



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2017-1241; Product Identifier 2017-NM-117-AD]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Airplanes**

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

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to adopt a new airworthiness directive (AD) for all The Boeing Company Model 787 series airplanes. This proposed AD was prompted by reports of hydraulic leakage caused by damage to aileron and elevator actuators from lightning strikes. This proposed AD would require a records check to inspect for certain parts, a detailed inspection of aileron and elevator power control units (PCUs), and applicable on-condition actions. We are proposing this AD to address the unsafe condition on these products.

**DATES:** We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, 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 referenced service information at the FAA, Transport Standards Branch, 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-2017-1241.

### **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-2017-1241; 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 NPRM, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Kelly McGuckin, Aerospace Engineer, Systems and Equipment Section, FAA, Seattle ACO Branch, 1601 Lind

Avenue SW., Renton, WA 98057-3356; phone: 425-917-6490; fax: 425-917-6590; email: Kelly.McGuckin@faa.gov.

## **SUPPLEMENTARY INFORMATION:**

### **Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2017-1241; Product Identifier 2017-NM-117-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. We will consider all comments received by the closing date and may amend this NPRM because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

### **Discussion**

We have received reports indicating that inadequate electrical connection between control surface, wing, and empennage structures caused excessive lightning energy to pass through the aileron and elevator actuators resulting in damage and excessive leakage of hydraulic fluid. The hydraulic fluid leakage, although small, affects the internal aileron and elevator actuator fluid holding capability needed following an unrelated hydraulic system failure since the internal fluid holding capability was not sized to account for the unanticipated damage from a lightning strike. Hydraulic leakage in

aileron and elevator PCUs, when coupled with an independent subsequent loss of two hydraulic systems could result in an inability to maintain aileron or elevator actuator stiffness and lead to potentially damaging airplane control surface oscillations.

### **Related Service Information under 1 CFR part 51**

We reviewed Boeing Alert Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017. The service information describes procedures for a records check to inspect for certain parts, detailed inspections for external leakage of the aileron and elevator PCUs, reporting of PCUs with discrepant excessive leakage, and replacement if necessary. 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.

### **FAA's Determination**

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of this same type design.

### **Proposed AD Requirements**

This proposed AD would require accomplishment of the actions identified as "RC" (required for compliance) in the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017, described previously, except as discussed under "Difference Between Proposed AD and Service Information," and except for any differences identified as exceptions in the regulatory text of this proposed AD.

For information on the procedures and compliance times, see this service information at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2017-1241.

### **Differences Between Proposed AD and the Service Information**

The effectivity of Boeing Alert Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017, is limited to Model 787-8 and 787-9 airplanes with certain line numbers. However, the applicability of this proposed AD includes all Boeing Model 787 series airplanes, because the affected PCUs are rotatable parts. We have determined that these parts could later be installed on airplanes that were initially delivered with acceptable PCUs, thereby subjecting those airplanes to the unsafe condition. Appendixes C and D of Boeing Alert Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017, list the affected PCUs and acceptable spares interchangeability. Any 787 series airplane that has an affected PCU installed must be inspected in accordance with Boeing Alert Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017.

Boeing Alert Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017, does not provide relief from the repetitive inspections if an unaffected PCU is installed after the initial inspections are completed. Paragraph (h) of this proposed AD would terminate the inspection requirements when no affected PCU is installed.

Boeing Alert Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017, incorrectly identifies the part number (P/N) for an elevator PCU in four different places as P/N CA9953-004. Paragraph (k)(2) of this proposed AD corrects the elevator PCU part number to P/N CA69953-004.

Boeing Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017, provides additional actions for any leakage measured during the detailed inspection of the aileron PCU or elevator PCU that is more than 6 drops (or 9 drops, depending on the inspection) and less than 40 drops, or that is more than 40 drops, but not that is exactly 40 drops. Paragraph (k)(3) of this proposed AD would require additional actions for findings of more than 6 (or 9) drops and 40 drops or less.

These differences have been coordinated with Boeing.

**Interim Action**

We consider this proposed AD interim action. The manufacturer is currently developing a modification that will address the unsafe condition identified in this proposed AD. Once this modification is developed, approved, and available, we might consider additional rulemaking.

