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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-9307; Directorate Identifier 2016-NM-076-AD; Amendment 39-18970; AD 2017-15-10]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain The Boeing Company Model 787-9 airplanes. This AD was prompted by a determination that the shoulder bolt used on the outboard clevis of the forward support fitting of the ram air turbine (RAT) might not be long enough to allow for proper installation of the RAT; therefore, the clevis of the joint could be clamped together, resulting in reduced fatigue life and possible fracture of the clevis. This AD requires inspecting for cracking of the clevis of the forward support fitting of the RAT, installing a longer shoulder bolt, and replacing the forward support fitting if any cracking is found. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective September 5, 2017.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of September 5, 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-2016-9307.

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-2016-9307; 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: Kelly McGuckin, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6490; fax: 425-917-6590; email: kelly.mcguckin@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 787-9 airplanes. The NPRM published in the Federal Register on November 28, 2016 (81 FR 85448) ("the NPRM"). The NPRM was prompted by a determination that the shoulder bolt used on the outboard clevis of the forward support fitting of the RAT might not be long enough to allow for proper installation of the RAT; therefore, the clevis of the joint could be clamped together, resulting in reduced fatigue life and possible fracture of the clevis. The NPRM proposed to require inspecting for cracking of the clevis of the forward support fitting of the RAT, installing a longer shoulder bolt, and replacing the forward support fitting with a new fitting if any cracking is found. We are issuing this AD to prevent fracture of the clevis of the forward support fitting of the RAT, which could result in the RAT departing the airplane during a dual non-restartable engine loss, and consequent loss of control of the airplane, or injury to maintenance crews during periodic RAT ground tests.

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

Boeing and Ahmed Ahmed Hamdy concur with the content of the NPRM.

Request To Clarify Certain Requirements

United Airlines (UAL) asked that we clarify the credit language used in paragraph (h) of the proposed AD. UAL stated that, as written, paragraph (h) of the proposed AD specifies that previous accomplishment of Boeing Message TBC-CAL-15-0089-01B, dated September 22, 2015 (identified in paragraph (h)(3) of the proposed AD), provides credit for the actions required by paragraph (g) of the proposed AD. UAL noted that if the intent is to give credit for all the actions specified in paragraph (g) of the proposed AD, it's incorrect because that Boeing message only provides procedures to replace the subject bolt; the high frequency eddy current (HFEC) inspection and fitting replacement are not included in those procedures.

We agree that clarification of paragraph (h) of this AD is necessary. We have revised paragraph (h) of this AD to provide credit for the shoulder bolt replacement specified in paragraph (g) of this AD, if it was performed before the effective date of this AD using the applicable service information specified in paragraph (h) of this AD.

Request To Replace the Bolt Before Accomplishing the Inspection

UAL asked that we allow replacement of the shoulder bolt before accomplishing the HFEC inspection, which will shorten the time for the replacement. UAL stated that the 12,000-flight-hour or 24-month time limit to accomplish all actions in paragraph (g) of the proposed AD is understandable; however, due to the possibility of extended downtime if the fitting replacement is required, the HFEC inspection must be done during a heavy maintenance check, which could be a considerable amount of time after the effective date of the AD. UAL added that Boeing Alert Service Bulletin B787-81205-SB290031-00, Issue 001, dated March 25, 2016, does not separate the bolt replacement from the inspection, but the proposed AD should provide that option.

We do not agree with the commenter's request. A fracture of the clevis of the forward support fitting of the RAT will not be addressed by replacing the subject bolt without an HFEC inspection of the fitting. When operators replace the bolt, they must also inspect the fitting. Replacing the bolt without inspecting this fitting could result in undetected cracking in the fitting, which is the cause of the unsafe condition in this AD. Repetitive removal and replacement of the bolt may also cause further stress on the forward support fitting, which could contribute to additional cracking of the fitting, especially if the fitting is already cracked. Paragraph (h) of this AD provides credit to operators that have replaced the subject bolt prior to the effective date of this AD. However, as of the effective date of this AD, when complying with paragraph (g) of this AD, all corrective actions must be done before further flight. We acknowledge that replacing the fitting due to potential inspection findings will require significant effort and downtime; however, only two airplanes of U.S. Registry are affected by the requirements of this AD. With a limited number of airplanes affected and a relatively long compliance time provided, operators should have adequate time to schedule the maintenance for accomplishing the actions required by this AD. Therefore, we have made no changes to this AD in this regard.

