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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2022-0460; Project Identifier AD-2021-00824-R; Amendment 39-22198; AD 2022-20-14]**

**RIN 2120-AA64**

### **Airworthiness Directives; Bell Textron Inc., Helicopters and Various Restricted Category Helicopters**

#### **AGENCY:**

Federal Aviation Administration (FAA), DOT.

#### **ACTION:**

Final rule.

#### **SUMMARY:**

The FAA is adopting a new airworthiness directive (AD) for Bell Textron Inc., Model 204B, 205A, 205A-1, 205B, 210, 212, 412, 412CF, and 412EP helicopters and various restricted category helicopters. This AD was prompted by reports of cracks found on the main transmission support case. This AD requires repetitive inspections of the main transmission housing assembly for cracks, pitting, and corrosion and depending on the results, corrective action. The FAA is issuing this AD to address the unsafe condition on these products.

#### **DATES:**

This AD is effective December 27, 2022.

#### **ADDRESSES:**

### **Examining the AD Docket**

You may examine the AD docket at *regulations.gov* by searching for and locating Docket No. FAA-2022-0460; 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:**

Hye Yoon Jang, Aerospace Engineer, Delegation Oversight Section, DSCO Branch, Compliance & Airworthiness Division, FAA, 10101 Hillwood Pkwy., Fort Worth, TX 76177; telephone (817) 222-5190; email [hye.yoon.jang@faa.gov](mailto:hye.yoon.jang@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 Bell Textron Inc., Model 204B, 205A, 205A-1, 205B, 210, 212, 412, 412CF, and 412EP helicopters and restricted category Model HH-1K, SW205A-1, TH-1F, TH-1L, UH-1A, UH-1B, UH-1E, UH-1F, UH-1H, UH-1L, and UH-1P helicopters.

The NPRM published in the **Federal Register** on April 14, 2022 ([87 FR 22146](#)). The NPRM was prompted by reports of main transmission support cases found cracked at one of the lateral mounts. In the NPRM, the FAA proposed to require, within 3,000 hours time-in-service (TIS) accumulated by the main transmission after the effective date of the AD, and thereafter at intervals not to exceed 3,000 hours TIS accumulated by the main transmission, removing certain screws and washers and visually inspecting the upper and lower transmission support case lateral mount screws for corrosion and thread damage, washers for corrosion and pitting, bushings for corrosion and pitting, and lateral mount surfaces for corrosion and mechanical damage such as any crack or pitting. If there is any corrosion, thread damage, or mechanical damage, the NPRM proposed to require removing the affected parts from service before further flight.

The NPRM also proposed to require repetitive fluorescent penetrant inspections (FPIs) of all surfaces of the main transmission support case lateral mounts for a crack. For helicopters with a main transmission that has accumulated 6,000 or more total hours TIS, the initial FPI would be required before further flight after the effective date of the AD. For helicopters with a main transmission that has accumulated less than 6,000 total hours TIS, the initial FPI would be required before the main transmission accumulates 6,000 total hours TIS. For all helicopters, following the initial FPI, the NPRM proposed to require performing an FPI at intervals not to exceed 6,000 hours TIS accumulated by the main transmission. If there is any crack, the NPRM proposed to require removing the main transmission support case from service before further flight. 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 one commenter, Bell Textron Inc. The following presents the comments received on the NPRM and the FAA's response to each comment.

### Comment Regarding the Unsafe Condition and Compliance With Service Information

Bell Textron Inc., commented that stress corrosion cracking of the support case that originates from a threaded hole used to secure the washer to the case lateral mount is not considered a safety of flight issue as changes to its maintenance manual and Component Repair and Overhaul (CR&O) manual address the issue. Bell Textron Inc., stated that it has revised its manuals to include a requirement to remove the washers at the scheduled 3000-hour Special Inspection for a detailed visual inspection and an FPI at the scheduled 6000-hour Overhaul to detect corrosion originating from a threaded hole under the washer that could result in cracking. Bell Textron Inc., also stated that its CR&O manual now specifies an improved washer installation procedure to minimize the risk of corrosion, as well as damage limits for the affected area.

The FAA acknowledges this comment; however, not all operators are required to accomplish a manufacturer's maintenance procedures. In order for procedures in service information, including procedures in manuals, to become mandatory when the FAA has determined the procedures are necessary to correct an identified unsafe condition, the FAA must issue an AD.

