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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-6664; Directorate Identifier 2015-NM-177-AD; Amendment 39-18795; AD 2017-03-04]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are superseding Airworthiness Directive (AD) 2012-16-07 for certain The Boeing Company Model 737-500 series airplanes. AD 2012-16-07 required inspections of the fuselage skin at the chem-milled steps, and repair if necessary. This new AD adds new inspections, permanent repairs of time-limited repairs, related investigative and corrective actions if necessary, and skin panel replacement. This AD was prompted by evaluation by the design approval holder (DAH) that indicates that the fuselage skin is subject to widespread fatigue damage (WFD), and reports of cracking in certain areas of the fuselage skin. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective March 28, 2017.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of March 28, 2017.

ADDRESSES: For service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; 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-2016-6664.

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-2016-6664; 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: Jennifer Tsakoumakis, Aerospace Engineer, Airframe Branch, ANM-120L, FAA, Los Angeles Aircraft Certification Office (ACO), 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5264; fax: 562-627-5210; email: jennifer.tsakoumakis@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2012-16-07, Amendment 39-17154 (77 FR 48423, August 14, 2012) ("AD 2012-16-07"). AD 2012-16-07 applied to certain The Boeing Company Model 737-500 series airplanes. The NPRM published in the Federal Register on May 13, 2016 (81 FR 29813) ("the NPRM"). The NPRM was prompted by evaluation by the DAH that indicates that the fuselage skin is subject to WFD, and reports of cracks at the chem-milled steps in the fuselage skin. The NPRM proposed to continue to require inspections of the fuselage skin at the chem-milled steps, and repair if necessary. The NPRM also proposed to add new fuselage skin inspections for cracking, inspections to detect missing or loose fasteners and any disbonding or cracking of bonded doublers, permanent repairs of time-limited repairs, related investigative and corrective actions if necessary, and skin panel replacement. We are issuing this AD to detect and correct cracking on the aft lower lobe fuselage skins, which could result in rapid decompression 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.

Request To Remove Time-Limited Repair Exception From Paragraph (g) of the Proposed AD

Boeing requested that we remove the paragraph (h)(5) exception specified in paragraph (g) of the proposed AD. Boeing stated that paragraph (h)(5) of the proposed AD refers to structure with time-limited repairs and is not applicable to paragraph (g) of the proposed AD, which deals with actions on unrepairs structure.

We agree with Boeing's request to remove the paragraph (h)(5) reference in paragraph (g) of this AD for the reason provided by Boeing. We have revised paragraph (g) of this AD accordingly.

Request To Revise Proposed Compliance Time and Method of Compliance

Boeing requested that we revise paragraphs (h)(4), (k)(1), and (k)(2) of the proposed AD to specify that the skin panel replacement condition is "before" 53,000 total flight cycles, not "at or before" 53,000 total flight cycles; "and at or after" 53,000 total flight cycles, not "before" for the terminating action in paragraph (k) of the proposed AD. Boeing explained if a skin panel is replaced at 53,000 total flight cycles, no additional safety inspections would be needed due to the limit of validity (LOV).

Boeing also requested that we revise the compliance time for skin panel replacement in paragraph (h)(4) of the proposed AD to a time approved by the FAA through the alternative method of compliance (AMOC) process instead of the time specified in the service information. Boeing

asserted that a reset of the compliance times is necessary if the panel is replaced before 53,000 total flight cycles. Since a Boeing authorized representative may not approve extensions of compliance times, Boeing pointed out that the AMOC approval for a reset of the compliance times from total flight cycles to flight cycles from when the panel is replaced would have to come from the FAA.

We partially agree with Boeing's requests. We agree to revise the compliance time condition to "before 53,000 total flight cycles" in paragraphs (h)(4), (k)(1), and (k)(2) of this AD; and to "at or after 53,000 total flight cycles" in paragraph (k) of this AD for the terminating action to address Boeing's LOV concerns.

