



## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2025-0011; Project Identifier AD-2024-00618-R; Amendment 39-23053; AD 2025-11-07]

RIN 2120-AA64

#### Airworthiness Directives; Robinson Helicopter Company Helicopters

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

**ACTION:** Final rule.

**SUMMARY:** The FAA is superseding Airworthiness Directive (AD) 2024-19-11 for all Robinson Helicopter Company Model R44 and R44 II helicopters. AD 2024-19-11 required visually inspecting a certain flex plate assembly (flex plate) and certain clutch shaft forward yokes (yokes), including each flex plate bolt, and depending on the results, taking corrective actions. AD 2024-19-11 also required removing certain yokes from service within a specified threshold, or as an alternative, performing in-depth inspections. Since the FAA issued AD 2024-19-11, it has been determined that clarifications regarding the alternative inspections are necessary. This AD requires the actions of AD 2024-19-11 and clarifies that the alternative inspections are repetitive and adds a particular paint remover option to use when performing those alternative inspections. 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-2025-0011; 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.

**FOR FURTHER INFORMATION CONTACT:** Eric Moreland, Aviation Safety Engineer, FAA, 3960 Paramount Boulevard, Lakewood, CA 90712; phone: (562) 627-5364; email: eric.r.moreland@faa.gov.

**SUPPLEMENTARY INFORMATION:**

**Background**

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2024-19-11, Amendment 39-22853 (89 FR 78785, September 26, 2024) (AD 2024-19-11). AD 2024-19-11 applied to all Robinson Helicopter Company Model R44 and R44 II helicopters. The NPRM published in the *Federal Register* on January 30, 2025 (90 FR 8499). The NPRM was prompted by reports of a fractured yoke on the main rotor (M/R) drive due to fatigue cracking. In the NPRM, the FAA proposed to continue to require requirements of AD 2024-19-11 and update the alternative action to repetitively inspect a yoke that has reached the specified threshold instead of replacing it. The FAA is issuing this AD to address the unsafe condition on these products.

**Discussion of Final Airworthiness Directive**

**Comments**

The FAA received comments from three commenters. Commenters included two individual commenters and Robinson Helicopter Company. The following presents the comments received on the NPRM and the FAA's response to each comment.

One individual commenter supported the NPRM without change.

**Request to Change the Applicable Paint Stripper**

One individual commenter requested the FAA revise the required paint stripper from Bonderite S-ST 5251 to Bonderite S-ST 5351.

The FAA agrees and has revised paragraph (g) of this AD accordingly.

**Request to Clarify Compliance Times**

Robinson Helicopter Company stated a yoke that has undergone a magnetic particle inspection per paragraph (g)(2)(ii)(B) [of the proposed AD], should be allowed to be installed, per the proposed AD and that clarification would be helpful to state that "first installation" also refers to the first installation after completion of a magnetic particle inspection. Robinson Helicopter Company requested the FAA revise the wording

in Table 1 of the proposed AD to include the wording “first installation after a magnetic particle inspection.”

The FAA agrees. The FAA has determined that adding the wording “after a magnetic particle inspection” would help clarify that the compliance time also applies to a yoke being installed after a magnetic particle inspection. The FAA has revised Table 1 of this final rule.

### **Conclusion**

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting the AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes and any other changes described previously, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

### **Costs of Compliance**

The FAA estimates that this AD affects 1,725 helicopters of U.S. registry. Labor rates are estimated at \$85 per hour. Based on these numbers, the FAA estimates the following costs to comply with this AD.

Visually inspecting a flex plate would take 0.25 work-hour for an estimated cost of \$21 per helicopter and \$36,225 for the U.S. fleet. If required, replacing a flex plate would take 1 work-hour and parts would cost \$1,240 for an estimated cost of \$1,325 per helicopter.

Visually inspecting a yoke, including inspecting each flex plate bolt, takes 1.25 work-hours for an estimated cost of \$106 per helicopter and \$182,850 for the U.S. fleet.

Replacing a yoke takes 6 work-hours and parts will cost \$890 for an estimated cost of \$1,400 per helicopter and \$2,415,000 for the U.S. fleet, per replacement cycle.

