[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-0429; Project Identifier AD-2022-00775-T; Amendment 39-22658; AD 2024-01-07]

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 all The Boeing Company Model 777 airplanes. This AD was prompted by an evaluation by the design approval holder (DAH) that found the force limiter assemblies for the lateral control mechanism are not breaking out within the maximum design force requirements. This AD requires replacing affected force limiter assemblies and prohibits the installation of affected parts. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

AD Docket: You may examine the AD docket at regulations.gov under Docket No. FAA-2023-0429; 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 Westminster 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-2023-0429.

FOR FURTHER INFORMATION CONTACT: Anthony Caldejon, Aviation Safety Engineer, FAA, 2200 South 216th St., Des Moines, WA 98198; telephone 206-231-3534; email Anthony.V.Caldejon@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 all The Boeing Company Model 777 airplanes. The NPRM published in the *Federal Register* on March 27, 2023 (88 FR 18099). The NPRM was prompted by an evaluation by the DAH that found the force limiter assemblies for the lateral control mechanism are not breaking out within the maximum design force requirements. In the NPRM, the FAA proposed to require identifying and replacing affected force limiter assemblies, and to prohibit the installation of affected parts.

The FAA is issuing this AD to address the force limiter assemblies not breaking out within the maximum design force requirements. The unsafe condition, combined with a lateral control system jam or restriction, could result in the loss of lateral control from the wheel and potentially affect continued safe flight and landing.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from the Air Line Pilots Association, International, who supported the NPRM without change.

The FAA received additional comments from Aerologic, All Nippon Airways, American Airlines, Boeing, China Airlines, FedEx, Omni Air International (Omni Air), Swiss International Air Lines (Swiss Air), Turkish Airlines, and United Airlines. The following presents those comments and the FAA's response to each comment.

Request to Revise Requirements for Certain Line Numbers

Aerologic, All Nippon Airways, American Airlines, Boeing, Omni Air, United Airlines, and Swiss Air requested changes to the proposed AD to provide relief for airplane line numbers prior to 1531. Aerologic, Boeing, and American Airlines also requested changes to provide relief for airplane lines number after 1707. Boeing stated that the suspect affected force limiter assemblies were delivered only on airplane line numbers 1531 through 1707, and the risk of rotability on other line numbers is low.

Boeing requested that a records inspection be added for airplane line numbers prior to 1531 to determine prior replacement of a force limiter assembly, and to require installation of a force limiter assembly P/N 253W1263-3 only if any force limiter assembly P/N 253W1263-1 had been replaced. Boeing stated that if no prior replacement of a force limiter assembly has been recorded on an airplane before line number 1531, the risk of having an affected part installed is low. Boeing reported that no force limiter assembly P/N 253W1263-1 has been purchased since 2012 and contended that the use of

force limiter assembly P/N 253W1263-1 for rotable parts is extremely low. Boeing also noted that force limiter assemblies P/N 253W1263-3 are already installed on airplane line numbers 1708 and subsequent and cannot be replaced by force limiter assemblies P/N 253W1263-1 in accordance with the drawing interchangeability.

Omni Air proposed alternative requirements for airplane line numbers prior to 1531: repetitive operational checks of the wheel jam breakout mechanism in accordance with MPD task 27-190-00, and replacement with a force limiter assembly P/N 253W1263-3 for a failed operational check or as terminating action. Omni Air also proposed a one-time operational check of the wheel jam breakout mechanism in accordance with the MPD task if there are no concerns about the force limiter assembly being replaced since the last check. Omni stated that Boeing found that force limiter assemblies P/N 253W1263-1 delivered on airplane line numbers prior to 1531 were functioning properly.

Aerologic interpreted the effectivity of the Requirements Bulletin to be based on production testing of the force limiter assembly break-out forces changing the amount of applied corrosion inhibiting compound (CIC) causing the unsafe condition. Therefore, Aerologic stated that Boeing should be able to identify affected force limiter assemblies P/N 253W1263-1 either by serial number or batch number and differentiate acceptable and unsafe parts. Therefore, Aerologic requested that the FAA issue a separate AD action to test the break-out forces of force limiter assemblies P/N 253W1263-1 on airplanes not identified in the Boeing Alert Requirements Bulletin 777-27A0124 RB, dated October 27, 2021. Aerologic proposed requiring a check of the serial number of the force limiter assembly on all Model 777 airplanes to determine which affected units should be replaced. Also, Aerologic proposed on-wing testing of the breakout force as an alternative to the proposed replacement of all force limiter assemblies P/N 253W1263-1

on all Model 777 airplanes because the actions would not be possible within the proposed compliance time of the NPRM.

All Nippon Airways questioned whether the intent of the proposed AD is to eliminate all force limiter assemblies P/N 253W1263-1, since Boeing has determined that replacement is not necessary if that part passed the functional test on delivery. All Nippon Airways suggested that operators will be significantly affected under the unrealistic proposed compliance time of 12 months and requested that the AD requirements be revised so that only the target units identified in Boeing Alert Requirements Bulletin 777-27A0124 RB, dated October 27, 2021, are required to be replaced.

