



**[4910-13-P]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2017-0896; Product Identifier 2017-SW-034-AD]**

**RIN 2120-AA64**

**Airworthiness Directives; Sikorsky Aircraft Corporation Helicopters**

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

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to supersede airworthiness directive (AD) 2017-07-02 for Sikorsky Aircraft Corporation (Sikorsky) Model 269D and Model 269D Configuration A helicopters. AD 2017-07-02 currently requires reducing the life limit of and inspecting certain drive shafts. This proposed AD would retain the requirements of AD 2017-07-02 and propose repeating the inspections. The actions of this proposed AD are intended to detect and prevent an unsafe condition on these products.

**DATES:** We must receive comments on this proposed AD by [INSERT DATE 60 days AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**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-2017-0896; 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 proposed AD, 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 proposed 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](mailto:wcs_cust_service_eng.gr-sik@lmco.com). You may review service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy, Room 6N-321, Fort Worth, TX 76177.

**FOR FURTHER INFORMATION CONTACT:** Michael Schwetz, Aviation Safety Engineer, Boston ACO Branch, Compliance and Airworthiness Division, FAA, 1200 District Avenue, Burlington, Massachusetts 01803; telephone (781) 238-7761; email [michael.schwetz@faa.gov](mailto:michael.schwetz@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Comments Invited**

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 might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, 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 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 proposed rulemaking. Before acting on this proposal, we will consider all comments we receive on or before the closing date for comments. We will consider comments filed after the comment period has closed if it is possible to do so without incurring expense or delay. We may change this proposal in light of the comments we receive.

### **Discussion**

On March 20, 2017, we issued a Final rule; request for comments to add AD 2017-07-02, Amendment 39-18840 (82 FR 15120, March 27, 2017) for Sikorsky Model 269D and Model 269D Configuration A helicopters with a KAflex engine side drive shaft part number (P/N) SKCP2738-7 and KAflex pulley side drive shaft P/N SKCP2738-5 installed. AD 2017-07-02 requires reducing the life limit of the drive shafts and performing several inspections of the drive shafts within 25 hours time-in-service (TIS).

AD 2017-07-02 also specifies replacing the drive shaft assemblies as an optional terminating action for the requirements of the AD. AD 2017-07-02 was prompted by four incidents involving failure of the engine side drive shaft. The actions required by AD 2017-07-02 are intended to prevent failure of the drive shaft, loss of rotor drive, and subsequent loss of control of the helicopter.

This NPRM would retain the requirements of AD 2017-07-02 but would require that some of the inspections be repeated every 100 hours TIS or 400 hours TIS. Repeating these inspections is necessary to detect and prevent the unsafe condition. Because these proposed requirements are for longer intervals, we are providing the public an opportunity to comment.

#### **FAA's Determination**

We are proposing 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 these same type designs.

#### **Related Service Information**

We reviewed Appendix B to Sikorsky S-330 Model 269D Helicopter Basic Handbook of Maintenance Instructions No. CSP-D-2, dated February 1, 1993, and revised October 15, 2014; and Appendix B to Sikorsky S-333 Model 269D Config. "A" Helicopter Basic Handbook of Maintenance Instructions No. CSP-D-9, dated July 20, 2001, and revised October 15, 2014. This service information specifies repetitive inspection procedures, overhaul and retirement schedules, and weight and balance procedures. The Airworthiness Limitations section, which is included in this service

information, contains the life limits for drive shaft assembly P/Ns SKCP2738-5 and SKCP2738-7.

We also reviewed Sikorsky 269D Helicopter Alert Service Bulletin DB-052, Basic Issue, dated January 16, 2014, which distributes the service life reduction information and implements a new 1,200-hour overhaul inspection for drive shaft assembly P/Ns SKCP2738-3, SKCP2738-5, and SKCP2738-7.

### **Proposed AD Requirements**

This proposed AD would require, before further flight:

- Removing from service any engine side drive shaft P/N SKCP2738-7 and pulley side drive shaft P/N SKCP2738-5 that has reached or exceeded its new life limit as follows:

- 6,000 hours TIS for Model 269D helicopters;
- 1,200 hours TIS for Model 269D Configuration A helicopters; and
- 1,200 hours TIS if the parts have ever been interchanged between the two model configurations.

This proposed AD would also require:

- Within 25 hours TIS, and thereafter at intervals not to exceed 25 hours TIS, inspecting the lower pulley to engine alignment, and if there is any interference with the rotation of the belt drive alignment tool, adjusting the engine elevation alignment before further flight.

