FOG LIGHT ASSEMBLY
2. RADIATOR CORE
3. BUMPER CROSS BAR ASSEMBLY
4. BUMPER ASSEMBLY

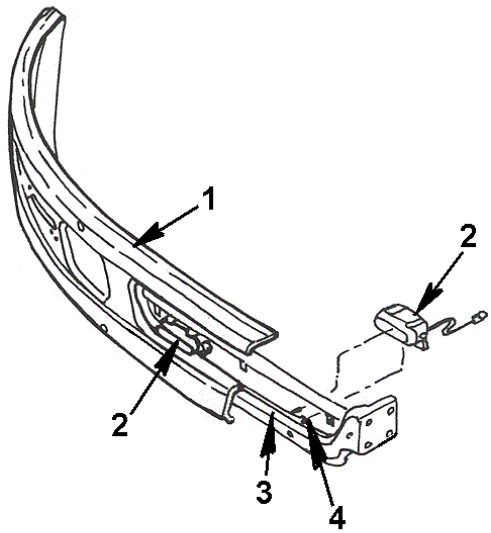


**Figure 54 Fog Light Removal**

1. BUMPER ASSEMBLY
2. FOG LIGHT ASSEMBLIES
3. FRONT CROSS MEMBER ASSEMBLY
4. FOG LIGHT MOUNTING HOLE

3. Disconnect the harness from hood harness.
4. Loosen and remove fog light mounting nut and flat washer (Figure 54, Item 4).
5. Remove fog light assembly.
6. Locate and remove lens ring screws to gain access to fog light bulb.
7. Remove the bulb and replace if required.

   Follow same procedure for removal of opposite side fog light.

## 2.13. HOOD LATCHES

The hood latching assembly consists of two assemblies: the upper hood / fender assembly latch and base (Figure 55, Item 1, and the lower cowl latch bracket (Figure 55, Item 4).

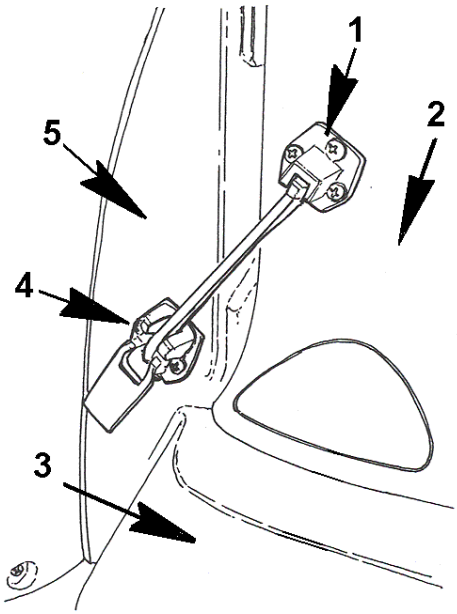


**Figure 55 Hood Latch Assembly (Passenger Side Shown)**

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

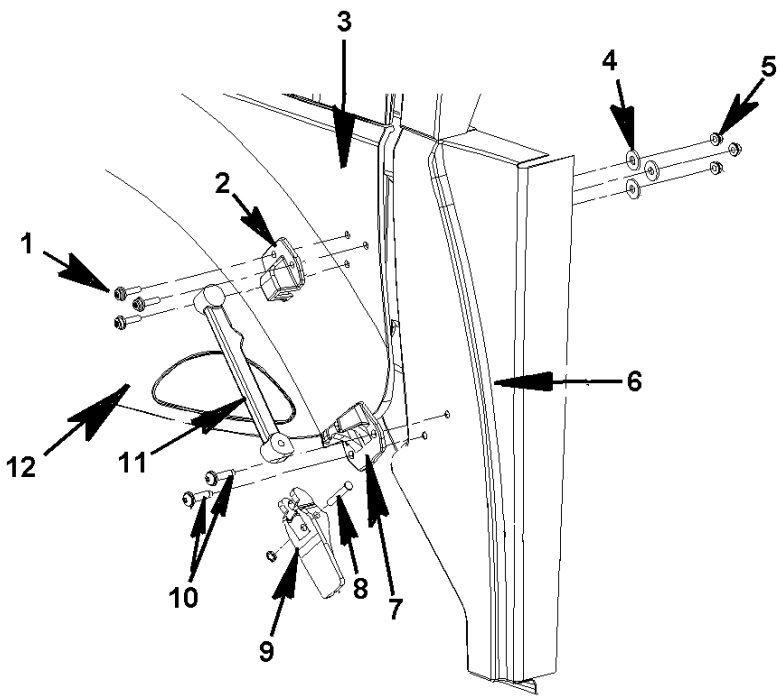


**Figure 56 Hood / Fender Latch Attachment — Driver Side Shown**

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

The upper hood latch attachment assembly (Figure 56, Item 2) is located at the rear side section of the hood assembly. The latching arm assembly (Figure 56, Item 11) is attached to the side hood mounting bracket. This part swings down and latches on the lower catch cowl bracket assembly (Figure 56, 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 56, Items 1 and 5) and remove the bracket assembly (Figure 56, Item 2) from the hood assembly.

3. Locate, loosen and remove the mounting bolts, washers and lock nuts (Figure 56, Item 10) securing the cowl latch base (Figure 56, Item 7).

4. Follow same procedure for removal of opposite side.

## 2.14. 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 57, Item 1).

1. Beginning on the driver side of the cowl, locate the christmas tree type mounting clip (Figure 102, 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.

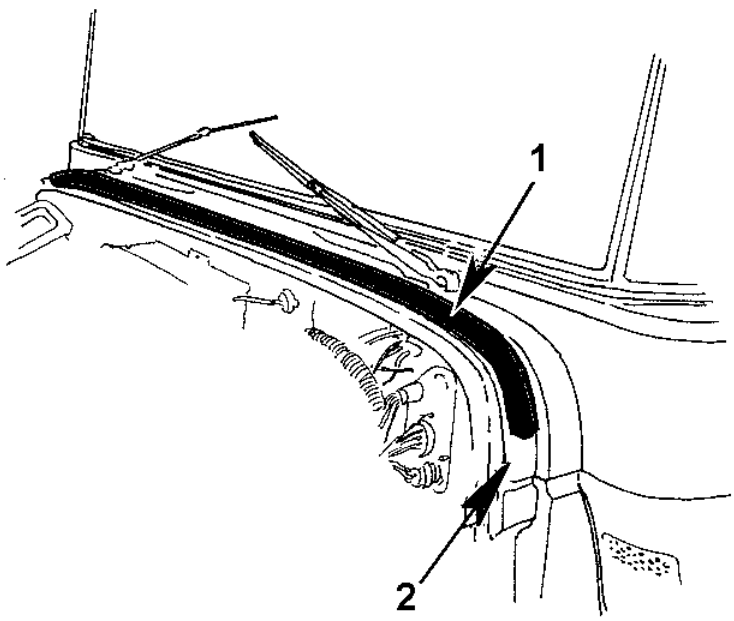


**Figure 57 Hood Seal Removal — Driver Side Shown**

1. HOOD SEAL
2. COWL ASSEMBLY

## 2.15. WINDSHIELD WASHER FLUID RESERVOIR

The windshield washer fluid reservoir assembly is comprised of five main components: reservoir mounting bracket, reservoir, fluid pump, harness and supply hose to the windshield wiper assemblies. To replace the reservoir:

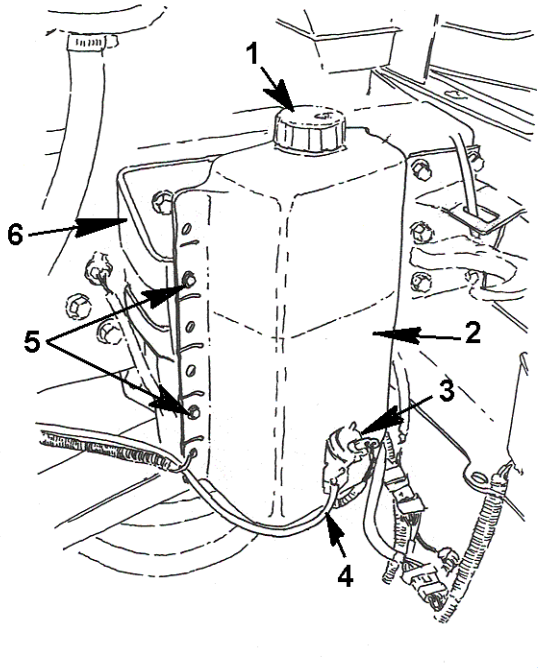


**Figure 58 Windshield Washer Fluid Reservoir**

1. RESERVOIR REFILL CAP
2. FLUID RESERVOIR
3. RESERVOIR SUPPLY PUMP
4. WINDSHIELD WASHER HOSE SUPPLY LINE
5. RESERVOIR BOTTLE MOUNTING BOLTS
6. RESERVOIR MOUNTING BRACKET

1. Open hood and locate windshield washer fluid reservoir on forward passenger side of frame rail.

2. To remove reservoir, locate and disconnect windshield washer fluid supply pump harness (Figure 59, Item 2.

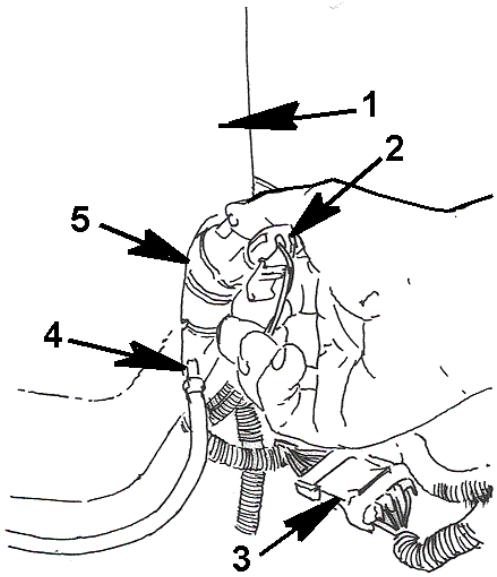


**Figure 59 Reservoir Pump Removal**

1. WASHER FLUID RESERVOIR
2. PUMP HARNESS CONNECTION
3. FRONT END PIG TAIL HARNESS
4. RESERVOIR SUPPLY NIPPLE CONNECTION
5. RESERVOIR SUPPLY PUMP

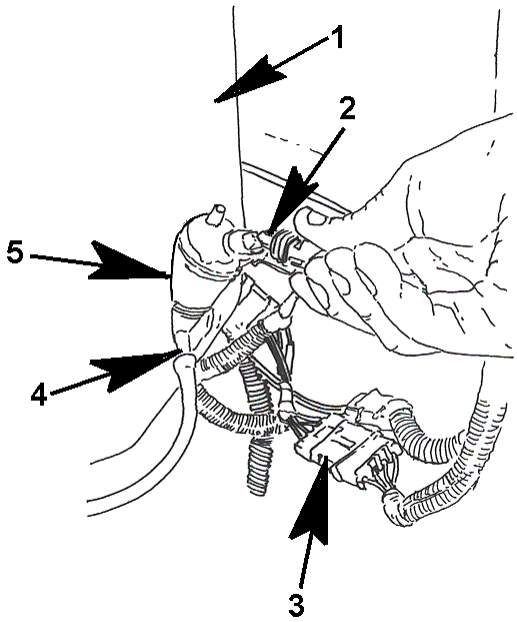


**Figure 60 Pump Connection Disconnect**

1. FLUID RESERVOIR
2. PUMP HARNESS CONNECTION
3. FRONT END HARNESS CONNECTIONS
4. WINDSHIELD WASHER FLUID SUPPLY HOSE CONNECTION
5. WINDSHIELD WASHER FLUID PUMP

3. With reservoir pump connection harness unplugged (Figure 60, Item 2), locate and disconnect windshield wiper washer supply hose from pump nipple (Figure 61, Item 3).

