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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2012-0085; Directorate Identifier 2011-SW-004-AD; Amendment 39-17389; AD 2013-05-17]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Sikorsky Aircraft Corporation Helicopters**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for Sikorsky Aircraft Corporation (Sikorsky) Model S-61A, D, E, L, N, NM, R, and V helicopters to require replacing each forward and aft fuel system 40 micron fuel filter element with a 10 micron nominal (40 micron absolute) fuel filter element. This AD was prompted by a National Transportation Safety Board (NTSB) review of in-service events where engine performance degradation occurred, and the review determined that some of these events were caused by contaminants larger than 10 microns present in the engine fuel control units (FCUs). The actions are intended to prevent particulate contamination in the FCU, which could lead to malfunction of an internal valve, power loss at a critical phase of flight, and loss of control of the helicopter.

**DATES:** This AD is effective April 26, 2013.

**ADDRESSES:** For service information identified in this AD, contact Sikorsky Aircraft Corporation, Attn: Manager, Commercial Technical Support, mailstop s581a, 6900 Main St., Stratford, CT; telephone (203) 383-4866; email [tsslibrary@sikorsky.com](mailto: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.

#### **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 AD, any incorporated-by-reference service information, the economic evaluation, any comments received, and other information. The street address for the Docket Operations Office (phone: 800-647-5527) is U.S. Department of Transportation, Docket

Operations Office, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Kirk Gustafson, Aerospace Engineer, Boston Aircraft Certification Office, Engine and Propeller Directorate, FAA, 12 New England Executive Park, Burlington, MA 01803; telephone (781) 238-7190; email [kirk.gustafson@faa.gov](mailto:kirk.gustafson@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

On February 3, 2012, at 77 FR 5418, the Federal Register published our notice of proposed rulemaking (NPRM or the proposed rule), which proposed to amend 14 CFR part 39 to include an AD that would apply to Sikorsky Model S-61A, D, E, L, N, NM, R, and V helicopters with a fuel system 40 micron fuel filter element, part number (P/N) 52-0505-2 or 52-01064-1. That NPRM proposed to require replacing each forward and aft fuel system 40 micron fuel filter element with a 10 micron fuel filter element. The proposed requirements were intended to prevent malfunction of an internal valve, power loss at a critical phase of flight, and loss of control of the helicopter.

### **Comments**

After our NPRM (77 FR 5418, February 3, 2012) was published, we received comments from two commenters.

### **Requests**

Sikorsky stated that the description of the applicable replacement fuel filter is inaccurate and requested that the proposed rule (77 FR 5418, February 3, 2012) be changed to include both nominal and absolute ratings ("10 micron nominal (40 micron absolute) fuel filter element") when referencing fuel filter, P/N 52-01064-1. We agree. We have included this information in the summary and required action sections of the AD.

Sikorsky also stated that the proposed rule (77 FR 5418, February 3, 2012) incorrectly indicates that the effect of the alleged fuel contamination would be a power loss, because GE and the NTSB characterize the potential effect as slowing or degrading throttle changes (either increasing or decreasing). Sikorsky further stated that an unsafe condition does not exist because a contaminated FCU will not cause a reduction in power, and that the NPRM inaccurately indicated that a loss of power will lead to a loss of control of the aircraft because as long as the main rotor speed is maintained between 91% and 111% Nr, the pilot may experience a loss of altitude but will have full control authority and the ability to land without injury or damage. Sikorsky requested that we modify the description of the effect of a contaminated FCU and the overall effect on the helicopter's operation in the proposed rule, and change our determination that an unsafe condition exists or is likely to exist to instead reflect an opportunity to improve safety to prevent possible added pilot workload.

We disagree. Fuel contamination in the FCU can result in abnormal operation of specific internal components, which, depending on the exact circumstances of the contamination condition and the operating condition of the engine, could result in a reduced or erratic engine acceleration rate. A slow acceleration rate to a higher power level at a critical phase of flight where the expected aircraft performance is dependent on a normal engine acceleration rate to a higher power level is an unsafe condition. Fuel contamination in the FCU can also result in the pressure regulating valve becoming stuck during acceleration or deceleration, causing the engine to continue to accelerate or decelerate to an unintended power condition. If the engine were to accelerate to the overspeed trip or decelerate to an unintended low power condition, this would result in a significant power loss. Consequently, a

power shortfall during a critical phase of flight due to a slow or erratic acceleration of the engine can result in the inability to sustain continued safe flight. Therefore, we determined that this AD is necessary because an unsafe condition does exist.

To the extent Sikorsky supports its request with data from an NTSB accident report, we note that the actions proposed by the NPRM (77 FR 5418, February 3, 2012) were not directly associated with a specific accident investigation. We reviewed the specific accident investigation mentioned by the commenter and several service incidents, and found several situations in which anomalous engine performance was attributed to internal FCU contamination. Based on these incidents, we determined it necessary to impose this action to further reduce the potential for anomalous engine performance during critical flight phases.

