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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2015-1270; Directorate Identifier 2014-NM-222-AD; Amendment 39-18412; AD 2016-04-18]

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 747-100, -200B, -200C, -200F, -300, -400, -400D, and -400F series airplanes. This AD was prompted by reports of significant fuselage skin damage at certain parts of the dorsal fairing, due to wear from the dorsal fairing. This AD requires repetitive detailed inspections for wear and cracks of the fuselage skin under the dorsal fairing, and related investigative and corrective actions if necessary. This AD also requires repetitive post-repair external surface high frequency eddy current inspections of the blended areas of the skin and detailed inspections of the unrepaired areas, and related investigative and corrective actions if necessary. We are issuing this AD to detect and correct fuselage skin damage of the dorsal fairing area, which could result in skin cracking and consequent depressurization of the airplane.

DATES: This AD is effective April 5, 2016.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of April 5, 2016.

ADDRESSES: For service information identified in this final rule, 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-2015-1270.

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-2015-1270; 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: Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6428; fax: 425-917-6590; email: nathan.p.weigand@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 747-100, -200B, -200C, -200F, -300, -400, -400D, and -400F series airplanes. The NPRM published in the Federal Register on May 5, 2015 (80 FR 25627). The NPRM was prompted by reports of significant fuselage skin damage at certain parts of the dorsal fairing, due to wear from the dorsal fairing. The NPRM proposed to require repetitive detailed inspections for wear and cracks of the fuselage skin under the dorsal fairing, and related investigative and corrective actions if necessary. The NPRM also proposed to require repetitive post-repair external surface high frequency eddy current inspections of the blended areas of the skin and detailed inspections of the unrepaired areas, and related investigative and corrective actions if necessary. We are issuing this AD to detect and correct fuselage skin damage of the dorsal fairing area, which could result in skin cracking and consequent depressurization 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 (80 FR 25627, May 5, 2015) and the FAA's response to each comment.

Request To Clarify Exclusion of Certain Post-Modification Inspections

Boeing asked that we clarify paragraph (i) of the proposed AD (80 FR 25627, May 5, 2015). Boeing stated that paragraph (i) of the proposed AD correctly states that post-modification inspections would not be required by the AD, but the proposed AD does not clearly state that those inspections are still required per operating rules, which has caused confusion for operators in the past. Boeing suggested that we revise the proposed AD to state that post-modification inspections are already required by 14 CFR 121.1109(c)(2) and 14 CFR 129.109(b)(2).

We agree to clarify paragraph (i) of this AD. We have revised paragraph (i) 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 Require Post-Modification Inspections Currently Excluded

United Airlines (UAL) asked that the post-modification inspections excluded from the requirements of paragraph (i) of the proposed AD (80 FR 25627, May 5, 2015) instead be required. UAL stated that there is a conflict between the proposed AD and tables 3, 6, and 7 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014. UAL noted that the post-modification inspections specified in tables 3, 6, and 7 are not required in paragraph (i) of the proposed AD; however, compliance tables 1 and 2 of paragraph 1.E. of the service information instruct operators to accomplish those post-modification inspections using tables 3, 6, and 7 of paragraph 1.E.

UAL added that Note 1 to paragraph (i) of the proposed AD (80 FR 25627, May 5, 2015) specifies that the post-modification inspections may be used in support of compliance with section 121.1109(c)(2) or 129.109(b)(2) of the Federal Aviation Regulations (14 CFR 121.1109(c)(2) or 14 CFR 129.109(b)(2)). UAL pointed out that sections 121.1109(c)(2) and 129.109(b)(2) require operators to inspect damage-tolerant reinforcing repairs to fatigue critical structures; however, rub strips protect the skin from contact with the dorsal fairing and are not considered a reinforcing repair.

