

[Federal Register: September 13, 2010 (Volume 75, Number 176)]  
[Rules and Regulations]  
[Page 55453-55455]  
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[DOCID:fr13se10-1]

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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2008-0609; Directorate Identifier 2008-SW-24-AD; Amendment 39-16408 AD 2010-17-16]**

**RIN 2120-AA64**

### **Airworthiness Directives; Sikorsky Aircraft Corporation Model S-76A, S-76B, and S-76C Helicopters**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for Sikorsky Aircraft Corporation (Sikorsky) Model S-76A, S-76B, and S-76C helicopters. This AD requires an initial and recurring inspections of the tail rotor vertical stabilizer aft spar assembly (aft spar assembly) for a crack, loose or working fasteners, and corrosion, and, if any are found, further inspections of the vertical stabilizer forward spar assembly (forward spar assembly). Repairing or replacing any unairworthy part before further flight is also required. This AD also requires a recurring track-and-balance of the tail rotor. Finally, this AD requires installing a vertical stabilizer modification kit, which is terminating action for the requirements of the AD. This AD is prompted by 26 reports of fatigue cracks in the aft spar assembly web and outer caps. The actions specified by this AD are intended to detect and correct an unbalanced or out-of-track tail rotor, which could lead to increased vibrations, a fatigue crack, loss of a portion of the vertical stabilizer and subsequent loss of control of the helicopter.

**DATES:** Effective October 18, 2010.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of October 18, 2010.

**ADDRESSES:** You may get the service information identified in this AD from Sikorsky Aircraft Corporation, Attn: Manager, Commercial Technical Support, mailstop s581a, 6900 Main Street, Stratford, Connecticut 06614, phone (203) 383-4866, e-mail address [tsslibrary@sikorsky.com](mailto:tsslibrary@sikorsky.com).

Examining the Docket: You may examine the docket that contains this AD, any comments, and other information on the Internet at <http://www.regulations.gov> or at the Docket Operations office, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Nicholas Faust, Aviation Safety Engineer, 16 New England Executive Park, Burlington, MA 01803; telephone: (781) 238-7763; fax: (781) 238-7170.

**SUPPLEMENTARY INFORMATION:** A proposal to amend 14 CFR part 39 to include an AD for certain Sikorsky Model S-76A, S-76B, and S-76C helicopters was published in the Federal Register on June 4, 2008 (73 FR 31780). The proposed action applied to Sikorsky Model S-76A, S-76B, and S-76C helicopters with any of the following part-numbered aft spar assemblies installed:

<b>Helicopter model</b>	<b>Aft spar assembly part number (P/N)</b>
S-76A	76201-05002-114
	76201-05002-115
S-76B and S-76C	76201-05002-047
	76201-05002-048
	76201-25002-041
	76201-25002-044
	76201-25002-045
	76201-25002-046

That action proposed to require, for any spar assembly that has 1,000 or more hours time-in-service (TIS), within 30 days and thereafter at intervals not to exceed 50 hours TIS, inspecting the aft spar assembly, and if you find a crack, a loose or working fasteners, or corrosion, inspecting the forward spar assembly before further flight and replacing or repairing any unairworthy part with an airworthy part before further flight. The action also proposed to require, within 30 days and thereafter at intervals not to exceed 200 hours TIS, track-and-balance of the tail rotor. Accomplishing the tail rotor track-and-balance would involve both a pilot and mechanic. The pilot's function would be to operate the helicopter to a "light on wheels" state—almost to the point of takeoff, and the mechanic would accomplish the vibration measurements. Also, proposed was requiring, on or before December 31, 2010, installing a vertical stabilizer modification kit, P/N 76070-20562, 76070-20563, or 76070-20564, which would be terminating action for the requirements of the proposed AD.

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the one comment received from the manufacturer.

