



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2019-1070; Product Identifier 2019-NM-178-AD; Amendment 39-21218; AD 2020-17-13]

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 787-8 and 787-9 airplanes. This AD was prompted by reports that the cabin air compressor (CAC) outlet check valve failed due to fatigue of the aluminum flappers, and exposed the Y-duct to temperatures above its design limit. This AD requires installing new inboard and outboard CAC outlet check valves on the left-side and right-side cabin air conditioning and temperature control system (CACTCS) packs. 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: 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; 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 on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2019-1070.

Examining the AD Docket

You may examine the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2019-1070; 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: Scott Craig, Aerospace Engineer, Cabin Safety and Environmental Systems Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3566; email: Michael.S.Craig@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

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 787-8 and

787-9 airplanes. The NPRM published in the Federal Register on January 10, 2020 (85 FR 1295). The NPRM was prompted by reports that the CAC outlet check valve failed due to fatigue of the aluminum flappers, and exposed the Y-duct to temperatures above its design limit. The NPRM proposed to require installing new inboard and outboard CAC outlet check valves on the left-side and right-side CACTCS packs.

The FAA is issuing this AD to address failed CAC outlet check valves, which could expose the flight deck and passenger cabin to smoke and fumes, and lead to reduced crew performance or produce passenger discomfort. Off-gassed compounds could cause respiratory distress and could cause serious injury for an individual with a compromised respiratory system.

Comments

The FAA gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the NPRM and the FAA's response to each comment.

Support for the NPRM

The Air Line Pilots Association, International, stated that it supports the NPRM.

Request to Reference Part Number for Parts Installation Prohibition within the AD

All Nippon Airways (ANA) requested that the FAA reference CAC outlet check valve, part number (P/N) 7010105H01, directly in paragraph (i) of the proposed AD. ANA noted that paragraph (i) of the proposed AD stated that “no person may install a CAC outlet check valve, with a part number listed in paragraph 1.B, ‘Spares Affected’ of Boeing Service Bulletin B787-81205-SB210108-00, Issue 002, dated October 15, 2019, on any airplane.” ANA pointed out that only CACTCS Pack P/Ns are listed in paragraph 1.B, “Spares Affected” of Boeing Service Bulletin B787-81205-SB210108-00, Issue 002,

dated October 15, 2019 (“SB B787-81205-SB210108-00, Issue 002”), and the part number of the CAC outlet check valve that is of concern is not listed.

The FAA agrees with the request for the reasons provided. Although SB B787-81205-SB210108-00, Issue 002, does list CAC outlet check valves part numbers in paragraph 1.B of the service bulletin, the CAC outlet check valve part number that is of concern, P/N 7010105H01, is not listed in paragraph 1.B of the service bulletin. The CAC outlet check valve part number of concern, P/N 7010105H01, was intended to be a part prohibited from installation. The Accomplishment Instructions of SB B787-81205-SB210108-00, Issue 002, Note 9 of the General Information section states, among other things, that any CAC outlet check valve having P/N 7010105H01 cannot be installed again and must be made unserviceable. Additionally, supplier service information UTC Aerospace Systems Service Bulletin 7110097/098/188/189-21-4, dated May 3, 2018; and UTC Aerospace Systems Service Bulletin 7010097/098/188/189-21-9, dated May 3, 2018, which are referenced in SB B787-81205-SB210108-00, Issue 001; dated May 25, 2018 (“SB B787-81205-SB210108-00, Issue 001”), and SB B787-81205-SB210108-00, Issue 002, also state that all replaced CAC outlet check valves having P/N 7010105H01 cannot be installed again and must be made unserviceable. The FAA has revised paragraph (i) of this AD to specify that no person may install a CAC outlet check valve with a part number listed in paragraph 1.B of SB B787-81205-SB210108-00, Issue 002, or P/N 7010105H01 on any airplane as of the effective date of this AD.

Request to Clarify Part Marking Requirements

American Airlines (AA) and United Airlines (UA) requested that the FAA clarify the requirements for marking the MOD DOT number on the CACTCS pack identification plate. Both commenters noted that paragraphs 2.A.(2), 2.A.(3), 2.B.(2), and 2.B.(3) of the

Accomplishment Instructions of SB B787-81205-SB210108-00, Issue 002, are listed as “RC” (Required for Compliance) and specify to replace the CAC outlet check valve and mark the MOD DOT number on the CACTCS pack identification plate. The commenters pointed out that paragraph (j) of the proposed AD provides credit for actions accomplished in accordance with Boeing Service Bulletin B787-81205-SB210108-00, Issue 001, which does not have instructions for marking the MOD DOT number on the CACTCS pack identification plate. Because SB B787-81205-SB210108-00, Issue 002, specifies to mark the MOD DOT number on the CACTCS pack identification plate, but SB B787-81205-SB210108-00, Issue 001, does not, the commenters requested clarification on this requirement.

The FAA agrees to clarify. SB B787-81205-SB210108-00, Issue 001, specifies to do actions “in accordance with” the supplier service information, which included instructions for part marking. Therefore, operators that accomplished this issue of the service bulletin should have also marked the MOD DOT number on the CACTCS pack identification plate. However, the FAA acknowledges that SB B787-81205-SB210108-00, Issue 001 specified only replacing the parts, not marking them. If operators otherwise complied with SB B787-81205-SB210108-00, Issue 001, but did not mark the MOD DOT number on the CACTCS pack identification plate, they cannot claim credit for part marking and must mark the part as specified in SB B787-81205-SB210108-00, Issue 002. The FAA has not changed this AD in this regard.

