

Section	Section Number
Doors	72.00

Subject	Subject Number
General Information	050
Service Operations	
Door Trim Panel Removal and Installation	100
Door Removal and Installation	110
Door Seals Replacement	120
Door Latch Replacement	130
Door Window Glass Replacement	140
Vent Window Seal Replacement	150
Door Adjustment	160
Troubleshooting	300
Specifications	400

General Information

The bulkhead-style cab door is composed of fully stamped steel inner and outer panels, with large internal steel reinforcements at the hinge/A-pillar, waist, and mirror mount. The primary door seal is mounted on the door assembly. A secondary seal is mounted on the cab around the door opening frame.

The “bulkhead” description refers to the manner in which the door, when closed, seats inside the door opening; the outer panel surface of the door is then flush with the outermost edge of the stamped door opening frame.

The door opens on two discreet, hidden hinges that require no maintenance. The door hinges allow a 65-degree opening. The primary mirror is mounted on the door, which is reinforced at the mount areas.

The wiring for the window, mirror, and courtesy light is routed through an opening on the hinge side of the door.

Most service operations can be done with the door attached to the vehicle. To reduce work time, do not remove the door unless necessary.

NOTICE

Do not attempt to disassemble the door shell. The door panels and reinforcements are assembled using a high-strength adhesive. The heat required to loosen the adhesive can compromise the structural integrity of the door assembly. If the door is structurally damaged, replace the entire door shell.

NOTICE

Before performing any electric welding on or near the door, read and comply with the welding precautions in [Section 60.13](#), and disconnect the door wiring harness behind the inner trim panel. Electric currents produced during electric welding can damage various electronic components on the vehicle.

Door Trim Panel Removal and Installation

Removal

1. Apply the parking brake and chock the tires.
2. Using a T40 driver, remove the two mounting screws from the upper and/or lower door-pull handle. See **Fig. 1**.

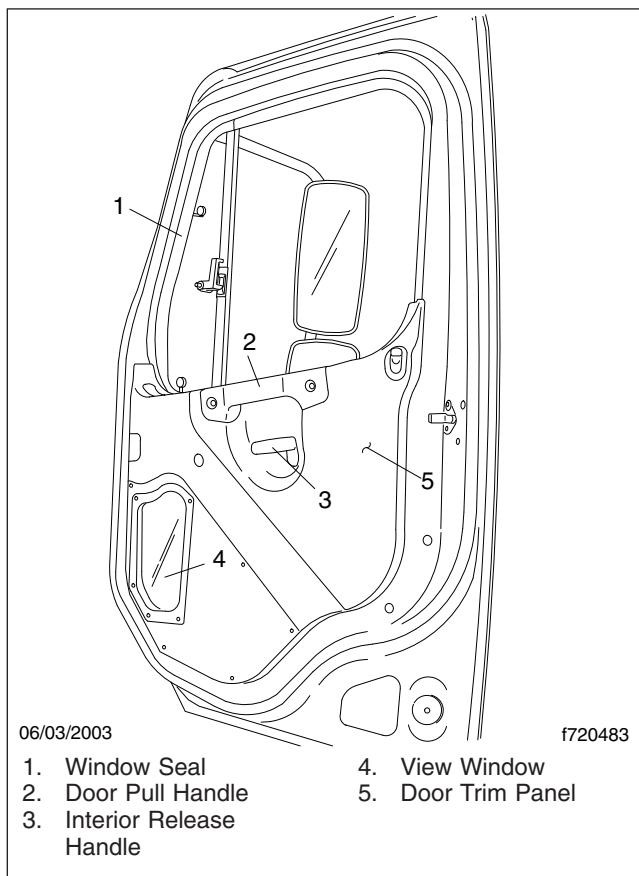


Fig. 1, Cab Door Trim

7. Pull the trim panel outward from the door to release the snaps, then lift it up and over the lock knob.

Installation

1. Slide the trim panel over the door-lock knob.
2. Position the trim panel in place against the door, then press firmly at the location of each snap-in fastener to ensure that it engages completely.
3. Using a T20 driver, install the two screws in the forward flange of the trim panel.
4. Using a T20 driver, install the four screws and the lower view-window trim ring.
5. Using a T40 driver, install the upper and/or lower door-pull handle. Tighten the screws 11 to 13 lbf-ft (14 to 18 N·m).
6. Install the interior release handle. Tighten the screw 50 to 70 lbf-in (600 to 800 N·cm).
7. If the vehicle has manual-crank windows, install the window-regulator handle.

3. For vehicles with manual-crank windows, remove the window-regulator handle.
4. Using a T20 driver, remove the four attaching screws and the lower view-window trim ring, if so equipped.
5. Using a T40 driver, remove the interior release handle.
6. Using a T20 driver, remove the two screws from the forward flange.

Door Removal and Installation

Removal

1. Apply the parking brake and chock the tires.
2. Lower the window.
3. Disconnect the batteries.
4. Remove the exterior side cowl panel.
5. Remove the door interior trim panel; see [Subject 100](#).
6. Disconnect and remove the door wiring harness.
7. If replacing the door, remove any components (e.g. the regulator, latch, handles, connecting rods, or window glass) that will be installed on the replacement door; see the appropriate subjects in this section.
8. Remove the door check assembly as follows. See [Fig. 1](#).
 - 8.1 Remove the two capscrews that attach the door check clevis bracket to the cab.
 - 8.2 Remove the two nuts that attach the door check to the edge of the door. Remove the door check assembly from the door.