We also acknowledge the request to change the compliance time in paragraph (h)(4) of this AD from the applicable time for the next inspection as specified in the service information to a time approved by the FAA. However, we have determined that a change to this AD is not necessary. Operators may always request approval for alternative compliance times using a method approved in accordance with the procedures specified in paragraph (m) of this AD. The compliance time in paragraph (h)(4) of this AD is an appropriate compliance time and provides an acceptable level of safety. It should also provide operators with sufficient information for maintenance planning purposes and allow the inspections to be done during scheduled maintenance intervals for most affected operators.

Request To Provide Specific Service Information References

Boeing requested that we revise paragraphs (i)(1) and (i)(2) of the proposed AD to provide reference to the specific part of the service information. Boeing stated that paragraph (g) of the proposed AD includes specific service information part references, so this change would make paragraph (i) consistent with the formatting of paragraph (g) of the proposed AD.

We do not agree with Boeing's requests. Paragraph (g) of this AD, in part, specifies the specific service information paragraph reference for doing repairs that are terminating action for the repetitive inspections at the repaired locations only. We determined that this reference is needed for clarity. We do not agree that the other references are needed for clarity. We have not changed this AD in this regard.

Request To Clarify Post-modification Airworthiness Limitation Inspections

Boeing requested that we revise paragraph (j) of the proposed AD to specify that table 3 of paragraph 1.E., "Compliance," of Boeing Special Attention Service Bulletin 737-53-1315, Revision 1, dated June 30, 2015 ("SASB 737-53-1315 R1"), is for post-modification airworthiness limitation inspections at the modified locations. Boeing explained that, since airworthiness limitation inspections are required by maintenance and operational rules, it is unnecessary to mandate them in this AD.

We agree with Boeing's request. We have revised paragraph (j) 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.

Request To Revise Corrective Actions in Paragraph (k) of the Proposed AD

Boeing requested that we revise paragraph (k) of the proposed AD, which specifies replacing the applicable skin panels and doing all applicable related investigative and corrective actions. Boeing requested that we remove the phrases "do all applicable related investigative and corrective actions," in accordance with the Accomplishment Instructions of SASB 737-53-1315 R1 and "do all applicable related investigative and corrective actions before further flight." Boeing suggested replacing these phrases with in accordance with "Part 2: Skin Panel Replacement of the Accomplishment Instructions of Boeing Special Attention Service Bulletin 737-53-1315, Revision 1, dated June 30, 2015," to be similar to the wording in other NPRMs.

We disagree with the request to refer to "Part 2" of SASB 737-53-1315 R1. We do not agree that the reference is needed for clarity. We also do not agree with removing the phrase "all applicable related investigative and corrective actions" because that phrase indicates there are on-condition actions. The skin panel replacement includes a conditional action that specifies reinstalling a certain lap joint modification. The sentence "do all applicable related investigative and corrective actions before further flight" is included to reinforce the compliance time for the on-condition actions. We have not changed this AD in regard to these requests.

Request To Revise the NPRM To Address Certain Repaired Areas

For airplanes subject to the requirements of paragraph (g) of the proposed AD, Boeing requested that we add a paragraph that specifies that inspections are not required in areas that are spanned by an FAA-approved repair that has met certain conditions. Boeing submitted specific conditions. Boeing stated that its request is to address elimination of inspections for repairs that have been accomplished for damage other than chem-mill cracking.

We do not agree with Boeing's request. Paragraph (g) of this AD specifies to do the applicable inspections and related investigative and corrective actions specified in the Accomplishment Instructions of SASB 737-53-1315 R1. This service information already contains the criteria Boeing proposed. Therefore, this criteria does not need to be repeated in this AD. We have not changed this AD in this regard.

Effect of Winglets on Accomplishment of the Proposed Actions

Aviation Partners Boeing stated that accomplishing the Supplemental Type Certificate (STC) ST01219SE does not affect the actions specified in the NPRM.

We concur with the commenter. We have redesignated paragraph (c) of the proposed AD as (c)(1) and added 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" alternative method of compliance (AMOC) approval request is not necessary to comply with the requirements of 14 CFR 39.17.

