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**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2013-0454; Directorate Identifier 2009-SW-81-AD; Amendment 39-17621; AD 2013-20-15]**

**RIN 2120-AA64**

**Airworthiness Directives; Sikorsky Aircraft Corporation-Manufactured (Sikorsky) Model Helicopters (Type Certificate Currently Held by Erickson Air-Crane Incorporated)**

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

**ACTION:** Final rule.

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**SUMMARY:** We are superseding Airworthiness Directive (AD) 97-19-10 for Sikorsky Aircraft Corporation-manufactured Model S-64E helicopters (type certificate currently held by Erickson Air-Crane Incorporated (Erickson)). AD 97-19-10 required inspecting and reworking the main gearbox (MGB) assembly second stage lower planetary plate (plate). This action establishes or reduces the life limits for certain flight-critical components, removes from service various parts, requires repetitive inspections and other corrective actions, and requires replacing any cracked part discovered during an inspection. This AD is prompted by further analysis performed by the current type certificate holder and the service history of certain parts. The actions specified in this AD are intended to prevent a crack in a flight critical component, failure of a critical part, and subsequent loss of control of the helicopter.

**DATES:** This AD is effective December 5, 2013.

The Director of the Federal Register approved the incorporation by reference of a certain document listed in this AD as of December 5, 2013.

**ADDRESSES:** For service information identified in this AD, contact Erickson Air-Crane Incorporated, ATTN: Chris Erickson, Director of Regulatory Compliance, 3100 Willow Springs Rd, P.O. Box 3247, Central Point, OR 97502, telephone (541) 664-5544, fax (541) 664-2312, email address [cerickson@ericksonaircrane.com](mailto:cerickson@ericksonaircrane.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 Kohner, Aerospace Engineer, Rotorcraft Certification Office, Rotorcraft Directorate, FAA, 2601 Meacham Blvd., Fort Worth, TX 76137; telephone (817) 222-5170; email 7-avs-asw-170@faa.gov.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

On May 28, 2013, at 78 FR 31863, 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 Sikorsky Model CH-54A helicopters, now under the Erickson Air-Crane Incorporated (Erickson) Model S-64E type certificate. The NPRM proposed to supersede AD 97-19-10 (62 FR 47933, September 12, 1997), which required inspecting and reworking the MGB assembly plate. Since AD 97-19-10 was issued, further analysis was performed by the current type certificate holder. As a result, the NPRM proposed to establish or revise the life limit for various parts, to remove various parts from service, to require various inspections and other maintenance actions, and to revise the component history card or equivalent record and the airworthiness limitations section of the maintenance manual accordingly. The proposed requirements were intended to prevent a crack in a flight critical component, failure of a critical part, and subsequent loss of control of the helicopter.

### **Comments**

We gave the public the opportunity to participate in developing this AD, but we did not receive any comments on the NPRM (78 FR 31863, May 28, 2013).

### **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 these same type designs and that air safety and the public interest require adopting the AD requirements as proposed.

### **Related Service Information**

Erickson Service Bulletin (SB) No. 64B General-1, Revision 19, dated September 15, 2010 (SB 64B General-1), specifies the retirement life for certain parts and assemblies as well as noting other maintenance actions. This and the previous revisions of SB 64B General-1 contain reduced or new life limits for certain parts, parts which should be removed from service, other maintenance actions, and various other provisions for certain parts. We have also reviewed Erickson SB No. 64B10-3, Revision D, dated October 15, 2007, which provides ultrasonic inspection procedures for the Main Rotor (M/R) hub horizontal hinge pins.

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

This AD contains only those parts for the Model S-64E helicopters whose life limit has either been reduced or added for an existing P/N, whereas SB 64B General-1 also contains parts whose life limits have been extended. As a result, this proposed AD does not include all of the parts or P/Ns that are listed in SB 64B General-1.