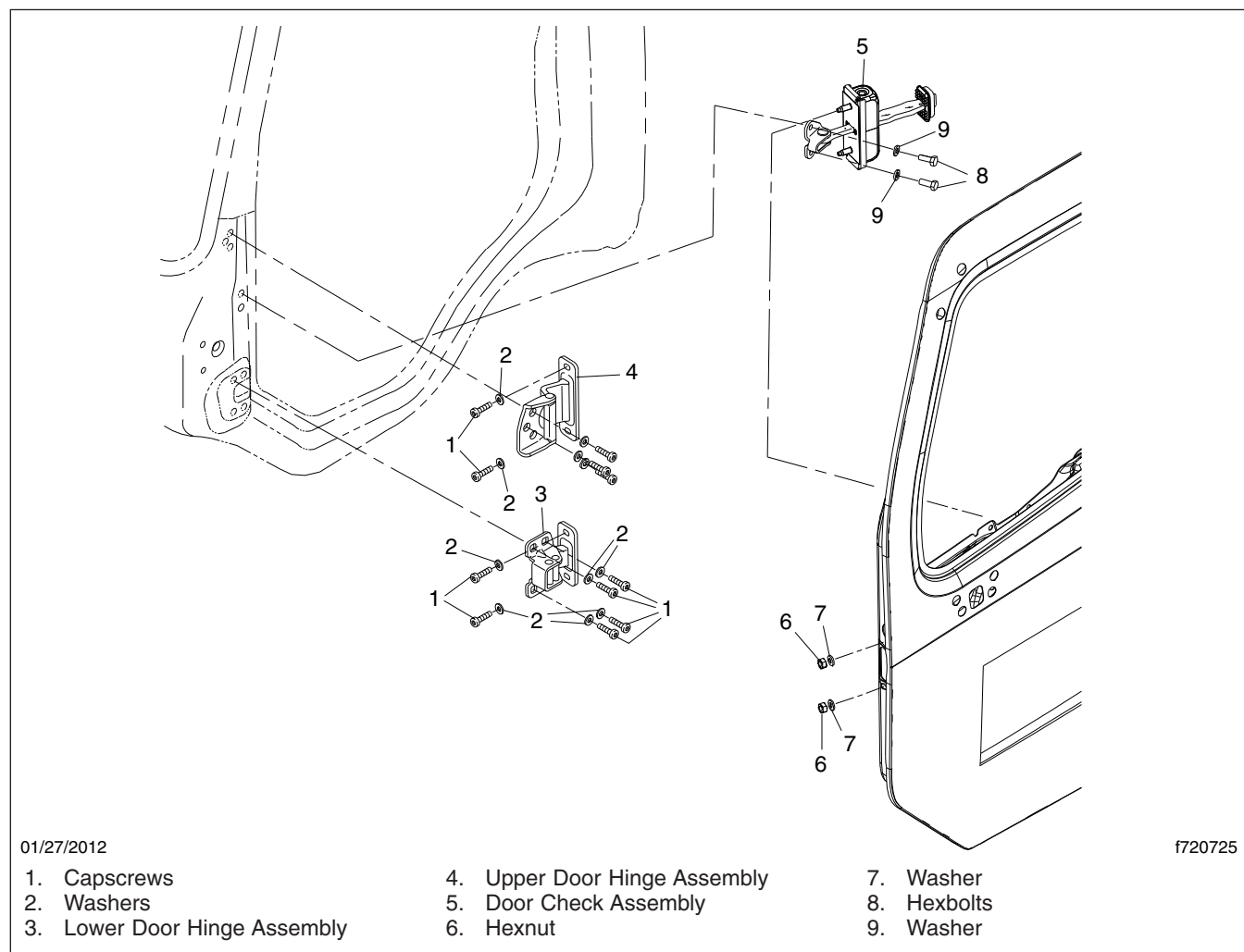


Fig. 1, Door and Door Check Installation

Door Removal and Installation



CAUTION

Do not attempt to lift the door. The door weighs approximately 110 pounds (50 kg). Lifting or dropping the door could result in personal injury or damage to the door assembly and other components.

9. Using a door support or help from an assistant, support the door frame from its bottom to prevent it from falling or tipping during removal. With the door open and supported, loosen the capscrews that attach the the hinges to the door.

9. Install the exterior side cowl panel.
10. Connect the batteries.
11. If applicable, check that the door electrical components are operating correctly.

Installation

1. If the door seal has been damaged or is weathered, replace it. For instructions, refer to [Subject 120](#).



CAUTION

Do not attempt to lift the door. The door weighs approximately 110 pounds (50 kg). Lifting or dropping the door could result in personal injury or damage to the door assembly and other components.

2. Using a door support or help from an assistant, support the door from its bottom to prevent it from falling or tipping during installation.
3. Install the hinge fasteners. Tighten the capscrews 11 to 13 lbf·ft (14 to 18 N·m).
4. Close the door and check for alignment. Adjust the door if needed; see [Subject 160](#).
5. Install the door check assembly as follows.
 - 5.1 Attach the door check to the edge of the door. Tighten the nuts 50 to 70 lbf·in (600 to 800 N·cm).
 - 5.2 Attach the clevis bracket to the cab. Tighten the capscrews 50 to 70 lbf·in (600 to 800 N·cm).
6. If replacing the door, install all components on the door; see the appropriate subjects in this section.
7. Install and connect the door wiring harness.
8. Install the door interior trim panel; see [Subject 100](#).

Door Seals Replacement

Replacement

There are four seals for the cab door (see [Fig. 1](#)):

- Primary seal
- Secondary seal
- Lower seal
- Rain gutter seal

Primary Seal

1. Apply the parking brake and chock the tires.
2. Open the door.
3. Remove the old seal from the door. It is held in place with double-sided tape and integral retainer clips.
4. Using alcohol, clean the surface of any old adhesive or dirt.
5. Install the new primary seal with the lip toward the edge of the door. Make sure the retainer clips are pushed all the way into their holes, and the seal is flat against the surface all the way around. Apply pressure to the areas of the seal that have adhesive tape to seat the seal firmly.
6. Close the door and check the seal. Adjust if necessary.

Secondary Seal

1. Apply the parking brake and chock the tires.
2. Open the door.
3. Remove the tread plate at the bottom of the doorway, then loosen up the upholstery panel.
4. Remove the old seal from the cab doorway. It fits over an edge.
5. Using alcohol, clean the surface of any old adhesive or dirt.
6. Install the new secondary seal. Start at the bottom and work your way around. Make sure it is pushed all the way on. Apply pressure to the areas of the seal that have adhesive tape to seat the seal firmly.
7. Put the upholstery in place, then install the tread plate.
8. Close the door and check the seal. Adjust if necessary.

Lower Seal

1. Apply the parking brake and chock the tires.
2. Open the door.
3. Remove the old seal from the bottom of the cab doorway. It is held in place with double-sided tape.
4. Using alcohol, clean the surface of any old adhesive or dirt.
5. Install the new lower seal. Make sure it is completely seated. Apply pressure to the areas of the seal that have adhesive tape to seat the seal firmly.
6. Close the door and check the fit. Adjust if necessary.

Rain Gutter Seal

1. Park the vehicle on a level surface, shut down the engine, set the parking brake, and chock the tires.
2. Open the door.
3. Remove the rain gutter seal from the cab doorway. It is held in place by double-sided tape.
4. Using alcohol, clean the surface of any old adhesive or dirt.
5. Install the rain gutter seal. Make sure it is pushed all the way on. Apply pressure to the areas of the gutter that have adhesive tape to seat the gutter firmly.
6. Close the door and check the fit. Adjust if necessary.