We disagree with the commenter's request to require post-modification inspections; however we acknowledge there is a conflict. Paragraph (i) of this AD states that tables 3, 6, and 7 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 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). These two regulations require damage-tolerance-based inspections to be added as airworthiness limitations in order to prevent the adverse effects of repairs, alterations, and modifications. The rub strips are considered a modification to fatigue-critical structure and meet the intent of section 121.1109(c)(2) or 129.109(b)(2) of the Federal Aviation Regulations. Where compliance tables 1 and 2 of paragraph 1.E. of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014, instruct operators to accomplish post-modification inspections using tables 3, 6, and 7 of paragraph 1.E., "Compliance," of the service information, those post-modification inspections are not required by this AD. We have added a reference to paragraph (i) of this AD in paragraphs (g) and (h) of this AD to clarify tables 3, 6, and 7 of paragraph 1.E., "Compliance," of the service information are not required by paragraphs (g) and (h) of this AD.

Request To Delete Certain Actions

UAL asked that we delete Options 1 and 2 of table 3 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014. UAL stated that Option 1 is for post-modification of blend-out repairs without a rub strip installed, and added that table 3 is for post-modification inspections for airplanes with a rub strip previously installed. UAL added that the Option 2 blend-out repair is redundant information if the Option 1 action is deleted.

We do not agree with the commenter's request. Paragraph (i) of this AD specifies that table 3, as well as tables 6 and 7, are not required by this AD. Therefore, no further change to the AD is necessary in this regard.

Request To Add Certain Requirements

UAL asked that instructions be added to Part 3 of the Work Instructions of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014, to apply Teflon coating on top of the rub strips. UAL stated that this will further enhance protection and will reduce wear and cracking of the rub strip due to contact with the dorsal fairing.

We do not agree with the commenter's request. Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014 (and the associated repairs and modifications), was coordinated with the FAA before it was issued. This coordination included a damage-tolerance analysis supporting the

inspection thresholds and intervals specified in the service information. Operators preferring to use a method other than that specified in the referenced service information may request approval for an alternative method of compliance (AMOC) and provide supporting data, which, if approved, may be used instead of the procedures specified in the service information. We have made no change to the AD in this regard.

Request To Add Exception to the Proposed AD (80 FR 25627, May 5, 2015)

United Parcel Service (UPS) asked that we add another exception to paragraph (j) of the proposed AD (80 FR 25627, May 5, 2015) to clarify that Section 3.B., Part 6, sub-step 2, of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014, is not required. UPS stated that paragraph (g) of the proposed AD requires operators to perform applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014. UPS added that there is an inconsistency in those Accomplishment Instructions. UPS noted that tables 2 and 3 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014, specify performing the actions in Parts 6 and 7, and those sections include instructions labeled "Required for Compliance" (RC). UPS stated that performing the same action in both Parts 6 and 7 results in a duplication of work. UPS added that it submitted a service request to Boeing and asked for clarification on this duplication of work. UPS stated that Boeing agreed that corrective actions could result in duplication and that it would evaluate the steps in the Work Instructions and clarify them as necessary.

We do not agree with the commenter's request. Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014, specifies that if, during the accomplishment of Part 6, obtaining the gap identified in Condition 6 is not possible, the operator must perform the actions associated with Condition 7, including trimming and re-shimming the dorsal fin fairing to obtain that gap by following the instructions in Part 7 of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014. After this is done, the operator must re-measure, as specified in Part 7, to make sure the gap dimensions are correct. Following accomplishment of Part 7, the operator must complete the actions in Part 6 at the repetitive intervals specified in table 2 or table 3 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014 (table 2 is required by paragraph (g) of this AD; table 3 specifies 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)). In light of these facts, we have determined that there is no duplication of work. We have not changed the AD in this regard.

Change To the Proposed AD (80 FR 25627, May 5, 2015)

Paragraph (g) of this AD refers to initial and repetitive inspections of the unrepaired structure. Paragraph (h) of this AD refers to doing the inspections specified at the applicable times in tables 4 and 5 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014. These tables include compliance times for both the repaired and unrepaired areas. The proposed AD (80 FR 25627, May 5, 2015) specified to require the inspections in both paragraphs (g) and (h) of this AD, since there is no terminating action identified in paragraph (h) of this AD. We have determined that further clarification of these inspection requirements is necessary. Therefore, we have added a sentence to paragraph (h) of this AD clarifying that the inspections required by paragraph (h) of this AD do not terminate the inspections required by paragraph (g) of 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 (80 FR 25627, May 5, 2015) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (80 FR 25627, May 5, 2015).

