

[Federal Register Volume 87, Number 79 (Monday, April 25, 2022)]

[Rules and Regulations]

[Pages 24267-24270]

From the Federal Register Online via the Government Publishing Office [www.gpo.gov]

[FR Doc No: 2022-08694]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-0828; Project Identifier AD-2021-00303-T; Amendment 39-21973; AD 2022-06-07]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is superseding Airworthiness Directive (AD) 2016-09-01, which applied to certain The Boeing Company Model 777-200 and -300 series airplanes. AD 2016-09-01 required repetitive inspections for cracking of the left- and right-side forward outer chords of the pivot bulkhead, and related investigative and corrective actions if necessary. AD 2016-09-01 also provided a modification of the pivot bulkhead, which terminated the repetitive inspections. This AD was prompted by reports of fatigue cracking of the forward outer chord of the station (STA) 2370 pivot bulkhead, and the determination that the compliance times need to be reduced, post-modification inspections must be done, and the inspections areas need to be expanded due to additional cracking found prior to the inspection times required by AD 2016-09-01. This AD retains certain requirements of AD 2016-09-01. This AD also requires doing repetitive detailed and high frequency eddy current (HFEC) inspections of the longeron fitting, and, for post-repair and post-modification inspections, the bulkhead assembly structure, for any cracking, and doing all applicable on-condition actions. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective May 31, 2022.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of May 31, 2022.

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 service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0828.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0828; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The address for Docket Operations is 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: Luis Cortez-Muniz, Aerospace Engineer, Airframe Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: (206) 231-3958; email: Luis.A.Cortez-Muniz@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2016-09-01, Amendment 39-18499 (81 FR 26109, May 2, 2016) (AD 2016-09-01). AD 2016-09-01 applied to certain The Boeing Company Model 777-200 and -300 series airplanes. The NPRM published in the Federal Register on October 14, 2021 (86 FR 57078). The NPRM was prompted by reports of fatigue cracking of the forward outer chord of the STA 2370 pivot bulkhead, and the determination that the compliance times need to be reduced, post-modification inspections must be done, and the inspections areas need to be expanded due to additional cracking found prior to the inspection times required by AD 2016-09-01. In the NPRM, the FAA proposed to retain certain requirements of AD 2016-09-01. The NPRM also proposed to require doing repetitive detailed and HFEC inspections of the longeron fitting and, for certain airplanes, the bulkhead assembly structure, for any cracking and doing all applicable on-condition actions. The FAA is issuing this AD to address fatigue cracking of the outer flanges of the left and right side forward outer chords of the STA 2370 pivot bulkhead, which could result in a severed forward outer chord and consequent loss of horizontal stabilizer control.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from an anonymous commenter, The Air Line Pilots Association, International (ALPA), and United Airlines who supported the NPRM without change.

The FAA received additional comments from three commenters, including Air France, Boeing, and an individual. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request To Revise the Compliance Time

Air France requested that Boeing and the FAA increase the inspection threshold to 1,000 flight cycles in the proposed AD. Air France stated that the proposed AD specifies that operators accomplish the nondestructive testing inspection within 500 flight cycles and that this threshold is not compatible in case of findings; this drives an operator to ground the airplane for a long period of time if a corrective action needs to be accomplished before further flight. Air France commented that a minimum of 300 man-hours are required to accomplish the corrective actions specified in Boeing

Service Bulletin 777-53-0076 [which is referenced in Boeing Alert Service Bulletin 777-53A0075, Revision 2, dated February 22, 2021].

Air France stated that its request allows operators to plan a C-check maintenance visit during a time when a repair or the terminating action specified in Boeing Service Bulletin 777-53-0076 can be performed without disturbing airplane operations.

The FAA disagrees with the commenter's request. As specified in Boeing Alert Service Bulletin 777-53A0075, Revision 2, dated February 22, 2021, the compliance time of 500 flight cycles is a grace period and is only applicable when the airplane exceeds the inspection threshold. In addition, in developing an appropriate compliance time, the FAA coordinated with the manufacturer to provide a compliance time that maintains an acceptable level of safety. However, under the provisions of paragraph (i) of this AD, the FAA will consider requests for approval of an extension of the compliance time, if sufficient data are submitted to substantiate that the change would provide an acceptable level of safety. The FAA has not changed this final rule in this regard.

