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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2011-1250; Directorate Identifier 2010-NM-031-AD; Amendment 39-17176; AD 2012-17-13]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain The Boeing Company Model 707-100 long body, -200, -100B long body, and -100B short body series airplanes; Model 707-300, -300B, -300C, and -400 series airplanes; and Model 720 and 720B series airplanes. This AD was prompted by reports of stress corrosion cracking in the chord segments made from 7079 aluminum in the horizontal stabilizer rear spar, and potential early fatigue cracking in the chord segments made from 7075 aluminum. For certain airplanes, this AD requires using redefined flight cycle counts, determining the type of material of the horizontal stabilizer, rear spar, and upper and lower chords on the inboard and outboard ends of the rear spar; repetitively inspecting for cracking of the horizontal stabilizer components; and repairing or replacing the chord, or modifying chord segments made from 7079 aluminum, if necessary. For all airplanes, this AD requires inspecting certain structurally significant items, and repairing discrepancies if necessary. We are issuing this AD to detect and correct stress corrosion and/or potential early fatigue cracking in the horizontal stabilizer, which could compromise the structural integrity of the stabilizer.

DATES: This AD is effective October 16, 2012.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of October 16, 2012.

ADDRESSES: For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet https://www.myboeingfleet.com. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

Examining the AD Docket

You may examine the AD docket on the Internet at http://www.regulations.gov; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, 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: Berhane Alazar, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-917-6577; fax: 425-917-6590; email: berhane.alazar@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM published in the Federal Register on November 28, 2011 (76 FR 72863). For certain airplanes, that NPRM proposed to require using redefined flight cycle counts, determining the type of material of the horizontal stabilizer, rear spar, and upper and lower chords on the inboard and outboard ends of the rear spar; repetitively inspecting for cracking of the horizontal stabilizer components; and repairing or replacing the chord, or modifying the chord segments made from 7079 aluminum, if necessary. For all airplanes, that NPRM also proposed to require inspecting certain structurally significant items, and repairing discrepancies if necessary.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comment received on the proposal (76 FR 72863, November 28, 2011) and the FAA's response.

Request To Correct Certain Fatigue Cracking Assertions

Boeing reported that the NPRM (76 FR 72863, November 28, 2011), in various locations, stated incorrectly that fatigue cracking occurred in rear spar chords made from 7075 aluminum. According to Boeing, fatigue cracking has been reported in spar chords made from 7079 aluminum only. Boeing requested that we revise the NPRM to remove reference to "fatigue cracking" when addressing the failure mode of the rear spar chords made from 7075 aluminum.

We partially agree with the request. Chords made from 7075 aluminum have better fatigue characteristics than those made from 7079 aluminum. But all metals fatigue to a varying degree. We have therefore revised this final rule to characterize these conditions as "potential early fatigue" to address Boeing's concern and clarify that the accelerated fatigue occurrence was a consequence of abnormal use of the airplane as used in military touch-and-go training.

Additional Change Made to This AD

Note 1 to paragraph (i) of the NPRM (76 FR 72863, November 28, 2011) defined a special detailed inspection. We have removed that note in this final rule. A special detailed inspection is defined in Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007, and it is unnecessary to repeat that definition in the AD.

Conclusion

We reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting the AD with the changes described previously and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (76 FR 72863, November 28, 2011) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (76 FR 72863, November 28, 2011).

We also determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

Interim Action

We consider this AD interim action. If final action is later identified, we might consider further rulemaking then.

Costs of Compliance

We estimate that this AD affects 10 airplanes of U.S. registry. The following table provides the estimated costs for U.S. operators to comply with this AD.

Table–Estimated Costs

Action	Work hours	Average labor rate per hour	Parts	Cost per product	Number of U.S.-registered airplanes	Fleet cost
Inspections	24 to 32	$85	$0	$2,040 to $2,720 per inspection cycle.	10	$20,400 to $27,200 per inspection cycle.

We have received no definitive data that would enable us to provide cost estimates for the on-condition actions specified in this AD.

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, 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.

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 adding the following new airworthiness directive (AD):

2012-17-13 The Boeing Company: Amendment 39-17176; Docket No. FAA-2011-1250; Directorate Identifier 2010-NM-031-AD.

(a) Effective Date

This AD is effective October 16, 2012.

(b) Affected ADs

This AD affects AD 85-12-01, Amendment 39-5073 (50 FR 26690, June 28, 1985), as revised by AD 85-12-01 R1, Amendment 39-5439 (51 FR 36002, October 8, 1986).

(c) Applicability

This AD applies to The Boeing Company Model 707-100 long body, -200, -100B long body, and -100B short body series airplanes; Model 707-300, -300B, -300C, and -400 series airplanes; and Model 720 and 720B series airplanes; certificated in any category; as identified in Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007, and Boeing 707 Alert Service Bulletin A3516, dated April 4, 2008.

(d) Subject

Air Transport Association (ATA) of America Code 55: Stabilizers.

