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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2017-0946; Product Identifier 2017-SW-045-AD; Amendment 39-19081; AD 2017-22-01]

RIN 2120-AA64

Airworthiness Directives; Sikorsky Aircraft Corporation Helicopters

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: We are adopting a new airworthiness directive (AD) for Sikorsky Aircraft Corporation (Sikorsky) Model S-92A helicopters. This AD requires adding operating limitations to a rotorcraft flight manual (RFM). This AD is prompted by test results showing decoupling of the flight director (FD) in certain flight conditions. The actions of this AD are intended to address an unsafe condition on these products.

DATES: This AD becomes effective November 8, 2017.

The Director of the Federal Register approved the incorporation by reference of a certain document listed in this AD as of November 8, 2017.

We must receive comments on this AD by December 26, 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-2017-0946; 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 (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. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2017-0946.

FOR FURTHER INFORMATION CONTACT: Nick Rediess, Aviation Safety Engineer, Boston ACO Branch, Compliance and Airworthiness Division, 1200 District Avenue, Burlington, MA 01803; telephone (781) 238-7159; email nicholas.rediess@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

We are adopting a new AD for Sikorsky Model S-92A helicopters with a Flight Control Computer (FCC) part number 92900-01802-112 installed. The FCC is part of the Search and Rescue (SAR) Automatic Flight Control System (AFCS). During laboratory testing, Sikorsky discovered a defect in the FCC software that results in the FD decoupling in all three axes when pilot input is made to transition between two SAR AFCS modes. When the AFCS is engaged in SAR Approach 2 (APP2) with an indicated airspeed below VMINI (50 KIAS), the decoupling will occur if the pilot initiates a transition to Velocity Hover Hold (VHLD) mode by pressing the VHLD button on the Mode Select Panel (MSP). The decoupling is annunciated to the pilot but only after a three-second delay. During the delay, the rotorcraft may pitch up with the rate of descent increases to as much as 450 fpm. Because of this, the pilot must take immediate manual control of the rotorcraft after decoupling. This condition could result in loss of control of the helicopter and flight into terrain. According to Sikorsky, the root cause of the failure is under investigation.

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 products of the same type design.

Related Service Information Under 1 CFR Part 51

Sikorsky has issued SA S92A-RFM-003 RFM Supplement (RFMS) No. 4 (Sikorsky SA S92A-RFM-003 RFMS No. 4), Revision 1, approved October 6, 2017, for the Model S-92A helicopter SAR AFCS. This revision of the RFMS prohibits engaging VHLD during coupled SAR APP2 mode via MSP soft key, adds a warning explaining the decoupling event and subsequent aircraft behavior, and adds a note regarding correctly activating VHLD mode with the cyclic trim release switch or selecting VHLD during Mark-On-Top (MOT).

This service 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.

Other Related Service Information

Sikorsky has issued letter CCS-92-APL-17-0001, dated July 31, 2017, for Model S-92A helicopters, which describes the conditions that result in the FD decoupling and provides instructions on how to avoid it. This service information further provides instructions for re-engaging the FD if decoupling occurs.

AD Requirements

This AD requires revising the Operating Limitations section of Sikorsky SA S92A-RFM-003 RFMS No. 4 by prohibiting engaging VHLD via either MSP soft key during coupled SAR APP2 mode, adding a warning describing the decoupling event and subsequent AFCS and aircraft behavior, and adding a note regarding correctly activating VHLD mode with the cyclic trim release switch or selecting VHLD during MOT.

Interim Action

We consider this AD to be an interim action. The design approval holder is currently developing a modification that will address the unsafe condition identified in this AD. Once this modification is developed, approved, and available, we might consider additional rulemaking.

Costs of Compliance

We estimate that this AD will affect 87 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 work-hour.

Revising the RFMS will take about 0.5 work-hour for an estimated cost of \$43 per helicopter and \$3,741 for the U.S. fleet.

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 find that the risk to the flying public justifies waiving notice and comment prior to the adoption of this rule because the required corrective actions must be completed within 10 hours time-in-service.

