

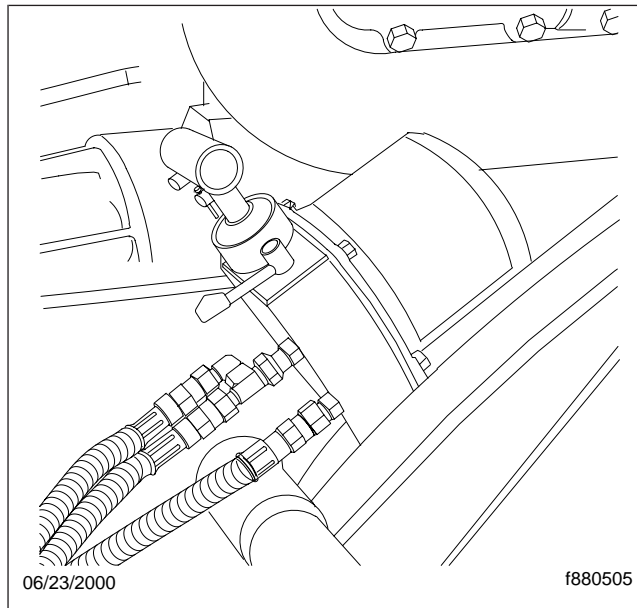
## General Information

The cab-tilt system has three major parts:

- A hydraulic pump consisting of a pump body, a reservoir, and a pump control lever.
- A hydraulic tilt cylinder that raises and lowers the cab.
- A tilt safety stop on the tilt cylinder, which must be used when working under a cab that has not been fully tilted.

The cab can be tilted open to 42 degrees to access the engine and other components. A hydraulic pump, located behind the right side of the cab, is used to operate the hydraulic cab tilt mechanism. See [Fig. 1](#).

The tilt cylinder is connected to the pump by flexible high-pressure lines. Velocity fuses are built into the tilt cylinder port. They act as check valves to prevent the cab from free falling in case of hydraulic system damage, such as a ruptured line.



**Fig. 1, Cab Tilt Pump**

**NOTE:** Whenever raising or lowering the cab, stop working the pump once the cab goes over center. The cab falls at a controlled rate and continued pumping could lock up the tilt cylinder. To slow the descent of the cab, reverse the lever.

## Hydraulic Lock-Up

Hydraulic lock-up can occur for the following reasons:

- Very cold weather
- Use of the wrong hydraulic fluid
- Air in the system
- Sudden cab movement
- A ruptured hydraulic line

Any of the above situations will cause the velocity fuses to function as safety check valves, and lock up the tilt cylinder. To unlock the cylinder, the cab must be moved in the opposite direction of travel.

**IMPORTANT:** If the tilt cylinder locks up, check for a major problem (such as a ruptured line or leaking fitting) before trying to unlock the tilt cylinder. If such a problem is found, make any necessary repairs before unlocking the cylinder.

For example, if the cab is moving toward the full-tilt position when the lock-up occurs, move the control lever to RETURN, and work the pump a few strokes. This will unlock the cylinder. Move the control lever to TILT, and allow the cab to descend to a full-tilt position.

If the cab is moving toward the lowered (operating) position when the lock-up occurs, move the control lever to TILT, and work the pump a few strokes. This will unlock the cylinder. Move the control lever to RETURN, and allow the cab to descend to the operating position.

## Tilting the Cab

### CAUTION

Before tilting the cab, make sure the vehicle is parked on level ground, both side-to-side and front-to-rear. Tilting the cab while the vehicle is parked on uneven ground (such as a sloping highway shoulder) may damage the cab mounts and prevent you from returning the cab to the operating position.

### WARNING

Before tilting the cab, make sure there is adequate clearance in front of the vehicle, and that the area is free of people and all objects.

Do not tilt the cab with the engine running. Tilting the cab could engage the transmission. If the engine is running, the vehicle can move, causing an accident that could result in personal injury or property damage.

**IMPORTANT:** Before raising or lowering the cab, read the warning label on the hydraulic pump.

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine, and chock the rear tires.
2. Secure all loose articles in the cab and make sure the doors are securely latched.

### WARNING

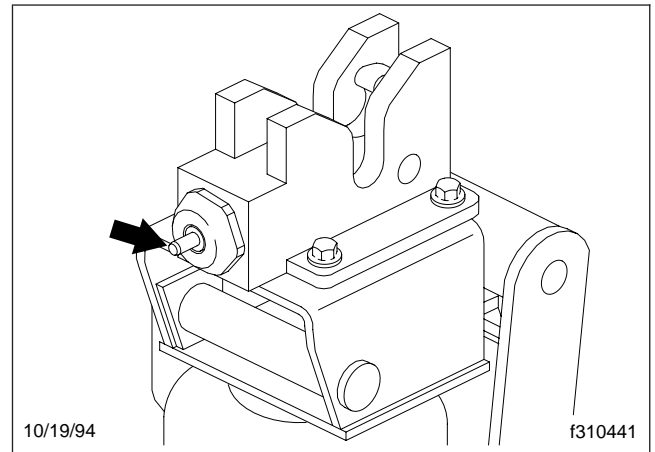
Objects falling in the cab, or a door flying open, could damage the vehicle or cause personal injury.

3. Make sure there are no people or objects in the path the cab will be traveling.
4. Move the pump control lever to TILT position.
5. Remove the pump handle from behind the primary driver's seat and attach it to the pump.
6. Raise and lower the pump handle several times to unlock the cab mounts.

**IMPORTANT:** Check the indicator pin on each cab latch. The latches have disengaged if the pins are out. See [Fig. 1](#).

**NOTE:** If air is present in the hydraulic tilt system, the pump operation may seem spongy or ineffective. If this happens, bleed the air from the system. See [Subject 100](#) for instructions.

7. Continue to operate the pump handle until the cab is tilted open about 30 degrees.



**Fig. 1, Cab Mount Indicator Pin**

**IMPORTANT:** If the cab stops moving while it is being raised, do not force it to move with the tilt pump. The velocity fuses have locked up the tilt cylinder. To unlock the tilt cylinder, see "Hydraulic Lockup of Cab Tilt System", in [Subject 050](#).

8. Put the safety stop on the tilt cylinder in place.

The safety stop prevents the cab from dropping below a specific angle. See [Fig. 2](#).

### DANGER

**Make sure the tilt safety stop is pushed down onto the tilt cylinder rod. If the tilt safety stop is not engaged, and the cab drops, the result could be serious injury or death.**

9. Continue to operate the pump handle until the cab has reached the 42-degree, fully open position.

## Cab Tilting

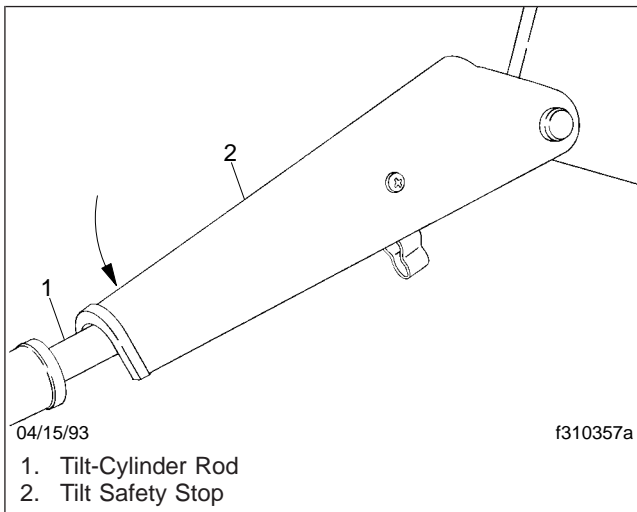


Fig. 2, Tilt Safety Stop Positioning

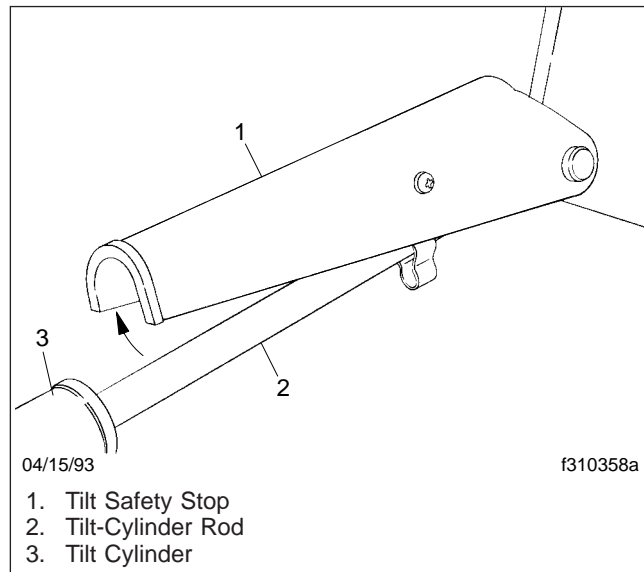


Fig. 3, Releasing the Tilt Safety Stop

## Lowering the Cab



Stay completely clear of the cab's travel path at all times. Once the tilt safety stop has been released, do not lean over the frame rails, the engine, or the transmission for any reason. To do so could result in serious injury or death.

1. Secure all loose articles in the cab and make sure the doors are securely latched.
2. Make sure the parking brakes are applied and there are no obstructions in the cab travel path.
3. Lift the safety stop up until it no longer rests on the tilt cylinder rod. See Fig. 3. The cab may need to be raised if the safety stop is resting against the tilt cylinder rod.
4. Move the pump control lever to the RETURN position. The cab will automatically begin to return to the operating position.

NOTE: To slow the descent of the cab, reverse the tilt pump lever.

5. After the cab is completely lowered, check the indicator pin on each cab mount. The cab mounts are locked when the pins have moved back into the piston and the cylinder spring assembly. If the pins are out, the cab mounts are not locked. See Fig. 1. Raise and lower the

pump handle until the cab is completely lowered and the cab mounts are locked.

IMPORTANT: If the cab stops moving while it is being raised, do not force it to move with the tilt pump. The velocity fuses have locked up the tilt cylinder. To unlock the tilt cylinder, see "Hydraulic Lockup of Cab Tilt System", in [Subject 050](#).

6. Make sure the pump control lever is in the RETURN position.
7. Remove the pump handle and return it to its stored location.
8. Remove the chocks from the tires.

## Bleeding the System

A "spongy" feeling (cylinders do not move when the pump handle is operated) indicates air in the cab-tilt system. Use the following procedures to remove the air from the cab-tilt system.

**IMPORTANT:** With the exception of bleeding the *pull* port fittings on the tilt cylinders, and the hydraulic cab latches, never bleed any part of the system while the cab is tilted.

### Bleeding the Tilt Cylinder



**Before doing the work below, review the cab tilting information in [Subject 060](#). Failure to read the warnings and to be aware of the dangers of tilting and returning the cab could result in serious injury or death.**

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine, and chock the rear tires.
2. With the cab completely returned and the tilt cylinder retracted, loosen the *push* port fitting on the tilt cylinder. Do not disconnect the hose from the fitting. Place the control lever in the TILT position, and operate the tilt pump until a bubble-free stream of hydraulic fluid flows from the *push* ports on the tilt cylinder.
3. Tighten the *push* port fitting on the tilt cylinder.
4. Fill the tilt pump reservoir until hydraulic fluid appears in the fill port. Install and tighten the fill plug. See [Specifications, 400](#) for the specified hydraulic fluid. Do not use engine oil, brake fluid, or automatic transmission fluid.
5. Tilt the cab to the full-tilt position. See [Subject 060](#).
6. Loosen the *pull* port fitting on the tilt cylinder. Place the control lever in the RETURN position, and operate the tilt pump until a bubble-free stream of hydraulic fluid flows from the *pull* port fitting on the cylinder.
7. Tighten the *pull* port fitting on the tilt cylinder.



**Stay completely clear of the cab's travel path at all times. Once the tilt safety stop has been released, don't lean over the frame rails, the engine, or the transmission for any reason. To do so could result in serious injury or death.**

8. Return the cab to the operating position. See [Subject 060](#).
9. Fill the tilt pump reservoir until hydraulic fluid appears in the fill port. Install and tighten the fill plug. See [Specifications, 400](#) for the specified hydraulic fluid. Do not use engine oil, brake fluid, or automatic transmission fluid.
10. Tilt the cab fully and return it to the lowered position. See [Subject 060](#). Fill the tilt pump reservoir until hydraulic fluid appears in the fill port. Use only specified hydraulic fluid. Install and tighten the fill plug.

### Bleeding the Hydraulic Cab Latches



**Before doing the work below, review the cab tilting information in [Subject 060](#). Failure to read the warnings and to be aware of the dangers of tilting and lowering the cab could result in serious injury or death.**

Since the hydraulic cab latches are mounted higher in the system than the tilt pump, air going to them will not discharge to the reservoir.

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine, and chock the rear tires.
2. Tilt the cab to the full-tilt position. See [Subject 060](#).
3. Push the free end of the tilt safety stop down onto the rod of the tilt cylinder.
4. Put the pump control lever into the RETURN position. Operate the tilt pump until the cab goes over-center. Let the cab settle onto the tilt safety stop.
5. Loosen the hydraulic fitting on the cab latch.
6. Put the pump control lever in the TILT position; then operate the tilt pump until a bubble-free

### Bleeding the System

stream of fluid flows from the fitting. Pump until about 2 fl oz (60 mL) of fluid flows from the fitting to ensure the entire line is free of air.

7. Tighten the cab latch fitting.
8. Put the pump lever in the RETURN position.
9. Loosen the fitting on the left cab latch.
10. Put the pump control lever in the TILT position; then operate the tilt pump until a bubble-free stream of fluid flows from the fitting. Pump until about 2 fl oz (60 mL) of fluid flows from the fitting to ensure the entire line is free of air.
11. Tighten the cab latch fitting.
12. With the pump control lever still in the TILT position, operate the tilt pump just enough to take the weight off the tilt safety stop; then release the tilt safety stop, and lock it in the spring catch.
13. Return the cab to its normal operating position. See **Subject 060**.
14. Fill the tilt pump until hydraulic fluid appears in the fill port. See **Specifications 400** for specified hydraulic fluid. Don't use engine oil, brake fluid, or automatic transmission fluid.
15. Install the fill plug and tighten it firmly.
16. Remove the chocks from the tires.

## Troubleshooting Tables

**Problem—Cab Fails to Tilt or Fails to Return from Tilt When Using Manual Pump Lever, but Hydraulic Pressure Builds In System**

<b>Problem—Cab Fails to Tilt or Fails to Return from Tilt When Using Manual Pump Lever, but Hydraulic Pressure Builds In System</b>	
<b>Possible Cause</b>	<b>Remedy</b>
Cab latch binding or failing to unlatch.	Check the cab latch release mechanism.
Plugged orifice at the bottom of the spool in the tilt pump.	Replace or rebuild the tilt pump.
Control lever in the wrong position.	Put the control lever in the correct position.
Worn seals or O-rings in the tilt pump.	Replace or rebuild the tilt pump.
Hoses blocked.	Replace the hoses.
<i>Push</i> and <i>pull</i> lines crossed.	Check for correct installation.
Internal leak in tilt pump.	Repair or replace the tilt pump.
Internal leak in tilt cylinder.	Repair or replace the tilt cylinder.
External leak.	Repair or replace the leaking part.
Air in hydraulic system.	Bleed the hydraulic system.

