



SERVICE DIRECTIVE BULLETIN

SERVICE DIRECTIVE BULLETIN NO. T-046

Revision 3

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Revision 3 adds additional steps and safety information for checking the drive belt, clarifies the inspection of potential contact areas, adds new Figures 3 and 4a-4e, updates paragraphs 6.1, 6.1.1, 6.1.3 and 13.3, and adds paragraphs 6.1.4, 6.1.5, and 6.1.6.

Revision 2 changes the repetitive inspection interval, and adds Figure 2, paragraphs 6.1.1, 13.2, and 13.3.

Revision 1 clarifies the inspection requirements and revises the adhesive type and process

DATE: November 7, 2017

1. SUBJECT: Main Rotor Drive Belt

2. MODEL: 480 and 480B

3. EFFECTIVITY: All S/N

4. BACKGROUND:

Enstrom has received reports of precautionary landings caused by unraveling of the outer edge of the main rotor drive belt (part number ECD4000-()). The belts were manufactured by PIX Transmission Limited (PIX). These belts have the Kevlar cord exposed along the edge surface of the belt.

This SDB provides instructions for sealing the edges of the main rotor drive belt.

5. COMPLIANCE:

Within the next 5 hours and every 10 hours thereafter until the belt is sealed in accordance with paragraph 7, inspect the main rotor drive belt for exposed or unraveling cord in accordance with paragraph 6. Seal the main rotor drive belt edges at the next 100 hour/annual inspection in accordance with paragraph 7.

Also, within the next 5 hours and at every 50 hours, inspect the upper plenum/air inlet in accordance with the TH-28/480 Series Maintenance Manual Paragraph 13-29, B for possible contact with the drive belt, and adjust as necessary to prevent contact in accordance with Paragraph 13-31, B.

6. INSPECTION:

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WARNING: The belt should be removed before further flight if an entire cord is beginning to emerge from the belt or is loose. Repair the belt in accordance with paragraph 7.

NOTE: Perform all maintenance in accordance with the TH-28/480 Series Maintenance Manual.

NOTE: Belts may have had the edges sealed prior to installation at the factory.

NOTE: Loose fabric threads (Figure 5) are not significant. The threads may be trimmed but do not require sealing.

6.1 Inspect the belt for sealed edges, checking for any loose or protruding cord. See the example shown in Figure 1.

6.1.1 If the belt edge was previously sealed but the belt edge has deteriorated as shown in Figure 2 or if any loose or protruding cords are found, remove the belt and send back to Enstrom for warranty. Install a new airworthy belt.



