[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2014-0523; Directorate Identifier 2014-NM-050-AD;

Amendment 39-18246; AD 2015-17-13]

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 777-200 and -300 series airplanes equipped with Pratt and Whitney engines. This AD was prompted by reports of blocked drain lines at the engine forward strut that caused flammable fluid to accumulate in a flammable leakage zone. This AD requires repetitive functional checks for blockage of the forward strut drain line and doing corrective actions if necessary, and a one-time cleaning of certain forward strut drain lines. This AD also provides an optional replacement of the drain lines and installation of insulation blankets, and a revision of the maintenance or inspection program, as applicable, to incorporate a certain airworthiness limitation, which would terminate the repetitive checks of the forward strut drain line. We are issuing this AD to detect and correct blockage of forward strut drain lines, which could cause flammable fluids to collect in the forward strut area and potentially cause an uncontrolled fire or cause failure of engine attachment structure and consequent airplane loss.

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 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. 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-2014-0523.

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-2014-0523; 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: Kevin Nguyen, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6501; fax: 425-917-6590; email: kevin.nguyen@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 777-200 and -300 series airplanes equipped with Pratt and Whitney engines. The NPRM published in the Federal Register on August 7, 2014 (79 FR 46201). The NPRM was prompted by reports of blocked drain lines at the engine forward strut that caused flammable fluid to accumulate in a flammable leakage zone. The NPRM proposed to require repetitive functional checks for blockage of the forward strut drain line and doing corrective actions (including cleaning or replacing any blocked drain lines) if necessary, and a one-time cleaning of certain forward strut drain lines. We are issuing this AD to detect and correct blockage of forward strut drain lines, which could cause flammable fluids to collect in the forward strut area and potentially cause an uncontrolled fire or cause failure of engine attachment structure and consequent airplane loss.

This AD requires revisions to certain operator maintenance documents to include new actions (e.g., inspections). Compliance with these actions is required by 14 CFR 91.403(c). For airplanes that have been previously modified, altered, or repaired in the areas addressed by this AD, the operator may not be able to accomplish the actions described in the revisions. In this situation, to comply with 14 CFR 91.403(c), the operator must request approval for an alternative method of compliance according to paragraph (l) of this AD. The request should include a description of changes to the required inspections that will ensure the continued operational safety of the airplane.

Related Rulemaking

On September 23, 2014, we issued AD 2014-20-10, Amendment 39-17983 (79 FR 60331, October 7, 2014), for certain The Boeing Company Model 777-200 and -300 series airplanes. AD 2014-20-10 superseded AD 2013-11-14, Amendment 39-17474

(78 FR 35749, June 14, 2013). AD 2014-20-10 currently requires repetitive general visual inspections of the strut forward dry bay for the presence of hydraulic fluid, and related investigative and corrective actions (including checking drain lines for blockage due to hydraulic fluid coking; cleaning or replacing drain lines to allow drainage) if necessary; and adds airplanes to the applicability. AD 2014-20-10 was prompted by reports of hydraulic fluid contamination (including contamination caused by hydraulic fluid in its liquid, vapor, and/or solid (coked) form) found in the strut forward dry bay. The actions required by 2014-20-10 are intended to detect and correct hydraulic fluid contamination of the strut forward dry bay, which could result in hydrogen embrittlement of the titanium forward engine mount bulkhead fittings, and consequent inability of the fittings to carry engine loads and resulting in engine separation. Hydrogen embrittlement also could cause a through-crack formation across the fittings through which an engine fire could breach into the strut, resulting in an uncontained strut fire.