### Request for Changes to the Required Actions

*Request:* Regarding the outcome of the visual inspections, Bell Textron Inc., recommended that rather than mandating the removal of parts that have any damage from service, which could ground several helicopters, the required actions of the proposed AD be revised to refer to the applicable CR&O manual for damage limits and repair procedure instead.

*FAA Response:* The FAA partially agrees. The FAA has revised the required actions in this final rule by specifying certain threshold limits and adding the option of repairing certain conditions in accordance with FAA-acceptable methods; however, the actions do not require referring to the CR&O manual for information.

*Request:* Regarding inspection and removal of hardware, Bell Textron Inc., requested the FAA revise the required actions of the proposed AD to require also determining if the case was previously repaired by Bell or a Bell Service Center (FAA or Bell approved repair with traceability), and if the case is found with a suspected unapproved repair, removing the case from service indefinitely.

*FAA Response:* The FAA disagrees with this request. The FAA currently has no information regarding repairs outside the scope of FAA-accepted methods having been accomplished on main transmission support cases affected by the proposed AD. Accordingly, the FAA has made no changes to this final rule based on that comment.

*Request:* Bell Textron Inc., requested the FAA revise the required actions of the proposed AD to require that if a case that has never been repaired exhibits corrosion on the bushing, lug face, or threaded hole(s) that is beyond repairable limits, contacting Bell Product Support for evaluation and a possible Bell approved Expanded Repair; Bell Textron Inc., added that the case can be returned to Bell or a Bell Service Center for evaluation and possible repair.

*FAA Response:* The FAA disagrees with this request. To require operators to contact the manufacturer for repair instructions, as suggested by the commenter, would be delegating the FAA's rulemaking authority to that manufacturer. Additionally, the FAA does not have the authority to direct operators to return defective components to the manufacturer. However, operators may choose to contact Bell Product Support as this AD does not prohibit an operator from contacting a manufacturer. Additionally, operators may request approval of any specific actions, including any specific corrective actions, as an alternative method of compliance (AMOC) under the provisions of paragraph (h) of this AD.

## **Recommendation To Allow Ferry Flights**

Regarding the action to accomplish an FPI before further flight for helicopters with a main transmission that has accumulated 6,000 or more total hours TIS in paragraph (g)(2)(i) of the proposed AD, Bell Textron Inc., recommended the FAA allow a ferry flight to the nearest repair facility where the upper washers can be removed for a detailed 10X magnifying glass inspection. Bell Textron Inc., further stated that if a crack is suspected, to perform an FPI, and if a crack is found, to remove the affected support case from service. Bell Textron Inc., explained that the removal of all 8 washers for an FPI of the support case could be accomplished at the next scheduled overhaul as required by chapter 5 of the maintenance manual.

The proposed AD, as published, specifies no limitations for issuance of a special flight permit (SFP) (ferry flight). Accordingly, SFPs may be issued in accordance with [14 CFR 21.197](#) and [21.199](#). Additionally, the FAA has revised the initial action to accomplish an FPI on a main transmission that has accumulated 6,000 or more total hours TIS by extending the compliance time from “before further flight” to “within 300 hours TIS” and allowing credit if the action has previously been done within the last 6,000 hours TIS. Lastly, the FAA has revised the initial action to accomplish an FPI on a main transmission that has accumulated less than 6,000 total hours TIS from “before accumulating 6,000 total hours TIS on the main transmission” to “before accumulating 6,300 total hours TIS on the main transmission.”

## **Conclusion**

The FAA reviewed the relevant data, considered any comments received, 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 removing a note, 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 up to 621 helicopters of U.S. Registry. Labor rates are estimated at \$85 per work-hour. Based on these numbers, the FAA estimates the following costs to comply with this AD.

Visually inspecting the main transmission mount assembly takes about 1 work-hour, for an estimated cost of \$85 per helicopter and \$52,785 for the U.S. fleet, per inspection cycle. Accomplishing an FPI of

the main transmission support case lateral mounts will take about 1 work-hour for an estimated cost of \$85 per helicopter, and \$52,785 for the U.S. fleet, per inspection cycle.

