[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2008-0442; Directorate Identifier 2007-SW-24-AD]

RIN 2120-AA64

Airworthiness Directives; **Various Sikorsky-Manufactured Transport and Restricted Category Helicopters**

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Supplemental notice of proposed rulemaking (SNPRM); reopening of comment period.

SUMMARY: We are revising an earlier proposed airworthiness directive (AD) for certain Sikorsky Aircraft Corporation (Sikorsky) Model S-61A, D, E, L, N, NM (serial number 61454), R, and V; Croman Corporation Model SH-3H, Carson Helicopters, Inc., Model S-61L; Glacier Helicopters, Inc. Model CH-3E; Robinson Air Crane, Inc. Model CH-3E, CH-3C, HH-3C, and HH-3E; and Siller Helicopters Model CH-3E and SH-3A helicopters. This SNPRM is prompted by comments received in response to a previous SNPRM and a reevaluation of the relevant data. This SNPRM retains the proposed actions in the previous SNPRM, provides an increased estimated cost of the main rotor shaft (MRS) replacement, and clarifies some of the language in the Required Actions section of the AD. The proposed actions are intended to prevent MRS structural failure, loss of power to the main rotor, and subsequent loss of control of the helicopter.

DATES: We must receive comments on this SNPRM 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 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 Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 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 AD, contact Sikorsky Aircraft Corporation, Attn: Manager, Commercial Technical Support, mailstop s581a, 6900 Main Street, Stratford, CT, telephone (203) 383-4866, 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, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

FOR FURTHER INFORMATION CONTACT: Jeffrey Lee, Aviation Safety Engineer, Boston Aircraft Certification Office, 12 New England Executive Park, Burlington, MA 01803, telephone (781) 238-7161, fax (781) 238-7170, email jeffrey.lee@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.

D**iscussion**

On April 10, 2008, we issued a notice of proposed rulemaking (NPRM) (73 FR 21556, April 22, 2008) proposing to amend 14 CFR part 39 to add an AD for Sikorsky Aircraft Corporation Model S-61A, D, E, L, N, NM, R, and V; Croman Corporation Model SH-3H, Carson Helicopters, Inc. Model S-61L; Glacier Helicopters, Inc. Model CH-3E; Robinson Air Crane, Inc. Model CH-3E, CH-3C, HH-3C and HH-3E; and Siller Helicopters Model CH-3E and SH-3A helicopters. The NPRM proposed superseding AD 98-26-02 (63 FR 69177, December 16, 1998), which only applies to the affected Sikorsky model helicopters. The NPRM proposed retaining some of the requirements of AD 98-26-02 but also proposed determining a new retirement life for each MRS, removing from service any MRS with oversized dowel pin bores, and expanding the applicability to include the restricted category models that were inadvertently omitted from AD 98-26-02. The NPRM was prompted by the manufacturer's reevaluation of the retirement life for the MRS based on torque, ground-air-ground cycle, and fatigue testing. Those proposals were intended to prevent MRS structural failure, loss of power to the main rotor, and subsequent loss of control of the helicopter.

On April 16, 2013, we issued an SNPRM (78 FR 24363, April 25, 2013) that proposed to revise the NPRM based on our review of the data and the comments received. The SNPRM proposed retaining the proposals in the NPRM and extending the hours time-in-service (TIS) required for identifying the MRS as a repetitive external lift (REL) MRS to coincide with the nondestructive inspection (NDI) to prevent repeated disassembly of the shaft. Also, the action proposed to extend the time required to replace the MRS and revise calculations for establishing the retirement life.

Actions Since Previous SNPRM was Issued

Since we issued the previous SNPRM (78 FR 24364, April 25, 2013), we have determined a need to revise the proposed requirements again based on our review of the data and the comments received. In addition to retaining the proposals in the previous SNPRM, this SNPRM changes the "Costs of Compliance" to reflect an increased cost to replace an MRS. Also, paragraph (f)(1)(ii) of the previous SNPRM provided that where there is no record of the hours TIS on an MRS, you may substitute the "helicopter's hours TIS." To clarify some of the wording for complying with the AD, this SNPRM proposes that you may substitute the "helicopter's hours TIS or the helicopter's transmission hours TIS if both the shaft and transmission were installed new at the same time."