On December 22, 2014, we issued AD 2015-01-01, Amendment 39-18062 (80 FR 3158, January 22, 2015) for certain The Boeing Company Model 777-200 and -300 series airplanes. AD 2015-01-01 superseded AD 2011-09-11, Amendment 39-16673 (76 FR 24354, May 2, 2011). AD 2015-01-01 currently requires repetitive inspections for hydraulic fluid contamination of the interior of the strut disconnect assembly; repetitive inspections for discrepancies of the interior of the strut disconnect assembly, if necessary; repetitive inspections of the exterior of the strut disconnect assembly for cracks, if necessary; and corrective action if necessary. AD 2015-01-01 also provides an optional terminating action for the inspections and adds, for certain airplanes, an inspection of the side and top cover plates to determine if all cover plate attach fasteners have been installed, installing any missing fasteners including doing an inspection for damage, and repair if necessary.

AD 2015-01-01, Amendment 39-18062 (80 FR 3158, January 22, 2015) was prompted by reports of side and top cover plates installed with missing fastener bolts, which could result in an unsealed opening on the system disconnect assembly. The actions required by AD 2015-01-01 are intended to detect and correct hydraulic fluid contamination, which could cause cracking of titanium parts in the system disconnect assembly. The actions of 2015-01-01 are also intended to detect and correct missing fasteners, which could result in unsealed openings on the system disconnect assembly. Both unsafe conditions can compromise the engine firewall and result in fire hazards for both the engine compartment and the strut.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM (79 FR 46201, August 7, 2014) and the FAA's response to each comment.

Request to Add Service Information as Optional Terminating Action

Boeing and Japan Airlines (JAL) requested that we add Boeing Special Attention Service Bulletin 777-71-0055, dated June 12, 2014, as a terminating action to the NPRM (79 FR 46201, August 7, 2014). Boeing specifically requested that this service information be added in the Supplementary Information - Interim Action section and as a second paragraph to paragraph (i) of the NPRM. Boeing requested that paragraph (i) of the NPRM state that accomplishment of Boeing Special Attention Service Bulletin 777-71-0055, dated June 12, 2014, terminates the requirements of Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013, and is an alternative means of compliance with this AD.

We agree. Boeing Special Attention Service Bulletin 777-71-0055, dated June 12, 2014, which has since been revised as Revision 1, dated April 15, 2015, describes procedures that address the identified unsafe condition. These procedures

include removing the forward strut drain lines; cleaning the left systems disconnect, strut forward lower spar, and forward fireseal pan drain lines; installing new forward strut drain lines and insulation blankets; and doing a functional leak check of the forward strut drain lines, and repair if any leaking is found.

We have added new paragraph (i) to this AD to provide optional terminating action and redesignated subsequent paragraphs accordingly. Paragraph (i) of this AD states that accomplishment of Boeing Special Attention Service Bulletin 777-71-0055, Revision 1, dated April 15, 2015, along with a revision of the maintenance or inspection program, as applicable, to incorporate a certain airworthiness limitation, terminates the requirements of paragraph (g)(1) of this AD at the modified area only.

We have also added new paragraph (j) of this AD to specify that no alternative actions or intervals may be used after incorporating the airworthiness limitation unless the actions or intervals are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (l) of this AD. We redesignated subsequent paragraphs accordingly.

We have also added new paragraph (k) to this AD to give credit for actions required by paragraph (i) of this AD, if those actions were performed before the effective date of this AD using Boeing Special Attention Service Bulletin 777-71-0055, dated June 12, 2014. We redesignated subsequent paragraphs accordingly.

In addition, we updated the "Interim Action" paragraph in the SUPPLEMENTARY INFORMATION section of the preamble of this final rule accordingly.

Request to Remove Requirement to Clean Forward Strut Drain Line

All Nippon Airways (ANA) requested that we revise the NPRM (79 FR 46201, August 7, 2014) to remove the phrase "clean the forward strut drain line" from paragraph (g)(1) of the NPRM. ANA stated that cleaning the forward strut drain line is

not required if part 1, condition 1, in paragraph 3.B "Work Instructions," of Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013, is met.

We agree because condition 1 is met when 354 or more ounces of water are collected within 2 minutes after the start of pouring water for the functional check of the forward strut drain line. Cleaning the blocked drain line is part of the corrective actions in condition 2 as specified in Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013. This change does not compromise safety or the intent of the AD, therefore, we have removed the phrase "clean the forward strut drain line," from paragraph (g)(1) of this final rule.

