



SERVICE DIRECTIVE BULLETIN

SDB T-026
Revision 1
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REVISION 1: Revised Compliance requirements; Paragraph 5.1.H(1) through (3) acceptable range is now .004" to .006" (was .002" to .004"); Added T-0186; Part number format update: now ECD4017 was ECD-4017; Deleted Step H(4); added applicable 4131001 dash numbers.

DATE: February 14, 2014

1. SUBJECT: Power Output Shaft Bearing Inspection
2. MODEL: TH-28, 480, 480B
3. EFFECTIVITY: TH-28 & 480: All serial numbers
480B: Serial numbers 5090 and prior
4. BACKGROUND:

There have been a number of ECD4017 bearings, installed in the power output shaft assembly (drive shaft assembly, P/N 4131001¹), prematurely removed from service because of excessive wear. The investigation for the cause of the excessive wear is on-going. The shimming procedure used during the shaft assembly installation has been identified as a potential contributing factor to the premature wear.

This Service Directive Bulletin (SDB) provides instructions for inspecting the ECD4017 bearing for excessive wear and inspecting/reshimming the power output shaft assembly.

Since the initial release of this SDB, the shimming requirement has been revised (previously .002" to .004"; now .004" to .006").

5. COMPLIANCE:

If the inspection and shimming requirements (.002" to .004") were complied with in the original release of this SDB, repeat the inspection of the ECD4017 bearing for excessive wear and the shimming of the power output shaft assembly in accordance with paragraph 5.1 at the next 100 hour/annual inspection.

If the shimming requirements (.004" to .006") were complied with per paragraph 11-14 of the TH-28/480 Series Maintenance Manual, no further action is required.

Otherwise, within the next 10 hours time in service, inspect the ECD4017 bearing for excessive wear and the shimming of the power output shaft assembly in accordance with paragraph 5.1.

¹ Dash numbers: -103, -109, -111, -113, or -115

5.1 INSPECTION:

NOTE

Perform all maintenance IAW the TH-28/480 Series Maintenance Manual (MM) except as modified by this Service Directive Bulletin. Perform all maintenance on the Rolls-Royce engine IAW with the 250-C20 Series Operation and Maintenance Manual (10W2).

- A. Remove the engine ignition exciter from the engine gearbox (10W2).
- B. Remove the three bolts and spacers connecting the lower pulley assembly forward flex pack to the power output shaft.
- C. Inspect the ECD4017 bearing for wear by manually attempting to move the aft end of the power output shaft radially and axially and feeling for radial or axial play.
 - (1) If radial or axial play is evident, remove the power output shaft from the aircraft and replace the ECD4017 bearing (MM, para. 11-11 thru 11-14, Use Tool T-0186 to assist with removal). When reinstalling the power output shaft, shim the power output shaft using the procedures in this SDB.

NOTE

The overrunning clutch assembly and the seals in the engine may require replacement depending on the condition of the ECD4017 bearing. The engine's output drive spline may require thorough cleaning depending on the condition of the ECD4017 bearing.

- (2) Proceed to the next step (para. 5.1.D) if no radial or axial play is evident in the bearing.
- D. Gain access to the overrunning clutch cover on the front of the engine.
- E. Remove one of the service plugs and drain the oil from the overrunning clutch into a suitable container.
- F. Remove the clutch cover retaining ring and the clutch cover.

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- G. Using your fingers, attempt to turn/rotate the shims installed under the retaining ring on the end of the power output shaft (Refer to Figure 1).
- (1) If the shims cannot be turned/rotated using your fingers, remove the retaining ring from the end of the power output shaft and remove the shims. Separate and clean the shims. Reinstall the shims and retaining ring, and attempt to rotate the shims using your fingers.
 - (2) If the shims cannot be turned/rotated using your fingers, remove the power output shaft from the aircraft and replace the ECD4017 bearing (MM, para. 11-11 thru 11-14, Use Tool T-0186 to assist with removal and replacement). When reinstalling the power output shaft, shim the power output shaft using the procedures in this SDB.
 - (3) Proceed to the next step (para. 5.1.H) if the shims can be turned/rotated using your fingers.
- H. Using a feeler gauge, determine the distance between the retaining ring on the end of the power output shaft and the shim(s) (Refer to Figure 1). Record distance on the SDB Report Sheet (Measurement 1).
- (1) If the distance between the retaining ring and the shim(s) is .004" to .006", no further action is required.
 - (2) If the distance between the retaining ring and shim(s) is greater than .006", remove the retaining ring and add shims until the distance is between .004" and .006".
 - (3) If the distance between the retaining ring and shim(s) is less than .002", remove the retaining ring and shims and record the total thickness of shims on the SDB Report Sheet (Measurement 2). Recheck the aft end of the power output shaft for radial and axial play IAW para.5.1.C.; replace the bearing as required. If no radial or axial play is evident, reinstall the retaining ring and adjust the shim(s) to the .004" to .006" distance. Determine the difference between the thickness of the original shim installation verses the thickness of the adjusted installation. Record the difference on the SDB Record Sheet (Measurement 3).
 - (4) (deleted)
- I. Reinstall the bolts and spacer into the lower pulley assembly forward flex pack and the power output shaft and lockwire the three bolts (MM, para. 11-17.E.(4)).

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- J. Reinstall the engine's ignition exciter (10W2)
- K. Reinstall the overrunning clutch cover and retaining ring (MM, para. 11-14.D).
- L. Service the overrunning clutch (MM, para. 4-10).

5.2. PARTS:

Refer to the TH-28/480 Series Illustrated Parts Catalog, Figures 7-1 and 7-2.

