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[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2011-1188; Directorate Identifier 2008-SW-46-AD]

RIN 2120-AA64

Airworthiness Directives; Bell Helicopter Textron, Inc. (Bell) Model 204B, 205A, 205A-1, 205B, and 212 Helicopters

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This document proposes superseding four existing airworthiness directives (ADs) for the specified Bell model helicopters. Two of the existing ADs require an initial and repetitive inspection of certain part-numbered main rotor yokes installed on Bell Model 204B, 205A-1, and 212 helicopters. Two other existing ADs also establish a retirement life of 3,600 hours time-in-service (TIS) for certain part-numbered main rotor yokes installed on the Bell Model 204, 205 series, and 212 series helicopters. Those ADs were prompted by reports of cracks in the main rotor yoke (yoke). This action would retain the requirements of the existing ADs and would apply these inspections and retirement lives to additional part-numbered yokes. This action would also increase the inspection frequency for certain yokes installed on a Bell Model 205B or 212 helicopter and would require replacing any unairworthy yoke. This proposal is prompted by the need to expand the applicability to include yokes produced under a Parts Manufacturing Approval (PMA) whose design approval was based on identity with the affected Bell yoke parts and a recent discovery of a cracked yoke. The actions specified by the proposed AD are intended to prevent cracking of a yoke, failure of the yoke, and subsequent loss of control of the helicopter.

DATES: Comments must be received on or before [insert date 60 days after date of publication in the **Federal Register**].

ADDRESSES: Use one of the following addresses to submit comments on this proposed AD:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
 - Fax: 202-493-2251.
 - Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.
 - Hand Delivery: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

You may get the service information identified in this proposed AD from Bell Helicopter Textron, Inc., P.O. Box 482, Fort Worth, TX 76101, telephone (817) 280-3391, fax (817) 280-6466, or at <http://www.bellcustomer.com/files/>.

FOR FURTHER INFORMATION CONTACT: Michael Kohner, Aviation Safety Engineer, FAA, Rotorcraft Directorate, Rotorcraft Certification Office, 2601 Meacham Blvd., Fort Worth, Texas 76137, telephone (817) 222-5170, fax (817) 222-5783.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to submit any written data, views, or arguments regarding this proposed AD. Send your comments to the address listed under the caption ADDRESSES. Include the docket number “FAA-2011-1188, Directorate Identifier 2008-SW-46-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the proposed AD. We will consider all comments received by the closing date and may amend the proposed AD in light of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this proposed rulemaking. Using the search function of our docket web site, you can find and read the comments to any of our dockets, including the name of the individual who sent or signed the comment. You may review the DOTs complete

Privacy Act Statement in the **Federal Register** published on April 11, 2000 (65 FR 19477-78).

Examining the Docket

You may examine the docket that contains the proposed AD, any comments, and other information on the internet at <http://www.regulations.gov> or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Operations office (telephone (800) 647-5527) is located in Room W12-140 on the ground floor of the West Building at the street address stated in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

Discussion

On September 13, 1979, we issued AD 79-20-05, Docket No. 79-ASW-25, Amendment 39-3572 (44 FR 55556, September 27, 1979) for Bell Model 204B, 205A-1, and 212 helicopters. That AD requires an initial and repetitive inspection at 2,400-hour intervals and corrosion protection and sealing of the yoke, P/N 204-011-102, of the main rotor hub assembly (hub), P/N 204-012-101. We issued Amendment 39-3626, November 21, 1979 (44 FR 70123, December 6, 1979) and Amendment 39-3662 January 3, 1980 (45 FR 6922, January 31, 1980) to AD 79-20-05. The amendments to the AD deleted references to the radius in the bottom of the pillow block bushing holes because the cracks did not initiate there. The cracks originated in the side of the hole near the top or through the center section of the yoke adjacent to the data plate.

On August 26, 1981, we issued AD 81-19-01, Amendment 39-4207, Docket 81-ASW-38 (46 FR 45595, September 14, 1981) for Bell Model 212 series helicopters. We also issued AD 81-19-02, Amendment 39-4208, Docket 81-ASW-40 (46 FR 45595, September 14, 1981) for Bell Model 204 and 205 series helicopters. These ADs established a retirement life of 3,600 hours TIS for certain yokes installed on these model helicopters. These yokes previously did not have a retirement life. AD 81-19-01 also reduced the yoke retirement life below 3,600 hours TIS for those yokes installed on Model 212 helicopters used in external load operations involving more than four lifts per hour by requiring the operators to log additional hours for these type operations against the retirement life of the yoke. These ADs were prompted by three field reports of

cracked yokes. These ADs were intended to establish retirement lives to prevent yoke failure and subsequent loss of control of the helicopter.