4. Let fluid in reservoir drain. Use clean container to save the washer fluid.

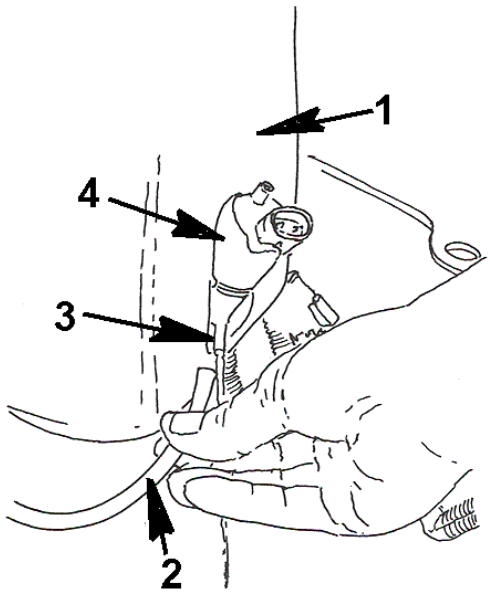


**Figure 61 Supply Hose To Wiper Disconnect**

1. WASHER FLUID RESERVOIR
2. WASHER FLUID SUPPLY HOSE
3. WASHER FLUID PUMP OUTLET
4. WASHER FLUID PUMP

5. When fluid is drained from reservoir, remove pump assembly.

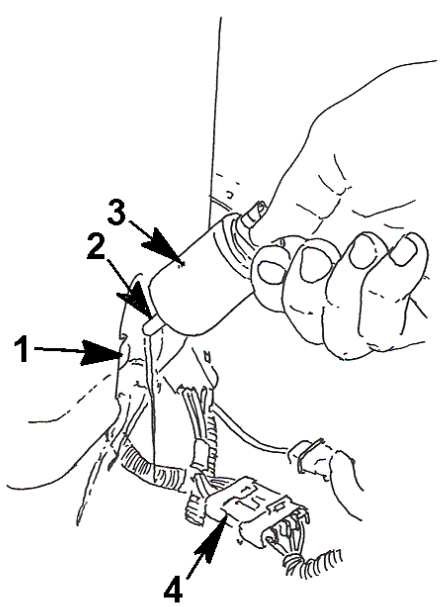


**Figure 62 Reservoir Pump Removal**

1. RESERVOIR PUMP MOUNTING HOLE
2. PUMP NIPPLE
3. WINDSHIELD WASHER SUPPLY PUMP
4. HARNESS FRONT END PIG TAIL CONNECTION

6. When removing pump assembly, lift and pull pump housing.

7. Pump will pop out when pulled out and way from reservoir.

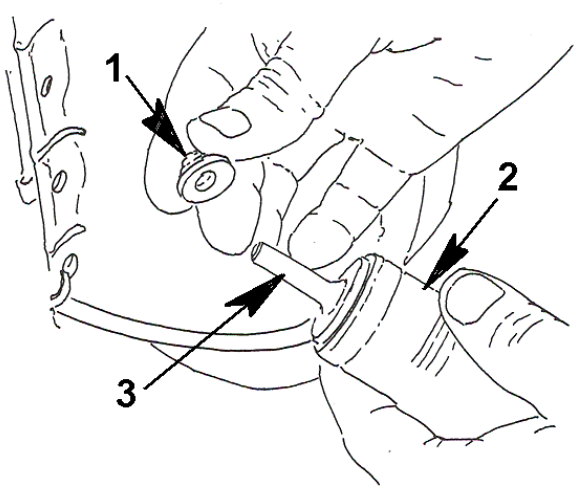


**Figure 63 Pump Reservoir Tank Seal**

1. PUMP / RESERVOIR SEAL
2. RESERVOIR PUMP
3. RESERVOIR NIPPLE

8. With pump out of reservoir, check seal at bottom of pump nipple.

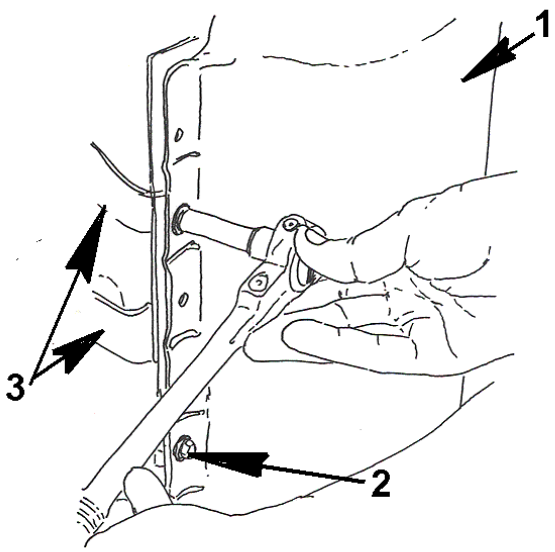


**Figure 64 Reservoir Removal**

1. FLUID RESERVOIR
2. RESERVOIR MOUNTING BOLTS
3. RESERVOIR MOUNTING BRACKETS

## 2.16. STEERING WHEEL / CLOCK SPRING

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

### Front and Side Cover

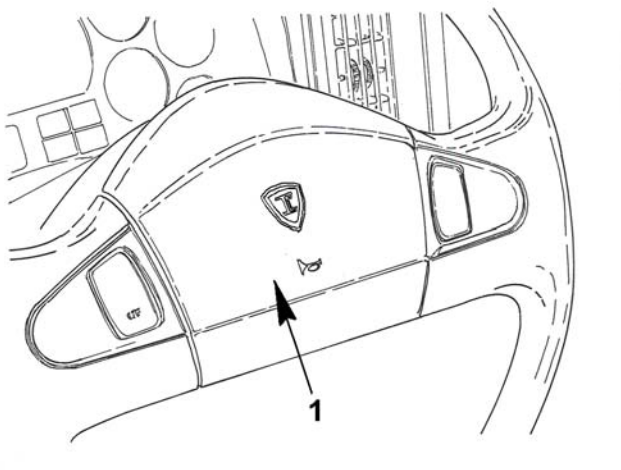


**Figure 65 Steering Wheel Front Cover**

1. FRONT COVER

**The steering wheel removal process is intended for the removal of the component parts of the steering wheel assembly. Special note should be taken in the steering wheel mounted switches. Depending on municipality requirements the steering wheel switch options may vary.**