**Costs of Compliance**

We estimate that this proposed AD affects 82 airplanes of U.S. registry. We estimate the following costs to comply with this proposed AD:

**Estimated costs for required actions**

| <b>Action</b> | <b>Labor cost</b>   | <b>Parts cost</b> | <b>Cost per product</b>                  | <b>Cost on U.S. operators</b>              |
|---------------|---|-------------------|--|--|
| Inspections   | Up to 20 work-hours<br>X \$85 per hour =<br>\$1,700 per inspection<br>cycle | \$0               | Up to \$1,700<br>per inspection<br>cycle | Up to \$139,400<br>per inspection<br>cycle |

We estimate the following costs to do any necessary reporting that would be required. We have no way of determining the number of aircraft that might need these reports:

**Estimated costs of on-condition actions**

| <b>Labor cost</b>                  | <b>Parts cost</b> | <b>Cost per product</b> |
|------------------------------------|-------------------|-------------------------|
| 1 work-hour X \$85 per hour = \$85 | \$0               | \$85                    |

We have received no definitive data that would enable us to provide cost estimates for the records reviews or certain on-condition actions specified in this proposed AD.

According to the manufacturer, some or all of the costs of this proposed 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.

**Paperwork Reduction Act**

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB control number. The control number for the collection of information required by this AD is 2120-0056. The paperwork cost associated with this AD has been detailed in the Costs of Compliance section of this document and includes time for reviewing instructions, as well as completing and reviewing the collection of information. Therefore, all reporting associated with this AD is mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at 800 Independence Ave., SW, Washington, DC 20591. ATTN: Information Collection Clearance Officer, AES-200.

### **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, 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.

This proposed AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes to the Director of the System Oversight Division.

### **Regulatory Findings**

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 this proposed regulation:

- (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.

**The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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):

**The Boeing Company:** Docket No. FAA-2017-1241; Product Identifier 2017-NM-117-AD.

**(a) Comments Due Date**

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to all The Boeing Company Model 787 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 reports of hydraulic leakage caused by damage to aileron and elevator actuators from lightning strikes. We are issuing this AD to detect and correct hydraulic leakage in aileron and elevator power control units (PCUs), which, when coupled with an independent subsequent loss of two hydraulic systems, could result in an inability to maintain aileron or elevator actuator stiffness and lead to potentially damaging airplane control surface oscillations.

**(f) Compliance**

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

**(g) Required Actions**

Except as required by paragraph (k) of this AD: For airplanes with an original airworthiness certificate or original export certificate of airworthiness issued on or before the effective date of this AD, at the applicable times specified in paragraph 5,

“Compliance,” of Boeing Alert Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017, do all applicable actions identified as “RC” (required for compliance) in, and in accordance with, the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017.

**(h) Terminating Action**

Removal of all affected PCUs terminates the requirements of paragraph (g) of this AD until an affected PCU is installed.

**(i) Reporting**

At the applicable time specified in paragraph (i)(1) or (i)(2) of this AD, submit a report of discrepant findings in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017.

(1) If the inspection was done on or after the effective date of this AD: Submit the report within 30 days after the inspection.

(2) If the inspection was done before the effective date of this AD: Submit the report within 30 days after the effective date of this AD.

**(j) Parts Installation Limitation**

For all Model 787 series airplanes: As of the effective date of this AD, an affected PCU may be installed provided the conditions specified in paragraphs (j)(1), (j)(2), and (j)(3) of this AD are met.

(1) The PCU is inspected as specified in paragraph (g) of this AD after installation and before further flight, and thereafter at the intervals specified in paragraph (g) of this AD.

(2) All applicable corrective actions are done, and at the applicable times, as specified in paragraph (g) of this AD.

(3) A report is submitted as specified in paragraph (i) of this AD.

**(k) Exceptions to Service Information Specifications**

(1) For purposes of determining compliance with the requirements of this AD, the phrase “the effective date of this AD” may be substituted for “the original issue date of this service bulletin,” as specified in Boeing Alert Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017.

(2) Where the Accomplishment Instructions of Boeing Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017, refer to elevator PCU part number (P/N) “CA9953-004,” the correct part number is “CA69953-004.”

(3) Where the Accomplishment Instructions of Boeing Service Bulletin B787-81205-SB270037-00, Issue 002, dated July 19, 2017, refer to findings “less than 40 drops,” this AD requires applicable actions if the findings are “40 drops or less.”

**(l) 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 Alert Service Bulletin B787-81205-SB270037-00, Issue 001, dated September 27, 2016.

**(m) Paperwork Reduction Act Burden Statement**

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The

OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to be approximately 5 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.

**(n) 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 (n)(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 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 Branch, 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 RC, the provisions of paragraphs (n)(4)(i) and (n)(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. 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.

**(o) Related Information**

(1) For more information about this AD, contact Kelly McGuckin, Aerospace Engineer, Systems and Equipment Section, FAA, Seattle ACO Branch, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6490; fax: 425-917-6590; email: Kelly.McGuckin@faa.gov.

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

Issued in Renton, Washington, on December 26, 2017.

John P. Piccola, Jr., Acting Director,  
System Oversight Division,  
Aircraft Certification Service.

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