**Problem—Cab Stops Moving When in Controlled Fall**

<b>Problem—Cab Stops Moving When in Controlled Fall</b>	
<b>Possible Cause</b>	<b>Remedy</b>
Velocity fuses locked up.	Reverse the pump direction with the control lever, and operate the pump to unlock.
Plugged orifice.	Inspect, and clean or replace.
Tilt strut left engaged.	Disengage the tilt strut.

**Problem—Cylinder Velocity Fuses Are Locked Up**

<b>Problem—Cylinder Velocity Fuses Are Locked Up</b>	
<b>Possible Cause</b>	<b>Remedy</b>
Controlled fall rate is too fast.	Inspect the orifice in bottom of spool valve; replace or rebuild the tilt pump, if needed.
Air in the system.	Bleed the system.
Ruptured hydraulic line.	Replace the hydraulic line.

**Problem—Hydraulic Fluid Leaking at Hand Pump Plunger or Around Spool Valve**

<b>Problem—Hydraulic Fluid Leaking at Hand Pump Plunger or Around Spool Valve</b>	
<b>Possible Cause</b>	<b>Remedy</b>
Worn seals and O-rings.	Replace or rebuild the tilt pump.

## Troubleshooting

### Problem—Hydraulic Fluid Leak at the Tilt-Cylinder Gland

Problem—Hydraulic Fluid Leak at the Tilt-Cylinder Gland	
Possible Cause	Remedy
Worn seal on the gland.	Replace or rebuild the tilt cylinder.

### Problem—Tilt Pump Leaks Between the Pump Base and the Reservoir

Problem—Tilt Pump Leaks Between the Pump Base and the Reservoir	
Possible Cause	Remedy
Worn O-ring on the reservoir.	Replace the O-ring on the reservoir.
O-ring on the reservoir pinched.	Replace the O-ring, making sure it is properly positioned.

### Problem—Cab Drifts When in the Half-Raised Position

Problem—Cab Drifts When in the Half-Raised Position	
Possible Cause	Remedy
Worn spool valve seals.	Replace the spool valve seals or rebuild the tilt pump.
Worn piston seals inside the tilt cylinders.	Replace the piston seals or rebuild the tilt cylinders.
Control lever not all the way in the correct position.	Place the control lever in the correct position.

Torque Values				
Description	Size	Grade	Torque	
			lbf-in (N-cm)	lbf-ft (N-m)
Tilt Cylinder Mounting Capscrew	5/8-11	8	—	135 (183)
Tilt Cylinder Bracket Assembly Capscrew	5/8-11	8	—	135 (183)
Tilt Pump Cylinder	—	—	—	80 (108)
Tilt Pump Relief Valve	—	—	60 (680)	—
Tilt Pump Outlet Seat	—	—	—	19-21 (26-28)
Tilt Pump Reservoir Socket-Head Capscrews	1/4-20	7	96 (1080)	—
Push and Pull Port Fittings	—	—	96 (1080)	—
Tilt Pump Mounting Capscrews	3/8-16	8	—	28 (38)

**Table 1, Torque Values**

Hydraulic Fluid Types		
Component or Usage		Fluid Type
Tilt Pump Hydraulic Fluid	All Temperatures	Hydraulic Fluid* MIL-H-5606 specification, or equivalent *

\* The following vendor lubricants are approved: Texaco 1537 Aircraft Hydraulic Oil 15; Union Arctic Low Pour (-65) Hydraulic Fluid 04617; Filmite 530 Hydraulic Oil

**Table 2, Hydraulic Fluid Types**

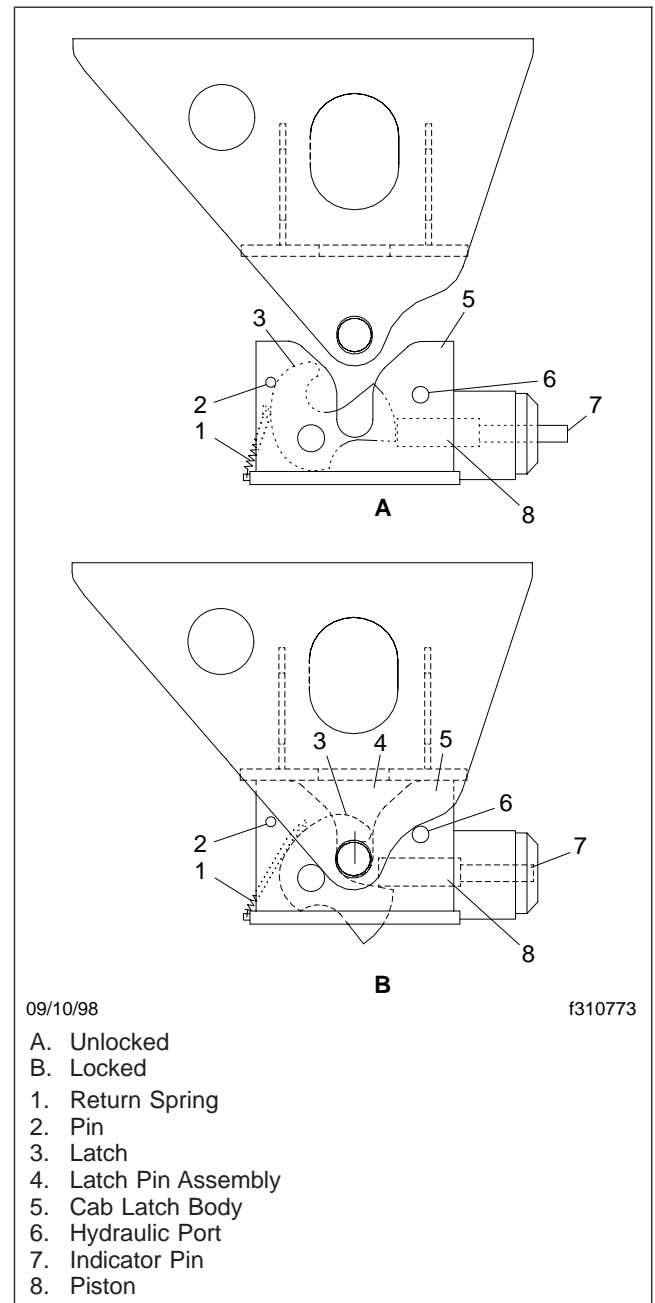


## General Information

A hydraulic cab latch assembly is located on each side of the cab, and is mounted on the cab suspension. The latches keep the cab secured to the frame and prevent any shifting or unwanted movement. When the latches are released (unlocked) the cab can be tilted. A latch pin assembly, mounted to the underside of the cab, fits into each cab latch assembly. The latch assembly consists of a body, a latch, a return spring, a piston, a piston spring (not shown), and an indicator pin.

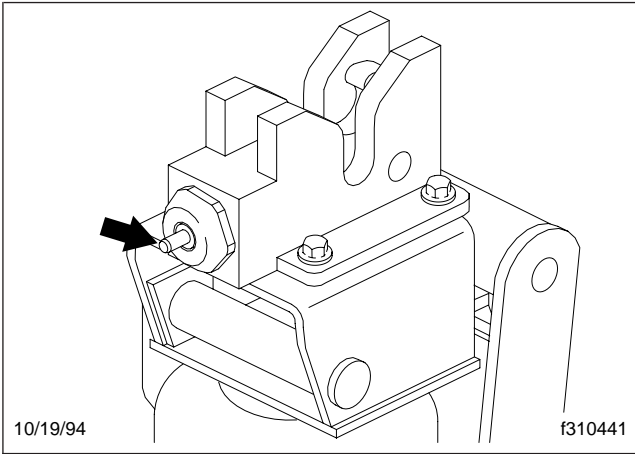
The cab latches are plumbed into the cab-tilt hydraulic system. They automatically open when the cab is tilted, and close and lock when the cab is lowered.

When the cab is latched, a spring inside the housing keeps the piston pushed up against the cam part of the latch, preventing the latch from releasing. When the cab is tilted, hydraulic pressure moves the piston outward, which allows the latch to be pulled up by the return spring, releasing the latch pin assembly. The cab is then free to tilt. As the cab is lowered, hydraulic pressure is released, and the latch pin assembly pushes on the cam part of the latch. The latch swings around, captures the pin, and the spring inside the housing pushes the cylinder back out and against the cam part of the latch. This locks the latch in place, securing the cab. Indicator pins let the driver know whether or not the latches are locked. If the pins are flush with the latch housing ends, the latches are locked; if they're sticking out, the latches are not locked. See [Fig. 1](#) and [Fig. 2](#).



**Fig. 1, Cab Latch Assembly**

## General Information



**Fig. 2, Cab Latch Assembly**

## Cab Latch Replacement

## Replacement (See Fig. 1 )

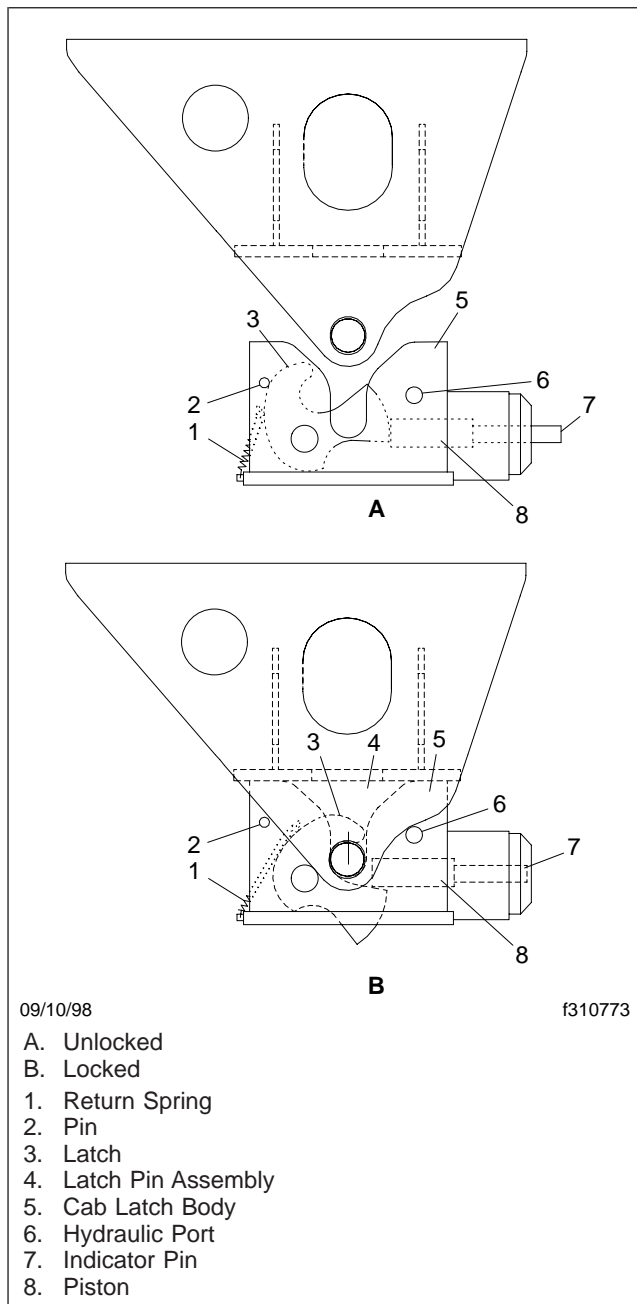


Fig. 1, Cab Latch Assembly



Before tilting the cab or returning the cab to the

normal operating position. Read the instructions and hazard notices in [Section 60.00](#) of this workshop manual. Failure to follow these instructions could cause the cab to fall and hit or crush a person, which will result in severe injury or death.

1. Park the vehicle on a level surface and apply the parking brake. Shut down the engine. Chock the rear tires.
2. Tilt the cab.
3. Disconnect the batteries.
4. Using a container to catch any hydraulic fluid, disconnect the hydraulic lines from the lower cab latch assemblies.
5. Loosen and remove the capscrews, the washers, the locknuts, and the spacers that attach the latches to the cab suspension bracket. Also remove the two lower rubber isolators from the bottom of the suspension bracket.
6. Remove the hydraulic cab latch, and the two upper rubber isolators from the top of the suspension bracket.
7. Position the hydraulic cab latch, and the two upper rubber isolators, in place on the top of the cab suspension bracket.
8. Position the two lower rubber isolators to the bottom of the suspension bracket and install the 3/8-16 capscrews, the washers, the locknuts, and the spacers. Tighten the locknuts finger tight.
9. Connect the hydraulic lines to the cab latch.
10. Connect the batteries.
11. Bleed the cab-tilt system, following the instructions in [Section 60.00](#) of this workshop manual.
12. To align the cab latch in the proper location, lower the cab until the cab latch pins engage.
13. Tilt the cab until the latch pins disengage. Make sure the tilt strut is pushed down over the tilt-cylinder rod.
14. Tighten the locknuts on the cab latch 28 lbf-ft (38 N-m).
15. Return the cab to the operating position.
16. Remove the chocks from the tires.

## Replacement



Before tilting the cab or returning the cab to the normal operating position. Read the instructions and hazard notices in [Section 60.00](#) of this workshop manual. Failure to follow these instructions could cause the cab to fall and hit or crush a person, which will result in severe injury or death.

1. Park the vehicle on a level surface and apply the parking brake. Shut down the engine. Chock the rear tires.
2. Tilt the cab.
3. Remove the locknuts that attach the latch pin assembly to the underside of the cab. Remove the latch pin assembly.
4. Install the new latch pin assembly onto the studs on the underside of the cab.
5. Loosely Install the locknuts on the studs. Make sure the latch pin assembly can move from side-to-side.
6. Lower the cab. The latch pins will align with the cab latches and set into place on the cab mounting brackets.
7. Tighten one locknut firmly on the latch pin to hold it in place.
8. Tilt the cab far enough to engage the tilt strut.
9. Tighten all the locknuts 28 lbf·ft (38 N·m).
10. Return the cab to the operating position.
11. Remove the chocks from the tires.

## Windshield Replacement

## Replacement

If a windshield is cracked, carefully inspect the glass, seal, and flange to determine the cause. Correct the cause before installing a new windshield.

**CAUTION**

**Failure to correct the cause of a windshield crack may cause the replacement windshield to crack when exposed to high winds, pressure, temperature extremes, or vehicle motion.**

NOTE: At least two people are needed to replace a windshield.

1. Park the vehicle on a level surface, apply the parking brake, shut down the engine, and chock the rear tires.
2. Remove the windshield wiper arms. See [Group 82](#) for instructions.
3. Protect the paint finish and instrument panel by taping paper around the windshield opening. Before removing the windshield, mark the location of the crack on the windshield seal and flange.
4. Attach a suction device to the outside of the windshield for support and lifting.