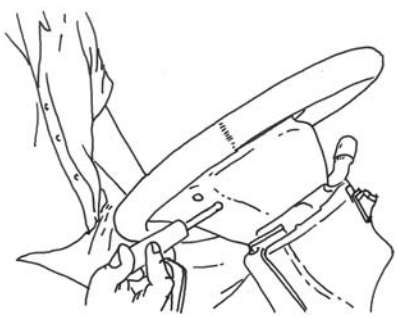

**Figure 66 Releasing Front Cover With Tool**

1. To release front cover, insert removal tool (Figure 66) into aperture. Phillips head screwdriver may be used.

2. Push inward to release steering wheel cover retaining clips (Figure 69, Item 1).

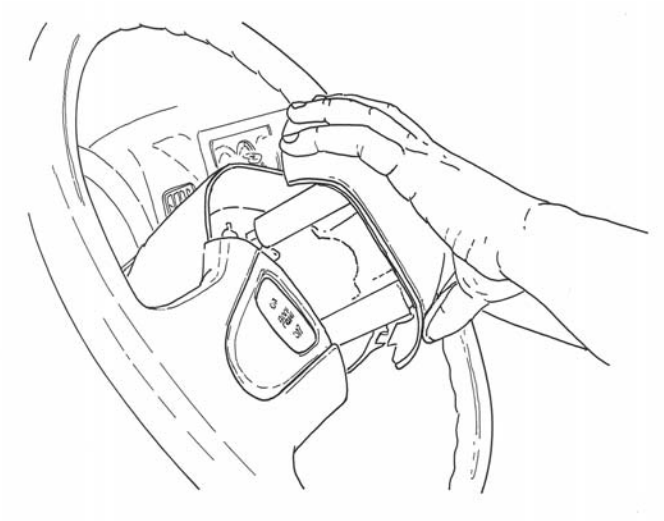

**Figure 67 Removing Cover**

2. Grasp cover as shown (Figure 67). Lift cover from steering wheel assembly.

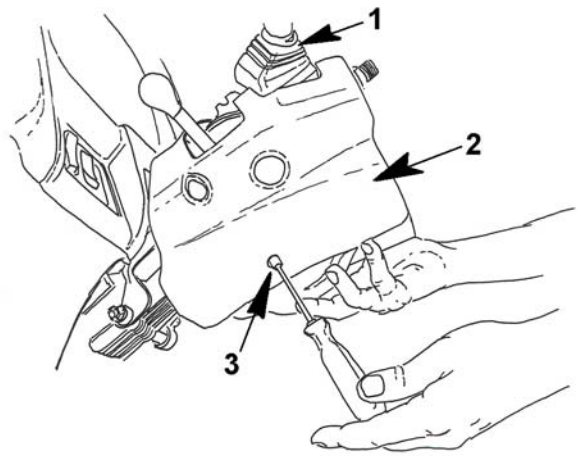


**Figure 68 Side Cover Removal**

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

3. Locate the steering column cover (Figure 68, Item 3) fastener openings on the underside of steering wheel covers.

4. Insert Phillips head screwdriver in cover opening, loosen Phillips head screw and remove.

5. Remove side covers.

## Locking Clip

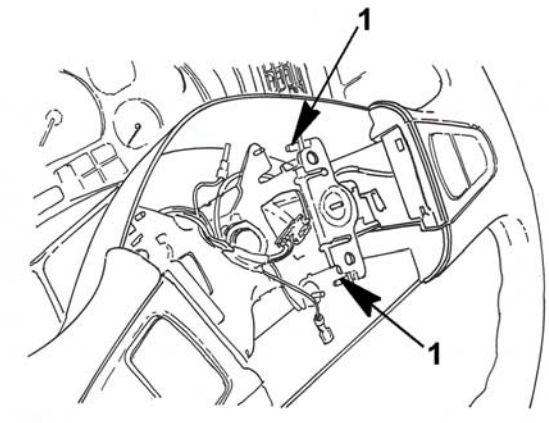


**Figure 69 Locking Clip**

1. LOCKING CLIPS

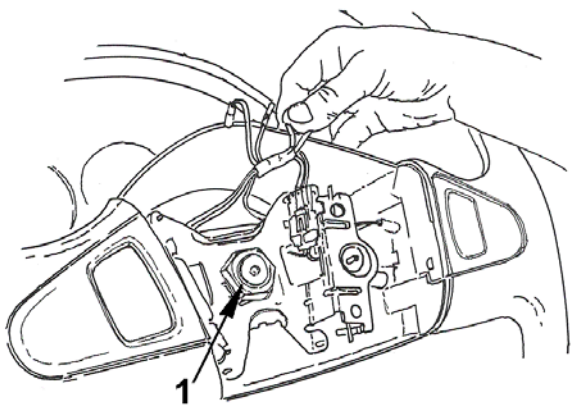


**Figure 70 Steering Wheel Retaining Nut**

1. STEERING WHEEL RETAINING NUT

1. Loosen and remove the retaining nut from the shaft spindle (Figure 70, Item 1).
2. Disconnect the harness section (Figure 71, Item 1).

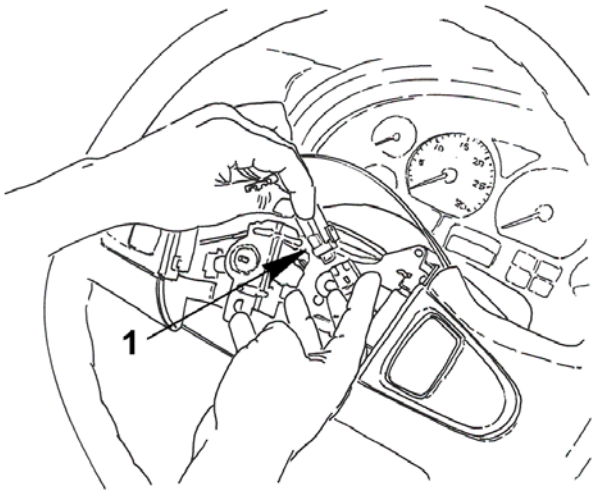


**Figure 71 Steering Wheel Harness Disconnect**

1. STEERING WHEEL HARNESS CONNECTION

## Steering Wheel

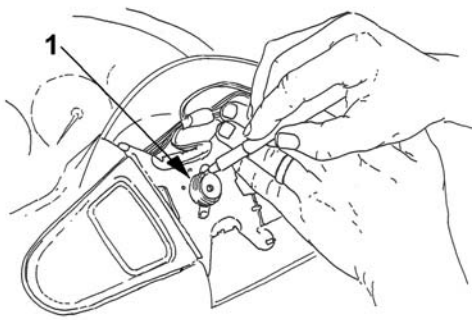


**Figure 72 Mark Shaft and Spindle Alignment**

1. MARK LOCATION FOR REALIGNMENT

1. Make a corresponding mark on the shaft spindle and plate to aid alignment in reassembly.

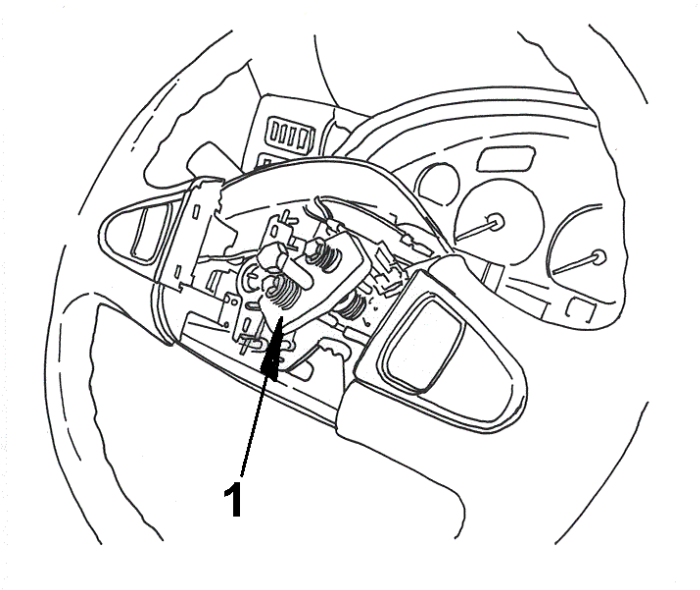


**Figure 73 Utilizing Wheel Puller to Remove Steering Wheel**

1. WHEEL PULLER MOUNTED ON STEERING WHEEL ASSEMBLY

2. Use a wheel puller (Figure 73, 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.**

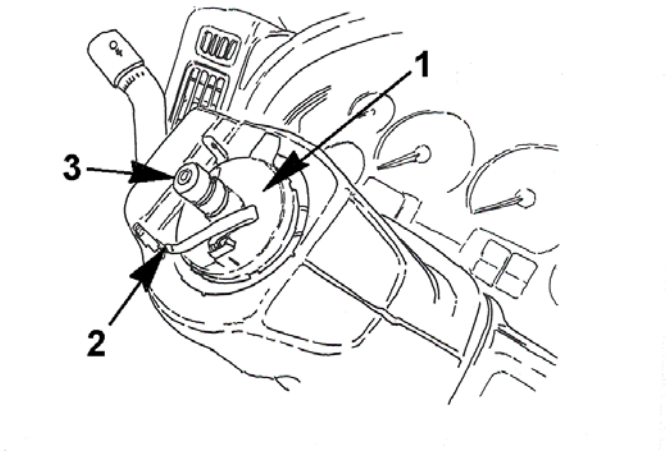


**Figure 74 Clock Spring**

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

1. Disconnect the clock spring harness from the dash harness (Figure 76, Item 3).

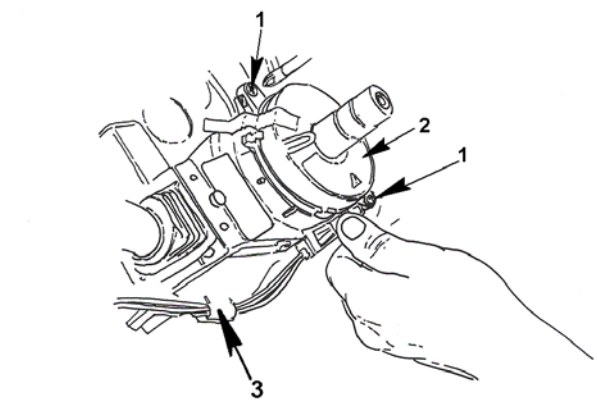


**Figure 75 Clock Spring Harness and Attachment Tabs**

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

2. Remove Phillips head screws (Figure 75, Item 1) from tabs.

3. Lift clock spring out to remove.

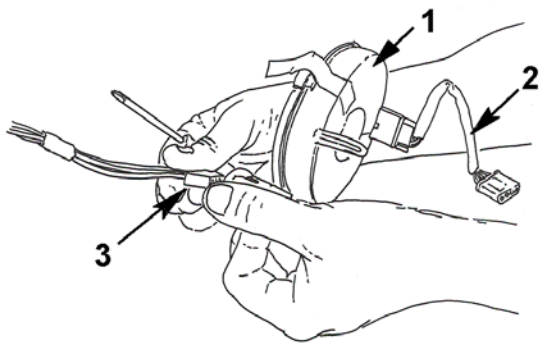


**Figure 76 Clock Spring Assembly With Harness**

1. CLOCK SPRING ASSEMBLY
2. CLOCK SPRING HARNESS PIG TAIL
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.

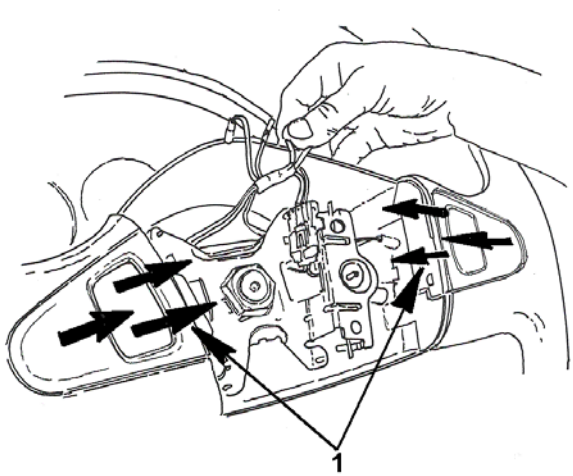


**Figure 77 Steering Wheel Switch Modules Removal**

1. MODULE DIRECTION FOR REMOVAL

1. To remove the switch modules from the steering wheel, slide them toward the center (Figure 77) of the steering wheel assembly.

## 2.17. 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.

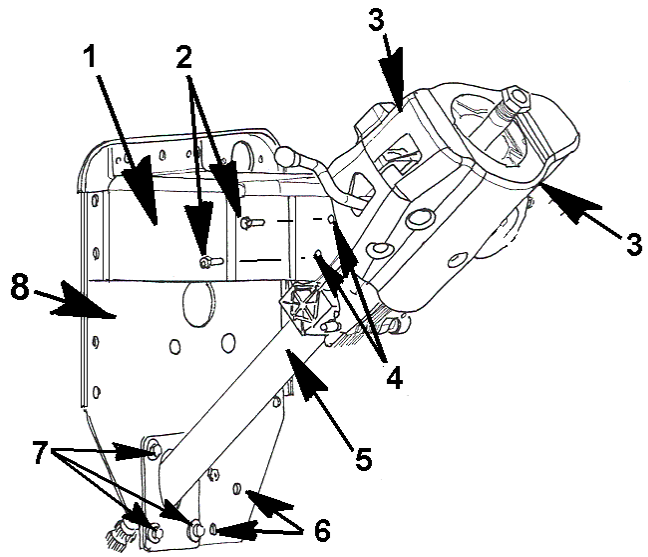


**Figure 78 Steering Column Removal**

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 on steering column mounting bracket.

