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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2012-0415; Directorate Identifier 2008-SW-065-AD; Amendment 39-17865; AD 2014-12-04]

RIN 2120-AA64

Airworthiness Directives; Bell Helicopter Textron, Inc. (BHTI) Helicopters

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are superseding Airworthiness Directive (AD) 2003-01-04 for BHTI Model 204B, 205A, 205A-1, 205B, and 212 helicopters. AD 2003-01-04 required inspecting the main rotor grip (grip) and reporting certain inspection results to the FAA. AD 2003-01-04 also required performing additional inspections, repair, or replacement depending on whether a crack or delamination was found, and determining and recording the hours time-in-service (TIS) and the engine start/stop cycles for each grip on a component history card or equivalent record. This new AD requires the same actions as AD 2003-01-04 but adds a retirement life to certain grips and expands the applicability to include the Model 210 helicopter and additional part-numbered grips. This AD was prompted by the discovery of additional cracked grips. We are issuing this AD to prevent failure of a grip, separation of a main rotor blade, and subsequent loss of control of the helicopter.

DATES: This AD is effective July 24, 2014.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of January 30, 2003 (68 FR 1955, January 15, 2003).

ADDRESSES: For service information identified in this AD, contact BHTI, P.O. Box 482, Fort Worth, TX 76101, telephone (817) 280-3391, fax (817) 280-6466, or at <http://www.bellcustomer.com/files/>. You may view this referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

Examining the AD Docket

You may examine the AD docket 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 AD docket contains this AD, any incorporated-by-reference service information, the economic evaluation, any comments received, and other information. The street address for the Docket Operations Office (phone: 800-647-5527) is U.S. Department of Transportation, Docket Operations Office, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Michael Kohner, Aviation Safety Engineer, Rotorcraft Certification Office, 2601 Meacham Blvd., Fort Worth, Texas 76137, telephone (817) 222-5170, fax (817) 222-5783, email mike.kohner@faa.gov or 7-avs-asw-170@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2003-01-04, Amendment 39-13015 (68 FR 1955, January 15, 2003) (AD 2003-01-04). AD 2003-01-04 applied to certain BHTI Model 204B, 205A, 205A-1, 205B, and 212 helicopters. AD 2003-01-04 required inspecting each grip, reporting certain inspection results to the FAA, and performing additional inspections, repair, or replacement depending on whether a crack or delamination was found. AD 2003-01-04 also required determining and recording the hours TIS and the engine start/stop cycles for each grip on a component history card or equivalent record.

The NPRM published in the Federal Register on April 20, 2012 (77 FR 23638) and proposed to require the same actions as AD 2003-01-04 but add a retirement life to certain grips and expand the applicability to include the Model 210 helicopter and additional part-numbered grips. Specifically, the NPRM proposed:

- Within 10 hours TIS, determining and recording the hours TIS and the engine start/stop cycles for each grip on a component history card or equivalent record.
- Within 10 hours TIS and thereafter at intervals not to exceed 25 hours TIS, visually inspecting the exposed surfaces of the upper and lower tangs of each grip for a crack, using a 10-power or higher magnifying glass.
- At specified intervals, depending on the hours TIS or the engine start/stop cycles, conducting initial and repetitive ultrasonic (UT) inspections of each grip.
- At intervals not to exceed 1,200 hours TIS or 24 months, whichever occurs first, inspecting each buffer pad on the tang inner surfaces for delamination, and removing the buffer pad and inspecting the grip surface for corrosion and other damage if there is delamination.
- Within 2,400 hours TIS or at the next overhaul of the main rotor hub, whichever occurs first, and thereafter at intervals not to exceed 2,400 hours TIS, inspecting the surface of each affected grip for corrosion or other damage and conducting a fluorescent penetrant inspection of the grip for a crack.
- Before further flight, repairing or replacing any grip that has a crack, corrosion, or other damage.
- Before further flight, removing any grip, part number (P/N) 204-011-121-009 or ASI-4011-121-9, that has 15,000 or more hours TIS; and removing any grip, P/N 204-011-121-121, that has 25,000 or more hours TIS.
- Establishing a new retirement life of 15,000 hours TIS for grip, P/N 204-011-121-009 or ASI-4011-121-9, and 25,000 hours TIS for grip, P/N 204-011-121-121.