**WARNING**

**When handling windshield glass, wear protective gloves to protect your hands from sharp edges and to allow a better grip. Not wearing protective gloves when handling glass could result in personal injury.**

5. Using a windshield pick, ( [Fig. 1](#) ) remove the lockstrip, ( [Fig. 2](#) ). Note the starting position of the lockstrip for later installation.
6. Apply pressure to the edge of the glass from the inside. At the same time, use a windshield pick to lift the glass out of the seal. Remove the windshield.
7. Check inside the seal for high spots or obstructions that could have caused the glass to crack. Check for wear, nicks, or cuts. Replace the seal if necessary.

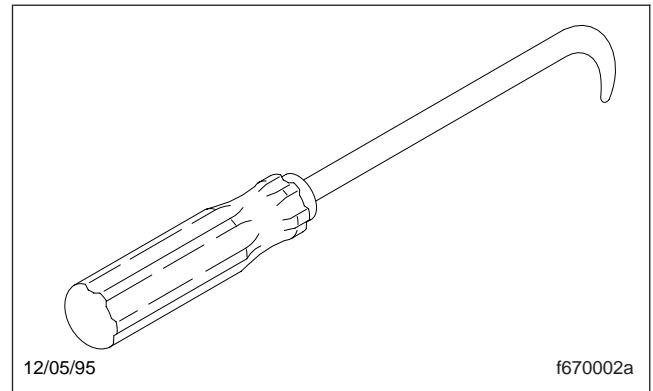


Fig. 1, Typical Windshield Pick

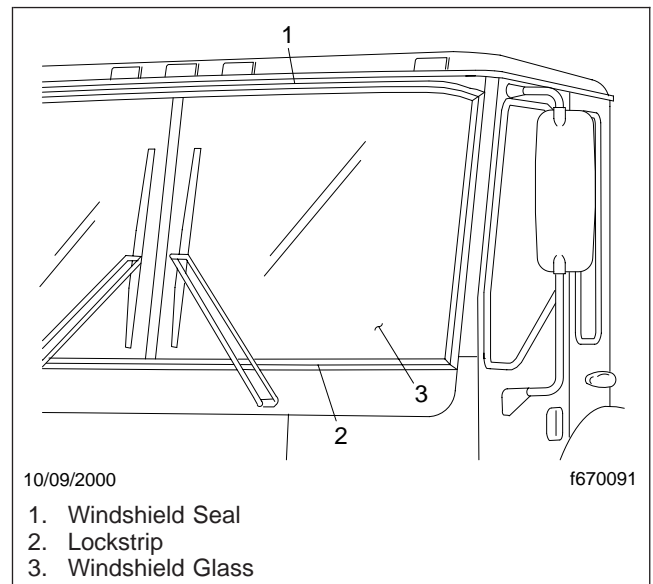


Fig. 2, Lockstrip

- 7.1 Clean the windshield opening to remove any dirt or other foreign matter from inside the seal.
- 7.2 Check for the following conditions at the point where the windshield cracked:
  - Chipped edges on the removed glass. This could indicate a high spot on the windshield seal.
  - High spots or obstructions on the seal and surrounding surfaces.
- 7.3 Mark any problem areas on the seal, and correct as necessary.

## Windshield Replacement

8. Lubricate the seal with a soap-and-water solution.
9. Attach a suction device to the outside of the windshield. Lift and slide the glass into the bottom of the seal channel as far as it will go without forcing it. See [Fig. 3](#).

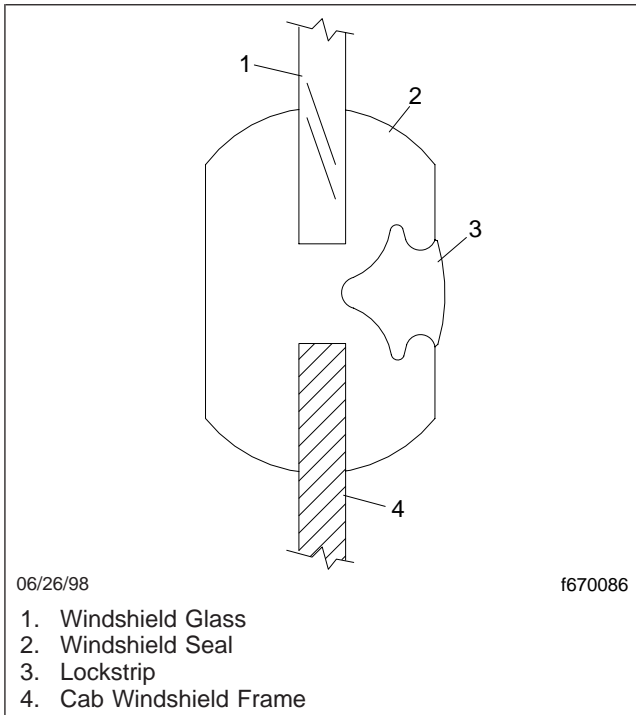


Fig. 3, Windshield Seal

10. Work the rubber seal around the outside edge of the glass, with the glass in its seal groove.
11. Lubricate the lockstrip and lockstrip channel with a soap-and-water solution.
12. Insert the bead spreader into the lockstrip channel at the starting position previously noted. See [Fig. 4](#). Then insert the lockstrip into the eye of the spreading tool. Move the bead spreader in the channel, while feeding the lockstrip into the channel. See [Fig. 5](#). Do not let the lockstrip twist: it should lay flat in the channel. Cut off any excess lockstrip and tuck the end into the channel.
13. Clean both sides of the new windshield glass.
14. Install the wiper arms. See [Group 82](#) for instructions.

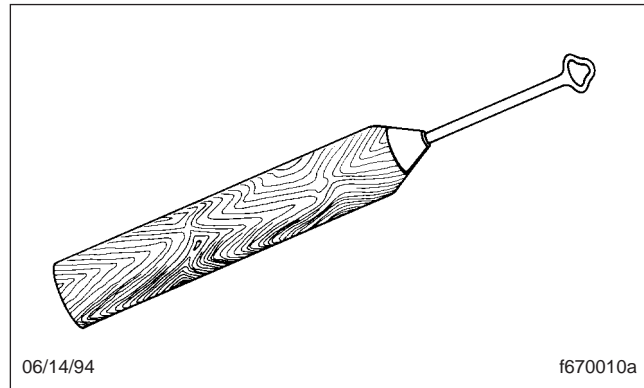


Fig. 4, Typical Bead Spreader

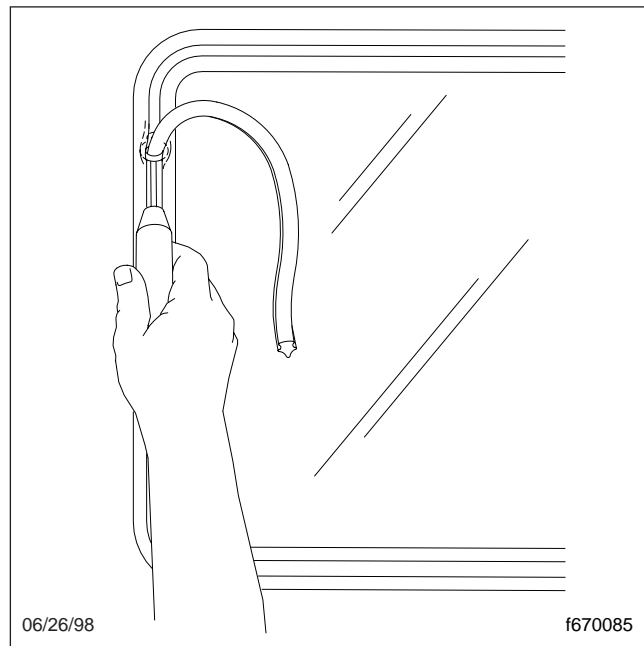


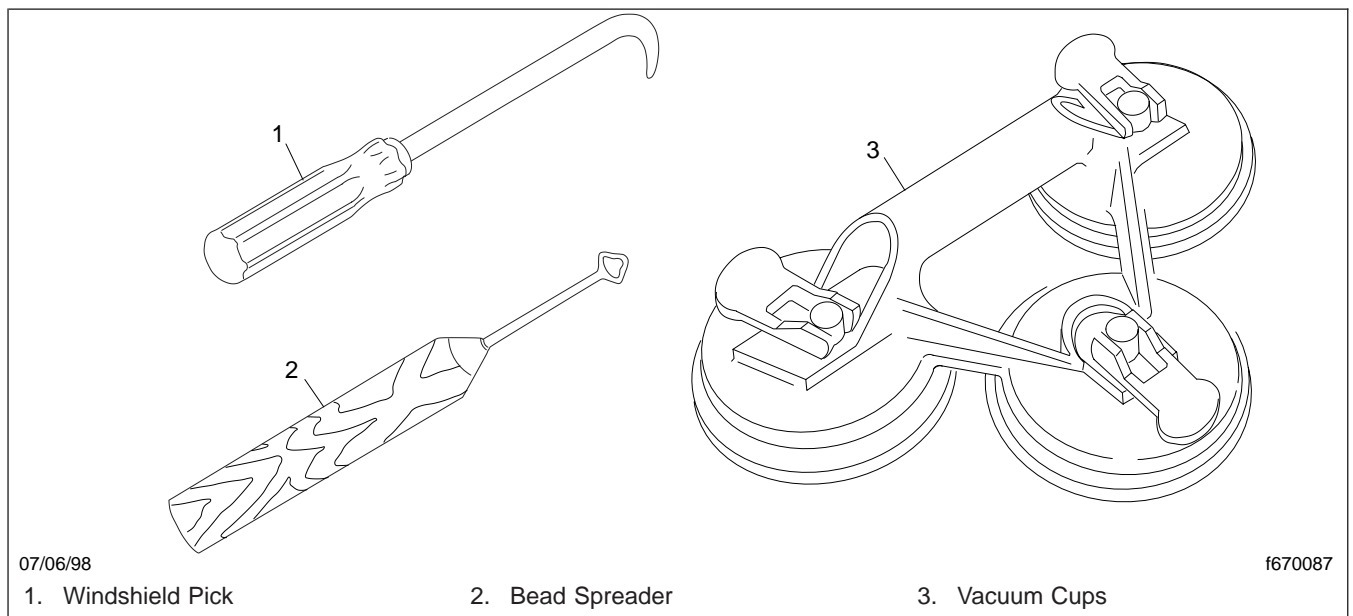
Fig. 5, Feeding the Lockstrip into the Channel

15. Remove the protective coverings from the dash and the painted surfaces.
16. Remove the chocks from the tires.

The tools in **Fig. 1**, and others, can be purchased from the following distributors:

Sommer & Maca  
5501 West Ogden Avenue  
Chicago, IL 60650  
1-800-323-9200

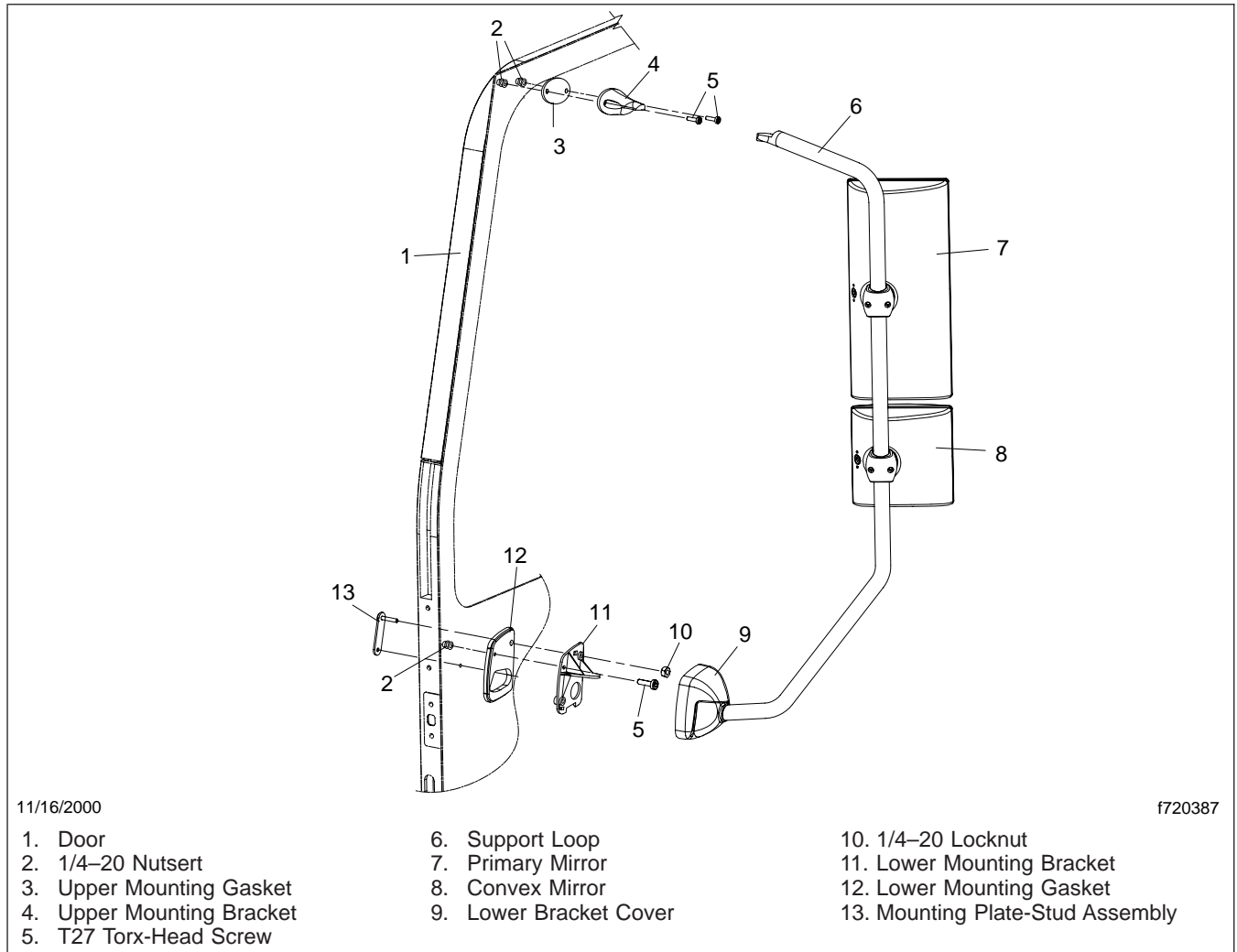
C.R. Laurence Co., Inc.  
P.O. Box 21345  
Los Angeles, CA 90021-0345  
1-800-421-6144



**Fig. 1, Windshield Tools**

## General Information

This vehicle uses the West Coast-style mirror assembly. The West Coast-style mirror assembly usually consists of two mirrors mounted on the door or cab by a fold-away tubular support loop. See [Fig. 1](#).