Since an unsafe condition exists that requires the immediate adoption of this AD, we determined that notice and opportunity for public comment before issuing this AD are impracticable and that good cause exists for making this amendment effective in less than 30 days.

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):



FAA
Aviation Safety

AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/
www.gpoaccess.gov/fr/advanced.html

2017-22-01 Sikorsky Aircraft Corporation: Amendment 39-19081; Docket No. FAA-2017-0946; Product Identifier 2017-SW-045-AD.

(a) Applicability

This AD applies to Model S-92A helicopters, certificated in any category, with a Search and Rescue (SAR) Automatic Flight Control System installed with a Flight Control Computer (FCC) part number 92900-01802-112.

(b) Unsafe Condition

This AD defines the unsafe condition as a software defect in the FCC. This condition could result in unintended decoupling of the flight director in all three axes and flight into terrain.

(c) Effective Date

This AD becomes effective November 8, 2017.

(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 10 hours time-in-service, revise the operating limitations section of the Rotorcraft Flight Manual by adding the information in Figure 1 to paragraph (e) of this AD as paragraph 4, System Limits, in Section 1 of Sikorsky SA S92A-RFM-003 Rotorcraft Flight Manual Supplement (RFMS) No. 4 for the SAR AFCS (Sikorsky SA S92A-RFM-003 RFMS No. 4). This action may be done by:

- (1) Inserting a copy of this AD;
- (2) Making pen-and-ink changes; or
- (3) Inserting pages 1-2 and 1-3/1-4 of Sikorsky SA S92A-RFM-003 RFMS No. 4, Revision 1, approved October 6, 2017. Using a different Sikorsky SA S92A-RFM-003 RFMS No. 4 revision with information identical to that in paragraph 4, System Limits, from Section 1 of Sikorsky SA S92A-RFM-003 RFMS No. 4, Revision 1, approved October 6, 2017, is acceptable for compliance with the requirements of this AD.

SYSTEM LIMIT

Engaging Velocity Hover Hold (VHLD) via either Mode Select Panel (MSP) soft key during coupled SAR APP2 mode is prohibited.

WARNING: Engaging VHLD via either MSP soft key will result in an immediate decoupling of the Flight Director (FD). If, during an APP2 SAR approach with an indicated airspeed below V_{MINI} (50 KIAS), a pilot attempts to engage velocity hold by pressing the VHLD button on either MSP, a FD DGRD will result decoupling the aircraft in all three axes. Upon pressing VHLD, the FD mode annunciations (banner) extinguish, followed by a red FD in the upper left corner of the Primary Flight Display (PFD). Approximately 3 seconds later, a FD DGRD caution will illuminate accompanied by a "DECOUPLE" aural alert. The aircraft may pitch up (a residual effect of the Decel mode) while Rate of Descent (ROD) increases to as much as 450 fpm without pilot input. A coupled Go-Around will not function until an AFCS reset is accomplished. Failure to take manual control will result in flight into terrain.

NOTE: VHLD activation is authorized below V_{MINI} by depressing either Cyclic Trim Release switch with APP2 or MOT engaged, or selecting VHLD via either MSP soft key during a MOT.

Figure 1 to Paragraph (e)

(f) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Boston ACO Branch, FAA, may approve AMOCs for this AD. Send your proposal to: Nick Rediess, Aviation Safety Engineer, Boston ACO Branch, Compliance and Airworthiness Division, 1200 District Avenue, Burlington, MA 01803; telephone (781) 238-7159; email nicholas.rediess@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 letter CCS-92-APL-17-0001, dated July 31, 2017, which is not incorporated by reference, contains 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 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: 2210, Autopilot System.

(i) 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) Pages 1-2 and 1-3/1-4 of Sikorsky SA S92A-RFM-003 RFMS No. 4 Sikorsky Model S-92A Part 1, Revision 1, approved October 6, 2017.

(ii) Reserved.

(3) For Sikorsky service information identified in this AD, 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.

(4) You may view this service information at FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy, Room 6N-321, Fort Worth, TX 76177. 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 October 16, 2017.

James A. Grigg,
Acting Director, Compliance & Airworthiness Division,
Aircraft Certification Service.