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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2015-0246; Directorate Identifier 2014-NM-187-AD; Amendment 39-18511; AD 2016-09-13]

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 737-300, -400, and -500 series airplanes. This AD was prompted by reports of fatigue cracking found at the left-side and right-side upper frames, at a certain area. This AD requires repetitive medium frequency eddy current (MFEC) inspections for cracking of the left-side and right-side upper frames, and repair (including open hole high frequency eddy current (HFEC) inspections for cracking of fastener holes) if necessary. This AD also provides an optional preventive modification, which terminates the repetitive inspections at the modified location. We are issuing this AD to detect and correct fatigue cracking of the upper frame, which can grow in size and result in a severed frame, leading to rapid decompression and consequent reduced structural integrity of the airplane.

DATES: This AD is effective June 13, 2016.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of June 13, 2016.

ADDRESSES: For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-0264.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-0246; 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 Docket 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: Galib Abumeri, Aerospace Engineer, Airframe Branch, ANM-120L, FAA, Los Angeles Aircraft Certification Office (ACO), 3960 Paramount Boulevard, Lakewood, California 90712-4137; phone: 562-627-5324; fax: 562-627-5210; email: galib.abumeri@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain The Boeing Company Model 737-300, -400, and -500 series airplanes. The NPRM published in the Federal Register on February 24, 2015 (80 FR 9667) ("the NPRM"). The NPRM was prompted by reports of fatigue cracking found at the left-side and right-side upper frame, at a certain area. The NPRM proposed to require repetitive MFEC inspections for cracking of the left-side and right-side upper frames, and repair (including open hole HFEC inspections for cracking of fastener holes) if necessary. The NPRM also provided an optional preventative modification that would terminate the repetitive inspections at the modified location. We are issuing this AD to detect and correct fatigue cracking of the upper frame, which can grow in size and result in a severed frame, leading to rapid decompression and consequent reduced structural integrity of the airplane.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM and the FAA's response to each comment.

Requests To Clarify Compliance Time

Europe Airpost and Boeing requested that we revise the NPRM to clarify the "Condition" column of table 1 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, which specifies airplanes with certain flight cycles "on the original issue date of this service bulletin." The commenters questioned whether the corresponding compliance time should be "on the effective date of the AD."

For the reasons suggested by both commenters, we agree to add paragraph (i)(3) to this AD to state that the corresponding reference point is on the effective date of this AD, and we have included reference to paragraph (i)(3) in all appropriate paragraphs in this AD.

Request for Clarify Inspection Requirements

Boeing requested that we revise paragraph (g) of the proposed AD to address the inspection requirements in areas of an existing repair to eliminate cracking approved by a Boeing Organization Designation Authorization (ODA) via FAA Form 8100-9. Boeing explained that this condition is addressed in note (c) of table 1 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin

737-53A1339, dated August 12, 2014, and that it effectively terminates the initial and repetitive inspections required by paragraph (g) of the proposed AD for previously installed frame repairs approved by the Boeing ODA via FAA Form 8100-9. Boeing requested that the proposed AD address the terminating action for this repair condition.

We agree that clarification is necessary. Boeing ODA-approved repairs installed prior to the effective date of this AD are acceptable to terminate the initial and repetitive inspections in the area under the repair. We have revised paragraph (g) of this AD accordingly, and added a new paragraph (g)(1) in this AD.

Request To Clarify Required for Compliance (RC) Requirements

Southwest Airlines requested that we clarify paragraph (l)(4) of the proposed AD. Southwest Airlines explained that note 15 in paragraph 3.A., "General Information," of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, states that steps in the Work Instructions that are identified as RC must be accomplished once the actions specified in Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, becomes mandated by an AD. Southwest Airlines stated that note 15 also states that deviations to steps that are not identified as RC do not require approval of an Alternative Method of Compliance (AMOC). Southwest Airlines stated that paragraph (l)(4) of the proposed AD specifies that any service information that is identified as RC requires AMOC approval except as required by paragraph (i)(1) of the proposed AD. Paragraph (k) of the proposed AD states that the post-repair and post-modification inspections are not mandated by the AD, so it is unclear whether the proposed AD would require the operator to contact Boeing if there are crack findings during the post-repair and post-modification inspections, and whether or not the resulting repairs are subject to the requirements of the AD.