On March 4, 1993, we issued AD 93-05-01, Amendment 39-8507, Docket No. 92-ASW-13 (58 FR 13700, March 15, 1993), for the Bell Model 212 helicopters to require repetitive inspections of yoke, P/N 204-011-102 (all dash numbers). That action was prompted by 12 reports of cracking at the pillow block holes on yokes installed on Model 212 helicopters. That AD was intended to detect corrosion pitting and a crack in the pillow block bolt bushing holes of the yoke and to prevent failure of the main rotor system and subsequent loss of control of the helicopter.

After issuing ADs 79-20-05, 81-19-01, and 81-19-02, Bell has introduced a replacement stainless steel yoke, P/N 212-011-102. Bell issued Alert Service Bulletins (ASBs) Nos. 204-92-36, 205-92-51, and 212-92-80, all dated October 23, 1992. The ASBs specify replacing the yoke, P/N 204-011-102 (all dash numbers), by December 31, 1993. These ASBs also specify replacing the yoke with yoke, P/N 212-011-102-105 or -109, depending on the helicopter configuration. The replacement stainless steel yokes have improved design characteristics addressing the corrosion problems and are not subject to any heavy lift cycle counting required for previous yokes installed on the Model 205B and 212 helicopters.

The FAA also issued PMAs to Air Services International (ASI) for yokes, P/N ASI-4011-102, and to Arizona Aeroparts International (AAI) for yokes, P/N AAI-4011-102, both based on identity with the Bell-manufactured yoke, P/N 204-011-102. The yokes manufactured under the PMAs are eligible for installation on Bell Model 204B, 205A, 205A-1, and 212 helicopters.

Transport Canada recently contacted the FAA about a PMA yoke, P/N AAI-4011-102-125, manufactured by AAI. A Canadian operator reported this part was no longer supported by the PMA-manufacturer. The Canadian operator was trying to determine if the inspections in the existing ADs applicable to the Bell yoke, P/N 204-011-102, needed to be performed on the PMA-manufactured yokes as well. Both of these PMA companies have gone out of business. There is no longer an FAA-approved PMA holder for these PMA yokes. This results in no continued operational safety oversight of the PMA parts by the manufacturer that produced the parts

that were sold to operators. Because the PMA yokes are identical to the Bell parts, these yokes are susceptible to the same cracking conditions found in the same Bell part-numbered yokes.

This AD action proposes to give operators credit for the accumulated operating time on yokes, P/N 204-011-102 (all dash numbers), previously determined and recorded by following ADs 81-19-01 or 81-19-02; or the applicable Bell Model 204B, 205A-1, 205B, or 212 maintenance manuals, which results in equal or higher accumulated factored hours TIS. However, these values must be included for previously accumulated service time in the calculations of the accumulated total factored hours TIS. Any additional factored hours TIS would be determined for each yoke using the hours TIS factors in the proposed AD.

This proposal is prompted by the need to expand the applicability to include yokes produced under a PMA whose design approval was based on identity with the affected Bell yoke parts and also a recent discovery of a cracked yoke on a Bell Model 212 helicopter.

The previously described unsafe condition is likely to exist or develop on other helicopters of these same type designs. We estimate 25 to 30 of the yokes manufactured under a PMA may still be installed on helicopters operating in the U.S. Therefore, the proposed AD would supersede the previously issued ADs and would require:

- For helicopters with yoke, P/N AAI-4011-102 (all dash numbers) and ASI-4011-102 (all dash numbers), installed, within 100 hours TIS, unless accomplished previously, creating a component history card or equivalent record for each yoke; determining the model for each helicopter on which the yoke has been installed from the time the yoke had zero hours TIS; calculating the factored hours TIS for each type of operation and rate of external load lifts and takeoffs for each hour TIS accumulated on each yoke; and recording the accumulated total factored hours TIS on the component history card or equivalent record for each yoke. Continuing to factor the hours TIS for each yoke and recording the additional factored hours TIS on the component history card or equivalent record. Tracking these factored hours TIS is only for the purpose of establishing a retirement life and not to be counted against the hours TIS used to track inspection intervals.