Request To Increase Frequency of Testing and Nondestructive Examining (NDE) Techniques

An individual requested that Boeing increase the frequency of its testing in addition to exploring additional NDE techniques (e.g., ultrasonic testing) for identifying early indication of high cycle fatigue. The commenter stated that when looking at probability of failure, Boeing has identified at least 32 instances of cracking under the current inspection frequency; however, one of the biggest issues with the high cyclic fatigue cracking is that it is self-identifying. The individual commented that while there are various NDE tools and techniques that can be used to identify cracks once they have started to propagate, it is incredibly difficult to identify degraded conditions prior to fracture propagation. The commenter concluded that the probability of a crack developing unnoticed under the current inspection frequency should be considered moderate to high.

While the FAA acknowledges the commenter's concern, this AD already incorporates reduced compliance times for the repetitive detailed and HFEC inspections, adds new inspection areas for any cracking and also adds repetitive post-modification inspections to the previous requirements of AD 2016-09-01. The determination of the mitigating actions and compliance times were coordinated with the manufacturer and determined to provide an appropriate interval of time while maintaining an acceptable level of safety. The FAA has not changed this AD in this regard.

Request To Clarify Certain Inspection Requirements

Boeing requested that the SUMMARY section of the NPRM be revised to change the words, “for certain airplanes, the bulkhead assembly structure” to “for post-repair and post-modification inspections, the bulkhead assembly structure.” Boeing stated that the requested change is to clarify that the inspection of the bulkhead assembly structure is only required for airplanes that have accomplished the small crack repair option using Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015, or the modification using Boeing Service Bulletin 777-53-0076.

The FAA agrees that the proposed wording provides clarity and has revised the SUMMARY section of this AD accordingly.

Request To Correct Typographical Error

Boeing requested that the FAA remove the words “of the” in the first sentence under the “Proposed AD Requirements in this NPRM” paragraph in the NPRM. Boeing stated that the sentence should be revised from “retain certain of the requirements of AD 2016-09-01,” to “retain certain requirements of AD 2016-09-01.”

The FAA acknowledges that “of the” in the first sentence under the “Proposed AD Requirements in this NPRM” paragraph in the NPRM should be removed; however, that paragraph is not carried over into this final rule.

Request To Revise Exception Language

Boeing requested that the FAA revise paragraph (h)(1) of the proposed AD, which specifies using the effective date of this AD rather than the Revision 2 date of the service information, to remove the reference to the “Effectivity” paragraph and the Condition columns in the “Compliance” paragraph. Boeing stated that the phrase “the Revision 2 date of this Service Bulletin” is not used in those locations of the service information.

The FAA agrees with the commenter's request and has revised paragraph (h)(1) of this AD accordingly.

Conclusion

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Except for minor editorial changes, and any other changes described previously, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Related Service Information Under 1 CFR Part 51

The FAA reviewed Boeing Alert Service Bulletin 777-53A0075, Revision 2, dated February 22, 2021. This service information specifies procedures for, depending on configuration, doing repetitive detailed and HFEC inspections of the STA 2370 pivot bulkhead forward outer chord and the longeron fitting for any cracking; doing repetitive post-repair inspections of the pivot bulkhead forward outer chord, longeron fitting, and bulkhead assembly structure for any cracking; doing repetitive post-modification inspections of the pivot bulkhead forward outer chord, longeron fitting, and bulkhead assembly structure for any cracking; and doing all applicable on-condition actions. On-condition actions include modifying the left and right forward outer chords and upper splice angles, and repair.

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 ADDRESSES.

