



September 5, 2002

TO: Recipients of Enstrom Helicopter Service Directive Bulletins.

SUBJECT: REVISION OF SERVICE DIRECTIVE BULLETIN NO. T-013

This letter transmits Revision 2 to Service Directive Bulletin No. T-013: Cracked Oil Cooler Blower Shaft Flex Packs. This is a COMPLETE revision. Replace the previous issue with this edition.

The Repetitive Inspection requirement of this Service Directive Bulletin is revised because of recent flex pack failures.

Revision 1:

1. Revises the title of the Service Directive Bulletin
2. Adds 480B effectivity.
3. Revises the Background information.
4. Makes minor grammatical changes.
5. Updates the paragraph reference for the alignment procedure.
6. Adds Tie Wrap information to the Parts information.
7. Changes the Weight Change information from ounces to pound.
8. Revises the Repetitive Inspection requirement.

TECHNICAL PUBLICATIONS
ENSTROM HELICOPTER CORPORATION



SERVICE DIRECTIVE BULLETIN

SERVICE DIRECTIVE BULLETIN NO. T-013

Revision 2

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DATE: September 5, 2002

- 1. SUBJECT: Cracked Oil Cooler Blower Shaft Flex Packs
- 2. MODELS: TH-28, 480, and 480B
- 3. EFFECTIVITY: All serial numbers

4. BACKGROUND:

Enstrom has had one occurrence of a complete disconnect of an oil cooler blower shaft as a result of fatigue failure of the flex packs which accommodate short shaft misalignment. A complete disconnect results in loss of engine oil cooling and may result in subsequent engine damage or failure. The flex packs currently have an on condition life and Enstrom has had several reports of these flex packs cracking in service with as little as 300 flight hours. Preliminary investigation has concluded that the premature failures are due to installation misalignment.

Because of recent flex pack failures after the initial release of this Service Directive Bulletin, the repetitive inspection requirement is revised.

5. COMPLIANCE:

Prior to the next flight conduct a one time visual inspection of the oil cooler short shaft and flex pack couplings to insure integrity and that there are no obvious cracks in the flex plates.

CAUTION

A cracked flex plate may result in a sharp edge, be careful handling the couplings to prevent cutting yourself.

Any cracked couplings must be replaced prior to further flight. Within the next ten hours the short shaft and flex pack couplings must be removed from the aircraft, disassembled, and inspected per the procedures outlined in Subparagraphs 5.1, 5.2, and 5.3 and the protective shield installed as outlined in Subparagraph 5.4.

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- 5.1 Inspection and Removal of the Short Shaft and Flex Package Assemblies
 - 5.1.1 Remove the baggage compartment door and access panels from the left side of the aircraft.
 - 5.1.2 Remove the forward panels from the baggage compartment.
 - 5.1.3 Remove the oil cooler blower air inlet duct.
 - 5.1.4 Remove the left side air transfer duct.

CAUTION

Install a protective cover on the lower plenum assembly inlet to preclude accumulation of debris and subsequent foreign object damage to the compressor.

- 5.1.5 Remove the oil cooler blower short shaft from between the lower pulley assembly and the oil cooler blower assembly.
 - 5.1.6 Remove the flex packs from the oil cooler blower short shaft or from the drive hubs on the lower pulley assembly and the oil cooler blower assembly and inspect the individual flex pack elements per Paragraph 5.2.
- 5.2 Detailed Inspection of the Flex Packs
 - 5.2.1 Mark one edge of the flex pack with a magic marker to maintain disassembly order.
 - 5.2.2 Remove the plastic tie-wraps holding the flex pack together.
 - 5.2.3 Using a ten power glass inspect each flex pack element for cracks originating from the bolt holes, the bevel washer contact area, and/or the area where the tie-wraps hold the flex pack together.

NOTE

Maintain the order of the flex plates in the stack.

- 5.2.4 If no cracks are found, the flex pack may be reassembled in the same order, tie-wrapped, and returned to service.
- 5.2.5 If any flex pack elements are found cracked, replace the entire flex pack with a new flex pack, P/N 28-01041-3.

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5.3 Detailed Inspection of the Short Shaft

5.3.1 Check the end flanges on the short shaft for parallelism.

5.3.1.1 Clean off any paint residue from both ends of the short shaft and place the short shaft vertically on a surface plate; check the opposite end bolt flange for parallelism. The bolt flanges should be within .005" of each other.

5.3.1.2 Turn the short shaft end for end and check the opposite end for parallelism. The bolt flanges should be within .005" of each other.

NOTE

Please contact Enstrom Customer Service for additional instructions if the short shaft is out of tolerance more than .005".

5.4 Installation of Protective Shield

In order to preclude the possibility of incurring an expensive engine repair in the event of a short shaft failure due to inadvertent misalignment, Enstrom is providing a protective shield free of charge. Install the protective shield as follows:

5.4.1 Clean the top and top forward end of the lower plenum chamber and the bottom of the stainless steel shield with a degreaser such as MEK.

5.4.2 Apply three strips of double backed tape lengthwise along the edges and center line of the stainless steel shield.

5.4.3 Center the shield between the plenum inlets and press into the tape to adhere and achieve a good bond.

5.4.4 Continue re-installation of the short shaft and couplings.

CAUTION

When re-installing the air duct, check to insure the lower plenum is free of debris.

5.5 Re-assembly

Re-assemble the short shaft and flex packs in reverse order ensuring that the alignment procedure outlined in the TH-28/480 Series Maintenance Manual, Paragraph 11-17, D, is

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followed carefully. Should you encounter difficulty in obtaining alignment, please contact Enstrom Customer Service.

5.6 Parts

<u>Description</u>	<u>Part Number</u>	<u>Quantity</u>
Flex Pack	28-01041-3	2 as required
Tie Wrap	SST1.5I-MP or equivalent	4 per flex pack
Oil Cooler Short Shaft	4129102-107	1 as required
Protective Shield	4120521-11	1
Double Backed Tape	4910	30 inches

6. PARTS AND SPECIAL TOOLS: Surface plate, height gauge capable of discriminating .0005".

7. MAN-HOURS: 5 minutes for visual inspection
3 man- hours for alignment inspection

8. WARRANTY: Standard New Aircraft Warranty

9. WEIGHT CHANGE: .3 pounds at fuselage station 166.34

10. LOG BOOK ENTRY:

Enter compliance with this Service Directive Bulletin in the aircraft Log Book.

11. REPETITIVE INSPECTIONS:

Remove and inspect the flex packs, P/N 28-01041-3, in accordance with paragraph 5.2 during the 100 hour/annual inspection.