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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-8501; Product Identifier 2014-SW-042-AD; Amendment 39-19678; AD 2019-13-05]

RIN 2120-AA64

Airworthiness Directives; Sikorsky Aircraft Corporation Helicopters

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Sikorsky Aircraft Corporation (Sikorsky) Model S-92A helicopters. This AD was prompted by fatigue analysis indicating stress concentrations, as well as the discovery of a helicopter with a crack in the station (STA) 362 frame and skin. This AD requires inspecting the main transmission forward and aft frame assemblies and adjacent skins for a crack and loose fasteners, and establishing life limits for certain frame assemblies. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective August 29, 2019.

ADDRESSES: 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 view this service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy., Room 6N-321, Fort Worth, TX 76177.

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-2016-8501; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the regulatory evaluation, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Kristopher Greer, Aviation Safety Engineer, Boston ACO Branch, Compliance and Airworthiness Division, 1200 District Avenue, Burlington, Massachusetts 01803; telephone (781) 238-7799; email Kristopher.Greer@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Sikorsky Model S-92A helicopters. The NPRM published in the Federal Register on July 15, 2016 (81 FR 46002). The NPRM was prompted by a fatigue analysis that indicates stress concentrations may develop at the steel doublers on the main transmission airframe support structure top deck, adjacent to the transmission feet. Additionally, a helicopter was discovered with a crack in the STA 362 frame and skin. The NPRM proposed to require inspecting the main transmission forward and aft frame assemblies and adjacent skins for a crack and loose fasteners, and replacing or repairing any cracked part or loose fastener. The NPRM also proposed to require establishing life limits for certain frame assemblies.

The FAA issued a supplemental NPRM (SNPRM) (83 FR 66167, December 26, 2018) that proposed to revise the NPRM by increasing the estimated costs of compliance and removing the daily inspection requirements.

The FAA is issuing this AD to detect a crack in a main transmission airframe support structure, which could result in failure of a main transmission frame and subsequent loss of control of the helicopter.

Comments

The FAA gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the SNPRM and the FAA's response to each comment.

Request To Reference the Latest Service Information

Sikorsky requested that the FAA reference the latest revision of Sikorsky S-92A-AMM-000 Maintenance Manual, Chapter 53-20-00, Task 53-20-00-210-003, "Inspection of Main Transmission Airframe Support Structure."

The FAA agrees. The FAA has revised this final rule to reference Sikorsky S-92A-AMM-000 Maintenance Manual, Chapter 53-20-00, Task 53-20-00-210-003, "Inspection of Main Transmission Airframe Support Structure," dated November 30, 2018.

Request To Revise Certain Terminology in the SNPRM

Sikorsky requested that all instances of "life limits" be changed to "replacement intervals." Sikorsky stated that this terminology is consistent with 14 CFR Appendix A to part 29 and the approved airworthiness limitations section of the maintenance manual.

The FAA disagrees. The term "life limit" has been used in previous ADs applicable to Sikorsky aircraft and is well understood by the aviation industry. In addition, the use of life limit conveys the mandatory nature of the replacement intervals. The FAA has not changed this final rule in this regard.

Request To Revise the Life Limit Hours Time-In-Service (TIS) in the SNPRM

Sikorsky requested that the FAA revise the values for the life limit hours TIS. Sikorsky stated that the replacement intervals for the frame assembly part numbers shown in table 1 to paragraph (e)(1) of the SNPRM (which is referred to as figure 1 to paragraphs (a) and (e) in this final rule) increased since issuance of the NPRM. Sikorsky also stated that a recent certification effort for these

parts increased the replacement intervals by a minimum of 7,900 hours, to as much as 17,400 hours, above the limits proposed in the SNPRM. Sikorsky commented that incorporation of these new replacement intervals (ranging from 18,300 life limit hours TIS to 29,400 life limit hours TIS, as applicable) will avoid unnecessary removal from service of frame assemblies and avoid the need for issuance of alternate methods of compliance to address differences between the life limits proposed by the SNPRM and those subsequently approved by the FAA.

The FAA agrees. The FAA has revised the life limits in this final rule for the reasons provided by the commenter because these longer life limits have been approved by the FAA.

Sikorsky further commented that with approval of recent certification work, Forward STA 328 frame assemblies that are altered and changed to P/N 92070-20124-064, 92070-20124-067, 92070-20127-045, 92070-20124-065, 92070-20124-047, or 92070-20127-046 are no longer counted from TIS of alternation. They are only counted from the original frame part number initial service date instead. These part-numbered assemblies were proposed in the SNPRM for removal from service upon accumulating 12,000 hours TIS from the alteration or 28,500 hours TIS total (regardless of part number) from the total original frame part number initial service date, whichever occurs first.