(e) Unsafe Condition

This AD was prompted by reports of stress corrosion cracking in the chord segments made from 7079 aluminum in the horizontal stabilizer rear spar, and potential early fatigue cracking in the chord segments made from 7075 aluminum. The Federal Aviation Administration is issuing this AD to detect and correct stress corrosion and/or potential early fatigue cracking in the horizontal stabilizer, which could compromise the structural integrity of the stabilizer.

(f) Compliance

You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

(g) Flight Cycle Counting Procedure

Flight cycles, as used in this AD, must be counted as defined in Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007 (for Model airplanes); or Boeing 707 Alert Service Bulletin A3516, dated April 4, 2008 (for Model airplanes, and Model 720 and 720B series airplanes).

(h) Determination of Material of the Components of the Horizontal Stabilizer

For airplanes identified in Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007: At the earlier of the times specified in paragraphs (h)(1) and (h)(2) of this AD, determine the type of material of the horizontal stabilizer, rear spar, upper chords, and lower chords on the inboard and outboard ends of the rear spar, in accordance with Part 2 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007.

(1) Within 180 days after the effective date of this AD.

(2) Before further flight after any horizontal stabilizer is replaced after the effective date of this AD.

(i) Repetitive Inspections of 7075 Aluminum Components

For airplanes with horizontal stabilizer components made from 7075 aluminum, as determined during the inspection required by paragraph (h) of this AD: Within 180 days after the effective date of this AD, and before further flight after any replacement of the horizontal stabilizer, do a special detailed inspection for cracking of the upper chord on the inboard end of the rear spar on both the left and right side horizontal stabilizers, from stabilizer station–13.179 to 92.55, in accordance with Part 3 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007. Repeat the inspections thereafter at intervals not to exceed 500 flight cycles, and before further flight after any replacement of the horizontal stabilizer, except as provided by paragraph (j) of this AD. If any cracking is found, before further flight, either repair the cracking in accordance with Part 3 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007, except as required by paragraph (n) of this AD; or replace the chord with a new chord, in accordance with Part 6 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007.

(j) Repetitive Inspections on Airplanes With Replaced Chord

For airplanes on which the chord is replaced with a new chord in accordance with Part 6 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007: Within 4,000 flight cycles after the chord replacement, do the inspections required by paragraph (i) of this AD, and repeat the inspections thereafter at the times specified in paragraph (i) of this AD.

(k) Repetitive Inspections of 7079 Aluminum Components

For airplanes with horizontal stabilizers that have components of the chords of the rear spar made from 7079 aluminum, as determined during the inspection required by paragraph (h) of this AD: Within 180 days after the effective date of this AD, do the actions required by paragraphs (k)(1), (k)(2), and (k)(3) of this AD, and repeat those actions at the applicable intervals specified in paragraphs (k)(1), (k)(2), and (k)(3) of this AD.

(1) Do a special detailed inspection for cracking of the upper chord of the inboard side of the rear spar of both the left and right side horizontal stabilizers from stabilizer station–13.179 to 92.55, in accordance with Part 3 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007. Repeat the inspection thereafter at intervals not to exceed 250 flight cycles or 180 days, whichever occurs first. If any cracking is found during any inspection required by this paragraph, before further flight, either repair the cracking, in accordance with Part 3 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007, except as required by paragraph (n) of this AD; or replace the chord with a new chord, in accordance with Part 6 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007.

(2) Do a high frequency eddy current inspection for cracking of the web flanges of the upper and lower chords of the rear spar in the left and right side horizontal stabilizers from stabilizer stations 92.55 to 272.55, in accordance with Part 4 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007. Repeat the inspection thereafter at intervals not to exceed 1,000 flight cycles or 180 days, whichever occurs first. If any cracking is found during any inspection required by this paragraph, before further flight, do the actions specified in paragraph (k)(2)(i) or (k)(2)(ii) of this AD.

(i) Determine whether the cracking meets the limits specified in Part 4 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007, and whether a previous repair has been done; determine if all 7079 upper and lower chord segments installed on the horizontal stabilizer have had the Part II, Group 1, Preventative Modification specified in Boeing 707 Service Bulletin 3356 done; and do all applicable repairs and modifications, in accordance with the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007. Do the actions required by this paragraph in accordance with Part 4 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007, except as required by paragraph (n) of this AD. Do all applicable repairs and modifications before further flight.

(ii) Replace the chord with a new chord, in accordance with Part 6 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007.

(3) Do low frequency eddy current (LFEC) inspections for cracking of the forward skin flanges of the upper and lower chords of the rear spar in the left and right side horizontal stabilizers from stabilizer stations–13.179 to 272.55 (for lower chords) and 92.55 to 272.55 (for upper chords), in accordance with Part 5 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007. Repeat the inspections thereafter at intervals not to exceed 1,000 flight cycles or 180 days, whichever occurs first. If any cracking is found during any inspection required by this paragraph, before further flight, do the actions specified in either paragraph (k)(3)(i) or paragraph (k)(3)(ii) of this AD.