- For helicopters with yoke, P/N 204-011-102 (all dash numbers), installed, before further flight, unless accomplished previously:
 - Calculating the total factored hours TIS on the yoke for hours TIS accumulated before the effective date of this AD using the same requirements as ADs 81-19-01 and 81-19-02, which establishes the starting point for the new factoring of hours TIS contained in this AD.
 - Calculating and recording the factored hours TIS on the yoke for hours TIS accumulated after the effective date of this AD using the same requirements as used for calculating the total factored hours TIS in this AD for yokes, P/N AAI-4011-102 (all dash numbers) and ASI-4011-102 (all dash numbers).
- Revising the Airworthiness Limitations section of the applicable maintenance manuals or the Instructions for Continued Airworthiness (ICAs) by establishing or continuing a retirement life of 3,600 Total Factored Hours TIS for each yoke.
 - Recording a life limit of 3,600 Total Factored Hours TIS for each yoke on the component history card or equivalent record.
 - Within 100 hours TIS or 600 hours TIS since the last magnetic particle inspection (MPI) of the yoke, whichever occurs later, and thereafter at intervals not to exceed 600 hours TIS, for any yoke installed on any Model 205B or 212 helicopter:
 - Removing the yoke from the hub. Using a 5-power or higher magnifying glass, visually inspecting each pillow block bushing hole, spindle radius, and center section web for any corrosion or mechanical damage.
 - Performing an MPI of each yoke for a crack.
 - Within 100 hours TIS or 2,400 hours TIS since the last MPI of the yoke, whichever occurs later, and thereafter at intervals not to exceed 2,400 hours TIS, for any yoke installed on any Model 204B, 205A, or 205A-1 helicopter:
 - Removing the yoke from the hub. Using a 5-power or higher magnifying glass, visually inspect each pillow block bushing hole, spindle radius, and center section web for any corrosion or mechanical damage.
 - Performing an MPI of each yoke for a crack.
- Before further flight, replacing each yoke with an airworthy yoke if:

- The yoke has 3,600 or more Total Factored Hours TIS;
- The Total Factored Hours TIS for the yoke is unknown and cannot be determined;
- The yoke has any corrosion or mechanical damage that exceeds any of the maximum repair damage limits; or
- The yoke has a crack.

We estimate that this proposed AD would affect about 15 helicopters of U.S. registry and would take about:

- 3 work hours to review the helicopter records and determine the total factored hours TIS (the cost of tracking the total factored flight hours will be negligible),
- 35 work hours to remove the yoke from the helicopter and do a visual inspection and MPI, and
- 32 work hours to replace a yoke, at an average labor rate of \$85 per work hour per helicopter.
- Required parts would cost about \$40,157 per helicopter.

Based on these figures, we estimate the total cost of the proposed AD on U.S. operators to be \$48,450, assuming 15 helicopters have a yoke installed requiring a review of the helicopter records and to determine the hours TIS with one visual inspection and MPI, and no yoke needs to be replaced. If we assume all the yokes in the fleet are replaced, the total cost would be about \$643,155.

Regulatory Findings

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. Additionally, this proposed AD would 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 the proposed regulation:

1. Is not a “significant regulatory action” under Executive Order 12866;
2. Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); 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.

We prepared a draft economic evaluation of the estimated costs to comply with this proposed AD. See the AD docket to examine the draft economic evaluation.

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.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

The Proposed Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration proposes to amend part 39 of the Federal Aviation Regulations (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. Section 39.13 is amended by removing Amendments 39-8507 (58 FR 13700, March 15, 1993); 39-4208 (46 FR 45595, September 14, 1981); 39-4207 (46 FR 45595, September 14, 1981); 39-3662 (45 FR 6922, January 31, 1980); 39-3626 (44 FR 70123, December 6, 1979); and 39-3572 (44 FR 55556, September 27, 1979); and by adding a new airworthiness directive (AD) to read as follows:

BELL HELICOPTER TEXTRON, INC (BELL): Docket No. FAA-2011-1188; Directorate Identifier 2008-SW-46-AD. Supersedes AD 93-05-01, Amendment 39-8507, Docket No. 92-ASW-13; AD 81-19-02, Amendment 39-4208, Docket No. 81-ASW-40; AD 81-19-01, Amendment 39- 4207, Docket No. 81-ASW-38; and AD 79-20-05, Amendments 39-3662, 39-3626, and 39-3572, Docket No. 79-ASW-25.

