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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2012-1221; Directorate Identifier 2012-NM-151-AD; Amendment 39-17474; AD 2013-11-14]**

**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 777-200 and -300 series airplanes. This AD 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. This AD 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, and cleaning or replacing drain lines to allow drainage) if necessary. We are issuing this AD 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, resulting in engine separation. Hydraulic 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.

**DATES:** This AD is effective July 19, 2013.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of July 19, 2013.

**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 review copies of the 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.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; 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 Document 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 to include an AD that would apply to the specified products. That NPRM published in the Federal Register on December 4, 2012 (77 FR 71731). That NPRM proposed to require repetitive general visual inspections of the strut forward dry bay for the presence of hydraulic fluid, and related investigative and corrective actions if necessary.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal (77 FR 71731, December 4, 2012) and the FAA's response to each comment.

### **Concurrence With NPRM (77 FR 71731, December 4, 2012)**

Boeing concurred with the content of the NPRM (77 FR 71731, December 4, 2012).

### **Request for Delegation of Repair Method Approval to Organization Designation Authorization (ODA)**

All Nippon Airways Co., Ltd., (ANA) requested that we delegate the approval for a repair method to the Boeing ODA in order to minimize the downtime of the airplane. ANA noted that paragraph (h)(2) of the NPRM (77 FR 71731, December 4, 2012) requires repair in accordance with a method approved by the Seattle Aircraft Certification Office, while the service information states to contact Boeing for repairs.

We agree that approval of the repairs can be delegated to the Boeing ODA for this AD. As stated in the NPRM (77 FR 71731, December 4, 2012), paragraph (i)(3) of the NPRM already specifies that an alternative method of compliance (AMOC) may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes ODA that has been authorized by the Manager, Seattle Aircraft Certification Office, to make those findings. However, we have revised paragraph (h)(2) of this AD to reference paragraph (i) of this AD for repair approvals.

### **Request for Information**

Mark Sokolow requested that we provide information on which airplanes the hydraulic fluid contamination occurred, and on which flights. The commenter quoted an Open Government Directive

issued by the Office of Management and Budget on December 8, 2009, ([http://www.whitehouse.gov/sites/default/files/omb/assets/memoranda\\_2010/m10-06.pdf](http://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_2010/m10-06.pdf)), which presented a 60-day timetable to "respect the presumption of openness by publishing information online." The author of that directive reminded agencies that government has defined guidelines as to the objectivity of information, which focuses on whether the "disseminated information is being presented in an accurate, clear, complete and unbiased manner. This involves whether the information is being presented within a proper context. (Guidelines, 2001, p. 8459)."

We infer that the commenter is requesting information regarding specific airplanes that originally exhibited the unsafe condition. Boeing Special Attention Service Bulletin 777-54-0028, dated May 25, 2012, which is referenced in the NPRM (77 FR 71731, December 4, 2012), identifies Model 777 airplanes that have accumulated approximately 9,900 to 29,000 flight cycles and 13,000 to 33,300 flight hours, as the affected airplanes. However, individual operator data might be considered proprietary; therefore, we do not publish individual operator information of this type in ADs. No change has been made to this AD in this regard.

### **Request for Identification of Repairs**

Mark Sokolow also requested that we delineate mechanical repairs that can be completed to stop the hydraulic fluid contamination.

We note that, at this time, a terminating action is not available. The manufacturer is currently working on a terminating action; however, the required inspections and any necessary cleaning or drain line replacement adequately addresses the unsafe condition. If a terminating action becomes available, we might consider further rulemaking at that time. No change has been made to the AD in this regard.

### **Clarification of Terminology**

We have determined that an explanation of hydraulic fluid contamination is needed for clarification purposes in this AD. Hydraulic fluid contamination includes, but is not limited to, contamination caused by hydraulic fluid in its liquid, vapor, and/or solid (coked) form. Hydraulic fluid in any of these forms can be a contaminant to the structure and its coating (primer, paint, leveling compound, sealant, etc.) in the strut forward dry bay. Boeing has confirmed that "hydraulic fluid contamination" used in the service information is understood to be contamination caused by hydraulic fluid in its liquid, vapor, and/or solid (coked) form. We have added this clarification to the Summary section of the AD preamble and to paragraphs (e) and (g) of this AD.

