



SERVICE DIRECTIVE BULLETIN

SERVICE DIRECTIVE BULLETIN NO. T-033

Revision 1

Page 1 of 8

NOTE

Revision 1 of SDB T-033 allows for dents on the tailcone as specified and offers a field kit for installing zee-channels to reinforce the tailcone structure.

DATE: December 23, 2009

1. SUBJECT: Inspection of Tailcone Skins, Flanges, and Longerons
2. MODEL: TH-28, 480, and 480B
3. EFFECTIVITY: All Serial Numbers
4. BACKGROUND:

There has been a single occurrence of a dented tailcone skin structure causing impaired flight control and an immediate emergency landing. During investigation of the failure, Enstrom determined there were several factors involved. First, the aircraft was flown outside the approved flight envelope; specifically, it was over maximum gross weight and flown above V_{NE} and encountered retreating blade stall. Secondly, there was a previously detected dent in the bottom skin of the tailcone forward of the horizontal stabilizer. The combination of these circumstances initiated a crippling type failure of the bottom skin, which compromised pitch control of the aircraft. Enstrom offers a zee-channel installation to add reinforcement in this area to increase margin of safety.

This Service Directive Bulletin (SDB) requires one time and repetitive inspections of the tailcone top and bottom skins, bottom skin V-rib, and internal skin flanges and longerons.

This Service Directive Bulletin supersedes any previous authorization or approval from Enstrom Product Support for operation with dents in the tail cone.

Technical aspects of this SDB have been coordinated with the FAA.

5. COMPLIANCE:

Prior to the next flight, check the tailcone in accordance with paragraph 5.1. This check may be conducted by the pilot.

5. COMPLIANCE (Continued):

Unless previously complied with in accordance with SDB T-033, initial revision (dated August 4, 2008), within 25 hours time in service or at the next scheduled inspection, whichever occurs first, a certified airframe mechanic shall inspect the tailcone in accordance with paragraphs 5.1 and 5.2 and if required, repair the tailcone in accordance with paragraph 5.3.

The tailcone may be modified in accordance with paragraph 5.4 for structural reinforcement. This modification is optional.

5.1. EXTERNAL CHECK:

- A. Visually inspect the top and bottom skins along the entire length of the tailcone for cracks, bends or dents. Reference Figure 1.
- B. Visually inspect the V-rib along the bottom skin for any cracks, bends, or dents. Reference Figure 2.
- C. Dents that are less than 3" (76.2 mm) long and less than 3" (76.2 mm) wide and 1/8" (3.175 mm) deep or less are allowed in the areas shown in Figure 4. No dents are allowed in areas of tighter radii, rivet lines, or in the V-rib.
- D. If cracks, bends, or dents that exceed the size allowance are detected, or are outside the allowable areas, they must be repaired in accordance with paragraph 5.3.

5.2. DETAILED INSPECTION:

- A. Perform external check listed under 5.1 above.
- B. Remove the side cowls and aft baggage box floor and bulkhead on both the left and right side of the tailcone.
- C. Place support boards on the bulkheads inside the tailcone to aid inspection. The boards may be constructed of plywood and framed on the bottom for reinforcement. Reference Figure 5 and Figure 6 for sample board construction.

CAUTION

Handle boards cautiously in and around the tailcone to prevent damage to the tailcone skin and bulkheads.

- D. Visually inspect the interior top and bottom skin flanges on both the left and right side of the tailcone for any cracks, bends, or dents. Reference Figure 3.
- E. Visually inspect the interior longerons on both the left and right side of the tailcone for cracks, bends or dents. Reference Figure 3.
- F. If cracks, bends or dents are detected, proceed to paragraph 5.3

December 23, 2009

5.3. REPAIR:

- A. Contact Enstrom Product Support for repair procedures.

5.4. MODIFICATION:

- A. Zee-channel kit P/N 4230060 is an optional installation. The kit includes a left and right hand zee-channel installed on the lower section of the tailcone between the third and fourth bulkheads.

NOTE

Serial numbers 5127 and subsequent were equipped with the zee-channels at the time of manufacture.

5.5 PARTS: Zee-Channel Kit Installation, P/N 4230060 (Optional; refer to paragraph 5.4)

6. SPECIAL TOOLS: None

7. MAN-HOURS:

External Inspection (paragraph 5.1): 15 minutes

Detailed Inspection (paragraph 5.2): Two (2) hours.