Figure 1. Sealed belt edge

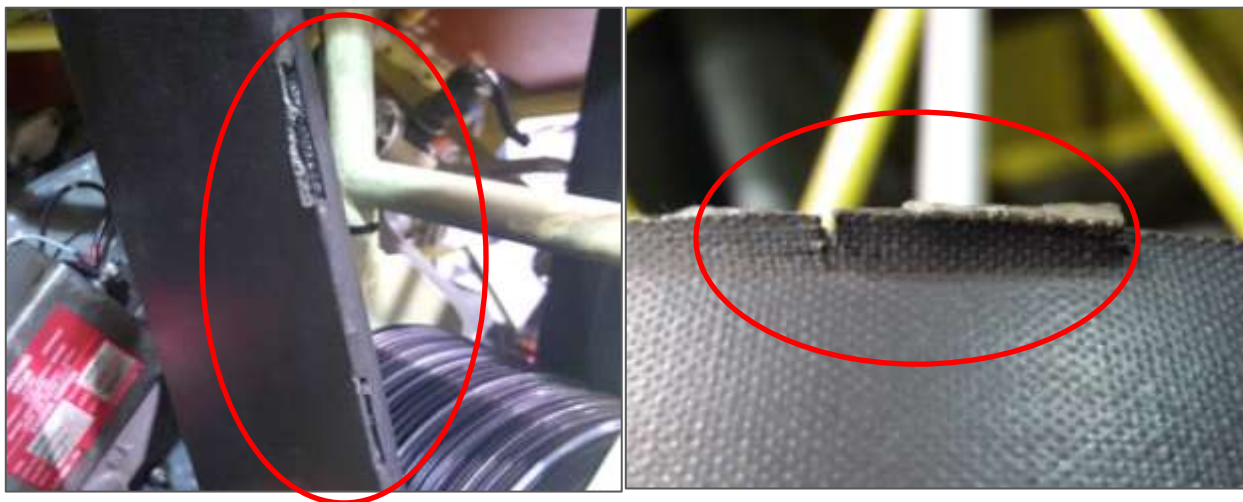


Figure 2. Deteriorated sealed belt edge

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- 6.1.2 If the belt edge was previously sealed but portions of adhesive are missing, seal the exposed cord edges in accordance with paragraph 7. Continue the belt inspection requirements as follows before proceeding with repairs.

WARNING: Do not grip edge of belt to rotate. Gripping the edge may result in fingers being pinched in bottom pulley, causing serious injury.

- 6.1.3 Slowly rotate the belt around the diameter of the pulley by placing a hand flat against the belt surface, as shown in Figure 3. Check for protruding cord around the circumference of the lower pulley on both the forward and aft sides of the belt.

NOTE: A loose cord will tend to protrude as the belt wraps around the lower pulley while it may be more difficult to detect when the edge is straight.



Proper Method –
Hand flat against belt surface



Improper Method –
DO NOT grip edge of belt

Figure 3. Proper and Improper Belt Rotation

- 6.1.4. While checking for loose cord, inspect areas where the belt comes into close contact with adjacent structures, such as the lower pulley assembly and trusses. The presence of rubber residue at these points may indicate breakdown of the belt. Refer to Figures 4a through 4d for examples.

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Figure 4a. Inspection point – Lower pulley, forward edge



Figure 4b. Inspection point – Lower pulley, aft edge

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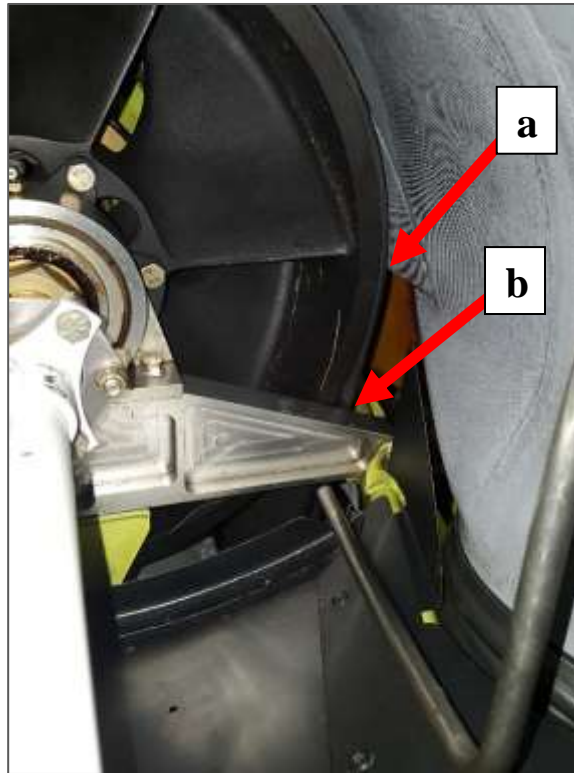


Figure 4c. Inspection points – a) Edge of upper plenum/air inlet, right side; b) Right truss