We agree to provide clarification. Paragraph (k) of this AD states that the post-repair and post-modification inspections specified in tables 4 and 5 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, are not required by this AD (tables 4 and 5 correspond to Parts 6 and 7, respectively, of the service information.). The RC steps in those parts are also not required by this AD. Any cracking found—whether during accomplishment of the actions required by an AD or during routine maintenance—is required by 14 CFR 43.13(b) to be repaired before further flight. However, for clarity, we have revised paragraph (i)(1) of this AD to refer only to Part 3 and Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014. In addition, we have revised paragraph (l)(4) of this AD to refer to Part 2, Part 3, and Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014.

Request To Address Repairs for Damage Other Than Cracking

Southwest Airlines stated that the NPRM does not specifically address existing repairs that prevent accomplishment of the inspections proposed in paragraph (g) of the proposed AD. Note (c) in table 1 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, specifies that an ODA-approved repair, via FAA Form 8100-9, installed to eliminate previously found cracking, eliminates the need for the repetitive inspections at the repaired locations. Southwest requested that we revise the NPRM to apply this provision to repairs for damage other than cracking. Southwest Airlines also requested that we specifically state that any repair approved by Boeing via an FAA 8100-9 combined with approval of an AMOC to paragraph (h) of the proposed AD terminates both the initial and repetitive inspections required by paragraph (g) of the proposed AD.

We agree to add clarification regarding initial and repetitive inspections. To provide additional clarification in the rule we have revised the wording in paragraphs (g) and (h) of this AD. Also, we agree to revise the NPRM to include in this final rule, the provision for repairs for cracking in paragraph (g)(1) of this AD, and the provision for repairs that were installed for damage other than

cracking that have been re-evaluated and approved by the Boeing ODA with an FAA Form 8100-9 combined with an AMOC statement, in paragraph (g)(2) of this AD.

Effect of Winglets on the Accomplishment of the Proposed Actions

Aviation Partners Boeing stated that accomplishing Supplemental Type Certificate (STC) ST01219SE ([http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgstc.nsf/0/ebd1cec7b301293e86257cb30045557a/\\$FILE/ST01219SE.pdf](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgstc.nsf/0/ebd1cec7b301293e86257cb30045557a/$FILE/ST01219SE.pdf)) does not affect the actions specified in the NPRM.

We concur with the commenter. We have redesignated paragraph (c) of the proposed AD as paragraph (c)(1) in this AD, and have added new paragraph (c)(2) to this AD to state that installation of STC ST01219SE does not affect the ability to accomplish the actions required by this final rule. Therefore, for airplanes on which STC ST01219SE is installed, a "change in product" AMOC approval request is not necessary to comply with the requirements of 14 CFR 39.17.

Change to Paragraph (k) of This AD

We have revised paragraph (k) of this AD to clarify that the post-modification inspections are airworthiness limitations that are required by maintenance and operational rules; therefore, these inspections are not required by this AD.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this 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 for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

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

Related Service Information Under 1 CFR Part 51

Boeing has issued Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014. The service information describes procedures for repetitive MFEC inspections for cracking, repair the cracking including doing an open hole HFEC inspections for cracking of the holes, and an optional modification of an inspection area including open hole and surface HFEC inspections for cracking of the area to be modified. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Costs of Compliance

We estimate that this AD affects 109 airplanes of U.S. registry.
We estimate the following costs to comply with this AD:

Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspections	14 work-hours × \$85 per hour = \$1,190 per inspection cycle	\$0	\$1,190 per inspection cycle	\$129,710 per inspection cycle.
Preventive modification (optional)	15 work-hours × \$85 per hour = \$1,275	0	\$1,275	\$138,975.

We estimate the following costs to do any necessary on-condition actions that would be required based on the results of the inspection. We have no way of determining the number of aircraft that might need these actions:

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Repair and open hole HFEC inspection	36 work-hours × \$85 per hour = \$3,060	\$0	\$3,060

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):



2016-09-13 The Boeing Company: Amendment 39-18511; Docket No. FAA-2015-0246; Directorate Identifier 2014-NM-187-AD.

(a) Effective Date

This AD is effective June 13, 2016.

(b) Affected ADs

None.

(c) Applicability

(1) This AD applies to The Boeing Company Model 737-300, -400, and -500 series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014.