Zee-channel Installation (paragraph 5.4): Four (4) hours

8. WARRANTY: Not applicable

9. WEIGHT CHANGE: None

10. LOG BOOK ENTRY:

- A. Enter compliance with the first external check (paragraph 5.1) of this SDB in the aircraft maintenance records.
- B. Enter compliance with the detailed inspection (paragraph 5.2) of this SDB in the aircraft maintenance records.
- C. Enter completion of the zee-channel installation (paragraph 5.4) of this SDB in the aircraft maintenance records, if installed.

December 23, 2009

11. REPETITIVE INSPECTIONS:

- A. Repeat the external check with each daily check as defined in the flight manual¹. Note this does not require a log book entry.
- B. Repeat the detailed inspection if new dents are discovered from the external check.

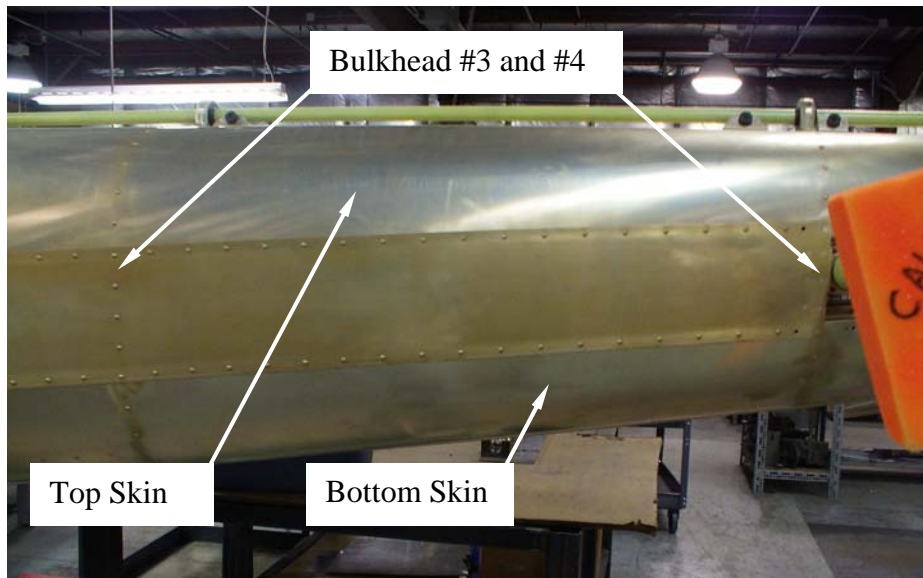


Figure 1. Tailcone Structure – Top and Bottom Skins and #3 and #4 Bulkheads



Figure 2. Tailcone Structure – Bottom Skin V-Rib

¹ 480 and 480B RFM – Paragraphs 2-12.1 and 2-13.5; TH-28 RFM – Paragraphs 8-11.1 and 8-12.2