4. Locate steering column side cover mounting screws (Figure 68, Item 3) and remove. Remove the steering columns side covers (Figure 105, Item 1).

5. Loosen and remove lower mounting bracket plate bolts (Figure 78, Item 7) located on cowl front wall plate.

6. Loosen and remove steering column mounting bolts 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.

## 2.18. 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.

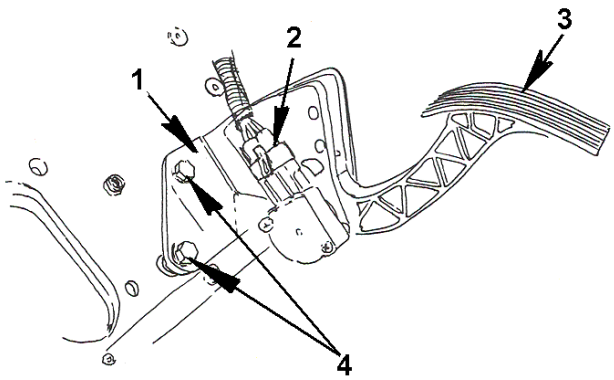


**Figure 79 Accelerator Pedal Assembly**

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 79, Item 2).

2. Locate the two mounting bolts attaching the accelerator pedal assembly (Figure 79, Item 3 ) to the cowl reinforcing mounting plate.

3. Loosen and remove the accelerator mounting bolts.

4. Remove the accelerator pedal assembly.

## 2.19. 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.

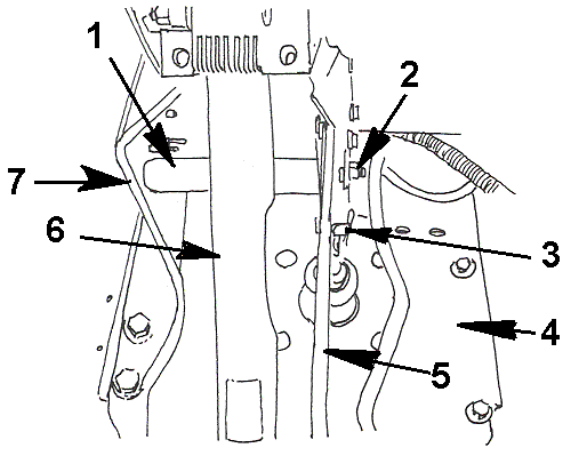


**Figure 80 Brake Pedal Attachment Assembly**

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 80, Item 3).

2. Remove the retainer clip and push out the retainer pin from brake pedal arm.

3. Loosen and remove mounting nut (Figure 106, Item 3) securing the pivot bar on the steering column mounting bracket (Figure 80, Item 7).

4. With retainer pin and clip removed from brake rod, pull pedal assembly forward to clear brake rod clevis (Figure 106, 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.

## 2.20. FENDER MOUNTED CROSS VIEW MIRRORS

Fender mounted mirror assemblies are mounted on the forward section of the fender assembly (Figure 81, 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.

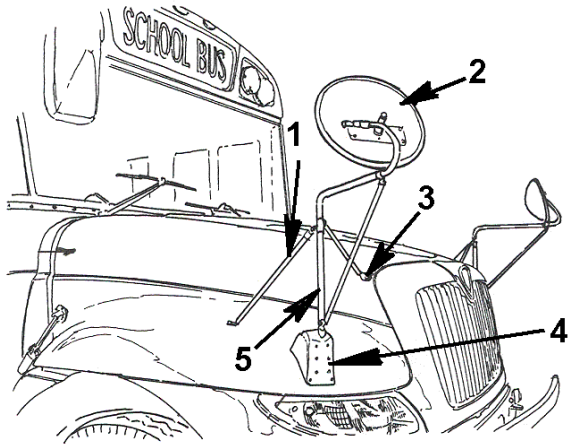


**Figure 81 Fender Mounted Mirror (Passenger Side Shown)**

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 of the assembly.**

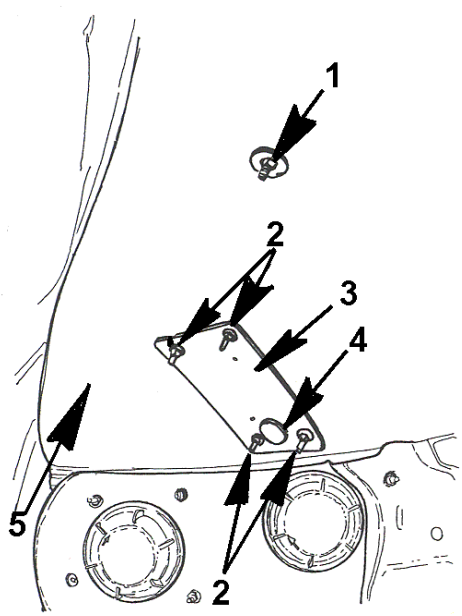


**Figure 82 Fender Mounted Mirror Removal**

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 82, 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 82, 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.

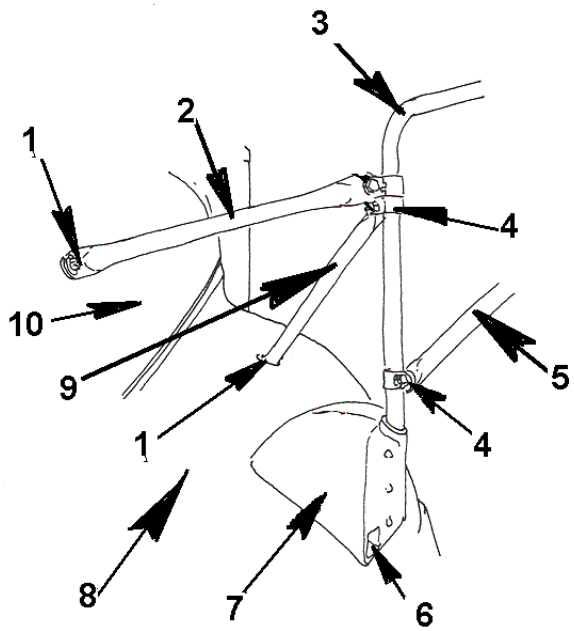


**Figure 83 Mirror Mounting and Support Brackets**

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.

## 2.21. SAFETY GATE

The front bumper mounted swing arm safety gate is a provided on all CE series chassis. The safety gate is comprised of three major assemblies. The drive motor which is mounted behind the passenger side of the front bumper assembly. The safety gate arm which connects to the drive mechanism and attaches on the outside area of the front bumper assembly. The electro magnetic gate lock, which holds the gate in the closed position and is mounted on the front surface of the drivers side of the bumper assembly. The safety gate assembly can be removed from the bumper assembly without removing the front bumper.

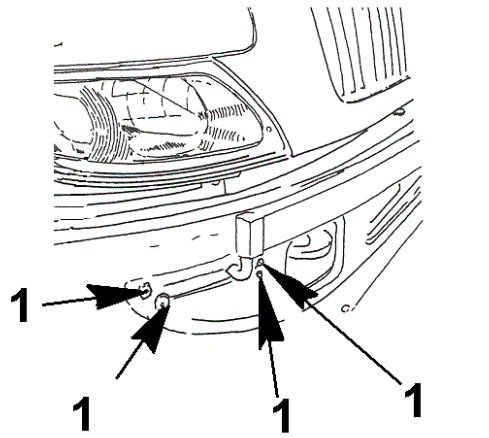


**Figure 84 Safety Gate Motor Mounting Bolts**

1. SAFETY GATE MOTOR MOUNTING BOLTS

1. To remove the safety gate drive motor assembly unplug power supply harness (Figure 85, Item 5).

2. Open the safety gate and locate the gate mounting nuts and bolts on the gate drive arm (Figure 86, Item 2). Remove the safety gate arm.

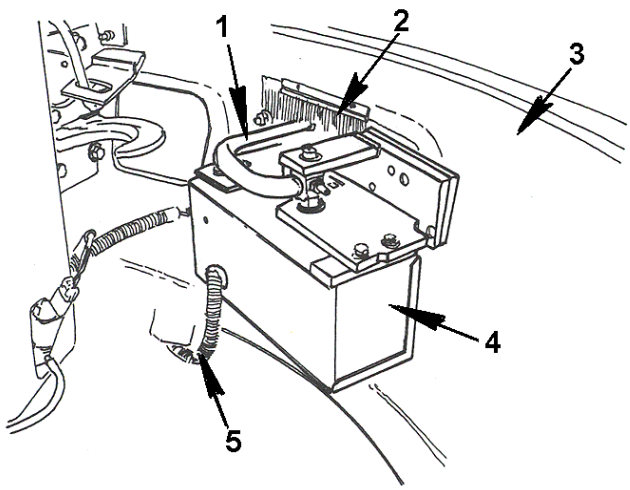


**Figure 85 Safety Gate Drive Motor Assembly**

1. SAFETY GATE DRIVE ARM
2. BUMPER OPENING
3. FRONT BUMPER ASSEMBLY
4. SAFETY GATE DRIVE MOTOR
5. SAFETY GATE HARNESS CONNECTION

3. With safety gate arm removed, locate the four gate drive motor mounting bolts and nuts (Figure 84, Item 1).

4. Loosen and remove the motor mounting bolts.

5. Remove the drive motor.

The safety gate is held in place during operation against the front bumper assembly by means of an electromagnet lock device (Figure 87, Item 3). When the ignition is in the on position, the magnet on the driver side of the front bumper is activated and secures the bumper at the point where a steel plate (Figure 87, Item 4) is attached to the safety gate arm.