Applicability: Model 204B, 205A, 205A-1, 205B, and 212 helicopters, with a main rotor yoke (yoke), part number (P/N) AAI-4011-102 (all dash numbers), ASI-4011-102 (all dash numbers), or 204-011-102 (all dash numbers), installed, certificated in any category.

Compliance: Required as indicated.

To prevent cracking of a yoke, failure of a yoke, and subsequent loss of control of the helicopter, do the following:

(a) For helicopters with yoke, P/N AAI-4011-102 (all dash numbers) and ASI-4011-102 (all dash numbers), installed, within 100 hours time-in-service (TIS), unless accomplished previously:

(1) Create a component history card or equivalent record for each yoke.

(2) Determine the model for each helicopter on which the yoke has been installed from the time the yoke had zero hours TIS.

(3) In accordance with the rate per hour categories shown in Table 1 of this AD, categorize the accumulated “Unfactored Hours TIS” on each yoke by determining the types of operation AND the rate per hour of external load lifts and takeoffs for each hour TIS accumulated on each yoke. One external load lift occurs each time the helicopter picks up an external load and drops it off. For determining the proper rate per hour category for external load operations, any external load lift in which the helicopter achieves a vertical altitude difference of greater than 200 feet indicated altitude between the pickup and drop-off point counts as two external load lifts.

Table 1 – Factored Hours TIS for a Yoke

Helicopter Model	Types of Operation	RATE PER HOUR of External Load Lifts and Takeoffs	Unfactored Hours TIS	Hours TIS Factor	Factored Hours TIS on Yoke (Unfactored Hours TIS X Hours TIS Factor)
Yokes installed on any Model 204B, 205A, or 205A-1 helicopter	All Operations	All	<i>120</i>	1	<i>120</i>
Yokes installed on any Model 205B or 212 helicopter	External Load Operations ¹	1 to 5	<i>105</i>	1	<i>105</i>
		5.1 to 8		1.5	
		8.1 to 12		2	
		12.1 to 18		3	
		18.1 to 32	<i>170</i>	5	<i>850</i>
		32.1 to 48		7	
		48.1 or above		9	
		Unknown	<i>50</i>	7	<i>350</i>
	Internal Load Operations	All Takeoffs	<i>2,025</i>	1	<i>2,025</i>
Total Factored Hours TIS on Yoke (Summation of the Factored Hours TIS)					<i>3,450</i>
¹ For the purposes of this AD, an external load operation occurs each time a helicopter picks up an external load and drops it off. Any external load lift in which the helicopter achieves a vertical altitude difference of greater than 200 feet indicated attitude between the pick-up and drop-off point counts as two external load lifts in determining the proper rate per hour category.					

Note 1: The number of unfactored hours TIS and factored hours TIS contained in Table 1 of this AD are examples and presented for illustration purposes only.

(4) By reference to Table 1 of this AD, enter the “Unfactored Hours TIS” for each category as determined by paragraph (a)(3) of this AD. Calculate the “Factored Hours TIS” by multiplying the “Unfactored Hours TIS” by the “Hours TIS Factor.” Determine the accumulated “Total Factored Hours TIS” on each yoke by adding the factored hours TIS for each type of operation and helicopter model. Tracking the Total Factored Hours TIS is only for establishing a retirement life and not for tracking inspection intervals.

(5) Record the accumulated Total Factored Hours TIS on the component history card or equivalent record for each yoke.

(6) Continue to factor the hours TIS for each yoke by following paragraph (a)(2) through (a)(4) of this AD, and record the additional factored hours TIS on the component history card or equivalent record.

(b) For helicopters with yoke, P/N 204-011-102 (all dash numbers), installed, before further flight, unless accomplished previously:

(1) For hours TIS accumulated before the effective date of this AD, calculate and record the Total Factored Hours TIS as follows:

(i) For the Model 212 helicopters, 1 hour TIS in which passenger or internal cargo was carried equals 1 factored hour TIS; 1 hour TIS where more than 4 external load lifts occurred equals 5 factored hours TIS.