The FAA has no way of determining the costs pertaining to necessary repairs that are required to be done in accordance with FAA-acceptable methods. Replacing the transmission support case assembly hardware parts including 8 washers, 8 screws, and 4 bushings will take about 1 work-hour and parts will cost up to \$100 per part for an estimated cost of up to \$2,085 per helicopter. Replacing the main transmission support case assembly will take up to 60 work-hours and parts will cost up to \$54,501 for an estimated cost of up to \$59,601 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 adding the following new airworthiness directive:

**2022-20-14 Bell Textron Inc., and Various Restricted Category Helicopters:**  
Amendment 39-22198; Docket No. FAA-2022-0460; Project Identifier AD-2021-00824-R.

#### **(a) Effective Date**

This airworthiness directive (AD) is effective December 27, 2022.

#### **(b) Affected ADs**

None.

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

This AD applies to the following:

- (1) Bell Textron Inc., Model 204B, 205A, 205A-1, 205B, 210, 212, 412, 412CF, and 412EP helicopters, certificated in any category; and
- (2) Various restricted category helicopters:
  - (i) Model HH-1K helicopters; current type certificate holders include, but are not limited to, Rotorcraft Development Corporation;
  - (ii) Southwest Florida Aviation International, Inc., Model SW205A-1 helicopters;
  - (iii) Model TH-1F helicopters; current type certificate holders include, but are not limited to, Robinson Air Crane Inc.; Rotorcraft Development Corporation; and Tamarack Helicopters, Inc.;
  - (iv) Model TH-1L helicopters; current type certificate holders include, but are not limited to, Bell Textron Inc.; Overseas Aircraft Support, Inc. (type certificate previously held by JTBAM, Inc.); and Rotorcraft Development Corporation;
  - (v) Model UH-1A helicopters; current type certificate holders include, but are not limited to, Richards Heavylift Helo, Inc.;
  - (vi) Model UH-1B helicopters; current type certificate holders include, but are not limited to, International Helicopters, Inc.; Overseas Aircraft Support, Inc.; Red Tail Flying Services, LLC; Richards Heavylift Helo, Inc.; Rotorcraft Development Corporation; Southwest Florida Aviation International, Inc.; and WSH, LLC (type certificate previously held by San Joaquin Helicopters);

**Note 1 to paragraph (c)(2)(vi):**

Helicopters with an SW204 or SW204HP designation are Southwest Florida Aviation International, Inc., Model UH-1B helicopters.

(vii) Model UH-1E helicopters; current type certificate holders include, but are not limited to, Bell Textron Inc.; Overseas Aircraft Support, Inc.; Rotorcraft Development Corporation; Smith Helicopters; and West Coast Fabrications;

(viii) Model UH-1F helicopters; current type certificate holders include, but are not limited to, AST, Inc.; California Department of Forestry; Robinson Air Crane, Inc.; Rotorcraft Development Corporation; and Tamarack Helicopters, Inc.;

(ix) Model UH-1H helicopters; current type certificate holders include, but are not limited to, Arrow Falcon Exporters, Inc.; Global Helicopter Technology, Inc.; Hagglund Helicopters, LLC; JJASPP Engineering Services LLC; Northwest Rotorcraft, LLC; Overseas Aircraft Support, Inc.; Richards Heavylift Helo, Inc.; Rotorcraft Development Corporation; Southwest Florida Aviation International, Inc.; and Tamarack Helicopters, Inc.;

**Note 2 to paragraph (c)(2)(ix):**

Helicopters with an SW205 designation are Southwest Florida Aviation International, Inc., Model UH-1H helicopters.

(x) Model UH-1L helicopters; current type certificate holders include, but are not limited to, Bell Textron Inc.; Overseas Aircraft Support, Inc.; and Rotorcraft Development Corporation; and

(xi) Model UH-1P helicopters; current type certificate holders include, but are not limited to, Robinson Air Crane, Inc.; and Rotorcraft Development Corporation.

**(d) Subject**

Joint Aircraft System Component (JASC) Code 6320, Main Rotor Gearbox.

**(e) Unsafe Condition**

This AD was prompted by reports of cracks found in the main transmission support case possibly due to corrosion. The FAA is issuing this AD to detect and address corrosion and other mechanical damage of the main transmission support case assembly. The unsafe condition, if not addressed, could result in cracking at the upper or lower surfaces of the lateral mounts, loss of load carrying capabilities of the main transmission, 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 3,000 hours time-in-service (TIS) accumulated by the main transmission after the effective date of this AD, and thereafter at intervals not to exceed 3,000 hours TIS accumulated by the main transmission, remove the screws and washers from the upper and lower surfaces of the main transmission support case lateral mounts and accomplish the following:

(i) Visually inspect each screw for corrosion and thread damage. If there is any corrosion or thread damage, before further flight, remove the screw from service.

