

# **SERVICE MANUAL**

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## **SERVICE MANUAL SECTION**

### **CAB: 7000 AND 8000 SERIES MODELS**

**Model: 7300**

**Model: 7400**

**Model: 7500**

**Model: 7600**

**Model: 7700**

**Model: 8500**

**Model: 8600**

**S16038**

**04/03/2008**



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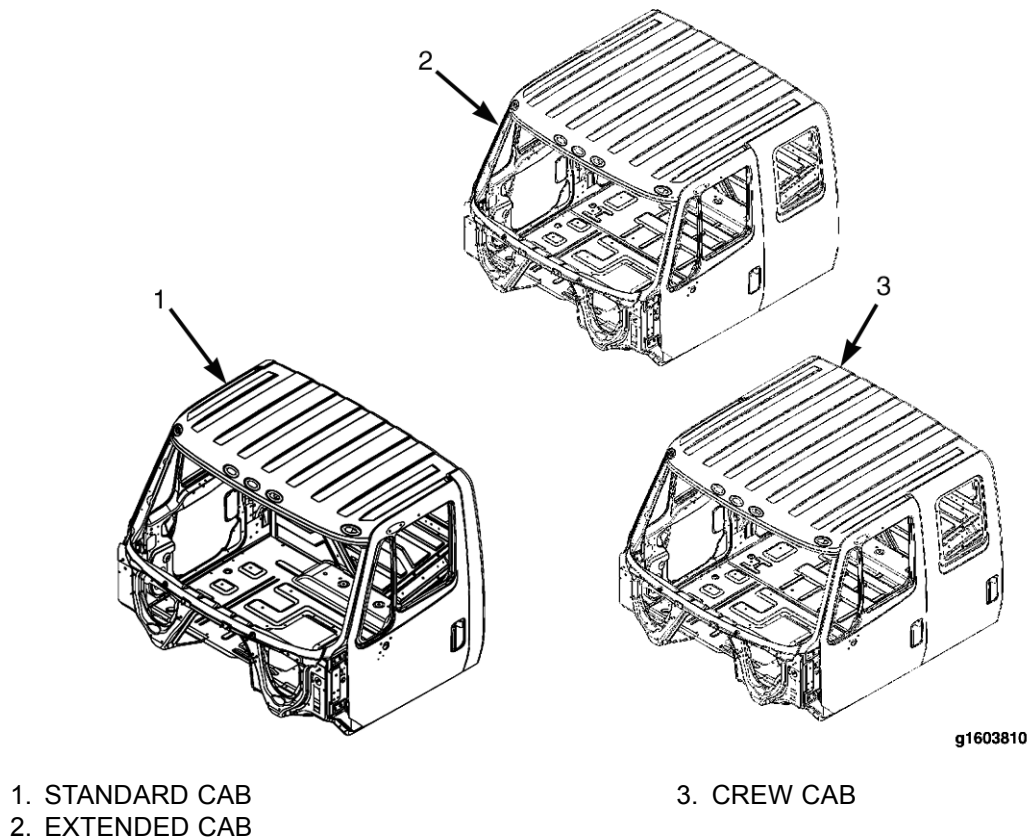




## 1. DESCRIPTION

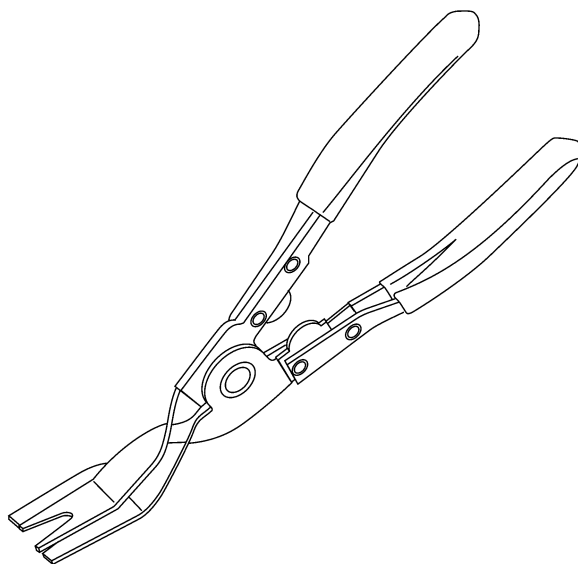
### 1.1. STANDARD CAB, EXTENDED CAB, AND CREW CAB

The standard cab for the 7300, 7400, 7500, 7600, 7700, 8500, and 8600 Models, extended cab for 7300, 7400, 7500, 7600, 8500, and 8600 Models, and crew cab for the 7300, 7400, 7500, 7600, and 7700 Models are made of double-sided galvanized steel, which provides a strong cab with less weight and excellent corrosion protection.



**Figure 1 Cab Configurations**

## 1.2. CAB INTERIOR TRIM PANELS



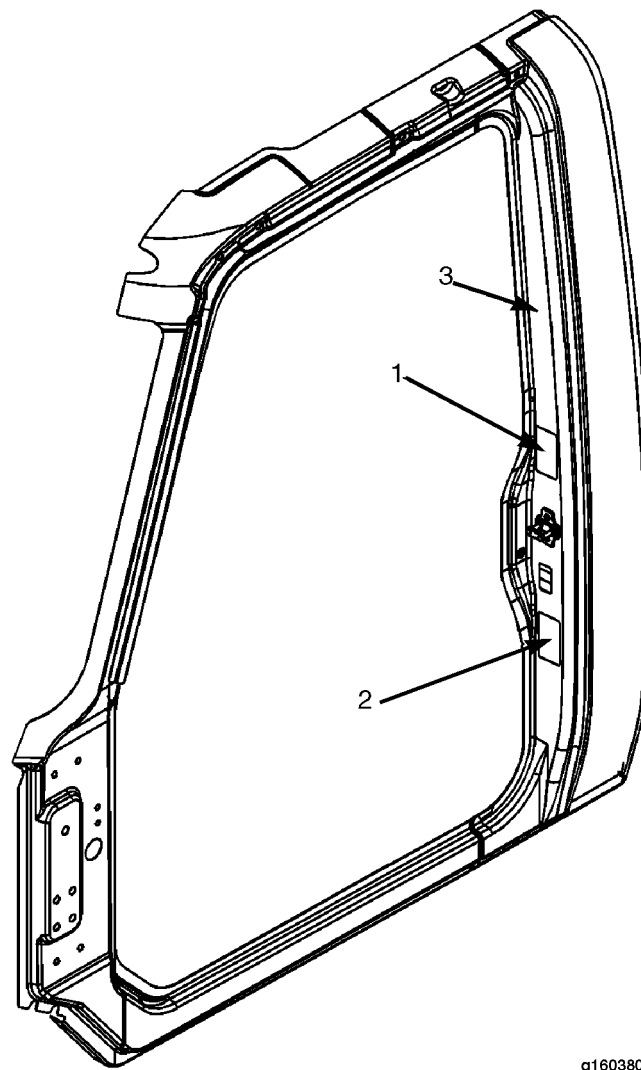
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**Figure 2 ZTSE4839 Interior Trim Tool**

The cab interior trim panels are installed with push-in fasteners and care must be taken when removing any of the cab interior trim panels. All push-in fasteners may not be shown in the illustrations of this manual.

A sufficient interior trim removal tool, such as the ZTSE4839 interior trim tool, is required to remove all cab interior trim panels.

### 1.3. VEHICLE IDENTIFICATION NUMBER (VIN) TAG LOCATION



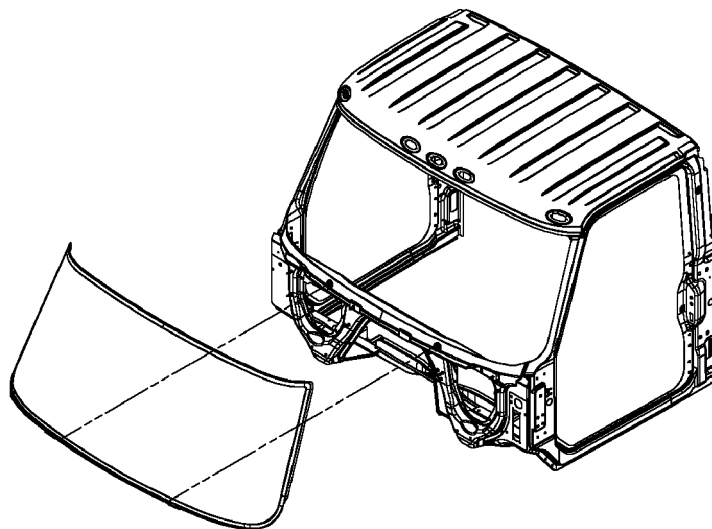
- 1. CAB VIN TAG
- 2. CHASSIS VIN TAG

- 3. CAB DOOR LATCH PILLAR

**Figure 3 VIN Tag Location**

The vehicle identification number (VIN) is necessary if the need for replacement parts should occur. For this reason, you will want to know the location for these important numbers. **Cab** and **Chassis** VIN tags are located on the face of the cab door latch pillar, driver's side.

## 1.4. WINDSHIELD



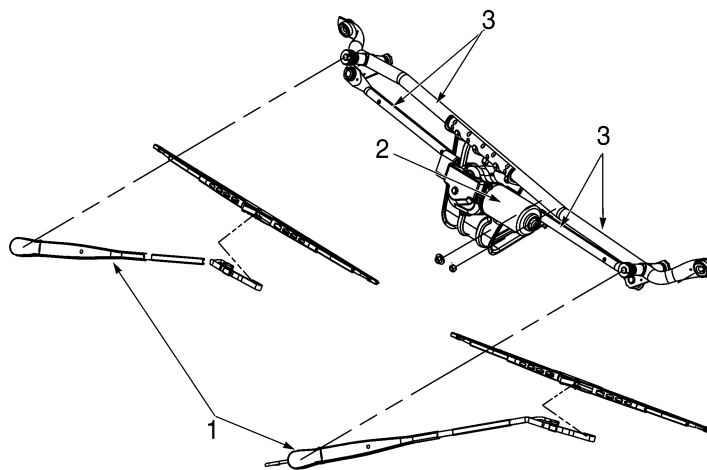
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**Figure 4 Windshield**

The windshield features a curved, swept-back glass that provides excellent cab sealing to reduce exterior noise and water leakage. The large, curved design also provides excellent visibility and aerodynamics which supports improved fuel economy. Additionally, the curved swept-back design eliminates snow packing at the A-pillar and reduces the risk of damage from glancing road debris.

Two types of adhesives can be used to install windshields on the vehicles covered. Refer to the removal and installation procedures in this Service Manual for adhesive and tool information.

## 1.5. ELECTRIC WINDSHIELD WIPERS



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- 1. WIPER ARM
- 2. ELECTRIC WIPER MOTOR

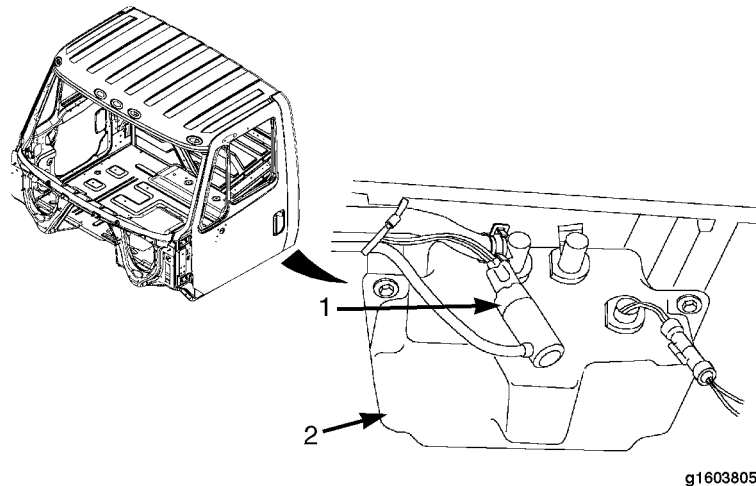
- 3. WIPER LINKAGE

**Figure 5 Electric Windshield Wipers**

The windshield wiper system consists of a single, unitized, 12V electric wiper motor that operates the wiper arms through wiper linkage. The motor has two speeds (low and high) and a park position, which is controlled by a three-position switch.

Since the electric wiper motor is of unitized construction, there is no need for motor rebuild or adjustments. There are no serviceable parts; the complete assembly is replaced.

## 1.6. WINDSHIELD WASHER



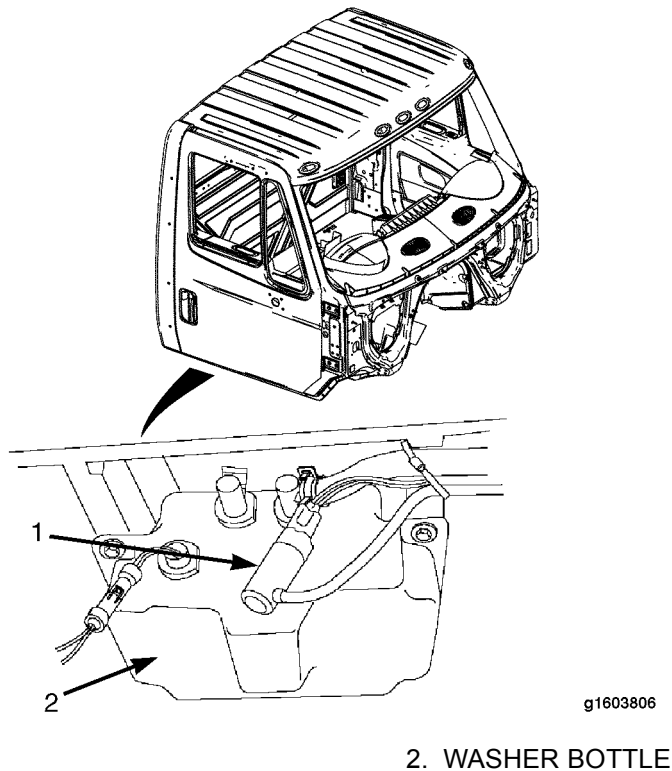
1. PUMP MOTOR

2. WASHER BOTTLE

**Figure 6 Washer Bottle Location**

The windshield washer consists of a washer bottle and a motor-driven, displacement-type pump that delivers washer solution to the windshield through hoses and nozzles in the wiper arms. The pump motor is detachable from the washer bottle and is replaceable.

The washer bottle and pump motor are located under the driver side door for the 7300, 7400, 7500, 7600, 7700, and 8500 models.



**Figure 7 Washer Bottle Location**

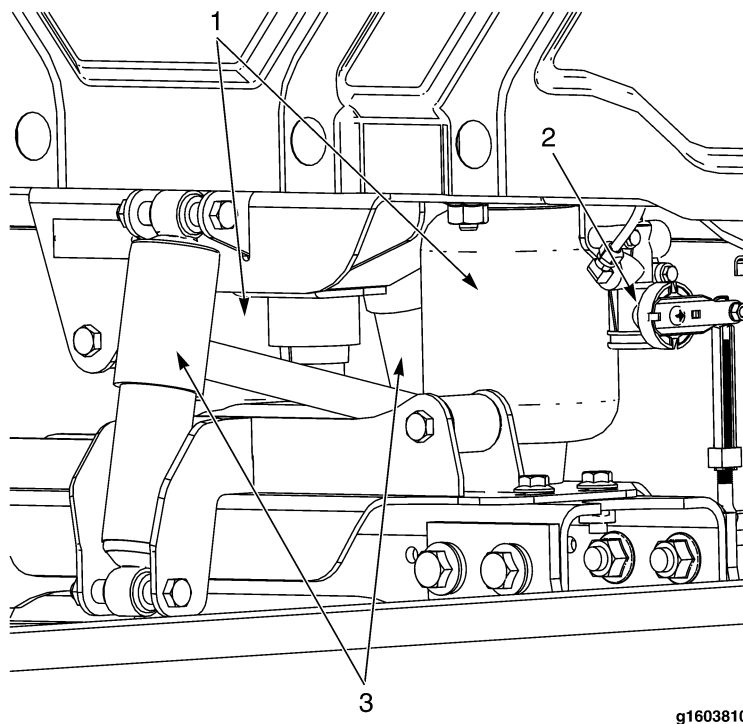
The washer bottle and pump motor are located under the passenger side door for the 8600 model.

### 1.7. IGNITION SWITCH CYLINDER

The ignition switch and door locks are coded the same so that one key operates the ignition switch and door locks. The code number is stamped and bar-coded on a plastic bag that the ignition switch and door lock cylinders are supplied in at the assembly plant. This plastic bag is to remain with the vehicle when it is delivered to the customer. It is very important that this plastic bag be kept by the customer in a safe, secure place, so that if a replacement key is required, the key can be replaced.

The code number does not appear on the ignition switch body or door lock assembly.

## 1.8. CAB AIR SUSPENSION SYSTEM



- 1. AIR SPRING (BAG)
- 2. SHOCK ABSORBER

- 3. HEIGHT CONTROL VALVE

**Figure 8 Cab Air Suspension**

Cab rear air suspension enhances ride and cab component durability, resulting in less driver fatigue and greater productivity. The cab and cab components will experience greater durability due to less shock. The cab rear air suspension is standard on all 7300, 7400, 7500, 7600, 7700, 8500, and 8600 model cabs.

**NOTE – The height control valve, air springs (bags), and shock absorbers are serviceable and can be replaced individually.**

The cab air suspension system contains one or two air springs (bags) and two shock absorbers and is controlled by the height control valve. The air suspension assembly needs no lubrication and very little maintenance.

The following components - air lines (to air springs), tee fitting, elbow fitting, air springs (bags), height control valve, shock absorbers, and lateral control rod - should be checked at the time the truck is being serviced. Immediate corrective action should be taken if a malfunction occurs.

Periodically check the tightness of all fasteners and air line fitting connections. Refer to the **TORQUE CHART** (See Torque Chart, page 192) for proper tightening of all fasteners and air line fitting connections.

## 2. REMOVAL AND INSTALLATION



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



To avoid personal injury, whenever any component is serviced or removed from air system, be sure to set parking brake and/or block vehicle wheels to prevent it from moving while service is being performed.



For safety purposes cab air suspension must be supplied from a pressure protected air supply.

**IMPORTANT** – Before performing any work on the cab components, be sure to perform these basic procedures:

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

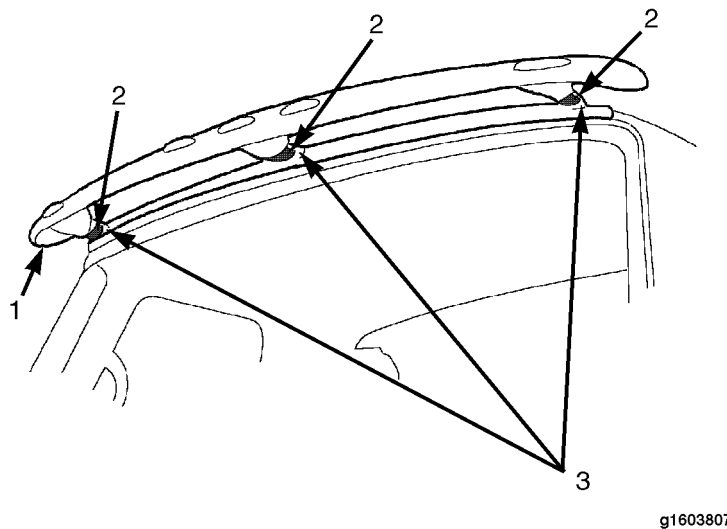


## 2.1. WINDSHIELD

### Removal

**IMPORTANT** – For proper windshield removal and installation, you will need the International® Bonded Windshield Tool Kit ZTSE4470. This kit comes complete with a toolbox and all the tools required to remove and install bonded windshields. To order, call toll free in U.S. and Canada 1-800-520-2584 or Fax 1-800-578-7375. For additional materials contact International® dealer for service parts.

1. Unlatch and open the hood.
2. Place protective coverings over areas near windshield.
3. Remove the windshield wiper arms and blades. Refer to **WINDSHIELD WIPER ARM AND BLADE ASSEMBLY** (See Windshield Wiper Arm and Blade Assembly, page 63).

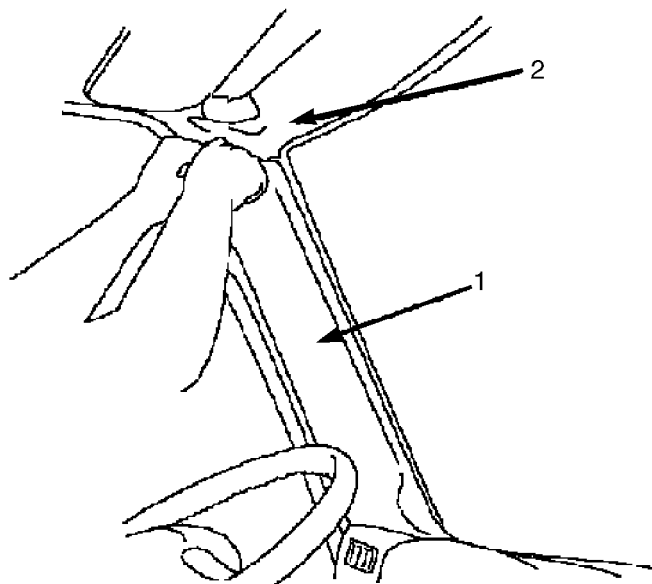


1. SUN SHADE
2. TAPE

3. MOUNTING BRACKETS

**Figure 9 Taping the Mounting Brackets**

4. If the unit is equipped with an exterior sun shade, place a piece of tape on the bottom side of the three mounting brackets to protect the paint. To remove the sun shade, refer to **SUN SHADE** (See Sun Shade, page 122).



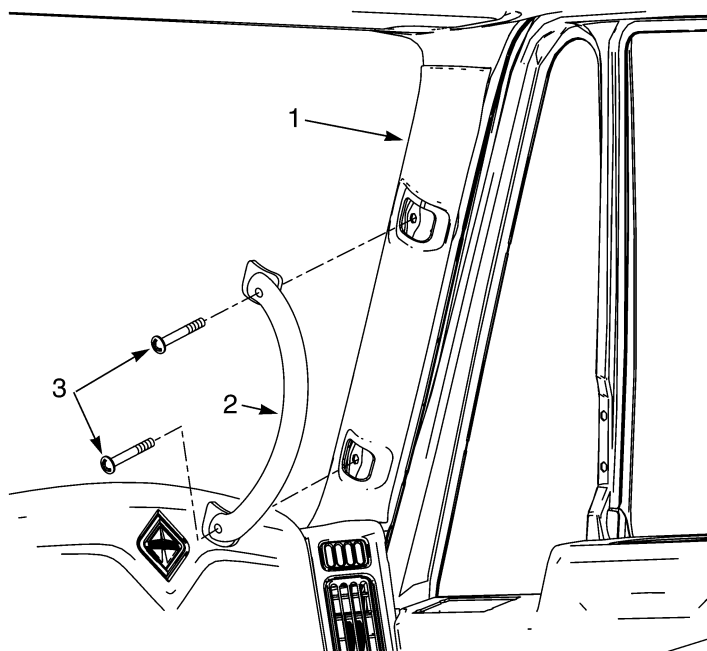
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1. DRIVER SIDE A-PILLAR TRIM  
PANEL

2. HEADER TRIM PANEL

**Figure 10 Driver Side A-Pillar Trim Panel**

5. Remove driver side A-pillar trim panel by beginning at the top and pulling free from the cab A-pillar.



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1. PASSENGER SIDE A-PILLAR  
TRIM PANEL

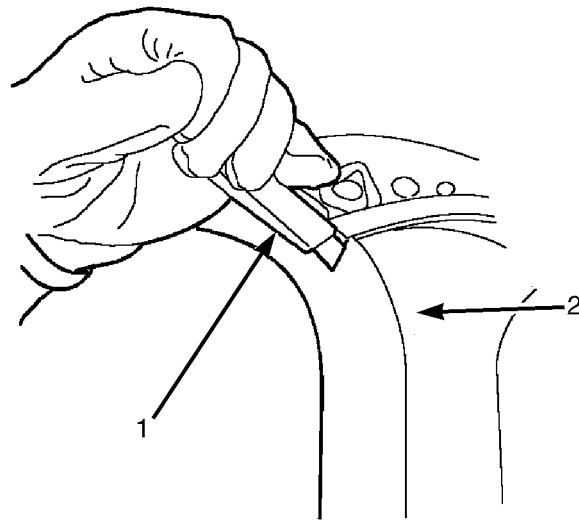
2. GRAB HANDLE  
3. BOLTS

**Figure 11 Passenger Side A-Pillar Trim Panel and Grab Handle**

6. Remove two bolts from grab handle and remove handle.
7. Remove passenger side A-pillar trim panel by beginning at the top and pulling free from the cab A-pillar.



**Wear protective eye wear and work gloves when removing windshield.**



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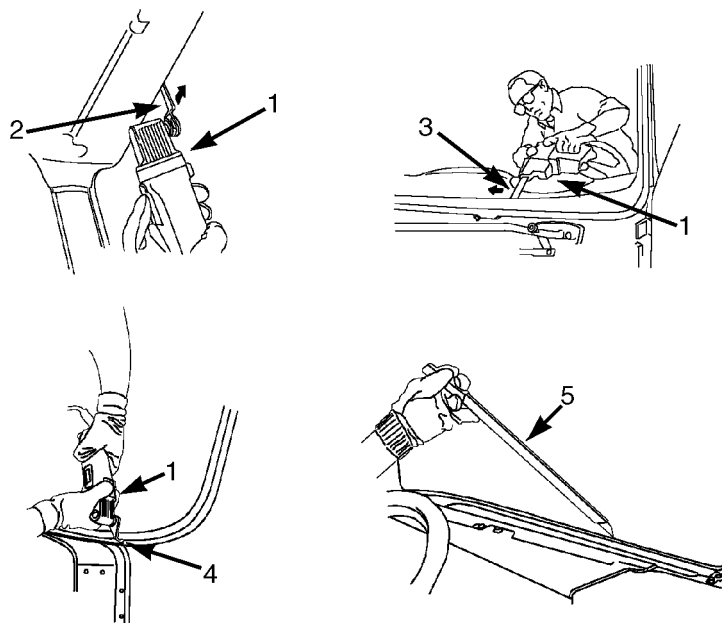
1. UTILITY KNIFE

2. RUBBER TRIM FLANGE

**Figure 12 Cutting Off Rubber Trim Flange**

8. Lift outer flange of encapsulation rubber trim and, with a utility knife, cut rubber trim flange entirely off windshield.

**NOTE – When using a power knife to cut around the windshield, use a spray bottle filled with water to lubricate the cutting area. This will prevent burning of the urethane and rebonding of the windshield.**



g1603811

1. POWER KNIFE
2. SHORT INSIDE CUTTING BLADE
3. LONG INSIDE CUTTING BLADE

4. OUTSIDE CUTTING BLADE
5. LONG HANDLE UTILITY KNIFE

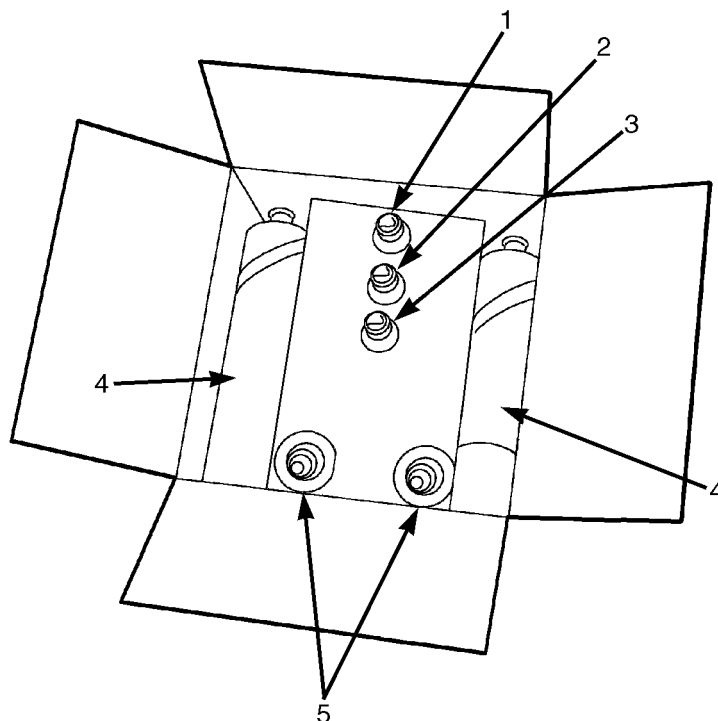
**Figure 13 Cutting Windshield Out**

9. Using a power knife with a short inside cutting blade (or long inside cutting blade and/or outside cutting blade), cut all the way around windshield until it is free from the cab windshield fence. If windshield will not lift off, use a long-handle utility knife to cut through the adhesive.
10. With the aid of an assistant, lift windshield off the cab and place it out of the way.

### Installation

**IMPORTANT** – For proper windshield removal and installation, you will need the International® Bonded Windshield Tool Kit ZTSE4470. This kit comes complete with a toolbox and all the tools required to remove and install bonded windshields. To order, call toll free in U.S. and Canada 1-800-520-2584 or Fax 1-800-578-7375. For additional materials contact International® dealer for service parts.

**NOTE** – For windshield installation use the Windshield Replacement Kit 2592784C91. A pneumatic or electric caulking gun is required for application of the adhesive.



g1603812

1. 43532 BODY PRIMER
2. 43518 CLEAR GLASS PRIMER
3. 43520A BLACK-OUT GLASS PRIMER

4. BETASEAL EXPRESS ONE-PART URETHANE ADHESIVE
5. CARTRIDGE TIPS

**Figure 14 Windshield Replacement Kit**

The windshield replacement kit includes the following components:

- 43532 Body Primer
- 43518 Clear Glass Primer
- 43520A Black-Out Glass Primer
- Betaseal Express One-Part Urethane Adhesive
- Cartridge Tips

**NOTE – These materials must be used on or before the expiration date marked on the container. Please refer to the individual containers for expiration dates.**

Additional materials needed include the following:

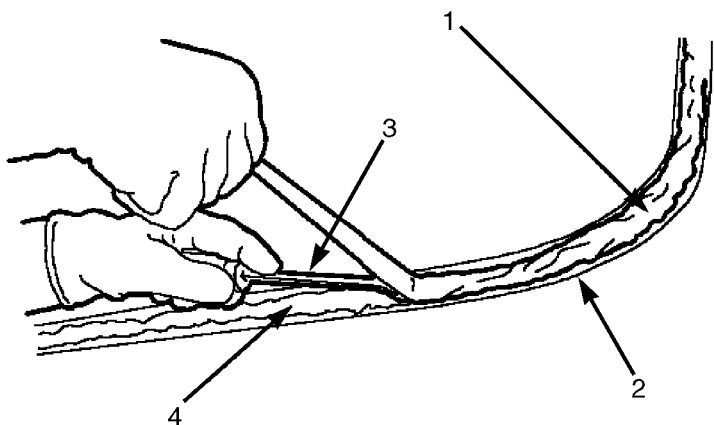
- Essex® GC800 Glass Cleaner
- White or Brown Paper Towels
- Pneumatic or Electric Caulking Gun



**Wear protective work gloves when handling the windshield. Also wear appropriate protective gloves when using any of the Betaseal system chemicals from the Essex® windshield installation kit.**

**NOTE –**

- **Windshield must be made of laminated safety glass only (AS-1 per ANSI Z26.1 - latest revision and Navistar TMS - 9522 SAE J1203).**
  - **Before installing new windshield, wipe off any water remaining around windshield fence and surrounding cab area with a lint-free cloth.**
1. Dry-fit the new windshield to ensure it fits properly. While the windshield is in place, attach a piece of tape (as a reference mark) across the center, top portion of windshield and cab. Use a utility knife and cut the tape between the cab and windshield.
  2. Remove windshield and place on a suitable padded work stand.



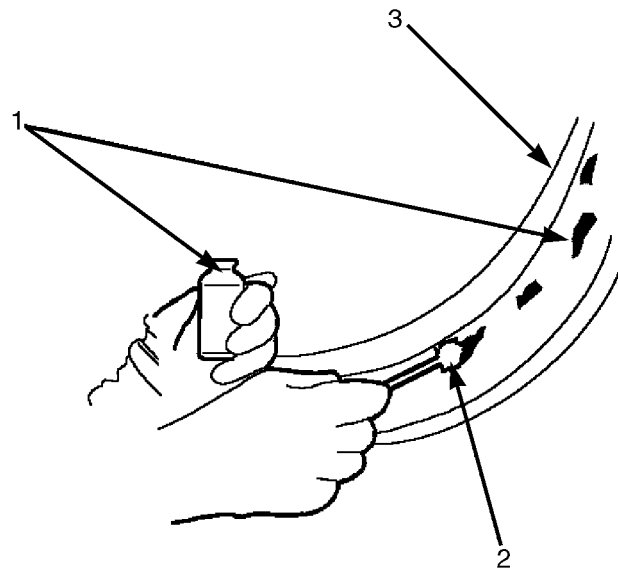
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1. OLD ADHESIVE  
2. WINDSHIELD FENCE

3. GASKET CHISEL  
4. OLD ADHESIVE

**Figure 15 Removing Urethane Adhesive**

3. Using a gasket chisel, remove old adhesive from windshield fence. Leaving a thin layer 5/64- to 1/8- in. (2- to 3- mm) thick of old adhesive is acceptable. While removing old adhesive, try to maintain a consistent thickness on the windshield fence.
4. Remove any dirt or water remaining from windshield removal with a brush or clean, lint-free cloth.



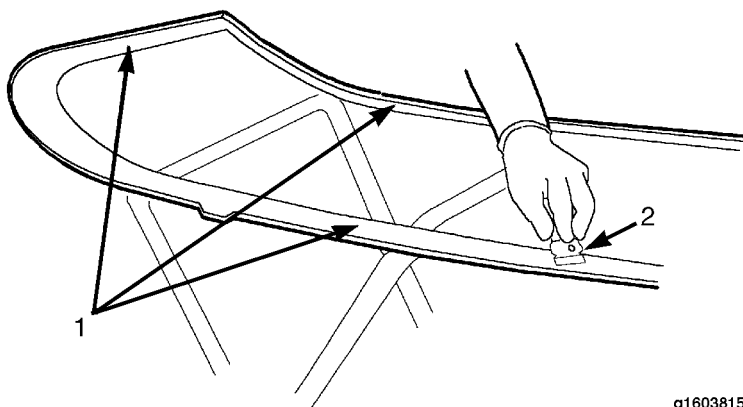
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- 1. 43532 BODY PRIMER
- 2. APPLICATOR

- 3. WINDSHIELD FENCE

**Figure 16 Applying Body Primer**

- 5. Shake 43532 body primer container for at least one minute.
- 6. Apply 43532 body primer with a clean, dry applicator to cover scratches and bare metal on the windshield fence. DO NOT apply 43532 body primer over old urethane adhesive left on windshield fence. Allow primer to dry for 6 to 10 minutes minimum after application.



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- 1. BONDING SURFACE

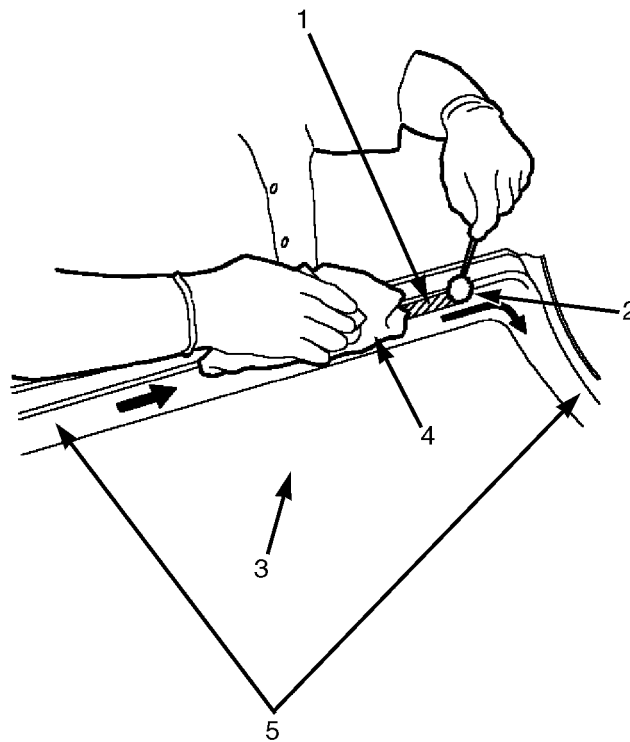
- 2. RAZOR BLADE

**Figure 17 Removing Flash**



7. Using a razor blade, if necessary, and plastic scrubbing pad, remove any flash from bonding surface of new windshield. Clean new windshield thoroughly with Essex® glass cleaner GC800 and dry thoroughly with paper towels. Ensure windshield is completely clean and dry before proceeding.

**NOTE – Read next step thoroughly and completely to ensure the correct application and removal of the 43518 clear glass primer.**



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1. 43518 CLEAR GLASS PRIMER
2. APPLICATOR
3. WINDSHIELD

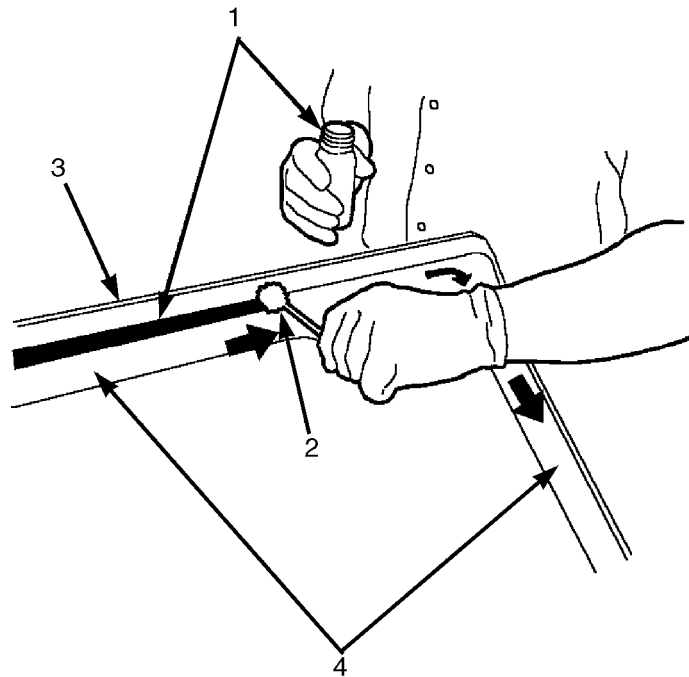
4. WHITE OR BROWN PAPER TOWEL
5. BONDING SURFACE

**Figure 18 Applying Clear Glass Primer**

8. Shake 43518 clear glass primer container for at least one minute.
9. Apply 43518 clear glass primer with a clean, dry applicator to the windshield bonding surface only.

**NOTE – If clear glass primer is applied to clear glass surface, glass will haze.**

10. Immediately wipe clear glass primer off bonding surface by following 8 to 10 inches (20 to 25 cm) behind the applicator with a white or brown paper towel. **DO NOT** use a cloth shop towel. After completing first application of clear glass primer, repeat application and removal process.



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- 1. 43520A BLACK-OUT GLASS PRIMER
- 2. APPLICATOR

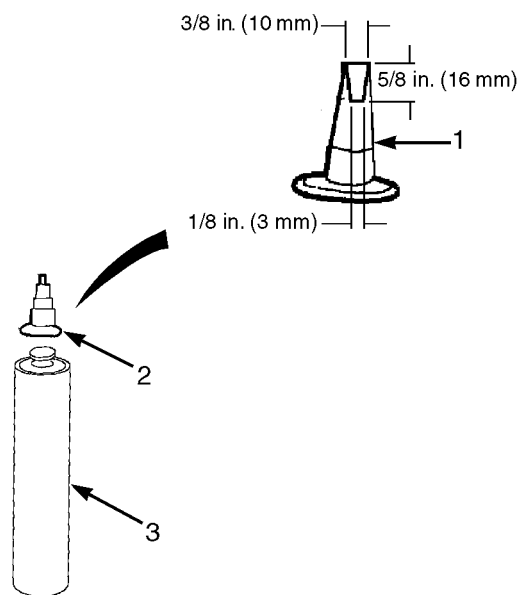
- 3. WINDSHIELD
- 4. BONDING SURFACE

**Figure 19 Applying Black-Out Glass Primer**

- 11. Shake 43520A black-out glass primer container for at least one minute.
- 12. Apply 43520A black-out glass primer with a clean, dry applicator to the windshield bonding surface. Allow primer to dry to a tack-free condition for 6 to 10 minutes minimum after application.

**CAUTION**

After priming the windshield, ensure there is no contact with the bonding surface, as oil from the skin will affect bonding performance. If the windshield is not bonded properly, the cab strength and safety would be compromised. If contact with the bonding surface has occurred, repeat the cleaning process and reapply 43520A black-out glass primer and allow it to dry for 6 to 10 minutes before applying Betaseal Express one-part urethane adhesive.



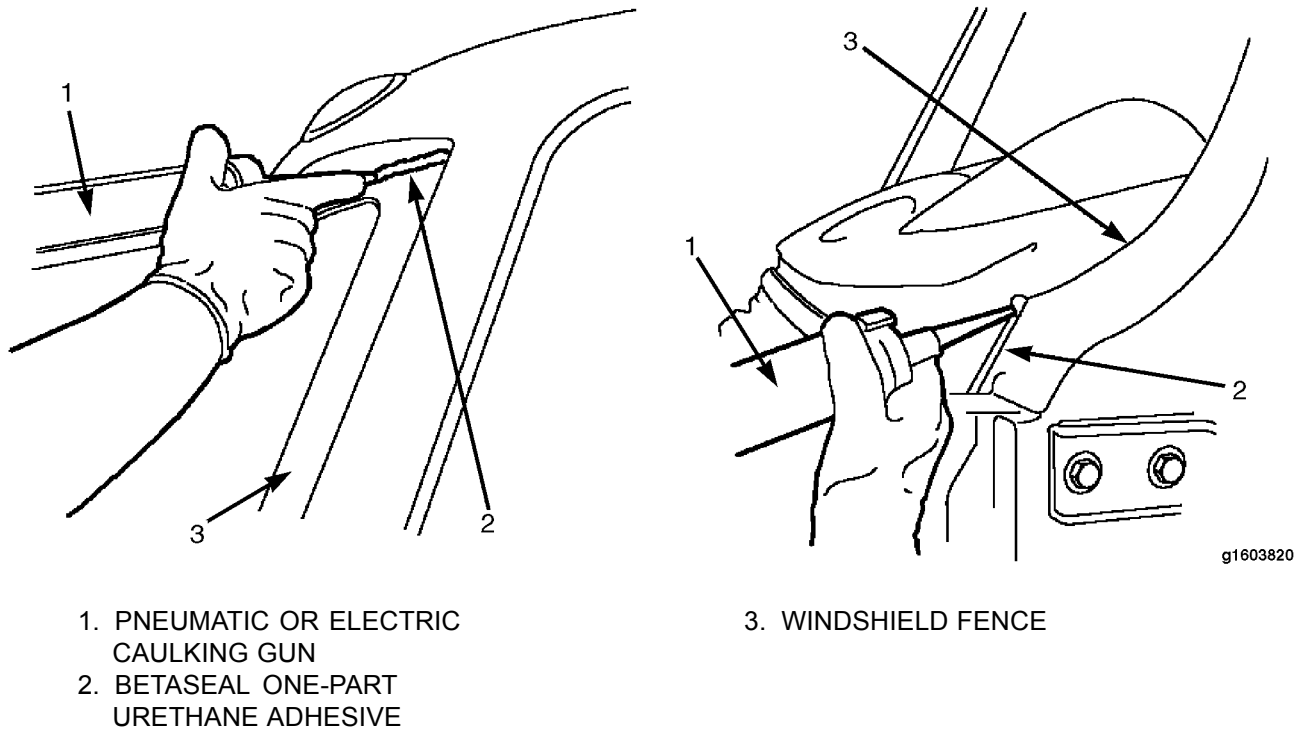
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1. TRIM DIMENSIONS
2. CARTRIDGE TIP

3. ADHESIVE TUBE

**Figure 20 Adhesive Tube and Cartridge Tip**

13. Measure, mark, and trim the cartridge tip to trim dimensions shown for proper adhesive application.
14. Attach cartridge tip to adhesive tube.

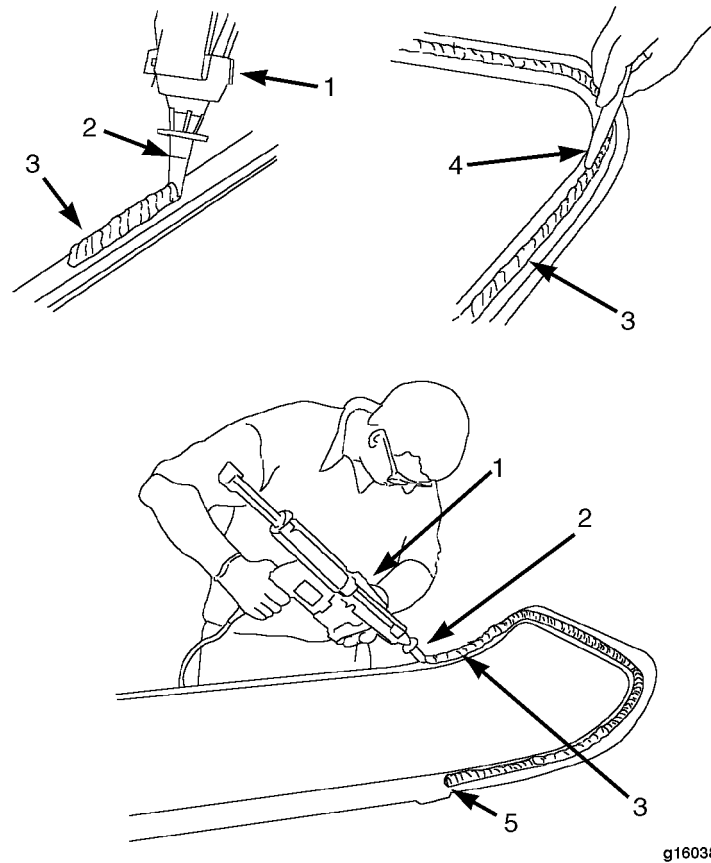


**Figure 21 Applying Adhesive to Weld Seams**

15. Load adhesive tube into a pneumatic or electric caulking gun.

16. Apply a small bead of adhesive to the weld seams at the top and bottom of the windshield fence on both sides.

**NOTE – Application of adhesive bead on new windshield shall be 0 to 5/64 in. (0 to 2 mm) from encapsulation edge and be at least 5/8 to 3/4 in. (16 to 19 mm) high and 3/8 to 1/2 in. (10 to 13 mm) wide maximum.**

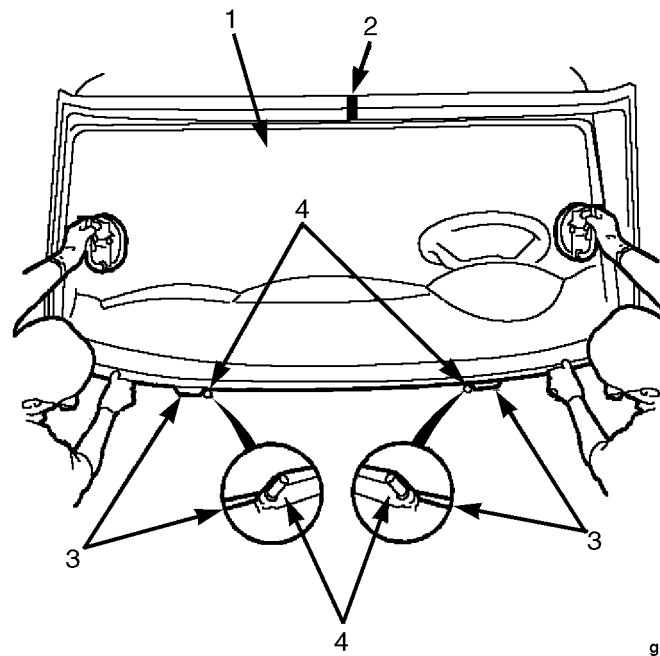


1. PNEUMATIC OR ELECTRIC CAULKING GUN
2. CARTRIDGE TIP
3. ADHESIVE

4. PLASTIC OR WOOD TONGUE DEPRESSOR
5. LOCATING TAB

**Figure 22 Applying Adhesive to Windshield**

17. Holding pneumatic or electric caulking gun as close to a 90-degree angle as possible, start applying adhesive at the outer edge of locating tab at the bottom of the windshield. Apply a uniform bead all the way around the windshield. Overlap adhesive at the seam slightly, and use a plastic or wood tongue depressor to smooth or even out adhesive as required before installing windshield.



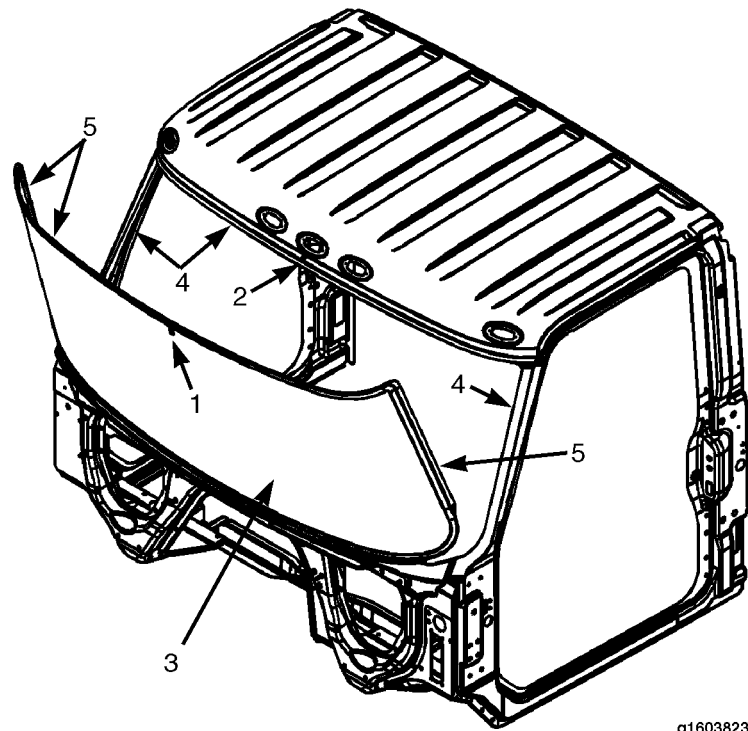
g1603822

- 1. WINDSHIELD
- 2. TAPE MARK

- 3. WINDSHIELD LOCATOR TAB
- 4. CAB LOCATOR POST

**Figure 23 Positioning Windshield**

18. With the aid of an assistant, align windshield with tape marks on windshield and cab. Align windshield locator tabs with cab locator post at the bottom of the windshield opening. Be careful not to touch windshield on cab when installing.



g1603823

- |                       |   |
|-----------------------|---|
| 1. TAPE ON WINDSHIELD | 4. WINDSHIELD FENCE                     |
| 2. TAPE ON CAB        | 5. WINDSHIELD ENCAPSULATION RUBBER TRIM |
| 3. WINDSHIELD         |   |

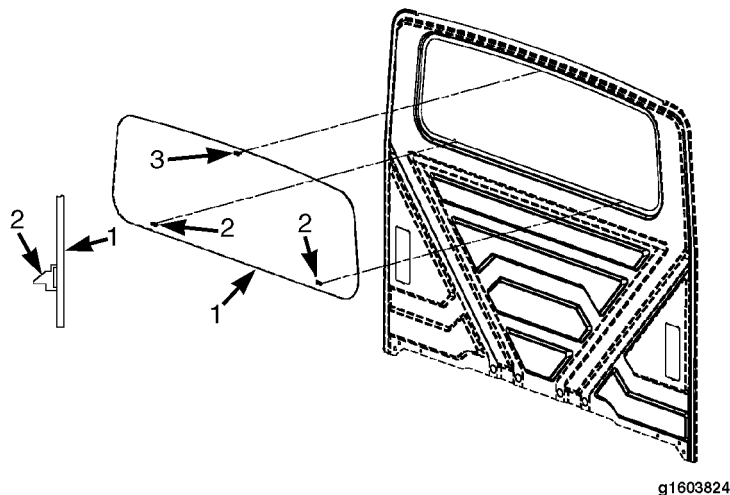
**Figure 24 Pushing Windshield into Place**

19. While holding windshield locator tabs in place on cab locator posts, push windshield back against windshield fence. Check windshield encapsulation rubber trim to make sure it is positioned properly around windshield opening.
20. With the aid of an assistant, gently push on the windshield all around the outer edges to seat it properly against the windshield fence. Tabs built into the windshield prevent it from being pushed in too far.
21. Remove tape from windshield, cab, and sun shade mounting brackets (if applicable).
22. If the vehicle is equipped with an exterior sun shade, install sun shade. Refer to **SUN SHADE** (See Sun Shade, page 122).
23. Install passenger side A-pillar trim panel by aligning trim panel retaining clips with the mounting holes and push in to secure (Figure 11).
24. Install passenger side grab handle and secure with two bolts (Figure 11, Items 2 and 3). Tighten bolts to 77 to 95 Lbf-in. (9 to 11 N•m).
25. Install driver side A-pillar trim panel by aligning trim panel retaining clips with the mounting holes and push in to secure (Figure 10).
26. Install windshield wiper arms and blades. Refer to **WINDSHIELD WIPER ARM AND BLADE ASSEMBLY** (See Windshield Wiper Arm and Blade Assembly, page 63).