(ii) For the Model 204 and 205 series helicopters, 1 hour TIS equals 1 factored hour TIS.

Note 2: Paragraph (b)(1) gives credit to the operators for compliance with ADs 81-19-01 and 81-19-02 in establishing the starting point for the new factoring of hours TIS contained in this AD.

Note 3: The accumulated Total Factored Hours TIS for yoke, P/N 204-011-102 (all dash numbers), calculated in accordance with the applicable Bell Model 204B, 205A-1, 205B, or 212 maintenance manuals, which results in an equal or higher accumulated Total Factored Hours TIS is an acceptable alternative to meeting the factoring requirements of AD 81-19-01 (contained in Bell ASB 212-81-23, dated June 22, 1981, for the Model 212 helicopters) and AD 81-19-02 (contained in Bell ASBs 204-81-11 and 205-81-16, both dated June 22, 1981, for the Model 204 and 205 series helicopters).

(2) For hours TIS accumulated after the effective date of this AD, calculate and record the factored hours TIS on the yoke in accordance with the requirements of paragraphs (a)(1) through (a)(6) of this AD.

(c) Revise the Airworthiness Limitations section of the applicable maintenance manuals or the Instructions for Continued Airworthiness (ICAs) by establishing a new retirement life of 3,600 Total Factored Hours TIS for each yoke, P/N AAI-4011-102 (all dash numbers), ASI-4011-102 (all dash numbers), or 204-011-102 (all dash numbers), by

making pen and ink changes or inserting a copy of this AD into the Airworthiness Limitations section of the maintenance manual or ICAs.

(d) Unless accomplished previously, record a life limit of 3,600 Total Factored Hours TIS for each yoke, P/N AAI-4011-102 (all dash numbers), ASI-4011-102 (all dash numbers), or 204-011-102 (all dash numbers), on the component history card or equivalent record.

(e) Within 100 hours TIS or 600 hours TIS since the last magnetic particle inspection (MPI) of the yoke, whichever occurs later, and thereafter at intervals not to exceed 600 hours TIS, for any yoke installed on any Model 205B or 212 helicopter:

(1) Remove the yoke from the main rotor hub assembly (hub). Using a 5-power or higher magnifying glass, visually inspect each pillow block bushing hole, spindle radius, and center section web for any corrosion or mechanical damage.

(2) Perform an MPI of each yoke for a crack.

Note 4: MPI procedures are contained in Bell Standard Practices Manual BHT-ALL-SPM.

(f) Within 100 hours TIS or 2,400 hours TIS since the last MPI of the yoke, whichever occurs later, and thereafter at intervals not to exceed 2,400 hours TIS, for any yoke installed on any Model 204B, 205A, or 205A-1 helicopter:

(1) Remove the yoke from the hub. Using a 5-power or higher magnifying glass, visually inspect each pillow block bushing hole, spindle radius, and center section web for any corrosion or mechanical damage.

(2) Perform an MPI of each yoke for a crack.

(g) Before further flight, replace each yoke with an airworthy yoke if:

(1) The yoke has 3,600 or more Total Factored Hours TIS; or

(2) The Total Factored Hours TIS for the yoke is unknown and cannot be determined; or

(3) The yoke has any corrosion or mechanical damage that exceeds any of the maximum repair damage limits; or

Note 5: The applicable Bell Component and Repair Overhaul Manual contains the maximum repair damage limitations.

(4) The yoke has a crack.

(h) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Contact the Manager, Rotorcraft Certification Office, FAA, ATTN: Michael Kohner, Aviation Safety Engineer, Rotorcraft Directorate, 2601 Meacham Blvd, Fort Worth, Texas 76137, telephone (817) 222-5170, fax (817) 222-5783, for information about previously approved alternative methods of compliance.

(i) Special flight permits may only be issued under 14 CFR 21.197 and 21.199 for the purpose of operating the helicopter to a location where the MPI requirements of paragraphs (e) or (f) of this AD can be performed.

(j) The Joint Aircraft System Component (JASC) Code is 6220: Main Rotor Head Issued in Fort Worth, Texas, on October 21, 2011.

Lance T. Gant,
Acting Manager, Rotorcraft Directorate,
Aircraft Certification Service.

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