Request To Change Unsafe Condition

One commenter, Julia Stotts, asked that we change the unsafe condition identified in the NPRM from ". . . to prevent fracture of the clevis of the forward support fitting of the RAT, which could result in the RAT departing the airplane during a dual non-restartable engine loss, and consequent loss of control of the airplane, or injury to maintenance crews during periodic RAT ground tests" to ". . . detect and correct fatigue cracking in the forward engine mounts, which could result in reduced structural integrity of the airplane and could lead to in-flight loss of an engine, possibly resulting in reduced controllability of the airplane." The commenter suggested the change to encompass both fracture of the clevis and the possibility of the RAT departing from the airplane, which could lead to loss of an engine.

We do not agree with the commenter's request. The commenter provided no justification for revising the unsafe condition to include fatigue cracking in the forward engine mounts and possible loss of an engine. The unsafe condition in this AD stems from a determination that the shoulder bolt used on the outboard clevis of the forward support fitting of the RAT might not be long enough to allow for proper installation of the RAT; therefore, the clevis of the joint could be clamped together, resulting in reduced fatigue life and possible fracture of the clevis causing possible departure of the RAT from the airplane. The suggested change is not related to the identified unsafe condition or the potential end level effect resulting from that unsafe condition. We have made no changes 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-SB290031-00, Issue 001, dated March 25, 2016. The service information describes procedures for inspecting for cracking of the clevis of the forward support fitting of the RAT, installing a longer shoulder bolt, and replacing the forward support fitting with a new fitting if any cracking is found. 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 2 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
Inspection/shoulder bolt replacement	3 work-hours × $85 per hour = $255	$152	$407	$814

We estimate the following costs to do any necessary replacements of the forward support fitting that would be required based on the results of the inspection. We have no way of determining the number of aircraft that might need these replacements:

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Forward support fitting replacement	15 work-hours × $85 per hour = $1,275	$28,309	$29,584

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):

2017-15-10 The Boeing Company: Amendment 39-18970; Docket No. FAA-2016-9307; Directorate Identifier 2016-NM-076-AD.

(a) Effective Date

This AD is effective September 5, 2017.

(b) Affected ADs

None.

(c) Applicability

This AD applies to The Boeing Company Model 787-9 airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin B787-81205-SB290031-00, Issue 001, dated March 25, 2016.

(d) Subject

Air Transport Association (ATA) of America Code 29; Hydraulic power.

(e) Unsafe Condition

This AD was prompted by a determination that the shoulder bolt used on the outboard clevis of the forward support fitting of the ram air turbine (RAT) might not be long enough to allow for proper installation of the RAT; therefore, the clevis of the joint could be clamped together, resulting in reduced fatigue life and possible fracture of the clevis. We are issuing this AD to prevent fracture of the clevis of the forward support fitting of the RAT, which could result in the RAT departing the airplane during a dual non-restartable engine loss, and consequent loss of control of the airplane, or injury to maintenance crews during periodic RAT ground tests.

(f) Compliance

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

(g) Inspection, Replacement of Shoulder Bolt, and Replacement of RAT Forward Support Fitting if Necessary

Within 12,000 flight hours or 24 months after the effective date of this AD, whichever occurs first: Do a high frequency eddy current inspection for cracking of the clevis of the forward support fitting of the RAT, and install a longer shoulder bolt, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB290031-00, Issue 001, dated March 25, 2016. If any cracking is found, before further flight, replace the RAT forward support fitting with a

new fitting, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB290031-00, Issue 001, dated March 25, 2016.

(h) Credit for Previous Actions

This paragraph provides credit for the shoulder bolt replacement specified in paragraph (g) of this AD, if that action was performed before the effective date of this AD using the applicable service information specified in paragraph (h)(1), (h)(2), (h)(3), or (h)(4) of this AD.

(1) Boeing Message TBC-ANA-15-0272-01B, dated September 22, 2015.

(2) Boeing Message TBC-ANZ-15-0016-06B, dated October 14, 2015.

(3) Boeing Message TBC-CAL-15-0089-01B, dated September 22, 2015.

(4) Boeing Message TBC-VAA-15-0089-01B dated September 22, 2015.

(i) 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 (j)(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, 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 (i)(4)(i) and (i)(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.

(j) Related Information

(1) For more information about this AD, contact Kelly McGuckin, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle ACO, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6490; fax: 425-917-6590; email: kelly.mcguckin@faa.gov.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (k)(3) and (k)(4) of this AD.

(k) 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-SB290031-00, Issue 001, dated March 25, 2016.

(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 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 July 14, 2017.

Dionne Palermo,

Acting Manager, Transport Airplane Directorate,

Aircraft Certification Service.