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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2014-0493; Directorate Identifier 2013-SW-019-AD; Amendment 39-18173; AD 2015-11-10]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Sikorsky Aircraft Corporation (Sikorsky) Model 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 Model S-92A helicopters. This AD requires installing a main gearbox (MGB) failed pump sensor and vacuum switch wiring, installing an MGB oil auto bypass system, activating Aircraft Management System (AMS) 7.1 software to show a new visual warning, and installing updated enhanced ground proximity warning system (EGPWS) software that includes an aural annunciation of a complete oil pressure loss condition. This AD also requires inserting a Rotorcraft Flight Manual (RFM) Supplement into the applicable RFM. This AD was prompted by investigation results of in-service oil leakage incidents. The actions are intended to alert and prevent MGB oil loss, which could lead to failure of the MGB and subsequent loss of control of the helicopter.

**DATES:** This AD is effective July 14, 2015.

The Director of the Federal Register approved the incorporation by reference of a certain document listed in this AD as of July 14, 2015.

**ADDRESSES:** 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 sikorskywcs@sikorsky.com; or at <http://www.sikorsky.com>. For the Honeywell service information identified in this proposed AD, contact Honeywell International, Inc., at 15001 NE. 36 Street, Redmond, WA 98052-5316, telephone (800) 601-3099; email [www.myaerospace.com](http://www.myaerospace.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:** Michael Schwetz, Aviation Safety Engineer, Boston Aircraft Certification Office, Engine & Propeller Directorate, FAA, 12 New England Executive Park, Burlington, Massachusetts 01803; telephone (781) 238-7761; email [michael.schwetz@faa.gov](mailto:michael.schwetz@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

On July 23, 2014, at 79 FR 42719, the Federal Register published our notice of proposed rulemaking (NPRM), which proposed to amend 14 CFR part 39 by adding an AD that would apply to certain serial-numbered Sikorsky Model S-92A helicopters. The NPRM proposed to require inserting an RFM Supplement into the applicable RFM, and depending on the helicopter's serial number, installing an MGB failed pump sensor and vacuum switch wiring, installing an MGB oil auto bypass system, activating AMS 7.1 software to show a new MGB "OIL OUT" visual warning, and updating the EGPWS software to include an aural annunciation of a complete oil pressure loss condition.

The proposed AD was prompted by one accident and one in-service oil leakage incident where it was discovered during subsequent investigations that the pilot failed to activate the bypass valve within 5 seconds of the oil pressure dropping below 35 psi, as required by the RFM. Both accident and incident investigations found that the pilot activated the bypass valve well beyond the 5 seconds. The manual operation of the bypass valve within 5 seconds of the oil pressure dropping below 35 psi has proven not to be a realistic expectation. The proposed requirements were intended to alert and prevent MGB oil loss, which could lead to failure of the MGB and subsequent loss of control of the helicopter.

### **Comments**

Sikorsky commented that it supported issuing the AD but felt portions of the "Discussion" section in the preamble of the NPRM (79 FR 42719, July 23, 2014) needed clarification.

We agree with some of the commenter's language regarding the function of the MGB oil auto bypass system. However, the commenter has not requested that we change the proposed rule.

### **FAA's Determination**

We have reviewed the relevant information and determined that an unsafe condition exists and is likely to exist or develop on other products of the same type design and that air safety and the public interest require adopting the AD requirements as proposed.

### **Related Service Information Under 1 CFR Part 51**

We reviewed Sikorsky S-92A Rotorcraft Flight Manual (RFM) Supplement No. 45, Part I, dated July 30, 2012. The RFM supplement provides preflight checks and emergency procedures for the oil

pump failure indicating system and the MGB auto bypass. This information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section of this AD.

### **Other Related Service Information**

Sikorsky has issued the following service information:

- Alert Service Bulletin (ASB) No. 92-63-024C, Revision C, dated October 7, 2011, for certain serial-numbered helicopters specifies installing a main module input gear box switch assembly and modifying the MGB vacuum switch wiring. Before making the modification, the ASB states an AMS 4.1 or greater version must first be installed and the following Customer Service Notices (CSN) completed: CSN 92-068C, Revision C, dated March 27, 2012, and CSN 92-069A, Revision A, dated November 10, 2011.
- ASB 92-63-027, Basic Issue, dated January 21, 2013, for certain serial-numbered helicopters specifies installing an MGB oil pressure automatic bypass system, activating an MGB "OIL OUT" visual warning in the AMS 7.1 software, and performing systems operational checkout procedures. Before or when installing the MGB oil pressure auto bypass system, the ASB states the following must be complied with: CSN 92-089, Basic Issue, dated January 10, 2013; ASB 92-34-002, Basic Issue, dated January 21, 2013; and ASB 92-63-024C, Revision C, dated October 7, 2011.
- ASB 92-34-002, Basic Issue, dated January 21, 2013, for certain serial-numbered helicopters with certain part-numbered EGPWS installed, specifies installing EGPWS updated software version 030, which adds an MGB "OIL OUT" aural warning, in accordance with Honeywell International, Inc., Service Bulletin 965-1595-34-23, Revision 0, dated March 13, 2012. Before or during installation of the updated software, the ASB states the following must be complied with: ASB 92-63-027, Basic Issue, dated January 21, 2013, and CSN 92-089, Basic Issue, dated January 10, 2013.

