



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-2232; Project Identifier AD-2023-00943-R; Amendment 39-22681; AD 2024-04-02]

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 certain Robinson Helicopter Company Model R22, R22 Alpha, R22 Beta, R22 Mariner, R44, R44 II, and R66 helicopters. This AD was prompted by reports of helicopters losing a tail rotor blade (TRB) tip cap. This AD requires visually checking and inspecting certain part-numbered and serial-numbered TRB tip caps for evidence of corrosion and, depending on the results, removing the corrosion. This AD also requires removing all affected TRBs from service and prohibits installing them on any helicopter. 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].

ADDRESSES:

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-2232; 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 final rule, 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.

Related Service Information:

- For service information identified in this final rule, contact Robinson Helicopter Company, Technical Support Department, 2901 Airport Drive, Torrance, CA 90505;

phone (310) 539-0508; fax (310) 539-5198; email ts1@robinsonheli.com; or website robinsonheli.com.

- You may view this service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Parkway, Room 6N-321, Fort Worth, TX 76177. For information on the availability of this material at the FAA, call (817) 222-5110.

FOR FURTHER INFORMATION CONTACT: James Guo, Aviation Safety Engineer, FAA, 3960 Paramount Boulevard, Lakewood, CA 90712; phone: (562) 627-5357; email: james.guo@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Robinson Helicopter Company Model R22, R22 Alpha, R22 Beta, R22 Mariner, R44, R44 II, and R66 helicopters. The NPRM published in the *Federal Register* on December 6, 2023 (88 FR 84761). The NPRM was prompted by three reports of TRB tip caps coming loose due to corrosion at the bond on Robinson Helicopter Company Model R44 helicopters. Due to the similarity of the TRB tip caps on Robinson Helicopter Company Model R22, R22 Alpha, R22 Beta, R22 Mariner, R44 II, and R66 helicopters, those model helicopters are also affected by this issue. According to Robinson Helicopter Company, it has also seen TRBs that have corroded to an unserviceable condition, including severe leading edge pitting and degradation of the bond at the tip cap. Robinson Helicopter Company advises that helicopters operating near saltwater are particularly susceptible to corrosion, especially if stored outdoors. Affected TRBs were factory-installed or shipped as spares prior to November 2022. The three reports include a TRB tip cap departing its helicopter. The separate incidents occurred during a run-up check, after landing, and during a landing on different helicopters.

In the NPRM, the FAA proposed to require repetitively checking and inspecting the tips caps of TRB part number (P/N) A029-2 with TRB serial numbers (S/N) up to 11279 inclusive (P/N A029-2 REV A through U inclusive), TRB P/N C029-3 with TRB

S/N up to 14329 inclusive (P/N C029-3 REV A through Q inclusive), and TRB P/N F029-1 with TRB S/N up to 3099 inclusive (P/N F029-1 REV A through F inclusive) for evidence of corrosion, removing corrosion, and eventual removal of those TRBs from service. The owner/operator (pilot) holding at least a private pilot certificate may accomplish the check of the TRB tip caps and must enter compliance with the applicable paragraph of this AD into the helicopter maintenance records in accordance with 14 CFR 43.9(a) and 91.417(a)(2)(v). The pilot may perform this action because it only involves visually checking the TRB tip caps for an exposed tip cap bond line or bubbled paint. This action could be performed equally well by a pilot or a mechanic. This is an exception to the FAA's standard maintenance regulations.

A debonded TRB tip cap can cause severe vibration and possible failure of the tail rotor gearbox housing. This condition, if not addressed, could result in increased vibrations, reduced controllability, and subsequent loss of control of the helicopter. The FAA is issuing this AD to address the unsafe condition on these products.

Discussion of Final Airworthiness Directive

Comments

The FAA received no comments on the NPRM or on the determination of the costs.

Conclusion

The FAA reviewed the relevant data and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, this AD is adopted as proposed in the NPRM.

Related Service Information

The FAA reviewed Robinson Helicopter Company R22 Service Bulletin SB-120, R44 Service Bulletin SB-112, and R66 Service Bulletin SB-41, each dated December 22, 2022 (SB-120, SB-112, and SB-41). This service information specifies procedures for revising the Pilot's Operating Handbook of affected helicopters by inserting the included "Special Tail Rotor Tip Preflight Inspection" page and briefing all pilots and maintenance personnel regarding those inspection procedures. This service information also specifies

procedures for replacing, and returning or sending photos of affected TRBs to Robinson Helicopter Company.