This AD was prompted by the discovery of additional cracked grips. We are issuing this AD to prevent failure of a grip, separation of a main rotor blade, and subsequent loss of control of the helicopter.

Comments

After our NPRM (77 FR 23638, April 20, 2012) was published, we received comments from six commenters.

Request

Alpine Helicopters Ltd., Eagle Copters Ltd., Wildcat Helicopters, Inc., and two commenters from BHTI disagreed with the proposed life limit because the inspection procedures are sufficient to detect a crack in the grips.

We do not agree. The life limits for the -009 and -121 grips are necessary to correct the unsafe condition. While the UT inspections of the grips have increased the level of safety because grips have been discovered with a crack using this technique, we disagree with relying solely on the repetitive UT inspections of the lower grip tang without establishing a retirement life. Using a safety-by-inspection approach for a critical component has been shown to have an inherent amount of risk. Early failures of these grips, which have not been attributed to mechanical or other damage, have indicated the need to establish a retirement life to avoid possible cracking in the future.

Eagle Copters, Ltd., and Wildcat Helicopters, Inc., requested that we consider implementing shorter inspection intervals or a higher level of training and experience to complete the inspections.

We disagree because we do not believe shorter inspection intervals or a higher level of training would provide an adequate long term solution to correct the unsafe condition. The risk of the onset of fatigue cracking in a grip from other than induced damage and its subsequent failure continually increases the further the part's safe-life (retirement life) is exceeded.

Eagle Copters Ltd., Wildcat Helicopters, Inc., Alpine Helicopters Ltd., and one commenter from BHTI expressed concern that a sufficient number of replacement parts will not be available. Eagle Copters Ltd., and Wildcat Helicopters, Inc., specifically requested that affected grips with no known time-in-service be allowed to remain in service for up to 3 years.

We disagree. While every effort is made to avoid grounding of aircraft, the FAA must nonetheless take action to correct an unsafe condition, such as the one in this case.

Eagle Copters, Ltd., and Wildcat Helicopters Inc., requested that we increase the retirement life of the grips. Eagle Copters, Inc. requested that we increase the retirement life of the -009 grip from 15,000 hours TIS to 25,000 hours TIS, because a life limit of 15,000 hours TIS is not justified based on service history of the -009 grip. Wildcat Helicopters, Inc., requested that we increase the retirement life of the -009 and -121 grip to 30,000 hours TIS.

Similarly, Satria Air Service (SAS) requested that we conduct further research on these failures and questioned our calculation of the proposed life limits. SAS stated that the proposed retirement life for the -121 grip is higher than the -009 grip even though the -121 grip is more prone to failure, which would indicate the need for a lower retirement life. SAS further stated that in a recent failure, the -121 grip had only accumulated 4,900 hours TIS, which is less than the proposed retirement life of 25,000 hours TIS. SAS also noted the 150 hour TIS repetitive inspection interval of the -121 grip is lower than the 400 hour TIS repetitive inspection interval for the -009 grip, which indicates there is a reason for the shorter inspection interval on the -121 grip.

We disagree with the request to increase the life limits of the grips, as this would not provide an acceptable level of safety in addressing the unsafe condition. The retirement lives for the -009 and -121 grips were determined using a crack initiation methodology (e.g., using the S-N curves and Miner's Rule). This method accounts for damage induced by fatigue loading but does not account for flaws and defects due to manufacturing or in-service conditions. The apparent discrepancy raised by the commenters can be explained by different sets of material properties being used to determine the retirement lives and inspection intervals for the grips. The material for the -121 grips was originally changed because of stress corrosion cracking that was occurring in the barrel of the -009 grips. Different materials will have varying levels for susceptibility to different types of damage. A more "failure prone" component may not necessarily warrant a lower retirement life. Early failures can

occur from a crack initiating from damage induced by other than fatigue. Several of the failed -121 grips were also found with cracking at multiple origins. This would explain the apparent discrepancy of -121 grips having a shorter interval for UT inspections but yet a higher retirement life.