### **Differences Between This AD and the Service Information**

This AD requires compliance within 500 hours time-in-service, and the service information specifies certain dates and calendar times.

### **Costs of Compliance**

We estimate that this AD will affect 44 helicopters of U.S. Registry.

We estimate that operators may incur the following costs in order to comply with this AD. Labor costs are estimated at \$85 per hour. The work hours and required parts costs are estimated as follows:

- .5 work hour to insert the RFM Supplement into the RFM.
- 8 work hours plus \$2,200 for required parts to install an MGB failed pump sensor;
- 4 work hours plus \$250 for required parts to install MGB vacuum switch wiring;
- 71.7 work hours plus \$4,100 for required parts to install an MGB oil pressure auto bypass system;
- 1 work hour to activate AMS 7.1; and
- 1 work hour plus \$500 for required parts to install EGPWS software.

The total cost of compliance for all actions will be about \$14,377 per helicopter and \$632,588 for the U.S. fleet.

## **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):



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**2015-11-10 Sikorsky Aircraft Corporation:** Amendment 39-18173; Docket No. FAA-2014-0493; Directorate Identifier 2013-SW-019-AD.

**(a) Applicability**

This AD applies to Model S-92A helicopters, serial number (S/N) 920006 through 920179, certificated in any category.

**(b) Unsafe Condition**

This AD defines the unsafe condition as main gearbox (MGB) oil loss, which could lead to failure of the MGB and subsequent loss of control of the helicopter.

**(c) Effective Date**

This AD becomes effective July 14, 2015.

**(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**

Within 500 hours time-in-service:

(1) Insert a copy of the Sikorsky S-92A Rotorcraft Flight Manual (RFM) Supplement No. 45, Part I, dated July 30, 2012, into the RFM.

(2) For helicopters with S/N 920006 through 920132:

(i) Install an MGB failed pump sensor, Modification Kit Part Number (P/N) 92070-35007-011.

(ii) Install MGB vacuum switch wiring, Modification Kit P/N 92070-55039-013.

(3) For helicopters with S/N 920006 through 920179:

(i) Install an MGB auto bypass system, Modification Kit P/N 92070-55061-011.

(ii) Activate Aircraft Management System 7.1 software to show a new MGB "OIL OUT" visual warning.

(iii) Install enhanced ground proximity warning system software version 030.

**(f) Special Flight Permit**

Special flight permits are prohibited.

**(g) Alternative Methods of Compliance (AMOC)**

(1) The Manager, Boston Aircraft Certification Office, FAA, may approve AMOCs for this AD. Send your proposal to: Michael Schwetz, Aviation Safety Engineer, Boston Aircraft Certification

Office, Engine & Propeller Directorate, FAA, 12 New England Executive Park, Burlington, Massachusetts 01803; telephone (781) 238-7761; email michael.schwetz@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.

**(h) Additional Information**

Sikorsky Alert Service Bulletin (ASB) No. 92-63-024C, Revision C, dated October 7, 2011; Sikorsky ASBs 92-63-027 and 92-34-002, both Basic Issue and both dated January 21, 2013; Sikorsky Customer Service Notice (CSN) 92-068C, Revision C, dated March 27, 2012; CSN 92-069A, Revision A, dated November 10, 2011; CSN 92-089, Basic Issue, dated January 10, 2013; and Honeywell International, Inc., Service Bulletin 965-1595-34-23, Revision 0, dated March 13, 2012, 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 sikorskywcs@sikorsky.com; or at <http://www.sikorsky.com> and Honeywell International, Inc., at 15001 NE. 36 Street, Redmond, WA 98052-5316, telephone (800) 601-3099; or at [www.myaerospace.com](http://www.myaerospace.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.

**(i) Subject**

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

**(j) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Sikorsky S-92A Rotorcraft Flight Manual Supplement No. 45, Part I, dated July 30, 2012.

(ii) Reserved.

(3) For Sikorsky 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 sikorskywcs@sikorsky.com; or at <http://www.sikorsky.com>.

(4) You may view this service information at FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137. For information on the availability of this material at the FAA, call (817) 222-5110.

(5) You may view this service information that is incorporated by reference 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/cfr/ibr-locations.html>.

Issued in Fort Worth, Texas, on May 29, 2015.

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