27. Test operation of windshield wipers and washer.
28. Clean windshield and surrounding areas.
29. Close and latch the hood.

**IMPORTANT** – The Betaseal Express one-part urethane adhesive should be allowed to cure for 60 minutes before driving the vehicle.

## 2.2. REAR WINDOW GLASS



1. WINDOW GLASS
2. LOCATOR TAB

3. SPRING CLIP

**Figure 25 Rear Window Glass**

### Removal (Unobstructed Access)

**IMPORTANT** – For proper rear window glass removal and installation, you will need the International® Bonded Windshield Tool Kit ZTSE4470. This kit comes complete with a toolbox and all the tools required to remove and install bonded windshields. To order, call toll free in U.S. and Canada 1-800-520-2584 or Fax 1-800-578-7375. For additional materials contact International® dealer for service parts.

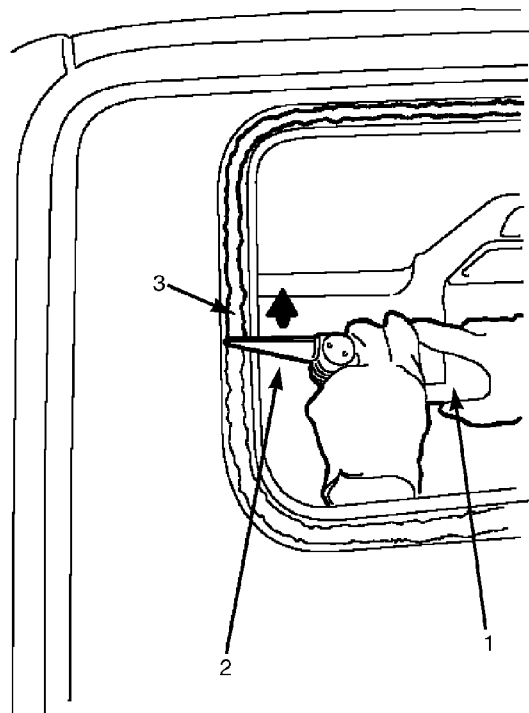
1. Place protective coverings over areas near the rear window glass inside the cab.
2. Before removing rear window glass, it may be necessary to remove the seats. For removing rear bench seat, refer to **REAR BENCH SEAT** (See Rear Bench Seat, page 138).
3. For removing the front seats, refer to **FRONT SEATS** (See Front Seats, page 134).





**Wear protective eye wear and work gloves when removing rear window glass.**

**NOTE –** When using a power knife to cut around the rear window glass, use a spray bottle filled with water and lubricate the cutting area. This will prevent burning of the urethane and rebonding of the rear window glass.



g1603825

1. POWER KNIFE
2. SHORT INSIDE CUTTING BLADE

3. REAR WINDOW GLASS FENCE

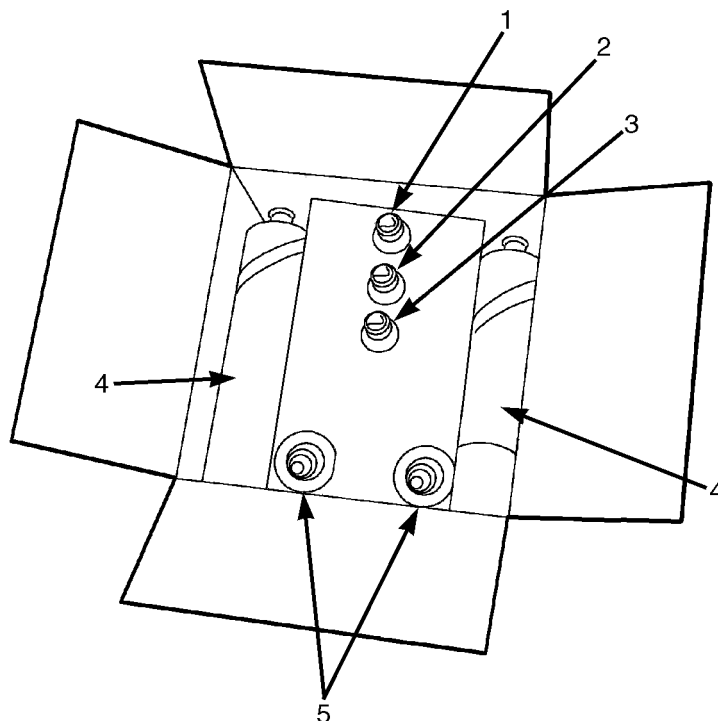
**Figure 26 Cutting Rear Window Out**

4. From inside the cab, use a power knife with a short inside cutting blade and cut all the way around the rear window glass until it is free from the window glass fence.
5. With the aid of an assistant, remove rear window glass and place it out of the way.

#### **Installation (Unobstructed Access)**

**IMPORTANT –** For proper rear window removal and installation, you will need the International® Bonded Windshield Tool Kit ZTSE4470. This kit comes complete with a toolbox and all the tools required to remove and install bonded windshields. To order, call toll free in U.S. and Canada 1-800-520-2584 or Fax 1-800-578-7375. For additional materials contact International® dealer for service parts.

**NOTE –** For rear window glass installation, use the Windshield Replacement Kit 2592784C91. A pneumatic or electric caulking gun is required for application of the adhesive.



g1603812

1. 43532 BODY PRIMER
2. 43518 CLEAR GLASS PRIMER
3. 43520A BLACK-OUT GLASS PRIMER

4. BETASEAL EXPRESS ONE-PART URETHANE ADHESIVE
5. CARTRIDGE TIPS

**Figure 27 Windshield Replacement Kit**

The windshield replacement kit includes the following components:

- 43532 Body Primer
- 43518 Clear Glass Primer
- 43520A Black-Out Glass Primer
- Betaseal Express One-Part Urethane Adhesive
- Cartridge Tips

**NOTE – These materials must be used on or before the expiration date marked on the container. Please refer to the individual containers for expiration dates.**

Additional materials needed include the following:

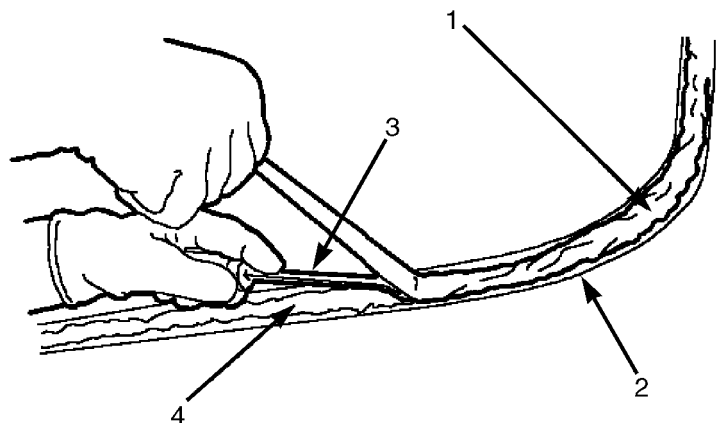
- Essex® GC800 Glass Cleaner
- White or Brown Paper Towels
- Pneumatic or Electric Caulking Gun



**Wear protective work gloves when handling the rear window glass. Also wear appropriate protective gloves when using any of the Betaseal system chemicals from the Essex® windshield installation kit.**

#### NOTE –

- **Use only heat-treated glass (AS-2 per ANSI Z26.1 - latest revision).**
  - **Before installing new rear window glass, wipe off any water remaining around rear window fence and surrounding cab area with a lint-free cloth.**
1. Dry-fit the rear window glass in the window fence to ensure it fits properly. Align window locator tabs between window locators on the cab and ensure window spring clip is inside the top of the window fence.
  2. While the rear window glass is in place, attach a piece of tape (as a reference mark) across the top and bottom, center portion of rear window glass and cab. Use a utility knife and cut the tape between the cab and rear window glass.
  3. Remove rear window glass and place it on a suitable padded work stand.



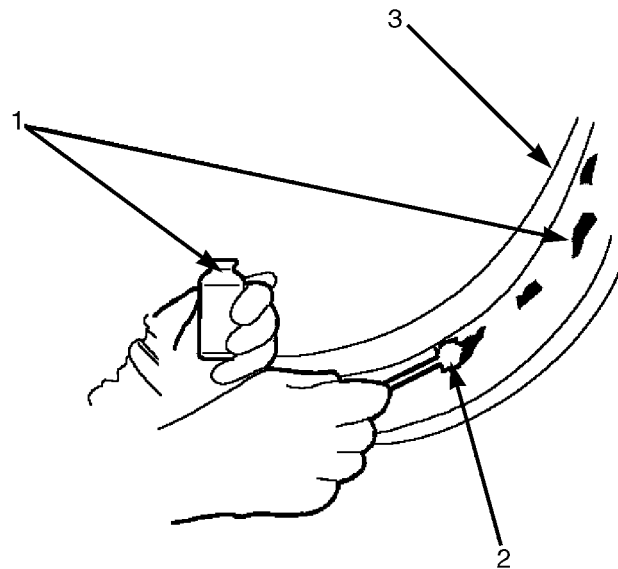
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1. OLD ADHESIVE
2. REAR WINDOW FENCE

3. GASKET CHISEL
4. OLD ADHESIVE

**Figure 28 Removing Old Adhesive**

4. Using a gasket chisel, remove old adhesive from rear window fence. Leaving a thin layer 5/64 to 1/8 in. (2 to 3 mm) thick of old adhesive is acceptable. While removing old adhesive, try to maintain a consistent thickness on the windshield fence.
5. Remove any dirt or water remaining from rear window removal with a brush or clean, lint-free cloth.



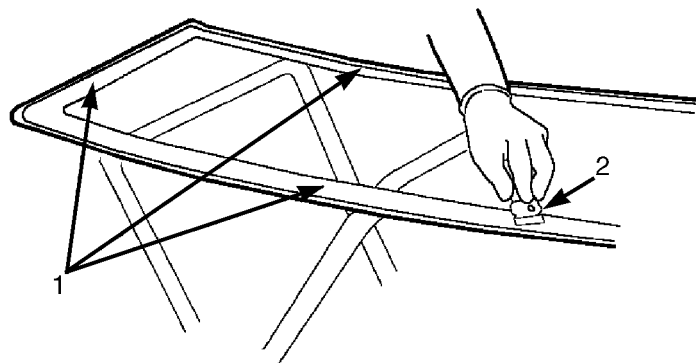
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- 1. 43532 BODY PRIMER
- 2. APPLICATOR

- 3. WINDSHIELD FENCE

**Figure 29 Applying Body Primer**

- 6. Shake 43532 body primer container for at least one minute.
- 7. Apply 43532 body primer with a clean, dry applicator to cover scratches and bare metal on the rear window fence. DO NOT apply 43532 body primer over old urethane adhesive left on rear window fence. Allow primer to dry for 6 to 10 minutes minimum after application.



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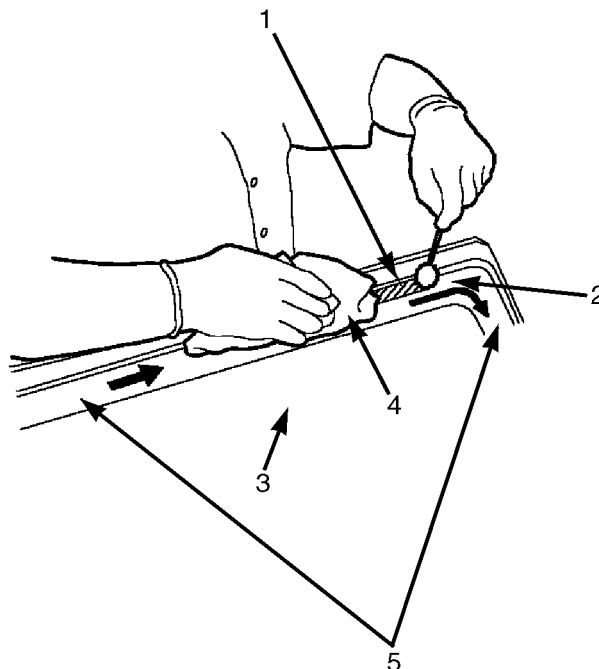
- 1. BONDING SURFACE

- 2. RAZOR BLADE

**Figure 30 Removing Flash**

8. Using a razor blade, if necessary, and plastic scrubbing pad, remove any flash from bonding surface of new rear window. Clean new, rear window thoroughly with Essex® glass cleaner GC800 and dry thoroughly with paper towels. Ensure rear window is completely clean and dry before proceeding.

**NOTE – Read next step thoroughly and completely to ensure the correct application and removal of the 43518 clear glass primer.**

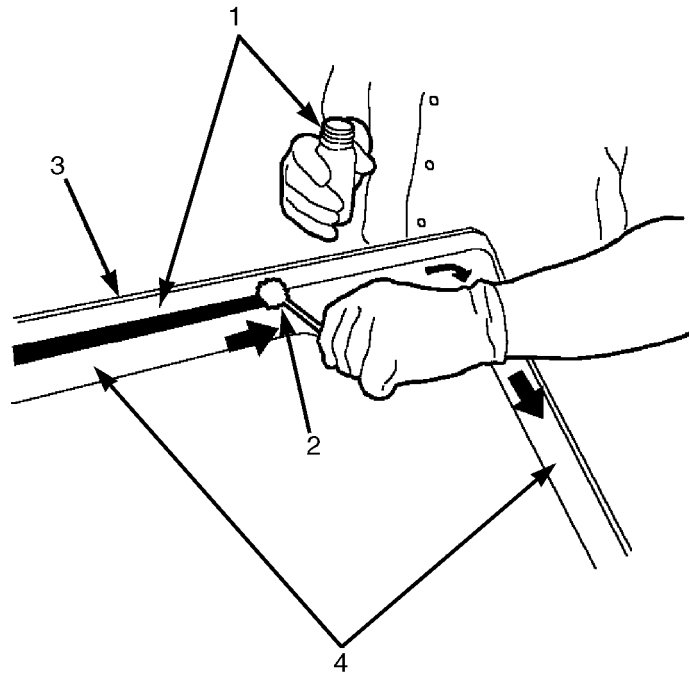


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- |                             |                               |
|-----------------------------|-------------------------------|
| 1. 43518 CLEAR GLASS PRIMER | 4. WHITE OR BROWN PAPER TOWEL |
| 2. APPLICATOR               | 5. BONDING SURFACE            |
| 3. REAR WINDOW GLASS        |                               |

**Figure 31 Applying Clear Glass Primer**

9. Shake 43518 clear glass primer container for at least one minute.
10. Apply 43518 clear glass primer with a clean, dry applicator to the rear window glass bonding surface only. **NOTE – If clear glass primer is applied to clear glass surface, glass will haze.** Immediately wipe clear glass primer off bonding surface by following 8 to 10 inches (20 to 25 cm) behind the applicator with a white or brown paper towel. **DO NOT** use a cloth shop towel. After completing first application of clear glass primer, repeat application and removal process.



g1603828

- 1. 43520A BLACK-OUT GLASS PRIMER
- 2. APPLICATOR

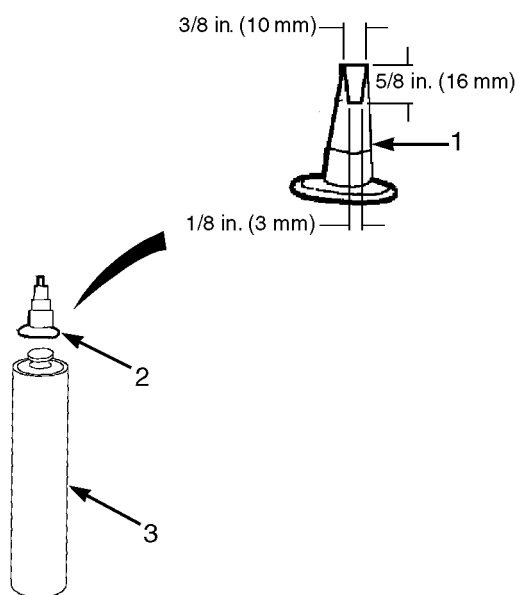
- 3. WINDOW GLASS
- 4. BONDING SURFACE

**Figure 32 Applying Black-Out Glass Primer**

- 11. Shake 43520A black-out glass primer container for at least one minute.
- 12. Apply 43520A black-out glass primer with a clean, dry applicator to the windshield bonding surface. Allow primer to dry to a tack-free condition for 6 to 10 minutes minimum after application.

**CAUTION**

Once the rear window glass has been primed, ensure there is no contact with bonding surface, as oil from skin will affect bonding performance. If the rear window glass is not bonded properly, the cab strength and safety would be compromised. If contact with bonding surface has occurred, repeat the cleaning process and reapply 43520A black-out glass primer and allow it to dry for 6 to 10 minutes before applying Betaseal Express one-part urethane adhesive .



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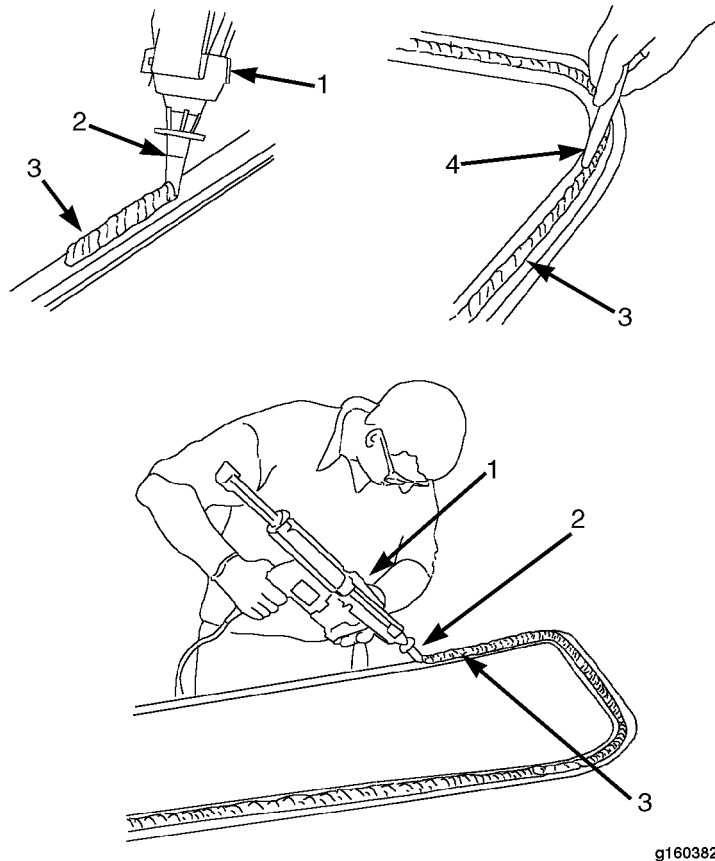
- 1. TRIM DIMENSIONS
- 2. CARTRIDGE TIP

- 3. ADHESIVE TUBE

**Figure 33 Adhesive Tube and Cartridge Tip**

- 13. Measure, mark, and trim the cartridge tip to trim dimensions shown for proper adhesive application.
- 14. Attach cartridge tip to adhesive tube.

**NOTE** – Application of adhesive bead on new rear window glass shall be 0 to 5/64 in. (0 to 2 mm) from encapsulation edge and be at least 5/8 to 3/4 inch (16 to 19 mm) high and 3/8 to 1/2 inch (10 to 13 mm) wide maximum.



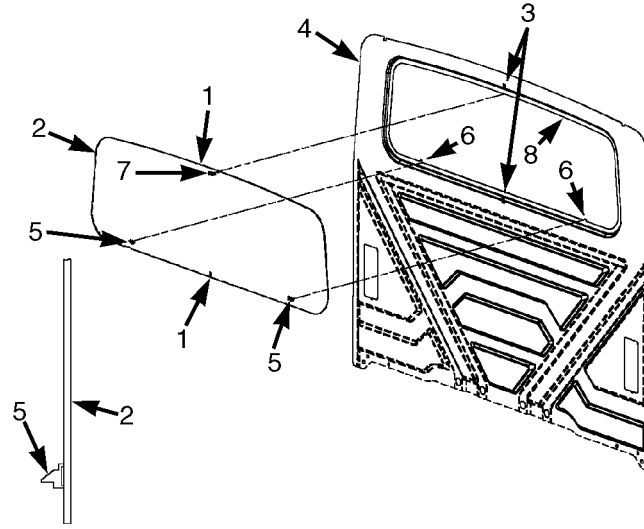
- 1. PNEUMATIC OR ELECTRIC CAULKING GUN
- 2. CARTRIDGE TIP

- 3. ADHESIVE
- 4. PLASTIC OR WOOD TONGUE DEPRESSOR

**Figure 34 Applying Adhesive to Rear Window Glass**

15. Holding pneumatic or electric caulking gun as close to a 90-degree angle as possible, start applying adhesive at the center of the bottom edge of the rear window glass. Apply a uniform bead all the way around the rear window glass, overlapping the adhesive at the seam slightly. Use a plastic or wood tongue depressor to smooth or even out adhesive as required before installing rear window glass.



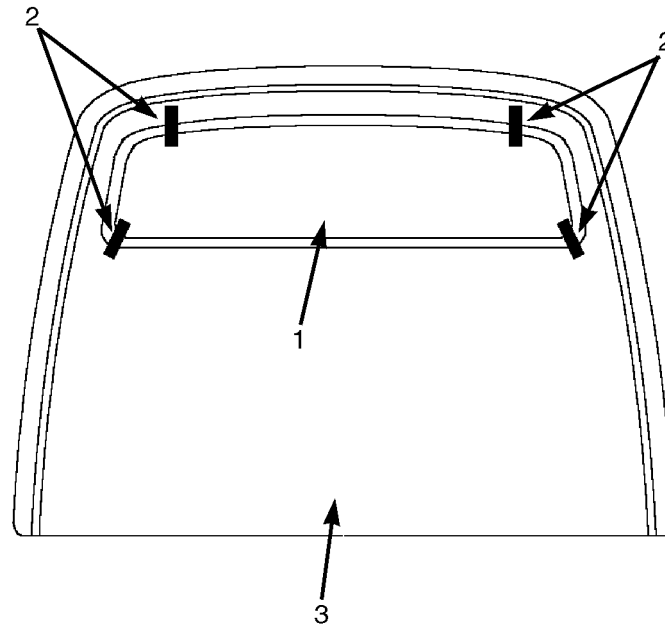


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- |                |                           |
|----------------|---------------------------|
| 1. TAPE MARKS  | 5. WINDOW LOCATOR TABS    |
| 2. REAR WINDOW | 6. WINDOW LOCATORS ON CAB |
| 3. TAPE MARKS  | 7. WINDOW SPRING CLIP     |
| 4. CAB         | 8. WINDOW FENCE           |

**Figure 35 Installing Rear Window Glass**

16. Align rear window with tape marks on rear window and cab. Align window locator tabs between window locators on cab. Ensure window spring clip is inside the top of the window fence.
17. With the aid of an assistant, gently push on the rear window glass all around the outer edges to seat it properly against the window fence.



g1603831

1. REAR WINDOW  
2. TAPE

3. BACKSIDE OF CAB

**Figure 36 Taping Rear Window Glass in Place**

18. Tape the rear window to the backside of the cab in four locations while adhesive cures.
19. After the adhesive has cured, remove all pieces of tape and clean the rear window and surrounding areas.

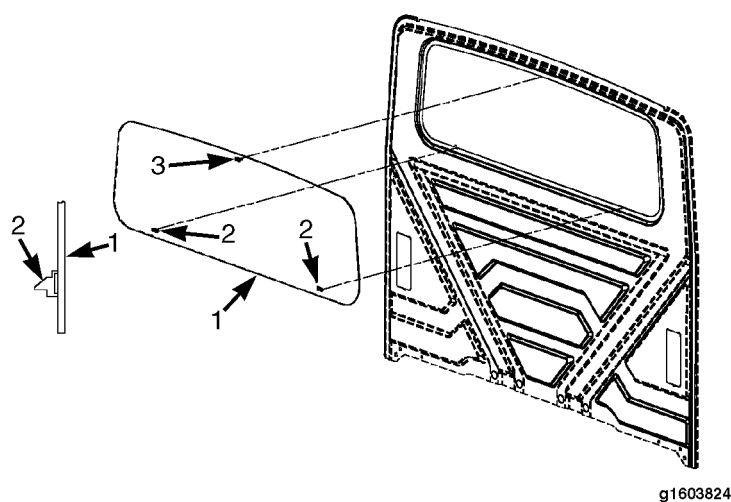
**CAUTION**

**While putting the seats back into the cab, be careful not to hit the rear window glass while the adhesive is curing. This may cause rear window glass to not seal properly and could cause leaking.**

20. If rear bench seat was removed, install the rear bench seat. Refer to **REAR BENCH SEAT** (See Rear Bench Seat, page 138).
21. If front seats were removed, install the front seats. Refer to **FRONT SEATS** (See Front Seats, page 134).

### Removal (Obstructed Access)

**IMPORTANT** – For proper rear window glass removal and installation, you will need the International® Bonded Windshield Tool Kit ZTSE4470. This kit comes complete with a toolbox and all the tools required to remove and install bonded windshields. To order, call toll free in U.S. and Canada 1-800-520-2584 or Fax 1-800-578-7375. For additional materials contact International® dealer for service parts.



1. REAR WINDOW GLASS
2. LOCATOR TAB

3. SPRING CLIP

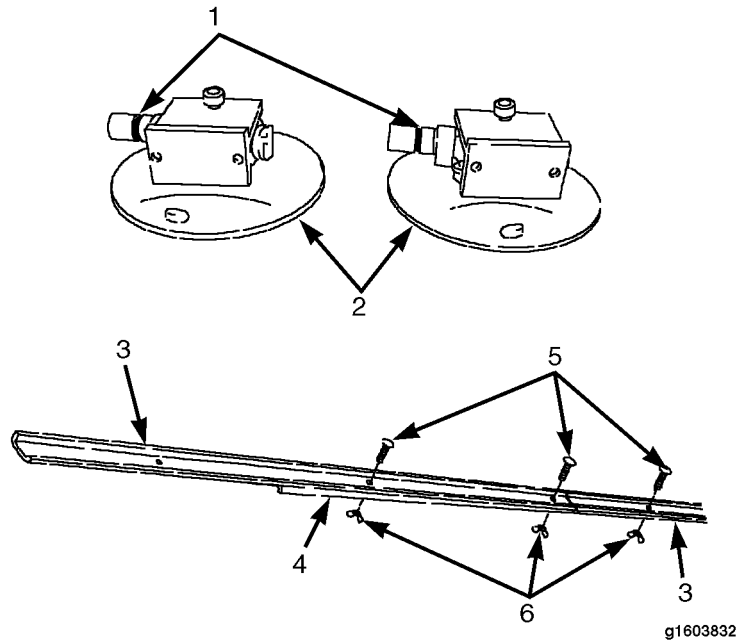
**Figure 37 Rear Window Glass**

1. Place protective coverings over areas near the rear window glass inside the cab.
2. Before removing rear window glass, it may be necessary to remove the seats. For removing rear bench seat, refer to **REAR BENCH SEAT** (See Rear Bench Seat, page 138).
3. For removing the front seats, refer to **FRONT SEATS** (See Front Seats, page 134).



**Wear protective eye wear and work gloves when removing rear window glass.**

**IMPORTANT** – For rear window removal and installation on vehicles with a van body (or other type of body) where access is obstructed, the slide rail and suction cups from the International® Bonded Windshield Tool Kit ZTSE4470 must be used. The slide rail and suction cups require assembly.



1. PLUNGERS AND RED INDICATORS
2. SUCTION CUPS
3. TOP RAILS

4. BOTTOM RAIL
5. SCREWS
6. WING NUTS

**Figure 38 Slide Rail and Suction Cups**

4. Assemble the slide rail by attaching the two top rails to the bottom rail. The three rails are identical and can be assembled in any one of the three locations. Line up the holes in the two top rails with holes in the bottom rail. Install three screws and tighten securely with three wing nuts.

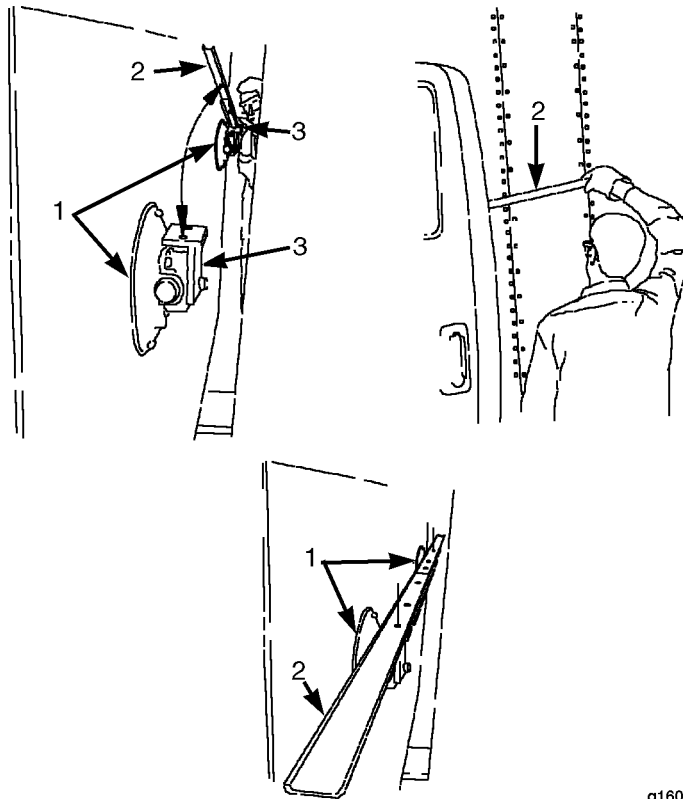
**CAUTION**

**It is very important that the area of the van body where the suction cups are being installed is cleaned properly before the suction cups are attached. If the suction cups come off during the removal or installation of the rear window glass, the rear window glass will be destroyed and the vehicle damaged.**

5. Clean the area on the van body where the suction cups will be installed to ensure the suction cups will stick securely.
6. Attach one suction cup to the van body on the driver side and attach the other to the passenger side. Position both suction cups so that the slide rail (which rests on top of each block) will be just below the

bottom edge of the rear window glass. Repeatedly push the suction cup plungers until the red indicators are no longer visible; this indicates a good vacuum.

**NOTE –** Periodically check the suction cups to see if the red indicator is starting to appear. If the indicator is visible on either unit, push the plunger(s) repeatedly until the red indicator is no longer visible.



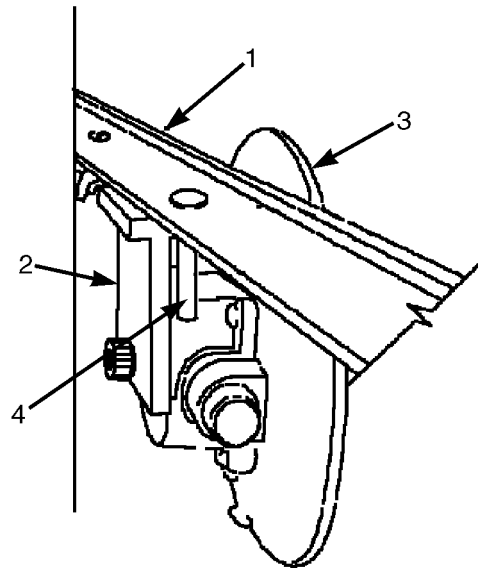
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1. SUCTION CUP
2. SLIDE RAIL

3. SUCTION CUP BLOCK

**Figure 39 Installing Slide Rail**

7. Place the slide rail on top of each suction cup block.

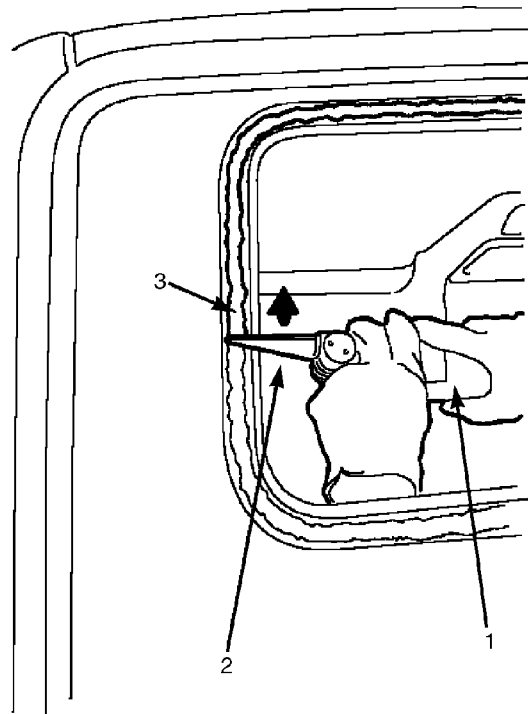


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- |                      |                |
|----------------------|----------------|
| 1. SLIDE RAIL        | 3. SUCTION CUP |
| 2. SUCTION CUP BLOCK | 4. PINS        |

**Figure 40 Securing Slide Rail with Pins**

8. Starting with the driver side, align the hole in the slide rail with the hole in the suction cup block and install a pin to secure.
9. Moving to the passenger side, reposition the suction cup to align the slide rail with the suction cup block and install a pin to secure. Repeatedly push suction cup plunger until the red indicator is not visible.
10. Attach a suction cup to the driver side of the rear window glass.



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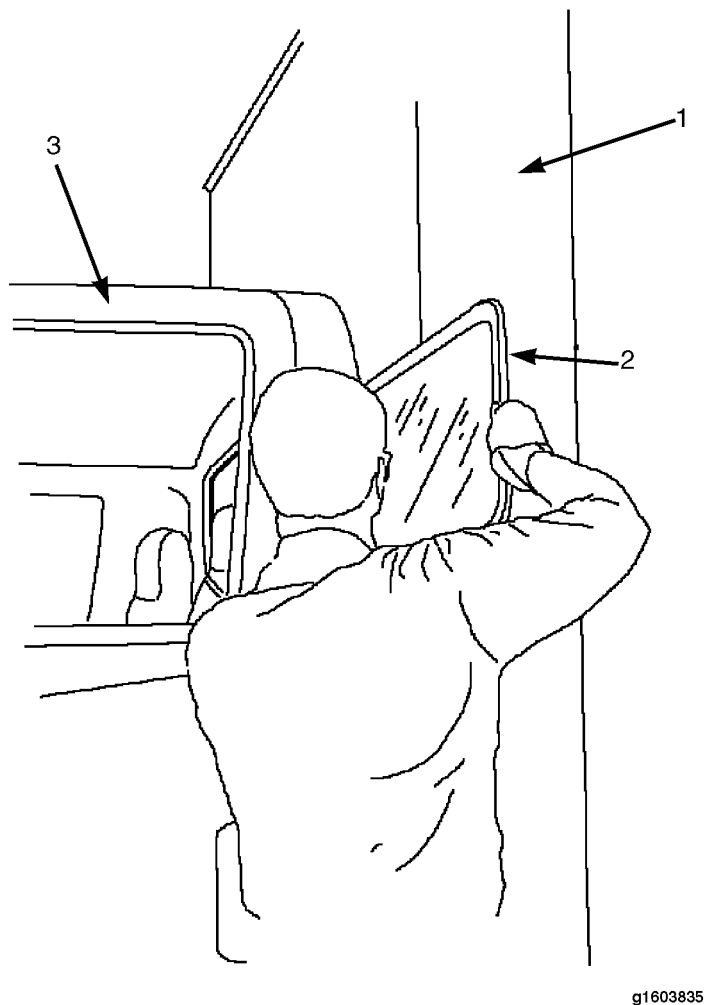
- 1. POWER KNIFE
- 2. SHORT INSIDE CUTTING BLADE

- 3. REAR WINDOW GLASS FENCE

**Figure 41 Cutting Rear Window Out**

**NOTE –** When using a power knife to cut around the rear window glass, use a spray bottle filled with water to lubricate the cutting area. This will prevent burning of the urethane and rebonding of the rear window glass.

- 11. From inside the cab, use a power knife with a short inside cutting blade and cut all the way around the rear window glass until it is free from the window glass fence.
- 12. Using the suction cup, lift the rear window glass off the fence and set into the slide rail. Lean the top of the rear window glass against the van body.



- 1. VAN BODY
- 2. REAR WINDOW GLASS

- 3. CAB

**Figure 42 Removing Rear Window Glass**

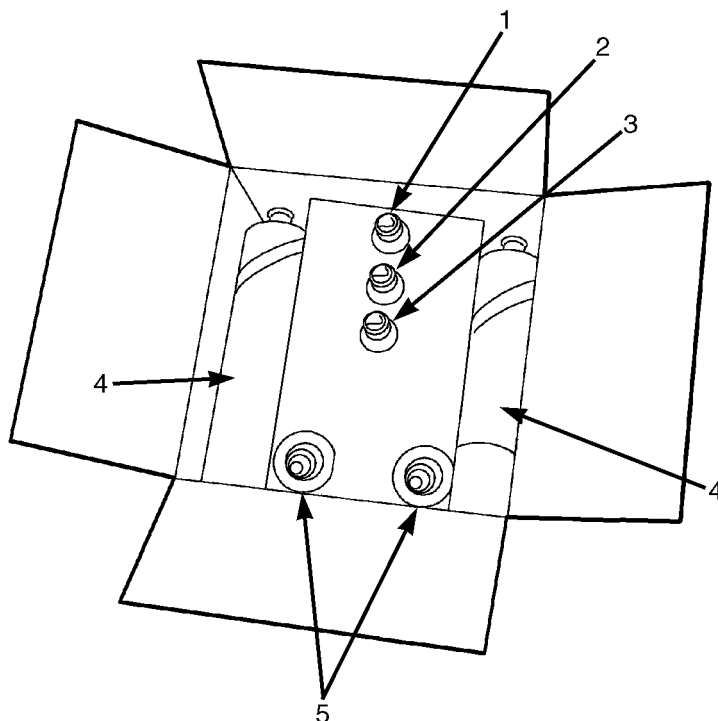
- 13. From outside the cab, slide the rear window glass down the slide rail and, with the aid of an assistant, remove rear window glass and place out of the way.
- 14. Remove the suction cup from the rear window glass.

#### **Installation (Obstructed Access)**

**IMPORTANT** – For proper rear window removal and installation, you will need the International® Bonded Windshield Tool Kit ZTSE4470. This kit comes complete with a toolbox and all the tools required to remove and install bonded windshields. To order, call toll free in U.S. and Canada 1-800-520-2584 or Fax 1-800-578-7375. For additional materials contact International® dealer for service parts.

**NOTE** – For rear window glass installation, use the Windshield Replacement Kit 2592784C91. A pneumatic or electric caulking gun is required for application of the adhesive.





g1603812

1. 43532 BODY PRIMER
2. 43518 CLEAR GLASS PRIMER
3. 43520A BLACK-OUT GLASS PRIMER

4. BETASEAL EXPRESS ONE-PART URETHANE ADHESIVE
5. CARTRIDGE TIPS

**Figure 43 Windshield Replacement Kit**

The windshield replacement kit includes the following components:

- 43532 Body Primer
- 43518 Clear Glass Primer
- 43520A Black-Out Glass Primer
- Betaseal Express One-Part Urethane Adhesive
- Cartridge Tips

**NOTE – These materials must be used on or before the expiration date marked on the container. Please refer to the individual containers for expiration dates.**

Additional materials needed include the following:

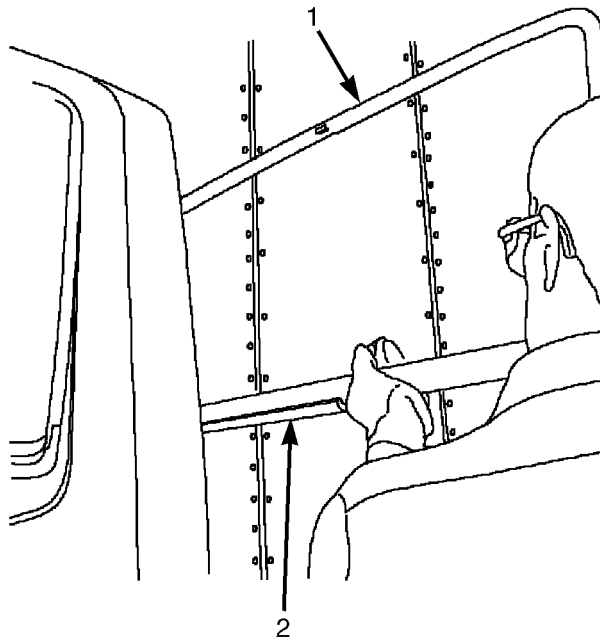
- Essex® GC800 Glass Cleaner
- White or Brown Paper Towels
- Pneumatic or Electric Caulking Gun



Wear protective work gloves when handling the rear window glass. Also wear appropriate protective gloves when using any of the Betaseal system chemicals from the Essex® windshield installation kit.

**NOTE –**

- Use only heat-treated glass (AS-2 per ANSI Z26.1 - latest revision).
- Before installing new rear window glass, wipe off any water remaining around rear window fence and surrounding cab area with a lint-free cloth.
- Ensure suction cups and slide rail are still in place on van body from removal procedures. If not, repeat removal procedures and install suction cups and slide rail before proceeding.



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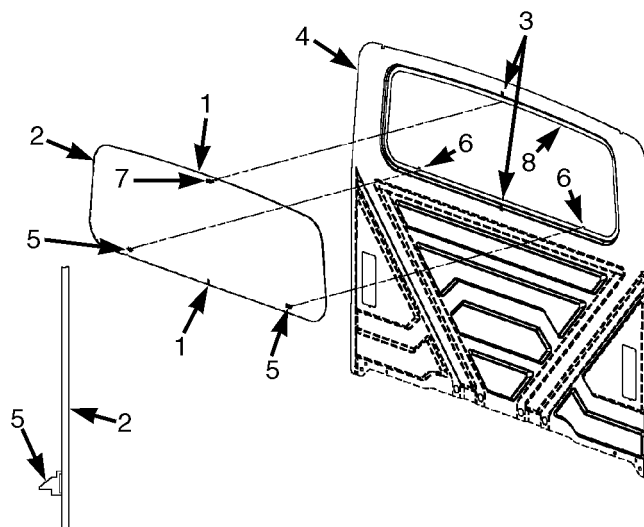
1. REAR WINDOW GLASS

2. SLIDE RAIL

**Figure 44 Rear Window Glass on Slide Rail**

1. Carefully place rear window glass on the slide rail with the proper side facing the back of the cab.
2. Slide the rear window glass on the slide rail and lean the top of rear window glass against the van body.
3. Attach two suction cups on the rear window glass and repeatedly push the suction cup plungers until the red indicators are no longer visible; this indicates a good vacuum.

**NOTE –** Periodically check the suction cups to see if the red indicator is starting to appear. If the indicator is visible on either unit, push the plunger(s) repeatedly until the red indicator is no longer visible.

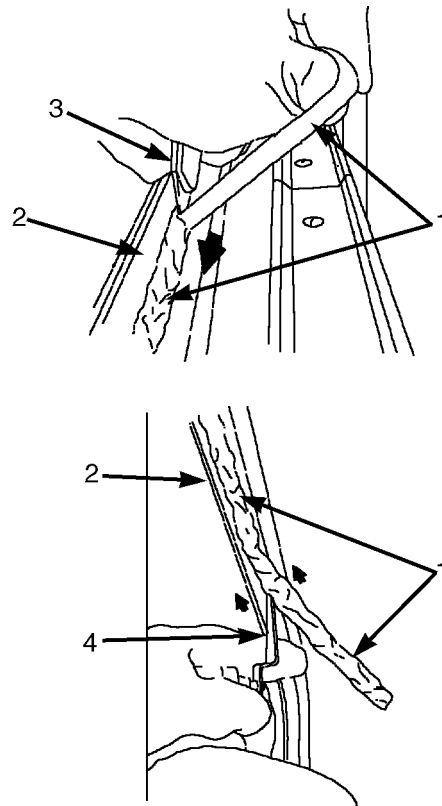


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- |                |                           |
|----------------|---------------------------|
| 1. TAPE MARKS  | 5. WINDOW LOCATOR TABS    |
| 2. REAR WINDOW | 6. WINDOW LOCATORS ON CAB |
| 3. TAPE MARKS  | 7. WINDOW SPRING CLIP     |
| 4. CAB         | 8. WINDOW FENCE           |

**Figure 45 Rear Window Glass**

4. Dry-fit the rear window glass in the window fence to ensure it fits properly. Align window locator tabs between window locators on the cab and ensure window spring clip is inside the top of the window fence.
5. While the rear window glass is in place, attach a piece of tape (as a reference mark) across the top and bottom, center portion of rear window glass and inside trim panel. Use a utility knife and carefully cut the tape between the cab and rear window glass.
6. Using the suction cups, lift the rear window glass off the window fence and place it in the slide rail.
7. Slide the rear window glass out of the slide rail and remove. Place rear window on a suitable padded work stand.
8. Remove the suction cups from the rear window glass.



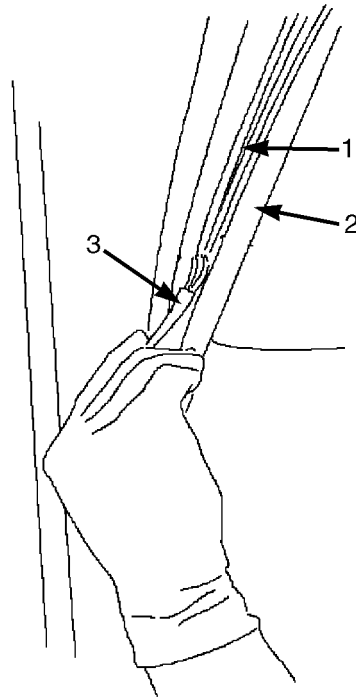
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- 1. OLD ADHESIVE
- 2. REAR WINDOW FENCE
- 3. UTILITY KNIFE

- 4. POWER KNIFE WITH SHORT  
INSIDE CUTTING BLADE

**Figure 46 Removing Old Adhesive**

- 9. Using a utility knife and/or power knife with short inside cutting blade, remove old adhesive from rear window fence. Leaving a thin layer 5/64 to 1/8 in. (2 to 3 mm) thick of old adhesive is acceptable. While removing old adhesive, try to maintain a consistent thickness on the windshield fence.
- 10. Remove any dirt or water remaining from rear window removal with a brush or clean, lint-free cloth.
- 11. Place strips of tape around the rear window opening to protect the painted surfaces.



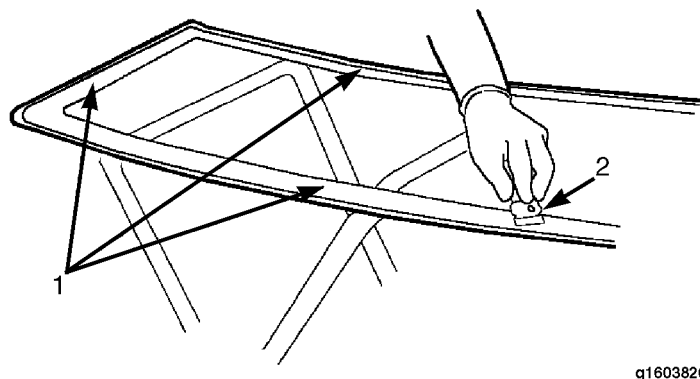
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- 1. 43532 BODY PRIMER
- 2. APPLICATOR

- 3. WINDSHIELD FENCE

**Figure 47 Applying Body Primer**

- 12. Shake 43532 body primer container for at least one minute.
- 13. Apply 43532 body primer with a clean, dry applicator to cover scratches and bare metal on the rear window fence. DO NOT apply 43532 body primer over old urethane adhesive left on rear window fence. Allow primer to dry for 6 to 10 minutes minimum after application.
- 14. Remove strips of tape from around the rear window opening.



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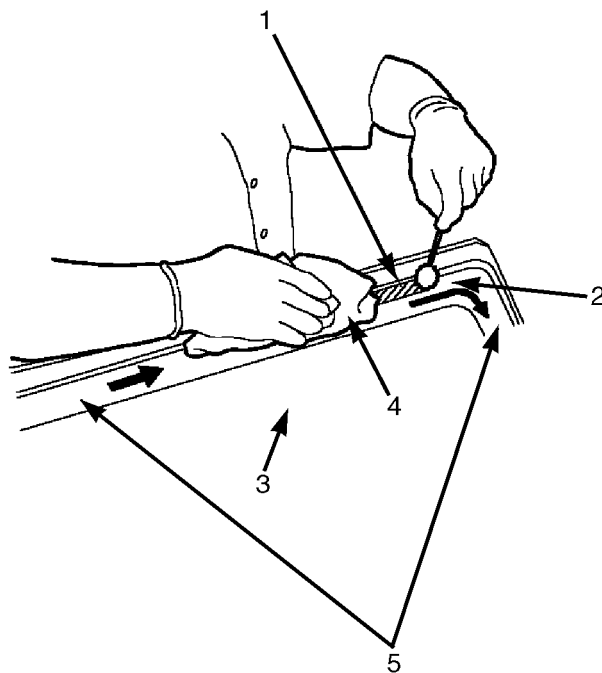
1. BONDING SURFACE

2. RAZOR BLADE

**Figure 48 Removing Flash**

15. Using a razor blade, if necessary, and plastic scrubbing pad, remove any flash from bonding surface of rear window glass. Clean new, rear window glass thoroughly with Essex® glass cleaner GC800 and dry thoroughly with paper towels. Ensure rear window glass is completely clean and dry before proceeding.