Because the proposed changes increase the economic burden on operators, we are reopening the comment period to allow the public to comment.

Comments

We gave the public the opportunity to comment on the previous SNPRM (78 FR 24366, April 25, 2013). The following presents the comments received from two commenters and the FAA's response to those comments.

Request

One commenter requested that we increase the life limits of modified REL shafts from 30,000 cycles to no less than 100,000 cycles because the proposed limit of 30,000 REL lift cycles is unreasonable and contrary to the manufacturer's current fatigue evaluation practices. The commenter stated the limit of 30,000 REL cycles ignores the crack-free service history for the modified MRS as well as several variables in operation. The commenter also stated the proposed requirements would impose an unacceptable

punitive cost because the actual cost to replace an MRS is much higher than the cost identified in the SNPRM (78 FR 24366, April 25, 2013).

We disagree. The commenter's proposed limit of 100,000 REL lift cycles is based on the working SN curve from fatigue testing that showed test specimen failure at 200,000 individual fatigue cycles. The data assumes that only the 103% torque event creates shaft damage and that one REL lift cycle is the same as one fatigue cycle. This assumption is not correct. One REL lift cycle includes many damaging fatigue cycles associated with a logging flight spectrum not accounted for by the commenter. The 30,000 REL lift cycle life limit is based upon the working SN curve from the fatigue tests and the fatigue damage determined by the logging flight loading spectrum. It is not only based on using the working SN curve cycle limit at the torque level chosen by the commenter. However, we agree with the commenter that the SNPRM does not reflect an accurate cost to replace an MRS. We have revised the "Costs of Compliance" section to reflect the current cost of the MRS.

The commenter also requested that the AD measure the shaft life limit by transmission TIS instead of the helicopter's TIS where no records exist for the main rotor shaft. The commenter states that the transmission TIS is a better measure because most helicopters have more than 13,000 hours TIS.

We partially agree. The requested change of language would only be accurate where both the shaft and transmission were installed new at the same time. This language would not be accurate where the transmission had been replaced earlier than the shaft and thus had a lower life than the shaft. Therefore, we have revised paragraph (f)(1)(ii) to include both "helicopter's hours TIS" and "the helicopter's transmission hours TIS if

both the shaft and transmission were installed new at the same time" as options where no records exist for the main rotor shaft.

The second commenter disagreed with determining pilot initial qualification by hours alone and suggested other methods. This comment appears to have been posted in error in this docket as it is not relevant to the SNPRM (78 FR 24366, April 25, 2013).

FAA's Determination

We are proposing this SNPRM because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other helicopters of these same type designs. Certain changes described above expand the scope of the previous SNPRM (78 FR 24363, April 25, 2013) by increasing the economic burden. As a result, we have determined that it is necessary to reopen the comment period to provide additional opportunity for the public to comment on this SNPRM.

Related Service Information

Sikorsky has issued Customer Service Notice (CSN) No. 6135-10A and Sikorsky Service Bulletin (SB) No. 61B35-53A, both dated April 19, 2004. The CSN and the SB apply to Model S-61L, N, and NM (serial number (S/N) 61454), and R series transport category helicopters; and S-61A, D, E, and V series restricted category helicopters. The CSN specifies replacing the planetary assembly and MRS assembly attaching hardware with high strength hardware. The CSN also specifies reworking the dowel retainer to increase hole chamfer and related countersink diameters. The SB specifies replacing the existing planetary matching plates with new steel matching plates during overhaul at the operator's discretion.

Also, Sikorsky has issued ASB No. 61B35-69, dated April 19, 2004 (ASB 61B35-69), which supersedes ASB 61B35-68B. ASB 61B35-69 provides updated procedures for determining REL and Non-REL status, assigns new REL and Non-REL MRS retirement lives, and provides a method for marking the REL MRS.

Proposed AD Requirements

This proposed AD would retain some of the requirements from AD 98-26-02 (63 FR 69177, December 16, 1998):

• Recording the number of external lift cycles (lift cycles) performed and the hours TIS.

• Determining whether the MRS is REL or Non-REL.

• Marking the REL MRS at the time of the NDI.

• Conducting an NDI for shafts used in REL operations and replacing it if there is a crack.

The proposed AD would also require the following:

• When recording the number of hours TIS, using either the helicopter's hours TIS or the helicopter's transmission hours TIS if both the shaft and transmission were installed new at the same time where there is no record of the hours TIS on an individual MRS.

