



適航指令發布單

Airworthiness Directive Issuance Form

民航局 AD 編號 AD number	CAA-2023-05-011	發布日期 Date issued	2023/5/31
適用之航空產品 Applied to (models, serial numbers or part numbers, as applicable)	This AD applies to The Boeing Company Model 777 – 200, – 200LR, – 300, – 300ER, and 777F airplanes, certificated in any category, as identified in Boeing Alert Requirements Bulletin 777 – 53A0098 RB, dated April 5, 2022.		
主旨摘要 Subject	This AD requires repetitive detailed and high frequency eddy current inspections of the pivot bulkhead forward outer chord of a certain station and longeron fitting for cracking and applicable on-condition actions.		
民航局 CAA <input type="checkbox"/> 本國產品 Native product <input type="checkbox"/> 其他個案 Other	設計國民航主管機構 Original Authority <input checked="" type="checkbox"/> FAA <input type="checkbox"/> EASA <input type="checkbox"/> Brazil <input type="checkbox"/> Transport Canada Civil Aviation <input type="checkbox"/> DGAC <input type="checkbox"/> Germany LBA <input type="checkbox"/> CAA-NL <input type="checkbox"/> UK CAA <input type="checkbox"/> Japan CAB <input type="checkbox"/> CAA of Israel <input type="checkbox"/> Other _____		
	設計國 AD 編號 Original AD number	2023-08-05	
	1. 直接採用原 AD 之內容?(Is the original AD directly adopted?) <input checked="" type="checkbox"/> 是(Yes) <input type="checkbox"/> 否(No) _ a. 生效日期另訂為(Re-specify the effective date as) : _____ b. 執行時限另訂為(Re-specify the compliance time or period as) : _____ 2. 使用人是否需要將 AD 執行結果向民航局提出報告?(Do Users need to report the status of compliance to the CAA?) <input type="checkbox"/> 是(Yes) <input checked="" type="checkbox"/> 否(No)		
備註 Note	ATA 53. Boeing Alert Requirements Bulletin 777 – 53A0098 RB, dated April 5, 2022.		

註： 1. AD 內容後附。
 2. 航空器產品使用人得向民航局提出豁免、替代符合方法、執行時限之展延之申請。
 3. 如有任何問題，請聯絡交通部民用航空局初始適航科。Tel：(02)2349-6330 / 6332, Fax：(02)2545-8464, e-mail：
adcaa@mail.caa.gov.tw

Note： 1. The AD text is enclosed.
 2. Exemption, an alternative method of compliance or adjustment of the compliance time may be proposed to the CAA for approval.
 3. For further information, please contact Civil Aeronautics Administration on Tel：(02)2349-6330 / 6332, Fax：
 (02)2545-8464, e-mail：adcaa@mail.caa.gov.tw

[Federal Register, Volume 88 Number 102 (Friday, May 26, 2023)]

[Rules and Regulations]

[Pages 34081-34084]

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[FR Doc No: 2023-11305]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-1312; Project Identifier AD-2022-00551-T; Amendment 39-22420; AD 2023-08-05]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY:

Federal Aviation Administration (FAA), DOT.

ACTION:

Final rule.

SUMMARY:

The FAA is adopting a new airworthiness directive (AD) for certain The Boeing Company Model 777 airplanes. This AD was prompted by reports of cracks found in the pivot bulkhead forward outer chord of a certain station. Analysis revealed higher bending stresses across the chord than originally assessed. This AD requires repetitive detailed and high frequency eddy current (HFEC) inspections of the pivot bulkhead forward outer chord of a certain station and longeron fitting for cracking and applicable on-condition actions. The FAA is issuing this AD to address the unsafe condition on these products.

DATES:

This AD is effective June 30, 2023.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of June 30, 2023.

ADDRESSES:

AD Docket: You may examine the AD docket at *regulations.gov* under Docket No. FAA-2022-1312; 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.

Material Incorporated by Reference:

- 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; website *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 *regulations.gov* under Docket No. FAA-2022-1312.