Door Seals Replacement

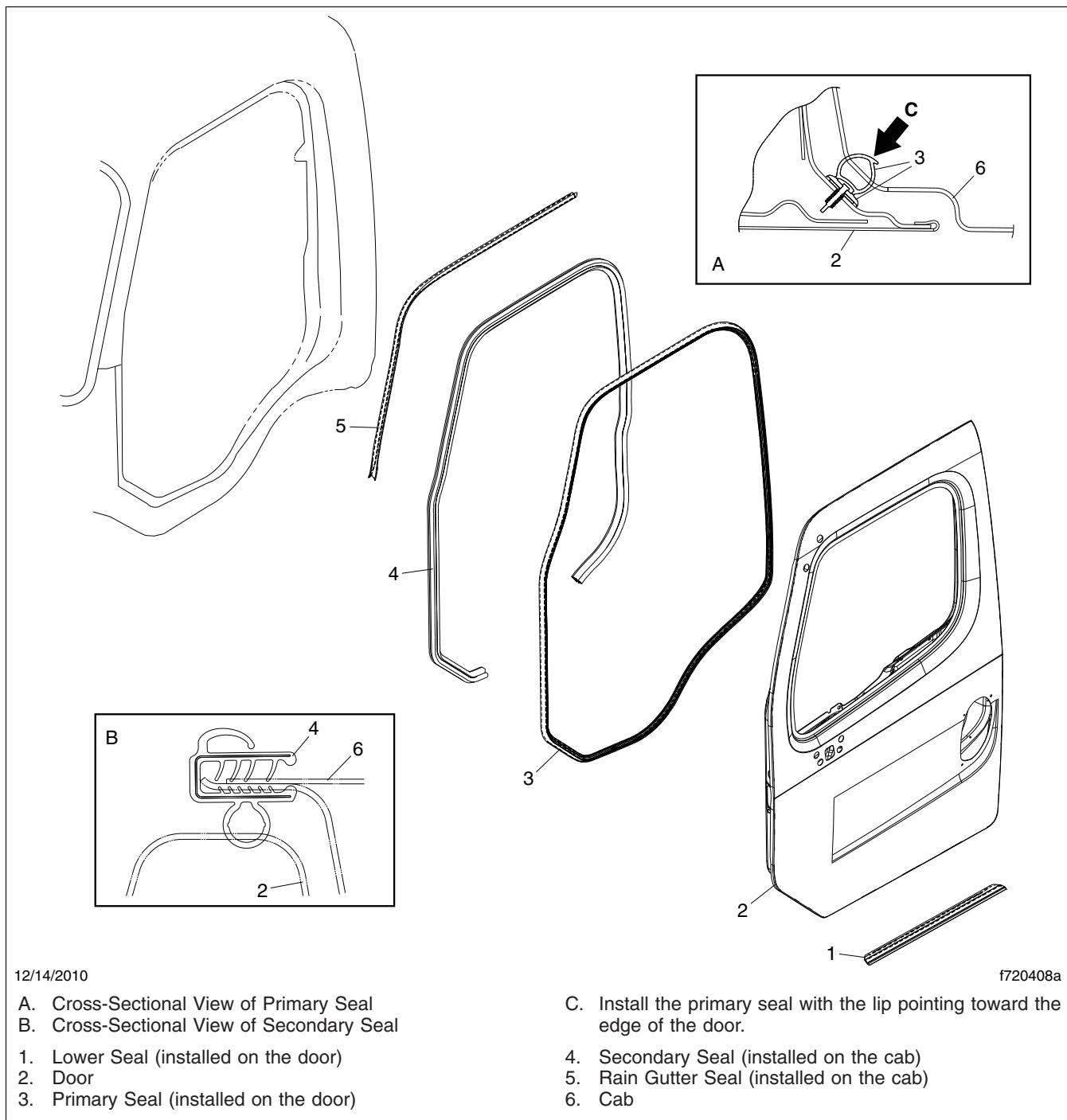


Fig. 1, Door Seals

Replacement

NOTE: The door latches never require lubrication. They come from the manufacturer with lifetime lubrication.

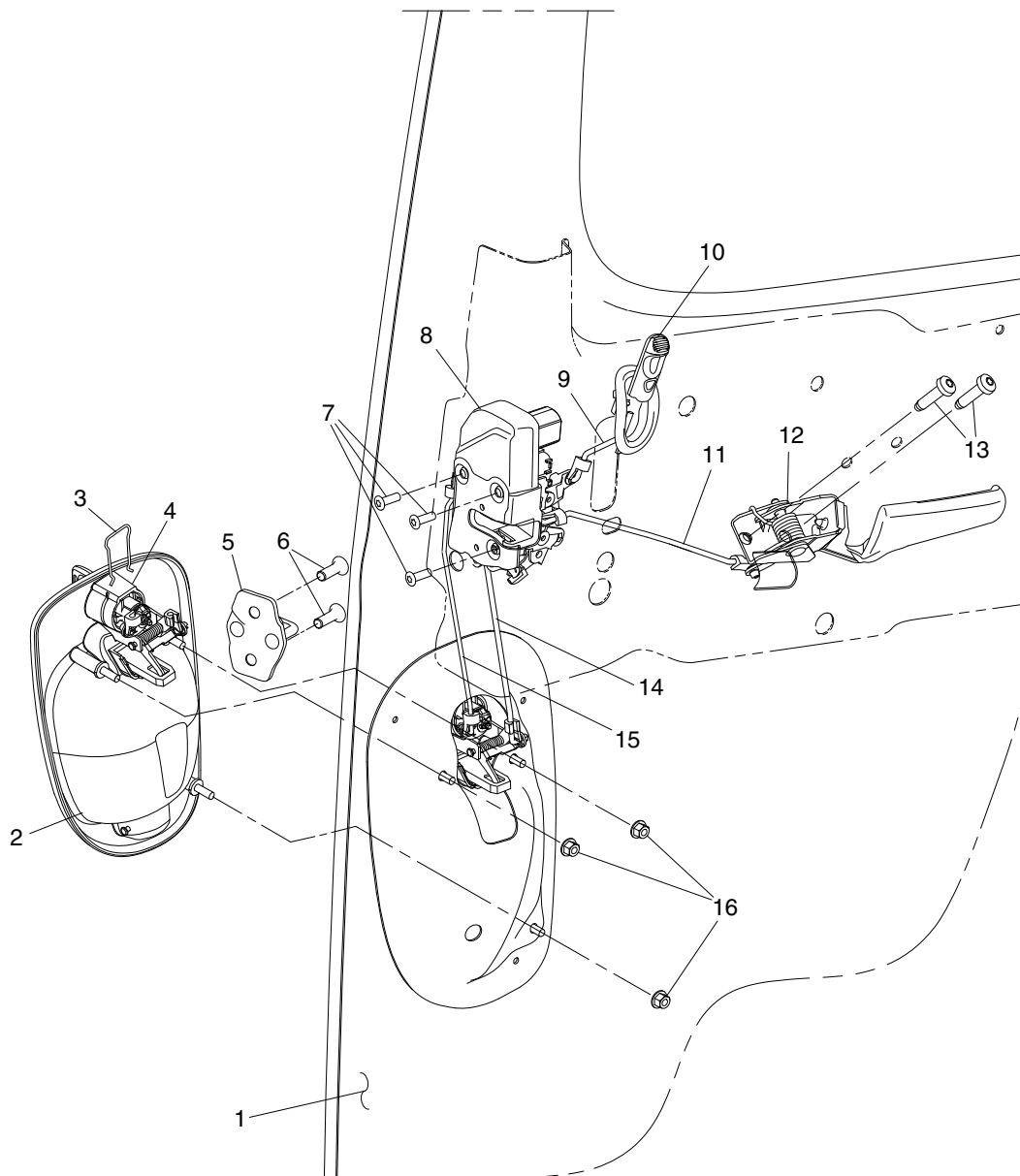
1. Apply the parking brake and chock the tires.
2. Remove the interior trim panel; see [Subject 100](#).
3. Peel back the vapor barrier.
4. Disconnect the interior lock rod ([Fig. 1](#), item 9) from the door latch assembly.
5. Disconnect and remove the exterior lock rod (item 15), the interior latch rod (item 11), and the exterior latch rod (item 14).
6. At the edge of the door, remove the three screws that attach the latch assembly to the door.
7. Move the latch assembly down to the interior door panel opening, then disconnect the dome light switch wiring from it.
8. Connect the dome light switch wiring to the new latch assembly.
9. Insert the latch assembly inside the door through the door panel opening, move it into position, then, using the three screws, attach it to the door edge. Tighten the screws 50 to 70 lbf-in (600 to 800 N-cm).
10. Connect the interior lock rod to the latch assembly.
11. Connect the exterior lock rod (item 15), and the interior and exterior latch rods (items 11 and 14).