• Calculating a 250-hour TIS moving average of lift cycles to determine whether the MRS is an REL MRS.

• Determining a new retirement life for each MRS based on hours TIS and lift cycles.

• Removing from service any MRS with oversized dowel pin bores.

• Extending the retirement life of modified REL MRS from 2,200 hours TIS to 5,000 hours TIS but also implementing lift-cycle retirement lives.

• Allowing the use of Revision A service information to modify the REL MRS for life limit determination.

Costs of Compliance

We estimate that this proposed AD would affect 60 helicopters of U.S. registry. We estimate that operators may incur the following costs in order to comply with this proposed AD: It would take about 2.2 work hours to NDI an REL MRS at $85 per work hour plus a $50 consumable cost, for a total cost of $237 per helicopter and $14,220 for the U.S. fleet. It would take 2.2 work hours at $85 per work hour to replace an MRS, and parts would cost $81,216, for a total cost of $81,403 per helicopter.

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. Amend § 39.13 by removing Amendment 39-10943 (63 FR 69177, December 16, 1998), and adding the following new airworthiness directive (AD):

Sikorsky Aircraft Corporation; Croman Corporation; Carson Helicopters, Inc.; Glacier Helicopters, Inc.; Robinson Air Crane, Inc.; and Siller Helicopters: Docket No. FAA-2008-0442; Directorate Identifier 2007-SW-24-AD.

(a) Applicability

This AD applies to Model S-61A, D, E, L, N, NM (serial number (S/N) 61454), R, V, CH-3C, CH-3E, HH-3C, HH-3E, SH-3A, and SH-3H helicopters with main rotor shaft (MRS), part number (P/N) S6135-20640-001, S6135-20640-002, or S6137-23040-001, installed, certificated in any category.

(b) Unsafe Condition

This AD defines the unsafe condition as MRS structural failure, loss of power to the main rotor, and subsequent loss of control of the helicopter.

(c) Affected ADs

This AD supersedes AD 98-26-02 (63 FR 69177, December 16, 1998), Amendment 39-10943, Docket No. 96-SW-29-AD.

(d) Comments Due Date

We must receive comments by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

(e) 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.

(f) Required Actions

(1) Within 10 hours time-in-service (TIS):

(i) Create a component history card or equivalent record for each MRS.

(ii) If there is no record of the hours TIS on an individual MRS, substitute the helicopter's hours TIS or the helicopter's transmission hours TIS if both the shaft and transmission were installed new at the same time.

(iii) If the record of external lift cycles (lift cycles) on an individual MRS is incomplete, add the known number of lift cycles to a number calculated by multiplying the number of hours TIS of the individual MRS by the average lift cycles calculated according to the instructions in Section I of Appendix I of this AD or by a factor of 13.6, whichever is higher. An external lift cycle is defined as a flight cycle in which an external load is picked up, the helicopter is repositioned (through flight or hover), and the helicopter hovers and releases the load and departs or lands and departs.

(iv) At the end of each day's operations, record the number of lift cycles performed and the hours TIS.

(2) Within 250 hours TIS, determine whether the MRS is a repetitive external lift (REL) or non-REL MRS.

(i) Calculate the first moving average of lift cycles by following the instructions in Section I of Appendix I of this AD.

(A) If the calculation results in 6 or more lift cycles per hour TIS, the MRS is an REL-MRS.

(B) If the calculation results in less than 6 lift cycles per hour TIS, the MRS is a Non-REL MRS.

(ii) If the MRS is a Non-REL MRS based on the calculation performed in accordance with paragraph (f)(2)(i), thereafter at intervals of 50 hour TIS, recalculate the average lift cycles per hour TIS by following the instructions in Section II of Appendix 1 of this AD.

(iii) Once an MRS is determined to be an REL MRS, you no longer need to perform the 250-hour TIS moving average calculation, but you must continue to count and record the lift cycles and number of hours TIS.

(iv) If an MRS is determined to be an REL MRS, it remains an REL MRS for the rest of its service life and is subject to the retirement times for an REL MRS.

(3) Within 1,100 hours TIS:

(i) Conduct a Non-Destructive Inspection for a crack on each MRS. If there is a crack in an MRS, before further flight, replace it with an airworthy MRS.