5.3. CONTACT INFORMATION

Enstrom Product Support

Tel: 906-863-1200

Fax: 906-863-6244

email: customerservice@enstromhelicopter.com

5.4. REPORTING

Submit the completed SDB Report Sheet to Enstrom Product Support via email or fax.

NOTE

Failure to submit the completed SDB Report Sheet will void any future warranty consideration for any maintenance issues related to this Service Directive Bulletin.

6. SPECIAL TOOLS:

Enstrom Tool T-0186 (contact Enstrom Customer Service for obtaining the tool and the instructions for use); refer to the MM if replacing the ECD4017 bearing.

7. ESTIMATED MAN-HOURS:

2 Man-hours to inspect and/or adjust the power output shaft shimming.

15 Man-hours if replacing the ECD4017 bearing.

8. WARRANTY:

Warranty is applicable for this Service Directive Bulletin. Submit completed Warranty Form.

9. WEIGHT CHANGE: None

10. LOG BOOK ENTRY:

Enter compliance with this Service Directive Bulletin in the aircraft maintenance records.

11. REPETITIVE INSPECTIONS: None

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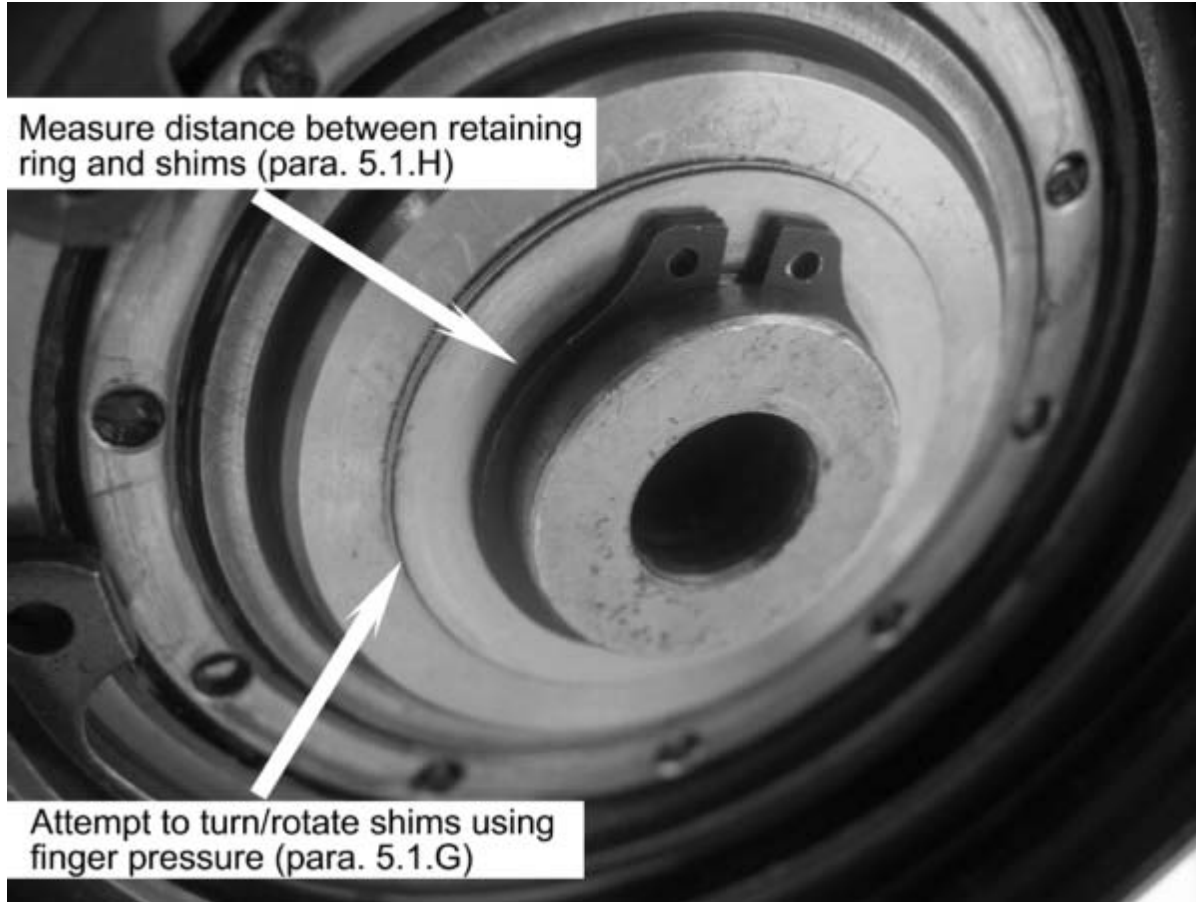


Figure 1.

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SERVICE DIRECTIVE BULLETIN REPORTING SHEET

Date: _____

Service Center/Mechanic: _____

Address: _____

Aircraft Serial Number: _____

Registration Number: _____

Aircraft Total Time: _____

I ECD4017 Bearing Total Time and/or 4131001² Power Output Shaft: _____

Radial or Axial play evident (para. 5.1.C): Yes _____ No _____

Can shims be turned/rotated using finger pressure (para. 5.1.G): Yes _____ No _____

Measurement 1 (para. 5.1.H.): _____

Measurement 2 (para. 5.1.H.(3)) _____

Radial or Axial play evident (para. 5.1.H.(3)): Yes _____ No _____

Measurement 3 (para. 5.1.H.(3)) _____

Comments: _____

² Dash numbers: -103, -109, -111, -113, or -115