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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2010-0481; Directorate Identifier 2009-NM-192-AD; Amendment 39-16406; AD 2010-17-14]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Model 737-100 and -200 Series Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain Model 737-100 and -200 series airplanes. This AD requires repetitive inspections for cracking and damaged fasteners of certain fuselage frames and stub beams, and corrective actions if necessary. For certain airplanes, this AD also requires repetitive inspections for cracking of the inboard chord fastener hole of the frame at body station 639, stringer S-16, and corrective actions if necessary. For certain airplanes, this AD also requires an inspection to determine the edge margin of the lower chord. For airplanes with a certain short edge margin, this AD requires repetitive inspections for cracking, and corrective actions if necessary; replacing the lower chord terminates the repetitive inspections. This AD requires an eventual preventive modification. For certain airplanes, doing the modification or a repair terminates the repetitive inspections for the repaired or modified frame only. For airplanes on which the modification or repair is done at certain body stations, this AD requires repetitive inspections for cracking of certain frame webs and inner and outer chords, and corrective actions if necessary. For certain other airplanes, this AD requires a modification which includes reinforcing the body frame inner chords, replacing the stub beam upper chords and attach angles, and reinforcing the stub beam web. This AD results from reports of fatigue cracks at certain frame sections, in addition to stub beam cracking, caused by high flight cycle stresses from both pressurization and maneuver load. We are issuing this AD to detect and correct fatigue cracking of certain fuselage frames and stub beams, and possible severed frames, which could result in reduced structural integrity of the frames. This reduced structural integrity can increase loading in the fuselage skin, which will accelerate skin crack growth and result in rapid decompression of the fuselage.

DATES: This AD is effective October 7, 2010.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of October 7, 2010.

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; e-mail me.boecom@boeing.com; Internet https://www.myboeingfleet.com.

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 (telephone 800-647-5527) is the 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: Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6447; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an airworthiness directive (AD) that would apply to certain Model 737-100 and -200 series airplanes. That NPRM was published in the Federal Register on May 19, 2010 (75 FR 27969). That NPRM proposed to require repetitive inspections for cracking and damaged fasteners of certain fuselage frames and stub beams, and corrective actions if necessary. For certain airplanes, that NPRM also proposed to require repetitive inspections for cracking of the inboard chord fastener hole of the frame at body station 639, stringer S-16, and corrective actions if necessary. For certain airplanes, that NPRM also proposed to require an inspection to determine the edge margin of the lower chord. For airplanes with a certain short edge margin, that NPRM proposed to require repetitive inspections for cracking, and corrective actions if necessary; replacing the lower chord would terminate the repetitive inspections. That NPRM proposed to require an eventual preventive modification. For certain airplanes, doing the modification or a repair would terminate the repetitive inspections for the repaired or modified frame only. For airplanes on which the modification or repair is done at certain body stations, that NPRM proposed to require repetitive inspections for cracking of certain frame webs and inner and outer chords, and corrective actions if necessary. For certain other airplanes, that NPRM proposed to require a modification which includes reinforcing the body frame inner chords, replacing the stub beam upper chords and attach angles, and reinforcing the stub beam web.

Comments

We gave the public the opportunity to participate in developing this AD. We considered the comment received. Boeing supports the NPRM.

Conclusion

We reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting the AD as proposed.

Costs of Compliance

We estimate that this AD affects 45 airplanes of U.S. registry.

We estimate that it will take about 4 work-hours per product to comply with the required inspections. The average labor rate is $85 per work-hour. Based on these figures, we estimate the cost of this inspection to the U.S. operators to be $15,300, or $340 per product, per inspection cycle.

We estimate that it will take about 288 work-hours per product to comply with the required modification (for Group 1-3 airplanes). The average labor rate is $85 per work-hour. Required parts cost about $58,742 per product. Based on these figures, we estimate the cost of this modification to the U.S. operators to be $83,222 per product.

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), 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.

You can find our regulatory evaluation and the estimated costs of compliance 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 adding the following new AD:

2010-17-14 The Boeing Company: Amendment 39-16406. Docket No. FAA-2010-0481; Directorate Identifier 2009-NM-192-AD.

Effective Date

(a) This airworthiness directive (AD) is effective October 7, 2010.

Affected ADs

(b) None.

Applicability

(c) This AD applies to The Boeing Company Model 737-100 and -200 series airplanes, certificated in any category; line numbers 1 through 848 inclusive.

Subject

(d) Air Transport Association (ATA) of America Code 53: Fuselage.

Unsafe Condition

(e) This AD results from reports of fatigue cracks at certain frame sections, in addition to stub beam cracking, caused by high flight cycle stresses from both pressurization and maneuver load. The Federal Aviation Administration is issuing this AD to detect and correct fatigue cracking of certain fuselage frames and stub beams, and possible severed frames, which could result in reduced structural integrity of the frames. This reduced structural integrity can increase loading in the fuselage skin, which will accelerate skin crack growth and result in rapid decompression of the fuselage.

Compliance

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

Inspections

(g) For airplanes on which a repair (Part III of the Accomplishment Instructions of Boeing Service Bulletin 737-53-1061) or preventive modification (Part II of the Accomplishment Instructions of Boeing Service Bulletin 737-53-1061) has not been done in accordance with Boeing Service Bulletin 737-53-1061 as of the effective date of this AD: Before the accumulation of 15,000 total flight cycles or within 3,000 flight cycles after the effective date of this AD, whichever occurs later, do the inspections required by paragraphs (g)(1) and (g)(2) of this AD, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-53-1061, Revision 4, dated July 16, 1992. Repeat the inspection at the time specified, until the terminating action required by paragraph (l) of this AD is done.