**NOTE – Read next step thoroughly and completely to ensure the correct application and removal of the 43518 clear glass primer.**

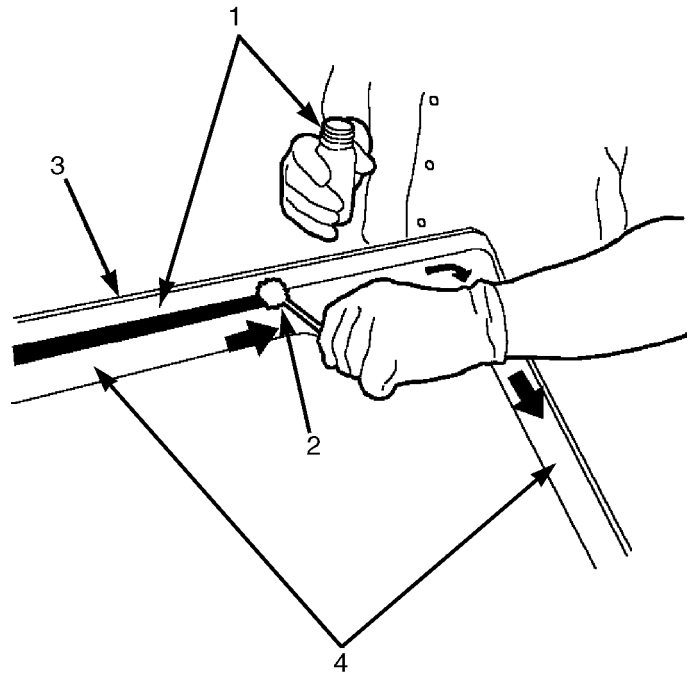


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- |                             |                               |
|-----------------------------|-------------------------------|
| 1. 43518 CLEAR GLASS PRIMER | 4. WHITE OR BROWN PAPER TOWEL |
| 2. APPLICATOR               | 5. BONDING SURFACE            |
| 3. REAR WINDOW GLASS        |                               |

**Figure 49 Applying Clear Glass Primer**

16. Shake 43518 clear glass primer container for at least one minute.
17. Apply 43518 clear glass primer with a clean, dry applicator to the rear window glass bonding surface only.  
**NOTE – If clear glass primer is applied to clear glass surface, glass will haze.** Immediately wipe clear glass primer off bonding surface by following 8 to 10 inches (20 to 25 cm) behind the applicator with a white or brown paper towel. **DO NOT** use a cloth shop towel. After completing first application of clear glass primer, repeat application and removal process.
18. Shake 43520A black-out glass primer container for at least one minute.



g1603828

- 1. 43520A BLACK-OUT GLASS PRIMER
- 2. APPLICATOR

- 3. WINDOW GLASS
- 4. BONDING SURFACE

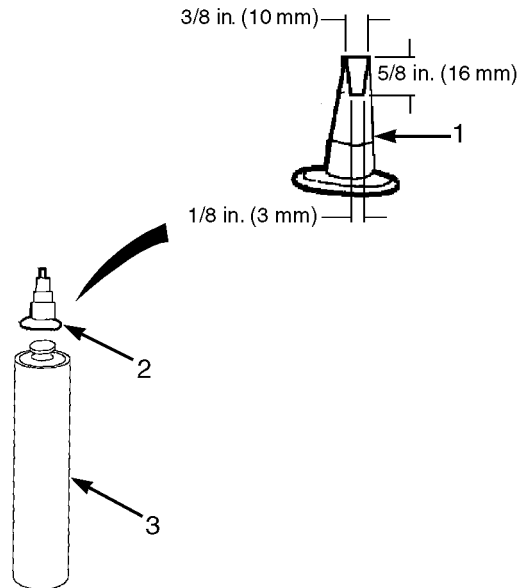
**Figure 50 Applying Black-Out Glass Primer**

**CAUTION**

Once the rear window glass has been primed, ensure there is no contact with bonding surface, as oil from skin will affect bonding performance. If the rear window glass is not bonded properly, the cab strength and safety would be compromised. If contact with bonding surface has occurred, repeat the cleaning process and reapply 43520A black-out glass primer and allow it to dry for 6 to 10 minutes before applying Betaseal Express one-part urethane adhesive .

- 19. Apply 43520A black-out glass primer with a clean, dry applicator to the rear window glass bonding surface. Allow primer to dry to a tack-free condition for 6 to 10 minutes minimum after application.





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- 1. TRIM DIMENSIONS
- 2. CARTRIDGE TIP

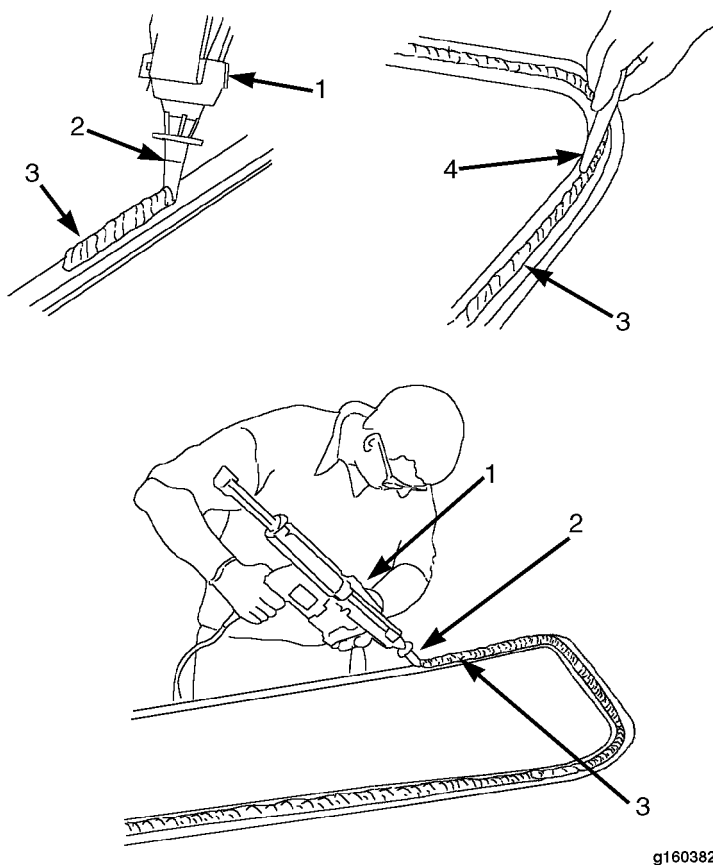
- 3. ADHESIVE TUBE

**Figure 51 Adhesive Tube and Cartridge Tip**

20. Measure, mark, and trim the cartridge tip to trim dimensions shown for proper adhesive application.

21. Attach cartridge tip to adhesive tube.

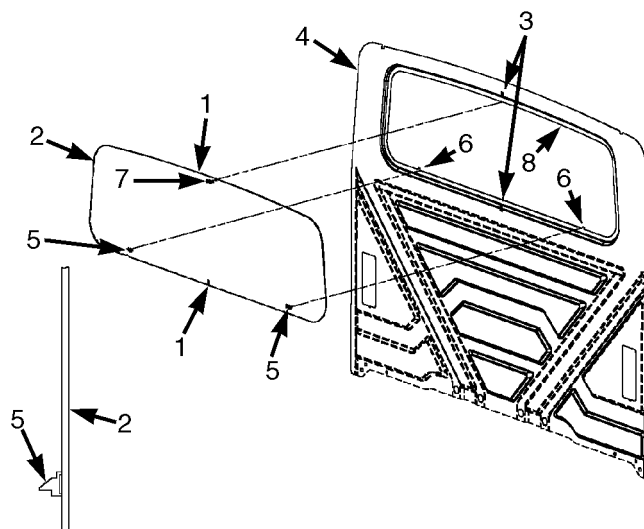
**NOTE – Application of adhesive bead on new rear window glass shall be 0 to 5/64 in. (0 to 2 mm) from encapsulation edge and be at least 5/8 to 3/4 inch (16 to 19mm) high and 3/8 to 1/2 inch (10 to 13 mm) wide maximum.**



1. PNEUMATIC OR ELECTRIC CAULKING GUN
2. CARTRIDGE TIP
3. ADHESIVE
4. PLASTIC OR WOOD TONGUE DEPRESSOR

### Figure 52 Applying Adhesive to Rear Window Glass

22. Holding pneumatic or electric caulking gun as close to a 90-degree angle as possible, start applying adhesive at the center of the bottom edge of the rear window glass. Apply a uniform bead all the way around the rear window glass, overlapping the adhesive at the seam slightly. Use a plastic or wood tongue depressor to smooth or even out adhesive as required before installing rear window glass.
23. Attach two suction cups to the rear window glass and repeatedly push the suction cup plungers until the red indicators are no longer visible; this indicates a good vacuum.
24. Place rear window glass onto slide rail and slide into position with the window fence.

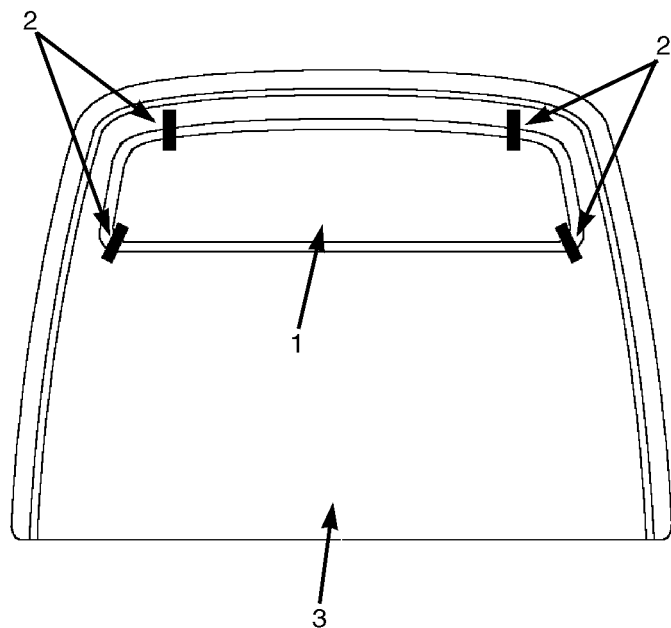


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- |                |                           |
|----------------|---------------------------|
| 1. TAPE MARKS  | 5. WINDOW LOCATOR TABS    |
| 2. REAR WINDOW | 6. WINDOW LOCATORS ON CAB |
| 3. TAPE MARKS  | 7. WINDOW SPRING CLIP     |
| 4. CAB         | 8. WINDOW FENCE           |

**Figure 53 Rear Window Glass**

25. Align rear window with tape marks on rear window and cab. Align window locator tabs between window locators on cab. Ensure window spring clip is inside the top of the window fence.
26. From inside the cab and with the aid of an assistant, carefully pull the rear window glass in against the rear window fence as evenly as possible.
27. Remove the two suction cups from the rear window glass.
28. From outside the cab, reach in between the back of the cab and the van body and from both sides, gently push on rear window glass all around the outer edge to set it properly against the window fence.



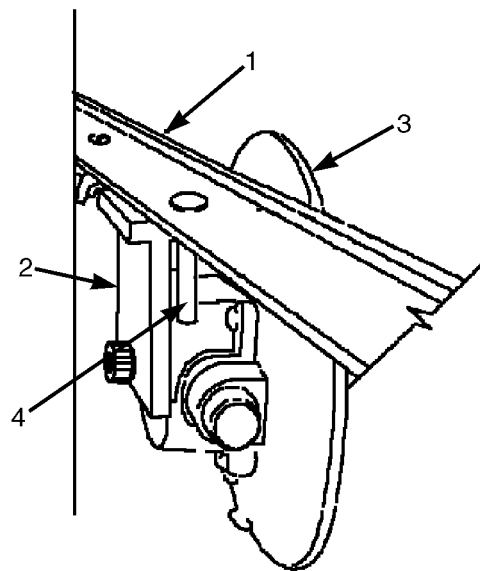
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- 1. REAR WINDOW
- 2. TAPE

- 3. BACKSIDE OF CAB

**Figure 54 Taping Rear Window Glass in Place**

29. Tape the rear window to the backside of the cab in four locations while adhesive cures.



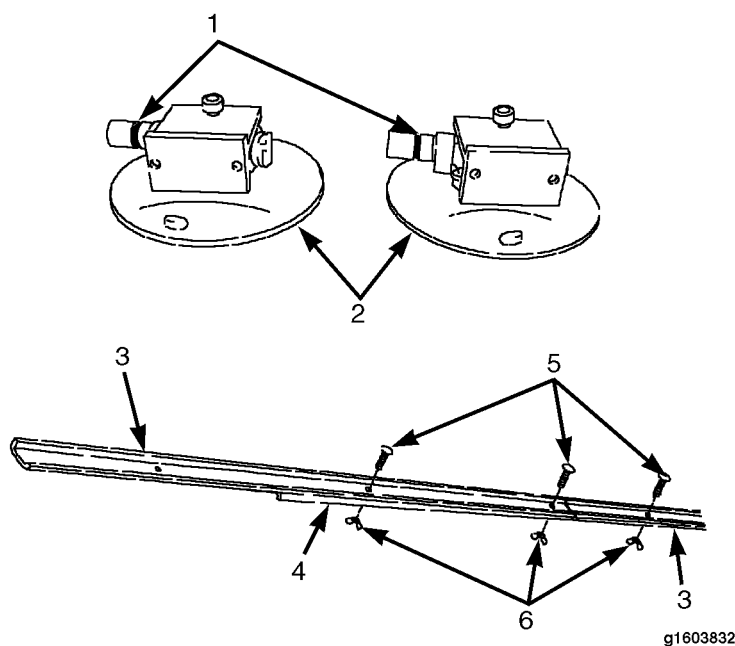
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- 1. SLIDE RAIL
- 2. SUCTION CUP BLOCK

- 3. SUCTION CUP
- 4. PIN

**Figure 55 Removing Slide Rail Pins**

- 30. Remove pins from the suction cup blocks and slide rail.
- 31. Remove the slide rail and suction cups from the van body.
- 32. If desired, store the slide rail as assembled.



1. PLUNGERS AND RED INDICATORS
2. SUCTION CUPS
3. TOP RAILS

4. BOTTOM RAIL
5. SCREWS
6. WING NUTS

**Figure 56 Slide Rail and Suction Cups**

33. To disassemble the slide rail, remove three wing nuts and three screws securing top rails to bottom rail and store in the removal and installation kit.
34. After the adhesive has cured, remove all pieces of tape and clean the rear window and surrounding areas.

**CAUTION**

**While putting the seats back into the cab, be careful not to hit the rear window glass while the adhesive is curing. This may cause rear window glass to not seal properly and could cause leaking.**

35. If rear bench seat was removed, install the rear bench seat. Refer to **REAR BENCH SEAT** (See Rear Bench Seat, page 138).
36. If front seats were removed, install the front seats. Refer to **FRONT SEATS** (See Front Seats, page 134).

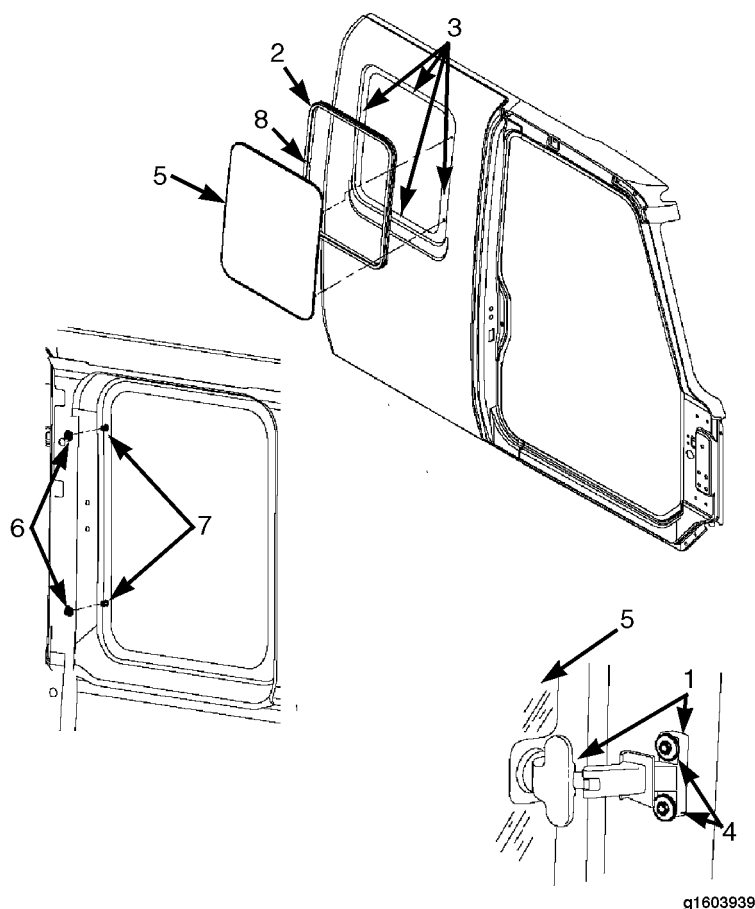
**IMPORTANT** – The quick curing time of Betaseal Express one-part urethane adhesive allows the vehicle to be driven 30 minutes after completing rear window glass installation.

## 2.3. REAR SIDE WINDOW

### Removal

**NOTE – Passenger side shown, driver side removes the same way.**

1. Remove the rear bench seat. Refer to **REAR BENCH SEAT** (See Rear Bench Seat, page 138).
2. Remove the passenger front seat. Refer to **FRONT SEATS** (See Front Seats, page 134).
3. If equipped, remove bunk/storage unit. Refer to **BUNK/STORAGE UNIT** (See Bunk/Storage Unit, page 139).
4. Remove scuff plate and seat belt retractor cover. Refer to **SCUFF PLATE AND SEAT BELT RETRACTOR COVER** (See Scuff Plate and Seat Belt Retractor Cover, page 121).



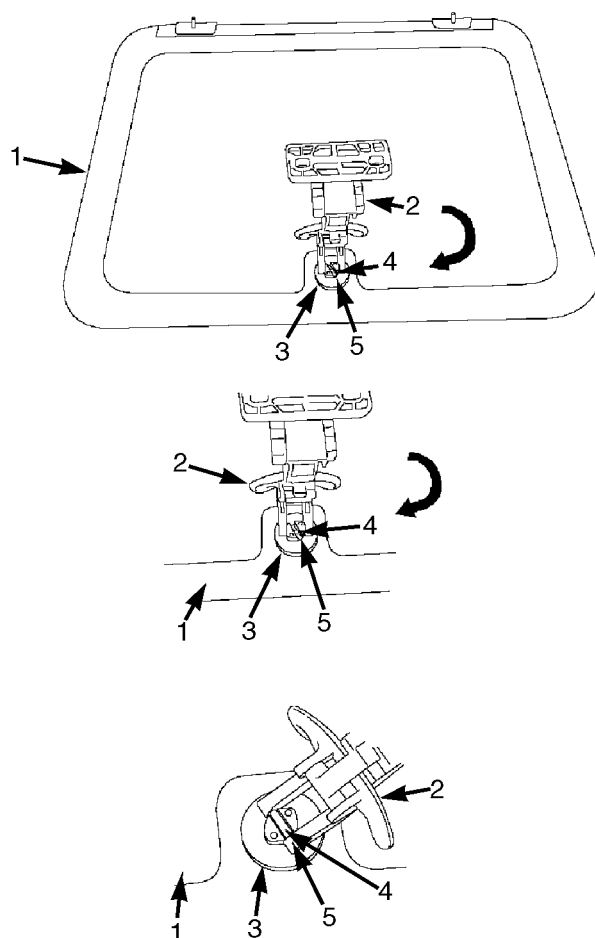
1. WINDOW LATCH
2. WINDOW SEAL
3. WINDOW FENCE
4. BOLT

5. REAR SIDE WINDOW
6. NUT
7. THREADED STUDS
8. WINDOW SEAL SEAM

**Figure 57 Rear Side Window**

5. Open window latch and remove window seal by pulling it off the window fence.

6. Remove corner and side interior trim panel. Refer to **CORNER AND SIDE INTERIOR TRIM PANEL** (See Corner and Side Interior Trim Panel, page 140).
7. Remove two bolts from window latch.
8. Remove two nuts from threaded studs.
9. Carefully pull threaded studs out of mounting holes in window fence.
10. Remove rear side window and place on a padded work surface.

**Latch Removal**

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1. WINDOW
2. WINDOW LATCH
3. MOUNTING PEDESTAL

4. LATCH BAR
5. MOUNTING PEDESTAL SLOT

**Figure 58 Window Latch**

1. Rotate window latch clockwise until the latch bar is aligned with the mounting pedestal slot. Lift and remove latch.



**Latch Installation**

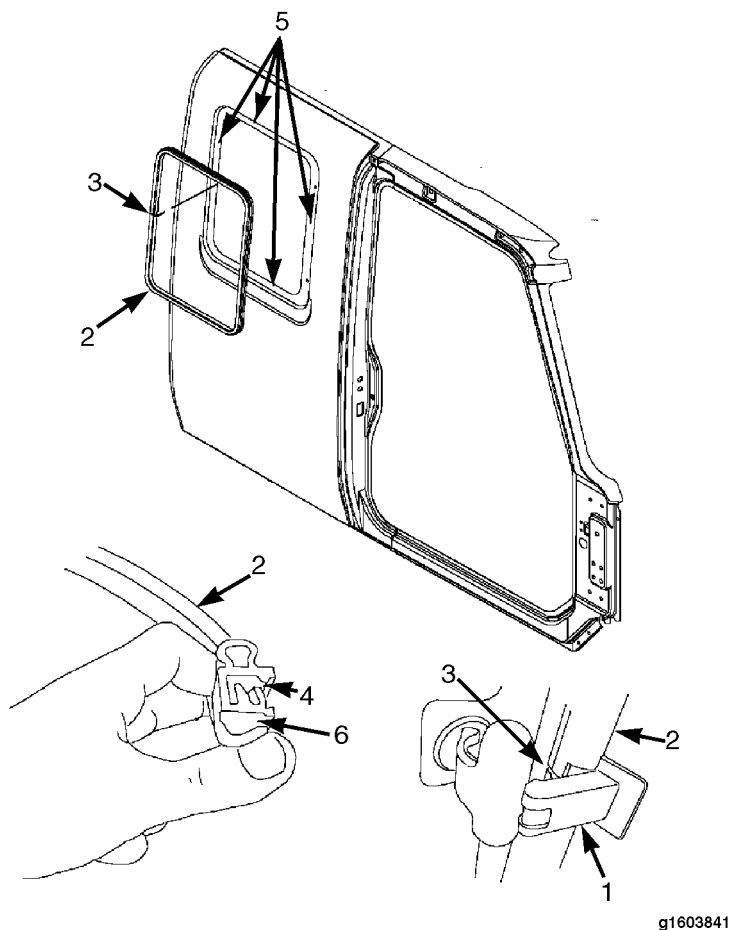
**NOTE – Passenger side shown, driver side installs the same way.**

1. Position latch bar into mounting pedestal slot and rotate window latch counterclockwise until the latch bar is locked in place on the window (Figure 58).

**Installation**

**NOTE – Passenger side shown, driver side installs the same way .**

1. Install two threaded studs into mounting holes in window fence (Figure 57, Items 3 and 7).
2. Install two nuts on threaded studs (Figure 57, Items 6 and 7). Tighten nuts to 6 to 8 Lbf-ft (8 to 11 N•m).
3. Install two bolts on window latch (Figure 57, Items 1 and 4). Tighten bolts to 6 to 8 Lbf-ft (8 to 11 N•m).
4. Install corner and side interior trim panel. Refer to **CORNER AND SIDE INTERIOR TRIM PANEL** (See Corner and Side Interior Trim Panel, page 140).



- 1. LATCH
- 2. SEAL
- 3. SEAL SEAM

- 4. SEAL INNER GROOVE
- 5. WINDOW FENCE
- 6. SEAL OUTER GROOVE

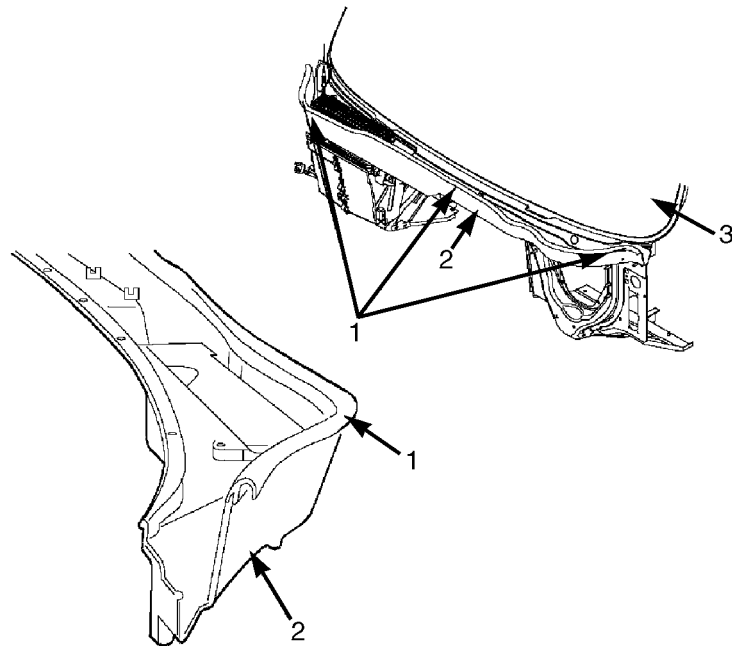
**Figure 59 Installing Window Seal**

- 5. Starting at the center of the latch, push inner groove of seal over the flange of the window fence and outer groove of seal over the side and corner interior trim panel.
- 6. Install scuff plate and seat belt retractor cover. Refer to **SCUFF PLATE AND SEAT BELT RETRACTOR COVER** (See Scuff Plate and Seat Belt Retractor Cover, page 121).
- 7. If equipped, install bunk/storage unit. Refer to **BUNK/STORAGE UNIT** (See Bunk/Storage Unit, page 139).
- 8. Install the rear bench seat. Refer to **REAR BENCH SEAT** (See Rear Bench Seat, page 138).
- 9. Install the passenger front seat. Refer to **FRONT SEATS** (See Front Seats, page 134).

## 2.4. HOOD SEAL

### Removal (All Except 8600 Models)

1. Unlatch and open the hood.



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1. HOOD SEAL FLANGE
2. COWL TRAY

3. WINDSHIELD

**Figure 60 Hood Seal**

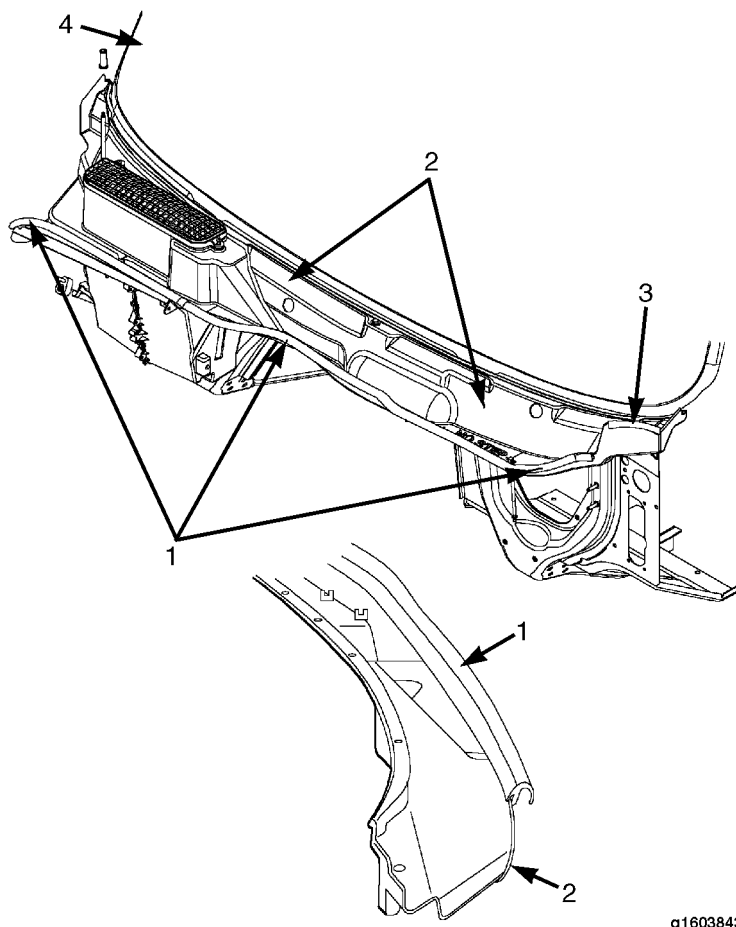
2. Remove hood seal by pulling it off the cowl tray.

### Installation (All Except 8600 Models)

1. Check hood seal for cracks and tears. If damaged, replace it.
2. Press the hood seal firmly onto the cowl tray until it seats properly (Figure 60, Items 1 and 2).
3. Close and latch the hood.

**Removal (8600 Models Only)**

1. Unlatch and open the hood.



1. HOOD SEAL  
2. COWL TRAY

3. SHORT HOOD SEAL  
4. WINDSHIELD

**Figure 61 Hood Seal**

2. Remove hood seal by pulling it off the cowl tray.
3. Remove short hood seal by pulling it off the cowl tray.

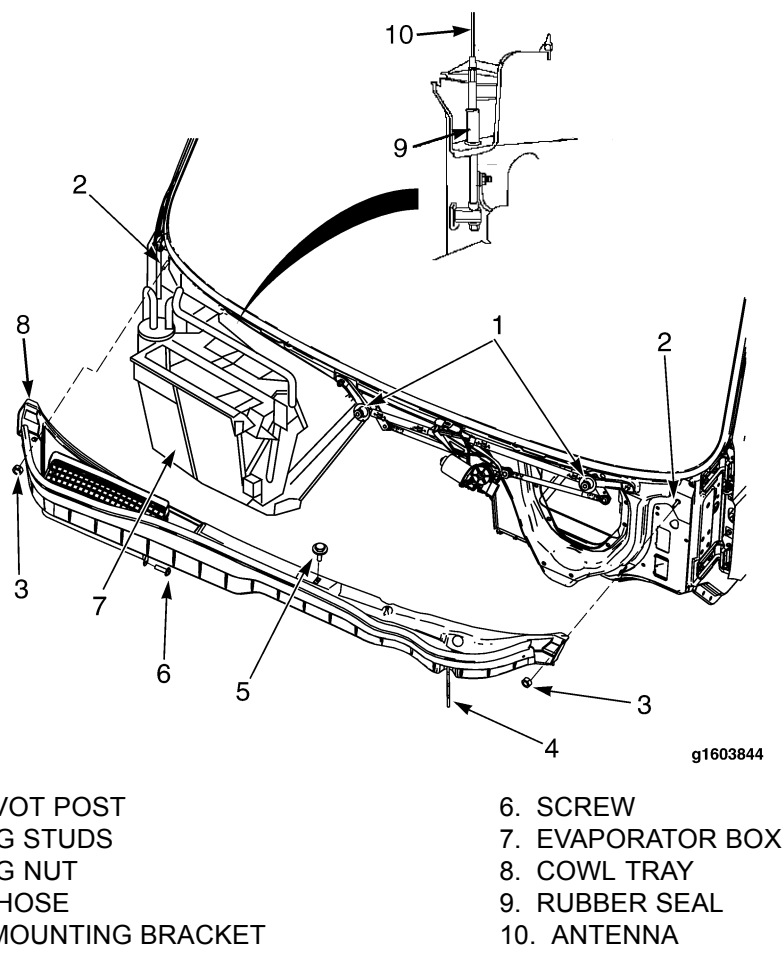
**Installation (8600 Models Only)**

1. Check hood seals for cracks and tears. If damaged, replace them.
2. Press the hood seal firmly onto the cowl tray until it seats properly (Figure 61, Items 1 and 2).
3. Press the short hood seal firmly onto the cowl tray until it seats properly (Figure 61, Items 2 and 3).
4. Close and latch the hood.

## 2.5. CAB COWL TRAY

### Removal

1. Unlatch and open the hood.
2. Remove both driver and passenger side windshield wiper arm and blade assembly. Refer to **WINDSHIELD WIPER ARM AND BLADE ASSEMBLY** (See Windshield Wiper Arm and Blade Assembly, page 63).



**Figure 62 Cab Cowl Tray**

3. Remove washer hose.
4. Slide rubber seal off antenna.
5. Remove screw to evaporator box.
6. Remove center mounting bracket bolt.
7. Remove two mounting nuts.
8. Pull the cowl tray off the mounting studs and wiper pivot posts.

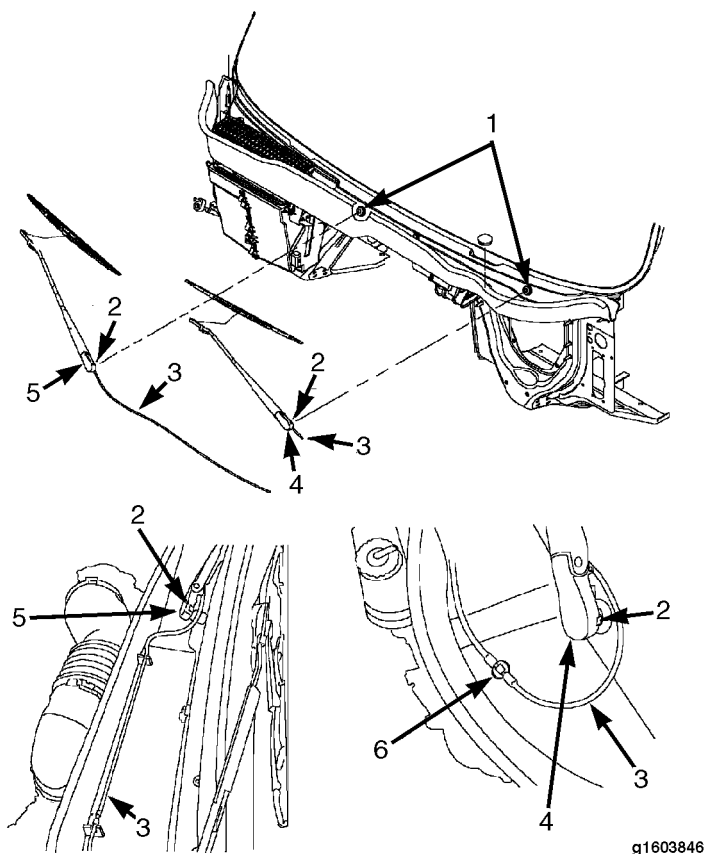
9. Lift cowl tray off the antenna and remove.

**Installation**

1. Lower cowl tray over antenna and align with mounting studs and wiper pivot posts. (Figure 62).
2. Install two mounting nuts on the cowl tray (Figure 62, Items 3 and 8). Tighten nuts to 16 Lbf-ft (22 N•m), DO NOT exceed 18 Lbf-ft (24 N•m).
3. Install center mounting bracket bolt (Figure 62, Item 5). DO NOT overtighten.
4. Install screw to evaporator box (Figure 62, Items 6 and 7). DO NOT overtighten.
5. Slide rubber seal down over antenna (Figure 62, Items 9 and 10).
6. Install washer hose (Figure 62, Item 4).
7. Install both driver and passenger side windshield wiper arm and blade assembly. Refer to **WINDSHIELD WIPER ARM AND BLADE ASSEMBLY** (See Windshield Wiper Arm and Blade Assembly, page 63).
8. Close and latch the hood.
9. Turn wipers on high speed, activate windshield washer, and check for proper wiper operation. If required, adjust windshield wiper arm and blade assembly.

## 2.6. WINDSHIELD WIPER ARM AND BLADE ASSEMBLY

### Removal



- 1. WIPER PIVOT POST
- 2. LOCK LEVER
- 3. WASHER HOSE
- 4. DRIVER SIDE WIPER ARM AND BLADE ASSEMBLY

- 5. PASSENGER SIDE WIPER ARM AND BLADE ASSEMBLY
- 6. T-FITTING

**Figure 63 Windshield Wiper Arm and Blade Assembly**

**NOTE – Before removing wiper arm and blade assembly, mark or note orientation of blade assembly to wiper pivot post for easier installation.**

1. Unlatch and open the hood.
2. Disconnect washer hose from T-fitting.
3. Lift up on lock lever and remove driver side wiper arm and blade assembly from wiper pivot post.
4. Lift up on lock lever and remove passenger side wiper arm and blade assembly.

### Installation

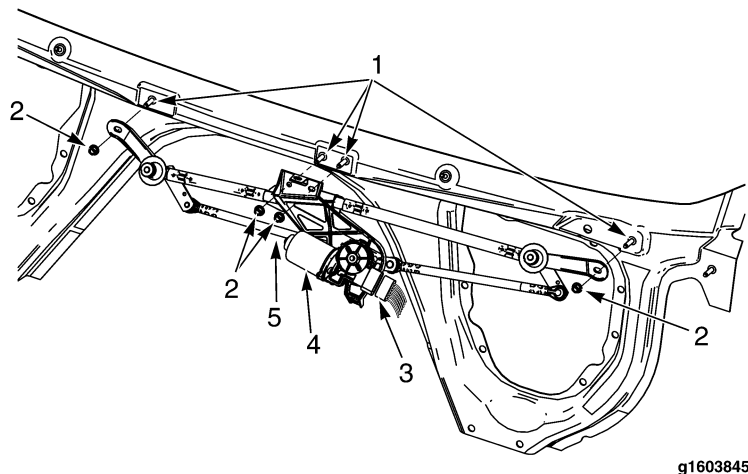
1. Press passenger side wiper arm and blade assembly onto wiper pivot post until assembly locks in place (Figure 63, Items 1 and 5).

2. Press driver side wiper arm and blade assembly onto wiper pivot post until assembly locks in place (Figure 63, Items 1 and 4).
3. Ensure that both lock levers are pressed down (Figure 63, Item 2).
4. Attach washer hose to T-fitting (Figure 63, Items 3 and 6).
5. Close and latch the hood.
6. Turn wipers on high speed, activate windshield washer, and check for proper wiper operation. If required, adjust windshield wiper arm and blade assembly.

## 2.7. WINDSHIELD WIPER ASSEMBLY

### Removal

1. Unlatch and open the hood.
2. Remove both driver and passenger side windshield wiper arm and blade assembly. Refer to **WINDSHIELD WIPER ARM AND BLADE ASSEMBLY** (See Windshield Wiper Arm and Blade Assembly, page 63).
3. Remove the cab cowl tray. Refer to **CAB COWL TRAY** (See Cab Cowl Tray, page 61).



1. MOUNTING STUDS
2. MOUNTING NUTS
3. ELECTRICAL CONNECTOR

4. WINDSHIELD WIPER MOTOR
5. WINDSHIELD WIPER ASSEMBLY

**Figure 64 Windshield Wiper Assembly**

4. If needed, cut wire tie securing wiring harness to windshield wiper motor.
5. Disconnect electrical connector from windshield wiper motor.
6. Remove four mounting nuts from the mounting studs.
7. Remove windshield wiper assembly.

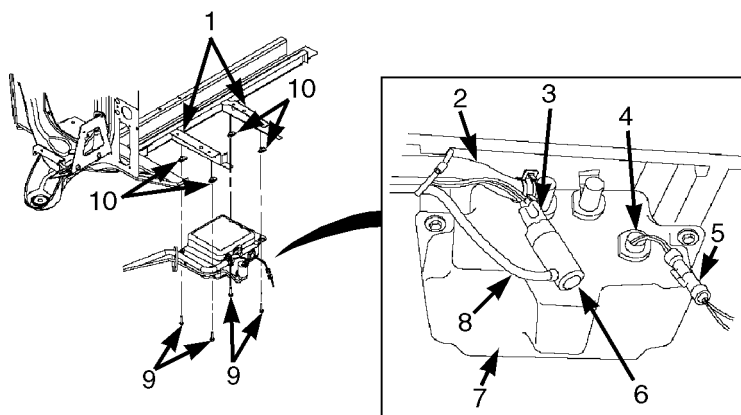


**Installation**

1. Install windshield wiper assembly onto the four mounting studs and secure with four mounting nuts (Figure 64, Items 1, 2, and 5). Tighten nuts to 16 Lbf-ft (22 N•m), DO NOT exceed 18 Lbf-ft (24 N•m).
2. Connect electrical connector to windshield wiper motor (Figure 64, Items 3 and 4).
3. If removed, secure wiring harness and connector with wire tie.
4. Install the cab cowl tray. Refer to **CAB COWL TRAY** (See Cab Cowl Tray, page 61).
5. Install driver and passenger side windshield wiper arm and blade assembly. Refer to **WINDSHIELD WIPER ARM AND BLADE ASSEMBLY** (See Windshield Wiper Arm and Blade Assembly, page 63).
6. Close and latch the hood.
7. Turn wipers on high speed, activate windshield washer, and check for proper wiper operation. If required, adjust windshield wiper arm and blade assembly.

**2.8. WINDSHIELD WASHER BOTTLE WITH PUMP MOTOR****Removal (All Except 8600 Models)**

**NOTE – The washer bottle and pump motor are located under the cab door on the driver side.**



- |  |                           |
|--|---------------------------|
| 1. MOUNTING BRACKET                      | 6. PUMP MOTOR             |
| 2. REMOTE FILL HOSE                      | 7. WASHER BOTTLE          |
| 3. PUMP MOTOR ELECTRICAL CONNECTOR       | 8. WINDSHIELD WASHER HOSE |
| 4. LOW FLUID SENSOR                      | 9. MOUNTING BOLTS         |
| 5. LOW FLUID SENSOR ELECTRICAL CONNECTOR | 10. SPEED NUTS            |

**Figure 65 Windshield Washer Bottle with Pump Motor**

1. Disconnect pump motor electrical connector from pump motor.

2. Disconnect low fluid sensor electrical connector from the low fluid sensor.
3. Disconnect windshield washer hose.
4. Disconnect remote fill hose.
5. Disconnect air vent hose (not shown).
6. Remove four mounting bolts.
7. Remove washer bottle and pump motor.

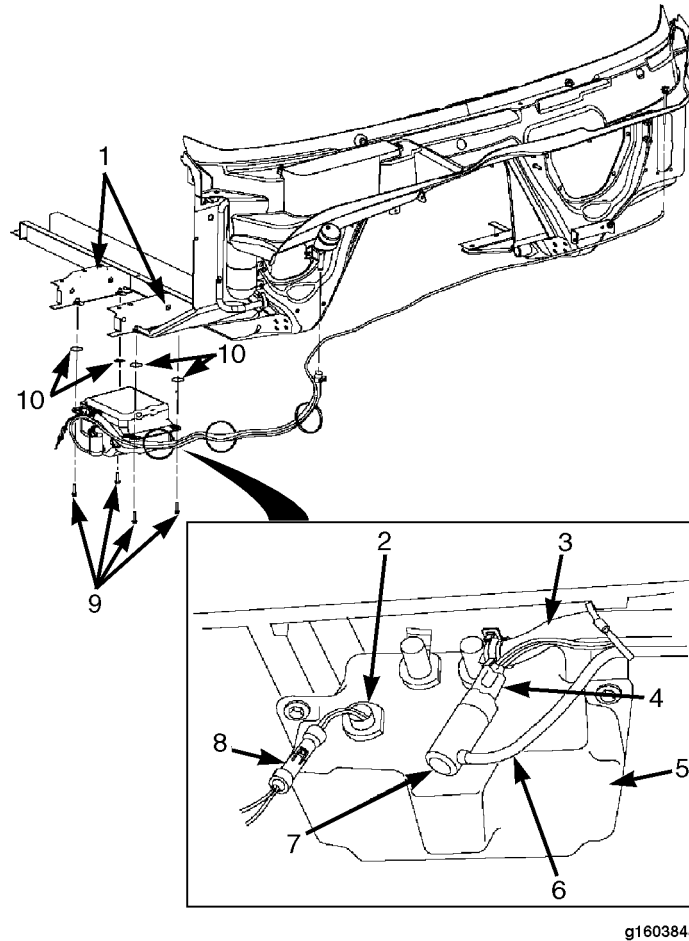
**NOTE – If any one of the four speed nuts are damaged, remove and replace them.**

**Installation (All Except 8600 Models)**

1. Install washer bottle and pump motor with four mounting bolts (Figure 65, Items 6, 7, and 9). Do not overtighten.
2. Connect remote fill hose (Figure 65, Item 2).
3. Connect air vent hose (not shown).
4. Connect windshield washer hose (Figure 65, Item 8).
5. Connect low fluid sensor electrical connector to the low fluid sensor (Figure 65, Items 4 and 5).
6. Connect pump motor electrical connector to pump motor (Figure 65, Items 3 and 6 ).
7. Fill washer bottle with windshield washer solvent and check for leaks and proper washer operation.

**Removal (8600 Models Only)**

**NOTE –** The washer bottle and pump motor are located under the cab door on the passenger side.



- |                                    |  |
|------------------------------------|--|
| 1. MOUNTING BRACKET                | 6. WINDSHIELD WASHER HOSE                |
| 2. LOW FLUID SENSOR                | 7. PUMP MOTOR                            |
| 3. REMOTE FILL HOSE                | 8. LOW FLUID SENSOR ELECTRICAL CONNECTOR |
| 4. PUMP MOTOR ELECTRICAL CONNECTOR | 9. MOUNTING BOLTS                        |
| 5. WASHER BOTTLE                   | 10. SPEED NUTS                           |

**Figure 66 Windshield Washer Bottle with Pump Motor**

1. Disconnect pump motor electrical connector from pump motor.
2. Disconnect low fluid sensor electrical connector from the low fluid sensor.
3. Disconnect windshield washer hose.
4. Disconnect remote fill hose.
5. Disconnect air vent hose (not shown).

6. Remove four mounting bolts.
7. Remove washer bottle and pump motor.

**NOTE – If any one of the four speed nuts are damaged, remove and replace them.**

**Installation (8600 Models Only)**

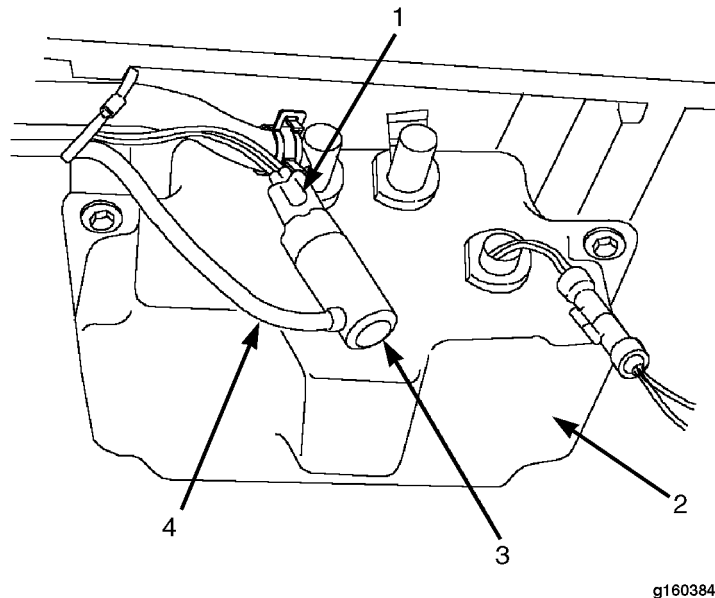
1. Install washer bottle and pump motor with four mounting bolts (Figure 66, Items 5, 7, and 9). Do not overtighten.
2. Connect remote fill hose (Figure 66, Item 3).
3. Connect air vent hose (not shown).
4. Connect windshield washer hose (Figure 66, Item 6).
5. Connect low fluid sensor electrical connector to the low fluid sensor (Figure 66, Items 2 and 8).
6. Connect pump motor electrical connector to pump motor (Figure 66, Items 4 and 7).
7. Fill washer bottle with windshield washer solvent and check for leaks and proper washer operation.

## 2.9. WINDSHIELD WASHER PUMP MOTOR

### Removal

#### NOTE –

- The pump motor is removable from the washer bottle without removing the washer bottle. The pump motor is serviceable and replaced as a unit.
- Pump motor location is under driver side door for all models except 8600 which is under the passenger side door.



1. ELECTRICAL CONNECTOR  
2. WASHER BOTTLE

3. PUMP MOTOR  
4. WINDSHIELD WASHER HOSE

**Figure 67 Windshield Washer Pump Motor**

1. Disconnect electrical connector from pump motor.
2. Place a container under the washer bottle to catch the windshield washer fluid.
3. Disconnect windshield washer hose from pump motor.
4. Remove pump motor by carefully pulling it straight out of the washer bottle.

**Installation**

**NOTE – The pump motor can be installed on the washer bottle without removing the washer bottle. The pump motor is serviceable and replaced as a unit.**

1. Install the pump motor by carefully pushing the pump motor straight into the washer bottle (Figure 67, Items 2 and 3).
2. Connect windshield washer hose to pump motor (Figure 67, Items 3 and 4).
3. Connect electrical connector to pump motor (Figure 67, Items 1 and 3).
4. Fill washer bottle with windshield washer solvent and check for leaks and washer operation.

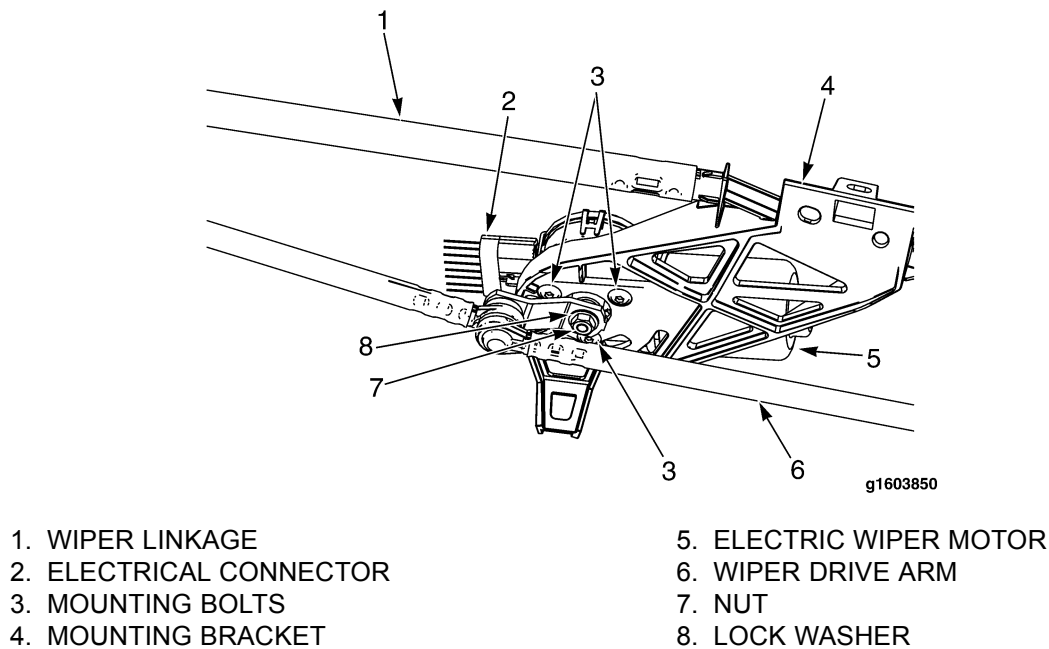
**2.10. ELECTRIC WINDSHIELD WIPER MOTOR****Removal**

<b>CAUTION</b>
----------------

**Do not attempt to grasp the wiper blades or arms while they are in motion. Attempting to stop the arms or blades in motion may result in component damage. If blades are frozen to the windshield, thaw them out before attempting to operate.**

**NOTE – The electric windshield wiper motor has no serviceable parts or adjustments and is replaced as a complete unit.**

1. Unlatch and open the hood.
2. Turn the ignition key to the **ON** position and cycle the wiper arm to the end of the sweep cycle (wiper blades will be in the vertical position). Turn key to **OFF** position.



**Figure 68 Electric Windshield Wiper Motor**

**NOTE – Graphic view is from the backside (or cab side) of unit.**

3. Disconnect electrical connector from the electric wiper motor. Remove wire ties as needed.
4. Remove nut and lock washer securing wiper drive arm to electric wiper motor.
5. Remove three mounting bolts securing electric wiper motor to the mounting bracket.
6. Remove electric wiper motor.