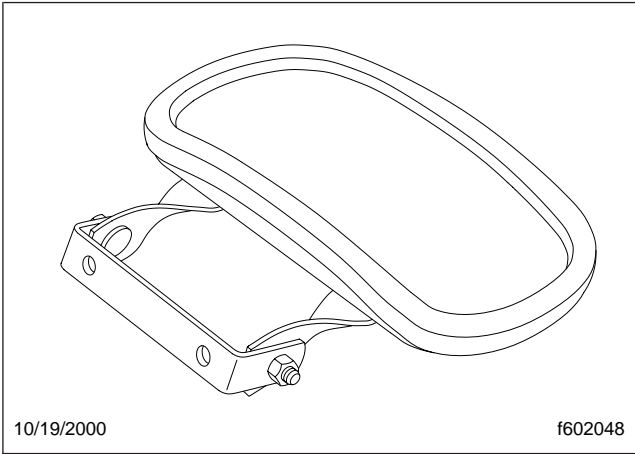
**Fig. 1, Door Mounted Mekra Mirrors, West Coast Style**

The West Coast-style mirror assembly has the option of a convex mirror. The convex mirror mounts above or below the primary mirrors, on the tubular support loop.

Another optional mirror on this vehicle is the down view mirror which can be mounted above the right-side or left-side doors. See [Fig. 2](#).



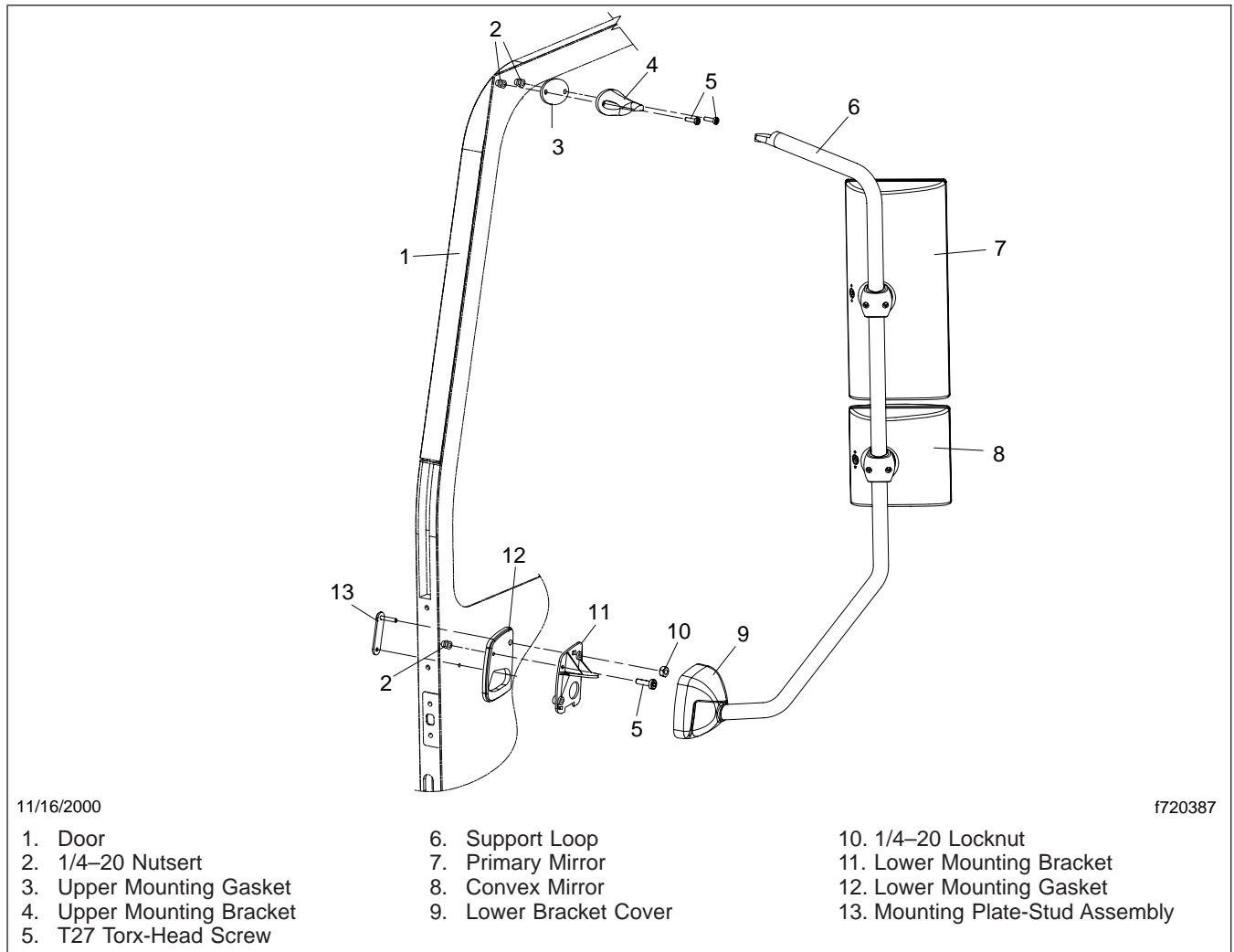
## General Information



**Fig. 2, Downview Mirror**

## Door Mounted West Coast Mirrors Removal and Installation

### Removal (See Fig. 1)



**Fig. 1, Door Mounted Mekra Mirrors, West Coast Style**

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine, and chock the rear tires.
2. Remove the support loop and mirror assembly from the vehicle.
  - 2.1 Remove the plastic cover on the lower mounting bracket.
  - 2.2 Remove the T27 Torx®-head screw, and the locknut securing the support loop lower mounting bracket to the door.
  - 2.3 Remove the lower mounting gasket from the door.
  - 2.4 Remove the capscrew, the locknut, and the washer securing the support loop to the upper mounting bracket, and remove the support loop.
3. If replacing the upper mounting bracket, remove it from the door by removing the two T27 Torx-head screws.

## Door Mounted West Coast Mirrors Removal and Installation

4. Remove the upper mounting gasket from the door.
5. If an individual mirror is being replaced, remove the mirror by removing the two allen-head screws that secure the mirror clamp to the support loop.

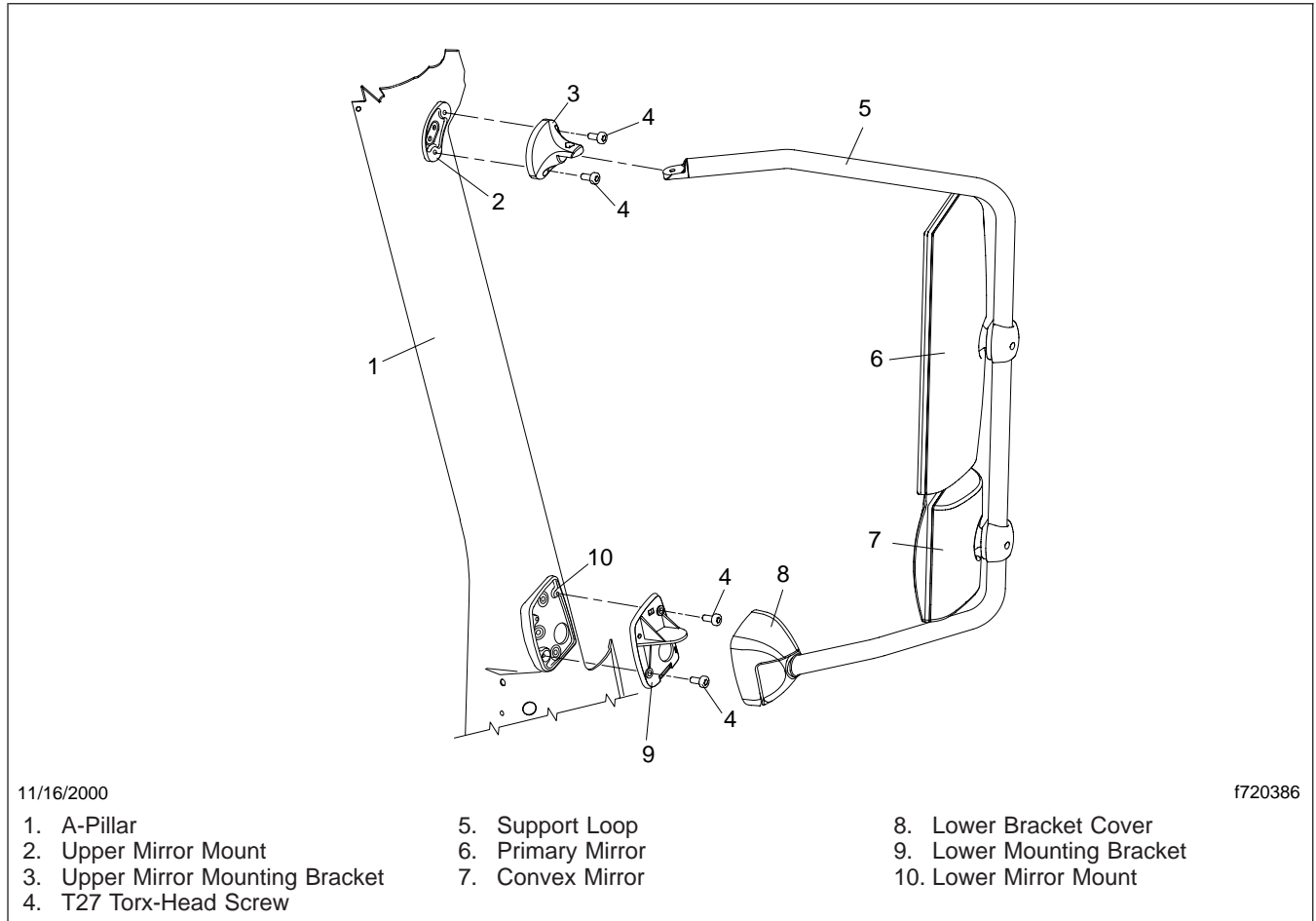
### Installation (See Fig. 1)

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1. If a mirror assembly was removed, attach a new mirror to the support loop with the two allen-head screws and clamp. Tighten securely.
2. If it was removed, attach the upper mounting bracket and gasket to the door with the two T27 Torx-head screws. Tighten securely.
3. Install the support loop and mirror assembly on the door.
  - 3.1 Install the support loop lower mounting bracket and gasket on the door with the T27 Torx-head screw, and the locknut. Tighten securely.
  - 3.2 Install the support loop on the upper mounting bracket with the capscrew, the locknut, and the washer. Tighten securely.
4. Manually test the mirrors for proper movement.
5. Remove the chocks from the tires.

## A-Pillar Mounted West Coast Mirrors Removal and Installation

### Removal (See Fig. 1)



**Fig. 1, A-Pillar Mounted Mekra Mirrors, West Coast Style**

- Park the vehicle on a level surface, apply the parking brakes, shut down the engine, and chock the rear tires.
- Remove the support loop and mirror assembly from the vehicle.
  - Remove the plastic cover on the lower mounting bracket.
  - Remove the two T27 Torx®-head screws securing the support loop lower mounting bracket to the A-pillar lower mirror mount.
  - Remove the capscrew, the locknut, and the washer securing the support loop to the upper mounting bracket, and remove the support loop.
- If replacing the upper mounting bracket, remove it from the A-pillar upper mirror mount by removing the two T27 Torx-head screws.
- If an individual mirror is being replaced, remove the mirror by removing the two allen-head screws that secure the mirror clamp to the support loop.

### Installation (See Fig. 1)

- If a mirror assembly was removed, attach a new mirror to the support loop with the two allen-head screws and clamp. Tighten securely.

### A-Pillar Mounted West Coast Mirrors Removal and Installation

2. If it was removed, attach the upper mounting bracket to the A-pillar upper mirror mount with the two T27 Torx-head screws. Tighten securely.
3. Install the support loop and mirror assembly on the A-pillar.
  - 3.1 Install the support loop lower mounting bracket on the A-pillar lower mirror mount with the two T27 Torx-head screws. Tighten securely.
  - 3.2 Install the support loop on the upper mounting bracket with the capscrew, the locknut, and the washer. Tighten securely.
4. Manually test the mirrors for proper movement.
5. Remove the chocks from the tires.

## Replacement

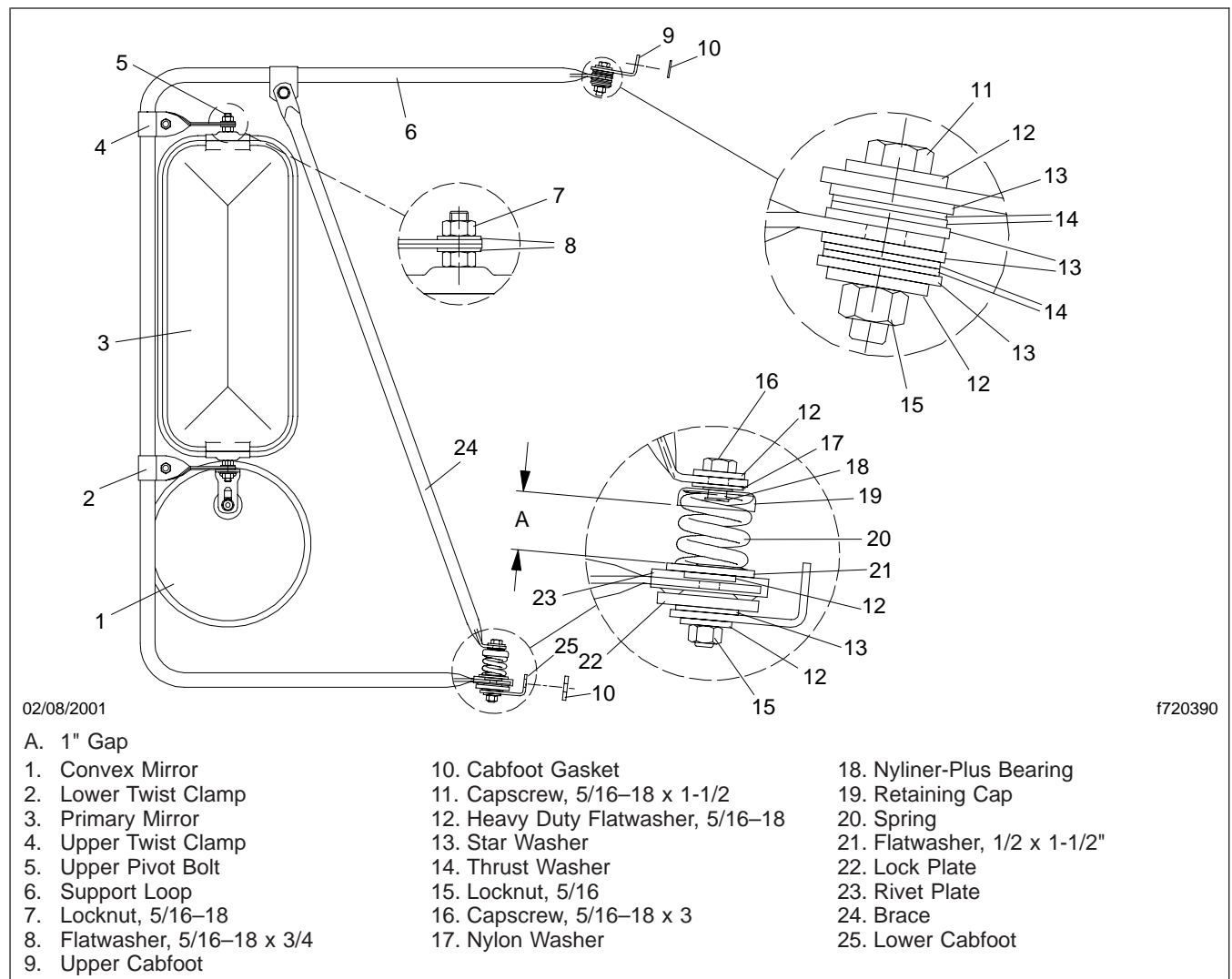
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NOTE: A down view mirror is typically mounted at the top of the right-side or left-side doors.