(1) Do a detailed inspection (Part I of the Accomplishment Instructions of Boeing Service Bulletin 737-53-1061, Revision 4, dated July 16, 1992) for cracks and damaged fasteners of the fuselage frames and stub beams. If no crack or damaged fastener is found, repeat the inspection thereafter at intervals not to exceed 4,500 flight cycles.

(2) Do an eddy current inspection (Part IV of the Accomplishment Instructions of Boeing Service Bulletin 737-53-1061, Revision 4, dated July 16, 1992) for cracking of the inboard chord fastener hole of the frame at body station 639, stringer S-16. If no crack is found, repeat the inspection thereafter at intervals not to exceed 15,000 flight cycles.

Note 1: Access and restoration instructions, as detailed in the Accomplishment Instructions of Boeing Service Bulletin 737-53-1061, Revision 4, dated July 16, 1992, are not required by this AD. Operators may do those actions in accordance with their maintenance practices.

(h) For airplanes on which the body station 597 frame was changed as of the effective date of this AD, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-53-1061, dated May 28, 1982; Revision 1, dated December 16, 1983; Revision 2, dated April 18, 1986; or Revision 3, dated June 15, 1989: Within 3,000 flight cycles after the effective date of this AD, do a detailed inspection for cracking of the frame, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-53-1061, Revision 4, dated July 16, 1992. Repeat the detailed inspection thereafter at intervals not to exceed 4,500 flight cycles. Installation of new radius fillers in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-53-1061, Revision 4, dated July 16, 1992, terminates the inspections required by this paragraph.

(i) For airplanes on which a stub beam lower chord with 1/4-inch diameter fasteners at body station 597 is installed as of the effective date of this AD, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-53-1061, Revision 1, dated December 16, 1983; Revision 2, dated April 18, 1986; or Revision 3, dated June 15, 1989: Within 3,000 flight cycles after the effective date of this AD, do a detailed inspection for short edge margins. If the short edge margin is determined to be less than 1.5D (diameter), before further flight, do a detailed inspection for cracking of the stub beam lower chords, in accordance with Boeing Service Bulletin 737-53-1061, Revision 4, dated July 16, 1992. Repeat the detailed inspection thereafter at intervals not to exceed 4,500 flight cycles, if the edge margin is less than 1.5D. If the edge margin is greater than or equal to 1.5D, no further action is required by this paragraph. Replacing the lower chord in accordance with Boeing Service Bulletin 737-53-1061, Revision 4, dated July 16, 1992, terminates the repetitive inspections specified in this paragraph.

Corrective Actions

(j) Except as required by paragraph (k) of this AD, if any crack or damaged fastener is found during any inspection required by this AD, before further flight, repair if cracking and damaged fasteners are within the specified limits, or do a preventive modification if cracking or damaged fasteners are outside the specified limits, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-53-1061, Revision 4, dated July 16, 1992.

Exception to Service Information

(k) Where Boeing Service Bulletin 737-53-1061, Revision 4, dated July 16, 1992, specifies to contact Boeing for repair instructions: Before further flight, repair using a method approved in accordance with the procedures specified in paragraph (n) of this AD.

Terminating Action (Preventive Modification) for Certain Inspections

(l) Before the accumulation of 75,000 total flight cycles: Do the preventive modification in accordance with Part II, or repair in accordance with Part III, of the Accomplishment Instructions of Boeing Service Bulletin 737-53-1061, Revision 4, dated July 16, 1992. The modification or repair terminates the repetitive inspection requirements of this AD for the repaired or modified frame only, except as required by paragraph (m) of this AD.

Post-Modification or Repair Inspections

(m) For airplanes on which a repair or modification at body station 616 or 639 is done: Within 24,000 flight cycles after doing the repair or modification, or within 3,000 flight cycles after the effective date of this AD, whichever occurs later, do a detailed inspection for cracking of the body station 616 and 639 frame webs, inner chord, and outer chord near stringer S-16, in accordance with Boeing Service Bulletin 737-53-1061, Revision 4, dated July 16, 1992.

(1) If no cracking is found, repeat the inspection thereafter at intervals not to exceed 4,500 flight cycles.

(2) If any cracking is found, before further flight, repair the cracking using a method approved in accordance with the procedures specified in paragraph (n) of this AD.

Alternative Methods of Compliance (AMOCs)

(n)(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. Send information to ATTN: Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6447; fax (425) 917-6590. Or, e-mail information to 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Before using any approved AMOC on any airplane to which the AMOC applies, notify your principal maintenance inspector (PMI) or principal avionics inspector (PAI), as appropriate, or lacking a principal inspector, your local Flight Standards District Office. The AMOC approval letter must specifically reference this AD.

(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 Delegation 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.

Material Incorporated by Reference

(o) You must use Boeing Service Bulletin 737-53-1061, Revision 4, including Addendum, dated July 16, 1992; as applicable; to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of this service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) 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; e-mail me.boecom@boeing.com; Internet https://www.myboeingfleet.com.

(3) 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.

(4) 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/code_of_federal_regulations/ibr_locations.html.

Issued in Renton, Washington, on August 11, 2010.
Jeffrey E. Duven,
Acting Manager, Transport Airplane Directorate,
Aircraft Certification Service.