#### Installation

#### CAUTION

**Do not attempt to grasp the wiper blades or arms while they are in motion. Attempting to stop the arms or blades in motion may result in component damage. If blades are frozen to the windshield, thaw them out before attempting to operate.**

**NOTE – The electric windshield wiper motor has no serviceable parts or adjustments and is replaced as a complete unit.**

1. Install the electric wiper motor on the mounting bracket and secure with three mounting bolts (Figure 68, Items 3, 4, and 5). Tighten to 44 to 62 Lbf-in. (5 to 7 N•m).
2. Install nut and lock washer securing wiper drive arm to electric wiper motor (Figure 68). Tighten to 104 to 140 Lbf-in. (12 to 16 N•m).
3. Connect electrical connector to the electric wiper motor. Replace any previously removed wire ties (Figure 68, Items 2 and 5).

4. Turn the ignition key to the **ON** position and cycle the wiper arm to the end of the sweep cycle (wiper blades will be in the horizontal position). Turn key to **OFF** position.
5. Close and latch the hood.
6. Turn wipers on high speed, activate windshield washer, and check for proper wiper operation. If required, adjust windshield wiper arm and blade assembly.

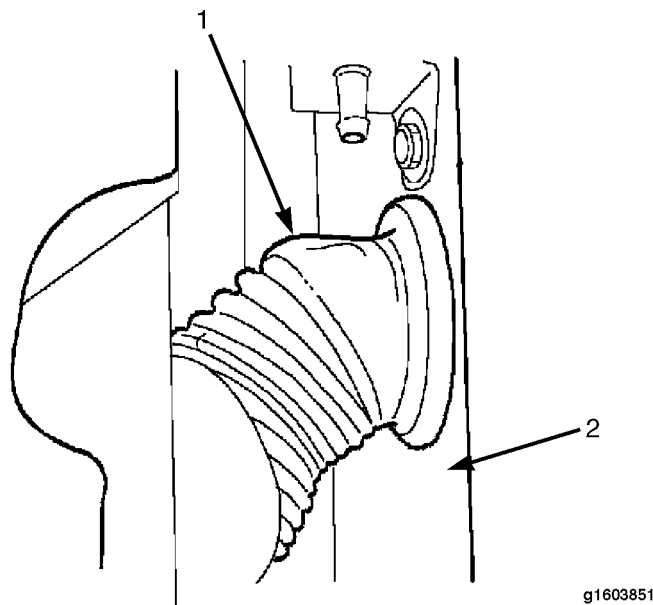
## 2.11. CAB DOORS

Front and rear cab doors are removed and installed nearly the same way. The only difference is the removal and installation of the rear B-pillar trim panel, which is noted in the procedures where necessary.

### Removal

#### NOTE –

- Removal procedures show passenger side; driver side procedures are the same.
- The cab doors are of welded, all-steel construction and are mounted on hinges located on the hinge pillars. Door adjustment is provided by enlarged holes in the door hinges. The door check stops are located just below the upper hinges on the door hinge pillars. The door latch striker pin is also adjustable on the door lock pillar.



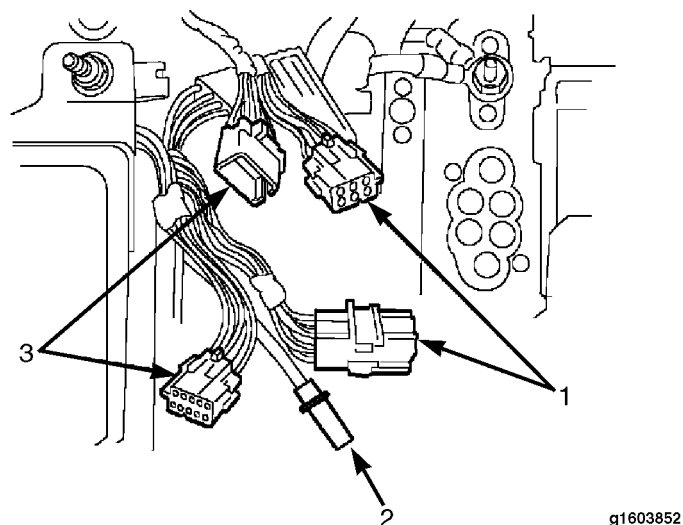
1. WIRING HARNESS RUBBER  
BOOT

2. CAB HINGE PILLAR

**Figure 69 Wiring Harness Rubber Boot**

1. Remove wiring harness rubber boot from the cab hinge pillar.





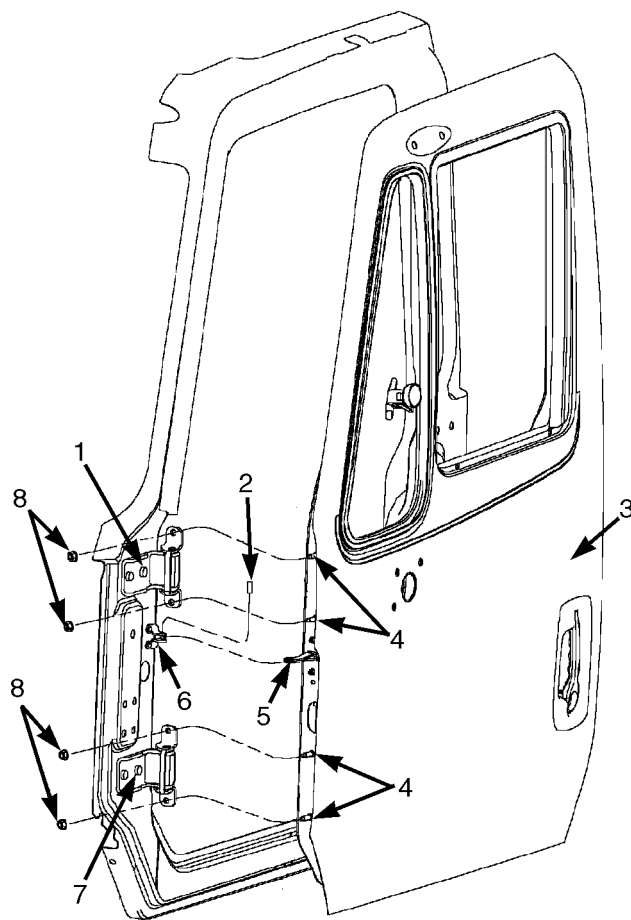
1. LIGHTED, HEATED OR  
ELECTRIC MIRROR  
CONNECTOR

2. CB RADIO CONNECTOR  
3. ELECTRIC WINDOW AND DOOR  
LOCK CONNECTOR

**Figure 70 Electrical Connectors**

**NOTE – Graphic shows front door electrical connectors; rear door electrical connectors may be slightly different.**

2. For rear cab doors only, remove B-pillar trim panel. Refer to **B-PILLAR TRIM PANEL** (See B-Pillar Trim Panel, page 76).
3. For rear cab doors only, remove scuff plate and seat belt retractor cover. Refer to **SCUFF PLATE AND SEAT BELT RETRACTOR COVER** (See Scuff Plate and Seat Belt Retractor Cover, page 121).
4. Locate cab door wiring harness (below the instrument panel, under left side of steering wheel) and pull cab door wiring harness down to access electrical connectors.
5. Disconnect the three electrical connectors (lighted or heated or electric mirror; CB radio; and electric window and door locks) as equipped.
6. Secure a sling or padded chain to the top of the window frame and attach to an overhead hoist to support the door.



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- 1. UPPER HINGE
- 2. STOP PIN
- 3. CAB DOOR
- 4. THREADED STUD

- 5. LINK
- 6. BRACKET
- 7. LOWER HINGE
- 8. MOUNTING NUT WITH WASHER

**Figure 71 Cab Door**

- 7. Remove stop pin from link and bracket.
- 8. Remove four mounting nuts with washers from threaded studs.
- 9. With door supported from overhead hoist, move door slightly backward to disengage threaded studs from hinges.
- 10. Carefully pull the wiring harness and electrical connectors through the cab hinge pillar.
- 11. Using the overhead hoist, move cab door to a padded work bench.

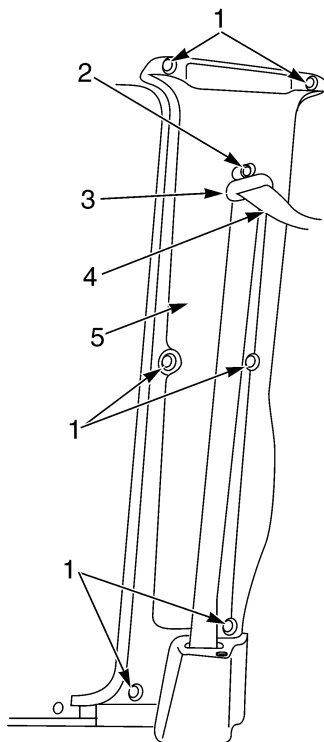
**Installation**

**NOTE – Installation procedures show passenger side; driver side procedures are the same.**

1. Secure a sling or padded chain to the top of the window frame and attach to an overhead hoist to support the door.
2. Using the overhead hoist, lift and move the cab door near to the cab.
3. Carefully pull the wiring harness and electrical connectors into and through the cab hinge pillar.
4. Move door slightly forward to engage threaded studs into the hinges.
5. Install four mounting nuts with washers onto the threaded studs (Figure 71, Items 4, and 8). Tighten nuts to 14 to 18 Lbf-ft (19 to 24 N•m).
6. Align link into bracket and insert stop pin (Figure 71, Items 2, 5, and 6).
7. Connect the three electrical connectors (lighted or heated or electric mirror; CB radio; and electric window and door locks) as equipped. (Figure 70).
8. Push the wiring harness and electrical connectors up under the instrument panel, if applicable.
9. For rear cab doors only, install B-pillar trim panel. Refer to **B-PILLAR TRIM PANEL** (See B-Pillar Trim Panel, page 76).
10. For rear cab doors only, install scuff plate and seat belt retractor cover. Refer to **SCUFF PLATE AND SEAT BELT RETRACTOR COVER** (See Scuff Plate and Seat Belt Retractor Cover, page 121).
11. Install wiring harness rubber boot to the cab hinge pillar (Figure 69).

## 2.12. B-PILLAR TRIM PANEL

### Removal



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- |                         |                        |
|-------------------------|------------------------|
| 1. PUSH-IN FASTENER     | 4. SHOULDER BELT       |
| 2. BOLT                 | 5. B-PILLAR TRIM PANEL |
| 3. SHOULDER BELT D-RING |                        |

**Figure 72 B-pillar Trim Panel**

1. Remove bolt securing shoulder belt D-ring to the B-pillar trim panel.

**IMPORTANT** – Discard shoulder belt D-ring bolt. A new bolt is required upon installation.

2. Remove shoulder belt.
3. Remove six push-in fasteners from B-pillar trim panel and remove B-pillar trim panel.

### Installation

1. Install B-pillar trim panel (Figure 72, Item 5).
2. Install six push-in fasteners to B-pillar trim panel (Figure 72, Items 1 and 5).
3. Install shoulder belt. (Figure 72, Item 4).

**IMPORTANT** – A new shoulder belt D-ring bolt is required upon installation.

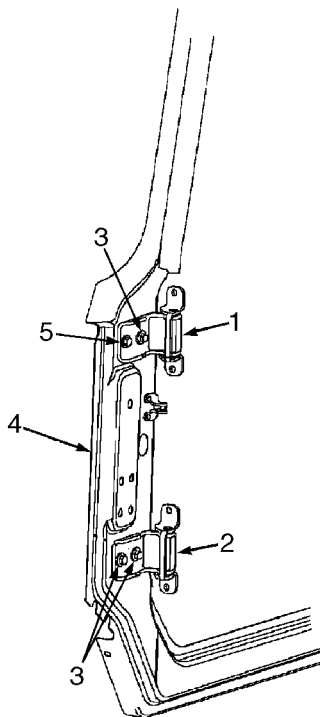
4. Secure shoulder belt D-ring to the B-pillar trim panel with new bolt (Figure 72, Items 2, 3, and 5). Tighten bolt to 25 to 35 Lbf-ft (34 to 47 N•m).

## 2.13. DOOR HINGE

### Removal

#### NOTE –

- Removal procedures show driver side; passenger side procedures are the same.
- Hinge procedures are the same for either front or rear cab doors.



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- 1. UPPER HINGE
- 2. LOWER HINGE
- 3. HINGE BOLT

- 4. CAB HINGE PILLAR
- 5. LOCKING BOLT

**Figure 73 Cab Door Hinge**

**NOTE –** The cab door is mounted on upper and lower hinges located on the cab hinge pillar. Door adjustment is provided by enlarged holes in the door hinge mounting holes. If door hinges are removed from the cab, upper and lower hinges can be interchanged.

1. Remove the cab door from the hinges. Refer to **CAB DOORS** (See Cab Doors, page 72).
2. Mark upper and lower hinge positions on cab hinge pillar to simplify door adjustment during installation.
3. Mark the location of the locking bolt, so it can be installed in the correct location.
4. Remove hinge bolt, locking bolt, and upper hinge from cab hinge pillar.
5. Remove two hinge bolts and lower hinge from cab hinge pillar.

**Installation****NOTE –**

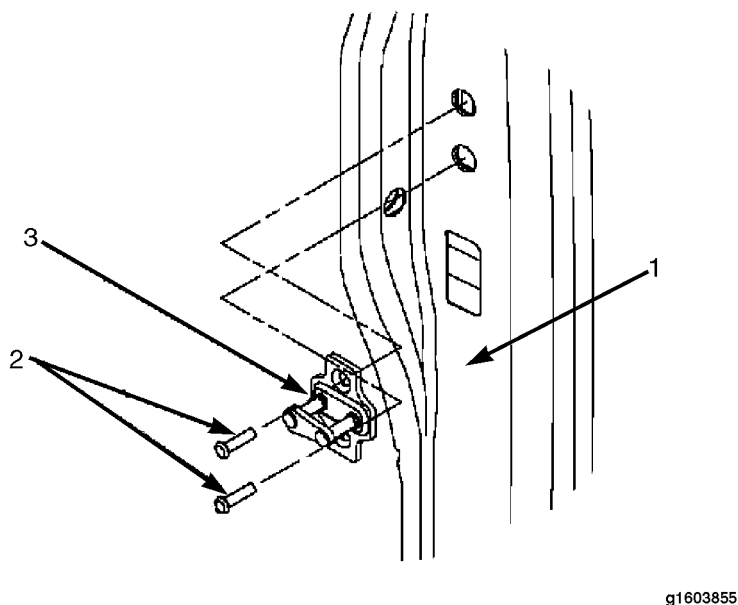
- **Installation procedures show driver side; passenger side procedures are the same.**
  - **Hinge procedures are the same for either front or rear cab doors.**
1. Align lower hinge with previously made marks on cab hinge pillar (Figure 73, Items 2 and 4).
  2. Install lower hinge and secure with two hinge bolts (Figure 73, Items 2 and 3). Tighten bolts to 15 to 18 Lbf-ft (20 to 24 N•m).
  3. Align upper hinge with previously made marks on cab hinge pillar (Figure 73, Items 1 and 4).
  4. Install upper hinge and secure with hinge bolt and locking bolt (Figure 73, Items 1, 3, and 5). Tighten bolts to 15 to 18 Lbf-ft (20 to 24 N•m).
  5. Install the cab door on the hinges. Refer to **CAB DOORS** (See Cab Doors, page 72).

## 2.14. DOOR STRIKER PIN

### Removal

#### NOTE –

- Removal procedures show driver side; passenger side procedures are the same.
- Striker pin procedures are the same for either front or rear cab doors.



1. DOOR LOCK PILLAR  
2. BOLT

3. STRIKER PIN

Figure 74 Striker Pin

**NOTE –** The striker pin provides for positive engagement with the door latch assembly. Removal and installation requires a Torx head tool. Enlarged mounting holes in door lock pillar and mounting plate allow adjustment.

1. Remove two bolts securing striker pin to door lock pillar.
2. Remove striker pin.

### Installation

#### NOTE –

- Installation procedures show driver side; passenger side procedures are the same.
  - Striker pin procedures are the same for either front or rear cab doors.
1. Install striker pin and secure to door lock pillar with two bolts (Figure 74). Tighten bolts to 19 to 24 Lbf-ft (26 to 33 N•m).

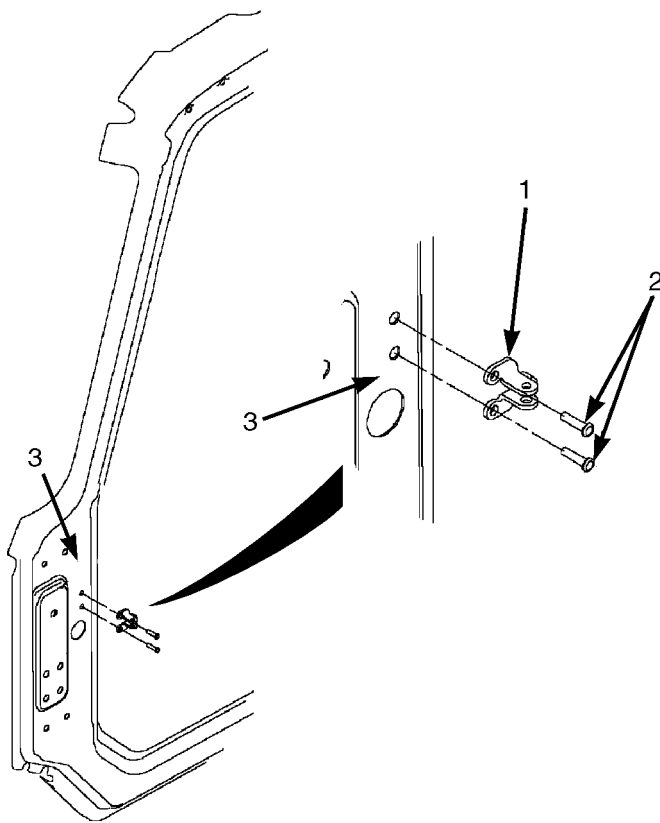
## 2.15. DOOR CHECK BRACKET

### Removal

#### NOTE –

- Removal procedures show driver side; passenger side procedures are the same.
- Door check bracket procedures are the same for either front or rear cab doors.

1. Remove stop pin from link and bracket (Figure 71, Items 2, 5, and 6).



1. CHECK BRACKET
2. BOLT

3. CAB HINGE PILLAR

**Figure 75 Check Bracket**

2. Remove the two bolts securing the check bracket to the cab hinge pillar.
3. Remove check bracket.

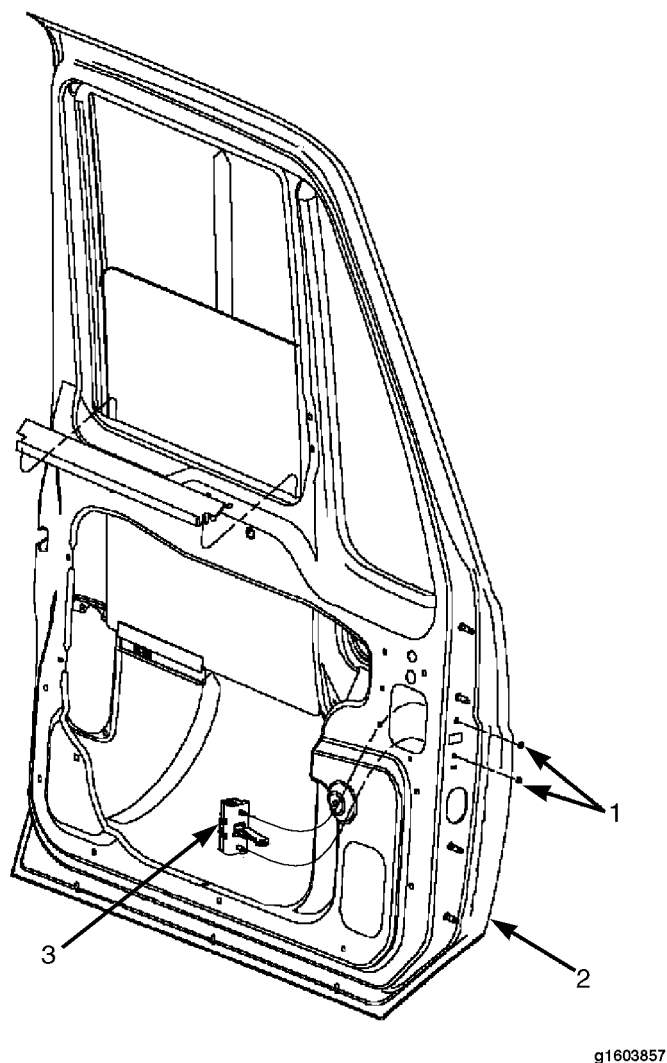


**Installation****NOTE –**

- **Installation procedures show driver side; passenger side procedures are the same.**
  - **Check bracket procedures are the same for either front or rear cab doors.**
1. Install check bracket and secure to the cab hinge pillar with two bolts (Figure 75). Tighten bolts to 8 to 10 Lbf-ft (11 to 14 N•m).
  2. Align link into bracket and insert stop pin (Figure 71, Items 2, 5, and 6).

**2.16. DOOR CHECK LINK****Removal****NOTE –**

- **Removal procedures show driver side; passenger side procedures are the same.**
  - **Check link procedures are the same for either front or rear cab doors.**
1. Remove door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).
  2. Remove door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  3. Remove stop pin from link and bracket (Figure 71, Items 2, 5, and 6).



- 1. NUT
- 2. CAB DOOR

- 3. CHECK LINK

**Figure 76 Check Link**

- 4. Remove two nuts and remove the check link from the cab door.

#### **Installation**

#### **NOTE –**

- **Installation procedures show driver side; passenger side procedures are the same.**
  - **Check link procedures are the same for either front or rear cab doors.**
1. Install check link to cab door with two nuts (Figure 76). Tighten to 77 to 95 Lbf-in. (9 to 11 N•m).
  2. Align link into bracket and insert stop pin (Figure 71, Items 2, 5, and 6).

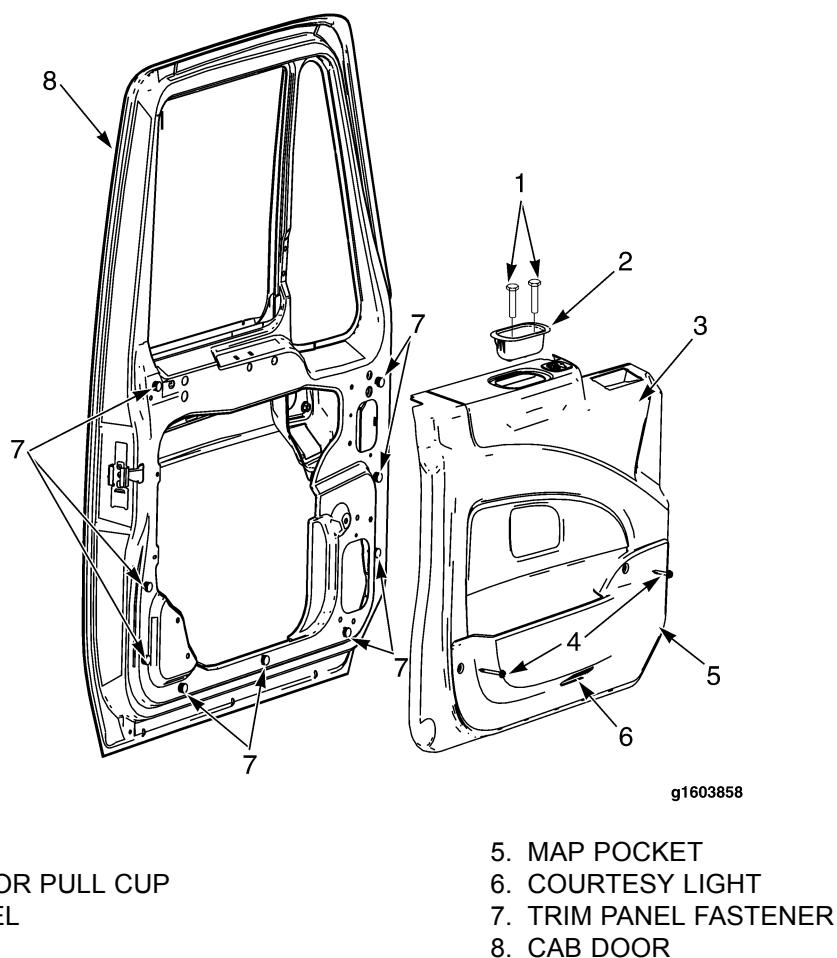
3. Install door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
4. Install door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).

## 2.17. DOOR TRIM PANEL

### Removal

#### NOTE –

- Removal procedures show driver side; passenger side procedures are the same.
- Trim panel procedures are the same for either front or rear cab doors.



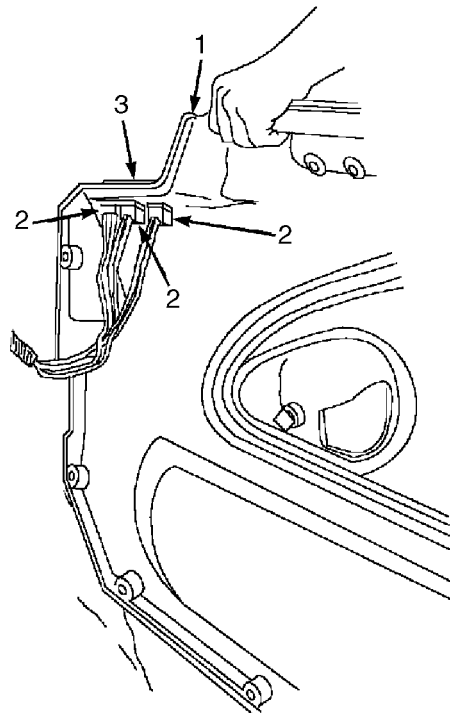
**Figure 77 Trim Panel**

1. Remove two screws and inner door pull cup.
2. Remove two screws from map pocket.
3. Carefully pull map pocket away from trim panel and disconnect electrical connector from courtesy light, if applicable.

4. Remove map pocket.

**NOTE – If equipped with manual windows and door locks, follow the next step. If equipped with power windows and door locks, skip this step.**

5. Press in on trim panel near window handle shaft, insert proper removal tool, and remove retaining clip and handle (not shown).
6. Using the interior trim tool, remove nine trim panel fasteners.



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- |                          |                             |
|--------------------------|-----------------------------|
| 1. TRIM PANEL            | 3. ELECTRIC WINDOW AND DOOR |
| 2. ELECTRICAL CONNECTORS | LOCK SWITCH                 |

**Figure 78 Trim Panel Electrical Connectors**

7. Lift trim panel away from cab door and disconnect electrical connectors, if applicable.
8. Remove trim panel and place on a suitable, padded surface.

**Installation****NOTE –**

- **Installation procedures show driver side; passenger side procedures are the same.**
- **Trim panel procedures are the same for either front or rear cab doors.**

1. Connect electrical connectors to trim panel (Figure 78, Items 1 and 2), if applicable.

**NOTE – Ensure electrical connector for courtesy light is pulled through before securing trim panel.**

2. Position trim panel in place on door and press firmly on each of the nine fasteners to secure trim panel to cab door (Figure 77, Items 3, 7, and 8).
3. Connect electrical connector to courtesy light, if applicable (Figure 77, Item 6).
4. Install map pocket with two screws (Figure 77, Items 3 and 5). Tighten screws to 20 to 25 Lbf-in. (2 to 3 N•m).
5. Install door pull cup with two screws (Figure 77, Items 1 and 2). Tighten screws to 20 to 25 Lbf-in. (2 to 3 N•m).

**NOTE – If equipped with manual windows and door locks, follow the next step. If equipped with power windows and door locks, skip this step.**

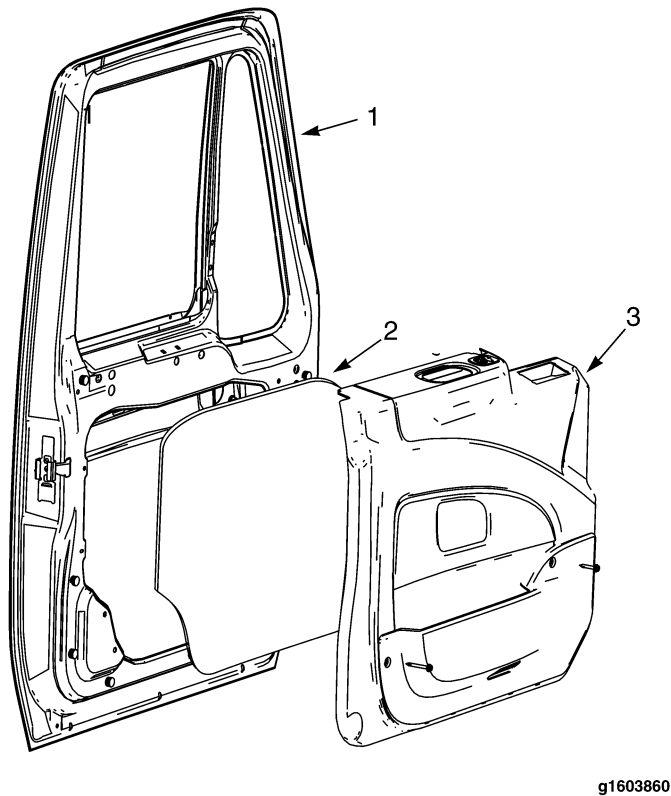
6. Install retaining clip and window handle. Press firmly onto window handle until it locks into place (not shown).

## 2.18. DOOR VAPOR BARRIER

### Removal

#### NOTE –

- Removal procedures show driver side; passenger side procedures are the same.
  - Vapor barrier procedures are the same for either front or rear cab doors.
1. Remove door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).



1. CAB DOOR
2. VAPOR BARRIER

3. TRIM PANEL

**Figure 79 Vapor Barrier**

2. Note vapor barrier position on the cab door for easier installation. Carefully pull the vapor barrier free from the cab door and remove.

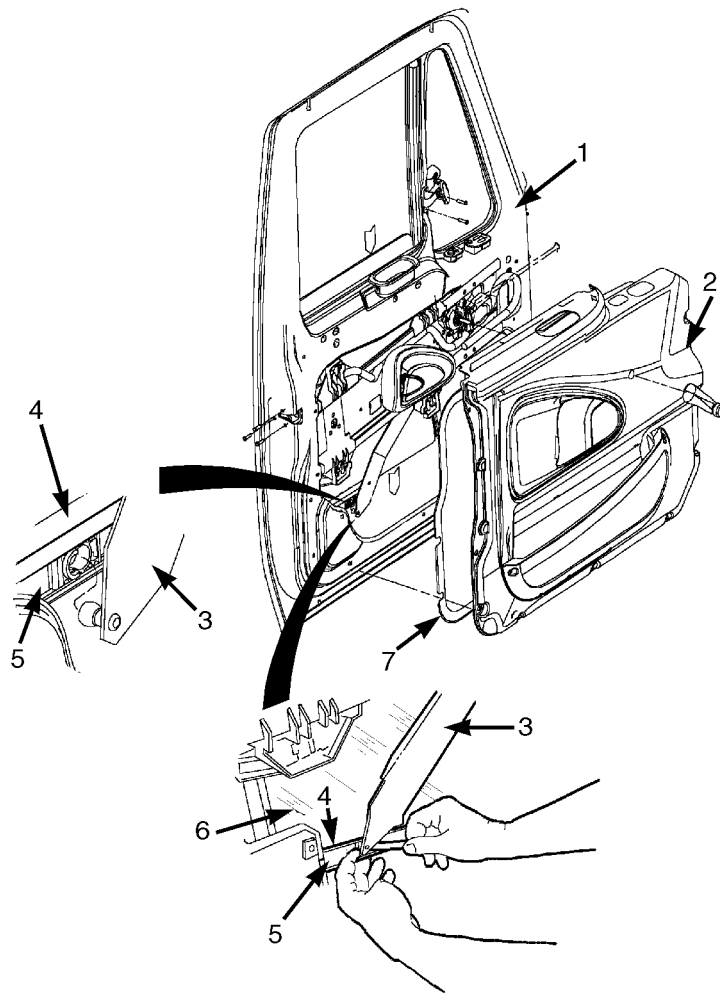
**Installation****NOTE –**

- **Installation procedures show driver side; passenger side procedures are the same.**
- **Vapor barrier procedures are the same for either front or rear cab doors.**
- **Inspect vapor barrier for damage. If damaged, replace.**

1. Position the vapor barrier on the cab door (Figure 79, Items 1 and 2).
2. Install door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).

**2.19. WINDOW SLIDE BLOCK****Removal****NOTE –**

- **Removal procedures show driver side; passenger side procedures are the same.**
  - **Window slide block procedures are the same for either front or rear cab doors.**
  - **Cab door glass does not have to be removed for window slide block removal.**
  - **Lower cab door glass to the bottom before removing trim panel.**
1. Remove door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).
  2. Remove door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).



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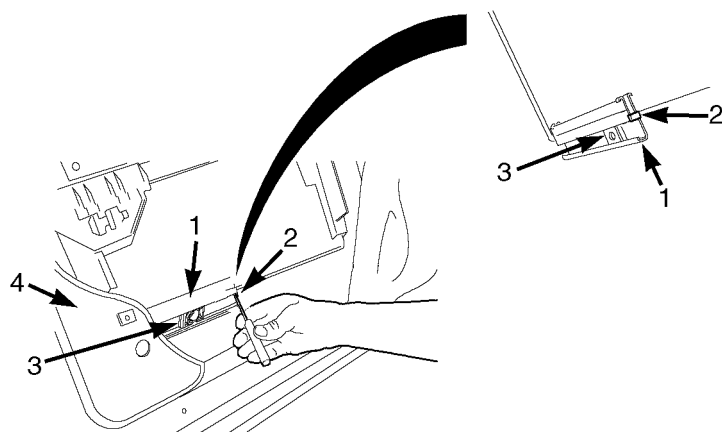
- 1. DOOR
- 2. TRIM PANEL
- 3. REGULATOR ARM
- 4. SLIDE RAIL

- 5. WINDOW SLIDE BLOCK
- 6. GLASS
- 7. VAPOR BARRIER

**Figure 80 Window Slide Block**

- 3. Using a blunt-tip, flat-blade screwdriver, carefully pry regulator arm from the window slide block.





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- 1. SLIDE RAIL
- 2. PLASTIC RETAINING TAB

- 3. WINDOW SLIDE BLOCK
- 4. DOOR

**Figure 81 Plastic Retaining Tab**

- 4. Carefully break off the plastic retaining tab.
- 5. Slide the window slide block off the slide rail and remove.

**Installation****NOTE –**

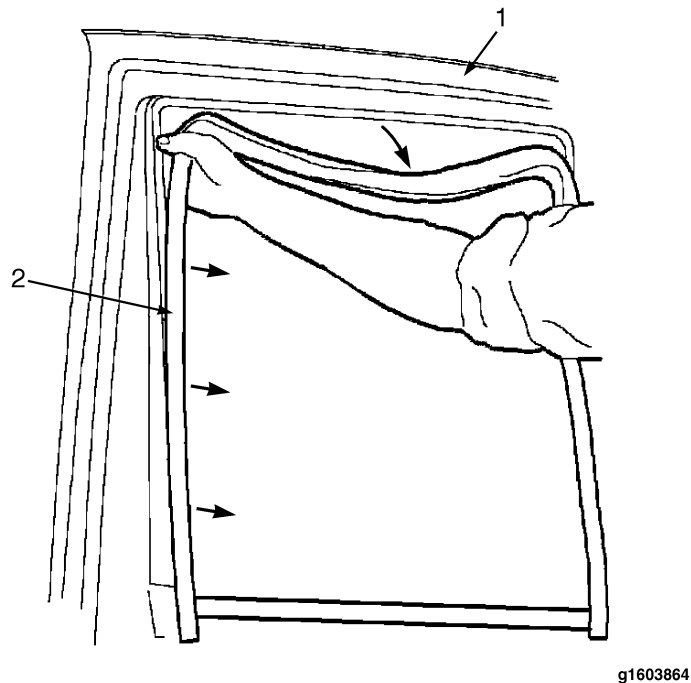
- Installation procedures show driver side; passenger side procedures are the same.
  - Window slide block procedures are the same for either front or rear cab doors.
  - It is not necessary to replace the plastic retaining tab broken off to remove the front cab door window slide block from the front cab door window slide rail.
  - Inspect window slide block for wear or damage. If damaged, replace it.
- 1. Install the window slide block onto the slide rail (Figure 81, Items 1 and 3).
  - 2. Carefully push regulator arm into the window slide block (Figure 80, Items 3 and 5).
  - 3. Install door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  - 4. Install door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).

## 2.20. DOOR GLASS

### Removal

#### NOTE –

- Removal procedures show driver side; passenger side procedures are the same.
  - Door glass procedures are the same for either front or rear cab doors.
  - Lower cab door glass to the bottom before removing trim panel.
1. Remove door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).
  2. Remove door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  3. Using a blunt-tip, flat-blade screwdriver, carefully pry regulator arm from the window slide block (Figure 80, Items 3 and 5).

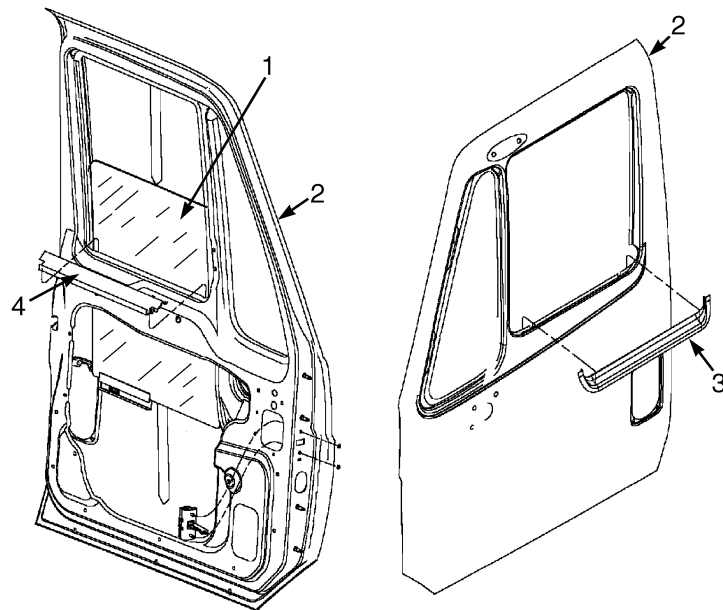


1. CAB DOOR

2. GLASS SEAL AND RUN CHANNEL

**Figure 82 Glass Seal and Run Channel**

4. Starting at the upper left side, pull glass seal and run channel free from cab door.
5. Remove glass seal and run channel.



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- 1. DOOR GLASS
- 2. CAB DOOR

- 3. GLASS SEAL AND OUTER BELT
- 4. GLASS SEAL AND INNER BELT

**Figure 83 Glass Seal and Inner and Outer Belt**

**NOTE – Modular door hardware assembly purposely not shown in graphic for clarity.**

- 6. Pull glass seal and inner belt free from cab door and remove.
- 7. Pull glass seal and outer belt free from cab door and remove.
- 8. From outside the cab door, pull door glass upward and remove.
- 9. Place door glass on a suitable, padded work surface.

## Installation

### NOTE –

- **Installation procedures show driver side; passenger side procedures are the same.**
  - **Door glass procedures are the same for either front or rear cab doors.**
  - **Check glass seal, run channels, and inner and outer belts for damage. Replace if needed.**
1. From outside the cab door, install the door glass and position into the left and right run channels. Ensure the door glass is in the run channels and moves freely before proceeding (Figure 82).
  2. Lower the door glass to the bottom.
  3. Install the glass seal and inner belt and press down firmly into cab door (Figure 83, Items 2 and 4).
  4. Install the glass seal and outer belt and press down firmly into cab door (Figure 83, Items 2 and 3).
  5. Starting at the upper right, begin pressing glass seal and run channel into the cab door . Proceed until entire glass seal and run channel is firmly seated into cab door (Figure 82).
  6. Attach the regulator arm to the window slide block (Figure 80, Items 3 and 5).

**NOTE – For manual windows, temporarily attach regulator handle to operate. For electric windows, temporarily connect electrical connector to operate. Remove regulator handle or disconnect electrical connector when next step is complete.**

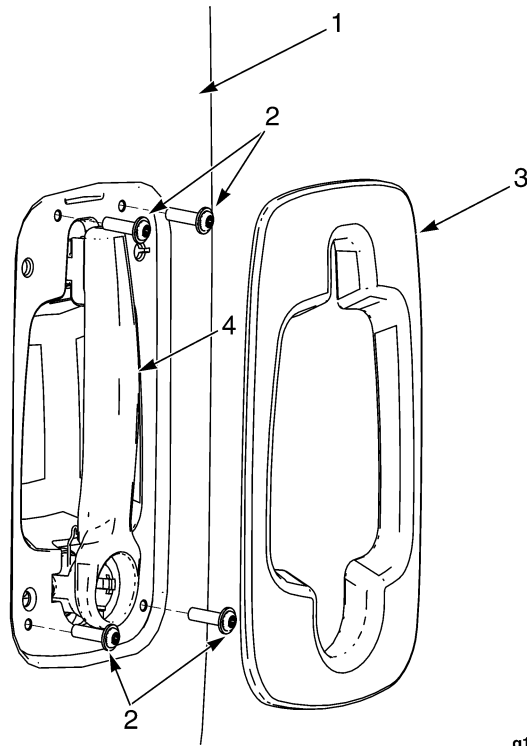
7. Raise and lower window to ensure free movement. If binding occurs, find, locate, and correct problem before continuing.
8. Install door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
9. Install door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).

## 2.21. MODULAR DOOR HARDWARE ASSEMBLY

### Removal

### NOTE –

- **Removal procedures show driver side; passenger side procedures are the same.**
  - **Modular door hardware procedures are the same for either front or rear cab doors.**
  - **The modular door hardware assembly consists of the window regulator assembly, front and rear window run channels, inner and outer door handles, and door latch. This assembly is installed and removed as a module.**
  - **Lower cab door glass to the bottom before removing trim panel.**
1. Remove door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).
  2. Remove door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  3. Remove door glass. Refer to **DOOR GLASS** (See Door Glass, page 90).



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1. CAB DOOR  
2. SCREWS

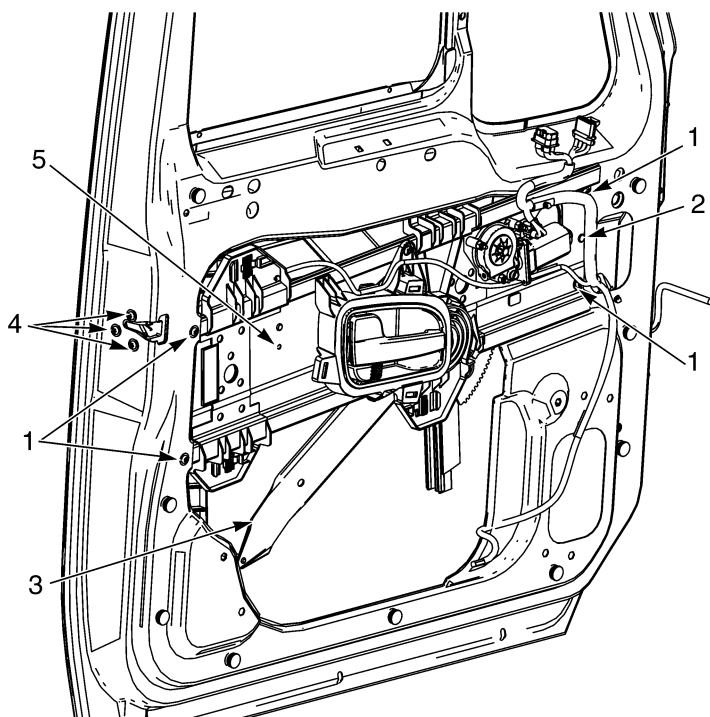
3. TRIM BEZEL  
4. OUTER DOOR HANDLE

**Figure 84 Door Handle Trim Bezel**

4. Using a flat-blade screwdriver covered with a cloth rag to protect the paint, carefully pry door handle trim bezel away from cab door.

**NOTE – The plastic tabs on the door handle trim bezel will likely break off during removal. Replace trim bezel if tabs get broken.**

5. Remove four screws securing outer door handle.

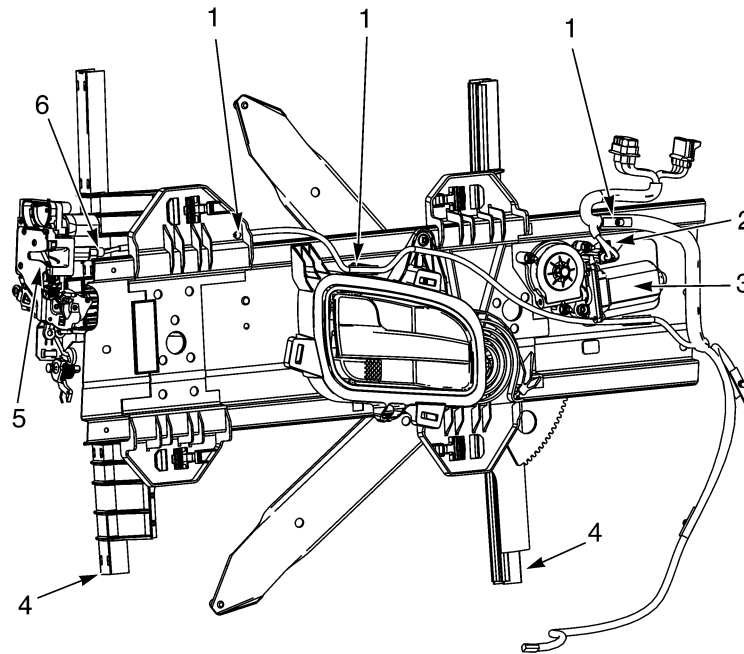


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- |                            |                                   |
|----------------------------|-----------------------------------|
| 1. ASSEMBLY MOUNTING BOLTS | 4. DOOR LATCH BOLTS               |
| 2. MOUNTING GUIDE PIN      | 5. MODULAR DOOR HARDWARE ASSEMBLY |
| 3. REGULATOR ASSEMBLY      |                                   |

**Figure 85 Modular Door Hardware Assembly**

6. Remove three door latch bolts securing door latch assembly.
7. Remove four assembly mounting bolts securing modular door hardware assembly.
8. Remove mounting guide pin.
9. Slide modular door hardware assembly to the right, lift upward, and pull outward to expose electrical connectors.



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- |                                      |                                    |
|--------------------------------------|------------------------------------|
| 1. PUSH-IN FASTENERS                 | 4. WINDOW RUN CHANNELS             |
| 2. WINDOW MOTOR ELECTRICAL CONNECTOR | 5. DOOR LATCH ASSEMBLY             |
| 3. WINDOW ELECTRIC MOTOR             | 6. DOOR LATCH ELECTRICAL CONNECTOR |

**Figure 86 Electrical Connectors**

10. Disconnect window motor electrical connector from the electric window motor.
11. Remove all push-in fasteners securing the wiring harness.
12. Disconnect door latch electrical connector from the door latch assembly.
13. Remove modular door hardware assembly.

**Installation****NOTE –**

- **Installation procedures show driver side; passenger side procedures are the same.**
  - **Modular door hardware procedures are the same for either front or rear cab doors.**
  - **The modular door hardware assembly consists of the window regulator assembly, front and rear window run channels, inner and outer door handles, and door latch. This assembly is installed and removed as a module.**
1. Position modular door hardware assembly near the cab door and connect the door latch electrical connector to the door latch assembly (Figure 86, Items 5 and 6).
  2. Install all wiring harness push-in fasteners (Figure 86, Item 1).
  3. Connect window motor electrical connector to window electric motor (Figure 86, Items 2 and 3).
  4. Guide the top of the window run channels up inside cab door and align door latch assembly (Figure 86, Items 4 and 5).
  5. Align modular door hardware assembly and install mounting guide pin (Figure 85, Items 2 and 5).
  6. Install modular door hardware assembly with four assembly mounting bolts (Figure 85, Items 1 and 5). Finger tighten bolts only.
  7. Once all four bolts are in place, tighten the bolts to 8 to 10 Lbf-ft (11 to 14 N•m).
  8. Install door latch assembly with three door latch bolts (Figure 85). Tighten bolts to 8 to 10 Lbf-ft (11 to 14 N•m).
  9. Install outer door handle with four screws (Figure 84, Items 2 and 4). Tighten screws to 35 to 44 Lbf-in. (4 to 5 N•m).

**NOTE – A new outer door handle trim bezel will need to be installed if the plastic tabs were broken off during removal.**

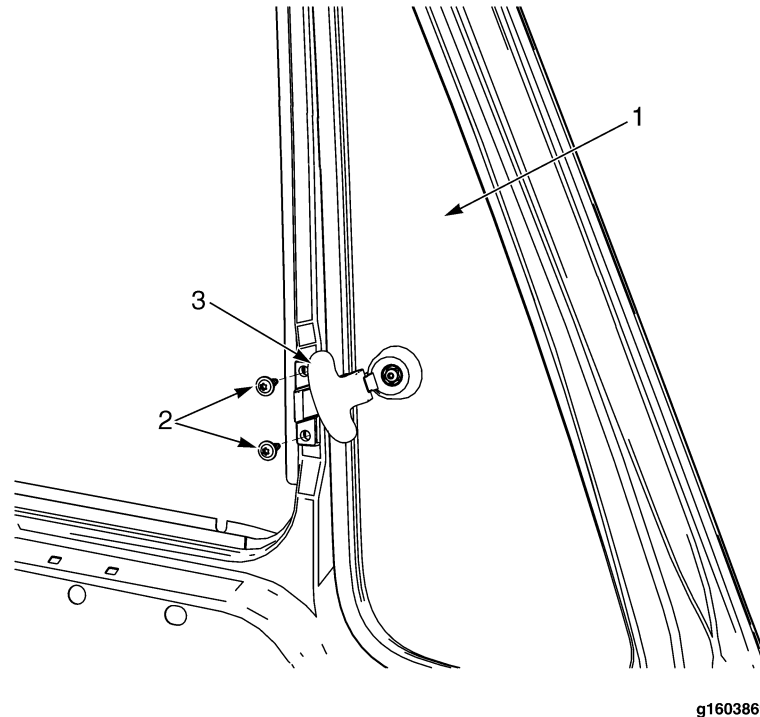
10. Install trim bezel and carefully push it in place (Figure 84, Item 3).
11. Ensure the door lock, inner and outer door handles, and door latch assembly are all working properly before proceeding.
12. Install door glass. Refer to **DOOR GLASS** (See Door Glass, page 90).
13. Install door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
14. Install door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).