### **Clarification of Related Investigative and Corrective Actions**

We have included the parenthetical phrase, "including checking drain lines for blockage due to hydraulic fluid coking, and cleaning or replacing drain lines to allow drainage" to clarify the related investigative and corrective actions specified in paragraph (g) of this AD. Hydraulic fluid can enter the dry bay through the condensate drain line which connects to the system disconnect box drain lines. The system disconnect box drain hose can clog due to hydraulic fluid coking in the drain lines, which allows hydraulic fluid to back up into the strut forward dry bay through the condensate drain line. Although the NPRM (77 FR 71731, December 4, 2012) describes these actions, we want to emphasize the importance of these actions by including them in the final rule.

### **Correction to Paragraph (c) of This AD**

We have corrected the series designation of the engine to Pratt & Whitney "PW4000" series engines in paragraph (c) of this AD.

## Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the 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 (77 FR 71731, December 4, 2012) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (77 FR 71731, December 4, 2012).

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

## Costs of Compliance

We estimate that this AD affects 55 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
Repetitive general visual inspections.	5 work-hours × \$85 per hour = \$425 per inspection cycle.	\$0	\$425 per inspection cycle	\$23,375 per inspection cycle.

We estimate the following costs to do any actions 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 actions.

### On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Detailed inspection	8 work-hours × \$85 per hour = \$680	\$0	\$680
Check drain lines (including cleaning or replacing)	5 work-hours × \$85 per hour = \$425	0	425
Detailed inspection and high frequency eddy current inspection.	8 work-hours × \$85 per hour = \$680	0	680
Clean and restore sealant, primer and leveling compound.	8 work-hours × \$85 per hour = \$680	0	680

We have received no definitive data that would enable us to provide a cost estimate for the on-condition repair 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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**2013-11-14 The Boeing Company:** Amendment 39-17474; Docket No. FAA-2012-1221; Directorate Identifier 2012-NM-151-AD.

**(a) Effective Date**

This AD is effective July 19, 2013.

**(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 PW4000 series engines; as identified in Boeing Special Attention Service Bulletin 777-54-0028, dated May 25, 2012.

**(d) Subject**

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 54, Nacelles/pylons.

**(e) Unsafe Condition**

This AD 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. We are issuing this AD 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, resulting in engine loss. Hydraulic 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.

**(f) Compliance**

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

**(g) Inspection**

Except as provided by paragraph (h)(1) of this AD, at the times specified in paragraph 1.E., "Compliance," of Boeing Special Attention Service Bulletin 777-54-0028, dated May 25, 2012: Do a 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 do 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) if necessary, in accordance with the Accomplishment Instructions of Boeing Special Attention Service

Bulletin 777-54-0028, dated May 25, 2012, except as required by paragraph (h)(2) of this AD. Repeat the inspection thereafter at the times specified in paragraph 1.E., "Compliance," of Boeing Special Attention Service Bulletin 777-54-0028, dated May 25, 2012. Except as required by paragraph (h)(3) of this AD, do all applicable related investigative and corrective actions at the times specified in paragraph 1.E., "Compliance," of Boeing Special Attention Service Bulletin 777-54-0028, dated May 25, 2012.

#### **(h) Exceptions to the Service Information**

(1) Where the Compliance time column of paragraph 1.E., "Compliance," of Boeing Service Bulletin 777-54-0028, dated May 25, 2012, refers to the compliance time "after the original issue date of this service bulletin," this AD requires compliance within the specified compliance time after the effective date of this AD.

(2) Where Boeing Special Attention Service Bulletin 777-54-0028, dated May 25, 2012, specifies to contact Boeing for repair: Except as required by paragraph (h)(3) of this AD, at the applicable times specified in paragraph 1.E., "Compliance," of Boeing Special Attention Service Bulletin 777-54-0028, dated May 25, 2012, repair, using a method approved in accordance with the procedures specified in paragraph (i) of this AD.

(3) Where paragraph 1.E., "Compliance," of Boeing Special Attention Service Bulletin 777-54-0028, dated May 25, 2012, specifies a compliance time of "within 25 flight-cycles or 10 days, whichever occurs first," this AD requires compliance within 25 flight cycles or 10 days after the most recent inspection required by paragraph (g) of this AD, whichever occurs first.

#### **(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 the Related Information section 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.

#### **(j) Related Information**

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.

#### **(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 Special Attention Service Bulletin 777-54-0028, dated May 25, 2012.

(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 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 24, 2013.

Jeffrey E. Duven,  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service.