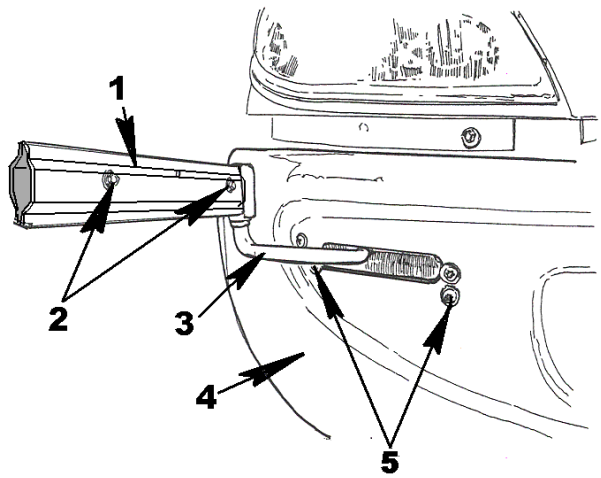


**Figure 86 Safety Gate Assembly**

1. SAFETY GATE ARM
2. SAFETY GATE ARM MOUNTING BOLTS
3. SAFETY GATE DRIVE ARM
4. BUMPER ASSEMBLY
5. DRIVE MOTOR MOUNTING BOLTS

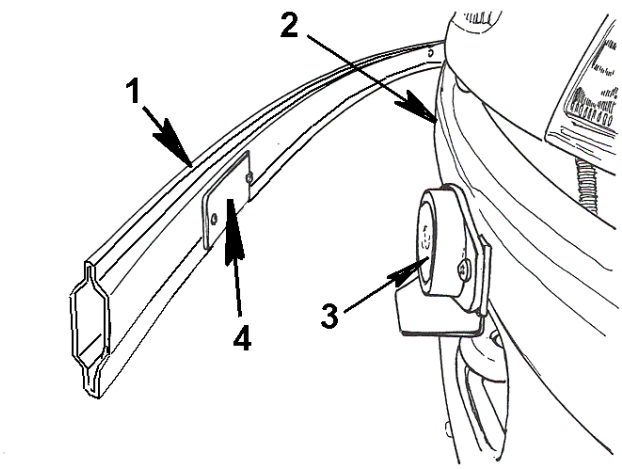


**Figure 87 Safety Gate Magnetic Lock**

1. SAFETY GATE ASSEMBLY
2. BUMPER ASSEMBLY
3. ELECTROMAGNET LOCK DEVICE
4. SAFETY GATE ARM STEEL PLATE

6. To remove locking device disconnect harness connection at rear of bumper assembly.

7. Locate the electro magnet mounting bolts (Figure 88, Item 2) and loosen from bracket and bumper by removing bolts, flat washers and lock nut.

8. Remove lock device and bracket (Figure 88, Item 3 and 4).

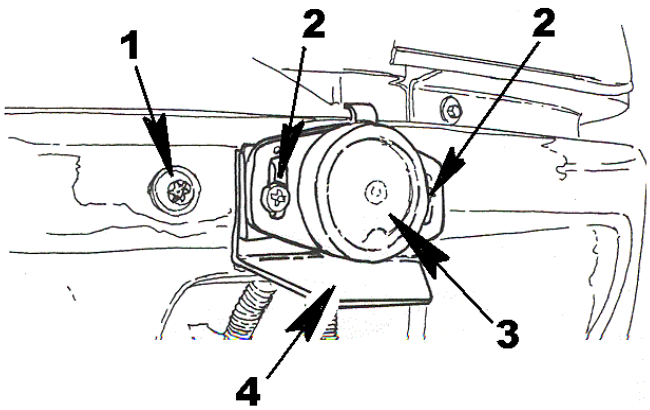


**Figure 88 Magnetic Lock Device**

1. BUMPER MOUNTING BOLT
2. MAGNET DEVICE MOUNTING BOLTS
3. ELECTROMAGNET FACE
4. GATE GUIDE BRACKET

## 2.22. EXTERNAL BLOCK HEATER CONNECTION

### Block Heater Connection — Remove / Install

The optional block heater receptacle is located in the lower center portion of the bumper opening. It is mounted on a bracket and bolted to the lower bumper opening flange.

1. To remove the receptacle, unplug the connection at the rear of the heater receptacle. Push in on plug connection to release lock and pull plug out to remove.

2. Locate and remove the lower mounting bolts on the bumper flange.

3. Remove the receptacle.

4. Follow the reverse procedure to install.

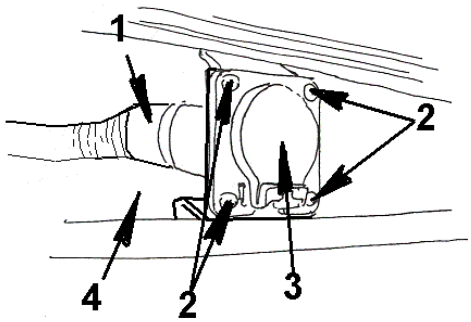


**Figure 89 Engine Heater Plug in Receptacle**

1. CHASSIS HEATER PLUG CONNECTION
2. RECEPTACLE MOUNTING BOLTS (4)
3. HINGED RECEPTACLE COVER
4. LOWER BUMPER SECTION

# 3. INSTALL

## 3.1. BUMPER

With an assistant, locate the bumper assembly with safety gate attached and carry the bumper to the bus chassis.

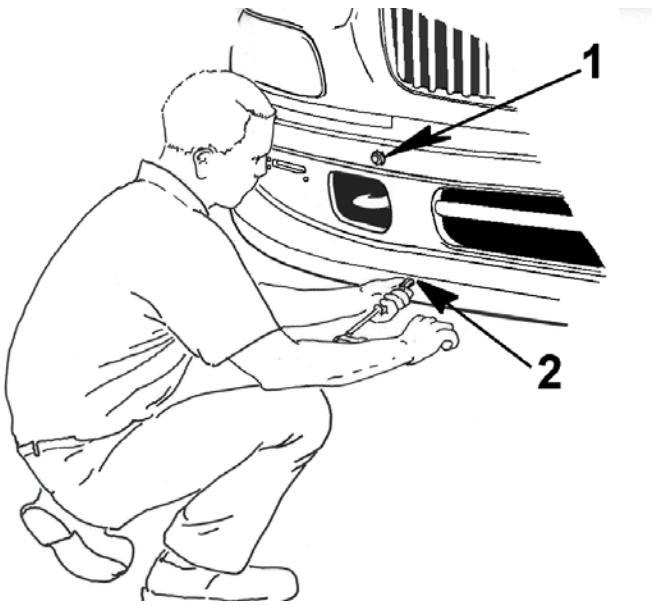


**Figure 90 Front Bumper Install**

1. BUMPER TOP MOUNTING BOLTS
2. BUMPER LOWER MOUNTING BOLTS

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

2. Insert bolts in the upper holes (Figure 90, Item 1): one driver side, one passenger side. Hand tighten.

3. Locate the lower bumper mounting holes and insert lower bolts, 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.

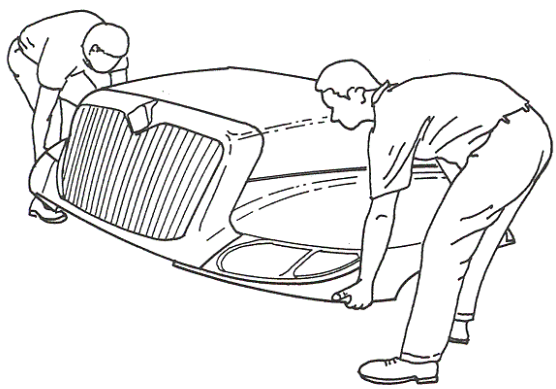

**Figure 91 Hood Install**

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 92, 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.

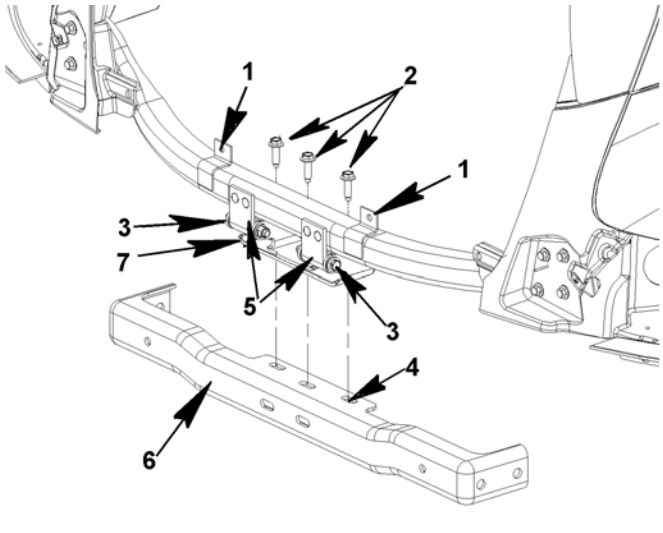


**Figure 92 Hood Hinge Mounting Plate**

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. CROSS BAR ASSEMBLY
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 93, Item 9) diameter torsion bar shorter end, install in driver side torsion bar retainer bracket (Figure 93, Item 7).
10. Install retainer clip on torsion bar end (Figure 93, Item 8).
11. Lay torsion bar in torsion bar guide bracket (Figure 31, Item 2) (**NOTE:** Figure 31 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 93, Item 10). Hood may have to be slightly lifted to allow insertion of torsion bar in bracket.
12. Install retainer clip (Figure 93, Item 11).

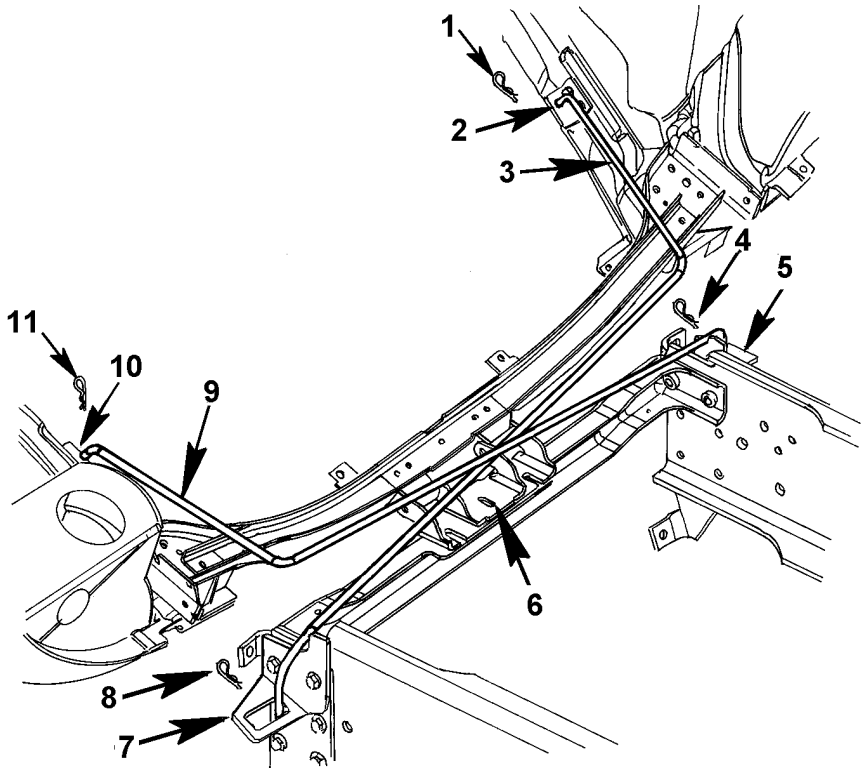


**Figure 93 Torsion Bar Install**

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 93, Item 5).

