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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2017-0169; Directorate Identifier 2017-SW-003-AD; Amendment 39-18818; AD 2017-02-51]

RIN 2120-AA64

Airworthiness Directives; Sikorsky Aircraft Corporation Helicopters

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: We are publishing a new airworthiness directive (AD) for Sikorsky Aircraft Corporation (Sikorsky) Model S-92A helicopters. This AD requires inspecting certain bearings. This AD is prompted by reports of failed bearings with subsequent loss of tail rotor (TR) control. The actions of this AD are intended to address an unsafe condition on these helicopters.

DATES: This AD becomes effective March 20, 2017 to all persons except those persons to whom it was made immediately effective by Emergency AD 2017-02-51 issued on January 13, 2017, which contains the requirements of this AD. We must receive comments on this AD by May 2, 2017.

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> by searching for and locating Docket No. FAA-2017-0169; 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,

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 final rule, contact Sikorsky Aircraft Corporation, Customer Service Engineering, 124 Quarry Road, Trumbull, CT 06611; telephone 1-800-Winged-S or 203-416-4299; email: wcs_cust_service_eng.gr-sik@lmco.com. You may review the referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy., Room 6N-321, Fort Worth, TX 76177.

FOR FURTHER INFORMATION CONTACT: Blaine Williams, Aerospace Engineer, Boston Aircraft Certification Office, Engine & Propeller Directorate, 1200 District Avenue, Burlington, Massachusetts 01803; telephone (781) 238-7161; email blaine.williams@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

This AD is a final rule that involves requirements affecting flight safety, and we did not provide you with notice and an opportunity to provide your comments prior to it becoming effective. However, 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 resulted from adopting this AD. The most helpful comments reference a specific portion of the AD, 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 them 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 rulemaking during the comment period. We will consider all the comments we receive and may conduct additional rulemaking based on those comments.

Discussion

On November 16, 2016, we issued Emergency AD 2016-24-51 to correct an unsafe condition on Sikorsky Model S-92A helicopters with a TR pitch change shaft (TRPCS) assembly, part number (P/N) 92358-06303-041 or P/N 92358-06303-042, with bearings that were manufactured prior to November 3, 2016. AD 2016-24-51 subsequently published in the Federal Register as a final rule (81 FR 95425, December 28, 2016). AD 2016-24-51 requires removing from service TRPCS assemblies with less than 5 hours time-in-service (TIS) since new or overhaul. For TRPCS assemblies with between 5 and 80 hours TIS since new or overhaul, AD 2016-24-51 also requires performing one-time inspections of the TRPCS bearings and replacing the TRPCS assembly if the bearings do not pass these inspections. AD 2016-24-51 was prompted by two reports of an operator losing TR control caused by a failed TRPCS assembly.

Actions Since AD 2016-24-51 Was Issued

After AD 2016-24-51 was issued, we received a report of an S-92A helicopter losing TR control because of a failed bearing with more than 80 hours TIS. We have now determined that the unsafe condition can exist on TRPCS bearings regardless of hours TIS. Therefore, on January 13, 2017, we issued Emergency AD 2017-02-51, which applies to all TRPCS assemblies, regardless of hours TIS. Emergency AD 2017-02-51 requires a one-time visual inspection and a repetitive borescope inspection of the TRPCS assembly bearing. The repetitive inspection is intended to detect bearing

deterioration. The actions in Emergency AD 2017-02-51 are intended to detect a binding bearing, prevent loss of TR control, and possible loss of control of the helicopter.

FAA's Determination

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

Related Service Information

We reviewed Sikorsky Alert Service Bulletin 92-64-011, Basic Issue, dated January 10, 2017 (ASB). The ASB describes procedures for inspecting the TRPCS and bearing assemblies for ratcheting, binding, and rough turning. The ASB also specifies periodic review of the health and usage monitoring system (HUMS) tail gearbox bearing energy tool.

AD Requirements

This AD requires, before further flight, removing the TRPCS assembly and inspecting the bearing. If the bearing does not rotate freely; the bearing sounds rough or chatters; there is any purged grease with metal particles; a nick or dent; or if there is a cut, tear, or distortion in the bearing seal, before further flight, replacing the TRPCS assembly is required. This AD also requires, within 10 hours TIS, and thereafter at intervals not to exceed 10 hours TIS, inspecting the TRPCS assembly with a borescope. If the white Teflon seal or snap ring is missing, or if there is a rip, tear, or heat damage on the seal or if there is no gap in the snap ring, replacing the TRPCS assembly is required before further flight.

Differences Between This AD and the Service Information

This AD requires repetitive borescope inspections of the TRPCS; the ASB does not. The ASB specifies that operators review HUMS data in addition to the one-time inspection and specifies contacting Sikorsky if any discrepancies are found; this AD does not.

Costs of Compliance

We estimate that this AD will affect 80 helicopters of U.S. Registry.

