



## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2017-0682; Product Identifier 2017-SW-028-AD; Amendment 39-21433; AD 2021-04-12]

RIN 2120-AA64

#### Airworthiness Directives; Robinson Helicopter Company Helicopters

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

**ACTION:** Final rule.

**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for Robinson Helicopter Company (Robinson) Model R66 helicopters. This AD was prompted by reports of tail rotor (T/R) drive shaft forward hanger bearing failures. This AD requires installing a certain part numbered kit and removing parts from service or replacing a certain part-numbered T/R drive shaft assembly. This AD also prohibits the installation of certain parts. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain document listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this final rule, contact Robinson Helicopter Company, 2901 Airport Drive, Torrance, CA 90505; telephone 310-539-0508; fax 310-539-5198; or at <https://robinsonheli.com/technical-support/>. You may view a

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

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2017-0682; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M 30, West Building Ground Floor, Room W12 140, 1200 New Jersey Avenue SE, Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Danny Nguyen, Aerospace Engineer, Los Angeles ACO Branch, FAA, 3960 Paramount Blvd., Lakewood, California 90712; telephone 562-627-5247; email [danny.nguyen@faa.gov](mailto:danny.nguyen@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

The FAA issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 by adding an AD that would apply to Robinson Model R66 helicopters with a T/R drive shaft assembly part number (P/N) D224-3 without B900-11 modification installed. The SNPRM published in the *Federal Register* on July 28, 2020 (85 FR 45360). The FAA preceded the SNPRM with a notice of proposed rulemaking (NPRM) that published in the *Federal Register* on March 30, 2018 (83 FR 13706). The NPRM was prompted by two incidents of forward hanger bearing failure of the T/R drive shaft assembly because the bearing was undersized for its housing. Consequently, the bearing was spinning at a speed that caused excessive heating of the bearing during operation and led to the breakdown of the bearing's grease and ultimately seizure of the C647-16 bearing.

To correct this condition, Robinson initially issued R66 Service Bulletin SB-14, dated June 25, 2015 (SB-14), for certain serial-numbered helicopters, which specified installing a temperature recorder on the T/R drive shaft forward hanger bearing assembly and inspecting the temperature recorder during preflight checks and during each 100-hour inspection. If the bearing was found running hot, then Robinson advised upgrading the bearing to a newer design.

Following additional reports of overheating forward hanger bearing assemblies, Robinson superseded SB-14 with R66 Service Bulletin SB-20, dated November 7, 2016 (SB-20), which affected additional serial-numbered helicopters and specified modifying T/R drive shaft assembly P/Ns D224-3 and D224-4 by using kit Robinson KI-235 R66 TRDS Forward Yoke Assembly and Hanger Installation Kit Instructions, Revision A, dated June 23, 2015 (KI-235) and installing yoke assembly P/N D224-5. This installation has an improved, larger bearing that spins with less friction. SB-20 also specified inspecting the forward and aft sides of the hanger and damper bearings for a minimum of 0.5 inch in length of sealant on the junction of the black seal and bearing outer race and applying sealant if there was less than 0.5 inch in length of sealant.

Robinson revised SB-20 with R66 Service Bulletin SB-20A, dated June 6, 2017 (SB-20A), to clarify that helicopters with either T/R drive shaft assembly P/N D224-3 with modification B900-11 or P/N D224-4 installed include the upgraded bearing and do not require kit KI-235.

Robinson later revised SB-20A with R66 Service Bulletin SB-20B, dated December 20, 2017 (SB-20B), which updates writing practices and organizes the procedures into two separate sections, clarifies the “Rotorcraft Affected” section, and reduces the helicopters that need to perform the inspection and sealant application

procedures to just helicopters without the latest version damper and housing bearings.

The NPRM proposed to require within 100 hours time-in-service (TIS) replacing an affected T/R drive shaft forward yoke assembly with T/R drive shaft yoke assembly P/N D224-5. The NPRM proposed to require inspections of the forward and aft sides of the hanger bearing and the damper bearing for sealant, and depending on the results of the inspections applying sealant. The SNPRM proposed to revise the NPRM by expanding the applicability, changing the proposed requirements, and correcting nomenclature. The FAA is issuing this AD to address the unsafe condition on these products.

### **Comments**

The FAA gave the public the opportunity to comment on the proposed rulemaking. The following presents the comments received on the SNPRM and the FAA's response to each comment.

Request: Robinson requested the FAA change the note to the Applicability paragraph to identify certain serial-numbered helicopters that had T/R drive shaft assembly P/N D224-4 installed during production and clarify that these helicopters are not affected by this AD. Robinson explained that the specified serial-numbered helicopters with T/R drive shaft assembly P/N D224-4 installed have the larger (hanger) bearing, which is not affected by this AD, and clarified that P/N D224-5 is a sub-assembly upgrade to P/N D224-4.

FAA Response: The FAA agrees and has revised that note in this final rule to identify the serial-numbered helicopters with T/R drive shaft assembly P/N D224-4 installed during production and clarify that this part-numbered T/R drive shaft assembly is not affected by this AD.

Request: Robinson requested that the FAA change the exception in paragraph (e)(1)(i) of

this AD about not requiring the discarding of removed nuts and palnuts and stated that exception implies that the nuts and palnuts may be reused. Robinson explained that FAA Advisory Circular (AC) 43.13-1B Section 7-122 (d) specifies that these nuts should be discarded and referenced Robinson service information that specifies upgrading certain nuts any time maintenance is done. Robinson also stated that the KI-235 kit includes all required nuts and palnuts to replace discarded hardware.

