[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2012-0945; Directorate Identifier 2010-SW-110-AD]

RIN 2120-AA64

Airworthiness Directives; Sikorsky Aircraft Corporation (Sikorsky) Model Helicopters

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for the 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 proposed AD is prompted by a reevaluation of the method for determining the life limit for certain GE engine gas generator turbine (GGT) rotor parts and the determination that these life limits need to be based on low cycle fatigue events instead of hours time-in-service. The proposed actions are intended to establish new fatigue life limits for certain GGT rotor parts to prevent fatigue failure of a GGT rotor part, engine failure, and subsequent loss of control of the helicopter.

DATES: We must receive comments on this proposed AD by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments by any of the following methods:

- Federal eRulemaking Docket: Go to http://www.regulations.gov. Follow the online instructions for sending your comments electronically.

- Fax: 202-493-2251.

- Mail: Send comments to the U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590-0001.

- Hand Delivery: Deliver to the "Mail" address between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

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 proposed AD, the economic evaluation, any comments received, and other information. The street address for the Docket Operations Office (telephone 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

For service information identified in this proposed AD, contact Sikorsky Aircraft Corporation, Attn: Manager, Commercial Technical Support, mailstop s581a, 6900 Main Street, Stratford, CT, telephone (800) 562-4409, e-mail 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.

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; e-mail: michael.davison@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to participate in this rulemaking by submitting written comments, data, or views. We also invite comments relating to the economic, environmental, energy, or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. To ensure the docket does not contain duplicate comments, commenters should send only one copy of written comments, or if comments are filed electronically, commenters should submit only one time.

We will file in the docket all comments that we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking. Before acting on this proposal, we will consider all comments we receive on or before the closing date for comments. We will consider comments filed after the comment period has closed if it is possible to do so without incurring expense or delay. We may change this proposal in light of the comments we receive.

Discussion

We propose to adopt a new AD for the specified helicopters with GE part-numbered T700-GE-401C or specified T700-GE-701C engines installed. This

proposed AD would require establishing a new life limit for certain GGT rotor parts based upon the accumulated low cycle fatigue events of the GGT rotor parts. This proposed AD is 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 time-in-service to low cycle fatigue events. The GE T700-GE-701C engine is used in the military's UH-60 fleet. Analysis and experience with this engine have caused the military to reduce the life limit of certain GGT rotor parts and to revise their maintenance documentation to reflect these revised life limits. The Sikorsky Model S-70 helicopters are similar to the military's UH-60 fleet, some of which have been certificated by the FAA in the restricted category. The GE T700-GE-701C engine has not been type-certificated by the FAA for civil use, except to the extent that it is a part of a restricted category Model S-70 helicopter.

FAA's Determination

We are proposing this AD because we evaluated all known relevant information and determined that an unsafe condition exists and is likely to exist or develop on other helicopters of these same type designs.

Related Service Information

GE has issued GE T700 Turboshaft Engine Service Bulletin (ESB) 72-0038, dated October 1, 2008, for the T700-GE-701C engine (ESB 72-0038) and GE T700 Turboshaft ESB 72-0041, dated August 21, 2009, for the T700-GE-401C engine (ESB SB 72-041). These ESBs define a "full-cycle event" and a "partial cycle event," specify a method of calculating the low cycle fatigue (LCF) life limit using formulas and LCF Limit Diagrams, and specify counting LCF events to determine the remaining fatigue life

for specified GGT rotor parts. Finally, the ESBs specify removing each life-limited rotor part from service when its newly-established LCF life limit is reached.

Proposed AD Requirements

This proposed AD would require, before further flight:

- Inserting the LCF limit diagrams into the airworthiness limitation section of the maintenance manual or instructions for continued airworthiness, shown in Figures 2 through 7 (pages 9 through 14) of ESB 72-0041 or Figures 2 through 4 (pages 10 through 12) of ESB 72-0038.

- Obtaining the actual LCF1 and LCF2 count from the engine "history recorder" (HR), and calculating the LCF1 and LCF2 fatigue retirement life for each GGT rotor part.

- Replacing each GGT rotor part that has reached the new fatigue cycle life limit with an airworthy rotor part.

- Calculating the life limit for the GGT rotor part with the hours time-in-service for the part as shown in Table 1 of ESB 72-0041, for those helicopters with the GE T700-GE-401C engine where the number of low cycle fatigue events cannot be determined manually from the HR or by combining both manual and HR counts.

- Before further flight, beginning or continuing to count the full and partial low fatigue cycle events and recording on the component card or equivalent record that count at the end of each day for which the HR is inoperative.

Costs of Compliance

We estimate that this proposed AD would 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

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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, I certify this proposed regulation:

1. Is not a "significant regulatory action" under Executive Order 12866;

2. Is not a "significant rule" under the 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 proposed 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.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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):

SIKORSKY AIRCRAFT CORPORATION: 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) 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.

(d) Required Actions.

(1) Before further flight, insert into the airworthiness limitation 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 (ESB) No. T700 S/B 72-0041, dated August 21, 2009, for helicopters with the GE T700-GE-401C engine, or Figures 2 through 4 (pages 10 through 12) of GE T700 Turboshaft ESB No. 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 ESB) 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 (d)(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 (d)(2)(ii)(A) of this AD times the LCF1 retirement life determined by following paragraph (d)(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 ESB No. 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.

(e) Special Flight Permit.

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

(f) 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; e-mail: 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.

(g) Additional Information.

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, e-mail 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.

(h) Subject.

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

Issued in Fort Worth, Texas, on August 30, 2012

Kim Smith,

Manager, Rotorcraft Directorate,
Aircraft Certification Service.

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