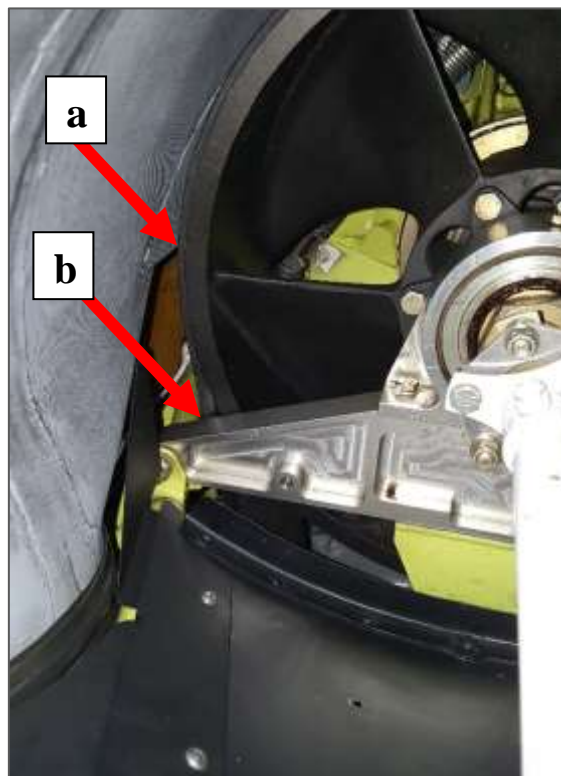


Figure 4d. Inspection points – a) Edge of upper plenum/air inlet, left side; b) Left truss

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- 6.1.5 Check for rubber transfer on the lower edge of the upper plenum/air inlet (Figure 4e). This may indicate that the belt edge seal is breaking down and loose belt cords are snagging on the edge of the plenum.



Figure 4e. Inspect upper plenum/air inlet edge for rubber transfer

- 6.1.6 If the belt edges are sealed and the condition of the existing adhesive is satisfactory, and there is no loose or protruding cord, no further action is required.
- 6.2 Inspect the belt in accordance with paragraph 11-28 of the TH-28/480 Series Maintenance Manual.
- 6.3 In addition to the inspection requirements of paragraph 11-28.B, inspect the belt edge for exposed Kevlar cord. See the example shown in Figure 5.
- 6.3.1 Seal any portion of the Kevlar cord that is exposed greater than 40% of the cross section thickness (*Figure 6*).
- 6.3.2 The belt edges may be sealed in accordance with paragraph 7 and then returned to service.

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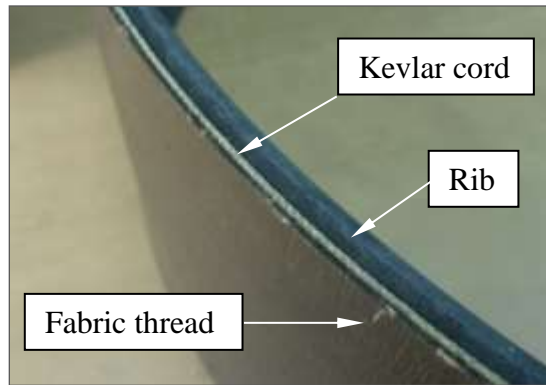


