



SERVICE DIRECTIVE BULLETIN

SERVICE DIRECTIVE BULLETIN NO. 0112

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DATE: September 22, 2011

1. SUBJECT: Cooling Fan Assembly Inspection
2. MODEL: F-28A, 280, F-28C, 280C, F-28F, 280F, and 280FX
3. EFFECTIVITY: All
4. BACKGROUND:

Enstrom has received a report from the field of a failure in the cooling fan assembly. A single fan blade fractured through the bolt attachment hole and detached from the blade ring. The cause of failure has been attributed to a loss in torque of the blade attachment bolt, causing the operating loads to be unfairly redistributed through the attachment hardware resulting in separation of the blade. Failure of a blade will result in damage to surrounding components and significant imbalance of the cooling fan assembly and engine.

This Service Directive Bulletin (SDB) requires one-time and repetitive inspections of the cooling fan assembly.

5. COMPLIANCE:
 - 5.1 For aircraft with 1,500 hours or more, inspect the cooling fan assembly in accordance with paragraph 6.1 at the next 100-hour or annual inspection.
 - 5.2 For aircraft with less than 1,500 hours, inspect the cooling fan assembly in accordance with paragraph 6.1 prior to reaching 1,500 hours time in service.
 - 5.3 At any time the engine is overhauled or changed and at any time the fan is removed for engine or drive system maintenance, inspect the cooling fan assembly in accordance with paragraph 6.2.
6. INSPECTION

NOTE: All work must be accomplished in accordance with the applicable Enstrom F-28/280 Series Maintenance Manual.

6.1 Bolt Torque Check

CAUTION: Ensure that the engine cannot start during the inspection. Remove the ignition key, set mixture at ICO, and disconnect the battery.

6.1.1 Remove the ignition key, set mixture at ICO, and disconnect the battery to ensure that the engine cannot start while performing the inspection.

NOTE: Because the fan assembly must be removed to perform the torque inspection for F-28A and 280 model aircraft, proceed to step 6.2.

NOTE: For C, F, and FX model aircraft, the fan blade hardware can be accessed through the oil cooler duct cover and the aft cowling. Proceed to step 6.1.2.

6.1.2 Open the left side engine cowling and remove the oil cooler duct cover.

6.1.3 Remove the aft cowling.

6.1.4 Check the torque of the bolt (2) and nut (5) for all nineteen locations on the cooling fan assembly (*Figure 1*). Verify a torque of 12-15 in-lb (1.4-1.7 Nm). Use caution when rotating the fan. Remove tools and limit hand contact with the fan.

WARNING: The possibility of the engine firing while the fan is rotated is unlikely; however, it could occur under certain conditions. Use caution when rotating the fan to avoid injury or damage in the event the engine would fire.