### **Costs of Compliance**

We estimate that this AD will affect 13 helicopters of U.S. registry, and the proposed actions will take the following number of estimated work hours to accomplish:

- 26 work hours (2 work hours per helicopter) for the fleet to review the helicopter records or to remove a part to determine if an affected part is installed;

- 845 work hours (65 work hours per helicopter) for the fleet to replace the parts or assemblies on or before reaching the retirement lives stated in Table 1 of the AD, assuming an annual usage of 600 hours TIS;
- 287 work hours per helicopter to replace all the parts or assemblies listed in Table 2 of the AD;
- 130 work hours (10 work hours per helicopter) for the fleet to inspect the M/R servo housing assemblies for an oil leak, assuming each inspection would take approximately 0.25 work hour per helicopter and would be accomplished 40 times annually;
- Approximately 293 work hours (22.5 work hours per helicopter) for the fleet to UT inspect each M/R hub horizontal hinge pin, assuming that each inspection would take 7.5 work hours per helicopter and would be accomplished 3 times annually;
- 288 work hours (48 work hours per helicopter) to perform an MPI of each main gearbox second stage lower planetary plate and second stage planetary plate assembly assuming 6 helicopters would be inspected annually;
- 192 work hours (32 work hours per helicopter) to perform an MPI of each M/R shaft and M/R shaft assembly, assuming 6 helicopters would be inspected annually, and
- 96 work hours (32 work hours per helicopter) to perform an FPI of each M/R tandem servo housing assembly, assuming 3 helicopters would be inspected annually.
- Therefore, we estimate that it will take approximately 2,157 work hours to accomplish the proposed actions at a cost of \$183,345, using an average labor rate \$85 per work hour. Replacement parts will cost approximately:
- \$5,363,449 (\$412,573 per helicopter) to replace the parts or assemblies on the entire fleet on or before reaching the proposed retirement lives, assuming parts for 13 helicopters would require replacement; and
- \$2,594,400 per helicopter to replace the parts or assemblies that are listed in Table 2 of the AD.

Using these assumptions, the estimated total cost for the required parts will be approximately \$7,957,849. Based on these estimated amounts using these assumptions, we estimate the total cost impact of the AD on the U.S. operators will be \$8,141,194.

### **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 removing Airworthiness Directive (AD) 97-19-10, Amendment 39-10130 (62 FR 47933, September 12, 1997), and adding the following new AD:



**2013-20-15 SIKORSKY AIRCRAFT CORPORATION-MANUFACTURED (SIKORSKY) MODEL HELICOPTERS (TYPE CERTIFICATE CURRENTLY HELD BY ERICKSON AIR-CRANE INCORPORATED):** Amendment 39-17621; Docket No. FAA-2013-0454; Directorate Identifier 2009-SW-81-AD.

**(a) Applicability**

This AD applies to Sikorsky Model CH-54A helicopters, now under the Erickson Air-Crane Incorporated (Erickson) Model S-64E type certificate, certificated in any category.

**(b) Unsafe Condition**

This AD defines the unsafe condition as fatigue cracking in a flight critical component, failure of the component, and subsequent loss of control of the helicopter.

**(c) Affected ADs**

This AD supersedes AD 97-19-10, Amendment 39-10130 (62 FR 47933, September 12, 1997).

**(d) Effective Date**

This AD becomes effective December 5, 2013.

**(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, for each part listed in Table 1 to paragraph (f) of this AD:

(i) Remove any part that has reached or exceeded its newly established or revised retirement life.

(ii) Record the newly established or revised retirement life for each part on the component history card or equivalent record.

(iii) Make pen and ink changes or insert a copy of this AD into the Airworthiness Limitations section of the maintenance manual to establish or revise the retirement life for each part that is listed in Table 1 to paragraph (f) of this AD.

**Table 1 to Paragraph (f) of This AD—Parts With New or Revised Life Limits**

Part name	Part No. (P/N)	Retirement life
Rod and bushing assembly, main rotor (M/R)	6410-21090-012	5,700 hours time-in-service (TIS) or 60 months since the initial installation on any helicopter, whichever occurs first.
Rod and bushing assembly, M/R	6410-21090-013 or -014	5,700 hours TIS.