15. Install retainer clip (Figure 93, Item 4).

16. Place torsion bar over torsion bar guide and over previously installed torsion bar (Figure 31, Item 2).

17. Insert torsion bar (Figure 93, Item 9) end in driver side hood torsion bar bracket (Figure 93, Item 10).

18. Install retainer clip (Figure 93, 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 26, Item 5) of hood stop cable (Figure 26, Item 2) assembly over radiator top frame clevis mounting bracket (Figure 26, Item 6).

21. Insert clevis retainer pin (Figure 27, Item 4).

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 94). Insure that all tabs are functional and in place (Figure 94).

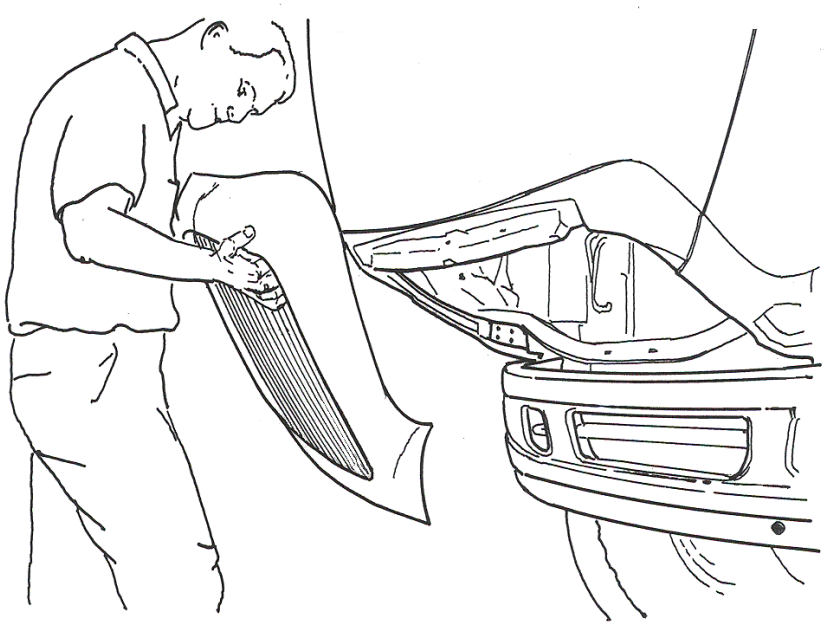

**Figure 94 Grille / Shroud Tab and Mounting Hole Inspection**

1. With the hood in the closed position, align the four (4) upper mounting holes (Figure 34, Item 4) and tabs.

2. Insert tabs on shroud assembly into mounting holes (Figure 34, Item 4) on hood assembly.

3. Align the lower grille/shroud mounting holes with tabs (Figure 34, Item 5) on cross bar.

4. Insert the four mounting bolts (Figure 34, Item 7) 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 96, Item 1) and 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 95, Item 1) and lock washers.

5. Tighten the splash panel mounting bolts.

6. Tighten to 125 to 140 in-lbs (14 to 16 Nm).

7. The lower splash panel on the passenger (Figure 95, 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 95, Item 3 and 4) into the fender splash panel (Figure 95, Item 2).

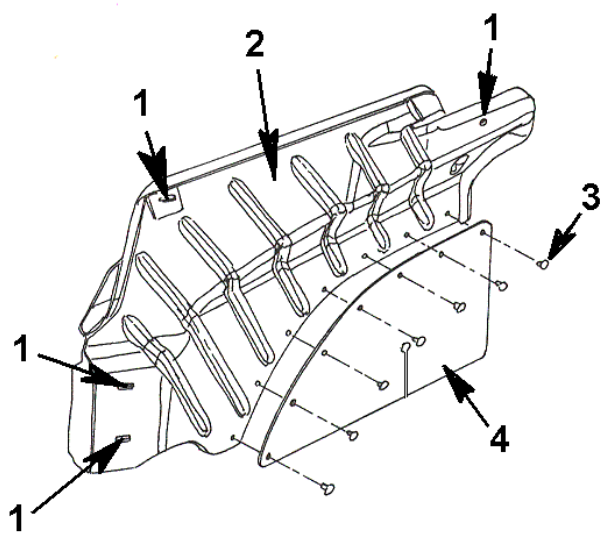


**Figure 95 Splash Panel Remove/Install (Passenger Side Shown)**

1. SPLASH PANEL MOUNTING BOLTS
2. SPLASH PANEL
3. LOWER SPLASH PANEL PLASTIC TAB MOUNTS
4. LOWER FILLER SPLASH PANEL

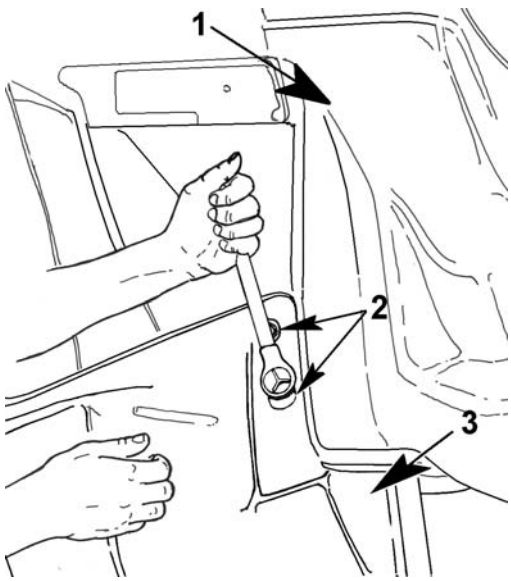


**Figure 96 Splash Panel Install (Driver Side Shown)**

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

10. 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 97, Item 1).

2. Align the fender extension mounting holes on the cowl mounting holes (Figure 98, Item 3),

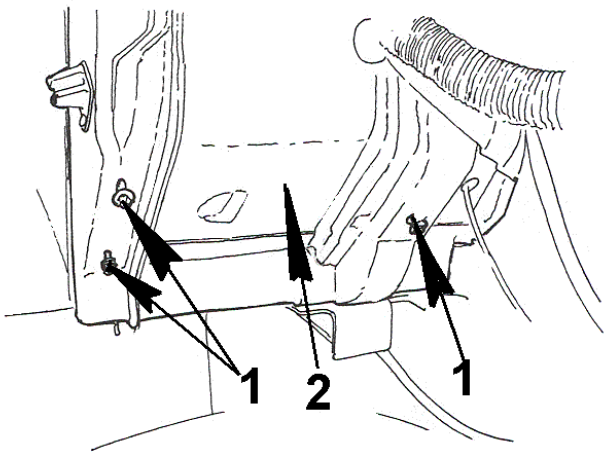


**Figure 97 Fender Extension Alignment**

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

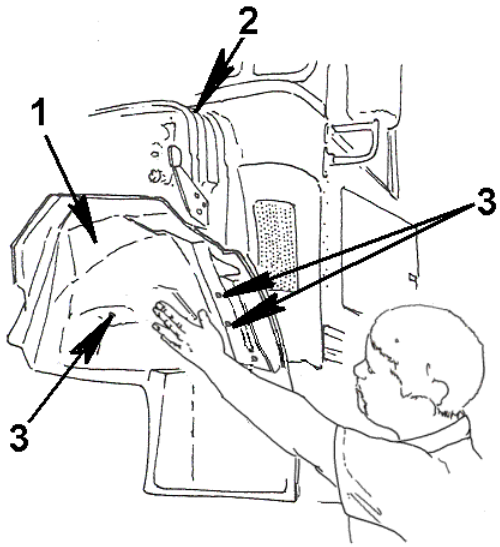


**Figure 98 Fender Extension Install**

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

3. Install mounting bolts and lock washers and tighten.

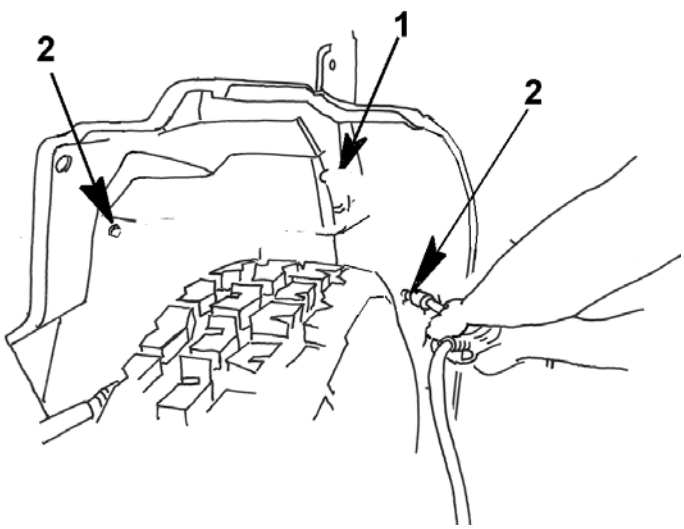


**Figure 99 Fender Extension Installation**

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 mounting bolts and tighten (Figure 43, Item 1).

## 3.7. HEADLIGHT ASSEMBLIES

The grille and shroud assembly should have been previously removed.

1. Insert the headlight assembly (Figure 100, Item 4) into the headlight housing opening (Figure 100, Item 1), aligning the mounting studs with the mounting holes in the headlight housing.
2. Locate and mount the mounting nuts on headlight assembly mounting studs and tighten.
3. Tighten the housing stud nuts to 11 to 13 LBF-FT (14.8 to 18.1 Nm).
4. Reconnect the headlight harness into the chassis harness located above the frame rail section at the opening below the vertical hood support bracket.
5. Tilt hood to closed position.
6. Insert the headlight assembly mounting bolt (Figure 100, 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.