American Airlines proposed creating two groups of airplanes: Group 1, for Model 777 airplanes with line numbers 1531 through 1707 (the effectivity of Boeing Alert Requirements Bulletin 777-27A0124 RB, dated October 27, 2021), and Group 2, for Model 777 airplanes not identified in the Requirements Bulletin. American Airlines stated that it has had zero replacements of P/N 253W1263-1 in 24 years of service of its fleet, which are all prior to line number 1531. American Airlines also stated that the illustrated parts catalog (IPC) shows that P/N 253W1263-1 is interchangeable one-way forward only with P/N 253W1263-3. American Airlines further recommended creating subgroups for Group 2. For subgroup 2a, airplanes for which it can conclusively be shown that the force limiter assembly P/N 253W1263-1 has never been replaced, no further action would be required. And for subgroup 2b, airplanes for which it cannot be conclusively shown that the force limiter assembly P/N 253W1263-1 was never replaced, the AD would require replacement with force limiter assembly P/N 253W1263-3.

Swiss Air requested that the proposed AD allow a records review on airplanes prior to line number 1531 to determine whether an assembly with force limiter assembly P/N 253W1263-1 was installed. Swiss Air further requested that the proposed AD allow

testing of force limiter assemblies with P/N 253W1263-1 with unknown history to measure the break-out force and allow return to service if the force is within the drawing requirements. United Airlines also requested that testing verifying serviceability on airplanes with line numbers prior to 1531 be considered acceptable.

The FAA partially agrees with the requests. The FAA agrees to exclude airplane line numbers prior to 1531 and after 1707 from the replacement requirement if any installed force limiter assembly P/N 253W1263-1 had not been previously replaced. Limiting the replacement requirement in this way was the original intent of the AD. The FAA disagrees, however, with Aerologic's request to revise paragraph (c) of this AD to limit the AD requirements to airplanes having line numbers in the effectivity of Boeing Alert Requirements Bulletin 777-27A0124 RB, dated October 27, 2021. The NPRM, under "Differences Between This Proposed AD and the Service Information," stated that the applicability of the AD differed from the effectivity of Boeing Alert Requirements Bulletin 777-27A0124 RB, dated October 27, 2021, because the affected parts are rotable parts, and the FAA has determined that these parts could later be installed on airplanes that were initially delivered with acceptable parts, thereby subjecting those airplanes to the unsafe condition. Although the IPC states that force limiter assembly P/N 253W1263-3 cannot be replaced with P/N 253W1263-1, it is possible for an operator to do so. Therefore, paragraph (i) of this AD, "Parts Installation Prohibition," applies to all Model 777 airplanes.

The FAA disagrees to include testing as a method of verifying a functional force limiter assembly because the FAA has revised paragraph (g) of this AD so that it applies only to (1) airplanes identified in Boeing Alert Requirements Bulletin 777-27A0124 RB, dated October 27, 2021, and (2) airplanes not identified in Boeing Alert Requirements Bulletin 777-27A0124 RB, dated October 27, 2021, on which the force limiter assembly was replaced with P/N 253W1263-1. This should alleviate the demand for replacement

force limiter assemblies P/N 253W1263-3. The FAA further disagrees to create a separate AD for airplane line numbers prior to 1531 because of the urgency of the unsafe condition and the delay that would be caused by additional rulemaking. The FAA has also determined that, in light of the changes to this AD, a separate AD is not necessary.

Request to Extend Compliance Time

Aerologic, All Nippon Airways, China Airlines, FedEx, Swiss Air, Turkish Airlines, and United Airlines expressed concern that long lead times (300 days, per Boeing, as specified by FedEx, Turkish Airlines, and China Airlines) for the new force limiter assemblies P/N 253W1263-3 would make it difficult to replace force limiter assemblies P/N 253W1263-1 within 12 months.

The FAA acknowledges that it could be difficult to replace all force limiter assemblies P/N 253W1263-1 within the 12-month compliance period because of the long lead time of procurement and the large quantity of spares having P/N 253W1263-3 necessary to be available to satisfy the global fleet. The FAA disagrees, however, to revise the compliance time because the replacement requirement is limited to force limiter assemblies P/N 253W1263-1 only on airplane line numbers 1531 through 1707 and on airplanes on which the original force limiter assembly had been replaced. However, an operator unable to meet the compliance time required by this AD may request approval of an alternative method of compliance (AMOC) under the provisions of paragraph (j) of this AD, if sufficient data are submitted to substantiate that such an extension would provide an acceptable level of safety. The FAA has not changed this AD further.

Request to Clarify Effect of Unsafe Condition

Boeing requested that the proposed AD be revised to clarify the unsafe condition and its potential safety impact, which, Boeing asserted, could be inferred as a loss of lateral control during normal flight conditions. Boeing stated that the unsafe condition

occurs only with an affected force limiter assembly and a jam/restriction of the lateral controls, when the pilot needs to override a lateral control restriction. Boeing therefore requested that the Background section of the NPRM be revised to state that if a jam/restriction occurs on one side of the lateral controls on an airplane with an affected force limiter assembly, the pilot may not be able to override the jam preventing lateral control from the wheel. Boeing further requested that the proposed AD be revised to clarify that the unsafe condition could result in the loss of lateral control from the wheel and potentially affect continued safe flight and landing only when combined with a lateral control system restriction.

