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# SERVICE INFORMATION LETTER

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Revision 1  
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Revision 1 clarifies the flapping bearing and the retention assembly installations.

DATE:                    May 29, 2015

1. SUBJECT:            Modified Flapping Bearing Installation Procedure

2. MODEL:             F-28A, 280, F-28C, 280C, F-28F, 280F, and 280FX

3. EFFECTIVITY:    All Serial Numbers

4. BACKGROUND:

Enstrom revised the procedures for installation of the main rotor flapping bearings and the main rotor retention assemblies. The new procedures improve the service life of the main rotor flapping bearings and the flapping hinge pin.

5. COMPLIANCE:

Use the following procedures when replacing the main rotor flapping bearings, P/N ECD092-1.

5.1. FLAPPING BEARING INSTALLATION: (Refer to Figure 2)

5.1.1. Index mark the universal blocks and retention assemblies as sets.

5.1.2. Measure the stack-up of two (2) bearings, P/N ECD092-1, and one (1) spacer, P/N 28-14235-1, and measure the distance between the spindle fork (See Figure 1).

5.1.3. If the bearing and spacer stack-up dimension is less than the dimension between the spindle fork, add shims, P/N 28-14009-x, between the bearings and the spacer to create a zero tolerance fit.

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**NOTE**

**Use an arbor press to remove/install the flapping bearings if the main rotor hub is disassembled. If the main rotor hub is assembled, use the Universal Block Bearing Tool, T-0151, to remove/install the flapping bearings. Refer to Figures 4 and 5 for use of tool T-0151.**

- 5.1.4. Lubricate the bore of the U-block with grease (MIL-PRF-81322) or a mixture of STP® and oil. Install a DU washer on the forward side of the universal block and install one of the flapping bearings ensuring that the bearing is installed flush with the DU washer (See Figure 4).

**NOTE**

**If desired, an alignment/installation pilot (included with the T-0151 tool set) can be fabricated to aid in the installation of the bearing, spacer, and shim(s) into the universal block (See Figure 6). This pilot may also be used to aid in installation of the flapping pin when installing the retention assemblies.**

- 5.1.5. Install the spacer, shims (if required), and second flapping bearing. Ensure that the first flapping bearing is still flush with the DU washer (See Figure 2 and Figure 4).
- 5.1.6. Remove the DU washer.
- 5.1.7. Repeat the procedure for the remaining universal blocks.

- 5.2. RETENTION ASSEMBLY INSTALLATION: (Refer to Figure 3)

**NOTE**

**Installing the pilot (See Figures 4 and 5) in the universal block will keep the spacers and shims in the proper location while installing the flapping hinge pin.**

- 5.2.1. Lubricate the hinge pin with grease (MIL-PRF-81322) or a mixture of STP® and oil.
- 5.2.2. Apply grease (MIL-PRF-81322) to the side of one DU washer recess and to both sides of a P/N 28-14019-5 shim. Install the shim on the greased bearing groove.

**NOTE**

**If installing the shim to the right side of the universal block, then install the shims for the other two universal blocks on the right. Likewise, if installing the shim to the left side, then install all shims to the left of the universal block.**

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- 5.2.3. Install the DU washers on each side of the U-block with the chamfered side inboard toward the U-block.

**NOTE**

**Ensure that the correct retention assembly is being installed on the shimmed universal block.**

- 5.2.4. Carefully slide the retention assembly into position over the DU washer and U-block.

**NOTE**

**Enstrom recommends replacing Flapping Hinge Pin, P/N 28-14233-1, with Flapping Hinge Pin, P/N 28-14233-3, when reinstalling the main rotor retention assemblies after the flapping bearings have been shimmed according to this Service Information Letter. The Flapping Hinge Pin, P/N 28-14233-3, is manufactured to closer tolerances for bearing fit and will improve service life. The Flapping Hinge Pin, P/N 28-14233-1, is an acceptable alternate and serviceable pins may be reinstalled.**

- 5.2.5. Install the hinge pin through the spindle and U-block. Align the roll pin slot in the hinge pin with the roll pin and seat the hinge pin. Tap the roll pin flush with the hinge pin if it protrudes from the hinge pin.
- 5.2.6. Install the lock washer and nut on the hinge pin.
- 5.2.7. Torque the nut using tool (T-0051-3) to 150-175 ft-lbs/203.4-237.3 Nm. The nut may be torqued to 175 ft-lbs/ 238.6 Nm for aligning one of the lockwasher tabs.
- 5.2.8. Check the flapping bearing drag resistance at the blade pin. Initially, the grip should not stay up. Add additional shim (P/N 28-14019-5) thickness (under the DU washer) in 0.005 inch increments to achieve sufficient resistance to hold the grip in the up-stop position at 150 ft-lbs/203.4 Nm. Then remove one shim and verify that the flapping bearing moves freely.
- 5.2.9. Secure the nut by bending one of the tabs on the lockwasher (4) into a slot in the nut.
- 5.2.10. Lubricate the flapping bearings.
- 5.2.11. Repeat the procedure for the remaining retention assemblies and reassemble the aircraft in accordance with the appropriate aircraft maintenance manual.