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine, and chock the rear tires.
2. Remove the two T27 Torx®-head screws securing the down view mirror to the cab, and remove the mirror.
3. Position a new down view mirror on the cab.
4. Install the two T27 Torx-head screws that attach the mirror to the cab. Tighten the screws securely.
5. Manually test the mirror for proper movement.
6. Remove the chocks from the tires.

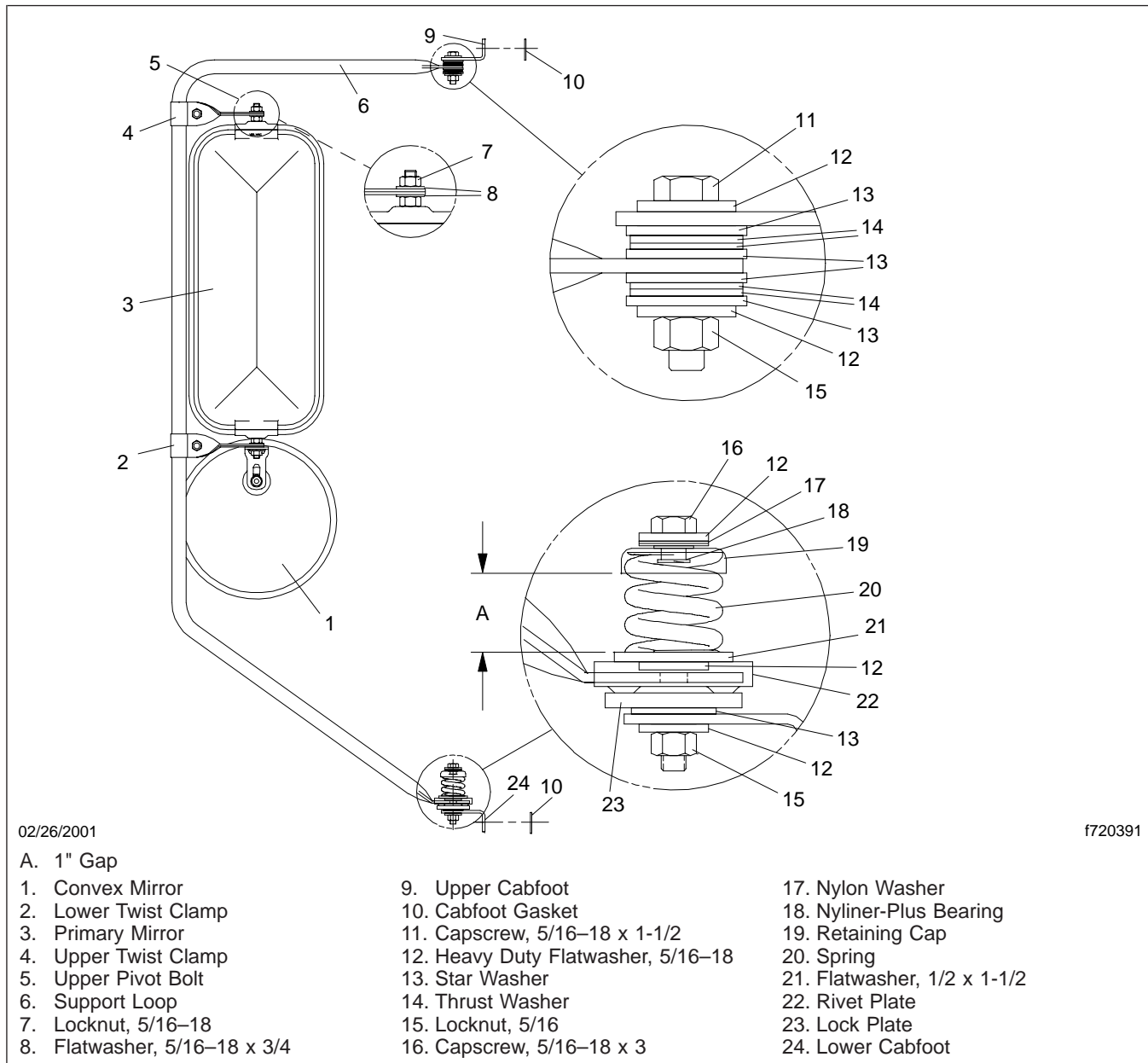
## General Information

The Velvac mirror assembly usually consists of a 7 by 16 inch (18 by 40 cm) wide angle primary mirror and an optional 8 inch (20 cm) circular convex mirror, mounted to the door frame or the A-pillar with a fold-away tubular support loop. See [Fig. 1](#) and [Fig. 2](#).



**Fig. 1, A-Pillar Mounted Velvac Mirror Assembly**

## General Information



**Fig. 2, Door Mounted Velvac Mirror Assembly**



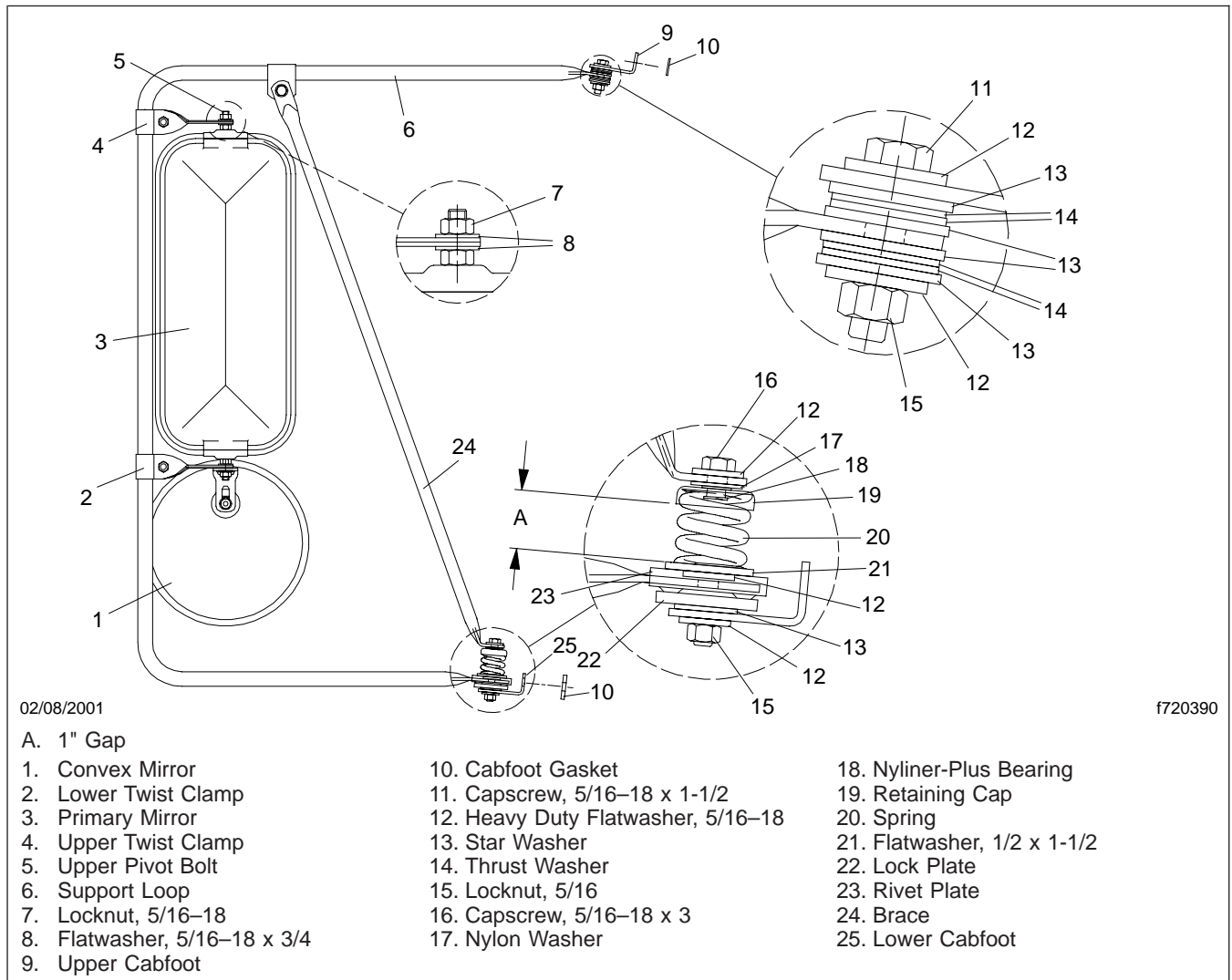
## Velvac Mirrors Removal and Installation

## Removal

See **Fig. 1** for the A-pillar mounted Velvac mirror assembly, and **Fig. 2** for the door mounted Velvac mirror assembly.

L-bracket to the primary mirror. Remove the convex mirror.

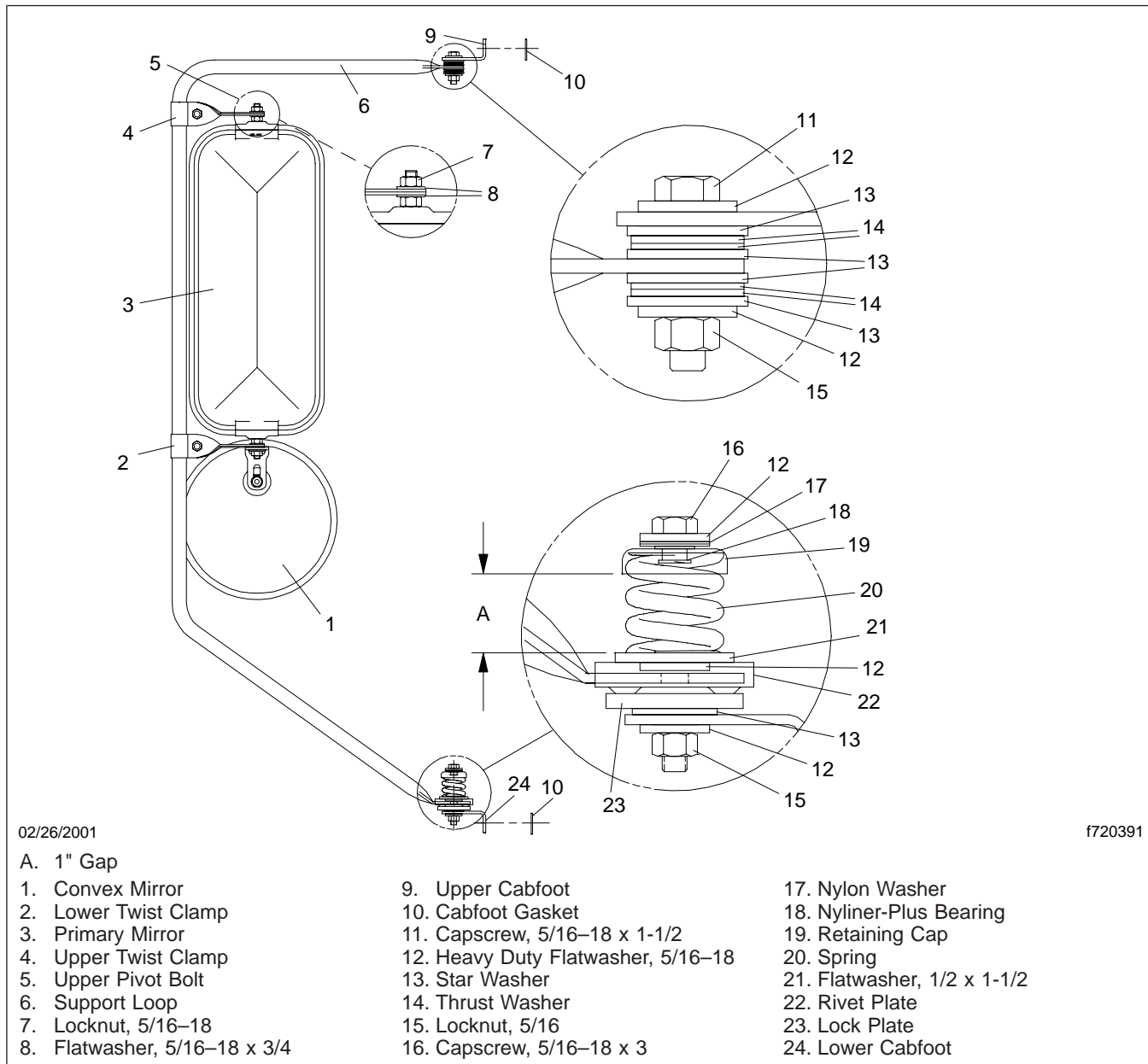
3. Remove the locknut and washers securing the upper pivot bolt on the primary mirror to the up-



**Fig. 1, A-Pillar Mounted Velvac Mirror Assembly**

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine, and chock the rear tires.
2. If a convex mirror is mounted to the lower pivot bolt on the primary mirror, remove the locknut and washers securing the convex mirror and per twist clamp.
4. Remove the mirror from the support loop.
5. If a twist clamp is being replaced, remove the capscrew and locknut that secures the clamp to the support loop and remove the clamp.

## Velvac Mirrors Removal and Installation



**Fig. 2, Door Mounted Velvac Mirror Assembly**

### Installation

1. If a twist clamp was removed, attach a new clamp to the support loop with the capscrew and locknut. Tighten 100 to 125 lbf-in (1100 to 1400 N-cm).
2. Loosely install a new mirror between the twist clamps. Make sure the drain hole is down.
3. Adjust the mirror to the proper viewing position.

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## Velvac Mirrors Removal and Installation

4. Secure the upper pivot bolt on the primary mirror to the upper twist clamp with the locknut and washers. Tighten 100 to 125 lbf-in (1100 to 1400 N-cm).
5. Secure the lower pivot bolt on the primary mirror to the lower twist clamp with the locknut and washers. Tighten 100 to 125 lbf-in (1100 to 1400 N-cm).
6. Attach the convex mirror and L-bracket to the lower pivot bolt on the primary mirror with the locknut and washers. Make sure the drain hole is down. Tighten 100 to 125 lbf-in (1100 to 1400 N-cm).
7. Remove the chocks from the tires.

