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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2012-0945; Directorate Identifier 2010-SW-110-AD; Amendment 39-17722; AD 2013-26-13]

RIN 2120-AA64

Airworthiness Directives; Sikorsky Aircraft Corporation (Sikorsky) Helicopters

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for Sikorsky Model S-70, S-70A, S-70C, S-70C (M), and S-70C (M1) helicopters with General Electric (GE) T700-GE-401C or T700-GE-701C engines installed. This AD requires establishing new fatigue life limits for certain GE engine gas generator turbine (GGT) rotor parts. This AD was prompted by a reevaluation of the method for determining the life limit for certain GE engine GGT rotor parts and the determination that these life limits should be based on low cycle fatigue (LCF) events instead of hours time-in-service (TIS). The actions are intended to prevent fatigue failure of a GGT rotor part, engine failure, and subsequent loss of control of the helicopter.

DATES: This AD is effective February 10, 2014.

The Director of the Federal Register approved the incorporation by reference of certain documents listed in this AD as of February 10, 2014.

ADDRESSES: For service information identified in this AD, contact Sikorsky Aircraft Corporation, Attn: Manager, Commercial Technical Support, mailstop s581a, 6900 Main Street, Stratford, CT, telephone (800) 562-4409, email address tsslibrary@sikorsky.com, or at <http://www.sikorsky.com>. You may review a copy of the referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth Texas 76137.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> or in person at the Docket Operations Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, any incorporated-by-reference service information, the economic evaluation, any comments received, and other information. The street address for the

Docket Operations Office (phone: 800-647-5527) is U.S. Department of Transportation, Docket Operations Office, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Michael Davison, Flight Test Engineer, New England Regional Office, FAA, 12 New England Executive Park, Burlington, MA 01803; phone: (781) 238-7156; fax: (781) 238-7170; email: michael.davison@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

On September 7, 2012, at 77 FR 55166, the Federal Register published our notice of proposed rulemaking (NPRM), which proposed to amend 14 CFR part 39 by adding an AD that would apply to Sikorsky Model S-70, S-70A, S-70C, S-70C (M), and S-70C (M1) helicopters with GE T700-GE-401C or T700-GE-701C engines installed. The NPRM proposed establishing new fatigue life limits for certain GE engine GGT rotor parts, based upon a formula in GE's service information. The NPRM was prompted by the determination that the affected engines could fail due to fatigue unless the life limits of certain GE engine rotor parts are changed from hours TIS to LCF events.

On July 23, 2013, at 78 FR 44052, the Federal Register published our supplemental notice of proposed rulemaking (SNPRM), which proposed to revise the formula in the NPRM for establishing the new fatigue life limits by using the correct formula in a newer revision of GE's service information. Also, the SNPRM corrected a typographical error made in the preamble of the previous NPRM in the "Related Service Information," which referenced the service bulletin number as 72-041 rather than the correct service bulletin number 72-0041.

The proposed actions in the SNPRM were intended to prevent failure of a GGT rotor part, engine failure, and subsequent loss of control of the helicopter.

Comments

We gave the public the opportunity to comment on the NPRM (77 FR 55166, September 7, 2012), and the SNPRM (78 FR 44052, July 23, 2013), but we did not receive any comments.

FAA's Determination

We have reviewed the relevant information and determined that an unsafe condition exists and is likely to exist or develop on other products of these same type designs and that air safety and the public interest require adopting the AD requirements as proposed in the SNPRM (78 FR 44052, July 23, 2013).

Costs of Compliance

We estimate that this AD will affect 9 helicopters of U.S. registry. We estimate that operators may incur the following costs in order to comply with this AD: A minimal amount for work hours and labor costs because these parts are replaced as part of the periodic maintenance on the helicopter; a minimal amount of time to calculate the new retirement life; \$360,000 to replace the GGT rotor parts per helicopter; and \$3,240,000 to replace the GGT rotor parts for the entire U.S. operator fleet.

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.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866;
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);
- (3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction; and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared an economic evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):



2013-26-13 Sikorsky Aircraft Corporation: Amendment 39-17722; Docket No. FAA-2012-0945; Directorate Identifier 2010-SW-110-AD.

(a) Applicability

This AD applies to Model S-70, S-70A, S-70C, S-70C (M), and S-70C (M1) helicopters with General Electric (GE) T700-GE-401C or T700-GE-701C part-numbered engines, certificated in any category.

(b) Unsafe Condition

This AD defines the unsafe condition as a critical engine part remaining in service beyond its fatigue life because the current life limit is based on hours time-in-service (TIS) instead of fatigue cycles. This condition could result in fatigue failure of an engine rotor part, engine failure, and subsequent loss of control of the helicopter.