FOR FURTHER INFORMATION CONTACT:

Luis Cortez-Muniz, Aerospace Engineer, Airframe Sections, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone: 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](#) by adding an AD that would apply to certain The Boeing Company Model 777 airplanes. The NPRM published in the **Federal Register** on December 8, 2022 ([87 FR 75179](#)). The NPRM was prompted by reports of cracks found in the station (STA) 2370 pivot bulkhead forward outer chord. Analysis revealed higher bending stresses across the chord than originally assessed. In the NPRM, the FAA proposed to require repetitive detailed and HFEC inspections of the STA 2370 pivot bulkhead forward outer chord and longeron fitting for cracking and applicable on-condition actions. The FAA is issuing this AD to address cracking in the STA 2370 pivot bulkhead forward outer chord. Such cracking, if not detected and corrected, could result in a severed pivot bulkhead outer chord, loss of horizontal stabilizer control, and loss of controllability of the airplane.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from Boeing and the Air Line Pilots Association, International (ALPA), who supported the NPRM without change.

The FAA received additional comments from three commenters, including Air France (AFA), Federal Express (FedEx) and United Airlines (UAL). The following presents the comments received on the NPRM and the FAA's response to each comment.

Request To Change Estimated and On-Condition Cost Sections

FedEx requested a change to the Estimated and On-Condition Costs tables in the proposed AD. FedEx noted that, based on the estimates in Boeing Alert Service Bulletin 777-53A0098, dated April 5, 2022, the detailed and HFEC inspections require parts totaling \$3,540, as well as 62 work-hours for replacement for the on-condition requirements. FedEx added that the proposed AD states

\$0 parts cost for detailed and HFEC inspections and 7 work-hours for replacement if on-condition requirements are met.

The FAA agrees with revising the parts cost and labor hours because the cost estimates provided in the proposed AD inadvertently excluded the parts costs for the inspections and the on-condition costs inadvertently omitted access and close-up costs. However, the FAA notes that the labor hours listed in Boeing Alert Service Bulletin 777-53A0098, dated April 5, 2022, estimate 28 hours for the detailed and open hole HFEC inspection and 38 hours for the replacement (each estimate is for one side of the airplane). The FAA has revised the Costs of Compliance section of this AD accordingly.

Request To Change Work-Hour Estimates

AFA suggested that Boeing Alert Service Bulletin 777-53A0098, dated April 5, 2022, greatly underestimates the total manpower hours required to perform the modification, which could lead to a maintenance program disruption if not taken into account by operators. AFA noted in its experience performing similar pivot bulkhead inspections and modification using similar service information, it took 1,200 work-hours to complete the modification on both sides of the airplane. AFA added that, due to the time indicated to complete these service bulletins, resources were not available and the airplane was grounded for 3 weeks. AFA noted that it contacted two other operators, who confirmed they also spent between 900 and 1,100 hours to complete the modification on both sides of the airplane. AFA requested that the proposed AD highlight this work-hour discrepancy so operators can plan accordingly.

The FAA acknowledges there may be discrepancies between the operator labor hours and the hours listed in Boeing Alert Service Bulletin 777-53A0098, dated April 5, 2022. Based on the best data available, the manufacturer provided the number of work hours necessary to do the required actions. This number represents the time necessary to perform only the actions actually required by this AD. The FAA recognizes that, in doing the actions required by an AD, operators might incur incidental costs in addition to the direct costs. The cost analysis in AD rulemaking actions, however, typically does not include incidental costs such as the time necessary for planning or time necessitated by other administrative actions. Those incidental costs, which might vary significantly among operators, are almost impossible to calculate. In this case, the FAA has no way of knowing how much of the time estimates AFA provided are “incidental” costs. Further, as previously noted, the cost estimates in this AD have been revised to match those specified in the service information and are estimates for performing those actions on one side of the airplane. Therefore, the FAA has not revised this AD regarding this issue.

Request To Change Special Tooling Requirements

AFA noted that Boeing Alert Service Bulletin 777-53A0098, dated April 5, 2022, paragraph 2.E advises no special tooling is needed, while paragraph 2.F advises that certain maintenance and overhaul tools are required. AFA explained that during similar modification they discovered that special big diameter reamers, drill bits and guides are required, which led to delays in work being performed because required reamers and drill bits were not available. AFA stated that Boeing advised that the tooling required is part of standard [maintenance, repair, and overhaul] MRO tools. However, AFA indicated these range of reamers and drill bit diameters are not common and not part of the standard available tools for an MRO. AFA requested that the proposed AD be revised to highlight the incomplete tooling information for operators to take into account before accomplishing the proposed requirements.

