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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2015-6548; Directorate Identifier 2015-NM-114-AD; Amendment 39-18520; AD 2016-10-09]**

**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 and 787-9 airplanes equipped with General Electric engines. This AD was prompted by reports of cracking in barrel nuts on a forward engine mount of Model 747-8 airplanes, which shares a similar design to the forward engine mount of Model 787-8 and 787-9 airplanes. This AD requires, for certain airplanes, replacement of the four barrel nuts of the forward engine mount on each engine. For certain other airplanes, this AD requires an inspection to determine if any forward engine mount barrel nut having a certain part number is installed; and related investigative and corrective actions if necessary. We are issuing this AD to detect and correct cracking of the forward engine mount barrel nuts. Such cracking could result in reduced load capacity of the forward engine mount and could result in separation of an engine from the airplane and consequent loss of control of the airplane.

**DATES:** This AD is effective June 24, 2016.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of June 24, 2016.

**ADDRESSES:** For service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone: 206-544-5000, extension 1; fax: 206-766-5680; 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-2015-6548.

## **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-2015-6548; 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:** Allen Rauschendorfer, Aerospace Engineer, Airframe Branch, ANM-120S, Seattle Aircraft Certification Office, FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6487; fax: 425-917-6590; email: [allen.rauschendorfer@faa.gov](mailto:allen.rauschendorfer@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 and 787-9 airplanes equipped with General Electric engines. The NPRM published in the Federal Register on December 11, 2015 (80 FR 76878) ("the NPRM"). The NPRM was prompted by reports of cracking in barrel nuts on a forward engine mount of Model 747-8 airplanes, which shares a similar design to the forward engine mount of Model 787-8 and 787-9 airplanes. The NPRM proposed to require, for certain airplanes, replacement of the four barrel nuts of the forward engine mount on each engine. For certain other airplanes, the NPRM proposed to require an inspection to determine if any forward engine mount barrel nut having a certain part number is installed; and related investigative and corrective actions if necessary. We are issuing this AD to detect and correct cracking of the forward engine mount barrel nuts. Such cracking could result in reduced load capacity of the forward engine mount and could result in separation of an engine from the airplane and consequent loss of control of the airplane.

### **Comments**

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

### **Request To Revise the Compliance Time**

United Airlines requested that the compliance time in the NPRM for Group 1 airplanes be changed from 2 years to "at next engine change." United considered the proposed compliance time to be "expedited" because it took Boeing 7 months to publish the service information operators would be required to use to comply with the requirements in the NPRM, and it took the FAA 6 months to publish the NPRM. The commenter reasoned that since it took over 1 year from the time a solution for the unsafe condition was identified to the publication of the NPRM, the timeline for completing the corrective action is not critical and could be accomplished at the next scheduled engine change. United Airlines explained that allowing operators to replace the forward barrel nuts at the next engine change would reduce the cost of compliance to zero and would not add additional burden to operators.

We do not agree with the commenter's request. In developing an appropriate compliance time for this action we considered not only the degree of urgency associated with addressing the subject unsafe condition, but the manufacturer's recommendation for an appropriate compliance time, the

time required for the rulemaking process, and the practical aspect of doing the required replacement within an interval of time that corresponds to the typical scheduled maintenance for the majority of affected operators. However, under the provisions of paragraph (j) of this AD, we will consider requests for approval of an extension of the compliance time if sufficient data are submitted to substantiate that the new compliance time would provide an acceptable level of safety. We have not changed the AD in this regard.

**Conclusion**

We reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting this AD as proposed, except for 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.

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

We reviewed Boeing Service Bulletin B787-81205-SB710026-00, Issue 001, dated June 10, 2015. The service information describes procedures for replacing the forward engine mount barrel nuts with new, improved barrel nuts; doing an inspection to determine if barrel nuts having a certain part number are installed on the forward engine mount; and doing related investigative and corrective actions. 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 36 airplanes of U.S. registry. We estimate the following costs to comply with this AD:

**Estimated Costs**

| <b>Action</b>  | <b>Labor cost</b>                                     | <b>Parts cost</b>                        | <b>Cost per product</b> | <b>Cost on U.S. operators</b> |
|--|---|--|-------------------------|-------------------------------|
| Replacement (2 engines)  | 29 work-hours × \$85 per hour = \$2,465 for 2 engines | \$1,988 per engine × 2 engines = \$3,976 | \$6,441                 | \$64,410 (10 airplanes).      |
| Inspection for part number using maintenance records (2 engines) | 1 work-hour × \$85 per hour = \$85 for 2 engines      | \$0                                      | 85                      | \$2,210 (26 airplanes).       |

We estimate the following costs to do any related investigative actions required based on the results of the inspection. We have no way of determining the number of aircraft that might need these actions:

### On-Condition Costs

| Action                 | Labor cost   | Parts cost | Cost per product |
|------------------------|--|------------|------------------|
| Inspection (2 engines) | 9 work-hours × \$85 per hour = \$765 for 2 engines | \$0        | \$765            |

We have received no definitive data that will enable us to provide cost estimates for the on-condition corrective actions specified in this AD.