Lower plate, M/R hub	6410-23009-102	3,000 hours TIS.
Upper plate, M/R hub	6410-23011-102	3,000 hours TIS.
Swashplate, rotating, M/R	6410-24002-101	12,860 hours TIS.
Piston rod	6410-26005-104	10,500 hours TIS.
Cylinder, damper assembly	6410-26215-101	7,300 hours TIS.
M/R blade	6415-20201-045 or -047	3,300 hours TIS.
M/R blade	6415-20201-048, -049, -050, or - 051	20,000 hours TIS.
Truss assembly, stabilizer	6420-66250-041	4,720 hours TIS.
M/R shaft assembly (includes shaft, P/N 6435-20078-104)	6435-20078-014 or -015	2,600 hours TIS.
M/R shaft assembly (includes shaft, P/N 6435-20078-105)	6435-20078-016	5,000 hours TIS.
Second stage planetary plate assembly, main gearbox assembly	6435-20231-012, -014, or -015	1,300 hours TIS.
Second stage planetary plate assembly, main gearbox assembly	6435-20231-016	2,600 hours TIS.
Oil cooler and support assembly	6435-60050-044	9,885 hours TIS.
Tail rotor (T/R) blade	65160-00001- 042, -045, or -048	23,300 hours TIS.
T/R blade	65161-00001-042	23,300 hours TIS.
Hub, M/R	S1510-23001-005	3,000 hours TIS.
Spindle assembly, M/R	S1510-23027-5	5,675 hours TIS.
Horn assembly, M/R	S1510-23350-4, - 6, or -8	9,710 hours TIS.
Sleeve, M/R	S1510-23351-2	12,930 hours TIS.
Sleeve lockwasher, M/R	S1510-23458-0	2,700 hours TIS.
Cuff, M/R blade	S1515-20320-0	6,410 hours TIS.
Cuff, M/R blade	S1515-20320-001 or -002	12,930 hours TIS.
Piston assembly, M/R tandem servo	S1565-20443-0 or S1565-20443-301	8,100 hours TIS.

Fork assembly, M/R tandem servo	S1565-20449 or S1565-20449-301	8,100 hours TIS.
Bearing, T/R drive shaft	SB1111-004 or -601	1,000 hours TIS or 12 months while installed on any helicopter, whichever occurs first.

Note to Table 1 to paragraph (f) of this AD: The list of parts in Table 1 to paragraph (f) of this AD contains only a portion of the life- limited parts for this model helicopter and is not an all-inclusive list.

(2) Before further flight, remove from service any part with a P/N listed in Table 2 to Paragraph (f) of this AD, regardless of the part's TIS. The part numbers listed in Table 2 to paragraph (f)(2) of this AD are not eligible for installation on any helicopter.

**Table 2 to Paragraph (f) of This AD—Parts To Be Removed From Service**

Part name	P/N
Rod and bushing assembly, M/R	6410-21090-011.
M/R blade	6415-20001-013, -014, or -015.
Pylon stabilizer	6420-66201-010, -014, or -015.
M/R shaft assembly	6435-20078-013.
Oil cooler and support assembly	6435-60050-043.
Pitch change link, rotary rudder	65113-07100-046.
Spindle, M/R blade	S1510-23070-3.

(3) Within 20 hours TIS, and thereafter at intervals not to exceed 20 hours TIS, visually inspect each M/R servo and control arm assembly, P/N S1565-20421-10, -11, -041, or -043, and determine if there is any oil leaking from the M/R tandem servo housing assembly (servo housing), P/N S1565-20252-2. If there is any oil leaking from the servo housing, before further flight, replace the M/R servo and control arm assembly.

(4) Within 20 hours TIS or before reaching 1,120 hours TIS, whichever occurs later, and thereafter at intervals not to exceed 200 hours TIS or 12 months, whichever occurs first, ultrasonic (UT) inspect each M/R hub horizontal hinge pin (hinge pin), P/N S1510-23099-1 or P/N S1510-23099-001, for a crack in accordance with the Accomplishment Instructions, paragraphs 2.A through 2.C, of Erickson Service Bulletin No. 64B10-3, Revision D, dated October 15, 2007, except you are not required to contact Erickson nor send hinge pins to them. A non-destructive testing (NDT) UT Level I Special, Level II, or Level III inspector who is qualified under the guidelines established by ASNT SNT-TC-1A, ISO 9712, or an FAA-accepted equivalent qualification standard for NDT inspection and evaluation, must perform the UT inspection.

