



SERVICE DIRECTIVE BULLETIN

SERVICE DIRECTIVE BULLETIN NO. 0075

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SUBJECT: Tail Rotor Cable Blade Strikes

MODELS: F28C, 280C, F28F, 280F and FX Models

EFFECTIVITY: As noted in the following text

There have been three reported occurrences of tail rotor cable separation in flight on "C" and "F" model helicopters during severe maneuvering. These occurrences were the result of the tail rotor blade tip striking the left tail rotor control cable at a point just aft of the last tailcone bulkhead fairlead.

In an effort to determine the cause of these tail rotor control cable strikes, several helicopters including an old "C" model and three new production helicopters were closely examined for proper rigging and operating clearances. With full right pedal and the tail rotor assembly teetered hard against the teeter stop rubber bumper, a minimum clearance of 1.00 to 1.10 inches was measured between the tail rotor blade tip and the control cable.

With consideration of the flight sequences of the individual occurrences provided to Enstrom and Enstrom's examination of the operational clearances of the tail rotor control system, the following conclusions have been reached concerning the reported tail rotor cable strikes:

- (1) Sudden airborne maneuvers by themselves do not result in tail rotor blade motions which would intercept the tail rotor control cable.
- (2) Sudden airborne maneuvers do not result in deflections of the fuselage, tailcone, stinger tube or cables which would contribute to the possible interception of the tail rotor blade and cable.

- (3) It was concluded, however, that slack cable tension resulting from improper rigging in conjunction with worn teeter stops, low rotor rpm, and a severe maneuver (such as sudden left yaw), could result in the slack cable being thrown outward and into the rotating path of the tail rotor blade.

NOTE: In one occurrence, an intercept of the blade and cable was encountered on a new "F" model helicopter in which subsequent investigation revealed the rigging and cable tension to be correct. Attempts to simulate the maneuver which precipitated the cable strike always resulted in adequate clearance. It was concluded that this incident was unique and probably due to a combination of pedal reversals on the ground, extremely low rpm and teeter stop pounding in gusty wind conditions so severe as to actually bend the blades chordwise until an intercept was encountered.

Enstrom is therefore requiring that all owners and operators perform the following inspections upon receipt of this Service Directive Bulletin.

- (1) An immediate inspection for proper cable tension and condition of tail rotor teeter stop rubber bumpers must be made. With full hard right or left pedal applied, any visible sag in the cable should be considered low tension and the aircraft should not be flown until cable tension and rigging is checked by experienced maintenance personnel. Rubber teeter stop bumpers found to be brittle, cracked, missing, or with heavily-worn screw heads, should be replaced prior to the next flight.
- (2) Tail rotor cables found to have little or no sag and teeter stops with minor wear should be checked for proper rigging and cable tension by experienced maintenance personnel within the next 5 hours of service.
- (3) Proper rigging and cable tension must be verified at each subsequent 100 hour inspection.

NOTE: (a) Complete rigging information on the tail rotor control cables for F28C and 280C can be found in Enstrom Maintenance Manual page MM-24-8. Rigging information for the Enstrom "F" and "FX" models is in the F Model Maintenance Manual, 1986 Edition, starting on page MM-10-1.

(b) With stops and travel properly rigged, the tail rotor cables must have 35 to 40 lbs of tension on them, verified by the use of a tensiometer. The clearance between the tail rotor blade and the cable must be at least 1.00 inch with the blade teetered full forward and the rubber stop compressed.