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**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2015-7531; Directorate Identifier 2015-NM-052-AD; Amendment 39-18747; AD 2016-25-21]**

**RIN 2120-AA64**

**Airworthiness Directives The Boeing Company Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain The Boeing Company Model 787-8 airplanes. This AD was prompted by reports of electrical shorts of the motor stator wiring burning a hole through the housing of the motor of the cabin air compressor (CAC). This AD requires installing modified inboard and outboard CAC modules on the left-hand (LH) side and right-hand (RH) side cabin air conditioning and temperature control system (CACTCS) packs. We are issuing this AD to prevent the unsafe condition on these products.

**DATES:** This AD is effective January 26, 2017.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of January 26, 2017.

**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; telephone 562-797-1717; Internet https://www.myboeingfleet.com. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2015-7531.

**Examining the AD Docket**

You may examine the AD docket on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2015-7531; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket

Office (phone: 800-647-5527) is Docket Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Eric Brown, Aerospace Engineer, Cabin Safety and Environmental Systems Branch, ANM-150S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6476; fax: 425-917-6590; email: eric.m.brown@faa.gov.

## SUPPLEMENTARY INFORMATION:

### Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain The Boeing Company Model 787-8 airplanes. The NPRM published in the Federal Register on December 29, 2015 (80 FR 81220) ("the NPRM"). The NPRM was prompted by reports of electrical shorts of the motor stator wiring burning a hole through the housing of the motor of the CAC. The NPRM proposed to require installing modified inboard and outboard CAC modules on the LH side and RH side CACTCS packs. We are issuing this AD to prevent an electrical short from burning through the housing of the motor of the CAC. This condition, in combination with flammable fuel vapors, could result in a fire in the pack bay and consequent reduced controllability of the airplane.

### Comments

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

### Support for the NPRM

United Airlines (UA) stated that it agrees with the proposed compliance time.

### Request To Clarify the Unsafe Condition

Boeing asked that we clarify the unsafe condition in the NPRM to specify that for a fire to occur in the pack bay, an electrical short would have to burn through the housing of the CAC motor in combination with the presence of flammable fluid vapors. Boeing stressed that the top-level event requires both an ignition source and flammable fluid vapors.

We agree with the commenter's request for the reason provided. We have revised the unsafe condition in the Discussion section and paragraph (e) of this AD accordingly.

### Requests To Increase Work-Hour Estimate

Boeing and Japan Airlines (JAL) asked that we increase the work-hour estimate in the "Costs of Compliance" section of the NPRM. Boeing stated that Boeing Alert Service Bulletin B787-81205-SB210055-00, Issue 001, dated March 12, 2015, specifies 25.25 work-hours for the LH side pack replacement and 28.25 work-hours for the RH side pack replacement. Boeing added that the NPRM should either specify 30 work-hours per side or 60 work-hours per airplane. JAL stated that the replacement for each pack specified in the proposed AD requires more than 25 work-hours, as specified in the referenced service information.

We agree. We have confirmed that the proposed work-hour estimate should be increased. Therefore, we have increased the work-hour estimate in the "Costs of Compliance" section of this

final rule from "up to 30 work-hours" to "up to 54 work-hours" for accomplishing the required actions.

**Request To Extend Compliance Time**

JAL asked that the proposed compliance time for the CAC replacements specified in the NPRM be extended so the actions can be done during scheduled heavy maintenance. JAL stated that the replacement for each pack specified in the proposed AD requires more than 25 work-hours, which would necessitate a longer compliance time.

We do not agree with the commenter's request to extend the compliance time for the CAC replacements. We have determined that the compliance time, as proposed, represents the maximum interval of time allowable for the affected airplanes to continue to safely operate before the CAC replacements are accomplished. Airplanes affected by this AD will undergo at least one maintenance check (C-check) within the required compliance time (5 years after the effective date of this AD); the replacement can be done at that time. Therefore, we have made no change to this AD in this regard.

**Request To Use Alternative Part**

Aeromexico asked if installing an H10 CAC having part number (P/N) 7010101H10 could be considered as an alternative to installing H09 CAC parts having P/N 7010101H09. Aeromexico stated that Boeing Alert Service Bulletin B787-81205-SB210055-00, Issue 001, dated March 12, 2015, specifies installing the H09 CAC, but UTC Aerospace Systems (the parts vendor) stated that there are no H09 CACs presently available. Aeromexico added that UTC Aerospace Systems indicated that H10 CACs having P/N 7010101H10 will be available for retrofit during 2016. Aeromexico noted that Boeing and UTC Aerospace Systems have indicated that P/N 7010101H09 and P/N 7010101H10 will be interchangeable.

We agree that clarification is necessary. Future part designs might be acceptable as replacement parts for the part mandated by this AD, because those future parts should include design changes meant to address the unsafe condition identified in this AD. However, we do not agree to allow use of P/N 7010101H10 CACs, because P/N 7010101H10 is not an approved part for installation on Model 787 airplanes at this time. Therefore, under the provisions of paragraph (h) of this AD, we will consider requests for approval of specific parts as an alternative method of compliance (AMOC) with this AD if data are submitted to substantiate that those parts would provide an acceptable level of safety. We have not revised this AD in this regard.

**Request To Clarify Certain Actions in Service Information**

UA asked that, for Group 1 airplanes in Work Packages 1 and 2 of the Work Instructions of Boeing Alert Service Bulletin B787-81205-SB210055-00, Issue 001, dated March 12, 2015, the steps identified as RC (Required for Compliance) be changed to refer to all applicable steps within that service information instead of referring to the actions specified in UTC Aerospace Systems Service Bulletins 7010188-21-6 and 7010189-21-6, both Revision 1, both dated January 30, 2015. UA stated that referring to the UTC Aerospace Systems service information forces operators to request multiple AMOCs in order to comply with the actions in the proposed AD.