- Within 25 hours TIS, and thereafter at intervals not to exceed 100 hours TIS, inspecting the KAflex drive shaft alignment and inspecting the engine side and pulley side drive shafts for a crack, any corrosion or pitting, a nick, a dent, and a scratch.

- Within 25 hours TIS, and thereafter at intervals not to exceed 400 hours TIS, inspecting each joint for movement; inspecting each joint for fretting corrosion and each frame and mount bolt torque stripe for movement; and inspecting each joint for fretting, for a crack around both the bolt head and washer side, and around the nut and washer side, and each inside and outside corner radii and radii edges on both sides of each frame for a crack.

If the drive shaft fails any of the above inspections, this proposed AD would require replacing both the engine side and pulley side drive shafts before further flight.

This proposed AD also specifies installing KAflex engine side coupling assembly P/N SKCP2738-9 and KAflex pulley side coupling assembly P/N SKCP2738-101 as an optional terminating action for the requirements of this AD.

#### **Differences Between this Proposed AD and the Service Information**

The Sikorsky service information specifies a drive shaft assembly service life of 3,000 hours TIS with a 1,200 hour overhaul inspection for Model 269D Configuration A helicopters, while this proposed AD specifies a service life of 1,200 hours TIS.

The Sikorsky service information specifies different inspection procedures if there is spline engagement interference or resistance while inspecting the drive shaft alignment. This proposed AD specifies replacing both the engine side and pulley side drive shafts if there is any spline engagement interference or resistance.

The Sikorsky service information specifies inspecting the working fastener condition without any specific succeeding action regarding the inspection. This proposed AD specifies replacing both the engine side and pulley side drive shafts if there is any joint movement.

The Sikorsky service information specifies returning the drive shaft assembly to Sikorsky if there is fretting dust or red metallic residue at a joint. This proposed AD specifies replacing both the engine side and pulley side drive shafts if there is any fretting corrosion.

### **Costs of Compliance**

We estimate that this proposed AD would affect 18 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.

Removing the engine side and pulley side drive shafts that have reached the new life limit would take about 4 work-hours for a cost of \$340 per helicopter. Inspecting the lower pulley to engine alignment using the belt alignment tool would take about 0.5 work-hour for an estimated cost of \$43 per helicopter and \$774 for the U.S. fleet per inspection cycle. Adjusting the engine elevation alignment would take about 0.5 work-hour for an estimated cost of \$43 per helicopter. Inspecting the drive shaft alignment by checking spline engagement would take about 1 work-hour for a cost of \$85 per helicopter and \$1,530 for the U.S. fleet per inspection cycle. Inspecting the drive shafts for damage would take about 1 work-hour for an estimated cost of \$85 per helicopter and \$1,530 for the U.S. fleet per inspection cycle. Inspecting the joints would take about 1 work-hour for an estimated cost of \$85 per helicopter and \$1,530 for the U.S. fleet per inspection cycle. Replacing the engine side and pulley side drive shafts, if required, would take about 8 work-hours and parts would cost about \$20,000, for an estimated cost of \$20,680 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.

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 proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 this proposed 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);

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 proposed 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.

#### **The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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 removing Airworthiness Directive (AD) 2017-07-02, Amendment 39-18840 (82 FR 15120, March 27, 2017), and adding the following new AD:

**Sikorsky Aircraft Corporation (Sikorsky):** Docket No. FAA-2017-0896; Product Identifier 2017-SW-034-AD.

#### **(a) Applicability**

This AD applies to Sikorsky Model 269D and Model 269D Configuration A

helicopters with a KAflex engine side drive shaft part number (P/N) SKCP2738-7 and KAflex pulley side drive shaft P/N SKCP2738-5 installed, certificated in any category.

**(b) Unsafe Condition**

This AD defines the unsafe condition as failure of a drive shaft. This condition could result in loss of rotor drive and subsequent loss of control of the helicopter.

**(c) Affected ADs**

This AD supersedes AD 2017-07-02, Amendment 39-18840 (82 FR 15120, March 27, 2017).

**(d) Comments Due Date**

We must receive comments by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

**(e) 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.

**(f) Required Actions**

(1) Before further flight:

(i) For Model 269D helicopters, remove from service any KAflex engine side drive shaft P/N SKCP2738-7 and any KAflex pulley side drive shaft P/N SKCP2738-5 that has 6,000 or more hours time-in-service (TIS). Thereafter, remove from service any KAflex engine side drive shaft P/N SKCP2738-7 and any KAflex pulley side drive shaft P/N SKCP2738-5 before accumulating 6,000 hours TIS.