The FAA acknowledges that additional tooling required may not be standard available tools for an MRO. However, the FAA has no definitive data regarding the standard MRO tools or what additional tools might be required. Further, the FAA notes that paragraphs 2.E. and 2.F. in Boeing Alert Service Bulletin 777-53A0098, dated April 5, 2022, are informational, and not required for compliance with this AD. The FAA has not changed this AD regarding this issue.

Request for Detailed Access Instructions

AFA requested the proposed AD highlight that Chapter 3.B access and preparation instructions in Boeing Alert Service Bulletin 777-53A0098, dated April 5, 2022, are not detailed enough. AFA claimed a similar modification using different service information required removal of multiple systems and structural parts to get access to the damaged area. This required AFA to develop task cards on a daily basis and at mechanics' requests. AFA noted that it spent 300 work-hours after modification to restore access and perform tests. AFA stated that the additional work was not identified in the bulletin and caused delays completing the corresponding AD.

The FAA acknowledges the commenters concerns, but notes that the access instructions are not required for compliance for this AD. Further, Boeing, as the design approval holder (DAH), is responsible for the development of these instructions. The FAA has no definitive guidance to provide access and preparation instructions. The FAA has not changed this AD regarding this issue.

Request To Allow Simultaneous Inspections of Both Sides of Aircraft

UAL requested the proposed AD be revised to allow simultaneous inspections of both sides of the aircraft. UAL noted that paragraph 3.B of Boeing Alert Requirements Bulletin 777-53A0098 RB, dated April 5, 2022, states "Do all actions on one side before you do any action on the opposite side." UAL stated that it finds the restriction to be inconsistent with related service information requiring similar actions on other airplanes. UAL claimed that other service information stated that removal of structure (for repair or modification) simultaneously on both sides of the aircraft was unacceptable, but that removal of skin panels (for inspection) simultaneously on both sides of the aircraft was acceptable. UAL noted that the repair or replacement work is involved and lengthy, with the horizontal stabilizer immobilized and internally jacked, likely precluding other maintenance work in the area. UAL added that the repair process therefore disrupts the maintenance check, forcing the rescheduling of other planned maintenance action. UAL explained that inspecting both sides of the aircraft early and simultaneously would allow it to know the full scope of the project and plan accordingly. UAL noted that it asked Boeing to edit the service information to include this allowance, and Boeing agreed to incorporate the allowance in a proposed revision. For these reasons, UAL requested allowing the detailed and HFEC inspections simultaneously on both sides of the aircraft; or simultaneously with applicable on-condition actions on the opposite side of the aircraft; provided any on-condition repairs or replacements are not performed simultaneously on both sides of the aircraft.

The FAA acknowledges the commenter's concern and the impact on maintenance planning. However, UAL has not provided substantiation in support of these exceptions. The FAA requires substantiation to support that no structural concerns are introduced with the requested exceptions and will consider their approval via alternative method of compliance (AMOC) request in accordance with paragraph (i) of this AD, provided an acceptable level of safety is maintained.

Request To Refer to Revised Service Information

UAL requested that the FAA revise the proposed AD to refer to Revision 1 of Boeing Requirements Bulletin 777–53A0098 RB. UAL noted that it received a preliminary copy of the revised requirements bulletin for review, and that the revision corrects elements of the illustrations, step tables, and fastener code tables in the Accomplishment Instructions, including to figures which are Required for Compliance (RC). UAL stated that Revision 1 is expected to be published later this year, and mandating it would prevent operators from having to obtain AMOCs to use the corrected instructions.

The FAA acknowledges the commenter's request. However, the FAA has not reviewed and approved Revision 1 of Boeing Requirements Bulletin 777–53A0098 RB and notes that UAL did not request any specific changes to be able to comply with this AD. Further, the FAA may not refer to any document that does not yet exist in an AD. In general terms, the FAA is required by Office of the Federal Register (OFR) regulations for approval of materials incorporated by reference, as specified in [1 CFR 51.1\(f\)](#), to either publish the service document contents as part of the actual AD language; or submit the service document to the OFR for approval as referenced material, in which case the FAA may only refer to such material in the text of an AD. The AD may refer to the service document only if the OFR approved it for incorporation by reference. See [1 CFR part 51](#).

