

CHAPTER 52  
DOORS AND WINDOWS

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CHAPTER 52  
DOORS AND WINDOWS

52-00 Description

*The R66 has four passenger doors and one main baggage compartment door. Passenger doors may be removed and installed by maintenance personnel or pilots.*

*Passenger doors are constructed of fiberglass and thermoplastics. Passenger doors, locks, weather seal, gas springs, and door vents and hinges may be replaced, and vent pivot friction may be adjusted.*

*Periodically inspect windshield for cracks or crazing and replace windshield that exceeds damage criteria per Section 52-30.*

52-10 Door Assembly

Refer to R66 Illustrated Parts Catalog (IPC) Chapter 52.

**A. Removal**

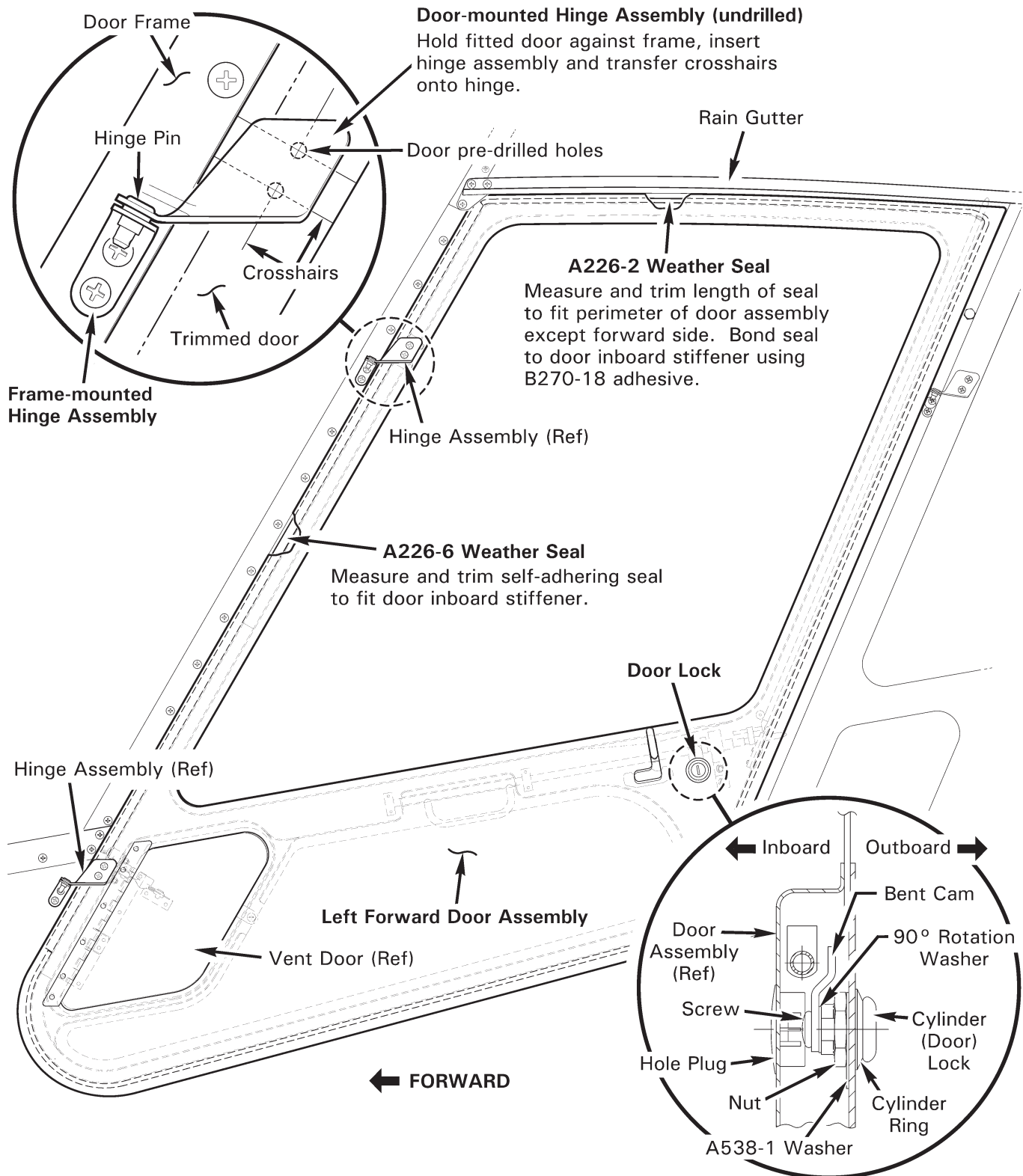
1. Refer to Figures 52-1 and 52-2. To disconnect door from gas spring mechanism:
  - a. Forward Doors: Pull D573-4 rod up and off of arm assembly ball joint.
  - b. Aft Doors: Insert flat-tip screwdriver and pry up spring clip locking C394-1 gas spring to channel ball joint. Pull gas spring up and off of ball joint.
2. Remove rings from door hinge pins, lift pins up from door frame hinge assemblies, and remove door.