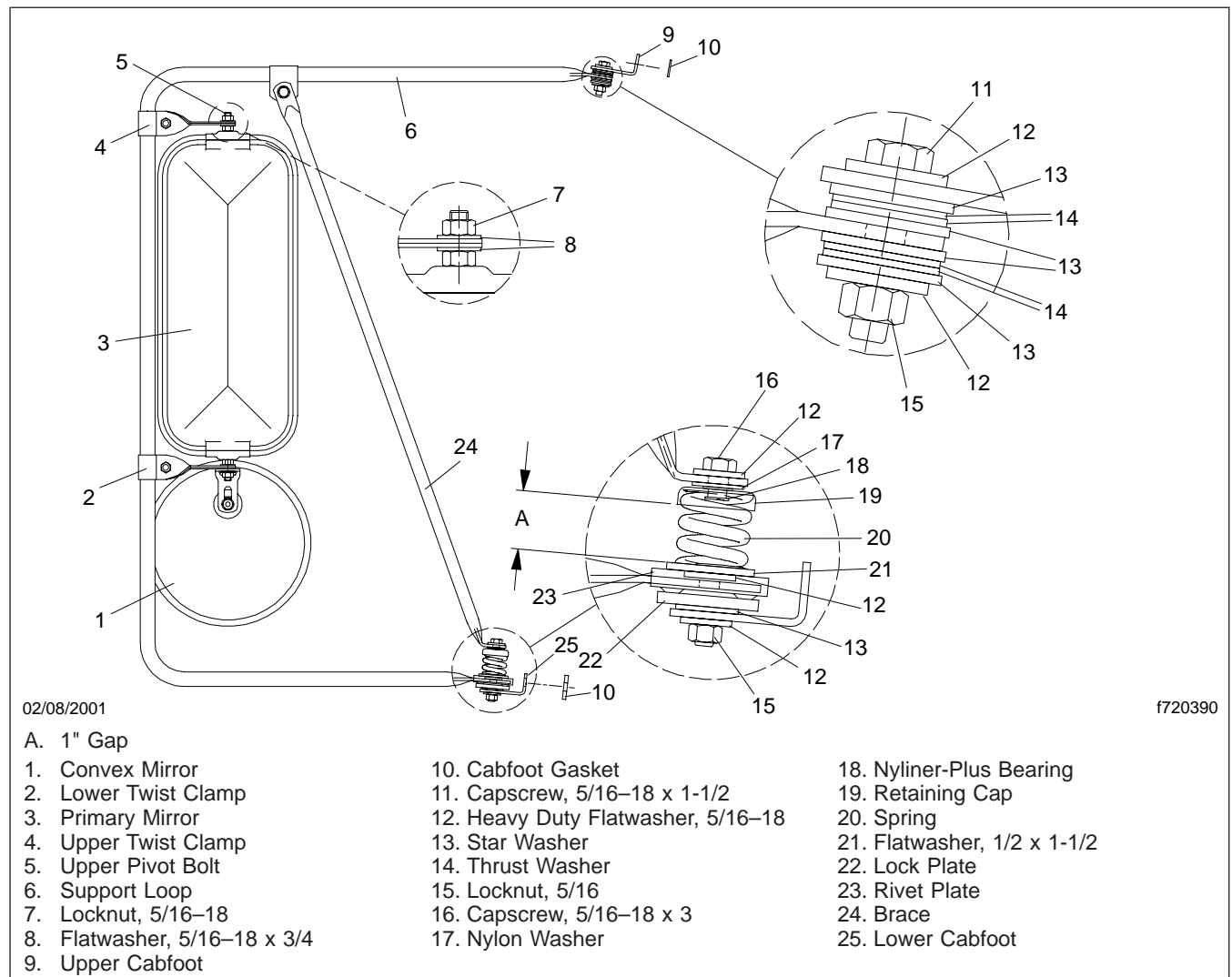
## Support Loop Removal and Installation

## Removal

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine, and chock the rear tires.
2. Remove the support loop from the vehicle. See **Fig. 1** for the A-pillar mounted mirror assembly and **Fig. 2** for the door mounted mirror assembly.

- 2.1 Remove the 1-1/2 inch capscrew, the washers, the thrust washers and the locknut that secures the support loop to the upper cab foot.

**NOTE:** Be sure to note the order in which the mounting hardware is installed on the lower cab foot.

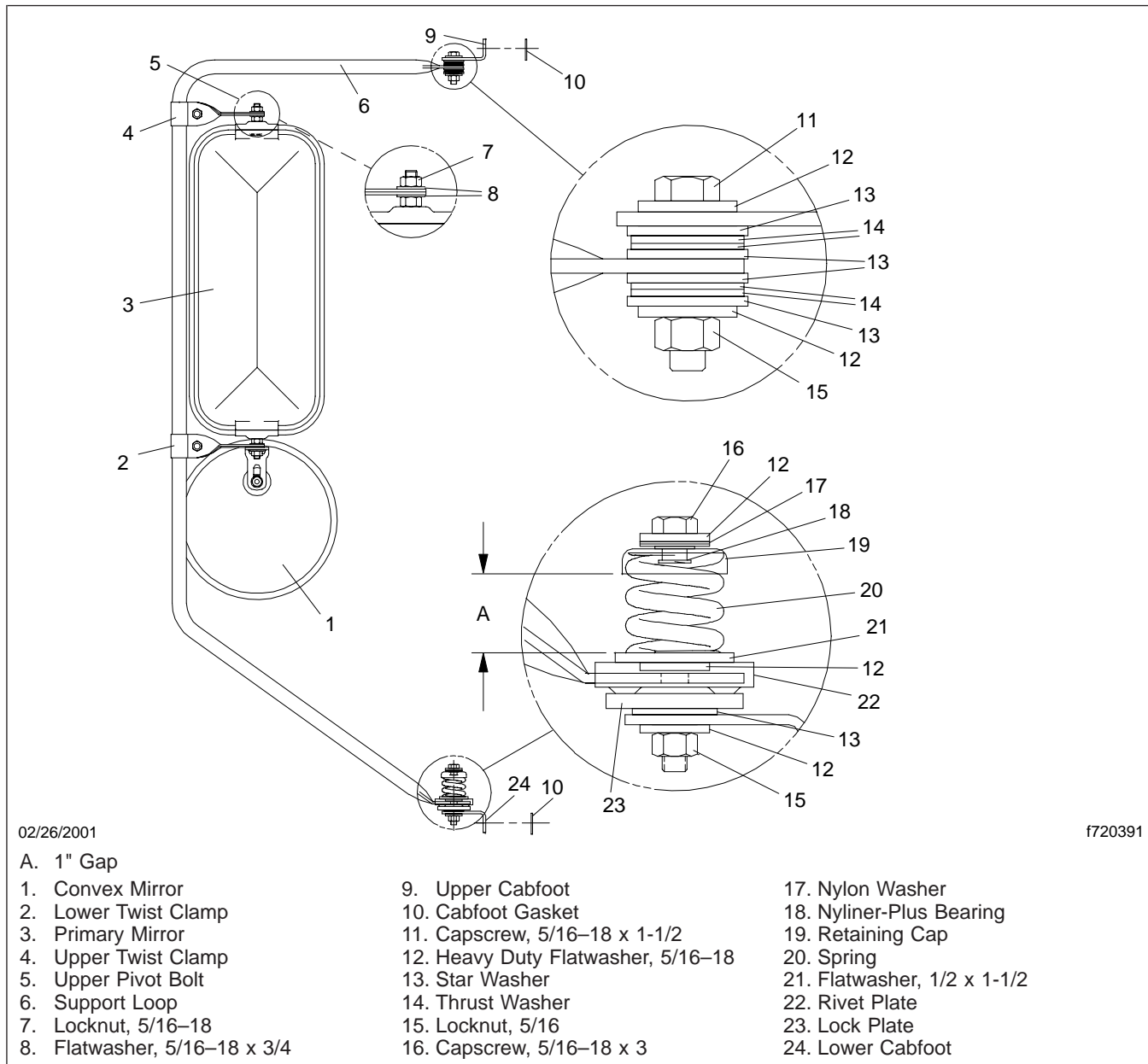


**Fig. 1, A-Pillar Mounted Velvac Mirror Assembly**

**NOTE:** Be sure to note the order in which the washers are installed on the upper cab foot.

- 2.2 With an assistant holding the support loop, carefully remove the 3 inch capscrew, the locknut, and the mounting

## Support Loop Removal and Installation



**Fig. 2, Door Mounted Velvac Mirror Assembly**

hardware that secures the support loop to the lower cab foot. See [Fig. 1](#) and [Fig. 2](#).

- 2.3 Remove the support loop from the vehicle.

3. If a cab foot is being replaced, remove the two mounting screws securing the cab foot to the vehicle and remove the cab foot and gasket.

## Installation

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1. If a cab foot was removed, attach a new cab foot and gasket to the vehicle with the two mounting screws. Tighten the screws securely

NOTE: Install the locknut on the upper cab foot with the embossed triangle facing down, away from the capscrew head.

NOTE: When assembling the four thrust washers make sure that each pair has the gray sides facing each other.

2. Attach the support loop to the upper cab foot with the 1-1/2 inch capscrew, the washers, and the thrust washers. See [Fig. 1](#) and [Fig. 2](#) for the order in which the washers are installed. Finger-tighten only.
3. Insert the Nyliner bearing with the flange up, into the retaining cap.
4. Assemble the 3 inch capscrew through the mounting hardware.
5. Before screwing on the lock plate, apply lithium or marine grade grease on the pins of the rivet plate.
6. Thread the lock plate on the rivet plate with the star pattern facing down. Tighten the lock plate, making sure the points in the rivet plate are aligned in the holes of the lock plate. Continue to tighten until there is a 1 inch gap (Ref. A.) between the bottom of the retaining cap at the top of the spring (Ref. 19) and the top of the flat washer located below the spring (Ref. 21).

NOTE: Install the locknut on the lower cab foot with the embossed triangle facing down, away from the capscrew head.

7. Install the locknut. Finger-tighten only.
8. Adjust the mirror to the proper viewing position.

NOTE: Do not tighten the locknuts at high speeds, this will cause galling of the capscrew and the locknut.

9. Tighten the upper and lower locknuts 180–220 lbf-in (2000–2500 N-cm).
10. Remove the chocks from the tires.

Side and Rear Window Glass Replacement

Replacement (See Fig. 1 and Fig. 2)

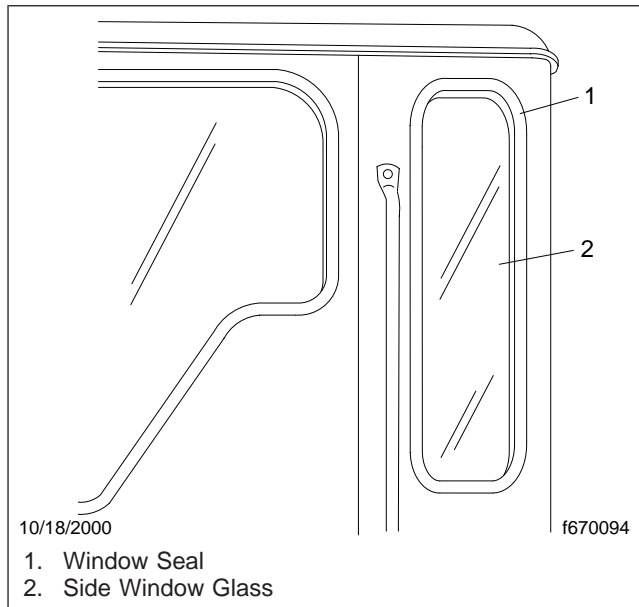


Fig. 1, Side Window

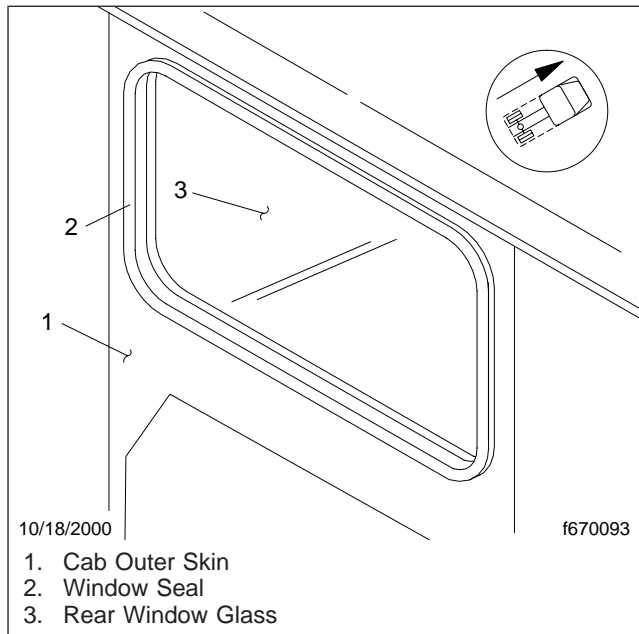


Fig. 2, Rear Window

If the window is cracked, carefully inspect the glass, seal, and flange to determine the cause. Correct the cause before installing a new window.

**CAUTION**

Failure to correct the cause of a window crack may cause the replacement window to crack when exposed to high winds, pressure, temperature extremes, or vehicle motion.

NOTE: At least two people are needed to replace a window.

1. Park the vehicle on a level surface, shut down the engine, apply the parking brakes, and chock the rear tires.
2. Protect the paint finish and interior panel by taping paper around the window opening. Before removing the window, mark the location of the crack on the window seal and flange.

**WARNING**

When handling window glass, wear protective gloves to protect your hands from sharp edges and to allow a better grip. Not wearing protective gloves when handling glass could result in personal injury.

NOTE: This window seal does not have a separate lock strip. The seal locks onto its self. The locking strip side of the seal faces the interior of the truck.