(c) Effective Date

This AD becomes effective February 10, 2014.

(d) Compliance

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

(e) Required Actions

(1) Before further flight, insert into the airworthiness limitations section of the maintenance manual or instructions for continued airworthiness the low cycle fatigue (LCF) limit diagrams shown in Figures 2 through 7 (pages 9 through 14) of GE T700 Turboshaft Engine Service Bulletin T700 S/B 72-0041, Revision 1, dated March 12, 2010, for helicopters with the GE T700-GE-401C engine, or Figures 2 through 4 (pages 10 through 12) of GE T700 Turboshaft Engine Service Bulletin T700 S/B 72-0038, dated October 1, 2008, for helicopters with the GE T700-GE-701C engine. The diagonal line on each diagram represents the new cycle life limit (a combination of full low cycle fatigue events (LCF1) and partial low cycle fatigue events (LCF2) as those terms are defined in the Accomplishment Instructions, paragraphs 3.A.(1) and 3.A.(2) of each service bulletin) for each gas generator turbine (GGT) rotor part. A combination of LCF1 and LCF2, which results in a number below the diagonal line of the applicable diagram for each engine, indicates that the part has not reached its fatigue life limit.

(2) Before further flight:

(i) Obtain the actual LCF1 and LCF2 count from the engine "history recorder" (HR);

(ii) Calculate the LCF1 and LCF2 fatigue retirement life for each GGT rotor part as follows:

(A) Determine the actual LCF ratio by dividing the total actual LCF2 cycle count obtained from the HR by the total actual LCF1 cycle count obtained from the HR. Add to the actual counts from the HR any actual additional fatigue cycle incurred during any period in which the HR was inoperative.

(B) Determine the LCF1 retirement life by dividing the maximum number of LCF2 events obtained from the applicable diagram for each engine by the sum of the actual LCF ratio obtained by following paragraph (e)(2)(ii)(A) of this AD plus the quotient of the maximum number of LCF2 events from the applicable diagram for each engine divided by the maximum number of LCF1 events from the applicable diagram for each engine.

(C) Determine the LCF2 retirement life by multiplying the actual LCF ratio obtained by following paragraph (e)(2)(ii)(A) of this AD times the LCF1 retirement life determined by following paragraph (e)(2)(ii)(B) of this AD.

(iii) Replace each GGT rotor part that has reached the new fatigue cycle life limit with an airworthy rotor part.

(3) For helicopters with the GE T700-GE-401C engine, if you cannot determine the number of low cycle fatigue events manually from the HR or by combining both manual and HR counts, then the life limit for the GGT rotor part is the hours TIS for the part as shown in Table 1 of GE T700 Turboshaft Engine Service Bulletin T700 S/B 72-0041, dated August 21, 2009.

(4) Before further flight, begin or continue to count the full and partial low fatigue cycle events and record on the component card or equivalent record that count at the end of each day for which the HR is inoperative.

(f) Special Flight Permit

Special flight permits will not be issued to allow flight in excess of life limits.

(g) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Boston Aircraft Certification Office, FAA, may approve AMOCs for this AD. Send your proposal to: Michael Davison, Flight Test Engineer, New England Regional Office, FAA, 12 New England Executive Park, Burlington, MA 01803; phone: (781) 238-7156; fax: (781) 238-7170; email: michael.davison@faa.gov.

(2) For operations conducted under 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 AD through an AMOC.

(h) Subject

Joint Aircraft Service Component (JASC) Code: 7250: Turbine Section.

(i) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) General Electric (GE) T700 Turboshaft Engine Service Bulletin T700 S/B 72-0038, dated October 1, 2008.

(ii) GE T700 Turboshaft Engine Service Bulletin T700 S/B 72-0041, dated August 21, 2009.

(iii) GE T700 Turboshaft Engine Service Bulletin T700 S/B 72-0041, Revision 1, dated March 12, 2010.

(3) For GE service information identified in this AD, contact Sikorsky Aircraft Corporation, Attn: Manager, Commercial Technical Support, mailstop s581a, 6900 Main Street, Stratford, CT, telephone (800) 562-4409, email address tsslibrary@sikorsky.com, or at <http://www.sikorsky.com>.

(4) You may view this service information at FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137. For information on the availability of this material at the FAA, call (817) 222-5110.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Fort Worth, Texas, on December 24, 2013.

Kim Smith,
Directorate Manager, Rotorcraft Directorate,
Aircraft Certification Service.