**B. Installation**

**WARNING**

**Failure to install a ring in each door's two hinge pins may allow door to depart aircraft in flight.**

1. Refer to Figures 52-1 and 52-2. Align and insert door hinge pins in door frame hinge assemblies.
2. Align forward door D573-4 rod with arm assembly ball joint, or aft door C394-1 gas spring with channel ball joint, and push down to lock.
3. Install rings in door hinge pins.



**FIGURE 52-1 DOOR ASSEMBLY**

52-10 Door Assembly (continued)**C. Replacement****CAUTION**

Use proper respiratory protection when handling fiberglass.

**CAUTION**

Protect door windows and paint from scratches or scuff marks when door maintenance is performed on workbench.

1. Refer to Figure 52-1. As required, lay masking tape on surfaces of door frame, new door hinges, and new door, to mark with soft pencil.
2. Press new door forward and top edge weather seals against door frame recess (rain gutter interferes with top edge until trimmed).
3. Using soft pencil, trace door forward edge onto masked frame, then transfer approximate edge distance to door. From inside cabin, estimate approximate material to be removed from door top edge, then transfer approximate edge distance to door. Remove door.
4. Using 60-grit grinder, trim forward and top door edges. Perform steps 1 thru 3 until weather seals sit approximately even against door frame recess.
5. Using soft pencil and a straight edge, draw cross hairs through (centers of) door upper hinge assembly pre-drilled holes. Hold fitted door against frame, insert new (door-mounted) hinge assembly in frame-mounted hinge assembly, and transfer cross hairs onto hinge. Remove hinge and door.
6. Drill two 0.170-inch diameter holes at cross hair intersections in hinge assembly and deburr. Remove tape, clean up debris, and prepare hinge assembly and door clamping surfaces using approved solvents per Section 20-70.
7. Install upper hinge assembly on door and special torque screws per Section 20-33.
8. Repeat steps 5 thru 7 for lower door-mounted hinge assembly.
9. Install door. Using 60-grit grinder, trim edges as required for final fitting. Verify doors open and close smoothly and latch correctly. Remove door and bevel edges using 60-grit sandpaper.
10. Prepare surfaces with solvent and touch-up door using approved materials per Section 20-70. Install new door per Section 52-10.

### 52-11 Door Lock Replacement

Refer to R66 Illustrated Parts Catalog (IPC) Figure 52-1.

**CAUTION**

Protect door windows and paint from scratches or scuff marks when door maintenance is performed on workbench.