Sikorsky states that the effectivity should also include the aircraft serial number as referenced in their Alert Service Bulletin (ASB) No. 76-55-21. Sikorsky recommends the following wording "Note All S-76 helicopter serial numbers greater than 760578 but not including helicopter serial number 762976 are not affected." Sikorsky states that "this would ease the operator burden for aircraft built after the affected population of verifying the spar part numbers to show compliance with the AD." We concur with Sikorsky's recommendation to limit the applicability to only specified serial numbered helicopters and have revised the AD accordingly. Further, we inadvertently omitted the dash numbers to the part numbers of the modification kits contained in paragraph (c) of the proposed AD; "-011" has been added to each of the part numbers in this final rule.

We have reviewed the following service information:

- Sikorsky Alert Service Bulletin (ASB) No. 76-55-20A, Revision A, dated November 11, 2003 (76-55-20A), that applies to Sikorsky Model S-76A and Model S-76C helicopters and describes procedures for a one-time inspection of the vertical stabilizer aft spar assembly for cracks, loose or working fasteners, and/or corrosion, and if necessary an inspection of the forward spar assembly.

- ASB No. 76-65-58A, Revision A, dated November 11, 2003 (76-65-58A), that applies to all Sikorsky Model S-76 serial numbered helicopters up to and including 760526 and describes procedures for an initial enhanced tail rotor balance check.

We have also reviewed ASB No. 76-55-21, dated February 9, 2006 (76-55-21), that Sikorsky references in its comment. ASB 76-55-21 applies to all Sikorsky S-76 serial numbered helicopters up to and including 760578 and 762976 and specifies the installation of a structural enhancement kit which strengthens the aft spar assembly, improves the fatigue strength capability of the vertical stabilizer, and extends the vertical stabilizer inspection. We do not reference ASB No. 76-55-21 in the compliance instructions of this AD.

This AD differs from ASB 76-55-20A and ASB 76-65-58A in that the incorporated by reference provisions described in ASB No. 76-55-20A are required for the Model S-76B helicopters as well as for the Model S-76A and Model S-76C helicopters. Also, this AD requires repetitive inspections of the aft spar assembly and the forward spar assembly, if necessary, and repetitive track-and-balance of the tail rotor, whereas the two ASBs specify only a one-time tail rotor balance check and an aft spar assembly inspection and, if necessary, a one-time forward spar assembly inspection.

After careful review of the available data, including the comment noted above, we have determined that air safety and the public interest require the adoption of the rule with the changes described previously. We have also increased the labor rate for performing the required actions from \$80 to \$85 per work-hour. We have determined that these changes will not significantly increase the economic burden on any operator nor increase the scope of the AD.

We estimate that this AD will affect 216 helicopters of U.S. registry. We also estimate that the inspections for a crack, a loose or working fastener, or corrosion will take approximately 7 work-hours per helicopter to accomplish. The tail rotor track-and-balance procedures and adjustments will take approximately 10 work-hours per helicopter, and installing the vertical stabilizer modification kit will take approximately 120 hours per helicopter, at an average labor rate of \$85 per work hour. The vertical stabilizer modification kit will cost approximately \$4,250. Based on these figures, we estimate the total cost impact of this AD on U.S. operators to be \$5,214,240, assuming that, on each helicopter, 12 spar assembly inspections are done (\$1,542,240), that 3 tail rotor track-and-balance procedures are done (\$550,800), that no spar assembly is repaired or replaced, and that the vertical stabilizer modification kit is installed.

## **Regulatory Findings**

We have 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 above, I certify that the 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); 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.

We prepared an economic evaluation of the estimated costs to comply with this AD. See the AD docket to examine the economic evaluation.

## **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.

### **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 Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (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. FAA amends § 39.13 by adding a new AD to read as follows:



**2010-17-16 Sikorsky Aircraft Corporation:** Amendment 39-16408; Docket No. FAA-2008-0609; Directorate Identifier 2008-SW-24-AD.

Applicability: Model S-76A, S-76B, and S-76C helicopters, with serial numbers 76005 through 760578, inclusive, and serial number 762976, with any of the following part-numbered vertical stabilizer aft spar assemblies having 1,000 or more hours time-in-service (TIS) installed, certificated in any category.