SAS requested that we change the proposed method for calculating the life of a grip with an unknown total of hours TIS, as it is impractical because grips are often in storage as spare parts or as a subcomponent of a main rotor hub assembly which may have been out of service. The commenter suggested assigning a fixed high time to a time since new unknown part, to allow an operator to plan for replacement at the next scheduled overhaul.

We partially agree. We agree that establishing a realistic in-service life for a component which is currently unlimited and only required to be replaced when damaged or corroded beyond repair is difficult. We disagree that the proposed method should be changed, however, because it is the same method as that in AD 2003-01-04 (68 FR 1955, January 15, 2003); only the number of hours TIS have been revised with our proposal. As far as allowing an operator time to plan for replacing a part, the proposed life limits are based on the actions we determine necessary to address the unsafe condition.

FAA's Determination

We have reviewed the relevant information, considered the comments received, and determined that an unsafe condition exists and is likely to exist or develop on other helicopters of these same type designs and that air safety and the public interest require adopting the AD requirements as proposed except for minor editorial changes. In paragraph (a) of this AD, the reference to "the following model helicopters" has been changed to reference "the model helicopters listed in Table 1 to Paragraph (a) of this AD" instead. "Figure 1 to Paragraph (f)" has been changed to reference "Figure 1 to Paragraphs (f)(2)(ii) and (f)(4)(ii)." "Table 2 to Paragraph (f)" has been changed to reference "Table 2 to Paragraph (f)(3)." "Note 1 to Paragraph (f)" has been changed to reference "Note 1 to Paragraph (f)(3)." "Note 2 to Paragraph (f)" has been changed to reference "Note 2 to Paragraph (f)(4)." These minor editorial changes are consistent with the intent of the proposals in the NPRM (77 FR 23638, April 20, 2012) and will not increase the economic burden on any operator nor increase the scope of this AD.

Related Service Information

We reviewed the following BHTI service information:

- Operations Safety Notices 204-85-6, 205-85-9, and 212-85-13, all dated November 14, 1985, (one notice with 3 identification numbers), which describe a grip with a crack in the lower tang that was returned by an operator;
- Alert Service Bulletin (ASB) No. 212-94-92, Revision A, dated March 13, 1995, which describes procedures for inspection and overhaul requirements of certain grips;
- ASB No. 204-02-58, dated November 26, 2002; ASB No. 205-02-88, dated November 26, 2002; and ASB No. 210-08-02, dated September 10, 2008. These ASBs specify a UT inspection of certain grips;
- ASB No. 205B-02-39, Revision B, dated November 22, 2002, and ASB No. 212-02-116, Revision A, dated October 30, 2002, which specify a UT inspection of certain grips and include the Nondestructive Inspection Procedure, Log No. 00-340, Revision E, dated April 9, 2002; and
- Information Letter 204-08-23, 205-08-38, 205B-08-21, and 212-08-62, Revision A, dated July 23, 2008 (one letter issued with 4 identification numbers), which describes a new, improved replacement grip, P/N 204-011-121-125, that would not require the repetitive UT inspections and would have a retirement life of 25,000 hours TIS or a 500,000 Retirement Index Number (RIN), whichever comes first.

Differences Between This AD and the Service Information

This AD requires life limits for grip P/Ns 204-011-121-009, 204-011-121-121, and ASI-4011-121-9. The manufacturer's service bulletins do not specify a service life for these grips. Also, this AD applies to grip P/N ASI-4011-121-9, which is produced under an FAA parts manufacturing approval, and the manufacturer's service bulletins do not address this particular grip.