(2) Installation of Supplemental Type Certificate (STC) ST01219SE ([http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgstc.nsf/0/ebd1cec7b301293e86257cb30045557a/\\$FILE/ST01219SE.pdf](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgstc.nsf/0/ebd1cec7b301293e86257cb30045557a/$FILE/ST01219SE.pdf)) does not affect the ability to accomplish the actions required by this AD. Therefore, for airplanes on which STC ST01219SE is installed, a "change in product" alternative method of compliance (AMOC) approval request is not necessary to comply with the requirements of 14 CFR 39.17.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by reports of fatigue cracking found at the left-side and right-side upper frames, at station 360 between stringer 13 and stringer 14. We are issuing this AD to detect and correct fatigue cracking of the upper frame, which can grow in size and result in a severed frame, leading to rapid decompression and consequent reduced structural integrity of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Repetitive Inspections for Cracking

Except as required by paragraphs (i)(2) and (i)(3) of this AD: At the applicable times specified in table 1 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, do a medium frequency eddy current (MFEC) inspection for cracking on the left-side and right-side of the upper frame at station 360 between stringer 13 and stringer 14, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-

53A1339, dated August 12, 2014. If no cracking is found, repeat the inspections at the applicable times specified in table 1 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014. Accomplishment of the actions specified in paragraph (j) of this AD terminates the repetitive inspections required by this paragraph at the modified area only. The initial and repetitive inspections required by this paragraph may be terminated in the area under repairs installed prior to the effective date of this AD, provided they meet the requirements of paragraph (g)(1) or (g)(2) of this AD.

(1) Repairs were installed to eliminate previously found cracking and were approved by the Boeing Organization Designation Authorization (ODA) with an FAA Form 8100-9.

(2) Repairs were installed for damage other than cracking that have been re-evaluated and approved by the Boeing ODA with an FAA Form 8100-9 that includes an alternative method of compliance (AMOC) statement to paragraph (h) of this AD.

(h) Repair

If any cracking is found during any inspection required by paragraph (g) of this AD: Before further flight, repair the cracking including doing an open hole high frequency eddy current (HFEC) inspection for cracking of the holes, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, except as required by paragraph (i)(1) of this AD. Repair of any crack terminates the initial and repetitive inspection requirements of paragraph (g) of this AD for the repaired area only. If any cracking is found during any inspection required by this paragraph, before further flight, repair using a method approved in accordance with the procedures specified in paragraph (l) of this AD.

(i) Exceptions to Service Information Specifications

(1) Where Part 3 and Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, specifies contacting Boeing for repair instructions: Before further flight, repair using a method approved in accordance with the procedures specified in paragraph (l) of this AD.

(2) Where Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, specifies a compliance time "after the original issue date of this service bulletin," this AD requires compliance within the specified time after the effective date of this AD.

(3) Where the Condition column of table 1 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, specifies a reference point "on the original issue date of this service bulletin," for this AD the corresponding reference point is on the effective date of this AD.

(j) Optional Preventive Modification

Modification of an inspection area specified in paragraph (g) of this AD, including open hole and surface HFEC inspections for cracking of the area to be modified, in accordance with Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, except as required by paragraph (i)(1) of this AD, terminates the repetitive inspections required by paragraph (g) of this AD at the modified location only.

(k) Post-Repair and Post-Modification Inspections

Tables 4 and 5 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, specify post-modification airworthiness limitation inspections in compliance to 14 CFR 25.571(a)(3) at the modified locations, which support compliance with 14 CFR 121.1109(c)(2) or 129.109(b)(2). As airworthiness limitations, these inspections are required by

maintenance and operational rules. It is therefore unnecessary to mandate them in this AD. Deviations from these inspections require FAA approval, but do not require an alternative method of compliance.

(l) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Los Angeles 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 paragraph (m) of this AD. Information may be emailed to: 9-ANM-LAACO-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 Boeing Commercial Airplanes ODA that has been authorized by the Manager, Los Angeles 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.

(4) Except as required by paragraph (i)(1) of this AD: Where Part 2, Part 3, and Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014, contains steps that are labeled as RC, the provisions of paragraphs (l)(4)(i) and (l)(4)(ii) of this AD apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

(m) Related Information

For more information about this AD, contact Galib Abumeri, Aerospace Engineer, Airframe Branch, ANM-120L, FAA, Los Angeles Aircraft Certification Office (ACO), 3960 Paramount Boulevard, Lakewood, California 90712-4137; phone: 562-627-5324; fax: 562-627-5210; email: galib.abumeri@faa.gov.

(n) 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.

(i) Boeing Alert Service Bulletin 737-53A1339, dated August 12, 2014.

(ii) Reserved.

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

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

(5) You may 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 Renton, Washington, on April 28, 2016.
Dionne Palermo,
Acting Manager, Transport Airplane Directorate,
Aircraft Certification Service.