The FAA agrees and has omitted “remove from service of upon accumulating 12,000 hours TIS from the alteration” in this final rule.

Additional Changes Made in This Final Rule

The four tables in the SNPRM have been re-identified as figures in this AD. The FAA has also relocated these figures to all follow paragraph (a) of this AD.

FAA's Determination

The FAA has reviewed the relevant information, considered the comments received, and determined that an unsafe condition exists and is likely to exist or develop on other helicopters of the same type design and that air safety and the public interest require adopting the AD requirements as proposed with the changes described previously. These changes are consistent with the intent of the proposals in the SNPRM and do not add any additional burden upon the public than was already proposed in the SNPRM. Additionally, these changes will not increase the economic burden on any operator or increase the scope of the AD.

Related Service Information

Sikorsky issued Alert Service Bulletin (ASB) 92-53-008, Basic Issue, dated June 13, 2012 (ASB 92-53-008); ASB 92-53-009, Basic Issue, dated December 6, 2012 (ASB 92-53-009); ASB 92-53-012, Basic Issue, dated February 10, 2014 (ASB 92-53-012); and S-92A-AMM-000 Maintenance Manual, Chapter 53-20-00, Task 53-20-00-210-003, “Inspection of Main Transmission Airframe Support Structure,” dated November 30, 2018 (Task 53-20-00-210-003).

ASB 92-53-008 provides procedures for a one-time inspection of the main transmission frames and beams for a crack, missing or loose fastener or collar, damage, deformation, and corrosion. ASB 92-53-009 specifies, among other actions, a recurring 150-hour inspection of the interior and exterior surfaces of the upper flanges and beams. ASB 92-53-012 specifies altering the forward and aft transmission support frames by removing steel doublers, cold-working the holes, oversizing the holes, trimming skin panels, and reassembling the parts with interference fit fasteners in accordance with Special Service Instructions 92-074-E. After this alteration, the parts are re-identified with a new part number. Sikorsky refers to this alteration as a service life extension program modification. Task 53-20-00-210-003 describes procedures for an inspection of the main transmission airframe support structure.

Differences Between This AD and the Service Information

The service information recommends providing certain information to Sikorsky, and this AD does not. The service information specifies performing a fluorescent penetrant inspection if there is a suspected crack and contacting Sikorsky if there is a crack, while this AD only requires repairing or replacing any cracked part. Contacting Sikorsky is not required by this AD.

Costs of Compliance

The FAA estimates that this AD affects 50 helicopters of U.S. Registry. The FAA estimates that operators may incur the following costs to comply with this AD. Labor costs are estimated at \$85 per work-hour.

The FAA estimates a minimal cost to establish and revise the life limit of the frame assembly. The FAA estimates it takes 1 work-hour to inspect STA 328 and 362 frames. No parts are needed for a total cost of \$4,250 for the U.S. fleet for each inspection per inspection cycle. If a fastener is replaced, the FAA estimates the cost to be minimal. If a frame is replaced, it takes 5,000 work-hours and required parts cost \$296,000 for a total cost of \$721,000 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.

The FAA is 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) Will not affect intrastate aviation in Alaska, and
- (3) 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.

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):



2019-13-05 Sikorsky Aircraft Corporation: Amendment 39-19678; Docket No. FAA-2016-8501; Product Identifier 2014-SW-042-AD.

(a) Applicability

This AD applies to Sikorsky Aircraft Corporation Model S-92A helicopters, certificated in any category, with a forward station (STA) 328 or aft STA 362 frame assembly with a part number (P/N) as shown in Figure 1 to paragraphs (a) and (e) of this AD, Figure 2 to paragraphs (a) and (e) of this AD, Figure 3 to paragraphs (a) and (e)(2) of this AD, or Figure 4 to paragraphs (a) and (e)(2) of this AD.