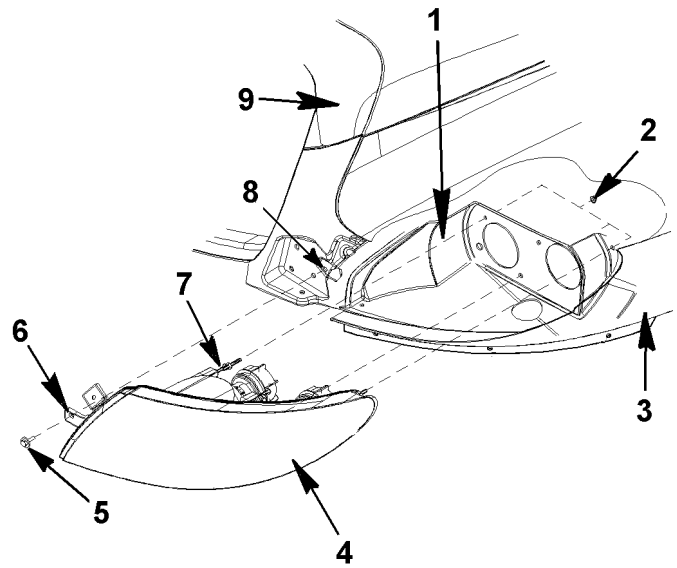


**Figure 100 Headlight Assembly Remove and Install (Driver Side Shown)**

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. Secure the hood latches.

10. Install grille / shroud assembly.

## 3.8. HEAD LAMP

When installing new halogen head lamp bulbs, it is recommended to follow the bulb manufacturer's 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 headlight 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. FOG LIGHTS

Insert the fog light assembly into the center opening of the front bumper and locate the mounting hole.

1. Align and insert fog light assembly and mounting bracket on lower cross member bar. Install flat washer and lock nut, finger tighten. Adjust the fog light direction and tighten mounting lock nut.

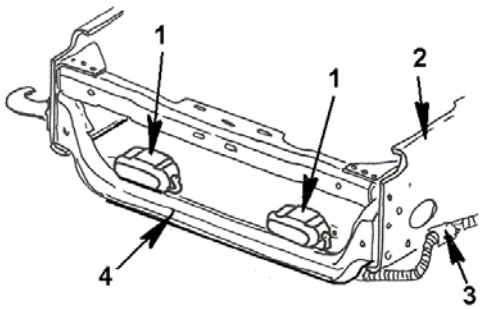


**Figure 101 Fog Light Assembly**

1. FOG LIGHT ASSEMBLY
2. DRIVER SIDE FRAME RAIL
3. FRONT END HARNESS CONNECTION
4. FRONT CROSS MEMBER ASSEMBLY

2. Plug fog light harness into headlight assembly harness.

## 3.10. 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 56, 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 luck nuts on the mounting bolts and tighten.

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

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

10. Follow same procedure for installation on opposite side.

## 3.11. HOOD SEAL

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

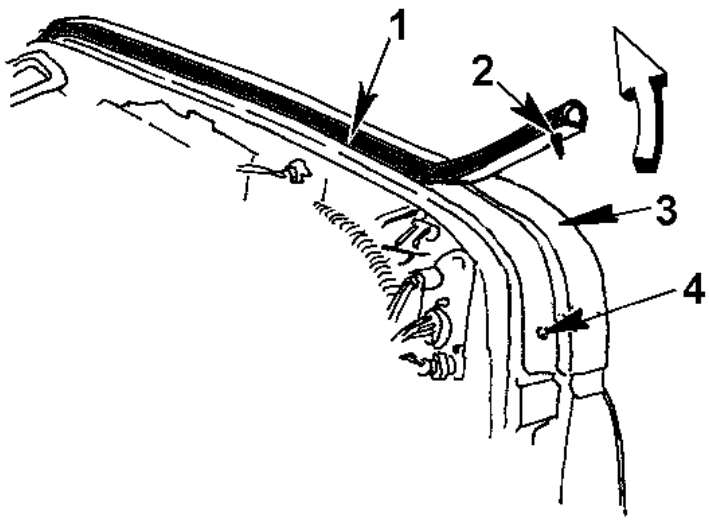


**Figure 102 Hood Seal Remove and Install**

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 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 secure hood latch.

## 3.12. WINDSHIELD WASHER FLUID RESERVOIR

1. Locate reservoir bottle on frame rail mounting brackets.
2. Align mounting holes on reservoir and mounting brackets and insert mounting bolts.
3. Tighten reservoir mounting bolts to required torque values. (See Torque Chart(See TORQUE, page 89))

4. Place seal gasket on nipple end of windshield washer fluid pump (Figure 63, Item 1).
5. Place pump assembly with nipple inward into reservoir receptacle.
6. Push pump assembly into opening area until unit snaps into place.
7. Connect windshield wiper washer supply hose to pump connection (Figure 61, Item 2 and 3).
8. Connect harness plug to pump assembly connection.
9. Refill windshield wiper fluid to proper level.
10. Install fill cap.

## 3.13. STEERING WHEEL / CLOCK SPRING

### 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 75, Item 3).

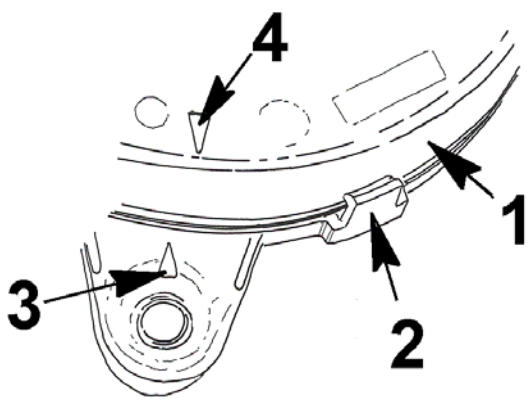


**Figure 103 Clock Spring Installation Detail**

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 103, 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 (Figure 75, Item 1 ) 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 / Clock Spring**

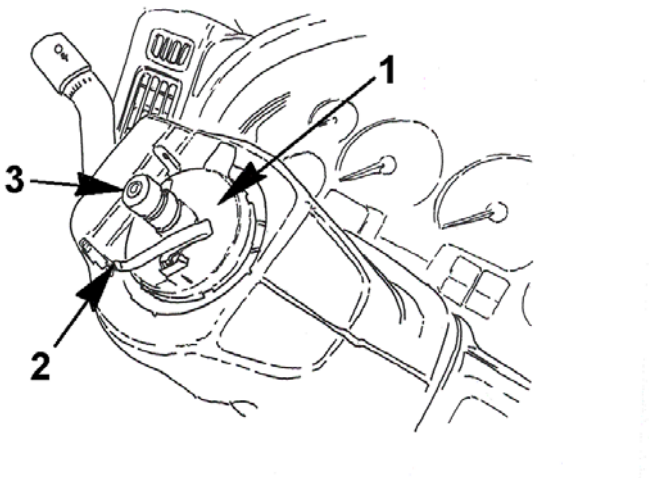


**Figure 104 Clock Spring Installed**

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 72, Item 1).
2. Install retaining nut on spindle, tighten the nut to 660 to 720 LBF-IN (75 to 81 Nm).
3. Assure that the locking clip is properly located to prevent it from working loose (Figure 69, Item 1).
4. Install steering column covers (Figure 68) and fasten.
5. Install front cover (Figure 67).

## 3.14. 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 78, Items 2 and 3).

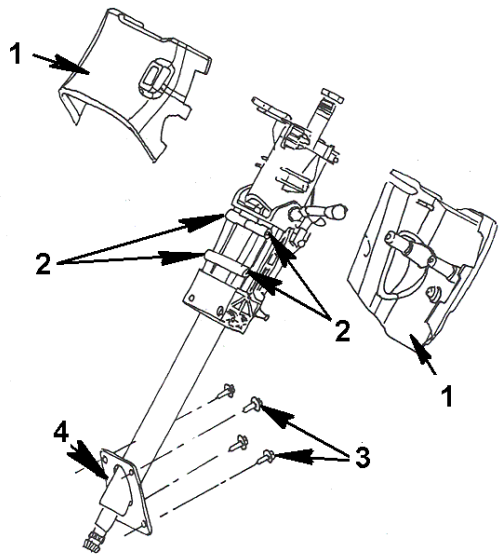


**Figure 105 Steering Column Installation**

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 through the steering column mounting bracket (Figure 105, Items 3 and 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 36 Nm).

6. Install steering column covers and fasteners.

## 3.15. 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.

## 3.16. 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.

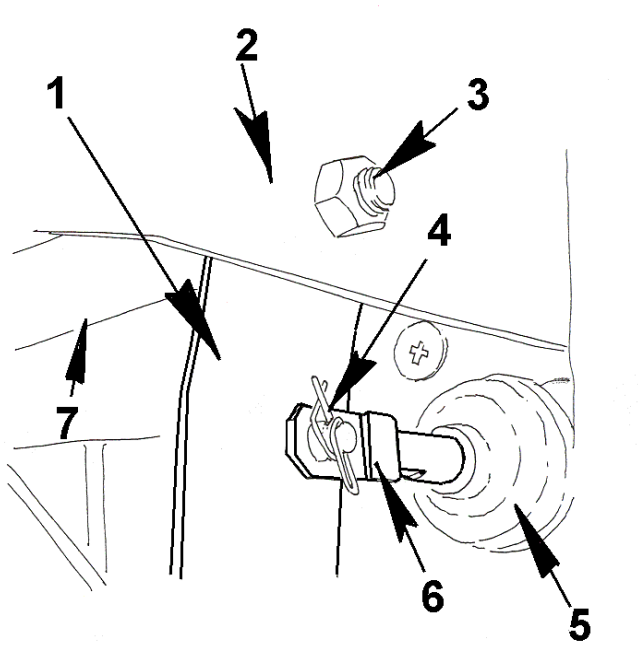


**Figure 106 Break Pedal Assembly Install**

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 (Figure 106, Item 3).