(ii) If an MRS is determined to be an REL MRS, identify it as an REL MRS by etching “REL” on the outside diameter of the MRS near the part S/N by following the Accomplishment Instructions, paragraph 3.C., of Sikorsky Alert Service Bulletin (ASB) 61B35-69, dated April 19, 2004.

(4) Replace each MRS with an airworthy MRS on or before reaching the revised retirement life as follows:

(i) For an REL MRS that is not modified by following Sikorsky Customer Service Notice (CSN) 6135-10, dated March 18, 1987, and ASB No. 61B35-53, dated December 2, 1981 (unmodified REL MRS), the retirement life is 30,000 lift cycles or 1,500 hours TIS, whichever occurs first.

(ii) For an REL MRS that is modified by following Sikorsky CSN 6135-10, dated March 18, 1987, and Sikorsky ASB No. 61B35-53 dated December 2, 1981, or CSN 6135-10A, Revision A, and ASB 61B35-53A, Revision A, both dated April 19, 2004 (modified REL MRS), the retirement life is 30,000 lift cycles or 5,000 hours TIS, whichever occurs first.

(iii) For a non-REL MRS, the retirement life is 13,000 hours TIS.

(5) Establish or revise the retirement lives of the MRS as indicated in paragraphs (f)(4)(i) through (f)(4)(iii) of this AD by recording the new or revised retirement life on the MRS component history card or equivalent record.

(6) Within 50 hours TIS, remove from service any MRS with oversized (0.8860" or greater diameter) dowel pin bores.

(g) Alternative Methods of Compliance (AMOCs

(1) The Manager, Boston Aircraft Certification Office, FAA, may approve AMOCs for this AD. Send your proposal to Jeffrey Lee, Aviation Safety Engineer, Boston Aircraft Certification Office, 12 New England Executive Park, Burlington, MA 01803, telephone (781) 238-7161, fax (781) 238-7170, email jeffrey.lee@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) Additional Information

(1) Sikorsky Aircraft Corporation issued an All Operators Letter (AOL) CCS-61-AOL-04-0005, dated May 18, 2004, with an example and additional information about tracking cycles and the moving average procedure. This AOL is not incorporated by reference but contains additional information about the subject of this AD.

(2) The Overhaul and Repair Instruction (ORI) Number 6135-281, Part B, Step 5, and ORI 6137-041, Section III, Oversize Dowel Pin Bore Repair and identified on the flange as TS-281 or TS-041-3, which is not incorporated by reference, contains additional information about the subject of this AD.

(3) For more information about the AOL or the ORI, contact Sikorsky Aircraft Corporation, Attn: Manager, Commercial Technical Support, mailstop s581a, 6900 Main Street, Stratford, CT, telephone (203) 383-4866, 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, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

APPENDIX I

SECTION I: The first moving average of lift cycles per hour TIS

The first moving average calculation is performed on the MRS assembly when the external lift component history card record reflects that the MRS assembly has reached its first 250 hours TIS. To perform the calculation, divide the total number of lift cycles performed during the first 250 hours TIS by 250. The result will be the first moving average calculation of lift cycles per hour TIS.

SECTION II: Subsequent moving average of lift cycles per hour TIS

Subsequent moving average calculations are performed on the MRS assembly at intervals of 50 hour TIS after the first moving average calculation. Subtract the total number of lift cycles performed during the first 50-hour TIS interval used in the previous moving average calculation from the total number of lift cycles performed on the MRS assembly during the previous 300 hours TIS. Divide this result by 250. The result will be the next or subsequent moving average calculation of lift cycles per hour TIS.

SECTION III: Sample calculation for subsequent 50 hour TIS intervals

Assume the total number of lift cycles for the first 50 hour TIS interval used in the previous moving average calculation = 450 lift cycles and the total number of lift cycles for the previous 300 hours TIS = 2700 lift cycles. The subsequent moving average of lift cycles per hour TIS = (2700-450) divided by 250 = 9 lift cycles per hour TIS.

(i) Subject

Joint Aircraft Service Component (JASC) Code: 6320, Main Rotor Gearbox.

Issued in Fort Worth, Texas, on September 19, 2014.

Lance T. Gant,

Acting Directorate Manager, Rotorcraft Directorate,
Aircraft Certification Service.

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