Figure 1 to Paragraphs (a) and (e)

Forward STA 328 Frame Assembly P/N	Life Limit Hours TIS
92070-20124-064	28,500
92070-20124-067	28,500
92070-20127-045	28,500
92070-20124-065	28,500
92070-20124-047	28,500
92070-20127-046	28,500
92070-20124-063	29,400
92070-20124-066	29,400
92070-20127-041	29,400
Aft STA 362 Frame Assembly P/N	Life Limit Hours TIS
92070-20124-041	18,300
92070-20124-044	18,300
92070-20127-042	18,300
92070-20124-042	18,300
92070-20124-045	18,300
92070-20127-049	18,300
92070-20124-043	18,300
92070-20124-046	18,300
92070-20127-050	18,300
92070-20141-050	27,600
92070-20141-051	27,600
92070-20141-052	27,600

Figure 2 to Paragraphs (a) and (e)

Forward STA 328 Frame Assembly P/N	Life Limit Hours TIS
92070-20097-058	28,500
92080-20047-047	28,500
92070-20097-060	28,500
92080-20047-048	28,500

Figure 3 to Paragraphs (a) and (e)(2)

Forward STA 328 Frame Assembly P/N	Aft STA 362 Frame Assembly P/N
92209-02106-042	92070-20097-062
92209-02106-043	92080-20047-051
92070-20097-041	92209-02109-043
92080-20047-041	92209-02109-044
	92070-20097-042
	92080-20047-042
	92070-20097-064
	92080-20047-052

Figure 4 to Paragraphs (a) and (e)(2)

Forward STA 328 Frame Assembly P/N	Aft STA 362 Frame Assembly P/N
92209-02107-042	92209-02108-042
92209-02107-103	92209-02108-103

(b) Unsafe Condition

This AD defines the unsafe condition as a crack in a main transmission airframe support structure. This condition could result in failure of a main transmission frame and subsequent loss of control of the helicopter.

(c) Effective Date

This AD is effective August 29, 2019.

(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) For helicopters with a frame assembly with a part number shown in Figure 1 to paragraphs (a) and (e) of this AD or Figure 2 to paragraphs (a) and (e) of this AD, before further flight, remove from service any part that has reached or exceeded its new life limit. Forward STA 328 frame assemblies that are altered and changed to P/N 92070-20124-064, 92070-20124-067, 92070-20127-045, 92070-20124-065, 92070-20124-047, or 92070-20127-046 must be removed from service upon accumulating 28,500 hours time-in-service (TIS) total (regardless of P/N) from the original frame part number initial service date.

(2) For each frame assembly listed in Figure 1 to paragraphs (a) and (e) of this AD or Figure 4 to paragraphs (a) and (e)(2) of this AD with 1,801 or more hours TIS, and for each frame assembly listed in Figure 2 to paragraphs (a) and (e) of this AD or Figure 3 to paragraphs (a) and (e)(2) of this AD with 1,301 or more hours TIS, within 150 hours TIS and thereafter at intervals not to exceed 150 hours TIS, do the following inspections. For guidance on performing these inspections, refer to Sikorsky S-92A-AMM-000 Maintenance Manual Chapter 53-20-00, Task 53-20-00-210-003, "Inspection of Main Transmission Airframe Support Structure," dated November 30, 2018.

(i) Inspect the STA 328 frame and STA 362 frame between the left and right butt line (BL) 16.5 beams and inspect the area on the left and right BL 16.5 beams six inches on either side of the mounting pads for a crack and loose fasteners. If there is a loose fastener or a crack, repair or replace any cracked part and any loose fastener before further flight.

(ii) Inspect the STA 328 and STA 362 outboard frames, left and right sides, from the BL 16.5 beam to water line 252.25 for a crack and loose fasteners. If there is a loose fastener or a crack, repair or replace any cracked part and any loose fastener before further flight.

(f) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Boston ACO Branch, FAA, may approve AMOCs for this AD. Send your proposal to: Kristopher Greer, Aviation Safety Engineer, Boston ACO Branch, Compliance and Airworthiness Division, 1200 District Avenue, Burlington, Massachusetts 01803; telephone (781) 238-7799; email Kristopher.Greer@faa.gov.

(2) For operations conducted under a 14 CFR part 119 operating certificate or under 14 CFR part 91, subpart K, the FAA suggests 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 (ASB) 92-53-008, Basic Issue, dated June 13, 2012; ASB 92-53-009, Basic Issue, dated December 6, 2012; ASB 92-53-012, Basic Issue, dated February 10, 2014, Sikorsky Special Service Instructions No. 92-074-E, Revision E, dated April 9, 2014, and Sikorsky S-92A-AMM-000 Maintenance Manual, Chapter 53-20-00, Task 53-20-00-210-003, "Inspection of Main Transmission Airframe Support Structure," dated November 30, 2018, which are not incorporated by reference, contain additional information about the subject of this AD. For service information identified in this AD, 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 view this 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 System Component (JASC) Code: 5311, Fuselage Main, Frame.

Issued in Fort Worth, Texas, on July 10, 2019.

James A. Grigg,
Acting Deputy Director for Regulatory Operations, Compliance & Airworthiness Division,
Aircraft Certification Service.