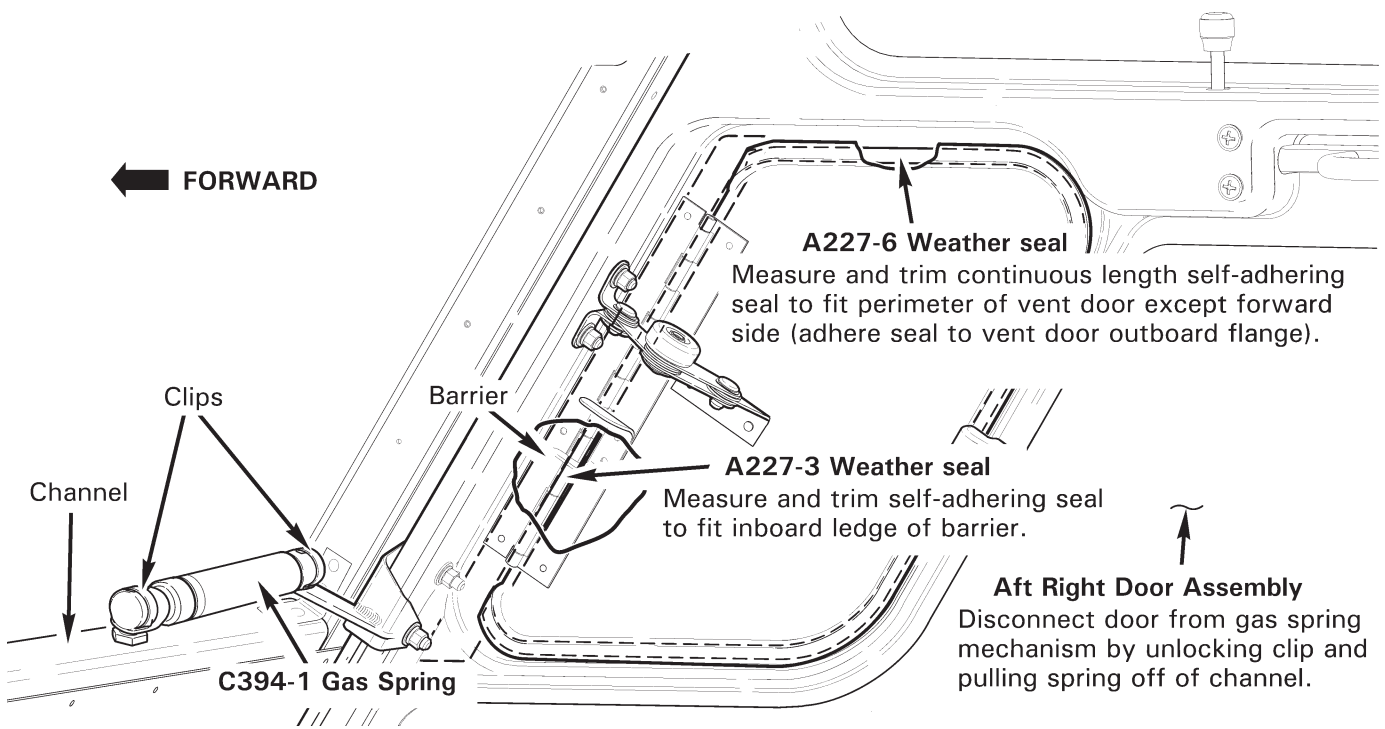
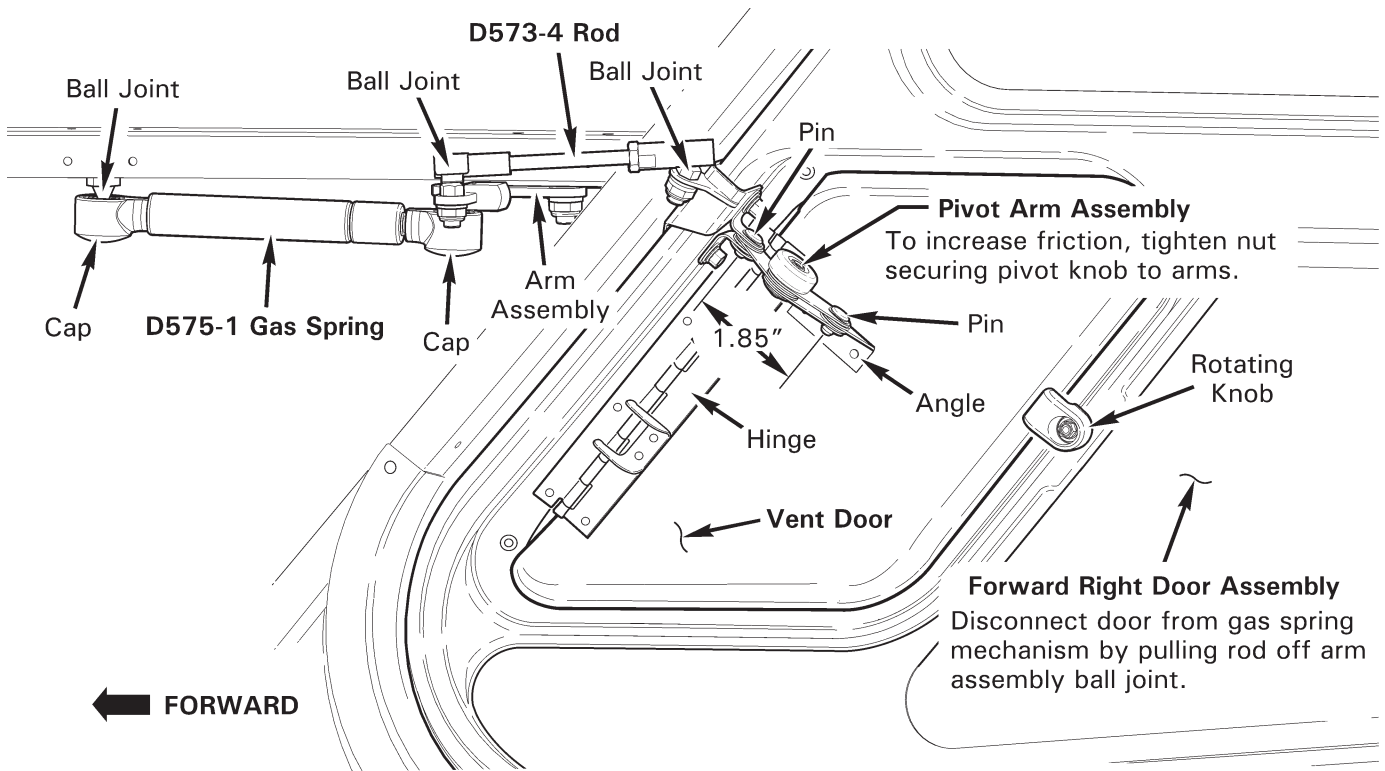
1. Remove door per Section 52-10.
2. Refer to Figure 52-1. Remove hole plug opposite key slot on door interior.
3. Remove screw, bent cam, and 90° rotation washer. Remove nut and A538-1 washer. Press and catch cylinder lock and ring through door.
4. Install new cylinder lock and ring in door. Install lock so key is vertical with teeth down in locked position. Apply thin coat B270-10 adhesive on screw threads, install hardware, and tighten screw.
5. Bond hole plug in place using B270-9 adhesive.