When connecting the exterior latch rod, make sure the rod length adjustment screw on the latch is loose. Connect the rod to the exterior door handle, then to the latch. When the latch is securely installed, tighten the rod length adjustment screw 15 to 25 lbf-in (170 to 280 N-cm).

NOTE: The colored end of each rod is attached to the latch assembly.

12. Check the rods for correct operation.
13. Install the vapor barrier.
14. Install the interior trim panel; see [Subject 100](#).

Door Latch Replacement



10/31/2001

f720403

1. Door Panel
2. Exterior Door Handle
3. Spring Clip
4. Exterior Lock Assembly
5. Striker Pin
6. Screws

7. Torx-Head Screws
8. Door Latch Assembly
9. Interior Lock Rod
10. Lock Button
11. Interior Latch Rod

12. Interior Door Handle
13. Torx-Head Screws
14. Exterior Latch Rod
15. Exterior Lock Rod
16. Hexnuts

Fig. 1, Door Components

Door Window Glass Replacement

Replacement

NOTE: This procedure is for manual window regulators.

1. Apply the parking brake and chock the tires.
2. Lower the window all the way.
3. Remove the interior trim panel; see [Subject 100](#).
4. Peel back the vapor barrier.

WARNING

Wear protective gloves and safety glasses when replacing window glass. Gloves will protect your hands from sharp edges, and allow a better grip. Failure to wear gloves and safety glasses when handling glass could result in injury to hands or eyes.

5. Remove the upper and lower screws that attach the glass rear channel to the interior door panel. Let the channel rest at the bottom of the door. See [Fig. 1](#).
 6. Remove the window seal from the door window opening, as follows.
 - 6.1 Peel back the vent-window seal where it overlaps the door-window seal.
 - 6.2 Pull the door-window seal down and back towards the rear of the cab to remove it. See [Fig. 2](#).
 7. Raise the window until the regulator-clamp screws can be accessed; see [Fig. 3](#).
 8. While supporting the glass, loosen the regulator clamps at the bottom edge of the window glass. See [Fig. 4](#).
 9. Remove the window glass by pulling it up and toward the inside of the door window opening.
 10. Lower the new window glass through the inside of the window opening. Support the glass until it rests on the regulator-clamp pads.
 11. Install the window seal into the window opening.
- NOTE: If replacing the window seal, use 3M™ Strip-Calk 08578 at the joints with the vent window seal to prevent leakage.
12. Carefully raise up the window.

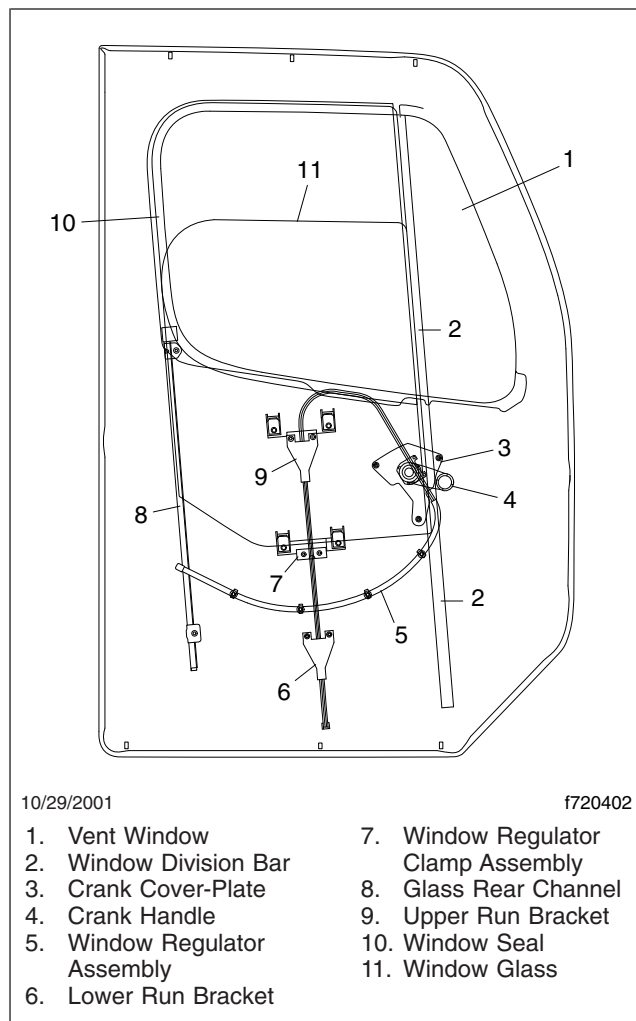


Fig. 1, Window Regulator Components

13. Pull up the glass rear channel, making sure the glass edge fits into it. Install the two screws that attach the channel to the door panel. Tighten the screws 60 lbf-in (700 N-cm).
14. Carefully tighten the regulator clamps at the bottom of the window glass. Tighten the clamps 55 to 64 lbf-in (625 to 725 N-cm). *Do not over-tighten.*
15. Test the window regulator for smooth operation. The window should raise and lower with no binding.
16. Install the vapor barrier. Reuse the old adhesive to attach the vapor barrier to the door.

