



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2015-8130; Directorate Identifier 2014-NM-175-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 certain The Boeing Company Model 777-200 and -300 series airplanes equipped with Pratt and Whitney engines. This proposed 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 proposed AD would require doing the following actions on the left strut and right strut: A one-time cleaning of certain forward strut drain lines; installing new forward strut drain lines and insulation blankets; a leak check of the forward strut drain lines; and repair if any leak is found. This proposed AD would also require revising the maintenance or inspection program, as applicable, to incorporate a certain airworthiness limitation. We are proposing this AD to prevent 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: 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 proposed 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-2015-8130.

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-2015-8130; 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 proposed AD, 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: Kevin Nguyen, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office (ACO),

1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6501;
fax: 425-917-6590; email: kevin.nguyen@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-2015-8130; Directorate Identifier 2014-NM-175-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD 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 received multiple reports of the forward drain lines of the engine struts being blocked with coked particles. Coked particles form when hydraulic fluid is exposed to, and degraded by, the high temperatures of the hot core zone of the engine and the hot pneumatic bleed ducts. In two events, fluids backed up into the electrical (left) side of the disconnect box assembly of the strut system, causing an electrical fault that resulted in a false engine indicating and crew-alerting system (EICAS) message for overheat detection. Flammable fluids collecting in the electrical side of the disconnect box assembly of the strut system can cause an electrical fault for electrical components, and create a potential ignition source for trapped flammable fluids that can lead to a fire.

In three other events, flammable fluids backed up and pooled in the fluid (right) side of the disconnect box assembly of the strut system. Flammable fluids collecting in the disconnect box assembly of the strut system are a fire hazard because that area has no fire detection, containment, or extinguishing capability, and with an ignition source can result in an uncontrolled fire in the strut. Also, flammable fluids pooling in the disconnect box assembly of the strut system can spill over onto the engine and initiate an engine fire in the engine core cavity compartment.

Hydraulic fluid collecting in the disconnect box assembly of the strut system can cause contamination and hydrogen embrittlement of the titanium structure resulting in cracks that can compromise the engine firewall by allowing a fire in the engine area to enter the strut; or by allowing flammable fluids to leak down and initiate an engine fire in the engine core cavity compartment, and also compromise the engine fire extinguishing system. Hydraulic fluid contamination, including contamination caused by hydraulic fluid in its liquid, vapor, and/or solid (i.e., coked) form, in the strut forward dry bay can lead to hydrogen embrittlement of the titanium fittings of the forward engine mount bulkhead and also the consequent inability of the fittings to carry engine loads, resulting in the loss or separation of an engine. Hydrogen embrittlement could also cause a through-crack formation across the fittings through which an engine fire could breach into the strut, resulting in an uncontained strut fire. We are proposing this AD to prevent 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.

Related Service Information under 1 CFR part 51

We reviewed the following service information:

- Boeing Special Attention Service Bulletin 777-71-0055, Revision 1, dated April 15, 2015. The service information describes procedures for installing new forward strut drain lines and insulation blankets on the left and right engines.
- Boeing Special Attention Service Bulletin 777-54-0028, Revision 1, dated December 10, 2013. This service information describes procedures for a general visual inspection for hydraulic fluid contamination of the interior of the strut forward dry bay and corrective actions.
- Airworthiness Limitation 54-AWL-01, “Forward Strut Drain Line” as specified in Section D.4, Pratt and Whitney Forward Strut Drain Line, dated March 2014, of the Boeing 777 Maintenance Planning Data (MPD) Document Section 9, Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D622W001-9, dated 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 NPRM.

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 the same type design.

Proposed AD Requirements

This proposed AD would require accomplishing the actions specified in the service information described previously. For information on the procedures and compliance times specified in Boeing Special Attention Service Bulletin 777-71-0055,

Revision 1, dated April 15, 2015; and Boeing Special Attention Service Bulletin 777-54-0028, Revision 1, dated December 10, 2013: See this service information at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-8130.

The phrase “corrective actions” is used in this proposed AD. “Corrective actions” are actions that correct or address any condition found. Corrective actions in an AD could include, for example, repairs.

This proposed AD would require revisions to certain operator maintenance documents to include a new airworthiness limitation containing repetitive functional checks of the forward engine strut drain line. 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 in accordance with the procedures specified in paragraph (k) 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.

Other Relevant 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 equipped with Pratt & Whitney engines. 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 AD 2014-20-10, Amendment 39-17983 (79 FR 60331, October 7, 2014), 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 could also cause a through-crack formation across the fittings through which an engine fire could breach into the strut, resulting in an uncontained strut fire.

Accomplishment of the actions specified below terminates the inspections required by paragraph (g) of AD 2014-20-10, Amendment 39-17983 (79 FR 60331, October 7, 2014), at the modified area only; provided the actions are accomplished concurrently, or the actions specified below for Boeing Special Attention Service Bulletin 777-54-0028, Revision 1, dated December 10, 2013, are done after accomplishing the actions specified in paragraphs (g)(1) through (g)(5) of this proposed AD.

- The actions specified in paragraphs (g)(1) through (g)(4) of this proposed AD on the left and right struts, done in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-71-0055, Revision 1, dated April 15, 2015; and the revision done as specified in paragraph (g)(5) of this proposed AD.

- A one-time general visual inspection for hydraulic fluid contamination of the interior of the strut forward dry bay, and all applicable related investigative and corrective actions, done in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-54-0028, Revision 1, dated December 10, 2013.