The FAA also reviewed Robinson Helicopter Company R22 Service Letter SL-93, R44 Service Letter SL-82, and R66 Service Letter SL-40, each dated June 30, 2021 (co-published as one document) (SL-93, SL-82, and SL-40). This service information specifies procedures for removing corrosion from TRBs, applying protectant, balancing TRBs after corrosion removal or painting, chemical cleaning TRBs, and tap testing the TRB tip cap area.

Differences Between This AD and the Service Information

The effectivity of Robinson Helicopter Company SB-120, SB-112, and SB-41 identify the helicopter S/Ns that the affected TRBs were factory-installed on and the shipping dates of affected TRB spares, whereas this AD applies to the specified model helicopters with certain part-numbered and serial-numbered TRBs installed. Robinson Helicopter Company SB-120, SB-112, and SB-41 specify revising the Pilot's Operating Handbook of affected helicopters and briefing all pilots and maintenance personnel regarding the inspection requirements, whereas this AD does not require those actions. Robinson Helicopter Company SB-120, SB-112, and SB-41 do not specify any visual inspections accomplished by a mechanic, whereas this AD requires repetitive visual inspections of the TRBs by persons authorized under 14 CFR 43.3. Robinson Helicopter Company SB-120, SB-112, and SB-41 specify replacing, and returning or sending photos of affected TRBs by December 31, 2024, whereas this AD requires removing affected TRBs from service within 10 months.

SL-93, SL-82, and SL-40 specify procedures for chemical cleaning TRBs, tap testing the TRB tip care area, applying protectant, and balancing TRBs after corrosion removal or painting, whereas this AD does not require those actions.

Costs of Compliance

The FAA estimates that this AD affects 2,701 helicopters of U.S. registry. The FAA estimates the following costs to comply with this AD. Labor costs are estimated at \$85 per work-hour.

Visually checking or inspecting the TRBs (up to two affected TRBs per helicopter) will take approximately 0.25 work-hour for an estimated cost of up to \$22 per helicopter per cycle, for a U.S fleet cost of up to \$59,422 per cycle. If required, removing any corrosion will take approximately 2 work-hours and the parts will cost approximately \$100 for an estimated cost of \$270 per TRB. Replacing a TRB will take approximately 3.5 work-hours and the parts will cost up to approximately \$3,600 for an estimated cost of up to \$3,898 per TRB.

The FAA has included all known costs in its cost estimate. According to the manufacturer, however, some of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected operators.

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

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) 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.

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:

2024-04-02 Robinson Helicopter Company: Amendment 39-22681; Docket No. FAA-2023-2232; Project Identifier AD-2023-00943-R.

(a) Effective Date

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

(b) Affected ADs

None.

(c) Applicability

This AD applies to the Robinson Helicopter Company helicopters, certificated in any category, identified in paragraphs (c)(1) through (3) of this AD.

(1) Model R22, R22 Alpha, R22 Beta, and R22 Mariner helicopters with tail rotor blade (TRB) part number (P/N) A029-2 with TRB serial numbers (S/N) up to 11279 inclusive (P/N A029-2 REV A through U inclusive), installed;

(2) Model R44 and R44 II helicopters with TRB P/N C029-3 with TRB S/N up to 14329 inclusive (P/N C029-3 REV A through Q inclusive), installed; and

(3) Model R66 helicopters with TRB P/N F029-1 with TRB S/N up to 3099 inclusive (P/N F029-1 REV A through F inclusive), installed.

(d) Subject

Joint Aircraft System Component (JASC) Code 6410, Tail Rotor Blades.

(e) Unsafe Condition

This AD was prompted by reports of helicopters losing a TRB tip cap. The FAA is issuing this AD to detect and prevent TRB tip cap failures. The unsafe condition, if not addressed, could result in increased vibrations, reduced controllability, and subsequent loss of control of the helicopter.