Alternatively, removing paint and inspecting a yoke using 10X or higher power magnifying glass takes 1.5 work-hours for an estimated cost of \$128 per helicopter. If required, performing a magnetic particle inspection takes 1.5 work-hours for an estimated cost of \$128 per helicopter.

Applying torque to a set of bolts, nuts, and palnuts takes 1 work-hour for an estimated cost of \$85 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**

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:

a. Removing Airworthiness Directive 2024-19-11, Amendment 39-22853 (89 FR 78785, September 26, 2024); and

b. Adding the following new airworthiness directive:

**2025-11-07 Robinson Helicopter Company:** Amendment 39-23053; Docket No. FAA-2025-0011; Project Identifier AD-2024-00618-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**

This AD replaces AD 2024-19-11, Amendment 39-22853 (89 FR 78785, September 26, 2024).

#### **(c) Applicability**

This AD applies to Robinson Helicopter Company Model R44 and R44 II helicopters, certificated in any category.

#### **(d) Subject**

Joint Aircraft System Component (JASC) Code 6310, Engine/Transmission coupling.

#### **(e) Unsafe Condition**

This AD was prompted by reports of a fractured clutch shaft forward yoke (yoke) on the main rotor (M/R) drive due to fatigue cracking. The FAA is issuing this AD to detect fatigue cracking on the yoke. The unsafe condition, if not addressed, could result in loss of M/R drive and consequent loss of control of the helicopter.

#### **(f) Compliance**

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

#### **(g) Required Actions**

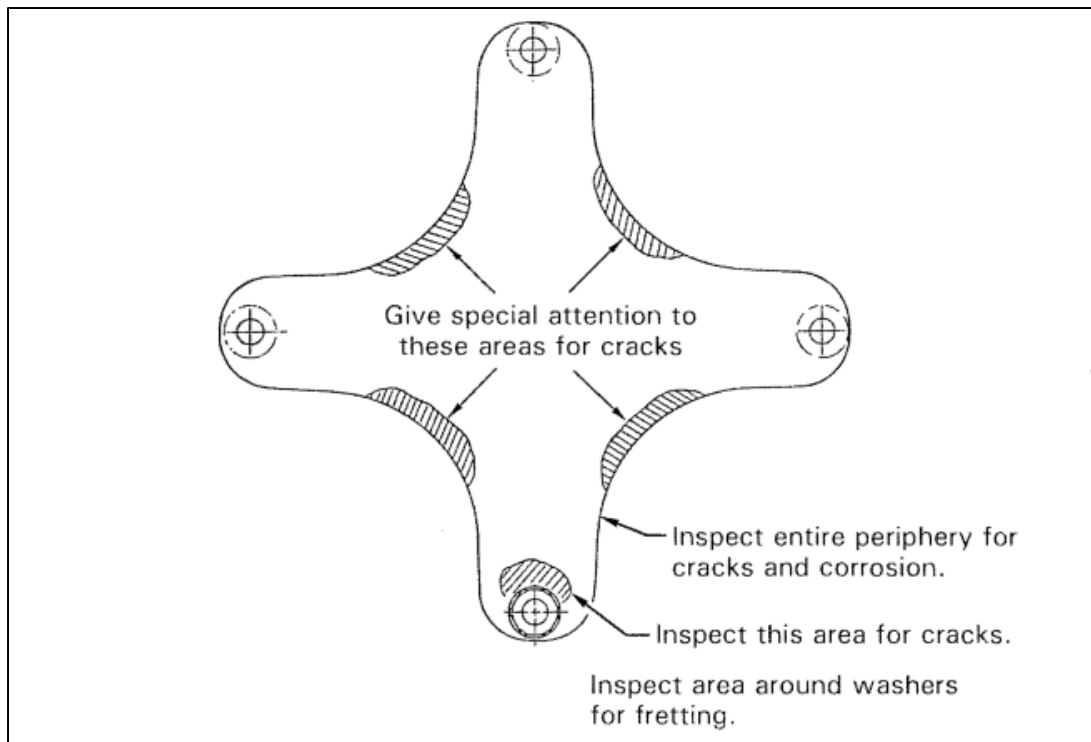
(1) Within 100 hours time-in-service (TIS) after the effective date of this AD, accomplish the actions required by paragraphs (g)(1)(i) through (iii) of this AD.