Door Window Glass Replacement

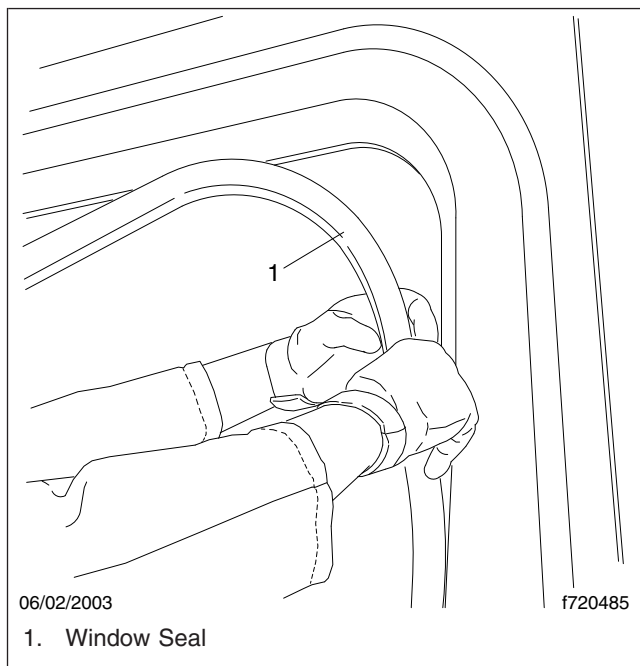


Fig. 2, Remove/Install the Window Seal

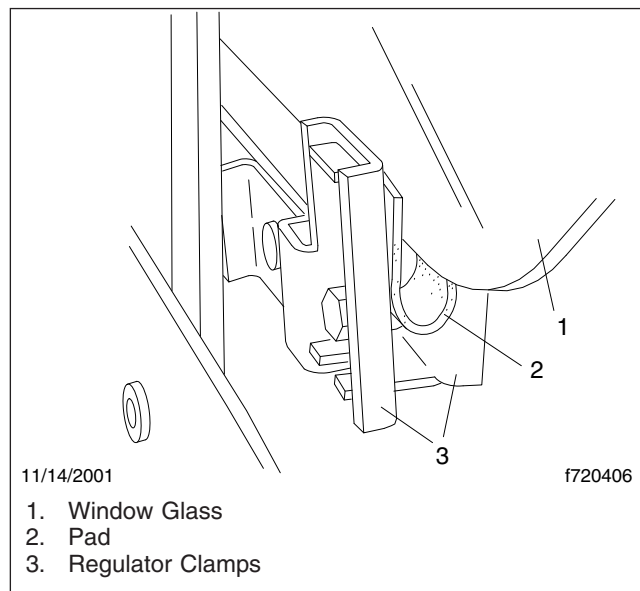


Fig. 4, Window Glass (bottom edge)

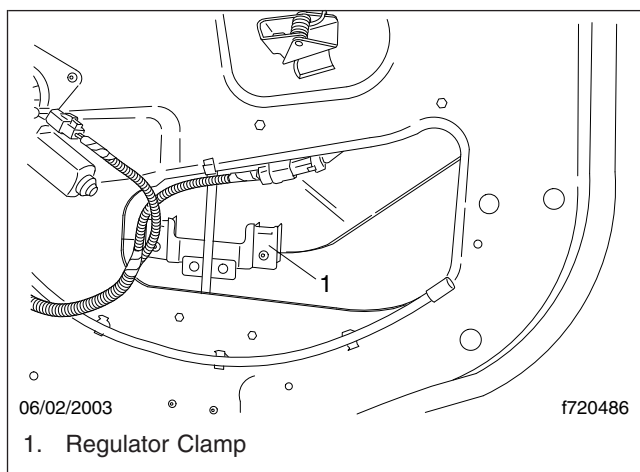


Fig. 3, Regulator Clamp

NOTE: If the adhesive does not adhere, use 3M Strip-Calk 08578 as needed to affix the vapor barrier to the door.

17. Install the interior trim panel; see [Subject 100](#).

Vent Window Seal Replacement

Replacement

1. Apply the parking brake and chock the tires.
2. Remove the manual window-regulator crank (if so equipped), the door latch handle, the pull handles, the lower view-window trim ring (if so equipped), and the door interior trim panel; see [Subject 100](#).
3. Peel back the vapor barrier.
4. Remove the window seal and glass; see [Subject 140](#).
5. Remove the vent-window glass.

For an operable vent window, loosen the latch and open the vent window. Remove the two screws that attach the glass to the vent-window frame, and remove the glass.

For a fixed vent window, starting at the lower front corner apply light pressure against the inside of the glass while carefully prying the seal around the outside of the glass.
6. Remove the vent-window frame assembly as follows.
 - 6.1 Using a T20 driver, remove the three screws between the door and the front of the vent-window frame assembly.
 - 6.2 Using a T30 driver, remove the two screws that attach the run channel of the vent-window frame assembly to the door.
 - 6.3 Pull the vent-window frame assembly up and out of the window opening. See [Fig. 1](#).
7. Stretch the top and bottom corners of the seal to release the locking tabs on the seal from the vent-window frame. See [Fig. 2](#).
8. Remove the seal from the vent-window frame, carefully pulling it free from around the glass supports.
9. Stretch the new seal over the vent-window glass supports.
10. Apply soapy water to the window seal then press the top corner of the seal into the frame, locking the tabs on the seal into the frame. Work the seal around the frame, using the alignment tabs to position the seal properly. See [Fig. 3](#).