(i) Repair any cracking, determine whether all 7079 upper and lower chord segments installed on the horizontal stabilizer have had the Part II–Preventative Modification specified in Boeing 707 Service Bulletin 3381 done, and do all applicable modifications, in accordance with the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007. Do the actions required by this paragraph in accordance with Part 5 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007, except as required by paragraph (n) of this AD. Do all applicable modifications before further flight.

(ii) Replace the chord with a new chord, in accordance with Part 6 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007.

(l) Modification/Chord Replacement

For airplanes identified in Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007, with horizontal stabilizers that have rear spar chord components made from 7079 aluminum and have not had embodied the modification of Part II of Boeing 707 Service Bulletin 3381, dated July 25, 1980; or Boeing 707 Service Bulletin 3381, Revision 1, dated July 31, 1981: Before further flight after determining the type of material in accordance with paragraph (h) of this AD, modify all 7079 chord segments installed on the horizontal stabilizer, in accordance with Part 5 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007; or replace the chord, in accordance with Part 6 of the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007.

(m) Supplemental Structural Inspection Document Inspections

For all airplanes: Within 180 days or 1,000 flight cycles after the effective date of this AD, whichever occurs first, do the inspections of the applicable structurally significant items specified in and in accordance with the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3516, dated April 4, 2008. If any cracking is found, before further flight, repair in accordance with the procedures specified in paragraph (q) of this AD. The inspections required by AD 85-12-01 R1, Amendment 39-5439 (51 FR 36002, October 8, 1986), are still required, except, as of the effective date of this AD, the flight-cycle interval for the repetitive inspections specified in paragraph 1.E., "Compliance," of Boeing 707 Alert Service Bulletin A3516, dated April 4, 2008, must be counted in accordance with the requirements of paragraph (g) of this AD.

(n) Exception to the Service Information: Contacting FAA for Crack Repair

If any cracking is found during any inspection required by this AD, and Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007, specifies to contact Boeing for appropriate action: Before further flight, repair the cracking using a method approved in accordance with the procedures specified in paragraph (q) of this AD.

(o) Exception to the Service Information: Certain Compliance Procedures

Where Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007, specifies that operators "refer to" nondestructive test (NDT) procedures, the procedures must be done in accordance with the service information identified in paragraphs (o)(1), (o)(2), and (o)(3) of this AD, as applicable.

(1) Figure 20, "Electrical Conductivity Measurement for Aluminum," of Subject 51-00-00, "Structures-General," of Part 6–Eddy Current, of the Boeing 707/720 Nondestructive Test Manual, Document D6-48023, Revision 118, dated July 15, 2011.

(2) Subject 55-10-07, "Horizontal Stabilizer," of Part 6–Eddy Current, of the Boeing 707/720 Nondestructive Test Manual, Document D6-48023, Revision 118, dated July 15, 2011.

(3) Subject 51-01-00, "Orientation and Preparation for Testing" of Part 1–General, of the Boeing 707/720 Nondestructive Test Manual, Document D6-48023, Revision 118, dated July 15, 2011.

(p) Parts Installation Prohibition

As of the effective date of this AD, no person may install any horizontal stabilizer assembly with any chord segment having a part number other than that identified in paragraph 2.C.2. of Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007, on any airplane.

(q) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle Aircraft Certification Office (ACO), 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 ACO, send it to the attention of the person identified in the Related Information section of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@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.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation

Authorization (ODA) that has been authorized by the Manager, Seattle ACO to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(r) Related Information

For more information about this AD, contact Berhane Alazar, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-917-6577; fax: 425-917-6590; email: berhane.alazar@faa.gov.

(s) 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 October 16, 2012.

(i) Boeing 707 Alert Service Bulletin A3515, dated December 19, 2007.

(ii) Boeing 707 Alert Service Bulletin A3516, dated April 4, 2008.

(iii) Subject 51-00-00, "Structures–General," Figure 20, "Electrical Conductivity Measurement for Aluminum," of Part 6–Eddy Current, of the Boeing 707/720 Nondestructive Test Manual, Document D6-48023, Revision 118, dated July 15, 2011. The revision level of this document is identified in only the manual revision Transmittal Sheet.

(iv) Subject 55-10-07, "Horizontal Stabilizer," of Part 6–Eddy Current, of the Boeing 707/720 Nondestructive Test Manual, Document D6-48023, Revision 118, dated July 15, 2011. The revision level of this document is identified in only the manual revision Transmittal Sheet.

(v) Subject 51-01-00, "Orientation and Preparation for Testing" of Part 1–General, of the Boeing 707/720 Nondestructive Test Manual, Document D6-48023, Revision 118, dated July 15, 2011. The revision level of this document is identified in only the manual revision Transmittal Sheet.

(4) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet https://www.myboeingfleet.com.

(5) You may review copies of the service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

(6) You may also review copies of the 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 Renton, Washington, on August 24, 2012.

Ali Bahrami,

Manager, Transport Airplane Directorate,

Aircraft Certification Service.