On August 14, 2015, we issued AD 2015-17-13, Amendment 39-18246 (80 FR 52948, September 2, 2015) for certain The Boeing Company Model 777-200 and -300 series airplanes equipped with Pratt and Whitney engines. AD 2015-17-13 currently

requires 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. AD 2015-17-13 also includes an optional terminating action, which specifies accomplishing the actions in Boeing Special Attention Service Bulletin 777-71-0055, Revision 1, dated April 15, 2015 and incorporating Airworthiness Limitation 54-AWL-01, “Forward Strut Drain Line” into the maintenance or inspection program, as applicable. AD 2015-17-13 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 actions required by AD 2015-17-13 are intended 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.

Accomplishment of the actions required by paragraph (g) of this proposed AD (doing the actions specified Boeing Special Attention Service Bulletin 777-71-0055, Revision 1, dated April 15, 2015; and incorporating Airworthiness Limitation 54-AWL-01, “Forward Strut Drain Line” as specified in Section D.4, Pratt and Whitney Forward Strut Drain Line, dated March 2014, of the Boeing 777 Maintenance Planning Data (MPD) Document Section 9, Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D622W001-9, dated October 2014, into the maintenance or inspection program, as applicable) would terminate the actions required by paragraph (g) of AD 2015-17-13, Amendment 39-18246 (80 FR 52948, September 2, 2015), at the modified area only.

Explanation of “RC” Steps in Service Information

The FAA worked in conjunction with industry, under the Airworthiness Directive Implementation Aviation Rulemaking Committee (ARC), to enhance the AD system.

One enhancement was a new process for annotating which steps in the service information are required for compliance with an AD. Differentiating these steps from other tasks in the service information is expected to improve an owner's/operator's understanding of crucial AD requirements and help provide consistent judgment in AD compliance. The steps identified as Required for Compliance (RC) in any service information identified previously have a direct effect on detecting, preventing, resolving, or eliminating an identified unsafe condition.

For service information that contains steps that are labeled as RC, the following provisions apply: (1) 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, and an AMOC is required for any deviations to RC steps, including substeps and identified figures; and (2) 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.

Costs of Compliance

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

We estimate the following costs to comply with this proposed AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Installing new drain lines and insulation blankets, doing a leak check, and revising the maintenance or inspection program	16 work-hours X \$85 per hour = \$1,360	\$17,080	\$18,440	\$995,760

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

According to the manufacturer, some 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.

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

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-2015-8130; Directorate Identifier 2014-NM-175-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

This AD affects the ADs specified in paragraphs (b)(1) and (b)(2) of this AD.

(1) AD 2014-20-10, Amendment 39-17983 (79 FR 60331, October 7, 2014).

(2) AD 2015-17-13, Amendment 39-18246 (80 FR 52948, September 2, 2015).

(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 777-71-0055, Revision 1, dated April 15, 2015.

(d) Subject

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

(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 issuing this AD to prevent 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) Actions

Within 4,000 flight cycles or 750 days after the effective date of this AD, whichever occurs later: Accomplish the actions specified in paragraphs (g)(1) through (g)(4) of this AD on 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 accomplish the revision specified in paragraph (g)(5) of this AD.

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

(2) Clean the left system 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 leak is found.

(5) Revise the maintenance or inspection program, as applicable, to incorporate Airworthiness Limitation 54-AWL-01, "Forward Strut Drain Line" as specified in Section D.4, Pratt and Whitney Forward Strut Drain Line, dated March 2014, of the Boeing 777 Maintenance Planning Data (MPD) Document Section 9, Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D622W001-9, dated 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 (g)(1) through (g)(4) of this AD.

(h) No Alternative Actions or Intervals

After accomplishing the revision required by paragraph (g)(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 (k) of this AD.

(i) Terminating Action for Other ADs

(1) Accomplishing the actions required by paragraph (g) of this AD terminates the actions required by paragraph (g) of AD 2015-17-13, Amendment 39-18246 (80 FR 52948, September 2, 2015, at the modified area only.

(2) Accomplishing the actions specified in paragraphs (i)(2)(i) and (i)(2)(ii) of this AD terminates the inspections required by paragraph (g) of AD 2014-20-10, Amendment 39-17983 (79 FR 60331, October 7, 2014), at the modified area only, provided the actions are accomplished concurrently, or the actions specified in paragraph (i)(2)(ii) of this AD are done after accomplishing the actions specified in paragraph (i)(2)(i) of this AD.

(i) The actions specified in paragraphs (g)(1) through (g)(4) of this AD on the left and right struts are done in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-71-0055, Revision 1, dated April 15, 2015; and the revision specified in paragraph (g)(5) of this AD is done.

(ii) A one-time general visual inspection for hydraulic fluid contamination (including contamination caused by hydraulic fluid in its liquid, vapor, and/or solid (coked) form) of the interior of the strut forward dry bay, and all applicable related investigative and corrective actions (including checking drain lines for blockage due to hydraulic fluid coking, and cleaning or replacing drain lines to allow drainage) are done in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-54-0028, Revision 1, dated December 10, 2013, except where Boeing Special Attention Service Bulletin 777-54-0028, Revision 1, dated December 10, 2013, specifies to contact Boeing for repair, the repair must be done using a method approved in accordance with the procedures specified in paragraph (k) of this AD.

(j) Credit for Previous Actions

This paragraph provides credit for actions required by paragraph (g) 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.

(k) 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 (l)(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) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (k)(3)(i) and (k)(3)(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.

(l) Related Information

(1) For more information about this AD, contact Kevin Nguyen, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6501; fax: 425-917-6590; email: kevin.nguyen@faa.gov.

(2) 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.

Issued in Renton, Washington, on December 21, 2015.

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

[FR Doc. 2015-32852 Filed: 12/30/2015 8:45 am; Publication Date: 12/31/2015]