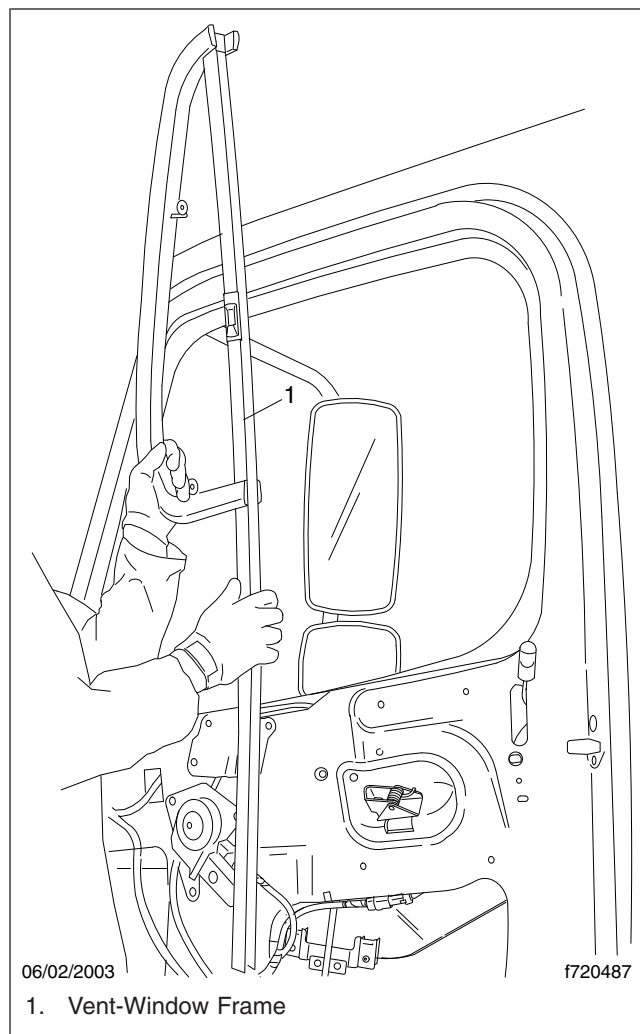


Fig. 1, Remove/Install the Vent-Window Frame Assembly

11. Stretch the bottom edge of the seal and push the locking tabs into the slot in the frame. See [Fig. 2](#).
12. Install the vent-window assembly as follows.
 - 12.1 Slide the run channel through the window opening, then install the vent-window frame in the opening. See [Fig. 1](#).

Overlap the outside of the vent-window seal over the exterior edge of the door. Push the frame assembly forward in the window opening as far as possible.

Vent Window Seal Replacement

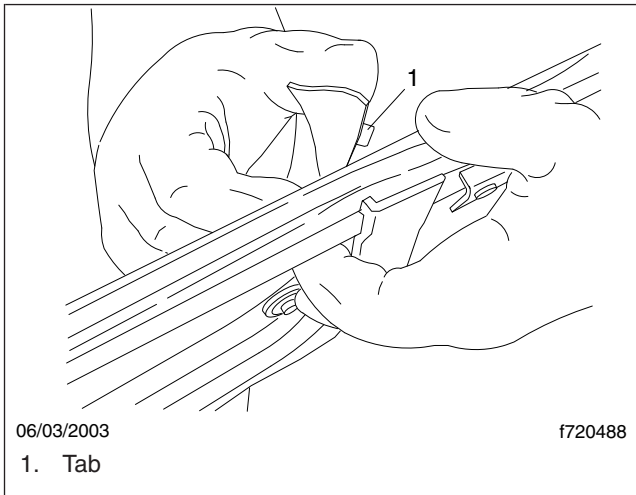


Fig. 2, Remove/Install the Vent-Window Seal

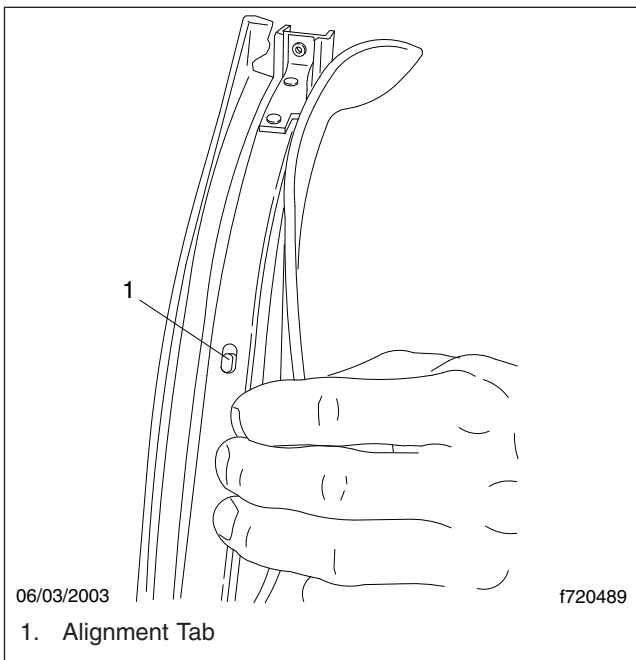


Fig. 3, Install the Vent-Window Seal

- 12.2 Install the three screws between the door and the vent-window frame. Tighten the screws 36 lbf·in (400 N·cm).
- 12.3 Using a T30 driver, install the two screws that attach the run channel to the door. Tighten the screws 60 lbf·in (700 N·cm).

- 12.4 *For an operable vent window*, use the two glass-mounting screws to install the glass in the frame assembly. Torque the screws to 50 to 70 lbf·in (600 to 800 N·cm).

For a fixed vent window, lubricate the inside of the seal with soapy water. From the outside, slide the upper corner of the glass into the seal, then while pushing in on the window, work the seal around the glass.

13. Install the window glass and seal; see [Subject 140](#).
14. Install the vapor barrier. Reuse the old adhesive to attach the vapor barrier to the door.

NOTE: If the adhesive does not adhere, use 3M Strip-Calk 08578 as needed to affix the vapor barrier to the door.

15. Install the door interior trim panel, lower view-window trim ring (if so equipped), the pull handles, the door latch handle, and the manual window-regulator crank (if so equipped); see [Subject 100](#).

General Information

A newly installed door assembly must be adjusted for correct up-and-down, fore-and-aft, and in-and-out positioning relative to the door opening frame. The door assembly should also be adjusted whenever one or more of the following conditions exist (providing the door seal is correctly installed and is in good condition):

- wind or water leaks at the door opening frame
- premature wear of the door seal
- hard closing or opening of the door

The cab portion of the hinge has oversized holes, so that when the capscrews that attach the hinge to the cab (**Fig. 1**) are loosened, the door can be adjusted forward or aft, and up and down within the door opening frame. Slotted holes on the door portion of the hinge (**Fig. 2**) allow for in and out adjustment of the front of the door, and mounting slots for the striker (**Fig. 3**) allow for in and out adjustment of the rear of the door.