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

We reviewed SASB 737-53-1315 R1. The service information describes procedures for inspection and repair of the fuselage skin panels between station 727 and station 1016, and between stringers S-14 and S-25; and also describes procedures for skin panel replacement. 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 33 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 (actions retained from AD 2012-16-07)	23 work-hours × \$85 per hour = \$1,955 per inspection cycle	\$0	\$1,955 per inspection cycle	\$64,515 per inspection cycle.
Inspections (new action)	Up to 1,515 work-hours × \$85 per hour = \$128,775 per inspection cycle	0	Up to \$128,775 per inspection cycle	Up to \$4,249,575 per inspection cycle.
Skin panel replacement (new action)	688 work-hours × \$85 per hour = \$58,480	96,000	\$154,480	\$5,097,840

We estimate the following costs to do any necessary repairs 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 repairs:

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Time-limited repair	24 work-hours × \$85 per hour = \$2,040.	(¹)	\$2,040.
Permanent repair	31 work-hours × \$85 per hour = \$2,635.	(¹)	2,635.
Permanent repair inspection	4 work-hours × \$85 per hour = \$340 per inspection cycle	(¹)	340 per inspection cycle.

¹ We have received no definitive data that would enable us to provide parts 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

We have determined that 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 removing Airworthiness Directive (AD) 2012-16-07, Amendment 39-17154 (77 FR 48423, August 14, 2012), and adding the following new AD:



2017-03-04 The Boeing Company: Amendment 39-18795; Docket No. FAA-2016-6664; Directorate Identifier 2015-NM-177-AD.

(a) Effective Date

This AD is effective March 28, 2017.

(b) Affected ADs

This AD replaces AD 2012-16-07, Amendment 39-17154 (77 FR 48423, August 14, 2012) ("AD 2012-16-07").

(c) Applicability

(1) This AD applies to all The Boeing Company Model 737-500 series airplanes, certificated in any category.

(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 an evaluation by the design approval holder (DAH) that indicates that the fuselage skin is subject to widespread fatigue damage (WFD), and reports of cracks at the chem-milled steps in the fuselage skin. We are issuing this AD to detect and correct cracking on the aft lower lobe fuselage skins, which could result in rapid decompression of the airplane.

(f) Compliance

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

(g) Inspections, Related Investigative and Corrective Actions

At the applicable times specified in table 1 of paragraph 1.E., "Compliance," of Boeing Special Attention Service Bulletin 737-53-1315, Revision 1, dated June 30, 2015 ("SASB 737-53-1315 R1"), except as required by paragraphs (h)(1) and (h)(2) of this AD: Do the applicable inspections to detect cracks in the fuselage skin panels; and do all applicable related investigative and corrective actions; in accordance with the Accomplishment Instructions of SASB 737-53-1315 R1, except as required by

paragraphs (h)(3) and (h)(4) of this AD. Do all applicable related investigative and corrective actions before further flight. Repeat the applicable inspections thereafter at the applicable intervals specified SASB 737-53-1315 R1. Accomplishment of a repair in accordance with "Part 3: Repair" of the Accomplishment Instructions of SASB 737-53-1315 R1, except as required by paragraph (h)(3) of this AD, is terminating action for the repetitive inspections required by this paragraph at the repaired locations only.

(h) Exceptions to SASB 737-53-1315 R1

(1) Where SASB 737-53-1315 R1, specifies compliance times "after the Revision 1 date of this service bulletin," this AD requires compliance within the specified compliance times after the effective date of this AD.

(2) The Condition column of table 1 of Paragraph 1.E., "Compliance," of SASB 737-53-1315 R1, refers to airplanes in certain configurations as of the "issue date of Revision 1 of this service bulletin." However, this AD applies to airplanes in the specified configurations "as of the effective date of this AD."

(3) Where SASB 737-53-1315 R1, specifies contacting Boeing for repair instructions or work instructions, before further flight, repair or perform the work instructions using a method approved in accordance with the procedures specified in paragraph (m) of this AD, except as required by paragraph (h)(4) of this AD.

(4) For airplanes on which an operator has a record that a skin panel was replaced with a production skin panel before 53,000 total flight cycles: At the applicable time for the next inspection as specified in table 1 of paragraph 1.E., "Compliance," SASB 737-53-1315 R1, except as provided by paragraphs (h)(1) and (h)(2) of this AD: Perform inspections and applicable corrective actions using a method approved in accordance with the procedures specified in paragraph (m) of this AD.