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5.3. PARTS:

<u>Description</u>	<u>Part Number</u>	<u>Quantity</u>
Flapping Hinge Pin	28-14233-3	3
Shim, .001"	28-14009-1	A/R
Shim, .002"	28-14009-2	A/R
Shim, .003"	28-14009-3	A/R
Shim, .005"	28-14009-5	A/R
Shim, .005"	28-14019-5	A/R

## 6. SPECIAL TOOLS OR EQUIPMENT:

T-0051 Main Rotor Flapping Nut Tool  
T-0151 Universal Block Bearing Tool Set

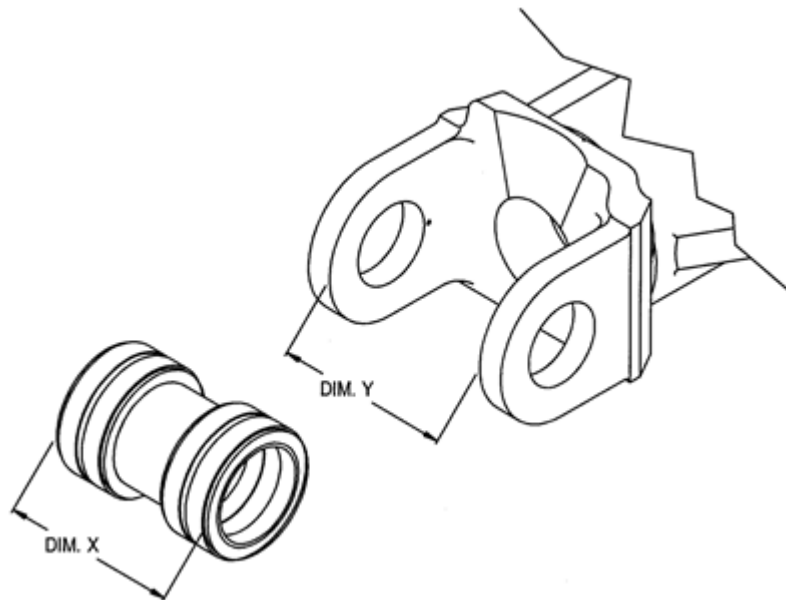
7. MAN-HOURS: 4 Man-hours

8. WARRANTY: Per Enstrom warranty policy

9. WEIGHT CHANGE: None

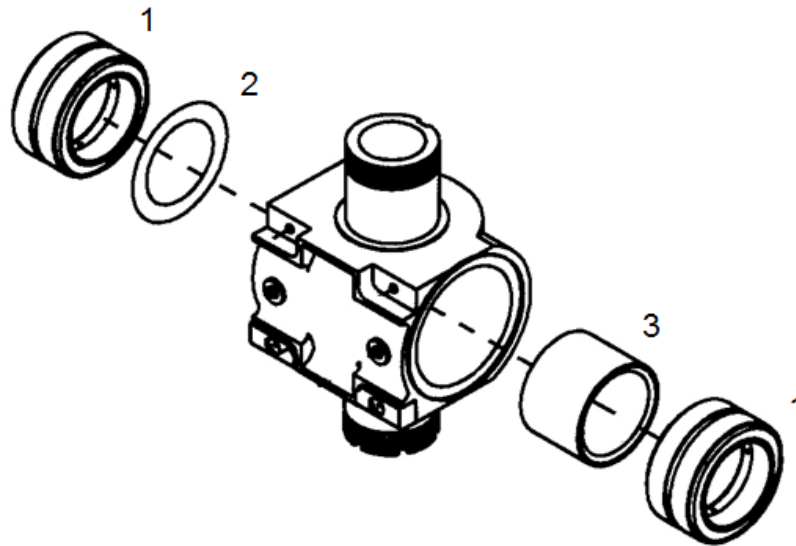
10. LOG BOOK ENTRY: Enter compliance with this Service Information Letter.

