



DATE: February 12, 2015
AD #: 2015-04-51

This emergency airworthiness directive (EAD) 2015-04-51 is being sent to owners and operators of The Enstrom Helicopter Corporation (Enstrom) Enstrom Model F-28A, 280, F-28C, F-28C-2, F-28C-2R, 280C, F-28F, F-28F-R, 280F, 280FX helicopters, all serial numbers; and Model 480 helicopters with a serial number (S/N) 5001 through 5006; with a main rotor spindle (spindle), part number (P/N) 28-14282-11 or P/N 28-14282-13.

Background

This EAD was prompted by a fatal accident. The investigation is ongoing, however, preliminary results indicate that the accident was caused by a crack in the spindle which resulted in the main rotor blade separating from the helicopter. The crack was discovered at the last thread of the spindle retention nut threads. While the investigation could not determine when the crack initiated, it was able to determine that the crack existed, undetected, for a significant amount of time before the separation. This EAD requires, before further flight, conducting a magnetic particle inspection (MPI) to determine if a crack exists in any spindle that has 5,000 or more hours time-in-service (TIS) or where the hours TIS of the spindle is not known. If there is a crack in the spindle, replacing it before further flight is required. Reporting the inspection results to the FAA is also required within 72 hours. These EAD actions are intended to detect a crack in the spindle which could result in loss of a main rotor blade and subsequent loss of control of the helicopter.

FAA's Determination

We are issuing this EAD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of these same type designs.

Related Service Information

Enstrom has issued Service Directive Bulletin No. 0119, dated February 11, 2015, for all S/Ned Model F-28A, F-28C, F-28F, 280, 280C, 280F, and 280FX helicopters with a spindle, P/N 28-14282-11 and 28-14282-13. Enstrom has also issued Service Directive Bulletin No. T-050, dated February 11, 2015, for Model 480 helicopters, S/N 5001 through 5004 and 5006, and with a spindle, P/N 28-14282-13, except those aircraft modified with tension-torsion straps. Both service directives specify, for any spindle that has 5,000 hours or more hours TIS, within 5 hours TIS, sending the spindle to Enstrom for an MPI. For any spindle with less than 5,000 hours TIS, the service directives specify sending the spindle to Enstrom for an MPI before it reaches 5,000 hours TIS.

EAD Requirements

This EAD requires, before further flight, conducting an MPI to determine if a crack exists in any spindle that has 5,000 or more hours TIS or where the hours TIS of the spindle is not known. If there is a crack in the spindle, replacing it before further flight is required. The MPI of the spindle

must be conducted by a Level II or Level III inspector qualified in the MPI method in the Aeronautics Sector according to the EN4179 or NAS410 standard. This EAD also requires, within 72 hours, reporting certain information to the FAA.

Costs of Compliance

We estimate that this AD affects 323 helicopters of U.S. Registry and that operators may incur the following costs to comply with this AD. Inspecting each spindle will require 15 work-hours at an average labor rate of \$85 per work-hour and the cost to report the required inspection information is \$43, for a total of \$1,318 per helicopter and 425,714 for the U.S fleet. If replacing a spindle is required, it will take 4 work-hours and \$8,164 for parts, for a total of \$8,504 per helicopter.

Differences Between This EAD and the Service Information

This EAD requires that the MPI be conducted by a Level II or Level III inspector and that the results of the MPI be reported to the FAA, whereas the service information requires that the MPI be accomplished by Enstrom. This EAD requires the MPI before further flight; the service information specifies that it be accomplished within 5 hours TIS.

Interim Action

We consider this EAD to be an interim action. The inspection reports that are required by this EAD will enable us to obtain better insight into the root cause and extent of the cracking, and eventually to develop final action to address the unsafe condition. Once final action has been identified, we might consider further rulemaking.

Paperwork Reduction Act

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB control number. The control number for the collection of information required by this EAD is 2120-0056. The paperwork cost associated with this EAD has been detailed in the Costs of Compliance section of this document and includes time for reviewing instructions, as well as completing and reviewing the collection of information. Therefore, all reporting required by this EAD is mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at 800 Independence Ave., SW, Washington, DC 20591; ATTN: Information Collection Clearance Officer, AES-200.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. "Subtitle VII, Aviation Programs," describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in "Subtitle VII, Part A, Subpart III, Section 44701, General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Adoption of the Emergency Airworthiness Directive (EAD)

We are issuing this EAD under 49 U.S.C. Sections 106(g), 40113, and 44701 according to the authority delegated to me by the Administrator.

