FAA
Aviation Safety

EMERGENCY AIRWORTHINESS DIRECTIVE

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DATE: November 24, 2010
AD #: 2010-25-51

Background

This EAD supersedes EAD 2010-24-52, issued November 19, 2010, and is prompted by the need to require performing a magnetic particle inspection (MPI) on additional serial-numbered main rotor hub inboard strap fittings.

On November 12, 2010, we issued EAD 2010-24-51 for all Bell Model 212 helicopters with a main rotor hub inboard strap fitting (fitting), part number (P/N) 212-010-103-007, serial number (S/N) 9956 through 10005 with a prefix of "A." That EAD required, before further flight, removing any affected fitting and replacing it with an airworthy fitting. That EAD also prohibited installing any affected fitting on any helicopter. EAD 2010-24-51 was prompted by an accident that resulted in several fatalities. During the investigation of the accident, a crack was found on the fitting. Subsequently, four additional fittings from the same manufacturing lot were inspected and two were found to exhibit the same type of cracking. We issued EAD 2010-24-51 to prevent a cracked fitting, which could result in failure of the fitting, loss of a main rotor blade, and subsequent loss of control of the helicopter.

After we issued EAD 2010-24-51, additional fittings from a different manufacturing lot were found to have the same type of crack as that found on the fitting involved in the accident. Therefore, on November 19, 2010, we issued superseding EAD 2010-24-52 to require the same actions as EAD 2010-24-51 but to expand the applicability to include additional fittings, S/N 9956 through 10005, with a prefix of "A" and S/N 52, 54, 55, 57 through 65, 67, 69, 70, 71, 73, 103, 112, 113, 137, and 139, with a prefix of "SH."

EADs 2010-24-51 and 2010-24-52 were issued as interim actions to address a known unsafe condition. Bell is continuing to investigate the cause of the cracking. Because the root cause of the cracking has not been determined and due to the severity of a fitting failure, we are superseding EAD 2010-24-52 to continue to require replacing certain serial-numbered fittings and to require performing an MPI on other serial-numbered fittings. We have determined that the MPI is necessary to detect a crack on those fittings not already removed from service.

Relevant Service Information

We reviewed Bell Alert Service Bulletin No. 212-10-141, Revision A, dated November 18, 2010 (ASB 212-10-141), which incorporates additional serial numbers (S/Ns) of the affected fittings, and specifies the immediate removal of these subject serial-numbered fittings from service. Bell states they have determined that the fitting may not have been manufactured in accordance with the engineering design requirements and may fracture as a result of the non-conformance. Bell further states that their investigation is ongoing, and indicates that the ASB affects the fitting, P/N 212-010-103-007, S/Ns as listed in Table 1:

Table 1 - S/Ns in ASB 212-10-141
A-9956 through A-10005
SH-52, SH-54, SH-55
SH-57 through SH-65
SH-67, SH-69, SH-70, SH-71, SH-73
SH-103, SH-112, SH-113, SH-137, SH-139

We have also reviewed Bell Alert Service Bulletin No. 212-10-142, dated November 24, 2010 (ASB 212-10-142), which specifies within the next 15 flight hours after release of the ASB, but no later than January 15, 2011, performing a one time MPI of the fitting, P/N 212-010-103-007, S/Ns as listed in Table 2:

Table 2 – S/Ns in ASB 212-10-142
A-009911 through A-009955
A-010006 thru A-010049
A-010075 thru A-010174
A-010455 thru A-010460
A-010581 thru A-010655
A-010742 thru A-010791
A-010862 thru A-010946

Bell states in ASB 212-10-142 that they have determined that fittings may not have been manufactured in accordance with the engineering design requirements and may fracture as a result of a non-conformance. They also state that a possibility exists that undetected cracks during the quenching operation could have occurred at manufacture.

FAA's Determination

We are issuing this EAD because we evaluated all the available information and determined the unsafe condition described is likely to exist or develop in other products of this same type design. Bell is still investigating the cause of these failures and we may issue additional rulemaking to correct this unsafe condition.

AD Requirements

This EAD supersedes AD 2010-24-52 and requires the following:

- Before further flight, for any helicopter with a fitting, S/N 9956 through 10005, with a prefix of "A"; and S/N 52, 54, 55, 57 through 65, 67, 69, 70, 71, 73, 103, 112, 113, 137, and 139, with a prefix of "SH", replace the fitting with an airworthy fitting. Any fitting with a S/N identified in this paragraph of this EAD is no longer eligible for installation on any helicopter.

- Before further flight, for any helicopter with a fitting, S/N 9911 through 9955, 10006 through 10049, 10075 through 10174, 10455 through 10460, 10581 through 10655, 10742 through 10791, and 10863 through 10946, with a prefix of "A", perform a magnetic particle inspection (MPI) of each fitting for a crack. If the fitting is cracked, replace it with an airworthy fitting. If the fitting is not cracked, reidentify the fitting in accordance with the specified portion of ASB 212-10-142. Also, within 24 hours after finding any fitting with a crack doing any magnetic particle inspection, report the information requested in Appendix 1 of this AD to the Manager, Rotorcraft Certification Office.

Differences Between This EAD and the Service Information

This EAD differs from the ASBs in that we do not require returning parts to Bell. Also, this EAD differs from ASB 212-10-142 in that we:

- Require performing an MPI before further flight. However, we do allow the operator to request a special flight permit to perform the MPI.

- Do not require an entry stating that the ASB has been carried out and no defects were found.