11. REPETITIVE INSPECTIONS: In accordance with appropriate aircraft maintenance manual.



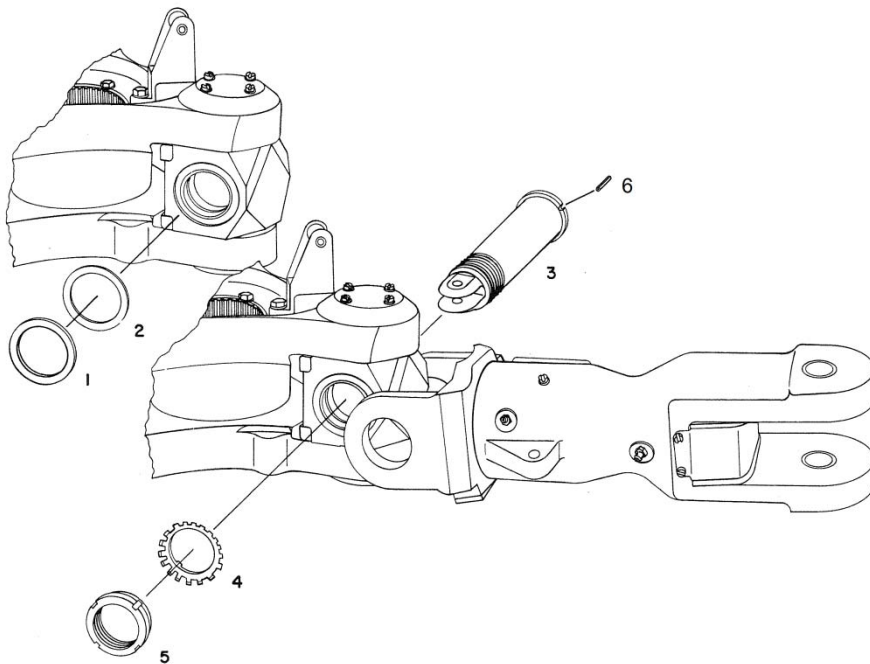
**Figure 1. Flapping Bearing & Spindle Dimension Check**

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- |    |                              |    |        |
|----|------------------------------|----|--------|
| 1. | Flapping Bearing             | 3. | Spacer |
| 2. | Shim, .005" (P/N 28-14009-x) |    |        |

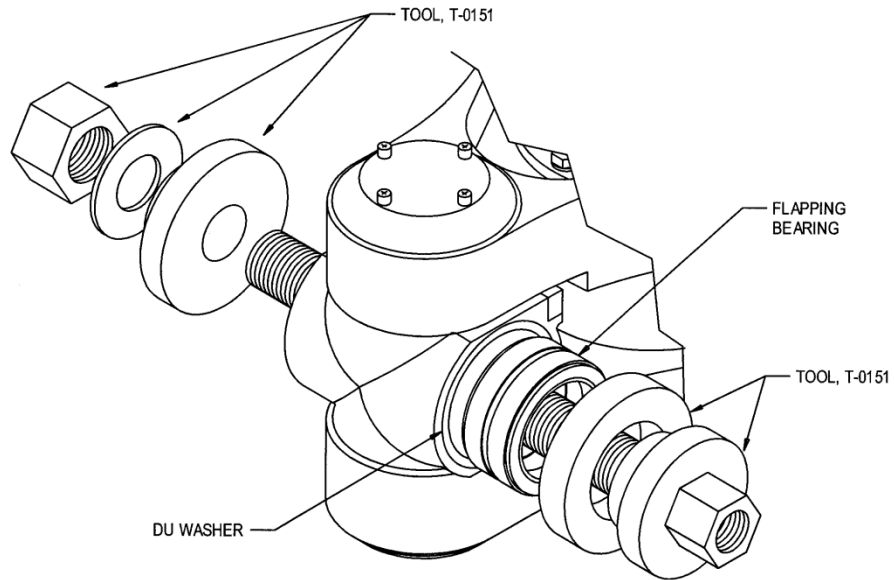
**Figure 2. Flapping Bearing, Shim, and Spacer Installation**