### 52-12 Weather Seal (Door Assembly) Replacement

Refer to R66 Illustrated Parts Catalog (IPC) Figures 52-1 and 52-7.

1. Remove damaged weather seal using plastic wedge or putty knife. Remove hardened adhesive using approved solvent per Section 20-70, or 60-grit sandpaper, as required.
2. Refer to Figure 52-1. Measure and trim continuous length of A226-2 seal to fit perimeter of door except forward side, as shown. Neatly bond seal to stiffener using B270-18 adhesive. Wipe away excess adhesive prior to curing.
3. Measure and trim length of A226-6 seal to fit forward side of door. Remove self-adhesive preserving strip and neatly bond seal to stiffener.

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**FIGURE 52-2 GAS SPRINGS AND DOOR VENTS**



### 52-13 Gas Springs

Refer to R66 Illustrated Parts Catalog (IPC) Figures 52-5 and 52-11.

#### **A. Removal**

1. a. Forward Doors: Insert flat-tip screwdriver and pry down on caps to unlock D575-1 gas spring from ball joints. Push gas spring down and off of ball joints.
- b. Aft Doors: Insert flat-tip screwdriver and pry up spring clips to unlock C394-1 gas spring from ball joints. Pull gas spring up and off of ball joints.

#### **B. Installation**

1. a. Forward Doors: Unlock D575-1 gas spring caps. Snap gas spring onto ball joints and lock caps.
- b. Aft Doors: Insert flat-tip screwdriver and pry up C394-1 gas spring spring clips. Snap gas spring onto ball joints and release clips.

### 52-20 Door Vent Replacement

Refer to R66 Illustrated Parts Catalog (IPC) Figures 52-1 and 52-7.

<b>CAUTION</b>
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Use proper respiratory protection when handling fiberglass.
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1. Refer to Figure 52-2. Drill out rivets securing hinge and pivot arm assembly angle to door vent. Rotate knob to unlock and remove door vent.
2. Using 60-grit grinder, trim new vent door forward edge as required to match door recess and smooth corners. Bevel edges using 60-grit sandpaper.
3. Hold fitted door vent in recess and match drill hinge four 0.098-inch diameter holes. Smooth hole edges; clean up debris. Prepare surfaces for clamping using approved solvents per Section 20-70. Install rivets securing door to hinge.
4. Extend pivot arm to approximately 1.85 inch between center of pins. Match drill pivot arm assembly angle two 0.098-inch diameter holes. Smooth hole edges; clean up debris. Prepare surfaces for clamping using approved solvents per Section 20-70. Install rivets securing door to arm assembly angle. Verify vent door opens and closes smoothly and latches correctly.