## 2.22. VENT WINDOW, LATCH, AND SEAL

### Removal

**NOTE** – Removal procedures show driver side; passenger side procedures are the same.



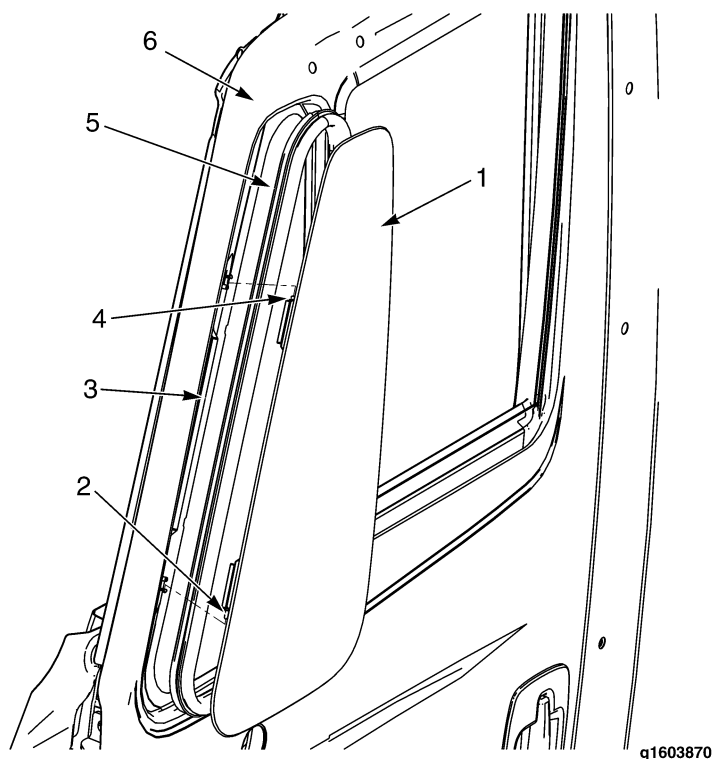
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- 1. VENT WINDOW
- 2. SCREWS

- 3. WINDOW LATCH

**Figure 87 Vent Window, Latch, and Seal**

1. Open vent window and remove two screws and window latch.



- 1. VENT WINDOW
- 2. LOWER HINGE PIN
- 3. HINGE

- 4. UPPER HINGE PIN
- 5. VENT WINDOW SEAL
- 6. DOOR

**Figure 88 Vent Window, Hinge Pins, and Seal**

- 2. Lift the hinge off the upper hinge pin.
- 3. Lift vent window off the hinge and remove.
- 4. Remove vent window seal from door.

#### Installation

**NOTE – Installation procedures show driver side; passenger side procedures are the same.**

- 1. Install vent window seal in door and push into place (Figure 88, Items 5 and 6).
- 2. Install vent window and position lower hinge pin into the hinge (Figure 88, Items 1, 2, and 3).
- 3. Carefully lift up the upper part of the hinge and position upper hinge pin into hinge (Figure 88, Items 3 and 4).
- 4. Close vent window and install window latch with two screws (Figure 87, Items 2 and 3) . Tighten screws to 53 to 71 Lbf-in. (6 to 8 N•m).

## 2.23. DOOR LOCK CYLINDER

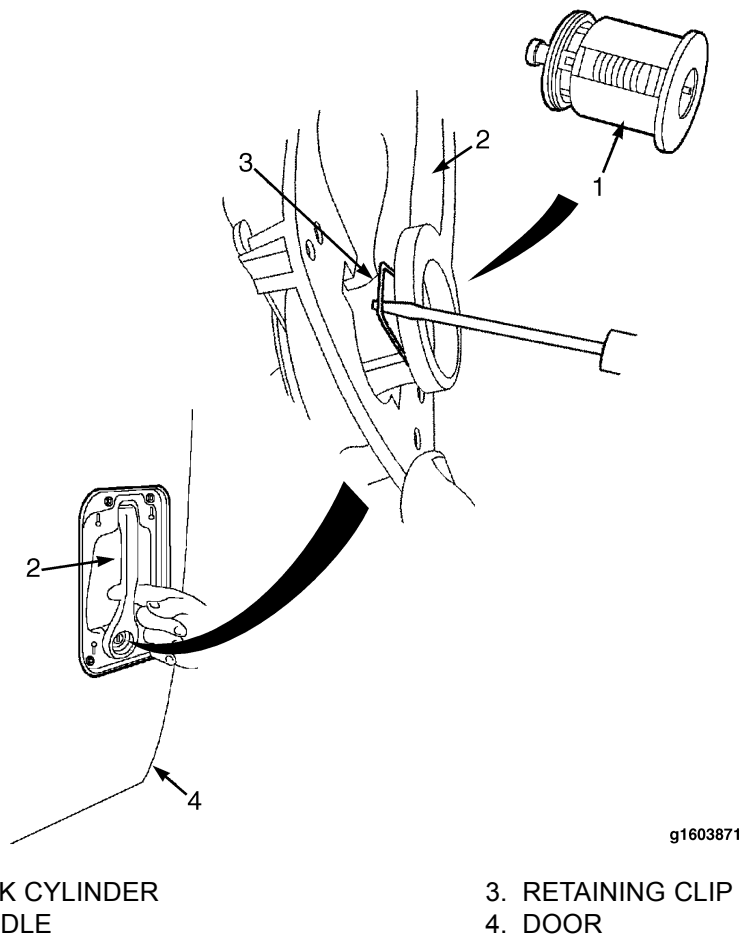
### Removal

#### NOTE –

- Removal procedures show driver side; passenger side procedures are the same.
- Procedures are the same for all door lock cylinders.
- All door lock cylinders are coded the same as the ignition switch; one key operates both the ignition switch and the door locks.

1. Using a flat-blade screwdriver covered with a cloth rag to protect the paint, carefully pry door handle trim bezel away from cab door (Figure 84, Items 1 and 3).

**NOTE –** The plastic tabs on the door handle trim bezel will likely break off during removal. Replace trim bezel if tabs get broken.



**Figure 89 Door Lock Cylinder**

2. Using a flat-blade screwdriver, remove retaining clip from behind door handle.
3. Remove door lock cylinder.

**Installation****NOTE –**

- **Installation procedures show driver side; passenger side procedures are the same.**
- **Procedures are the same for all door lock cylinders.**
- **All door lock cylinders are coded the same as the ignition switch; one key operates both the ignition switch and the door locks.**

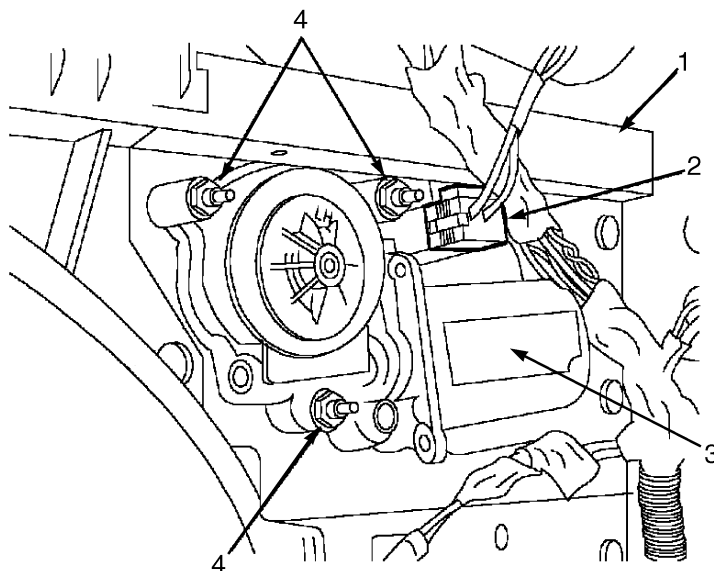
1. Insert door lock cylinder into door handle (Figure 89, Items 1 and 2).
2. Install retaining clip on door handle (Figure 89, Items 2 and 3).
3. Ensure the door lock cylinder is working properly before proceeding.

**NOTE – Replace trim bezel if tabs were broken during removal.**

4. Install door handle trim bezel onto cab door and snap into place (Figure 84, Items 1 and 3).

**2.24. WINDOW ELECTRIC MOTOR****Removal****NOTE –**

- **Removal procedures show driver side; passenger side procedures are the same.**
  - **Window electric motor procedures are the same for either front or rear cab doors.**
1. Remove door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).
  2. Remove door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).



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1. MODULAR DOOR HARDWARE ASSEMBLY
2. ELECTRICAL CONNECTOR

3. WINDOW ELECTRIC MOTOR
4. MOUNTING NUTS AND STUDS

**Figure 90 Window Electric Motor**

3. Disconnect electrical connector from window electric motor.
4. Remove three mounting nuts securing window electric motor to modular door hardware assembly.
5. Remove window electric motor.

### Installation

#### NOTE –

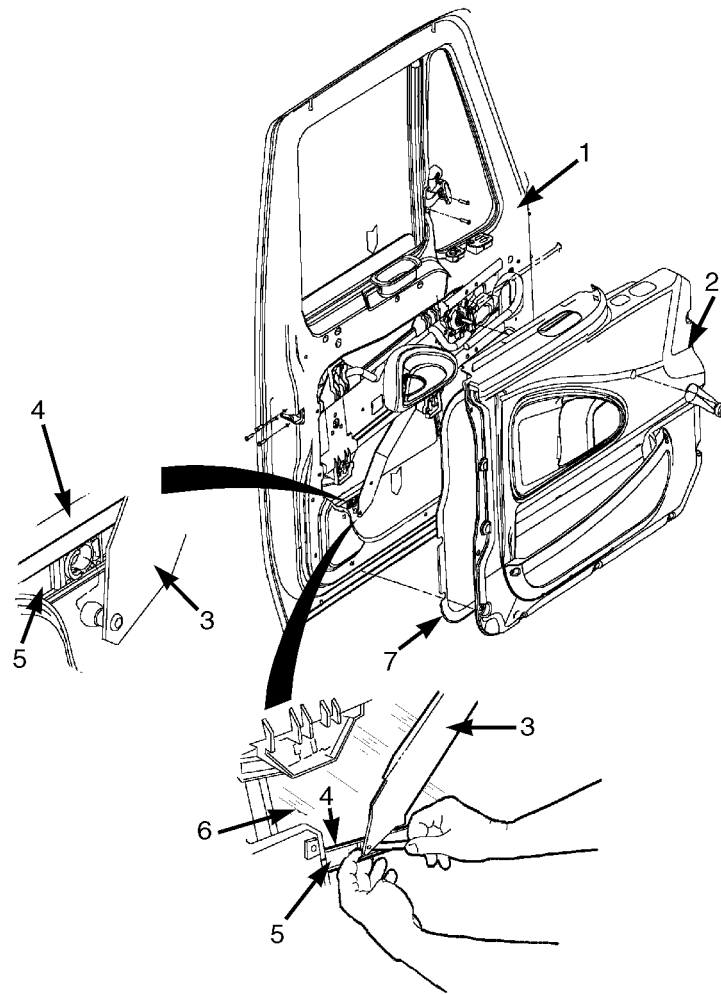
- **Installation procedures show driver side; passenger side procedures are the same.**
  - **Window electric motor procedures are the same for either front or rear cab doors.**
1. Install window electric motor on studs (Figure 90, Items 3 and 4). Ensure unit is aligned properly.
  2. Install three mounting nuts (Figure 90, Item 4). Tighten nuts to 62 to 115 Lbf-in. (7 to 13 N•m).
  3. Connect electrical connector to window electric motor (Figure 90, Items 2 and 3).
  4. Install door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  5. Install door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).

## 2.25. REGULATOR ARM ASSEMBLY

### Removal

#### NOTE –

- Removal procedures show driver side; passenger side procedures are the same.
  - Window regulator arm assembly procedures are the same for either front or rear cab doors.
  - Lower cab door glass to the bottom before removing trim panel.
1. Remove door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).
  2. Remove door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  3. Remove window electric motor. Refer to **WINDOW ELECTRIC MOTOR** (See Window Electric Motor, page 100).



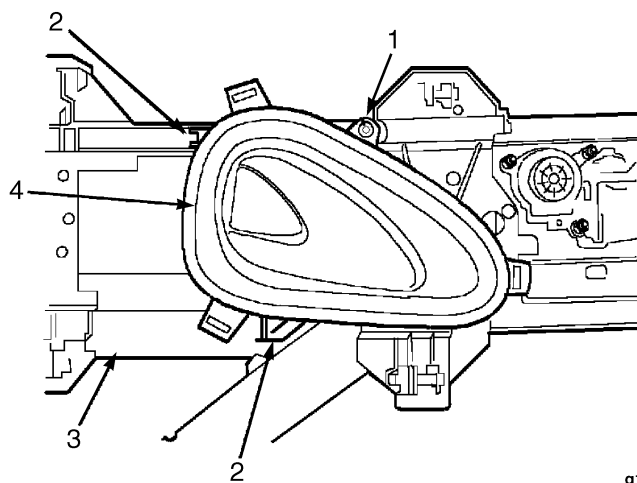
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- 1. DOOR
- 2. TRIM PANEL
- 3. REGULATOR ARM
- 4. SLIDE RAIL

- 5. WINDOW SLIDE BLOCK
- 6. GLASS
- 7. VAPOR BARRIER

**Figure 91 Window Slide Block**

- 4. Using a blunt-tip, flat-blade screwdriver, carefully pry window regulator arm from the window slide block.
- 5. Lift glass to the top and secure it in position.



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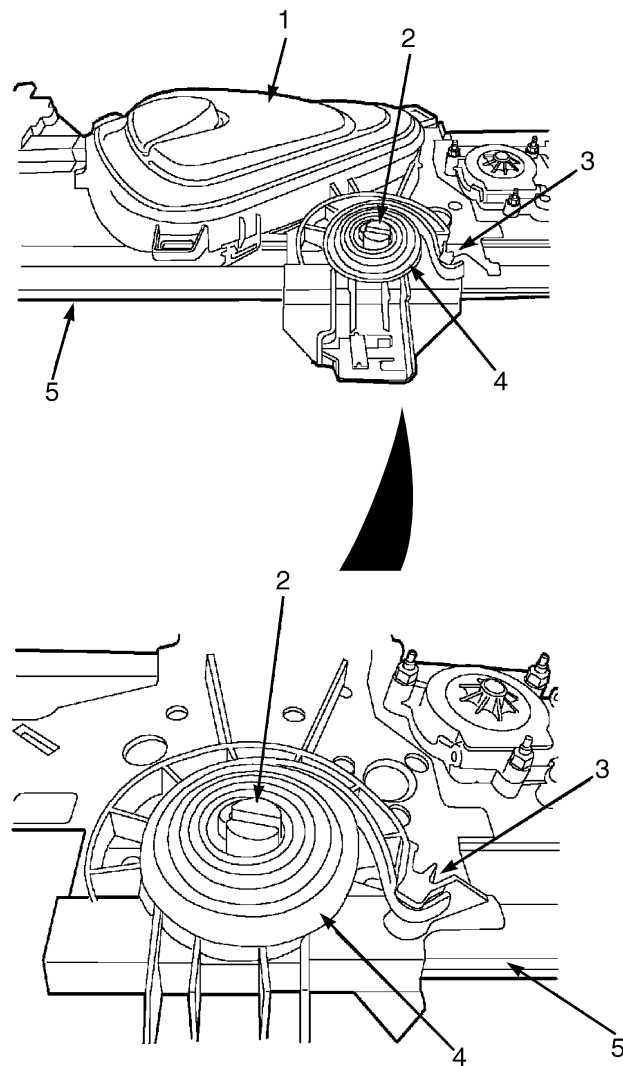
- 1. BOLT
- 2. DOOR HANDLE RETAINING  
TABS

- 3. MODULAR DOOR HARDWARE  
ASSEMBLY
- 4. DOOR HANDLE

**Figure 92 Inner Door Handle**

- 6. Remove bolt from door handle.
- 7. Slide door handle to the left and pull door handle retaining tabs out of the modular door hardware assembly.





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- 1. DOOR HANDLE
- 2. REGULATOR ARM ASSEMBLY  
SHAFT
- 3. RETAINING TAB

- 4. REGULATOR ASSEMBLY COIL  
SPRING
- 5. MODULAR DOOR HARDWARE  
ASSEMBLY

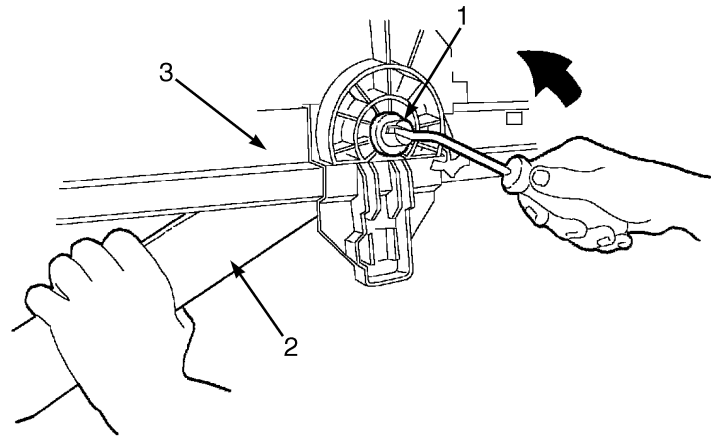
**Figure 93 Regulator Arm Assembly and Coil Spring**

- 8. Rotate door handle counterclockwise until the regulator assembly coil spring is exposed.



Be sure to use an appropriate tool and use care when removing the window regulator assembly coil spring from behind the retaining tab on the modular door hardware assembly next step below, to prevent bodily injury since the window regulator assembly coil spring will be in the loaded position during removal.

9. Carefully release regulator assembly coil spring from the retaining tab.
10. Remove regulator assembly coil spring from the regulator arm assembly shaft.



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1. REGULATOR ARM ASSEMBLY  
SHAFT
2. REGULATOR ARM

3. MODULAR DOOR HARDWARE  
ASSEMBLY

**Figure 94 Regulator Arm and Regulator Arm Assembly Shaft**

11. Insert a flat-blade screwdriver in the slot of the regulator arm assembly shaft and rotate it counterclockwise to the unlocked position.
12. Pull regulator arm assembly shaft straight out and remove.
13. Remove regulator arm from the modular door hardware assembly.

#### Installation

##### NOTE –

- Installation procedures show driver side; passenger side procedures are the same.
  - Window regulator arm assembly procedures are the same for either front or rear cab doors.
1. Attach regulator arm by installing the regulator arm assembly shaft through the modular door hardware assembly into the regulator arm (Figure 94).
  2. Insert a flat-blade screwdriver in the slot of the regulator arm assembly shaft and rotate it clockwise to the locked position (Figure 94, Item 1).

3. Install regulator assembly coil spring into the slot of the regulator arm assembly shaft (Figure 93, Items 2 and 4).



**To avoid personal injury, be sure to use an appropriate tool and use care when installing the window regulator assembly coil spring behind the retaining tab on the modular door hardware assembly in the next step, since the window regulator assembly coil spring will be loaded during installation.**

4. Rotate regulator assembly coil spring clockwise around to the retaining tab on the modular door hardware assembly and position behind retaining tab (Figure 93, Items 3, 4, and 5).
5. Rotate door handle clockwise until the regulator assembly coil spring is covered (Figure 93, Items 1 and 4).
6. Insert door handle retaining tabs into the slots in the modular door hardware assembly and slide door handle to the right to secure in place (Figure 92, Items 2, 3, and 4).
7. Install bolt securing door handle to the modular door hardware assembly (Figure 92, Items 1, 3, and 4). Tighten bolt to 71 to 88.5 Lbf-in. (8 to 10 N•m).
8. Lower glass to the bottom.
9. Attach the regulator arm to the window slide block (Figure 91, Items 3 and 5).

**NOTE – For manual windows, temporarily attach regulator handle to operate. For electric windows, temporarily connect electrical connector to operate. Remove regulator handle or disconnect electrical connector when next step is complete.**

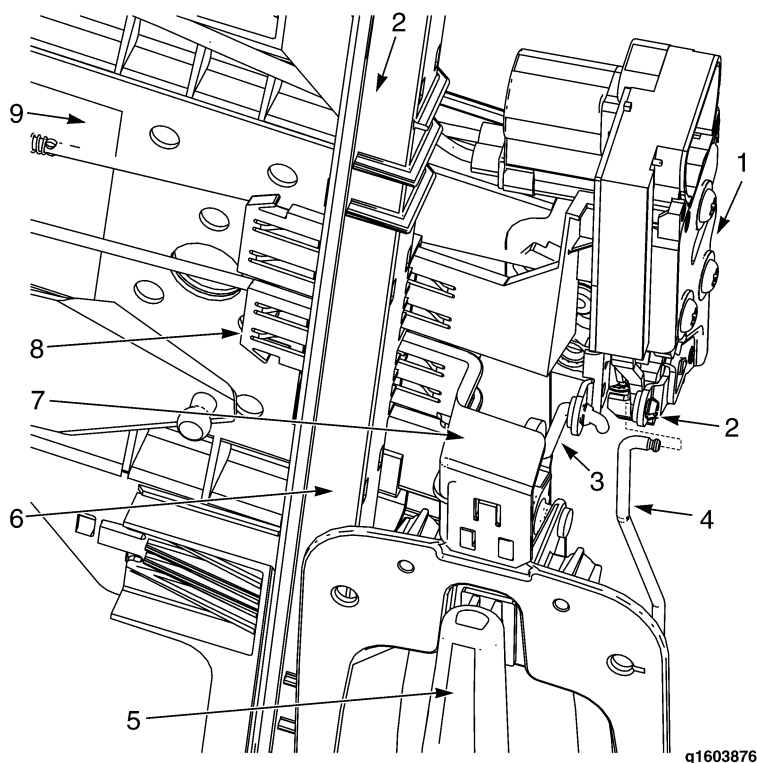
10. Raise and lower window to ensure free movement. If binding occurs, find, locate, and correct problem before continuing.
11. Install window electric motor. Refer to **WINDOW ELECTRIC MOTOR** (See Window Electric Motor, page 100).
12. Install door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
13. Install door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).

## 2.26. OUTER DOOR HANDLE

### Removal

#### NOTE –

- Removal procedures show driver side; passenger side procedures are the same.
  - Outer door handle procedures are the same for either front or rear cab doors.
1. Remove door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).
  2. Remove door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  3. Remove modular door hardware assembly. Refer to **MODULAR DOOR HARDWARE ASSEMBLY** (See Modular Door Hardware Assembly, page 92).

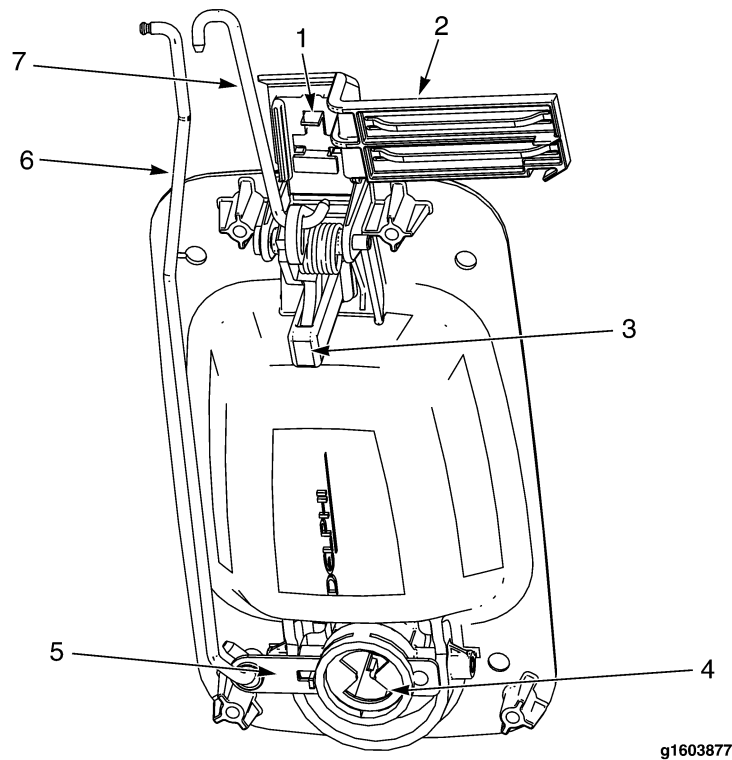


- |                      |                           |
|----------------------|---------------------------|
| 1. DOOR LATCH        | 6. WINDOW RUN CHANNEL     |
| 2. LOCK LEVER        | 7. HANGER SUPPORT BRACKET |
| 3. SHORT CONTROL ROD | 8. LOCKING TAB            |
| 4. LONG CONTROL ROD  | 9. MODULAR DOOR ASSEMBLY  |
| 5. OUTER DOOR HANDLE |                           |

**Figure 95 Outer Door Handle and Control Rods**

4. Press in the locking tab and slide the hanger support bracket to the left and out of the window run channel.
5. Disconnect the long control rod from the lock lever.

6. Rotate outer door handle and disconnect from the short control rod.



- |                           |                             |
|---------------------------|-----------------------------|
| 1. T-SHAPED LOCKING TAB   | 5. DOOR LOCK CYLINDER LEVER |
| 2. HANGER SUPPORT BRACKET | 6. DOOR LOCK CONTROL ROD    |
| 3. OUTER DOOR HANDLE      | 7. SHORT CONTROL ROD        |
| 4. DOOR LOCK CYLINDER     |                             |

**Figure 96 Outer Door Handle and Hanger Support Bracket**

7. Rotate hanger support bracket counterclockwise. Align the slot in the hanger support bracket with the T-shaped locking tab and remove outer door handle.
8. Remove door lock cylinder. Refer to **DOOR LOCK CYLINDER** (See Door Lock Cylinder, page 99).
9. Remove door lock control rod from door lock cylinder lever.
10. Remove door lock cylinder lever from outer door handle.

**Installation****NOTE –**

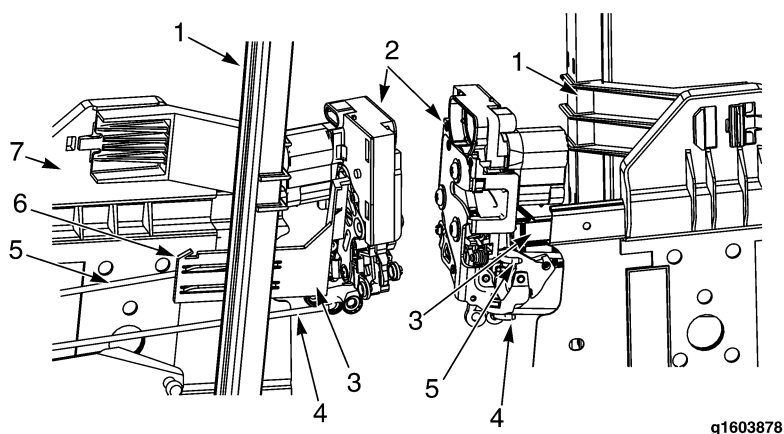
- **Installation procedures show driver side; passenger side procedures are the same.**
  - **Outer door handle procedures are the same for either front or rear cab doors.**
1. Install door lock cylinder lever on outer door handle (Figure 96, Items 3 and 5).
  2. Install door lock control rod into door lock cylinder lever (Figure 96, Items 5 and 6).
  3. Install door lock cylinder. Refer to **DOOR LOCK CYLINDER** (See Door Lock Cylinder, page 99).
  4. Attach the outer door handle by aligning the slot in the hanger support bracket with the T-shaped locking tab and rotate hanger support bracket clockwise (Figure 96, Items 1, 2, and 3).
  5. Connect the short control rod to the top of outer door handle. Rotate outer door handle to position it on the control rod properly (Figure 95, Items 3 and 5).
  6. Connect the long control rod to the lock lever (Figure 95, Items 2 and 4).
  7. Slide the hanger support bracket in place on the window run channel and ensure the locking tab locks in place (Figure 95, Items 6, 7, and 8).
  8. Install modular door hardware assembly. Refer to **MODULAR DOOR HARDWARE ASSEMBLY** (See Modular Door Hardware Assembly, page 92).
  9. Install door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  10. Install door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).

## 2.27. DOOR LATCH

### Removal

#### NOTE –

- Removal procedures show driver side; passenger side procedures are the same.
  - Door latch procedures are the same for either front or rear cab doors.
1. Remove door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).
  2. Remove door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  3. Remove modular door hardware assembly. Refer to **MODULAR DOOR HARDWARE ASSEMBLY** (See Modular Door Hardware Assembly, page 92).



- |                           |                          |
|---------------------------|--------------------------|
| 1. WINDOW RUN CHANNEL     | 5. UPPER CONTROL ROD     |
| 2. DOOR LATCH             | 6. LOCKING TAB           |
| 3. HANGER SUPPORT BRACKET | 7. MODULAR DOOR ASSEMBLY |
| 4. LOWER CONTROL ROD      |                          |

**Figure 97 Door Latch and Control Rods**

4. Press in the locking tab and slide the hanger support bracket to the left and out of the window run channel.
5. Disconnect upper and lower control rods from door latch and remove door latch.

## Installation

### NOTE –

- **Installation procedures show driver side; passenger side procedures are the same.**
  - **Door latch procedures are the same for either front or rear cab doors.**
1. Connect upper and lower control rods to door latch (Figure 97, Items 2, 4, and 5).
  2. Slide the hanger support bracket in place on the window run channel and ensure the locking tab locks in place (Figure 97, Items 1, 3, and 6).
  3. Install modular door hardware assembly. Refer to **MODULAR DOOR HARDWARE ASSEMBLY** (See Modular Door Hardware Assembly, page 92).
  4. Install door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  5. Install door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).

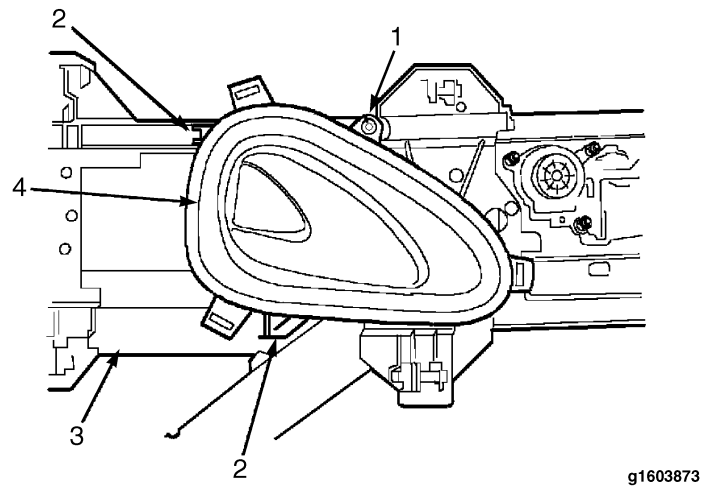
## 2.28. INNER DOOR HANDLE

### Removal

### NOTE –

- **Removal procedures show driver side; passenger side procedures are the same.**
  - **Inner door handle procedures are the same for either front or rear cab doors.**
  - **Raise cab door glass to the top before removing trim panel.**
1. Lift glass to the top and secure it in position.
  2. Remove door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).
  3. Remove door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).



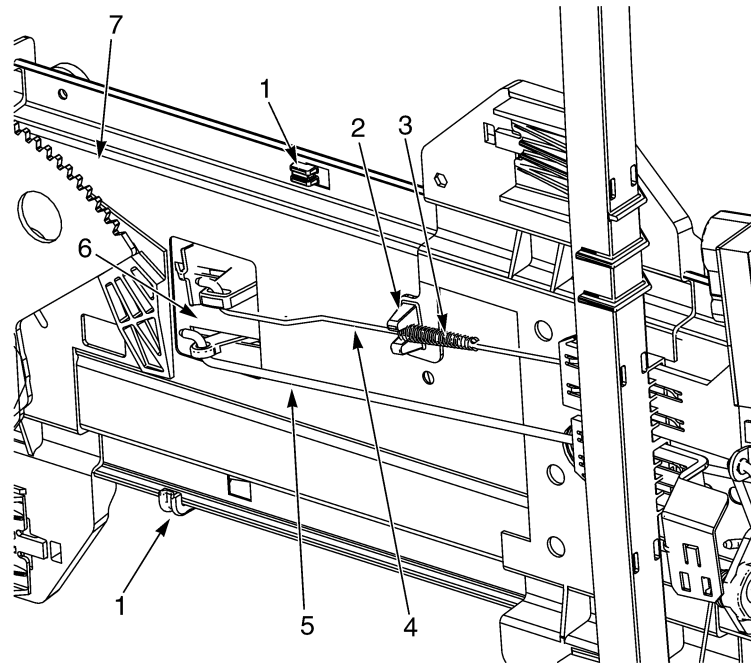


- 1. DOOR HANDLE BOLT
- 2. DOOR HANDLE RETAINING  
TABS

- 3. MODULAR DOOR HARDWARE  
ASSEMBLY
- 4. INNER DOOR HANDLE

**Figure 98 Inner Door Handle**

- 4. Remove door handle bolt from inner door handle.
- 5. Slide inner door handle to the left and pull door handle retaining tabs out of the modular door hardware assembly.



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- |                                  |                                      |
|----------------------------------|--------------------------------------|
| 1. DOOR HANDLE RETAINING<br>TABS | 5. LOWER CONTROL ROD                 |
| 2. RETAINING CLIP                | 6. INNER DOOR HANDLE                 |
| 3. SPRING                        | 7. MODULAR DOOR HARDWARE<br>ASSEMBLY |
| 4. UPPER CONTROL ROD             |                                      |

**Figure 99 Inner Cab Door Handle and Control Rods**

6. Disconnect inner door handle from upper and lower control rods by rotating it counterclockwise 90 degrees and pulling to the right.
7. Remove inner door handle.

**NOTE – If modular door hardware assembly has been removed, perform the following steps:**

8. Remove outer door handle. Refer to **OUTER DOOR HANDLE** (See Outer Door Handle, page 108).
9. Remove door latch. Refer to **DOOR LATCH** (See Door Latch, page 111).
10. Remove upper and lower control rods, spring, and retaining clip.
11. Remove inner door handle.

**Installation****NOTE –**

- **Installation procedures show driver side; passenger side procedures are the same.**
  - **Inner door handle procedures are the same for either front or rear cab doors.**
1. Install inner door handle and connect upper and lower control rods (Figure 99, Items 4, 5, and 6).
  2. Rotate inner door handle 90 degrees clockwise to secure control rods to inner door handle (Figure 99, Item 6).
  3. Insert door handle retaining tabs into the slots in the modular door hardware assembly and slide inner door handle to the right to secure in place (Figure 98, Items 2, 3, and 4).
  4. Install door handle bolt (Figure 98, Item 1). Tighten bolt to 71 to 89 Lbf-in. (8 to 10 N•m).
  5. Install door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  6. Install door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).

**NOTE – If modular door hardware assembly has been already been removed, follow the next steps.**

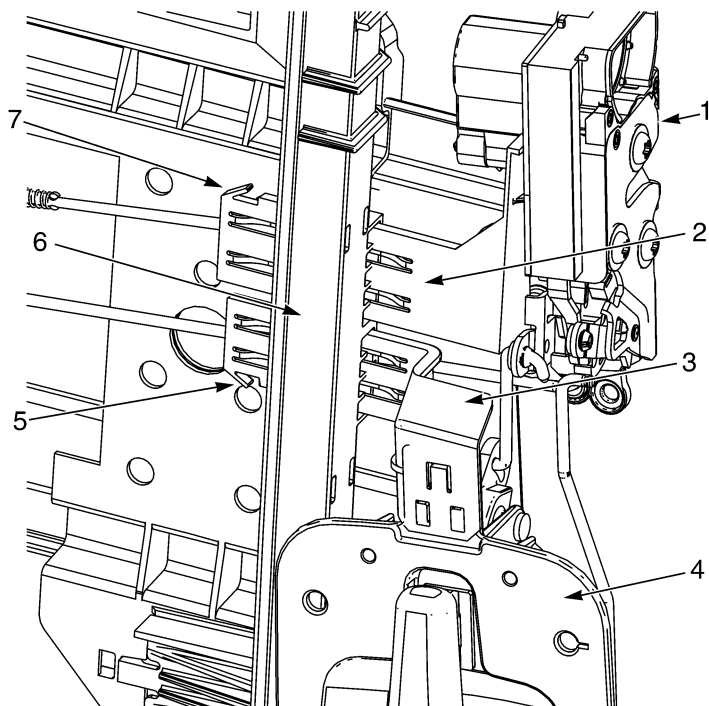
7. Install upper and lower control rods, spring, and retaining clip (Figure 99).
8. Install inner door handle and connect upper and lower control rods (Figure 99, Items 4, 5, and 6).
9. Rotate inner door handle 90 degrees clockwise to secure control rods to inner door handle.
10. Insert door handle retaining tabs into the slots in the modular door hardware assembly and slide inner door handle to the right to secure in place (Figure 98, Items 2, 3, and 4).
11. Install door handle bolt (Figure 98, Item 1). Tighten bolt to 71 to 90 Lbf-in. (8 to 10 N•m).
12. Install door latch. Refer to **DOOR LATCH** (See Door Latch, page 111).
13. Install outer door handle. Refer to **OUTER DOOR HANDLE** (See Outer Door Handle, page 108).
14. Install modular door hardware assembly. Refer to **MODULAR DOOR HARDWARE ASSEMBLY** (See Modular Door Hardware Assembly, page 92).
15. Install door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
16. Install door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).

## 2.29. WINDOW RUN CHANNELS

### Removal

#### NOTE –

- Removal procedures show driver side; passenger side procedures are the same.
  - Window run channel procedures are the same for either front or rear cab doors.
1. Remove door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).
  2. Remove door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  3. Remove modular door hardware assembly. Refer to **MODULAR DOOR HARDWARE ASSEMBLY** (See Modular Door Hardware Assembly, page 92).

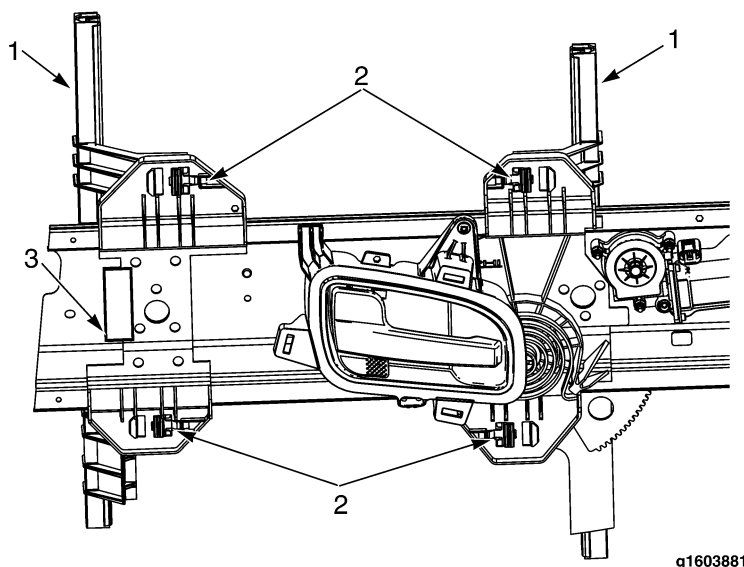


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- |                              |                       |
|------------------------------|-----------------------|
| 1. DOOR LATCH                | 4. OUTER DOOR HANDLE  |
| 2. DOOR LATCH BRACKET        | 5. LOCKING TAB        |
| 3. OUTER DOOR HANDLE BRACKET | 6. WINDOW RUN CHANNEL |
|                              | 7. LOCKING TAB        |

**Figure 100 Window Run Channel and Brackets**

4. Remove outer door handle by pressing the locking tab in and sliding the outer door handle bracket out of the window run channel.
5. Remove door latch by pressing the locking tab in and sliding the door latch bracket out of the window run channel.



1. WINDOW RUN CHANNELS  
2. LOCKING TABS

3. MODULAR DOOR HARDWARE  
ASSEMBLY

**Figure 101 Window Run Channels**

6. Depress locking tabs at the top and bottom of the window run channels.
7. Slide window run channels out of the modular door hardware assembly and remove.

### Installation

#### NOTE –

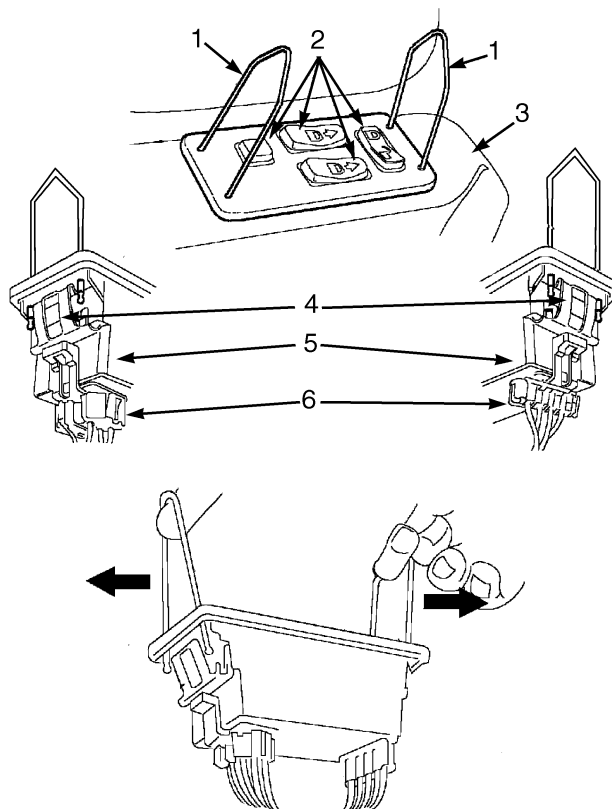
- **Installation procedures show driver side; passenger side procedures are the same.**
  - **Window run channel procedures are the same for either front or rear cab doors.**
1. Install window run channels into modular door hardware assembly. Slide into place and ensure locking tabs lock in place (Figure 101).
  2. Install door latch by sliding the door latch bracket into the window run channel. Ensure locking tabs lock in place (Figure 100, Items 1, 2, and 7).
  3. Install outer door handle by sliding the outer door handle bracket into the window run channel. Ensure locking tabs lock in place (Figure 100).
  4. Install modular door hardware assembly. Refer to **MODULAR DOOR HARDWARE ASSEMBLY** (See Modular Door Hardware Assembly, page 92).
  5. Install door vapor barrier. Refer to **DOOR VAPOR BARRIER** (See Door Vapor Barrier, page 86).
  6. Install door trim panel. Refer to **DOOR TRIM PANEL** (See Door Trim Panel, page 83).

## 2.30. ELECTRIC WINDOW AND DOOR LOCK SWITCH

### Removal

#### NOTE –

- Removal procedures show driver side; passenger side procedures are the same.
- Electric window and door lock switch procedures are the same for either front or rear cab doors.



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1. REMOVAL TOOL
2. SWITCH BUTTONS
3. TRIM PANEL
4. SPRING RETAINING CLIPS

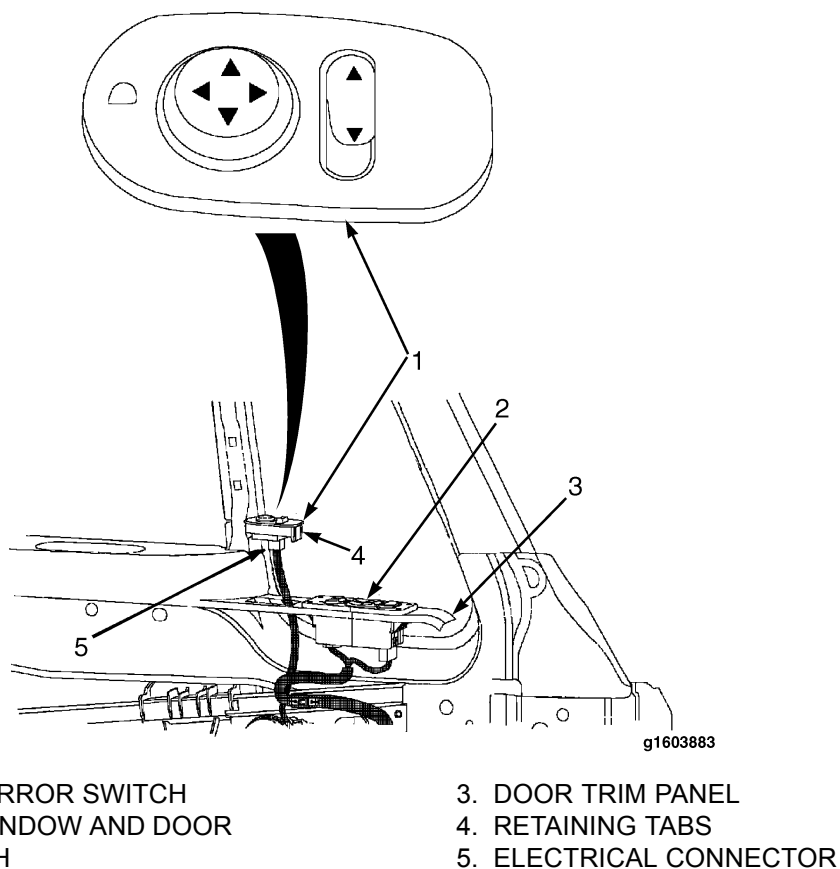
5. ELECTRIC WINDOW AND DOOR LOCK SWITCH
6. ELECTRICAL CONNECTORS

**Figure 102 Electric Window and Door Lock Switch**

1. Insert removal tools into electric window and door lock switch at a slight angle toward the switch buttons.
2. Pull removal tools out and away from the switch buttons to release the spring retaining clips.
3. Lift the electric window and door lock switch up from the door trim panel and disconnect electrical connectors.
4. Remove electric window and door lock switch and removal tools.

**Installation****NOTE –**

- Installation procedures show driver side; passenger side procedures are the same.
  - Electric window and door lock switch procedures are the same for either front or rear cab doors.
1. Connect electrical connectors to electric window and door lock switch (Figure 102, Items 5 and 6).
  2. Push electric window and door lock switch down into door trim panel until spring retaining clips lock in place (Figure 102, Items 3, 4, and 5).

**2.31. ELECTRIC MIRROR SWITCH****Removal****Figure 103 Electric Mirror Switch**

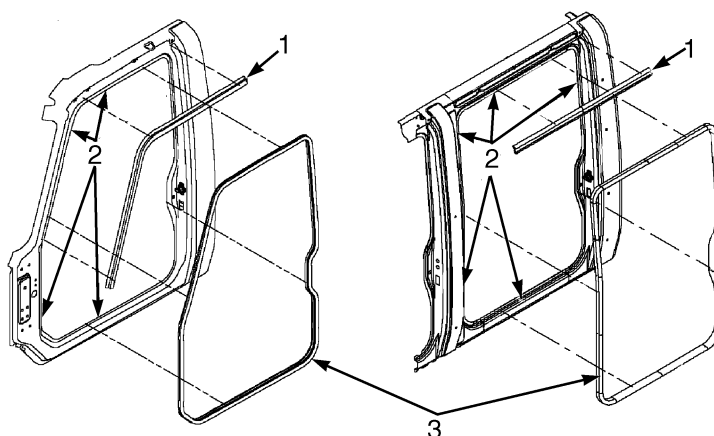
1. Using a flat-blade screwdriver, carefully pry electric mirror switch out of the door trim panel.
2. Disconnect electrical connector and remove electric mirror switch.

**Installation**

1. Connect electrical connector to electric mirror switch (Figure 103, Items 1 and 5).
2. Push electric mirror switch down into door trim panel until retaining tabs lock in place (Figure 103, Items 1, 3, and 4).

**2.32. WEATHER SEALS****Removal****NOTE –**

- Removal procedures show driver side; passenger side procedures are the same.
- Weather seal procedures are the same for either front or rear cab doors.



1. SECONDARY WEATHER SEAL  
2. WEATHER SEAL FLANGE

3. PRIMARY WEATHER SEAL

**Figure 104 Weather Seals**

1. Remove scuff plate and seat belt retractor cover. Refer to **SCUFF PLATE AND SEAT BELT RETRACTOR COVER** (See Scuff Plate and Seat Belt Retractor Cover, page 121).
2. Remove primary weather seal by carefully pulling off of the weather seal flange.
3. Remove secondary weather seal by carefully pulling off of the weather seal flange.

**Installation****NOTE –**

- Installation procedures show driver side; passenger side procedures are the same.
- Weather seal procedures are the same for either front or rear cab doors.

1. Install secondary weather seal onto weather seal flange by pressing into place until seated (Figure 104, Items 1 and 2).



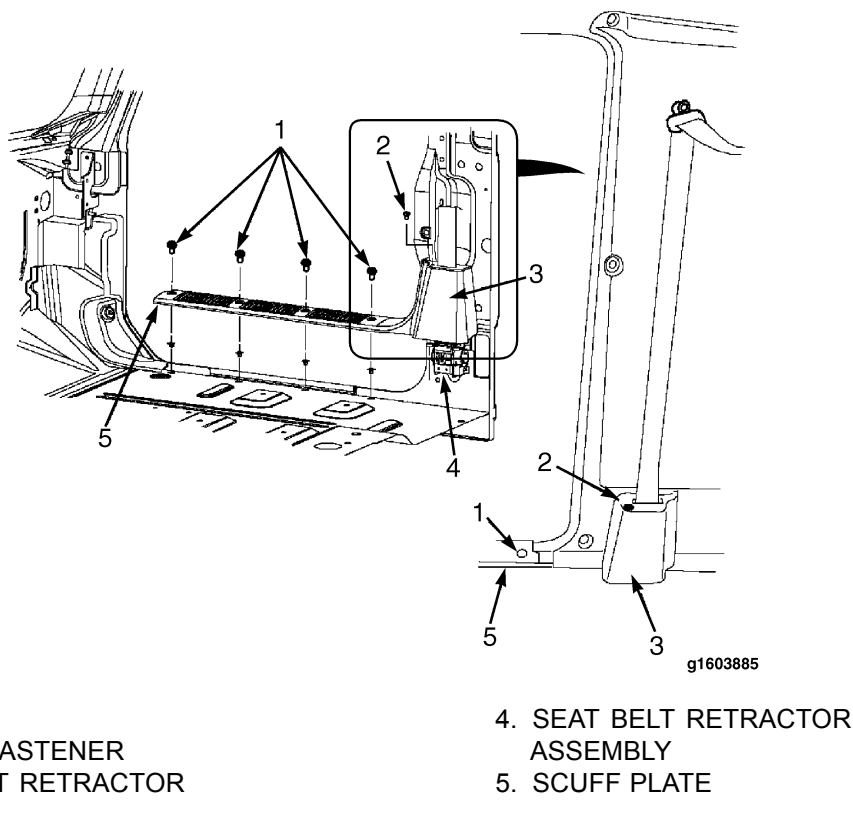
2. Install primary weather seal onto weather seal flange by pressing into place until seated (Figure 104, Items 2 and 3).
3. Install scuff plate and seat belt retractor cover. Refer to **SCUFF PLATE AND SEAT BELT RETRACTOR COVER** (See Scuff Plate and Seat Belt Retractor Cover, page 121).

### 2.33. SCUFF PLATE AND SEAT BELT RETRACTOR COVER

#### Removal

#### NOTE –

- Removal procedures show passenger side; driver side procedures are the same.
- Scuff plate and seat belt retractor cover procedures are the same for either front or rear cab doors.



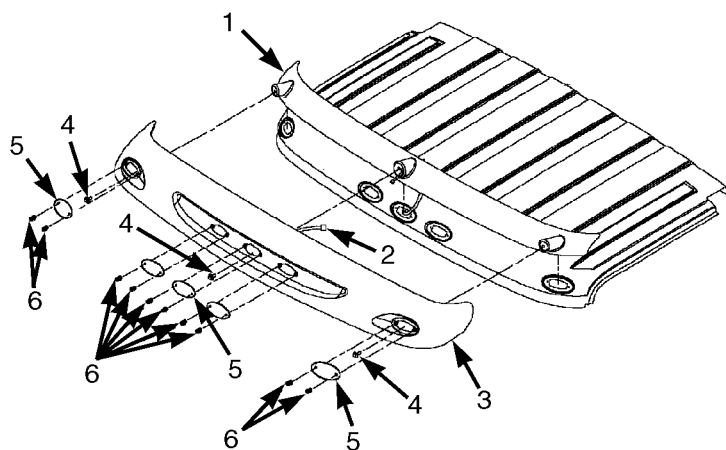
**Figure 105 Scuff Plate and Seat Belt Retractor Cover**

1. Remove four screws and scuff plate.
2. Remove push-in fastener securing seat belt retractor cover to seat belt retractor assembly.
3. Remove seat belt retractor cover.