3. Remove the damaged glass. Using a windshield pick ( Fig. 3 ), unlock the lockstrip ( Fig. 4 ).

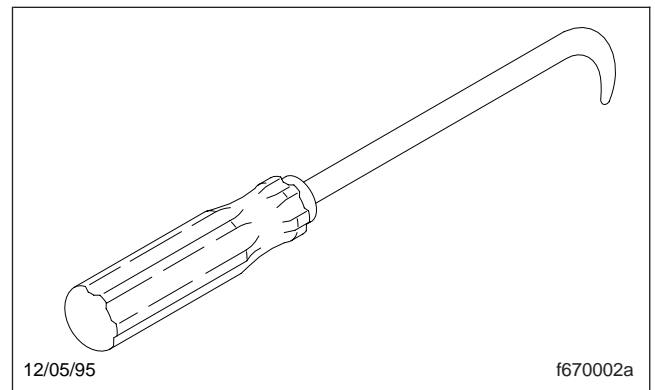
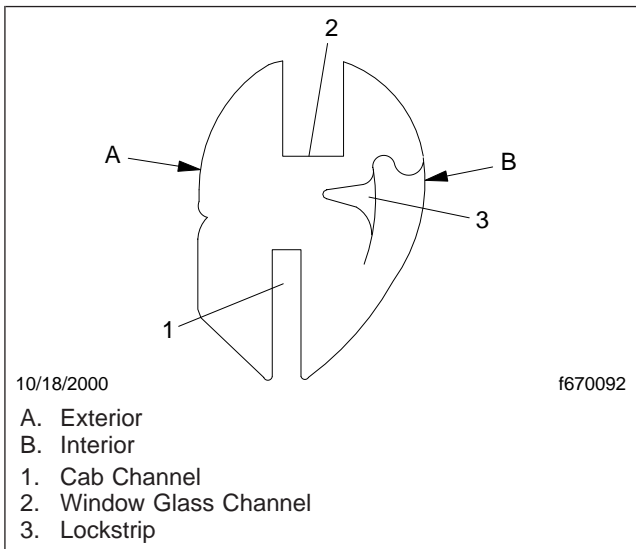


Fig. 3, Typical Windshield Pick

4. Check inside the seal for high spots or obstructions that could have caused the glass to crack.

## Side and Rear Window Glass Replacement



**Fig. 4, Glass Seal (cutaway view)**

Check for wear, nicks, or cuts. Replace the seal if necessary.

- 4.1 Clean the window opening to remove any dirt or other foreign matter from inside the seal.
- 4.2 Mark any problem areas on the seal, and correct as necessary.
5. Install a new seal, if necessary.
  - 5.1 Remove the old seal from the window opening.
  - 5.2 Lubricate the seal with a soap-and-water solution.
  - 5.3 Insert the new seal into the window opening of the cab.
6. Attach a suction device to the outside of the window. Lift and slide the glass into the bottom of the seal channel as far as it will go without forcing it. See [Fig. 4](#).
7. Work the rubber seal around the outside edge of the glass, with the glass in its seal groove.

**NOTE:** This window seal does not have a separate lock strip. The seal locks onto its self. The locking strip side of the seal faces the interior of the truck.

8. Using the windshield gasket installer or equivalent blunt tool, flip the outer lip of the seal into the locked position. See [Fig. 5](#).
9. Clean both sides of the new window glass.
10. Remove the protective coverings from the interior panel and the painted surfaces.
11. Remove the chocks from the tires.



Side and Rear Window Glass Replacement

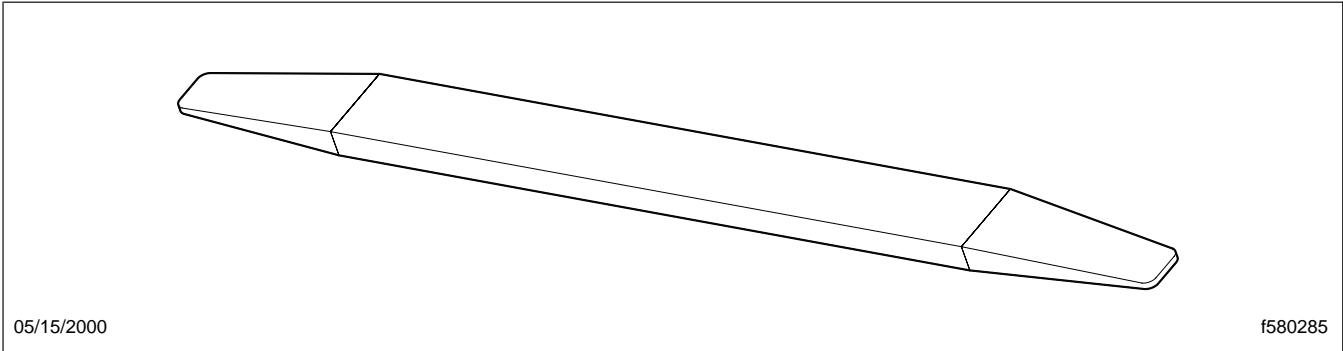
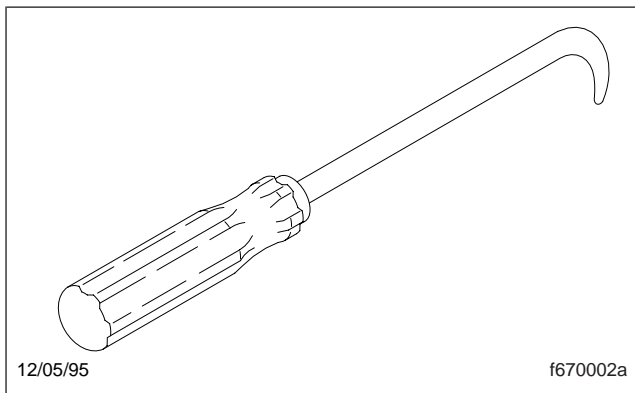


Fig. 5, Windshield Gasket Installer

The tool shown in **Fig. 1**, and others, can be purchased from the following distributors:

Sommer & Maca  
5501 West Ogden Avenue  
Cicero, IL 60804  
1-800-323-9200

C.R. Laurence Co., Inc.  
P.O. Box 21345  
Los Angeles, CA 90021-0345  
1-800-421-6144

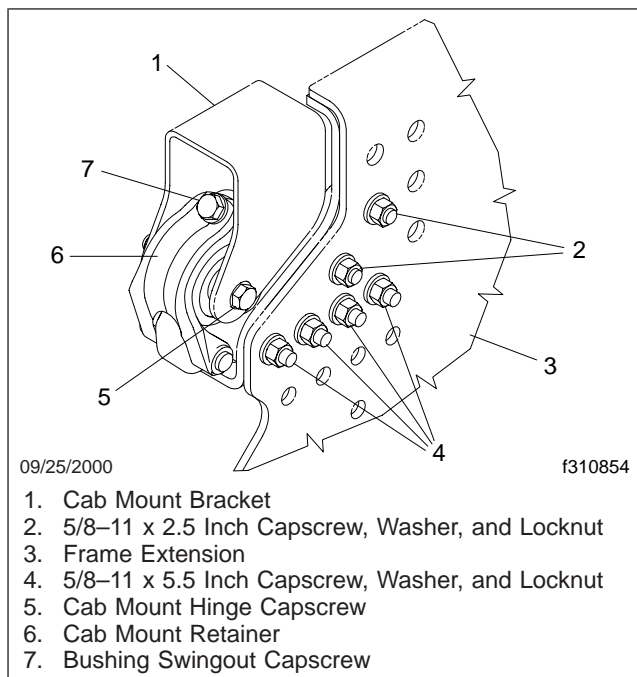


**Fig. 1, Windshield Pick**

## General Information

The forward part of the cab is attached to the frame rails with two cab mount assemblies. Each forward cab mount assembly consists of a hard rubber isolator surrounded by a steel bracket. The assembly is attached to a frame rail bracket. See [Fig. 1](#).

Cab mounts are replaceable only as complete units.



**Fig. 1, Forward Cab Mount Assembly**

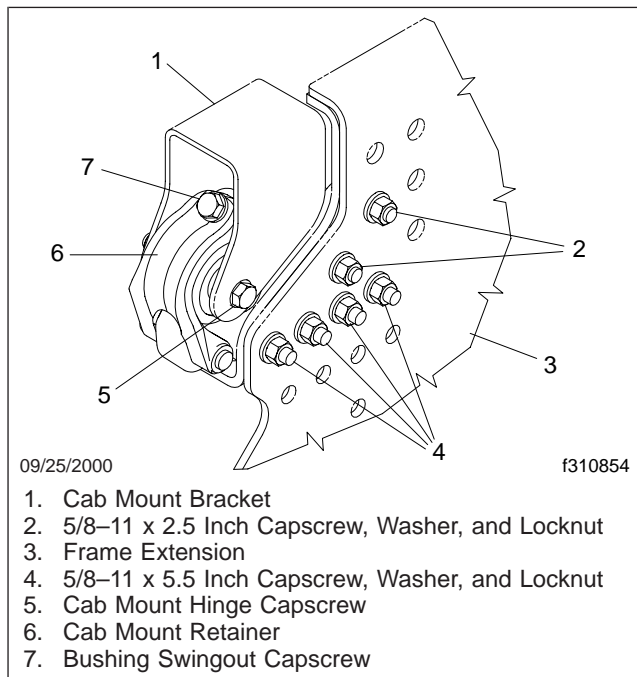
## Forward Cab Mount Replacement

### Replacement (See Fig. 1)

1. Park the vehicle on a level surface, shut down the engine, apply the parking brakes, and chock the rear tires.
2. Open the grille and connect the support rod.
3. Disconnect the tilt cylinder.
  - 3.1 Remove the cotter pin and washers. Have an assistant adjust the cab height until the clevis pin loosens.
  - 3.2 Remove the cylinder clevis pin.
  - 3.3 Disconnect the tilt cylinder.
4. Using a hydraulic jack, raise the cab and support it with jack stands.
5. Remove the swingout capscrew.
6. Remove the cab mount hinge capscrew, and the spacers.

NOTE: Using a hoist, or other suitable lifting device, adjust the cab height as necessary for clearance when removing the cab mount.

8. Remove the cab mount.
9. Position a new cab mount on the cab frame extension and secure the cab mount to the frame extension with the six capscrews, the locknuts and the washers. Tighten to 136 lbf-ft (184 N·m).
10. Support the cab with a hydraulic jack, and remove the jack stands. Lower the cab on to the vehicle chassis.
11. Install the cab mount hinge assembly and tighten the capscrew 130 lbf-ft (176 N·m).
12. Install the bushing swingout capscrew. Tighten the capscrew 90 lbf-ft (122 N·m).
13. Position the tilt cylinder on the cab frame extension. Install the clevis pin, the washers, and the cotter pin.
14. Remove the chocks from the tires.



**Fig. 1, Forward Cab Mount Assembly**

7. Remove the six capscrews, the locknuts, and the washers that secure the cab mount to the frame extension.

## Overhead Console Removal and Installation

## Removal (See Fig. 1)

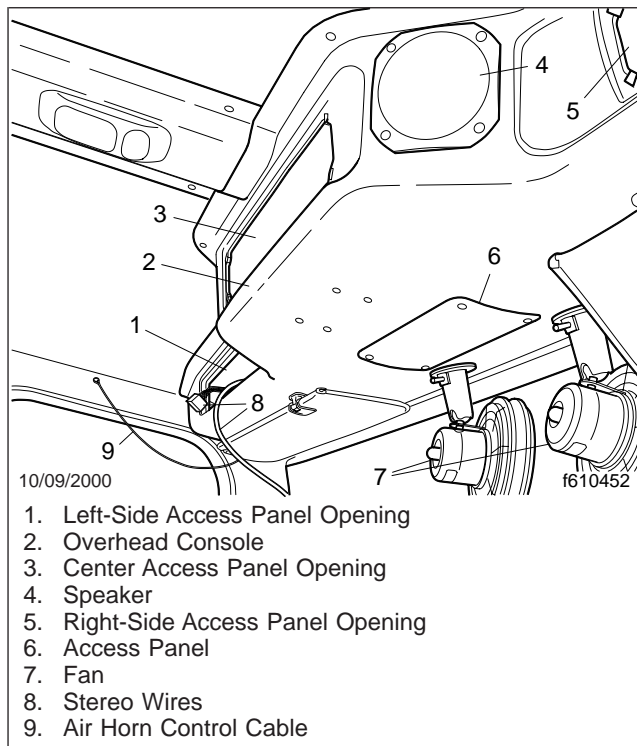


Fig. 1, Overhead Console

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine, and chock the rear tires.
2. Disconnect the batteries.
3. Remove the four T25 Torx®-head screws that secure the right side overhead console access panel and remove the access panel.
4. Remove the four T25 Torx-head screws that secure the center, upper overhead console access panel and remove the access panel.
5. Remove the four T25 Torx-head screws that secure the center, lower overhead console access panel that is mounted in front of the fans, and remove the access panel.
6. Remove the two capscrews and locknuts that secure the power distribution module to the bracket inside the center of the overhead console.

7. Disconnect the electrical connectors for the speakers and the fans.
8. Remove the four T25 Torx-head screws that secure the left side overhead console access panel.
9. Disconnect the stereo wires and remove the access panel and the stereo together. See Fig. 2.

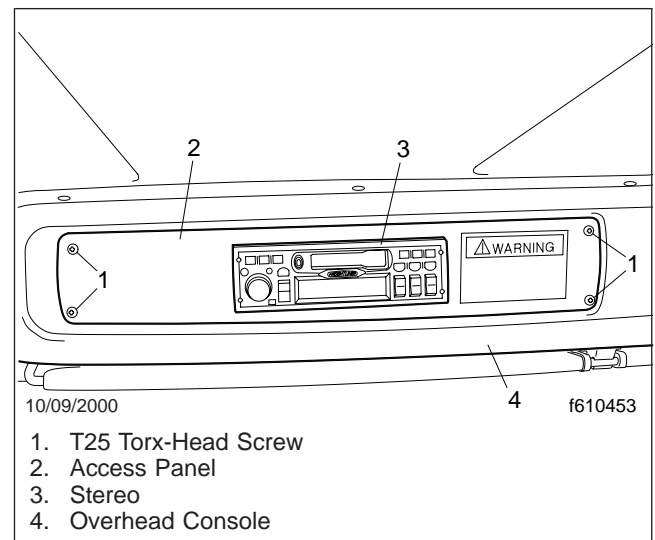


Fig. 2, Access Panel and Stereo

10. Remove the T20 Torx-head screw that secures the left air horn control cable to the cab side wall.
11. Remove the T20 Torx-head screw that secures the right air horn control cable to the cab side wall.
12. Remove the sixteen T25 Torx-head screws securing the overhead console to the roof.
13. With an assistant holding the overhead console in place, remove the last four T25 Torx-head screws securing the center of the overhead console to the roof mounting bracket.
14. Lower the overhead console and remove it from the vehicle.