2015-04-51 **The Enstrom Helicopter Corporation (Enstrom):** Directorate Identifier 2015-SW-02-AD.

(a) Applicability

This EAD applies to Enstrom Model F-28A, 280, F-28C, F-28C-2, F-28C-2R, 280C, F-28F, F-28F-R, 280F, and 280FX helicopters, all serial numbers; and Model 480 helicopters, serial numbers 5001 through 5006; with a main rotor spindle (spindle), part number (P/N) 28-14282-11 or 28-14282-13, installed, certificated in any category. This EAD only applies to any helicopter that has a spindle with 5,000 or more hours time-in-service (TIS) or where the hours TIS of the spindle is not known.

(b) Unsafe Condition

This EAD defines the unsafe condition as a crack in the spindle, which, if not detected, could result in loss of a main rotor blade and subsequent loss of control of the helicopter.

(c) Effective Date

This EAD is effective upon receipt.

(d) Compliance

You are responsible for performing each action required by this EAD within the specified compliance time unless it has already been accomplished prior to that time.

(e) Required Actions

(1) Before further flight, conduct a magnetic particle inspection (MPI) the spindle to determine if a crack exists. The MPI of the spindle must be conducted by a Level II or Level III inspector qualified in the MPI in the Aeronautics Sector according to the EN4179 or NAS410 standard. If there is a crack in the spindle, replace it with an airworthy spindle before further flight.

(2) Within 72 hours after accomplishing the MPI, report the information requested in Appendix 1 to this EAD by mail to the Manager, Chicago Aircraft Certification Office, Federal Aviation Administration, ATTN: Gregory J. Michalik, 2300 East Devon Ave., Des Plaines, IL, 60018; by fax to (847) 294-7834; or email to gregory.michalik@faa.gov.

(f) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Chicago Aircraft Certification Office, FAA, may approve AMOCs for this EAD. Send your proposal to: Gregory J. Michalik, Senior Aerospace Engineer, Chicago Aircraft Certification Office, Small Airplane Directorate, FAA, 2300 East Devon Ave., Des Plaines, IL, 60018; (847) 294-7135; email gregory.michalik@faa.gov.

(2) For operations conducted under a 14 CFR part 119 operating certificate or under 14 CFR part 91, subpart K, we suggest that you notify your principal inspector, or lacking a principal inspector, the manager of the local flight standards district office or certificate holding district office, before operating any aircraft complying with this EAD through an AMOC.

(g) Additional Information

For further information contact: Gregory J. Michalik, Senior Aerospace Engineer, Chicago Aircraft Certification Office, Small Airplane Directorate, FAA, 2300 East Devon Ave., Des Plaines, IL, 60018, (847) 294-7135; email Gregory.michalik@faa.gov.

(h) Subject

Joint Aircraft Service Component (JASC) Code: 6220, Main Rotor Head.

Spindle Inspection (Sample Format)

Provide the following information by mail to the Manager, Chicago Aircraft Certification Office, Federal Aviation Administration, ATTN: Gregory J. Michalik, 2300 East Devon Ave., Des Plaines, IL, 60018; by fax to (847) 294-7834; or email to gregory.michalik@faa.gov.

Aircraft Registration No.:

Helicopter Model:

Helicopter Serial Number:

Helicopter Owner or Operator:

Contact Phone No.:

Spindle Part Number and Serial Number:

Total Hours Time-in-Service (TIS) on Spindle:

Total Hours TIS on Helicopter (if hours TIS on spindle were not available):

Who Performed the Inspection:

Date and Location Inspection was Accomplished:

Crack Found? If yes, describe the crack size, location, orientation (provide a sketch or picture):

Provide Any Other Comments:

Issued in Fort Worth, Texas, on February 12, 2015.

Lance T. Gant,
Acting Manager, Rotorcraft Directorate,
Aircraft Certification Service.