**Installation****NOTE –**

- Installation procedures show passenger side; driver side procedures are the same.
- Scuff plate and seat belt retractor cover procedures are the same for either front or rear cab doors.

1. Install scuff plate and secure with four screws (Figure 105, Items 1 and 5). Tighten screws to 20 to 25 Lbf-in. (2 to 3 N•m).
2. Install seat belt retractor cover over seat belt retractor assembly and secure with push-in fastener (Figure 105, Items 2, 3, and 4).

**2.34. SUN SHADE****Removal**

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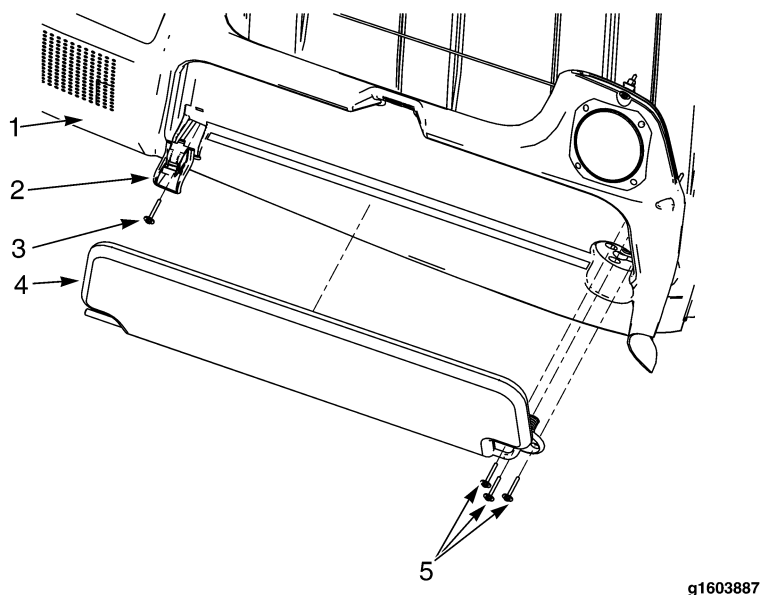
- |                         |                     |
|-------------------------|---------------------|
| 1. MOUNTING BRACKET     | 4. MOUNTING SCREWS  |
| 2. ELECTRICAL CONNECTOR | 5. CLEARANCE LIGHTS |
| 3. SUN SHADE            | 6. SCREWS           |

**Figure 106 Sun Shade**

1. Remove 10 screws from clearance lights.
2. Pull clearance lights partially out of sun shade to expose mounting screws.
3. Remove three mounting screws from mounting bracket.
4. Disconnect electrical connector and remove sun shade.

**Installation**

1. Connect electrical connector to sun shade (Figure 106, Items 2 and 3).
2. Attach sun shade to mounting bracket with three mounting screws (Figure 106, Items 1, 3, and 4). Tighten mounting screws to 34 to 38 Lbf-ft (46 to 52 N•m).
3. Install clearance lights and secure with 10 screws (Figure 106, Items 5 and 6). Tighten screws to 20 to 25 Lbf-in. (2 to 3 N•m).

**2.35. SUN VISOR AND CLIP****Removal**

1. HEADER CONSOLE PANEL
2. CLIP
3. CLIP SCREW

4. SUN VISOR
5. SCREW

**Figure 107 Sun Visor and Clip**

1. Remove three screws securing sun visor to the header console panel and remove the sun visor.

**IMPORTANT** – If the sun visor does not come off, drop the corner of the header console panel down far enough to remove the retaining washer from the sun visor.

2. Remove the clip screw and clip.

**Installation**

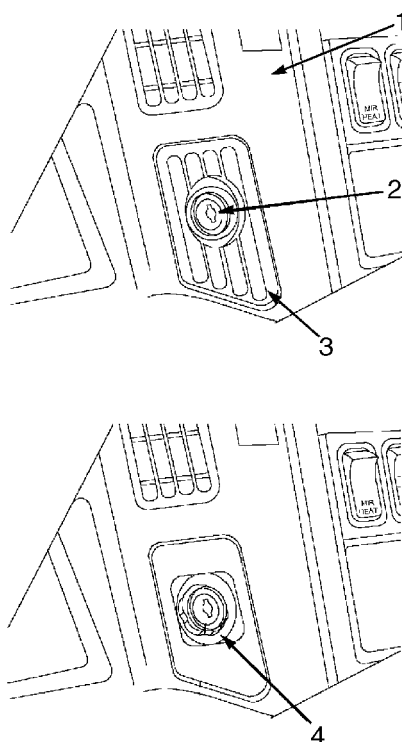
1. Install the clip and secure with clip screw (Figure 107, Items 2 and 3). Tighten screw to 20 to 25 Lbf-in. (2 to 3 N•m).
2. Install sun visor and secure with three screws (Figure 107, Items 4 and 5). Tighten screws to 20 to 25 Lbf-in. (2 to 3 N•m).

## 2.36. IGNITION SWITCH AND IGNITION SWITCH CYLINDER

The ignition switch and door locks are coded the same; one key operates both the ignition switch and the door locks. A plastic bag (kept with the vehicle) is stamped and bar-coded with the ignition switch and door lock cylinder code numbers. This plastic bag is to remain with the vehicle when it is delivered to the customer. It is very important that this plastic bag (with the code numbers) be kept by the customer in a safe, secure place for key replacement.

**NOTE – The code numbers do not appear on the ignition switch body or the door lock assembly.**

### Ignition Switch – Removal



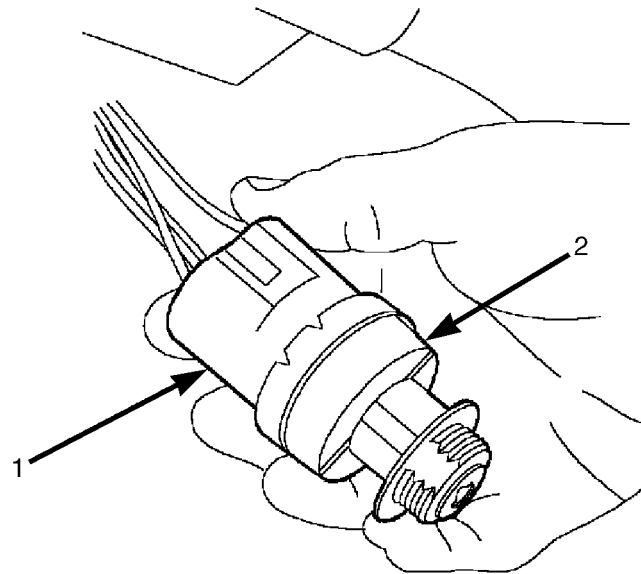
g1603888

- 1. DASH PANEL
- 2. IGNITION SWITCH

- 3. RUBBER TRIM
- 4. NUT

**Figure 108 Ignition Switch Trim and Nut**

1. Remove rubber trim from ignition switch.
2. Remove nut with a 1-1/8 inch thin wall socket.



g1603889

1. IGNITION SWITCH ELECTRICAL  
CONNECTOR

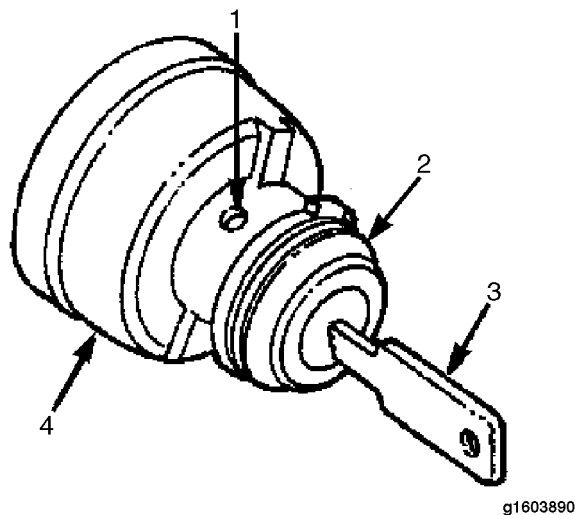
2. IGNITION SWITCH

**Figure 109 Ignition Switch and Electrical Connector**

3. Push ignition switch through dash panel and disconnect electrical connector.
4. Remove ignition switch.

#### **Ignition Switch – Installation**

1. Connect ignition switch electrical connector to ignition switch (Figure 109).
2. Insert ignition switch through dash panel (Figure 108, Items 1 and 2).
3. Install nut and tighten with a 1-1/8 inch thin wall socket (Figure 108, Item 4).
4. Install rubber trim (Figure 108, Item 3).

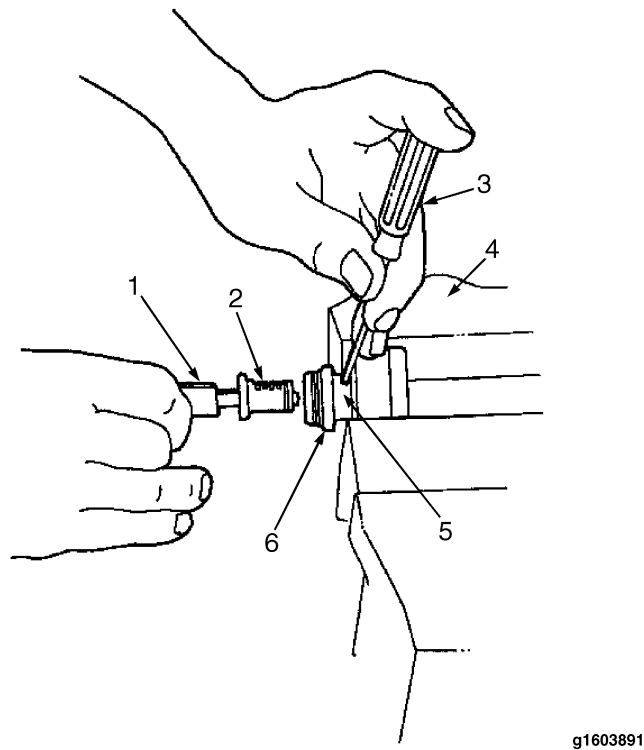
**Ignition Switch Cylinder – Removal**

1. RELEASE HOLE  
2. IGNITION SWITCH

3. IGNITION KEY  
4. IGNITION SWITCH BODY

**Figure 110 Ignition Switch Assembly**

1. Insert ignition key into ignition switch and rotate key counterclockwise to the **ACCESSORY** position. This aligns the key with the release hole.



- |                             |                         |
|-----------------------------|-------------------------|
| 1. IGNITION KEY             | 4. VISE                 |
| 2. IGNITION SWITCH CYLINDER | 5. RELEASE HOLE         |
| 3. ROD                      | 6. IGNITION SWITCH BODY |

**Figure 111 Ignition Switch Cylinder and Body**

2. Support ignition switch assembly in a vise with soft jaws.
3. Insert a 1/16- inch (2- mm) - diameter rod (paper clip will work) into release hole and depress.
4. Remove ignition switch cylinder from ignition switch body using ignition key and pulling straight out.

**NOTE – If vehicle keys are lost, drill out the ignition switch cylinder by using a 5/16- inch (8 mm-) drill bit and drill 1/2 to 3/4 inch (13 to 19 mm) deep. This will permit the tumblers to drop out and allow switch ignition cylinder removal.**

#### **Ignition Switch Cylinder – Installation**

**NOTE – If the original key is desired when replacing the ignition switch cylinder, code the new ignition switch using the following steps.**

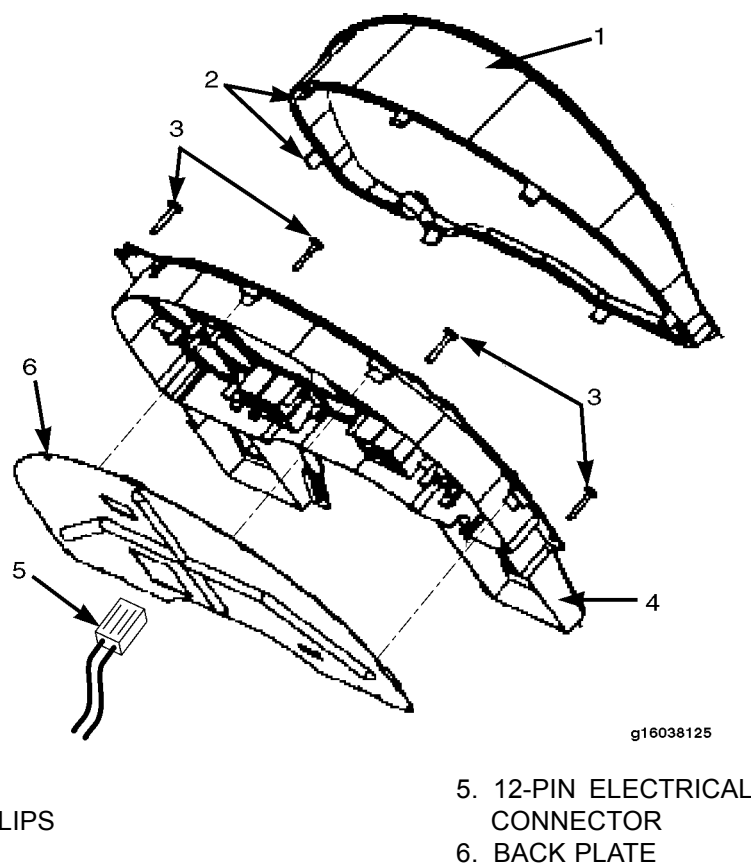
1. Insert the original ignition key in the new ignition switch cylinder (Figure 111 Items 1 and 2).
2. File off any tumblers that protrude from the ignition switch cylinder. Ensure no burrs are left on the tumblers. Remove the ignition key and blow all filings out with compressed air.
3. Apply a small quantity of powdered graphite to the tumblers and reinsert ignition key into the new ignition switch cylinder.

4. Rotate ignition key and ignition switch cylinder counterclockwise to the **ACCESSORY** position.
5. Insert ignition switch cylinder back into ignition switch body, turn key to **OFF** position and remove key (Figure 110).

## 2.37. DASH PANEL

### Gauge Cluster – Removal

**IMPORTANT – Always disconnect battery ground before servicing or removing gauge cluster.**



1. SHIELD
2. RETAINING CLIPS
3. SCREWS
4. GAUGE CLUSTER

5. 12-PIN ELECTRICAL CONNECTOR
6. BACK PLATE

**Figure 112 Gauge Cluster**

1. Remove the shield from the gauge cluster by gently pressing in the seven retaining clips.
2. Remove four screws securing gauge cluster to back plate.
3. Tilt the gauge cluster forward and disconnect the 12-pin electrical connector.
4. Disconnect any remaining auxiliary electrical connectors.
5. Remove the gauge cluster.

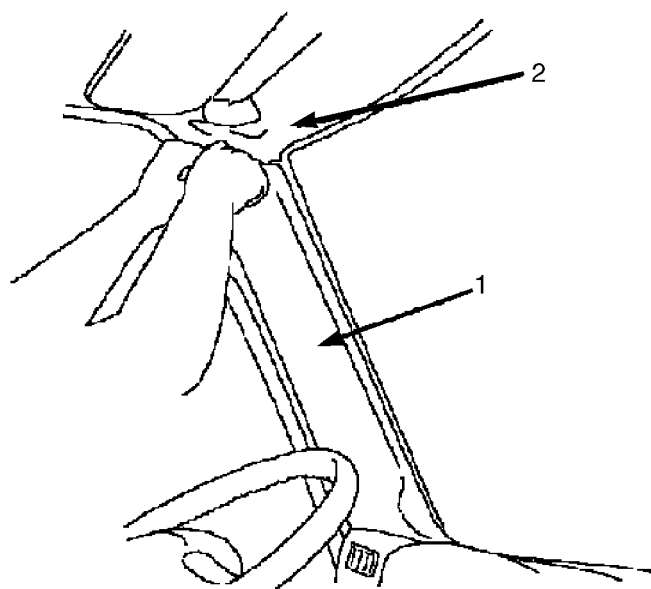


**Gauge Cluster – Installation**

1. Install gauge cluster (Figure 112, Item 4).
2. Connect any auxiliary electrical connectors.
3. Connect the 12-pin electrical connector (Figure 112, Item 5).
4. Install four screws securing gauge cluster to gauge cluster back plate (Figure 112, Items 3, 4, and 6). Tighten screws to 20 to 25 Lbf-in. (2 to 3 N•m).
5. Install shield to gauge cluster by gently pressing in place until retaining clips snap in place (Figure 112, Items 1, 2, and 4).

**Dash Panel – Removal**

**IMPORTANT – Always disconnect battery ground before servicing or removing dash panel.**



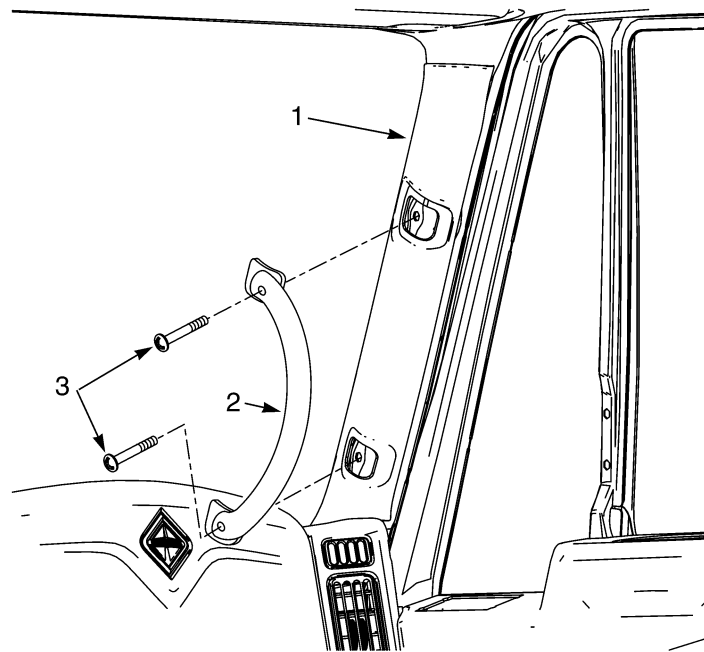
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1. DRIVER SIDE A-PILLAR TRIM  
PANEL

2. HEADER TRIM PANEL

**Figure 113 Driver Side A-Pillar Trim Panel**

1. Remove driver side A-pillar trim panel by beginning at the top and pulling free from the cab A-pillar.



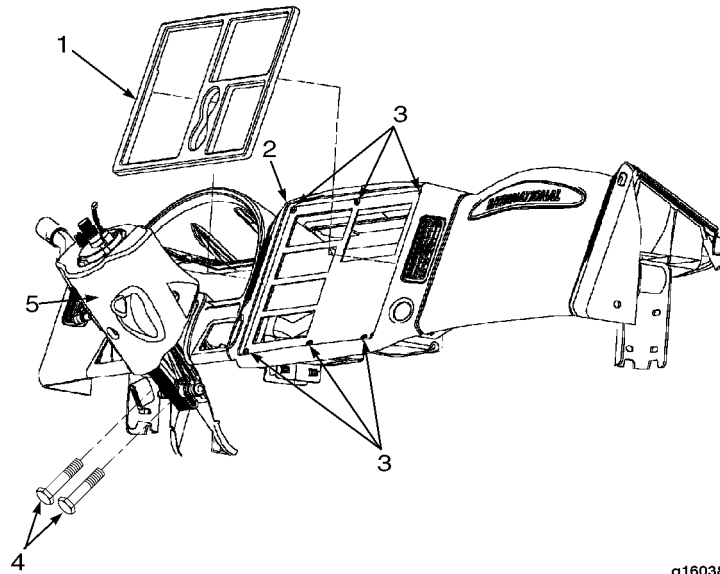
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1. PASSENGER SIDE A-PILLAR  
TRIM PANEL

2. GRAB HANDLE  
3. BOLTS

**Figure 114 Passenger Side A-Pillar Trim Panel and Grab Handle**

2. Remove two bolts and remove grab handle.
3. Remove passenger side A-pillar trim panel by beginning at the top and pulling free from the cab A-pillar.
4. Disconnect ignition switch electrical connector (not shown).
5. Remove courtesy lights (not shown) under the dash panel.

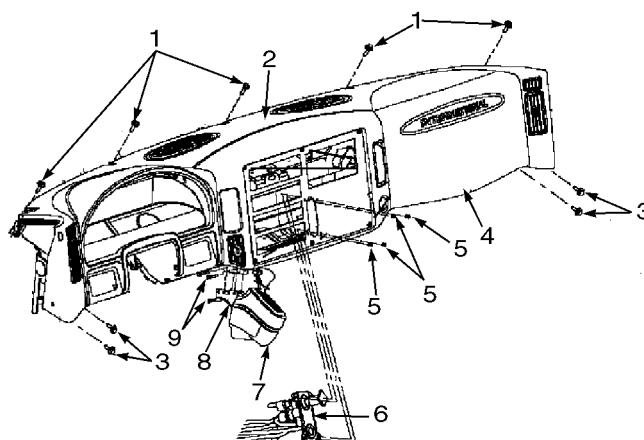


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- |                                    |                         |
|------------------------------------|-------------------------|
| 1. CENTER DASH PANEL TRIM<br>BEZEL | 3. BOLT                 |
| 2. CENTER DASH PANEL               | 4. STEERING COLUMN BOLT |
|                                    | 5. STEERING COLUMN      |

**Figure 115 Dash Panel**

6. Carefully pry the center dash panel trim bezel out of the center dash panel.
7. Remove six bolts from the center dash panel.
8. Remove two steering column bolts.



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- |                                    |                                   |
|------------------------------------|-----------------------------------|
| 1. UPPER DASH PANEL BOLT           | 6. AIR BRAKE CONTROL              |
| 2. DASH PANEL                      | 7. AUTOMATIC TRANSMISSION SHIFTER |
| 3. LOWER DASH PANEL BOLT           | 8. AIR BRAKE CONTROL BRACKET      |
| 4. FUSE PANEL COVER                | 9. MOUNTING BRACKET BOLT          |
| 5. AIR BRAKE CONTROL MOUNTING BOLT |                                   |

**Figure 116 Dash Panel**

9. Remove four air brake control mounting bolts and air brake control.
  10. If equipped with automatic transmission shifter, remove two mounting bracket bolts and remove shifter.
  11. Remove two lower dash panel bolts from each side of the lower dash panel.
  12. Remove five upper dash panel bolts from the front edge of the upper dash panel.
  13. Pull the fuse panel cover away from dash panel, lift up, and remove.
- NOTE – Tag and mark all electrical connectors before disconnecting.**
14. Lift dash panel forward and upward slightly and disconnect all electrical connectors and air ducts.
  15. Remove dash panel.

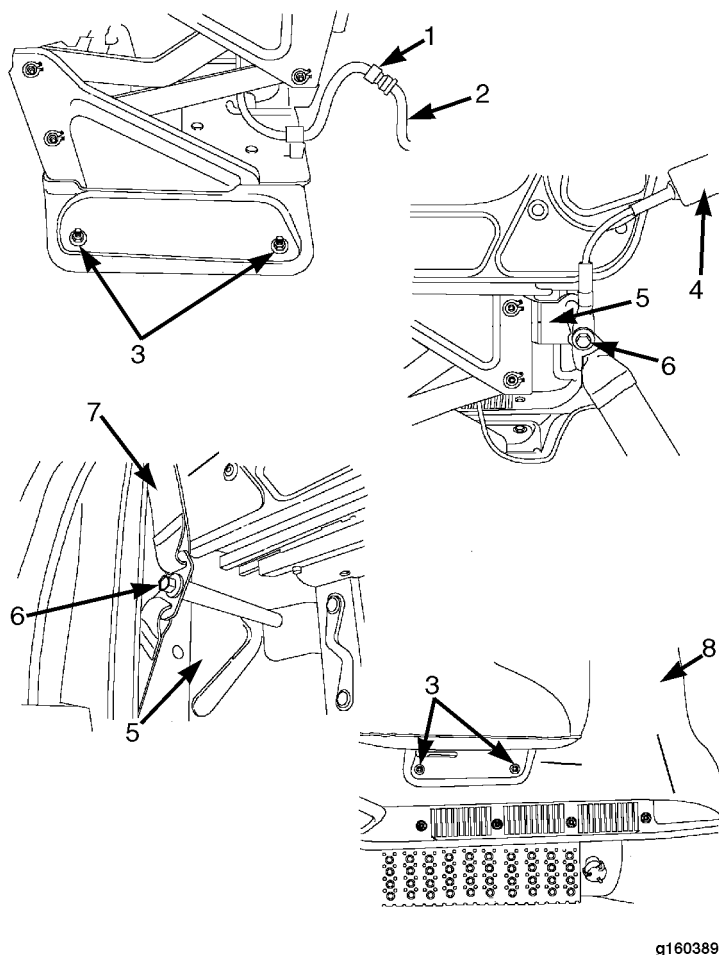
**Dash Panel – Installation**

1. Install dash panel (Figure 116, Item 2).
2. Connect all electrical connectors and air ducts.
3. Install the fuse panel cover (Figure 116, Item 4).
4. Install five upper dash panel bolts through the front edge of the dash panel (Figure 116, Items 1 and 2). Tighten bolts to 84 to 106 Lbf-in. (10 to 12 N•m).
5. Install two lower dash panel bolts into each side of the dash panel (Figure 116, Items 2 and 3). Tighten bolts to 16 to 19 Lbf-ft (22 to 26 N•m).
6. If equipped with automatic transmission shifter, install shifter with two mounting bracket bolts (Figure 116, Items 7 and 9). Tighten bolts to 15 to 18 Lbf-ft (20 to 24 N•m).
7. Install air brake control and secure with four air brake control mounting bolts (Figure 116, Items 5 and 6).
8. Install two steering column bolts (Figure 115 Item 4).
9. Install six bolts into the center dash panel (Figure 115, Items 2 and 3).
10. Carefully snap the center dash panel trim bezel into the center dash panel (Figure 115, Items 1 and 2).
11. Install courtesy lights (not shown) under the dash panel.
12. Connect ignition switch electrical connector (not shown).
13. Install passenger side A-pillar trim panel by aligning trim panel retaining clips with the mounting holes and push in to secure (Figure 114, Item 1).
14. Install passenger side grab handle and secure with two bolts (Figure 114 Items 2 and 3). Tighten bolts to 77 to 95 Lbf-in. (9 to 11 N•m).
15. Install driver side A-pillar trim panel by aligning trim panel retaining clips with the mounting holes and push in to secure (Figure 113, Item 1).
16. Reconnect battery ground after servicing or installing dash panel.

## 2.38. FRONT SEATS

### Bucket Seat – Removal

**NOTE – Removal procedures show passenger side; driver side procedures are the same.**



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- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1. QUICK DISCONNECT CONNECTOR     | 5. SEAT BELT MOUNTING BRACKET |
| 2. AIR LINE                       | 6. BOLT                       |
| 3. NUT, WASHER, AND MOUNTING STUD | 7. OUTER SEAT BELT            |
| 4. INNER SEAT BELT                | 8. BUCKET SEAT                |

**Figure 117 Bucket Seat**

1. Remove bolt and outer seat belt from seat belt mounting bracket.
2. Remove bolt and inner seat belt from seat belt mounting bracket.
3. If equipped, disconnect air line at the quick disconnect connector.
4. Remove four nuts and washers from mounting studs.

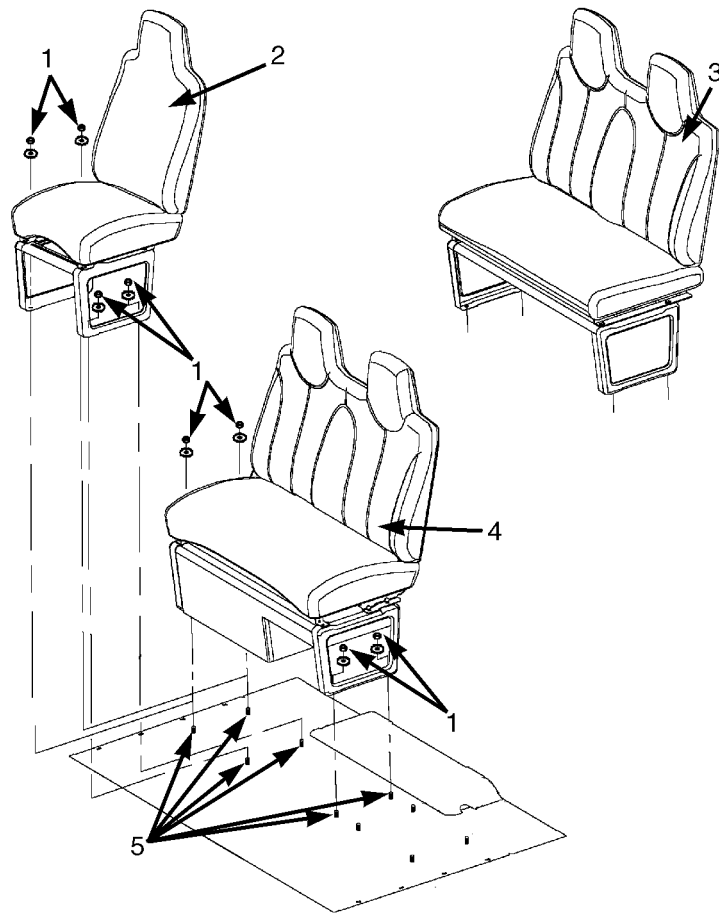
5. With the aid of an assistant, lift bucket seat off mounting studs and remove.

**Bucket Seat – Installation**

**IMPORTANT – Use all new mounting hardware when installing seats to ensure proper torque requirements can be met.**

**NOTE – Installation procedures show passenger side; driver side procedures are the same.**

1. With the aid of an assistant, install bucket seat and set in place on mounting studs (Figure 117, Items 3 and 8).
2. Install four nuts and washers (Figure 117, Item 3). Tighten nuts to 15 to 20 Lbf-ft (20 to 27 N•m).
3. If equipped, connect air line at the quick disconnect connector (Figure 117, Items 1 and 2).
4. Install inner seat belt and secure to seat belt mounting bracket with bolt (Figure 117, Items 4, 5, and 6). Tighten bolt to 25 to 30 Lbf-ft (34 to 41 N•m).
5. Install outer seat belt and secure to seat belt mounting bracket with bolt (Figure 117, Items 5, 6, and 7). Tighten bolt to 25 to 30 Lbf-ft (34 to 41 N•m).

**Fixed Passenger and Bench Seat – Removal**

g1603893

- 1. NUT AND WASHER
- 2. FIXED PASSENGER SEAT
- 3. BENCH SEAT WITHOUT TOOLBOX

- 4. BENCH SEAT WITH TOOLBOX
- 5. MOUNTING STUDS

**Figure 118 Fixed Passenger and Bench Seat**

**NOTE – Bench seat with or without toolbox removes the same.**

1. Remove four nuts and washers from mounting studs of fixed passenger seat.
2. With the aid of an assistant, lift fixed passenger seat off mounting studs and remove.
3. Remove four nuts and washers from mounting studs of bench seat.
4. Pull seat belts (not shown) through upper and lower seat.
5. Lift bench seat off mounting studs and remove.



**Fixed Passenger and Bench Seat – Installation**

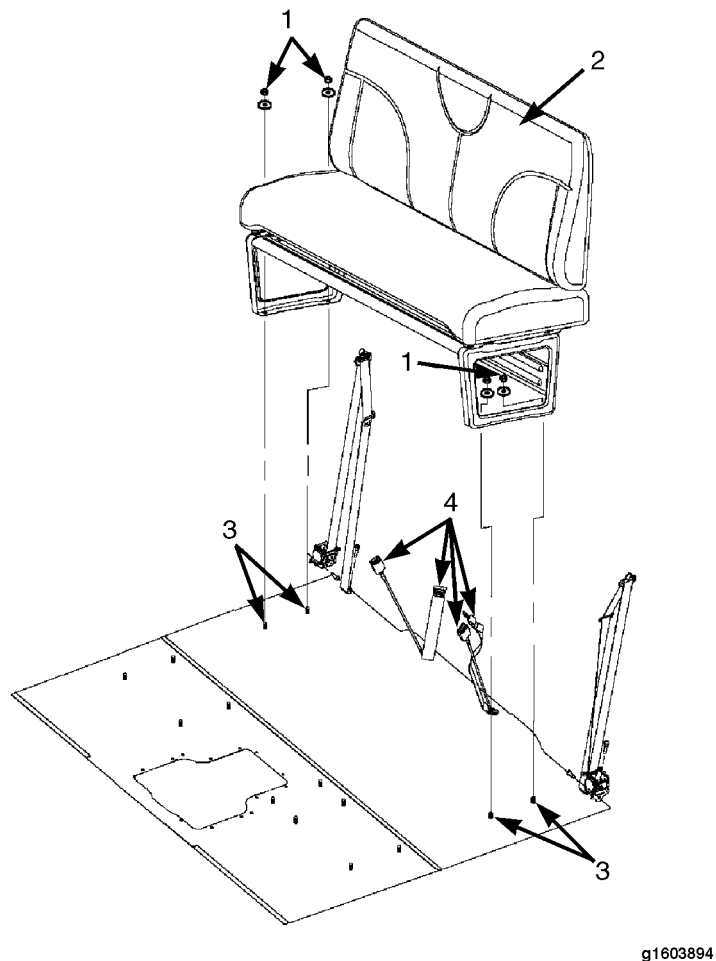
**IMPORTANT – Use all new mounting hardware when installing seats to ensure proper torque requirements can be met.**

**NOTE – Bench seat with or without toolbox installs the same.**

1. With the aid of an assistant, install fixed passenger seat and set in place on mounting studs (Figure 118, Items 2 and 5).
2. Install four nuts and washers (Figure 118, Item 1). Tighten nuts to 15 to 20 Lbf-ft (20 to 27 N•m).
3. With the aid of an assistant, install bench seat and set in place on mounting studs (Figure 118, Items 3 or 4 and 5).
4. Push seat belts through from backside of upper and lower seat and pull through to the front side.
5. Install four nuts and washers (Figure 118, Item 1). Tighten nuts to 15 to 20 Lbf-ft (20 to 27 N•m).

## 2.39. REAR BENCH SEAT

### Removal



- 1. NUT WITH WASHER
- 2. REAR BENCH SEAT

- 3. MOUNTING STUDS
- 4. SEAT BELT

**Figure 119 Rear Bench Seat**

1. Remove four nuts with washers from mounting studs.
2. Pull seat belts through upper and lower seat.
3. With the aid of an assistant, lift rear bench seat off mounting studs and remove.

### Installation

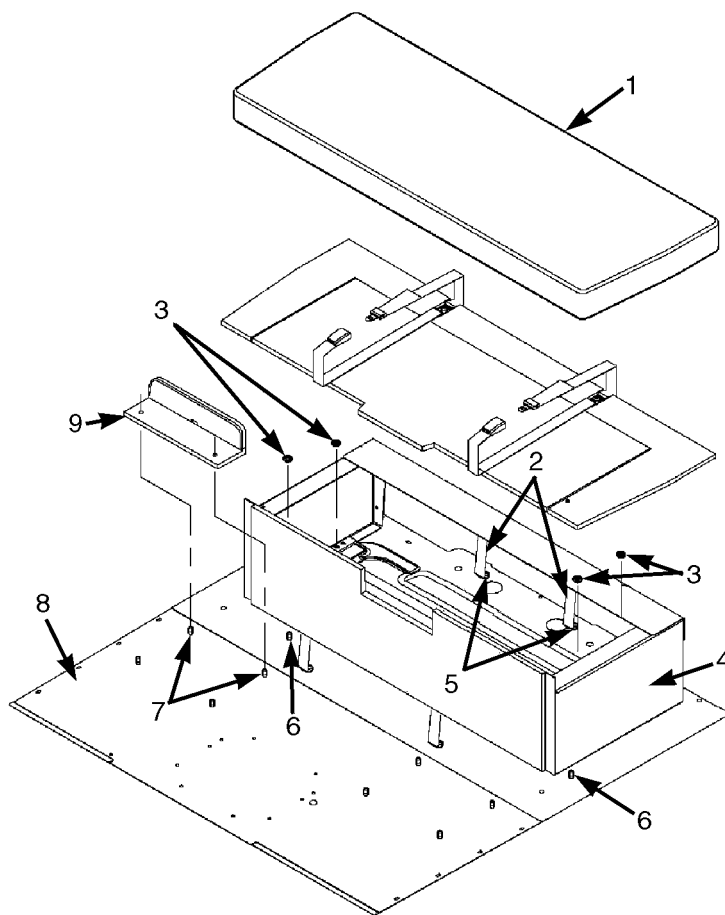
**IMPORTANT – Use all new mounting hardware when installing seats to ensure proper torque requirements can be met.**

1. With the aid of an assistant, install rear bench seat and set in place on mounting studs (Figure 119, Items 2 and 3).

2. Install four nuts and washers (Figure 119, Item 1). Tighten nuts to 15 to 18 Lbf-ft (20 to 24 N•m).
3. Push seat belts through from backside of upper and lower seat and pull through to the front side (Figure 119, Item 4).

## 2.40. BUNK/STORAGE UNIT

### Removal



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- |                            |                                  |
|----------------------------|----------------------------------|
| 1. BUNK MATTRESS           | 6. MOUNTING STUDS                |
| 2. SEAT BELT               | 7. PASSENGER SEAT MOUNTING STUDS |
| 3. MOUNTING NUT            | 8. CAB FLOOR                     |
| 4. BUNK/STORAGE UNIT       | 9. PROTECTIVE PLATE              |
| 5. SEAT BELT MOUNTING BOLT |                                  |

**Figure 120 Bunk/Storage Unit**

1. With the aid of an assistant, remove passenger front seat. Refer to **FRONT SEATS** (See Front Seats, page 134).
2. If equipped, remove protective plate from passenger seat mounting studs.

3. Remove bunk mattress from bunk/storage unit.
4. Remove four mounting nuts securing bunk/storage unit to cab floor.
5. Remove two seat belt mounting bolts and seat belts.
6. Slide driver side seat (not shown) all the way forward to allow removal of bunk/storage unit.
7. With the aid of an assistant, lift bunk/storage unit off the mounting studs. Turn bunk/storage unit on its side and remove through passenger side door opening.

**Installation**

1. Slide driver side seat (not shown) all the way forward to allow installation of bunk/storage unit.
2. Turn bunk/storage unit on its side and install through passenger side door opening. Set bunk/storage unit in place on the mounting studs (Figure 120, Items 4 and 6).
3. Install seat belts and secure with two seat belt mounting bolts (Figure 120, Items 2 and 5). Tighten bolts to 25 to 35 Lbf-ft (34 to 47 N•m).

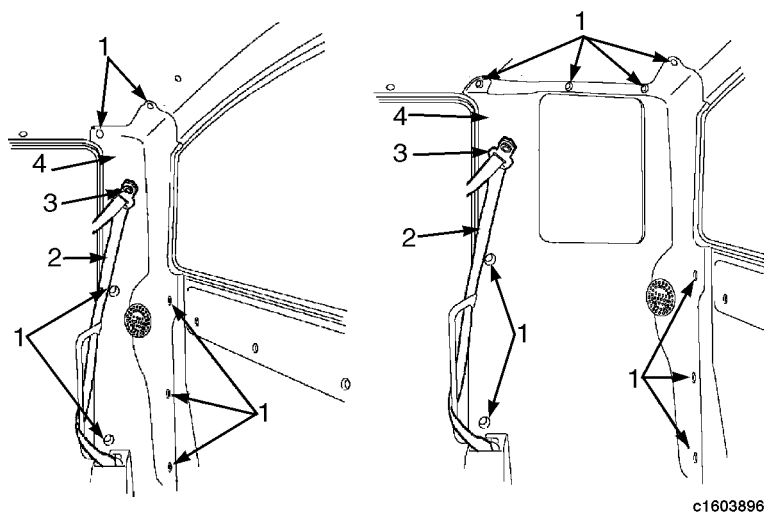
**NOTE – Seat belt attachment will allow seat belt to swivel after mounting bolt is fully torqued.**

4. Install four mounting nuts securing bunk/storage unit to cab floor (Figure 120, Items 3, 4, and 8). Tighten nuts to 15 to 18 Lbf-ft (20 to 24 N•m).
5. Install bunk mattress onto bunk/storage unit (Figure 120, Items 1 and 4).
6. If equipped, install protective plate over both rear passenger seat mounting studs (Figure 120, Items 7 and 9).
7. With the aid of an assistant, install passenger front seat. Refer to **FRONT SEATS** (See Front Seats, page 134).

**2.41. CORNER AND SIDE INTERIOR TRIM PANEL****Removal**

**NOTE – Removal procedures show passenger side; driver side procedures are the same.**

1. Remove the rear bench seat. Refer to **REAR BENCH SEAT** (See Rear Bench Seat, page 138).
2. Remove the front seats. Refer to **FRONT SEATS** (See Front Seats, page 134).
3. If equipped, remove bunk/storage unit. Refer to **BUNK/STORAGE UNIT** (See Bunk/Storage Unit, page 139).
4. Remove scuff plate and seat belt retractor cover. Refer to **SCUFF PLATE AND SEAT BELT RETRACTOR COVER** (See Scuff Plate and Seat Belt Retractor Cover, page 121).



1. PUSH-IN FASTENER
2. SHOULDER BELT
3. BOLT

4. CORNER AND SIDE INTERIOR TRIM PANEL

**Figure 121 Corner and Side Interior Trim Panel**

5. Remove bolt securing the shoulder belt.
6. Remove push-in fasteners using the ZTSE4839 interior trim tool.
7. Remove corner and side interior trim panel.

### Installation

**NOTE – Installation procedures show passenger side; driver side procedures are the same.**

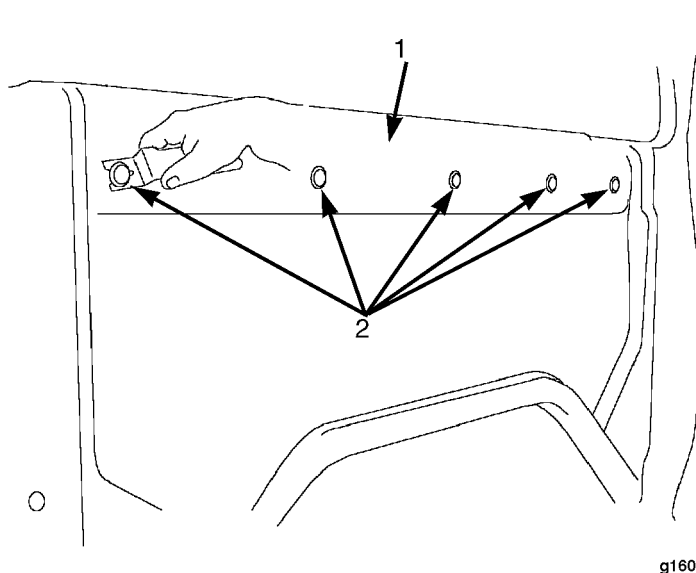
1. Install corner and side interior trim panel and secure with the push-in fasteners (Figure 121, Items 1 and 4).
2. Install shoulder belt and secure with bolt (Figure 121, Items 2 and 3). Tighten bolt to 20 to 25 Lbf-ft (27 to 34 N•m).
3. Install scuff plate and seat belt retractor cover. Refer to **SCUFF PLATE AND SEAT BELT RETRACTOR COVER** (See Scuff Plate and Seat Belt Retractor Cover, page 121).
4. If equipped, install bunk/storage unit. Refer to **BUNK/STORAGE UNIT** (See Bunk/Storage Unit, page 139).
5. Install the rear bench seat. Refer to **REAR BENCH SEAT** (See Rear Bench Seat, page 138).
6. Install the front seats. Refer to **FRONT SEATS** (See Front Seats, page 134).

## 2.42. REAR INTERIOR TRIM PANEL

### Removal

1. Remove both corner and side interior trim panels. Refer to **CORNER AND SIDE INTERIOR TRIM PANEL** (See Corner and Side Interior Trim Panel, page 140).

**NOTE – Rear interior trim panel can be removed by removing only one of the corner and side interior trim panels.**



1. REAR INTERIOR TRIM PANEL

2. PUSH-IN FASTENER

**Figure 122 Rear Interior Trim Panel**

2. Remove push-in fasteners using the ZTSE4839 interior trim tool.
3. Remove rear interior trim panel.

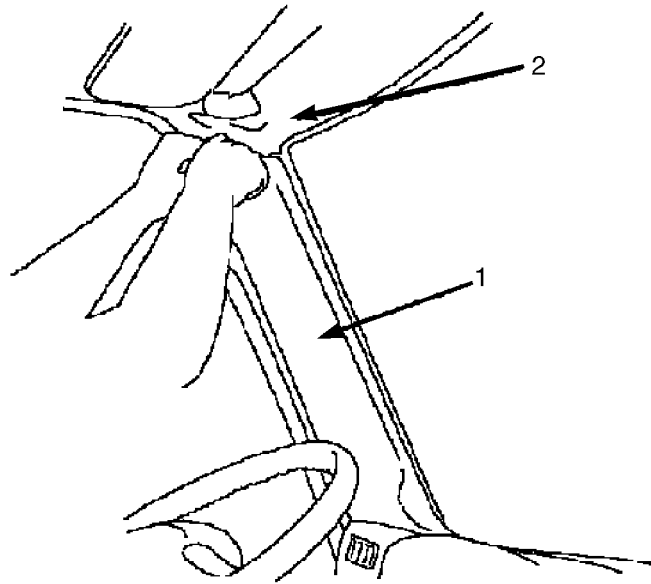
### Installation

**NOTE – The step below shows installing both driver and passenger side corner and side interior trim panels after installing rear interior trim panel. If one or the other of the corner and side interior trim panels was not removed during the removal step, you will need only to reinstall the side and corner interior trim panel that was removed.**

1. Install rear interior trim panel and secure with push-in fasteners (Figure 122, Items 1 and 2).
2. Ensure floor mat is properly fitted around rear interior trim panel at the bottom.
3. Install both corner and side interior trim panels. Refer to **CORNER AND SIDE INTERIOR TRIM PANEL** (See Corner and Side Interior Trim Panel, page 140).

## 2.43. HEADER CONSOLE PANEL

### Removal



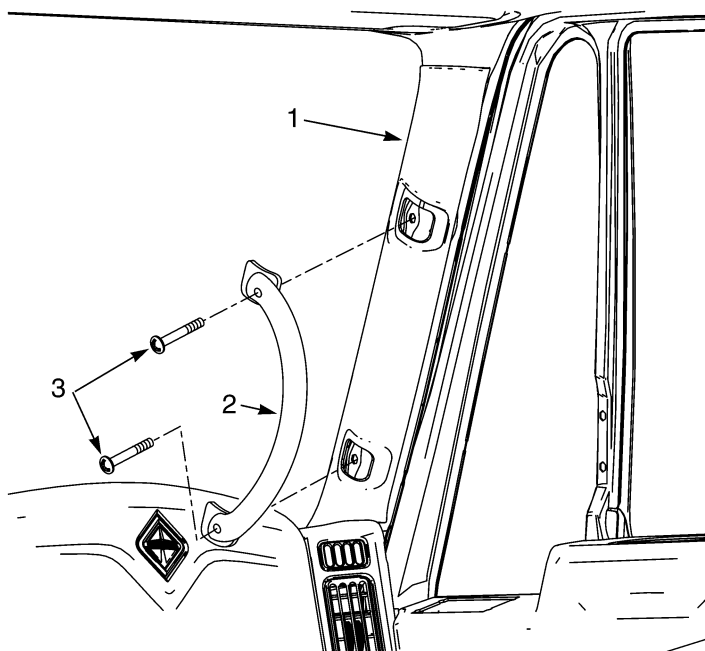
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1. DRIVER SIDE A-PILLAR TRIM  
PANEL

2. HEADER TRIM PANEL

**Figure 123 Driver Side A-Pillar Trim Panel**

1. Remove driver side A-pillar trim panel by beginning at the top and pulling free from the cab A-pillar.



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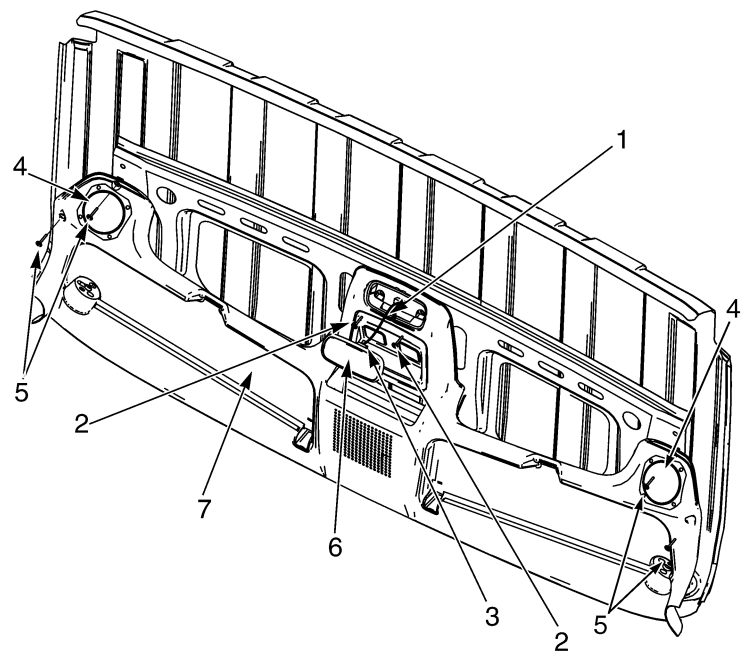
1. PASSENGER SIDE A-PILLAR  
TRIM PANEL

2. GRAB HANDLE  
3. BOLTS

**Figure 124 Passenger Side A-Pillar Trim Panel and Grab Handle**

2. Remove two bolts from grab handle and remove handle.
3. Remove passenger side A-pillar trim panel by beginning at the top and pulling free from the cab A-pillar.
4. Remove sun visor and clip. Refer to **SUN VISOR AND CLIP** (See Sun Visor and Clip, page 123).



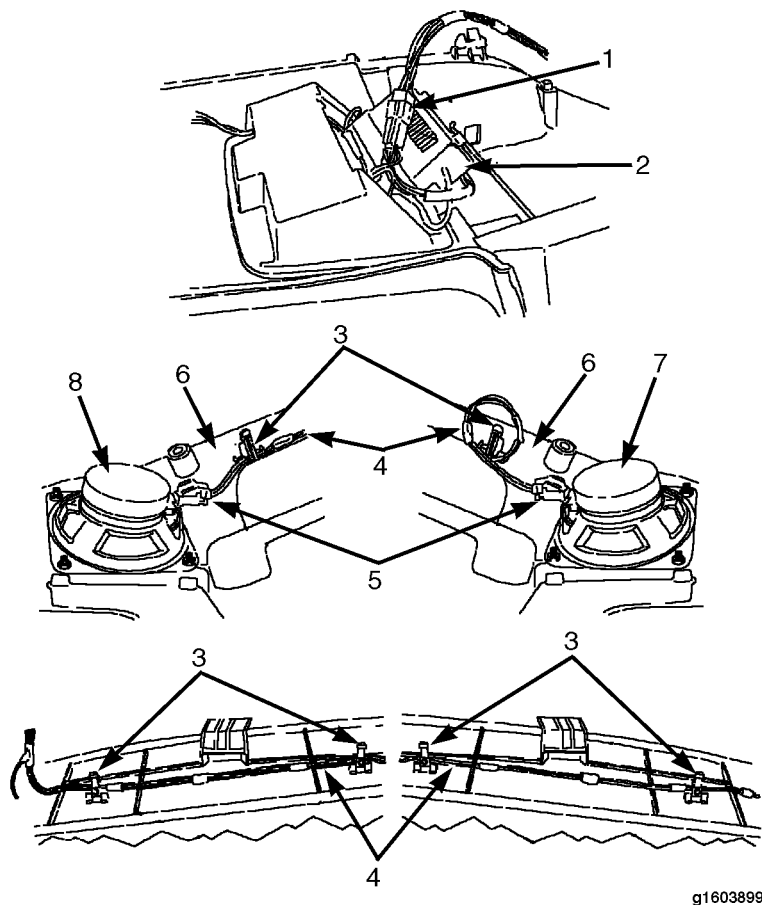


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- |  |                         |
|--|-------------------------|
| 1. WIRING HARNESS                      | 4. SPEAKER              |
| 2. COURTESY LIGHT SCREW                | 5. SCREW                |
| 3. COURTESY LIGHT ELECTRICAL CONNECTOR | 6. COURTESY LIGHT       |
|  | 7. HEADER CONSOLE PANEL |

**Figure 125 Header Console Panel**

5. Pull courtesy slightly out of header console panel to expose wiring.
6. Disconnect courtesy light electrical connector from wiring harness and remove.
7. Remove two courtesy light screws inside courtesy light cavity.
8. Remove two screws from each side of header console panel near the speakers.
9. Release the header console panel by pulling down and out.
10. Lower header console panel down and lay it across the dash panel.