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 Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014. This service information describes procedures for repetitive inspections of the fuselage skin under the dorsal fairing, the blended areas of the skin, and unrepaired areas, and related investigative and corrective actions, if necessary. 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.

Explanation of "RC" Steps in Service Information

The FAA worked in conjunction with industry, under the Airworthiness Directive Implementation Aviation Rulemaking Committee (ARC), to enhance the AD system. One enhancement was a new process for annotating which steps in the service information are required for compliance with an AD. Differentiating these steps from other tasks in the service information is expected to improve an owner's/operator's understanding of crucial AD requirements and help provide consistent judgment in AD compliance. The steps identified as Required for Compliance (RC) in any service information identified previously have a direct effect on detecting, preventing, resolving, or eliminating an identified unsafe condition.

For service information that contains steps that are labeled as RC, the following provisions apply: (1) 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, and an AMOC is required for any deviations to RC steps, including substeps and identified figures; and (2) 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.

Costs of Compliance

We estimate that this AD affects 93 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	Up to 15 work-hours × \$85 per hour = \$1,275	\$0	Up to \$1,275 per inspection cycle	Up to \$118,575 per inspection cycle.

We have received no definitive data that will 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):



2016-04-18 The Boeing Company: Amendment 39-18412 ; Docket No. FAA-2015-1270;
Directorate Identifier 2014-NM-222-AD.

(a) Effective Date

This AD is effective April 5, 2016.

(b) Affected ADs

None.

(c) Applicability

This AD applies to The Boeing Company Model 747-100, -200B, -200C, -200F, -300, -400, -400D, and -400F series airplanes; certificated in any category, as identified in Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by reports of significant fuselage skin damage at the dorsal fairing forward of station (STA) 2280 due to wear from the dorsal fairing. We are issuing this AD to detect and correct fuselage skin damage of the dorsal fairing area, which could result in skin cracking and consequent depressurization of the airplane.

(f) Compliance

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

(g) Inspections and Repair

At the applicable time specified in tables 1 and 2 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014, except as provided by paragraph (j)(1) of this AD, do a detailed inspection of the fuselage skin under the dorsal fairing for wear or cracks, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014, except as provided by paragraph (i) of this AD and except as required by paragraph (j)(2) of this AD. Do all applicable related investigative and corrective actions at the time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014. Repeat the applicable inspections of the fuselage skin thereafter at the applicable times specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014.

(h) Post-Repair Inspections

At the applicable time specified in tables 4 and 5 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014, except as provided by paragraph (j)(1) of this AD, do an external surface high frequency eddy current inspection of the blended areas of the skin and a detailed inspection of the unrepaired areas, and do all applicable related investigative and corrective actions, in accordance with Part 8 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014, except as provided by paragraph (i) of this AD and except as required by paragraph (j)(2) of this AD. Do all applicable related investigative and corrective actions at the time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014. Repeat the applicable inspections of the blended areas of the skin thereafter at the applicable times specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014. Accomplishing the inspections required by this paragraph does not terminate the inspections required by paragraph (g) of this AD.

(i) Post-Modification Inspections

Tables 3, 6, and 7 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2876, dated October 22, 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.

(j) Exceptions to Service Information Specifications

(1) Where Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014, specifies a compliance time "after the Original Issue date of this service bulletin," this AD requires compliance within the specified compliance time after the effective date of this AD.

(2) Although Boeing Alert Service Bulletin 747-53A2876, dated October 22, 2014, specifies to contact Boeing for repair data, and specifies that action as "RC" (Required for Compliance), this AD requires repair before further flight using a method approved in accordance with the procedures specified in paragraph (k) of this AD.

(k) 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 paragraph (l)(1) 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, 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, Seattle 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) Except as required by paragraph (j)(2) of this AD: For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (k)(4)(i) and (k)(4)(ii) 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.

(l) Related Information

For more information about this AD, contact Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6428; fax: 425-917-6590; email: nathan.p.weigand@faa.gov.

(m) 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 747-53A2876, dated October 22, 2014.

(ii) Reserved.

(3) 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>.

(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 February 15, 2016.

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