Figure 5. Visible Kevlar cord on the belt edge

6.3.3 For belts with cord exposure less than 40%, the belt may be returned to service. No further action is required.

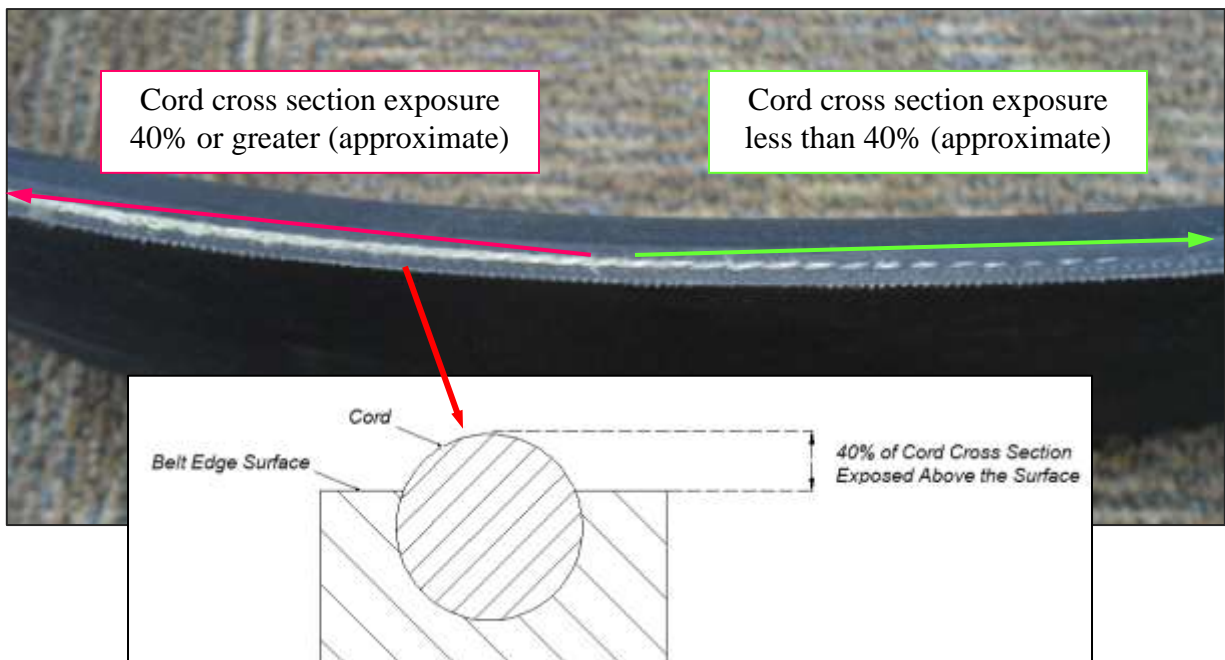


Figure 6. Cord exposure limits

7. PROCEDURE:

NOTE: The materials listed in paragraph 7.1 can be procured from a local source.

7.1 Authorized Materials

Denatured alcohol
3M 847 Nitrile High Performance Rubber and Gasket Adhesive
Clean shop cloths

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7.2 Surface Preparation

7.2.1 Clean the belt surface using a cloth wetted with solvent (ref. 7.1).

7.2.2 Trim loose fabric threads on fabric backing only.

7.3 Adhesive Application

7.3.1 Prepare the 3M 847 adhesive in accordance with the manufacturer's instructions.

7.3.2 Apply a bead of 3M 847 on the belt edge surface ensuring the exposed Kevlar cord is covered with adhesive (*Figure 7*).

7.3.3 Remove any adhesive from the rib edge and the back of belt using a clean cloth wetted with solvent (ref. 7.1).

CAUTION: Failure to remove excess adhesive from the rib edge or from the back of belt may impair smooth belt operation.

7.3.4 Allow the adhesive to dry for three hours, turn over and repeat the application for the edge on the other side of the belt.

7.3.5 Hang the belt on a rack and allow the adhesive to cure for a minimum of 12 hours.



Figure 7. Sealed belt edge surface

8. SPECIAL TOOLS: N/A

9. MAN-HOURS: 3 hours (belt sealing only)

10. WARRANTY: Per Enstrom Warranty Policy

11. WEIGHT CHANGE: None

12. LOG BOOK ENTRY: Record modification in the maintenance log book.

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13. REPETITIVE ACTION:

- 13.1 Inspect the drive belt in accordance with paragraphs 6.2 and 6.3 every 10 hours for exposed or unraveling cord until the belt edge is sealed in accordance with paragraph 7.
- 13.2 At every 50 hours, inspect the condition of the sealed belt edge.
- 13.3 At every 50 hours, check for contact between the drive belt and upper plenum/air inlet in accordance with the TH-28/480 Series Maintenance Manual Paragraph 13-29, B, for possible contact with adjacent structures, and adjust as necessary to prevent contact in accordance with Paragraph 13-31, B. In addition, inspect for loose or protruding cord on both the forward and aft edges of the drive belt around the circumference of the lower pulley.