



DATE: November 18, 2016

AD #: 2016-24-51

This Emergency Airworthiness Directive (Emergency AD) 2016-24-51 is being sent to owners and operators of Sikorsky Aircraft Corporation (Sikorsky) Model S-92A helicopters.

Background

This Emergency AD was prompted by a report of an operator losing tail rotor (TR) control while in a hover. A preliminary investigation determined that binding in the TR pitch change shaft (TRPCS) assembly double row angular contact bearing (bearing) resulted in reduced TR control. The investigation also found signs of excessive heat, which is an indicator of a binding bearing. Because binding will result in bearing failure rapidly, we are limiting this Emergency AD to TRPCS assemblies with less than 80 hours time-in-service (TIS). This Emergency AD requires, before further flight, removing from service any TRPCS assembly with less than 5 hours TIS since new or overhaul. For TRPCS assemblies that have 5 or more hours TIS since new or overhaul, this Emergency AD requires a one-time borescope and visual inspections of the TRPCS assembly and bearing to determine the condition of the bearings. The actions in this Emergency AD are intended to detect a binding bearing, prevent loss of TR control, and possible loss of control of the helicopter.

FAA's Determination

We are issuing this Emergency 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

We reviewed Sikorsky Alert Service Bulletin (ASB) 92-64-009, Basic Issue, dated November 2, 2016 (ASB 92-64-009). ASB 92-64-009 describes procedures for inspecting the TRPCS and bearing assemblies for damaged bearings and seals, purged grease with any metallic particles from the bearings, radial play in the bearings, and correct installation of the white Teflon seals, snap rings, and cotter pin.

Emergency AD Requirements

This Emergency AD requires, before further flight, removing TRPCS assemblies with less than 5 hours TIS. This Emergency AD also requires, for TRPCS assemblies with 5 or more hours TIS since new or overhaul, borescope inspecting the TRPCS and bearing assemblies for damaged bearings and seals, purged grease with any metallic particles from the bearings, radial play in the bearings, and correct installation of the white Teflon seals, snap rings, and cotter pin, and determining whether there is free rotation in the angular contact bearing. These inspections are required before further flight for TRPCS assemblies that have between 5 and 15 hours TIS since new or overhaul. For TRPCS assemblies with more than 15 hours TIS, these inspections are required within 20 hours TIS or before reaching 80 hours TIS, whichever occurs first. If there is any damage to the bearings, restrictive radial play, purged grease with metallic particles, or missing or incorrect installation of the

white Teflon seals, snap rings, or cotter pin, this Emergency AD requires replacing the TRPCS and bearing assembly before further flight.

Differences Between This Emergency AD and the Service Information

The ASB requires operators to contact Sikorsky if there are any discrepancies, this Emergency AD does not. The ASB allows 20 hours TIS to perform the visual bearing inspection if the borescope inspection has already been performed, while this Emergency AD allows 20 hours TIS for TRPCS assemblies with 15 or more hours TIS.

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.

Adoption of the Emergency Airworthiness Directive (AD)

We are issuing this Emergency AD under 49 U.S.C. Sections 106(g), 40113, and 44701 according to the authority delegated to me by the Administrator.

2016-24-51 Sikorsky Aircraft Corporation: Directorate Identifier 2016-SW-075-AD.

(a) Applicability

This Emergency AD applies to Sikorsky Aircraft Corporation (Sikorsky) Model S-92A helicopters, certificated in any category, with a tail rotor pitch change shaft (TRPCS) assembly part number (P/N) 92358-06303-041 or P/N 92358-06303-042 with less than 80 hours time-in-service (TIS) installed, except those TRPCS assemblies manufactured or overhauled on or after November 3, 2016.

(b) Unsafe Condition

This Emergency AD defines the unsafe condition as a binding TRPCS bearing. This condition could result in loss of tail rotor (TR) control and possible loss of control of the helicopter.

(c) Effective Date

This Emergency AD is effective upon receipt.

(d) Compliance

You are responsible for performing each action required by this Emergency AD within the specified compliance time unless it has already been accomplished prior to that time.

(e) Required Actions

(1) For TRPCS assemblies with less than 5 hours TIS since new or overhaul, before further flight, remove the TRPCS assembly from service.

(2) For TRPCS assemblies with between 5 and 15 hours TIS since new or overhaul, before further flight, and for TRPCS assemblies with more than 15 hours TIS, within 20 hours TIS or before reaching 80 hours TIS, whichever occurs first:

(i) Borescope inspect the TRPCS assembly as follows, unless done within the previous 15 hours TIS.

(A) On the TR side of the TRPCS bearing, remove the plug from the end of the TRPCS, insert the borescope into the TRPCS, and determine whether the white Teflon seal and snap ring are installed. If the white Teflon seal or snap ring is missing, or if there is a rip, tear, or heat damage on the seal or if there is no gap in the snap ring, before further flight replace the TRPCS assembly.

(B) On the TR servo side of the TRPCS bearing, insert the borescope through the oil filler cap hole and determine whether the white Teflon seal, snap ring, and cotter pin are installed. If the white Teflon seal, snap ring, or cotter pin is missing, if there is a rip, tear, or heat damage on the seal, or if there is no gap in the snap ring, before further flight replace the TRPCS assembly.

(ii) If the TRPCS assembly has less than 10 hours TIS, perform ground operation with the rotor turning at 105% (N_r) until the TRPCS assembly has accumulated 10 hours TIS, cycling the TR control pedals at least 10 times per hour.

(iii) Remove the TRPCS and inspect the SB2310 angular contact bearing for free rotation, purged grease with metal particles, a nick or a dent, and any cut, tear, or distortion on the bearing seal. If the bearing does not rotate freely; the bearing sounds rough or chatters; there is any purged grease with metal particles; a nick or dent; or if there is a cut, tear, or distortion in the bearing seal, before further flight, replace the TRPCS assembly.

(f) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Boston Aircraft Certification Office, FAA, may approve AMOCs for this Emergency AD. Send your proposal to: Blaine Williams, Aerospace Engineer, Boston Aircraft Certification Office, Engine & Propeller Directorate, 1200 District Avenue, Burlington, Massachusetts 01803; telephone (781) 238-7161; email blaine.williams@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 Emergency AD through an AMOC.

(g) Additional Information

(1) For further information contact: Blaine Williams, Aerospace Engineer, Boston Aircraft Certification Office, Engine & Propeller Directorate, 1200 District Avenue, Burlington, Massachusetts 01803; telephone (781) 238-7161; email blaine.williams@faa.gov.

(2) For a copy of the service information referenced in this Emergency 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.

(h) Subject

Joint Aircraft Service Component (JASC) Code: 6720 Tail Rotor Control System.

Issued in Fort Worth, Texas, on November 16, 2016.

Lance T. Gant,

Manager, Rotorcraft Directorate,
Aircraft Certification Service.