December 23, 2009

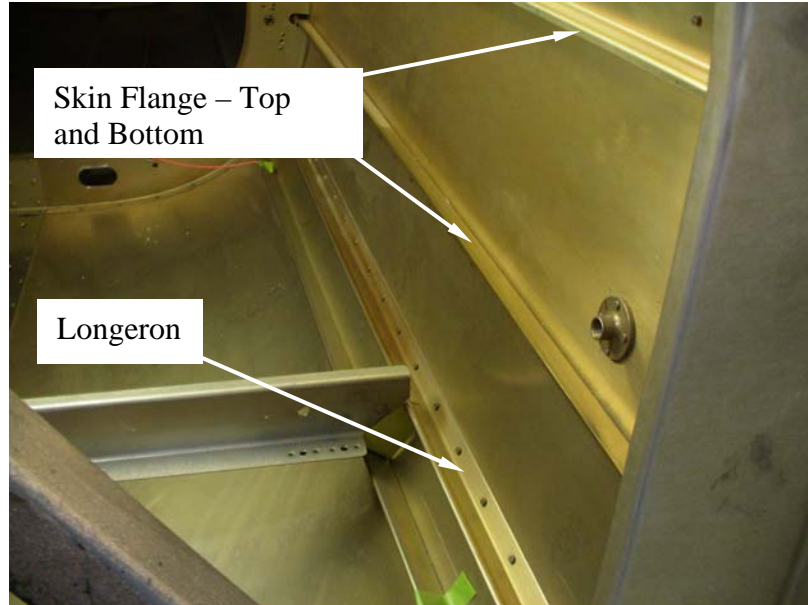
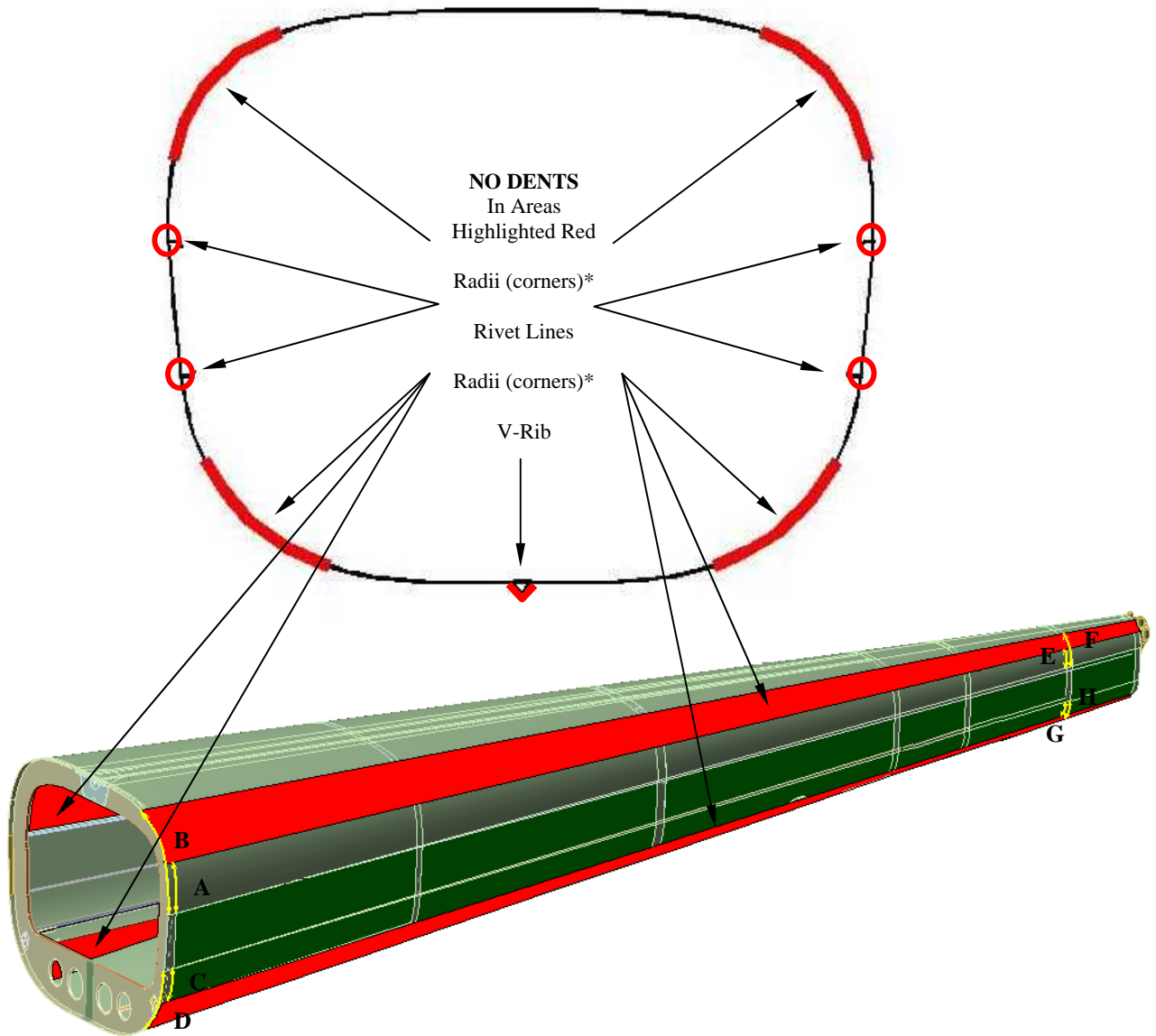