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- |                                       |                                 |
|---------------------------------------|---------------------------------|
| 1. CONTROL PANEL ELECTRICAL CONNECTOR | 5. SPEAKER ELECTRICAL CONNECTOR |
| 2. CONTROL PANEL                      | 6. HEADER CONSOLE PANEL         |
| 3. RETAINING CLIP WITH WIRE TIE       | 7. PASSENGER SIDE SPEAKER       |
| 4. WIRING HARNESS                     | 8. DRIVER SIDE SPEAKER          |

**Figure 126 Header Console Panel Electrical Connections**

11. Disconnect control panel electrical connector from control panel, if equipped.
12. Disconnect speaker electrical connectors from driver and passenger speakers.
13. If equipped, pull off six retaining clips with wire ties securing the wiring harness to the header console panel.
14. Remove header console panel.

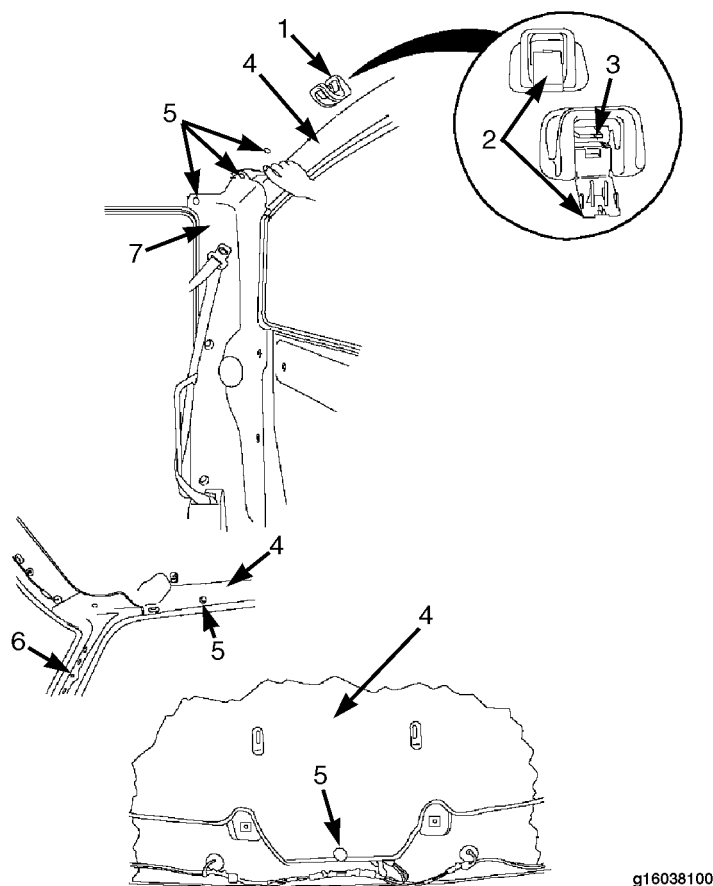
**Installation**

1. Install six retaining clips with wire ties securing the wiring harness to the header console panel (Figure 126, Items 3, 4, and 6).
2. Connect driver and passenger side speaker electrical connectors to speakers (Figure 126, Items 5, 7, and 8).
3. Connect control panel electrical connector to control panel, if equipped (Figure 126, Items 1 and 2).
4. Install header console panel by pushing up into place until it snaps in place (Figure 125, Items 7).
5. Install two screws to each side of header console panel near the speakers (Figure 125, Items 4, 5, and 7). Tighten screws to 20 to 25 Lbf-in. (2 to 3 N•m).
6. Install two courtesy light screws inside cavity for courtesy light (Figure 125, Items 2 and 6). Tighten screws to 20 to 25 Lbf-in. (2 to 3 N•m).
7. Connect courtesy light electrical connector to wiring harness (Figure 125, Items 1 and 3).
8. Push courtesy light into header console panel until it snaps into place (Figure 125, Items 6 and 7).
9. Install sun visor and clip. Refer to **SUN VISOR AND CLIP** (See Sun Visor and Clip, page 123).
10. Install passenger side A-pillar trim panel by aligning trim panel retaining clips with the mounting holes and push in to secure (Figure 124).
11. Install passenger side grab handle and secure with two bolts (Figure 124, Items 2 and 3). Tighten bolts to 77 to 95 Lbf-in. (9 to 11 N•m).
12. Install driver side A pillar trim panel by aligning trim panel retaining clips with the mounting holes and push in to secure (Figure 123).

## 2.44. HEADLINER TRIM PANEL – STANDARD CAB

### Removal

1. Remove header console panel. Refer to **HEADER CONSOLE PANEL** (See Header Console Panel, page 143).



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- |                          |  |
|--------------------------|--|
| 1. COAT HOOK             | 5. PUSH-IN FASTENER                    |
| 2. COAT HOOK LEVER COVER | 6. A-PILLAR                            |
| 3. COAT HOOK LEVER       | 7. CORNER AND SIDE INTERIOR TRIM PANEL |
| 4. HEADLINER TRIM PANEL  |  |

**Figure 127 Headliner Trim Panel on Standard Cab Models**

### NOTE –

- Use the ZTSE4839 interior trim tool to remove all push-in interior fasteners.
  - Graphic shows passenger side; driver side procedures are the same.
2. Pull coat hook lever cover down.
  3. Push coat hook lever down and remove coat hook.
  4. Remove two push-in fasteners at the top of each corner and side interior trim panel.

5. Remove two push-in fasteners at the rear of the headliner trim panel.
6. Remove one push-in fastener each in headliner trim panel near each A-pillar above door opening.
7. Remove one push-in fastener from front, center of the headliner trim panel. Support the front of the headliner trim panel after removing push-in fastener.
8. Lower the front of the headliner trim panel and slide forward. Carefully pull the headliner trim panel out from behind corner and side interior trim panels and remove.

### Installation

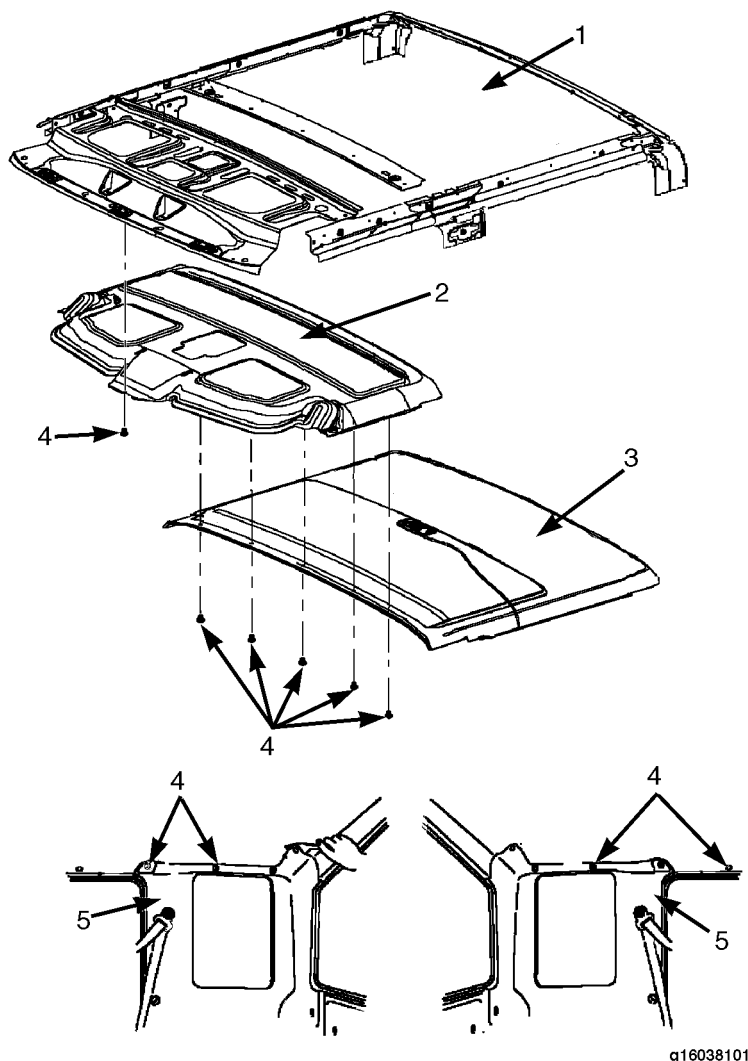
**NOTE – Graphic shows passenger side, driver side fasteners install the same.**

1. Insert headliner trim panel in place behind corner and side interior trim panels (Figure 127, Items 4 and 7).
2. Lift up the front, center of the headliner trim panel and install one push-in fastener (Figure 127, Items 4 and 5).
3. Install one push-in fastener each in headliner trim panel near each A-pillar above door opening (Figure 127, Items 4, 5, and 6).
4. Install two push-in fasteners at the rear of the headliner trim panel (Figure 127, Items 4 and 5).
5. Install two push-in fasteners at the top of each corner and side interior trim panel (Figure 127, Items 5 and 7).
6. Install coat hook and press in until it snaps in place (Figure 127, Item 1).
7. Push coat hook lever cover up and press until it snaps in place (Figure 127, Item 2).
8. Install header console panel. Refer to **HEADER CONSOLE PANEL** (See Header Console Panel, page 143).

## 2.45. HEADLINER TRIM PANEL – EXTENDED CAB

### Front – Removal

1. Remove header console panel. Refer to **HEADER CONSOLE PANEL** (See Header Console Panel, page 143).



- |                               |  |
|-------------------------------|--|
| 1. CAB HEADER                 | 4. PUSH-IN FASTENER                    |
| 2. FRONT HEADLINER TRIM PANEL | 5. CORNER AND SIDE INTERIOR TRIM PANEL |
| 3. REAR HEADLINER TRIM PANEL  |  |

**Figure 128 Headliner Trim Panel, Extended Cab, Front**

**NOTE – Use the ZTSE4839 interior trim tool to remove all push-in interior fasteners.**

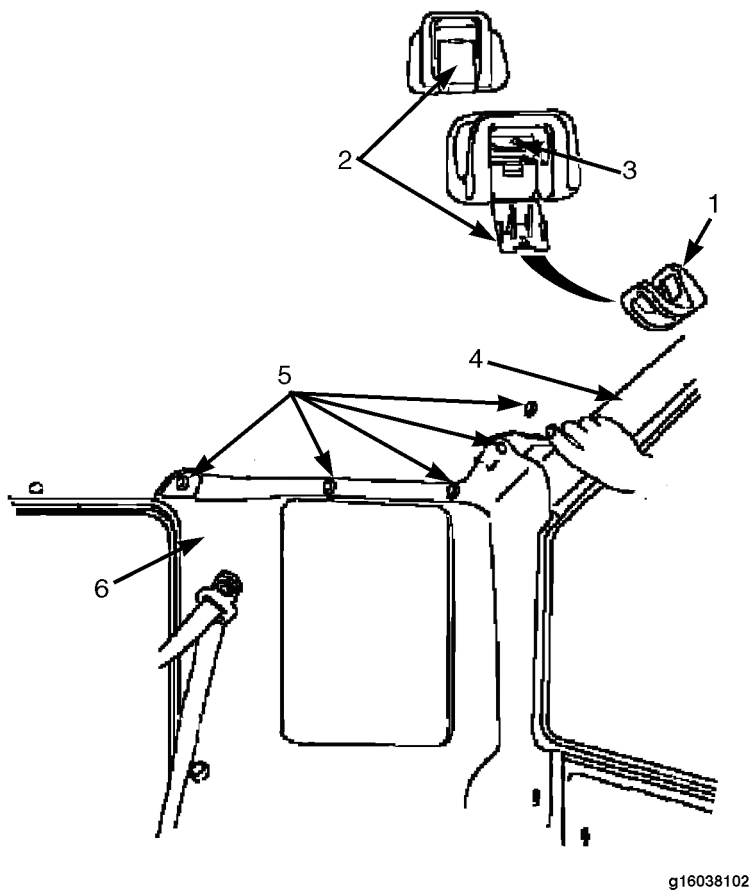
2. Remove two push-in fasteners at the top of each corner and side interior trim panel.
3. Remove five push-in fasteners from the back of the front headliner trim panel where both headliners join.

4. Remove one push-in fastener from front, center of the headliner trim panel. Support the front of the front headliner trim panel after removing push-in fastener.
5. Lower the front of the front headliner trim panel and slide forward.
6. Carefully pull the headliner trim panel out from underneath rear headliner trim panel and remove.

**Front – Installation**

1. Slide back edge of front headliner trim panel in place over the top of the rear headliner trim panel (Figure 128, Items 2 and 3).
2. Lift up the front, center of the front headliner trim panel and install one push-in fastener through trim panel and into cab header (Figure 128, Items 1, 2, and 4).
3. Install five push-in fasteners into the back of the front headliner trim panel where both headliners join (Figure 128, Items 2, 3, and 4).
4. Install two push-in fasteners into the top of each corner and side interior trim panel (Figure 128, Items 4 and 5).
5. Install header console panel. Refer to **HEADER CONSOLE PANEL** (See Header Console Panel, page 143).

## Rear – Removal



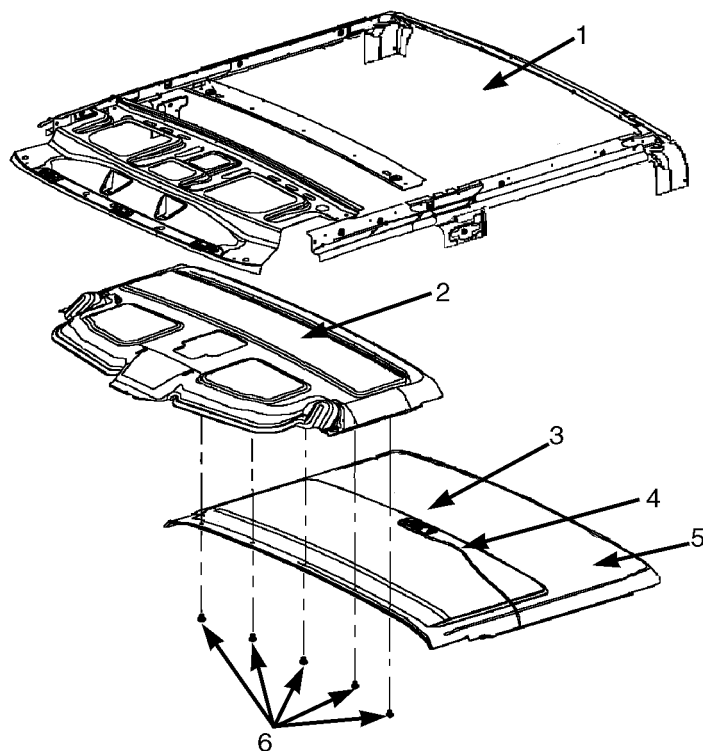
- |                              |  |
|------------------------------|--|
| 1. COAT HOOK                 | 5. PUSH-IN FASTENER                    |
| 2. COAT HOOK LEVER COVER     | 6. CORNER AND SIDE INTERIOR TRIM PANEL |
| 3. COAT HOOK LEVER           |  |
| 4. REAR HEADLINER TRIM PANEL |  |

Figure 129 Headliner Trim Panel, Extended Cab, Rear

## NOTE –

- Use the ZTSE4839 interior trim tool to remove all push-in interior fasteners.
  - Graphic shows passenger side; driver side procedures are the same.
1. Pull coat hook lever cover down.
  2. Push coat hook lever down and remove coat hook.
  3. Remove four push-in fasteners at the top of each corner and side interior trim panel.
  4. Remove two push-in fasteners at the back of rear headliner trim panel.





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1. CAB HEADER
2. FRONT HEADLINER TRIM PANEL
3. COURTESY LIGHT

4. COURTESY LIGHT ELECTRICAL CONNECTOR
5. REAR HEADLINER TRIM PANEL
6. PUSH-IN FASTENER

**Figure 130 Headliner Trim Panel, Extended Cab, Rear**

5. Remove five push-in fasteners securing front headliner trim panel and rear headliner trim panel.
6. Slide front of rear headliner trim panel forward and carefully pull out from behind corner and side interior trim panels.
7. Lower rear headliner trim panel down and disconnect electrical connector from courtesy light.
8. Remove rear headliner trim panel.

#### **Rear – Installation**

**NOTE – Graphic shows passenger side; driver side procedures are the same.**

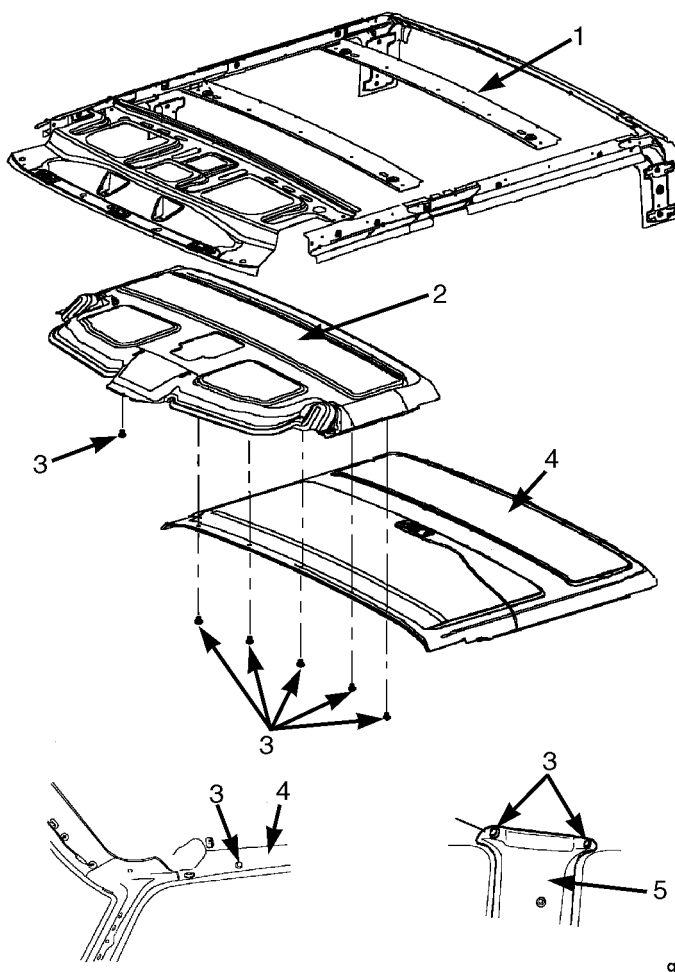
1. Connect electrical connector to courtesy light (Figure 130, Items 3 and 4).
2. Slide rear headliner trim panel into place between corner and side interior trim panels (Figure 129, Items 4 and 6).
3. Install five push-in fasteners through rear headliner trim panel and front headliner trim panel into the cab header (Figure 130).

4. Install two push-in fasteners into the back of rear headliner trim panel (Figure 129, Items 4 and 5).
5. Install four push-in fasteners into the top of each corner and side interior trim panel (Figure 129, Items 5 and 6).
6. Install coat hook and press in until it snaps in place (Figure 129, Item 1).
7. Push coat hook lever cover up and press until it snaps in place (Figure 129, Item 2).

## 2.46. HEADLINER TRIM PANEL – CREW CAB

### Front – Removal

1. Remove header console panel. Refer to **HEADER CONSOLE PANEL** (See Header Console Panel, page 143).



1. CAB HEADER
2. FRONT HEADLINER TRIM PANEL

3. PUSH-IN FASTENER
4. REAR HEADLINER TRIM PANEL
5. B-PILLAR TRIM PANEL

**Figure 131 Headliner Trim Panel, Crew Cab, Front**

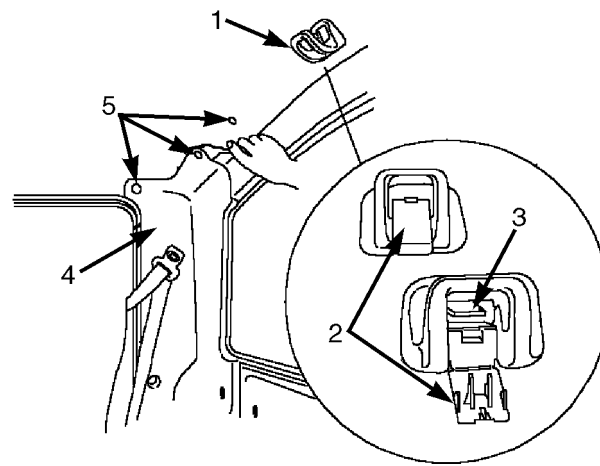
**NOTE –**

- **Use the ZTSE4839 interior trim tool to remove all push-in interior fasteners.**
  - **Graphic shows passenger side; driver side procedures are the same.**
2. Remove one push-in fastener from above each door opening.
  3. Remove two push-in fasteners from each B-pillar trim panel.
  4. Remove five push-in fasteners from the back of the front headliner trim panel where both headliners join.
  5. Remove one push-in fastener from front, center of the headliner trim panel. Support the front of the front headliner trim panel after removing push-in fastener.
  6. Lower the front of the front headliner trim panel and slide forward.
  7. Pull the front headliner trim panel out from underneath the rear headliner trim panel and the B-pillar trim panels.
  8. Remove front headliner trim panel.

**Front – Installation**

1. Slide back edge of front headliner trim panel in place over the top of the rear headliner trim panel and the B-pillar trim panels (Figure 131, Items 2, 4, and 5).
2. Lift up the front, center of the front headliner trim panel and install one push-in fastener through trim panel and into cab header (Figure 131, Items 1, 2, and 3).
3. Install five push-in fasteners into the back of the front headliner trim panel where both headliners join (Figure 131, Items 2, 3, and 4).
4. Install two push-in fasteners into each B-pillar trim panel (Figure 131, Items 3 and 5).
5. Install one push-in fastener above each door opening (Figure 131, Item 3).
6. Install header console panel. Refer to **HEADER CONSOLE PANEL** (See Header Console Panel, page 143).

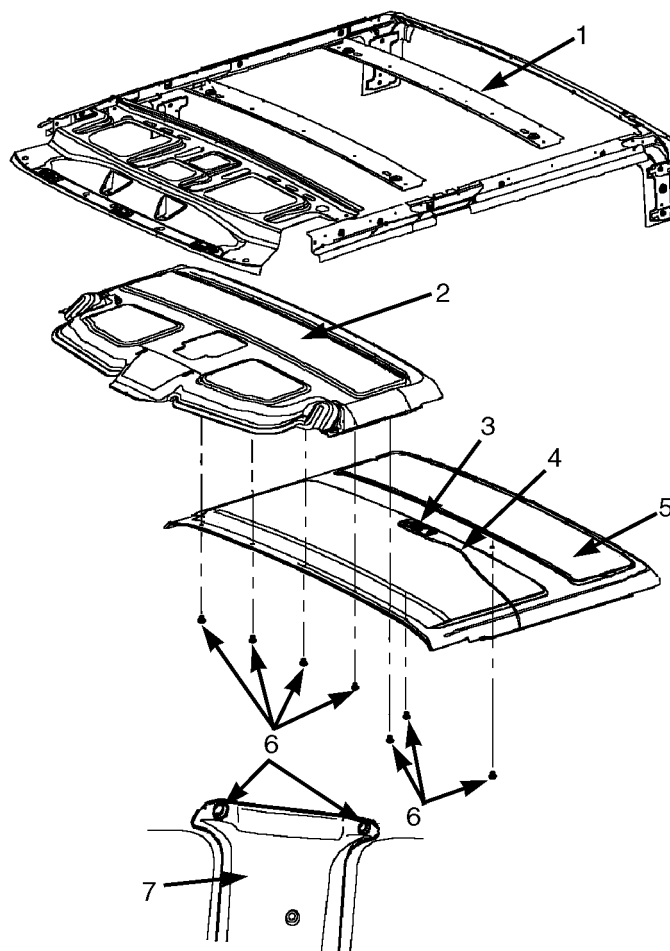
## Rear – Removal



- |                          |  |
|--------------------------|--|
| 1. COAT HOOK             | 4. CORNER AND SIDE INTERIOR TRIM PANEL |
| 2. COAT HOOK LEVER COVER | 5. PUSH-IN FASTENER                    |
| 3. COAT HOOK LEVER       |  |

**Figure 132 Headliner Trim Panel, Crew Cab, Rear****NOTE –**

- **Use the ZTSE4839 interior trim tool to remove all push-in interior fasteners.**
  - **Graphic shows passenger side; driver side procedures are the same.**
1. Pull coat hook lever cover down.
  2. Push coat hook lever down and remove coat hook.
  3. Remove two push-in fasteners at the top of each corner and side interior trim panel.
  4. Remove two push-in fasteners at the back of rear headliner trim panel.



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1. CAB HEADER
2. FRONT HEADLINER TRIM PANEL
3. COURTESY LIGHT
4. COURTESY LIGHT ELECTRICAL CONNECTOR

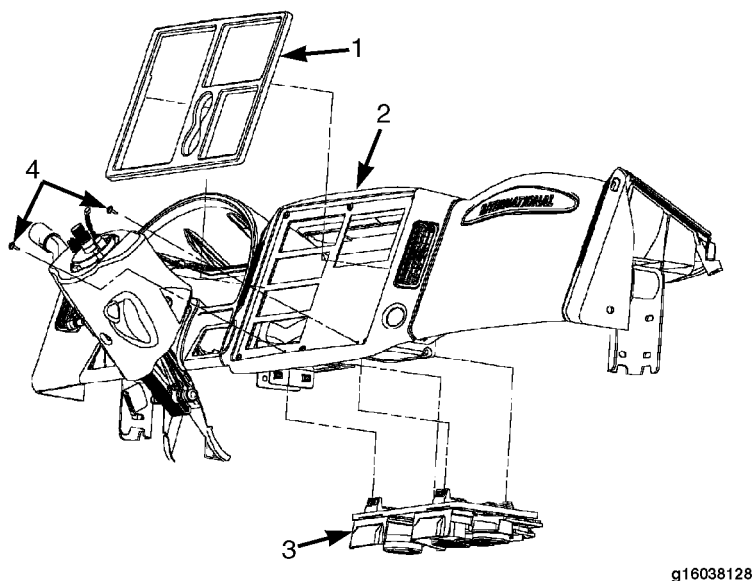
5. REAR HEADLINER TRIM PANEL
6. PUSH-IN FASTENER
7. B-PILLAR TRIM PANEL

**Figure 133 Headliner Trim Panel, Crew Cab, Rear**

5. Remove two push-in fasteners from each B-pillar trim panel.
6. Remove seven push-in fasteners from the rear headliner trim panel as shown.
7. Slide front of rear headliner trim panel forward and carefully pull out from behind corner and side interior trim panels (not shown) and B-pillar trim panels.
8. Lower rear headliner trim panel down and disconnect electrical connector from courtesy light.
9. Remove rear headliner trim panel.

**Rear – Installation**

1. Connect electrical connector to courtesy light (Figure 133, Items 1, 5, and 6).
2. Slide rear headliner trim panel into place between corner and side interior trim panels (not shown) and B-pillar trim panels (Figure 133, Items 5 and 7).
3. Install seven push-in fasteners through the rear headliner trim panel and into the cab header as shown (Figure 133, Items 5 and 7).
4. Install two push-in fasteners into each B-pillar trim panel (Figure 133, Items 6 and 7).
5. Install two push-in fasteners into the back of rear headliner trim panel (Figure 133, Items 5 and 6).
6. Install two push-in fasteners into the top of each corner and side interior trim panel (Figure 132, Items 4 and 5).
7. Install coat hook and press in until it snaps in place (Figure 132, Item 1).
8. Push coat hook lever up and press until it snaps in place (Figure 132, Item 3).
9. Push coat hook lever cover up and press until it snaps in place (Figure 132, Item 2).

**2.47. ENGINE COVER AND CUP HOLDER****Cup Holder and Ashtray – Removal**

1. CENTER DASH PANEL TRIM BEZEL
2. CENTER DASH PANEL

3. CUP HOLDER AND ASHTRAY
4. SCREW

**Figure 134 Cup Holder and Ashtray**

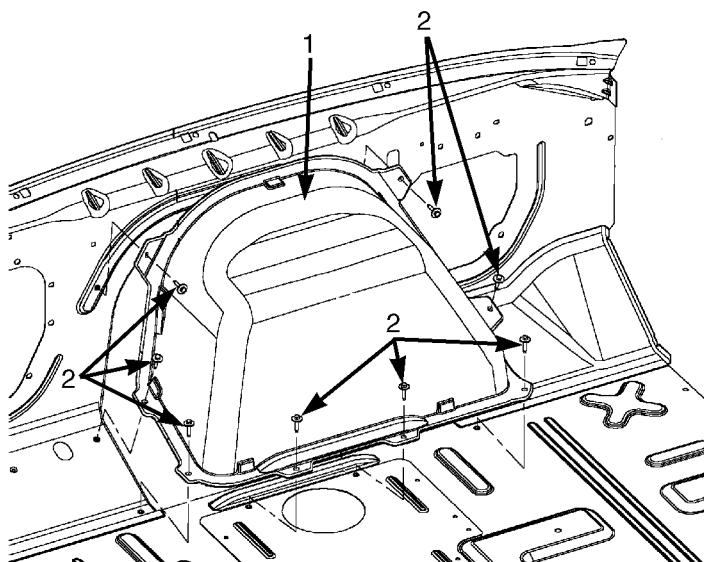
1. Using a flat-blade screwdriver, carefully pry the center dash panel trim bezel out of the center dash panel.

2. Remove two screws securing cup holder and ashtray.
3. Push cup holder and ashtray rearward to disengage from underside of center dash panel.
4. Remove cup holder and ashtray.

#### Cup Holder and Ashtray – Installation

1. Pull cup holder and ashtray forward to engage the underside of the center dash panel (Figure 134, Items 2 and 3).
2. Install two screws through the center dash panel into the cup holder and ashtray (Figure 134, Items 2, 3, and 4). Tighten screws to 20 to 25 Lbf-in. (2 to 3 N•m).
3. Carefully push center dash panel trim bezel in until it snaps into place (Figure 134, Item 1).

#### One-Piece Engine Cover – Removal



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1. BOLT

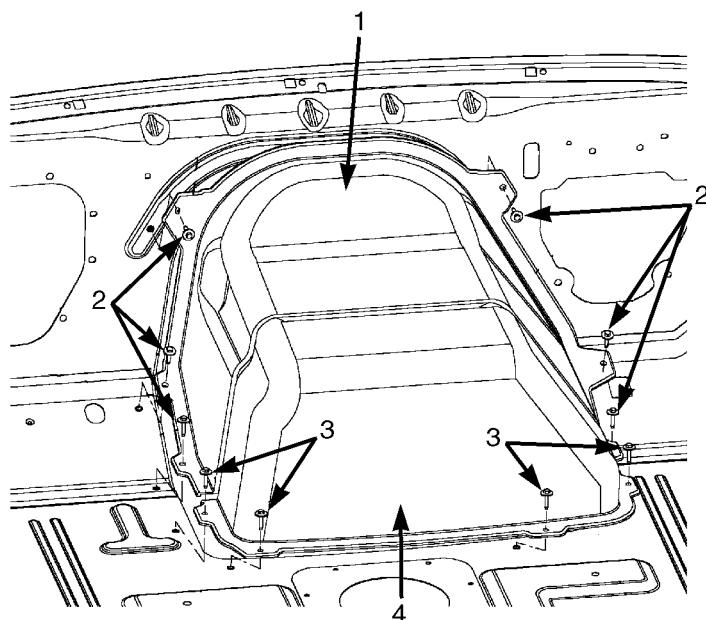
2. ENGINE COVER

**Figure 135 One-Piece Engine Cover**

1. Remove the front seats. Refer to **FRONT SEATS** (See Front Seats, page 134).
2. Remove eight bolts from engine cover as shown.
3. Slide engine cover out and remove.

#### One-Piece Engine Cover – Installation

1. Install engine cover with eight bolts as shown and finger-tighten only (Figure 135, Items 1 and 2). Tighten bolts to 77 to 95 Lbf-in. (9 to 11 N•m).
2. Install the front seats. Refer to **FRONT SEATS** (See Front Seats, page 134).

**Two-Piece Engine Cover – Removal**

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- |                            |                             |
|----------------------------|-----------------------------|
| 1. REAR ENGINE COVER       | 3. FRONT ENGINE COVER BOLTS |
| 2. REAR ENGINE COVER BOLTS | 4. FRONT ENGINE COVER       |

**Figure 136 Two-Piece Engine Cover**

1. Remove the front seats. Refer to **FRONT SEATS** (See Front Seats, page 134).
2. If equipped, remove rubberized cover (not shown) from the engine cover.
3. Remove four bolts from front engine cover and remove front engine cover.
4. Remove six bolts from rear engine cover and remove rear engine cover.

**Two-Piece Engine Cover – Installation**

1. Install rear engine cover and secure with six bolts (Figure 136, Items 1 and 2). Tighten bolts to 77 to 95 Lbf-in. (9 to 11 N•m).
2. Install front engine cover and secure with four bolts (Figure 136, Items 3 and 4). Tighten bolts to 77 to 95 Lbf-in. (9 to 11 N•m).
3. If equipped, install rubberized cover (not shown) over the engine cover (Figure 136).
4. Install the front seats. Refer to **FRONT SEATS** (See Front Seats, page 134).



## 2.48. CAB

### Initial Procedures Before Cab Removal

The removal of the cab from the chassis can be performed using an overhead crane and cab lifting fixture. Removal procedures may vary for various models depending on the type of equipment and accessories.



**When working on, or near a vehicle, the following general precautions should be observed:**

- **Park the vehicle on a level surface, apply the parking brakes, and always block the wheels.**
- **Stop the engine when working around the vehicle.**
- **Drain the air pressure from all reservoirs before beginning any work on the vehicle.**
- **Never connect or disconnect a hose or line containing pressure; it may whip. Never remove a component or plug, unless you are certain all system pressure has been released.**
- **Never exceed recommended pressures and always wear safety glasses.**
- **Do not attempt to install, remove, disassemble, or assemble a component until you have read and thoroughly understand the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.**
- **Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.**
- **Always turn the ignition key to the OFF position before disconnecting any of the antilock wiring or connectors. If the key is not off, the EC-15 controller will record the power interruption as a static fault.**

**NOTE – Refer to the correct sections in the Master Service Manual for the component being removed and replaced.**

The following steps may be used as a guide:

1. Block wheels of truck and engage parking brake.
2. Tilt or remove hood.



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

3. Disconnect battery ground cable.



Allow the engine to cool down before removing the pressure cap from the deaeration tank. Always insulate the cap by wrapping it with a thick, heavy cloth.



To prevent possible injury from scalding water or steam, do not pull the pressure cap off immediately when it has been loosened to the first "notch." Pause momentarily to allow time for excess pressure to release through the overflow tube.

4. Drain cooling system and disconnect heater hose.
5. Disconnect steering shaft at gear.
6. Disconnect accelerator linkage and cruise control, if so equipped.
7. Disconnect electrical connections and ground wire.
8. Disconnect clutch linkage.



To avoid personal injury or possible death, whenever any component is serviced or removed from the air system, be sure the air system is drained.

9. Disconnect brake system (air or hydraulic).



Refrigerant must be recovered from the air conditioning system before any components of the system are removed or replaced. Removing components while pressure is in the system may cause personal injury or possibly death.



Always use approved refrigerant recycling equipment when working with R-134a. Federal and state laws require that refrigerant be recovered and recycled to help protect the environment.



Do not vent refrigerant into the atmosphere. The use of R-12 is a worldwide environmental concern. Because of the absence of chlorine in the molecular structure of R-134a, the use of R-134a refrigerant will not have any harmful effects on the ozone layer of the atmosphere. Because there is not enough evidence to determine the "greenhouse" effect of R-134a, recycling of R-134a is recommended. Effective November 1995, recovery and recycling of R-134a is required by law.

10. Disconnect air conditioning lines (if so equipped). Refer to **GROUP 16 – CAB** in the **Master Service Manual** for the proper procedure.
11. Remove shift lever from transmission.
12. Detach exhaust system from cab if system is vertical type.
13. Detach any other connections between the cab and frame, if required.
14. Install cab lifting fixture. Make sure fixture is padded to prevent damage to cab.

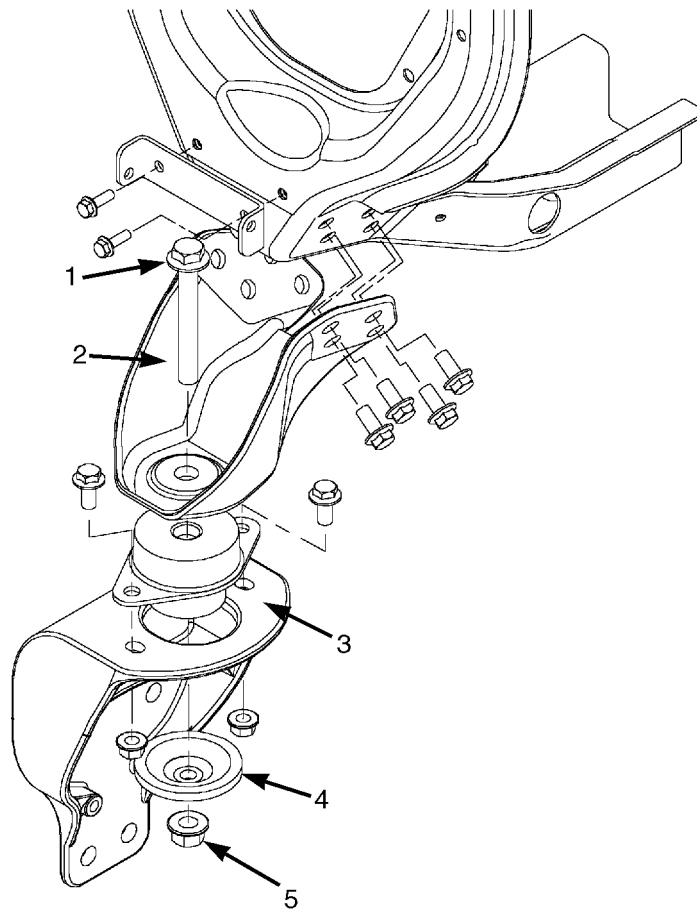
**NOTE – Use an overhead crane and cab lifting fixture when removing the cab from the chassis. Pad the lifting fixture to prevent damage to the cab assembly.**

15. Partially lift cab so cab weight will be supported on lifting fixture.

#### **Cab – Removal**

#### **NOTE –**

- **The front cab mounting design changed after March 2002. Procedures are provided for both before and after March 2002. Follow the appropriate procedure for your model. The remaining procedures are the same for all models.**
- **Removal procedures show driver side; passenger side procedures are the same.**



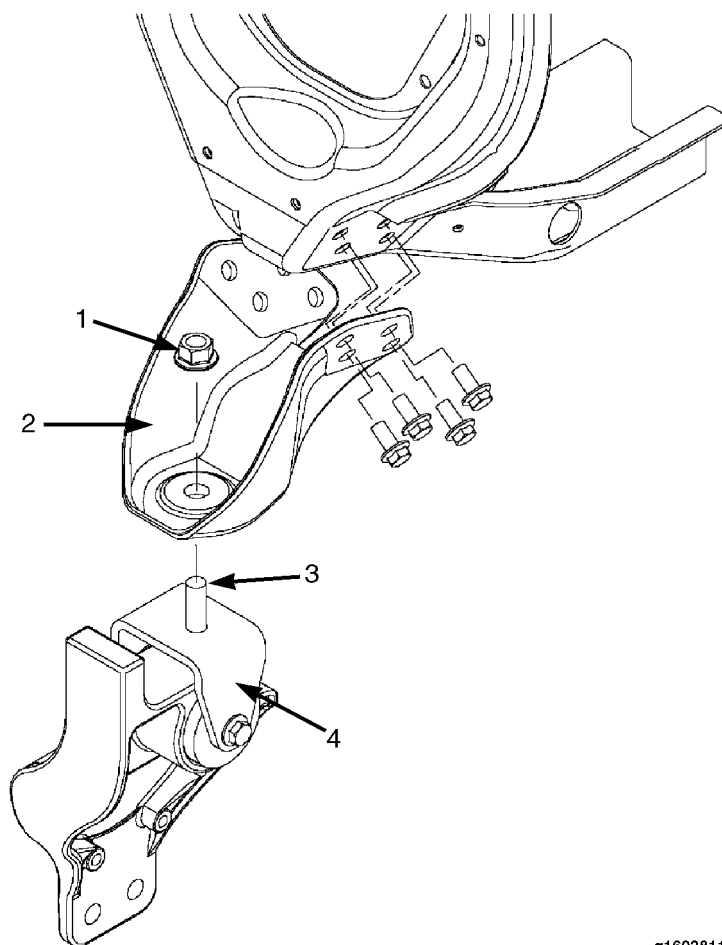
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- 1. BOLT
- 2. FRONT CAB MOUNTING  
BRACKET
- 3. CAB CHASSIS MOUNTING  
BRACKET

- 4. CAB MOUNT SAFETY RETAINER
- 5. NUT

**Figure 137 Front Cab Mounting (All Models before March 2002)**

- 1. Remove the nut and cab mount safety retainer from under cab chassis mounting bracket.
- 2. Remove bolt from front cab mounting bracket.



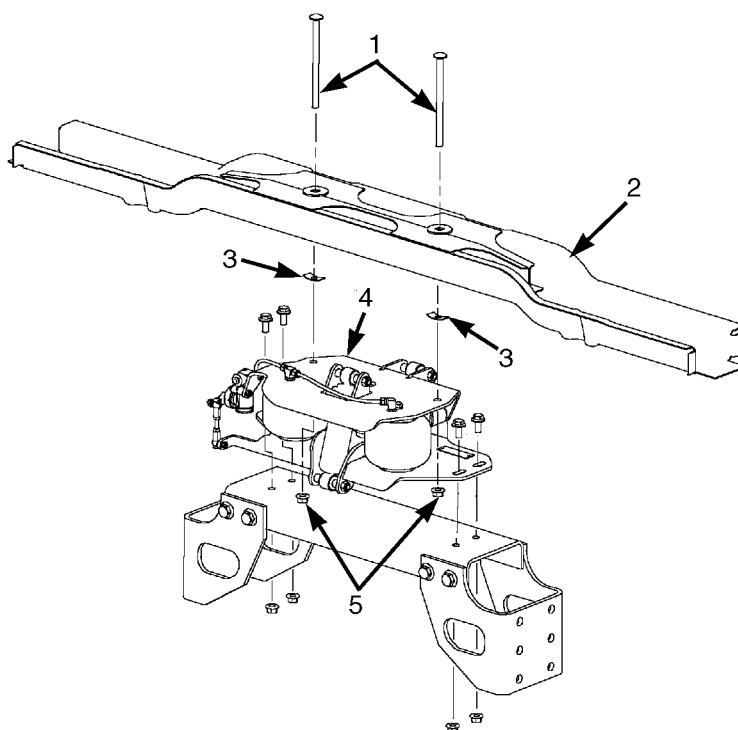
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- 1. NUT
- 2. FRONT CAB MOUNTING BRACKET

- 3. STUD
- 4. CAB CHASSIS MOUNTING BRACKET

**Figure 138 Front Cab Mounting (All Models after March 2002)**

- 3. Remove one nut from the stud of the cab chassis mounting bracket.



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- |                             |                                     |
|-----------------------------|-------------------------------------|
| 1. CARRIAGE BOLT            | 4. REAR CAB AIR SUSPENSION ASSEMBLY |
| 2. CAB UNDERBODY SILL       | 5. NUT                              |
| 3. CAB MOUNT RETAINING CLIP |                                     |

**Figure 139 Rear Cab Mounting**

4. Remove two nuts from the carriage bolts under the top plate of the rear air suspension assembly.

**CAUTION**

**Inspect all cab-to-frame attaching points to be sure they are disconnected or damage can result.**

**NOTE – The carriage bolts are secured to the cab underbody sill with cab mount retaining clips. The carriage bolts will remain with cab underbody sill when cab is lifted off the rear cab air suspension assembly.**

5. Using an overhead crane and cab lifting fixture, carefully lift cab from chassis. If removing cab from overhead crane, set it on a suitable surface to protect painted surfaces.

**Cab – Squaring**

**NOTE – The installation of the cab onto the chassis can be performed providing an overhead crane and cab lifting fixture are available. Installation procedures may vary for various models depending on type of equipment and accessories.**

Cab squaring is the centering and perpendicular positioning of the cab structure to the frame. The cab must be squared whenever the cab has been removed from the chassis for repair, or if a new cab is being mounted.

The cab must be properly squared to the frame as this will affect the relationship between the cab and hood. Improper squaring may result in unacceptable appearance and interference between the cab and hood. **Be sure the chassis is on a level surface before squaring.**

Center cab on frame rail by measuring from inside of cab cowl to outside of frame rail on both sides. Measurement should be equal on both sides, and on the front and rear.

#### **Cab – Installation**

**CAUTION**

**Do not put all cab weight on chassis until all mounting bolts are tightened.**

**CAUTION**

**Inspect all cab-to-frame attaching points to be sure they are aligned properly or damage can result.**

#### **NOTE –**

- **The front cab mounting design changed after March 2002. Procedures are provided for both before and after March 2002. Follow the appropriate procedure for your model year. The remaining procedures are the same for all models.**
  - **Installation procedures show driver side; passenger side procedures are the same.**
1. Using an overhead crane and cab lifting fixture, carefully lower cab onto chassis. Align cab with front and rear mounting locations while lowering .
  2. Install two nuts onto the carriage bolts under the top plate of the rear cab air suspension assembly (Figure 139). Tighten nuts to 88 to 106 Lbf-ft (119 to 144 N•m).

**NOTE – The next two steps are for models made before March 2002. Skip these steps for models made after March 2002.**

3. Install bolt through front cab mounting bracket and cab chassis mounting bracket (Figure 137, Items 1, 2, and 3).
4. Install cab mount safety retainer and nut (Figure 137, Items 4 and 5). Tighten nut to 254 to 310 Lbf-ft (344 to 420 N•m).

**NOTE – The next step pertains to models made after March 2002 only.**

5. Install one nut to the stud of the cab chassis mounting bracket (Figure 138, Items 1, 3, and 4). Tighten nut to 142 to 175 Lbf-ft (193 to 237 N•m).
6. Remove cab lifting fixture.

**Final Procedures After Cab Installation**

**NOTE – The remaining steps can be performed with the aid of the appropriate service sections. Refer to the Master Service Manual for the component being installed.**

1. Attach exhaust system if it is the vertical type.
2. Attach shift lever to transmission.
3. Connect the following items:
  - Air conditioning lines (if so equipped). Refer to **GROUP 16 – AIR CONDITIONING BASIC THEORY, DIAGNOSIS AND SERVICE** in the **Master Service Manual** for the proper procedures to charge air conditioning system.
  - Brake system (air or hydraulic). Refer to **GROUP 04 – BRAKES** in the **Master Service Manual** for bleeding instructions.
  - Clutch linkage
  - Electric connections and ground wire
  - Accelerator linkage
  - Steering shaft at gear
  - Heater hose
4. Fill cooling system. Refer to **GROUP 12 – COOLING** in the **Master Service Manual** for the proper coolant requirements and procedures.
5. Connect battery ground cable.
6. Reattach any other connections between cab and frame, if required.
7. Replace or lower hood, unblock wheels, and release parking brake.
8. Road test vehicle. Be sure all vehicle components are operating properly before putting vehicle back into service.

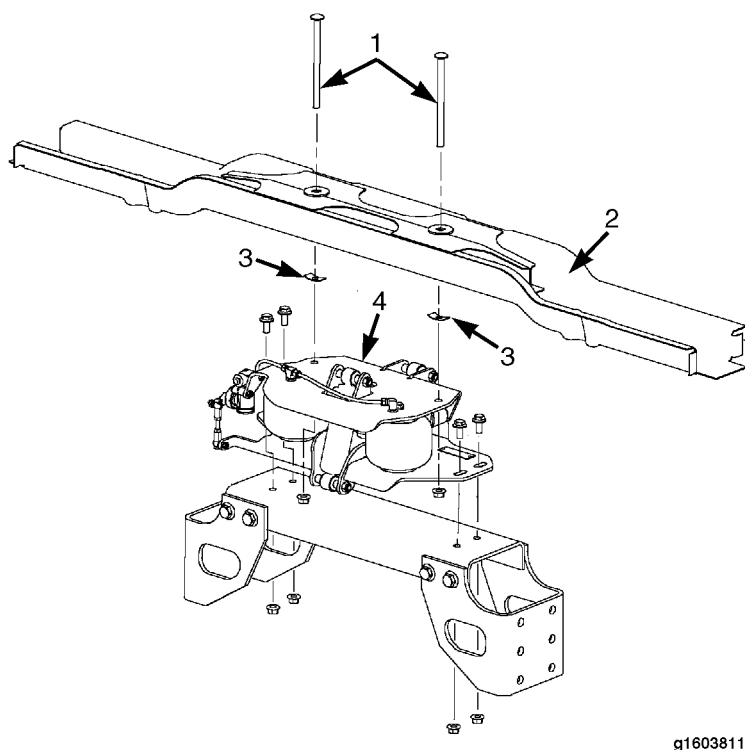


## 2.49. REAR AIR SUSPENSION ASSEMBLY

### Removal

1. Drain air from the air system.
2. Disconnect the air line to the rear cab air suspension assembly.
3. Remove the rear bench seat. Refer to **REAR BENCH SEAT** (See Rear Bench Seat, page 138).
4. Remove seat belt mounting bolts (not shown) securing seat belts to rear cab floor. Lift up floor mat to access carriage bolts in cab underbody sill.