(ii) For Model 269D Configuration A helicopters, remove from service any KAflex engine side drive shaft P/N SKCP2738-7 and any KAflex pulley side drive shaft

P/N SKCP2738-5 that has 1,200 or more hours TIS. Thereafter, remove from service any KAflex engine side drive shaft P/N SKCP2738-7 and any KAflex pulley side drive shaft P/N SKCP2738-5 before accumulating 1,200 hours TIS.

(iii) If interchanged between Model 269D and Model 269D Configuration A helicopters, remove from service any KAflex engine side drive shaft P/N SKCP2738-7 and any KAflex pulley side drive shaft P/N SKCP2738-5 that has 1,200 or more hours TIS. Thereafter, if interchanged between Model 269D and Model 269D Configuration A helicopters, remove from service any KAflex engine side drive shaft P/N SKCP2738-7 and any KAflex pulley side drive shaft P/N SKCP2738-5 before accumulating 1,200 hours TIS.

(2) Within 25 hours TIS, and thereafter at intervals not to exceed 25 hours TIS, using a belt drive alignment tool 269T3303-003, inspect the lower pulley to engine alignment by engaging the tool on the drive shaft and inserting in the lower pulley bore. Rotate the tool 360° around the drive shaft and inspect for interference. If there is any interference with the rotation of the tool, before further flight, adjust the engine elevation alignment to eliminate the interference.

(3) Within 25 hours TIS, and thereafter at intervals not to exceed 100 hours TIS:

(i) Remove the drive shaft to adapter bolt and inspect the drive shaft alignment. Engage and disengage the splines a minimum of 3 times by sliding the engine power output shaft in and out of the engine. Inspect the alignment at each 90° interval by rotating the lower pulley with the power shaft disengaged. Determine whether the adapter slides on and off the drive shaft splines without spline engagement interference or resistance along the entire length of movement. If there is any spline engagement

interference or resistance, before further flight, replace both the engine side and pulley side drive shafts.

(ii) Inspect each drive shaft for a crack, any corrosion or pitting, a nick, a dent, and a scratch. If there is a crack, any corrosion or pitting, a nick, a dent, or a scratch that exceeds allowable limits, before further flight, replace both the engine side and pulley side drive shafts.

(4) Within 25 hours TIS, and thereafter at intervals not to exceed 400 hours TIS, remove the engine side drive shaft and pulley side drive shaft and perform the following:

(i) Inspect each flex frame (frame) bolted joint (joint) for movement by hand. If there is any movement, before further flight, replace both the engine side and pulley side drive shafts.

(ii) Visually inspect each joint for fretting corrosion (which might be indicated by metallic particles) and each frame and mount bolt torque stripe for movement. If there is any fretting corrosion or torque stripe movement, before further flight, replace both the engine side and pulley side drive shafts.

(iii) Using a 10x or higher power magnifying glass, visually inspect each joint for fretting and for a crack around the bolt head and washer side, and around the nut and washer side. Also inspect both sides of each frame for a crack on the inside and outside corner radii and radii edge (four). If there is any fretting, a crack at any point over the full circumference (360°) of the bolt head and washer side or the nut and washer side, or a crack in any of the corner radii edges, before further flight, replace both the engine side and pulley side drive shafts.

(5) As an optional terminating action to the repetitive inspections in this AD, you

may install KAflex engine side drive shaft P/N SKCP2738-9 and KAflex pulley side drive shaft P/N SKCP2738-101.

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

(1) The Manager, Boston ACO Branch, FAA, may approve AMOCs for this AD.

Send your proposal to: Michael Schwetz, Aviation Safety Engineer, Boston ACO Branch, Compliance and Airworthiness Division, FAA, 1200 District Avenue, 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**

Appendix B of Sikorsky S-330 Model 269D Helicopter Basic Handbook of Maintenance Instructions, No. CSP-D-2, dated February 1, 1993, and revised October 15, 2014; Appendix B of Sikorsky S-330 Model 269D Config. "A" Helicopter Basic Handbook of Maintenance Instructions, No. CSP-D-9, dated July 20, 2001, and revised October 15, 2014; and Sikorsky 269D Helicopter Alert Service Bulletin DB-052, Basic Issue, dated January 16, 2014, 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 review the service information at the

FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy, Room  
6N-321, Fort Worth, TX 76177.

**(i) Subject**

Joint Aircraft Service Component (JASC) Code: 6310, Engine/Transmission  
Coupling.

Issued in Fort Worth, Texas, on September 11, 2017.

Lance T. Gant,

Director, Compliance & Airworthiness Division,  
Aircraft Certification Service.

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