### 52-21 Weather Seal (Door Vent) Replacement

Refer to R66 Illustrated Parts Catalog (IPC) Figures 52-1 and 52-7.

1. Remove damaged weather seal using plastic wedge or putty knife. Remove hardened adhesive using approved solvent per Section 20-70, or 60-grit sandpaper, as required.
2. Refer to Figure 52-2. Measure and trim continuous length of A226-7 seal to fit perimeter of vent door except forward side, as shown. Remove self-adhesive preserving strip and neatly bond seal to stiffener.
3. Measure and trim length of A226-3 seal to fit ledge of barrier. Remove self-adhesive preserving strip and neatly bond seal to stiffener.

### 52-22 Door Vent Hinge Replacement

Refer to R66 Illustrated Parts Catalog (IPC) Figures 52-1 and 52-7.

**CAUTION**

Protect door windows and paint from scratches or scuff marks when door maintenance performed on workbench.

1. Remove door per Section 52-10.
2. Refer to Figure 52-2. Drill out rivets securing hinge to door assembly and door vent. Remove hinge.
3. Smooth hole edges; clean up debris. Prepare surfaces for clamping using approved solvents per Section 20-70.
4. Refer to Section 52-20. Verify proper vent door fit; install rivets securing hinge to door assembly and door vent. Prepare surfaces and touch-up rivet heads and hinge using approved materials per Section 20-70.

### 52-23 Pivot Friction Adjustment

To increase pivot arm assembly friction, tighten nut securing pivot knob to arms. Do not overtighten screw. No thread exposure required beyond nut.

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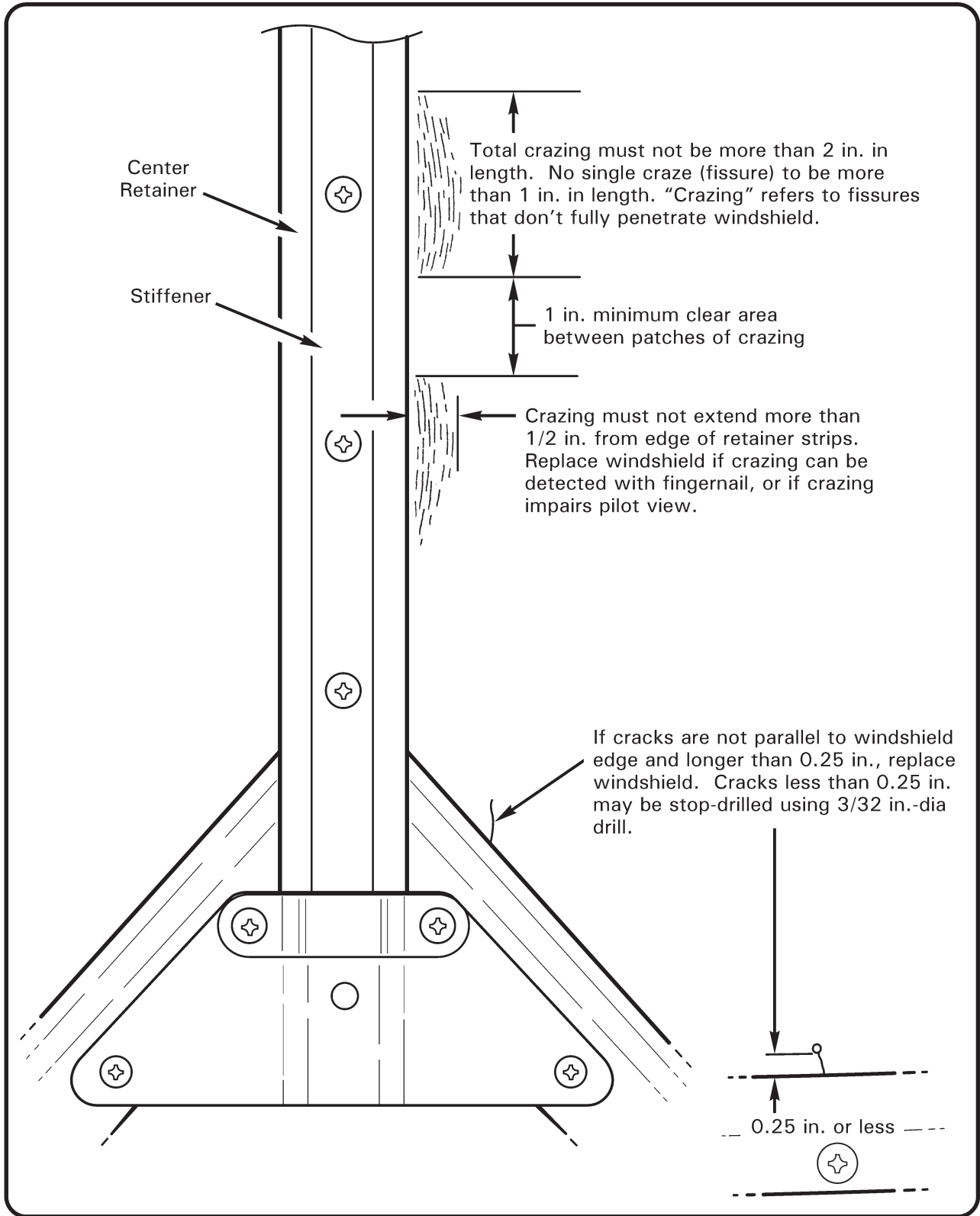