Request to Allow Alternate Tee Fitting Part Numbers

ANA requested the NPRM (79 FR 46201, August 7, 2014) include three part numbers of the tee fitting. ANA indicated that paragraph 2.C., of Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013, states BACT16BR120612J tee fitting is required if replacement is necessary. ANA stated tee fittings having part numbers BACT16BR120612J, BACT16BR120612JN, and AS4139J120612 may be used according to a Boeing product standard parts list.

We agree because the tee fitting part number BACT16BR120612J listed in Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013, is obsolete. We have added text to paragraph (g)(1) of this AD to allow alternate tee fitting part numbers BACT16BR120612JN and AS4139J120612, as long as the installation of the forward strut drain lines is accomplished in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013.

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 (79 FR 46201, August 7, 2014) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (79 FR 46201, August 7, 2014).

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

Interim Action

We consider this AD interim action. The manufacturer has issued Boeing Special Attention Service Bulletin 777-71-0055, Revision 1, dated April 15, 2015, which describes a modification that addresses the unsafe condition identified in this AD. This service information is an optional action in this AD. If final action is later identified, we might consider further rulemaking.

Related Service Information under 1 CFR part 51

We reviewed the following Boeing service information.

- Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013. The service information describes procedures for doing a functional check for blockage of the forward strut drain lines and corrective actions.
- Boeing Special Attention Service Bulletin 777-71-0055, Revision 1, dated April 15, 2015. This service information describes procedures for replacing the forward strut drain lines and adding insulation blankets.

- Airworthiness Limitation 54-AWL-01, "Forward Strut Drain Line," Section D.4, Pratt and Whitney Forward Strut Drain Line, of the Boeing 777 Maintenance Planning Data (MPD) Document Section 9, Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D622W001-9, Revision October 2014. This service information describes an airworthiness limitation task for the functional check of the forward strut drain line.

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 of this AD.

Costs of Compliance

We estimate that this AD affects 54 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

Estimated costs: required actions

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Repetitive functional checks of 2 struts per inspection cycle	9 work-hours X $85 per hour = $765 per inspection cycle	$0	$765 per inspection cycle	$41,310 per inspection cycle
One-time cleaning	13 work-hours X $85 per hour = $1,105	$0	$1,105	$59,670

We estimate the following costs to do any necessary repairs or replacements 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
Repair drain tube assemblies in up to 2 struts	Up to 5 work-hours X $85 per hour = $425	$0	Up to $425

Action	Labor cost	Parts cost	Cost per product
Replace drain tube assemblies in up to 2 struts	Up to 5 work-hours X $85 per hour = $425	Up to $4,484	Up to $4,909

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.

Estimated costs: optional actions

Action	Labor cost	Parts cost	Cost per product
Removal of drain tube assemblies	1 work-hour X $85 per hour = $85	$0	$85
Cleaning of drain lines	6 work-hours X $85 per hour = $510	$0	$510
Installation of new drain lines and insulation blankets	2 work-hours X $85 per hour = $170	$17,250	$17,420
Leak check of drain lines	1 work-hour X $85 per hour = $85	$0	$85
Revision of maintenance or inspection program	1 work-hour X $85 per hour = $85	$0	$85

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):

2015-17-13 The Boeing Company: Amendment 39-18246 ; Docket No. FAA-2014-0523; Directorate Identifier 2014-NM-050-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 777-200 and -300 series airplanes, certificated in any category, equipped with Pratt & Whitney engines, as identified in Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013.

(d) Subject

Air Transport Association (ATA) of America Code 54, Nacelles/pylons.

(e) Unsafe Condition

This AD was prompted by reports of blocked drain lines at the engine forward strut that caused flammable fluid to accumulate in a flammable leakage zone. We are proposing this AD to detect and correct blockage of forward strut drain lines, which could cause flammable fluids to collect in the forward strut area and potentially cause an uncontrolled fire or cause failure of engine attachment structure and consequent airplane loss.