The second commenter, the NTSB, commented that it supports the NPRM (77 FR 5418, February 3, 2012).

### **FAA's Determination**

We have 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 these same type designs and that air safety and the public interest require adopting the AD requirements as proposed with the change in the description of the replacement fuel filter described previously. This change is consistent with the intent of the NPRM's proposals and will not increase the economic burden on any operator nor increase the scope of the AD.

### **Related Service Information**

We reviewed Sikorsky Alert Service Bulletin (ASB) No. 61B30-16, dated February 2, 2010 (ASB No. 61B30-16), which supersedes ASB No. 61B28-1, dated January 15, 2010 (ASB No. 61B28-1). ASB No. 61B28-1 specified replacing the forward and aft fuel system 40 micron fuel filter elements with 10 micron fuel filter elements at the next scheduled inspection or within 150 flight hours from the issuance of the ASB. ASB 61B30-16 retains the same instructions as ASB 61B28-1, but deletes the compliance time "at the next scheduled preventative maintenance inspection." Also, ASB No. 61B30-16 was issued because ASB No. 61B28-1 was incorrectly numbered.

### **Costs of Compliance**

We estimate that this AD will affect 78 helicopters of U.S. Registry. We estimate that operators may incur the following costs in order to comply with this AD. It will take approximately 4 work-hours to replace the fuel system fuel filters and re-identify the fuel tank fuel filter and fuel control assembly bracket. The average labor rate is \$85 per work-hour and required parts will cost about \$370 per helicopter. Based on these figures, we estimate the cost of the AD on U.S. operators to be \$710 per helicopter and the total cost of this AD on U.S. operators to be \$55,380.

### **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**

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) 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):



**2013-05-17 Sikorsky Aircraft Corporation:** Amendment 39-17389; Docket No. FAA-2012-0085; Directorate Identifier 2011-SW-004-AD.

**(a) Applicability**

This AD applies to Sikorsky Aircraft Corporation Model S-61A, D, E, L, N, NM, R, and V helicopters with a fuel system 40 micron fuel filter element, part number (P/N) 52-0505-2 or 52-01064-1, certificated in any category.

**(b) Unsafe Condition**

This AD defines the unsafe condition as contaminants present in the engine fuel control units (FCUs). This AD was prompted by a National Transportation Safety Board review of in-service events where engine performance degradation occurred. This condition could result in particulate contamination in the FCU, which could lead to malfunction of an internal valve, power loss at a critical phase of flight, and loss of control of the helicopter.

**(c) Effective Date**

This AD becomes effective April 26, 2013.

**(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) Within 150 hours time-in-service, do the following:

(i) Replace each forward and aft fuel system 40 micron fuel filter element with a 10 micron nominal (40 micron absolute) fuel filter element, P/N AM52-01064-1.

(ii) Re-identify the fuel filter, P/N 52-2145-009, and fuel control assembly bracket as follows:

(A) On the fuel filter identification plate, cross out the last two digits ("09") of the existing fuel filter P/N 52-2145-009, and replace those last two digits with "14" to re-identify the fuel filter as P/N 52-2145-014.

(B) Change the existing fuel control assembly part number on the fuel control assembly bracket to re-identify it as follows:

(1) Change fuel control assembly P/N S6130-63209-001 to P/N S6130-63209-041.

(2) Change fuel control assembly P/N S6130-63209-002 to P/N S6130-63209-042.

(3) Change fuel control assembly P/N S6130-63209-003 to P/N S6130-63209-043.

(4) Change fuel control assembly P/N S6130-63209-004 to P/N S6130-63209-044.

**(f) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Boston Aircraft Certification Office, FAA, may approve AMOCs for this AD. Send your proposal to: Kirk Gustafson, Aerospace Engineer, Boston Aircraft Certification Office, Engine and Propeller Directorate, FAA, 12 New England Executive Park, Burlington, MA 01803; telephone (781) 238-7190; email [kirk.gustafson@faa.gov](mailto:kirk.gustafson@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 Aircraft Corporation Alert Service Bulletin No. 61B30-16, dated February 2, 2010, which is not incorporated by reference, contains additional information about the subject of this AD. For this service information, contact Sikorsky Aircraft Corporation, Attn: Manager, Commercial Technical Support, mailstop s581a, 6900 Main St., Stratford, CT; telephone (203) 383-4866; email [tsslibrary@sikorsky.com](mailto:tsslibrary@sikorsky.com), or at <http://www.sikorsky.com>. You may review a copy of this 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: 2821, Aircraft Fuel Filter/Strainer.

Issued in Fort Worth, Texas, on March 6, 2013.  
Lance T. Gant,  
Acting Directorate Manager, Rotorcraft Directorate,  
Aircraft Certification Service.