The FAA concurs with the request and has revised relevant sections of this AD accordingly.

Request to Define "Installation" of Parts

American Airlines requested that the proposed AD be clarified to state that removal of a force limiter assembly P/N 253W1263-1 for other maintenance and reinstallation of that same part on the same airplane will not be considered as an installation as defined in paragraph (i) of the proposed AD, "Parts Installation Prohibition."

The FAA infers that this additional clarification is requested to prevent the unnecessary removal and replacement of force limiter assemblies P/N 253W1263-1 that have been previously verified as being outside the suspect affected range and considered functional. The FAA acknowledges the commenter's concern, and provides the following clarification of the requirement. Once the FAA has determined that an unsafe condition exists, the FAA generally ensures that that condition not be allowed to be introduced into the fleet. Although the word "install" is generally considered to be broader than the word "replace," operators can interpret "install" in this AD as meaning "replace" while remaining within the intent of paragraph (i) of this AD. By simply reinstalling a part

removed during maintenance, the operator is not "installing" a different part. Therefore, this AD allows operators to remove a part and then re-install that same part for other maintenance activities not associated with this AD. The FAA has not changed this AD as a result of this comment.

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 777-27A0124 RB, dated October 27, 2021. This service information specifies procedures for replacing the lower and upper force limiter assemblies P/N 253W1263-1 with force limiter assemblies P/N 253W1263-3. 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 353 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
Replacement	7 work-hours X $85 per hour = $595	$8,960	$9,555	Up to $3,372,915

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:

2024-01-07 The Boeing Company: Amendment 39-22658; Docket No. FAA-2023-0429; Project Identifier AD-2022-00775-T.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to all The Boeing Company Model 777-200, -200LR, -300, -300ER, and 777F series airplanes, certificated in any category.

(d) Subject

Air Transport Association (ATA) of America Code 27, Flight controls.

(e) Unsafe Condition

This AD was prompted by an evaluation by the design approval holder that the force limiter assemblies for the lateral control mechanism are not breaking out within the maximum design force requirements. The FAA is issuing this AD to address the force limiter assemblies not breaking out within the maximum design force requirements. The

unsafe condition, combined with a lateral control system jam or restriction, could result in the loss of lateral control from the wheel and potentially affect continued safe flight and landing.

(f) Compliance

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

(g) Required Actions

For airplanes identified in paragraphs (g)(1) and (2) of this AD: Except as specified by paragraph (h) of this AD, at the applicable times specified in the "Compliance" paragraph of Boeing Alert Requirements Bulletin 777-27A0124 RB, dated October 27, 2021, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Alert Requirements Bulletin 777-27A0124 RB, dated October 27, 2021.

(1) Airplanes identified in Boeing Alert Requirements Bulletin 777-27A0124 RB, dated October 27, 2021.

(2) Airplanes not identified in Boeing Alert Requirements Bulletin 777-27A0124 RB, dated October 27, 2021, that have an original airworthiness certificate or original export certificate of airworthiness issued on or before the effective date of this AD, and on which a force limiter assembly P/N 253W1263-1 or P/N 253W1263-3 installed in production has been replaced with P/N 253W1263-1.

Note 1 to paragraph (g): Guidance for accomplishing the actions required by this AD can be found in Boeing Alert Service Bulletin 777-27A0124 RB, dated October 27, 2021, which is referred to in Boeing Alert Requirements Bulletin 77-27A0124 RB, dated October 27, 2021.

(h) Exceptions to Service Information Specifications

Where the Compliance Time columns of the tables in the "Compliance" paragraph of Boeing Alert Requirements Bulletin 777-27A0124 RB, dated October 27,

2021, use the phrase “the original issue date of Requirements Bulletin 777-27A0124 RB,” this AD requires using “the effective date of this AD.”

(i) Parts Installation Prohibition

As of the effective date of this AD, no person may install a force limiter assembly, P/N 253W1263-1, on any airplane.

(j) Alternative Methods of Compliance (AMOCs)

(1) The Manager, AIR-520, Continued Operational Safety 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 (k) of this AD. Information may be emailed to: 9-ANMSeattle-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, AIR-520, Continued Operational Safety 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.

(k) Related Information

For more information about this AD, contact Anthony Caldejon, Aviation Safety Engineer, FAA, 2200 South 216th St., Des Moines, WA 98198; telephone 206-231-3534; email Anthony.V.Caldejon@faa.gov.

(l) 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 777-27A0124 RB, dated October 27, 2021.

(ii) [Reserved]

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminster 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 material at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, visit www.archives.gov/federal-register/cfr/ibr-locations or email fr.inspection@nara.gov.

Issued on January 6, 2024.

Caitlin Locke, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.
[FR Doc. 2024-01970 Filed: 1/31/2024 8:45 am; Publication Date: 2/1/2024]