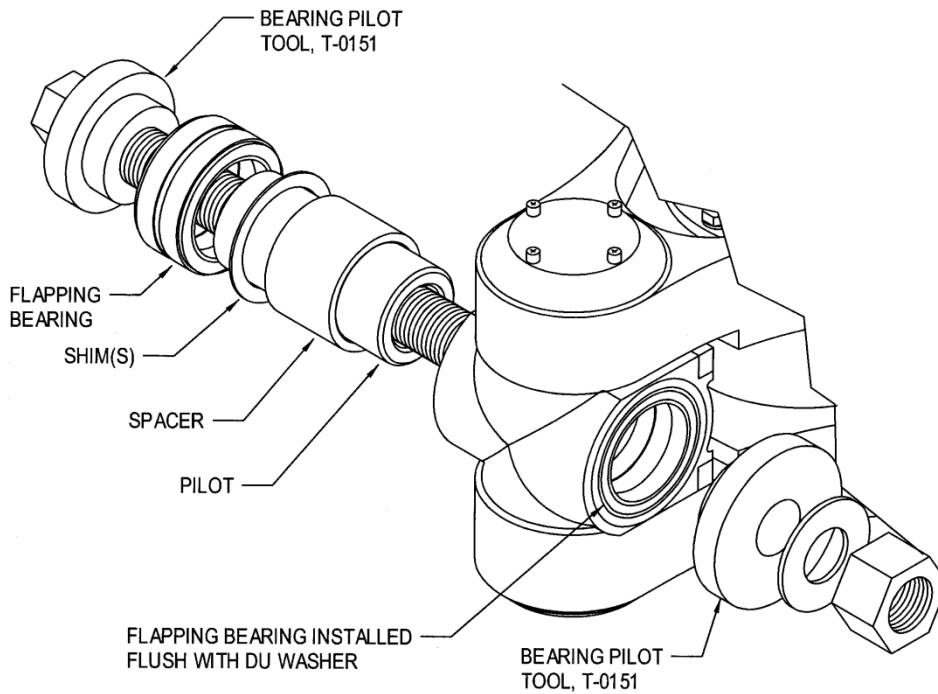
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|----|--|----|--------------------|
| 1. | DU Washer  | 3. | Flapping Hinge Pin |
| 2. | Shim, .005" (P/N 28-14019-5)<br>(initially only one shim is installed,<br>either the left or the right side of the<br>universal block) | 4. | Lock Washer        |
|    |  | 5. | Nut                |
|    |  | 6. | Pin                |

**Figure 3. Retention Assembly Installation**

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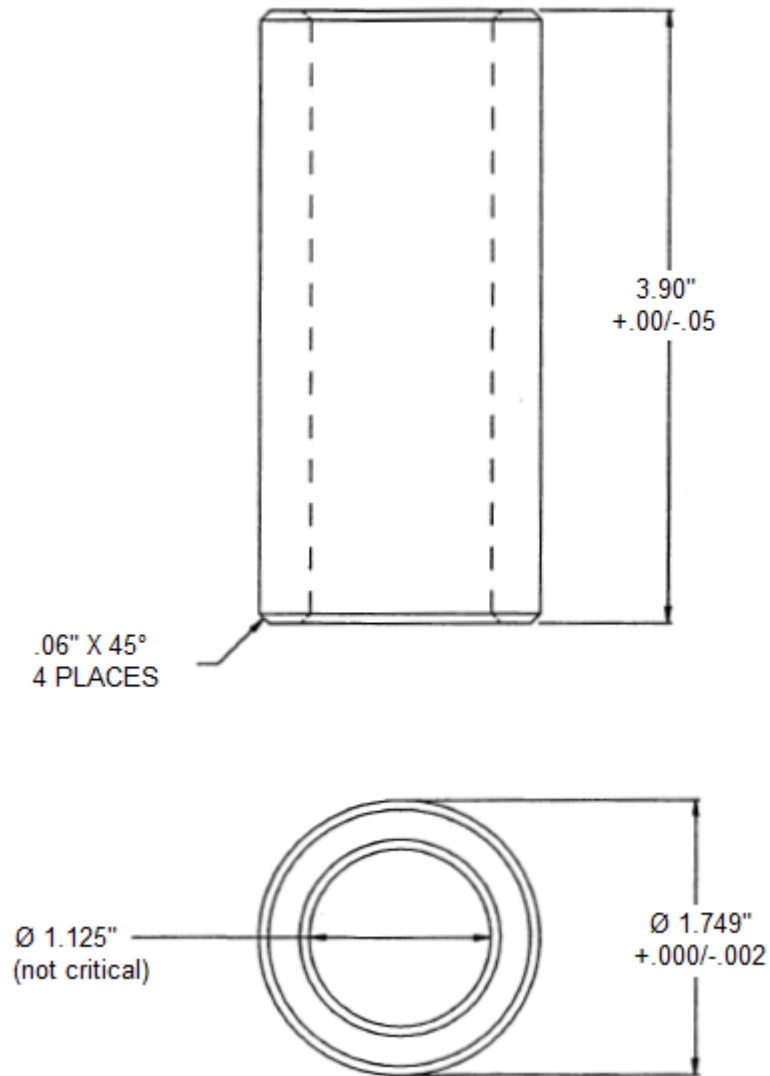
**Figure 4. "Forward" Flapping Bearing Installation**



**Figure 5. "Aft" Flapping Bearing & Spacer Installation**

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MAKE FROM UNSERVICEABLE FLAPPING PIN  
P/N 28-14233-1 OR OTHER SUITABLE MATERIAL



**Figure 6. Alignment/Installation Pilot**