Costs of Compliance

We estimate that this AD will affect 700 helicopters of U.S. registry, and it will take approximately 7 work hours to create and maintain the records, 6.25 work hours to conduct the inspections, and 20 work hours to replace a set of grips at an average labor rate of \$85 per work hour. Required parts cost approximately \$56,385 for a replacement set of grips. Based on these figures, we estimate the total cost impact of this AD on U.S. operators to be \$6,596,875 for the entire fleet, assuming the grip set (2 grips) is replaced on 100 helicopters.

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.

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) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);
- (3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction; and
- (4) 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 an economic evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

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 removing Airworthiness Directive (AD) 2003-01-04 (68 FR 1955, January 15, 2003), and adding the following new AD:



2014-12-04 Bell Helicopter Textron, Inc. (BHTI): Amendment 39-17865; Docket No. FAA-2012-0415; Directorate Identifier 2008-SW-065-AD.

(a) Applicability

This AD applies to the model helicopters listed in Table 1 to Paragraph (a) of this AD with the listed part-numbered main rotor grips installed, certificated in any category:

Table 1 to Paragraph (a)–Helicopter Model and Main Rotor Grip (Grip) Part Numbers Affected

Model	With the following grip part number (P/N)
204B	204-011-121-005 if the grip was ever installed on a Model 205B helicopter.
204B, 205A, and 205A-1	204-011-121-009, -117, -121 or ASI-4011-121-9.
205A and 205A-1	204-011-121-005 or -113 if the grip was ever installed on a Model 205B helicopter.
205B	204-011-121-005, -009, -113, -117, or -121.
210	204-011-121-009 or -121.
212	204-011-121-009, -121, or ASI-4011-121-9.

(b) Unsafe Condition

This AD defines the unsafe condition as a crack in the main rotor grip (grip), which could result in failure of a grip, separation of a main rotor blade, and subsequent loss of control of the helicopter.

(c) Affected AD

This AD supersedes AD 2003-01-04, Amendment 39-13015 (68 FR 1955, January 15, 2003).

(d) Effective Date

This AD becomes effective July 24, 2014.

(e) 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.

(f) Required Actions

(1) Within 10 hours time-in-service (TIS), create a component history card or equivalent record and determine and record the total hours TIS for each grip. If the total hours TIS cannot be determined from the helicopter records, assume and record 50 hours TIS for each month for which the hours cannot be determined. Continue to count and record the hours TIS and begin to count and record the number of times the helicopter engine(s) are started (engine start/stop cycles).

(2) Within 10 hours TIS, and thereafter at intervals not to exceed 25 hours TIS, without removing the main rotor blades:

(i) Clean the exposed surfaces of the upper and lower tangs of each grip with denatured alcohol, and wipe dry.

(ii) Using a 10-power or higher magnifying glass, visually inspect the exposed surfaces of the upper and lower tangs of each grip for a crack. Pay particular attention to the lower surface of each lower grip tang from the main rotor blade bolt-bushing flange to the leading and trailing edge of each grip tang as depicted in Figure 1 to Paragraphs (f)(2)(ii) and (f)(4)(ii) of this AD.