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, 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 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):



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**2016-10-09 The Boeing Company:** Amendment 39-18520; Docket No. FAA-2015-6548; Directorate Identifier 2015-NM-114-AD.

**(a) Effective Date**

This AD is effective June 24, 2016.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to The Boeing Company Model 787-8 and 787-9 airplanes, certificated in any category, equipped with General Electric GENx-1B engines, as identified in Boeing Service Bulletin B787-81205-SB710026-00, Issue 001, dated June 10, 2015.

**(d) Subject**

Air Transport Association (ATA) of America Code 71, Powerplant.

**(e) Unsafe Condition**

This AD was prompted by reports of cracking in barrel nuts on a forward engine mount of Model 747-8 airplanes, which shares a similar design to the forward engine mount of Model 787-8 and 787-9 airplanes. We are issuing this AD to detect and correct cracking of the forward engine mount barrel nuts. Such cracking could result in reduced load capacity of the forward engine mount, and could result in separation of an engine from the airplane, and consequent loss of control of the airplane.

**(f) Compliance**

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

**(g) Replacement Barrel Nuts**

For Group 1 airplanes as identified in Boeing Service Bulletin B787-81205-SB710026-00, Issue 001, dated June 10, 2015: Except as provided by paragraph (i)(1) of this AD, at the time specified in paragraph 5., "Compliance," of Boeing Service Bulletin B787-81205-SB710026-00, Issue 001, dated June 10, 2015, replace the existing forward engine mount barrel nuts on each engine, in accordance with the Accomplishment Instructions of Boeing Service Bulletin B787-81205-SB710026-00, Issue 001, dated June 10, 2015.

## **(h) Part Number Inspection for Installed Barrel Nuts**

For Group 2 airplanes as identified in Boeing Service Bulletin B787-81205-SB710026-00, Issue 001, dated June 10, 2015: Except as provided by paragraph (i)(1) of this AD, at the time specified in paragraph 5. "Compliance," of Boeing Service Bulletin B787-81205-SB710026-00, Issue 001, dated June 10, 2015, review the aircraft maintenance records to determine if the airplane engine has been removed, installed, or replaced, in accordance with the Accomplishment Instructions of Boeing Service Bulletin B787-81205-SB710026-00, Issue 001, dated June 10, 2015. If the maintenance records indicate that a barrel nut having part number SL4081C14SP1 is installed, or if the part number of an installed barrel nut cannot be determined, before further flight, do the related investigative and applicable corrective actions, in accordance with the Accomplishment Instructions of Boeing Service Bulletin B787-81205-SB710026-00, Issue 001, dated June 10, 2015.

## **(i) Exception to Service Information**

(1) Where Boeing Service Bulletin B787-81205-SB710026-00, Issue 001, dated June 10, 2015, specifies a compliance time "after the Issue 001 date on this service bulletin," this AD requires compliance within the specified compliance time after the effective date of this AD.

(2) Where Boeing Service Bulletin B787-81205-SB710026-00, Issue 001, dated June 10, 2015, specifies to contact Boeing for repair instructions: Before further flight, repair using a method approved in accordance with the procedures specified in paragraph (j) of this AD.

## **(j) 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 (k) 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. 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) Except as required by paragraph (i)(2) of this AD: For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (j)(4)(i) and (j)(4)(ii) 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.

## **(k) Related Information**

For more information about this AD, contact Allen Rauschendorfer, Aerospace Engineer, Airframe Branch, ANM-120S, Seattle Aircraft Certification Office, FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6487; fax: 425-917-6590; email: allen.rauschendorfer@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 Service Bulletin B787-81205-SB710026-00, Issue 001, dated June 10, 2015.

(ii) Reserved.

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone: 206-544-5000, extension 1; fax: 206-766-5680; Internet <https://www.myboeingfleet.com>.

(4) You may view this 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 May 9, 2016.

Michael Kaszycki,  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service.