(5) Within 150 hours TIS or before reaching 1,450 hours TIS, whichever occurs later, perform a fluorescent-magnetic particle inspection (MPI) of each second stage planetary plate assembly, P/N 6435-20231-016, for a crack.

(6) Within 150 hours TIS or before reaching 1,450 hours TIS, whichever occurs later, and thereafter at intervals not to exceed 650 hours TIS, perform an MPI of each M/R shaft, P/N 6435-20078-104, for a crack, paying particular attention to the lower spline area.

(7) Within 150 hours TIS or before reaching 1,450 hours TIS, whichever occurs later, and thereafter at intervals not to exceed 1,450 hours TIS, perform an MPI of each M/R shaft, P/N 6435-20078-105, for a crack, paying particular attention to the lower spline area.

(8) Within 150 hours TIS or before reaching 3,375 hours TIS, whichever occurs later, and thereafter at intervals not to exceed 3,375 hours TIS, perform a fluorescent penetrant inspection of each housing lug on each servo housing, P/N S1565-20252-2, for a crack.

(9) At each overhaul of the main gearbox assembly, P/N 6435-20400-053, -054, -058, -060, -062, -063, -064, -065, or -066, perform an MPI of the entire shaft of each M/R shaft assembly, P/N 6435-20078-014, -015, or -016, for a crack, paying particular attention to the rotating swashplate spherical bearing ball travel area, which is located approximately ten inches above the upper roller bearing journal shoulder.

(10) If there is a crack in any part, before further flight, replace the cracked part.

(11) At each overhaul of the damper assembly, P/N 6410-26200-042, replace the following parts with airworthy parts that have zero (0) hours TIS:

(i) All Air Force-Navy Aeronautical Standard (AN), Aerospace Standard (AS), Military Standard (MS), and National Aerospace Standard (NAS) nuts, bolts, washers, and packings, except packing, P/N MS28775-011, installed on stud, P/N SHF111-11SN-12A;

(ii) Lock washer, P/N SS5073-2;

(iii) Nut, P/N SS5081-05;

(iv) Felt seal, P/N S1510-26017;

(v) Retaining ring, P/N UR106L; and

(vi) Nut, P/N 6410-26214-101.

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

(1) The Manager, Rotorcraft Certification Office, FAA, may approve AMOCs for this AD. Send your proposal to: Michael Kohner, Aerospace Engineer, Rotorcraft Certification Office, Rotorcraft Directorate, FAA, 2601 Meacham Blvd., Fort Worth, TX 76137; telephone (817) 222-5170; email 7-avs-asw-170@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**

Erickson Service Bulletin No. 64B General-1, Revision 19, dated September 15, 2010, which is not incorporated by reference, contains additional information about the subject of this AD. For service information identified in this AD, contact Erickson Air-Crane Incorporated, ATTN: Chris Erickson, Director of Regulatory Compliance, 3100 Willow Springs Rd., P.O. Box 3247, Central Point, OR 97502, telephone (541) 664-5544, fax (541) 664-2312, email address cerickson@ericksonaircrane.com. You may review a copy of this 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: 6200: Main Rotor System; 6300: Main Rotor Drive System; 6410: Tail Rotor Blades; 6500: Tail Rotor Drive System.

### **(j) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) 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) Erickson Service Bulletin No. 64B10-3, Revision D, dated October 15, 2007.

(ii) Reserved.

(3) For Erickson service information identified in this AD, contact Erickson Air-Crane Incorporated, ATTN: Chris Erickson, Director of Regulatory Compliance, 3100 Willow Springs Rd, P.O. Box 3247, Central Point, OR 97502, telephone (541) 664-5544, fax (541) 664-2312, email address [cerickson@ericksonaircrane.com](mailto:cerickson@ericksonaircrane.com).

(4) You may view this service information that is incorporated by reference at FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

(5) You may also 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 September 25, 2013.

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