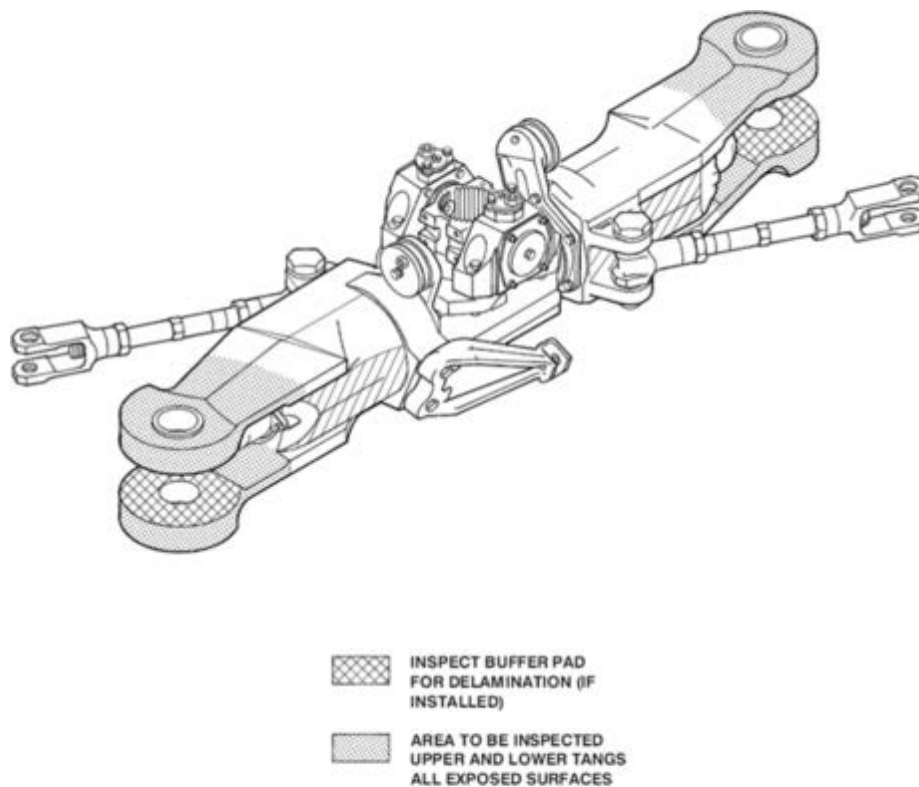


Figure 1 to Paragraphs (f)(2)(ii) and (f)(4)(ii)
Inspection of Main Rotor Hub Grip Tangs

(3) At the intervals shown in Table 2 to Paragraph (f)(3) of this AD, ultrasonic (UT) inspect each grip in accordance with the Bell Helicopter Textron Nondestructive Inspection Procedure, Log No. 00-340, Revision E, dated April 9, 2002. The UT inspection of the grip must be performed by a Non-Destructive Testing (NDT) UT Level I Special, Level II, or Level III inspector who is qualified under the guidelines established by MIL-STD-410E, ATA Specification 105, AIA-NAS-410, or an FAA-accepted equivalent for qualification standards of NDT Inspection/Evaluation Personnel.

Table 2 to Paragraph (f)(3)–Ultrasonic Inspection Intervals

UT inspect grip, P/N:	Within 30 days, or the following hours TIS for the grip, whichever occurs later:	Thereafter, at intervals not to exceed the following hours TIS or engine start/stop cycles, whichever occurs first:	
		Hours TIS	Engine start/stop cycles
204-011-121-009 or ASI-4011-121-9	4,000	400	1,600
204-011-121-121	500	150	600
204-011-121-005 or -113, if the grip was EVER installed on a Model 205B helicopter	4,000	400	1,600
204-011-121-117, if the grip was NEVER installed on a Model 205B helicopter	4,000	150	600
204-011-121-117, if the grip was EVER installed on a Model 205B helicopter	500	150	600

Note 1 to Paragraph (f)(3) of this AD: You can find the Nondestructive Inspection Procedure attached to BHTI Alert Service Bulletin (ASB) No. 205B-02-39, Revision B, dated November 22, 2002, or BHTI ASB No. 212 02-116, Revision A, dated October 30, 2002.

(4) At intervals not to exceed 1,200 hours TIS or 24 months, whichever occurs first:

- (i) Remove each main rotor blade, and
- (ii) Inspect each grip buffer pad on the inner surfaces of each grip tang for delamination as depicted in Figure 1 to Paragraphs (f)(2)(ii) and (f)(4)(ii) of this AD. If there is any delamination, remove the buffer pad and inspect the grip surface for corrosion or other damage.

Note 2 to Paragraph (f)(4) of this AD: This inspection interval coincides with the main rotor tension-torsion strap replacement times.