(f) Compliance

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

(g) Functional Check, Cleaning, and Corrective Actions

At the applicable times specified in paragraph 1.E., "Compliance," of Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013,

except as provided by paragraph (h) of this AD, do the actions specified in paragraphs (g)(1) and (g)(2) of this AD, in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013. Repeat the functional check required by paragraph (g)(1) of this AD, thereafter at the applicable times specified in paragraph 1.E., "Compliance," of Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013, until the terminating action specified in paragraph (i) of this AD is done.

(1) Do a functional check for blockage of the forward strut drain line of the left and right strut and do all applicable corrective actions (including cleaning or replacing blocked drain tubes, repairing fluid leaks, and cleaning the inlet drain screen on the right system disconnect assembly inlet). Do all applicable corrective actions before further flight. Alternate tee fitting part numbers BACT16BR120612JN and AS4139J120612 may be used during the replacement of the forward strut drain lines, provided the installation is performed in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013.

(2) Do a one-time cleaning of the smaller forward strut drain lines connected to the left systems disconnect, the strut forward lower spar, and the forward fire seal pan inlets.

(h) Exception to the Service Information Specifications

Where Boeing Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013, refers to a compliance time "after the Revision 1 date of this Service Bulletin," this AD requires compliance within the specified compliance time after the effective date of this AD.

(i) Optional Terminating Action

Accomplishment of the actions specified in paragraphs (i)(1) through (i)(4) of this AD, for both the left and right struts, in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-71-0055, Revision 1, dated April 15, 2015, and accomplishment of the revision specified in paragraph (i)(5) of this AD, terminates the repetitive functional checks required by paragraph (g)(1) of this AD at the modified area only.

(1) Disconnect and remove the forward strut drain lines.

(2) Clean the left systems disconnect, the strut forward lower spar, and the forward fireseal pan drain lines.

(3) Install new forward strut drain lines and insulation blankets.

(4) Do a leak check of the forward strut drain lines, for any leak, and repair if any leaking is found.

(5) Revise the maintenance or inspection program, as applicable, to incorporate Airworthiness Limitation 54-AWL-01, "Forward Strut Drain Line", Section D.4, Pratt and Whitney Forward Strut Drain Line, of the Boeing 777 Maintenance Planning Data (MPD) Document Section 9, Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D622W001-9, Revision October 2014. The initial compliance time for Airworthiness Limitation 54-AWL-01 is within 2,000 flight cycles or 1,500 days, whichever occurs first, after doing the actions specified in paragraphs (i)(1) through (i)(4) of this AD.

(j) No Alternative Actions or Intervals

After accomplishing the revision required by paragraph (i)(5) of this AD, no alternative actions (e.g., inspections) or intervals may be used unless the actions or intervals are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (l) of this AD.

(k) Credit for Previous Actions

This paragraph provides credit for actions required by paragraph (i) of this AD, if those actions were performed before the effective date of this AD using Boeing Special Attention Service Bulletin 777-71-0055, dated June 12, 2014, which is not incorporated by reference in this AD.

(l) 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 (m)(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 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 must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(m) Related Information

(1) For more information about this AD, contact Kevin Nguyen, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office,

1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6501; fax: 425-917-6590; email: kevin.nguyen@faa.gov.

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

(n) 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 Special Attention Service Bulletin 777-54-0027, Revision 1, dated September 12, 2013.

(ii) Boeing Special Attention Service Bulletin 777-71-0055, Revision 1, dated April 15, 2015.

(iii) Airworthiness Limitation 54-AWL-01, "Forward Strut Drain Line", Section D.4, Pratt and Whitney Forward Strut Drain Line, of the Boeing 777 Maintenance Planning Data (MPD) Document Section 9, Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D622W001-9, Revision October 2014.

(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 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 August 14, 2015.

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

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