(i) Visually inspect forward flex plate assembly part number (P/N) C947-1 (flex plate) for any loose fasteners, cracks, fretting, corrosion, wear, and to ensure that the washers are bonded to both sides of each flex plate arm, in the areas depicted in Figure 1 to paragraph (g)(1)(i) of this AD. If there is any loose fastener (can be moved by hand), crack, fretting, corrosion, or wear that consists of the washers not securely bonded to both sides of each flex plate arm, before further flight, remove the flex plate from service and replace it with an airworthy flex plate.

**Note 1 to paragraph (g)(1)(i):** The flex plate may be installed in order to accomplish the visual inspection.

**Note 2 to paragraph (g)(1)(i):** Robinson Helicopter Company R44 Maintenance Manual and Instructions for Continued Airworthiness, Volume 1, Chapter 2 and Chapter 23, dated September 2023, contains information related to this AD.

**Figure 1 to Paragraph (g)(1)(i) - Flex Plate Inspection**



(ii) Visually inspect yoke P/N C907-1 or C907-2, as applicable, and yoke P/N C908-1, for any cracks, corrosion, and fretting. If there is any crack, corrosion, or fretting, before further flight, remove the yoke from service and replace it with an airworthy yoke, and torque each newly-installed bolt, nut, and palnut P/N B330-19 using the torque value information in Appendix 1 to this AD.

(iii) Visually inspect each flex plate bolt for any missing or unaligned torque stripes, loose fasteners, loose nuts, and to ensure that palnuts are installed. If there is a missing or unaligned torque stripe, loose fastener (can be moved by hand), loose nut (can be turned by hand), or if a palnut is not installed, before further flight, remove the associated yoke from service and replace it with an airworthy yoke, and torque each newly-installed bolt, nut, and palnut P/N B330-19 using the torque value information in Appendix 1 to this AD.

(2) Within the compliance times specified in Table 1 to the introductory text of paragraph (g)(2) of this AD, accomplish the actions required by paragraph (g)(2)(i) of this AD or, as an alternative to accomplishing the actions required by paragraph (g)(2)(i)

of this AD, accomplish the actions required by paragraph (g)(2)(ii) of this AD within the same compliance times.

**Table 1 to the Introductory Text of Paragraph (g)(2)**

<b>Helicopter Groups</b>	<b>Compliance Times</b>
For Model R44 helicopters having serial number 0002, or 0004 through 9999 inclusive, except not 1140, and R44 II helicopters having serial number 1140 or 10001 through 29999 inclusive.	Prior to accumulating 2,200 total hours TIS on any yoke P/N C907-1 or C907-2 or within 12 years since first installation of yoke P/N C907-1 or C907-2 on any helicopter, whichever occurs first; or within 100 hours TIS after the effective date of this AD; whichever occurs later, and thereafter before accumulating 2,200 total hours TIS on any yoke P/N C907-1 or C907-2 or within 12 years since first installation after replacement or after the inspection of yoke P/N C907-1 or C907-2 as required in paragraph (g)(2)(ii)(B) of this AD, on any helicopter, whichever occurs first.

<p>For Model R44 helicopters having serial number 30001 and subsequent.</p>	<p>Prior to accumulating 2,400 total hours TIS on any yoke P/N C907-1 or C907-2 or within 12 years since first installation of yoke P/N C907-1 or C907-2 on any helicopter, whichever occurs first; or within 100 hours TIS after the effective date of this AD; whichever occurs later, and thereafter before accumulating 2,400 total hours TIS on any yoke P/N C907-1 or C907-2 or within 12 years since first installation after replacement or after the inspection of yoke P/N C907-1 or C907-2 as required in paragraph (g)(2)(ii)(B) of this AD, on any helicopter, whichever occurs first.</p>
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(i) Remove the yoke from service and replace it with an airworthy yoke, and torque each newly-installed bolt, nut, and palnut P/N B330-19 using the torque value information in Appendix 1 to this AD, or

(ii) With yoke P/N C907-1 or C907-2 removed, as applicable, remove the paint from the yoke using Cee-Bee stripper A-292 or Bonderite stripper S-ST 5351 without using a plastic media abrasive paint stripper and accomplish the actions required by paragraphs (g)(2)(ii)(A) and (B) of this AD.