We estimate that operators may incur the following costs in order to comply with this AD. At an average labor rate of \$85 per hour, borescope and visually inspecting the TRPCS assembly will require 16 work-hours, for a cost per helicopter of \$1,360 and a cost of \$108,800 for the U.S. fleet per inspection. If required, replacing a TRPCS assembly will require 16 work-hours and required parts will cost \$4,000, for a cost per helicopter of \$5,360.

FAA's Justification and Determination of the Effective Date

Providing an opportunity for public comments prior to adopting these AD requirements would delay implementing the safety actions needed to correct this known unsafe condition. Therefore, we found and continue to find that the risk to the flying public justifies waiving notice and comment prior to the adoption of this rule because the previously described unsafe condition can result in loss of TR control and certain actions must be accomplished before further flight and within 10 hours TIS, a very short interval for these helicopters.

Since it was found that immediate corrective action was required, notice and opportunity for prior public comments before issuing this AD were impracticable and contrary to public interest and

good cause existed to make the AD effective immediately by Emergency AD 2017-02-51, issued on January 13, 2017, to all known U.S. owners and operators of these helicopters. These conditions still exist and the AD is hereby published in the Federal Register as an amendment to section 39.13 of the Federal Aviation Regulations (14 CFR 39.13) to make it effective to all persons.

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 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, 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):



2017-02-51 Sikorsky Aircraft Corporation: Amendment 39-18818; Docket No. FAA-2017-FAA-2017-0169; Directorate Identifier 2017-SW-003-AD.

(a) Applicability

This AD applies to Sikorsky Aircraft Corporation (Sikorsky) Model S-92A helicopters, certificated in any category, with a tail rotor pitch change shaft (TRPCS) assembly part number (P/N) 92358-06303-041 or P/N 92358-06303-042 installed.

(b) Unsafe Condition

This AD defines the unsafe condition as a binding TRPCS bearing. This condition could result in loss of tail rotor (TR) control and possible loss of control of the helicopter.

(c) Effective Date

This AD becomes effective March 20, 2017 to all persons except those persons to whom it was made immediately effective by Emergency AD 2017-02-51, issued on January 13, 2017, which contains the requirements of this AD.

(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, unless already done, remove the TRPCS assembly and inspect the SB2310 angular contact bearing for free rotation, purged grease with metal particles, a nick or a dent, and any cut, tear, or distortion on the bearing seal. If the bearing does not rotate freely; the bearing sounds rough or chatters; there is any purged grease with metal particles; a nick or dent; or if there is a cut, tear, or distortion in the bearing seal, before further flight, replace the TRPCS assembly.

(2) Within 10 hours time-in-service (TIS), unless already done within the last 10 hours TIS, and thereafter at intervals not to exceed 10 hours TIS, on the TR side of the TRPCS bearing, remove the plug from the end of the TRPCS, insert the borescope into the TRPCS, and determine whether the white Teflon seal and snap ring are installed. If the white Teflon seal or snap ring is missing, or if there is a rip, tear, or heat damage on the seal or if there is no gap in the snap ring, before further flight replace the TRPCS assembly.

(f) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Boston Aircraft Certification Office, FAA, may approve AMOCs for this Emergency AD. Send your proposal to: Blaine Williams, Aerospace Engineer, Boston Aircraft Certification Office, Engine & Propeller Directorate, 1200 District Avenue, Burlington, Massachusetts 01803; telephone (781) 238-7161; email blaine.williams@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 AD through an AMOC.

(g) Additional Information

Sikorsky Alert Service Bulletin 92-64-011, Basic Issue, dated January 10, 2017, which is not incorporated by reference, contains additional information about the subject of this final rule. For service information identified in this final rule, contact Sikorsky Aircraft Corporation, Customer Service Engineering, 124 Quarry Road, Trumbull, CT 06611; telephone 1-800-Winged-S or 203-416-4299; email: wcs_cust_service_eng.gr-sik@lmco.com. You may review this service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy., Room 6N-321, Fort Worth, TX 76177.

(h) Subject

Joint Aircraft Service Component (JASC) Code: 6720 Tail Rotor Control System.

Issued in Fort Worth, Texas, on February 23, 2017.

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



U.S. Department
of Transportation
**Federal Aviation
Administration**

Aircraft Certification Service
Compliance & Airworthiness Division
Boston ACO Branch, AIR-7B0

East Certification Branch
1701 Columbia Ave
College Park, Georgia 30337

September 13, 2023

Sikorsky Aircraft Corporation
Attn: Mr. Scott Henderson
6900 Main Street
P.O. Box 9729
Stratford, CT 06615-9129

Subject: Global Alternate Method of Compliance for Airworthiness Directive (AD) 2017-02-51 (AMOC-2023-00695-R, Log 23-07)

Dear Mr. Henderson:

The Federal Aviation Administration (FAA) received your proposal, dated May 10, 2023, requesting a Global Alternate Method of Compliance (AMOC) to paragraph (e)(2) of Airworthiness Directive (AD) 2017-02-51, applicable to Sikorsky Aircraft Corporation (Sikorsky) Model S-92A helicopters, certificated in any category, with a tail rotor pitch change shaft (TRPCS) assembly part number (P/N) 92358-06303-041 or P/N 92358-06303-042 installed.