**NOTE – The carriage bolts are secured to the cab underbody sill with cab mount retaining clips. The carriage bolts will remain with cab underbody sill when cab is lifted off the rear cab air suspension assembly.**



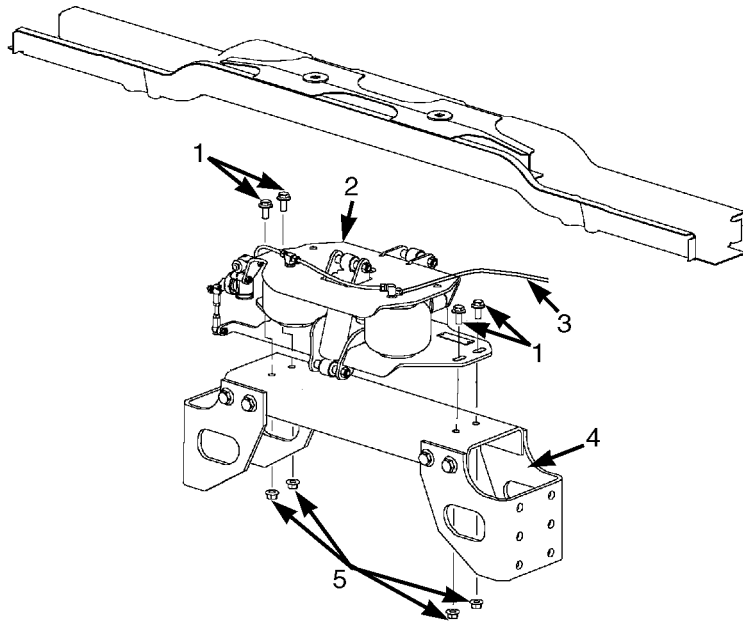
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1. CARRIAGE BOLT
2. CAB UNDERBODY SILL
3. RETAINING CLIP

4. REAR CAB AIR SUSPENSION ASSEMBLY

**Figure 140 Air Suspension Mounting Carriage Bolts**

5. Lift up carriage bolts through cab underbody sill and unscrew from retaining clips.
6. Remove the carriage bolts.



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- |                                     |                           |
|-------------------------------------|---------------------------|
| 1. BOLT                             | 3. AIR LINE               |
| 2. REAR CAB AIR SUSPENSION ASSEMBLY | 4. FRAME RAIL CROSSMEMBER |
|                                     | 5. NUT                    |

**Figure 141 Rear Air Suspension Assembly**

7. Remove four nuts and four bolts securing rear cab air suspension assembly to frame rail crossmember.
8. Place a suitable lifting device between frame and back of cab.
9. Raise cab and remove rear cab air suspension assembly.

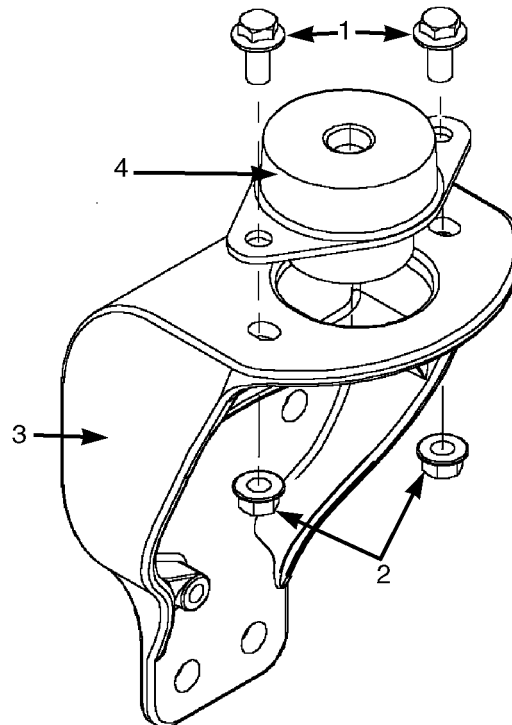
**Installation**

1. Install rear cab air suspension assembly (Figure 141, Item 2).
2. Install four nuts and four bolts securing rear cab air suspension assembly to frame rail crossmember (Figure 141). Tighten nuts to 88 to 106 Lbf-ft (119 to 144 N•m).
3. Connect the air line to the rear cab air suspension assembly (Figure 141, Items 2 and 3).
4. Lower rear of cab onto rear air suspension and remove lifting device.
5. Install the carriage bolts through the cab floor and cab underbody sill (Figure 140, Items 1 and 2).
6. Screw retaining clips onto both carriage bolts until they are against the bottom of the cab underbody sill (Figure 140).
7. Reposition the floor mat and install seat belt mounting bolts (not shown) securing seat belts to rear cab floor.
8. Install the rear bench seat. Refer to **REAR BENCH SEAT** (See Rear Bench Seat, page 138).

## 2.50. FRONT CAB MOUNTING INSULATORS

### Removal

1. Place a suitable lifting device on the front of cab.
2. Remove front cab mount bolt. Refer to **Cab – Removal** (See Cab – Removal, page 163).
3. Raise front of cab far enough to clear front cab mounting insulator.



g16038116

1. BOLT
2. NUT
3. CAB CHASSIS MOUNTING BRACKET

4. FRONT CAB MOUNTING INSULATOR

**Figure 142 Front Cab Mounting Insulator**

**NOTE – Removal procedures show driver side; passenger side procedures are the same.**

4. Remove two nuts and two bolts from front cab mounting insulator.
5. Remove front cab mounting insulator from cab chassis mounting bracket.

**Installation**

**NOTE – Installation procedures show driver side, passenger side procedures are the same.**

1. Install front cab mounting insulator on cab chassis mounting bracket (Figure 142, Items 3 and 4).
2. Install two bolts and two nuts through front cab mounting insulator and cab chassis mounting bracket (Figure 142). Tighten nuts to 88 to 106 Lbf-ft (119 to 144 N•m).
3. Lower front of cab down onto front cab mounting insulator.
4. Install front cab mount bolt. Refer to **Cab – Installation** (See Cab – Installation, page 167).
5. Remove lifting device on the front of cab.

## 2.51. CAB AIR SUSPENSION SYSTEM

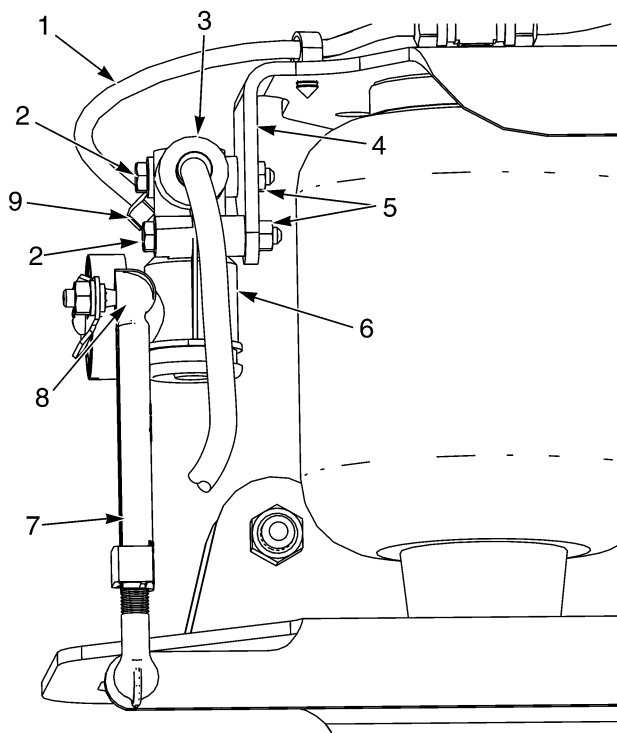
### Height Control Valve – Removal



For safety purposes raise cab and block it about 1 inch higher than design height between bottom of cab mounting plate and crossmember mounting plate.

**NOTE** – If there is an attempt to disassemble or adjust fittings on the height control valve, it will void the warranty. Contact the air suspension manufacturer for assistance.

1. Drain air from the air system.



g16038117

- |                        |                         |
|------------------------|-------------------------|
| 1. SUPPLY AIR LINE     | 6. HEIGHT CONTROL VALVE |
| 2. MOUNTING BOLT       | 7. LINKAGE              |
| 3. AIR SPRING AIR LINE | 8. BALL PIVOT           |
| 4. MOUNTING BRACKET    | 9. COMPRESSION NUT      |
| 5. LOCK NUT            |                         |

**Figure 143 Height Control Valve**

2. Remove supply air line from height control valve.
3. Loosen compression nut and remove air spring air line.
4. Remove linkage from ball pivot.

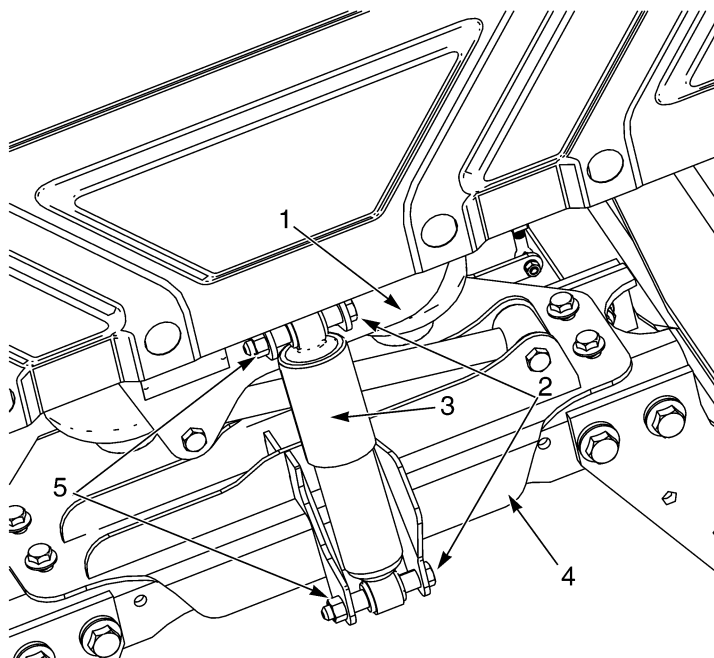
5. Remove two mounting bolts and lock nuts from height control valve.
6. Remove height control valve from mounting bracket.

**Height Control Valve – Installation**

**For safety purposes the cab was raised and blocked about 1 inch higher than design height between bottom of cab mounting plate and crossmember mounting plate. Raise cab and remove block after servicing is completed and before returning the vehicle to service.**

**NOTE –**

- **If there is an attempt to disassemble or adjust fittings on the height control valve, it will void the warranty. Contact the air suspension manufacturer for assistance.**
  - **Inspect height control valve for proper alignment. The drive bearing notch on the rear side of drive bearing must be on the supply side of the valve labeled SUPP. If not, loosen pan head bearing screw, but do not remove, and pull height control valve arm loose from drive bearing. Rotate drive bearing until drive bearing notch is in correct position, then secure height control valve lever by tightening pan head bearing screw. Tighten screw to 40 to 50 Lbf-in. (5 to 6 N•m).**
1. Install height control valve on mounting bracket (Figure 143, Items 4 and 6).
  2. Install two mounting bolts and lock nuts (Figure 143, Items 2 and 5). Tighten lock nuts to 8 to 10 Lbf-ft (11 to 14 N•m).
  3. Attach linkage to ball pivot (Figure 143, Items 7 and 8).
  4. Attach air spring air line and secure with compression nut (Figure 143, Items 1 and 9). Hand tighten compression nut and then turn another 450 to 630 degrees.
  5. Attach supply air line to the height control valve by pressing firmly in and ensure it is locked into position (Figure 143, Items 1 and 6). Pull on supply air line to verify it is locked securely into the height control valve.
  6. Build up air pressure and check for air leaks.
  7. Check cab ride height. Refer to **Cab Air Suspension** (See Cab Air Suspension, page 188).

**Shock Absorber – Removal**

g16038118

- 1. CAB MOUNTING PLATE
- 2. BOLT
- 3. SHOCK ABSORBER

- 4. CROSSMEMBER MOUNTING PLATE
- 5. LOCK NUT

**Figure 144 Shock Absorber****WARNING**

**For safety purposes raise cab and block it about 1 inch higher than design height between bottom of cab mounting plate and crossmember mounting plate.**

**NOTE –**

- Both front and rear shock absorbers remove the same.
  - Some models may have a different configuration from that shown. The procedures are the same.
1. Remove two bolts and two lock nuts from the shock absorber.
  2. Remove shock absorber from between cab mounting plate and crossmember mounting plate.

**Shock Absorber – Installation**

For safety purposes the cab was raised and blocked about 1 inch higher than design height between bottom of cab mounting plate and crossmember mounting plate. Raise cab and remove block after service is completed and before returning the vehicle to service.

**NOTE –**

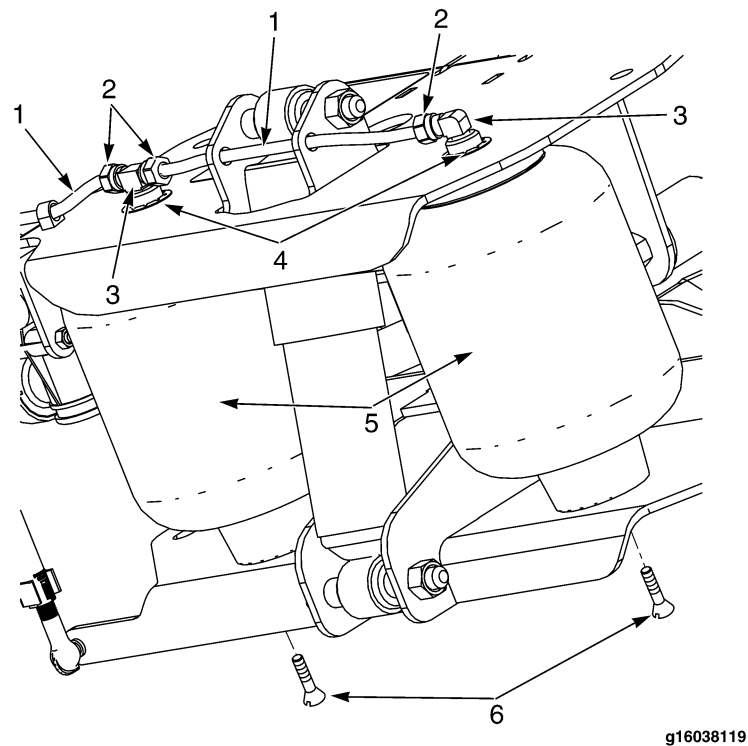
- Both front and rear shock absorbers remove the same.
  - Some models may have a different configuration from that shown. The procedures are the same.
1. Install shock absorber between cab mounting plate and crossmember mounting plate (Figure 144, Items 1, 3, and 4).
  2. Secure the shock absorber with two bolts and two lock nuts (Figure 144, Items 2, 3, and 5). Tighten lock nuts to 40 to 50 Lbf-ft (54 to 68 N•m).

**Suspension Air Spring (Bag) – Removal**

For safety purposes raise cab and block it about 1 inch higher than design height between bottom of cab mounting plate and crossmember mounting plate.

1. Drain air from the air system.





g16038119

- 1. AIR LINE
- 2. COMPRESSION NUT
- 3. FITTING

- 4. RETAINING RING
- 5. AIR SPRING (BAG)
- 6. SCREW

**Figure 145 Suspension Air Spring (Bag)**

- 2. Loosen compression nuts on fittings and disconnect air lines.
- 3. Unthread fittings from air springs (bags).

**NOTE – Retaining rings will be damaged upon removal. New retaining rings are supplied with the new air springs (bags).**

- 4. Pry retaining rings from top of air springs (bags) and remove.
- 5. Remove screw from the bottom of each air springs (bags).
- 6. Compress air springs (bags) and remove.

**Suspension Air Spring (Bag) – Installation**

**For safety purposes the cab was raised and blocked about 1 inch higher than design height between bottom of cab mounting plate and crossmember mounting plate. Raise cab and remove block after serving is completed and before returning the vehicle to service.**

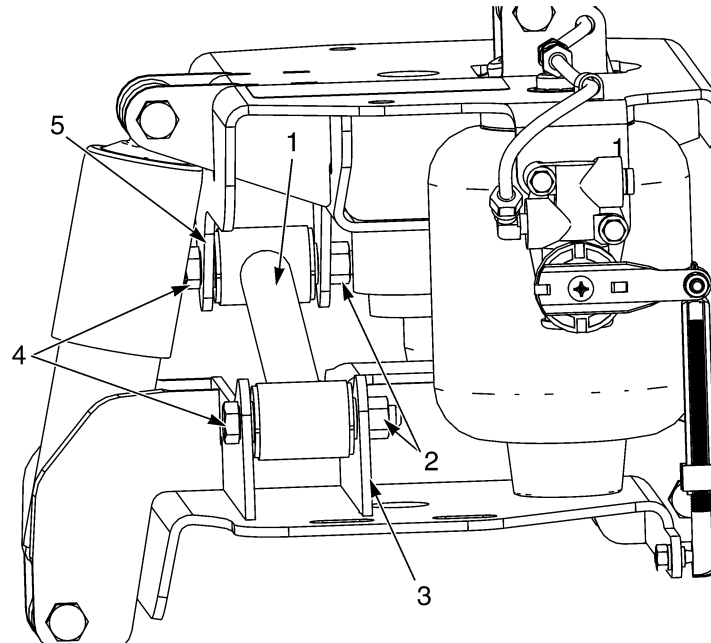
**NOTE – New retaining rings are supplied with the new air springs (bags).**

1. Install air springs (bags) and attach new retaining rings to the top (Figure 145, Items 4 and 5).
2. Install screw to the bottom of each air spring (Figure 145, Items 5 and 6). Tighten screw to 2 to 4 Lbf-ft (3 to 5 N•m).
3. Apply pipe thread sealant to threads of the fittings and reinstall into top of air springs (Figure 145, Items 3 and 5). Hand tighten the fittings until snug, and then turn another 270 to 450 degrees.
4. Connect air lines to fittings (Figure 145, Items 1 and 3). Hand tighten the compression nuts, and then turn another 450 to 630 degrees.
5. Build up air pressure and check air spring operation. Also check for air leaks. Correct as necessary.
6. Check cab ride height. Refer to **Cab Air Suspension** (See Cab Air Suspension, page 188).

## Lateral Control Rod – Removal



For safety purposes raise cab and block it about 1 inch higher than design height between bottom of cab mounting plate and crossmember mounting plate.



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- 1. LATERAL CONTROL ROD
- 2. LOCK NUT
- 3. CROSSMEMBER MOUNTING PLATE

- 4. BOLT
- 5. CAB MOUNTING PLATE

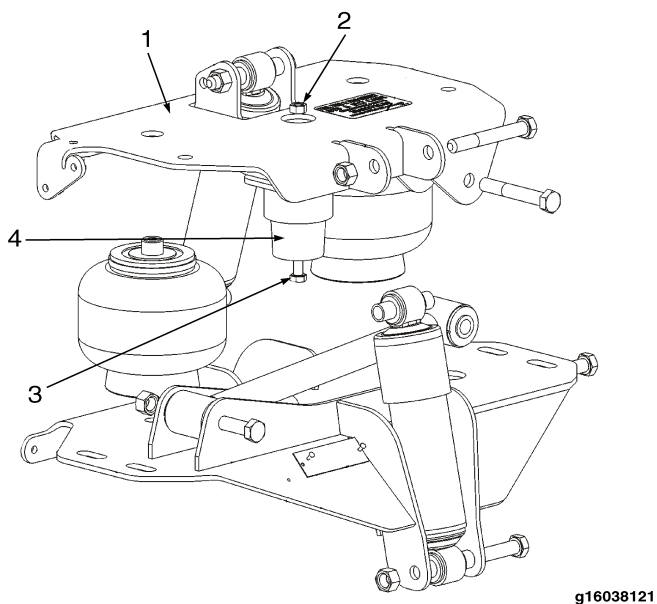
**Figure 146 Lateral Control Rod**

1. Remove bolt and lock nut from lateral control rod and cab mounting plate.
2. Remove bolt and lock nut from lateral control rod and crossmember mounting plate.
3. Remove lateral control rod.

**Lateral Control Rod – Installation**

For safety purposes the cab was raised and blocked about 1 inch higher than design height between bottom of cab mounting plate and crossmember mounting plate. Raise cab and remove block after service is completed and before returning the vehicle to service.

1. Install lateral control rod (Figure 146, Item 1).
2. Install bolt and lock nut through lateral control rod and crossmember mounting plate (Figure 146). Tighten nut to 70 to 90 Lbf-ft (95 to 122 N•m).
3. Install bolt and lock nut through lateral control rod and cab mounting plate (Figure 146). Tighten nut to 70 to 90 Lbf-ft (95 to 122 N•m).

**Jounce Bumper – Removal**

1. CAB MOUNTING PLATE
2. LOCK NUT

3. BOLT
4. JOUNCE BUMPER

**Figure 147 Jounce Bumper**

1. Remove bolt and locknut from jounce bumper.
2. Remove jounce bumper from underneath cab mounting plate.

**Jounce Bumper – Installation**

1. Position jounce bumper underneath cab mounting plate (Figure 147, Items 1 and 4).
2. Install bolt and lock nut (Figure 147, Items 2 and 3). Tighten lock nut to 2 to 4 Lbf-ft (3 to 5 N•m).

### 3. TROUBLESHOOTING

#### 3.1. ELECTRIC WINDSHIELD WIPER MOTOR

CONDITION	PROBABLE CAUSE	REMEDY
Stripped gear teeth	1. None	1. Replace complete unit.
Wiper will not operate	1. Binding condition in wiper arm shaft assemblies, connecting links, gear and shaft assembly, or armature.	1. Eliminate binding condition.
	2. Short, open, or ground in cable harness.	2. Refer to Electrical Troubleshooting Manual.
	3. Faulty manual switch.	3. Replace switch.
	4. Shorted, open, or grounded armature.	4. Replace motor.
	5. Broken wire to motor.	5. Correct or replace wire.
Wiper will not shut off	1. Faulty parking switch assembly.	1. Replace complete unit.
	2. Faulty manual switch.	2. Replace manual switch.
Wiper continually shutting off Wiper operates at one speed only	1. Binding condition in wiper arm shaft assemblies, connecting link, or gear and shaft assembly.	1. Eliminate binding condition.
	2. Electrical overload due to faulty motor.	2. Replace motor.
	3. Faulty wire connections.	3. Correct wire connections.
Wiper operates at one speed only	1. Short, open, or ground in cable harness.	1. Refer to Electrical Troubleshooting Manual.
	2. Faulty manual switch.	2. Replace switch.

### 3.2. WASHER PUMP MOTOR

CONDITION	PROBABLE CAUSE	REMEDY
Pump will not operate	1. No voltage to pump motor.	1. Check for open circuit or blown fuse.
	2. Defective switch.	2. Replace switch.
	3. Defective pump motor.	3. Replace pump/motor assembly.
Pump operates but pressure is weak	1. Hoses loose, kinked, or damaged.	1. Reinstall or replace hose.
	2. Nozzles plugged or dirt in reservoir.	2. Clean nozzles and service reservoir as required.
	3. Defective motor or pump.	3. Replace pump/motor assembly.
Pump operates but no washer solution delivered.	1. No solution in reservoir.	1. Fill reservoir.
	2. Hoses loose, kinked, or damaged.	2. Reinstall or replace hoses.
	3. Nozzles plugged or dirt in reservoir.	3. Clean nozzles or reservoir as required.
	4. Solution frozen.	4. Thaw out system and replace washer solvent.
	5. Defective pump.	5. Replace pump/motor assembly.

### 3.3. CAB AIR SUSPENSION SYSTEM

Condition	Probable Cause	Remedy
Air suspension system losing air	1. Air line leaking.	1. Replace air line.
	2. Air fitting leaking.	2. Remove fitting and apply fresh joint compound. Reinstall fitting, but do not overtighten. Do not use Teflon tape. Replace if required.
Air springs	1. Improper height.	1. Adjust valve linkage to maintain proper air spring height.
	2. Air spring leakage.	2. Replace air spring.
Height control valve	1. Air leakage from joint between valve halves.	1. Tighten 4 Phillips head screws.
	2. Air springs will not inflate when weight is added to cab.	2. Replace valve.
	3. Air springs will not deflate when weight is removed from cab.	3. Replace valve.
Air suspension shock absorber	1. Insufficient dampening effect.	1. Replace shock absorber.
Lateral control rod	1. Loose nuts on lateral control rod bolts.	1. Tighten securely to clamp the inner sleeve.
	2. Worn bushings.	2. Replace lateral control rod.

## 4. LUBRICATION

Cab hardware and other mechanisms require a periodic application of lubricant to increase service life and prevent objectionable squeaking. New cabs are lubricated at the factory and before they are delivered to the customer. After the cab is placed in service, regular lubricating intervals based on type of service should be established. Thorough lubrication at definite intervals adds greatly to cab service life and reduces overall expense.

Wipe off all lubricant points before applying new lube to prevent lube contamination. Apply lube sparingly and wipe away excess.

### 4.1. 4000 MILES (6000 KM) OR MONTHLY

1. Lubricate door stop, hinges, latches, and strikers with DEXRON II™ .
2. Lubricate the hood tilt linkage with Fleetrite EP Moly grease or equivalent to NLGI No. 2 Multi-Purpose Lithium grease.

### 4.2. AS REQUIRED

Lubricate seat adjuster slides with Fleetrite EP Moly grease or equivalent to NLGI No. 2 Multi-Purpose Lithium grease.

Lubricate window regulator gear teeth, window regulator lever at cab door window slide block, and cab door window slide rail with Lubriplate 105 grease or equivalent.

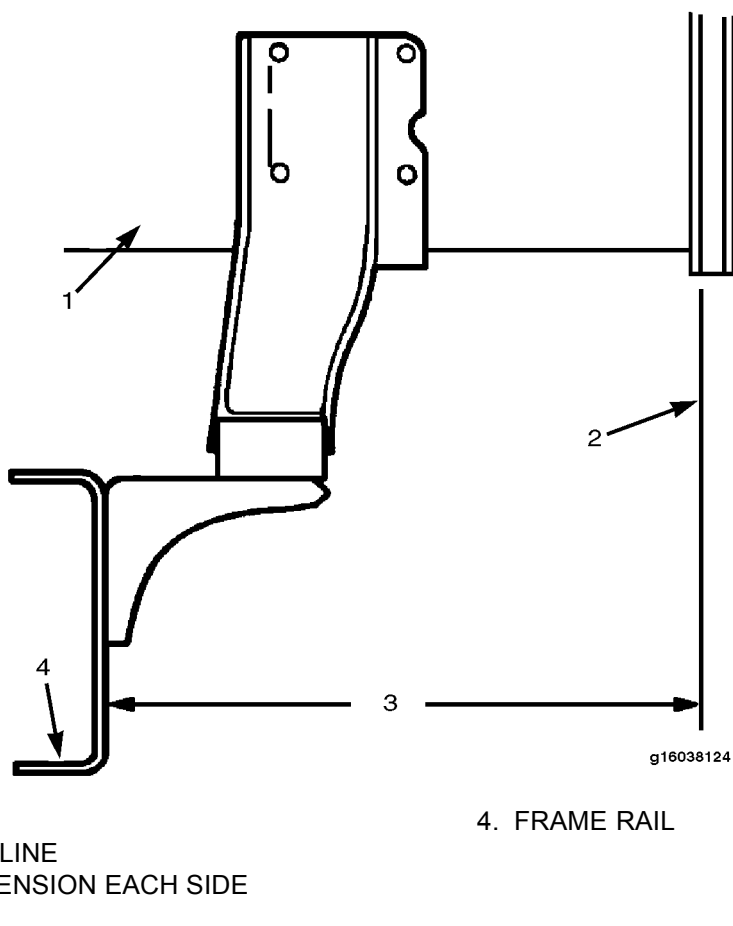
## 5. ADJUSTMENTS

Proper adjustments are critical to the cab structure, as this will affect the functioning of other components of the vehicle. The following adjustments must be performed in the order listed below. Before adjusting the hood or squaring the cab, refer to the segment on mounting for the proper cab mounting.

### 5.1. CAB SQUARING

Cab squaring is the centering and perpendicular positioning of the cab structure to the frame. The cab must be squared whenever the cab has been removed from the chassis for repair, or if a new cab is being mounted. It is important to properly square the cab to avoid interference between the cab, hood, and sleeper box and to provide acceptable appearance of the components.

**NOTE – Ensure chassis is on a level surface before squaring.**



**Figure 148 Cab Squaring**

1. Center cab on frame rail by using equal distance between cab frame rail and cab cowl on each side.

**NOTE – There are no adjustments available to make the cab back panel parallel and perpendicular to the frame.**



## 5.2. CAB DOOR

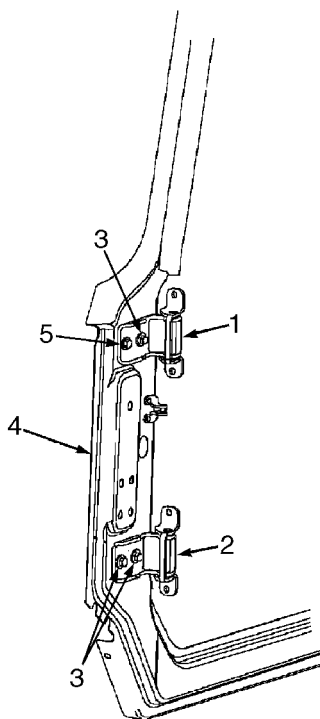
When the door is properly adjusted, it should fit the opening with 1/4- to 5/16- inch (6- to 8- mm) space all around the door frame. A newspaper sheet should not be able to pass between the weather seal and door frame (paper should tear).

1. Door weather seal should contact the door frame with slight pressure but without damage to the seal.
2. Door should latch, lock, and release without undue effort.
3. Door should not rattle when vehicle is moving.

## 5.3. DOOR HINGE

### NOTE –

- Adjustment procedures show driver side; passenger side procedures are the same.
- Hinge procedures are the same for either front or rear cab doors.



g1603854

1. UPPER HINGE
2. LOWER HINGE
3. HINGE BOLT

4. CAB HINGE PILLAR
5. LOCKING BOLT

**Figure 149 Cab Door Hinge**

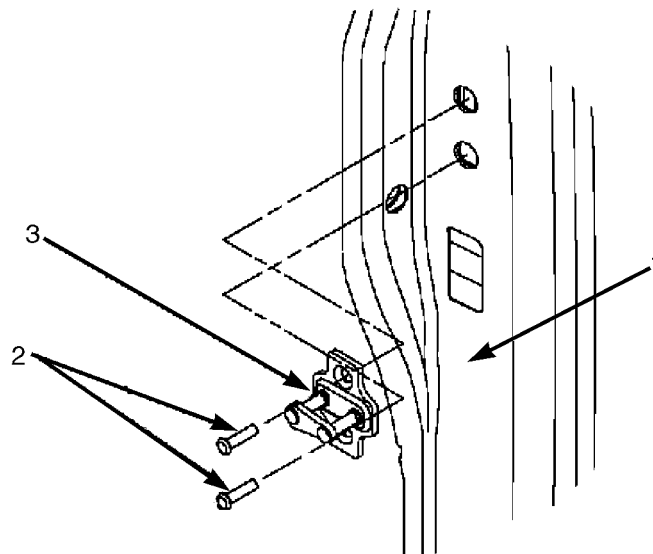
1. Slightly loosen upper hinge bolts and move door as required at upper door hinge to obtain proper door position.

2. Hold door in place and tighten both upper hinge bolts at the cab hinge pillar location. Tighten bolts to 13 to 15 Lbf-ft (18 to 20 N•m).
3. Slightly loosen lower hinge bolts and move door as required at lower door hinge to obtain proper door position.
4. Hold door in place and tighten both lower hinge bolts at the cab hinge pillar location. Tighten bolts to 13 to 15 Lbf-ft (18 to 20 N•m).
5. Close door and check for proper fit. If further adjustment is required, repeat procedure.

## 5.4. STRIKER PIN

### NOTE –

- Adjustment procedures show driver side; passenger side procedures are the same.
- Striker pin procedures are the same for either front or rear cab doors.



g1603855

1. DOOR LOCK PILLAR
2. BOLT

3. STRIKER PIN

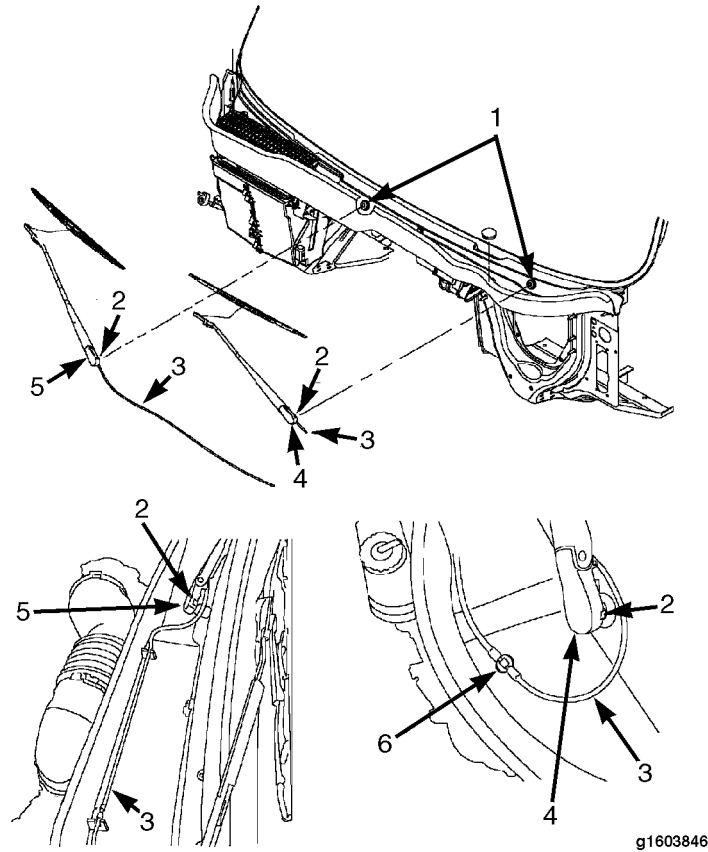
**Figure 150 Striker Pin**

1. Slightly loosen bolts securing striker pin to door lock pillar.
2. Move striker pin as required at the door lock pillar to obtain proper door fit and latching position.
3. Hold striker pin in place and tighten both bolts at the cab door lock pillar. Tighten bolts to 19 to 24 Lbf-ft (26 to 32 N•m).
4. Close door and check for proper fit. If further adjustment is required, repeat procedure.

### 5.5. WINDSHIELD WIPER ARM AND BLADE ASSEMBLY

**NOTE – Spray water on the windshield to determine wiper pattern.**

1. Turn wipers on high speed to check wiper pattern on the windshield. Wipers should not run off the glass or stop lower than the horizontal position of the bottom edge of the glass.



1. WIPER PIVOT POST
2. LOCK LEVER
3. WASHER HOSE
4. DRIVER SIDE WIPER ARM AND BLADE ASSEMBLY

5. PASSENGER SIDE WIPER ARM AND BLADE ASSEMBLY
6. T-FITTING

**Figure 151 Windshield Wiper Arm and Blade Assembly**

2. If adjustment is needed, lift up on lock lever and remove wiper arm and blade assembly from wiper pivot post.
3. Reposition wiper arm and blade assembly so it is horizontal to the bottom edge of windshield.
4. Press wiper arm and blade assembly onto wiper pivot post until assembly locks in place
5. Turn wipers on high speed and check for proper operation. Repeat adjustment if needed.

## 5.6. CAB AIR SUSPENSION

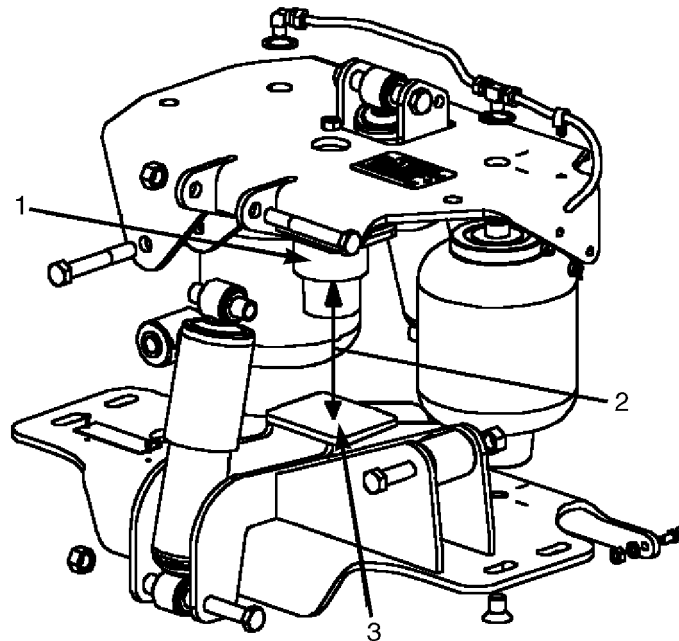
### Cab Air Suspension – General Procedures



To avoid property damage or personal injury, park the vehicle on a level surface, set the parking brake, chock the wheels, and turn the engine off.

#### CAUTION

To avoid product damage, there must be a minimum of five (5) full threads between the threaded rod and the linkage socket. To maintain the required minimum thread requirement, it may be necessary to loosen the jam nut at the other end of the height control valve linkage and turn linkage socket at that end to obtain the required adjustment.



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1. JOUNCE BUMPER STRIKE  
PLATE

2. RIDE HEIGHT MEASUREMENT  
3. JOUNCE BUMPER RATE CUP

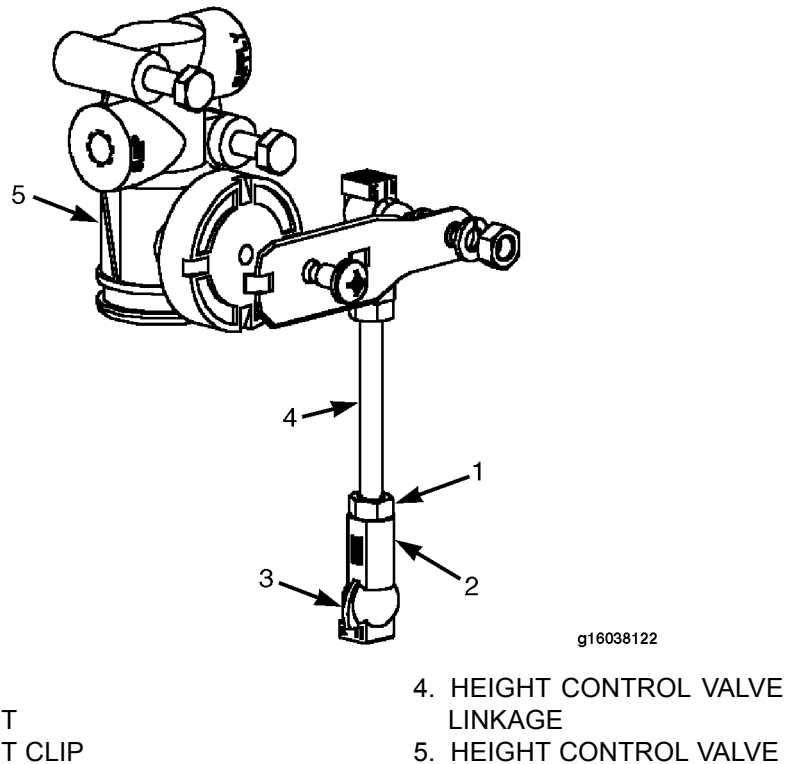
**Figure 152 Ride Height Measuring Points**

Check cab ride height by measuring the distance between the jounce bumper strike plate and jounce bumper rate cup. Measurement must be made between these two measuring points. If dimension does not meet specifications given below, adjustment is needed.

#### Specified distance between jounce bumper strike plate and jounce bumper rate cup:

- 1.5 inches (38 mm) for 7300, 7400, 7500, 7600, 8500, and 8600
- 2.25 inches (57 mm) for 7300, 7400, 7500, 7600 Crew Cab

**NOTE** – The graphics in the following adjustment procedure are typical of most models. Your particular model may be slightly different.



**Figure 153 Ride Height Control Valve**

1. Charge the air system to operating pressure of 90 to 110 psi.
2. Loosen the jam nut on the height control valve linkage and back off several turns.
3. Unlatch the linkage socket clip and pry the linkage socket from the pivot ball (not shown).
4. Turn the linkage socket clockwise to shorten height control valve linkage or counterclockwise to lengthen.
5. Press the linkage socket back onto the pivot ball, measure the cab ride height, and adjust as required.
6. When proper adjustment is achieved, latch linkage socket clip and tighten jam nut.
7. Remove wheel chocks from wheels.

**Cab Air Suspension (7300 and 7400 Models Only)**

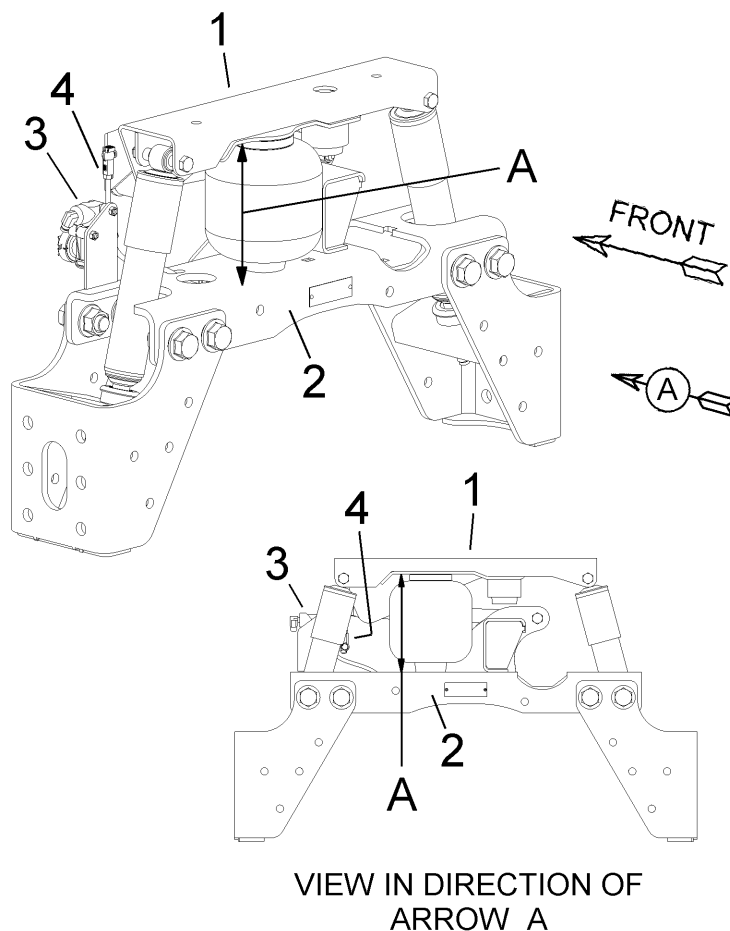
Check cab ride height between bottom of cab mounting plate and top of crossmember mounting plate of cab air suspension system. Cab air suspension air spring (bag) design height dimension A is 8.24 inches (209.3 mm) for 7300 AND 7400 Crew Cab Models.

**Cab Air Suspension (7600 Day Cab and Extended Cab Models)**

Check cab ride height between bottom of cab mounting plate and top of crossmember mounting plate of cab air suspension system. Cab air suspension air spring (bag) design height dimension A is 7.69 inches (195.3 mm). Bumper to strike plate dimension is 2.25 inches (57 mm)

**Cab Air Suspension (Models after March 2005)**

To avoid property damage or personal injury, park the vehicle on a level surface, set the parking brake, chock the wheels, and turn the engine off.



- A. AIR SPRING (BAG) DESIGN HEIGHT
- 1. CAB MOUNTING PLATE
- 2. CROSSMEMBER MOUNTING PLATE

- 3. HEIGHT CONTROL VALVE
- 4. HEIGHT CONTROL VALVE LINKAGE

**Figure 154 Cab Air Suspension (Models after March 2005)**

Check cab ride height between bottom of air spring (bag) top mounting plate of cab mounting plate and top of crossmember mounting plate of cab air suspension system. Cab air suspension air spring (bag) design height dimension A is 6.98 inches (177.3 mm).

To adjust cab ride height, measure cab ride height between bottom of air spring (bag) top mounting plate of cab mounting plate and top of crossmember mounting plate. If dimension does not meet specified air spring (bag) design height dimension A of 6.98 inches (177.3 mm) for the following models, adjust as necessary.

- 7600 Day Cab and Extended Cab Model with Rear PTO and some Engine Options
  - 7700 Day Cab Model after March 2005
1. Apply parking brake and chock wheels.
  2. Charge the air system to operating pressure of 90 to 110 psi.

## 6. TORQUE

### 6.1. TORQUE CHART

Figure No. (Item No.)	Location	Lbf-ft/Lbf-in.	N•m
Figure 10 (Item 3)	Passenger Side Grab Handle Bolts	77 to 95 Lbf-in.	9 to 11
Figure 57 (Item 4)	Rear Side Window Mounting Bolts	6 to 8 Lbf-ft	8 to 11
Figure 57 (Item 6)	Rear Side Window Mounting Nuts	6 to 8 Lbf-ft	8 to 11
Figure 62 (Item 3)	Cowl Tray Mounting Nuts	16 to 18 Lbf-ft, Do NOT exceed 18 Lbf-ft	22 to 24, Do NOT exceed 24
Figure 62 (Item 5)	Cowl Tray Center Mounting Bracket Bolts	Do NOT overtighten	Do NOT overtighten
Figure 64 (Item 1)	Windshield Wiper Assembly Mounting Nuts	16 to 18 Lbf-ft, Do NOT exceed 18 Lbf-ft	22 to 24, Do NOT exceed 24
Figure 65 (Item 9) Figure 66 (Item 9)	Washer Bottle Mounting Bolts	Do NOT overtighten	Do NOT overtighten
Figure 68 (Item 7)	Wiper Drive Arm Retaining Nut	104 to 140 Lbf-in.	12 to 16
Figure 68 (Item 3)	Wiper Motor Mounting Bolts	44 to 62 Lbf-in.	5 to 7
Figure 71 (Item 8)	Cab Door Mounting Nuts	14 to 18 Lbf-ft	19 to 24
Figure 72 (Item 2)	Shoulder Belt D-Ring Mounting Bolt	25 to 35 Lbf-ft	34 to 47
Figure 73 (Items 3 and 5) Figure 149 (Items 3 and 5)	Door Hinge Mounting Bolts	15 to 18 Lbf-ft	20 to 24
Figure 74 (Item 2) Figure 150 (Item 2)	Striker Pin Mounting Bolts	19 to 24 Lbf-ft	26 to 33
Figure 75 (Item 2)	Check Bracket Mounting Bolts	8 to 10 Lbf-ft	11 to 14
Figure 76 (Item 1)	Check Link Mounting Nuts	77 to 95 Lbf-in.	9 to 11
Figure 77 (Item 1)	Inner Door Pull Cup Screws	20 to 25 Lbf-in.	2 to 3
Figure 77 (Item 4)	Door Map Pocket Mounting Screws	20 to 25 Lbf-in.	2 to 3
Figure 84 (Item 2)	Outer Door Handle Screws	35 to 44 Lbf-in.	4 to 5
Figure 85 (Item 1)	Modular Door Hardware Assembly Bolts	8 to 10 Lbf-ft	11 to 14
Figure 85 (Item 4)	Door Latch Bolts	8 to 10 Lbf-ft	11 to 14
Figure 87 (Item 2)	Vent Window Latch Mounting Screws	53 to 71 Lbf-in.	6 to 8
Figure 90 (Item 4)	Window Electric Motor Mounting Nuts	62 to 115 Lbf-in.	7 to 13
Figure 98 (Item 1)	Inner Door Handle Mounting Bolt	71 to 89 Lbf-in.	8 to 10
Figure 105 (Item 1)	Scuff Plate Mounting Screws	20 to 25 Lbf-in.	2 to 3
Figure 106 (Item 4)	Sun Shade Mounting Screws	34 to 38 Lbf-ft	46 to 52
Figure 106 (Item 6)	Sun Shade Clearance Light Screws	20 to 25 Lbf-in.	2 to 3



Figure No. (Item No.)	Location	Lbf-ft/Lbf-in.	N•m
Figure 107 (Item 5)	Sun Visor Screws	20 to 25 Lbf-in.	2 to 3
Figure 107 (Item 3)	Sun Visor Clip Screws	20 to 25 Lbf-in.	2 to 3
Figure 112 (Item 3)	Gauge Cluster Screws	20 to 25 Lbf-in.	2 to 3
Figure 116 (Item 1)	Upper Dash Panel Mounting Bolts	84 to 106 Lbf-in.	10 to 12
Figure 116 (Item 3)	Lower Dash Panel Mounting Bolts	16 to 19 Lbf-ft	22 to 26
Figure 116 (Item 9)	Automatic Transmission Shifter Mounting Bracket Bolts	15 to 18 Lbf-ft	20 to 24
Figure 117 (Item 3)	Bucket Seat Mounting Nuts with Washers	15 to 20 Lbf-ft	20 to 27
Figure 117 (Items 5 and 6)	Seat Belt Mounting Bracket and Bolts	25 to 30 Lbf-ft	34 to 41
Figure 118 (Items 1 and 5)	Fixed Passenger Seat and Bench Seat	15 to 20 Lbf-ft	20 to 27
Figure 119 (Item 1)	Rear Bench Seat Mounting Nuts with Washers	15 to 18 Lbf-ft	20 to 24
Figure 120 (Item 3)	Bunk/Storage Unit Mounting Nuts	15 to 18 Lbf-ft	20 to 24
Figure 120 (Item 5)	Seat Belt Mounting Bolts	25 to 35 Lbf-ft	34 to 47
Figure 121 (Item 3)	Shoulder Belt Mounting Bolt	20 to 25 Lbf-ft	27 to 34
Figure 125 (Item 2)	Header Console Panel Courtesy Light Screws	20 to 25 Lbf-in.	2 to 3
Figure 125 (Item 5)	Header Console Panel near Speakers, Screws	20 to 25 Lbf-in.	2 to 3
Figure 134 (Item 4)	Cup Holder and Ash Tray Mounting Screws	20 to 25 Lbf-in.	2 to 3
Figure 135 (Item 1) Figure 136 (Items 2 and 3)	Engine Cover Mounting Bolts	77 to 95 Lbf-in.	9 to 11
Figure 137 (Items 1 and 5)	Front Cab Mounting Bolts and Nuts <b>(Before March 2005)</b>	254 to 310 Lbf-ft	344 to 420
Figure 138 (Item 1)	Front Cab Mounting Bolts and Nuts <b>(After March 2005)</b>	142 to 175 Lbf-ft	193 to 237
Figure 139 (Items 1 and 5)	Air Suspension Assembly Carriage Bolts and Nuts	88 to 106 Lbf-ft	119 to 144
Figure 140 (Items 1 and 5)	Air Suspension Assembly Mounting to Crossmember, Bolt and Nut	88 to 106 Lbf-ft	119 to 144
Figure 142 (Item 2)	Cab Mounting Insulator Mounting Bolts and Nuts	88 to 106 Lbf-ft	119 to 144
Figure 143 (Item 1)	Push-to-Connect Fitting of SUPPLY port of Height Control Valve	Press firmly until locked in position.  Pull on air line to verify it is fully inserted.	
Figure 143 (Items 2 and 5)	Height Control Valve Mounting Bolts and Lock Nuts	8 to 10 Lbf-ft	11 to 14
Figure 143 (Item 9)	Height Control Valve, SUSP Port, Air Line Compression Nut	Hand tighten nut 450 degrees to 630 degrees	

Figure No. (Item No.)	Location	Lbf-ft/Lbf-in.	N•m
Figure 144 (Items 2 and 5)	Shock Absorber Bolts and Lock Nuts	40 to 50 Lbf-ft	54 to 68
Figure 145 (Item 2)	Air Spring (Bag) Air Line Compression Nuts	Hand tighten nut 450 degrees to 630 degrees	
Figure 145 (Item 3)	Air Line Fittings on Air Springs (Bags)	Hand tighten plus 270 degrees to 450 degrees	
Figure 145 (Item 4)	Air Spring (Bag) Retaining Rings	Securely press on stud of air spring (bag)	
Figure 145 (Item 6)	Air Spring (Bag) Mounting Screws	2 to 4 Lbf-ft	3 to 5
Figure 146 (Items 2 and 4)	Lateral Control Rod Bolts and Lock Nuts	70 to 90 Lbf-ft	95 to 122
Figure 147 (Items 2 and 3)	Jounce Bumper Mounting Bolts and Lock Nuts	2 to 4 Lbf-ft	3 to 5