(A) Using 10X or higher power magnifying glass, visually inspect the yoke for any crack, seam, lap, shut, and any flaw that is open to the surface. If there is any crack, seam, lap, shut, or flaw, before further flight, remove the yoke from service and replace it with an airworthy yoke, and torque each newly-installed bolt, nut, and palnut P/N B330-19 using the torque value information in Appendix 1 to this AD.

(B) If the yoke is not removed from service as a result of the actions required by paragraph (g)(2)(ii)(A) of this AD, perform a magnetic particle inspection for any crack, seam, lap, shut, and any flaw that is open to the surface using a method in accordance

with FAA-approved procedures. If there is any crack, seam, lap, shut, or flaw, before further flight, remove the yoke from service and replace it with an airworthy yoke, and torque each newly-installed bolt, nut, and palnut P/N B330-19 using the torque value information in Appendix 1 to this AD.

**(h) Special Flight Permit**

A one-time flight permit may be issued in accordance with 14 CFR 21.197 and 21.199 to fly to a maintenance area to perform the required actions in this AD, provided there are no passengers onboard.

**(i) 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 (j)(1) of this AD and email to: [AMOC@faa.gov](mailto:AMOC@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.

**(j) Additional Information**

(1) For more information about this AD, contact Eric Moreland, Aviation Safety Engineer, FAA, 3960 Paramount Boulevard, Lakewood, CA 90712; phone: (562) 627-5364; email: [eric.r.moreland@faa.gov](mailto:eric.r.moreland@faa.gov).

(2) For material 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](mailto:ts1@robinsonheli.com); website: [robinsonheli.com](http://robinsonheli.com).

**(k) Material Incorporated by Reference**

None.

Appendix 1 to AD 2025-11-07

**NOTE**

1. Torque values are in inch-pounds unless otherwise specified.
2. Torque values include nut self-locking torque.
3. Increase torque values 10% if torqued at bolt head.
4. Wet indicates threads lubricated with A257-9 anti-seize.
5. For elbow and tee fittings which require alignment, torque to indicated value, then tighten to desired position.
6. Tolerance is  $\pm 10\%$  unless range is specified.
7. Unless otherwise specified, thread sizes 8-32 and smaller are not used for primary structure and do not require control of torques.

FASTENER SERIES		SIZE	EXAMPLE FASTENER	TORQUE (IN.-LB)
NAS6603 thru NAS6608 Bolts NAS1303 thru NAS1308 Bolts NAS623 Screws NAS1351 & NAS1352 Screws NAS600 thru NAS606 Screws		10-32	NAS6603	50
		1/4-28	NAS6604	120
		5/16-24	NAS6605	240
		3/8-24	NAS6606	350
		7/16-20	NAS6607	665
		1/2-20	NAS6608	995
A142 screws AN3 Bolts AN4 Bolts AN6 Bolts AN8 Bolts	AN502 Screws AN503 Screws AN509 Screws AN525 Screws MS24694 Screws MS27039 Screws	10-32	A142-1, -3, -4; AN3	37
		1/4-28	AN4	90
		3/8-24	AN6	280
		1/2-20	AN8	795
STAMPED NUTS (PALNUTS) Palnuts are to be used only once and replaced with new when removed.		10-32	B330-7 (MS27151-7)	6-15
		1/4-28	B330-13 (MS27151-13)	11-25
		5/16-24	B330-16 (MS27151-16)	20-40
		3/8-24	B330-19 (MS27151-19)	29-60
		7/16-20	B330-21 (MS27151-21)	42-85
		1/2-20	B330-24 (MS27151-24)	54-110
TAPERED PIPE THREADS		1/8-27	See note 5	60
			Straight fittings only	120
		1/4-18	See note 5	85
			Straight fittings only	170
		3/8-18	See note 5	110
			Straight fittings only	220
		1/2-14	See note 5	160
			Straight fittings only	320
		3/4-14	See note 5	230
			Straight fittings only	460
ROD END JAM NUTS (AN315 and AN316)		10-32	AN315-3	15
		1/4-28	AN316-4	40
		5/16-24	AN316-5	80
		3/8-24	AN316-6	110

Issued on May 29, 2025.

Steven W. Thompson,  
Acting Deputy Director, Compliance & Airworthiness Division,  
Aircraft Certification Service.

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