5. Install lock nut, and hand tighten.

6. Locate, align and install brake rod clevis to brake pedal arm (Figure 106, Item 6).

7. Install retainer pin and clip (Figure 106, Item 4).

8. Tighten lock nut to torque value.

## 3.17. FENDER MOUNTED CROSS-VIEW MIRRORS

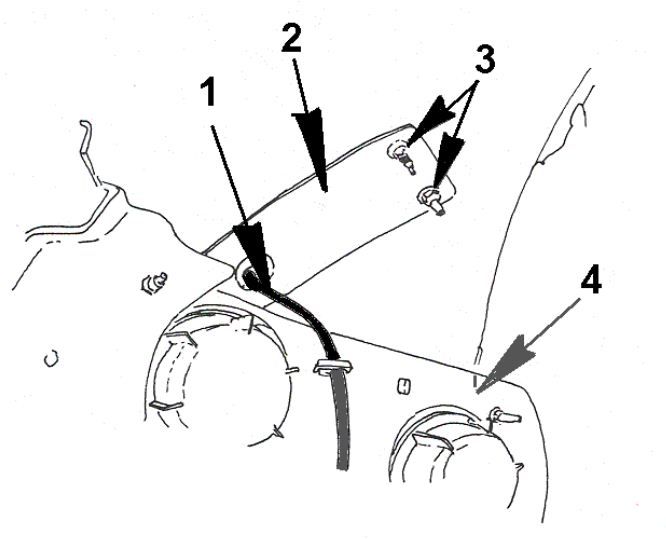


**Figure 107 Mirror Base Reinforcing plate**

1. HEATED MIRROR HARNESS
2. MIRROR BASE REINFORCING PLATE
3. MIRROR BASE MOUNTING STUD WITH LOCK NUTS AND 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 (Figure 83, Item 4) to the mirror main support bracket (Figure 83, Item 3).

3. Adjust clamp locations as necessary.

4. Locate the mirror / fender support bracket (Figure 83, Item 9, and align with mounting hole in fender (Figure 82, Item 1).

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 82, Item 1).

6. Place the opposite end of support bracket in attachment clamp (Figure 83, 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 83, 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(See TORQUE, page 89) for values)

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

### 3.18. SAFETY GATE

1. Locate the electromagnet lock device and bracket, align with mounting holes in driver side front bumper. Insert bolts, lock washers and lock nuts. Tighten to required torque value.

2. Reconnect magnet harness.

3. Locate drive motor and place on inside of passenger side of bumper assembly. Place drive arm section through slot in bumper and align mounting bolt hole in bumper with motor mounting holes. Insert mount bolts (4) and tighten to required torque.

4. Slide safety gate arm assembly on end of drive arm.

5. Align safety gate arm mounting holes with mounting holes on drive arm. Insert bolts and tighten.

6. Reconnect drive motor harness connection with front end harness.

7. Check operation of gate to insure proper alignment of gate and magnet.

## 4. ADJUSTMENTS

### 4.1. HOOD ADJUSTMENT AND ALIGNMENT

The CE Series front hood adjustment is done by moving the hinge plate attachment located at the front cross bar assembly.

1. To adjust the hood forward or aft.

2. To adjust hood forward and back (reference Figure 108), loosen the hinge mounting bolts at the mounting plate (Figure 91, Item 2) 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).

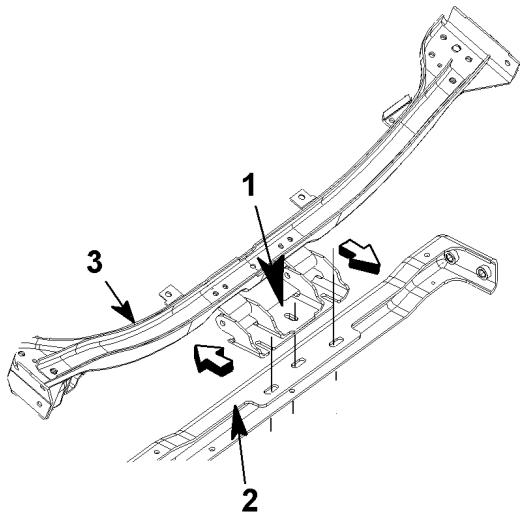


**Figure 108 Hood Hinge Adjustment**

1. HINGE MOUNTING PLATE
2. CROSS MEMBER HINGE MOUNTING PLATE
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.

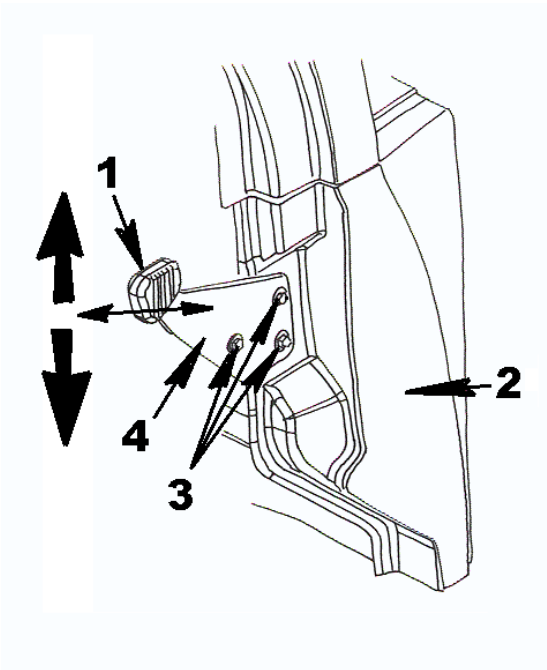


**Figure 109 Hood Stop (Driver Side Shown)**

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 59, Item 3) located at the hood stop bracket.
3. Slide the bracket (Figure 109, 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 LFB-FT (200 to 245 Nm).

## 4.3. HEADLIGHT ADJUSTMENT

**WARNING – Do not replace or handle halogen headlight 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 110, Item 2).

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

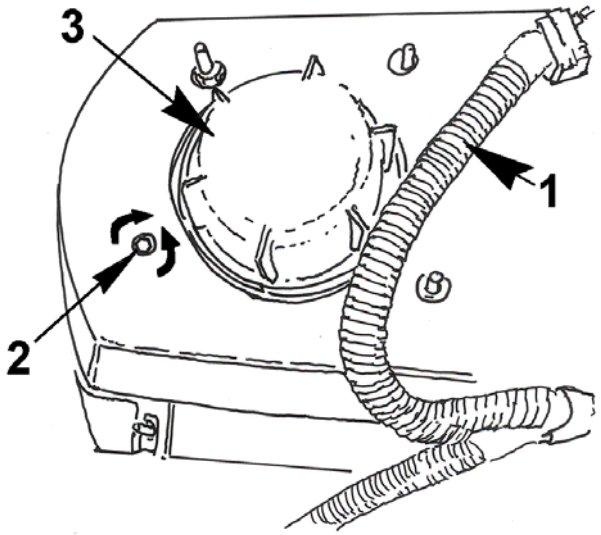


**Figure 110 Headlight Adjustment**

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

## TORQUE

**Table 1 Torque Chart**

| Item No.* | Location (Figure No.) | LBF-FT / IN | Nm |
|---|---|---|---|
| 3, 5 | Bumper Mounting Bolts (Fig. 23) | 50 to 55 | 68 to 75 |
| 1 | Torsion Bar Hood Mounting Brackets (Fig. 30) | 34 to 38 | 46 to 51 |
| 5 | Hinge Plate Mounting Bolts (Fig. 32) | 43 to 50 | 58 to 68 |
| 7 | Grille Mounting Screws (Fig. 34) | 3 to 3.3 | 4 to 4.5 |
| 2 | Splash Panels (Fig. 35) | 34 to 38 | 46 to 51 |
| 5 | Air Intake Grille Screws (Fig. 37) | 3 to 3.3 | 4 to 4.5 |
| 8 | Valance Panel (Fig. 41) | 34 to 38 | 46 to 51 |
| 2 | Headlight Assembly (Fig. 42) | 34 to 38 | 46 to 51 |
| 1 | Valance Panel Mounting Bolts (Fig. 43) | 34 to 38 | 46 to 51 |
| 2 | Headlight Housing Mounting. Hex Nuts (Fig. 43) | 11 to 13 | 14.8 to 18.1 |
| 4 | Fog Light Mounting Bolt and Nuts (Fig. 54) | 32 to 40 | 43 to 54 |
| 1, 4, 10 | Hood Latch Assembly (Fig. 56) | 34 to 38 | 46 to 51 |

**Table 1 Torque Chart (cont.)**

| Item No.* | Location (Figure No.) | LBF-FT / IN | Nm |
|---|---|---|---|
| 5, 2 | Windshield Washer Bottle (Fig. 58 and 64) | 28 to 35 | 38 to 47 |
| 3 | Post Cover Screws (Fig. 68) | 15 to 30 IN | 1.7 to 3.39 |
| 1 | Steering Wheel Retaining Nut (Fig. 70) | 660 to 720 IN | 74.5 to 81.3 |
| 1 | Clock Spring Mounting Screws (Fig. 75) | 15 to 35 IN | 1.7 to 3.9 |
| 2 | Steering Column (Fig. 78) | 34 to 42 | 46 to 57 |
| 4 | Accelerator pedal assembly (Fig. 79) | 28 to 35 | 38 to 47 |
| 2, 3 | Brake Pedal Assembly (Fig. 80 and 106) | 28 to 35 | 38 to 47 |
| 2 | Cross View Mirror Base (Fig. 82) | 34 to 38 | 46 to 51 |
| 1 | Cross View Mirror Brackets (Fig. 82) | 28 to 35 | 38 to 47 |
| 4 | Cross View Mirror Brackets (Fig. 83) | 28 to 35 | 38 to 47 |
| 1 | Cross View Mirror Brackets (Fig. 83) | 34 to 38 | 46 to 51 |
| 1 | Safety Gate Mounting Bolts (Fig. 84) | 50 to 55 | 68 to 75 |
| 2 | Safety Gate Arm Mounting Bolts (Fig. 86) | 125 to 140 IN | 14 to 16 |
| 2 | Magnet Mounting Bolts (Fig. 88) | 32 to 40 | 43 to 54 |
| 2 | External Heater Plug (Fig. 89) | 28 to 35 | 38 to 47 |
| 1, 2 | Bumper Assembly (Fig. 90) | 50 to 55 | 68 to 75 |
| 2 | Hood Hinge Mounting Plate (Fig. 92) | 50 to 55 | 68 to 75 |
| 1 | Splash Panel (Fig. 95) | 34 to 38 | 46 to 51 |
| 1 | Fender Extension (Fig. 97) | 43 to 50 | 58 to 68 |
| 5 | Headlight Assembly Mounting Bolts (Figure 100) | 34 to 38 | 46 to 51 |
| 3 | Steering Column Lower Bolts (Fig. 105) | 17 to 23 | 23 to 31 |
| 3 | Hood Stop Bracket (Fig. 109) | 34 to 38 | 46 to 51 |
| *Refer to Figures specified in the location column. | | | |