Figure 3. Tailcone Structure – Interior Skin Flanges and Longeron

December 23, 2009



Locating Critical Radii Circumferentially in the Tailcone					
Forward End of Tailcone			Station 327.09 Approximately 10 inches (254 mm) Forward of Aft End of Tailcone		
A	Upper tailcone Rivet line to radius	4 inches (101.6 mm)	E	Upper tailcone Rivet line to radius	2 inches (50.8 mm)
B	Upper tailcone Rivet line to opposite end of radius	11 inches (279.4 mm)	F	Upper tailcone Rivet line to opposite end of radius	4 inches (101.6 mm)
C	Lower tailcone Rivet line to radius	4 inches (101.6 mm)	G	Lower tailcone Rivet line to radius	1 inch (25.4 mm)
D	Lower tailcone Rivet line to opposite end of radius	11 inches (279.4 mm)	H	Lower tailcone Rivet line to opposite end of radius	4 inches (101.6 mm)

Figure 4. Red Highlighted Tailcone Regions Indicate Where Dents are NOT Allowed. Dents within the allowable size are allowed in remaining tailcone regions.

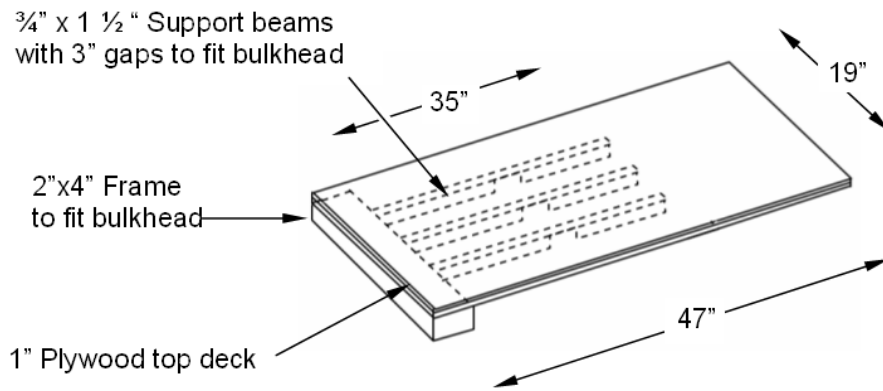
Contact Enstrom Customer Service for questions.

December 23, 2009

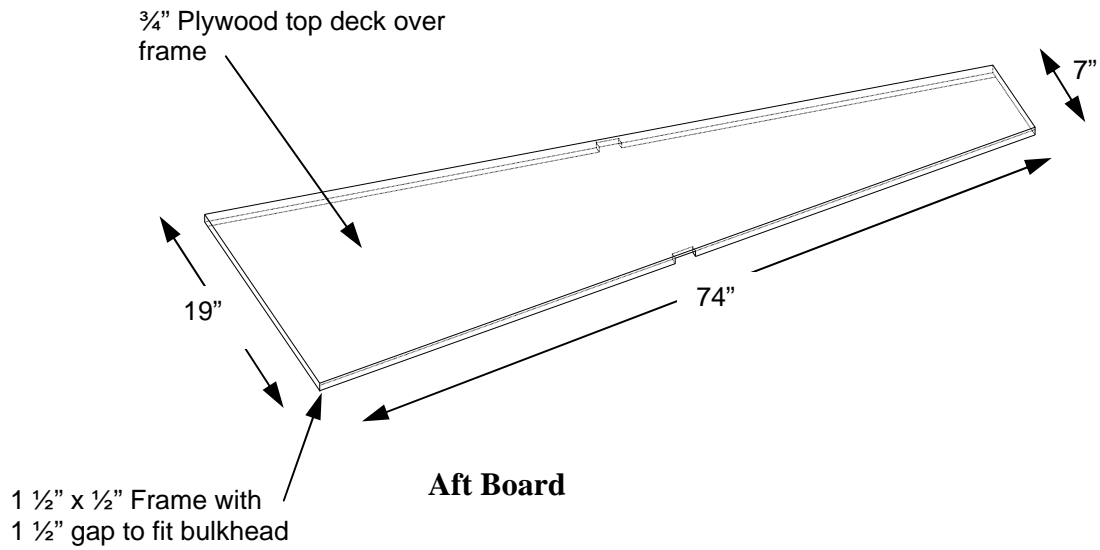


Figure 5. Boards to Aid Inspection
(See also Figure 6)
Side enclosures are not installed for picture only.

December 23, 2009



Forward Board



Aft Board

Figure 6. Sample Board Construction Schematics