Given the urgency of the identified unsafe condition, the FAA has determined that delaying this AD while the revised service information is developed, reviewed, and approved would be inappropriate. However, once the revised service information is approved, the FAA may consider granting an AMOC to allow the use of the revised service information.

Conclusion

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. 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 Requirements Bulletin 777–53A0098 RB, dated April 5, 2022. This service information specifies procedures for repetitive detailed and HFEC inspections of the STA 2370 pivot bulkhead forward outer chord and longeron fitting for cracking and applicable on-condition actions. On-condition actions include replacing the pivot bulkhead forward outer chord and splice angle; a detailed inspection of the upper aft longeron extension fittings at STA 2370 to STA 2380 and open hole HFEC inspection of the STA 2370 pivot bulkhead web, aft outer chord, upper and lower outer chord, and skin for any crack; 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 223 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	10 work-hours × \$85 per hour = \$850 per inspection cycle	\$3,540 per inspection cycle	\$4,390 per inspection cycle	\$978,970 inspection cycle.

The FAA estimates the following costs to do any necessary replacements or inspections that would be required based on the results of the required inspection. The agency has no way of determining the number of aircraft that might need these replacements or inspections:

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Replacement (one side of airplane)	38 work-hours × \$85 per hour = \$3,230	\$37,720	\$40,950
Detailed and open hole HFEC inspections (one side of airplane)	28 work-hours × \$85 per hour = \$2,380	0	2,380

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

The FAA has included all known costs in its cost estimate. According to the manufacturer, however, some or 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 adding the following new airworthiness directive:

2023–08–05 The Boeing Company: Amendment 39–22420; Docket No. FAA–2022–1312; Project Identifier AD–2022–00551–T.

(a) Effective Date

This airworthiness directive (AD) is effective June 30, 2023.

(b) Affected ADs

None.

(c) Applicability

This AD applies to The Boeing Company Model 777–200, –200LR, –300, –300ER, and 777F airplanes, certificated in any category, as identified in Boeing Alert Requirements Bulletin 777–53A0098 RB, dated April 5, 2022.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by reports of cracks found in the station (STA) 2370 pivot bulkhead forward outer chord. Analysis revealed higher bending stresses across the chord than originally assessed.

The FAA is issuing this AD to address cracking in the STA 2370 pivot bulkhead forward outer chord. Such cracking, if not detected and corrected, could result in a severed pivot bulkhead outer chord, loss of horizontal stabilizer control, and loss of controllability of the airplane.

(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 the “Compliance” paragraph of Boeing Alert Requirements Bulletin 777-53A0098 RB, dated April 5, 2022, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Alert Requirements Bulletin 777-53A0098 RB, dated April 5, 2022.

Note 1 to paragraph (g): Guidance for accomplishing the actions required by this AD can be found in Boeing Alert Service Bulletin 777-53A0098, dated April 5, 2022, which is referred to in Boeing Alert Requirements Bulletin 777-53A0098 RB, dated April 5, 2022.

(h) Exceptions to Service Information Specifications

(1) Where the Compliance Time columns of the tables in the “Compliance” paragraph of Boeing Alert Requirements Bulletin 777-53A0098 RB, dated April 5, 2022, use the phrase “the original issue date of Requirements Bulletin 777-53A0098 RB,” this AD requires using “the effective date of this AD.”

(2) Where Boeing Alert Requirements Bulletin 777-53A0098 RB, dated April 5, 2022, 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 paragraph (j)(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 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.

(j) Related Information

(1) For more information about this AD, contact Luis Cortez-Muniz, Aerospace Engineer, Airframe Sections, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone: 206–231–3958; email: luis.a.cortez-muniz@faa.gov.

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

(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 Requirements Bulletin 777–53A0098 RB, dated April 5, 2022.

(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; website 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, fr.inspection@nara.gov, or go to: www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on April 18, 2023.

Christina Underwood,

Acting Director, Compliance & Airworthiness Division, Aircraft Certification Service.

[FR Doc. 2023–11305 Filed 5–25–23; 8:45 am]

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