**NOTE:** The power distribution module and harness will hang down from the roof.

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## Overhead Console Removal and Installation

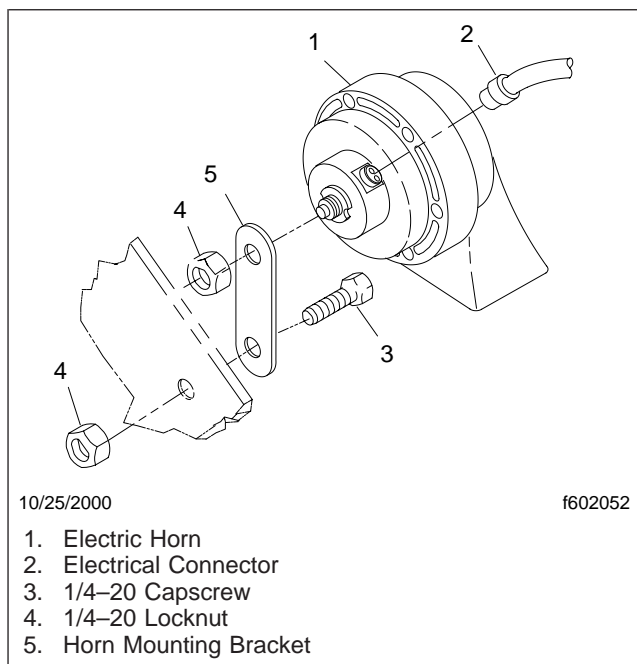
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### Installation

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1. While an assistant holds the overhead console in position (over the mounting holes in the roof and roof mounting bracket), attach the four T25 Torx-head screws to the center of the overhead console and the roof mounting bracket. Then attach one screw to the overhead console (front) and the roof, and attach one screw to the overhead console (rear) and the roof. Tighten the screws finger tight.
2. Install the remaining fourteen T25 Torx-head screws to the overhead console and the roof. After all twenty T25 Torx-head screws are installed tighten all the screws securely.
3. Feed the left air horn control cable through the overhead console and secure the cable to the cab side wall with the T20 Torx-head screw.
4. Feed the right air horn control cable through the overhead console and secure the cable to the cab side wall with the T20 Torx-head screw.
5. Connect the electrical connectors for the speakers and the fans.
6. With the two capscrews and locknuts, install the power distribution module to the bracket inside the center of the overhead console. Tighten the locknuts securely.
7. Install the center, lower access panel to the overhead console with the four T25 Torx-head screws. Tighten the screws securely.
8. Install the center, upper access panel to the overhead console with the four T25 Torx-head screws. Tighten the screws securely.
9. Install the left side access panel to the overhead console with the four T25 Torx-head screws. Tighten the screws securely.
10. Connect the stereo wires and install the left side access panel and the stereo to the overhead console with the four T25 Torx-head screws. Tighten the screws securely.
11. Connect the batteries.
12. Check the stereo and the fans for proper operation.
13. Remove the chocks from the tires.

## Electric Horn Replacement

**Replacement** (See Fig. 1)**Fig. 1, Electric Horn**

The electric horn is mounted to a bracket on the right side of the cab, next to the right forward cab mount.

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine and chock the rear tires.
2. Disconnect the batteries.
3. Disconnect the electrical harness connector from the electric horn.
4. Note the mounting position of the horn and remove the 1/4-20 locknut from the horn mounting stud.
5. Install the new electric horn on the mounting bracket in the same position as the old horn.
6. Install the 1/4-20 locknut and tighten 7 lbf-ft (9 N·m).
7. Connect the electrical harness connector to the electric horn.
8. Connect the batteries.
9. Test the horn.
10. Remove the chocks from the tires.

## Air Horn Valve Replacement

### Replacement

#### Left Side Air Horn Valve

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine and chock the rear tires.
2. Drain the air supply.
3. Disconnect the batteries.
4. Remove four T25 Torx®-head screws that secure the left side overhead console access panel.

NOTE: The stereo system is mounted to the left side overhead console access panel. When the stereo wires are disconnected, the access panel and stereo can be removed as one assembly.

5. Disconnect the stereo wires and remove the access panel and the stereo.
6. Remove the air horn valve.

NOTE: The air horn valves use quick-connect fittings. See [Section 42.01](#) for connecting and releasing instructions.

- 6.1 Disconnect the air hoses from the air horn valve. Mark the hoses for later reference.
  - 6.2 Remove the two T25 Torx-head screws that attach the air horn valve to the mounting bracket.
  - 6.3 Remove the screw that secures the air horn control cable to the cab side wall, and remove the valve from the vehicle.
7. Install the new air horn valve.
    - 7.1 Secure the air horn control cable to the cab side wall with the mounting screw.
    - 7.2 Position the air horn valve behind the overhead console.
    - 7.3 Secure the air horn valve to the mounting bracket with the two T25 Torx-head screws.

NOTE: The air horn valves use quick-connect fittings. See [Section 42.01](#) for connecting and releasing instructions.

- 7.4 Connect the air hoses to the air horn valve.
8. Position the left side access panel to the overhead console and connect the stereo wires.
9. Secure the access panel to the overhead console with the four T25 Torx-head screws.
10. Connect the batteries.
11. Remove the chocks from the tires. Start the engine, and refill the air supply.
12. Test the horn.

#### Right Side Air Horn Valve

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine and chock the rear tires.
2. Drain the air supply, and disconnect the batteries.
3. Remove four T25 Torx®-head screws that secure the right side overhead console access panel.
4. Remove the air horn valve.

NOTE: The air horn valves use quick-connect fittings. See [Section 42.01](#) for connecting and releasing instructions.

- 4.1 Disconnect the air hoses from the air horn valve. Mark the hoses for later reference.
  - 4.2 Remove the two T25 Torx-head screws that attach the air horn valve to the mounting bracket.
  - 4.3 Remove the screw that secures the air horn control cable to the cab side wall, and remove the valve from the vehicle.
5. Install the new air horn valve.
    - 5.1 Secure the air horn control cable to the cab side wall with the mounting screw.
    - 5.2 Position the air horn valve behind the overhead console.
    - 5.3 Secure the air horn valve to the mounting bracket with the two T25 Torx-head screws.



## Air Horn Valve Replacement

NOTE: The air horn valves use quick-connect fittings. See [Section 42.01](#) for connecting and releasing instructions.

- 5.4 Connect the air hoses to the air horn valve.
6. Position the right side access panel to the overhead console.
7. Secure the access panel to the overhead console with the four T25 Torx-head screws.
8. Connect the batteries.
9. Remove the chocks from the tires. Start the engine, and refill the air supply.
10. Test the horn.

## Air Horn Assembly Replacement

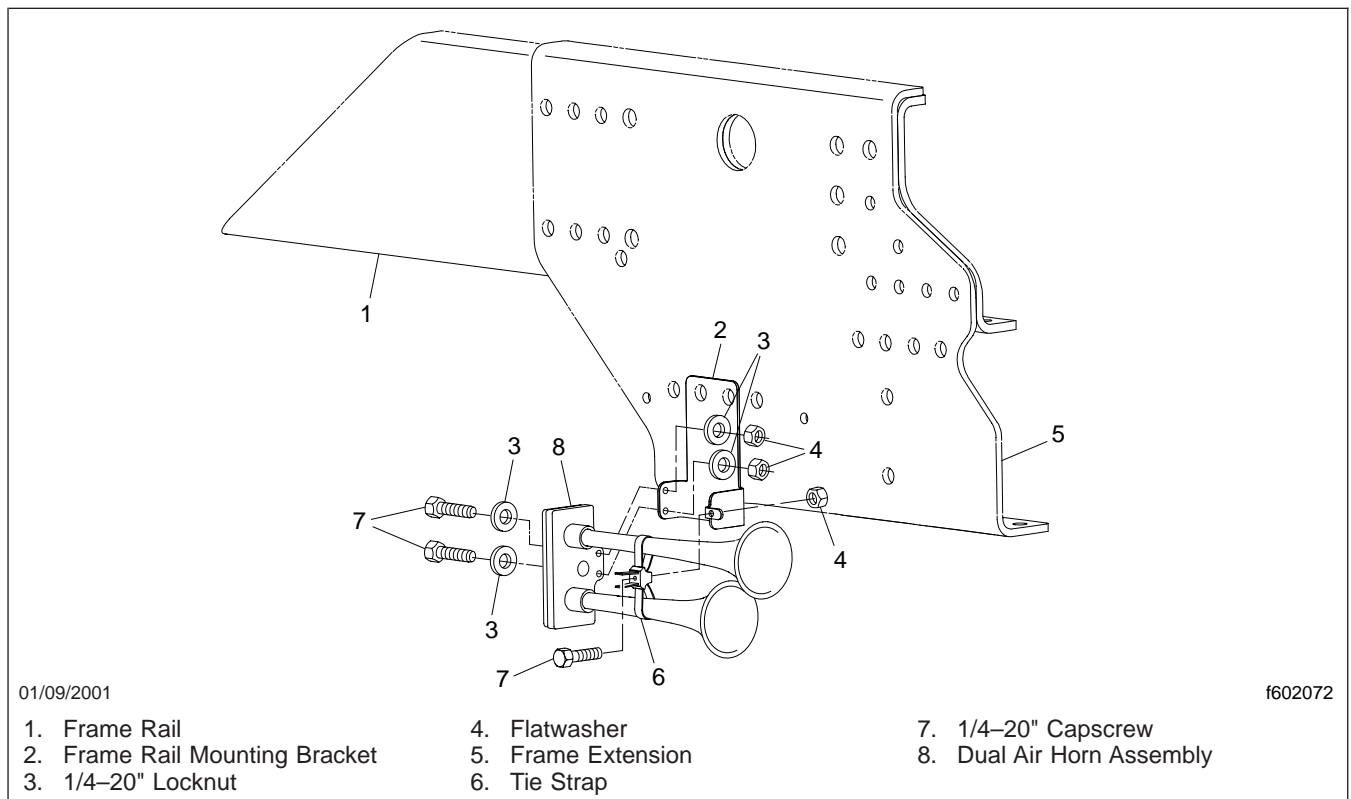
## Replacement

The air horn is mounted to the right side frame rail extension behind the front bumper, or on the roof.

## Frame Rail Extension Mounted Air Horn

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine and chock the rear tires.
2. Remove the air horn assembly. See **Fig. 1**.

- 2.3 Disconnect the air hose from the air horn assembly. Remove the air horn assembly.
3. Install the new air horn assembly.
  - 3.1 Position the air horn assembly to the right side frame rail and connect the air hose to the air horn.
  - 3.2 Secure the rear air horn housing to the frame rail mounting bracket with the two capscrews, the locknuts, and the flatwashers. Tighten to 7 lbf-ft (9 N-m).



**Fig. 1, Air Horn Assembly (Mounted to the Frame Rail Extension)**

- 2.1 Remove the capscrew, the flatwashers, and the locknut that secure the air horn tie strap to the frame rail mounting bracket.
- 2.2 Remove the two capscrews, the locknuts, and the flatwashers that secure the rear air horn mount to the frame rail mounting bracket.
- 2.3 Secure the air horn tie strap to the frame rail mounting bracket with the capscrew, the flatwashers, the, and the locknut. Tighten to 7 lbf-ft (9 N-m).
- 3.3 Secure the air horn tie strap to the frame rail mounting bracket with the capscrew, the flatwashers, the, and the locknut. Tighten to 7 lbf-ft (9 N-m).
4. Test the air horn.
5. Remove the chocks from the tires.

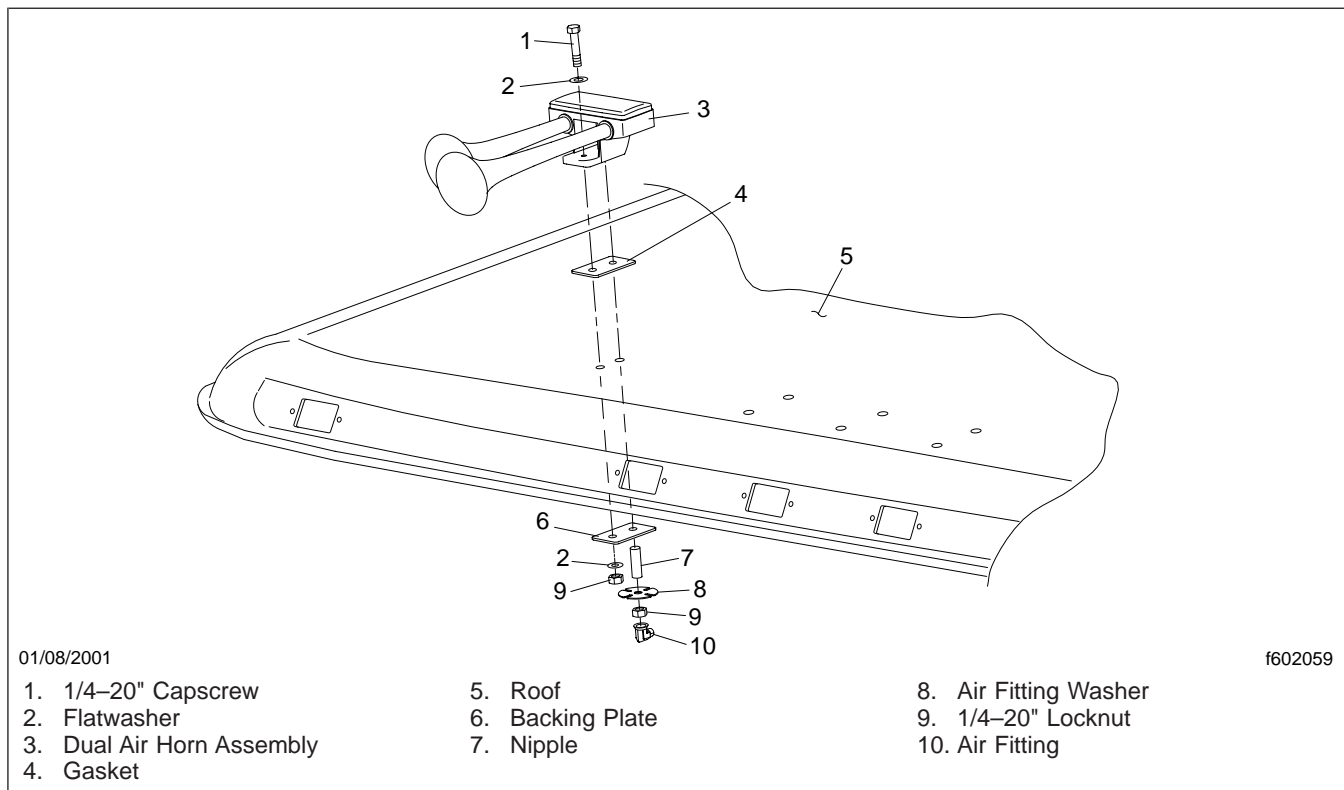
## Air Horn Assembly Replacement

### Roof Mounted Air Horn

NOTE: It may be necessary to have two people perform this procedure.

1. Park the vehicle on a level surface, apply the parking brakes, shut down the engine and chock the rear tires.
2. Remove the air horn assembly. See **Fig. 2**.

- 3.1 Align the air horn assembly and the gasket to the mounting holes on top of the roof.
- 3.2 Secure the air horn assembly to the roof with the capscrew, the locknut, the flatwashers, and the backing plate.
- 3.3 Attach the air fitting, the washer, the locknut and the nipple to the air horn assem-



**Fig. 2, Air Horn Assembly (Mounted to the Roof)**

- 2.1 From inside the cab, disconnect the air hose from the air horn assembly and connect the air hose.
- 2.2 Remove the air fitting the washer, the locknut, and the nipple from the air horn assembly.
- 2.3 Remove the capscrew, the locknut, the flatwashers, and the backing plate that secure the air horn assembly to the roof.
- 2.4 Remove the air horn assembly and the gasket from the top of the roof.
3. Install the new air horn assembly.
4. Test the air horn.
5. Remove the chocks from the tires.