FIGURE 52-3 WINDSHIELD INSPECTION

52-30 Windshield Assembly**A. Removal**

1. Remove forward door and hinges.

**NOTE**

To prevent scratching windshield, a protective cover should be taped to the inside and outside of the windshield prior to removal.

2. Remove screws and side retainer holding windshield.
3. Reinstall hinges and doors for cabin structure support with window removed.
4. Remove screws and retainers (upper, lower, and middle) holding windshield.
5. Clean silicone sealant from retainers.
6. Clean silicone sealant from windshield for reinstallation.

**B. Installation**

1. Remove all old sealant from cabin, retainers and windshield.
2. Install windshield and cleco retainer strips.
3. Mask windshield along edge of retainer strips with 1/2" masking tape. This will catch silicone rubber squeeze-out on installation of retainer strips.
4. Remove retainer strips.
5. To ensure a proper seal, run a bead of B270-13 silicone rubber along entire edge of tape line.
6. While holding windshield in place, cleco retainer strips (center, upper and lower) into place.
7. With doors installed and closed, tighten center retainer strip first. Then tighten upper and lower retaining strips. A second person will be required to tighten nuts inside ship.
8. When center, upper and lower retaining strips are secure, remove door and hinges for side strip installation.
9. Install side retainer strip.
10. Reinstall hinges and door. Ensure all fasteners are tight.
11. Fill any gap between retainer and window with B270-13 silicone rubber.
12. Remove masking tape next to retainers. Be careful not to smear wet sealant.
13. Clean any sealant off windshield after it has been allowed to dry.

52-30 Windshield Assembly (continued)**C. Inspection**

1. Inspect windshield for cracks and crazing adjacent to retainer strips per Figure 52-3. If cracks exceed these limits, replace windshields per § 52-30 Part D.

**D. Replacement**

1. Remove all old sealant on cabin and retainers if they are to be reused.
2. Cleco all window retaining strips in place, checking for proper alignment.
3. Install hinges and doors in door frames and secure. Remove bottom and center retaining strips, leaving side retaining strip to hold door and door frame in position.
4. Hold windshield in place by hand, and align it with frame according to contour of frame and windshield.
5. Mark windshield for trim using non-permanent marker, such as grease pencil or masking tape.
6. Trim to mark. A band saw is recommended. Band saw blade should contain at least 24 teeth per inch.

**NOTE**

Tape cardboard to band saw table to prevent scratching of windshield. Saw carefully to prevent binding of saw blade and cracking windshield.

7. Hold windshield in place and check for fit. Re-trim as necessary.
8. After windshield is fitted, carefully sand or scrape edges smooth.
9. Install windshield per § 52-30 Part B.