- Require sending information to the Rotorcraft Certification Office and not to Bell.

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.

Pursuant to this Authority delegated to me by the Administrator, we are hereby issuing this Emergency Airworthiness Directive (EAD).

2010-25-51 BELL HELICOPTER TEXTRON, INC.: Directorate Identifier 2010-SW-096-AD.

Effective Date

(a) This EAD is effective upon receipt.

Other Affected ADs

(b) This EAD supersedes EAD 2010-24-52, issued November 19, 2010.

Applicability

(c) This EAD applies to Bell Helicopter Textron, Inc. Model 212 helicopters certificated in any category, with a main rotor hub inboard strap fitting (fitting), as follows:

Part Number (P/N)	With
212-010-103-007	The following Serial Number (S/N) with a prefix of "A": 9911 through 9955, 9956 through 10005, 10006 through 10049, 10075 through 10174, 10455 through 10460, 10581 through 10655, 10742 through 10791, and 10862 through 10946
	The following S/N with a prefix of "SH": 52, 54, 55, 57 through 65, 67, 69, 70, 71, 73, 103, 112, 113, 137, and 139

Unsafe Condition

(d) This superseding EAD is prompted by a recent accident that resulted in several fatalities. Because the root cause of the cracking has not yet been determined and due to the severity of a fitting failure, we are superseding EAD 2010-24-52 to require replacing certain serial-numbered fittings and performing a magnetic particle inspection (MPI) of other serial-numbered fittings for a crack. The actions specified by this EAD are intended to prevent failure of a fitting, loss of a main rotor blade, and subsequent loss of control of the helicopter.

Compliance

(e) Required as indicated, unless accomplished previously.

(f) Before further flight, for any helicopter with a fitting, S/N 9956 through 10005, with a prefix of "A"; and S/N 52, 54, 55, 57 through 65, 67, 69, 70, 71, 73, 103, 112, 113, 137, and 139, with a prefix of "SH", replace the fitting with an airworthy fitting. Any fitting with a S/N identified in this paragraph of this EAD is no longer eligible for installation on any helicopter.

(g) Before further flight, for any helicopter with a fitting, S/N 9911 through 9955, 10006 through 10049, 10075 through 10174, 10455 through 10460, 10581 through 10655, 10742 through 10791, and 10862 through 10946, with a prefix of "A", perform a magnetic particle inspection (MPI) of each fitting for a crack.

Note 1: The Bell Model 212 Component, Repair, and Overhaul Manual (BHT-212-CR&O), which is not incorporated by reference, contains additional information about MPI procedures.

(1) If the fitting is cracked, replace it with an airworthy fitting.

(2) If the fitting is not cracked, reidentify and refinish the fitting in accordance with paragraph 5. of Bell Helicopter Alert Service Bulletin No. 212-10-142, dated November 24, 2010 (ASB 212-10-142), except this EAD does not require that you make an entry stating that the ASB has been carried out and no defects were found.

Note 2: A picture of a crack indication on an actual fitting is shown in Figure 1 of ASB 212-10-142.

(3) Within 24 hours after finding any cracked fitting as a result of performing an MPI, report the information requested in Appendix 1 of this AD to the Manager, Rotorcraft Certification Office, to the address or fax number specified in the Appendix. Under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.), the Office of Management and Budget (OMB) has approved the information collection requirements contained in this EAD and has assigned OMB Control Number 2120-0056.

Special Flight Permit

(h) A special flight permit may be issued for a one-time ferry flight to a maintenance base facilty to perform the requirements of this AD.

Paperwork Reduction Act Burden Statement]

(i) A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to be approximately 5 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.

Alternative Methods of Compliance (AMOCs)

(j) The Manager, Rotorcraft Certification Office, FAA, has the authority to approve AMOCs for this EAD, 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 Rotorcraft Certification Office, send it to the attention of the person identified in the Other Information section of this EAD.

Note 3: Before using any approved AMOC, we request that you notify your appropriate principal inspector, or lacking a principal inspector, your local Flight Standards District Office.

Other Information

(k)(1) For further information about this EAD, contact: Michael Kohner, Aerospace Engineer, FAA, Rotorcraft Directorate, Rotorcraft Certification Office, 2601 Meacham Blvd., Fort Worth, Texas 76137, telephone (817) 222-5170, fax (817) 222-5783; e-mail: mike.kohner@faa.gov.

(2) Bell Helicopter Alert Service Bulletin No. No. 212-10-141, Revision A, dated November 18, 2010, which is not incorporated by reference, contains additional information about the subject of this EAD.

AD Compliance Inspection Report (Sample Format)

Provide the following information and mail, fax, or e-mail report to: Manager, Rotorcraft Certification Office, FAA, 2601 Meacham Blvd., Fort Worth, Texas 76137, fax (817) 222-5783, e-mail mike.kohner@faa.gov.

Aircraft Registration No.	
Helicopter Serial No.	
Helicopter Owner/Operator	
Contact Phone No.	
Fitting Part Number	
Fitting Serial Number	
Total Hours Time-in-Service on Fitting at Time of Inspection	
Description of Findings	
Who Performed the Inspection?	
Date and Location the Inspection was Performed	
Describe the crack size, location, orientation (provide a sketch or pictures with the fitting part and serial numbers).	
Provide any other comments.	

Subject

(l) The Joint Aircraft System Component Code is: 6220 Main Rotor Hub.

Issued in Fort Worth, Texas, on November 24, 2010.

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