We agree that clarification is necessary. Although certain steps, which describe the access, removal, and installation of the CACs, are labeled as "RC," the specifics of how those actions are to be accomplished are not mandated. The Work Instructions in Boeing Alert Service Bulletin B787-81205-SB210055-00, Issue 001, dated March 12, 2015, do refer to UTC Aerospace Systems, Service Bulletins 7010188-21-6 and 7010189-21-6, both Revision 1, both dated January 30, 2015, for accomplishing certain actions, but that service information is only an additional source of service information that operators may use (as indicated by the use of the words "refer to" in the RC step).

UA asked that the UTC Aerospace Systems kit part number be called out in paragraph 3.A. under "Parts Necessary for Each Airplane," in data module B787-A-21-00-0055-00A-934A-D, "Material Information," of Boeing Alert Service Bulletin B787-81205-SB210055, Issue 001, dated March 12, 2015. UA noted that, as written, the proposed AD suggests that no parts are required.

We do not agree with the commenter's request. In Boeing Alert Service Bulletin B787-81205-SB210055, Issue 001, dated March 12, 2015; Step 3.A., "Parts Necessary for Each Airplane" for Groups 1 and 2 airplanes, within data module B787-A-21-00-0055-00A-934A-D, "Material Information," identifies the parts necessary for each airplane that would be supplied by Boeing. Step 3.B. identifies the parts and materials that are supplied by operators. Although having all kit information in one location might provide a single list of parts needed, it could be confusing to determine who is responsible for supplying which parts. Therefore, we have made no change to this AD in this regard.

UA pointed out several instances where Boeing Alert Service Bulletin B787-81205-SB210055, Issue 001, dated March 12, 2015, is referenced for certain sealing and bonding check instructions. UA stated that UTC Aerospace Systems Service Bulletins 7010188-21-6 and 7010189-21-6, both Revision 1, both dated January 30, 2015, refer back to Boeing Alert Service Bulletin B787-81205-SB210055, Issue 001, dated March 12, 2015, which does not provide guidance on how to accomplish these actions. From these statements, we infer that UA is requesting that we revise the proposed requirements to clarify how these actions are to be accomplished.

We find that clarification is necessary. The Work Instructions in Boeing Alert Service Bulletin B787-81205-SB210055, Issue 001, dated March 12, 2015, specify "The electrical surface bond and fay seal data is provided in the applicable 787 airplane maintenance manual (AMM) 21-51-19, Cabin Air Compressor–Preparation Before Installation AMMs." The instructions are contained within those AMM procedures; however, those steps are not required for compliance with this AD because alternative procedures may be used. Therefore, we have made no change to this AD in this regard.

**Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously and minor editorial changes. We have determined that these minor changes:

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

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

**Related Service Information Under 1 CFR Part 51**

We reviewed Boeing Alert Service Bulletin B787-81205-SB210055-00, Issue 001, dated March 12, 2015. This service information describes procedures for installing modified inboard and outboard CAC modules on the LH side and RH 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**

We estimate that this AD affects 22 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

**Estimated Costs**

| Action | Labor cost | Parts cost | Cost per product | Cost on U.S. operators |
|---|---|---|---|---|
| Modification, installation, and installation test | Up to 54 work-hours × $85 per hour = $4,590 | $0 | Up to $4,590 | Up to $100,980. |

According to the manufacturer, some of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected individuals. We do not control warranty coverage for affected individuals. As a result, we have included all costs in our 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.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, and Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

**Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),

(3) Will not affect intrastate aviation in Alaska, and

(4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

**List of Subjects in 14 CFR Part 39**

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

**Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

**PART 39–AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

**§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**2016-25-21 The Boeing Company:** Amendment 39-18747; Docket No. FAA-2015-7531; Directorate Identifier 2015-NM-052-AD.

**(a) Effective Date**

This AD is effective January 26, 2017.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to The Boeing Company Model 787-8 airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin B787-81205-SB210055-00, Issue 001, dated March 12, 2015.

**(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by reports of electrical shorts of the motor stator wiring burning a hole through the housing of the motor of the cabin air compressor (CAC). We are issuing this AD to prevent an electrical short from burning through the housing of the motor of the CAC. This condition, in combination with flammable fuel vapors, could result in a fire in the pack bay and consequent reduced controllability of the airplane.

**(f) Compliance**

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

**(g) Replacement of CAC Modules**

Within 5 years after the effective date of this AD, install modified inboard and outboard CAC modules on the left side and right side cabin air conditioning and temperature control system (CACTCS) packs, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB210055-00, Issue 001, dated March 12, 2015.

**(h) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as

appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in paragraph (i) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method 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 (h)(4)(i) and (h)(4)(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. 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.

**(i) Related Information**

For more information about this AD, contact Eric Brown, Aerospace Engineer, Cabin Safety and Environmental Systems Branch, ANM-150S, FAA, Seattle ACO, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6476; fax: 425-917-6590; email: eric.m.brown@faa.gov.

**(j) 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 B787-81205-SB210055-00, Issue 001, dated March 12, 2015.

(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; telephone 562-797-1717; Internet https://www.myboeingfleet.com.

(4) You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued in Renton, Washington, on December 6, 2016.

Dionne Palermo,

Acting Manager, Transport Airplane Directorate,

Aircraft Certification Service.