Costs of Compliance

The FAA estimates that this AD affects 63 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Detailed and HFEC inspections of the longeron fitting and pivot bulkhead forward chord	Up to 15 work-hours × \$85 per hour = Up to \$1,275 per inspection cycle	\$0	Up to \$1,275 per inspection cycle	Up to \$80,325 per inspection cycle.
Post-repair inspections	Up to 13 work-hours × \$85 per hour = Up to \$1,105 per inspection cycle	\$0	Up to \$1,105 per inspection cycle	Up to \$69,615 per inspection cycle.

Post-modification inspections	18 work-hours × \$85 per hour = \$1,530 per inspection cycle	\$0	\$1,530 per inspection cycle	\$96,390 per inspection cycle.
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The FAA estimates the following costs to do any necessary modifications that would be required based on the results of the inspection. The FAA has no way of determining the number of aircraft that might need this modification:

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Modification	Up to 137 work-hours × \$85 per hour = Up to \$11,645	\$34,086	Up to \$45,731.

The FAA has received no definitive data on which to base the cost estimates for the repairs specified in this AD.

The FAA has included all known costs in its cost estimate. According to the manufacturer, however, all of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected operators.

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.

The FAA is 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) Will not affect intrastate aviation in Alaska, 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.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

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:

a. Removing Airworthiness Directive (AD) 2016-09-01, Amendment 39-18499 (81 FR 26109, May 2, 2016); and

b. Adding the following new AD:



2022-06-07 The Boeing Company: Amendment 39-21973; Docket No. FAA-2021-0828; Project Identifier AD-2021-00303-T.

(a) Effective Date

This airworthiness directive (AD) is effective May 31, 2022.

(b) Affected ADs

This AD replaces AD 2016-09-01, Amendment 39-18499 (81 FR 26109, May 2, 2016) (AD 2016-09-01).

(c) Applicability

This AD applies to The Boeing Company Model 777-200 and -300 series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 777-53A0075, Revision 2, dated February 22, 2021.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by reports of fatigue cracking of the forward outer chord of the station (STA) 2370 pivot bulkhead, and the determination that the compliance times need to be reduced, post-modification inspections must be done, and the inspections areas need to be expanded due to additional cracking found prior to the inspection times required by AD 2016-09-01. The FAA is issuing this AD to address fatigue cracking of the outer flanges of the left and right side forward outer chords of the STA 2370 pivot bulkhead, which could result in a severed forward outer chord and consequent loss of horizontal stabilizer control.

(f) Compliance

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

(g) Required Actions

Except as specified by paragraph (h) of this AD: At the applicable times specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 777-53A0075, Revision 2, dated February 22, 2021, do all applicable actions identified as "RC" (required for compliance) in, and in accordance with, the Accomplishment Instructions of Boeing Alert Service Bulletin 777-53A0075, Revision 2, dated February 22, 2021.

(h) Exceptions to Service Information Specifications

(1) Where the Compliance Time columns of the tables in the “Compliance” paragraph of Boeing Alert Service Bulletin 777-53A0075, Revision 2, dated February 22, 2021, use the phrase “the Revision 2 date of this Service Bulletin,” this AD requires using “the effective date of this AD.”

(2) Where Boeing Alert Service Bulletin 777-53A0075, Revision 2, dated February 22, 2021, specifies contacting Boeing for repair instructions: This AD requires doing the repair using a method approved in accordance with the procedures specified in paragraph (i) of this AD.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle ACO Branch, 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 responsible Flight Standards Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in Related Information. 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 responsible Flight Standards 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 Company Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO Branch, FAA, 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 specified by paragraph (h) of this AD: For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (i)(4)(i) and (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. If a step or substep is labeled “RC Exempt,” then the RC requirement is removed from that step or substep. 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.

(j) Related Information

For more information about this AD, contact Luis Cortez-Muniz, Aerospace Engineer, Airframe Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: (206) 231-3958; email: Luis.A.Cortez-Muniz@faa.gov.

(k) 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 777-53A0075, Revision 2, dated February 22, 2021.

(ii) [Reserved]

(3) For 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, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(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, email fr.inspection@nara.gov, or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on March 10, 2022.

Lance T. Gant,

Director, Compliance & Airworthiness Division, Aircraft Certification Service.

[FR Doc. 2022-08694 Filed 4-22-22; 8:45 am]