(5) Within 2,400 hours TIS, or at the next overhaul of the main rotor hub, whichever occurs first, and thereafter at intervals not to exceed 2,400 hours TIS:

- (i) Remove each main rotor blade.
- (ii) Remove each grip buffer pad (if installed) from the inner surfaces of each grip tang.
- (iii) Visually inspect the grip tang surfaces for corrosion or other damage.
- (iv) Fluorescent-penetrant inspect the grip for a crack, paying particular attention to the upper and lower grip tangs. When inspecting any grip, P/N 204-011-121-005, -009, -113, or ASI-4011-121-9, pay particular attention to the leading and trailing edges of the grip barrel.

(6) Before further flight:

- (i) Replace any cracked grip with an airworthy grip.
- (ii) Replace any grip with any corrosion or other damage with an airworthy grip, or repair the grip if the corrosion or other damage is within maximum repair damage limitations.
- (iii) Replace any grip, P/N 204-011-121-009 or ASI-4011-121-9, which has been in service for 15,000 or more hours TIS.

(iv) Replace any grip, P/N 204-011-121-121, which has been in service for 25,000 or more hours TIS.

(7) Revise the Airworthiness Limitations sections of the applicable maintenance manuals or the Instructions for Continued Airworthiness (ICAs) by establishing a new retirement life of 15,000 hours TIS for grip P/N 204-011-121-009 or ASI-4011-121-9, and 25,000 hours TIS for grip P/N 204-011-121-121, by making pen and ink changes or inserting a copy of this AD into the applicable maintenance manual or ICAs.

(8) Record a 15,000 hours TIS life limit for each grip P/N 204-011-121-009 or ASI-4011-121-9, and a 25,000 hours TIS life limit for each grip P/N 204-011-121-121, on the applicable component history card or equivalent record.

(g) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Rotorcraft Certification Office, FAA, may approve AMOCs for this AD. Send your proposal to: Michael Kohner, Aviation Safety Engineer, Rotorcraft Certification Office, 2601 Meacham Blvd., Fort Worth, Texas 76137, telephone (817) 222-5170, fax (817) 222-5783, email mike.kohner@faa.gov or 7-avs-asw-170@faa.gov.

(2) For operations conducted under a Part 119 operating certificate or under Part 91, Subpart K, we suggest 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.

(h) Additional Information

(1) BHTI ASB No. 212-94-92, Revision A, dated March 13, 1995; BHTI ASB No. 212-02-116, Revision A, dated October 30, 2002; BHTI 205B-02-39, Revision B, dated November 22, 2002; BHTI ASB No. 204-02-58 and ASB No. 205-02-88, both dated November 26, 2002; BHTI ASB No. 210-08-02, dated September 10, 2008; BHTI Operations Safety Notice 204-85-6, 205-85-9, and 212-85-13, all dated November 14, 1985; and BHTI Information Letter, 204-08-23, 205-08-38, 205B-08-21, and 212-08-62, Revision A, dated July 23, 2008; none of which are incorporated by reference, contain additional information about the subject of this AD.

(2) For service information identified in this AD, contact BHTI, P.O. Box 482, Fort Worth, TX 76101, telephone (817) 280-3391, fax (817) 280-6466, or at <http://www.bellcustomer.com/files/>. You may review copies of this information at the FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

(i) Subject

Joint Aircraft Service Component (JASC) Code: 6220: Main Rotor Head.

(j) 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.

(3) The following service information was approved for IBR on January 30, 2003 (68 FR 1955, January 15, 2003).

(i) Bell Helicopter Textron Nondestructive Inspection Procedure, Log No. 00-340, Revision E, dated April 9, 2002.

(ii) Reserved.

(4) For Bell Helicopter Textron service information identified in this AD, contact BHTI, P.O. Box 482, Fort Worth, TX 76101, telephone (817) 280-3391, fax (817) 280-6466, or at <http://www.bellcustomer.com/files/>.

(5) You may view this service information that is incorporated by reference at the FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

(6) You may also 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, call (202) 741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Fort Worth, Texas, on June 4, 2014.

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