Request to Clarify Part Marking of an “X” on the CACTCS Pack Identification Plate

UA requested that the FAA clarify the requirement to part mark an “X” on the CACTCS pack identification plate. UA pointed out that paragraphs 2.A.(2), 2.A.(3),

2.B.(2), and 2.B.(3) of the Work Instructions of SB B787-81205-SB210108-00, Issue 002, specify to mark the MOD DOT number on the CACTCS pack identification plate. In the associated tables, footnote [1] specifies to “also part mark an ‘X’ on the applicable number in the MOD DOT area of the identification plate...” UA stated that the result is that MOD DOT markings are required in two places, which UA maintains is redundant and not consistent.

The FAA agrees to clarify. Footnote [1] of Tables 1 through 8 of the Work Instructions of SB B787-81205-SB210108-00, Issue 002, specifies to mark an “X” on the identification plate for the appropriate MOD DOT for CACTCS pack configuration H05 and H09 only, which is a separate action from marking the MOD DOT number on the CACTCS pack identification plate. The FAA has not changed this AD in this regard.

Requests to Update Supplier Warranty Information

Boeing requested that the FAA update the Costs of Compliance section of the NPRM to reflect a name change for the supplier warranty information from UTC Aerospace Systems to Collins Aerospace. The FAA has revised the Costs of Compliance section of this AD accordingly.

Request to Clarify Discussion

Boeing requested that the FAA modify portions of the Discussion of the NPRM to clarify the cause of failing CAC outlet check valves and more clearly explain the sequence of events leading to the unsafe condition. Whereas the NPRM described the cause of the flapper fatigue as “increasing open/close cycles,” Boeing stated that the flapper fatigue was due to “open/close cycles exceeding design requirements.” Boeing also requested that the FAA modify the Discussion of the NPRM to clarify that “This [open/close cycles exceeding design requirements] can cause reverse flow through the

broken check valve during times of single CAC operation. With repeated exposure to temperatures in excess of the Y-Duct design limit, the duct may degrade and this can lead to failure of the Y-Duct if not addressed. Dual CAC operation with a failed Y-Duct may lead to high temperatures that can result in off gassing from the duct material.”

The FAA agrees that the description in the NPRM was inaccurate and is clarified in the previous paragraph. Since that section of the preamble does not reappear in the final rule, no change to the final rule is necessary.

Conclusion

The FAA reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule with the changes described previously and minor editorial changes. The FAA has determined that these changes:

- Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

The FAA also determined that these changes will not increase the economic burden on any operator or increase the scope of this final rule.

Related Service Information under 1 CFR Part 51

The FAA reviewed Boeing Service Bulletin B787-81205-SB210108-00, Issue 002, dated October 15, 2019. The service information describes procedures for installing new inboard and outboard CAC outlet check valves on the left-side and right-side CACTCS packs. This service information is reasonably available because the

interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Costs of Compliance

The FAA estimates that this AD affects 90 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated costs for required actions

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Replace CAC outlet check valves	3 work-hours X \$85 per hour = \$255 per check valve	\$0	\$255 per check valve	\$22,950 per check valve

According to the manufacturer, some or all of the costs of this AD may be covered under warranty by Collins Aerospace, thereby reducing the cost impact on affected individuals. The FAA does not control warranty coverage for affected individuals. As a result, the FAA has included all known costs in the cost estimate.

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.

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):

2020-17-13 The Boeing Company: Amendment 39-21218 ; Docket No. FAA-2019-1070; Product Identifier 2019-NM-178-AD.

(a) Effective Date

This 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 The Boeing Company Model 787-8 and 787-9 airplanes, certificated in any category, as identified in Boeing Service Bulletin B787-81205-SB210108-00, Issue 002, dated October 15, 2019.

(d) Subject

Air Transport Association (ATA) of America Code 21, Air conditioning.

(e) Unsafe Condition

This AD was prompted by reports that the cabin air compressor (CAC) outlet check valve failed due to fatigue of the aluminum flappers, and exposed the Y-duct to temperatures above its design limit. The FAA is issuing this AD to address this condition, which could expose the flight deck and passenger cabin to smoke and fumes, and lead to reduced crew performance or produce passenger discomfort. Off-gassed compounds could cause respiratory distress and could cause serious injury for an individual with a compromised respiratory system.

(f) Compliance

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

(g) Required Actions

Except as specified in paragraph (h) of this AD: At the applicable times specified in paragraph 5., “Compliance,” of Boeing Service Bulletin B787-81205-SB210108-00, Issue 002, dated October 15, 2019, do all applicable actions identified as “RC” (required for compliance) in, and in accordance with, the Accomplishment Instructions of Boeing Service Bulletin B787-81205-SB210108-00, Issue 002, dated October 15, 2019.

(h) Exceptions to Service Information Specifications

Where Boeing Service Bulletin B787-81205-SB210108-00, Issue 002, dated October 15, 2019, uses the phrase “the Issue 002 date of this service bulletin,” 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 CAC outlet check valve, with a part number listed in paragraph 1.B, “Spares Affected” of Boeing Service Bulletin B787-81205-SB210108-00, Issue 002, dated October 15, 2019, or CAC outlet check valve P/N 7010105H01, on any airplane.

(j) Credit for Previous Actions

This paragraph provides credit for the actions specified in paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Boeing Service Bulletin B787-81205-SB210108-00, Issue 001, dated May 25, 2018.

(k) 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 local Flight Standards District 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 (l) 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 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) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (k)(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.

(l) Related Information

For more information about this AD, contact Scott Craig, Aerospace Engineer, Cabin Safety and Environmental Systems Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3566; email: Michael.S.Craig@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 Service Bulletin B787-81205-SB210108-00, Issue 002, dated October 15, 2019.

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

Issued on August 13, 2020.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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