Paragraph (e)(2) of AD 2017-02-51 mandates a borescope inspection of the TRPCS to determine whether the white Teflon seal and snap are installed. If the results of the inspection find the white Teflon seal or snap ring is missing, or if there is a rip, tear, or heat damage on the seal, or if there is no gap in the snap ring, replacement of the TRPCS assembly is required before further flight.

Sikorsky has proposed a Global AMOC that would allow an operator to install a health and usage monitoring system (HUMS) vibration sensor that will monitor the health of the TRPCS and provide vibration exceedance indications when on the ground. The HUMS vibration sensor would be used in conjunction with a temperature indicator plug to detect a degrading bearing and remove it from service prior to further distress. In addition, it would introduce additional maintenance criteria to determine if removal of a TRPCS from service is necessary.

The FAA East Certification Branch has reviewed the Global AMOC request and with the concurrence of the Aircraft Evaluation Division, approve the installation of the TRPCS health and usage monitoring system (HUMS) when the tail rotor pitch change bearing sensor, part number (P/N) 6259M36-120 or 6259M36-150, is installed with HUMS Main Processor Unit, part number 92600-01810-115 or later FAA approved part number, used in conjunction with P/N 92358-06134-042 temperature indicator plug, to determine if removal of a TRPCS from service is necessary using the information specified in the following procedure as a Global AMOC to paragraph (e)(2) of AD 2017-02-51 since it meets the intent of the AD:

Bearing monitoring procedure when the tail rotor pitch change bearing sensor, P/N 6259M36-120 or 6259M36-150) is installed with HUMS Main Processor Unit, P/N 92600-01810-115 or later FAA approved part number and P/N 92358-06134-042 Temperature Indicator Plug installed:

Whenever a Tail PCS BRG HI exceedance is detected:

- 1) Refer to AMM chapter 45 Table 105 for HUMS exceedance maintenance actions.
- 2) Perform tail rotor pitch change shaft temperature plug inspection.

1) HUMS Exceedance maintenance actions:

- Upon detection of a TAIL PCS BRG HI exceedance:
 - Replace TRPCS within 30 flight hours
 - If associated maintenance actions resolve the exceedance, demonstrating that the TRPCS is not the source of the vibration exceedance, the TRPCS may remain in service.
 - Inspect TRPCS temperature plug prior to next flight and follow maintenance instructions.
 - Repeat TRPCS temperature plug inspection every 10 flight hours until bearing replacement.

2) Temperature plug inspection with HUMS monitor installed:

- If the 300F temperature dot is found tripped:
 - If there is a TAIL PCS BRG HI exceedance, a single return to base flight is allowed prior to replacing tail rotor pitch change shaft assembly.
 - If there is no TAIL PCS BRG HI exceedance:
 - For SB2310 angular contact bearing TSN less than or equal to 300 hours replace 300F temperature dot prior to 300 hours.
 - For SB2310 angular contact bearing TSN greater than 300 hours, a single return to base flight is allowed prior to replacing tail rotor pitch change shaft assembly.
- If the 320F temperature dot is found tripped:
 - If there is a TAIL PCS BRG HI exceedance, replace tail rotor pitch change shaft assembly.
 - If there is no TAIL PCS BRG HI exceedance:
 - For SB2310 angular contact bearing TSN less than or equal to 100 hours replace 320F temperature dot prior to 100 hours.
 - For SB2310 angular contact bearing TSN greater than 100 hours, replace tail rotor pitch change shaft assembly.
- If the 340F temperature dot is found tripped:
 - Replace tail rotor pitch change shaft assembly.

In accordance with FAA Order 8110.103B, dated September 14, 2016, the following conditions apply:

1. All provisions of AD 2017-02-51 that are not specifically referenced above remain fully applicable and must be complied with accordingly.
2. This approval is applicable only to Sikorsky Aircraft Corporation Model S-92A helicopters, certificated in any category, with a TRPCS assembly P/N 92358-06303-041 or P/N 92358-06303-042 installed.
3. This Global AMOC is transferable. A transferable Global AMOC is a Global AMOC that will continue to apply to a product after it has been transferred to a new owner/operator.
4. Before using this Global AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

This approval is subject to the following condition:

This Global AMOC only applies to the FAA AD listed above. The FAA does not have the authority to approve this as a Global AMOC to any AD issued by another civil aviation authority (CAA). Approval of a Global AMOC to another CAA's AD must come from that CAA.

If you have any questions or need additional information regarding this Global AMOC, please contact Mr. Jared Hyman, Aerospace Engineer, AIR-752, by telephone at 781-238-7305 or electronic mail at jared.m.hyman@faa.gov.

Sincerely,

JAMES LEE Digitally signed by JAMES
LEE
Date: 2023.09.13
15:24:41 -04'00'

for: Christina Underwood
Manager, East Certification Branch, AIR-750
Compliance and Airworthiness Division
Aircraft Certification Service