Up-and-Down, Fore-and-Aft Adjustment

1. Apply the parking brakes and chock the tires.
2. From outside the cab, check the alignment of the door with the cab door-opening frame. Check that the spaces around the top of the door are uniform. If adjustment is needed, follow the steps below.
3. Remove the cowl side panel.
4. Mark both the vertical and horizontal positions of the latch striker and the hinge before loosening them for adjustment.
5. Loosen the striker, then tighten it just enough to prevent unintentional movement.
6. Loosen the capscrews that attach the hinges to the cab, but keep them tight enough to prevent unintentional movement. See **Fig. 1**.
7. Carefully close the door, then raise or lower it until the gap across the top of the door is about 5/16 inch (8 mm), and the gaps at the front and rear vertical edges of the door are about 3/8 inch (9 mm).
8. Without disturbing the positions of the hinges or striker, carefully open and support the door, then tighten the hinge capscrews 11 to 13 lbf-ft (14 to 18 N·m).
9. Open the door and securely tighten the striker. From outside the cab, partially close the door until the latch jaws are about 1 to 2 inches (25 to 50 mm) from the striker. Be sure the striker is horizontal, and centered in the latch jaw when the door is closed. If needed, reposition the striker.
10. Tighten the striker screws 11 to 13 lbf-ft (14 to 18 N·m), then close the door and recheck the door alignment.
11. Install the cowl side panel.

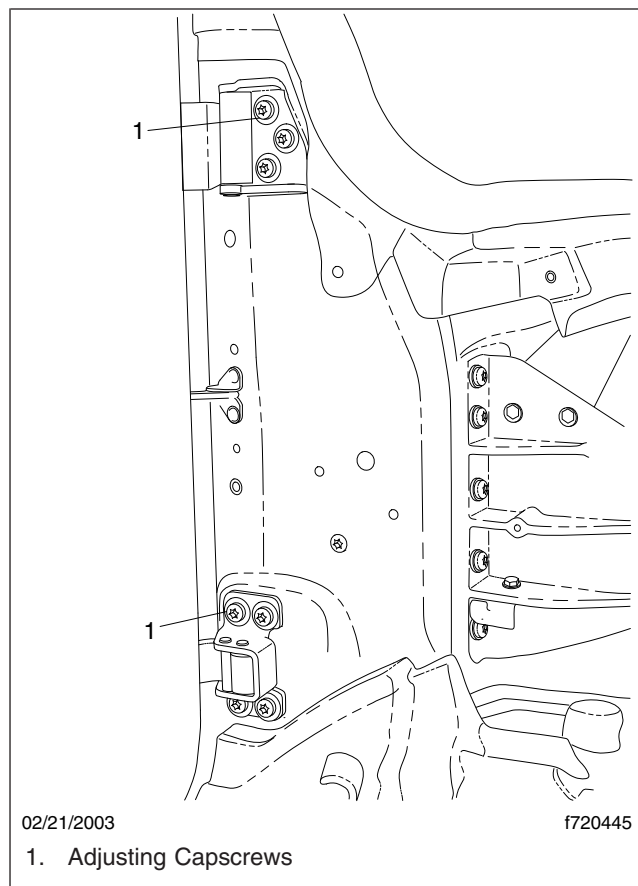


Fig. 1, Fore-and-Aft and Up-and-Down Adjusting Capscrews on the Cab

Door Adjustment

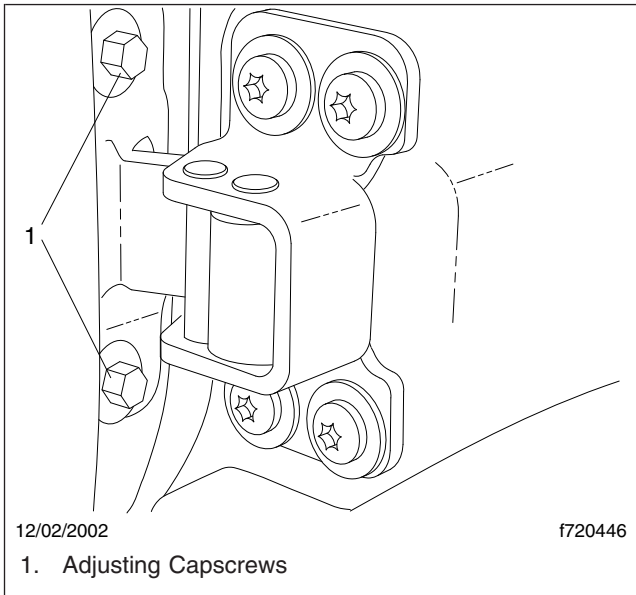


Fig. 2, In-and-Out Adjusting Capscrews on the Door

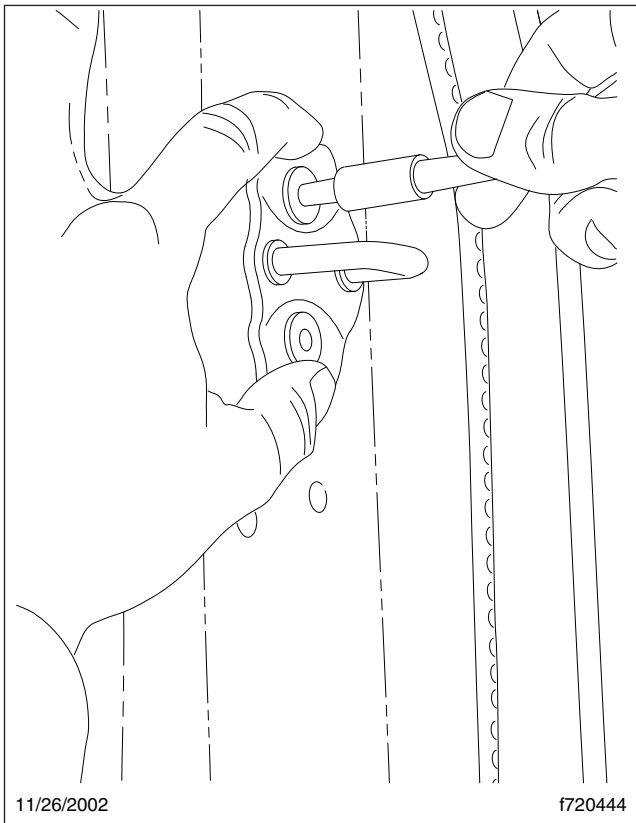


Fig. 3, Striker Adjustment

In-and-Out Adjustment

Poor in-and-out adjustment of the door is often indicated by hard closing of the door, wind and water leaks around the edge of the door, or premature wear of the door seal.

1. With the tires chocked, check the in-and-out adjustment of the door. The outer surface of the door should be flush, within $\pm 3/64$ inch (± 1 mm), with the surface of the cab skin at *both* its front and rear edges. If adjustment is needed, follow the steps below.
2. If only the rear edge of the door needs adjusting, go to step 6.
3. If the front edge of the door needs adjusting, mark the vertical and horizontal positions of the hinge before loosening them for adjustment.
4. Loosen the capscrews that attach the hinges to the door frame, but keep them tight enough to prevent unintentional hinge movement. See [Fig. 2](#).