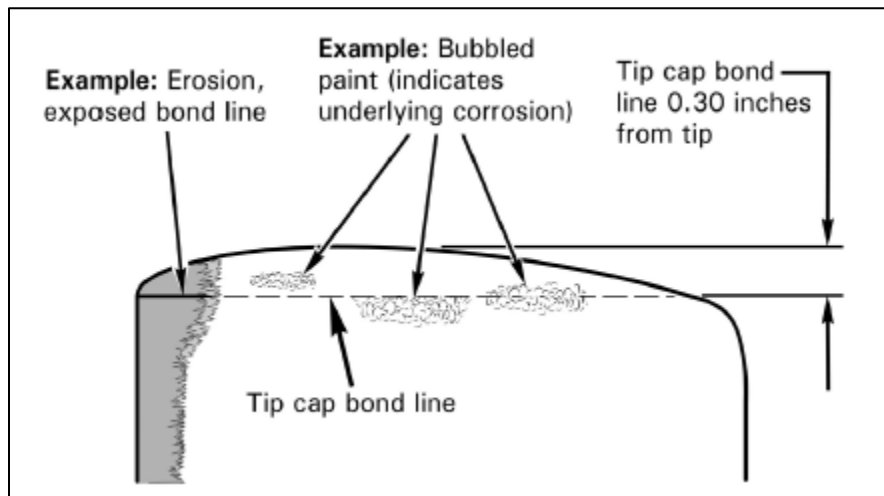
(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) Within 10 hours time-in-service (TIS) after the effective date of this AD and thereafter before the first flight of each day, visually check each TRB tip cap area (at and adjacent to the tip cap bond line on each surface and edge of the TRB) for an exposed tip cap bond line or bubbled paint, as depicted in Figure 1 to paragraph (g)(1) of this AD. These items may indicate evidence of corrosion. The owner/operator (pilot) holding at least a private pilot certificate may accomplish this TRB tip cap check and must enter compliance with this paragraph of the AD into the helicopter maintenance records in accordance with 14 CFR 43.9(a) and 91.417(a)(2)(v). The record must be maintained as required by 14 CFR 91.417, 121.380, or 135.439.

Figure 1 to Paragraph (g)(1) - TRB Tip Cap Check/Inspection



(2) Within 100 hours TIS or during the next 100 hour or annual inspection after the effective date of this AD, whichever occurs first, and thereafter at intervals not to exceed 100 hours TIS or during the next 100 hour or annual inspection, whichever occurs first, visually inspect each TRB tip cap area (at and adjacent to the tip cap bond line on each surface and edge of the TRB) for evidence of corrosion, which may be indicated by an exposed tip cap bond line or bubbled paint, as depicted in Figure 1 to paragraph (g)(1) of this AD.

(3) As a result of the actions required by either paragraph (g)(1) or (2) of this AD, if there is evidence of corrosion, an exposed tip cap bond line, or bubbled paint, before further flight, remove all of the corrosion.

Note 1 to paragraph (g)(3): Robinson Helicopter Company R22 Service Letter SL-93, R44 Service Letter SL-82, and R66 Service Letter SL-40, each dated June 30, 2021 (co-published as one document), provide information regarding removing corrosion from TRBs.

(4) Within 10 months of the effective date of this AD, remove all TRBs identified in paragraph (c) of this AD from service.

(5) As of 10 months after the effective date of this AD, do not install a TRB identified in paragraph (c) of this AD on any helicopter.

(h) Alternative Methods of Compliance (AMOCs)

(1) The Manager, West Certification Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the West Certification Branch, send it to the attention of the person identified in paragraph (i)(1) of this AD. Information may be emailed to: 9-ANM-LAACO-AMOC-REQUESTS@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(i) Additional Information

(1) For more information about this AD, contact James Guo, Aviation Safety Engineer, FAA, 3960 Paramount Boulevard, Lakewood, CA 90712; phone: (562) 627-5357; email: james.guo@faa.gov.

(2) For service information identified in this AD that is not incorporated by reference, contact Robinson Helicopter Company, Technical Support Department, 2901 Airport Drive, Torrance, CA 90505; phone (310) 539-0508; fax (310) 539-5198; email ts1@robinsonheli.com; or website robinsonheli.com. You may view this service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Parkway, Room 6N-321, Fort Worth, TX 76177. For information on the availability of this material at the FAA, call (817) 222-5110.

(j) Material Incorporated by Reference

None.

Issued on February 13, 2024.

Victor Wicklund,
Deputy Director, Compliance & Airworthiness Division,
Aircraft Certification Service.

[FR Doc. 2024-03920 Filed: 2/26/2024 8:45 am; Publication Date: 2/27/2024]