FAA Response: The FAA disagrees. The FAA cannot require discarding of parts in an AD. Paragraph (d), section 7-122, of FAA AC 43.13-1B states that the removed nuts should never be reused and should be replaced with new ones when removed.

Accordingly, the FAA has added language to the exception stating that this AD requires removing the affected parts from service.

## **FAA's Determination**

The FAA has reviewed the relevant information, considered the comments received, 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 with the changes described previously. These changes are consistent with the intent proposed in the SNPRM for correcting the unsafe condition and will neither increase the economic burden on any operator nor increase the scope of the AD.

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

The FAA reviewed KI-235. This service information provides instructions for installing the newly designed yoke assembly, P/N D224-5.

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.

## **Related Service Information**

The FAA has reviewed SB-14, which specifies installing a temperature recorder on the T/R drive shaft forward hanger bearing assembly and inspecting the temperature during preflight checks and during each 100-hour inspection. If the temperature of the bearing is found running hot, then Robinson advises upgrading the bearing to a newer design (kit P/N KI-235). This service information also specifies adding a caution page to the Pilot Operating Handbook regarding the overheating bearing assemblies. This service information was superseded by SB-20.

The FAA has reviewed SB-20, SB-20A, and SB-20B, which specify upgrading the forward hanger bearing assembly of certain T/R drive shaft assemblies to the newer design with kit P/N KI-235 if not previously done. For certain installations, this service information contains procedures for inspecting for sealant and applying sealant to the

damper and hanger bearings if needed to prevent seal rotation. This service information also specifies removing the caution page from the Pilot Operating Handbook regarding the overheating bearing assemblies that was added by SB-14.

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

SB-20 specifies replacing the yoke assembly and applying sealant to the bearing seals within the next 100 flight hours or by January 31, 2017, whichever comes first, and SB-20A and SB-20B continue the compliance time of no later than January 31, 2017. This AD does not have a calendar time compliance requirement. SB-20, SB-20A, and SB-20B specify inspecting for sealant and applying sealant to the damper and hanger bearings if needed, while this AD does not.

### **Costs of Compliance**

The FAA estimates that this AD affects 290 helicopters of U.S. Registry. The FAA estimates that operators may incur the following costs in order to comply with this AD. Labor costs are estimated at \$85 per work-hour.

Installing Robinson field kit KI-235 takes about 6 work-hours and parts cost about \$950, for an estimated cost of \$1,460 per helicopter. As an option, replacing an affected T/R drive shaft assembly P/N D224-3 with T/R drive shaft assembly P/N D224-4 takes about 5 work-hours and parts cost about \$4,400, for an estimated cost of \$4,825 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.

The FAA is 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**

The FAA 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) Will not affect intrastate aviation in Alaska, and
- (3) 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.

## **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:

2021-04-12 **Robinson Helicopter Company**: Amendment 39-21433; Docket No. FAA-2017-0682; Product Identifier 2017-SW-028-AD.

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

This airworthiness directive (AD) applies to Robinson Helicopter Company (Robinson) Model R66 helicopters, certificated in any category, with a tail rotor (T/R) drive shaft assembly part number (P/N) D224-3 without B900-11 modification installed.

Note 1 to paragraph (a): Helicopters with serial number (S/N) 0631 and subsequent had T/R drive shaft assembly P/N D224-4 installed during production, which is not affected by this AD.

##### **(b) Unsafe Condition**

This AD defines the unsafe condition as failure of a T/R drive shaft forward hanger bearing. This condition could result in failure of the T/R drive shaft and subsequent loss of helicopter control.

##### **(c) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(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**

(1) Within 100 hours time-in-service, do one of the following:

(i) Install Robinson kit P/N KI-235 using KI-235 R66 TRDS Forward Yoke Assembly and Hanger Installation Kit Instructions, Revision A, dated June 23, 2015, except where the service information specifies discarding parts, you are required to remove those parts from service instead.

(ii) Replace the entire T/R drive shaft assembly with T/R drive shaft assembly P/N D224-4.

(2) As of the effective date of this AD, do not install a T/R drive shaft assembly P/N D224-3 without B900-11 modification on any helicopter.

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

(1) The Manager, Los Angeles ACO Branch, FAA, may approve AMOCs for this AD. Send your proposal to: Danny Nguyen, Aerospace Engineer, Los Angeles ACO Branch, FAA, 3960 Paramount Blvd., Lakewood, California 90712; telephone 562-627-5247; email 9-ANM-LAACO-AMOC-REQUESTS@faa.gov.

(2) For operations conducted under a 14 CFR part 119 operating certificate or under 14 CFR part 91, subpart K, the FAA suggests 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) Related Information**

For service information identified in this AD, contact Robinson Helicopter Company, 2901 Airport Drive, Torrance, CA 90505; telephone 310-539-0508; fax 310-

539-5198; or at <https://www.robinsonheli.com>. You may view a copy of the service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy., Room 6N-321, Fort Worth, TX 76177.

**(h) 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) Robinson KI-235 R66 TRDS Forward Yoke Assembly and Hanger Installation Kit Instructions, Revision A, dated June 23, 2015.

(ii) [Reserved]

(3) For service information identified in this AD, contact Robinson Helicopter Company, 2901 Airport Drive, Torrance, CA 90505; telephone 310-539-0508; fax 310-539-5198; or at <https://www.robinsonheli.com>.

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

(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, email: [fedreg.legal@nara.gov](mailto:fedreg.legal@nara.gov), or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

**(i) Subject**

Joint Aircraft Service Component (JASC) Code: 6510, Tail Rotor Drive Shaft.

Issued on February 8, 2021.

Lance T. Gant, Director,  
Compliance & Airworthiness Division,  
Aircraft Certification Service.

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