Helicopter model	Vertical stabilizer aft spar assembly part number
S-76A	76201-05002-114
	76201-05002-115
S-76B and S-76C	76201-05002-047
	76201-05002-048
	76201-25002-041
	76201-25002-044
	76201-25002-045
	76201-25002-046

Compliance: Required as indicated.

To detect and correct an unbalanced or out-of-track tail rotor, which could lead to increased vibrations, a fatigue crack, loss of a portion of the vertical stabilizer, and subsequent loss of control of the helicopter, accomplish the following:

(a) Within 30 days, unless accomplished previously, and thereafter at intervals not to exceed 50 hours TIS, inspect the vertical stabilizer aft spar assembly (aft spar assembly) for a crack, a loose or working fastener, or corrosion in accordance with the Accomplishment Instructions, paragraph 3.A., in Sikorsky Alert Service Bulletin (ASB) No. 76-55-20A, Revision A, dated November 11, 2003 (No. 76-55-20A). For purposes of this AD, ASB No. 76-55-20A is applicable to Model S-76B helicopters as well as Model S-76A and S-76C helicopters.

(1) If a crack, a loose or working fastener, or corrosion is found in the aft spar assembly, before further flight:

(i) Repair or replace any unairworthy parts and

(ii) Inspect the vertical stabilizer forward spar assembly (forward spar assembly) for a crack, a loose or working fastener, or corrosion in accordance with the Accomplishment Instructions, paragraph 3.B., in ASB No. 76-55-20A. Contacting the manufacturer is not required by this AD.

(2) If a crack, a loose or working fastener, or corrosion is found in the forward spar assembly, repair in accordance with the applicable maintenance manual or replace with airworthy parts before further flight.

(b) Within 30 days, unless accomplished previously, and thereafter at intervals not to exceed 200 hours TIS, track-and-balance the tail rotor in accordance with the Accomplishment Instructions, paragraph 3.A., in ASB No. 76-65-58A, Revision A, dated November 11, 2003.

Note 1: Although the ASB specifies only an initial inspection of the aft spar assembly and a track and balance of the tail rotor, this AD requires inspecting the aft spar assembly and track-and-balancing the tail rotor repetitively.

Note 2: The track-and-balancing of the tail rotor that is required by paragraph (b) of this AD involves both a pilot and mechanic. The pilot's function is to operate the helicopter to a "light on wheels" state—almost to the point of takeoff. The mechanic is needed to accomplish the vibration measurements.

(c) On or before December 31, 2010, install a vertical stabilizer modification kit, part number 76070-20562-011, 76070-20563-011, or 76070-20564-011. Installing the vertical stabilizer modification kit is terminating action for the requirements of this AD.

(d) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Contact the Manager, Boston Aircraft Certification Office, Engine and Propeller Directorate, ATTN: Nicholas Faust, Aviation Safety Engineer, FAA, 12 New England Executive Park, Burlington, MA 01803, telephone (781) 238-7763, fax (781) 238-7170, for information about previously approved alternative methods of compliance.

(e) The Joint Aircraft System/Component (JASC) Code 5530 is: Vertical Stabilizer.

(f) The inspections and track-and-balance shall be done in accordance with the specified portions of Sikorsky Alert Service Bulletin No. 76-55-20A, Revision A, dated November 11, 2003, and Sikorsky Alert Service Bulletin No. 76-65-58A, Revision A, dated November 11, 2003. The Director of the Federal Register approved this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Sikorsky Aircraft Corporation, Attn: Manager, Commercial Technical Support, mailstop s581a, 6900 Main Street, Stratford, Connecticut 06614, phone (203) 383-4866, e-mail address [tsslibrary@sikorsky.com](mailto:tsslibrary@sikorsky.com). Copies may be inspected at the FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas or 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/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

(g) This amendment becomes effective on October 18, 2010.

Issued in Fort Worth, Texas, on August 12, 2010.  
Mark R. Schilling,  
Acting Manager, Rotorcraft Directorate,  
Aircraft Certification Service.