



## SERVICE DIRECTIVE BULLETIN

SERVICE DIRECTIVE BULLETIN 0078

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DATE: October 18, 1989

1. SUBJECT: Tail Rotor Gearbox Inspection
2. MODELS: All Enstrom F28A, 280, F-28C, F-28C2, 280C, F-28F, 280F and 280FX with tail rotor gearboxes P/N 28-135251-1, -3, or -5.
3. EFFECTIVITY: Within the Next 5 Flight Hours and/or Next 30 Calendar Days
4. BACKGROUND:

There have been two reported cases of chipped or broken teeth in the tail rotor gearbox and one total gear failure. The gear failure resulted in an emergency autorotation. Initial reports of these occurrences gave no apparent reason. Subsequent examination of the gears and case histories of gearbox usage indicated that the failures probably were the result of operational abuse, sudden stoppage, or inadvertent mechanical damage to the gear teeth at assembly or overhaul.

As an appropriate precautionary action, the following inspections must be performed to preclude the possibility of any additional failures.

5. COMPLIANCE:

Within the next 5 hours of service or the next 30 calendar days, whichever comes first, the gearbox oil should be drained. The drained oil and the magnetic plug should be closely inspected for metal contamination.

- 5.1 Airworthiness Criteria:

During this inspection, if metal particles are found on the magnetic chip detector plug or in the oil, the following information should be utilized to determine the serviceability of the gearbox.

Magnetic chip detector grey sludge, fuzz, fine hair-like particles. This is the result of normal wear. The detector should be cleaned and rechecked after the next five hours of service. The gradual accumulation of sludge or fuzz is acceptable.

5.1 Airworthiness Criteria Cont.:

Oil found contaminated with thin metal flakes less than .005” in thickness and .015” in length and not exceeding 15 flakes may or may not indicate bearing or gear deterioration. The box should be flushed and refilled with clean oil, and a serviceability check be performed by flying for one hour at various power settings up to full power and then rechecking for contamination. If metal contamination is still in evidence the box should be replaced with an airworthy assembly.

Chip detectors or oil found with large steel particles (i.e. greater than .005” in thickness or longer than .015” in length) in splinter or granular form indicate gear or bearing deterioration. Replace gearbox with an airworthy assembly.

5.2 Return To Service:

The magnetic plug should be well cleaned with a cotton swab and/or an airgun prior to return to service. NOTE: Do not clean with a strong magnet as it weakens the magnet on the plug.

5.3 Proper Lubricant:

Refill the box with an approved lubricant. The following list is provided for reference.

Tail Rotor Gearbox

Oil	MIL-L-6082B	SAE 10W Shell Oil
		SAE 10W Texaco
Oil	MIL-L-22851B	SAE 20W-50W Phillips Pet.

Should none of the lubricants noted be available, contact Enstrom\*s Customer Service Department before substituting another lubricant.

6. SPECIAL TOOLS:

No special tools are required.

7. MAN HOURS REQUIRED:

Approximately .5 hours for disassembly, inspection and reassembly.

8. WARRANTY:

.5 hour labor warranty is applicable to “F” model helicopters falling within the warranty period. Older models are not covered by warranty except credit will be given on time used for tail rotor gearboxes which qualify for fixed cost overhaul that require premature overhaul.

9. WEIGHT CHANGE:

Not Applicable.

10. LOG BOOK ENTRY:

A log book entry should be made noting the inspection and documenting any sign of debris on the magnetic plug.

11. REPETITIVE INSPECTION

The inspections as defined in this Service Directive Bulletin are to be considered an integral part of all 100 hour inspections hereafter.

12. COMPONENT RETIREMENT LIFE

The XR-137-2Y tail rotor gears are to be retired upon completion of 1200 hours of flight time or upon overhaul as a result of crash damage or sudden stoppage. Gears of undefined usage or flight time are considered unairworthy.