(ii) Visually inspect each upper and lower washer for corrosion and pitting.

(A) If there is any corrosion or pitting that exceeds 10% of any surface or is deeper than 0.01 inch (0.3 mm), before further flight, remove the washer from service.

(B) If there is any corrosion or pitting that is 10% or less of any surface or has a depth of 0.01 inch (0.3 mm) or less, before further flight, remove the washer from service or repair the washer in accordance with FAA-acceptable methods.

(iii) Visually inspect each installed bushing for corrosion and pitting.

(A) If there is any corrosion or pitting inside the bushing bore that exceeds 10% of the surface or is deeper than 0.005 inch (0.13 mm), or if there is any corrosion or pitting on the bushing flange or chamfer that exceeds 10% of the surface or is deeper than 0.01 inch (0.3 mm), before further flight, remove the bushing from service.

(B) If there is any corrosion or pitting inside the bushing bore that is 10% or less of the surface or has a depth of 0.005 inch (0.13 mm) or less, or if there is any corrosion or pitting on the bushing flange or chamfer that is 10% or less of the surface or has a depth of 0.01 inch (0.3 mm) or less, before further flight, remove the bushing from service or repair the bushing in accordance with FAA-acceptable methods.

(iv) Visually inspect each upper and lower main transmission support case lateral mount machined surface adjacent to each washer and each lateral mount threaded screw hole for corrosion and mechanical damage. For the purposes of this AD, mechanical damage may be indicated by a crack or pitting.

(A) Before further flight, remove the main transmission support case assembly from service if any of the following exist:

( 1) The depth of any pitting exceeds 0.03 inch (0.8 mm),

( 2) The area of pitting for each pad surface exceeds 0.75 square inch (483.87 square mm) or exceeds 50% of any 0.50 inch (12.7 mm) diameter, or

( 3) Any mechanical damage to the threaded holes (8-32 NC-2B x 0.62 deep) exceeds 1 thread depth.

(B) Before further flight, remove the main transmission support case assembly from service or repair the main transmission support case assembly in accordance with FAA-acceptable methods, if any of the following exist:

( 1) The depth of any pitting is 0.03 inch (0.8 mm) or less.



( 2) The area of pitting for each pad surface is 0.75 square inch (483.87 square mm) or less, or 50% or less of any 0.50 inch (12.7 mm) diameter, or

( 3) Any mechanical damage to the threaded holes (8-32 NC-2B x 0.62 deep) has a depth of 1 thread or less.

(2) Fluorescent penetrant inspect (FPI) all surfaces of the main transmission support case lateral mounts for a crack at the compliance times identified in paragraph (g)(2)(i) or (ii) of this AD.

(i) For helicopters with a main transmission that has accumulated 6,000 or more total hours TIS, within 300 hours TIS after the effective date of this AD, unless already done within the last 6,000 hours TIS.

(ii) For helicopters with a main transmission that has accumulated less than 6,000 total hours TIS, before accumulating 6,300 total hours TIS on the main transmission.

(iii) If there is any crack, before further flight, remove the main transmission support case assembly from service.

(3) Thereafter following paragraph (g)(2) of this AD, at intervals not to exceed 6,000 hours TIS accumulated by the main transmission, FPI all surfaces of the main transmission support case lateral mounts for a crack. If there is any crack, before further flight, remove the main transmission support case assembly from service.

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

(1) The Manager, DSCO 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 certification office, send it to the attention of the person identified in paragraph (i) of this AD. Information may be emailed to: [9-ASW-190-COS@faa.gov](mailto:9-ASW-190-COS@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) Related Information**

For more information about this AD, contact Hye Yoon Jang, Aerospace Engineer, Delegation Oversight Section, DSCO Branch, Compliance & Airworthiness Division, FAA, 10101 Hillwood Pkwy., Fort Worth, TX 76177; telephone (817) 222-5190; email [hye.yoon.jang@faa.gov](mailto:hye.yoon.jang@faa.gov).

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

None.

Issued on September 22, 2022.

Christina Underwood,

Acting Director, Compliance & Airworthiness Division, Aircraft Certification Service.

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