6.1.5 Re-install cowling and oil cooler duct cover.

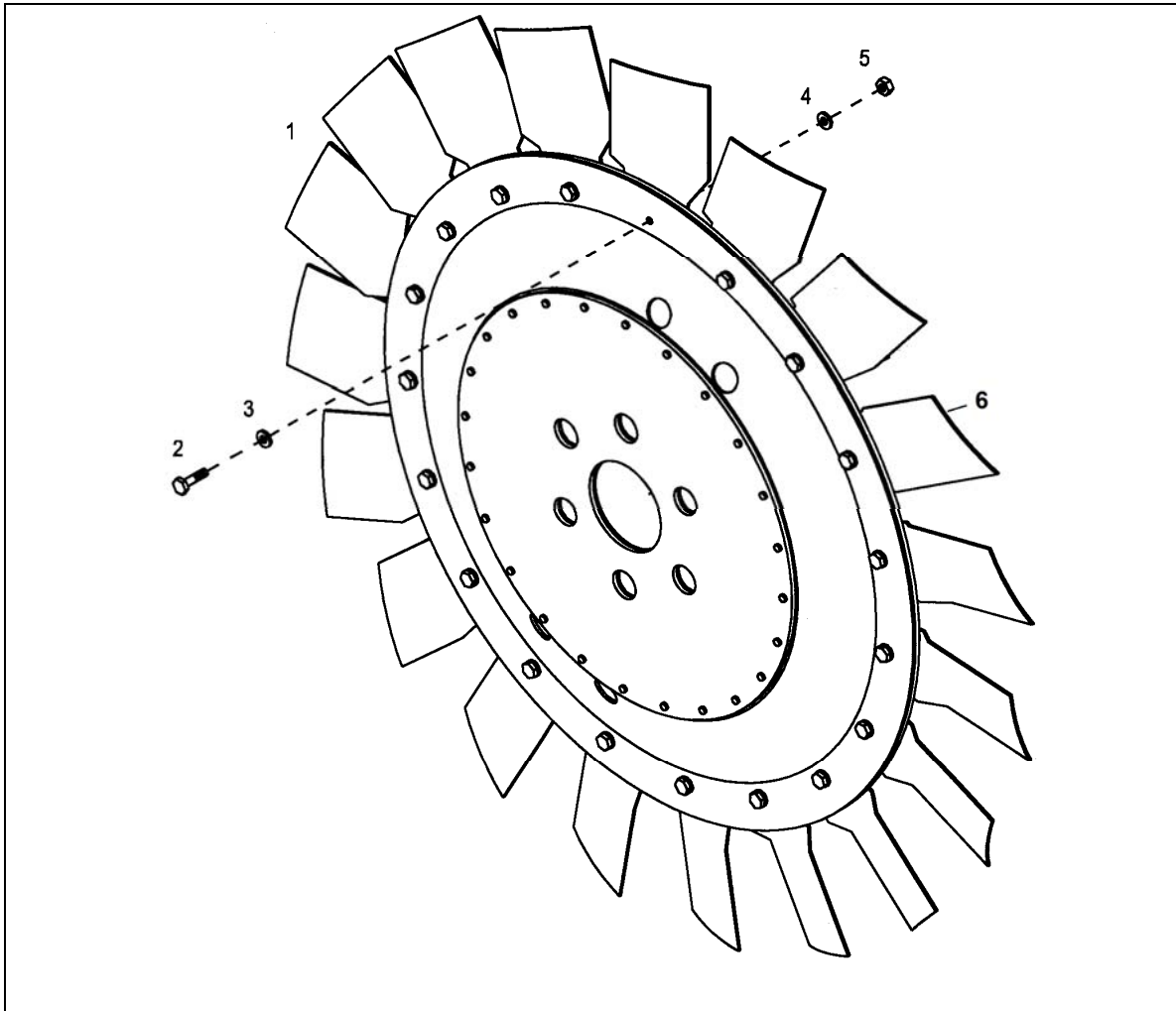
6.2 Fan Blade Inspection

6.2.1 Remove the cooling fan assembly (1) in accordance with the applicable maintenance manual (F-28F/280F series paragraph 13-3, B(1); F-28A/C page MM-5-38; 280/C page MM-5-42). **NOTE:** Note placement and number of shims and spacers for re-assembly.

6.2.2 Inspect the fan blades (6) for cracks, especially around the bolt and rivet holes. Inspect the fan blades for security of attachment. Inspect the cooling fan assembly (1) for damage.

6.2.3 Check the torque of the bolt (2) and nut (5) for all nineteen locations on the cooling fan assembly (*Figure 1*). Verify a torque of 12-15 in-lb (1.4-1.7 Nm).

- 6.2.4 Install the cooling fan assembly in accordance with the applicable maintenance manual (F-28F/280F series 13-3, B(5); F-28A/C page MM-5-38 removal steps reversed; 280/C page MM-5-42 removal steps reversed). NOTE: Install spacers and shims as required during re-installation.
7. SPECIAL TOOLS: None
8. MAN-HOURS:
 - 8.1 Bolt Torque Check (without removing the fan) – 15 minutes
 - 8.2 Fan Blade Inspection – 1 hour
9. WARRANTY: Per Enstrom New Helicopter Warranty policy
10. WEIGHT CHANGE: None
11. LOG BOOK ENTRY: Enter compliance with this SDB in the aircraft maintenance records.
12. REPETITIVE ACTION
 - 12.1 Repeat the inspection procedure of paragraph 6.2 every 1,500 hours and at any time the engine is overhauled or changed and at any time the fan is removed for maintenance related to the engine or the drive system. Note this inspection interval can concur with the engine 1,500 hour overhaul cycle.



ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY PER ASSY
1	28-12601-1	. Fan Assembly	1
2	AN3-6A	.. Bolt	19
2*	AN3-5A	.. Bolt	A/R
3	AN960-10	.. Washer	19
3*	AN960-10L	.. Washer	A/R
4	AN960-10L	.. Washer	19
4*	AN960-10	.. Washer	A/R
5	AN364-1032A	.. Nut	19
6	28-12644-1	... Blade	19

* Used as required for balancing fan assembly

Figure 1. Cooling Fan Assembly