NOTICE

Do not modify the holes in the hinge to allow for extra adjustment. This could affect the strength of the hinge and damage can result.

5. Carefully close the door, then move the front edge of the door in or out until the outer surface is flush, within $\pm 3/64$ inch (± 1 mm), with the surface of the cab skin. Be careful not to disturb the up-and-down adjustment.

If the door cannot be moved sufficiently to bring the upper corner into specified alignment, a shim(s) (part number 18-47661-000) may be added at the lower hinge on the cab side.

6. Without disturbing the positions of the hinges, carefully open and support the door, then tighten the hinge capscrews 11 to 13 lbf-ft (14 to 18 N·m).
7. If the rear edge of the door needs adjusting, mark the vertical and horizontal positions of the latch striker before loosening it for adjustment.
8. Loosen the striker ([Fig. 3](#)), then tighten it just enough to prevent unintentional movement.
9. Carefully close the door, then move the rear edge of the door in or out until the outer surface

is flush, within $\pm 3/64$ inch (± 1 mm), with the surface of the cab skin. Be careful not to disturb the up-and-down adjustment.

10. Without disturbing the position of the striker, carefully open the door, then tighten the striker screws 11 to 13 lbf-ft (14 to 18 N·m).

NOTE: The striker must be horizontal when tightened.

11. Close the door and recheck the door alignment.

Striker Adjustment

For secure door closure, check the alignment of the latch and striker even if the striker was not loosened.

1. With the tires chocked, partially close the door and make sure that the striker is centered with the latch jaws. Only the center of the striker should contact the latch jaws.
2. Close the door. It should not move up or down as the latch jaws engage the striker.
3. Make sure that the latch jaws will just clear the striker head when the door is closed. If necessary, loosen the striker, then reposition it.
4. Repeat the previous two steps as needed, until the striker is correctly positioned. Tighten the striker screws 11 to 13 lbf-ft (14 to 18 N·m).

NOTE: The striker must be horizontal when tightened.

5. Carefully close the door to the fully latched position (second click). From outside the cab, check the in-and-out, fore-and-aft, and up-and-down positioning of the door.

Window Regulator

To field test a power window regulator, follow the procedure in [Table 1](#).

NOTE: Power window regulators are equipped with automatic reset internal thermal protection to prevent motor damage from electrical failure or overuse. Depending on the air temperature,

window load, and amount of use, the protection may trip after two or three window cycles. This is normal and is not considered to be a defect. Allow the motor to cool at least 10 minutes to reset the thermal protection before testing.

To field test a manual window regulator, follow the procedure in [Table 2](#).

Power Window Regulator Not Working			
Step	Test Procedure	Test Result	Action
1	Check the fuse for the window regulators. Is it open?	Yes	Replace the fuse. Continue troubleshooting for a short in the system.
		No	Go to step 2 .
2	Check the battery. Is it fully charged?	Yes	Go to step 3 .
		No	Charge the battery.
3	Remove the interior door panel. Check for battery voltage at the window regulator terminals. With the window rocker switch in the neutral position, connect a voltmeter to the two terminals where the wiring harness connects to the window regulator motor. Is voltage present?	Yes	A shorted switch may have caused the internal circuit protection in the motor to trip. Correct the problem, allow the motor to cool for 10 minutes, then check for voltage again.
		No	Go to step 4 .
4	With the window rocker switch pushed to the "DOWN" position, check the voltage at the regulator terminals. Also check the voltage with the rocker switch pushed to the "UP" position. What is the voltage reading?	11–15 volts	Go to step 5 .
		Below 11 or above 15 volts	Check the battery for a full charge, then check the rocker switch for excessive resistance. Repair or replace the switch as needed.
		No voltage	Check the rocker switch for proper function. Replace as needed.
5	Remove the screws that attach the glass to the regulator. Is the glass free to move up and down within the run channels without binding?	Yes	Go to step 6 .
		No	Adjust the glass run channels, or correct the binding condition. Go to step 6 .
6	Attach the glass to the regulator, leaving the screws loose so that the glass is free to move slightly from side to side. Test the regulator. Does the regulator work properly with the glass mounting screws loosened?	Yes	Check the regulator mounting alignment, adjust if needed, then tighten the screws. Repeat as necessary.
		No	Go to step 7 .
7	Test the regulator operation. Does it work properly?	Yes	Troubleshooting is completed.
		No	Replace the window regulator.

Table 1, Power Window Regulator Not Working

Troubleshooting

Manual Window Regulator Not Working or Noisy, Window Glass Binding			
Step	Test Procedure	Test Result	Action
1	Remove the interior door panel to gain access to the window regulator.	—	—
2	Are the regulator mounting screws tight, and is the glass secured to the regulator.	Yes	Go to step 3 .
		No	Correct any problems and retest.
3	Disconnect the glass from the regulator. Is the glass free to move up and down within the run channels without binding?	Yes	Check that the glass attachment point of the regulator moves when the handle is cranked. If it does not, replace the regulator. Otherwise, go to step 4 .
		No	Adjust the glass run channels, or correct the binding condition. Go to step 4 .
4	Connect the glass to the regulator, leaving the screws loose so that the glass is free to move slightly from side to side. Crank the handle. Does the regulator work properly with the glass mounting screws loosened?	Yes	Raise and lower the glass completely, then tighten the glass mounting screws.
		No	Loosen the regulator mounting screws and try to adjust the regulator alignment for proper operation. The glass also may need to be realigned after any adjustments to the regulator.
5	Test the regulator operation. Does it work properly?	Yes	Troubleshooting is completed.
		No	Replace the window regulator.

Table 2, Manual Window Regulator Not Working or Noisy, Window Glass Binding

Unless listed in [Table 1](#), tighten all fasteners using the torque specifications found in [Section 00.04](#).

Torque Specifications				
Fastener Description	lbf-ft	N-m	lbf-in	N-cm
Interior Door-Pull Handle Screws	11–13	14–18	—	—
Interior Door-Latch Handle Screws	—	—	50–70	600–800
Door Hinge Capscrews, M8	11–13	14–18	—	—
Door Check-to-Door Nuts, M6	—	—	50–70	600–800
Door Check-to-Cab Screws, M6	—	—	50–70	600–800
Latch Assembly Mounting Screws	—	—	50–70	600–800
Exterior Latch Rod Adjustment Screw	—	—	15–25	170–280
Glass Channel Mounting Screws	—	—	60	700
Operable Vent Window Glass-Mounting Screws	—	—	50–70	600–800
Window Regulator Clamp	—	—	55–64	625–725
Vent-Window Frame Mounting Screws	—	—	36	400
Striker Screws	11–13	14–18	—	—

Table 1, Torque Specifications