(5) The Condition column of table 2 of Paragraph 1.E., "Compliance," of SASB 737-53-1315 R1, refers to airplanes in certain configurations as of the "issue date of Revision 1 of this service bulletin." However, this AD applies to airplanes in the specified configurations regardless of when the time limited repair is installed.

(i) Actions for Airplanes With a Time Limited Repair Installed

For airplanes with a time limited repair installed as specified in Boeing Special Attention Service Bulletin 737-53-1315, dated July 29, 2011; or SASB 737-53-1315 R1: At the applicable times specified in table 2 of paragraph 1.E., "Compliance," of SASB 737-53-1315 R1, except as provided by paragraphs (h)(1) and (h)(5) of this AD, do the actions specified in paragraphs (i)(1) and (i)(2) of this AD.

(1) Do the applicable inspections to detect missing or loose fasteners and any disbonding or cracking of bonded doublers; and do all applicable related investigative and corrective actions; in accordance with the Accomplishment Instructions of SASB 737-53-1315 R1, except as required by paragraph (h)(3) of this AD. Do all applicable related investigative and corrective actions before further flight. Repeat the applicable inspections thereafter at the applicable intervals specified SASB 737-53-1315 R1.

(2) Make the time limited repair permanent and do all applicable related investigative and corrective actions in accordance with the Accomplishment Instructions of SASB 737-53-1315 R1, except as required by paragraph (h)(3) of this AD. Do all applicable related investigative and corrective actions before further flight. Accomplishing the permanent repair required by this paragraph terminates the inspections required by paragraph (i)(1) of this AD for the permanently repaired area only.

(j) AD Provisions for Part 26 Supplemental Inspections

Table 3 of paragraph 1.E., "Compliance," of SASB 737-53-1315 R1, specifies post-modification airworthiness limitation inspections in compliance with 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.

(k) Skin Panel Replacement

At the later of the times specified in paragraphs (k)(1) and (k)(2) of this AD: Replace the applicable skin panels, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of SASB 737-53-1315 R1. Do all applicable related investigative and corrective actions before further flight. Doing the skin panel replacement required by this paragraph terminates the inspection requirements of paragraph (g) of this AD for that skin panel only, provided the skin panel replacement was done with a production skin panel at or after 53,000 total flight cycles.

(1) Before 60,000 total flight cycles, but not before 53,000 total flight cycles.

(2) Within 6,000 flight cycles after the effective date of this AD, but not before 53,000 total flight cycles.

(l) Credit for Previous Actions

This paragraph provides credit for the zone 1 actions required by paragraph (g) of this AD, as described in SASB 737-53-1315 R1, if the zone 1, 2, and 3 actions, as described in Boeing Special Attention Service Bulletin 737-53-1315, dated July 29, 2011, were performed before the effective date of this AD using Boeing Special Attention Service Bulletin 737-53-1315, dated July 29, 2011, except as required by paragraph (h)(4) of this AD. Boeing Special Attention Bulletin 737-53-1315, dated July 29, 2011, was incorporated by reference in AD 2012-16-07.

(m) 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 (n)(1) 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, modification, or alteration required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Los Angeles ACO, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) AMOCs approved previously for AD 2012-16-07 are approved as AMOCs for the corresponding provisions of paragraph (g) of this AD.

(n) Related Information

(1) For more information about this AD, contact Jennifer Tsakoumakis, Aerospace Engineer, Airframe Branch, ANM-120L, FAA, Los Angeles Aircraft Certification Office (ACO), 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5264; fax: 562-627-5210; email: jennifer.tsakoumakis@faa.gov.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (o)(3) and (o)(4) of this AD.

(o) 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 Special Attention Service Bulletin 737-53-1315, Revision 1, dated June 30, 2015.

(ii) Reserved.

(3) For Boeing service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; Internet <https://www.myboeingfleet.com>.

(4) You may view this 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.

(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 January 31, 2017.

Michael Kaszycki,
Acting Manager, Transport Airplane Directorate,
Aircraft Certification Service.